

Duke Power Company
Oconee Nuclear Station
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DUKE POWER

January 23, 1992

Mr. Thomas Peebles
Operating Licensing Section
U. S. Nuclear Regulatory Commission
Suite 2900
101 Marietta Street
Atlanta, GA 30323

Subject: Oconee Nuclear Station Facility Comments on RO and SRO
License Written Examinations Given January 20, 1992

Dear Mr. Peebles:

- 1) Facility Comment: #26 RO Exam. There is no correct answer because the EOP conflicts with the AP, allowing up to thirty (30) minutes of LPI pump operation with minimum recirculation (i.e. less than 800 gpm).

Facility Justification: Refer to EOP Section 505, Page 4 attached. "Operation of the LPI pumps against a shutoff head must not exceed thirty (30) minutes or overheating and pump damage may result." Student feedback following the written exam generated this comment.

- 2) Facility Comment: #32 RO Exam and #33 SRO Exam. The correct answer to part "c" is "10". (Can be manually operated to control flow.)

Facility Justification: Refer to Loss of LFI Bus, AP/1/A/1700/23, Page 1 attached. "1HP-120 (RC Volume Control) swaps to 1KU and is manually operable." Therefore, the correct answer for part "c" is "10" in Column B. The Answer Key used in the pre-exam review was correct. However, a typographical error seems to have occurred once the Answer Key appeared in its final form.

- 3) Facility Comment. #36 RO Exam and #37 SRO Exam. There are no correct answers for this question. The question should be deleted from the exam.

(continued)

9203180049 920303
PDR ADDCK 05000269
V PDR

- 3) Facility Justification: Per the attached AP and OEE, 1RC-66 closes on loss of K1 power and can be opened from the switch in the control room. This question was rewritten during the pre-exam review. Utility comments are missing from contractor's package.

- 4) Facility Comment: Question #39 RO exam and question #40 SRO exam. In addition to choice "b" being correct, choice "d" is also correct.

Facility Justification: Verifying that the water box emergency discharge valves are open is also one of the Immediate Manual Actions in AP/1/A/1700/13 case B. Refer to attached copy of the Abnormal Procedure section. This mistake was not detected during the pre-exam review. Facility clarification comments were factored into choice "b".

- 5) Facility Comment: #45 RO Exam and #48 SRO exam. The correct answer should be "d".

Facility Justification: As per Station Directive 3.3.1, Page 2 (attached), refer to Section 3.15.2 which states that with completed NRC Form 4, the administrative whole body dose limit is 2500 mRem in any calendar quarter, or 5000 mRem in any calendar year. Since the given whole body dose is 100 mRem to date, the individual can still receive up to 2400 mRem maximum dose with a dose extension. Therefore, the correct answer is "d". This was discussed during the pre-exam review. The changes which the facility requested were made. However, the Answer Key was not changed to "d", as it should have been.

- 6) Facility Comment: #46 SRO Exam. None of the choices given are correct. Choice "d" would be correct only if stated as follows: "Installation and removal of supplemental red tags on components with station red tags." Student feedback following the written exam generated this comment.

Facility Justification: Refer to attached Station Directive 3.1.1, Page 3 of 23, Section 4.6.3. "The work group shall not place supplemental red tags on any station equipment that does not presently have at least one station two part serialized red tag (stub type) attached".

(continued)

- 7) Facility Comment: SRO Exam #47. Choices "b" and "c" are correct.

Facility Justification: Choice "c" is also correct because "block tagout" can be interpreted as equipment isolation. See attached Station Directive 3.2.1, Page 15, Section 6.9.1. Refer to "clearance to begin work means: (1) Any equipment isolation required to perform the requested work have been made". Student feedback following the written exam generated this comment.

- 8) Facility Comment: RO Exam #48 and SRO Exam #51. Choices "a", "b" and "c" are all correct.

Facility Justification: Refer to attached Station Directive 4.1.3., Page 13, Section 4.5.1.2B. Choice "b" can be interpreted to fit the employee responsibility B7, "Observing recommended stay times". Choice "c" can be interpreted to fit B6, "Working at a deliberate pace rather than rushing or overextending themselves." Therefore, choices "a", "b" and "c" should be considered acceptable. Additional references were requested for this question during the pre-exam review.

- 9) Facility Comment: #53 RO Exam, choice "c" would be correct if ACB-4 were shut instead of ACB-3. Therefore, both choices "b" and "c" should be considered correct.

Facility Justification: Refer to attached handout drawing of the Keowee Electrical System, OC-SPS-KHG-20. Flowpath for energizing CT4 underground feeder from Keowee Unit #2 via ACB-4 is highlighted on the drawing. This correction was not made during the pre-exam review.

- 10) Facility Comments: #55 RO Exam and #61 SRO Exam. In addition to choice "d" being correct, choice "b" should also be considered correct.

Facility Justification: Choice "b" should also be considered correct since the MS Line Relief Valves open at various setpoints, ranging from 1104 psig to 1050 psig. The relief valve opening times may vary by milliseconds following a Turbine trip from 100% power, but it will be sequential. On the other hand, to the casual observer, choice "d" would appear to be correct. Therefore, both answers should be considered acceptable. Refer to attached page 8 from MS Lesson Plan and attached copy of OFD 122A-1. Student feedback following the written exam generated this comment.

- 11) Facility Comment: SRO Exam #76 and RO Exam #70. Choices "a" and "c" should be acceptable.

Facility Justification: The student is required to know the minimum flow but not the maximum flow, per the Reactor Building Spray Lesson Plan, OP-OC-PNS-BS, Objective B2. The applicable KA number 026000K6.02 threshold is 2.4 (i.e. less than 3.0). This was identified during the pre-test review as unnecessary memorization of numbers. Refer to attached RO and SRO Training Objectives for BS System.

- 12) Facility Comment: SRO #78 and RO #73. Insufficient information was provided to indicate that RCS pressure is increasing, due to a high concentration of noncondensable gases in the pressurizer. Therefore, the question should be deleted.

Facility Justification: The initial conditions of the question should have stated that pressurizer level was increasing. A pressurizer level increase with noncondensable gases would have resulted in increasing RCS pressure as the noncondensable gases were compressed. This was not discussed during the pre-exam review. Another correction was made to this question during the pre-exam review.

- 13) Facility Comment: #86 SRO exam. For "b", either choice "3" or "4" is correct. Also, Column B #6 should read "Provides" instead of "Protects". This mistake in the wording of Column B#6 invalidated it as a possible correct answer because it did not make sense. Student feedback following the written exam generated this comment.

Facility Justification: Refer to RPS Lesson Plan, Page 21 attached.

- 14) Facility Comment: #89 SRO Exam and #85 RO Exam. Correct answer should be "a".

Facility Justification: The students were not provided with the updated Lesson Plan revision of October, 1991. Lesson plans sent to the NRC were copied and mailed in November, 1991. Therefore, the students' original handouts prompted them to select choice "a" as a correct answer. Refer to attached page 10 of Revision 04, dated 04/29/91, to Process Radiation Monitor Lesson Plan, OP-OC-WE-PRM.

(continued)

Page Five
January 23, 1992

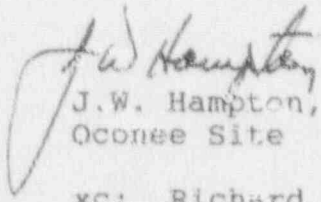
- 15) Facility Comment: RO Exam questions #9, #26, #27, #31, #39, #42, #43, #44, #45, #47, #48. These questions are inappropriate on the RO exam because related references were not provided with the RO examination. For the SRO Exam: questions #30, #32, #40, #43, #44, #45, #46, #47, #48, #49, #50, #51, #52, #53, #54 are inappropriate because related references were not provided with the SRO examination.

Facility Justification: According to ONS Training Objectives, a copy of Station Directives is provided during examinations. Refer to attached LRO and LSO Training Objectives for the Station Directives Lesson Plan, OP-OC-ADM-SD. Furthermore, according to our Shift Review Guide Lesson Plan Objectives, students are allowed to refer to appropriate AP's and OMP's, with the exception of items in OMP 2-1, (attached) which must be memorized by the student, in accordance with Operation's Management Philosophy.. The depth of the questions required on AP's and Station Directives in the RO and SRO exam was unfair without providing related references. Refer to attached copy of Shift Review Guide LRO and LSO objectives.

During the pre-exam review, the facility Training and Operations representatives repeatedly commented that additional references should be provided for Station Directives and Abnormal Procedure questions.

We appreciate your prompt attention to these matters.

Sincerely,


J.W. Hampton, Vice President
Oconee Site

xc: Richard Baldwin, Chief Examiner
H.B. Barron, Station Manager/ONS
G.A. Ridgeway, Shift Operations Manager/ONS
P.M. Stovall, Director, Operator Training/ONS
R.L. Sweigart, Superintendent of Operations/ONS
L.V. Wilkie, Training Manager/ONS

JWH:TLF:ks

Attachments

EMERGENCY OPERATING PROCEDURE
EP/1/A/1800/01

Section 505

ES Actuation

- ____2.0 IF RCS pressure \leq 550 psig,
 THEN verify ES channels 3 and 4 actuated:
- All Blue ES module "AUTO" lights on
 - All White ES module "POSITION" lights on

2.1 Verify CFTs dumping.

CAUTION 2.2 Operation of the LPI pumps against a shutoff head must not exceed 30 minutes or overheating and pump damage may result.

2.2 Limit LPI Header flow to \leq 3000 gpm/pump.

Question #32 RO Exam and #33 SRO Exam

Unit 1
Page 1 of 17

OCONEE NUCLEAR STATION

LOSS OF 1KI BUS AP/1/A/1700/23

1.0 Purpose

This procedure provides the actions necessary to maintain the plant in a safe condition following a partial or total loss of power to the ICS and Control Room Indications.

2.0 Symptoms

- "EL ICS INVERTER SYSTEM TROUBLE" statalarm, (ISA-6, C-2)
- "ICS MAN POWER FAILURE" statalarm, (ISA-2, B-12)
- "ICS AUTO POWER FAILURE" statalarm, (ISA-2, B-11)
- "ICS EMER POWER FAILURE" statalarm, (ISA-2, E-11)
- "ICS EMERG F.W. POWER FAILURE" statalarm, (ISA-2, D-11)
- Other numerous alarms as instruments fail
- All Bailey Hand/Auto Stations may lose indicator lights.

3.0 Automatic System Actions

- Main FDW pumps trip
- Reactor trip
- Turbine-generator trip
- All operable EFDWPs start
- 1HP-31 (RCP Seal Flow Control) swaps to 1KU and controls at setpoint
- 1HP-120 (RC Volume Control) swaps to 1KU and is manually operable
- 1HP-7 (Letdown Control) swaps to 1KU and is manually operable.

Question # 36 RO and
Question # 37 SRO

Unit 1
Page 8 of 17

LOSS OF 1KI BUS
AP/1/A/1700/23

ENCLOSURE 6.2
Guidelines For ICS Auto Power Failure

____ 1.0 IF ICS Auto Power failure has occurred,
THEN perform the following to recover ICS Auto Power:

- 1.1 Verify the breaker for Auto Power in the back of ICS Cabinet #4 "ON."
- 1.2 Verify breaker #25 (ICS Auto Power) in 1KI Power Panelboard "ON."

____ 2.0 The following equipment should be operable for the conditions noted:

- PZR Heater Bank Two, operable from the Aux Shutdown Panel
- IRC-1 (PZR Spray), operable with no position indication from UB1 and from keyswitch in ICS cabinet #13
- IRC-3 (Spray Block), operable with no position indication from UB1
- IHP-7 (Letdown Control), manually operable with no flow indication
- IRC-66 (PORV), operable from the Control Room switch.

____ 3.0 The following Bailey Stations are manually operable, (auto function and light indication are lost):

- Turbine Bypass Loop A and B
- Steam Generator-Reactor
- Steam Generator Load Ratio
- Reactor Demand
- Loop A and B FDW Demand
- Loop A and B Main FDW Valves
- Loop A and B SU FDW Valves.

Duke Power Company
Oconee Nuclear Station
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DUKE POWER

Question #36 RO
and 37 SRU

Telecopy Cover Letter

Telecopy Number: 803-885-3400
Instrument & Electrical Engineering

Date: Jan 22, 1992

To: Paul Stovall

From: B:11 Reaction

11-15-12				
13-1-14			X	L670
15-1-16				

X-DENOTES CONTACT CLOSED

NOTES

1. CONTACT LOCATED IN ICS CAB 1B ROW 9 TERM BLOCK 5 AND TERMS 6 & 7 CLOSING ABOVE 2270 PSI RC PRESSURE.
2. CONTACT LOCATED IN ICS CAB 1B ROW 9 TERM BLK 6 AND TERMS 8 & 9 OPEN BELOW 2285 PSI RC PRESSURE.
3. CONTACT ON ACTUATOR COIL OPENS WHEN ACTUATOR IS ENERGIZED.
4. CONTACT OPENS ON LOSS OF ICS AUTO POWER.
5. ICSB148 IS A DUAL CURRENT ALARM WITH RELAY K1 ENERGIZING AT INCREASING RC PRESSURE AND RELAY K2 DEENERGIZING AT DECREASING RC PRESSURE SEE TECH. SPEC. 3.1.2.9 FOR SET POINT RANGE.

