ENTERGY NUCLEAR NORTHEAST

INDIAN POINT ENERGY CENTER
Unit 3

TECHNICAL REQUIREMENTS MANUAL (TRM)

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TECHNICAL REQUIREMENTS MANUAL (TRM)

Indian Point Nuclear Power Plant Unit No. 3

1.0 USE AND APPLICATION

1.1 Definitions

----------NOTE----------

1. The defined terms of this section and the Improved Technical Specifications (ITS) appear in capitalized type and are applicable throughout these Technical Requirements and Bases. Some defined terms in the ITS are not found below because they are not used in the TRM.
2. Terms used in these Technical Requirements and Bases are as defined in the ITS or if not defined in the ITS they are as defined below.

Term	Definition
ACTIONS	ACTIONS shall be that part of a Technical Requirement that prescribes Required Actions to be taken under designated Conditions within specified Completion Times.
ACTUATION LOGIC TEST	An ACTUATION LOGIC TEST shall be the application of various simulated or actual input combinations in conjunction with each possible interlock logic state and the verification of the required logic output. The ACTUATION LOGIC TEST, as a minimum, shall include a continuity check of output devices.
AXIAL FLUX DIFFERENCE (AFD)	AFD shall be the difference in normalized flux signals between the top and bottom halves of a two section excore neutron detector.
CHANNEL CALIBRATION	A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel so that it responds within the required range and accuracy to known input. The CHANNEL CALIBRATION shall encompass the entire channel, including the required sensor, alarm, interlock, display, and trip functions. Calibration of instrument channels with resistance temperature detector (RTD) or thermocouple sensors may consist of an inplace qualitative assessment of sensor behavior and normal calibration of the remaining adjustable devices in the channel. Whenever a sensing element is replaced, the next required CHANNEL CALIBRATION shall include an inplace cross calibration that compares the other sensing elements with the recently installed sensing element. The CHANNEL CALIBRATION may be performed by means of any series of sequential, overlapping calibrations or total channel steps so that the entire channel is calibrated.

1.1 Definitions

CHANNEL CHECK	A CHANNEL CHECK shall be the qualitative assessment, by observation, of channel behavior during operation. This determination shall include, where possible, comparison of the channel indication and status to other indications or status derived from independent instrument channels measuring the same parameter.
CHANNEL OPERATIONAL TEST (COT)	A COT shall be the injection of a simulated or actual signal into the channel as close to the sensor as practicable to verify the OPERABILITY of required alarm, interlock, display, and trip functions. The COT shall include adjustments, as necessary, of the required alarm, interlock, and trip setpoints so that the setpoints are within the required range and accuracy.
CORE ALTERATION	CORE ALTERATION shall be the movement of any fuel, sources, or reactivity control components, within the reactor vessel with the vessel head removed and fuel in the vessel. Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.
DEMONSTRATE	DEMONSTRATE means that the Surveillance shall be performed ensuring a system is OPERABLE.
MASTER RELAY TEST	A MASTER RELAY TEST shall consist of energizing each master relay and verifying the OPERABILITY of each relay. The MASTER RELAY TEST shall include a continuity check of each associated slave relay.
MODE	A MODE shall correspond to any one inclusive combination of core reactivity condition, power level, average reactor coolant loop temperature, and reactor vessel head closure bolt tensioning specified in Table 1.1-1 with fuel in the reactor vessel.
OPERABLE - OPERABILITY	A system, subsystem, train, component, or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified safety function(s) and when all necessary attendant instrumentation, controls, normal or emergency electrical power, cooling and seal water, lubrication, and other auxiliary equipment that are required for the system, subsystem, train, component, or device to perform its specified safety function(s) are also capable of performing their related support function(s).

1.1 Definitions

QUADRANT POWER TILT RATIO (QPTR)	QPTR shall be the ratio of the maximum upper excore detector calibrated output to the average of the upper excore detector calibrated outputs, or the ratio of the maximum lower excore detector calibrated output to the average of the lower excore detector calibrated outputs, whichever is greater.
RATED THERMAL POWER (RTP)	RTP shall be a total reactor core heat transfer rate to the reactor coolant of 3216 MWt.
SHUTDOWN MARGIN (SDM)	SDM shall be the instantaneous amount of reactivity by which the reactor is subcritical or would be subcritical from its present condition assuming: a. All rod cluster control assemblies (RCCAs) are fully inserted except for the single RCCA of highest reactivity worth, which is assumed to be fully withdrawn. With any RCCA not capable of being fully inserted, the reactivity worth of the RCCA must be accounted for in the determination of SDM; and b. In MODES 1 and 2, the fuel and moderator temperatures are changed to the hot zero power level.
SLAVE RELAY TEST	A SLAVE RELAY TEST shall consist of energizing each slave relay and verifying the OPERABILITY of each slave relay. The SLAVE RELAY TEST shall include, as a minimum, a continuity check of associated testable actuation devices.
STAGGERED TEST BASIS	A STAGGERED TEST BASIS shall consist of the testing of one of the systems, subsystems, channels, or other designated components during the interval specified by the Surveillance Frequency, so that all systems, subsystems, channels, or other designated components are tested during *n* Surveillance Frequency intervals, where *n* is the total number of systems, subsystems, channels, or other designated components in the associated function.
THERMAL POWER	THERMAL POWER shall be the total reactor core heat transfer rate to the reactor coolant.

1.1 Definitions

TRIP ACTUATING DEVICE OPERATIONAL TEST (TADOT)	A TADOT shall consist of operating the trip actuating device and verifying the OPERABILITY of required alarm, interlock, display, and trip functions. The TADOT shall include adjustment, as necessary, of the trip actuating device so that it actuates at the required setpoint within the required accuracy.
VERIFY	VERIFY means that verification of OPERABILITY is satisfied if the last surveillance test that was performed satisfactorily demonstrated system or component OPERABILITY. If any information is available that challenges OPERABILITY, then the OPERABILITY is questionable until it is demonstrated by performing another test. Information that can challenge OPERABILITY can be (but is not limited to) visual observation, or Problem Identification Discrepancy (PIDS), Condition Reports (CR), or work requests written against the system that indicate the system or component is degraded and this degradation prevents the system or component from performing its design function(s). The existence of a PID, or CR or work request on a system or component does not in and of itself render a system or component inoperable until it is evaluated.

Table 1.1-1 (page 1 of 1)

MODES

MODE (d)	TITLE	REACTIVITY CONDITION (K_{eff})	% RATED THERMAL POWER(a)	AVERAGE REACTOR COOLANT TEMPERATURE (^{o}F)
1	Power Operation	$\geq$ 0.99	> 5	NA
2	Startup	$\geq$ 0.99	$\leq$ 5	NA
3	Hot Standby	< 0.99	NA	$\geq$ 350
4	Hot Shutdown	< 0.99	NA	350 > Tavg > 200
5	Cold Shutdown(b)	< 0.99	NA	$\leq$ 200
6	Refueling(c)	NA	NA	NA

(a) Excluding decay heat

(b) All reactor vessel head closure bolts fully tensioned.

(c) One or more reactor vessel head closure bolts less than fully tensioned.

(d) Applicable with fuel in the reactor vessel.

1.0 USE AND APPLICATION (continued)

1.2 Logical Connectors

PURPOSE

The purpose of this section is to explain the meaning of logical connectors.

Logical connectors are used in Technical Requirements Manual (TRM) to discriminate between, and yet connect, discrete Conditions, Required Actions, Completion Times, Surveillances, and Frequencies. The only logical connectors that appear in TRM are AND and OR. The physical arrangement of these connectors constitutes logical conventions with specific meanings.

BACKGROUND

Several levels of logic may be used to state Required Actions. These levels are identified by the placement (or nesting) of the logical connectors and by the number assigned to each Required Action. The first level of logic is identified by the first digit of the number assigned to a Required Action and the placement of the logical connector in the first level of nesting (i.e., left justified with the number of the Required Action). The successive levels of logic are identified by additional digits of the Required Action number and by successive indentations of the logical connectors.

When logical connectors are used to state a Condition, Completion Time, Surveillance, or Frequency, only the first level of logic is used, and the logical connector is left justified with the statement of the Condition, Completion Time, Surveillance, or Frequency.

EXAMPLES

The following examples illustrate the use of logical connectors.

1.2 Logical Connectors

EXAMPLES (continued)

EXAMPLE 1.2-1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. TRO not met.	A.1 Verify . . . AND A.2 Restore . . .	

In this example the logical connector AND is used to indicate that when in Condition A, both Required Actions A.1 and A.2 must be completed.

1.2 Logical Connectors

EXAMPLES (continued)

EXAMPLE 1.2-2

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. TRO not met.	A.1 Trip . . . OR A.2.1 Verify . . . AND A.2.2.1 Reduce . . . OR A.2.2.2 Perform . . . OR A.3 Align . . .	

This example represents a more complicated use of logical connectors. Required Actions A.1, A.2, and A.3 are alternative choices, only one of which must be performed as indicated by the use of the logical connector OR and the left justified placement. Any one of these three Actions may be chosen. If A.2 is chosen, then both A.2.1 and A.2.2 must be performed as indicated by the logical connector AND. Required Action A.2.2 is met by performing A.2.2.1 or A.2.2.2. The indented position of the logical connector OR indicates that A.2.2.1 and A.2.2.2 are alternative choices, only one of which must be performed.

1.0 USE AND APPLICATION

1.3 Completion Times

PURPOSE

The purpose of this section is to establish the Completion Time convention and to provide guidance for its use.

BACKGROUND

Technical Requirements for Operation (TROs) specify minimum requirements for ensuring safe operation of the unit. The ACTIONS associated with an TRO state Conditions that typically describe the ways in which the requirements of the TRO can fail to be met. Specified with each stated Condition are Required Action(s) and Completion Time(s).

DESCRIPTION

The Completion Time is the amount of time allowed for completing a Required Action. It is referenced to the time of discovery of a situation (e.g., inoperable equipment or variable not within limits) that requires entering an ACTIONS Condition unless otherwise specified, providing the unit is in a MODE or specified condition stated in the Applicability of the TRO. Required Actions must be completed prior to the expiration of the specified Completion Time. An ACTIONS Condition remains in effect and the Required Actions apply until the Condition no longer exists or the unit is not within the TRO Applicability.

If situations are discovered that require entry into more than one Condition at a time within a single TRO (multiple Conditions), the Required Actions for each Condition must be performed within the associated Completion Time. When in multiple Conditions, separate Completion Times are tracked for each Condition starting from the time of discovery of the situation that required entry into the Condition.

Once a Condition has been entered, subsequent trains, subsystems, components, or variables expressed in the Condition discovered to be inoperable or not within limits, will not result in separate entry into the Condition, unless specifically stated. The Required Actions of the Condition continue to apply to each additional failure, with Completion Times based on initial entry into the Condition.

However, when a subsequent train, subsystem, component, or variable expressed in the Condition is discovered to be inoperable or not within limits, the Completion Time(s) may be extended. To apply this Completion Time extension, two criteria must first be met. The subsequent inoperability:

a. Must exist concurrent with the first inoperability; and
b. Must remain inoperable or not within limits after the first inoperability is resolved.

The total Completion Time allowed for completing a Required Action to address the subsequent inoperability shall be limited to the more restrictive of either:

a. The stated Completion Time, as measured from the initial entry into the Condition, plus an additional 24 hours; or

b. The stated Completion Time as measured from discovery of the subsequent inoperability.

The above Completion Time extensions do not apply to those Specifications that have exceptions that allow completely separate re-entry into the Condition (for each train, subsystem, component, or variable expressed in the Condition) and separate tracking of Completion Times based on this re-entry. These exceptions are stated in individual Specifications.

The above Completion Time extension does not apply to a Completion Time with a modified "time zero." This modified "time zero" may be expressed as a repetitive time (i.e., "once per 8 hours," where the Completion Time is referenced from a previous completion of the Required Action versus the time of Condition

EXAMPLES The following examples illustrate the use of Completion Times with different types of Conditions and changing Conditions.

EXAMPLE 1.3-1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

Condition B has two Required Actions. Each Required Action has its own separate Completion Time. Each Completion Time is referenced to the time that Condition B is entered.

