Attachment B
Proposed Technical Specification Change
for Analog Trip System
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TABLE 4.1.1

REACTOR PROTECTION SYSTEM (SCRAM) INSTRUMENTATION FUNCTIONAL TESTS

MINIMUM FUNCTIONAL TEST FREQUENCIES FOR SAFETY INSTR. AND CONTROL CIRCUITS

| | Group (2) | Functional Test | Minimum Frequency (3) |
|---|---|---|---|
| Mode Switch in Shutdown | A | Place Mode Switch in Shutdown | Each Refueling Outage |
| Manual Scram | A | Trip Channel and Alarm | Every 3 Months |
| RPS Channel Test Switch (5) | A | Trip Channel and Alarm | Each Refueling Outage |
| IRM | | | |
| High Flux | C | Trip Channel and Alarm (4) | Once Per Week During Refueling and Before Each Startup |
| Inoperative | C | Trip Channel and Alarm | Once Per Week During Refueling and Before Each Startup |
| APRM | | | |
| High Flux | B | Trip Output Relays (4) | Once/Week (7) |
| Inoperative | B | Trip Output Relays (4) | Once/Week |
| Downscale | B | Trip Output Relays (4) | Once/Week |
| Flow Bias | B | Calibrate Flow Bias Signal | Once/Month (1) |
| High Flux (15%) | B | Trip Output Relays (4) | Once Per Week During Refueling and Before Each Startup |
| High Reactor Pressure | D | Trip Channel and Alarm (4) | (1) |
| High Drywell Pressure | D | Trip Channel and Alarm (4) | (1) |
| Reactor Low Water Level (6) | D | Trip Channel and Alarm (4) | (1) |
| High Water Level in Scram Discharge Tanks | D | Trip Channel and Alarm | Every 3 Months |
| Turbine Condenser Low Vacuum | D | Trip Channel and Alarm (4) | (1) |
| Main Steam Line High Radiation | B | Trip Channel and Alarm (4) | Once/Week |
| Main Steam Line Isolation Valve Closure | A | Trip Channel and Alarm | (1) |
| Turbine Control Valve Fast Closure | A | Trip Channel and Alarm | (1) |
| Turbine First Stage Pressure Permissive | D | Trip Channel and Alarm (4) | Every 3 Months |
| Turbine Stop Valve Closure | A | Trip Channel and Alarm | (1) |
| Reactor Pressure Permissive | D | Trip Channel and Alarm (4) | Every 3 Months |

TABLE 4.1.2
REACTOR PROTECTION SYSTEM (SCRAM) INSTRUMENT CALIBRATION
MINIMUM CALIBRATION FREQUENCIES FOR REACTOR PROTECTION INSTRUMENT CHANNELS

| Instrument Channel | Group (1) | Calibration Test (5) | Minimum Frequency (2) |
|---|---|---|---|
| IRM High Flux | C | Comparison to APRM on Controlled Shutdowns | Note (4) |
| | | Full Calibration | Once/operating cycle |
| APRM High Flux | | | |
| Output Signal | B | Heat Balance | Once every 3 Days |
| Flow Bias Signal | B | Internal Power and Flow Test | Each Refueling Outage |
| LPRM Signal | B | TIP System Traverse | Every 1000 Effective Full Power Hours |
| High Reactor Pressure | D | Note (7) | Note (7) |
| High Drywell Pressure | D | Note (7) | Note (7) |
| Reactor Low Water Level | D | Note (7) | Note (7) |
| High Water Level in Scram Discharge Tanks | D | Note (7) | Note (7) |
| Turbine Condenser Low Vacuum | D | Note (7) | Note (7) |
| Main Steam Line Isolation Valve Closure | A | Note (6) | Note (6) |
| Main Steam Line High Radiation | B | Standard Current Source (3) | Every 3 Months |
| Turbine First Stage Pressure Permissive | D | Note (7) | Note (7) |
| Turbine Control Valve Fast Closure | A | Standard Pressure Source | Every 3 Months |
| Turbine Stop Valve Closure | A | Note (6) | Note (6) |
| Reactor Pressure Permissive | D | Note (7) | Note (7) |

NOTES FOR TABLE 4.1.2

1. A description of four groups is included in the bases of this Specification.

2. Calibration tests are not required when the systems are not required to be operable or are tripped.

3. The current source provides an instrument channel alignment. Calibration using a radiation source shall be made each refueling outage.

