ATTACHMENT 1

CONSUMERS ENERGY COMPANY
PALISADES PLANT
DOCKET 50-255

TECHNICAL SPECIFICATION CHANGE REQUEST
CONTROL ROOM VENTILATION SYSTEM

Proposed Technical Specification and Bases Pages

16 Pages

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3.14 CONTROL ROOM VENTILATION

3.14.1 Two Control Room Ventilation - Filtration (CRHVAC-Filtration) trains shall be OPERABLE.

Applicability

Specification 3.14.1 is applicable during:
Operation above COLD SHUTDOWN,
REFUELING OPERATIONS,
Movement of irradiated fuel assemblies, and
Movement of a fuel cask in or over the Spent Fuel Pool (SFP).

Action

A. With one CRHVAC-Filtration train inoperable:

1. Restore the CRHVAC-Filtration train to OPERABLE status within 7 days.

B. With the Required Action and associated Completion Time of Action A not met during operation above COLD SHUTDOWN:

1. Be in HOT SHUTDOWN within 6 hours, and

2. Be in COLD SHUTDOWN within 36 hours.

C. With the Required Action and associated Completion Time of Action A not met during REFUELING OPERATIONS, during movement of irradiated fuel assemblies, or during movement of a fuel cask in or over the SFP; immediately:

1. Place OPERABLE CRHVAC-Filtration train in emergency mode, or

2. Suspend REFUELING OPERATIONS, movement of irradiated fuel assemblies, and movement of a fuel cask in or over the SFP.

D. With two CRHVAC-Filtration trains inoperable during REFUELING OPERATIONS, during movement of irradiated fuel assemblies, or during movement of a fuel cask in or over the SFP; immediately:

1. Suspend REFUELING OPERATIONS, movement of irradiated fuel assemblies, and movement of a fuel cask in or over the SFP.

E. With two CRHVAC-Filtration trains inoperable during operation above COLD SHUTDOWN:

1. Enter Specification 3.0.3 immediately.

Amendment No. ~~81~~, ~~162~~,

3.14 CONTROL ROOM VENTILATION

3.14.2 Two Control Room Ventilation - Cooling (CRHVAC-Cooling) trains shall be OPERABLE.

Applicability

Specification 3.14.2 is applicable during:
Operation above COLD SHUTDOWN,
REFUELING OPERATIONS,
Movement of irradiated fuel assemblies, and
Movement of a fuel cask in or over the Spent Fuel Pool (SFP).

Action

A. With one CRHVAC-Cooling train inoperable:

1. Restore the CRHVAC-Cooling train to OPERABLE status within 30 days.

B. With the Required Action and associated Completion Time of Action A not met during operation above COLD SHUTDOWN:

1. Be in HOT SHUTDOWN within 6 hours, and

2. Be in COLD SHUTDOWN within 36 hours.

C. With the Required Action and associated Completion Time of Action A not met during REFUELING OPERATIONS, during movement of irradiated fuel assemblies, or during movement of a fuel cask in or over the SFP; immediately:

1. Place OPERABLE CRHVAC-Cooling train in operation, or

2. Suspend REFUELING OPERATIONS, movement of irradiated fuel assemblies, and movement of a fuel cask in or over the SFP.

D. With two CRHVAC-Cooling trains inoperable during REFUELING OPERATIONS, during movement of irradiated fuel assemblies, or during movement of a fuel cask in or over the SFP; immediately:

1. Suspend REFUELING OPERATIONS, movement of irradiated fuel assemblies, and movement of a fuel cask in or over the SFP.

E. With two CRHVAC-Cooling trains inoperable during operation above COLD SHUTDOWN:

1. Enter Specification 3.0.3 immediately.

3.15 Deleted

Amendment No. ~~81~~, ~~162~~, ~~171~~,

B 3.14.1 Control Room Ventilation Filtration System (CRHVAC - Filtration)

BASES

BACKGROUND

The CRHVAC - Filtration trains provide a protected environment from which operators can control the plant following an uncontrolled release of radioactivity.

The CRHVAC - Filtration trains consist of two independent, redundant trains that recirculate and filter the control room air. Each train consists of a prefilter, a heater, a High Efficiency Particulate Air (HEPA) filter, two banks of activated charcoal absorbers for removal of gaseous activity (principally iodine), a second HEPA filter, and a fan. Ductwork, valves or dampers, and instrumentation also form part of the system. A second bank of HEPA filters follows the absorber section to collect carbon fines, and to back up the main HEPA filter bank if it fails.

CRHVAC - Filtration is an emergency system, part of which may also operate during normal plant operations in the standby mode of operation. Upon receipt of a Containment High Pressure or Containment High Radiation Signal, normal air supply to the control room is isolated, and the stream of ventilation air is recirculated through the filter trains of the system. The prefilters remove any large particles in the air. Continuous operation of each train for at least 10 hours per month with the heaters on reduces moisture buildup on the HEPA filters and absorbers. The electric heater is important to the effectiveness of the charcoal absorbers.

Actuation of the system emergency mode of operation closes the normal unfiltered outside air intake and unfiltered exhaust dampers, opens the emergency air intake, and aligns the system for recirculation of control room air through the redundant trains of HEPA and charcoal filters. The emergency mode initiates pressurization and filtered ventilation of the air supply to the control room.

Outside air is filtered and then added to the air being recirculated from the control room. Pressurization of the control room prevents infiltration of unfiltered air from the surrounding areas of the building.

A single train will pressurize the control room to at least 0.125 inches water gauge relative to the south hallway outside the Control Room Viewing Gallery, and provides an air exchange rate in excess of 25% per hour. CRHVAC - Filtration operation in maintaining the control room habitable is discussed in the FSAR, Section 9.8 (Ref. 1).

Redundant supply and recirculation trains provide the required filtration should an excessive pressure drop develop across the other filter train. Normally open isolation dampers are arranged in series pairs so that the failure of one damper to shut will not result in a breach of isolation. CRHVAC - Filtration is designed in accordance with Seismic Category I requirements.

CRHVAC - Filtration is designed to maintain the control room environment for 30 days of continuous occupancy after a Design Basis Accident (DBA) without exceeding a 5 rem whole body dose or its equivalent to any part of the body.

APPLICABLE SAFETY ANALYSES

CRHVAC - Filtration components are arranged in redundant safety related ventilation trains. The location of components and ducting within the control room envelope ensures an adequate supply of filtered air to all areas requiring access.

CRHVAC - Filtration provides airborne radiological protection for the control room operators, as demonstrated by the control room accident dose analyses for the Design Basis Events discussed in FSAR Chapter 14 (Ref. 2).

The worst case single active failure of a component of a CRHVAC - Filtration train, assuming a loss of offsite power, does not impair the ability of the system to perform its design function.

The CRHVAC - Filtration trains meet Criterion 3 of 10 CFR 50.36(c)(2).