The Required Actions of Condition B are to be in MODE 3 within 6 hours AND in MODE 5 within 36 hours. A total of 6 hours is allowed for reaching MODE 3 and a total of 36 hours (not 42 hours) is allowed for reaching MODE 5 from the time that Condition B was entered. If MODE 3 is reached within 3 hours, the time allowed for reaching MODE 5 is the next 33 hours because the total time allowed for reaching MODE 5 is 36 hours.

If Condition B is entered while in MODE 3, the time allowed for reaching MODE 5 is the next 36 hours.

EXAMPLE 1.3-2

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One pump inoperable	A.1 Restore pump to OPERABLE status.	7 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

When a pump is declared inoperable, Condition A is entered. If the pump is not restored to OPERABLE status within 7 days, Condition B is also entered and the Completion Time clocks for Required Actions B.1 and B.2 start. If the inoperable pump is restored to OPERABLE status after Condition B is entered, Condition A and B are exited, and therefore, the Required Actions of Condition B may be terminated.

When a second pump is declared inoperable while the first pump is still inoperable, Condition A is not re-entered for the second pump. TRO 3.0.C is entered, since the ACTIONS do not include a Condition for more than one inoperable pump. The Completion Time clock for Condition A does not stop after TRO 3.0.C is entered, but continues to be tracked from the time Condition A was initially entered.

While in TRO 3.0.C, if one of the inoperable pumps is restored to OPERABLE status and the Completion Time for Condition A has not expired, TRO 3.0.C may be exited and operation continued in accordance with Condition A.

While in TRO 3.0.C, if one of the inoperable pumps is restored to OPERABLE status and the Completion Time for Condition A has expired, TRO 3.0.C may be exited and operation continued in accordance with Condition B. The Completion Time for Condition B is tracked from the time the Condition A Completion Time expired.

On restoring one of the pumps to OPERABLE status, the Condition A Completion Time is not reset, but continues from the time the first pump was declared inoperable. This Completion Time may be extended if the pump restored to OPERABLE status was the first inoperable pump. A 24 hour extension to the stated 7 days is allowed, provided this does not result in the second pump being inoperable for > 7 days.

EXAMPLE 1.3-3

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One Function X train inoperable.	A.1 Restore Function X	7 days AND 10 days from discovery of failure to meet the TRO
B. One Function Y train inoperable.	B.1 Restore Function Y train to OPERABLE status.	72 hours AND 10 days from discovery of failure to meet the TRO
C. One Function X train inoperable. AND One Function Y train inoperable.	C.1 Restore Function X train to OPERABLE status. OR C.2 Restore Function Y train to OPERABLE status.	72 hours 72 hours

When one Function X train and one Function Y train are inoperable, Condition A and Condition B are concurrently applicable. The Completion Times for Condition A and Condition B are tracked separately for each train starting from the time each train was declared inoperable and the Condition was entered. A separate Completion Time is established for Condition C and tracked from the time the second train was declared inoperable (i.e., the time the situation described in Condition C was discovered).

If Required Action C.2 is completed within the specified Completion Time, Conditions B and C are exited. If the Completion Time for Required Action A.1 has not expired, operation may continue in accordance with Condition A.
The remaining Completion Time in Condition A is measured from the time the affected train was declared inoperable (i.e., initial entry into Condition A).

1.3 Completion Times

The Completion Times of Conditions A and B are modified by a logical connector with a separate 10 day Completion Time measured from the time it was discovered the TRO was not met. In this example, without the separate Completion Time, it would be possible to alternate between Conditions A, B, and C in such a manner that operation could continue indefinitely without ever restoring systems to meet the TRO. The separate Completion Time modified by the phrase "from discovery of failure to meet the TRO" is designed to prevent indefinite continued operation while not meeting the TRO. This Completion Time allows for an exception to the normal "time zero" for beginning the Completion Time "clock". In this instance, the Completion Time "time zero" is specified as commencing at the time the TRO was initially not met, instead of at the time the associated Condition was entered.

EXAMPLE 1.3-4

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more valves inoperable.	A.1 Restore valve(s) to OPERABLE status.	4 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	6 hours 12 hours

A single Completion Time is used for any number of valves inoperable at the same time. The Completion Time associated with Condition A is based on the initial entry into Condition A and is not tracked on a per valve basis. Declaring subsequent valves inoperable, while Condition A is still in effect, does not trigger the tracking of separate Completion Times.

Once one of the valves has been restored to OPERABLE status, the Condition A Completion Time is not reset, but continues from the time the first valve was declared inoperable. The Completion Time may be extended if the valve restored to OPERABLE status was the first inoperable valve. The Condition A Completion Time may be extended for up to 4 hours provided this does not result in any subsequent valve being inoperable for > 4 hours.

If the Completion Time of 4 hours (including the extension) expires while one or more valves are still inoperable, Condition B is entered.

EXAMPLE 1.3-5

ACTIONS

----------NOTE----------

Separate Condition entry is allowed for each inoperable valve.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more valves inoperable.	A.1 Restore valve to OPERABLE status.	4 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	6 hours 12 hours

The Note above the ACTIONS Table is a method of modifying how the Completion Time is tracked. If this method of modifying how the Completion Time is tracked was applicable only to a specific Condition, the Note would appear in that Condition rather than at the top of the ACTIONS Table.

The Note allows Condition A to be entered separately for each inoperable valve, and Completion Times tracked on a per valve basis. When a valve is declared inoperable, Condition A is entered and its Completion Time starts. If subsequent valves are declared inoperable, Condition A is entered for each valve and separate Completion Times start and are tracked for each valve.

If the Completion Time associated with a valve in Condition A expires, Condition B is entered for that valve. If the Completion Times associated with subsequent valves in Condition A expire, Condition B is entered separately for each valve and separate Completion Times start and are tracked for each valve. If a valve that caused entry into Condition B is restored to OPERABLE status, Condition B is exited for that valve.

Since the Note in this example allows multiple Condition entry and tracking of separate Completion Times, Completion Time extensions do not apply.

EXAMPLE 1.3-6

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION

		TIME
A. One channel inoperable.	A.1 Perform TRS 3.x.x.x. OR A.2 Reduce THERMAL POWER to ≤ 50% RTP.	Once per 8 hours 8 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours

Entry into Condition A offers a choice between Required Action A.1 or A.2. Required Action A.1 has a "once per" Completion Time, which qualifies for the 25% extension, per TRS 3.0.B, to each performance after the initial performance. The initial 8 hour interval of Required Action A.1 begins when Condition A is entered and the initial performance of Required Action A.1 must be complete within the first 8 hour interval. If Required Action A.1 is followed, and the Required Action is not met within the Completion Time (plus the extension allowed by TRS 3.0.B), Condition B is entered. If Required Action A.2 is followed and the Completion Time of 8 hours is not met, Condition B is entered.

If after entry into Condition B, Required Action A.1 or A.2 is met, Condition B is exited and operation may then continue in Condition A.

EXAMPLE 1.3-7

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One subsystem inoperable.	A.1 Verify affected subsystem isolated. AND A.2 Restore subsystem to OPERABLE status.	1 hour AND Once per 8 hours thereafter 72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

Required Action A.1 has two Completion Times. The 1 hour Completion Time begins at the time the Condition is entered and each "Once per 8 hours thereafter" interval begins upon performance of Required Action A.1.

If after Condition A is entered, Required Action A.1 is not met within either the initial 1 hour or any subsequent 8 hour interval from the previous performance (plus the extension allowed by TRS 3.0.B), Condition B is entered. The Completion Time clock for Condition A does not stop after Condition B is entered, but continues from the time Condition A was initially entered. If Required Action A.1 is met after Condition B is entered, Condition B is exited and operation may continue in accordance with Condition A, provided the Completion Time for Required Action A.2 has not expired.

IMMEDIATE COMPLETION TIME

When "Immediately" is used as a Completion Time, the
Required Action should be pursued without delay and in a controlled manner.

1.0 USE AND APPLICATION

1.4 Frequency

PURPOSE	The purpose of this section is to define the proper use and application of Frequency requirements.
DESCRIPTION	Each Technical Requirement Surveillance (TRS) has a specified Frequency in which the Surveillance must be met in order to meet the associated TRO. An understanding of the correct application of the specified Frequency is necessary for compliance with the TRS. The "specified Frequency" is referred to throughout this section and each of the Specifications of Section 3.0, Technical Requirement Surveillance (TRS) Applicability. The "specified Frequency" consists of the requirements of the Frequency column of each TRS as well as certain Notes in the Surveillance column that modify performance requirements. Situations where a Surveillance could be required (i.e., its Frequency could expire), but where it is not possible or not desired that it be performed until sometime after the associated TRO is within its Applicability, represent potential TRS 3.0.D conflicts. To avoid these conflicts, the TRS (i.e., the Surveillance or the Frequency) is stated such that it is only "required" when it can be and should be performed. With an TRS satisfied, TRS 3.0.D imposes no restriction.
EXAMPLES	The following examples illustrate the various ways that Frequencies are specified. In these examples, the Applicability of the TRO (TRO not shown) is MODES 1, 2, and 3.

EXAMPLES (continued)

EXAMPLE 1.4-1

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
Perform CHANNEL CHECK.	12 hours

Example 1.4-1 contains the type of TRS most often encountered in the Technical Requirements Manual (TRM). The Frequency specifies an interval (12 hours) during which the associated Surveillance must be performed at least one time. Performance of the Surveillance initiates the subsequent interval. Although the Frequency is stated as 12 hours, an extension of the time interval to 1.25 times the stated Frequency is allowed by TRS 3.0.B for operational flexibility. The measurement of this interval continues at all times, even when the TRS is not required to be met per TRS 3.0.A (such as when the equipment is inoperable, a variable is outside specified limits, or the unit is outside the Applicability of the TRO). If the interval specified by TRS 3.0.B is exceeded while the unit is in a MODE or other specified condition in the Applicability of the TRO, and the performance of the Surveillance is not otherwise modified (refer to Example 1.4-3), then TRS 3.0.C becomes applicable.

If the interval as specified by TRS 3.0.B is exceeded while the unit is not in a MODE or other specified condition in the Applicability of the TRO for which performance of the TRS is required, the Surveillance must be performed within the Frequency requirements of TRS 3.0.B prior to entry into the MODE or other specified condition. Failure to do so would result in a violation of TRS 3.0.D.

EXAMPLES (continued)

EXAMPLE 1.4-2

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
Verify flow is within limits.	Once within 12 hours after ≥ 25% RTP AND 24 hours thereafter

Example 1.4-2 has two Frequencies. The first is a one time performance Frequency, and the second is of the type shown in Example 1.4-1. The logical connector "AND" indicates that both Frequency requirements must be met. Each time reactor power is increased from a power level < 25% RTP to ≥ 25% RTP, the Surveillance must be performed within 12 hours.

The use of "once" indicates a single performance will satisfy the specified Frequency (assuming no other Frequencies are connected by "AND"). This type of Frequency does not qualify for the 25% extension allowed by TRS 3.0.B. "Thereafter" indicates future performances must be established per TRS 3.0.B, but only after a specified condition is first met (i.e., the "once" performance in this example). If reactor power decreases to < 25% RTP, the measurement of both intervals stops. New intervals start upon reactor power reaching 25% RTP.

EXAMPLES (continued)

EXAMPLE 1.4-3

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
----------NOTE---------- Not required to be performed until 12 hours after ≥ 25% RTP. ---------- Perform channel adjustment.	7 days

The interval continues, whether or not the unit operation is < 25% RTP between performances.

As the Note modifies the required performance of the Surveillance, it is construed to be part of the "specified Frequency." Should the 7 day interval be exceeded while operation is < 25% RTP, this Note allows 12 hours after power reaches 25% RTP to perform the Surveillance. The Surveillance is still considered to be performed within the "specified Frequency." Therefore, if the Surveillance were not performed within the 7 day (plus the extension allowed by TRS 3.0.B) interval, but operation was < 25% RTP, it would not constitute a failure of the TRS or failure to meet the TRO. Also, no violation of TRS 3.0.D occurs when changing MODES, even with the 7 day Frequency not met, provided operation does not exceed 12 hours with power ≥ 25% RTP.

