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ELV-00769
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U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555

VOGTLE ELECTRIC GENERATING PLANT
NRC DOCKETS 50-424, 50-425
OPERATING LICENSES NPF-68, NPF-81
DETAILED CONTROL ROOM DESIGN REVIEW

Gentlemen:

By letter dated January 26, 1989, your staff requested confirmatory information regarding certain remaining items of the Detailed Control Room Design Review (DCRDR). By letter dated May 9, 1989, (ELV-00503) Georgia Power Company responded to all but one of the confirmatory items. The remaining item involved a review of annunciator nuisance alarms, proposed modifications to minimize nuisance alarms and the number of annunciator windows lit during normal operations.

The enclosed report responds to this remaining item. Should you have any questions in this regard, please contact this office at any time.

Sincerely,


W. G. Hairston, III

WGH, III/NJS/gm

Enclosure

xc: Georgia Power Company
Mr. C. K. McCoy
Mr. G. Bockhold, Jr.
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CONTROL ROOM ANNUNCIATOR SURVEY

AUGUST 3, 1989

**Abnormal Control Room Annunciator Status
for Unit 1 on 7-10-89**

Mode 1, Rx Power -- 100%

A1. Survey

This survey was conducted on July 10, 1989 to determine the extent to which operators were being distracted by annunciator nuisance alarms. The survey was taken at 10:45 AM EDT with Unit 1 operating at 100% power in mode 1. The following annunciator windows were in a alarmed, lighted condition at the time of the survey:

ALB002 D03 "NSCW INTERTIE TRN A TO TRN B HI FLOW (Train B was shutdown at the time of survey. When shutdown in a standby position, the other train causes higher flow thru a keep-full line connecting the trains. This alarm clears when Train A is started).

ALB004 E01 "TRAIN A SYSTEM STATUS MON PNL ALERT" (CCW Pump handswitch was in Pull to Lock because a PM was being done on the pump).

ALB005 A03 "RMS CHANNEL FAILURE" (Annunciator was in due to various channels being out of service. This alarm indicates when an abnormality or failure is detected in any of over fifty individual radiation instruments. When the individual instruments are all returned to normal service it clears).

ALB010 A01 "SOURCE RANGE HI VOLTAGE FAILURE" (normally lit, green window)

ALB010 E02 "PWR RANGE LWR DET HI FLUX DEV
OR AUTO DEFEAT"

(This annunciator had an erratic alarm. It was found that the detector needed to be recalibrated to clear the annunciator. This alarm has been cleared as of 7-13-89).

ALB011 A04 "RCP 1 OIL LIFT PUMP LOW PRESSURE"
(normally lit, green window)

ALB011 B04 "RCP 2 OIL LIFT PUMP LOW PRESSURE"
(normally lit, green window)

ALB011 C04 "RCP 3 OIL LIFT PUMP LOW PRESSURE"
(normally lit, green window)

ALB011 D04 "RCP 4 OIL LIFT PUMP LOW PRESSURE"
(normally lit, green window)

ALB012 A04 "RC LOOP TAVG/AUCT TAVG HI-LO DEV"
(This indicates a deviation of 2 degrees or more between the coolant loops, but the actual deviation is less than 2 degrees. Corrective maintenance is planned.)

ALB016 E05 "AFW TURB MN STM DRN TO CNDSR TRBL"
(This alarm indicates a high level in a steam line drain collector. An engineering study is in progress to determine if this is an actual condition or an indication problem. No design change has been initiated.)

ALB018 B03 "FW HTR 1C HI/LO LEVEL"
(A PM was performed on FW HTR 1C. Alarm cleared as of 7-17-89).

ALB034 D04 "BAT CHARGERS 1CD1CA 1CD1BA TROUBLE"
(This indicates trouble on one of the Train C battery chargers, but they are operating normally. Maintenance to identify and correct the problem is planned; a plant outage will be required if the battery must be removed from service to work on the problem.)