LCO

Two independent and redundant trains of CRHVAC - Filtration are required to be OPERABLE to ensure that at least one is available, assuming that a single failure disables the other train. Total system failure could result in a control room operator receiving a dose in excess of 5 rem in the event of a large radioactive release.

CRHVAC - Filtration is considered OPERABLE when the individual components necessary to control operator exposure are OPERABLE in both trains. A CRHVAC - Filtration train is considered OPERABLE when the associated:

a. Main Recirculation Fan and Emergency Filter Fan are OPERABLE;

b. HEPA filters and charcoal absorber are not excessively restricting flow, and are capable of performing their filtration functions; and

c. Heater, ductwork, valves, and dampers are OPERABLE, and air circulation can be maintained. In addition, the control room boundary must be maintained, including the integrity of the walls, floors, ceilings, ductwork, and access doors.

APPLICABILITY

During operation above COLD SHUTDOWN CRHVAC - Filtration must be OPERABLE to limit operator radiation exposure during and following a DBA.

During REFUELING OPERATIONS, movement of irradiated fuel assemblies, and movement of a fuel cask in or over the Spent Fuel Pool (SFP), the CRHVAC - Filtration trains must be OPERABLE to cope with the release from a fuel handling accident.

ACTIONS

Action A.1.

With one CRHVAC - Filtration train inoperable, action must be taken to restore OPERABLE status within 7 days. In this Condition, the remaining OPERABLE CRHVAC - Filtration subsystem is adequate to perform control room radiation protection function. However, the overall reliability is reduced because a single failure in the OPERABLE CRHVAC - Filtration train could result in loss of CRHVAC - Filtration function. The 7 day Completion Time is based on the low probability of a DBA occurring during this time period, and the ability of the remaining train to provide the required capability.

Actions B.1 and B.2.

If the inoperable CRHVAC - Filtration train cannot be restored to OPERABLE status within the required Completion Time while operating above COLD SHUTDOWN, the plant must be placed in a condition that minimizes the accident risk. To achieve this status, the plant must be placed in at least HOT SHUTDOWN within 6 hours, and in COLD SHUTDOWN within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

Actions C.1 and C.2.

During REFUELING OPERATIONS, movement of irradiated fuel assemblies, or movement of a fuel cask in or over the SFP if Action A.1 cannot be completed within the required Completion Time, the OPERABLE CRHVAC - Filtration train must be immediately placed in the emergency mode of operation. This action ensures that the remaining train is OPERABLE, that no failures preventing automatic actuation will occur, and that any active failure will be readily detected.

An alternative Action is to immediately suspend activities that could result in a release of radioactivity that might require isolation of the control room. This places the plant in a condition that minimizes the accident risk. This does not preclude the movement of fuel assemblies or a fuel cask to a safe position.

Action D.1.

During REFUELING OPERATIONS, movement of irradiated fuel assemblies, or movement of a fuel cask in or over the SFP with two CRHVAC - Filtration trains inoperable, action must be taken immediately to suspend activities that could result in a release of radioactivity that might enter the control room. This places the plant in a condition that minimizes the accident risk. This does not preclude the movement of fuel assemblies or a fuel cask to a safe position.

Action E.1.

If both CRHVAC - Filtration trains are inoperable during operation above COLD SHUTDOWN, CRHVAC - Filtration may not be capable of performing the intended function and the plant is in a condition outside the accident analyses. Therefore, LCO 3.0.3 must be entered immediately.

SURVEILLANCE

The surveillance requirements associated with LCO 3.14.1 are located in Section 4.2, Table 4.2.3.

REFERENCES

1. FSAR, Section 9.8
2. FSAR, Chapter 14
3. Regulatory Guide 1.52, (Rev. 2)
4. NUREG-0800, Section 6.4, Rev. 2, July 1981

3.14 CONTROL ROOM VENTILATION

B 3.14.2 Control Room Ventilation Cooling System (CRHVAC - Cooling)

BASES

BACKGROUND

CRHVAC - Cooling provides temperature control for the control room following isolation of the control room. CRHVAC - Cooling consists of two independent, redundant trains that provide cooling and heating of recirculated control room air. Each train consists of heating coils, cooling coils, instrumentation, and controls to provide for control room temperature control. CRHVAC - Cooling is a subsystem providing air temperature control for the control room.

CRHVAC - Cooling is an emergency system, parts of which may also operate during normal plant operations. A single train will provide the required temperature control to maintain the control room at 90°F or below during normal operation and following an accident. The CRHVAC - Cooling operation to maintain the control room temperature is discussed in Reference 1.

The control room ventilation emergency mode of operation is actuated either by a containment high-radiation signal or a containment high-pressure signal, or manually from the control room. During emergency mode operation, the air handling units and the charcoal filter units of both Train A and Train B operate. The CRHVAC -Cooling refrigerant Condensing Units VC-10 and VC-11 shut down and are manually restarted by the operator when their operation is required for control room cooling. In addition, since immediate operation of the CRHVAC - Cooling system is not necessary, other manual operations may be required to initiate control room cooling, depending on the configuration of the system upon initiation of the emergency mode signal.

APPLICABLE SAFETY ANALYSES

The design basis of CRHVAC - Cooling is to maintain temperature of the control room environment throughout 30 days of continuous occupancy.

The CRHVAC - Cooling components are arranged in redundant safety related trains. During normal and emergency operation, CRHVAC - Cooling maintains the temperature at 90°F or below (as required by LCO 3.17.1). A single active failure of a component of a CRHVAC - Cooling train, coincident with a loss of offsite power, does not impair the ability of the system to perform its design function. Redundant detectors and controls are provided for control room temperature control. CRHVAC - Cooling is designed in accordance with Seismic Category I requirements. CRHVAC - Cooling is capable of removing sensible and latent heat loads from the control room, considering equipment heat loads and personnel occupancy requirements, to ensure equipment OPERABILITY.

The CRHVAC - Cooling trains meet Criterion 3 of 10 CFR 50.36(c)(2).

LCO

Two independent and redundant trains of CRHVAC - Cooling are required to be OPERABLE to ensure that at least one train is available, assuming a single failure disables the other train. Total system failure could result in the equipment operating temperature exceeding limits in the event of an accident.

CRHVAC - Cooling is considered OPERABLE when the individual components that are necessary to maintain the control room temperature are OPERABLE in both trains. These components include the condensing units, fans, and associated temperature control instrumentation. In addition, CRHVAC - Cooling must be OPERABLE to the extent that air circulation can be maintained.

APPLICABILITY

During REFUELING OPERATIONS, operation above COLD SHUTDOWN, movement of irradiated fuel assemblies, or during movement of a fuel cask in or over the SFP the CRHVAC - Cooling trains must be OPERABLE to ensure that the control room temperature will not exceed equipment OPERABILITY requirements following isolation of the control room.

ACTIONS

Action A.1.