Once the unit reaches 25% RTP, 12 hours would be allowed for completing the Surveillance. If the Surveillance were not performed within this 12 hour interval, there would then be a failure to perform a Surveillance within the specified Frequency, and the provisions of TRS 3.0.C would apply.

Section 2.0

NOT

USED

3.0 TECHNICAL REQUIREMENTS FOR OPERATION (TRO) APPLICABILITY

TRO 3.0.A TROs shall be met during the MODES or other specified conditions in the Applicability, except as provided in TRO 3.0.B and TRO 3.0.H.

TRO 3.0.B Upon discovery of a failure to meet a TRO, the Required Actions of the associated Conditions shall be met, except as provided in TRO 3.0.E.

If the TRO is met or is no longer applicable prior to expiration of the specified Completion Time(s), completion of the Required Action(s) is not required unless otherwise stated.

TRO 3.0.C When a TRO is not met and the associated ACTIONS are not met, an associated ACTION is not provided, or if directed by the associated ACTIONS, the unit shall be placed in a MODE or other specified condition in which the TRO is not applicable. Action shall be initiated within 1 hour to place the unit, as applicable, in:

a. MODE 3 within 7 hours;

b. MODE 4 within 13 hours; and

c. MODE 5 within 37 hours.

Exceptions to this Technical Requirement are stated in the individual Technical Requirements or as allowed via an approved Reasonable Assurance of Safety per TRO 3.0.H.

Where corrective measures are completed that permit operation in accordance with the TRO or ACTIONS, completion of the actions required by TRO 3.0.C is not required.

TRO 3.0.C is only applicable in MODES 1, 2, 3, and 4.

TRO 3.0.D When a TRO is not met, entry into a MODE or other specified condition in the Applicability shall only be made:

a. When the associated ACTIONS to be entered permit continued operation in the MODE or other specified condition in the Applicability for an unlimiting period of time;

b. After performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering the MODE or other specified condition in the Applicability, and establishment of risk management actions, if appropriate; exceptions to this Specification are stated in the individual Specifications, or

c. When an allowance is stated in the individual value, parameter, or other Specification.

This Specification shall not prevent changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.

TRO 3.0.E

Equipment removed from service or declared inoperable to comply with ACTIONS may be returned to service under administrative control solely to perform testing required to demonstrate its OPERABILITY or the OPERABILITY of other equipment. This is an exception to TRO 3.0.B for the system returned to service under administrative control to perform the testing required to demonstrate OPERABILITY.

TRO 3.0.F

Not used (see bases).

TRO 3.0.G

Not used (see bases).

TRO 3.0.H

Exceptions to a TRO, TRS, Required Action or Completion Time, including a plant shutdown required by an individual TRM Technical Requirement or by TRO 3.0.C, may be exercised based on an approved Reasonable Assurance of Safety performed in accordance with plant procedures.

TRO 3.0.H may be exercised against TRO 3.0.A, 3.0.B, 3.0.C and 3.0.D.

TECHNICAL REQUIREMENTS SURVEILLANCE (TRS) APPLICABILITY

TRS 3.0.A

TRSs shall be met during the MODES or other specified conditions in the Applicability for individual TROs, unless otherwise stated in the TRS. Failure to meet a Surveillance, whether such failure is experienced during the performance of the Surveillance or between performances of the Surveillance, shall be failure to meet the TRO. Failure to perform a Surveillance within the specified Frequency shall be failure to meet the TRO except as provided in TRS 3.0.C. Surveillances do not have to be performed on inoperable equipment or variables outside specified limits.

TRS 3.0.B

The specified Frequency for each TRS is met if the Surveillance is performed within 1.25 times the interval specified in the Frequency, as measured from the previous performance or as measured from the time a specified condition of the Frequency is met.

For Frequencies specified as "once," the above interval extension does not apply.

If a Completion Time requires periodic performance on a "once per . . ." basis, the above Frequency extension applies to each performance after the initial performance.

Exceptions to this Technical Requirement are stated in the individual Technical Requirements.

TRS 3.0.C

If it is discovered that a Surveillance was not performed within its specified Frequency, then compliance with the requirement to declare the TRO not met may be delayed, from the time of discovery, up to 24 hours or up to the limit of the specified Frequency, whichever is greater. This delay period is permitted to allow performance of the Surveillance. A risk evaluation shall be performed for any Surveillance delayed greater than 24 hours and the risk impact shall be managed.

If the Surveillance is not performed within the delay period, the TRO must immediately be declared not met, and the applicable Condition(s) must be entered.

When the Surveillance is performed within the delay period and the Surveillance is not met, the TRO must immediately be declared not met, and the applicable Condition(s) must be entered.

TRS 3.0.D

Entry into a MODE or other specified condition in the Applicability of a TRO shall only be made when the TRO's Surveillances have been met within their specified Frequency, except as provided by TRS 3.0.C. When a TRO is not met due to Surveillances not having been met, entry into a MODE or other specified condition in the Applicability shall only be made in accordance with TRO 3.0.D.

This provision shall not prevent entry into MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.

TRS 3.0.E

The following criteria provides relaxation to TRS 3.0.A for performing surveillances:

i) For surveillances that are new, the first performance is due at the end of the first surveillance interval that begins on the effective date of the TRM section.

ii) For surveillances that existed prior to the effective date of the TRM section whose intervals of performance are being reduced, the first reduced surveillance interval begins upon completion of the first surveillance performed after the effective date of the TRM section.

iii) For surveillances that existed prior to the TRM section effective date that have modified acceptance criteria, the first performance is due at the end of the first surveillance interval that began on the date the surveillance was last performed prior to the effective date of the TRM section.

iv) For surveillances that existed prior to the TRM section effective date whose intervals of performance are being extended, the first extended surveillance interval begins upon completion of the last surveillance performed prior to the effective date of the TRM section.

TROs

TRO 3.0.A through TRO 3.0.H establish the general requirements applicable to all Technical Requirements and apply at all times, unless otherwise stated.

TRO 3.0.A

TRO 3.0.A establishes the Applicability statement within each individual Technical Requirement as the requirement for when the TRO is required to be met (i.e., when the unit is in the MODES or other specified conditions of the Applicability statement of each Technical Requirement).

TRO 3.0.B

TRO 3.0.B establishes that upon discovery of a failure to meet a TRO, the associated ACTIONS shall be met. The Completion Time of each Required Action for an ACTIONS Condition is applicable from the point in time that an ACTIONS Condition is entered. The Required Actions establish those remedial measures that must be taken within specified Completion Times when the requirements of a TRO are not met. This Technical Requirement establishes that:

a. Completion of the Required Actions within the specified Completion Times constitutes compliance with a Technical Requirement; and

b. Completion of the Required Actions is not required when a TRO is met within the specified Completion Time, unless otherwise specified.

There are two basic types of Required Actions. The first type of Required Action specifies a time limit in which the TRO must be met. This time limit is the Completion Time to restore an inoperable system or component to OPERABLE status or to restore variables to within specified limits. If this type of Required Action is not completed within the specified Completion Time, a shutdown may be required to place the unit in a MODE or condition in which the Technical Requirement is not applicable. (Whether stated as a Required Action or not, correction of the entered Condition is an action that may always be considered upon entering ACTIONS.) The second type of Required Action specifies the remedial measures that permit continued operation of the unit that is not further restricted by the Completion Time. In this case, compliance with the Required Actions provides an acceptable level of safety for continued operation.

Completing the Required Actions is not required when a TRO is met or is no longer applicable, unless otherwise stated in the individual Technical Requirements.

The nature of some Required Actions of some Conditions necessitates that, once the Condition is entered, the Required Actions must be completed even though the associated Conditions no longer exist. The individual

TRO's ACTIONS specify the Required Actions where this is the case. An example of this is TRO 3.7.C, “Snubbers”.

The Completion Times of the Required Actions are also applicable when a system or component is removed from service intentionally. The reasons for intentionally relying on the ACTIONS include, but are not limited to, performance of Surveillances, preventive maintenance, corrective maintenance, or investigation of operational problems. Entering ACTIONS for these reasons must be done in a manner that does not compromise safety. Intentional entry into ACTIONS should not be made for operational convenience. Additionally, if intentional entry into ACTIONS would result in redundant equipment being inoperable, alternatives should be used instead. Doing so limits the time both subsystems/trains of a safety function are inoperable and limits the time conditions exist which may result in TRO 3.0.C being entered. Individual Technical Requirements may specify a time limit for performing a TRS when equipment is removed from service or bypassed for testing. In this case, the Completion Times of the Required Actions are applicable when this time limit expires; if the equipment remains removed from service or bypassed.

When a change in MODE or other specified condition is required to comply with Required Actions, the unit may enter a MODE or other specified condition in which another Technical Requirement becomes applicable. In this case, the Completion Times of the associated Required Actions would apply from the point in time that the new Technical Requirement becomes applicable, and the ACTIONS Condition(s) are entered.

TRO 3.0.C

TRO 3.0.C establishes the actions that must be implemented when a TRO is not met and:

a. An associated Required Action and Completion Time is not met and no other Condition applies; or

b. The condition of the unit is not specifically addressed by the associated ACTIONS. This means that no combination of Conditions stated in the ACTIONS can be made that exactly corresponds to the actual condition of the unit.

Sometimes, possible combinations of Conditions are such that entering TRO 3.0.C is warranted; in such cases, the ACTIONS specifically state a Condition corresponding to such combinations and also that TRO 3.0.C be entered immediately.

This Technical Requirement delineates the time limits for placing the unit in a safe MODE or other specified condition when operation cannot be maintained within the limits for safe operation as defined by the TRO and its ACTIONS. It is not intended to be used as an operational convenience that permits routine voluntary removal of redundant systems or components from

service in lieu of other alternatives that would not result in redundant systems or components being inoperable.

Upon entering TRO 3.0.C, 1 hour is allowed to prepare for an orderly shutdown before initiating a change in unit operation. This includes time to permit the operator to coordinate the reduction in electrical generation with the load dispatcher to ensure the stability and availability of the electrical grid. The time limits specified to reach lower MODES of operation permit the shutdown to proceed in a controlled and orderly manner that is well within the specified maximum cooldown rate and within the capabilities of the unit, assuming that only the minimum required equipment is OPERABLE. This reduces thermal stresses on components of the Reactor Coolant System and the potential for a plant upset that could challenge safety systems under conditions to which this Technical Requirement applies. The use and interpretation of specified times to complete the actions of TRO 3.0.C are consistent with the discussion of Section 1.3, Completion Times.

A unit shutdown required in accordance with TRO 3.0.C may be terminated and TRO 3.0.C exited if any of the following occurs:

a. The TRO is now met.

b. A Condition exists for which the Required Actions have now been performed.

c. ACTIONS exist that do not have expired Completion Times. These Completion Times are applicable from the point in time that the Condition is initially entered and not from the time TRO 3.0.C is exited.

d. An exception as per TRO 3.0.H has been implemented via an approved Reasonable Assurance of Safety.

The time limits of Technical Requirement 3.0.C allow 37 hours for the unit to be in MODE 5 when a shutdown is required during MODE 1 operation.

If the unit is in a lower MODE of operation when a shutdown is required, the time limit for reaching the next lower MODE applies.

If a lower MODE is reached in less time than allowed, however, the total allowable time to reach MODE 5, or other applicable MODE, is not reduced. For example, if MODE 3 is reached in 2 hours, then the time allowed for reaching MODE 4 is the next 11 hours, because the total time for reaching MODE 4 is not reduced from the allowable limit of 13 hours. Therefore, if remedial measures are completed that would permit a return to MODE 1, a penalty is not incurred by having to reach a lower MODE of operation in less than the total time allowed.

In MODES 1, 2, 3, and 4, TRO 3.0.C provides actions for Conditions not covered in other Technical Requirements. The requirements of TRO 3.0.C do not apply in MODES 5 and 6 because the unit is already in the most restrictive Condition required by TRO 3.0.C. The requirements of TRO 3.0.C do not apply in other specified conditions of the Applicability (unless in MODE 1, 2, 3, or 4) because the ACTIONS of individual Technical Requirements sufficiently define the remedial measures to be taken.