LEGEND

----- TRANSFORMER BACK TO BACK ZENER DIODES, CAT #1, 5KE280AC
 @----- DIODE, 1N2158, 25A, 400V PIV
 RV3X----- ICS AUX RELAY
 CRV3----- SOLENOID ACTUATOR CONTACTOR
 L30, L50----- IRV-67 LIMIT SWITCH

REF. DWGS.

0EE-150-7 ----- E/D IRV67
 0EE-150-7B ----- E/D IRCPT0148
 0-711-E ----- C/D IUB2
 0-711-G ----- C/D IUB2
 0-720-A ----- C/D VALVE
 0-766-D ----- C/D, IMTC3
 0-766-E ----- C/D, IMTC4
 0-785-E ----- C/D, ICS
 0-786-A ----- C/D, 1PIR
 OM-201-627 ----- B & W ELEMENTARY DIAGRAM
 OM-201-591 ----- DRESSER VALVE OUTLINE
 B/M 0-720-A ----- BILL OF MATERIAL
 D8032332C
 0-711-02 ----- O/L IUB2
 0-711-02.01 ----- COMP INDEX IUB2

B & W VALVE - RC-RV3

										DUKE POWER COMPANY OCONEE NUCLEAR STATION				
										ELEMENTARY DIAGRAM PRESSURIZER RELIEF VALVE IRV-67 CONT'D				
										DESIGNED BY <i>W. J. H. H.</i> DATE <i>11-1-81</i> THP. <i>W. J. H. H.</i> DATE <i>11-1-81</i>				
										DRAWN BY <i>W. J. H. H.</i> DATE <i>11-1-81</i> THP. <i>W. J. H. H.</i> DATE <i>11-1-81</i>				
										CHECKED BY <i>W. J. H. H.</i> DATE <i>11-1-81</i> THP. <i>W. J. H. H.</i> DATE <i>11-1-81</i>				
ORIG.	NSM ON-12709/0, IMP. 5-25-90			REV.	A-1-1-81			CIVIL	BLK.	NSCA	DWG. NO.	0EE - 150 - 7A	REV.	0
NO.	REVISIONS			ORN	DATE	CHKD	DATE	APPR	DATE	INSPECTED				

Question #39 RO exam
and #40 SRO exam

Unit 1
Page 7 of 15

LOSS OF CONDENSER CIRCULATING WATER
INTAKE CANAL/DAM FAILURE
AP/1/A/1700/13

CASE B

Dam Failure Without Loss Of CCW Intake Canal

Immediate Manual Actions

4.0 Immediate Manual Actions

CAUTION

The amount of inventory loss from the Intake Canal is directly related to the amount of time that elapses during the completion of this Section.

____ 4.1 Monitor lake level for indication of dam failure:

- 4.1.1 IF a dam failure has occurred,
 THEN manually trip the Reactor:
- REFER TO EP/1/A/1800/01,
 EMERGENCY OPERATING
 PROCEDURE.

____ 4.2 Depress the "CCW DAM FAILURE" pushbutton.

LOSS OF CONDENSER CIRCULATING WATER
INTAKE CANAL/DAM FAILURE
AP/1/A/1700/13

CASE B

Dam Failure Without Loss Of CCW Intake Canal

Immediate Manual Actions

_____ 4.3 Verify the following:

- All CCW pumps tripped
- 1CCW-1-6 (Waterbox Emer Disch) valves open
- All Condenser Outlet valves closed by computer point:

_____ 1CCW-20 (Condenser '1A1' Outlet) D0273

_____ 1CCW-21 (Condenser '1A2' Outlet) D0275

_____ 1CCW-22 (Condenser '1B1' Outlet) D0277

_____ 1CCW-23 (Condenser '1B2' Outlet) D0279

_____ 1CCW-24 (Condenser '1C1' Outlet) D0281

_____ 1CCW-25 (Condenser '1C2' Outlet) D0283.

_____ 4.4 Verify CCW-8 (Emer CCW Disch to Tailrace) opens.

_____ 4.5 Verify at least one CCW pump discharge valve closed.

_____ 4.6 IF all CCW pump discharge valves are open,
THEN close the CCW pump discharge valves.

4.6.1 Press "CLOSE 1" and "CLOSE 2" on the
"TURB BLDG FLOOD EMER CLOSING ALL CCWP
DISCH VALVES" control switches.

4.6.2 After all CCW pump discharge valves are
closed, press "OFF" on both switches.

LOSS OF CONDENSER CIRCULATING WATER
INTAKE CANAL/DAM FAILURE
AP/1/A, 1700/13

CASE B

Dam Failure Without Loss Of CCW Intake Canal

Immediate Manual Actions

____ 4.7 Start the CCW pump with the closed discharge valve:

- Verify the CCW pump discharge valve opens.

____ 4.8 Verify the following:

- CCW-8 (Emer CCW Disch to Tailrace) closed
- Discharge valves on tripped CCW pumps closed
- CCW-9 (Emer CCW Disch to Intake) open.

____ 4.9 IF CCW-9 (Emer CCW Disch to Intake) does
NOT open,

THEN send an operator to open CCW-9
(Emer CCW Disch to Intake):

- Notify security that access to CCW-9
(Emer CCW Disch to Intake) is required,
and to meet an operator at the "IRW"
Gate". (Located at the Southwest
corner, inside the protected area.)
- Obtain the "CCW-9 IRW Gate" key from
the security box in Unit 3 Shift
Supervisor's office.
- With security proceed between the
fences to CCW-9.

Question # 45 RO Exam and #48 SRO Exam

-2-

SD 3.3.1 (TS)

NOTE: Completion of an EDC transaction or a dose card means that the individual has read and understood each RWP and has complied with its requirements.

- 3.10 Exposure shall be recorded on the DETRC in increments of 5 mR.
- 3.11 Information used in the completion of forms shall be the most current available on the Radiation Exposure Control (REC) daily report.
- 3.12 Record time entries on the DETRC in military time (0000-2400 hrs.)
- 3.13 Any extension granted shall be valid only for the specific job/task and period of time for which it was granted.

NOTE: Under no circumstances is an extension granted at one station valid at another.

- 3.14 Non-licensee individuals shall provide a letter from their employer that gives permission to extend their dose to a given amount if either of the following is true:

- 1) exposure limits set by Duke Power Company exceed limits set by the individual's employer.
- 2) individual's accumulated exposure is 1000 mREM (or higher, or is expected to go above 1000 mREM for the quarter.

- 3.15 No licensee or non-licensee employee shall be allowed to receive a whole body dose equivalent that exceeds:

- 3.15.1 Without completed NRC4:

1000 mREM in any calendar quarter or 4000 mREM in any calendar year.

- 3.15.2 with completed NRC4

2500 mREM in any calendar quarter or 5000 mREM in any calendar year.

- 3.16 Internal exposure will be administratively controlled to 35 MPC-hrs in any seven (7) consecutive days.

- 3.17 Inaccurate EDC transactions or erroneous dose cards shall be corrected to maintain accurate REC records.

- 3.17.1 Information used to correct inaccurate EDC transactions or erroneous dose cards shall be provided by the individual radiation worker or the individual's supervisor.

- 3.17.2 After notification of an inaccurate EDC transaction or erroneous dose card is made to the individual's supervisor, a no forfeiture period of up to noon (1200 hrs.) of the second working day will be permitted for an individual or supervisor to correct the problem.

- 3.17.3 If the problem with the inaccurate EDC transaction or the erroneous dose card has not been corrected within the no forfeiture period, the dosimetry set assigned to the radiation worker will be confiscated.

- 3.17.4 To release the confiscated dosimetry set, the radiation worker's Section Manager or equivalent must contact the Radiation Protection Manager or designee and provide an understanding that errors in radiological records will be minimized.

Question # 46 SRO Exam

4.4 Lock-out

- 4.4.1 A device used to lockout the source of power at the main disconnect switch prior to commencing work on or close to the machine or equipment.

4.5 Block Tagout

A block tagout is the isolation and tagging of a defined portion of the plant for the purpose of allowing work by various work groups to be accomplished concurrently within the boundary of the block tagout.

4.6 Supplemental Tagging

Departments or groups that assign a coordinator to take responsibility for a BLOCK Tagout may require that individual to implement his responsibilities as defined in 6.7.2 by use of a supplemental safety tagging procedure (i.e., Transmission Department Supplemental Safety Tagging Procedure). This feature allows for more effective tagouts. Coordinators holding stubs from the operationally responsible group are most familiar with the scope of work and responsibilities of individual foremen and supervisors working within the boundaries. It is the coordinators' responsibility to administer the supplemental tagging procedure per the following guidelines:

- 4.6.1 The procedure is to be used primarily during unit outages and emergency situations when station manpower is short. However, it may be used anytime when more than one foreman or group is working on the same piece of equipment.
- 4.6.2 The work group shall not remove from, or return to service, any station equipment as this is the responsibility of station personnel assigned operational responsibility.
- 4.6.3 The work group shall not place supplemental red tags on any station equipment that does not presently have at least one station two-part serialized red tag (stub type) attached.
- 4.6.4 When working on equipment tagged to them, the work group shall not change the position of a valve, switch, cut out or remove valve from the line, etc., that has a station red tag attached to it. Contact the shift supervisor or other responsible station personnel to remove red tags if it is necessary to operate equipment to verify repairs.

Question # 47 SRO Exam

(15)

representative or verbal as allowed in Paragraph 6.6.1, shall be checked in the appropriate blank, "YES". If ANI inspection is not required, the appropriate "NO" block will be checked. The job supervisor shall contact Q.A. or the ANI inspector directly prior to job start so the ANI inspector can be scheduled in for the inspection.

- 6.8 Cleanliness Zone - The appropriate cleanliness zone shall be established per Station Directive 4.3.2. If the Cleanliness Zone requirements change after work has started, the Craft Supervisor will make the appropriate changes to 6.8 of the W.R. and take the appropriate actions per S.D. 4.3.2 to ensure conformity with the directive.
- 6.9 Clearance - The group ultimately responsible for the equipment to be worked on will be responsible for giving clearances/approvals to begin work. The person filling out section II of Work Request shall indicate in the clearance block who is responsible, (i.e., OPS, HP, Chem., ENV., etc.) for that particular area of work.

- 6.9.1 Clearance to begin work shall be obtained from Operations Supervisor (SRO) or the responsible representatives as designated by the responsible group superintendent, who has control over the structure, system, or component.

If work is delayed (not started in a reasonable amount of time - 24 hours), Reclearance is needed to begin the work. The job supervisor shall stamp the work request in Section V with a stamp which reads "Reclearance To Begin Work By:" and the date.

Reclearance is not required on equipment which the Work Supervisor/Coordinator controls by red tags. Reclearance to start work shall be documented by this signature and date.

Clearance to begin work means:

- (1) Any equipment isolation required to perform the requested work have been made.
- (2) Verification that limiting conditions for operations are not violated.
- (3) Post Maintenance Testing specified on the attached PMT Sheet can be performed at the completion of the maintenance planned.