With one CRHVAC - Cooling train inoperable, action must be taken to restore OPERABLE status within 30 days. In this Condition, the remaining OPERABLE CRHVAC - Cooling train is adequate to maintain the control room temperature within limits. The 30 day Completion Time is reasonable, based on the low probability of an event occurring requiring control room isolation, and consideration that the remaining train can provide the required capabilities.

Actions B.1 and B.2.

During operation above COLD SHUTDOWN, when Action A.1 cannot be completed within the required Completion Time, the plant must be placed in a condition that minimizes the accident risk. To achieve this status, the plant must be placed in at least HOT SHUTDOWN within 6 hours, and in COLD SHUTDOWN within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

Actions C.1 and C.2.

During REFUELING OPERATIONS, movement of irradiated fuel assemblies, or movement of a fuel cask in or over the SFP when Action A.1 cannot be completed within the required Completion Time, the OPERABLE CRHVAC - Cooling train must be placed in operation immediately. This action ensures that the remaining train is OPERABLE, that no failures preventing automatic actuation will occur, and that any active failure will be readily detected.

An alternative Action is to immediately suspend activities that could result in a release of radioactivity that might require isolation of the control room. This places the plant in a condition that minimizes the accident risk. This does not preclude the movement of fuel assemblies or a fuel cask to a safe position.

Action D.1.

During REFUELING OPERATIONS, movement of irradiated fuel assemblies, or movement of a fuel cask in or over the SFP, with two CRHVAC - Cooling trains inoperable, action must be taken immediately to suspend activities that could result in a release of radioactivity that might require isolation of the control room. This places the plant in a condition that minimizes the accident risk. This does not preclude the movement of fuel assemblies or a fuel cask to a safe position.

Action E.1.

If both CRHVAC - Cooling trains are inoperable while operating above COLD SHUTDOWN, CRHVAC - Cooling may not be capable of performing the intended function and the plant is in a condition outside the accident analysis. Therefore, LCO 3.0.3 must be entered immediately.

SURVEILLANCE

The surveillance requirements associated with LCO 3.14.2 are located in Section 4.2, Table 4.2.3.

REFERENCE

1. FSAR, Section 9.8

3.17 INSTRUMENTATION SYSTEMS

Specification

3.17.1 Four Reactor Protective System (RPS) trip unit channels and the associated instrumentation for the functions listed in Table 3.17.1, and 6 matrix logic channels and 4 initiation logic channels shall be OPERABLE except as allowed by the permissible operational bypasses column.

Applicability

Specification 3.17.1 applies when there is fuel in the reactor, more than one CONTROL ROD is capable of being withdrawn, and the PCS is less than REFUELING BORON CONCENTRATION.

Action

3.17.1.1 With one Manual Reactor Trip channel inoperable:

a) Restore the channel to OPERABLE status prior to the next reactor startup.

3.17.1.2 With one RPS trip unit or associated instrument channel inoperable for one or more functions:

a)* Place the affected trip unit in the tripped condition within 7 days.

3.17.1.3 With two RPS trip units or associated instrument channels inoperable for one or more functions:

a) Place one inoperable trip unit in the tripped condition within 1 hour, and

b) If two Power Range Nuclear Instrument channels are inoperable, limit power to ≤ 70% RATED POWER within 2 hours, and

c)* Restore one RPS trip unit and associated instrument channel to OPERABLE status within 7 days.

3.17.1.4 With one RPS Matrix Logic channel inoperable:

a) Restore the channel to OPERABLE status within 48 hours.

3.17.1.5 With one RPS Initiation Logic channel inoperable:

a) De-energize the affected clutch power supplies within 1 hour.

3.17.1.6 If any action required by 3.17.1 is not met AND the associated completion time has expired, or if the number of OPERABLE channels is less than specified in the "Minimum OPERABLE Channels", or if Control Room Temperature exceeds 90°F:

a) The reactor shall be placed in HOT SHUTDOWN within 12 hours, and

b) The reactor shall be placed in a condition where the affected equipment is not required, within 48 hours.

* These Actions are not required for inoperable High Startup Rate or Loss of Load instrument channels.

Amendment No. ~~162~~,

Basis: RPS Description (continued)

RPS Trip Units: The eleven sets of RPS trip units are the bistable amplifiers which monitor the analog input functions for the RPS, and the Auxiliary Trip Units which replace the bistables for functions receiving a binary input signal. Most RPS trips monitor an analog signal, such as Steam Generator Level, and initiate a trip when the signal reaches a predetermined setpoint. Containment High Pressure and Loss of Load trips are actuated by pressure switches outside the RPS; High Startup Rate trip is actuated by bistables in the Wide Range Nuclear Instrumentation (NI) drawers; High Power trip is actuated by a signal from the Thermal Margin Monitor. These four trips use relays, called Auxiliary Trip Units, in place of the RPS bistables. Each trip unit actuates three output relays, one in each of the associated matrix logic channels. Channel "A" trip units have output contacts in matrix logic channels A-B, A-C, and A-D; channel "B" trip units, in A-B, B-C, and B-D; and so on.

RPS Matrix Logic: The six RPS Matrix Logic channels are made up of the output contacts from individual trip units, testing and trip channel bypass contacts, coils of four Matrix Logic Relays, two power supplies, and various indicating lights. The contacts of the trip unit output relays are arranged to achieve the 2 out of 4 trip logic. Each matrix has four output relays; one with contacts in each Initiation Logic channel.

RPS Initiation Logic: The four RPS Initiation Logic channels are made up of a series arrangement of one contact from an output relay in each of the six matrix logic channels, contacts from the CO-1 manual trip button, contacts from the associated "K-Relays", and one "M-Contactor". The M-Contactor controls power to two of the four clutch power supplies.

RPS Design Temperature: The original reactor protective system instrumentation was designed for and tested at 120°F. The Thermal Margin Monitor, added later, was designed for 131°F. To assure that the TMM cabinet internal air temperature does not exceed its design limit, Control Room Temperature must be maintained at 90°F or below (Ref. 13 and 14).

Basis: Applicability 3.17.1

The Reactor Protective System is only required to be OPERABLE when there is fuel in reactor vessel, the PCS is less than REFUELING BORON CONCENTRATION, and more than one control rod is capable of being withdrawn.

If there is no fuel in the reactor vessel a nuclear reaction cannot occur and the RPS function is not necessary.

If the PCS is at REFUELING BORON CONCENTRATION (≥1720 ppm and subcritical by ≥5% with all control rods removed from the core) there is no need for automatic control rod insertion.

If no more than one control rod can be withdrawn the RPS function is already fulfilled (the safety analyses and the SHUTDOWN MARGIN definition both use the assumption that the highest worth withdrawn control rod will fail to insert on a trip) and the safety analyses assumptions and SHUTDOWN MARGIN requirements will be met without the RPS trip function.

