

REPORT DETAILS

1. Facility Employees Attending Exit Meeting

C. Burton, Operations Supervisor,
J. Spodick, Licensed Training Coordinator
D. Borgmann, Nonlicensed Training Coordinator
J. Harper, Superintendent of Quality Assurance
L. Heffelfinger, Licensed Operator Requalification
Lead Instructor
D. Sager, Site Vice President
P. McCullough, Manager - Nuclear Training
M. Shepherd, Operator Training Supervisor
P. Fincher, Training Superintendent
J. Barrow, Operations Superintendent

2. NRC Personnel Attending Exit Meeting

W. Dean, Operator Licensing Branch, Headquarters
C. Casto, Chief, Operator Licensing Section 2, Division of
Reactor Safety (DRS), Region II
J. Arildsen, License Examiner, DRS, Region II
S. Elrod, St. Lucie Resident Inspector
M. Scott, St. Lucie Resident Inspector

3. Examiners:

*C. Casto, Region II
J. Arildsen, Region II
W. Dean, Operator Licensing Branch, Headquarters
P. Isaksen, INEL
F. Jaggar, INEL

Observer:

B. Link, INPO

4. Written Exam Comments

Additional answers to some of the written exam questions were proposed by the facility training staff after administration of the written exam. These answers required written justification to be considered by the NRC. The written justifications for those questions can be found in Enclosure 3. The NRC incorporated all of the proposed changes into the answer key.

5. Exit Meeting

At the conclusion of the site visit, the examiners met with plant staff representatives to discuss the results of the examinations.

Examination Development

The NRC examiners made note of the quality of the licensee's sample plan. The sample plan was an accurate model of the material covered in the requalification training program. This model did highlight some weaknesses in the training program content, i. e., the question bank did not adequately cover the material taught, and the model was not used to generate static simulator examinations. As a result, the exam team was limited in the selection of test items for a given subject/learning objective.

For the walk-through portion of the operating examination, the Job Performance Measures (JPMs) were satisfactory. Only minor content deficiencies were noted; however, generally the time validations for the JPMs are inflated. The NRC exam team chose four scenarios for the administration of the simulator portion of the operating examination. The training staff had some difficulty in identifying Individual Simulator Critical Tasks (ISCTs). The NRC exam team was able to pre-identify the ISCTs and make revisions as necessary following examination administration.

Examination Administration

There were two generic weaknesses identified concerning crew performance during the simulator portion of the examination. They were:

- a. Implementation of Emergency Operating Procedure (EOP)-15 Functional Recovery. All of the crews examined exhibited some difficulty in implementing this procedure. Previous examinations/inspections have also identified this as a weakness. The training department had increased the time spent for training on EOP-15 during the last requalification cycle. Their effort focused on teaching the crews to use EOP-15 to mitigate OPTIMUM events. The training department generated multiple event scenarios for the examination; however, the operators demonstrated difficulty in implementing the procedure at this functional level.
- b. During several events communication amongst crew members was informal and/or incomplete. There were several instances of failure to provide or receive complete and accurate information. None of the lapses in communications resulted in adverse plant consequences.



One generic strength was identified concerning crew performance during the simulator portion of the examination in the competency of understanding plant/system response.

ENCLOSURE 3

P.O. Box 128, Ft. Pierce, FL 34954-0128

TRNG/PSL
LTR BK #89-351

December 5, 1989

Mr. Charles Casto
Section Chief
NRC
Region II
Atlanta, GA

REFERENCE: NRC ADMINISTERED L.O. REQUALIFICATION EXAM CLARIFICATION

Attachment 1 is an explanation of the clarifications to the written Licensed Operator Requalification Exams administered on November 17, 1989 and December 1, 1989. All of the items except the last, Question 17 on exam keys 0820965 and 0820966, were discussed with either you or Jessie Arieldson during administration of the exam



M.D. Shepherd
Operations Training Supervisor
St. Lucie Plant

MDS/EC/sat

FLORIDA POWER AND LIGHT
ST LUCIE PLANT
TRAINING DEPARTMENT

No changes were made or are proposed for exam number 0820959.

The change, listed below, was made to exam number 0820960, included is examinee question, clarification and justification.

Question 4

Change: Delete existing answer and replace with;

d. only by the functioning of the SG safety valves.

Question: An examinee questioned if he could assume operator actions.

The following additional information was announced to Group 1; "This assumes no operator action other than that implied in the answer."

Group 2 was given this information prior to starting their exam.

Clarify: Group 1 was given an additional 2 minutes exam time to compensate for the interruption.

Justify: With the current plant configuration and no extra-curricular actions "d" is the only correct answer.

The changes, listed below, were made to exam number 0820961, included are examinee questions, clarifications and/or justifications as applicable.

Question 8

Change: "low-low pressure" to "low pressure" in choice "d" and answer key.

Question: An examinee questioned if a correct answer existed. Change was announced to all examinees in Group 1 and a pen and ink change was made to the exams of Group 2.

Clarify: Group 1 was given an additional 2 minutes exam time to compensate for the interruption.

Justify: The pressure switch that starts the trip circuit timer is labeled "lo pressure" on the CWD.

Question 11

Change: Question deleted and exam point total adjusted.
Justify: It was observed, during the scenario setup for Group 1, that the Condensate Pump Recirc Valve was not open.

Question 18

Change: "which of the circuits" to "which five of the circuits".
Clarify: Group 1 was given an additional 5 minutes exam time to compensate for limited access to the reference material and the interruption.
Question: An examinee questioned if more than one correct answer existed. Change was announced to all examinees in Group 1 and a pen and ink change was made to the exams of Group 2.
Justify: Five answers are required for full credit.

No changes were made or are proposed for exam number 0820962.

No changes were made or are proposed for exams number 0820963 & 0820964.

The change, listed below, is proposed for the answer key of exams number 0820965 & 0820966, included is the justification.

Question 17

Change: The RCS Tcold from "< 304 °F" to "< 313 °F".
Justify: Actual temperature for LTOP setpoint is 313 °F.

ST. LUCIE PLANT
ADMINISTRATIVE PROCEDURE NO. 0005754, REVISION 0
WRITTEN EXAMINATION MANAGEMENT

LO RQL TRAINING PROGRAM

EXAM NO. 0820966

NAME: _____

AUTHOR: MARPLE C

DATE: 11/27/89

SSN/CD: _____

REVIEWED BY: *[Signature]*

DATE: 11/27/89

DATE: _____

EXAM SCORE: _____

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

Candidate's Signature

INSTRUCTIONS

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QNUM 082029

- [1.0] 1. Given: During refueling operations an operator reports that during removal of a spent fuel assembly from the upender, the fuel assembly dropped back into the upender and a stream of bubbles is coming up from the assembly. Shortly thereafter the FHB Iodine and Noble Gaseous Effluent Monitors went into alarm.
- a. Evaluate the given conditions and state whether Emergency Classification is REQUIRED or NOT REQUIRED
- and
- b.1. If classification is REQUIRED, state the EVENT CATEGORY and the minimum CLASSIFICATION LEVEL that is appropriate (ie., REQUIRED, ABNORMAL WATER LEVEL - UNUSUAL EVENT).
- or
- b.2. If classification is NOT REQUIRED, state the EVENT CATEGORY used and the CLASSIFICATION condition(s) NOT met that lead to your decision (ie., NOT REQUIRED, AIRCRAFT - CRASH IS NOT ON-SITE).

QNUM 082084

[1.0] 2. A SGTR and an unisolable ESDE have occurred on 1A SG.

A General Emergency has been declared.

The dose rate calculations are as follows:

1 mile	whole body = 617.5 mrem/hr
	Thyroid = 1950 mrem/hr
2 miles	whole body = 154.4 mrem/hr
	Thyroid = 503.8 mrem/hr
5 miles	whole body = 29.3 mrem/hr
	Thyroid = 97.5 mrem/hr
10 miles	whole body = 15.4 mrem/hr
	Thyroid = 47.9 mrem/hr

The Protective Action Recommendations for this event are:

- a. Sheltering recommended for a complete circle around plant at 5 miles & 10 miles downwind
- b. Sheltering recommended for a complete circle around plant at 2 miles & 5 miles downwind
- c. Sheltering recommended for a complete circle around plant at 2 miles & no other protective actions recommended
- d. No protective actions recommended

QNUM 082156

- [1.0] 3. Concerning the Duties and Responsibilities of the Emergency Coordinator, which of the following is TRUE?
- a. The Emergency Coordinator shall classify an event within 15 minutes of becoming aware of the off-normal condition.
 - b. The Emergency Coordinator shall remain in the affected units control room for the duration of the event, with no exceptions.
 - c. The minimum PAR for any General Emergency would be: "Evacuate all people within a two mile radius and 5 miles in the downwind sectors".
 - d. The Plant Manager, Operations Superintendent, or the Operations Supervisor should assume the Emergency coordinator function following proper turnover for ALERT, SITE AREA, or GENERAL EMERGENCIES.

QNUM 082015

- [1.0] 4. Given: A SG Tube Rupture has occurred and a cooldown and depressurization is in progress, the following conditions exist:

Pressurizer Pressure: 920 psia
Thot: 525 °F
Tcold: 525 °F
SG 1A Level: 50% WR
SG 1B Level: 62% WR
AFWP 1A Operating

Should the depressurization continue? Why or why not?

QNUM 082214*

- [1.0] 5. Unit 1 is operating at 100% normal operating conditions. Which one of the following conditions could contribute to increasing condenser back-pressure?
(Choose all appropriate answers)
- a. Sudden drop in circ water inlet temperature of 3 °F
 - b. SJAE supply steam at 200 psig
 - c. Condenser air in-leakage at .9 CFM
 - d. Monitor Storage Tank level at 18 feet

QNUM 089134

- [1.0] 6. During power operation, the Unit 1 DDPS fails. First efforts to restore it to operation have also failed. Assume the last valid measured Planar Radial Peaking Factor (FxyT) is 1.78. What is the maximum allowable power level to maintain Linear Heat Rate within limits?

QNUM 082211

- [1.0] 7. The RCS has been drained for seal maintenance on the 1A1 RCP. The 1B LPSI pump is running for shutdown cooling. An incorrect valve alignment has resulted in the RCS level decreasing below hot leg centerline. The RCO should:
- a. Start the 1A LPSI pump and stop the 1B LPSI pump
 - b. Continue to run the 1B LPSI pump and commence charging from the RWT
 - c. Stop the 1B LPSI pump and restore RCS level
 - d. Start the 1A LPSI pump at minimum flow

QNUM 080776*

- [1.0] 8. (MULTIPLE CHOICE) Which one of the following best describes the control room operator's response to a Unit 1 fire detector alarm (FA) in the RAB 19.5 elevation ?
- a. Acknowledge the alarm and dispatch an operator to reset the 938 panel in the "B" switchgear room.
 - b. Acknowledge the alarm and dispatch an operator to the zone to determine the specific detector and any possible reason for it being in alarm.
 - c. Dispatch an operator to examine the detector zone panel and the damper zone panel prior to acknowledging the fire computer alarm.
 - d. Acknowledge the alarm in the control room, verify with the sequence of events recorder that it was not a fire damper alarm then dispatch an operator to examine the zone panel where he will reset the alarming detector.

QNUM 082057

- [1.0] 9. During a Unit 1 startup with the reactor @ 2% power, TWO (2) Wide Range Log Flux Monitor channels are found to be inoperable. Which ONE of the following statements is correct?
- a. Apply action statement 3.0.3.
 - b. Operation up to 5% Rated Thermal Power is permissible.
 - c. Operation to 100% Rated Thermal Power may proceed provided one of the inoperable channels is placed in a Bypassed or Tripped condition.
 - d. Operation to 100% Rated Thermal Power may proceed provided one of the inoperable channels is placed in a Tripped condition.

QNUM 080826

- [1.0] 10. (MULTIPLE CHOICE) Prior to using an uncontrolled copy of the "Secondary Plant Operating Checks and Tests" procedure the NPO compares the uncontrolled copy to the controlled copy in Unit 1 control room. He finds that a T.C. affects specific pages of the procedure which he intends to use. Which one of the following best describes his appropriate response?
- A. He takes the controlled copy of the procedure into the field to perform his test then returns it to the control room binder.
 - B. He uses the T.C. number to locate the actual T.C. in the T.C. logbook and makes the applicable changes to his copy of the procedure. He writes the T.C. number in the margin of his procedure.
 - C. He uses the uncontrolled copy in the field without changing it to reflect the T.C. unless the T.C. is greater than 90 days old.
 - D. He verifies his procedure copy rev. with the controlled copy rev. and attaches a copy of the T.C. cover sheet to his copy of the procedure. The reviewer of the completed procedure will be able to review the T.C. if needed.

QNUM 082188*

- [1.0] 11. Loss of offsite power has occurred on Unit 1. Which of the following describes the Steam Bypass Control System status after ten minutes into the event assuming all systems were in normal line-up before the event.
- a. There would be no effect on the SBCS because the entire SBCS is powered by power panels which are fed by AC power panels supplied by the emergency diesel generators.
 - b. The SBCS would be disabled due to the loss of power to the valve solenoids.
 - c. There would no effect on the SBCS because it receives DC power from a non-vital DC bus.
 - d. The SBCS will be completely disabled by the loss of vacuum due to a loss of Circulating Water Pumps for the condenser.

QNUM 081107*

- [1.0] 12. The following conditions exist for a reactor startup on Unit 2:
- Core age: 4700 EFPH
Estimated Critical Position: Gp.5 @ 56
Current CEA position: Gp. 3 @ 80
- The count rate doubled when the CEA's were withdrawn from Gp.3 @ 15 to the current CEA position. Which of the following describes the appropriate action you should take?
- a. Position CEA's to -1000 pcm from the current CEA position.
 - b. Stop, select CEDMCS to OFF
 - c. Continue until criticality or +500 pcm from the estimated critical position.
 - d. Insert CEA's until Group 3 is at 24 inches

QNUM 089014*

- [1.0] 13. A steam generator tube rupture has occurred on Unit 2 from 100% power. Initially all RCPs were tripped. Conditions have stabilized and the affected SG is isolated. Criteria for RCP restart have been met and two RCPs have been restarted. SI stop and throttle criteria have been met and SI has just been terminated. The plant stabilizes at the following conditions:

Pressurizer level	-	48%
Pressurizer pressure	-	450 psia
T_{cold}	-	440 °F
SG pressure	-	405 psia

Select the one best action for these plant conditions:

- a. Manually actuate an SIAS
- b. Reduce RCS Pressure to approximately ± 10 psid of the affected SG
- c. Monitor RCPs for cavitation and/or seal failure
- d. Commence feed and bleed of the affected SG to cool the SG

QNUM 081065

- [1.0] 14. Which of the following sequences best describes the method used to optimize RCS pressure and inventory control during a SGTR event. (Assume the faulted SG has just been isolated.)
- a. Feed and bleed the faulted SG to reduce its temperature and pressure, depressurize RCS to maintain 20 - 200°F subcooling.
 - b. Concurrently cooldown and depressurize RCS to approximately equal to isolated SG pressure; when pressurizer level increases to > 30%, secure HPSI pumps one at a time.
 - c. Concurrently cooldown and depressurize RCS to approximately equal to isolated SG pressure; when pressurizer level increases to > 30% secure charging pumps one at a time.
 - d. Steam the faulted SG to the condenser to reduce its temperature and pressure; cooldown and depressurize RCS to within 50 psi of faulted SG pressure.

QNUM 082012*

- [1.0] 15. While withdrawing Group 5 to ARO during power ascension (power \approx 30%) two of the Group 5 CEAs drop to the bottom. The last measured F^{tr} is 1.60. Which of the actions listed below is the most appropriate?
- a. Realign both CEAs to < 7" deviation within the time limits of Technical Specification, Fig. 3.1-1a.
 - b. Be in HOT STANDBY within one hour
 - c. Determine from symptoms and CEA position indications the operability of the CEA per appendix B.
 - d. Be in HOT STANDBY within 6 hours.

QNUM 089062

- [2.0] 16. With Unit 2 at 90% power operation, a dropped shutdown Control Element Assembly (CEA) is being recovered in accordance with the Off Normal Operating Procedure for misaligned CEAs.
- a. How are the reactivity changes associated with the realignment compensated for? (Choose one)
1. The RCO raises turbine load to keep Tave/Tref matched as the CEA is withdrawn
 2. Group 5 CEAs are inserted to control Tave as the CEA is withdrawn
 3. The RCO performs a controlled boration as the CEA is withdrawn
 4. The Xenon increase associated with the dropped CEA requires the RCO to dilute while he is withdrawing the CEA to be able to keep Tave/Tref matched.
- b. Which one of the following best describes the method of withdrawing the dropped CEA?
1. Use small increments of CEA movement and withdraw the CEA slowly
 2. Withdraw the affected CEA as quickly as possible without causing a Reactor/Turbine power mismatch. This minimizes the impact on ASI control.
 3. Avoid withdrawing the CEA until Xenon is determined to have returned to the concentration which existed prior to the rod drop
 4. Insert the remaining CEA's in the group to allow group realignment then slowly withdraw the entire group while maintaining reactor power constant.

QNUM 082130*

- [1.0] 17. The RCS is being cooled down on forced circulation using procedure 2-0030127 and is currently at 300 °F. Annunciators H-34 "PORV 1474 LTOP CONDTIN SELECT LTOP" and H-38 "PORV 1475 LTOP CONDTIN SELECT LTOP" have come in. Assume that RCS Pressure is inadvertently allowed to increase from 450 psia to 500 psia while LTOP is being placed in service, with the PORV block valves open.

Explain why positioning the PORV Control Switches to "LTOP" would or would not result in the PORV(s) opening.

QNUM 081001

- [1.0] 18. (MULTIPLE CHOICE) The following alarms were received in relation to a loss of 2A3 4.16 KV bus.

1. B-28 480 V SWGR 2A2 volt $\leq 90\%$ / Ground
2. B-46 Emerg 4 KV SWGR 2A3 volt $\leq 90\%$
3. B-35 480 V SWGR 2A5 volt $\leq 90\%$ / Ground
4. B-5 4 KV SWGR 2A3 Delta current trip
5. B-48 2AB SWGR / 2AB MCC undervoltage

Choose one answer from below, the most likely cause of the loss of the 2A3 bus.

- a. Bus was tripped due to operator error
- b. Bus was tripped due to ground on 2A5 480V switchgear
- c. Bus was tripped due to degraded electrical conditions
- d.. Bus was tripped due to bus lockout (Delta current)
- e. Bus was tripped due to ground on 2A2 480 V switchgear

QNUM 082106*

- [1.0] 19. Unit 2 is operating at 100% power. The SNPO informs you that valve I-V-2505 (RCP Controlled Bleedoff Flow) has jammed open. All attempts to isolate the penetration have been unsuccessful. What restriction, if any, applies? (Select one)
- a. Continue operation at any power
 - b. Continue operation at a reduced power
 - c. Be in Hot Shutdown within 4 hours
 - d. Be in Hot Standby within 6 hours

QNUM 089023

- [1.0] 20. Select the best possible answer:

Unit 2 has been operating at 65% of rated power for the past three months. The plan is to increase power to 80% of rated power. The MAXIMUM rate of power increase which is allowed from 65% to 80% of rated power is:

- a. 1% per hour
- b. 1.5% per hour
- c. 3% per hour
- d. 6% per hour

QNUM 082220

- [1.0] 21. In reference to Jumpers & Disconnected Leads, which of the following statements is TRUE?
- A jumper tag is not required to be installed on a lifted lead for the purpose of removal and repair of an RTGB Sigma meter that is controlled by a PWO.
 - A jumper or lifted lead request requiring prior FRG approval should have the Technical Evaluation performed prior to the FRG meeting. The STA (or other designated engineer) may perform the Technical Evaluation.
 - A jumper tag is not required for lifting a lead while troubleshooting using a Technical Manual if the technician stays in the vicinity.
 - It is the STA's responsibility to determine if the jumper involves a Sensitive System.

