ATTACHMENT 1

PROPOSED CHANGES TO DPR-25

TECHNICAL SPECIFICATIONS

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TABLE 4.1.1
SCRAM INSTRUMENTATION FUNCTIONAL TESTS
MINIMUM FUNCTIONAL TEST FREQUENCIES FOR SAFETY INSTR. AND CONTROL CIRCUITS

Instrument Channel	Group (3)	Functional Test	Minimum Frequency (4)
Mode Switch in Shutdown	A	Place Mode Switch in Shutdown	Each Refueling Outage
Manual Scram	A	Trip Channel and Alarm	Every 3 Months
IRM			
* High Flux	C	Trip Channel and Alarm (5)	Before Each Startup (6)
* Inoperative	C	Trip Channel and Alarm	Before Each Startup (6)
APRM			
High Flux	B	Trip Output Relays (5)	Once Each Week
Inoperative	B	Trip Output Relays	Once Each Week
Downscale	B	Trip Output Relays (5)	Once Each Week
High Flux (15% scram)	B	Trip Output Relays	Before Each Startup
High Reactor Pressure	A	Trip Channel and Alarm	(1)
High Drywell Pressure	A	Trip Channel and Alarm	(1)
Reactor Low Water Level (2)	B	(8)	(1)
High Water Level in Scram Discharge Volumes (Float and dp Switch)	A	Trip Channel and Alarm (7)	Every 3 Months
Turbine Condenser Low Vacuum	A	Trip Channel and Alarm	(1)
Main Steam Line High Radiation (2)	B	Trip Channel and Alarm (5)	Once Each Week
Main Steam Line Isolation Valve Closure	A	Trip Channel and Alarm	(1)
Generator Load Rejection	A	Trip Channel and Alarm	(1)
Turbine Stop Valve Closure	A	Trip Channel and Alarm	(1)
Turbine Control - Loss of Control Oil Pressure	A	Trip Channel and Alarm	(1)

Notes: (See next page)

NOTES: (For Table 4.1.1)

1. Initially once per month until exposure hours (M as defined on Figure 4.1.1) is 2.0×10^5; thereafter, according to Figure 4.1.1 with an interval not less than one month nor more than three months. The compilation of instrument failure rate data may include data obtained from other Boiling Water Reactors for which the same design instrument operates in an environment similar to that of Dresden Unit 3.

2. An instrument check shall be performed on low reactor water level once per day and on high steam line radiation once per shift.

3. A description of the three groups is included in the Bases of this Specification.

4. Functional tests are not required when the systems are not required to be operable or are tripped. If tests are missed, they shall be performed prior to returning the systems to an operable status.

5. This instrumentation is exempted from the Instrument Functional Test Definition (1.0.G). This Instrument Function Test will consist of injecting a simulated electrical signal into the measurement channels.

6. If reactor start-ups occur more frequently than once per week, the functional test need not be performed; i.e., the maximum functional test frequency shall be once per week.

7. The Functional Test of the Scram Discharge Volume float switch shall include actuation of the switch using a water column.

8. A functional test of the master and slave trip unit is required monthly (staggered one channel out of 4 every week). A calibration of the trip unit is to be performed concurrent with the functional testing.

TABLE 4.1.2
SCRAM INSTRUMENTATION CALIBRATIONS
MINIMUM CALIBRATION FREQUENCIES FOR REACTOR PROTECTION INSTRUMENT CHANNELS

Instrument Channel	Group (1)	Calibration Test	Minimum Frequency (2)
*High Flux IRM	C	Comparison to APRM after Heat Balance	Every Shutdown (4)
High Flux APRM			
Output Signal	B	Heat Balance	Once Every 7 Days
Flow Bias	B	Standard Pressure and Voltage Source	Refueling Outage
High Reactor Pressure	A	Standard Pressure Source	Every 3 Months
High Drywell Pressure	A	Standard Pressure Source	Every 3 Months
Reactor Low Water Level	B	Water Level	(5)
Turbine Condenser Low Vacuum	A	Standard Vacuum Source	Every 3 Months
Main Steam Line High Radiation	B	Standard Current Source (3)	Every 3 Months
Turbine Control - Loss of Control Oil Pressure	A	Pressure Source	Every 3 Months
High Water Level in Scram Discharge Volume (dp only)	A	Water Level	Once per Refueling Outage

NOTES: (For Table 4.1.2)

1. A description of the three 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. If tests are missed, they shall be performed prior to returning the systems to an operable status.