Basis: Action Statements 3.17.1 (continued)

These actions may be taken separately for pairs of inoperable channels of different functions. Each pair of inoperable channels would have its own completion times.

Action 3.17.1.4 - One RPS Matrix Logic channel inoperable - Failures of matrix logic channels are infrequent since they are composed of only contact pairs, indicating lights, and output relays. There is one Matrix Logic channel for each two-out-of-four combination such as A-B, A-C, A-D, B-C, etc. The failure of any single Matrix Logic channel could, at worst, defeat only a single two-out-of-four trip combination, and would not cause a loss of trip capability. Should a failure occur, 48 hours are allowed for repair.

Action 3.17.1.5 - One RPS Initiation Logic channel inoperable - If a failure of an Initiation Logic channel should occur, it would most likely de-energize the associated clutch power supplies. Such a failure would not cause a reactor trip because the other two clutch power supplies would maintain the clutches energized. If a failure, such as a contact pair failing to open (which does not de-energize the associated clutch power supplies) did occur, the RPS Initiation logic trip capability could only be failed by a similar failure of the other initiation logic channel associated with the same power supplies. A single Initiation Logic failure, therefore, cannot cause a loss of trip capability. The associated power supplies must be de-energized within one hour.

Action 3.17.1.6 - Required action AND associated completion time not met - If the required action cannot be met within the associated completion time, or if the number of OPERABLE channels is less than allowed, or if the control room temperature exceeds 90°F, the plant must be placed in a condition where the inoperable equipment is not required. Twelve hours are allowed to bring the plant to HOT SHUTDOWN and 48 hours to reach conditions where the affected equipment is not required, to avoid unusual plant transients. Both the 12 and the 48 hour time periods start when it is discovered that Action 3.17.1.6 is applicable.

Basis: Table 3.17.1

1. - Manual Trip - The Manual Trip is provided to allow the operator to quickly shut down the reactor if such action is deemed necessary. The safety analyses do not assume the use of the manual trip feature. Two separate manual trip channels are provided. One channel duplicates the function of the automatic trips, de-energizing contactors which interrupt power to the clutch power supplies. The second manual trip channel trips the circuit breakers which supply power to the clutch power supplies by de-energizing their undervoltage coils. The manual trip function is required to be OPERABLE under all conditions which require the RPS to be OPERABLE.

2. - Variable High Power Trip (VHPT) - The VHPT provides reactor core protection against reactivity excursions. The safety analyses assume that this trip is OPERABLE to terminate excessive reactivity insertions during power operation and while shutdown.

3.17 INSTRUMENTATION SYSTEMS

References for 3.17 Basis

(1) Updated FSAR, Section 7.2.7.

(2) Updated FSAR, Section 7.2.5.2

(3) Updated FSAR, Figures 7-1 and 7-2

(4) P&ID SIS Logic Diagram E-17, Sh 3

(5) P&ID SIS Logic Diagram E-17, Sh 4

(6) P&ID RAS Logic Diagram E-17, Sh 5

(7) Updated FSAR, Figure 7-37

(8) P&ID CHP Logic Diagram E-17, Sh 6

(9) P&ID CHR Logic Diagram E-17, Sh 7

(10) P&ID SGLP Logic Diagram E-17, Sh 20

(11) Updated FSAR, Figure 7-56

(12) Service Water Functional Description, FD-M-111

(13) CPCo letter to NRC, December 23, 1988, Resolution of Reactor Protective System Audit Concerns - Temperature Documentation

(14) NRC letter to CPCo, March 28, 1990, Thermal Margin Monitor (TMM) Audit Follow-up

Table 4.2.3

VENTILATION SYSTEM TESTS

The Control Room Ventilation and Isolation System and the Fuel Storage Area HEPA/Charcoal Exhaust System shall be demonstrated to be OPERABLE by the following tests:

1. Performing required Control Room Ventilation and Fuel Storage Area filter testing in accordance with the Ventilation Filter Testing Program.

2. At least once per refueling cycle by:

   a. Verifying that on a containment high-pressure and high-radiation test signal, the Control Room Ventilation system automatically switches into the emergency mode of operation with flow through the HEPA filter and charcoal adsorber bank.

   b. Verifying that the Control Room Ventilation system maintains the Control Room at a positive pressure ≥ 1/8 inch WG relative to the outside atmosphere during system emergency mode operation.

   c. Verifying that the Fuel Pool Ventilation System is OPERABLE by initiating flow through the HEPA filter and charcoal adsorbers from the control room.

4.17 INSTRUMENTATION SYSTEMS TESTS

Table 4.17.1

Instrumentation Surveillance Requirements for Reactor Protective System

	Functional Unit	CHANNEL CHECK	CHANNEL FUNCTIONAL TEST	CHANNEL CALIBRATION
1.	Manual Trip	NA	(a)	NA
2.	Variable High Power	12 hours	31 days	(b, c, & d)
3.	High Start Up Rate	12 hours	(a)	18 months[e]
4.	Thermal Margin/ Low Pressure	12 hours	31 days	18 months
5.	High Pressurizer Pressure	12 hours	31 days	18 months
6.	Low PCS Flow	12 hours	31 days	18 months
7.	Loss of Load	NA	(a)	18 months
8.	Low "A" SG Level	12 hours	31 days	18 months
9.	Low "B" SG Level	12 hours	31 days	18 months
10.	Low "A" SG Pressure	12 hours	31 days	18 months
11.	Low "B" SG Pressure	12 hours	31 days	18 months
12.	High Containment Pressure	NA	31 days	18 months
13.	RPS Matrix Logic	NA	31 days	NA
14.	RPS Initiation Logic	NA	31 days	NA
15.	Thermal Margin Monitor; Verify constants each 92 days.			
16.	Thermal Margin Monitor: Verify Control Room Temperature ≤ 90°F each 12 hours.			

(a) Once within 7 days prior to each reactor startup.
(b) Calibrate with Heat Balance each 24 hours, when > 15% RATED POWER.
(c) Calibrate Excores channels with test signal each 31 days.
(d) CHANNEL CALIBRATION each 18 months.
(e) Include verification of automatic Zero Power Mode Bypass removal.