QNUM 080997*

- [1.0] 22. Unit 2 is in the process of recovering from a loss of offsite power. The following plant conditions are observed:

Pressurizer pressure reads 2000 psia
Pressurizer level reads 75% and increasing
2A Hot Leg temperature reads 555°F
Representative CET temperature reads 565°F
RCP seal injection is in service
2A3 and 2B3 4.16 KV buses are energized via the D/G's

Based on the above plant conditions, choose the appropriate prompt operator action from the following:

- Energize the B1 and B4 Pressurizer heaters
- Exit the loss of offsite power procedure to the natural circulation off normal procedure.
- Secure Charging pumps
- Exit the loss of offsite power EOP to functional recovery EOP.

QNUM 089005*

- [1.0] 23. Procedure 2-EOP-10, Station Blackout, requires the operator to shut the RCP bleed-off isolation valves (V2505 & V2524).

Other than losing RCS inventory, what other concern would there be if they were left open?
Choose the best answer.

- a. Seal leakoff could fill the VCT.
- b. There would be no way to monitor bleedoff pressure, so it is better to isolate bleedoff and not challenge the system relief valve.
- c. The quench tank could fill causing the rupture disk to blow giving indications of a LOCA
- d. Since there is no cooling to seal coolers, flashing would occur in the bleedoff line, resulting in seal damage and a possible LOCA outside the containment

QNUM 081020*

- [1.0] 24. (Multiple Choice) A Station Blackout has occurred on Unit-2 and power has been restored to the 2A3 4.16KV bus. Which one of the following best describes the operator actions to restore and maintain RCS Pressure Control.

- a. Reset 2A3 PZR heater bus, then locally reset backup heater banks. Auxiliary spray must be manually operated.
- b. Reset 2A3 PZR heater bus, then manually reset backup heater bank B1. Auxiliary spray must be locally operated.
- c. Reset 2A3 PZR heater bus, then manually reset backup heater bank B1. Auxiliary spray must be manually operated.
- d. Reset 2A3 PZR heater bus, then manually reset backup heater banks. Auxiliary spray must be manually operated.

QNUM 089045

- [1.0] 25. A Loss of Coolant Accident has occurred and 2-EOP-03, Loss of Coolant Accident, has been implemented. Core subcooled margin has been lost. You note the core exit temperatures have started increasing. This is an indication that:
- a. Core reflood is occurring.
 - b. Steam generator tube voiding is imminent.
 - c. Core heat removal is adequate.
 - d. Reactor Coolant System inventory is not being maintained.

QNUM 089128*

- [1.0] 26. Which of the following combinations of injection header pressure and flow will satisfy the ECCS design criteria for a single HPSI pump in operation during a LOCA?
- a. 1000 psia, 180 gpm
 - b. 650 psia, 500 gpm
 - c. 225 psia, 500 gpm
 - d. 900 psia, 450 gpm



QNUM 081064*

- [1.0] 27. From the following choose the one method by which core and RCS heat removal safety functions are maintained following a large LOCA.
- a. Safety injection flow combined with heat removal via the break and cooldown using the S/G's assures that reverse heat transfer from the S/G to the RCS does not occur.
 - b. S/G cooldown is necessary to ensure that RCS and core heat removal are accomplished, core uncover is prevented and $> 20^\circ$ subcooling is maintained.
 - c. Shutdown cooling is established as soon as pressurizer pressure is < 275 psia and RCS temperature is $< 325^\circ\text{F}$.
 - d. SIT's dump sufficient quantities of cool borated water to support RCS and core heat removal for the first 20 minutes following LOCA, after that time hot leg injection provides adequate heat removal.

QNUM 082108

- [1.0] 28. Concerning a Loss of Coolant Accident in which the leak rate at 2250 psia is approximately 200 gpm, which one of the following best describes the core heat removal and RCS depressurization strategies used in EOP's?
- a. Heat removal is accomplished by flashing of inventory as it exits the rupture site, pressure is controlled by cycling the charging pumps.
 - b. Heat removal is accomplished by use of the ADV's and feeding the SG with auxiliary feedwater, RCS pressure control is by throttling HPSI.
 - c. Heat removal is accomplished by steaming the SG and using main feedwater; pressure control is via pressurizer heaters and sprays.
 - d. Heat removal is accomplished by once through cooling via HPSI with coolant flow out through the PORV's; pressure control is by cycling the PORV's and throttling HPSI valves.

QNUM 089010*

- [1.0] 29. (Multiple Choice) Subsequent actions of 2-0030136, Loss of a Safety Related D.C. Bus, instructs the RCO to stop the RCP's if CCW is lost for 10 minutes. Which of the following describes how you would trip the RCP's if the 2B and 2BB D.C. buses were lost.
- a. Trip 2A1,2A2,2B1,2B2, from the RTGB
 - b. Trip 2A1,2B2 from the RTGB and trip 2B1,2A2 locally
 - c. Trip 2A1,2A2 from the RTGB and trip 2B1,2B2 locally
 - d. Trip 2A1,2B1 from the RTGB and trip 2B2,2A2 locally

QNUM 082122*

30. Which one of the following best describes the preferred strategy for combating a Total Loss of Feed event once EOP-15 is entered?
- a. open the S/G ADVs and manually initiate Containment Spray to ensure maximum heat removal is employed
 - b. align HPSI, initiate cold leg injection and open the Reactor Coolant Gas Vent System valves to provide a coolant flowpath through the core
 - c. align the other unit's AFW Pumps to discharge to one of the affected unit's S/Gs; exercise caution not to feed a dry S/G. If both S/G are dry then only initiate AFW to one of the S/G.
 - d. ensure Once Through Cooling is initiated via PORVs

QNUM 082256

- [2.0] 31. Unit 2 is in Mode 5, the RCS level is above the Hot Leg centerline.

Charging Pump 2A is operational.

The off-going shift has just completed racking in the 2B Charging Pump Breaker in preparation for RCS fill. The discharge valve for Charging Pump 2B, V-2336, has not been repositioned and is currently in the closed position.

Charging Pump 2C breaker is racked out.

- a. What is the monitoring frequency specified for Backup Boron Dilution Detection?
- b. With respect to the above charging pump configuration, identify any differences for Unit 1 for the same situation.

ST. LUCIE PLANT
ADMINISTRATIVE PROCEDURE NO. 0005754, REVISION 0
WRITTEN EXAMINATION MANAGEMENT

LO RQL TRAINING PROGRAM

EXAM NO. 0820966

NAME: _____

AUTHOR: MARPLE C

DATE: 11/27/89

SSN/CD: _____

REVIEWED BY: *[Signature]*

DATE: 11/27/89

DATE: _____

EXAM DRAFT ANSWER KEY

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- 082029
[1.0] 1. REQUIRED, FUEL HANDLING ACCIDENT - ALERT.
- 082084
[1.0] 2. b. Sheltering recommended for a complete circle around plant at 2 miles & 5 miles downwind
- 082156
[1.0] 3. d. The Plant Manager, Operations Superintendent, or the Operations Supervisor should assume the Emergency coordinator function following proper turnover for ALERT, SITE AREA, or GENERAL EMERGENCIES.
- 082015
[1.0] 4. No. (0.5) Inadequate subcooling exists. (<20 °)
(0.5)
- 082214
[1.0] 5. b. SJAE supply steam at 200 psig
- 089134
[1.0] 6. 85% X .9 = 76.5% (±.5)
- 082211
[1.0] 7. c. Stop the 1B LPSI pump and restore RCS level
- 080776
[1.0] 8. b. Acknowledge the alarm and dispatch an operator to the zone to determine the specific detector and any possible reason for it being in alarm.
- 082057
[1.0] 9. a. Apply action statement 3.0.3.
- 080826
[1.0] 10. B. He uses the T.C. number to locate the actual T.C. in the T.C. logbook and makes the applicable changes to his copy of the procedure. He writes the T.C. number in the margin of his procedure.
- 082188
[1.0] 11. d. SBCS will be completely disabled by the loss of vacuum due to a loss of Circulating Water Pumps for the condenser.
- 081107
[1.0] 12. c. Continue until criticality or +500 pcm from the estimated critical position.
- 089014
[1.0] 13. c. Monitor RCPs for cavitation and/or seal failure
- 081065
[1.0] 14. b. Concurrently cooldown and depressurize RCS to approximately equal to isolated SG pressure; when pressurizer level increases to > 30%, secure HPSI pumps one at a time.



- 082012
[1.0] 15. b. Be in HOT STANDBY within one hour
- 089062
[2.0] 16. a. 3. The RCO performs a controlled boration as the CEA is withdrawn
b. 1. Use small increments of CEA movement and withdraw the CEA slowly
- 082130
[1.0] 17. The PORV(s) would open because the control circuitry is designed to open them if LTOP is selected, RCS Temp < -304 °F and RCS Pressure is > 470 psia. 313
- 081001
[1.0] 18. d. Bus was tripped due to bus lockout (Delta current)
- 082106
[1.0] 19. d. Be in Hot Standby within 6 hours
- 089023
[1.0] 20. c. 3% per hour
- 082220
[1.0] 21. a. A jumper tag is not required to be installed on a lifted lead for the purpose of removal and repair of an RTGB Sigma meter that is controlled by a PWO.
- 080997
[1.0] 22. c. Secure Charging pumps
- 089005
[1.0] 23. a. Seal leakoff could fill the VCT.
- 081020
[1.0] 24. c. Reset 2A3 PZR heater bus, then manually reset backup heater bank B1. Auxiliary spray must be manually operated.
- 089045
[1.0] 25. d. Reactor Coolant System inventory is not being maintained.
- 089128
[1.0] 26. d. 900 psia, 450 gpm
- 081064
[1.0] 27. a. Safety injection flow combined with heat removal via the break and cooldown using the S/G's assures that reverse heat transfer from the S/G to the RCS does not occur.

ST. LUCIE PLANT
ADMINISTRATIVE PROCEDURE NO. 0005754, REVISION 0
WRITTEN EXAMINATION MANAGEMENT

LO RQL TRAINING PROGRAM

EXAM NO. 0820965

NAME: _____

AUTHOR: MARPLE C

DATE: 11/27/89

SSN/CD: _____

REVIEWED BY: *W. H. H. H. H. H.*

DATE: 11/27/89

DATE: _____

EXAM SCORE: _____

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

Candidate's Signature

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QNUM 082146

- [1.0] 1. When an emergency classification is declared at the plant, which one of the following notification schemes is used?
- a. Notify the state agencies first, then call the NRC via the Hot Ring-down phone within 4 hours.
 - b. Using the ENS call the NRC first, then notify the state agencies; this is required since the state will need to have information which the NRC provides when called.
 - c. Use the ENS to contact the NRC after the state agencies have been notified but within one hour of the declaration.
 - d. Call the NRC on commercial phone line, and tell them to monitor the State of Florida Hot Ring-down circuit. In this way all emergency notifications can be made at one time.

QNUM 081091

- [1.0] 2. (Multiple Choice) During a control room evacuation the Emergency Coordinator (NPS) became incapacitated when he fell down a flight of stairs. Which one of the following best describes the appropriate action? (1.0)
- a. the EC duties should be turned over to the TSC Supervisor as soon as the TSC is manned; it is acceptable to leave the EC position vacant until the TSC is manned as long as all the initial notifications have been made as required by EPIP's.
 - b. the ANPS should assume the duties of the EC.
 - c. the NWE is the designated alternate EC for this case assuming the emergency situation does not require activation of the fire team.
 - d. any RCO with an active license can assume the duties of the EC but must turn those duties over to a plant management representative as soon as possible.

QNUM 082156

- [1.0] 3. Concerning the Duties and Responsibilities of the Emergency Coordinator, which of the following is TRUE?
- a. The Emergency Coordinator shall classify an event within 15 minutes of becoming aware of the off-normal condition.
 - b. The Emergency Coordinator shall remain in the affected units control room for the duration of the event, with no exceptions.
 - c. The minimum PAR for any General Emergency would be: "Evacuate all people within a two mile radius and 5 miles in the downwind sectors".
 - d. The Plant Manager, Operations Superintendent, or the Operations Supervisor should assume the Emergency coordinator function following proper turnover for ALERT, SITE AREA, or GENERAL EMERGENCIES.

QNUM 082015

- [1.0] 4. Given: A SG Tube Rupture has occurred and a cooldown and depressurization is in progress, the following conditions exist:

Pressurizer Pressure: 920 psia
Thot: 525 °F
Tcold: 525 °F
SG 1A Level: 50% WR
SG 1B Level: 62% WR
AFWP 1A Operating

Should the depressurization continue? Why or why not?

QNUM 082214*

- [1.0] 5. Unit 1 is operating at 100% normal operating conditions. Which one of the following conditions could contribute to increasing condenser back-pressure?
(Choose all appropriate answers)
- a. Sudden drop in circ water inlet temperature of 3 °F
 - b. SJAE supply steam at 200 psig
 - c. Condenser air in-leakage at .9 CFM
 - d. Monitor Storage Tank level at 18 feet

QNUM 082213*

- [1.0] 6. The 1C AFW Pump has tripped on overspeed. The RCO has performed all required steps to reset an electrical overspeed condition. The pump still does not start and the overspeed alarm is still illuminated. Which one of the following is the most appropriate strategy to restore operation of the 1C AFW Pump?
- a. have the NPO locally reset the turbine mechanical trip lever then repeat the steps to reset the electrical overspeed trip
 - b. the 1C AFW Pump can only be operated locally; the instructions of 1-EOP-99 Appendix G must be implemented
 - c. the 1C AFW Pump is steam bound, implement the actions required to vent the pump prior to attempting to reset the overspeed trip
 - d. the time delay on the electrical overspeed trip has not expired; wait three minutes then attempt another reset of the electrical overspeed trip

QNUM 082211

- [1.0] 7. The RCS has been drained for seal maintenance on the 1A1 RCP. The 1B LPSI pump is running for shutdown cooling. An incorrect valve alignment has resulted in the RCS level decreasing below hot leg centerline. The RCO should:
- a. Start the 1A LPSI pump and stop the 1B LPSI pump
 - b. Continue to run the 1B LPSI pump and commence charging from the RWT
 - c. Stop the 1B LPSI pump and restore RCS level
 - d. Start the 1A LPSI pump at minimum flow

QNUM 080776*

- [1.0] 8. (MULTIPLE CHOICE) Which one of the following best describes the control room operator's response to a Unit 1 fire detector alarm (FA) in the RAB 19.5 elevation ?
- a. Acknowledge the alarm and dispatch an operator to reset the 938 panel in the "B" switchgear room.
 - b. Acknowledge the alarm and dispatch an operator to the zone to determine the specific detector and any possible reason for it being in alarm.
 - c. Dispatch an operator to examine the detector zone panel and the damper zone panel prior to acknowledging the fire computer alarm.
 - d. Acknowledge the alarm in the control room, verify with the sequence of events recorder that it was not a fire damper alarm then dispatch an operator to examine the zone panel where he will reset the alarming detector.

QNUM 082047

- [1.0] 9. Unit 2 is operating at 100% power when the Channel A pressure transmitter (PT-8013A) for SG 2A fails low. Which set of the actions below for Channel A is correct?

Place in Bypass: LO PRESS SG(RPS), TM/LP(RPS),

- a. LPD(RPS), VHP(RPS), & AFAS-1
- b. VHP(RPS), AFAS-1, & AFAS-2
- c. LPD(RPS), SG 2A PRESS(ESFAS), & AFAS-1
- d. SG 2A PRESS(ESFAS), AFAS-1 & AFAS-2

QNUM 080826

- [1.0] 10. (MULTIPLE CHOICE) Prior to using an uncontrolled copy of the "Secondary Plant Operating Checks and Tests" procedure the NPO compares the uncontrolled copy to the controlled copy in Unit 1 control room. He finds that a T.C. affects specific pages of the procedure which he intends to use. Which one of the following best describes his appropriate response?

- A. He takes the controlled copy of the procedure into the field to perform his test then returns it to the control room binder.
- B. He uses the T.C. number to locate the actual T.C. in the T.C. logbook and makes the applicable changes to his copy of the procedure. He writes the T.C. number in the margin of his procedure.
- C. He uses the uncontrolled copy in the field without changing it to reflect the T.C. unless the T.C. is greater than 90 days old.
- D. He verifies his procedure copy rev. with the controlled copy rev. and attaches a copy of the T.C. cover sheet to his copy of the procedure. The reviewer of the completed procedure will be able to review the T.C. if needed.

QNUM 082188*

- [1.0] 11. Loss of offsite power has occurred on Unit 1. Which of the following describes the Steam Bypass Control System status after ten minutes into the event assuming all systems were in normal line-up before the event.
- a. There would be no effect on the SBCS because the entire SBCS is powered by power panels which are fed by AC power panels supplied by the emergency diesel generators.
 - b. The SBCS would be disabled due to the loss of power to the valve solenoids.
 - c. There would no effect on the SBCS because it receives DC power from a non-vital DC bus.
 - d. The SBCS will be completely disabled by the loss of vacuum due to a loss of Circulating Water Pumps for the condenser.

QNUM 081107*

- [1.0] 12. The following conditions exist for a reactor startup on Unit 2:

Core age: 4700 EFPH
Estimated Critical Position: Gp.5 @ 56
Current CEA position: Gp. 3 @ 80

The count rate doubled when the CEA's were withdrawn from Gp.3 @ 15 to the current CEA position. Which of the following describes the appropriate action you should take?

- a. Position CEA's to -1000 pcm from the current CEA position.
- b. Stop, select CEDMCS to OFF
- c. Continue until criticality or +500 pcm from the estimated critical position.
- d. Insert CEA's until Group 3 is at 24 inches

QNUM 089014*

- [1.0] 13. A steam generator tube rupture has occurred on Unit 2 from 100% power. Initially all RCPs were tripped. Conditions have stabilized and the affected SG is isolated. Criteria for RCP restart have been met and two RCPs have been restarted. SI stop and throttle criteria have been met and SI has just been terminated. The plant stabilizes at the following conditions:

Pressurizer level	-	48%
Pressurizer pressure	-	450 psia
T_{cold}	-	440 °F
SG pressure	-	405 psia

Select the one best action for these plant conditions:

- a. Manually actuate an SIAS
- b. Reduce RCS Pressure to approximately ± 10 psid of the affected SG
- c. Monitor RCPs for cavitation and/or seal failure
- d. Commence feed and bleed of the affected SG to cool the SG

QNUM 081065

- [1.0] 14. Which of the following sequences best describes the method used to optimize RCS pressure and inventory control during a SGTR event. (Assume the faulted SG has just been isolated.)
- a. Feed and bleed the faulted SG to reduce its temperature and pressure, depressurize RCS to maintain 20 - 200°F subcooling.
 - b. Concurrently cooldown and depressurize RCS to approximately equal to isolated SG pressure; when pressurizer level increases to > 30%, secure HPSI pumps one at a time.
 - c. Concurrently cooldown and depressurize RCS to approximately equal to isolated SG pressure; when pressurizer level increases to > 30% secure charging pumps one at a time.
 - d. Steam the faulted SG to the condenser to reduce its temperature and pressure; cooldown and depressurize RCS to within 50 psi of faulted SG pressure.