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

*4. If reactor startups occur more frequently than once per week, the functional test need not be performed; i.e., the maximum functional test frequency shall be once per week.

5. Trip units are calibrated monthly concurrently with functional testing (staggered one channel out of 4 every week). Transmitters are calibrated once per operating cycle.

4.1 SURVEILLANCE REQUIREMENT BASES (Cont'd.)

Reactor low water level instruments 3-263-57A, 3-263-57B, 3-263-58A, and 3-263-58B have been modified to be an analog trip system. The analog trip system consists of an analog sensor (transmitter) and a master/slave trip unit setup which ultimately drives a trip relay. The frequency of calibration and functional testing for instrument loops of the analog trip system, including reactor low water level, has been established in Licensing Topical Report NEDO-21617-A (December 1978). With the one-out-of-two-taken-twice logic, NEDO-21617-A states that each trip unit be subjected to a calibration/functional test of one month (staggered one channel out of four every week). An adequate calibration/surveillance test interval for the transmitter is once per operating cycle.

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, the 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.

Calibration frequency of the instrument channel is divided into two groups. These are as follows:

1. Passive type indicating devices that can be compared with like units on a continuous basis.

2. Vacuum tube or semiconductor devices and detectors that drift or lose sensitivity.

Experience with passive type instruments in Commonwealth Edison generating stations and substations indicates that the specified calibrations are adequate. For those devices which employ amplifiers, etc., drift specifications call for drift to be less than 0.19/month; i.e., in the period of a month, a drift of .19 would occur and thus provide for adequate margin.

For the APRM system drift of electronic apparatus is not the only consideration in determining a calibration frequency. Change in power distribution and loss of chamber sensitivity dictate a calibration every seven days. Calibration on this frequency assures plant operation at or below thermal limits.

4.1 SURVEILLANCE REQUIREMENT BASES (Cont'd.)

A comparison of Tables 4.1.1 and 4.1.2 indicates that six instrument channels have not been included in the latter Table. These are: Mode Switch in Shutdown, Manual Scram, High Water Level in Scram Discharge Volume Float Switches, Main Steam Line Isolation Valve Closure, Generator Load Rejection, and Turbine Stop Valve Closure. All of the devices or sensors associated with these scram functions are simple on-off switches and, hence, calibration is not applicable; i.e., the switch is either on or off. Further, these switches are mounted solidly to the device and have a very low probability of moving; e.g., the switches in the scram discharge volume tank. Based on the above, no calibration is required for these six instrument channels.

B. The MFLPD for fuel fabricated by GE shall be checked once per day to determine if the APRM gains or scram requires adjustment. This may normally be done by checking the LPRM readings, TIP traces, or process computer calculations.

Only a small number of control rods are moved daily and thus the peaking factors are not expected to change significantly and thus a daily check of the MFLPD is adequate.

For fuel fabricated by ENC, the power distribution will be checked once per day to ensure consistency with the power distribution assumptions of the fuel design analysis for overpower conditions. During periods of operation beyond these power distribution assumptions, the APRM gains or scram settings may be adjusted to ensure consistency with the fuel design criteria for overpower conditions.