Amendment No. ~~118~~, ~~130~~, ~~136~~, ~~150~~, ~~162~~, ~~164~~, ~~171~~,

ATTACHMENT 2

CONSUMERS ENERGY COMPANY
PALISADES PLANT
DOCKET 50-255

TECHNICAL SPECIFICATION CHANGE REQUEST
CONTROL ROOM VENTILATION SYSTEM

Current TS and Bases Pages Marked to Show Proposed Changes

18 Pages

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3.14 CONTROL ROOM VENTILATION

~~Applicability~~

~~This specification applies to the control room ventilation system.~~

~~Objective~~

~~The operability of the control room ventilation system ensures that (1) the ambient air temperature does not exceed the allowable temperature for continuous duty rating for the equipment and instrumentation cooled by this system, and (2) the control room will remain habitable for Operations personnel during and following all credible accidents.~~

~~Specifications~~

~~a. If the control room air temperature reaches 120°F, immediate action shall be taken to reduce this temperature or to place the reactor in a hot shutdown condition.~~

~~b. The control room ventilation system, consisting of two fans and a filter system, shall be operable. With both fans inoperable or the filter system inoperable, restore the system to operable status within 3½ days or be in cold shutdown within the next 36 hours.~~

~~Basis~~

~~The reactor protective system and the engineered safeguards system were designed for and the instrumentation was tested at 120°F. Therefore, if the temperature of the control room exceeds 120°F, the reactor will be shut down and the condition corrected to preclude failure of components in an untested environment. The control room ventilation systems are independent except for the charcoal filter and associated equipment. The charcoal filter system is designed to provide filtered makeup air to the control room following a design base accident and is not used during normal operation.~~

Amendment No. ~~81~~, ~~162~~,

3.14 CONTROL ROOM VENTILATION

3.14.1 Two Control Room Ventilation - Filtration (CRHVAC-Filtration) trains shall be OPERABLE.

Applicability

Specification 3.14.1 is applicable during:
Operation above COLD SHUTDOWN,
REFUELING OPERATIONS,
Movement of irradiated fuel assemblies, and
Movement of a fuel cask in or over the Spent Fuel Pool (SFP).

Action

A. With one CRHVAC-Filtration train inoperable:

1. Restore the CRHVAC-Filtration train to OPERABLE status within 7 days.

B. With the Required Action and associated Completion Time of Action A not met during operation above COLD SHUTDOWN:

1. Be in HOT SHUTDOWN within 6 hours, and

2. Be in COLD SHUTDOWN within 36 hours.

C. With the Required Action and associated Completion Time of Action A not met during REFUELING OPERATIONS, during movement of irradiated fuel assemblies, or during movement of a fuel cask in or over the SFP; immediately:

1. Place OPERABLE CRHVAC-Filtration train in emergency mode, or

2. Suspend REFUELING OPERATIONS, movement of irradiated fuel assemblies, and movement of a fuel cask in or over the SFP.

D. With two CRHVAC-Filtration trains inoperable during REFUELING OPERATIONS, during movement of irradiated fuel assemblies, or during movement of a fuel cask in or over the SFP; immediately:

1. Suspend REFUELING OPERATIONS, movement of irradiated fuel assemblies, and movement of a fuel cask in or over the SFP.

E. With two CRHVAC-Filtration trains inoperable during operation above COLD SHUTDOWN:

1. Enter Specification 3.0.3 immediately.

Amendment No. ~~81~~, ~~162~~,

~~3.15 Deleted~~

3.14 CONTROL ROOM VENTILATION

3.14.2 Two Control Room Ventilation - Cooling (CRHVAC-Cooling) trains shall be OPERABLE.

Applicability

Specification 3.14.2 is applicable during:
Operation above COLD SHUTDOWN,
REFUELING OPERATIONS,
Movement of irradiated fuel assemblies, and
Movement of a fuel cask in or over the Spent Fuel Pool (SFP).

Action

A. With one CRHVAC-Cooling train inoperable:

1. Restore the CRHVAC-Cooling train to OPERABLE status within 30 days.

B. With the Required Action and associated Completion Time of Action A not met during operation above COLD SHUTDOWN:

1. Be in HOT SHUTDOWN within 6 hours, and

2. Be in COLD SHUTDOWN within 36 hours.

C. With the Required Action and associated Completion Time of Action A not met during REFUELING OPERATIONS, during movement of irradiated fuel assemblies, or during movement of a fuel cask in or over the SFP; immediately:

1. Place OPERABLE CRHVAC-Cooling train in operation, or

2. Suspend REFUELING OPERATIONS, movement of irradiated fuel assemblies, and movement of a fuel cask in or over the SFP.

D. With two CRHVAC-Cooling trains inoperable during REFUELING OPERATIONS, during movement of irradiated fuel assemblies, or during movement of a fuel cask in or over the SFP; immediately:

1. Suspend REFUELING OPERATIONS, movement of irradiated fuel assemblies, and movement of a fuel cask in or over the SFP.

E. With two CRHVAC-Cooling trains inoperable during operation above COLD SHUTDOWN:

1. Enter Specification 3.0.3 immediately.

3.15 Deleted

Amendment No. ~~81~~, ~~162~~, ~~171~~,

B 3.14.1 Control Room Ventilation Filtration System (CRHVAC - Filtration)

BASES

BACKGROUND

The CRHVAC - Filtration trains provide a protected environment from which operators can control the plant following an uncontrolled release of radioactivity.

The CRHVAC - Filtration trains consist of two independent, redundant trains that recirculate and filter the control room air. Each train consists of a prefilter, a heater, a High Efficiency Particulate Air (HEPA) filter, two banks of activated charcoal absorbers for removal of gaseous activity (principally iodine), a second HEPA filter, and a fan. Ductwork, valves or dampers, and instrumentation also form part of the system. A second bank of HEPA filters follows the absorber section to collect carbon fines, and to back up the main HEPA filter bank if it fails.

CRHVAC - Filtration is an emergency system, part of which may also operate during normal plant operations in the standby mode of operation. Upon receipt of a Containment High Pressure or Containment High Radiation Signal, normal air supply to the control room is isolated, and the stream of ventilation air is recirculated through the filter trains of the system. The prefilters remove any large particles in the air. Continuous operation of each train for at least 10 hours per month with the heaters on reduces moisture buildup on the HEPA filters and absorbers. The electric heater is important to the effectiveness of the charcoal absorbers.

Actuation of the system emergency mode of operation closes the normal unfiltered outside air intake and unfiltered exhaust dampers, opens the emergency air intake, and aligns the system for recirculation of control room air through the redundant trains of HEPA and charcoal filters. The emergency mode initiates pressurization and filtered ventilation of the air supply to the control room.

Outside air is filtered and then added to the air being recirculated from the control room. Pressurization of the control room prevents infiltration of unfiltered air from the surrounding areas of the building.

A single train will pressurize the control room to at least 0.125 inches water gauge relative to the south hallway outside the Control Room Viewing Gallery, and provides an air exchange rate in excess of 25% per hour. CRHVAC - Filtration operation in maintaining the control room habitable is discussed in the FSAR, Section 9.8 (Ref. 1).

BASES

Redundant supply and recirculation trains provide the required filtration should an excessive pressure drop develop across the other filter train. Normally open isolation dampers are arranged in series pairs so that the failure of one damper to shut will not result in a breach of isolation. CRHVAC - Filtration is designed in accordance with Seismic Category I requirements.

CRHVAC - Filtration is designed to maintain the control room environment for 30 days of continuous occupancy after a Design Basis Accident (DBA) without exceeding a 5 rem whole body dose or its equivalent to any part of the body.