QNUM 082012*

- [1.0] 15. While withdrawing Group 5 to ARO during power ascension (power \approx 30%) two of the Group 5 CEAs drop to the bottom. The last measured F^{tr} is 1.60. Which of the actions listed below is the most appropriate?
- a. Realign both CEAs to < 7" deviation within the time limits of Technical Specification, Fig. 3.1-1a.
 - b. Be in HOT STANDBY within one hour
 - c. Determine from symptoms and CEA position indications the operability of the CEA per appendix B.
 - d. Be in HOT STANDBY within 6 hours.

QNUM 089062

- [2.0] 16. With Unit 2 at 90% power operation, a dropped shutdown Control Element Assembly (CEA) is being recovered in accordance with the Off Normal Operating Procedure for misaligned CEAs.
- a. How are the reactivity changes associated with the realignment compensated for? (Choose one)
1. The RCO raises turbine load to keep Tave/Tref matched as the CEA is withdrawn
 2. Group 5 CEAs are inserted to control Tave as the CEA is withdrawn
 3. The RCO performs a controlled boration as the CEA is withdrawn
 4. The Xenon increase associated with the dropped CEA requires the RCO to dilute while he is withdrawing the CEA to be able to keep Tave/Tref matched.
- b. Which one of the following best describes the method of withdrawing the dropped CEA?
1. Use small increments of CEA movement and withdraw the CEA slowly
 2. Withdraw the affected CEA as quickly as possible without causing a Reactor/Turbine power mismatch. This minimizes the impact on ASI control.
 3. Avoid withdrawing the CEA until Xenon is determined to have returned to the concentration which existed prior to the rod drop
 4. Insert the remaining CEA's in the group to allow group realignment then slowly withdraw the entire group while maintaining reactor power constant.



QNUM 082130*

- [1.0] 17. The RCS is being cooled down on forced circulation using procedure 2-0030127 and is currently at 300 °F. Annunciators H-34 "PORV 1474 LTOP CONDITIN SELECT LTOP" and H-38 "PORV 1475 LTOP CONDITIN SELECT LTOP" have come in. Assume that RCS Pressure is inadvertently allowed to increase from 450 psia to 500 psia while LTOP is being placed in service, with the PORV block valves open.

Explain why positioning the PORV Control Switches to "LTOP" would or would not result in the PORV(s) opening.

QNUM 081001

- [1.0] 18. (MULTIPLE CHOICE) The following alarms were received in relation to a loss of 2A3 4.16 KV bus.
1. B-28 480 V SWGR 2A2 volt $\leq 90\%$ / Ground
 2. B-46 Emerg 4 KV SWGR 2A3 volt $\leq 90\%$
 3. B-35 480 V SWGR 2A5 volt $\leq 90\%$ / Ground
 4. B-5 4 KV SWGR 2A3 Delta current trip
 5. B-48 2AB SWGR / 2AB MCC undervoltage

Choose one answer from below, the most likely cause of the loss of the 2A3 bus.

- a. Bus was tripped due to operator error
- b. Bus was tripped due to ground on 2A5 480V switchgear
- c. Bus was tripped due to degraded electrical conditions
- d. Bus was tripped due to bus lockout (Delta current)
- e. Bus was tripped due to ground on 2A2 480 V switchgear



QNUM 082019

- [1.0] 19. While operating at 100% power, Linear Power Safety Channel D fails. The bistable that does NOT need to be placed in the BYPASSED position is the:
- a. Dropped CEA.
 - b. TM/LP
 - c. Loss of Load
 - d. Local Power Density

QNUM 089023

- [1.0] 20. Select the best possible answer:

Unit 2 has been operating at 65% of rated power for the past three months. The plan is to increase power to 80% of rated power. The MAXIMUM rate of power increase which is allowed from 65% to 80% of rated power is:

- a. 1% per hour
- b. 1.5% per hour
- c. 3% per hour
- d. 6% per hour

QNUM 082220

- [1.0] 21. In reference to Jumpers & Disconnected Leads, which of the following statements is TRUE?
- a. A jumper tag is not required to be installed on a lifted lead for the purpose of removal and repair of an RTGB Sigma meter that is controlled by a PWO.
 - b. A jumper or lifted lead request requiring prior FRG approval should have the Technical Evaluation performed prior to the FRG meeting. The STA (or other designated engineer) may perform the Technical Evaluation.
 - c. A jumper tag is not required for lifting a lead while troubleshooting using a Technical Manual if the technician stays in the vicinity.
 - d. It is the STA's responsibility to determine if the jumper involves a Sensitive System.

QNUM 080997*

- [1.0] 22. Unit 2 is in the process of recovering from a loss of offsite power. The following plant conditions are observed:

Pressurizer pressure reads 2000 psia
Pressurizer level reads 75% and increasing
2A Hot Leg temperature reads 555°F
Representative CET temperature reads 565°F
RCP seal injection is in service
2A3 and 2B3 4.16 KV buses are energized via the D/G's

Based on the above plant conditions, choose the appropriate prompt operator action from the following:

- a. Energize the B1 and B4 Pressurizer heaters
- b. Exit the loss of offsite power procedure to the natural circulation off normal procedure.
- c. Secure Charging pumps
- d. Exit the loss of offsite power EOP to functional recovery EOP.



QNUM 089005*

- [1.0] 23. Procedure 2-EOP-10, Station Blackout, requires the operator to shut the RCP bleed-off isolation valves (V2505 & V2524).

Other than losing RCS inventory, what other concern would there be if they were left open?
Choose the best answer.

- a. Seal leakoff could fill the VCT.
- b. There would be no way to monitor bleedoff pressure, so it is better to isolate bleedoff and not challenge the system relief valve.
- c. The quench tank could fill causing the rupture disk to blow giving indications of a LOCA
- d. Since there is no cooling to seal coolers, flashing would occur in the bleedoff line, resulting in seal damage and a possible LOCA outside the containment

QNUM 081020*

- [1.0] 24. (Multiple Choice) A Station Blackout has occurred on Unit-2 and power has been restored to the 2A3 4.16KV bus. Which one of the following best describes the operator actions to restore and maintain RCS Pressure Control.

- a. Reset 2A3 PZR heater bus, then locally reset backup heater banks. Auxiliary spray must be manually operated.
- b. Reset 2A3 PZR heater bus, then manually reset backup heater bank B1. Auxiliary spray must be locally operated.
- c. Reset 2A3 PZR heater bus, then manually reset backup heater bank B1. Auxiliary spray must be manually operated.
- d. Reset 2A3 PZR heater bus, then manually reset backup heater banks. Auxiliary spray must be manually operated.

QNUM 089045

- [1.0] 25. A Loss of Coolant Accident has occurred and 2-EOP-03, Loss of Coolant Accident, has been implemented. Core subcooled margin has been lost. You note the core exit temperatures have started increasing. This is an indication that:
- a. Core reflood is occurring.
 - b. Steam generator tube voiding is imminent.
 - c. Core heat removal is adequate.
 - d. Reactor Coolant System inventory is not being maintained.

QNUM 089128*

- [1.0] 26. Which of the following combinations of injection header pressure and flow will satisfy the ECCS design criteria for a single HPSI pump in operation during a LOCA?
- a. 1000 psia, 180 gpm
 - b. 650 psia, 500 gpm
 - c. 225 psia, 500 gpm
 - d. 900 psia, 450 gpm

QNUM 081064*

- [1.0] 27. From the following choose the one method by which core and RCS heat removal safety functions are maintained following a large LOCA.
- a. Safety injection flow combined with heat removal via the break and cooldown using the S/G's assures that reverse heat transfer from the S/G to the RCS does not occur.
 - b. S/G cooldown is necessary to ensure that RCS and core heat removal are accomplished, core uncover is prevented and $> 20^\circ$ subcooling is maintained.
 - c. Shutdown cooling is established as soon as pressurizer pressure is < 275 psia and RCS temperature is $< 325^\circ\text{F}$.
 - d. SIT's dump sufficient quantities of cool borated water to support RCS and core heat removal for the first 20 minutes following LOCA, after that time hot leg injection provides adequate heat removal.

QNUM 082108

- [1.0] 28. Concerning a Loss of Coolant Accident in which the leak rate at 2250 psia is approximately 200 gpm, which one of the following best describes the core heat removal and RCS depressurization strategies used in EOP's?
- a. Heat removal is accomplished by flashing of inventory as it exits the rupture site, pressure is controlled by cycling the charging pumps.
 - b. Heat removal is accomplished by use of the ADV's and feeding the SG with auxiliary feedwater, RCS pressure control is by throttling HPSI.
 - c. Heat removal is accomplished by steaming the SG and using main feedwater; pressure control is via pressurizer heaters and sprays.
 - d. Heat removal is accomplished by once through cooling via HPSI with coolant flow out through the PORV's; pressure control is by cycling the PORV's and throttling HPSI valves.

QNUM 089010*

- [1.0] 29. (Multiple Choice) Subsequent actions of 2-0030136, Loss of a Safety Related D.C. Bus, instructs the RCO to stop the RCP's if CCW is lost for 10 minutes. Which of the following describes how you would trip the RCP's if the 2B and 2BB D.C. buses were lost.
- a. Trip 2A1,2A2,2B1,2B2, from the RTGB
 - b. Trip 2A1,2B2 from the RTGB and trip 2B1,2A2 locally
 - c. Trip 2A1,2A2 from the RTGB and trip 2B1,2B2 locally
 - d. Trip 2A1,2B1 from the RTGB and trip 2B2,2A2 locally

QNUM 082122*

30. Which one of the following best describes the preferred strategy for combating a Total Loss of Feed event once EOP-15 is entered?
- a. open the S/G ADVs and manually initiate Containment Spray to ensure maximum heat removal is employed
 - b. align HPSI, initiate cold leg injection and open the Reactor Coolant Gas Vent System valves to provide a coolant flowpath through the core
 - c. align the other unit's AFW Pumps to discharge to one of the affected unit's S/Gs; exercise caution not to feed a dry S/G. If both S/G are dry then only initiate AFW to one of the S/G.
 - d. ensure Once Through Cooling is initiated via PORVs

ST. LUCIE PLANT
ADMINISTRATIVE PROCEDURE NO. 0005754, REVISION 0
WRITTEN EXAMINATION MANAGEMENT

LO RQL TRAINING PROGRAM

EXAM NO. 0820965

NAME: _____

AUTHOR: MARPLE C

DATE: 11/22/89

SSN/CD: _____

REVIEWED BY: *M. H. H. H. H. H.*

DATE: 11/27/89

DATE: _____

EXAM DRAFT ANSWER KEY

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[1.0] 22. c. Secure Charging pumps
- 089005
[1.0] 23. a. Seal leakoff could fill the VCT.
- 081020
[1.0] 24. c. Reset 2A3 PZR heater bus, then manually reset backup heater bank B1. Auxiliary spray must be manually operated.
- 089045
[1.0] 25. d. Reactor Coolant System inventory is not being maintained.
- 089128
[1.0] 26. d. 900 psia, 450 gpm

- 081064
[1.0] 27. a. Safety injection flow combined with heat removal via the break and cooldown using the S/G's assures that reverse heat transfer from the S/G to the RCS does not occur.
- 082108
[1.0] 28. b. Heat removal is accomplished by use of the ADV's and feeding the SG with auxiliary feedwater, RCS pressure control is by throttling HPSI.
- 089010
[1.0] 29. b. Trip 2A1,2B2 from the RTGB and trip 2B1,2A2 locally
- 082122
[1.0] 30. d. ensure Once Through Cooling is initiated via PORVs



ST. LUCIE PLANT
ADMINISTRATIVE PROCEDURE NO. 0005754, REVISION 0
WRITTEN EXAMINATION MANAGEMENT

LO REQUAL TRAINING PROGRAM

EXAM NO. 0820962

NAME: _____

AUTHOR: HEFFELFINGER K

DATE: 11/03/89

SSN/CD: _____

REVIEWED BY: C. Maple

DATE: 11/27/89

DATE: _____

EXAM SCORE: _____

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

Candidate's Signature

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QNUM 086183

- [1.0] 1. Concerning Pressurized Thermal Shock:
- a. What is the current upper pressure limit to prevent PTS? (0.5)
 - b. What component is the failure concern? (0.5)

QNUM 086185

- [1.0] 2. TM/LP Trip setpoint is 2500 psia. Why?

QNUM 086187*

- [1.0] 3. Which one of the following best describes the status of the AFW system after the AFAS circuitry has timed out?
- a. A and C AFW pumps feeding 2A SG
 - b. A and C AFW pumps feeding 2A SG, B and C AFW pumps feeding 2B SG
 - c. A AFW pump feeding 2A SG, B AFW pump feeding 2B SG, 2C AFW pump off
 - d. C AFW pump feeding the 2A SG, all other AFW pumps off

QNUM 086188*

- [1.0] 4. If AFAS does not occur after the time delay, how should you initiate AFAS? (choose the best answer)
- a. turn all eight AFAS initiation switches on RTGB 202 to 'manual'
 - b. do not operate the AFAS initiation switches on RTGB 202, start the desired AFW pump(s) and perform the valve manipulation to feed the desired generator(s)
 - c. turn the four AFAS 1 initiation switches on RTGB 202 to 'manual'
 - d. turn the four AFAS 2 initiation switches on RTGB 202 to 'manual'

QNUM 086189*

- [1.0] 5. If MV-08-13; 2C Steam Supply from 2A SG and MV-08-12; 2C Steam Supply from 2B SG are opened.
- a. will the intact SG feed the break? (0.5)
 - b. justify your answer (0.5)

QNUM 086192*

- [1.0] 6. Which one of the following DID NOT signal the diesel generators to start?
- a. SIAS
 - b. undervoltage
 - c. CIAS
 - d. CSAS

QNUM 086193

[1.0] 7. Which CEAs are not fully inserted?

QNUM 086194*

[1.0] 8. Which one of the following statements best describes the condition of the reactor now?

- a. the reactor can be confirmed to be sub-critical without the necessity of completing a Shutdown Margin Calculation
- b. the reactor is critical as a result of the cooldown and the associated reactivity feedback
- c. the reactor is critical because of the stuck CEAs
- d. the reactor can be considered subcritical because the heatup which will occur after the SG has blown down will result in adequate negative reactivity to offset any stuck CEAs

QNUM 086195*

- [1.0] 9. The net flowrate leaving the RWT is now:
- a. between 2000 and 2200 gpm
 - b. between 2500 and 2700 gpm
 - c. between 3100 and 3300 gpm
 - d. between 3700 and 4000 gpm

QNUM 086191

- [1.0] 10. Annunciator E-1 "CIRC WTR PP SEAL/LUBE WATER PRESS FLO LO" is illuminated. What occurred to cause this alarm? (include any initiating signals in your answer)

QNUM 086184

- [1.0] 11. Currently 2A SG as related to the RCS is:
- a. Not coupled to the RCS.
 - b. A heat source.
 - c. In equilibrium with the RCS.
 - d. A heat sink.

EXAM 0820962QUESTIONS 12 THROUGH 20 ARE NOT RELATED TO
THE FROZEN CONDITION OF THE SIMULATOR

QNUM 086329

- [1.0] 12. Which one of the following best describes the use of AFW system during a Station Blackout?
- a. Throttle MV-09-11 & MV-09-12 AFTER the AFAS Initiation Switches have been placed in manual.
 - b. Throttle MV-09-11 & MV-09-12 and ensure that SG levels are being restored.
 - c. Ensure that MV-09-11 is open, then locally operate MV-09-9 to supply AFW to "2A" SG.
 - d. Ensure that 1-SE-09-3 is open, then locally operate 1-SE-09-5 and MV-09-10.

QNUM 086420

- [1.0] 13. Indicate which statement concerning CEDS/CEDMCS is TRUE.
- a. The upper group stop prevents individual CEA withdrawal.
 - b. The primary method of CEA position indication makes use of the reed switch position transmitters.
 - c. The DDPS pulse counters are reset to "0" by activation of the lower electrical limit reed switch.
 - d. While performing a reactor startup at 10-6% power, with all shutdown CEAs fully withdrawn and regulating groups at 4", a CEA motion inhibit exists due to PDIL violation.

QNUM 086422

- [1.0] 14. Which one of the following best describes the method for placing SIAS on Channel B Pressurizer Pressure in the bypass condition?
- a. Use 'THINK' pushbutton and turn the appropriate trains to 'BYPASS'. Verify the red light comes on.
 - b. Bypass is not available for SIAS so the entire train of SIAS actuation must be blocked using the key switch.
 - c. Identify the isolation assemblies associated with Channel B Pressurizer Pressure and pull them out of their compartment in the ESFAS cabinet.
 - d. In the Channel B ESFAS cabinet, insert and turn the bypass key for Channel B Pressurizer Pressure.

QNUM 086452

- [1.0] 15. Assume that a T_{COLD} input to RPS Channel A has failed to its maximum value. Simultaneously, the Upper Ion Chamber input to Linear NI Safety Channel C fails such that a 200% power signal is present. Assuming that the affected RPS bistables trip, select the most correct statement:
- a. CEA outward motion would be blocked due to a CWP signal from the Channel C Variable High Power trip channel.
 - b. A reactor trip should occur from the Local Power Density trip channels.
 - c. A reactor trip should occur from the Thermal Margin/Low Pressure (TM/LP) trip channels.
 - d. None of the above statements is correct.

QNUM 086225

- [1.0] 16. The four (4) motor-operated isolation valves for the Safety Injection Tanks (SITs) are:
- a. CLOSED during normal Mode 1 operation to isolate the SITs from the RCS but receive an OPEN signal on a SIAS.
 - b. OPEN during normal Mode 1 operation but receive an OPEN signal on a SIAS.
 - c. Interlocked with Pressurizer pressure to automatically OPEN if the RCS pressure is > 350 psia.
 - d. Interlocked with Pressurizer pressure to ensure that they are CLOSED if the RCS pressure is < 350 psia.