Instrument Channel	Instrument Functional Test	Calibration	Instrument Check
ECCS Instrumentation			
1. Reactor Low-Low Water Level	(1)	Once/3 Months	Once/Day
2. Drywell High Pressure	(1)	Once/3 Months	None
3. Reactor Low Pressure	(1)	Once/3 Months	None
4. Containment Spray Interlock			
a. 2/3 Core Height	(1) (13)	(13)	None
b. Containment High Pressure	(1)	Once/3 Months	None
5. Low Pressure Core Cooling Pump Discharge	(1)	Once/3 Months	None
6. Undervoltage Emergency Bus	Refueling Outage	Refuel Outage	Once/3 months
7. Sustained High Reactor Pressure	(1)	Once/3 Months	None
8. Degraded Voltage Emergency Bus	Refueling Outage (10)	Refuel Outage	Monthly
Rod Blocks			
1. APRM Downscale	(1) (3)	Once/3 Months	None
2. APRM Flow Variable	(1) (3)	Refuel Outage	None
3. APRM Upscale (Startup/Hot Standby)	(2) (3)	(2) (3)	(2)
4. IRM Upscale	(2) (3)	(2) (3)	(2)
5. IRM Downscale	(2) (3)	(2) (3)	(2)
6. IRM Detector Not Fully Inserted in the Core	(2)	N/A	None
7. RBM Upscale	(1) (3)	Refuel Outage	None
8. RBM Downscale	(1) (3)	Once/3 Months	None
9. SRM Upscale	(2) (3)	(2) (3)	(2)
10. SRM Detector Not in Startup Position	(2) (3)	(2) (3)	(2)
11. Scram Instrument Volume Level High	Once/3 Months (9)	None	None
Containment Monitoring			
1. Pressure			
a. Minus 5 in. Hg to plus 5 psig Indicator	None	Once/3 Months	Once/Day
b. 0 to 75 psig Indicator	None	Once/3 Months	None
2. Temperature	None	Refuel Outage	Once/Day
3. Drywell-Torus Differential Pressure (5) (6) (0-3 psid)	None	Once/6 Months (Two Channels Operable) Once/Month (One Channel Operable)	None
4. Torus Water Level (5) (6)			
a. Plus or minus 25 in. Wide Range Indicator	None	Once/6 Months	
b. 18 in. Sight Glass			
Safety/Relief Valve Monitoring			
1. Safety/Relief Valve Position Indicator (Acoustic Monitor) (8)	(7)	None	Once Per 31 Days
2. Safety/Relief Valve Position Indicator (Temperature Monitor (8)	None	Once every 18 months	Once Per 31 Days
3. Safety Valve Position Indicator (Acoustic Monitor) (8)	(7)	None	Once Per 31 Days
4. Safety Valve Position Indicator (Temperature Monitor) (8)	None	Once every 18 months	Once Per 31 Days

(Table cont'd next page)

Instrument Channel	Instrument Functional Test	Calibration	Instrument Check
Main Steam Line Isolation			
1. Steam Tunnel High Temperature	Refueling Outage	Refuel Outage	None
2. Steam Line High Flow	(1)	Once/3 Months	Once/Day
3. Steam Line Low Pressure	(1)	Once/3 Months	None
4. Steam Line High Radiation	(1) (3)	Once/3 Months (4)	Once/Day
Isolation Condenser Isolation			
1. Steam Line High Flow	(1)	Once/3 Months	None
2. Condensate Line High Flow	(1)	Once/3 Months	None
HPCI Isolation			
1. Steam Line High Flow	(1) (11) (13)	(11) (13)	None
2. Steam Line Area High Temperature	Refueling Outage	Refuel Outage	None
3. Low Reactor Pressure	(1) (12)	(12)	None
Reactor Building Vent Isolation and SBGTS Initiation			
1. Refueling Floor Radiation Monitors	(1)	Once/3 Months	Once/Day

NOTES: (For Table 4.2.1)

1. Initially once per month until exposure hours (H as defined on Figure 4.1.1) is 2.0×10^5; thereafter, according to Figure 4.1.1 with an interval not less than one month nor more than three months. The compilation of instrument failure rate data may include data obtained from other Boiling Water Reactors for which the same design instrument operates in an environment similar to that of Dresden Unit 3.

2. Function test 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 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 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. See Note 4.

4. These instrument channels will be calibrated using simulated electrical signals once every three months. In addition, calibration including the sensors will be performed during each refueling outage.

(Cont'd next page)

NOTES: (For Table 4.2.1) (Cont'd.)

5. A minimum of two channels is required.

6. From and after the date that one of these parameters (...either drywell-torus differential pressure or torus water level indication) is reduced to one indication, continued operation is not permissible beyond thirty days, unless such instrumentation is sooner made operable. In the event that all indications of these parameters (...either drywell-torus differential pressure or torus water level) is disabled and such indication cannot be restored in six (6) hours, an orderly shutdown shall be initiated and the reactor shall be in a cold shutdown condition in twenty four hours.

