



Carolina Power & Light Company

August 27, 1987

SERIAL: TRN/87-0246
FILE: B10-18501Q

Mr. John Munro, Chief
Operator Licensing Branch
U.S. Nuclear Regulatory Commission
101 Marietta Street
Atlanta, Georgia 30323

SUBJECT: NRC EXAMINATION COMMENTS

Dear Mr. Munro:

Attached are the examination comments for the examination given on August 24, 1987, at the Brunswick Steam Electric Plant.

Should you have any questions concerning these comments please call Mr. G. P. Barnes (919) 457-2059.

Respectfully,

A handwritten signature in cursive script, appearing to read "P. W. Howe".

P. W. Howe, Vice President
Brunswick Nuclear Project

NVS/flp

cc: C. R. Dietz
J. W. Moyer
G. P. Barnes

Attachments

NTS-4201(D)

8710210027 871016
PDR ADOCK 05C00325
V PDR

GEN
87-08-S28

RO EXAM COMMENTS

Question No.	Comments
1.16	Question refers to 9 SRV's. Both BSEP units have 11 SRV's (see attached page 2 from ADS Handout 14D). The reference listed in the answer key (5A) will be revised to remove the reference to 9 SRV's.
2.10	During the OJT portion of the RO class, EER 86-275 was implemented on Unit 1. This EER (see attached EER) de-activates the head spray function of RHR. Some students may not include this in their answer.
2.11	The timing cycle for the E11-F017 valve uses a reference of 410 psig reactor pressure in conjunction with the LOCA signal. Although this is I&C level knowledge, some students may list it in their answer.
2.14	Diesel engine trips not included in the answer key but may be listed by students are: 1. Generator/Engine Trips <ol style="list-style-type: none">Differential OvercurrentPhase OvercurrentLoss of ExcitationReverse Power These trips were listed in an earlier revision in 20D, but inadvertently omitted in the current revision.
4.05	The question did not specify which limits (10CFR20 or CP&L). Some students may list 10CFR20 limits and should receive credit.

SRO EXAM COMMENTS

- 5.01b $MAPRAT = MAPLHGR \div LIMLHGR$ from P-1.
- 5.09c BSEP does not have auto flow control.
- 6.2 Question did not ask for setpoint. An acceptable answer would be flow greater than minimum flow setpoint or hi flow.
- 6.3b. Should also accept cooling not needed in containment.
- 6.14 The stem of the question may mislead students. "No valid scram signal present?"
- Answer key states "A half scram in one channel". A half scram is a valid scram signal.
- Other possible responses could be blown fuse or failed relay in both channels.
- 7.16 There is a 5th choice.
- "The assembly identification number on the fuel bundle fail are readable from the center of the fuel cell".
- Ref: H029-A, page 42,43 & fig 17 - H08, page 12
- 8.1 Why must the answer be in order, thats why there's a procedure.
- 8.2c AI58, Rev 18 No longer makes reference to caps as a position identifier of valves and breakers under clearance.



Carolina Power & Light Company

August 28, 1987

SERIAL: TRN/87-0248
FILE: B10-18501Q

Mr. John Munro, Chief
Operator Licensing Branch
U.S. Nuclear Regulatory Commission
101 Marietta Street
Atlanta, Georgia 30323

SUBJECT: NRC EXAMINATION COMMENTS

Dear Mr. Munro:

Attached are additional examination comments for the examination given on August 24, 1987, at the Brunswick Steam Electric Plant.

Should you have any questions concerning these comments please call Mr. G. P. Barnes (919) 457-2059.

Respectfully,

P. W. Howe, Vice President
Brunswick Nuclear Project

NVS/flp

cc: C. R. Dietz
J. W. Moyer
G. P. Barnes

Attachments

NTS-4201(D)

GEN
87-08-S29

ADDITIONAL RO EXAM COMMENTS

Question No.	Comments
2.09	HPCI Full Flow Test F008 does not look at CST level
3.03	Signs are not in Conservative Direction
3.11	Signs are backwards on 3.11.B.1
3.15	"Turbine Bypass Valves Open" do not influence APRM setdown.
4.07A	Answer is TRUE see SOP

ADDITIONAL SRO EXAM COMMENTS

Question No.	Comments
7.01	Add Torus level >-27"
8.06	Add SF approves transfer in safety related systems, gets permission from managers.
8.08	Add if not worked 24 hours a day and if equipment found to be inop for reason other than the test being performed. Find copies of procedures attached.