ALB034 E06 "STARTER 1CD1I5N TROUBLE"
(normally lit, green window)

ALB034 E07 "STARTER 1DD1I6N TROUBLE"
(normally lit, green window)

ALB034 F06 "INVERTER 1CD1I5 TROUBLE"
(normally lit, green window)

ALB034 F07 "INVERTER 1DD1I6 TROUBLE"
(normally lit, green window)

ALB050 D02 "TB HVAC TROUBLE"
(This indicates an alarm on the ventilation control panel in the turbine building. A broken light bulb socket on that panel is causing an alarm; corrective maintenance is planned.)

ALB053 E02 "AFW TRN C PMP HOUSE HI TEMP"
(Alarm comes in and clears automatically as the vent fan reduces the temperature. The high temperature is due to a steam leak that will be repaired in an outage when the auxiliary feedwater pump can be inoperable.)

ALB054 A06 "NORM CHLR 2 TROUBLE"
(This indicates a local panel alarm. A broken light bulb socket is causing an alarm; corrective maintenance is planned.)

7-08-89 QPCP

ALB060 F04 "METEOROLOGICAL TOWER TROUBLE"
(Aspirator at Meteorological Tower was causing erratic alarm on this annunciator. The alarm was kept in service to indicate other failures. Corrective maintenance is planned.)

ALB061 C06 "LVL A LEAK DETECTED"

(The annunciator was illuminated with no indicated water level in any room on level A. It has been investigated and found that level switch 1LSH-17080 was covered with rust and corrosion, inside and out. A new switch has been installed and the problem is corrected. The alarm has been cleared as of 7-14-89.)

ALB062 C06 "ESF BAT RM ACID NEUT CONDUCT ALARM"

(The annunciator alarms and will not reset. There were no indications of battery acid leakage found upon investigation. 1CIS-17649 appears to be malfunctioning. This alarm was disabled on 7-17-89 pending repair).

In summary, the survey identified 14 annunciator windows in an alarm condition, and 9 which are normally lit (green windows) during full power operation. The 14 abnormal alarms represent a 0.9% alarm rate at the time of the survey.

**Abnormal Control Room Annunciator Status
for Unit 2 on 7-08-89**

Mode 1, Rx Power - 100%

A2. Survey

This survey was conducted on July 8, 1989 to determine the extent to which operators were being distracted by annunciator nuisance alarms. The survey was taken at 9:30 AM EDT with Unit 2 operating at 100% power in mode 1. The following annunciator windows were in a alarmed, lighted condition at the time of the survey:

ALB003 D03 "NSCW INTERTIE TRN A TO TRN B HI FLOW"
(NSCW TRAIN B was shutdown at the time of survey. When shutdown in a standby position, the other train causes higher flow thru a keep-full line connecting the trains. This alarm clears when Train B is started.)

ALB004 E01 "TRAIN A SYSTEM STATUS MON PNL ALERT"
(because system 1208 - Charging System - was bypassed because during performance of OSP 14811-2, Boric Acid Transfer Pump Train A failed test on low pump delta P. Pump expected delta P was approximately 100 PSID while measured value was 70.5 PSID. Corrective maintenance is awaiting parts.)

ALB005 A03 "RMS CHANNEL FAILURE"
(Annunciator was in due to various channels being out of service. This alarm indicates when an abnormality or failure is detected in any of over fifty individual radiation instruments. When the individual instruments are all returned to normal service it clears.)

ALB005 E02 "SPENT FUEL PIT LO LEVEL"

(Green window, normally lit because Unit 2 Fuel Pit is not yet filled. This will clear when the pit is filled.)

ALB005 F05 "ANNUNCIATOR SYSTEM DC GROUND"

(The problem cannot be corrected until Unit 2 has its refueling outage when the alarm system can be disabled.)

ALB010 A01 "SOURCE RANGE HI VOLTAGE FAILURE"

(normally lit, green window)

ALB010 C04 "ROD BANK LO LIMIT"

(The alarm did not clear after Control Bank C was withdrawn during Operations Surveillance 14410-2. Maintenance was performed and alarm was cleared as of 7-14-89.)