Exceptions to TRO 3.0.C are provided in instances where requiring a unit shutdown, in accordance with TRO 3.0.C, would not provide appropriate remedial measures for the associated condition of the unit. An example of this is in TRO 3.3.H, " Explosive Gas Monitoring Instruments." TRO 3.3.H has an Applicability of "During Waste Gas Holdup System Operation." Therefore, this TRO is applicable in any or all MODES. If the TRO and the Required Actions of TRO 3.3.H are not met while in MODE 1, 2, or 3, there is no safety benefit to be gained by placing the unit in a shutdown condition. The Required Action of TRO 3.3.H of "Stop operation of the waste gas holdup system" is the appropriate Required Action to complete in lieu of the actions of TRO 3.0.C. These exceptions are addressed in the individual Technical Requirements.

TRO 3.0.D

TRO 3.0.D establishes limitations on changes in MODES or other specified conditions in the Applicability when a TRO is not met. It allows placing the unit in a MODE or other specified condition stated in that Applicability (e.g., the Applicability desired to be entered) when unit conditions are such that the requirements of the TRO would not be met, in accordance with TRO 3.0.D.a, TRO 3.0.D.b, or TRO 3.0.D.c.

TRO 3.0.D.a allows entry into a LODE or other specified condition in the Applicability with the TRO not met when the associated ACTIONS to be entered permit continued operation in the MODE or other specified condition in the Applicability for an unlimited period of time. Compliance with Required Actions that permit continued operation for the unit for an unlimited period of time in a MODE or other specified condition provides an acceptable level of safety for continued operation. This is without regard to the status of the unit before or after the MODE change. Therefore, in such cases, entry into a MODE or other specified condition in the Applicability may be made in accordance with the provisions of the Required Actions.

TRO 3.0.D.b allows entry into a MODE or other specified condition in the Applicability with the TRO not met after performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering the MODE or other specified condition in the Applicability, and establishment of risk management actions, if appropriate.

The risk assessment may use quantitative, qualitative, or blended approaches, and the risk assessment will be conducted using the plant

program, procedures, and criteria in place to implement 10 CFR 50.65(a)(4), which requires that risk impacts of maintenance activities to be assessed and managed. The risk assessment, for the purpose of TRO 3.0.D(b), must take into account all inoperable Technical Specification equipment regardless of whether the equipment is included in the normal 10 CFR 50.65(a)(4) risk assessment scope. The risk assessment will be conducted using the procedures and guidance endorsed by Regulatory Guide 1.182, "Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants." Regulatory Guide 1.182 endorses the guidance in Section 11 of NUMARC 93-01, "Industry Guidelines for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." These documents address general guidance for conduct of the risk assessment, quantitative and qualitative guidelines for establishing risk management actions, and example risk management actions. These include actions to plan and conduct other activities in a manner that controls overall risk, increased risk awareness by shift and management personnel, actions to reduce the duration of the condition, actions to minimize the magnitude of risk increases (establishment of backup success paths or compensatory measures), and determination that the proposed MODE change is acceptable. Consideration should also be given to the probability of completing restoration such that the requirements of the TRO would be met prior to the expiration of ACTIONS Completion Times that would require exiting the Applicability.

TRO 3.0.D.b may be used with single, or multiple systems and components unavailable. NUMARC 93-01 provides guidance relative to consideration of simultaneous unavailability of multiple systems and components.

The results of the risk assessment shall be considered in determining the acceptability of entering the MODE or other specified condition in the Applicability, and any corresponding risk management actions. The TRO 3.0.D.b risk assessments do not have to be documents.

The Technical Requirements Manual allows continued operation with equipment unavailable in MODE 1 for the duration of the Completion Time. Since this is allowable, and since in general the risk impact in that particular MODE bounds the risk transitioning into and through the applicable MODES or other specified conditions in the Applicability of the TRO, the use of the TRO 3.0.D.b allowance should be generally acceptable as long as the risk is assess and managed as stated above.

TRO 3.0.D.c allows entry into a MODE or other specified condition in the Applicability with the TRO not met based on a Note in the Specification which states TRO 3.0.D.c is applicable. These specific allowances permit entry into MODES or other specified conditions in the Applicability when the associated ACTIONS to be entered do not provide for continued operation for an unlimited period of time and a risk assessment has not been performed. This allowance may apply to all the ACITONS or to a specific Required Action of a Specification. The risk assessments performed to justify the use of TRO 3.4.D.b usually only considers systems and

components. For this reason, TRO 3.0.D.c is typically applied to Specifications which describe values and parameters.

The provisions of this Specification should not be interpreted as endorsing the failure to exercise the good practice of restoring systems or components to OPERABLE status before entering an associated MODE or other specified condition in the Applicability.

The provisions of TRO 3.0.D shall not prevent changes on MODES or other specified conditions in the Applicability that are required to comply with ACTIONS. In addition, the provisions of TRO 3.0.D shall not prevent change on MODES or other specified conditions in the Applicability that results from any unit shutdown. In this context, a unit shutdown is defined as a change in MODE or other specified condition in the Applicability associated with transitioning from MODE 1 to MODE 2, MODE 2 to MODE 3, MODE 3 to MODE 4, and MODE 4 to MODE 5.

Upon entry into a MODE or other specified condition in the Applicability with the TRO not met, TRO 3.0.A and TRO 3.0.B require entry into the applicable Conditions and Required Actions until the Condition is resolved, until the TRO is met, or until the unit is not within the Applicability of the Technical Specification.

Surveillances do not have to be performed on the associated inoperable equipment (or on variables outside the specified limits), as permitted by TRS 3.0.A. Therefore, utilizing TRO 3.0.D is not a violation of TRS 3.0.A or TRS 3.0.D for any surveillances that have not been performed on inoperable equipment. However, TRSs must be met to ensure OPERABILITY prior to declaring the associated equipment OPERABLE (or variable within limits) and restoring compliance with the affected TRO.

TRO 3.0.E

TRO 3.0.E establishes the allowance for restoring equipment to service under administrative controls when it has been removed from service or declared inoperable to comply with ACTIONS. The sole purpose of this Technical Requirement is to provide an exception to TRO 3.0.B (e.g., to not comply with the applicable Required Action(s)) to allow the performance of required testing to demonstrate:

a. The OPERABILITY of the equipment being returned to service; or

b. The OPERABILITY of other equipment.

The administrative controls ensure the time the equipment is returned to service in conflict with the requirements of the ACTIONS is limited to the time absolutely necessary to perform the required testing to demonstrate OPERABILITY. This Technical Requirement does not provide time to perform any other preventive or corrective maintenance.

An example of demonstrating the OPERABILITY of the equipment being returned to service is reopening a Secondary Steam Isolation Valve that has been closed to comply with the Applicability statement and must be reopened to perform the TRS 3.7.B.12.

TRO 3.0.F	The corresponding Technical Specification LCO 3.0.6 that provides exceptions to cascading is not allowed for use in the TRM.
TRO 3.0.G	The corresponding Technical Specification LCO 3.0.7 that provides exceptions for special test specifications is not utilized in the TRM, since the TRM has no special test specification.
TRO 3.0.H	Allowed outage time and compensatory actions for TRM items represent judgements based on safety significance as discussed in the provisions of Generic Letter 91-18 for assessing continued operation when systems in the TRM are inoperable. The provision for altering a required action or completion time using a Reasonable Assurance of Safety as defined by the GL is the action prescribed by the GL when non-technical specification equipment is inoperable. Providing this provision eliminates the administrative burden of revising the TRM for individual or unique circumstances.

BASES

TRSs

TRS 3.0.A through TRS 3.0.D establish the general requirements applicable to all Technical Requirements and apply at all times, unless otherwise stated.

TRS 3.0.A

TRS 3.0.A establishes the requirement that TRSs must be met during the MODES or other specified conditions in the Applicability for which the requirements of the TRO apply, unless otherwise specified in the individual TRSs. This Technical Requirement is to ensure that Surveillances are performed to verify the OPERABILITY of systems and components, and that variables are within specified limits. Failure to meet a Surveillance within the specified Frequency, in accordance with TRS 3.0.B, constitutes a failure to meet a TRO.

Systems and components are assumed to be OPERABLE when the associated TRSs have been met. Nothing in this Technical Requirement, however, is to be construed as implying that systems or components are OPERABLE when:

a. The systems or components are known to be inoperable, although still meeting the TRSs; or

b. The requirements of the Surveillance(s) are known not to be met between required Surveillance performances.

Surveillances do not have to be performed when the unit is in a MODE or other specified condition for which the requirements of the associated TRO are not applicable, unless otherwise specified.

Unplanned events may satisfy the requirements (including applicable acceptance criteria) for a given TRS. In this case, the unplanned event may be credited as fulfilling the performance of the TRS. This allowance includes those TRSs whose performance is normally precluded in a given MODE or other specified condition.

Surveillances, including Surveillances invoked by Required Actions, do not have to be performed on inoperable equipment because the ACTIONS define the remedial measures that apply. Surveillances have to be met and performed in accordance with TRS 3.0.B, prior to returning equipment to OPERABLE status.

Upon completion of maintenance, appropriate post maintenance testing is required to declare equipment OPERABLE. This includes ensuring applicable Surveillances are not failed and their most recent performance is in accordance with TRS 3.0.B. Post maintenance testing may not be possible in the current MODE or other specified conditions in the

Applicability due to the necessary unit parameters not having been established. In these situations, the equipment may be considered OPERABLE provided testing has been satisfactorily completed to the extent possible and the equipment is not otherwise believed to be incapable of performing its function. This will allow operation to proceed to a MODE or other specified condition where other necessary post maintenance tests can be completed.

TRS 3.0.B

TRS 3.0.B establishes the requirements for meeting the specified Frequency for Surveillances and any Required Action with a Completion Time that requires the periodic performance of the Required Action on a "once per . . ." interval.

TRS 3.0.B permits a 25% extension of the interval specified in the Frequency. This extension facilitates Surveillance scheduling and considers plant operating conditions that may not be suitable for conducting the Surveillance (e.g., transient conditions or other ongoing Surveillance or maintenance activities).

The 25% extension does not significantly degrade the reliability that results from performing the Surveillance at its specified Frequency. This is based on the recognition that the most probable result of any particular Surveillance being performed is the verification of conformance with the TRSs. The exceptions to TRS 3.0.B are those Surveillances for which the 25% extension of the interval specified in the Frequency does not apply. These exceptions are stated in the individual Technical Requirements. An example of where TRS 3.0.B does not apply is TRS 3.8.A.2. The analysis does not support the 25% extension. Therefore, there is a Note in the Frequency stating, "TRS 3.0.B is not applicable."

As stated in TRS 3.0.B, the 25% extension also does not apply to the initial portion of a periodic Completion Time that requires performance on a "once per..." basis. The 25% extension applies to each performance after the initial performance. The initial performance of the Required Action, whether it is a particular Surveillance or some other remedial action is considered a single action with a single Completion Time.

One reason for not allowing the 25% extension to this Completion Time is that such an action usually verifies that no loss of function has occurred by checking the status of redundant or diverse components or accomplishes the function of the inoperable equipment in an alternative manner.

The provisions of TRS 3.0.B are not intended to be used repeatedly merely as an operational convenience to extend Surveillance intervals (other than those consistent with refueling intervals) or periodic Completion Time intervals beyond those specified.

TRS 3.0.C

TRS 3.0.C establishes the flexibility to defer declaring affected equipment inoperable or an affected variable outside the specified limits when a Surveillance has not been completed within the specified Frequency. A delay period of up to 24 hours or up to the limit of the specified Frequency, whichever is greater, applies from the point in time that it is discovered that the Surveillance has not been performed in accordance with TRS 3.0.B, and not at the time that the specified Frequency was not met.

This delay period provides adequate time to complete Surveillances that have been missed. This delay period permits the completion of a Surveillance before complying with Required Actions or other remedial measures that might preclude completion of the Surveillance.

The basis for this delay period includes consideration of unit conditions, adequate planning, availability of personnel, the time required to perform the Surveillance, the safety significance of the delay in completing the required Surveillance, and the recognition that the most probable result of any particular Surveillance being performed is the verification of conformance with the requirements.