7. Functional tests will be conducted before startup at the end of each refueling outage or after maintenance is performed on a particular Safety/Relief Valve.

8. If the number of position indicators is reduced to one indication on one or more valves, continued operation is permissible; however, if the reactor is in a shutdown conditionfor more than seventy-two hours, it may not be started up until all position indication is restored. In the event that all position indication is lost on one or more valves and such indication cannot be restored in thirty days, an orderly shutdown shall be initiated, and the reactor shall be depressurized to less than 90 psig in 24 hours.

9. The Functional Test of the Scram Discharge Volume float switch shall include actuation of the switch using a water column.

10. Functional test shall include verification of the second level undervoltage (degraded voltage) timer bypass and shall verify operation of the degraded voltage 5-minute timer and inherent 7-second timer.

11. Verification of time delay setting between 3 and 9 seconds shall be performed during each refueling outage.

12. Trip units are functional tested monthly (staggered one channel out of four every week). A calibration of the trip units is to be performed concurrent with the functional testing.

13. Trip units are functional tested monthly (staggered one division out of two every two weeks). A calibration of the trip units is to be performed concurrent with the functional testing.

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4.2 SURVEILLANCE REQUIREMENT BASES (Cont'd.)

A more usual case is that the testing is not done independently. If both channels are bypassed and tested at the same time, the result is shown in Curve No. 3. Note that the minimum occurs at about 40,000 hours, much longer than for cases 1 and 2. Also, the minimum is not nearly as low as Case 2 which indicates that this method of testing does not take full advantage of the redundant channel. Bypassing both channels for simultaneous testing should be avoided.

The most likely case would be to stipulate that one channel be bypassed tested and restored, and then immediately following, the second channel be bypassed, tested, and restored. This is shown by Curve No. 4. Note that there is no true minimum. The curve does have a definite knee and very little reduction in system unavailability is achieved by testing at a shorter interval than computed by the equation for a single channel.

The best test procedure of all those examined is to perfectly stagger the tests. That is, if the test interval is four months, test one or the other channel every two months. This is shown in Curve No. 5. The difference between Cases 4 and 5 is negligible. There may be other arguments, however, that more strongly support the perfectly staggered tests, including reductions in human error.

The conclusions to be drawn are these:

1. A 1 out of n system may be treated the same as a single channel in terms of choosing a test interval; and
2. More than one channel should not be bypassed for testing at any one time.

The analog trip system consists of an analog sensor (transmitter) and a master/slave trip unit setup which ultimately drives a trip relay. The frequency of calibration and functional testing for instrument loops of the analog system, including reactor low water level, has been established in Licensing Topical Report NEDO-21617-A (December, 1978).

For instruments 3-2389A, B, C, D, the one-of-two-taken-twice logic exists, and NEDO-21617-A states that each trip unit be subjected to a calibration/test frequency (staggered one channel out of four per week) of one month. An adequate calibration/surveillance test interval for the transmitter is once per operating cycle.

4.2 SURVEILLANCE REQUIREMENT BASES (Cont'd.)

For instruments 3-263-73A, 73B and 3-2352, 2353, the logic downstream of the output relay contacts exhibits a one-out-of-two logic and, by utilizing the Availability Criteria identified in NEDO-21617-A, each of these trip units should also be subjected to a calibration/test frequency (staggered one division out of two per two weeks) of one month. An adequate calibration/surveillance test interval for the transmitter is once per operating cycle.

The radiation monitors in the ventilation duct and on the refueling floor which initiate building isolation and standby gas treatment operation are arranged in two 1 out of 2 logic systems. The bases given above for the rod blocks applies here also and were used to arrive at the functional testing frequency.

Based on experience at Dresden Unit 1 with instruments of similar design, a testing interval of once every three months has been found to be adequate.

The automatic pressure relief instrumentation can be considered to be a 1 out of 2 logic system and the discussion above applies also.

The instrumentation which is required for the post accident condition will be tested and calibrated at regularly scheduled intervals. The basis for the calibration and testing of this instrumentation is the same as was discussed above for Protective Instrumentation in Table 4.2.4.