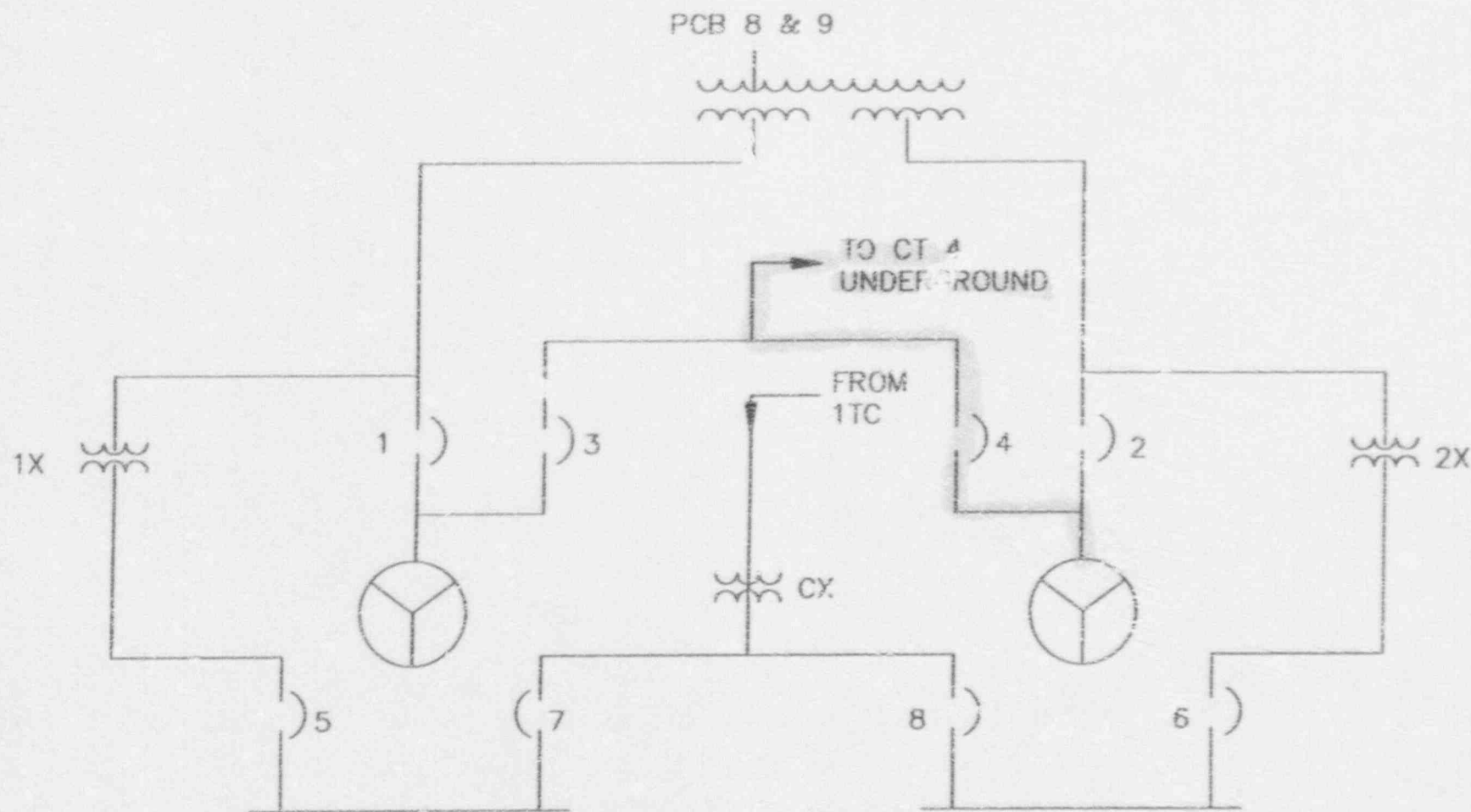
Question #48 RO exam and
#51 SRO exam

- C. It is the responsibility of the Work Supervisor to file a brief follow up report to the Safety Unit after each high temperature job so that the station can continually evaluate the effectiveness of this program and make the necessary adjustments based upon actual working experiences.

4.5.1.2 Employee

- A. It is the responsibility of each worker assigned to work under hot conditions to advise his supervisor and the Medical Unit if on any particular day for reasons of health he does not feel that he or she is suited for such duty. Workers will not be required to work under extreme conditions if such a health problem exists.
- B. It is also the responsibility of each employee to practice common sense preventative measures in order to further reduce the chances of developing heat related disorders by:
1. Being aware of the symptoms of heat stress.
 2. Working with a partner and observing each other.
 3. Drinking water or other fluids frequently.
 4. Keeping themselves in good physical condition.
 5. Wearing light colored, loose fitting, cotton clothing where possible.
 6. Working at a deliberate pace rather than rushing or over-extending themselves.
 7. Observing recommended stay-times.

Question # 53 RD Exam



FILE:	NOTES:	CD NO:	DATE:
KEOWEE HYDRO GENERATOR (KHG)	KEOWEE ELECTRICAL	OC-SPS-KHG-20	2-19-91
		REF: KEE	
		DESIGN: CMR/JAW	91W
		CD NO: OCKHG20.DWG	TRAINING USE ONLY

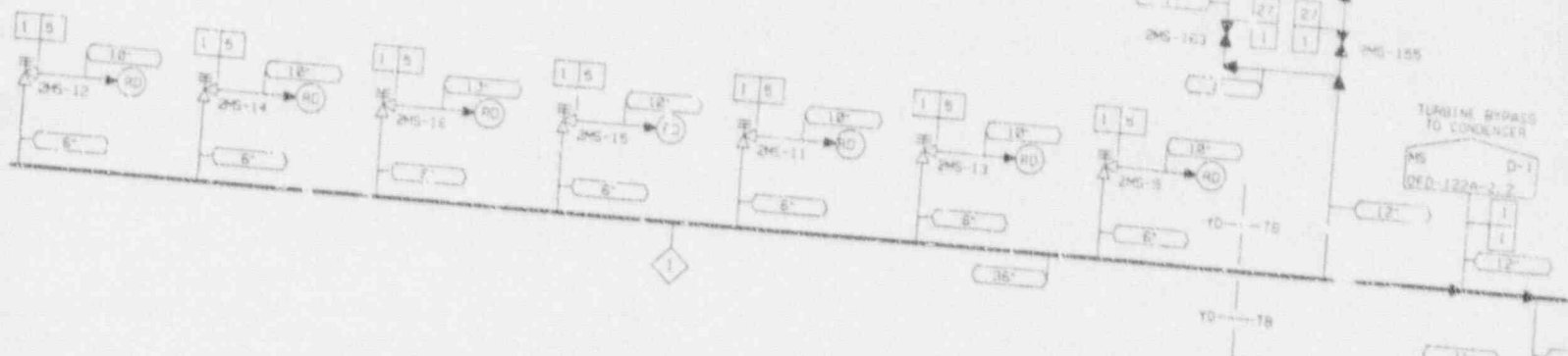
Question # 55 RO Exam
and # 61 SRO Exam

OP-OC-STG-MS
July 19, 1984 LMH/
Page 8 of 17

5. Relief valve settings are staggered so that at a 100% turbine load trip, all MSRV's will open, but reseal in a pattern designed so that as the heat generated by the primary drops, the number of valves remaining open decreases, until all relief valves are closed and OTSG pressure is being controlled by the TBV's.
6. These staggered settings, while still protecting the lines from overpressure, also prevent excessive blowdown which would result in excessive cooldown of the primary.
7. The relief valves are designed for as much as 6% blowdown, meaning that they may reseal as low as 94% of lift pressure. This is accomplished by the use of a conical shaped valve disc which offers more surface area for the steam once it has opened. This design is necessary so that the valve is not constantly "popping" and reseating at lift pressure.
8. With this in mind one can see that the 2 relief valves with the lowest lift settings (1050 psig) may not reseal until pressures as low as 977 psig. (By procedure the acceptable lift setting range for the 3 lowest valves is 1039-1060 psig)
9. This is the cause for 2 (or more) relief valves remaining open at normal post trip steam pressures of ~ 1010 psig. Operators should realize that this is somewhat expected and that it is incorrect to immediately assume that these relief valves are "stuck" open, which would indicate a mechanical failure of the valve(s)
10. The Trip Recovery procedure now addresses lowering steam header pressure in order to reseal MSRV's. Also a station problem report has been submitted for this design deficiency. Thus far, no changes have been made to the lift settings for the valves, however relief valve maintenance during outages has been upgraded and the blowdown rings have been opened up somewhat which has helped reduce the blowdown of these valves.
11. Work in and around the MSRV's while the unit is at power should never be allowed due to the potential for a reactor trip and subsequent lifting of the MSRV's. Serious personal injury could occur if entry were allowed in this area (steam burns or hearing loss).

Question # 55 RO Exam
and #61 SRO Exam

D-14 FROM
NITROGEN
BLANKETING



RECEIVED

JUL 9 - 1990

PRODUCTION SUPPORT
OCONEE TRAINING
CENTER

PIPE
CLASS
NOTE
NOTE
NOTE
NOTE

DESIGN FLOW
NO. 1
5,534,000 LBS/HR

MAIN STEAM RELIEF VALVE
SET PRESSURES

VALVE NO.	PRESSURE
2MS-1	1184 PSIG
2MS-2	1065 PSIG
2MS-3	1000 PSIG
2MS-4	1000 PSIG
2MS-5	1180 PSIG
2MS-6	1180 PSIG
2MS-7	1184 PSIG
2MS-8	1050 PSIG
2MS-9	1184 PSIG
2MS-10	1065 PSIG
2MS-11	1000 PSIG
2MS-12	1000 PSIG
2MS-13	1000 PSIG
2MS-14	1180 PSIG
2MS-15	1184 PSIG
2MS-16	1050 PSIG

NO.	REV	PER	DATE	BY	CHKD
4	REV	PER	11-28-3021		
ORIGINAL DRAWING FILED					
REVISIONS					
DATE					

TO 2ND STAGE
HEATERS
201 & 202

Question #76 SRO exam and
#70 RO exam

OP-OC-PLS-BS
March 02, 1984 LMH/
Page 3 of 16

LRO - TRAINING OBJECTIVES

The student will:

TIME: 1 Hour

A. Terminal Objective

1. Describe the purpose, location, modes of operation, and precautions related to Tech. Specs. in regard to the RBS System. The student should also know the ES setpoint and equipment associated with this system, and recognize important power supplies.

B. Enabling Objectives

1. State the three (3) purposes of the RBS System.
2. List the minimum flow requirement for the RBS pumps.
3. List the power supplies for the following RBS System components:
 - a. RBS pumps 'A' and 'B'
 - b. BS-1 and BS-2
 - c. BS-3 and BS-4
4. State the setpoint, statalarms armed, and equipment actuated by ES Channels 7 and 8.
5. List the normal flow values for each RBS pump in both the ES mode and recirculation/piggyback mode.
6. Given a drawing or list of RBS components, properly sequence the RBS flowpath in each of the following modes:
 - a. Engineered Safeguards (ES)
 - b. Recirculation/Piggyback from RBES
 - c. Recirculation to the BWST (testing)
7. Describe the Tech. Spec. precaution to be observed when running a RBS pump in the recirculation mode for testing.
8. Describe the purpose and the basic method to perform the functional test of the RBS Check Valves.

Question #76 SRO and
#70 RO

OP-OC-PNS-BS
March 02, 1984 LMH/
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LSO - TRAINING OBJECTIVES

The student will:

TIME: 1 Hour

A. Terminal Objective

1. Describe the purpose, location, modes of operation, and precautions related to Tech. Specs. in regard to the RBS System. The student should also know the ES setpoint and equipment associated with this system, and recognize important power supplies.

B. Enabling Objectives

1. State the three (3) purposes of the RBS System.
2. List the minimum flow requirement for the RBS pumps.
3. List the power supplies for the following RBS System components:
 - a. RBS pumps 'A' and 'B'
 - b. BS-1 and BS-2
 - c. BS-3 and BS-4
4. State the setpoint, statalarms armed, and equipment actuated by ES Channels 7 and 8.
5. List the normal flow values for each RBS pump in both the ES mode and recirculation/piggyback mode.
6. Given a drawing or list of RBS components, properly sequence the RBS flowpath in each of the following modes:
 - a. Engineered Safeguards (ES)
 - b. Recirculation/Piggyback from RBES
 - c. Recirculation to the BWST (testing)
7. Describe the Tech. Spec. precaution to be observed when running a RBS pump in the recirculation mode for testing.
8. Describe the purpose and the basic method to perform the functional test of the RBS Check Valves.

2.0 PRESENTATION

2.1 Protective Functions

A. High Flux Trip at ~ 105.5%

1. Technical Specifications requires high flux trip at no greater than 105.5%; Actual RPS set points are set at 104.75% for conservatism.
2. The high flux trip is provided to prevent damage to the Fuel clad from reactivity excursions too rapid to be detected by pressure or temperature measurements of the RPS.
3. The Tech Spec set point of 105.5% is based on not exceeding the maximum power levels reached in the Safety Analysis Reports; this value is nominally 114% of Full Power. When 105.5% RPS set point is used, adding to this the variations that could result due to calibration and instrument errors and the delay time from trip set point reached until the power excursion is terminated, the maximum power level reached could be 112% Full Power.