When a Surveillance with a Frequency based not on time intervals, but upon specified unit conditions or operating situations (e.g., prior to entering MODE 1 after each fuel loading) is discovered to not have been performed when specified, TRS 3.0.C allows for the full delay period of up to the specified Frequency to perform the Surveillance. However, since there is not a time interval specified, the missed Surveillance should be performed at the first reasonable opportunity.

TRS 3.0.C provided a time limit for, and allowances for the performance of, Surveillances that become applicable as a consequence of MODE changes imposed by Required Actions.

Failure to comply with specified Frequencies for TRSs is expected to be an infrequent occurrence. Use of the delay period established by TRS 3.0.C is a flexibility which is not intended to be used as an operational convenience to extend Surveillance intervals.

While up to 24 hours or the limit of the specified Frequency is provided to perform the missed Surveillance, it is expected that the missed Surveillance will be performed at the first reasonable opportunity. The determination of the first reasonable opportunity should include consideration of the impact on plant risk (from delaying the Surveillance as well as any plant configuration changes required or shutting the plant down to perform the Surveillance) and impact on any analysis assumptions, in addition to unit conditions, planning, availability pf personnel, and the time required to perform the Surveillance. This risk impact should be managed through the program is place to implement 10 CFR 50.65(a)(4) and its implementation

guidance, NRC Regulatory Guide 1.182, 'Assessing and Managing Risk before Maintenance Activities at Nuclear Power Plants.' This Regulatory Guide addresses consideration of temporary and aggregate risk impacts, determination of risk management action thresholds, and risk management action up to and including plant shutdown. The missed Surveillance should be treated as an emergent condition as discussed in the Regulatory Guide. The risk evaluation may use quantitative, qualitative, or blended methods. The degree of depth and rigor of the evaluation should be commensurate with the importance of the component. Missed Surveillances for important components should be analyzed quantitatively. If the results of the risk evaluation determine the risk increase is significant, this evaluation should be used to determine the safest course of action. All missed Surveillances will be placed in the licensee's Corrective Action Program.

If a Surveillance is not completed within the allowed delay period, then the equipment is considered inoperable or the variable is considered outside the specified limits and the Completion Times of the Required Actions for the applicable TRO Conditions begin immediately upon expiration of the delay period. If a Surveillance is failed within the delay period, then the equipment is inoperable, or the variable is outside the specified limits and the Completion Times of the Required Actions for the applicable TRO Conditions begin immediately upon the failure of the Surveillance.

Completion of the Surveillance within the delay period allowed by this Technical Requirement, or within the Completion Time of the ACTIONS, restores compliance with TRS 3.0.A.

TRS 3.0.D

TRS 3.0.D establishes the requirement that all applicable TRSs must be met before entry into a MODE or other specified condition in the Applicability.

This Specification ensures that system and component OPERABILITY requirements and variable limits are met before entry into MODES or other specified conditions in the Applicability for which these system and components ensure safe operation of the unit. The provisions of this Specification should not be interpreted as endorsing the failure to exercise the good practice of restoring systems or components to OPERABLE status before entering an associated MODE or other specified condition in the Applicability.

A provision is included to allow entry into a MODE or other specified condition in the Applicability when a TRO is not met due to Surveillance not being met in accordance with TRO 3.0.D.

However, in certain circumstances, failing to meet a TRS will not result in TRS 3.0.D restricting a MODE change or other specified condition change. When a system, subsystem, division, component, device, or variable is inoperable or outside its specified limits, the associated TRS(s) are not

required to be performed, per TRS 3.0.A, which states that TRSs do not have to be performed on inoperable equipment. When equipment is inoperable, TRS 3.0.D does not apply to the associated TRS(s) since the requirement for the TRS(s) to be performed is removed. Therefore, failing to perform the Surveillance(s) within the specified Frequency does not result in a TRS 3.0.D restriction to changing MODES or other specified conditions of the Applicability. However, since the TRO is not met in this instance, TRO 3.0.D will govern any restrictions that may (or may not) apply to MODE or other specified condition changes. TRS 3.0.D dose not restrict changing MODES or other specified conditions of the Applicability when a Surveillance has not been performed within the specified Frequency, provided the requirement to declare the TRO not met has been delayed in accordance with TRS 3.0.C.

The provisions of TRS 3.0.D shall not prevent entry into MODES or other specified conditions in the Applicability that are required to comply with ACTIONS. In addition, the provisions of TRS 3.0.D shall not prevent changes in MODES or other specified conditions in the Applicability that result from any unit shutdown. In this context, a unit shutdown is defined as a change in MODE or other specified condition in the Applicability associated with transitioning from MODE 1 to MODE 2, MODE 2 to MODE 3, MODE 3 to MODE 4, and MODE 4 to MODE 5.

The precise requirements for performance of TRSs are specified such that exceptions to TRS 3.0.D are not necessary. The specific time frames and conditions necessary for meeting the TRSs are specified in the Frequency, in the Surveillance, or both. This allows performance of Surveillances when the prerequisite condition(s) specified in a Surveillance procedure require entry into the MODE or other specified condition in the Applicability of the associated TRO prior to the performance or completion of a Surveillance. A Surveillance that could not be performed until after entering the TRO Applicability would have its Frequency specified such that it is not “due” until the specific conditions needed are met. Alternately, the Surveillance may be stated in the form of a Note as not required (to be met or performed) until a particular event, condition, or time has been reached. Further discussion of the specific formats of TRSs’ annotation is found in Section 1.4, Frequency.

TRS 3.0.E

TRS 3.0.E establishes relaxation from TRS 3.0.A for performing new surveillances or modified surveillances with new acceptance criteria or new intervals. This was modeled after the Facility Operating License Condition AA.2 that was part of the relaxation for conversion to the Improved Technical Specifications. This rule is justified for application in the TRM per revision 1 to NSE-2000-3-070, “TRM.”

3.1 REACTIVITY CONTROL SYSTEMS

3.1.A Anticipated Transient Without Scram (ATWS) Mitigating Systems Actuation Circuitry (AMSAC)

TRO 3.1.A The AMSAC shall be OPERABLE to automatically initiate the auxiliary feedwater system and a turbine trip under conditions indicative of an ATWS.

APPLICABILITY: Turbine Power Greater than or equal to 40%.

----------NOTE----------
1. TRO 3.0.C is not applicable to Required Actions C.2, C.3, D.1 and D.2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. AMSAC system inoperable.	A.1 Restore AMSAC to OPERABLE.	30 days
B. Required Action and associated Completion Time of Condition A not met.	B.1 Reduce power to below 40% of turbine power.	6 hours
C. Required Actions and associated Completion Times of Condition B not met.	C.1 Enter TRO 3.0.C, AND C.2 Submit a report to the USNRC in accordance with 10CFR50.73(a)(2)(vii).	Immediately 60 days
- - - - - -NOTE - - - - - Not associated with a preplanned sequence during testing or reactor operation. - - - - - - - - - - - - - - - D. AMSAC actuation.	D.1.1 Submit report to USNRC in accordance with 10CFR50.72(b)(2)(iv)(B) AND D.1.2 10CFR50.72(b)(3)(iv)(B) AND D.2 Submit a LER in accordance with 10CFR50.73(a)(2)(iv).	4 hours 8 hours 60 days

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
TRS 3.1.A.1	Calibrate bistable setpoints for each analog AMSAC input (no more than one channel at a time).	184 days
TRS 3.1.A.2	Perform logic functional test with AMSAC output actuation bypassed.	184 days
TRS 3.1.A.3	Check lag and timer functions with the system bypassed.	184 days
TRS 3.1.A.4	Perform dynamic testing of the AMSAC software with the system bypassed.	184 days
TRS 3.1.A.5	DEMONSTRATE that final output devices have received an AMSAC output signal in response to a simulated AMSAC initiation signal.	24 months
TRS 3.1.A.6	All analog input instrumentation to the AMSAC cabinet from the first stage turbine pressure and low flow feedwater flow signals shall be calibrated and proper input into the AMSAC cabinet DEMONSTRATED.	24 months
TRS 3.1.A.7	Perform check of AMSAC modules by visual observation of status LEDs.	24 hours

BACKGROUND

The Anticipated Transients Without Scram (ATWS) Mitigating Systems Actuation Circuitry (AMSAC) system was installed (Ref. 1) to meet the requirements of 10 CFR 50.62 (Ref. 2). The AMSAC functions as a back-up to the Reactor Protection System (RPS) and provides an independent and automatic means for tripping the main turbine, initiating auxiliary feedwater flow and isolating the Steam Generator Blowdown sample and isolation lines upon detection of an ATWS event. An ATWS is an anticipated operational occurrence (such as loss of feedwater, loss of condenser vacuum, or loss of offsite power) that is accompanied by a failure of the Reactor Trip System (RTS) to shut down the reactor.

APPLICABLE SAFETY

AMSAC system is a non-safety related system which will limit the primary system (RCS) pressure to ASME service level C that is approximately 3200 psi. This will be accomplished by providing a heat sink on a postulated failure of the Reactor Protection System (RPS) to trip the reactor under conditions of low feedwater flow and high turbine power. The system is described in chapter 7 of the FSAR (Ref. 3).

The AMSAC system is non-safety related. However, the AMSAC system is classified as Augmented Quality Related with Safety Related boundaries, and support components (i.e., feedwater flow transmitters) classified as Safety Related. The logic and signal conditioning are classified as Augmented Quality Related. The AMSAC cabinet and its mounting in the Central Control Room (CCR) are classified as Safety Related. The system is governed under a Quality Assurance (QA) program that is consistent with and satisfies the guidance contained in Generic Letter 85-06 (Ref. 4).

TRO

The AMSAC system must be OPERABLE to function as back-up to the Reactor Protection System (RPS) and provide an independent and automatic means for tripping the main turbine, initiating auxiliary feedwater flow and isolating the Steam Generator Blowdown sample and isolation lines upon detection of an ATWS event.

An OPERABLE AMSAC system constitutes the following:

1. The four feedwater flow transmitters (FT-418L, 428L, 438L, 448L) and their isolators (I/I's) should be OPERABLE. If one of the feedwater flow transmitters is found to be inoperable AMSAC is still considered OPERABLE.

However, the channel of the failed transmitter should be tripped by positioning the corresponding switch (TPS/2FWS-418L, 428L, 438L, or 448L) in the test position. Tripping the channel is a conservative measure because AMSAC output would be initiated if two other feedwater flow transmitters were to indicate feedwater flow of 21% or less.

With two transmitters inoperable the AMSAC system shall be declared inoperable and placed in bypass to avoid spurious actuation of AMSAC due to a potential single failure.

2. First stage turbine pressure transmitters PT-412A, PT-412B and their isolators (I/I's) are OPERABLE.

3. AMSAC logic functions.

4. Power supply (120 VAC) is available. A power supply must be available from the normal power supply or the TSC diesel generator.

For this facility, those required support systems that upon their failure do not require declaring the AMSAC inoperable and their justification are as follows:

1. Failure of the UPS battery and the plant computer inverter (Ref. 5) do not require declaring the AMSAC inoperable. Normally the AMSAC Panel is fed from 120 VAC distribution cabinet No. 2 and is emergency backed by the TSC uninterruptible power supply (UPS). The UPS backed power source provides a reliable feed to improve system availability.

2. Technical Support Center (TSC) emergency diesel.

3. Automatic Transfer Switches OTSC-ATS-1 and OTSC-ATS-2. Should power be interrupted to MCC "K" or "L" an automatic bus transfer switch will shift to divert power from the normal supplies of Bus 313 or Bus 312 respectively to the TSC emergency diesel. This transfer switch function assures that AMSAC is capable of operation upon a loss of offsite power.

APPLICABILITY The AMSAC system is required to operate at and above 40% of turbine power (Ref. 12). The AMSAC is automatically blocked at turbine loads less than 40% by the C-20 permissive because the potential exists for spurious AMSAC actuations during start-up at the lower power levels.

At turbine power levels of 40% and above the AMSAC system is automatically armed. An AMSAC output is initiated after a predetermined time delay whenever turbine power is 40% or greater coincident with three of the four feedwater flow transmitters indicating feedwater flow of 21% or less. In the event of an ATWS at power levels below 40% of turbine power, operator action will be required to provide long-term core protection by initiating auxiliary feedwater flow.