ALB010 E04 "BANK D FULL ROD WITHDRAWAL"

(normally lit, green window)

ALB011 A04 "RCP 1 OIL LIFT PUMP LOW PRESSURE"

(normally lit, green window)

ALB011 B04 "RCP 2 OIL LIFT PUMP LOW PRESSURE"

(normally lit, green window)

ALB011 C04 "RCP 3 OIL LIFT PUMP LOW PRESSURE"

(normally lit, green window)

ALB011 D04 "RCP 4 OIL LIFT PUMP LOW PRESSURE"

(normally lit, green window)

ALB017 A01 "MAIN FW NOZZLE DIFF TEMP HI"

(The Main Feedwater Nozzle Differential Temperature Indicator is pegged off the scale in the high temperature direction, which is not correct for its indicated nozzle temperature. Corrective maintenance is planned.)

ALB017 A06 "RHTR A DRN TK HI/LO LEVEL"
(A high level condition exists because 2LV-4377 is isolated due to a steam leak. The steam leak will be repaired during a unit outage.)

ALB017 D06 "RHTR D DRN TK HI/LO LEVEL"
(The alarm was in because level switch 2LSH-4539 was isolated due to a steam leak. The leak will be repaired during a unit outage.)

ALB018 D04 "FW HTR 5B HI/LO LEVEL"
(The alarm was in because 2LCL-4283 has a steam leak and is tagged out and 2LV-4283 is manually positioned to maintain heater level. Corrective maintenance is planned.)

7-08-89 QEAB

ALB033 F01 "120V AC INSTR PANEL 2NYJ TROUBLE"
(An electrical ground is causing the trouble alarm. Corrective maintenance is planned, a unit outage will be needed to de-energize this bus for troubleshooting.)

ALB034 E06 "STARTER 2CD1I5N TROUBLE"
(normally lit, green window)

ALB034 E07 "STARTER 2DD1I6N TROUBLE"
(normally lit, green window)

ALB034 F06 "INVERTER 2CD1I5 TROUBLE"
(normally lit, green window)

ALB034 F07 "INVERTER 2DD1I6 TROUBLE"
(normally lit, green window)

7-08-89 QPCP

ALB061 C06 "LVL A LEAK DETECTED"
(MWO written 6-15-89. The annunciator is illuminated with no indicated water level in any room on level A. This alarm is shared by over fifty room sump level switches making it difficult to troubleshoot the cause. Corrective maintenance is planned.)

ALB061 F01 "TB NORTH SUMP TROUBLE"
(one of the sump pumps trips on thermal overload.
These pumps are being replaced by design change
package DCP 87V1E-0239 to correct the problem causing
the alarms.)

ALB061 F04 "CNMT BREATHING AIR SUPPLY LOW PRESS"
(The air supply is not pressurized during normal
operation. It is used during outages. The card has
been pulled to clear the alarm.)

ALB063 A06 "FILTERS BACKFLUSH PANEL ALARM"
(This indicates a remote panel alarm with fifteen
inputs from tank levels and filter differential
pressures. The alarm was later cleared by correcting
the local condition.)

In summary, the survey identified 14 annunciator windows
in an alarm condition, and 11 which are normally lit,
(green windows) during full power operation. The 14
abnormal alarms represent a 0.9% alarm rate at the time of
the survey.

B. Proposed Design Modifications To Minimize Nuisance Alarms

Annunciator ALB050 E03 has a design change request (DCR 89-0275) to revise high delta P setpoint to correct nuisance alarms. This alarm has been disabled pending this design request.

The MWO for ALB016 E05 is presently in engineering review and may be cause for a design change request.

Annunciator 2ALB061 F01 will be cleared by design change package. DCP 87V1E-0239 is in progress to replace the pumps.

C. Proposed Modifications To Reduce Alarms Lighted During Normal Operations

No additional modifications are planned to eliminate the normally lit alarms. These are color coded green to distinguish them while maintaining the indication of equipment status. Both units will have 10 green windows by design. The difference between units in this survey was due to the Unit 2 Spent Fuel Pit being empty (never yet filled), and the Unit 1 Control Rods not being fully withdrawn at the time of the survey.