QNUM 086239*

- [1.0] 17. If the RCS pressure is 350 psia, RCS temperature is 350 °F, and warming of the Shutdown Cooling System (SDC) has NOT started. Which one of the following best describes how the RCS is protected against an overpressurization?
- a. pressurizer safety valves
 - b. hot leg suction relief valves
 - c. PORV's in NORMAL mode
 - d. PORV's in LTOP mode

QNUM 086249

- [1.0] 18. Select the correct statement regarding the QSPDS Saturation Margin Monitor.
- a. Calculates the difference between the Pressurizer Temperature RTD and the average Core Exit Thermocouple (CET).
 - b. Calculates the difference between the Pressurizer Temperature RTD and the Thot RTD.
 - c. Calculates the difference between the saturation temperature corresponding to Pressurizer Pressure and the average HJTC.
 - d. Calculates the difference between Pressurizer Pressure and the saturation pressure corresponding to the maximum of Thot or Tcold.

QNUM 086226 *

- [2.0] 19. For each SIT feature listed in COLUMN 1 below, select the appropriate unit designation from COLUMN 2.

COLUMN 1

- a. SIT discharge MOVs get an open signal on CIAS.
- b. Assuming power is available, SIT discharge valves cannot be closed with RTGB control switch at normal RCS pressure.
- c. Following SIAS, check valve backleakage test valves must be reset with a pushbutton before they can be opened.
- d. Filling SIT's with a HPSI pump can cause a relief valve to lift on the RWT return line if more than one HPSI header isolation valve is open.

COLUMN 2

1. Unit 1 only
2. Unit 2 only
3. Both Units 1 and 2
4. Neither Unit

QNUM 086264

- [1.0] 20. Choose the correct (expected) behavior for the reactor excore neutron detectors as the core uncovers during a LOCA.
- a. Detector output decreases
 - b. Detector output increases
 - c. Detector output does not change
 - d. Detector output goes off-scale

ST. LUCIE PLANT
ADMINISTRATIVE PROCEDURE NO. 0005754, REVISION 0
WRITTEN EXAMINATION MANAGEMENT

LO REQUAL TRAINING PROGRAM

EXAM NO. 0820962

NAME: _____

AUTHOR: HEFFELFINGER K

DATE: 11/03/89

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REVIEWED BY: G. Mays

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DATE: _____

EXAM DRAFT ANSWER KEY

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- 086183
[1.0] 1. a. 2300 ± 100 psia.
 b. Reactor Vessel.
- 086185
[1.0] 2. ASGT Trip (due to Delta P between SGs) has
 inserted a 2500 psia setpoint.
- 086187*
[1.0] 3. a. A and C AFW pumps feeding 2A SG
- 086188*
[1.0] 4. c. turn the four AFAS 1 initiation switches on
 RTGB 202 to 'manual'
- 086189*
[1.0] 5. a. No. (0.5)
 b. There are check valves in both steam lines to
 prevent this. (0.5)
- 086192*
[1.0] 6. b. undervoltage
- 086193
[1.0] 7. 3 and 44
- 086194*
[1.0] 8. a. the reactor can be confirmed to be sub-
 critical without the necessity of completing
 a Shutdown Margin Calculation
- 086195*
[1.0] 9. c. between 3100 and 3300 gpm
- 086191
[1.0] 10. SIAS isolated the ICW supply.

- 086184
[1.0] 11. b. A heat source.
- 086329
[1.0] 12. b. Throttle MV-09-11 & MV-09-12 and ensure that SG levels are being restored.
- 086420
[1.0] 13. b. The primary method of CEA position indication makes use of the reed switch position transmitters.
- 086422
[1.0] 14. d. In the Channel B ESFAS cabinet, insert and turn the key for Channel B Pressurizer Pressure.
- 086452
[1.0] 15. c. A reactor trip should occur from the Thermal Margin/Low Pressure (TM/LP) trip channels.
- 086225
[1.0] 16. b. OPEN during normal Mode 1 operation but receive an OPEN signal on a SIAS.
- 086239*
[1.0] 17. c. PORV's in NORMAL mode
- 086249
[1.0] 18. d. Calculates the difference between Pressurizer Pressure and the saturation pressure corresponding to the maximum of T_{hot} or T_{cold} .
- 086226



[2.0]

- 19. a. 4
- b. 2
- c. 2
- d. 3

4 answers at 0.5 each

086264

[1.0]

- 20. b. Detector output increases

4. SHIFT TURNOVER SHEET

A. PREVIOUS OPERATING HISTORY (UNTIL 15 MINUTES AGO)

1. POWER HISTORY: 100% for 185 days
2. CORE AGE: MOL
3. CEA CONFIGURATION: ARO
4. BORON CONCENTRATION: 660 ppm

B. STATUS OF CONTROLS (ALL IN AUTO EXCEPT AS NOTED BELOW)

1. CEMCS: Off
2. VCT MAKEUP: Manual

C. EQUIPMENT OOS ENTRIES: NONE

D. PREVIOUS ACTIVITIES: Normal Operations

E. CURRENT ACTIVITIES: An event has occurred resulting in a Reactor/Turbine trip. 2-EOP-01 has been implemented, but not completed.

ST. LUCIE PLANT
ADMINISTRATIVE PROCEDURE NO. 0005754, REVISION 0
WRITTEN EXAMINATION MANAGEMENT

LO REQUAL TRAINING PROGRAM

EXAM NO. 0820961

NAME: _____

AUTHOR: HEFFELFINGER K

DATE: 11/03/89

SSN/CD: _____

REVIEWED BY: *[Signature]*

DATE: *11/27/89*

DATE: _____

EXAM SCORE: _____

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

Candidate's Signature

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QNUM 086201

- [1.0] 1. Will the output signal from DEH to the governor valves increase as the governor valves start closing due to low DEH pressure? (0.5)
- Why or why not? (0.5)

QNUM 086347

- [1.0] 2. Currently Pressurizer Pressure is increasing and all the heaters are energized. With the current plant configuration, the heaters:
- a. should have de-energized when pressure reached 2340 psia
 - b. should deenergize when pressure reaches 2375 psia
 - c. will not turn off automatically
 - d. should have de-energized on high level deviation

QNUM 086348

- [1.0] 3. As Pressurizer Pressure increases (choose the best)
- a. the sprays will open to terminate the pressure increase at 2370 psia
 - b. all heaters will turn off at 2370 psia
 - c. the reactor will trip on High Pressure at 2370 psia
 - d. the 4160V Feeder Breakers open at 2370 psia

QNUM 086349

- [1.0] 4. During this transient as Pressurizer Pressure increases:
- a. DNBR increases
 - b. Linear Heat rate increases
 - c. Q Pwr increases
 - d. TM/LP Trip Setpoint increases

QNUM 086352*

- [1.0] 5. With PIC-1100X failed low, which one of the following best describes the ESFAS Low Pressurizer Pressure SIAS Logic?
- a. if pressurizer pressure channel 1102 A decreases to < 1736 psia, ESFAS actuation will occur
 - b. if pressurizer pressure channel 1102 A and D decrease to < 1736 psia, ESFAS actuation will occur
 - c. ESFAS actuation will only occur if pressurizer pressure channels 1102 A,B,C and D all decrease to < 1736 psia simultaneously
 - d. pressurizer pressure channels 1102 A,B,C and D have no affect on ESFAS logic

QNUM 086355

- [1.0] 6. From the following, choose one correct response:
- a. The 2B Heater Drain Pump tripped on FWP suction pressure of 350 psig
 - b. The 2B Heater Drain Pump tripped on low level in the 4B Feedwater Heater
 - c. The 2B Heater Drain Pump tripped on low-low level in the 4B Feedwater Heater
 - d. The 2B Heater Drain Pump tripped on high flow (Delta P) to the 4B Feedwater Heater

QNUM 086359

- [1.0] 7. Assume that the CEDMCS was selected to the Automatic Sequential mode prior to this event. From the following select the one correct answer.
- a. The CEA's will insert until the "Reactor Tave/Tref Temp Hi" annunciator has cleared
 - b. The CEA's will insert at fast rate until Tave/Tref mismatch is less than +4 °F
 - c. Operation in automatic sequential will have no effect.
 - d. The CEA's will insert at slow rate until Tave/Tref mis-match is less than -2 °F.

QNUM 086363

- [1.0] 8. Annunciators G-2 and G-3 are illuminated. (select the correct statement)
- a. A low pressure condition does not exist therefore the Feed Pumps will not trip.
 - b. A low pressure condition does exist and Turbine Runback sends a trip signal to the Feed Pumps.
 - c. A low pressure condition does exist and the Feed Pumps have tripped.
 - d. A low pressure condition does exist, but the Feed Pump trip is ~~low-low~~ pressure after a time delay. *etc*

QNUM 086360

- [1.0] 9. Cold Leg temperatures are in alarm because:
- a. Pressurizer Heaters are on
 - b. The turbine has runback
 - c. SBCS has actuated
 - d. RCS flow is reduced

QNUM 086368

- [1.0] 10. When the transient has stabilized you notice PCV 8804 still indicates intermediate. You should (pick the best response):
- shut the MSIV's
 - depress the green button, then depress the yellow close button to shut the valve
 - place the steam bypass permissive to manual
 - place the steam bypass permissive to off

QNUM 086405

- [1.0] 11. ~~Condensate Pump 2B Recirc Valve (FCV-12-3B) is open because:~~
- ~~Condensate Pump 2B breaker is open~~
 - ~~Loss of Power (instrument bus)~~
 - ~~Remote control switch is in open~~
 - ~~Low '2B' condensate pump flow~~
- J
PAC*

=====

EXAM 0820961

QUESTIONS 12 THROUGH 20 ARE NOT RELATED TO

THE FROZEN CONDITION OF THE SIMULATOR
=====

QNUM 086212

- [2.0] 12. List four (4) parameters, indicated on the control board, that affect TM/LP setpoint?

QNUM 086380*

- [1.0] 13. Which one of the following best describes the reason why voiding is a concern during a station blackout?
- a. Containment cooling units are secured
 - b. HPSI flow and charging flow are unavailable to replenish inventory
 - c. RCPS are secured and there is limited flow through the upper head area
 - d. QSPDS is unavailable to allow monitoring of the extent of void formation

QNUM 086255

- [1.0] 14. Select the TRUE statement, concerning Unit 2 hot leg injection.
- a. It would only be required if a LOCA was positively known to have occurred on a cold leg.
 - b. An alternate method is available because a high differential pressure between the containment and the RCS might prevent normal hot leg flow.
 - c. Post-LOCA hot leg injection is advantageous in minimizing steam voiding in coolant flow channels.
 - d. The hot leg injection lineup results in 300 gpm going to the hot leg and 300 gpm flowing to the cold legs.

QNUM 086303

- [1.0] 15. A major bus fault occurs on the 2B3 4160V bus. The fault results in a differential current lock-out of that bus. Which of the following is TRUE?
- a. The 2B3 bus will separate from 2B2 and all 480V load centers, the Diesel will start and attempt to close in on the bus.
 - b. All breakers on 2B3 open (some on bus lockout the others on undervoltage), the Diesel does not start because of the lockout.
 - c. Most breakers on 2B3 open (some on bus lockout the others on undervoltage), the Diesel starts but does not attempt to close onto the bus.
 - d. Most breakers on 2B3 open (some on bus lockout the others on undervoltage), the Diesel starts and attempts to close onto the bus.

QNUM 086060

- [1.0] 16. If the RVLMS (QSPDS, pg. 212) indicates a "void" condition for the top three (3) reactor vessel sensors, then: (select the most correct sentence ending)
- a. The core is uncovered.
 - b. RCS liquid level is near the Upper Guide Structure Support Plate.
 - c. RCS liquid level is below the bottom of the hot leg nozzles.
 - d. RCS liquid level is near the Fuel Alignment Plate.

QNUM 082085

- [1.0] 17. With Unit 2 reactor critical, preparing to warm Main Steam Lines, a DC ground isolation is in progress on the 2B DC bus. The outside operator requests to open breaker 2-60231;
- a. should he be allowed to open it?(0.5)
 - b. justify your answer (0.5)

QNUM 082097

- [1.0] 18. During Unit 2 heatup to hot standby, it is desired to feed 2A & 2B SGs with 2C AFW pump. Identify which of the circuits below must be energized.
- a) 480 VAC MCC-A5 Bkr 2-41209
 - b) 120 VAC AC PP 202, ckt 29
 - c) 120 VAC AC PP 204, ckt 5
 - d) 125 VDC DC PP 255, ckt 8
 - e) 125 VDC DC PP 219, ckt 9
 - f) 125 VDC DC PP 238, ckt 19
 - g) 125 VDC DC Bus 2AB PP ckt 20

QNUM 086374*

- [1.0] 19. Assuming Unit 2 pressurizer pressure control setpoint is 2250 psia and channel Y is selected for control, which one of the following best describes the system response?
- a. If pressure decreases to 2180 psia all backup heaters are on and all proportional heaters are at minimum output.
 - b. At 2300 psia increasing, the proportional heaters are at minimum, the backup heaters are off and the selected spray valve(s) are half open.
 - c. At 2220 psia increasing, the backup heaters are operating at half power and the proportional heaters are at minimum.
 - d. At 2275 psia increasing, the high pressurizer pressure alarm actuates with concurrent opening of the selected spray valve.

QNUM 086379

- [1.0] 20. Following a reactor trip (from 100% power) due to a Loss of Offsite Power, Delta T is observed to drop from 100% Delta T to a few degrees (approximately 10 °F), then slowly increase over several minutes to approximately 30 °F.
- a. This is normal because a Delta T is needed to establish the density difference need for a thermal driving head for Natural Circulation.
 - b. This is normal because of the 210 second time delay for AFW to provide water for decay heat removal.
 - c. This is abnormal and indicates Natural Circulation is not being established.
 - d. This is normal because initially the SBCS Quick opens then modulates closed causing Delta T to increase.

4. SHIFT TURNOVER SHEET

A. PREVIOUS OPERATING HISTORY (UNTIL 15 MINUTES AGO)

1. POWER HISTORY: 100% for 287 days
2. CORE AGE: EOL
3. CEA CONFIGURATION: ARO
4. BORON CONCENTRATION: 160 ppm

B. STATUS OF CONTROLS (ALL IN AUTO EXCEPT AS NOTED BELOW)

1. CEDMCS: Off
2. VCT MAKEUP: Manual

C. EQUIPMENT OOS ENTRIES: 2A Heater Drain Pump - 2 Days ago @ 0830 hours

D. PREVIOUS ACTIVITIES: 100% Power Operation

E. CURRENT ACTIVITIES: Normal Power Operations until these events occurred.

ST. LUCIE PLANT
ADMINISTRATIVE PROCEDURE NO. 0005754, REVISION 0
WRITTEN EXAMINATION MANAGEMENT

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EXAM NO. 0820961

NAME: _____

AUTHOR: HEFFELFINGER K

DATE: 11/03/89

SSN/CD: _____

REVIEWED BY: *[Signature]*

DATE: *11/27/89*

DATE: _____

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- 086201
[1.0] 1. No. (0.5)
DEH pressure is normal for the runback to a preset valve position. (0.5)
- 086347
[1.0] 2. c. will not turn off automatically
- 086348
[1.0] 3. c. the reactor will trip on High Pressure at 2370 psia
- 086349
[1.0] 4. a. DNBR increases
- 086352
[1.0] 5. b. if pressurizer pressure channel 1102 A and D decrease to < 1736 psia, ESFAS actuation will occur
- 086355
[1.0] 6. c. The 2B Heater Drain Pump tripped on low-low level in the 4B Feedwater Heater
- 086359
[1.0] 7. b. The CEA's will insert at fast rate until Tave/Tref mismatch is less than +4 °F
- 086363
[1.0] 8. d. A low pressure condition does exist, but the Feed Pump trip is low-low pressure after a time delay.
- QNUM 086360
[1.0] 9. b. The turbine has runback
- QNUM 086368
[1.0] 10. d. place the steam bypass permissive to off

086405

~~[1.0] 11. d. Low 2B condensate pump flow~~ *EZE*

086212

[2.0] 12. Any 4 @ 0.5 each
Tcold
ASI
Nuclear Power (NI Power)
Thot
SG Pressure

086380*

[1.0] 13. c. RCPs are secured and there is limited flow
through the upper head area

086255

[1.0] 14. d. The hot leg injection lineup results in 300
gpm going to the hot leg and 300 gpm flowing
to the cold legs.

086303

[1.0] 15. c. Most breakers on 2B3 open (some on bus
lockout the others on undervoltage), the
Diesel starts but does not attempt to close
onto the bus.

086060

[1.0] 16. b. RCS liquid level is near the Upper Guide
Structure Support Plate.

082085

[1.0] 17. a) No (0.5)
b) The MSIV will fail open (0.5)

082097

[1.0] 18. (0.2 each)
c) 120 VAC AC PP 204, ckt 5
d) 125 VDC DC PP 255, ckt 8
e) 125 VDC DC PP 219, ckt 9
f) 125 VDC DC PP 238, ckt 19
g) 125 VDC DC Bus 2AB PP ckt 20

086374*
[1.0]

19. b. At 2300 psia increasing, the proportional heaters are at minimum, the backup heaters are off and the selected spray valve(s) are half open.

086379
[1.0]

20. a. This is normal because a Delta T is needed to establish the density difference need for a thermal driving head for Natural Circulation.

ST. LUCIE PLANT
ADMINISTRATIVE PROCEDURE NO. 0005754, REVISION 0
WRITTEN EXAMINATION MANAGEMENT

LO REQUAL TRAINING PROGRAM

EXAM NO. 0820959

NAME: _____ AUTHOR: HEFFELFINGER K DATE: 11/02/89
SSN/CD: _____ REVIEWED BY: G. M. [Signature] DATE: _____
DATE: _____ EXAM SCORE: _____

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

Candidate's Signature

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QNUM 086124*

- [1.0] 1. Which one of the following statements best describes the current condition of Tavg?
- a. it is low due to excess feedwater
 - b. it is normal for post SGTR conditions
 - c. it is low due to a malfunction in SBCS
 - d. it is low due to primary to secondary leakage

QNUM 086126*

- [1.0] 2. If only one of the SGs is ruptured, which one of the following best describes why feed flow is the same to both SGs?
- a. AFAS actuation resulted in AFW flow and all flow paths have subsequently been throttled to provide equal flow rates to both SGs,
 - b. the SG fill valve was opened, no other flowpath visible from the control room accounts for the feed flow,
 - c. feedwater flow via the main feed reg. valves has not been interrupted,
 - d. the 15% bypass valves are at the 5% position as expected in this condition.

QNUM 086127*

- [1.0] 3. The statement is made: All the RCS mass being lost is going into the ruptured SG. Which one of the following is the best description of the current status of inventory control?
- a. there are no indications that reactor coolant is leaving the RCS except via the SG tube leak
 - b. any time an inventory loss occurs, unidentified leakage must be assumed to be occurring concurrently
 - c. controlled leakage is occurring in addition to the leakage into the SG
 - d. control room indications show concurrent abnormal loss of primary coolant via another path

QNUM 086129

- [1.0] 4. Can the ruptured SG be isolated now? Explain.

QNUM 086133*

- [1.0] 5. In order to isolate the affected steam generator to 2C AFW pump, SE-08-1(2) must be closed. Which one of the following statements concerning SE-08-1 is most accurate?
- a. SE-08-1 opens on AFAS 1 and therefore must be isolated by means of a manual valve during this event
 - b. SE-08-1 closes on AFAS 1, therefore if the RCO verifies proper AFAS 1 actuation, no other action is required to close SE-08-1
 - c. SE-08-1 is operated from a local handswitch in the cable spreading room, an outside operator must coordinate with the RCO to ensure the valve is closed
 - d. SE-08-1 is operated from a local handswitch in the AFW Pump area

QNUM 086135*

- [1.5] 6. List five (5) diesel trips which are bypassed under current conditions. (Setpoints not required.)