ACTIONS

A.1

With the AMSAC system inoperable, the system must be restored to OPERABLE status within 30 days. The AMSAC system would be required in the event of an ATWS accompanied by a failure of the Reactor Trip System (RTS) to shut down the reactor. An ATWS is an anticipated operational occurrence followed by the failure of the RTS to shut down the reactor. As defined in 10 CFR 50, Appendix A, an anticipated operational occurrence means those conditions of normal operation which are expected to occur one or more times during the life of the nuclear unit.

The allowable outage time (AOT) of 30 days, which is specified by this Action, was developed using the IP3 Individual Plant Evaluation (IPE) model. The model provides an analysis of the impact of an allowed outage time (AOT) of 30 days for AMSAC. Quantification of the updated ATWS sequences that involve failure of the AMSAC yield a core damage frequency (CDF) contribution of 8.25×10^{-10} per year. For a thirty day AOT, the conditional core damage probability (CCDP) is 6.78×10^{-11} (ref.13). This value falls well below the EPRI PSA Application Guide. Additionally, a review of AMSAC not being in service for 30 days was done using the USNRC Significance Determination Process. An ATWS event would be classified as category VI translating to likelihood rating of G, which is "green" for the exposure days.

B.1

This Action shall be taken if the Required Action and associated Completion Time of Condition A have not been met.

The AMSAC system is required to operate at and above 40% of turbine power. Therefore, this Action is in place to bring the plant to a condition to which AMSAC is no longer required to be OPERABLE. The Action statement requires that power be reduced to below 40% of turbine power within 6 hours.

C.1

If the required actions and associated Completion Times of Condition A and B have not been met, entry into TRO 3.0.C is required. This action is based on not meeting the ATWS rule (specifically 10 CFR 50.62(c)(1)), which requires in part that the AMSAC system must be designed to perform its function in a reliable manner. If the system is found unreliable, the reliability requirement of the ATWS rule is not fulfilled. Information Notice 92-06 (Ref. 7) may be referenced in order to understand the importance of maintaining the reliability of the AMSAC system.

C.2

An LER may be required by 10CFR50.73(a)(2)(vii). Since the AMSAC system is designed to have two trains for ATWS mitigation in that they shutdown the reactor, and if they are both inoperable, then this condition meets the requirement for reportability.

D.1

In the event of an AMSAC actuation (not associated with a preplanned sequence during testing or reactor operation) submit a four-hour report to the USNRC per 10 CFR 50.72(b)(2)(iv)(B), and an eight-hour report per 50.72(b)(3)(iv)(B) for reactor trip and AFW actuation, respectively. This action is required to comply with the guidance of NUREG-1022 (Ref. 8).

D.2

In addition to the above reports required by Action D.1, an LER must be submitted in accordance with 10 CFR 50.73 (a)(2)(iv). This action is also required by the NUREG-1022.

SURVEILLANCE REQUIREMENTS

TRS 3.1.A.1

Surveillance requirements as reflected in Reference 10 (The USNRC's Safety Evaluation of the AMSAC system).

TRS 3.1.A.2

Surveillance requirements as reflected in Reference 10 (The USNRC's Safety Evaluation of the AMSAC system).

TRS 3.1.A.3

Surveillance requirements as reflected in Reference 10 (The USNRC's Safety Evaluation of the AMSAC system).

TRS 3.1.A.4

Surveillance requirements as reflected in Reference 10 (The USNRC's Safety Evaluation of the AMSAC system).

TRS 3.1.A.5

Surveillance requirements as reflected in Reference 10 (The USNRC's Safety Evaluation of the AMSAC system).

TRS 3.1.A.6

Surveillance requirements as reflected in Reference 10 (The USNRC's Safety Evaluation of the AMSAC system).

TRS 3.1.A.7

The AMSAC modules do not normally have a keyboard or CRT connected to them. Therefore, the only way to determine if the AMSAC modules are operating properly is through visual observation of the status LEDs in the module nose cone. Each module has a green and red status LED. If the green LED is on and the red LED is not, module operation is satisfactory. If the red status LED is on at any time (even blinking) then the module is not operating satisfactorily, regardless of the green LED status. The surveillance frequency of 24 hours was deemed satisfactory, through engineering judgement, to check AMSAC OPERABILITY (reference 14).

REFERENCES:

1. Modification MOD 88-03-033 RP, "Anticipated Transient Without Scram (ATWS) Modification.

2. Title 10, Code of Federal Regulations, Part 50.62, "Reduction of Risk From Anticipated Transients Without Scram (ATWS) Events for Light-Water-Cooled Nuclear Power Plants."

3. FSAR 7.2.2

4. Generic Letter 85-06, "Quality Assurance Guidance for ATWS Equipment that is not Safety-Related"

5. One Line Diagram 9321-F-91493, "MCC "K" & "L" One Line Diagram Administration Service BLDG"

6. Deleted

7. NRC Information Notice 92-06, "Reliability of ATWS Mitigation System and other NRC Required Equipment not Controlled by Plant Technical Specifications"

8. NUREG-1022 Latest Revision, "Event Reporting Guidelines 10 CFR 50.72 and 50.73"

9. Deleted see reference 13.

10. Letter from Joseph D. Neighbors (Commission) to John C. Brons dated February 21, 1989, "Indian Point 3, ATWS Rule (10CFR50.62)(TAC No. 59104)"

11. Deleted

12. NYPA Letter to the USNRC, Dated February 26, 1999, “ATWS Mitigating System Actuation Circuitry (AMSAC) C-20 Permissive Setpoint Basis.”

13. NYPA Memo, J. Circle to D. Celentano, Dated 03/14/01, RE-01-068, “IP3-AMSAC Revision to Technical Requirements Manual”

14. Commitment Database ID# - COM-95-05350

3.1 REACTIVITY CONTROL SYSTEMS

3.1.B Rod Position Deviation Monitor Alarm

TRO 3.1.B The rod position deviation monitor alarm shall be OPERABLE.

APPLICABILITY: MODES 1 AND 2

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. The rod position deviation monitor alarm is inoperable.	A.1 Log individual rod positions.	Once per 8 hours, AND Immediately after a load change greater than 10 percent of rated power.

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
TRS 3.1.B.1	Perform a CHANNEL CHECK of the rod position deviation monitor alarm.	12 hours
TRS 3.1.B.2	Perform a CHANNEL OPERATIONAL TEST of the rod position deviation monitor alarm.	31 days
TRS 3.1.B.3	Perform a CHANNEL CALIBRATION of the rod position deviation monitor alarm.	24 months

BASES

No bases supplied, refer to FSAR sections 7.3.2 and 7.7.2 for further information.

3.1 REACTVITY CONTROL SYSTEMS

3.1.C. BORATION SYSTEMS

3.1.C.1 Boration Systems – MODES 1, 2, 3 and 4

TRO 3.1.C.1 The following boration capability shall be OPERABLE:

a. Two charging pumps OPERABLE;
b. One boration injection flow path from the boric acid storage tank(s) (BASTs) with a minimum volume of 6100 gallons of 11 1/2 to 13% by weight (20,112 ppm to 22,735 ppm of boron) boric acid solution at a minimum of 145°F;
c. One boration injection flow path from the refueling water storage tank (RWST);
d. City water to the charging pump coolers and for flushing the concentrated boric acid piping flow path.

APPLICABILITY: MODES 1, 2, 3 and 4.

----------NOTES----------

1. The RWST with a minimum borated water volume of boric acid solution is required for operability but is controlled by Improved Technical Specifications (ITS) 3.5.4 for MODES 1, 2, 3 and 4.
2. The TRM also has a TRO 3.7.B for charging pumps 31 and 32.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One required charging pump inoperable.	A.1	Restore charging pump to OPERABLE.	72 Hours
B. One required boron injection flow path inoperable.	B.1	Restore boron injection flow path to OPERABLE.	72 Hours
C. City water not available.	C.1	Restore city water to all required charging pumps and restore flushing capability.	87 Hours
D. Required Action and Completion Time of A.1, B.1, or C.1 not met.	D.1	Be in MODE 3, AND	6 Hours
	D.2	Complete the required action of A.1, B.1 and C.1.	7 Days
E. Required Action and Completion Time of D.2 not met.	E.1	Be in MODE 5.	30 Hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
TRS 3.1.C.1.1	CHANNEL CHECK BAST Level Indication.	12 hours
TRS 3.1.C.1.2	DEMONSTRATE that heat traced portions of the boration flow path containing concentrated boric acid are greater than 145°F.	7 Days
TRS 3.1.C.1.3	DEMONSTRATE the solution temperature in the BAST(s) is greater than 145°F.	7 Days
TRS 3.1.C.1.4	DEMONSTRATE the boric acid storage system has a minimum borated water volume of 6100 gallons of 11½% to 13% by weight boric acid solution.	7 Days
TRS 3.1.C.1.5	DEMONSTRATE charging pumps are OPERABLE.	In accordance with the Inservice Testing Program
TRS 3.1.C.1.6	Perform CHANNEL CALIBRATION of boric acid makeup flow channel.	24 Months
TRS 3.1.C.1.7	Calibrate Boric Acid Tank Level Indication and temperature indicator.	24 Months
TRS 3.1.C.1.8	----------NOTE---------- This TRS is not required to be performed to meet the TRO. ---------- Calibrate volume control tank level	24 Months
TRS 3.1.C.1.9	DEMONSTRATE the capability to provide city water to charging pump cooling and verify that temporary connections available for city water flush boric acid piping.	24 Months

BASES

BACKGROUND

The Chemical Volume and Control System (CVCS) was installed to meet the requirements, in part, of proposed General Design Criteria (GDC) 27, GDC 28, and GDC 30 (Reference 1). GDC 27 requires two independent reactivity control systems of which the CVCS is one. GDC 28 requires CVCS to be capable of making and holding the core subcritical from a hot condition. GDC 30 requires one of the reactivity control systems to be capable of making the core subcritical under any credible accident conditions.

GDC 29 requires one of the reactivity control systems to be capable of making the core subcritical under any anticipated operating condition, including transients, where the most reactive rod is withdrawn sufficiently fast to prevent fuel damage limits from being exceeded. The control rods meet this requirement.

The CVCS provides control of the Reactor Coolant System boron inventory (Reference 2). This is normally accomplished by using any one of the three charging pumps in series with either one of the two boric acid transfer pumps. An alternate method of boration will be to use the charging pumps taking suction directly from the Refueling Water Storage Tank (RWST). A third method will be to depressurize and use the safety injection pumps (Reference 3) which is not considered in the TRM.

APPLICABLE SAFETY ANALYSES

The TRO helps to assure that the requirements of General Design Criteria 27 and 28 are met. The Chemical Volume and Control System malfunction assumes inadvertent dilution terminated by manual action to close the primary water makeup control valve and manual action to reborate.

TRO

The Chemical and Volume Control System provides control of the Reactor Coolant System boron inventory. This is normally accomplished by using any one of the three charging pumps in series with either one of the two boric acid transfer pumps. An alternate method of boration will be to use the charging pumps taking suction directly from the RWST.

When the reactor is above cold shutdown, a minimum of two boron injection flow paths are required to ensure high reliability of the boration function. The boration pathway from the RWST is through a single line that has three valves in series before the charging pump suction header. The boric acid transfer pathway is from one or both Boric Acid Storage Tanks (BASTs) and has several different valving arrangements and is operable as long as the pathway allows the required flow to be delivered to ensure $\geq$ 132 ppm/hr. Both pathways require the associated tanks to be operable. The LCO and surveillance requirements for the RWST are in Technical Specifications since the RWST supports emergency core cooling systems. Since these requirements are more restrictive and control required actions, a note clarifies that the Technical Specification controls action with an inoperable RWST.

The boron capability of either flowpath is sufficient to provide the minimum required boration flowrate.

The quantity of boric acid in storage from either the boric acid storage system or the RWST is sufficient to borate the reactor coolant in order to reach cold shutdown at any time during core life.