APPLICABLE SAFETY ANALYSES

CRHVAC - Filtration components are arranged in redundant safety related ventilation trains. The location of components and ducting within the control room envelope ensures an adequate supply of filtered air to all areas requiring access.

CRHVAC - Filtration provides airborne radiological protection for the control room operators, as demonstrated by the control room accident dose analyses for the Design Basis Events discussed in FSAR Chapter 14 (Ref. 2).

The worst case single active failure of a component of a CRHVAC - Filtration train, assuming a loss of offsite power, does not impair the ability of the system to perform its design function.

The CRHVAC - Filtration trains meet Criterion 3 of 10 CFR 50.36(c)(2).

LCO

Two independent and redundant trains of CRHVAC - Filtration are required to be OPERABLE to ensure that at least one is available, assuming that a single failure disables the other train. Total system failure could result in a control room operator receiving a dose in excess of 5 rem in the event of a large radioactive release.

CRHVAC - Filtration is considered OPERABLE when the individual components necessary to control operator exposure are OPERABLE in both trains. A CRHVAC - Filtration train is considered OPERABLE when the associated:

a. Main Recirculation Fan and Emergency Filter Fan are OPERABLE;

b. HEPA filters and charcoal absorber are not excessively restricting flow, and are capable of performing their filtration functions; and

BASES

c. Heater, ductwork, valves, and dampers are OPERABLE, and air circulation can be maintained. In addition, the control room boundary must be maintained, including the integrity of the walls, floors, ceilings, ductwork, and access doors.

APPLICABILITY

During operation above COLD SHUTDOWN CRHVAC - Filtration must be OPERABLE to limit operator radiation exposure during and following a DBA.

During REFUELING OPERATIONS, movement of irradiated fuel assemblies, and movement of a fuel cask in or over the Spent Fuel Pool (SFP), the CRHVAC - Filtration trains must be OPERABLE to cope with the release from a fuel handling accident.

ACTIONS

Action A.1.

With one CRHVAC - Filtration train inoperable, action must be taken to restore OPERABLE status within 7 days. In this Condition, the remaining OPERABLE CRHVAC - Filtration subsystem is adequate to perform control room radiation protection function. However, the overall reliability is reduced because a single failure in the OPERABLE CRHVAC - Filtration train could result in loss of CRHVAC - Filtration function. The 7 day Completion Time is based on the low probability of a DBA occurring during this time period, and the ability of the remaining train to provide the required capability.

Actions B.1 and B.2.

If the inoperable CRHVAC - Filtration train cannot be restored to OPERABLE status within the required Completion Time while operating above COLD SHUTDOWN, the plant must be placed in a condition that minimizes the accident risk. To achieve this status, the plant must be placed in at least HOT SHUTDOWN within 6 hours, and in COLD SHUTDOWN within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

Actions C.1 and C.2.

During REFUELING OPERATIONS, movement of irradiated fuel assemblies, or movement of a fuel cask in or over the SFP if Action A.1 cannot be completed within the required Completion Time, the OPERABLE CRHVAC - Filtration train must be immediately placed in the emergency mode of operation. This action ensures that the remaining train is OPERABLE, that no failures preventing automatic actuation will occur, and that any active failure will be readily detected.

An alternative Action is to immediately suspend activities that could result in a release of radioactivity that might require isolation of the control room. This places the plant in a condition that minimizes the accident risk. This does not preclude the movement of fuel assemblies or a fuel cask to a safe position.

Action D.1.

During REFUELING OPERATIONS, movement of irradiated fuel assemblies, or movement of a fuel cask in or over the SFP with two CRHVAC - Filtration trains inoperable, action must be taken immediately to suspend activities that could result in a release of radioactivity that might enter the control room. This places the plant in a condition that minimizes the accident risk. This does not preclude the movement of fuel assemblies or a fuel cask to a safe position.

Action E.1.

If both CRHVAC - Filtration trains are inoperable during operation above COLD SHUTDOWN, CRHVAC - Filtration may not be capable of performing the intended function and the plant is in a condition outside the accident analyses. Therefore, LCO 3.0.3 must be entered immediately.

SURVEILLANCE

The surveillance requirements associated with LCO 3.14.1 are located in Section 4.2, Table 4.2.3.

REFERENCES

1. FSAR, Section 9.8
2. FSAR, Chapter 14
3. Regulatory Guide 1.52, (Rev. 2)
4. NUREG-0800, Section 6.4, Rev. 2, July 1981

3.14 CONTROL ROOM VENTILATION

B 3.14.2 Control Room Ventilation Cooling System (CRHVAC - Cooling)

BASES

BACKGROUND

CRHVAC - Cooling provides temperature control for the control room following isolation of the control room. CRHVAC - Cooling consists of two independent, redundant trains that provide cooling and heating of recirculated control room air. Each train consists of heating coils, cooling coils, instrumentation, and controls to provide for control room temperature control. CRHVAC - Cooling is a subsystem providing air temperature control for the control room.

CRHVAC - Cooling is an emergency system, parts of which may also operate during normal plant operations. A single train will provide the required temperature control to maintain the control room at 90°F or below during normal operation and following an accident. The CRHVAC - Cooling operation to maintain the control room temperature is discussed in Reference 1.

The control room ventilation emergency mode of operation is actuated either by a containment high-radiation signal or a containment high-pressure signal, or manually from the control room. During emergency mode operation, the air handling units and the charcoal filter units of both Train A and Train B operate. The CRHVAC -Cooling refrigerant Condensing Units VC-10 and VC-11 shut down and are manually restarted by the operator when their operation is required for control room cooling. In addition, since immediate operation of the CRHVAC - Cooling system is not necessary, other manual operations may be required to initiate control room cooling, depending on the configuration of the system upon initiation of the emergency mode signal.

APPLICABLE SAFETY ANALYSES

The design basis of CRHVAC - Cooling is to maintain temperature of the control room environment throughout 30 days of continuous occupancy.

The CRHVAC - Cooling components are arranged in redundant safety related trains. During normal and emergency operation, CRHVAC - Cooling maintains the temperature at 90°F or below (as required by LCO 3.17.1). A single active failure of a component of a CRHVAC - Cooling train, coincident with a loss of offsite power, does not impair the ability of the system to perform its design function. Redundant detectors and controls are provided for control room temperature control. CRHVAC - Cooling is designed in accordance with Seismic Category I requirements. CRHVAC - Cooling is capable of removing sensible and latent heat loads from the control room, considering equipment heat loads and personnel occupancy requirements, to ensure equipment OPERABILITY.

The CRHVAC - Cooling trains meet Criterion 3 of 10 CFR 50.36(c)(2).

LCO

Two independent and redundant trains of CRHVAC - Cooling are required to be OPERABLE to ensure that at least one train is available, assuming a single failure disables the other train. Total system failure could result in the equipment operating temperature exceeding limits in the event of an accident.