QNUM 086138*

- [1.0] 7. How could you determine the "2A" Diesel output voltage? (choose one)
- a. turn the synch plug to the DG 2A position and check 'incoming' voltage
 - b. check 2B3 4160v bus, its voltage equals that of the diesel generator
 - c. check diesel generator voltage meter on RTGB 201
 - d. have the SNPO check locally at the diesel control panel or position the 'normal/isolate' switch to the 'isolate' position and check the diesel generator voltage at the remote shutdown panel

QNUM 086139*

- [1.0] 8. If prior to the event occurring, the diesel had been loaded to 3700 KW in parallel with offsite power, would it still be carrying 3700 KW? Choose the best answer?
- a. yes, it would continue to carry 3700 KW unless the starting of ESFAS equipment caused the DG load to increase above 3700 KW
 - b. yes, unless the operator terminates the surveillance; until then it continues to run loaded at 3700 KW
 - c. no, the diesel generator would still be tied to the bus but would only be carrying emergency loads, non-emergency loads would be supplied by the startup transformer
 - d. no, SIAS causes the output breaker to open, it does not reclose as long as offsite power remains available

QNUM 086144 *

- [1.0] 9. Which one of the following best describes the automatic signals which caused the Diesel Generator to start?
- a. loss of voltage on the 4160v and 480v load center buses
 - b. SIAS and degraded voltage on safety-related AC buses
 - c. SIAS and CIAS
 - d. SIAS and degraded voltage on safety-related AC buses

QNUM 086147*

- [1.0] 10. 2B SG levels are less than 19%. When will AFAS occur?

EXAM 0820959

QUESTIONS 11 THROUGH 20 ARE NOT RELATED
TO THE FROZEN CONDITION OF THE SIMULATOR

QNUM 086352*

- [1.0] 11. With PIC-1100X failed low, which one of the following best describes the ESFAS Low Pressurizer Pressure SIAS Logic?
- a. if pressurizer pressure channel 1102 A decreases to < 1736 psia, ESFAS actuation will occur
 - b. if pressurizer pressure channel 1102 A and D decrease to < 1736 psia, ESFAS actuation will occur
 - c. ESFAS actuation will only occur if pressurizer pressure channels 1102 A, B, C and D all decrease to < 1736 psia simultaneously
 - d. pressurizer pressure channels 1102 A, B, C and D have no affect on ESFAS logic



QNUM 086226 *

- [2.0] 12. For each SIT feature listed in COLUMN 1 below, select the appropriate unit designation from COLUMN 2.

COLUMN 1

- a. SIT discharge MOVs get an open signal on CIAS.
- b. Assuming power is available, SIT discharge valves cannot be closed with RTGB control switch at normal RCS pressure.
- c. Following SIAS, check valve backleakage test valves must be reset with a pushbutton before they can be opened.
- d. Filling SIT's with a HPSI pump can cause a relief valve to lift on the RWT return line if more than one HPSI header isolation valve is open.

COLUMN 2

1. Unit 1 only
2. Unit 2 only
3. Both Units 1 and 2
4. Neither Unit

QNUM 086241

- [1.0] 13. Which one of the following choices correctly portrays the status of the letdown level control valves when taking the pressurizer solid?
- a. Auto; open
 - b. Auto; closed
 - c. Manual; open
 - d. Manual; closed

QNUM 086379

- [1.0] 14. Following a reactor trip (from 100% power) due to a Loss of Offsite Power, Delta T is observed to drop from 100% Delta T to a few degrees (approximately 10 °F), then slowly increase over several minutes to approximately 30 °F.
- a. This is normal because a Delta T is needed to establish the density difference need for a thermal driving head for Natural Circulation.
 - b. This is normal because of the 210 second time delay for AFW to provide water for decay heat removal.
 - c. This is abnormal and indicates Natural Circulation is not being established.
 - d. This is normal because initially the SBCS Quick opens then modulates closed causing Delta T to increase.

QNUM 086380*

- [1.0] 15. Which one of the following best describes the reason why voiding is a concern during a station blackout?
- a. Containment cooling units are secured
 - b. HPSI flow and charging flow are unavailable to replenish inventory
 - c. voiding may result in the pressurizer going solid causing an over pressure condition in the RCS.
 - d. QSPDS is unavailable to allow monitoring of the extent of void formation

QNUM 086310

- [1.0] 16. Select the most correct statement regarding the QSPDS Saturation Margin Monitor.
- a. Calculates the difference between the Pressurizer Temperature RTD and the average Core Exit Thermocouple (CET).
 - b. Calculates the difference between the saturation temperature corresponding to Pressurizer Pressure and the Representative CET.
 - c. Calculates the difference between the Pressurizer Temperature RTD and the Thot RTD.
 - d. Calculates the difference between the saturation temperature corresponding to Pressurizer Pressure and the average HJTC.

QNUM 086085 *

- [1.0] 17. Which one of the following is the best explanation why the Unit 2 Hydrogen Purge System uses the SBVS filter trains instead of the Continuous Containment Purge Filter Train?
- a. the Continuous Containment Purge Filter Train is not Post LOCA qualified (there is no outside cooling air available)
 - b. the Continuous Containment Purge Filter Train is directed to the Fuel Handling Building exhaust stack, this stack is not large enough to handle the flow rate required for Post LOCA hydrogen removal
 - c. the SBVS filter train is equipped with electric heaters which result in hydrogen recombining with oxygen to form water vapor
 - d. for Post LOCA conditions the Continuous Containment Purge Filter Train would be in service to reduce containment pressure and therefore would not be able to handle the added flow rate required for hydrogen removal

QNUM 086396

- [1.0] 18. Annunciator K-25 "REACTOR TAVG/TREF TEMP LO" is illuminated.
- a. What parameter does RRS use to calculate TREF?
 - b. What two (2) parameters does RRS use to calculate TAVG?

QNUM 086125

- [1.5] 19. What three (3) signals will close the SG blowdown isolation valves FCV-23-3 and FCV-23-5.

QNUM 086128

- [1.5] 20. What are three (3) of the concerns with SG overfill?

ST. LUCIE PLANT
ADMINISTRATIVE PROCEDURE NO. 0005754, REVISION 0
WRITTEN EXAMINATION MANAGEMENT

LO REQUAL TRAINING PROGRAM

EXAM NO. 0820959

NAME: _____

AUTHOR: HEFFELFINGER K

DATE: 11/02/89

SSN/CD: _____

REVIEWED BY: *By Marshall*

DATE: _____

DATE: _____

EXAM DRAFT ANSWER KEY

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- QNUM 086124*
[1.0] 1. c. it is low due to a malfunction in SBCS
- 086126*
[1.0] 2. d. the 15% bypass valves are at the 5% position as expected in this condition.
- 086127*
[1.0] 3. c. controlled leakage is occurring in addition to the leakage into the SG
- 086129
[1.0] 4. No. (0.5) That is greater than 525 °F. (0.5)
- 086133*
[1.0] 5. d. SE-08-1 is operated from a local handswitch in the AFW Pump area
- 086135
[1.5] 6. Low Oil Pressure
High Engine Water Temperature
Generator Reverse Power
Loss of Generator Excitation
High Crankcase Pressure
Overcurrent
- 086138 *
[1.0] 7. d. have the SNPO check locally at the diesel control panel or position the 'normal/isolate' switch to the 'isolate' position and check the diesel generator voltage at the remote shutdown panel
- 086139 *
[1.0] 8. d. no, SIAS causes the output breaker to open, it does not reclose as long as offsite power remains available

- 086144*
[1.0] 9. c. SIAS and CIAS
- 086147*
[1.0] 10. When the AFAS (Low Level condition) timers have
timed out (for 210 seconds.) *time not req'd. MHT*
- 086352*
[1.0] 11. b. if pressurizer pressure channel 1102 A and D
decrease to < 1736 psia, ESFAS actuation will
occur
- 086226*
[2.0] 12. a. 4.
b. 2
c. 2
d. ~~2~~ 3 *MHT*
- 4 answers at 0.5 each
- QNUM 086241
[1.0] 13. c. Manual; open
- 086379
[1.0] 14. a. This is normal because a Delta T is needed to
establish the density difference need for a
thermal driving head for Natural Circulation.
- 086380
[1.0] 15. b. HPSI flow and charging flow are unavailable
to replenish inventory
- 086310
[1.0] 16. b. Calculates the difference between the
saturation temperature corresponding to
Pressurizer Pressure and the Representative
CET.

4. SHIFT TURNOVER SHEET

- A. PREVIOUS OPERATING HISTORY (UNTIL 5 MINUTES AGO)
 - 1. POWER HISTORY: 100% for 385 days
 - 2. CORE AGE: EOL
 - 3. CEA CONFIGURATION: ARO
 - 4. BORON CONCENTRATION: 160 ppm
- B. STATUS OF CONTROLS (ALL IN AUTO EXCEPT AS NOTED BELOW)
 - 1. CEDMCS: Off
 - 2. VCT MAKEUP: Manual
- C. EQUIPMENT OOS ENTRIES: 2A HPSI PUMP
- D. PREVIOUS ACTIVITIES: NORMAL OPERATIONS
- E. CURRENT ACTIVITIES: An event occurred resulting in a Reactor Trip. 2-EOP-01 has been implemented but not completed. Two RCPs have been secured and the Reheater Block Valves closed.

4. SHIFT TURNOVER SHEET

A. PREVIOUS OPERATING HISTORY (UNTIL 5 MINUTES AGO)

1. POWER HISTORY: 100% for 385 days
2. CORE AGE: EOL
3. CEA CONFIGURATION: ARO
4. BORON CONCENTRATION: 160 ppm

B. STATUS OF CONTROLS (ALL IN AUTO EXCEPT AS NOTED BELOW)

1. CEDMCS: Off
2. VCT MAKEUP: Manual

C. EQUIPMENT OOS ENTRIES: 2A HPSI PUMP

D. PREVIOUS ACTIVITIES: NORMAL OPERATIONS

E. CURRENT ACTIVITIES: An event occurred resulting in a Reactor Trip. 2-EOP-01 has been implemented but not completed. Two RCPs have been secured and the Reheater Block Valves closed.

09/07/89 (7:16)

4. SHIFT TURNOVER SHEET

A. PREVIOUS OPERATING HISTORY (UNTIL 15 MINUTES AGO)

1. POWER HISTORY: 100% for 58 days, then tripped 72 hours ago, and a plant restart is in progress.
2. CORE AGE: BOL
3. CEA CONFIGURATION: Group 5 at 88"
4. BORON CONCENTRATION: 1380 ppm

B. STATUS OF CONTROLS (ALL IN AUTO EXCEPT AS NOTED BELOW)

1. CEDMCS: Off
2. VCT MAKEUP: Manual

C. EQUIPMENT OOS ENTRIES: NONE

D. PREVIOUS SHIFT ACTIVITIES: Normal Plant Startup Operations

E. CURRENT ACTIVITIES: Normal Operations until these events occurred.

ST. LUCIE PLANT
ADMINISTRATIVE PROCEDURE NO. 0005754, REVISION 0
WRITTEN EXAMINATION MANAGEMENT

LO REQUAL TRAINING PROGRAM

EXAM NO. 0820960

NAME: _____

AUTHOR: HEFFELFINGER K

DATE: 11/02/89

SSN/CD: _____

REVIEWED BY: *Marjorie*

DATE: _____

DATE: _____

EXAM SCORE: _____

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

Candidate's Signature

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QNUM 086399*

- [1.0] 1. Select the four (4) indications that currently can be utilized to confirm the CEA is misaligned.
- a. CEDMCS Control Panel
 - b. ADS
 - c. CEA Display
 - d. Annunciator K-6 "CEA AUTO MOTION LOW POWER PROHIBIT"
 - e. Annunciator K-11 "CEA MOTION INHIBIT"
 - f. Annunciator K-27 "GROUP OUT OF SEQUENCE (ADS)"
 - g. Annunciator K-30 "CEA POSITION +/- 4 INCH DEVIATION (ADS)"

QNUM 086400

- [1.0] 2. For the existing plant conditions, choose the correct response in reference to the AFAS system.
- a. AFAS will not actuate if the MA Instrument bus is de-energized.
 - b. The battery fail bypass mode will bypass Channels A and C, if the MA Instrument bus is de-energized.
 - c. The battery fail bypass mode will bypass Channels C & D if the MD Instrument bus is de-energized.
 - d. AFAS 2 (SG2B) actuation will be prevented if the MD Instrument bus is de-energized.

QNUM 086401.

- [1.0] 3. The following statements about Xenon in the area of the misaligned CEA: state the direction of change in Xenon concentration and compare the rate of change in this event versus this event occurring at 100% power. Which of these statements is TRUE.
- Xenon concentration is decreasing at a rate that is greater than would be occurring at 100% power.
 - Xenon concentration is decreasing at a rate that is less than would be occurring at 100% power.
 - Xenon concentration is increasing at a rate that is greater than would be occurring at 100% power
 - Xenon concentration is increasing at a rate that is less than would be occurring at 100% power.

QNUM 086404

- [1.0] 4. Multiple Choice: If a LOOP/Reactor trip occurred from the present plant conditions, RCS heat removal would be accomplished: *(This assumes No operator action ~~except~~ other than that implied in the answers).* *1/17/85
EJC*
- by operation of the SBCS in Manual.
 - by continued operation of SBCS in automatic.
 - by operation of the ADVs in the Auto mode.
 - only by the functioning of the SG safety valves.



QNUM 086406

- [1.0] 5. Annunciators K-22 & K-38 are not in alarm because:
- a. No CEA's are misaligned
 - b. DDPS is de-energized
 - c. the misaligned CEA did not slip in but stuck while others in the group were withdrawn
 - d. DDPS only counts pulses sent to the CEAs not actual height

QNUM 086407

- [1.0] 6. If when this event occurred: Channel D containment pressure (PIS-07-2D) was already failed and all its associated bistables had been placed in a tripped condition, which of the ESFAS Actuations below would have actuated?
- a. CIS, SIAS, MSIS, CSAS
 - b. CIS, SIAS
 - c. CIS, SIAS, MSIS
 - d. None

QNUM 086408

- [1.0] 7. TCB's 3, 4, 7 and 8 indicate open because:
- a. instrument buses MC and MD are de-energized
 - b. CEA MG set 2B is off
 - c. 125V DC Bus 2B is de-energized
 - d. instrument bus MC is de-energized

QNUM 086409

- [1.0] 8. If CEA Drive MG set #1 was to trip, would a reactor trip occur? Explain.

QNUM 086412*

- [1.0] 9. If when this event occurred: RPS Channel "A" Low SG Level Trip had been in bypass, (Choose one)
- a. the reactor would have tripped because 2 of the 4 channels exceed the setpoint
 - b. the reactor would have tripped because 2 of the 3 available channels exceed the setpoint
 - c. the reactor would not have tripped but any 1 additional channel exceeding the setpoint would cause a trip
 - d. the reactor would not have tripped regardless of the logic because of the bypass condition

QNUM 086413

- [1.0] 10. DDPS does not indicate a deviation on Group 4 because: (pick the best statement)
- a. The loss of power when the instrument bus was lost
 - b. The Pulse Counter has not changed
 - c. The deviation lights don't function below 15% power
 - d. The lights are actuated from the dropped rod contact

QNUM 086209

- [1.0] 11. Annunciator L-36 "TM/LP CHNL TRIP" is illuminated. Should the plant have tripped? Explain.

EXAM 0820960

QUESTIONS 12 THROUGH 20 ARE NOT RELATED
TO THE FROZEN CONDITION OF THE SIMULATOR

QNUM 086091

- [1.0] 12. Which two of the following indications would you use to verify a PORV is closed?
- a. Acoustical Monitor
 - b. Quench Tank Level
 - c. Pressurizer Pressure
 - d. Containment Sump Level

QNUM 086353*

- [1.0] 13. Given Unit 2 at 100% power - LIC 1110X failed low, channel Y selected; which of the following is correct:
- a. All heaters will function normally
 - b. All heaters are de-energized until "Backup Interlock Bypass" is taken to "Pressure", then all heaters can be restored
 - c. All heaters are de-energized until "Backup Interlock Bypass" is taken to "Level", the B side heaters can be restored
 - d. heaters cannot be restored with this failure

QNUM 086264

- [1.0] 14. Choose the correct (expected) behavior for the reactor excore neutron detectors as the core uncovers during a LOCA.
- a. Detector output decreases
 - b. Detector output increases
 - c. Detector output does not change
 - d. Detector output goes off-scale

QNUM 086068*

- [1.0] 15. Following a large break LOCA, Annunciator B-39 "480 MCC 2A5/2A6/2A8 NON-ESS SECT LOCKOUT" is illuminated. Choose the conditions/actions which would be necessary to restore 2A5 non-essential power? (1.0)
- a. clear the "bus lockout" on the 480V load center
 - b. secure the 2A diesel generator, non-essential power cannot be restored as long as the diesel is running
 - c. reset the thermal overload "Normal/Bypass" switch on the 2A5 to the "Normal" position
 - d. reset SIAS then reset the non-essential loads breaker on the 2A5 MCC

QNUM 086109

- [1.0] 16. Which statement below correctly describes the effect of the condenser vacuum interlock on the Steam Bypass Control System?
- a. If ALL M/A stations are in AUTO when vacuum is regained, then the Condenser Vacuum Reset button must be depressed to remove the interlock.
 - b. ONLY if the Master Integrated Controller is in Manual, is it required to depress the Condenser Vacuum Reset button to remove the interlock.
 - c. It makes no difference if the M/A stations are in Manual, or Auto, when the condenser vacuum is regained, the interlock is removed automatically.
 - d. If ANY of the M/A stations are in manual when vacuum is regained, then the Condenser Vacuum Reset button must be depressed to remove the interlock.

QNUM 086421*

- [1.0] 17. The Safety Injection Tanks have dual vent valves so that a single failure can not prevent venting the SITs. Which one of the following lineups/maneuvers requires venting of the SIT's?
- a. performing HPSI/LPSI/Containment Spray Periodic Test
 - b. establishing shutdown cooling entry conditions
 - c. recharging the nitrogen dewar
 - d. performing the RCS checkvalve backleakage test

QNUM 082079

- [1.0] 18. Which one of the following best describes the ESFAS System response to the loss of the 'A' instrument AC bus?
- A. The 'A' actuation train de-energizes resulting in the actuation of all de-energize to actuate ESFAS signals on the 'A' train.
 - B. No response since all ESFAS instruments have auctioneered power supplies.
 - C. The individual measurement instrumentation in Channel 'A' that are de-energized to actuate go to the trip condition.
 - D. Both trains of ESFAS actuate all 'de-energize to actuate' equipment since the 'A' instrument bus is shared between both actuation trains.