A combined minimum deliverable volume of 6100 gallons with an averaged concentration of the 11 1/2% to 13% by weight (20,112 ppm to 22,735 ppm of boron) of boric acid are required to meet cold shutdown conditions (borate to cold shutdown after full power operation was achieved following refueling (Reference 2)) . An upper concentration limit of 13% (22,735 ppm of boron) boric acid in the boric acid storage tanks is specified to maintain solution solubility at the specified low temperature limit of 145^{o}F. Each BAST has two electric heaters and one heater is sufficient to maintain the required temperature. The boration flow path has two channels of heat tracing. One channel of heat tracing is sufficient to maintain borated water above the solubility low temperature limit in the flow path to the charging pump header. The second channel of heat tracing provides backup when one channel is inoperable. Should all heat tracing become inoperable or the BAST temperature fall below 145^{o}F, the boron injection path is considered inoperable. However, the reactor can be shutdown and borated from the RWST.

The city water system is used as a source of water for emergency cooling of the charging pumps and as a source of flush water to remove concentrated boric acid from the piping between the outlet of the BASTs and the inlet to the charging pumps in the unlikely event of a complete loss of electrical power and/or loss of service water or component cooling water. The city water is backup for the loss of all AC power since the planned response uses the Appendix R diesel to power the charging pumps and the component cooling water that cools the charging pump. The original FSAR (Reference 4) identified a complete loss of service water resulting from turbine missiles and the TRO was written to address that event (Reference 5).

ACTIONS

A.1

With one required charging pump inoperable the two boron injection flow paths remain operable but subject to failure of the remaining charging pump. Restoring a second charging pump within 72 hours restores redundancy. The completion time of 72 hours is generally sufficient to restore equipment to operation. The 72 hours is acceptable since, with one charging pump available, there are still two reactivity control systems (i.e., the control rods and the remaining boration pathway) to bring the plant to MODE 3.

B.1

With one required boron injection flow path inoperable, restoring the other boron injection flow path within 72 hours restores redundancy. The

completion time of 72 hours is generally sufficient to restore equipment to operation. The 72 hours is acceptable since, with one boration pathway unavailable, there are still two reactivity control systems (i.e., the control rods and the remaining boration pathway) to bring the plant to MODE 3. This is acceptable for the reasons discussed in A.1.

C.1

If there is a loss of city water to one or more charging pumps, those pumps are not operable for the station blackout event (loss of all AC power) until the Appendix R diesel is started and powers charging and component cooling water. The NSE removing the turbine missile event from the FSAR did not clearly eliminate the event as an accident. The 87 hour allowed outage time is based on the remote probability (i.e., less than 1.0E-7) that the event will occur (less than 1.0 E-5) during the allowed outage time.

D.1

If the required action of A cannot be met within the associated completion time, the plant must be placed in a condition in which need for the boron injection function is reduced. This is accomplished by placing the plant in MODE 3 and borating to assure shutdown margin per Technical Specifications.

D.2

The completion time of 7 days in MODE 3 is sufficient to correct equipment problems not correctable at power and is acceptable since the plant has been borated but not placed through the cooldown transient. The discussion of alternate equipment and USNRC approved time limits in A.1 and B.1 is applicable.

E.1

If the required action of C cannot be met within the associated completion time, the plant must be placed in a condition in which the TRO requirements are not applicable. Placing the plant in MODE 5 achieves this.

SURVEILLANCE REQUIREMENTS

TRS 3.1.C.1.1

The CHANNEL CHECK of the BAST level indication is intended to ensure that the operators have the instrumentation necessary for determining BAST level. There will be zero level indication on loss of signal in the Foxboro bubbler or in the Radar Continuous Monitoring Instrumentation (RCMI). Blockage of the bubbler will cause a “Fail High” indication. The RCMI may not operate properly during transfer and at a level from approximately 60% to 65%.

Failure of the instrument would not render the BAST inoperable since the level indication has alternate means of verifying injection to the core during boration (References 7 and 8). The CHANNEL CHECK serves to provide a shift check of level.

TRS 3.1.C.1.2

DEMONSTRATION that the heat traced portions of the boron injection flow path to the charging pump header are above the solubility temperature ensures that the heat trace is operable and that the boric acid will remain in solution. Portions of the boric acid flow path that are not required to establish flow are not required to be operable to meet the TRO. The frequency of 7 days is acceptable since there is a low temperature alarm in the Control Room (Reference 2) and a second heat tracing circuit. The solubility temperature is assured by using a surveillance criterion with margin (e.g., 145^{o}F) and taking compensating action (e.g., shift readings) if the alarm is not working.

TRS 3.1.C.1.3

DEMONSTRATION that the BAST is at or above 145^{o}F ensures that the boric acid will remain in solution. This also assures that at least one mechanism for heating each BAST in operation remains operable. The frequency of 7 days is acceptable since there is a low temperature alarm in the Control Room (Reference 2) and a second heater.

TRS 3.1.C.1.4

DEMONSTRATION that the BAST(s) have a minimum of 6100 gallons of borated water at the required boron concentrations ensures that there is sufficient boric acid to borate the reactor coolant in order to reach cold shutdown at any time in core life. The frequency of 7 days is acceptable since there is a low level alarm in the Control Room (Reference 2).

TRS 3.1.C.1.5

DEMONSTRATING that the charging pumps are operable in accordance with the IST program assures that the pumps are performing within their design limits. This test verifies developed flow to ensure that pump performance has not degraded. The frequency is in accordance with the Inservice Testing Program. The test provides reasonable assurance that the required flow of boric acid could be delivered.

TRS 3.1.C.1.6

CHANNEL CALIBRATION of the boric acid makeup flow channel assures the operators that the instrumentation is accurate and allows assessment of flow capability during operation.

TRS 3.1.C.1.7

Each tank has a Radar Continuous Level Monitoring Instrument (RCMI) and a Foxboro bubbler level instrument that are calibrated every 24 months to assure that operators are provided with an indicator per tank for operability to provide information on the level of boric acid solution in the BAST. Local indication, CCR indication and a low-level alarm are provided from either the RCMI transmitter or the Foxboro bubbler level signals. In addition, provisions for dipstick level measurement is available for both tanks, but this method cannot be credited for operability since the RCMI level instruments are credited as an alternate means for verifying boron injection during boration (Reference 7). Each temperature indicator (TIC-103 and 107) is calibrated every 24 months to assure that it provides operators with correct information on the temperature of the boric acid solution in the BAST.

TRS 3.1.C.1.8

The volume control tank level indicator is a Regulatory Guide 1.97 instrument (Type D, Category 2) which is not required for system operability. The 24 month calibration assures that it is functioning properly.

TRS 3.1.C.1.9

DEMONSTRATION that the valves are OPERABLE and temporary connections available provides assurance of the OPERABILITY of the flow path for city water to the charging pumps and boric acid piping. This ensures that this water can be provided as backup for the station blackout and for a fire requiring use of the Appendix R diesel for shutdown. In both cases, the charging system is relied upon for boration to shutdown and CCW is made available by power from the Appendix R diesel. This will also assure availability for the turbine missile event.

REFERENCES:

1. Proposed Title 10, Code of Federal Regulations, Part 50 Appendix A, "General Design Criteria For Nuclear Power Plant Construction Permits", Criterion 27, "Redundancy of Reactivity Control," Criterion 28, "Reactivity Hot Shutdown Capability," Criterion 29, "Reactivity Shutdown Capability," and Criterion 30, "Reactivity Holddown Capability," published in Federal Register July 11, 1967

2. FSAR 9.2

3. Revised Feasibility Report For BIT Elimination For Indian Point Unit 3, " July 1988 (Westinghouse Report).

4. FSAR 14.A

5. NRC Inspection Report 74-02

6. NRC "Final Policy Statement on Technical Specifications Improvements for Nuclear Power Reactors," dated July 22, 1993.

7. NSE 98-3-095-CVCS, Rev. 1, “Radar Level Measuring System for Boric Acid Storage Tanks 31 & 32.”

8. 10 CFR 50.59 Evaluation 98-3-095CVCS, Revision 0; January 2003; regarding DCP 98-3-095 Revision 2.

3.1 REACTIVITY CONTROL SYSTEMS

3.1.C. BORATION SYSTEMS

3.1.C.2 Boration Systems - MODES 5 and 6

TRO 3.1.C.2 Boration injection capability shall be maintained by keeping at least one flow path to the core OPERABLE.

APPLICABILITY: MODES 5 and 6.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. The required boron injection path inoperable.	A.1 Suspend all operations involving core alterations and positive reactivity changes. AND A.2 Restore boron injection capability.	Immediately Immediately

----------NOTE----------

1. Surveillance Requirements are only required to be met when their associated components are being credited to meet the TRO.

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
TRS 3.1.C.2.1	CHANNEL CHECK BAST Level Indication.	12 Hours
TRS 3.1.C.2.2	DEMONSTRATE that heat traced portions of the boration flow path containing a high concentration of boric acid are greater than 145°F.	7 Days
TRS 3.1.C.2.3	DEMONSTRATE the solution temperature in the Boric Acid Storage Tank(s) is greater than 145°F.	7 Days
TRS 3.1.C.2.4	DEMONSTRATE the boric acid storage system has a minimum borated water volume of 6100 gallons of 11½% to 13% by weight boric acid solution.	7 Days
TRS 3.1.C.2.5	DEMONSTRATE RWST borated water level is ≥35.4 feet.	7 Days
TRS 3.1.C.2.6	DEMONSTRATE RWST boron concentration is ≥2400 ppm and ≤2600 ppm.	31 Days
TRS 3.1.C.2.7	DEMONSTRATE charging pumps are OPERABLE.	In accordance with the Inservice Testing Program

BASES

BACKGROUND

The Chemical Volume and Control System (CVCS) was installed to meet the requirements, in part, of proposed General Design Criteria (GDC) 27, GDC 28, and GDC 30 (References 1 and 2). GDC 27 requires two independent reactivity control systems of which the CVCS is one. GDC 28 requires CVCS to be capable of making and holding the core subcritical from a hot condition. GDC 30 requires one of the reactivity control systems to be capable of making the core subcritical under any credible accident conditions.

APPLICABLE SAFETY ANALYSES

The TRO helps to assure that the requirements of General Design Criteria 27 and 28 are met. The Chemical Volume and Control System malfunction assumes inadvertent dilution terminated by manual action to close the primary water makeup control valve and manual action to reborate.

TRO

The Chemical and Volume Control System provides control of the Reactor Coolant System boron inventory. This is normally accomplished by using any one of the three charging pumps in series with either one of the two boric acid transfer pumps. An alternate method of boration will be to use the charging pumps taking suction directly from the Refueling Water Storage Tank (RWST). Boron control in the vessel is not required when there is no fuel in the reactor.

When the reactor is in MODEs 5 or 6, one boron injection flow path (powered by an emergency power source to ensure operation with a loss of offsite power) is required to ensure functional capability in the event inventory control or boration is required. The following define the flow path:

1. One charging pump and boration injection flow path from the Boric Acid Storage Tanks (BASTs).
2. One charging pump and boration injection flow path from the RWST.
3. High head safety injection from the RWST when allowed by Technical Specifications.
4. Any flow path defined by the risk assessment process and implemented by approved procedures when the Reactor Coolant System is vented.

The boration pathway from the RWST is through a single line that has three valves in series before the charging pump suction header. The boric acid transfer pathway is from one or both BASTs and has several different valving arrangements and is OPERABLE as long as the pathway allows the required flow to be delivered. Both pathways require the associated tanks to be OPERABLE.

The quantity of boric acid in storage from either the boric acid storage system or the RWST must be sufficient to maintain the level of boron in the reactor coolant necessary to maintain cold shutdown at any time during core life. The value for the first two flow paths is based on the amount to accomplish this during operation unless a different value is demonstrated by calculation. Risk assessment determines the values for other flow paths.

The TRM provides for the ability to use alternate means to establish boration. This TRM is intended to allow flexibility in the use of boration capability after the plant has been shutdown and before fuel is removed. For example, if the plant were shutdown and ready to remove fuel, the risk assessment process might define RWST gravity feed as a boration injection flow path in order to allow other equipment to be out of service.

ACTIONS

A.1

With the boron injection capability inoperable, the suspension of operations involving core alterations and positive reactivity changes will ensure that the potential for adding positive reactivity to the core is minimized.