E. High flux trip based on RCS Flow and Axial Imbalance (Flux/Flow/Imbalance)

1. Technical Specifications Maximum Allowable trip set points for various combinations of reactor power and RCS flow are shown in Handout OC-IC-RPS-5.
2. Specified power/flow set points prevent a DNBR of less than 1.3 occurring should a loss of RCS flow occur at high power. due to an electrical malfunction.
3. Set points based on 100% design flow - since actual RCS flow is greater than design flow (~ 107% for Unit 1,2,& 3) this credit for additional flow is taken when establishing trip set points based on RCS flow.
4. For 4 RCPs (100% flow) maximum set point based on RCS flow is:

$$100\% \times 1.07 = 107\%$$

(Unit 1,2,& 3)

5. With only 3 RCPs operating, design flow rate is 74.7%.

6. For 3 RCP combinations, the trip set point is derived by:

$$74.7\% \times 1.07 = 79.9\% \text{ Full Power (Unit 1,2,& 3)}$$

Question # 89 SRO and
85 RO Exams

OP-OC-WE-PRM
May 25, 1985 TLF/
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3. Detector sodium iodide.
 4. Located at vent stack.
- I. RIA-41 (1) (3)
1. Similar to RIA-39.
 2. Monitor air in spent fuel pool.
 3. Detector plastic beta.
 4. Suction entrance to spent fuel pool.
Located adjacent to CC Surge Tank
- J. RIA-42 (1) (3)
1. Monitor RCW return from auxiliary building.
 2. Detector sodium iodide.
 3. Located in turbine building basement behind backwash pumps.
- K. RIA-43, 44, 45 and 46 (1) (2) (3)
1. See Handout OC-WE-PRM-7.
 2. Monitor Unit vent for radioactive air particulates, gas and iodine.
 3. Located on skid in vent stack room.
 4. RIA-43 plastic beta detector.
 5. RIA-44 sodium iodide.
 6. RIA-45 plastic beta.
 7. RIA-46 G. M.
 8. RIA-45 interlocked to stop Reactor Building Purge and Reactor Building Mini Purge Fans and close R.B. isolation valves PR-2, 3, 4 & 5
- L. RIA-47, 48 49 and 49a (1) (2) (3)
1. See Handout OC-WE-PRM-8.
 2. Monitor reactor building for radioactive air particulates, gas and iodine.

Comment #15

LRO TRAINING OBJECTIVES

The student will be able to do the following: TIME: 4 Hours

A. Terminal Objectives

1. Apply the appropriate Station Directive(s) to given situations, either using a copy of the directive or from memory as required.

B. Enabling Objectives:

1. Given a copy of Station Directive (S.D.) 2.2.1, Station procedures: (R1)
 - a. State when a procedure change would be deemed necessary.
 - b. Determine the validity of a procedure control copy check.
 - c. Determine if a procedure must be in the user's possession prior to its performance.
2. Given a copy of S.D. 2.2.2, Independent Verification: (R2)
 - a. Determine whether a given example is a proper method to identify a component's status.
 - b. Determine whether or not independent verification is required for a given component or system.
 - c. Apply the precautions listed in the directive to given situations.
3. Select a correct method for independent verification, given several choices, in accordance with S.D. 2.2.2, Independent Verification. (R3)
4. In reference to S.D. 3.1.1, Tagging: (R4)
 - a. Identify those who are responsible for issue and recall of Operations' tags.
 - b. State the general purpose of red, white, and yellow tags.

LRO TRAINING OBJECTIVES

5. Given a copy of S.D. 3.1.1, Tagging, determine the appropriate course of action in a given situation as it applies to each of the following: (R5)
 - a. Tag issue, placement, recall, and removal
 - b. Tagging completeness for a given component
 - c. Contaminated tags
 - d. Tag stubs
 - e. Tag voiding
 - f. Red and white tag log audits
 - g. Human red tags
6. As required by S.D. 3.1.2, Activities Affecting Station Operation: (R6)
 - a. Identify the person to be notified if a problem exists or is suspected with the operability of safety-related equipment.
 - b. State the action to be taken prior to initiating actions affecting unit operation or control room indications.
7. Given a copy S.D. 3.1.2, Activities Affecting Station Operation, determine who should operate a given valve. (R7)
8. Given a copy of S.D. 3.1.3, Demineralized Water (DW): (R8)
 - a. Describe the approval required to use the additional DW makeup pump.
 - b. Apply the directive requirements concerning DW consumption and cross-connecting to a given situation.
9. Given a copy of S.D. 3.1.4, Control Room Access and Authority: (R9)
 - a. Determine the personnel who may grant permission to enter the Control Room.

LRO TRAINING OBJECTIVES

10. Given a copy of S.D. 3.1.6, Station Labeling: (R10)
 - a. Determine individual responsibility in implementing the Station Labeling Directive.
11. Given a copy of S.D. 3.2.1, Work Request: (R11)
 - a. Describe the process for initiating a maintenance work request.
 - b. Describe the method to void a work request.
12. Given a Copy of S.D. 3.2.4, Drum Control Program: (R12)
 - a. Determine individual responsibility in obtaining, using and labeling drums.
13. Given a copy of S.D. 3.3.1, Personnel Dose Control: (R13)
 - a. State whether or not given work must be performed under an SRWP or RWP.
14. In accordance with S.D. 3.3.1, Personnel Dose Control: (R14)
 - a. State when personnel dosimetry must be worn.
 - b. State the five(5) whole body dose and internal exposure administrative limits.
15. Given a copy of S.D. 3.3.2, Radioactive Material Control: (R15)
 - a. Determine whether a given area is within the restricted area, radiation control area, or controlled area.
 - b. Determine whether an item with a given description should be green or yellow-tagged.
 - c. Determine the appropriate personnel and equipment contamination monitoring, as well as the correct monitoring equipment to use, for egress from a given area.

LRO TRAINING OBJECTIVES

16. Given a copy of S.D. 3.3.4, Radiation Access Controls: (R16)
 - a. Determine if the requirements for high radiation area (HRA) access control are met for a given situation.
 - b. Select the proper response to an HRA access control degradation.
17. Given a copy of S.D. 3.3.5, ALARA Program: (R17)
 - a. Explain how stated ALARA practices apply to given situations.
18. Given a copy of S.D. 3.3.8, Process and Area Radiation Monitors: (R18)
 - a. Determine whether or not Operations is responsible for a given RIA.
 - b. Apply the Operations' responsibilities from the directive to given situations.
 - c. Determine whether or not Operations compensatory actions are required for an inoperable RIA, and state those compensatory actions required.
19. Describe in your own words each of the following security areas, as defined in S.D. 3.4.1, General Security Requirements: (R19)
 - a. Owner Controlled Area
 - b. Protected Area
 - c. Vital Area
20. Describe the proper use of personal protective equipment at ONS, per S.D. 4.1.1, Personal Protective Equipment. (R20)
21. Given a copy of S.D. 4.1.2, Use of Scaffolds and Portable Ladders: (R21)

Determine whether or not a ladder is being properly used, inspected, or stored for a given situation.

LRO TRAINING OBJECTIVES

22. Given a copy of S.D. 4.1.3, Personnel Safety Area Access: (R22)
- a. State what each individual type of barrier tape and warning sign indicates.
 - b. Describe the operators' responses to given situations directly or indirectly related to:
 - 1) Quench tank cavity entry with normal RCS temperature and pressure.
 - 2) Containment entries when RCS temperature is above 300°F.
 - 3) Containment entries when the reactor is critical.
 - c. Determine whether the proper procedure for entry into a confined space is being followed in a given situation.
23. Given a copy of S.D. 4.1.5, Personal Injury Treatment: (R23)
- a. Determine the proper actions for a minor injury.
 - b. Describe the appropriate control operator response to injuries requiring MERT activation.
24. Discuss the two (2) responsibilities of the control operator during a fire or fire drill, according to S.D. 4.2.2, Fire Brigade Organization and Training. (R24)

LRO TRAINING OBJECTIVES

25. Describe the action to be taken if an impairment of a given fire protection system component is discovered, according to S.D. 4.2.3, Reporting of Fire Protection Impairment. (R25)
26. Given a copy of S.D. 4.3.3, Waste Oil Management Program: (R25)
 - a. Determine which group is responsible for a given batch of waste oil.
 - b. Describe the Operations' responsibilities for a given batch of turbine building sump or SSF waste oil.
 - c. Describe the actions to be taken if an oil spill occurs.

LSO TRAINING OBJECTIVES

The student will be able to do the following: TIME: 6 Hours

A. Terminal Objectives

1. Apply the appropriate Station Directive(s) to given situations, either using a copy of the directive or from memory as required.

B. Enabling Objectives

1. Given a copy of Station Directive (S.D.) 2.2.1, Station Procedures: (R1)
 - a. State when a procedure change would be deemed necessary.
 - b. Determine the validity of a procedure control copy check.
 - c. Determine if a procedure must be in the user's possession prior to its performance.
2. State when actions not covered by or deviating from approved procedures may be performed, according to S.D. 2.2.1, Station Procedures. (R2)
3. Given a copy of S.D. 2.2.2, Independent Verification: (R3)
 - a. Determine whether a given example is a proper method to identify a component's status.
 - b. Determine whether or not independent verification is required for a given component or system.
 - c. Apply the precautions listed in the directive to given situations.
4. Select a correct method for independent verification, given several choices, in accordance with S.D. 2.2.2, Independent Verification. (R4)
5. For a given situation, evaluate whether or not independent verification may be appropriately waived in accordance with S.D. 2.2.2, Independent Verification. (R5)

LSO TRAINING OBJECTIVES

6. Given a copy of S.D. 2.3.5, Control of Temporary Modifications (TSM): (R6)
 - a. Determine whether or not a given item is, by definition, a TSM.
 - b. Select the appropriate unit to authorize installation and maintain log entries concerning a TSM for a given component.
7. In reference to S.D. 3.1.1, Tagging: (R7)
 - a. Identify those who are responsible for issue and recall of Operations' tags.
 - b. State the general purpose of red, white, and yellow tags.
 - c. State the general purpose of block tagouts.
8. Given a copy of S.D. 3.1.1, Tagging, determine the appropriate course of action in a given situation as it applies to each of the following: (R8)
 - a. Tag issue, placement, recall, and removal
 - b. Tagging completeness for a given component
 - c. Contaminated Tags
 - d. Tag Stubs
 - e. Tag Voiding
 - f. Red and white tag log audits
 - g. Human red tags

LSO TRAINING OBJECTIVES

9. Given a copy of S.D. 3.1.2, Activities Affecting Station Operation: (R9)
 - a. List two (2) sources available to aid in making operability determination.
 - b. List two (2) actions required of the shift supervisor whenever a unit exceeds a Tech. Spec. LCO.
 - c. Determine whether an item is clearly inoperable or must be evaluated to determine its status.
 - d. Determine when an action statement begins for a given situation.
 - e. Select the appropriate time-frame for beginning maintenance or testing activities on a unit entering an LCO requiring equipment restoration.
 - f. Determine who should operate a given valve.
10. Given a copy of S.D. 3.1.3, Demineralized Water (DW): (R10)
 - a. Describe the approval required to use the additional DW makeup pump.
 - b. Apply the directive requirements concerning DW consumption and cross-connecting to a given situation.
11. Concerning S.D. 3.1.4, Control Room Access and Authority: (R11)
 - a. Select from given choices those individuals requiring permission to enter the control room.
 - b. List the three (3) positions authorized to grant control room access.

LSO TRAINING OBJECTIVES

12. Given a copy of S.D. 3.1.6, Station Labeling: (R12)
 - a. Determine individual responsibility in implementing the Station Labeling Directive.
13. Given a copy of S.D. 3.2.1, Work Request: (R13)
 - a. Describe the process for initiating a maintenance work request.
 - b. Determine and assign priority for a given work situation.
 - c. Complete the additional information on the work request form, as required for priority 1, 2I, and 5F classifications, for a given work situation.
 - d. Describe the process used to determine the Q.A. condition for a given piece of equipment.
 - e. Determine whether a retest or functional verification for a given component is required.
 - f. Identify the person responsible to decide whether or not quality control (Q.C.) is required.
 - g. Describe how to determine whether or not clearance to begin work must be obtained.
 - h. Determine when clearance to begin work may be given.
 - i. Determine whether or not reclearance to begin work must be obtained.
 - j. Determine whether or not the equipment is environmentally qualified (EQ).
 - k. Describe the method to void a work request.
14. Given a Copy of S.D. 3.2.4, Drum Control Program: (R14)
 - a. Determine individual responsibility in obtaining, using and labeling drums.

LSO TRAINING OBJECTIVES

15. Given a copy of S.D. 3.3.1, Personnel Dose Control: (R15)
 - a. State whether or not given work must be performed under an SRWP or RWP.
 - b. Describe the process and required approvals necessary for a given dose extension.
16. In accordance with S.D. 3.3.1, Personnel Dose Control: (R15)
 - a. State when personnel dosimetry must be worn.
 - b. State the five (5) whole body dose and internal exposure administrative limits.
17. Given a copy of S.D. 3.3.2, Radioactive Material Control: (R17)
 - a. Determine whether a given area is within the restricted area, radiation control, or controlled area.
 - b. Determine whether an item with a given description should be green or yellow-tagged.
 - c. Determine the appropriate personnel and equipment contamination monitoring, as well as the correct monitoring equipment to use, for egress from a given area.
18. Given a copy of S.D. 3.3.4, Radiation Access Controls: (R18)
 - a. Determine if the requirements for high radiation area (HRA) access control are met for a given situation.
 - b. Select the proper response to an HRA access control degradation.
 - c. Describe the controls proscribed for use of permanent HRA keys and temporary HRA padlock keys as they apply to given situations.
19. Given a copy of S.D. 3.3.5, ALARA Program: (R19)
 - a. Explain how stated ALARA practices apply to given situations, both from an individual and a supervisory perspective.