QNUM 086247*

- [1.0] 19. Select the best answer. The Shutdown Cooling Heat Exchangers are used to remove heat during cooldown;
- a. if the pressure is $<$ or $=$ to 500 psia and the temperature is $<$ or $=$ to 350°F
 - b. if the CCW inlet temperature is $>$ or $=$ to 55°F
 - c. with the cooldown rate controlled by throttling the SDC HX return flow to the LPSI headers
 - d. with the cooldown rate controlled by throttling the CCW flow control valves to the SDC heat exchangers

QNUM 086243

[1.0]

20. Choose the statement which best describes the operation of the pressurizer level control system if a load decrease results in a pressurizer insurge.

- a. pressurizer level 4% above programmed level causes all backup heaters to be turned on (if pressurizer pressure is < 2275 psia) and turns off the backup charging pump
- b. pressurizer level greater than or equal to 9% above programmed level results in minimum letdown
- c. operation during the increased pressurizer level condition requires the RCO to adjust the bias on the letdown flow controller to speed up the response of the letdown system
- d. pressurizer level 1% above programmed level results in maximum letdown flow

ST. LUCIE PLANT
ADMINISTRATIVE PROCEDURE NO. 0005754, REVISION 0
WRITTEN EXAMINATION MANAGEMENT

LO REQUAL TRAINING PROGRAM

EXAM NO. 0820960

NAME: _____

AUTHOR: HEFFELFINGER K

DATE: 11/02/89

SSN/CD: _____

REVIEWED BY: *G. Mary P.*

DATE: _____

DATE: _____

EXAM DRAFT ANSWER KEY

INSTRUCTIONS

1. Write your answers on separate sheets, one side only and do not write on the examination question sheets unless otherwise directed.
2. Point value for each question appears in parentheses.
3. There are 20.0 points on this exam.
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TRAINING INTEGRITY

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- 086399*
[1.0] 1. b. ADS
- e. Annunciator K-11 "CEA MOTION INHIBIT"
- f. Annunciator K-27 "GROUP OUT OF SEQUENCE ADS"
- g. Annunciator K-30 "CEA POSITION +/- 4 INCH DEVIATION (ADS)"
- 086400
[1.0] 2. a. AFAS will not actuate if the MA Instrument bus is de-energized.
- 086401
[1.0] 3. d. Xenon concentration is increasing at a rate that is less than would be occurring at 100% power.
- 086404
[1.0] 4. ~~c. by operation of the ADVs in the Auto mode. (auto/manual switches in "Auto") with the controllers in automatic control set for 900 psia.~~ *d. only by the functioning of the SG safety valves.* *11/17/88*
- 086406
[1.0] 5. d. DDPS only counts pulses sent to the CEAs not actual height
- 086407
[1.0] 6. c. CIS, SIAS, MSIS
- 086408
[1.0] 7. d. instrument bus MC is de-energized
- 086409
[1.0] 8. No. TCB-9 is closed (allowing MG set #2 to provide power).
- 086412*
[1.0] 9. c. the reactor would not have tripped but any 1 additional channel exceeding the setpoint would cause a trip

- 086413
[1.0] 10. b. The Pulse Counter has not changed
- 086209
[1.0] 11. No, only 1 channel in alarm trip requires 2/4 logic.
- 086091
[1.0] 12. a. Acoustical Monitor
b. Quench Tank Level
- 086353*
[1.0] 13. c. All heaters are de-energized until "Backup Interlock Bypass" is taken to "Level", the B side heaters can be restored
- 086264
[1.0] 14. b. Detector output increases
- 086068*
[1.0] 15. d. reset SIAS then reset the non-essential loads breaker on the 2A5 MCC
- 086109
[1.0] 16. d. If ANY of the M/A stations are in manual when vacuum is regained, then the Condenser Vacuum Reset button must be depressed to remove the interlock.
- 086421*
[1.0] 17. b. establishing Shutdown Cooling
- 082079
[1.0] 18. c. The individual measurement instrumentation in Channel 'A' that are de-energized to actuate go to the trip condition. (1.0)
- QNUM 086247*
[1.0] 19. c. with the cooldown rate controlled by throttling the SDC HX return flow to the LPSI headers

QNUM 086243

[1.0]

20.

a.

pressurizer level 4% above programmed level causes all backup heaters to be turned on (if pressurizer pressure is < 2275 psia) and turns off the backup charging pump

ST. LUCIE PLANT
ADMINISTRATIVE PROCEDURE NO. 0005754, REVISION 0
WRITTEN EXAMINATION MANAGEMENT

L.O. RQL TRAINING PROGRAM

EXAM NO. 0820964

NAME: _____

AUTHOR: MARPLE C

DATE: 11/13/89

SSN/CD: _____

REVIEWED BY: *[Signature]*

DATE: 11/16/89

DATE: _____

EXAM SCORE: _____

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

Candidate's Signature

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QNUM 082147*

- [1.0] 1. Unit 1 CEA's 5, 11, and 14 became misaligned and were determined to be inoperable due to physical damage to the coil power programmers. The action statement of the Tech. Specs. 3.1.3.1 was applied and the unit placed in HOT STANDBY within the required 6 hours. Identify the reporting requirements for this event by listing ALL of the following which apply.
- a. NO immediate notification (within 1 hour) of the NRC is required since this is not considered to be an emergency condition.
 - b. Immediate notification of the NRC (within 15 minutes) is required via the Emergency Notification System.
 - c. State agencies which require notification as per the EPIP's should be notified prior to the NRC notification.
 - d. Immediate notification of the NRC is required only for Site Area or General Emergencies; therefore it is not necessary to notify NRC in this case.

QNUM 082152

- [1.0] 2. A SGTR and an unisolable ESDE have occurred on 1A SG.

A Site Area Emergency has been declared.

The dose rate calculations are as follows:

1 mile	whole body = 617.5 mrem/hr
	Thyroid = 1950 mrem/hr
2 miles	whole body = 154.4 mrem/hr
	Thyroid = 503.8 mrem/hr
5 miles	whole body = 29.3 mrem/hr
	Thyroid = 97.5 mrem/hr
10 miles	whole body = 15.4 mrem/hr
	Thyroid = 47.9 mrem/hr

The Protective Action Recommendations for this event are:

- a. Sheltering recommended for a complete circle around plant at 5 miles & 10 miles downwind
- b. Sheltering recommended for a complete circle around plant at 2 miles & 5 miles downwind
- c. Sheltering recommended for a complete circle around plant at 2 miles & no other protective actions recommended
- d. No protective actions recommended



QNUM 082081*

- [1.0] 3. As the NPS you receive a call from Health Physics stating that radiological conditions in the Unit 2 -.5' RAB hallway by MCC 2A2 & 2B2 are as follows:

Dose Rate - 130 mrem/hour Beta, Gamma
Airborne - 1×10^{-10} uci/cc
Loose Surface Contamination - 65 dpm/100 cm²
Beta, Gamma

There has been a slight increase on the Vent Stack Radiation Monitors, source of radiological conditions is unknown.

Which of the following action(s) is (are) appropriate?

- a. Declare a Site Area Emergency
- b. Order an evacuation of the -.5 area of the RAB
- c. Order an evacuation of the Owner Controlled Area
- d. No action required; continue to investigate source of radiation/contamination

QNUM 082141

- [1.0] 4. A reactor startup on Unit 1 is in progress and the reactor is approaching criticality. The set of parameters that best describes the indications of criticality are:

- a. Neutron count rate constant
SUR slightly positive
Rod motion stopped
- b. Neutron count rate increasing
SUR zero
Rod motion stopped
- c. Neutron count rate slightly decreasing
SUR slightly negative
Rods being slowly inserted
- d. Neutron count rate increasing
SUR slightly positive
Rod motion stopped

QNUM 082192*

- [1.0] 5. Unit 1 has been diagnosed as having a 90 GPM SG tube leak and is in the process of coming off the line. During the down power, the unit trips due to low RCS pressure. Which of the following describes the proper strategy?
- a. Immediately enter EOP-04. Since the event has been identified, EOP-01 is not required
 - b. Implement EOP-01, exit to EOP-02 and carry out the Steam Generator Tube Leak Off-Normal operating procedure in parallel with EOP-02
 - c. Implement EOP-01, then exit to EOP-04, if secondary activity is verified.
 - d. Implement EOP-01, then exit to EOP-15 on the basis that the trip, due to low RCS pressure, complicated the event and there is no immediately apparent diagnosis or cause

QNUM 082206

- [1.0] 6. During a Natural Circulation Cooldown following a SGTR, which parameter response below would indicate voiding in the Upper Head?
- a. RVLMS heated junction thermocouples indicate saturation
 - b. Pressurizer Surge line temperature increases to T_{sat}
 - c. Heated-Unheated Thermocouple differential ≈ 80 °F
 - d. Pressurizer Level increases suddenly while lowering pressure

QNUM 082210*

[1.0] 7. The following conditions exist for the reactor startup of Unit 1:

Estimated Critical CEA position: Gp. 7 @ 60"

Current CEA position: Gp. 5 @ 74"

ICRR indicated Critical CEA position: Gp. 6 @ 40"

Which of the actions below describes the appropriate action to be taken?

- a. Insert CEAs until Gp. 5 @ 46"
- b. Stop, select CEDMCS to OFF
- c. Position CEAs to ECC - 500 pcm
- d. Continue until Criticality or ECC+500 pcm

QNUM 082092

- [1.0] 8. Unit 1 has been operating normally for a long period at 100% power. A transient occurs that has the following effects:

Reactor power decreased slightly,
RCS Tave decreased slightly,
Digital Data Processing System shows flux lower
for a single detector location.

Which one of the following events caused the transient with the above indications?

- a. An inadvertent boration.
- b. A dropped CEA.
- c. A tripped RCP.
- d. A trip of both Heater Drain Pumps.

QNUM 082213*

- [1.0] 9. The 1C AFW Pump has tripped on overspeed. The RCO has performed all required steps to reset an electrical overspeed condition. The pump still does not start and the overspeed alarm is still illuminated. Which one of the following is the most appropriate strategy to restore operation of the 1C AFW Pump?

- a. have the NPO locally reset the turbine mechanical trip lever then repeat the steps to reset the electrical overspeed trip
- b. the 1C AFW Pump can only be operated locally; the instructions of 1-EOP-99 Appendix G must be implemented
- c. the 1C AFW Pump is steam bound, implement the actions required to vent the pump prior to attempting to reset the overspeed trip
- d. the time delay on the electrical overspeed trip has not expired; wait three minutes then attempt another reset of the electrical overspeed trip

QNUM 082175 *

- [1.0] 10. Unit 1 is operating at 100% steady state conditions when a loss of the 1A3 4160V AC Bus occurs. The 1A Diesel Generator fails to start and an operator is dispatched to the Diesel Room to investigate.
- The RCO attempts to reenergize the 1A3 bus by cross-tie of the bus to the 1A2 4160V AC Bus. The RCO attempts to close the 1A2/1A3 tie breaker (20109). The breaker fails to close. On the second attempt, the breaker fails to close and the RCO then calls Electrical Department for assistance.
- a. Was this operation performed correctly? (0.5)
 - b. Explain your answer. (0.5)

QNUM 082181*

- [1.0] 11. Unit 1 is operating at 100 % steady state conditions when a rupture of the "B" Component Cooling Water header occurs. Which one of the following describes the most limiting requirement that applies to this condition?
- a. immediately trip the reactor and turbine and carry out EOP-01
 - b. return two CCW trains to service within 72 hours
 - c. cross-tie the CCW headers to ensure all safety related equipment is supplied with CCW; this lineup can be maintained for no more than 72 hours
 - d. ensure the reactor is shutdown within 45 minutes

QNUM 082144*

- [2.0] 12. For each ASI control situation in Column 1; choose the correct ASI control strategy in Column 2. Assume unit 1. Note: Answers in Column 2 may be used more than once.

COLUMN 1

- A. Steady State operation at 100% power
- B. Following a planned load reduction, power is maintained for 8 days at 80% power
- C. Unplanned load reduction to 80% power lasting for 12 hours
- D. Planned load reduction to be maintained < 24 hours at 90% power

COLUMN 2

- 1. maintain ASI to + or - 0.1 of the ESI for 100% power level
- 2. maintain ASI to + or - 0.1 of the ESI for 80% power level
- 3. maintain ASI to + or - 0.5 of the ESI for 100% power level
- 4. maintain ASI to + or - 0.5 of the ESI for 80% power level
- 5. maintain ASI to + or - 0.3 of the ESI for 100% power level
- 6. consult Reactor Engineering for guidance

QNUM 082140

- [1.0] 13. A reactor startup on Unit 1 is in progress and the RCO has just announced the reactor is critical. Auxiliary feedwater flow is adjusted to both Steam Generators and the Steam Generators are inadvertently overfed, such that Tave decreases from 535 °F to 530 °F. Assuming the MTC is negative and no operator (or automatic protective) action occurs, analyze the scenario and determine the statement that best describes where reactor power will level out:
- a. Reactor power will increase to just below the Point of Adding Heat.
 - b. Reactor power will not increase because a 5 °F temperature decrease is insufficient to add sufficient reactivity to change power.
 - c. Reactor power will level out above the Point of Adding Heat when the negative reactivity added by the Power Defect is equal to the positive reactivity added by the temperature decrease.
 - d. Reactor power will increase into the power range until operator action terminates the event or the high linear power trip setpoint is reached.

QNUM 082003

- [1.0] 14. Control Room Air Conditioning Unit HVA-3B has been shutting down every 4 to 6 hours on High Discharge pressure. If allowed to sit for approximately 5 minutes it can be restarted.
- a. Can HVA-3B be considered operable?
(0.5)
 - b. Justify your answer. (0.5)

QNUM 082188*

[1.0] 15. Loss of offsite power has occurred on Unit 1. Which of the following describes the Steam Bypass Control System status after ten minutes into the event assuming all systems were in normal line-up before the event?

- a. There would be no effect on the SBCS because the entire SBCS is powered by power panels which are fed by AC power panels supplied by the emergency diesel generators.
- b. The SBCS would be disabled due to the loss of power to the valve solenoids.
- c. There would no effect on the SBCS because it receives DC power from a non-vital DC bus.
- d. The SBCS will be completely disabled by the loss of vacuum due to a loss of Circulating Water Pumps for the condenser.

QNUM 082111*

[1.0] 16. A Loss of Offsite Power has been diagnosed and the steps of 2-EOP-09, Loss of Offsite Power are being performed. Given that natural circulation flow was established at time 0000, analyze the data provided on the chart below, and answer the following questions:

Time	0000	0010	0020	0030
PZR Pressure	2100	2100	2100	2100
PZR Level	52%	52%	52%	52%
CET's	552	555	558	562
Thot	552	555	558	562
Tcold	532	535	538	542
SG 2A Pressure	900	930	950	990
SG 2A WR Level	50%	50%	50%	50%
SG 2B Pressure	900	930	950	990
SG 2B WR Level	50%	50%	50%	50%

- a. What problem is indicated by these parameters? (0.5)
- b. How should the operator respond? (0.5)

QNUM 081020*

[1.0] 17.

(Multiple Choice) A Station Blackout has occurred on Unit-2 and power has been restored to the 2A3 4.16KV bus. Which one of the following best describes the operator actions to restore and maintain RCS Pressure Control.

- a. Reset 2A3 PZR heater bus, then locally reset backup heater banks. Auxiliary spray must be manually operated.
- b. Reset 2A3 PZR heater bus, then manually reset backup heater bank B1. Auxiliary spray must be locally operated.
- c. Reset 2A3 PZR heater bus, then manually reset backup heater bank B1. Auxiliary spray must be manually operated.
- d. Reset 2A3 PZR heater bus, then manually reset backup heater banks. Auxiliary spray must be manually operated.

QNUM 089009*

[1.0] 18.

2-EOP-10, Station Blackout, instructs the operator to ensure that the MSIVs & bypasses are closed.

Which of the following undesirable conditions could result if these actions were not taken?

- a. excessive cooldown of the RCS due to continued steam flow
- b. turbine overspeed resulting in physical damage
- c. heatup of the condenser and resulting loss of vacuum, which renders SBCS unavailable
- d. overpressurizing the other unit's steam system if the unit to unit steam line cross-connect was inadvertently opened

QNUM 089014*

- [1.0] 19. A steam generator tube rupture has occurred on Unit 2 from 100% power. Initially all RCPs were tripped. Conditions have stabilized and the affected SG is isolated. Criteria for RCP restart have been met and two RCPs have been restarted. SI stop and throttle criteria have been met and SI has just been terminated. The plant stabilizes at the following conditions:

Pressurizer level	-	48%
Pressurizer pressure	-	450 psia
T_{cold}	-	440 °F
SG pressure	-	405 psia

Select the one best action for these plant conditions:

- a. Manually actuate an SIAS
- b. Reduce RCS Pressure to approximately ± 10 psid of the affected SG
- c. Monitor RCPs for cavitation and/or seal failure
- d. Commence feed and bleed of the affected SG to cool the SG



QNUM 089086*

[1.0] 20. Approximately 5 hours following the onset of a Unit 2 Loss of Coolant Accident, the Chemistry Department reports that a P.A.S.S. sample taken from the ECCS pump recirc line indicates 1500 ppm boron. Previous sample results from this point, taken two hours ago, indicated a boron concentration of 1745 ppm. The following conditions exist:

- RAS has actuated.
- A and B HPSI pumps are aligned for cold leg injection.

The most likely cause of the boron reduction is:

- a. RCS breakflow has not been isolated
- b. the affect of SIT discharge resulting in lower boron concentration in the containment sump
- c. boron precipitation in the core area
- d. emergency boration has been secured

QNUM 089091*

[1.0] 21. Following a Large Break LOCA the RCS is at 140 psia and 267 °F. The "2A & 2B" LPSI pumps are injecting to the core. Which of the following is indicative of proper LPSI system performance?

- a. "2A" LPSI pump discharge pressure is 110 psia.
- b. Each LPSI pump header flow is 600 gpm.
- c. "2B" LPSI pump discharge pressure is 185 psig.
- d. Each LPSI pump header flow is 1900 gpm.

QNUM 082119*

- [1.0] 22. A Loss of Coolant Accident occurred on Unit 2 approximately 4 hours ago. Emergency procedure 2-EOP-03, Loss of Coolant Accident, is being implemented and an aggressive cooldown has begun. Analyze the current plant conditions and answer the following questions:

Condensate storage Tank Level: 21 feet, 5 inches
Cold Leg Temperature: 440 °F

Considering the condensate required to conduct the cooldown, what is the time remaining until Shutdown Cooling is required?

QNUM 082108

- [1.0] 23. Concerning a Loss of Coolant Accident in which the leak rate at 2250 psia is approximately 200 gpm, which one of the following best describes the core heat removal and RCS depressurization strategies used in EOP's?
- a. Heat removal is accomplished by flashing of inventory as it exits the rupture site, pressure is controlled by cycling the charging pumps.
 - b. Heat removal is accomplished by use of the ADV's and feeding the SG with auxiliary feedwater, RCS pressure control is by throttling HPSI.
 - c. Heat removal is accomplished by steaming the SG and using main feedwater; pressure control is via pressurizer heaters and sprays.
 - d. Heat removal is accomplished by once through cooling via HPSI with coolant flow out through the PORV's; pressure control is by cycling the PORV's and throttling HPSI valves.