4. Maximum frequency required is once per week.

5. Response time is not a part of the routine instrument channel test, but will be checked once per operating cycle.

6. Physical inspection and actuation of these position switches will be performed during the refueling outages.

7. Calibration of these devices will be performed during refueling outages.

   To verify transmitter output, a daily instrument check will be performed. Calibration of the associated analog trip units will be performed concurrent with functional testing as specified in Table 4.1.1.

3.1 BASES (Cont'd)

to perform its function adequately.

A source range monitor (SRM) system is also provided to supply additional neutron level information during start-up but has no scram functions. Ref. Section 7.5.4 FSAR. The APRM's cover the "Refuel" and "Startup/ Hot Standby" modes with the APRM 15% scram, and the power range with the flow biased rod block and scram. The IRM's provide additional protection in the "Refuel" and "Startup/Hot Standby" modes. Thus, the IRM and APRM 15% scram are required in the "Refuel" and "Startup/Hot Standby" modes. In the power range the APRM system provides the required protection. Ref. Section 7.5.7 FSAR. Thus, the IRM system is not required in the "Run" mode.

The high reactor pressure, high drywell pressure, reactor low water level and scram discharge volume high level scrams are required for Startup/Hot Standby and Run modes of plant operation. They are, therefore, required to be operational for these modes of reactor operation.

The requirement to have the scram functions, as indicated in Table 3.1.1, operable in the Refuel mode is to assure that shifting to the Refuel mode during reactor power operation does not diminish the need for the reactor protection system.

The turbine condenser low vacuum scram is only required during power operation and must be bypassed to start up the unit. Below 305 psig turbine first stage pressure (45% of rated), the scram

4.1 BASES (Cont'd)

refueling outage. The flow biasing network is functionally tested at least once per month and, in addition, cross calibration checks of the flow input to the flow biasing network can be made during the functional test by direct meter reading. There are several instruments which must be calibrated and it will take several days to perform the calibration of the entire network. While the calibration is being performed, a zero flow signal will be sent to half of the APRM's resulting in a half scram and rod block condition. Thus, if the calibration were performed during operation, flux shaping would not be possible. Based on experience at other generating stations, drift of instruments, such as those in the Flow Biasing Network, is not significant and therefore, to avoid spurious scrams, a calibration frequency of each refueling outage is established.

Group (C) devices are active only during a given portion of the operational cycle. For example, the IRM is active during startup and inactive during full-power operation. Thus, tne only test that is meaningful is the one performed just prior to shutdown or startup; i.e., the tests that are performed just prior to use of the instrument.

Group (D) devices, while similar in description to those in Group (B), are different in use because they (the analog transmitter/trip unit devices) provide alarms, trips or scram functions. An availability analysis is detailed in NEDO-21617A (12/78).

Surveillance frequencies for the SDV system instrumentation is detailed in Amendment Number 65. NRC concurrence with this surveillance pro-

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TABLE 4.2.A

MINIMUM TEST AND CALIBRATION FREQUENCY FOR PCIS

| | Instrument Channel (5) | Instrument Functional Test | Calibration Frequency | Instrument Check |
|---|---|---|---|---|
| 1) | Reactor High Pressure | (1) (7) | (7) | Once/day |
| 2) | Reactor Low-Low Water Level | (1) (7) | (7) | Once/day |
| 3) | Reactor High Water Level | (1) (7) | (7) | Once/day |
| 4) | Main Steam High Temp. | (1) | Once/3 months | None |
| 5) | Main Steam High Flow | (1) (7) | (7) | Once/day |
| 6) | Main Steam Low Pressure | (1) (7) | (7) | Once/day |
| 7) | Reactor Water Cleanup High Flow | (1) | Once/3 months | Once/day |
| 8) | Reactor Water Cleanup High Temp. | (1) | Once/3 months | None |