CRHVAC - Cooling is considered OPERABLE when the individual components that are necessary to maintain the control room temperature are OPERABLE in both trains. These components include the condensing units, fans, and associated temperature control instrumentation. In addition, CRHVAC - Cooling must be OPERABLE to the extent that air circulation can be maintained.

APPLICABILITY

During REFUELING OPERATIONS, operation above COLD SHUTDOWN, movement of irradiated fuel assemblies, or during movement of a fuel cask in or over the SFP the CRHVAC - Cooling trains must be OPERABLE to ensure that the control room temperature will not exceed equipment OPERABILITY requirements following isolation of the control room.

ACTIONS

Action A.1.

With one CRHVAC - Cooling train inoperable, action must be taken to restore OPERABLE status within 30 days. In this Condition, the remaining OPERABLE CRHVAC - Cooling train is adequate to maintain the control room temperature within limits. The 30 day Completion Time is reasonable, based on the low probability of an event occurring requiring control room isolation, and consideration that the remaining train can provide the required capabilities.

Actions B.1 and B.2.

During operation above COLD SHUTDOWN, when Action A.1 cannot be completed within the required Completion Time, the plant must be placed in a condition that minimizes the accident risk. To achieve this status, the plant must be placed in at least HOT SHUTDOWN within 6 hours, and in COLD SHUTDOWN within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

Actions C.1 and C.2.

During REFUELING OPERATIONS, movement of irradiated fuel assemblies, or movement of a fuel cask in or over the SFP when Action A.1 cannot be completed within the required Completion Time, the OPERABLE CRHVAC - Cooling train must be placed in operation immediately. This action ensures that the remaining train is OPERABLE, that no failures preventing automatic actuation will occur, and that any active failure will be readily detected.

An alternative Action is to immediately suspend activities that could result in a release of radioactivity that might require isolation of the control room. This places the plant in a condition that minimizes the accident risk. This does not preclude the movement of fuel assemblies or a fuel cask to a safe position.

Action D.1.

During REFUELING OPERATIONS, movement of irradiated fuel assemblies, or movement of a fuel cask in or over the SFP, with two CRHVAC - Cooling trains inoperable, action must be taken immediately to suspend activities that could result in a release of radioactivity that might require isolation of the control room. This places the plant in a condition that minimizes the accident risk. This does not preclude the movement of fuel assemblies or a fuel cask to a safe position.

Action E.1.

If both CRHVAC - Cooling trains are inoperable while operating above COLD SHUTDOWN, CRHVAC - Cooling may not be capable of performing the intended function and the plant is in a condition outside the accident analysis. Therefore, LCO 3.0.3 must be entered immediately.

SURVEILLANCE

The surveillance requirements associated with LCO 3.14.2 are located in Section 4.2, Table 4.2.3.

REFERENCE

1. FSAR, Section 9.8

3.17 INSTRUMENTATION SYSTEMS

Specification

3.17.1 Four Reactor Protective System (RPS) trip unit channels and the associated instrumentation for the functions listed in Table 3.17.1, and 6 matrix logic channels and 4 initiation logic channels shall be OPERABLE except as allowed by the permissible operational bypasses column.

Applicability

Specification 3.17.1 applies when there is fuel in the reactor, more than one CONTROL ROD is capable of being withdrawn, and the PCS is less than REFUELING BORON CONCENTRATION.

Action

3.17.1.1 With one Manual Reactor Trip channel inoperable:

a) Restore the channel to OPERABLE status prior to the next reactor startup.

3.17.1.2 With one RPS trip unit or associated instrument channel inoperable for one or more functions:

a)* Place the affected trip unit in the tripped condition within 7 days.

3.17.1.3 With two RPS trip units or associated instrument channels inoperable for one or more functions:

a) Place one inoperable trip unit in the tripped condition within 1 hour, and

b) If two Power Range Nuclear Instrument channels are inoperable, limit power to ≤ 70% RATED POWER within 2 hours, and

c)* Restore one RPS trip unit and associated instrument channel to OPERABLE status within 7 days.

3.17.1.4 With one RPS Matrix Logic channel inoperable:

a) Restore the channel to OPERABLE status within 48 hours.

3.17.1.5 With one RPS Initiation Logic channel inoperable:

a) De-energize the affected clutch power supplies within 1 hour.

3.17.1.6 If any action required by 3.17.1 is not met AND the associated completion time has expired, or if the number of OPERABLE channels is less than specified in the "Minimum OPERABLE Channels", or if Control Room Temperature exceeds 90°F:

a) The reactor shall be placed in HOT SHUTDOWN within 12 hours, and

b) The reactor shall be placed in a condition where the affected equipment is not required, within 48 hours.

* These Actions are not required for inoperable High Startup Rate or Loss of Load instrument channels.

Amendment No. ~~162~~,

Basis: RPS Description (continued)

RPS Trip Units: The eleven sets of RPS trip units are the bistable amplifiers which monitor the analog input functions for the RPS, and the Auxiliary Trip Units which replace the bistables for functions receiving a binary input signal. Most RPS trips monitor an analog signal, such as Steam Generator Level, and initiate a trip when the signal reaches a predetermined setpoint. Containment High Pressure and Loss of Load trips are actuated by pressure switches outside the RPS; High Startup Rate trip is actuated by bistables in the Wide Range Nuclear Instrumentation (NI) drawers; High Power trip is actuated by a signal from the Thermal Margin Monitor. These four trips use relays, called Auxiliary Trip Units, in place of the RPS bistables. Each trip unit actuates three output relays, one in each of the associated matrix logic channels. Channel "A" trip units have output contacts in matrix logic channels A-B, A-C, and A-D; channel "B" trip units, in A-B, B-C, and B-D; and so on.

RPS Matrix Logic: The six RPS Matrix Logic channels are made up of the output contacts from individual trip units, testing and trip channel bypass contacts, coils of four Matrix Logic Relays, two power supplies, and various indicating lights. The contacts of the trip unit output relays are arranged to achieve the 2 out of 4 trip logic. Each matrix has four output relays; one with contacts in each Initiation Logic channel.

RPS Initiation Logic: The four RPS Initiation Logic channels are made up of a series arrangement of one contact from an output relay in each of the six matrix logic channels, contacts from the CO-1 manual trip button, contacts from the associated "K-Relays", and one "M-Contactor". The M-Contactor controls power to two of the four clutch power supplies.

RPS Design Temperature: The original reactor protective system instrumentation was designed for and tested at 120°F. The Thermal Margin Monitor, added later, was designed for 131°F. To assure that the TMM cabinet internal air temperature does not exceed its design limit, Control Room Temperature must be maintained at 90°F or below (Ref. 13 and 14).

Basis: Applicability 3.17.1

The Reactor Protective System is only required to be OPERABLE when there is fuel in reactor vessel, the PCS is less than REFUELING BORON CONCENTRATION, and more than one control rod is capable of being withdrawn.