ENCLOSURE 4

SIMULATION FACILITY FIDELITY REPORT

Facility Licensee: Carolina Power and Light Company
P. O. Box 1551
Raleigh, NC 27602

Facility Licensee Docket No.: 50-325, 50-324

Facility Licensee No.: DRP-71, DRP-62

Operating Tests Administered At: Brunswick Steam Electric Plant

Operating Tests Given On: August 25-27, 1987

During the conduct of the simulator portion of the operating tests identified above, the following apparent performance and/or human factors discrepancies were observed.

Simulator Modeling Weaknesses

During one exam scenario, the plant was operating near Rated Thermal Power when a trip of one Reactor Recirculation Pump was initiated. This transient resulted in an immediate reactor scram and Main Turbine trip as a result of high reactor water level. None of the three site training personnel in the simulator at the time could explain how or why the simulator model responded in this way.

Simulator Systems and Simulator Facility Weaknesses

It was noted during the visit that the Training Department was in the process of completing installation of a major upgrade to the simulator facility. In general, it appears the improvements being incorporated will enhance the fidelity of the simulator. The utility is encouraged to expeditiously complete this upgrade project so future training classes can benefit from the improvements. The status of the simulator as of August 24, 1987 is listed in Attachment 1 to this enclosure.

While the aforementioned upgrade project did not significantly hamper the administration of this examination, two simulator facility weaknesses were noted:

1. The following malfunctions could not be inserted by the simulator instructors assisting in the examination requiring the "as planned" simulator scenarios to be modified slightly:

- Malfunction No. 131 - Jet Pump flow instrument failure
- Malfunction No. 236 - Reactor level transmitter N004A failure
- Malfunction No. 263 - HPCI inverter failure
- Malfunction No. 270 - RCIC system pressure transmitter failure

2. The annunciators on the Fire Protection panel did not provide an audible alarm.

SIMULATOR STATUS

BACK PANELS

T/G

T/G LOCKOUTS added to back of XU-1. One primary lockout and one backup lockout added. They are in switch check; two amber lights on XU-1, front part, let you know if they are not reset.

RPS MODS

- 1) Scram lights added to back panel for various groups.
- 2) RPS test switches added to back of XU-1. Used in LEP-02.
- 3) RPS selector switch added to recorder panel, lower section.
- 4) RPS inputs to alternate power is now selectable using CDIG.
- 5) All other CDIG input for selector switch have been removed.

APRM GAIN POTS

Six gain pots have been added to the APRM section. All APRM test pots have been removed from switch check; the only pots are the new gain pots. These pots are selectable from IA; either the new pots or the software version. The instructor will be able to adjust the software version using CANA (NI).

TIP SYSTEM

- 1) TIP purge switch now causes the red light to go on/off.
- 2) TIP 'B' ball valve now indicates closed--always.
- 3) TIP limit switch malfunction will now cause high rad alarms.

FRONT PANEL MODS

AOG PANEL

AOG Panel is added to the system. Old SJAE system removed. 12 new malfunctions are available for the new AOG system. PROBLEM: Our core model does not make O2 and H2. An added air input has been installed in the condenser to have something for the AOG system to recombine. Controls have been added to allow remote operations.

CRD

- 1) SDV vent and drain valves moved and backup added to panel. Valve stroke time set at some 'typical' time.
- 2) Test switch function changed so it operates solenoid valves directly.

RPS

- 1) Scram Group lights added to ~~from~~ P603.
- 2) Red light will go out at correct times now on manual p/b.

T/G

- 1) A new malfunction has been added; FAILURE OF THE REVERSE POWER RELAY. It will allow the T/G to run motorized for a while.

RAD MONITORS

- 1) Now have source check capability on all check switches.
- 2) Rad Waste effluent valves will now auto close and alarm on high rad condition.
- 3) Turbine Building Rad Monitor has been deleted and replaced with a software system. No hardware available.
- 4) The Stack Rad Monitor has been replaced with the RM-23 readout device. It is not ready yet, but will be operable soon.

CONTAINMENT

- 1) XU-2 Recorder now monitors drywell pressure only. (red pen).
- 2) New pressure indicator added, scale -5 to +245 psig.
- 3) Range change on old indicator now 0 to +75 psig.
- 4) Torus level indicators changed to -10 to +6 range. This is for both the recorder and indicator.
- 5) SPTMS installed and functional.