QNUM 089010*

- [1.0] 24. (Multiple Choice) Subsequent actions of 2-0030136, Loss of a Safety Related D.C. Bus, instructs the RCO to stop the RCP's if CCW is lost for 10 minutes. Which of the following describes how you would trip the RCP's if the 2B and 2BB D.C. buses were lost.
- a. Trip 2A1,2A2,2B1,2B2, from the RTGB
 - b. Trip 2A1,2B2 from the RTGB and trip 2B1,2A2 locally
 - c. Trip 2A1,2A2 from the RTGB and trip 2B1,2B2 locally
 - d. Trip 2A1,2B1 from the RTGB and trip 2B2,2A2 locally

QNUM 082117

- [1.0] 25. With Unit 2 in Mode 5 at 180 °F during a maintenance outage, a complete loss of Shutdown Cooling occurs. The ANPS determines that Appendix C of procedure 2-0440030, Shutdown Cooling Off-Normal, should be implemented. Given that the plant has been shutdown for 100 hours, determine the following:
- a. What is the time remaining to reach 200 °F? (0.5)
 - b. What is the injection flowrate required to maintain ≤ 200 °F? (0.5)

QNUM 089141*

[1.0] 26. Given the following conditions on Unit 2:

Condenser back-pressure is degrading and reading 5.6 in Hg

Main Generator output is 700 MWe. Both SJAEs and the hogging ejectors are in service.

The RCO is manually inserting CEAs.

Which of the following actions is the most appropriate?

- a. Maintain turbine load constant until the primary operator controls T_{ave} to within 2 °F of T_{ref} .
- b. Increase turbine load until vacuum stabilizes
- c. Manually trip the turbine
- d. Commence a Unit shutdown until air in-leakage can be maintained less than 5 cfm.

QNUM 082044

[1.0] 27. Given: Unit 2 is operating at 100% power and the ADS CRT fails.

- a. Identify the LCO that is applicable to this problem.
- b. Explain why this failure does or does not result in entry into an ACTION statement.

QNUM 082113*

- [1.0] 28. While Unit 2 is at 100% power, RCS Hot Leg Sample Isolation Valve (V-5200) fails to indicate closed during performance of the Quarterly Valve Cycle Test.

Which one of the following actions is required to stay at 100% power?

- a. restore the valve to operable status within 2 hours
- b. ensure at least one isolation valve in that affected penetration is operable and restore the valve to operable status within 4 hours
- c. ensure at least one isolation valve in that affected penetration is operable and ensure the penetration leakage limits meet the applicable specs
- d.. no specific action is required

QNUM 082145

- [1.0] 29. Which one of the following descriptions of plant staffing requirements best describes the situation in place at PSL?
- a. Staffing for STA's and licensed operators is fixed by Tech. Spec. requirements; all other staffing requirements are specified by 10 CFR 50.
 - b. Tech. Specs. are established which require certain staffing levels for licensed and non-licensed positions on shift including STA's.
 - c. Tech. Specs. apply to manpower requirements on shift (i.e., minimum shift crew complement); 10 CFR 50 requirements only apply to the total plant complement of personnel, not the number of people on shift.
 - d. The only staffing requirements specified by 10 CFR 50 are for Fire Brigade members.

QNUM 082168

- [1.0] 30. Which ONE of the following conditions would require the use of AP 0010124 "Control and Use of Jumpers and Disconnected Leads"?
- a. Physically removing a Sigma from service under a signed PWO.
 - b. Installing a temporary cable on a receptacle to operate air conditioning to support maintenance activities.
 - c. Maintenance technicians, while troubleshooting, install hand held test instrumentation.
 - d. Electrically bypassing the Pressurizer Pressure SIAS due to an inoperable keyswitch.

082122*

- [1.0] 31. Which one of the following best describes the preferred strategy for combating a Total Loss of Feed event once EOP-15 is entered?
- a. open the S/G ADVs and manually initiate Containment Spray to ensure maximum heat removal is employed
 - b. align HPSI, initiate cold leg injection and open the Reactor Coolant Gas Vent System valves to provide a coolant flowpath through the core
 - c. align the other unit's AFW Pumps to discharge to one of the affected unit's S/Gs; exercise caution not to feed a dry S/G. If both S/G are dry then only initiate AFW to one of the S/G.
 - d. ensure Once Through Cooling is initiated via PORVs



ST. LUCIE PLANT
ADMINISTRATIVE PROCEDURE NO. 0005754, REVISION 0
WRITTEN EXAMINATION MANAGEMENT

L.O. RQL TRAINING PROGRAM

EXAM NO. 0820964

NAME: _____

AUTHOR: MARPLE C

DATE: 11/13/89

SSH/CD: _____

REVIEWED BY: *[Signature]*

DATE: 11/16/89

DATE: _____

EXAM DRAFT ANSWER KEY

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- 082147*
[1.0] 1. c. State agencies which require notification as per the EPIP's should be notified prior to the NRC notification.
- 082152
[1.0] 2. c. sheltering recommended for a complete circle around plant at 2 miles & no other protective action recommended
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[1.0] 4. d. Neutron count rate increasing
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- 082210*
[1.0] 7. a. Insert CEAs until Gp. 5 @ 46"
- 082092
[1.0] 8. b. A dropped CEA.
- 082213*
[1.0] 9. a. have the NPO locally reset the turbine mechanical trip lever then repeat the steps to reset the electrical overspeed trip
- 082175*
[1.0] 10. a. No. (0.5)
b. By procedure, only one attempt at closing the 1A2/1A3 tie breaker (20109) is allowed. (1.0)
- 082181*
[1.0] 11. d. ensure the reactor is shutdown within 45 minutes

- 082108
[1.0] 23. b. Heat removal is accomplished by use of the ADV's and feeding the SG with auxiliary feedwater, RCS pressure control is by throttling HPSI.
- 089010*
[1.0] 24 b. Trip 2A1,2B2 from the RTGB and trip 2B1,2A2 locally
- 082117
[1.0] 25. a. 8 minutes (\pm 2 minutes) (0.5)
b. 75 gpm (\pm 5 gpm) (0.5)
- 089141 *
[1.0] 26. c. Manually trip the turbine
- 082044
[1.0] 27. a. LCO 3.1.3.2 (POSITION INDICATOR CHANNELS - OPERATING)
b. This does not result in Action statement entry because the Reed Switch Position Transmitter information is still available via the "Backup Display."
- 082113*
[1.0] 28. b. ensure at least one isolation valve in that affected penetration is operable and restore the valve to operable status within 4 hours
- 082145
[1.0] 29. b. Tech. Specs. are established which require certain staffing levels for licensed and non-licensed positions on shift including STA's.
- 082168
[1.0] 30. d. Electrically bypassing the Pressurizer Pressure SIAS due to an inoperable keyswitch.
- 082122*
[1.0] 31. d. ensure Once Through Cooling is initiated via PORVs

Ques #29 require 10 CFR 50 Reference?

all * verified to be in

QUES - REV. 895

1989 LICENSED OPERATOR REQUAL PROGRAM
 SPECIFICATION FOR ANNUAL EXAMS
 EXAM #082095 64

SELECTED PROCEDURES AND OTHER TOPICS

TOPIC AND IM #	QNUM	JPM'S		
		SEQ	PY	
EPiP's ✓	082147 * ✓	1	1.0	mc
✓	082152	2	1.0	mc
✓	082081 * ✓	3	1.0	mc
Rx Theory ✓ (63)	082141	4	1.0	mc
SGTR EOP-04 ✓ (63)	082192 * ✓	5	1.0	mc
	082206 * ✓	6	1.0	mc
Care Study C.R. misoperation ✓ (63)	082210 * ✓	7	1.0	mc
✓	082092	8	1.0	mc
Monthly Required Reading ✓	082213 * ✓	9	1.0	SA a Key ✓
	082175 * ✓	10	1.0	SA Key ✓
	082181 * ✓	11	1.0	SA Key ✓
Outside Sampling Plan ✓	082144 * ✓	12	2.0	Making Key ✓
✓	082140	13	1.0	mc
✓	082003	14	1.0	SA look @ key ✓
✓	082139 * ✓	15	1.0	SBCS
LOOP EOP-09 ✓	082111 * ✓	16	1.0	SA



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TOPIC AND IM #	QNUM	JPM'S		
		SEQ	PV	
✓ SBO EOP-10	081020 ✓	17	1.0	MC
✓	089009 ✓	18	1.0	MC
✓ SGTR EOP-04	089014 ✓	19	1.0	MC
✓ LOCA EOP-03	089086 ✓	20	1.0	MC
✓	089091 ✓	21	1.0	MC
✓	082119	22	1.0	SA Kay Δ
✓	082108	23	1.0	MC
✓ New off-normal Procedure	089010 ✓	24	1.0	MC
✓ Monthly Required Reading	082117	25	1.0	SA SDC
✓	089141 ✓	26	1.0	MC Loss of vac.
✓	082044	27	1.0	MC CDM's
Outside Sampling Plan	082113 *	28	1.0	SA Tech Specs ^{Change 2} MC
10 CFR 50 ?	082145	29	1.0	MC T.S. ^{admin}
✓	082168	30	1.0	MC ^{admin}
Functional Recovery Proc. (EN 152)	092122 *	31	1.0	MC
Basis				



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		SEQ	PV	
<i>EPiP's</i>	082147	1	1.0	MC
	082152	2	1.0	MC
	082081*	3	1.0	MC
<i>Rx Theory</i>	082141	4	1.0	MC
<i>SGTR EOP-04</i>	082192*	5	1.0	MC
	082206*	6	1.0	MC
<i>Case Study C.R. misposition</i>	082210*	7	1.0	MC
	082092	8	1.0	MC
<i>Monthly Required Reading</i>	082213	9	1.0	SA
	082175*	10	1.0	SA
	082181	11	1.0	SA
<i>Outside Sampling Plan</i>	082144	12	2.0	Marking
	082140	13	1.0	MC
	082003	14	1.0	SA
	082138	15	1.0	SBCS
<i>LOOP EOP-09</i>	082111	16	1.0	SA

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SELECTED PROCEDURES AND OTHER TOPICS

TOPIC AND IM #	QNUM	JPM'S		
		SEQ	PV	
3BD EOP-10	081020*	17	1.0	MC.
	089009*	18	1.0	MC
SGTR EOP-04	089014*	19	1.0	MC
LOCA EOP-03	089086*	20	1.0	MC
	089091*	21	1.0	MC
	082119	22	1.0	SA
	082108	23	1.0	MC
New off-Normal Procedure	089010*	24	1.0	MC
Monthly Required Reading	082117	25	1.0	SA SDC
	089141*	26	1.0	MC Loss of vac.
	082044	27	1.0	MC CEMCS
Outside Sampling Plan	082113	28	2.0	SA Tech Specs.
	082145	29	1.0	MC admin T.S.
	082168	30	1.0	MC admin.
Functional Recovery Proc. CEN 152	082122	31	1.0	MC
Basis				

ST. LUCIE PLANT
ADMINISTRATIVE PROCEDURE NO. 0005754, REVISION 0
WRITTEN EXAMINATION MANAGEMENT

L.O. RQL TRAINING PROGRAM

EXAM NO. 0820963

NAME: _____

AUTHOR: MARPLE C

DATE: 11/13/89

SSN/CD: _____

REVIEWED BY: *J. H. Heflinger*

DATE: 11/16/89

DATE: _____

EXAM SCORE: _____

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

Candidate's Signature

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QNUM 082141

- [1.0] 1. A reactor startup on Unit 1 is in progress and the reactor is approaching criticality. The set of parameters that best describes the indications of criticality are:
- a. Neutron count rate constant
SUR slightly positive
Rod motion stopped
 - b. Neutron count rate increasing
SUR zero
Rod motion stopped
 - c. Neutron count rate slightly decreasing
SUR slightly negative
Rods being slowly inserted
 - d. Neutron count rate increasing
SUR slightly positive
Rod motion stopped

QNUM 082192*

- [1.0] 2. Unit 1 has been diagnosed as having a 90 GPM SG tube leak and is in the process of coming off the line. During the down power, the unit trips due to low RCS pressure. Which one of the following describes the proper strategy?
- a. Immediately enter EOP-04. Since the event has been identified, EOP-01 is not required
 - b. Implement EOP-01, exit to EOP-02 and carry out the Steam Generator Tube Leak Off-Normal operating procedure in parallel with EOP-02
 - c. Implement EOP-01, then exit to EOP-04, if secondary activity is verified.
 - d. Implement EOP-01, then exit to EOP-15 on the basis that the trip, due to low RCS pressure, complicated the event and there is no immediately apparent diagnosis or cause

QNUM 082206

- [1.0] 3. During a Natural Circulation Cooldown following a SGTR, which parameter response below would indicate voiding in the Upper Head?
- a. RVLMS heated junction thermocouples indicate saturation
 - b. Pressurizer Surge line temperature increases to Tsat
 - c. Heated-Unheated Thermocouple differential ≈ 80 °F
 - d. Pressurizer Level increases suddenly while lowering pressure

QNUM 081035*

- [1.0] 4. (Multiple Choice) Following a Unit 1 SGTR, the affected S/G is isolated by the operating crew. Which one of the following best describes the subsequent actions of the EOP.
- a. Level in the affected S/G is controlled by steaming the generator to the condenser and feeding with AFW only as required to maintain normal level.
 - b. Level in the affected S/G is allowed to fluctuate; since the MSIVs are closed there is no danger of overflow.
 - c. Affected S/G level is controlled by allowing S/G secondary coolant to flow into the RCS.
 - d. S/G blowdown is collected and held in the blowdown tank - this provides additional room for water and prevents the isolated S/G from overflowing.

QNUM 082210*

- [1.0] 5. The following conditions exist for the reactor startup of Unit 1:
- Estimated Critical CEA position: Gp. 7 @ 60"
Current CEA position: Gp. 5 @ 74"
ICRR indicated Critical CEA position: Gp. 6 @ 40"
- Which one of the actions below describes the appropriate action to be taken?
- Insert CEAs until Gp. 5 @ 46"
 - Stop, select CEDMCS to OFF
 - Position CEAs to ECC - 500 pcm
 - Continue until Criticality or ECC+500 pcm

QNUM 082092

- [1.0] 6. Unit 1 has been operating normally for a long period at 100% power. A transient occurs that has the following effects:
- Reactor power decreased slightly,
RCS Tave decreased slightly,
Digital Data Processing System shows flux lower for a single detector location.
- Which one of the following events caused the transient with the above indications?
- An inadvertent boration.
 - A dropped CEA.
 - A tripped RCP.
 - A trip of both Heater Drain Pumps.



QNUM 082213*

- [1.0] 7. The 1C AFW Pump has tripped on overspeed. The RCO has performed all required steps to reset an electrical overspeed condition. The pump still does not start and the overspeed alarm is still illuminated. Which one of the following is the most appropriate strategy to restore operation of the 1C AFW Pump?
- a. have the NPO locally reset the turbine mechanical trip lever then repeat the steps to reset the electrical overspeed trip
 - b. the 1C AFW Pump can only be operated locally; the instructions of 1-EOP-99 Appendix G must be implemented
 - c. the 1C AFW Pump is steam bound, implement the actions required to vent the pump prior to attempting to reset the overspeed trip
 - d. the time delay on the electrical overspeed trip has not expired; wait three minutes then attempt another reset of the electrical overspeed trip

QNUM 082175 *

- [1.0] 8. Unit 1 is operating at 100% steady state conditions when a loss of the 1A3 4160V AC Bus occurs. The 1A Diesel Generator fails to start and an operator is dispatched to the Diesel Room to investigate. The RCO attempts to reenergize the 1A3 bus by cross-tie of the bus to the 1A2 4160V AC Bus. The RCO attempts to close the 1A2/1A3 tie breaker (20109). The breaker fails to close. On the second attempt, the breaker fails to close and the RCO then calls Electrical Department for assistance.
- a. Was this operation performed correctly? (0.5)
 - b. Explain your answer. (0.5)

QNUM 082140

- [1.0] 9. A reactor startup on Unit-1 is in progress and the RCO has just announced the reactor is critical. Auxiliary feedwater flow is adjusted to both Steam Generators and the Steam Generators are inadvertently overfed, such that Tave decreases from 535 °F to 530 °F. Assuming the MTC is negative and no operator (or automatic protective) action occurs, analyze the scenario and determine the statement that best describes where reactor power will level out:
- a. Reactor power will increase to just below the Point of Adding Heat.
 - b. Reactor power will not increase because a 5 °F temperature decrease is insufficient to add sufficient reactivity to change power.
 - c. Reactor power will level out above the Point of Adding Heat when the negative reactivity added by the Power Defect is equal to the positive reactivity added by the temperature decrease.
 - d. Reactor power will increase into the power range until operator action terminates the event or the high linear power trip setpoint is reached.

QNUM 082144*

- [2.0] 10. For each ASI control situation in Column 1; choose the correct ASI control strategy in Column 2. Assume unit 1. Note: Answers in Column 2 may be used more than once.

COLUMN 1

- A. Steady State operation at 100% power
- B. Following a planned load reduction, power is maintained for 8 days at 80% power
- C. Unplanned load reduction to 80% power lasting for 12 hours
- D. Planned load reduction to be maintained < 24 hours at 90% power

COLUMN 2

- 1. maintain ASI to + or - 0.1 of the ESI for 100% power level
- 2. maintain ASI to + or - 0.1 of the ESI for 80% power level
- 3. maintain ASI to + or - 0.5 of the ESI for 100% power level
- 4. maintain ASI to + or - 0.5 of the ESI for 80% power level
- 5. maintain ASI to + or - 0.3 of the ESI for 100% power level
- 6. consult Reactor Engineering for guidance

QNUM 082188*

- [1.0] 11. Loss of offsite power has occurred on Unit 1. Which one of the following describes the Steam Bypass Control System status after ten minutes into the event assuming all systems were in normal line-up before the event?
- a. There would be no effect on the SBCS because the entire SBCS is powered by power panels which are fed by AC power panels supplied by the emergency diesel generators.
 - b. The SBCS would be disabled due to the loss of power to the valve solenoids.
 - c. There would no effect on the SBCS because it recieves DC power from a non-vital DC bus.
 - d. The SBCS will be completely disabled by the loss of vacuum due to a loss of Circulating Water Pumps for the condenser.

QNUM 081011*

- [1.0] 12. Unit 1 is in the process of recovering from a loss of offsite power and a natural circulation cooldown is in progress. The following plant conditions are observed:

Pressurizer pressure reads 2000 psia
Pressurizer level reads 30%
2A Hot Leg temperature reads 420°F
Representative CET temperature reads 430°F
RCP seal injection is in service
1A3 and 1B3 4.16 KV buses are energized via the D/G's

Based on the above plant conditions, choose the most appropriate prompt operator action from the following:

- a. Energize the pressurizer heaters
- b. Secure the charging pumps
- c. Open the atmospheric dump valves
- d. Depressurize the RCS via auxiliary spray

QNUM 089009*

- [1.0] 13. 2-EOP-10, Station Blackout, instructs the operator to ensure that the MSIVs & bypasses are closed.