LSO TRAINING OBJECTIVES

20. Given a copy of S.D. 3.3.7, Respiratory Protection Program: (R20)
 - a. Determine individual responsibility in the proper use of respirators.
21. Given a copy of S.D. 3.3.8, Process and Area Radiation Monitors: (R21)
 - a. Determine whether or not Operations is responsible for a given RIA.
 - b. Apply the Operations' responsibilities from the directive to situations.
 - c. Determine whether or not Operations compensatory actions are required for an inoperable RIA, and state those compensatory actions required.
22. Describe in your own words each of the following security areas, as defined in S.D. 3.4.1, General Security Requirements: (R22)
 - a. Owner Controlled Area
 - b. Protected Area
 - c. Vital Area
 - d. Normally Unoccupied Vital Area
23. Describe the shift supervisor's responsibility for containment access control, according to S.D. 3.4.3, Containment Access Control, during all phases of plant operation. (R23)
24. Describe the proper use of personal protective equipment at ONS, per S.D. 4.1.1, Personal Protective Equipment. (R24)
25. Given a copy of S.D. 4.1.2, Use of Scaffolds and Portable Ladders: (R25)
 - a. Determine whether or not ladder is being properly used, inspected, or stored for a given situation.

LSO TRAINING OBJECTIVES

26. Given a copy of S.D. 4.1.3, Personnel Safety Area Access: (R26)
- a. state what each individual type of barrier tape and warning sign indicates.
 - b. For a given situation, determine whether or not to isolate the SSF-CO system.
 - c. Describe the operators' responses to given situations directly or indirectly related to:
 - 1) Quench tank cavity entry with normal RCS temperature and pressure.
 - 2) Containment entries when RCS temperature is above 300°F.
 - 3) Containment entries when the reactor is critical.
 - d. Determine whether or not the proper procedure for confined space entry and the final inspection after a confined space entry have been performed in a given situation.
 - e. Specify the appropriate response for work in a heat stress environment in a given situation.
27. Given a copy of S.D. 4.1.5, Personal Injury Treatment: (R27)
- a. Determine the proper actions for a minor injury.
 - b. Describe the supervisors' responsibilities in a given medical emergency.
28. Discuss three (3) of the responsibilities of a supervisor acting as fire brigade captain or lieutenant in response to a fire, according to S.D. 4.2.2, Fire Brigade Organization and Training. (R28)

LSO TRAINING OBJECTIVES

29. Given a copy of S.D. 4.2.3, Reporting of Fire Protection Impairment: (R29)
 - a. Classify the impairment level for a given inoperable piece of fire protection equipment.
 - b. Describe the actions to be taken as a result of a given fire protection system impairment.
30. Given a copy of S.D. 4.3.3, Used Oil Management Program: (R30)
 - a. Determine which group is responsible for a given batch of waste oil.
 - b. Describe the Operations' responsibilities for a given batch of turbine building sump or SSF waste oil.
 - c. Describe the actions to be taken if an oil spill occurs.
31. Given a copy of S.D. 4.5.3, Qualified Reviewer: (R31)
 - a. Specify whether or not a given change or determination must be reviewed by a qualified reviewer.
 - b. State the qualification to perform a cross-disciplinary review.
32. Given a copy of S.D. 4.5.4, Q.A. Condition Determination: (R32)
 - a. State the three (3) categories of work requests where Operations would make a Q.A. condition classification.
 - b. Determine the proper method(s) for determining a given item's Q.A. condition.

Comment # 15

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June 1, 1989 LMH/
Page 6 of 14

LPRO - TRAINING OBJECTIVES

The student will be able to: Time: Variable Hours

A. Terminal Objective

Become familiar with and be able to use and follow the requirements and information contained in the Operations Manual.

B. Enabling Objectives

1. Be able to recite, from memory, any required procedure or administrative items as detailed in OMP 2-1, Enclosure 4.5:
(R1)
 - a. The student is not required to be able to list each item in Enclosure 4.5 from memory.
 - b. The student is expected to be able to recall from memory those actions or statements listed in Enclosure 4.5 as they relate to the specific task or evolution being performed.
2. When given a copy of the Operations Manual, or portions thereof, be able to demonstrate an understanding of the guidance or rules within specific OMPs by locating the answer to or interpreting required responses for a given situation.
(R2)

LPSO - TRAINING OBJECTIVES

The student will be able to: Time: Variable hours

A. Terminal Objective

Remain or become familiar with and be able to use and follow the requirements and information contained in the Operations Manual.

B. Enabling Objectives

1. Be able to recite, from memory, any required procedure or administrative items as detailed in OMP 2-1, Enclosure 4.5:
(k1)
 - a. The student is not required to be able to list each item in Enclosure 4.5 from memory.
 - b. The student is expected to be able to recall from memory those actions or statements listed in Enclosure 4.5 as they relate to the specific task or evolution being performed.
2. When given a copy of the Operations Manual, or portions thereof, be able to demonstrate an understanding of the guidance or rules within specific OMPs by locating the answer to or interpreting required responses for a given situation.
(R2)

Comment #15

LRO - TRAINING OBJECTIVES

The student will be able to:

Time: Variable

A. Terminal Objective:

Relate procedures and technical documents to the Reactor Operator's (RO) ability to safely and efficiently perform required duties and tasks in the plant.

B. Enabling Objectives:

1. When given plant/system/component conditions or problems refer to the appropriate procedure(s) and be able to: (R1)
 - a. diagnose the cause of the problem
 - b. identify the location of the problem
 - c. indicate appropriate recuperative actions or actions required to achieve a specified effect
 - d. identify preceding events and/or actions
 - e. classify or indicate if the conditions meet specified criteria
 - f. explain the correct method for performing an applicable procedure step
 - g. locate and identify the answers to specific questions on limits, cautions, notes, etc... within the procedures
 - h. determine applicable limits or limiting conditions for operation and describe the required compensatory measures as detailed in the Technical Specifications
2. When given a proposed/hypothetical course of action or recommendation determine the acceptability of the action or recommendation. (R2)
3. When given a plant condition and/or procedure step(s) explain the purpose, basis or reason for associated specific limits, cautions, notes or procedure steps etc... relating to reactor operator duties. (R3)

4. When given the applicable data be able to make correct parameter computations. (R4)
5. When given a set of plant conditions and/or reactor operator actions be able to predict plant/system/component response, or the effect on the same or other systems or components. (R5)
6. Demonstrate an understanding of the guidance or rules in procedures by locating the answer to specific RO related questions. (R6)
7. Be able to recite, from memory, required procedural or administrative items detailed in Operations Manual Procedure 2-1 (OMP 2-1, ENCL. 4.1). (R7)
8. For AP's, OMP's, SD's Tech Specs and the EOP, become familiar with the content of each so as to be able to answer, from memory, questions relating to general systems alignments, available operator controls and instrumentation, bases for specific actions, and in the case of the EOP, the order of priority assigned for mitigating simultaneous casualties. (R8)

LSO - TRAINING OBJECTIVES

The student will be able to:

Time: Variable

A. Terminal Objective:

Relate procedures and technical documents to the Senior Reactor Operator's (SRO) ability to safely and efficiently perform required duties and tasks in the plant.

B. Enabling Objectives:

1. When given plant/system/component conditions or problems refer to the appropriate procedure(s) and be able to:
(R1)
 - a. diagnose the cause of the problem
 - b. identify the location of the problem
 - c. indicate appropriate recuperative actions or actions required to achieve a specified effect
 - d. identify preceding events and/or actions
 - e. classify or indicate if the conditions meet specified criteria
 - f. explain the correct method for performing an applicable procedure step
 - g. locate and identify the answers to specific questions on limits, cautions, notes, etc... within the procedures
 - h. determine applicable limits or limiting conditions for operation and describe the required compensatory measures as detailed in the Technical Specifications
2. When given a proposed/hypothetical course of action or recommendation determine the acceptability of the action or recommendation. (R2)
3. When given a plant condition and/or procedure step(s) explain the purpose, basis or reason for associated specific limits, cautions, notes or procedure steps etc... relating to senior reactor operator duties. (R3)

4. When given the applicable data be able to make correct parameter computations. (R4)
5. When given a set of plant conditions and/or senior reactor operator actions be able to predict plant/system/component response, or the effect on the same or other systems or components. (R5)
5. Demonstrate an understanding of the guidance or rules in procedures by locating the answer to specific SRO related questions. (R6)
7. Be able to recite, from memory, required procedural or administrative items detailed in Operations Manual Procedure 2-1 (OMP 2-1, ENCL. 4.1). (R7)
8. For AP's, OMP's, SD's Tech Specs and the EOP, become familiar with the content of each so as to be able to answer, from memory, questions relating to general systems alignments, available operator controls and instrumentation, bases for specific actions, and in the case of the EOP, the order of priority assigned for mitigating simultaneous casualties. (R8)

comment #15

Reviewed By W. D. H. H. H.

Approved By R. L. B. B. B.

Date 31 December, 1991

Revision # 20

OCONEE NUCLEAR STATION

OPERATIONS MANAGEMENT PROCEDURE 2-1

DUTIES AND RESPONSIBILITIES OF ON SHIFT OPERATIONS PERSONNEL

1.0 Purpose

The purpose of this OMP is to:

- 1) Define the role and responsibilities of the Shift Supervisor
- 2) Define the responsibilities of the Licensed Reactor Operators on the Control Board.
- 3) Define the responsibilities of the SRO in the Control Room.
- 4) Define the responsibilities of the Unit Supervisor.
- 5) Describe the "normal" lines of communication and Shift Organization to be used during plant operation.
- 6) Define the responsibilities of the non Licensed Operators.
- 7) Define the boundaries which limit the movements of the required Control Room personnel to ensure that the controls are adequately monitored.
- 8) Define those procedural items which Reactor Operators and Senior Reactor Operators shall have committed to memory.
- 9) Define a Control Board Walkdown

2.0 References

Technical Specification 6.1.1.3
Technical Specification 6.1.1.7
Emergency Operating Procedure
ETQS Manual
Abnormal Procedures
Operations Manual
Operating Procedures
Station Directives

Refer to
End. 4.9
attached

MAJOR REVISION

ENCLOSURE 4.1
SHIFT ORGANIZATION AND LINES OF COMMUNICATION

Shift Organization

1. The Shift Supervisor is responsible for the safe operation of the entire station for the duration of his/her shift and is accountable for the quality of that operation. The Operators assigned to a particular shift will report to the Shift Supervisor administratively and organizationally. The Unit Supervisors will report to the Shift Supervisor and are responsible for the safe operation of their assigned units. The Control Room SRO will report to the Shift Supervisor administratively and organizationally, but will report to the Unit Supervisor functionally with regard to the operation of his/her assigned unit.
2. The Reactor Operators assigned to a Control Room will report to the Control Room SRO functionally. Most directions given to the OATC or the BOP Operator(s) will come through the Control Room SRO. The Unit Supervisor may, with the concurrence of the Control Room SRO, give directions to the OATC and/or the BOP Operator(s) for specific tasks or evolutions. Emergency Control Room communications will be in accordance with OMP 1-18, COMMUNICATION AND EOP IMPLEMENTATION STANDARD.
3. Nonlicensed Operators (NLOs) will receive jobs from and report job status to the same individual whether it is the Unit Supervisor, the Control Room SRO, or one of the Reactor Operators assigned to a Unit.

Overtime Coverage

1. Operators reporting for NLO overtime duties should be treated like the requesting shift's NLO with regard to radiation dose and ALARA practices.
2. Reactor Operators in on overtime should not be utilized as the OATC on an outage unit or a unit undergoing major transients.
3. Overtime will be requested on an "as needed" basis by the Shift Supervisor or his designee.

Lines of Communication

On shift communications

Owing to the complexity of the shift organization, strong, well-defined lines of communication are established and maintained to succeed in the safe operation of Oconee Nuclear Station. Every member of the shift team is required to keep the other members of the team informed of the status of their watchstation or assigned tasks and of any abnormal condition discovered during the course of their shift.

1. The "normal" communications (unit directions, work flow, etc.) will be from the Unit Supervisor to the Control Room SRO, to the Reactor Operators. The Unit Supervisor, the Control Room Supervisor, or the Shift Supervisor may assign NLC tasks as needed but the ROs will generally assign the routine NLO tasks.

ENCLOSURE 4.1
SHIFT ORGANIZATION AND LINES OF COMMUNICATION

On shift communications (cont'd)

2. All Control Room personnel, SRO, OATC, and BOP, will be informed of any major change to unit status prior to making the change, if intentional, or as soon as possible after discovering the change, if unintentional. Minor changes (starting and stopping of minor pieces of equipment, pumping sumps, etc.) may be communicated after the fact.
3. The Unit Supervisor will be informed of all intentional major changes to unit status prior to the change being made. He/She will be informed of any unintentional changes to unit status as soon as possible after their discovery.
4. The Shift Supervisor will be informed of any major changes to unit status as soon as practical and before turnover to the oncoming shift.
5. All SROs working on a unit will keep each other informed as to the status of the unit at all times.