TBCCW

- 1) New malfunction added: line break. Response is similar to old RBCCW line break malfunction.
- 2) 'C' TBCCW pump can now be placed on Unit 1 using one CDIG entry in menu CC.

WELL WATER

Well water #3 has been deleted.

CONDENSATE

We can now recirc any booster pump back to the condenser by using the CDIG menu CF

CDIG/CFD

The black selector switch is gone. The only way to put a CDD on-line is by using CF, pages 2,3.

AUX BOILER

All aux boiler alarms have been removed. The aux boiler system controls are still in place and function.

D/G

- 1) You can now start all four D/G engines using CDIG.
- 2) D/G 1 and 2 can be controlled from CDIG entries.

RWCU

F042 has been changed to a maintain position switch. Be sure to check this in switch check.

ADS

- 1) Valves are now two stage instead of three.
- 2) High drywell pressure input to ADS logic has been removed.
- 3) ADS inhibit switches added to valve logic.

MSIVs

- 1) Group I lights added to P601.

RHR

- 1) F015 A/B reset switches have been removed and logic changed.
- 2) V32 and V33 have been added to model. (warmup valves).
- 3) Temperature indication on XU-51 now indicates correctly.

CORE SPRAY

- 1) The operator can now close the min flow valve if desired when the pump is not running.
- 2) Testable check valve controls and indication inactive.

RCIC

- 1) Auto swap on low CST level.
- 2) Auto restart on low level initiation after high level trip.
- 3) F045 closes on high level instead of normal trip valve.

HPCI

Time delay relays removed from back panel and deleted from logic.

HPCI/RCIC

Drains moved to main condenser.

CONTROL ROOM LIGHTING

Control room lighting will now go out and come back on a correct times during Malf 344, loss of control room lighting. The control switch located in back section of instructor console should be left in the AUTO position instead of the hand position.

PMS

- 1) P1 types out hourly on hour.
- 2) P1 edit same as control room except it still has 7x7 fuel limits.
- 3) L128 point is now correct.
- 4) Process computer responds to Malf 20 thru 23.

TURBINE GENERATOR

- 1) T/G runback it better; still stop too soon. It should stop at 5780 amps; it stops at 25% power.
- 2) T/G LP turbine temp now work. (no trip function yet)
- 3) T/G is now full ARC - not partial ARC as before
- 4) #4 A/C added to air model

MODS IN PROGRESS BY CPL

- 1) Yarway on P601 changed to electric.
- 2) N036 and N037 range changed to +/-150 instead of +200/-100 this may not be completed software wise yet.
- 3) RHR steam condensing valve control removed to match unit 2.
- 4) RHR testable check valves changed to match unit 2.
- 5) New P601 level indicator added, not functional yet.
- 6) P603 yarway level indicators changed to electrics.
- 7) Recirc pump controls changed. No selector switch available. If not completed by Roh, you will have to override recirc controller in manual.
- 8) CST indicator changed, new scale.
- 9) Mud tank level indicator added. Not functional yet.
- 10) RIP valve labels same as in plant. Model not changed yet.
- 11) Vital header flow meters added to XU-2. Not ready.
- 12) N2 backup system meters added to XU-51. Not ready.
- 13) Three new indicators added to ZU-51. No ready.
- 14) Four new L&N recorders were added to replace old recorders.

CAUTIONS

1. Do not use the simulator in FREEZE mode to compare what happened while the simulator was running. The freeze mode is NOT a true picture since some panel items change state when you go to freeze. Also, almost no annunciators are on in freeze.
2. On loss of RPS Bus, Rx Building Vent Dampers do not close as they should.
3. Malf 153, Steam Line Break prior to restrictor causes model problem late in transient when condenser empties. (Blows up)
4. Cannot activate Malfs 131, 236, 263,, and 270.
5. MSV #2 will not close in test.
6. Containment model blows up when going into or securing from inerting operation.
7. CAC-AT-4409 and 4410 have not been incorporated into our models yet. Caution tags on panel.
8. Several (5) valves listed in procedure have not been added to Group 6 isolation. Caution tag identifies these valves. Model has not been modified yet.
9. 9 meters have been added to the panel that have caution tags on them. These meters are not hooked up yet and are not functional.
10. LARGE CONDENSER BREAKS & LARGE SERVICE WATER BREAKS MAY CAUSE THE COMPUTER MODELS TO BLOW UP.