Which one of the following undesirable conditions could result if these actions were not taken?

- a. excessive cooldown of the RCS due to continued steam flow
- b. turbine overspeed resulting in physical damage
- c. heatup of the condenser and resulting loss of vacuum, which renders SBSCS unavailable
- d. overpressurizing the other unit's steam system if the unit to unit steam line cross-connect was inadvertently opened

QNUM 081020*

- [1.0] 14. (Multiple Choice) A Station Blackout has occurred on Unit-2 and power has been restored to the 2A3 4.16KV bus. Which one of the following best describes the operator actions to restore and maintain RCS Pressure Control.

- a. Reset 2A3 PZR heater bus, then locally reset backup heater banks. Auxiliary spray must be manually operated.
- b. Reset 2A3 PZR heater bus, then manually reset backup heater bank B1. Auxiliary spray must be locally operated.
- c. Reset 2A3 PZR heater bus, then manually reset backup heater bank B1. Auxiliary spray must be manually operated.
- d. Reset 2A3 PZR heater bus, then manually reset backup heater banks. Auxiliary spray must be manually operated.



QNUM 082111*

- [1.0] 15. A Loss of Offsite Power has been diagnosed and the steps of 2-EOP-09, Loss of Offsite Power are being performed. Given that natural circulation flow was established at time 0000, analyze the data provided on the chart below, and answer the following questions:

Time	0000	0010	0020	0030
PZR Pressure	2100	2100	2100	2100
PZR Level	52%	52%	52%	52%
CET's	552	555	558	562
Thot	552	555	558	562
Tcold	532	535	538	542
SG 2A Pressure	900	930	950	990
SG 2A WR Level	50%	50%	50%	50%
SG 2B Pressure	900	930	950	990
SG 2B WR Level	50%	50%	50%	50%

- a. What problem is indicated by these parameters? (0.5)
- b. How should the operator respond? (0.5)

QNUM 082119*

- [1.0] 16. A Loss of Coolant Accident occurred on Unit 2 approximately 4 hours ago. Emergency procedure 2-EOP-03, Loss of Coolant Accident, is being implemented and an aggressive cooldown has begun. Analyze the current plant conditions and answer the following questions:

Condensate storage Tank Level: 21 feet, 5 inches
Cold Leg Temperature: 440 °F

Considering the condensate required to conduct the cooldown, what is the time remaining until Shutdown Cooling is required?

QNUM 082108

- [1.0] 17. Concerning a Loss of Coolant Accident in which the leak rate at 2250 psia is approximately 200 gpm, which one of the following best describes the core heat removal and RCS depressurization strategies used in EOP's?
- a. Heat removal is accomplished by flashing of inventory as it exits the rupture site, pressure is controlled by cycling the charging pumps.
 - b. Heat removal is accomplished by use of the ADV's and feeding the SG with auxiliary feedwater, RCS pressure control is by throttling HPSI.
 - c. Heat removal is accomplished by steaming the SG and using main feedwater; pressure control is via pressurizer heaters and sprays.
 - d. Heat removal is accomplished by once through cooling via HPSI with coolant flow out through the PORV's; pressure control is by cycling the PORV's and throttling HPSI valves.

QNUM 089086*

- [1.0] 18. Approximately 5 hours following the onset of a Unit 2 Loss of Coolant Accident, the Chemistry Department reports that a P.A.S.S. sample taken from the ECCS pump recirc line indicates 1500 ppm boron. Previous sample results from this point, taken two hours ago, indicated a boron concentration of 1745 ppm. The following conditions exist:

RAS has actuated.

A and B HPSI pumps are aligned for cold leg injection.

The most likely cause of the boron reduction is:

- a. RCS breakflow has not been isolated
- b. the affect of SIT discharge resulting in lower boron concentration in the containment sump
- c. boron precipitation in the core area
- d. emergency boration has been secured



QNUM 089091*

- [1.0] 19. Following a Large Break LOCA the RCS is at 140 psia and 267 °F. The "2A & 2B" LPSI pumps are injecting to the core. Which of the following is indicative of proper LPSI system performance?
- a. "2A" LPSI pump discharge pressure is 110 psia.
 - b. Each LPSI pump header flow is 600 gpm.
 - c. "2B" LPSI Pump discharge pressure is 185 psig
 - d. Each LPSI pump header flow is 1900 gpm.

QNUM 089010*

- [1.0] 20. (Multiple Choice) Subsequent actions of 2-0030136, Loss of a Safety Related D.C. Bus, instructs the RCO to stop the RCP's if CCW is lost for 10 minutes. Which of the following describes how you would trip the RCP's if the 2B and 2BB D.C. buses were lost.
- a. Trip 2A1,2A2,2B1,2B2, from the RTGB
 - b. Trip 2A1,2B2 from the RTGB and trip 2B1,2A2 locally
 - c. Trip 2A1,2A2 from the RTGB and trip 2B1,2B2 locally
 - d. Trip 2A1,2B1 from the RTGB and trip 2B2,2A2 locally

QNUM 082117

- [1.0] 21. With Unit 2 in Mode 5 at 180 °F during a maintenance outage, a complete loss of Shutdown Cooling occurs. The ANPS determines that Appendix C of procedure 2-0440030, Shutdown Cooling Off-Normal, should be implemented. Given that the plant has been shutdown for 100 hours, determine the following:
- a. What is the time remaining to reach 200 °F? (0.5)
 - b. What is the injection flowrate required to maintain ≤ 200 °F? (0.5)

QNUM 082102

- [1.0] 22. While operating at 100% power on Unit 2, an increase in reactor cavity leakage is observed on leakage flow recorder FR-07-03. This is followed by an abnormally large decrease in the level of the VCT. Which of the following statements best describes the appropriate operator actions:
- a. Implement the Emergency Plan in accordance with 310002E, "Duties and Responsibilities of the Emergency Coordinator".
 - b. Call the SNPO and instruct him/her to ensure the breakers for the reactor cavity sump pumps are closed.
 - c. Analyze all available information and determine as accurately as possible the magnitude and seriousness of the leak.
 - d. Ensure the backup charging pump starts when the VCT level decreases to 35%.

QNUM 089141*

- [1.0] 23. Given the following conditions on Unit 2:
- Condenser back-pressure is degrading and reading 5.6 in Hg
- Main Generator output is 700 MWe. Both SJAEs and the hogging ejectors are in service.
- The RCO is manually inserting CEAs.
- Which of the following actions is the most appropriate?
- Maintain turbine load constant until the primary operator controls T_{ave} to within 2 °F of T_{ref} .
 - Increase turbine load until vacuum stabilizes
 - Manually trip the turbine
 - Commence a Unit shutdown until air in-leakage can be maintained less than 5 cfm.

QNUM 082011

- [1.0] 24. If one safety valve on 2A SG is gagged and two safety valves on 2B SG are gagged, then Reactor power:
- May be maintained at 100%
 - Must be reduced to $\leq 92.8\%$
 - Must be reduced to $\leq 79.6\%$
 - Must be reduced to $\leq 66.3\%$

QNUM 082013*

- [1.0] 25. Unit 2 is in Mode 3 preparing to perform a reactor startup when Linear Safety NI Channel B fails. What ACTION is necessary to allow the startup to continue?
- a. Bypass or Trip the Dropped CEA, TM/LP, LPD, & HI PWR Bistables
 - b. Bypass or Trip the TM/LP, LPD, HI PWR, & ZPM Bistables
 - c. Bypass or Trip the Loss of Load, TM/LP, LPD, & SUR Bistables
 - d. None required

QNUM 082168

- [1.0] 26. Which ONE of the following conditions would require the use of AP 0010124 "Control and Use of Jumpers and Disconnected Leads"?
- a. Physically removing a Sigma from service under a signed PWO.
 - b. Installing a temporary cable on a receptacle to operate air conditioning to support maintenance activities.
 - c. Maintenance technicians, while troubleshooting, install hand held test instrumentation.
 - d. Electrically bypassing the Pressurizer Pressure SIAS due to an inoperable keyswitch.

QNUM 080765

- [1.0] 27. (MULTIPLE CHOICE) When an emergency classification is declared at the plant, which one of the following notification schemes is used?
- a. Notify the state agencies first, then call the NRC via the Hot Ring-down phone within 4 hours.
 - b. Using the ENS call the NRC first, then notify the state agencies; this is required since the state will need to have information which the NRC provides when called.
 - c. Use the ENS to contact the NRC after the state agencies have been notified but within one hour of the declaration.
 - d. Call the NRC on commercial phone line, and tell them to monitor the state of Florida Hot Ring-down circuit. In this way all emergency notifications can be made at one time.

QNUM 080793

- [1.0] 28. (MULTIPLE CHOICE) Which one of the following best describes the responsibilities of the Nuclear Plant Supervisor during the implementation of the E-Plan?
- a. activate the Emergency Operations Facility for any Site Area Emergency
 - b. following a Site Area evacuation, ensure that all personnel are monitored for contamination prior to leaving the assembly area
 - c. update the news media of plant status
 - d. direct the on-site emergency organization to bring the emergency under control

QNUM 081100

- [1.0] 29. (MULTIPLE CHOICE) A Site Area Emergency can be defined as an event with the characteristics of;
- a. events having the potential for significant uncontrolled releases and actual likely major failures of plant function needed for public protection.
 - b. events involving imminent substantial core degradation with the likelihood of uncontrolled releases of radioactivity from the plant.
 - c. events having the potential for limited uncontrolled releases and actual or potential substantial degradation in the safety level of the plant.
 - d. events having the potential for limited uncontrolled releases with actual or imminent substantial core degradation.

QNUM 082122*

- [1.0] 30. Which one of the following best describes the preferred strategy for combating a Total Loss of Feed event once EOP-15 is entered?
- a. open the S/G ADVs and manually initiate Containment Spray to ensure maximum heat removal is employed
 - b. align HPSI, initiate cold leg injection and open the Reactor Coolant Gas Vent System valves to provide a coolant flowpath through the core
 - c. align the other unit's AFW Pumps to discharge to one of the affected unit's S/Gs; exercise caution not to feed a dry S/G. If both S/G are dry then only initiate AFW to one of the S/G.
 - d. ensure Once Through Cooling is initiated via PORVs



ST. LUCIE PLANT
ADMINISTRATIVE PROCEDURE NO. 0005754, REVISION 0
WRITTEN EXAMINATION MANAGEMENT

L.O. RQL TRAINING PROGRAM

EXAM NO. 0820963

NAME: _____

AUTHOR: MARPLE C

DATE: 11/13/89

SSN/CD: _____

REVIEWED BY: *J. H. H. H. H. H.*

DATE: 11/16/89

DATE: _____

EXAM DRAFT ANSWER KEY

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- 082141
[1.0] 1. d. Neutron count rate increasing
SUR slightly positive
Rod motion stopped
- 082192*
[1.0] 2. c. Implement EOP-01, then exit to EOP-04, if
secondary activity is verified.
- 082206
[1.0] 3. d. Pressurizer Level increases suddenly while
lowering pressure
- 081035*
[1.0] 4. c. Affected S/G level is controlled by allowing
S/G secondary coolant to flow into the RCS.
- 082210*
[1.0] 5. a. Insert CEAs until Gp. 5 @ 46"
- 082092
[1.0] 6. b. A dropped CEA.
- 082213*
[1.0] 7. a. have the NPO locally reset the turbine
mechanical trip lever then repeat the steps
to reset the electrical overspeed trip
- 082175*
[1.0] 8. a. No. (0.5)
b. By procedure, only one attempt at closing the
1A2/1A3 tie breaker (20109) is allowed. (0.5)
- 082140
[1.0] 9. c. Reactor power will level out above the Point
of Adding Heat when the negative reactivity
added by the Power Defect is equal to the
positive reactivity added by the temperature
decrease.



- 082144*
[4@ 0.5] 10. A. 3. Maintain ASI to ± 0.5 of the ESI for 100% power level.
B. 4. maintain ASI to + or - 0.5 of the ESI for 80% power level
C. 1. maintain ASI to + or - 0.1 of the ESI for 100% power level
D. 1. Maintain ASI to ± 0.1 of the ESI for 100% power level.
- 082188*
[1.0] 11. d. The SBCS will be completely disabled by the loss of vacuum due to a loss of Circulating Water Pumps for the condenser.
- 081011*
[1.0] 12. d. Depressurize the RCS via auxiliary spray
- 089009*
[1.0] 13. a. excessive cooldown of the RCS due to continued steam flow
- 081020*
[1.0] 14. c. Reset 2A3 PZR heater bus, then manually reset backup heater bank B1. Auxiliary spray must be manually operated.
- 082111*
[1.0] 15. a. problem - insufficient heat removal (0.5)
b. response - increase SG heat removal using ADV (0.5)
- 082119*
[1.0] 16. 15 hours (± 1 hour)
- 082108
[1.0] 17. b. Heat removal is accomplished by use of the ADV's and feeding the SG with auxiliary feedwater, RCS pressure control is by throttling HPSI.
- 089086*
[1.0] 18. c. boron precipitation in the core area
- 089091*
[1.0] 19. d. Each LPSI pump header flow is 1900 gpm.
- 089010
[1.0] 20. b. Trip 2A1,2B2 from the RTGB and trip 2B1,2A2 locally

- 082117
[1.0] 21. a. 8 minutes (\pm 2 minutes) (0.5)
b. 75 gpm (\pm 5 gpm) (0.5)
- 082102
[1.0] 22. c. Analyze all available information and determine as accurately as possible the magnitude and seriousness of the leak.
- 089141 *
[1.0] 23. c. Manually trip the turbine
- 082011
[1.0] 24. c. Must be reduced to \leq 79.6%
- 082013*
[1.0] 25. d. None required
- 082168
[1.0] 26. d. Electrically bypassing the Pressurizer Pressure SIAS due to an inoperable keyswitch.
- 080765
[1.0] 27. c. Use the ENS to contact the NRC after the state agencies have been notified but within one hour of the declaration.
- 080793
[1.0] 28. d. direct the on-site emergency organization to bring the emergency under control
- 081100
[1.0] 29. a. events having the potential for significant uncontrolled releases and actual likely major failures of plant function needed for public protection.
- QNUM 082122*
[1.0] 30. d. ensure Once Through Cooling is initiated via PORVs

all * verified to be in
~~exam~~ QUES_REV.895

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EXAM 0820963: NRC RO OPEN REFERENCE EXAM 1

<u>QNUM</u>	<u>PV</u>	<u>SEQ</u>	<u>TOPIC</u>
082141	1	1	RX THEORY
082193(*)	1	2	EOP-04
082206	1	3	EOP-04
081035(*)	1	4	EOP-04
082210(*)	1	5	CEA MISPOSITION
082092	1	6	CEA MISPOSITION
082213(*)	1	7	AFW ONOP
082175(*)	1	8	LOSS OF AC BUS
082140	1	9	MT MTC
082144(*)	2	10	MT ASI CONTROL
082188(*)	1	11	MT SBCS
0821011(*)	1	12	EOP-09
089009(*)	1	13	EOP-10
081020*	1	14	EOP-10
082111**	1	15	EOP-09
082119(*)	1	16	EOP-03
082108	1	17	EOP-03
089086(*)	1	18	EOP-03
089091(*)	1	19	EOP-03
089010*	2	20	LOSS OF SAFETY DC BUS
082117	1	21	SDC ONOP
082102	1	22	RCS EXCESS LEAKAGE ONOP
089141*	1	23	COND VAC ONOP
082011	1	24	MT MSL SAFETY TS



082013*	1	25	OUT	NI TS
082168	1	26		JUMPER & LIFTED LEADS
080765	1	27		EPIP
080793	1	28		EPIP
081100	1	29		EPIP
082122*	1	30		EOP-15

ENCLOSURE 5

REQUALIFICATION PROGRAM EVALUATION

Reference Material

The licensee submitted reference material to support administration of the examination. This reference material was reviewed in accordance with the guidelines provided in NUREG 1021 Examiner Standards ES 601. Via this review, the NRC determined that the reference material submitted was satisfactory to support the examination.

The exam team used the licensee generated sample plan to develop this examination. The sample plan adequately identified applicable examination topics and served as the test outline. Through use of the sample plan several weaknesses in program content were identified. Insufficient numbers of test items on specific topics, learning objectives, and a lack of correlation between test topics and static simulator examinations were the two weaknesses identified. The program had generated sufficient numbers of test items and static scenarios; however, it did not consider the material covered cycle. This is not an uncommon problem throughout the industry at this stage in implementation of the revised methodology for requalification program evaluation by the NRC; normally the problem is created when licensees generate test items (including statics) prior to creation of a sample plan for a specific requalification cycle.

Additionally, the sample plan did not identify applicable settings for JPM administration. The NRC examiners determined the applicable setting by matrixing the JPMs by unit, simulator/plant, local, common/uncommon, and license level tasks. The licensee can enhance the sample plan by inclusion of this process into the process of examination development.

The content and scope of the written examination test items chosen for the examinations were satisfactory. The questions required minimal, if any, modifications. During preparation visits made by the examiners, several deficiencies in item construction and scope were identified; the licensee made the appropriate changes to the items chosen for the bank.

The JPMs administered were satisfactory. There were only minor errors noted by the examiners. There were no noted problems with the facility evaluator performance. During development of the examination the NRC found the questions associated with the JPMs did not have references and that generally, the JPM time validation was inflated; not reflecting actual task conditions. There was no time validation provided for the JPM questions; this may be required for future examinations.

The simulator exam scenarios submitted required minor changes to ensure accurate and verifiable Individual Simulator Critical Steps (ISCTs). The proposed scenarios contained several unverifiable ISCTs and ISCTs which were "critical" were not identified as such. The exam team validated the proposed scenarios identifying the proper ISCTs.

Exam Administration

During the exit meeting the NRC identified a weakness in the operator performance of EOP-15, Functional Recovery. This weakness had also been identified by previous examination/inspection reports. The licensee determined that there was a need to improve operator performance in this area, and in a meeting held on January 11, 1989, outlined this additional training. The requalification program was adjusted to emphasize this procedure and thereby improve operator performance. During this requalification program evaluation the operators exhibited continued weakness in performance despite this additional emphasis. Subsequent to this finding, the licensee and the NRC met on December 22, 1989, to discuss the root cause and corrective actions planned to correct this performance weakness. The requalification program had not trained the operators to the level of expectation that was expected of them in the evaluation phase, i. e., the operators were trained on optimum event scenarios and tested on "Functional" level scenarios.

The licensee has committed to enhance the operators' ability to utilize EOP-15 (reference L-89-465, Additional Information on Licensed Operator Exams). The NRC will monitor the progress of these corrective actions during future examination/inspection visits.

Evaluation

Based upon the results of the examination, the NRC determines that the St. Lucie Requalification Program remains satisfactory.

ENCLOSURE 6

SIMULATION FACILITY FIDELITY REPORT

Facility Licensee: Florida Power and Light Company

Facility Docket Nos. 50-335 and 50-389

Operating Tests Administered On: November 13 - 27, 1989

This form is used only to report observations. These observations do not constitute audit or inspection findings and are not, without further verification and review, indicative of noncompliance 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 portions of the operating tests, the following items were observed:

No discrepancies were noted.