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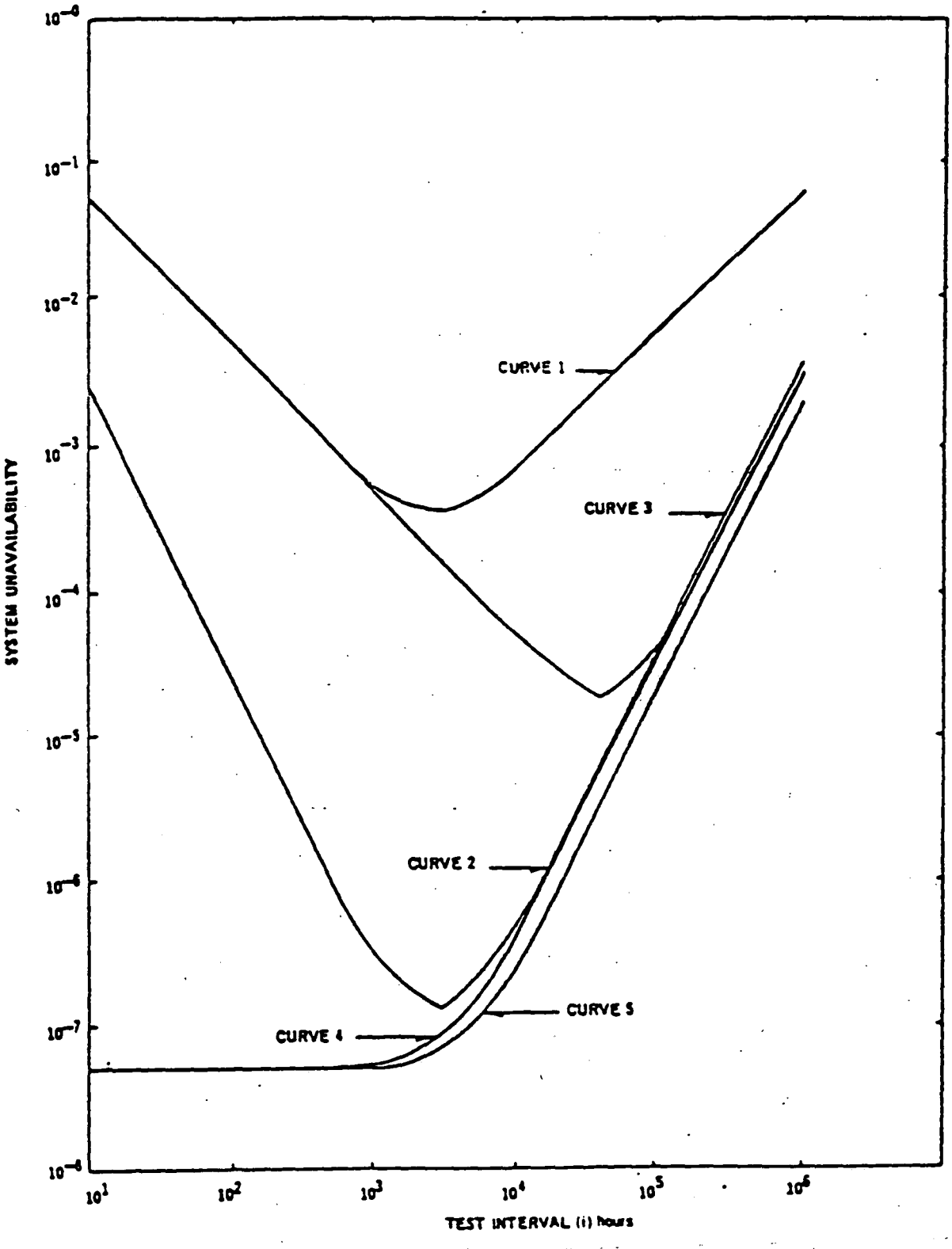

Figure 4.2.2

TEST INTERVAL VS. SYSTEM UNAVAILABILITY

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ATTACHMENT 2

DESCRIPTION OF PROPOSED CHANGES

A revision to the Unit 3 Technical Specifications surveillance requirements is proposed for certain RPS and ECCS instrument channels which are being replaced by an analog system under an Environmental Qualification modification. The affected instruments are:

(1) Reactor low water level 3-263-57A and B, and 58A and B
(2) Reactor low low water level 3-263-73A and B
(3) HPCI high steam flow 3-2352 and 2353
(4) HPCI steam line low pressure 3-2389A through D

The surveillance requirement changes are based upon GE NEDO document (21617A) which reflects the addition of remote trip units and the inherently more reliable trip system. The analog trip system is being installed to reduce the number of spurious reactor trips that occur during surveillance testing while maintaining the integrity of the monitoring systems. The design features of the analog trip system will allow calibration of the primary sensor to be performed when the reactor is shutdown for refueling. The new instruments are not prone to the same failure mechanisms of the existing switches and have demonstrated greater reliability.

The replacement of local indicator/switch units by transmitter/ remote trip units requires changing the calibration and functional test frequency. The new calibration/functional test frequency of each trip unit is once per month, and the new calibration surveillance test interval for the transmitter is once per operating cycle. The attached table summarizes the proposed change.

ATTACHMENT 3

SIGNIFICANT HAZARDS CONSIDERATION

Description of Amendment Request

The proposed changes to the Technical Specifications for Dresden 3 involve changes to the surveillance requirements for the following RPS and ECCS instruments due to the replacement of these instrument channels with an Analog Trip System:

1) Reactor low low water level
2) Reactor low water level
3) HPCI high steam flow
4) HPCI steam line low pressure

The changes affect Technical Specification tables, notes, and bases that pertain to these instruments.

The existing mechanically-operated switches for the above systems are being replaced with analog bistable trip contacts. The new analog trip system consists of an analog sensor (transmitter) and a master/slave trip unit set-up which ultimately drives a trip relay. The analog trip system is being installed to reduce the number of spurious reactor trips that occur during surveillance testing, while still maintaining the integrity of the monitoring systems. The design features of the Analog Trip System include a reduction in the functional test and calibration frequency for the primary sensor (transmitter) from once per month to once per operating cycle for multichannel variables, to allow calibration of the primary sensor to be performed during refueling, when the reactor is shutdown. Since the most probable failures resulting from transmitters capable of affecting the essential operation of the trip units are detected and annunciated by the trip units themselves, only the failure rates within the trip units and trip relays were considered in determining the testing time interval. The trip units are subjected to a calibration/surveillance test frequency (perfectly staggered, one channel out of four per week) of one month. The likelihood of an undetected failure of the transmitter is minimized by the ability to compare the output of one transmitter to the other identical divisional transmitter output at any time.

Basis for Proposed No Significant Hazards Determination

Commonwealth Edison has performed an evaluation of the hazards consideration associated with the proposed Technical Specification amendments utilizing the criteria of 10CFR 50.92. Our evaluation is provided below and specifically addresses the three criteria of 10CFR 50.92(c).

The proposed amendments do not involve a significant increase in the probability of or consequence of an accident previously evaluated because the new Analog Trip System will be tested at surveillance intervals deemed adequate to maintain the integrity of the monitoring systems while at the same time eliminating the possibility for the same failure mechanisms as the existing instrumentation. Changes to the surveillance intervals will not prevent the Analog Trip System from functioning the same, or causing the same actions as the instrumentation being replaced.

The proposed amendments do not create the possibility of a new or different kind of accident from any accident previously evaluated because the function of the replacement transmitter/trip units remains unchanged by the new surveillance requirements. The new instrumentation has demonstrated greater reliability than that being replaced and the new surveillance requirements ensure that adequate availability of the Analog Trip System is maintained.

The proposed amendments do not involve a significant reduction in a margin of safety because most failures resulting from the primary sensor (transmitter) are detected by the trip units themselves which are subjected to a once per month surveillance interval. This interval is consistent with and as conservative as previous surveillance intervals for calibrating/testing. Redundant transmitters allow outputs to be compared, further minimizing any undetected failures.

For the reasons stated above Commonwealth Edison finds that the proposed amendments do not involve a significant hazards consideration based on the criteria of 10CFR 50.92(c). We, therefore request approval of the proposed amendment under the provisions of 10CFR 50.91(a)(4).