| Logic System Functional Test (4) (6) | | Frequency |
|---|---|---|
| 1) | Main Steam Line Isolation Vvs.<br>Main Steam Line Drain Vvs.<br>Reactor Water Sample Vvs. | Once/6 months |
| 2) | RHR - Isolation Vv. Control<br>Shutdown Cooling Vvs.<br>Head Spray<br>Discharge to Radwaste | Once/6 months |
| 3) | Reactor Water Cleanup Isolation | Once/6 months |
| 4) | Drywell Isolation Vvs.<br>TIP Withdrawal<br>Atmospheric Control Vvs.<br>Sump Drain Valves | Once/6 months |
| 5) | Standby Gas Treatment System<br>Reactor Building Isolation | Once/6 months |

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TABLE 4.2.B

MINIMUM TEST AND CALIBRATION FREQUENCY FOR CSCS

| | Instrument Channel | Instrument Functional Test | Calibration Frequency | Instrument Check |
|---|---|---|---|---|
| 1) | Reactor Water Level | (1) (7) | (7) | Once/day |
| 2) | Drywell Pressure | (1) (7) | (7) | Once/day |
| 3) | Reactor Pressure | (1) (7) | (7) | Once/day |
| 4) | Auto Sequencing Timers | NA | Once/Operating cycle | None |
| 5) | ADS - LPCI or CS Pump Disch. Pressure Interlock | (1) | Once/3 months | None |
| 6) | Start-up Transf. (4160V) | | | |
| | a. Loss of Voltage Relays | Monthly | Once/Operating cycle | None |
| | b. Degraded Voltage Relays | Monthly | Once/Operating cycle | None |
| 7) | Trip System Bus Power Monitors | Once/operating cycle | N/A | Once/day |
| 8) | Recirculation System d/p | (1) | Once/3 months | Once/day |
| 9) | Core Spary Sparger d/p | NA | Once/Operating cycle | Once/day |
| 10) | Steam Line High Flow (HPCI & RCIC) | (1) | Once/3 months | None |
| 11) | Steam Line High Temp. (HPCI & RCIC) | (1) | Once/3 months | None |
| 12) | Safeguards Area High Temp. | (1) | Once/3 months | None |
| 13) | HPCI and RCIC Steam Line Low Pressure | (1) | Once/3 months | None |
| 14) | HPCI Suction Tank Levels | (1) | Once/3 months | None |
| 15) | Emergency 4160V Buses A5 & A6 Loss of Voltage Relays | Monthly | Once/Operating Cycle | None |

NOTES FOR TABLES 4.2.A THROUGH 4.2.G

1. Initially once per month until exposure hours (M as defined on Figure 4.1.1) is $2.0 \times 10^5$; thereafter, according to Figure 4.1.1 with an interval not less than one month nor more than three months.

2. Functional tests, calibrations and instrument checks are not required when these instruments are not required to be operable or are tripped. Functional tests shall be performed before each startup with a required frequency not to exceed once per week. Calibrations of IRMs and SRMs shall be performed during each startup or during controlled shutdowns with a required frequency not to exceed once per week. Instrument checks shall be performed at least once per day during those periods when the instruments are required to be operable.

3. This instrumentation is excepted from the functional test definition. The functional test will consist of injecting a simulated electrical signal into the measurement channel.

   These instrument channels will be calibrated using simulated electrical signals once every three months.

4. Simulated automatic actuation shall be performed once each operating cycle. Where possible, all logic system functional tests will be performed using the test jacks.

5. Reactor low water level, high drywell pressure and high radiation main steam line tunnel are not included on Table 4.2.A since they are tested on Table 4.1.2.

6. The logic system functional tests shall include a calibration of time delay relays and timers necessary for proper functioning of the trip system.

7. Calibration of analog trip units will be performed concurrent with functional testing. The functional test will consist of injecting a simulated electrical signal into the measurement channel. Calibration of associated analog transmitters will be performed each refueling outage.