Off shift communications

1. Operations Staff personnel will give directions/orders to the Unit Supervisor. The Staff will take particular care when discussing unit status in the Control Room that their remarks are not misinterpreted as directions/orders to the CR SRO or the ROs.
2. The responsibility for the safety of the unit and the station rests with the shift SROs. This responsibility will be considered prior to accepting any directions or orders from members of the Ops Staff or from other groups.
3. All Work Requests, PTs, Station Modifications, etc. will be previewed by the Unit Operations Staff prior to clearance approval being given by the Unit Supervisor. All SROs always have the authority to give clearance for emergency or immediate attention work. Operations Staff personnel may give clearance to begin work if unit operating status is not affected.
4. All Work Requests, PTs, Station Modifications, etc. will be processed through the Unit Supervisor before presenting them to Control Room personnel for action. The Control Room SRO will not accept any work packages without having the packages first approved by the Unit Supervisor.
5. In the absence of the Unit Supervisor, the Shift Supervisor may, at his discretion, approve work packages (WRs, NGMs, PTs, etc.) for handling by Control Room personnel.

ENCLOSURE 4.2
RESPONSIBILITIES OF THE SHIFT SUPERVISOR

1. The Shift Supervisor is responsible for the safe operation of Oconee Nuclear Station for the course of his/her assigned shift. He is the primary contact for all off normal events and emergencies. He must maintain a "big picture" awareness of all facets of station operation.
2. The Shift Supervisor, during any event requiring entry into our Emergency Plan, will perform the function of the Emergency Coordinator until relieved by the Station Manager or his designee.
3. The Shift Supervisor is responsible for ensuring that the members of his team comply with our occupational safety and ALARA rules and regulations.
4. The Shift Supervisor is responsible for ensuring that his shift operates the plant in a manner consistent with the high standards of quality expected of the ONS Operations Group. This requires an active participation in plant operation on the part of the Shift Supervisor.
5. The Shift Supervisor is responsible for the development of the members of his shift team. He must instill the need for conservative operation and decision making in his team members. He has to be involved in the process of training his team members. He must participate in the development of his Assistant Shift Supervisors in a "hands on" manner and provide an environment suitable for the development of the non-exempt members of his team.
6. The Shift Supervisor should strive to establish operational consistency among the members of his shift. Those individuals fulfilling the role of relief Shift Supervisor have the opportunity to monitor operations across individual shift boundaries and should attempt to attain consistency from shift to shift by reporting inconsistencies, both good and bad, to the Shift Operations Manager or the Superintendent of Operations.
7. The Shift Supervisor is the "coach" of his assigned team. He is responsible for coaching and counseling the members of his team to ensure that Operations' expectations are communicated and understood. He is also responsible for shaping the morale of his assigned team.
8. The Shift Supervisor is responsible for providing "Management Overview" of the way that we conduct Operations' business on a day to day basis. He must ensure that our communications techniques and team skills are practiced in the plant as well as in the simulator. In addition, the Shift Supervisor is required to periodically observe the interactions between the Shifts and the Ops Staff personnel to ensure that information and direction follows the prescribed "chain of command".
9. The Shift Supervisor must insure that approved procedures and administrative policies are used to assist in the control of evolutions affecting the plant. This includes all groups working at the station, not just the Operations group.

ENCLOSURE 4.2
RESPONSIBILITIES OF THE SHIFT SUPERVISOR

10. The Shift Supervisor is responsible for the following items: (especially during outages or high work load times)
 - a) Attending at least one of the outage meetings daily in order to keep his team better informed of plans and changes to the schedule.
 - b) Work with the Ops Staff to provide and request overtime coverage as the work load requires.
 - c) Stress quality of operation above productivity, including the use of mini-huddles and/or pre-job briefings to discuss the progress and plans for current evolutions. These discussions should include expected results (before the evolution), and achieved results and the reasons for not achieving expected results (after the evolution).
 - d) Ensure that the members of his team take ample breaks in order to maintain peak performance. This is not limited to protecting the operators from physical exhaustion, but includes using breaks to relieve stress and refresh the mind of the operators as well.
11. The Shift Supervisor is required to assist in the training of his shift team members. This includes conducting NSM/TSM training, ensuring that routine training packages are completed in a timely manner, observing and critiquing the performance of members of his shift on the simulator and in the plant. He is also responsible for the administration of our ETOS program on his shift.
12. The Shift Supervisor is the administrative coordinator for his shift. His duties in this area include the scheduling of physical examinations and training, the preparation and presentation of exempt and non-exempt evaluations, tracking employee dose, ensuring that his shift's housekeeping assignments are properly maintained, and documenting and tracking employee time records. These duties may be delegated to his assistants, but the responsibility for these and other "admin" functions rests with the Shift Supervisor.

RESPONSIBILITIES OF THE UNIT SUPERVISOR

1. The Unit Supervisor's position will be filled by an individual holding a currently active Senior Reactor Operator license.
2. The Unit Supervisor is responsible for the overall operation of the Unit to which he is assigned. This responsibility includes operations conducted inside and outside of the Control Room.
3. The Unit Supervisor is responsible for interacting with individuals from the Ops staff and from other groups at the station. He/She will be the primary contact for all Work Requests, procedures, and manipulations to be accomplished on the Unit.
4. The Unit Supervisor will report to the Shift Supervisor.
5. The Unit Supervisor will approve R&Rs prior to their use in the plant. (Including Control Room R&Rs) The Control Room SRO may approve R&Rs provided that he informs the Unit Supervisor and gets his concurrence prior to implementing the R&R.

ENCLOSURE 4.4
RESPONSIBILITIES OF THE SRO
IN THE CONTROL ROOM

1. The SRO shall be required "in the Control Room" from which the Unit is operated during all modes of plant operation from Cold Shutdown conditions to 100% Power Operations. "In the Control Room" is defined as inside the CAD key doors that are used for entering and exiting the Control Room.
2. The SRO shall ensure that he/she is properly relieved prior to crossing the boundary listed in 1. above.

When the Unit is < 200°F RCS temperature, the SRO in the Control Room will be allowed to take small breaks (less than 30 minutes duration) without being relieved provided that no major evolution or complicated testing is in progress.

3. The SRO shall report to the Shift Supervisor.
4. The SRO shall maintain a "BIG PICTURE" overview of the operation of the Unit(s) to which he/she is assigned. His/Her function is to oversee the operation of the unit from the Control Room and to supervise the Reactor Operators in the performance of their duties.
5. The SRO's primary concern shall be to ensure the safe operation of the Unit(s) from the Control Room.
6. The SRO shall conduct a formal turnover of Control Room status with the off-going SRO.
7. The SRO shall review Control Room Logs on unit(s) he/she is assigned to.
8. The SRO shall review unit(s) status by reviewing R&R Logs, Turnover Sheets of Control Operators, Alarm Summaries, and Events Recorder printouts.
9. The SRO shall review with Unit Supervisor(s) their unit status and activities planned during the shift.
10. The SRO shall make rounds in Control Room to review Control Room status.
11. The SRO shall review with the Shift Supervisor the plant status and also inform the Shift Supervisor of his/her planned activities during the shift.
12. The SRO shall not take away from any of the established duties or responsibilities of the Unit Supervisors.
13. The SRO shall oversee the activities in the Control Room.
14. The SRO may not provide relief for the Control Room operators.
15. The SRO shall not perform any administrative duties which may distract from the safe operation of the plant. Such administrative duties shall include, but not be limited to, time tickets, shift clearing program, scheduling of other personnel, etc.

ENCLOSURE 4.4
RESPONSIBILITIES OF THE SRO
IN THE CONTROL ROOM

16. The Control Room SRO will not prepare R&Rs or Procedure Changes for use without being properly relieved of his CR SRO duties by another SRO. He may review and approve R&Rs and may perform reviews of procedure changes and 50.59 evaluations that have been prepared by others while fulfilling the role of the CR SRO.
17. The SRO shall become the reader of the Emergency Operating Procedure (EOP) should its use be required. The SRO in the Control Room may designate another SRO as the reader if desired.
18. The SRO is responsible for utilizing effective communication techniques per OMP-1G COMMUNICATION AND EOP IMPLEMENTATION STANDARD.

ENCLOSURE 4.5
RESPONSIBILITIES OF THE REACTOR OPERATORS

Responsibilities shared by the "Operator at the Controls" and the "Balance of Plant" Operator

1. The minimum operating shift requirements for Reactor Operators are defined in OMP 1-2. The Reactor Operators fulfilling the minimum requirements of Table 6.1-1 of Tech. Specs. shall ensure that he/she is properly relieved prior to crossing the boundaries listed in Enclosure 4.4.
2. The Reactor Operators assigned to any Control Room are charged with the responsibility of operating their assigned unit. They are to operate the plant with a questioning attitude, keeping nuclear safety and "Operations Conservatism" in mind.
3. Reactor Operators have the authority to take appropriate action (including tripping the reactor) should, in his/her best judgment, a situation exist requiring prompt action.
4. Prior to making any changes in unit status, Reactor Operators will refer to all applicable procedures, including controlling procedures, to ensure that all prerequisites for the change are met.
5. In addition to normal plant monitoring, Reactor Operators are responsible for making at least three complete Control room rounds as defined by Enclosure 4.8 of this OMP per shift. The Operator at the Controls and the Balance of Plant Operator will relieve each other after a proper turnover of items in progress in order that these rounds can be completed.
6. Reactor Operators shall have the responsibility of notifying the Control Room SRO immediately of any significant abnormal conditions.
7. Reactor Operators shall have the responsibility for taking the appropriate actions when operating limits of safety related equipment and components, as described in Technical Specifications or Operating Procedures, are reached or exceeded. If any of these limits or setpoints are exceeded, he/she shall immediately report this to the Control Room SRO.
8. A Reactor Operator shall acknowledge all alarms. When an alarm is received, he/she shall take the appropriate actions in response to the alarm. This action may include a comparison/check of relevant supporting parameters to validate the alarm, taking such actions as designated in the Alarm Response Guide, Emergency or Abnormal Procedures. When an alarm is received that is unexpected for the existing plant conditions or without apparent cause, he/she shall notify the Control Room SRO immediately.
9. All Reactor Operators shall ensure that his/her normal or selected instruments monitoring their associated parameters are responding as expected for the existing condition. If an instrument is responding contrary to what would be expected, the redundant instrument should be checked to verify the indication.

ENCLOSURE 4.5
RESPONSIBILITIES OF THE REACTOR OPERATORS

10. Reactor Operators, under the assigned authority of the Shift Supervisor, Unit Supervisor, or SRO in the Control Room, may direct the activities of other assigned operators (ROs and NLOs).
11. The Reactor Operator may not delegate his/her responsibilities to non-licensed personnel, but he/she may direct a non-licensed person in unit operation for training purposes in accordance with OMP 1-2 RULES OF PRACTICE.
12. All Reactor Operators are responsible for utilizing effective communication techniques per OMP 1-18 COMMUNICATION AND EOP IMPLEMENTATION STANDARD.
13. Reactor Operators are responsible for training RO class participants on RO ETQS Standards. They also share in the responsibility to train Non Licensed Operators on NLO ETQS Standards.

Responsibilities of the "Operator at the Controls"

1. The Operator at the Controls (OATC) will be a licensed Operator holding a currently active NRC Reactor Operator or Senior Reactor Operator license.
2. The OATC shall maintain the Reactor Operations Log. All entries into the Reactor Operations Log will be made by or under the direction of the OATC during each shift.
3. Under the direction of the Control Room SRO, the OATC shall have the responsibility for the operation of the assigned unit.
4. The OATC shall provide surveillance of operations and instrumentation monitored from the Control Room to ensure the safe operation of the Unit. During shutdown periods, he/she shall ensure that continuous safe shutdown conditions exist.
5. The OATC shall not perform any administrative duties that may distract from the safe operation of the plant. Such administrative duties shall include, but are not limited to, R&R and Procedure Change preparation, insurance forms, personnel forms, scheduling of other personnel, etc.

Responsibilities of the "Balance of Plant" Operator

1. The "Balance of Plant" (BOP) Operator will be a licensed Operator holding a currently active NRC Reactor Operator or Senior Reactor Operator license.
2. The BOP Operator is responsible for the monitoring of all instrument associated with the particular task that he/she is performing at any given time. He/She will verify that plant response to any control manipulation is as expected prior to continuing with the in progress procedure. If an instrument's response is not as expected, the redundant instrument should be checked to verify the indication.