If there is no fuel in the reactor vessel a nuclear reaction cannot occur and the RPS function is not necessary.

If the PCS is at REFUELING BORON CONCENTRATION (≥1720 ppm and subcritical by ≥5% with all control rods removed from the core) there is no need for automatic control rod insertion.

If no more than one control rod can be withdrawn the RPS function is already fulfilled (the safety analyses and the SHUTDOWN MARGIN definition both use the assumption that the highest worth withdrawn control rod will fail to insert on a trip) and the safety analyses assumptions and SHUTDOWN MARGIN requirements will be met without the RPS trip function.

Basis: Action Statements 3.17.1 (continued)

These actions may be taken separately for pairs of inoperable channels of different functions. Each pair of inoperable channels would have its own completion times.

Action 3.17.1.4 - One RPS Matrix Logic channel inoperable - Failures of matrix logic channels are infrequent since they are composed of only contact pairs, indicating lights, and output relays. There is one Matrix Logic channel for each two-out-of-four combination such as A-B, A-C, A-D, B-C, etc. The failure of any single Matrix Logic channel could, at worst, defeat only a single two-out-of-four trip combination, and would not cause a loss of trip capability. Should a failure occur, 48 hours are allowed for repair.

Action 3.17.1.5 - One RPS Initiation Logic channel inoperable - If a failure of an Initiation Logic channel should occur, it would most likely de-energize the associated clutch power supplies. Such a failure would not cause a reactor trip because the other two clutch power supplies would maintain the clutches energized. If a failure, such as a contact pair failing to open (which does not de-energize the associated clutch power supplies) did occur, the RPS Initiation logic trip capability could only be failed by a similar failure of the other initiation logic channel associated with the same power supplies. A single Initiation Logic failure, therefore, cannot cause a loss of trip capability. The associated power supplies must be de-energized within one hour.

Action 3.17.1.6 - Required action AND associated completion time not met - If the required action cannot be met within the associated completion time, or if the number of OPERABLE channels is less than allowed, or if the control room temperature exceeds 90°F, the plant must be placed in a condition where the inoperable equipment is not required. Twelve hours are allowed to bring the plant to HOT SHUTDOWN and 48 hours to reach conditions where the affected equipment is not required, to avoid unusual plant transients. Both the 12 and the 48 hour time periods start when it is discovered that Action 3.17.1.6 is applicable.

Basis: Table 3.17.1

1. - Manual Trip - The Manual Trip is provided to allow the operator to quickly shut down the reactor if such action is deemed necessary. The safety analyses do not assume the use of the manual trip feature. Two separate manual trip channels are provided. One channel duplicates the function of the automatic trips, de-energizing contactors which interrupt power to the clutch power supplies. The second manual trip channel trips the circuit breakers which supply power to the clutch power supplies by de-energizing their undervoltage coils. The manual trip function is required to be OPERABLE under all conditions which require the RPS to be OPERABLE.

2. - Variable High Power Trip (VHPT) - The VHPT provides reactor core protection against reactivity excursions. The safety analyses assume that this trip is OPERABLE to terminate excessive reactivity insertions during power operation and while shutdown.

3.17 INSTRUMENTATION SYSTEMS

References for 3.17 Basis

(1) Updated FSAR, Section 7.2.7.

(2) Updated FSAR, Section 7.2.5.2

(3) Updated FSAR, Figures 7-1 and 7-2

(4) P&ID SIS Logic Diagram E-17, Sh 3

(5) P&ID SIS Logic Diagram E-17, Sh 4

(6) P&ID RAS Logic Diagram E-17, Sh 5

(7) Updated FSAR, Figure 7-37

(8) P&ID CHP Logic Diagram E-17, Sh 6

(9) P&ID CHR Logic Diagram E-17, Sh 7

(10) P&ID SGLP Logic Diagram E-17, Sh 20

(11) Updated FSAR, Figure 7-56

(12) Service Water Functional Description, FD-M-111

(13) CPCo letter to NRC, December 23, 1988, Resolution of Reactor Protective System Audit Concerns - Temperature Documentation

(14) NRC letter to CPCo, March 28, 1990, Thermal Margin Monitor (TMM) Audit Follow-up

Table 4.2.3

VENTILATION SYSTEM TESTS

The Control Room Ventilation and Isolation System and the Fuel Storage Area HEPA/Charcoal Exhaust System shall be demonstrated to be OPERABLE by the following tests:

1. Performing required Control Room Ventilation and Fuel Storage Area filter testing in accordance with the Ventilation Filter Testing Program.

2. At least once per refueling cycle by:

   a. Verifying that on a containment high-pressure and high-radiation test signal, the Control Room Ventilation system automatically switches into the emergency mode of operation with flow through the HEPA filter and charcoal adsorber bank.

   b. Verifying that the Control Room Ventilation system maintains the Control Room at a positive pressure ≥ 1/8 inch WG relative to the outside atmosphere during system emergency mode operation.

   c. Verifying that the Fuel Pool Ventilation System is OPERABLE by initiating flow through the HEPA filter and charcoal adsorbers from the control room.

~~3. Verifying that the Control Room temperature is ≤ 90°F; once per 12 hours.~~

4.17 INSTRUMENTATION SYSTEMS TESTS

Table 4.17.1

Instrumentation Surveillance Requirements for Reactor Protective System

	Functional Unit	CHANNEL CHECK	CHANNEL FUNCTIONAL TEST	CHANNEL CALIBRATION
1.	Manual Trip	NA	(a)	NA
2.	Variable High Power	12 hours	31 days	(b, c, & d)
3.	High Start Up Rate	12 hours	(a)	18 months[e]
4.	Thermal Margin/ Low Pressure	12 hours	31 days	18 months
5.	High Pressurizer Pressure	12 hours	31 days	18 months
6.	Low PCS Flow	12 hours	31 days	18 months
7.	Loss of Load	NA	(a)	18 months
8.	Low "A" SG Level	12 hours	31 days	18 months
9.	Low "B" SG Level	12 hours	31 days	18 months
10.	Low "A" SG Pressure	12 hours	31 days	18 months
11.	Low "B" SG Pressure	12 hours	31 days	18 months
12.	High Containment Pressure	NA	31 days	18 months
13.	RPS Matrix Logic	NA	31 days	NA
14.	RPS Initiation Logic	NA	31 days	NA
15.	Thermal Margin Monitor; Verify constants each 92 days.			
16.	Thermal Margin Monitor: Verify Control Room Temperature ≤ 90°F each 12 hours.			

(a) Once within 7 days prior to each reactor startup.
(b) Calibrate with Heat Balance each 24 hours, when > 15% RATED POWER.
(c) Calibrate Excores channels with test signal each 31 days.
(d) CHANNEL CALIBRATION each 18 months.
(e) Include verification of automatic Zero Power Mode Bypass removal.

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