ENCLOSURE 4.5
RESPONSIBILITIES OF THE REACTOR OPERATORS

3. The BOP Operator will keep the OATC and the Control Room SRO informed of his/her actions as he/she proceeds with assigned tasks and will inform the OATC and the Control Room SRO of any indication of trouble or discrepancy in the performance of any assigned tasks.
4. The BOP Operator shall report information (pertaining to Unit operation) to the Dispatcher as required by the Dispatcher. He/She shall also report to the Dispatcher any conditions which indicate that a unit shutdown or significant load reduction might be necessary.
5. The BOP Operator will prepare R&Rs for use in the plant as directed by the Control Room SRO or the Unit Supervisor.

ENCLOSURE 4.6
RESPONSIBILITIES OF THE NON LICENSED OPERATORS

1. Procedures shall be utilized in the performance of duties required of the NLO. Use of procedures will be in accordance with SD 2.2.1 and OMP 1-9. In order to increase the quality of station procedures, the NLO shall initiate procedure changes that will 1) enhance the procedures technical content, and 2) make the procedure more efficient.
2. NLOs are responsible for being safety conscious at all times. Safety equipment will be used in accordance with SD 4.1.1 PERSONAL SAFETY EQUIPMENT. NLOs shall promptly report safety programs to an Operations Supervisor.
3. NLOs are responsible for conducting plant surveillance utilizing round sheets in OP/D/A/1102/20 SHIFT TURNOVER. Rounds should be made at the start of shift and at other times as specified by supervision. Any abnormal conditions noted during this surveillance shall be communicated to the Unit Supervisor, SRO in Control Room, or the Control Room Operator so that the impact on plant operations and corrective actions needed can be determined. In addition to the items on the round sheet, NLOs shall inspect their watch station for material condition discrepancies, safety hazards, and plant cleanliness. Corrective action shall be initiated for identified items.
4. NLOs are responsible for identifying items for repair and for initiating work request per SD 3.2.1 WORK REQUEST. A MAINTENANCE PUNCHLIST REQUEST can be used to repair items listed under SD 3.2.3 MAINTENANCE ACTIVITIES NOT REQUIRING A WORK REQUEST.
5. NLOs are responsible for knowing and carrying out the requirements of SD 2.2.2 INDEPENDENT VERIFICATION.
6. NLOs shall be fully knowledgeable of and strictly adhere to the requirements of SD 3.1.1 TAGGING.
7. As members of the Station Fire Brigade, NLOs are responsible for participating in quarterly drills and annual practical training exercises conducted by the Safety group. They are responsible for carrying out the required actions of SD 4.2.2 FIRE BRIGADE ORGANIZATION AND TRAINING.
8. NLOs share in the responsibility to maintain plant equipment clean. OMP 2-8 OPERATIONS CLEANING RESPONSIBILITIES defines each shift's cleaning items. Major cleaning is to be performed on these items. Small leaks shall be wiped up and contained by the person assigned to that watch station. SD 2.3.3 REQUEST FOR K-MAC SERVICES may be utilized for major area cleaning if deemed necessary by the Shift Supervisor.
9. It is the responsibility of the NLO to actively pursue qualification to the ETQS Program. ETQS qualification is an integral part of the promotion criteria of OMP 2-10. When fully qualified to the ETQS Program, the NLO is responsible for the training of new employees to the ETQS Standards.

ENCLOSURE 4.6
RESPONSIBILITIES OF THE NON LICENSED OPERATORS

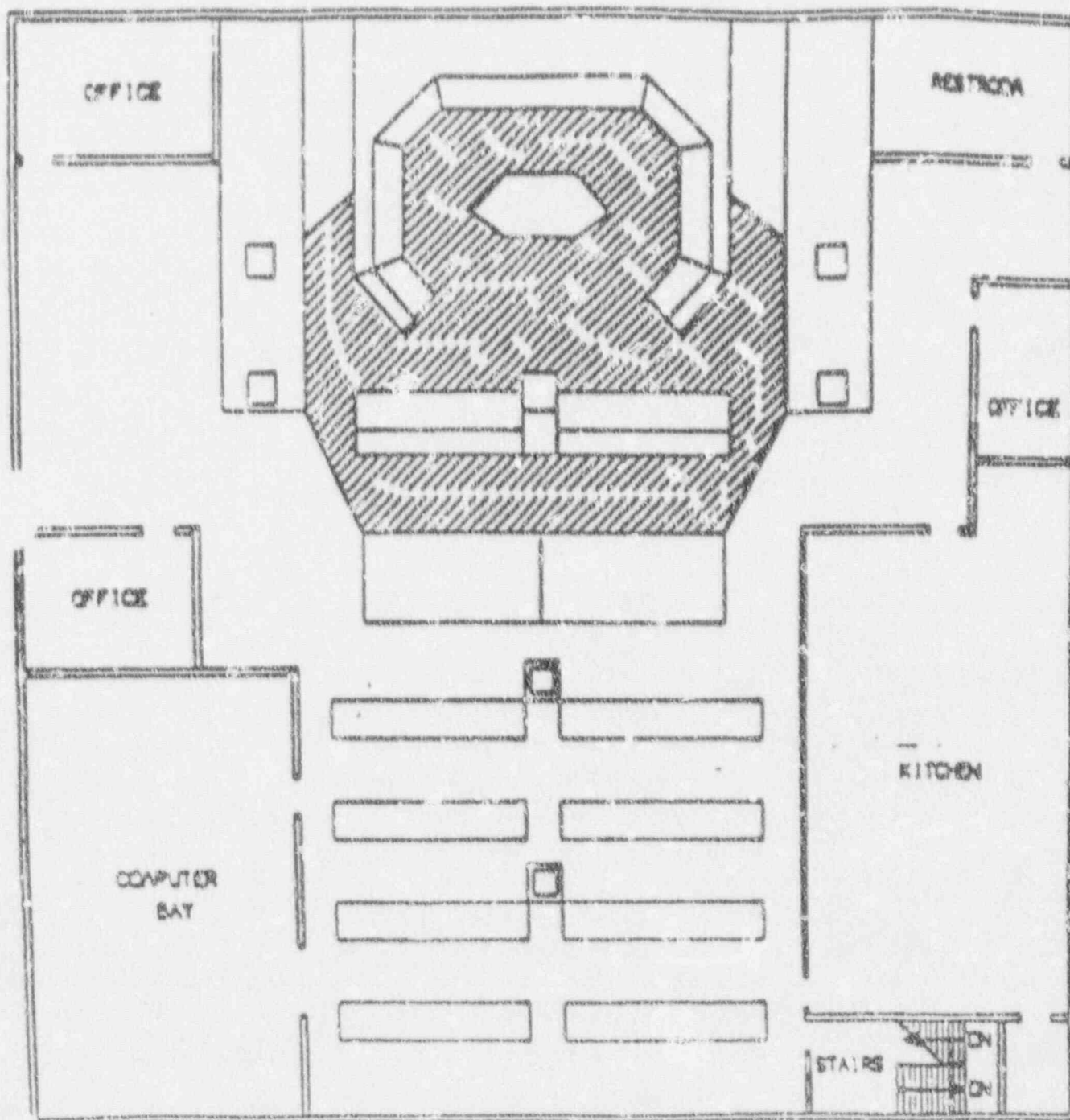
10. The NLO is responsible for utilizing effective communication techniques per OMP 1-18 COMMUNICATION AND EOP IMPLEMENTATION STANDARD.
11. In the performance of Primary rounds or jobs, the NLO is responsible for maintaining radiation dose ALARA per SD 3.3.5 ALARA PROGRAM. NLOs should identify areas where potential dose savings exist and initiate ALARA problem reports.
12. The NLO should effectively utilize study time during Requalification Training in order to maintain a high grade average and to help complete other shift projects.
13. During the performance of normal duties, NLOs should identify potential cost savings areas and pursue implementation into the Cost Reduction Program.
14. The NLOs shall respond to plant emergencies in accordance with the requirements of OMP 1-7 EMERGENCY RESPONSE ORGANIZATION. NLOs shall participate in plant emergency drills as an active participant of the OSC.
15. The NLO shall adhere to the requirements of OMP 1-2 RULES OF PRACTICE.

ENCLOSURE 4.7
CONTROL ROOM BOUNDARIES

1. Boundaries established for Reactor Operators
 - A) When Technical Specifications require one (1) person in the Control Room (at the controls), this is defined as: must be in visible line of Nuclear Instrumentation. See cross hatched area on Figures 1 and 2.
 - B) When Technical Specifications require two (2) R.O.'s in the Control Room, one (1) R.O. will be "at the controls" as defined in "A" above and the second R.O. will be inside the CAD key doors that are used for entering and exiting the Control Room.

ENCLOSURE 4.7
FIGURE 1
CONTROL ROOM DEFINITION
CONTROL OPERATORS

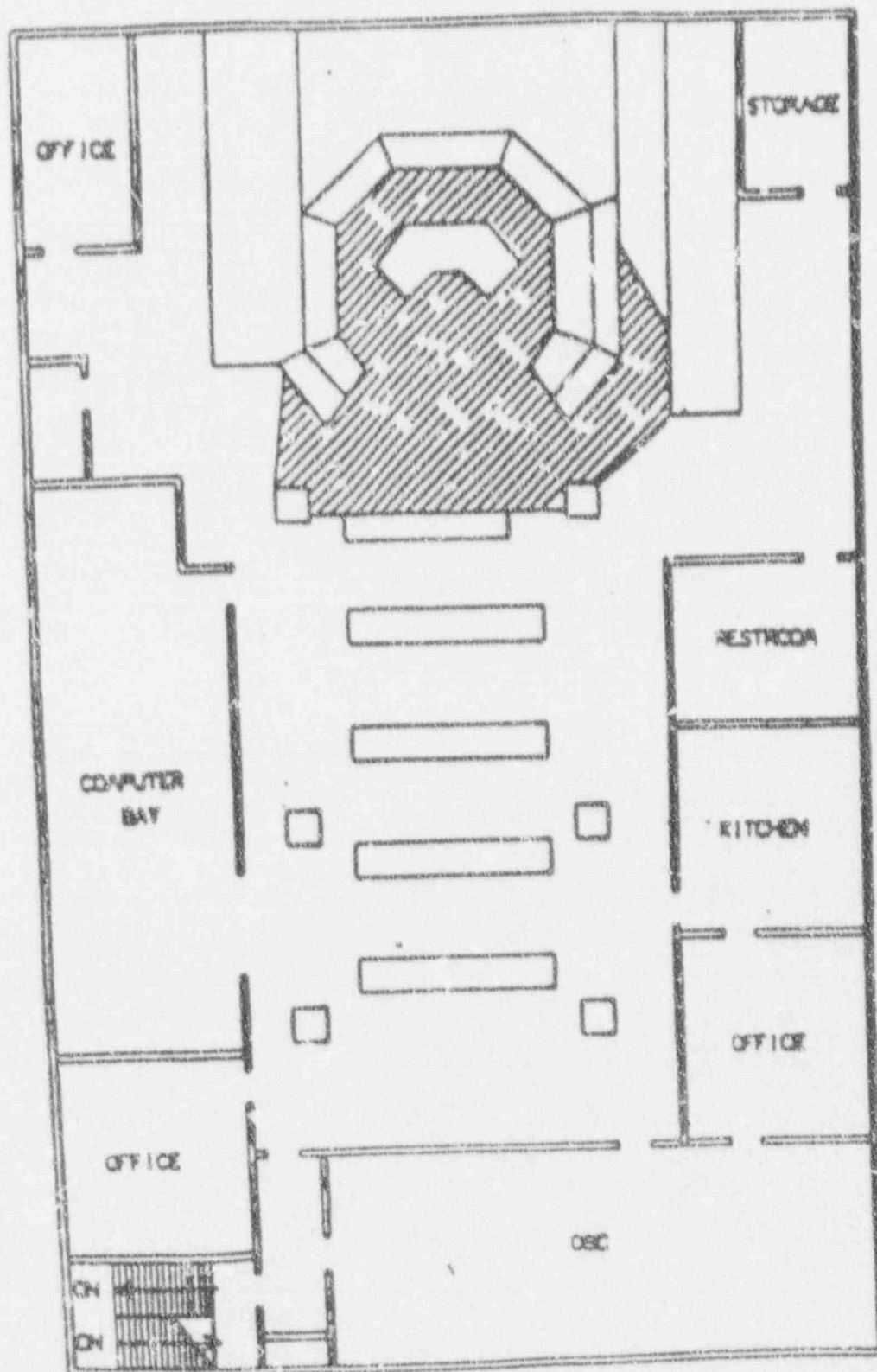
UNITY 1 & 2



Cross Hatched Area: "At the Controls"

ENCLOSURE 4.2
FIGURE 2
CONTROL ROOM DEFINITION
CONTROL OPERATORS

UNIT 3



Cross Hatched Area: "At The Controls" *

OMP 2-1
ENCLOSURE 4.8
CONTROL ROOM ROUNDS

Page 1 of 1

1. Each Control Room Operator will make a complete, detailed board walkdown soon after relieving to verify turnover items and to ensure their understanding of plant and control room equipment.
2. Around the middle of the shift, a second round should be conducted to ensure continued proper operation of plant and control room equipment.
3. Toward the end of shift, each Control Room Operator will again make a complete board walkdown paying particular attention to items changed or worked on during their shift in order to prepare for a detailed turnover.
4. A complete board walkdown will include:
 - 1) All Controls and corresponding indications to verify valve/equipment status agrees with demand and plant conditions. All lights should be checked and replaced as required.
 - 2) All Statalarms in alarm state are understood and are proper for present plant conditions. Those Statalarms out of service should be investigated to find out why they are out of service.
 - 3) Review of the computer alarm summaries and various display groups. The display groups should be used as a cross reference to other indications in the control room and to check the status of major equipment. (RCPs, FWPs, etc.)
 - 4) All gauges, meters, and charts should be checked against one another, as applicable, to verify their readings.
 - 5) All "OOS" stickers should be checked for validity, reason, and proper attachment.
 - 6) Proper operation of control room equipment (typers, RIAs, charts, etc.) should be checked.
5. Any discrepancies noted during any round will be brought to the attention of the Control Room Supervisor.

OMP 2-1
ENCLOSURE 4.9
PROCEDURAL ITEMS WHICH ALL LICENSED OPERATORS
SHALL HAVE COMMITTED TO MEMORY

1.0 Items from the Emergency Operating Procedure (EP/*A/1800/01)

1.1 Conditions which require entry into the EOP.

1.2 Immediate Manual Actions

1.3 Significant steps which the Operator shall be able to perform from memory:

- 1.3.1 If a MS Line rupture is indicated then manually trip both MFWPs and isolate the affected SG(s):

Close:	A SG	B SG
EFDW Control	FDW-315	FDW-316
Main FDW Block	FDW-31	FDW-40
SU FDW Block	FDW-33	FDW-42
Main FDW Control	FDW-32	FDW-41
Startup FDW Control	FDW-35	FDW-44

- 1.3.2 If either SG level > 96% Operating Range, then manually trip both FDEPTs and verify proper operation of EFDW.

- 1.3.3 If subcooling margin = 0°F in either loop or core, then manually trip all RCPs within 2 minutes.

- 1.3.4 If core subcooling margin = 0°F and HPI has not been initiated, then manually initiate HPI:

Open:

HP-14
HP-25
HP-26
HP-27

Verify running either the 'A' or 'B' HPI pump and start the 'C' HPI pump.

Verify flow is sufficient in both HPI headers within 10 minutes.

HPI may be throttled when core subcooling margin $\geq 20^\circ\text{F}$.

Limit HPI flow to 475 gpm/pump.

1.3.5 If the Reactor fails to shutdown or remain shutdown as required:

- a) Manually drive the Control Rods into the core
- b) De-energize the CRD System
- c) Initiate Emergency Boration of the RCS

Open: HP-24
HP-26
HP-25
HP-27

Verify running either the 'A' or 'B' HPI pump and start the 'C' HPI pump.

Verify proper flow in both HPI headers.

1.3.6 If the ability to feed the SGs is lost and RCS pressure \geq 2300 psi, then HPI forced cooling must be initiated. HPI forced cooling requires:

Open: HP-24
HP-25
HP-26
HP-27

Start: The 'A' or 'B' HPI pump and the 'C' HPI pump

Open: RC-4
RC-66

1.3.7 If all MFDW and EFDW is lost and CBPs are available, depressurize the SGs so that primary to secondary heat transfer can be reestablished using the CBPs.

1.3.8 If Core Exit Thermocouples indicate superheated conditions, then go immediately to the Inadequate Core Cooling Section of the EOP.

1.3.9 Do not allow the LPI pumps to run for greater than 30 minutes with no flow other than minimum recirc.

1.3.10 If the ECCS System is in operation and the BWST level reaches 6 ft. decreasing, swap LPI suction from the BWST to the Emergency Sump per the EOP.

1.3.11 If HP-24 and HP-25 fail to open on ES Channel 1 and 2 activation, align HPI in piggyback mode as follows:

- a) Verify open LP-21 and LP-22
- b) Open LP-9, LP-10, LP-15 and LP-16
- c) Start "A" or "B" LPI Pump

2.0 Licensed Operators are responsible for knowing from memory the Immediate Manual Actions of the following Abnormal Procedures:

2.1 Spent Fuel Damage (AP/*(A/1700/09)

2.1 Loss of Instrument Air (AP/*(A/1700/22)

2.2 Loss of Power (AP/*(A/1700/11)

2.3 In addition to the above, licensed operators shall initiate a manual reactor trip if any of the following occur:

- Two or more CRD Stators are $\geq 180^\circ\text{F}$.
- Two or more Control Rods drop into the core.
- Either SG level is $\leq 15"$.
- Both MFWRs trip and the Reactor is critical.
- Pressurizer level increases to $> 375"$.
- Uncontrollable flooding of the Turbine Building.
- Major damage can be seen due to an earthquake or natural disaster.
- Loss of CCW Intake Canal or Dam failure.
- If all Intermediate and Power Range Nuclear Instrument channels fail at power and the Reactor has not tripped.

3.0 Licensed Operators are responsible for being able to find any limits, necessary actions, etc., as described in Technical Specifications. Operators shall also know what plant components, systems, etc., falling under Operations' responsibility, have Technical Specifications associated with them.

3.1 Licensed Operators shall be able to recall from memory, and initiate a manual Reactor trip if any of the following Tech Spec required RPS trip setpoints are exceeded:

- a) High RCS Pressure 2355 psig
- b) High RCS Temperature 618°F
- c) Low RCS Pressure 1800 psig
- d) High RB Pressure 4 psig
- e) High Flux 105.5%
- f) Loss of Both FDWPTs Loss of both FDWPTs and the Rx is critical.
- g) Turbine Trip $> 30\%$ Rx power
- h) The RCP monitors shall produce a Reactor trip for the loss of two RCPs and Reactor power level is greater than 2% of rated power.

- 3.2 The engineered safety features protective actuation setpoints as described in Section 3.5.3 of Technical Specifications shall be committed to memory.
- 4.0 Items from OPs, PTs, etc. that licensed Operators shall be able to recall from memory.
- 4.1 If any two of the four NIs become $> 2\%$ non-conservative, have I&E calibrate NIs. In no case should "Thermal Power Best" exceed NIs by $\geq 4\%$.
 - 4.2 Any Safety Related Motor Operated Valve that has been manually operated must be cycled electrically to assure operability.
 - 4.3 If the LDST level reaches 40" decreasing while the Reactor is critical, take the necessary actions to restore LDST level.
 - 4.4 Do not operate any EFDW pump at > 500 GPM to prevent pump damage.
 - 4.5 Maintain ≥ 6 ft. in the UST at all times when the EFDW pumps are required to be operable.
 - 4.6 Except for testing, the 'C' HPI pump should not be started unless the suction flowpath is aligned from the BWST.

ENCLOSURE 5

SIMULATOR FIDELITY REPORT

Facility Licensee: Oconee Nuclear Station

Facility Docket Nos.: 50-269, 50-270, 50-287

Operating Tests Administered on: January 21-23, 1992

This form is to be used only to report observations. These observations do not constitute, in and of themselves, audit or inspection findings and are not, without further verification and review, indicative of non-compliance with 10 CFR 55.45(b). These observations do not affect NRC certification or approval of the simulation facility other than to provide information which may be used in future evaluations. No licensee action is required solely in response to these observations.

During the conduct of the simulator portion of the operating tests, the following items were observed:

<u>ITEM</u>	<u>DESCRIPTION</u>
AC Lift Oil Pumps	AC lift oil pumps computer point on the OAC computer indicated the pumps were off when they were on and visa versa.
PORV operations	The PORV does not operate on the simulator as is described in the lesson plan, when normal power is not available.
Fuel Handling Alarms	Spurious Fuel Handling alarms were received during an active simulator examination that were not related to the examination.
Reactor Coolant Pump Speed	RCP speed indication computer point on the OAC computer indicated the pumps were at 0 percent speed when they were at 100 percent and visa versa.
LPI injection/switchover	The simulator was unable to model Shut down LPI switchover mode of operations to the normal mode of operations.

5

ENCLOSURE 4

NRC RESOLUTION OF FACILITY COMMENTS

Comment

1. Question 26 RO: Comment accepted. There is a correct answer which is found in the Abnormal Operating Procedure (AOP), however, in accordance with OMP-2-1, this AOP (AP/1/A/1700/07) is not required for memorization. This question will be deleted from the examination and point value adjusted accordingly. The facility is reminded that procedural discrepancies between EOP's and AP's should be resolved as soon as possible.
2. Question 32 RO: Comment accepted. The answer key for "c"
33 SRO: will be changed to reflect 10 as the correct answer.
3. Question 36 RO: Comment accepted. This question will be
37 SRO: deleted from the exam and point value adjusted accordingly. The facility is reminded that accurate technical reviews are necessary to ensure content validity. The facility is also requested to review the corresponding Lesson Plan for technical accuracy.
4. Question 39 RO: Comment accepted. The answer key will be
40 SRO: changed to reflect that "b" and "d" will be accepted as correct answers.
5. Question 45 RO: Comment accepted. The answer key will be
48 SRO: changed to reflect that "d" is the only correct answer.
6. Question 46 SRO: Comment accepted. This question will be deleted from the examination and point value adjusted accordingly. The facility is reminded that accurate technical reviews are necessary to ensure content validity.
7. Question 47 SRO: Comment accepted. The answer key will be changed to reflect that "b" and "c" will be accepted as correct answers.

8. Question 48 RO: Comment accepted. In accordance with
51 SRO: Operator Licensing Branch policy, questions that have more than two correct answers will be deleted from the exam and point value adjusted accordingly.
9. Question 53 RO: Comment accepted. The answer key will be changed to reflect that "b" and "c" will be accepted as correct answers.
10. Question 55 RO: Comment not accepted. Since response "b"
61 SRO: correctly describes the plant Main Steam Relief valves designed operation, it will be considered the only correct answer. The answer key will be changed to reflect "b" as the only correct answer.
11. Question 71 RO: Comment accepted. The answer key will be
76 SRO: changed to reflect that "a" and "c" will be accepted as correct answers.
12. Question 73 RO: Comment not accepted. Providing
78 SRO: "Pressurizer level increasing" in the stem of the question was not necessary to determine the correct answer. Choices "a", "c", and "d" can all be eliminated using basic RCS system knowledge leaving choice "b" as the only possible cause for the pressure increase.
13. Question 86 SRO: Comment accepted.
- a). 86 (b): The answer key will be changed to allow "3" as an additional correct answer. The facility is reminded that accurate technical reviews are necessary to ensure content validity.
- b). 86 (c) will be deleted and exam point value adjusted due to incorrect wording in Column B, choice 6, which could have led to candidate confusion. It should be noted that none of the SRO candidates proposed questions concerning this distractor during the examination. The facility is reminded that the pre-exam review should also include wording and phrasing as well as technical aspects of questions.

14. Question 8, RO: Comment not accepted. As written the
 89 SRO: question is technically accurate, representing
 actual plant design. The answer will remain the
 same. The facility is reminded that examinations
 contain testing material based on current plant
 configuration. The NRC as well as students must
 receive current material in order to test the
 applicant's knowledge on the operation and
 configuration of the plant.

15. Questions 9, 26, 27, 31, 39, 42, 43, 44, 45, 46, 47, 48..RO:
 8, 30, 32, 40, 43, 44, 45, 46, 47, 48, 49, 50,
 51, 52, 53, 54SRO:

Generic Comment: Comment acknowledged. It should be noted that NRC
 examinations are based upon a complex model that is
 obtained from NUREG/BR-0122, "Examiners Handbook for
 Developing Operator Licensing Examinations." Topics
 included in this model are important test items that
 enable the NRC to determine minimal competence of an
 operator candidate's knowledge to operate a nuclear
 power plant. For example: Questions like RO-
 45/SRO-48, calculating radiation exposure for an
 individual, is in K/A category 194001K104 and holds
 an importance rating of 3.3/3.5. This type of test
 item enables the NRC to determine the individuals
 knowledge of the ALARA Program and the operators
 knowledge of his/her exposure record. It is
 anticipated that an operator entering a Radiation
 area would not necessarily have a copy of S.D. 3.3.1
 at the point of entry for prior review. In
 addition, in reference to question RO-43, it is
 anticipated that a Reactor Operator performing
 independent verification would not review S.D.
 2.2.2, "Independent Verification", each and every
 time he/she were tasked to perform this function.
 Therefore, test items while not necessarily form
 fitted to the facilities learning objectives are in
 the realm of being tested without reference material
 being provided.