A.2

With boration inoperable, efforts to restore boration should be made. This could include the use of alternate boration pathways or restoring one of the identified boration pathways. There is no fixed time for completion because fuel cannot be moved.

SURVEILLANCE REQUIREMENTS

TRS 3.1.C.2.1

The CHANNEL CHECK of the BAST level indication is intended to ensure that the operators have the instrumentation necessary for determining BAST level. There will be zero level indication on loss of signal in the Foxboro bubbler or in the Radar Continuous Monitoring Instrumentation (RCMI). Blockage of the bubbler will cause a “Fail High” indication. The RCMI may not operate properly during transfer and at a level from approximately 60% to 65%. Failure of the instrument would not render the BAST inoperable since the level indication has alternate means of verifying injection to the core during boration (References 3 and 4). The CHANNEL CHECK serves to provide a shift check of level.

TRS 3.1.C.2.2

DEMONSTRATION that the heat traced portions of the boron injection flow path to the charging pump header are above the solubility temperature ensures that the heat trace is operable and that the boric acid will remain in solution. Portions of the boric acid flow path that are not required to establish flow are not required to be operable to meet the specification. The frequency of 7 days is acceptable since there is a low temperature alarm in the Control Room (Reference 2) and a second heat tracing circuit. The solubility temperature is assured by using a surveillance criterion with margin (e.g., 145^{o}F) and taking compensating action (e.g., shift readings) if the alarm is not working.

TRS 3.1.C.2.3

DEMONSTRATION that the BAST is at or above 145°F ensures that the boric acid will remain in solution. This also assures that at least one mechanism for heating each BAST in operation remains operable. The frequency of 7 days is acceptable since there is a low temperature alarm in the Control Room (Reference 2) and a second heater.

TRS 3.1.C.2.4

DEMONSTRATION that the BAST(s) have a minimum of 6100 gallons of borated water at the required boron concentrations ensures that there is sufficient boric acid to borate the reactor coolant in order to reach MODE 5 at any time in core life.

This will conservatively assure that the reactor may be kept in MODE 5 or 6 while in that condition. The frequency of 7 days is acceptable since there is a low level alarm in the Control Room (Reference 2).

TRS 3.1.C.2.5

DEMONSTRATION that the RWST has a minimum of 35.4 feet water to ensure that there is sufficient boric acid to borate the reactor coolant in order to reach MODE 5 at any time in core life. This will conservatively assure that the reactor may be kept in MODE 5 or 6 while in that condition.

TRS 3.1.C.2.6

DEMONSTRATION that the RWST has a minimum required boron concentration ensures that there is sufficient boric acid to borate the reactor coolant in order to reach MODE 5 at any time in core life. This will conservatively assure that the reactor may be kept in MODE 5 or 6 while in that condition.

TRS 3.1.C.2.7

DEMONSTRATING that the charging pumps are operable in accordance with the IST program assures that the pumps are performing within their design limits. This test verifies developed head to ensure that pump performance has not degraded. The frequency is in accordance with the Inservice Testing Program. The test provides reasonable assurance that the required flow of boric acid could be delivered.

REFERENCES

1. Proposed Title 10, Code of Federal Regulations, Part 50 Appendix A, "General Design Criteria For Nuclear Power Plant Construction Permits", Criterion 27, "Redundancy of Reactivity Control," published in Federal Register July 11, 1967.

2. FSAR 9.2.

3. NSE 98-3-095-CVCS, Rev. 1, “Radar Level Measuring System for Boric Acid Storage Tanks 31 & 32.”

4. 10 CFR 50.59 Evaluation 98-3-095CVCS, Revision 0; January 2003; regarding DCP 98-3-095 Revision 2.

3.2 POWER DISTRIBUTION LIMITS

3.2.A Quadrant Power Tilt Deviation Alarm

TRO 3.2.A The Quadrant Power Tilt Deviation Alarm shall be OPERABLE (i.e. set to annunciate when the excore tilt ratio exceeds 1.02.)

APPLICABILITY: MODE 1 with RATED THERMAL POWER greater than 50% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or both of the quadrant power tilt monitors is inoperable.	A.1 Perform a manual Quadrant Power Tilt Ratio calculation.	Once per 12 hours, AND Immediately after a load change greater than 10% of rated power.

SURVEILLANCE

	SURVEILLANCE	FREQUENCY
TRS 3.2.A.1	Perform a CHANNEL CHECK.	31 days
TRS 3.2.A.2	Perform a CHANNEL CALIBRATION.	24 months

BASES

The quadrant tilt power deviation alarm is used to indicate a sudden or unexpected change from the radial power distribution. The two percent tilt alarm setpoint represents a minimum practical value consistent with instrumentation errors and operating procedures. This asymmetry level is sufficient to detect significant misalignment of control rods. Misalignment of control rods is considered to be the most likely cause of radial power asymmetry.

REFERENCES:

1. FSAR 3.2.1.1
2. FSAR 7.4.1
3. FSAR 7.6.2

3.3 INSTRUMENTATION

3.3.A Qualified Safety Parameter Display System (QSPDS)

TRO 3.3.A The QSPDS shall be OPERABLE.

APPLICABILITY: MODES 1, 2 and 3.

---------- NOTE ----------
TRO 3.0.C is not applicable to Required Action B.1.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more channels (A, B, N) of QSPDS INOPERABLE.	A.1 Enter applicable Conditions of Technical Specification LCO 3.3.3 as appropriate, AND A.2 Restore QSPDS channels(A or B) to OPERABLE status, AND A.3 Restore channel N to OPERABLE Status, AND A.4 Restore both channel A and B to OPERABLE status.	Immediately 7 days 7 days 30 days
B. Required Action and associated Completion Time of Condition A.2, A.3, or A.4 not met.	B.1 Provide a written report to On-Site Safety Review Committee detailing the specifics of the channel inoperability and the corrective action required to return the channel to operability.	14 days

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
TRS 3.3.A.1	----------NOTES ---------- 1) For channel N inoperability, look for “system error” flag in lower right corner of display and check diagnostic page. 2) Loss of plasma display unit renders associated channel A or B inoperable. --- Perform instrument CHANNEL CHECK.	24 hours
TRS 3.3.A.2	Perform instrument CHANNEL CALIBRATIONS on each QSPDS channel. Only one (1) channel at a time shall be calibrated.	24 months

BASES

BACKGROUND

A Safety Parameter Display System (SPDS) is required by NUREG-0737, Supplement I. This supplement was communicated to licensees via Generic Letter 82-33. The SPDS that has been installed at Indian Point 3 is composed of the Critical Functions Monitoring System (CFMS) and Qualified Safety Parameter Display System (QSPDS). The QSPDS is qualified to seismic Class I and electrical Class 1E standards. The QSPDS was installed by modification, MOD 82-3-049 COMP, under Safety Related requirements. It is maintained and tested under these requirements.

TRO

The purpose of the QSPDS is to provide a concise display of critical plant variables to the control room operators to aid them in rapidly and reliably determining the safety status of the plant. Principally, this is for the control room operators use during abnormal and emergency plant conditions in determining not only the safety status of the plant, but also in assessing whether these conditions warrant corrective actions in order to avoid a degraded reactor core. This information can be particularly important during anticipated transients and the initial phase of an accident. An OPERABLE QSPDS constitutes the required supplied signals through optical isolator to the QSPDS chassis A, B, and N and on to the plasma display.

APPLICABILITY

This TRO is applicable in MODEs 1, 2 and 3 which coincides with the applicability of Technical Specifications (TS) LCO 3.3.3, “Post Accident Monitoring (PAM) Instrumentation.” This is acceptable since the purpose of QSPDS is to support PAM instruments.

ACTIONS

A.1 This action ensures entry into the applicable TS Condition statement for LCO 3.3.3. This action is needed because some of these PAM instruments rely on the QSPDS in order to meet the requirements of RG 1.97 for their qualified display in that it is immediately accessible with continuous readout. These instruments include but not limited to Neutron Flux Detectors N38 & N39, Core Exit Thermocouples and RCS Subcooling indication.

A.2 This action ensures that at least one of the inoperable A or B channels of QSPDS is restored in a timely manner. The completion time of 7 days coincides with the completion time in the TS 3.3.3. for restoring at least one channel of PAM instruments.

A.3 This action ensures that channel N of QSPDS is restored in a timely manner since channel N supports both channel A and B display channels for some instrumentation. The completion time of 7 days coincides with the completion time in the TS 3.3.3 for restoring at least one channel of PAM instruments.

A.4 This action ensure that both A and B channel of QSPDS are restored within 30 days. This completion time coincides with the completion time for restoring the full complement of channels for the PAM instruments.

SURVEILLANCE REQUIREMENTS

TRS 3.3.A.1

The performance of the instrument CHANNEL CHECK on a daily basis ensures that a complete channel failure has not occurred for the QSPDS channels A, B and N. This instrument CHANNEL CHECK consists of verifying that both plasma display units, one for Channel A and one for Channel B, are energized and displaying information. Channel N operation is verified by checking the diagnostic page for system errors for other than Critical Function Monitoring System (CFMS) communication errors. This daily instrument CHANNEL CHECK is documented on the Control Room logs.

TRS 3.3.A.2

The performance of the instrument CHANNEL CALIBRATION on each QSPDS chassis demonstrates the operability of the QSPDS chassis A, B and N. This instrument CHANNEL CALIBRATION ensures channel OPERABILITY from supplied signals through optical isolator to the QSPDS chassis A, B, and N and on to the plasma display. These surveillances are performed on a refueling outage basis based on the past reliability of the system and on the plant being in MODE 5, a condition that allows the QSPDS to be available for this calibration.

REFERENCES:

1. FSAR 7.4.1
2. FSAR 7.5.2

3.3 INSTRUMENTATION

3.3.B Meteorological Monitoring Instrumentation

TRO 3.3.B The Meteorological Monitoring Instrument Channel per Table 3.3.B-1 shall be OPERABLE.

APPLICABILITY: At all times.

----------NOTE----------
1. TRO 3.0.C is not applicable.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. The Meteorological Monitoring Instrument Channel is inoperable.	A.1 DEMONSTRATE the ability to obtain meteorological data, using IP-EP-510, AND ----------NOTE---------- Action A.2 is NOT required when IP3 control room meteorological display and/or strip chart recorder are the only inoperable equipment. ----------	1 hour
	A.2 Notify IP2 of system inoperability, AND	1 hour
	A.3 Restore the inoperable Meteorological Instrument Channel to OPERABLE status.	7 days
B. Required Actions and associated Completion Times of Condition A.3 not met.	B.1 Prepare and submit a Special Report to the On-Site Safety Review Committee outlining the actions taken, the cause of the inoperability and the plans for restoring the meteorological monitoring instrumentation channel(s) to OPERABLE status.	10 days

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
TRS 3.3.B.1	----------NOTE---------- Control Room display on the back of the Flight Panel and the Meteorological Strip Chart Recorder are not required to meet the TRO. ---------- Perform CHANNEL CHECK.	24 hours
TRS 3.3.B.2	----------NOTE---------- This surveillance is not required to be performed to meet the TRO. ---------- Perform calibration of meteorological strip chart recorder.	24 months
TRS 3.3.B.3	----------NOTE---------- This surveillance is not required to be performed to meet the TRO when primary power source is available. ---------- DEMONSTRATE Meteorological Diesel Generator OPERABILITY by starting and running for 15 minutes.	31 days
TRS 3.3.B.4	----------NOTE---------- This surveillance is not required to be performed to meet the TRO when primary power source is available. ---------- DEMONSTRATE Diesel Generator Automatic Power Transfer by simulating power loss.	12 months
TRS 3.3.B.5	Perform CHANNEL CALIBRATION.	184 days
TRS 3.3.B.6	Perform CHANNEL OPERATIONAL TEST.	184 days

TABLE 3.3.B-1

Meteorological Monitoring Instrumentation Channels

Instrument Channels	Instrument Channel Minimum Accuracies	Minimum Operable Channels
1. WIND SPEED[1] A. 10m	$\pm$ 0.5 mph	1
2. WIND DIRECTION[1] A. 10m	$\pm$ 5°	1
3. ATMOSPHERIC STABILITY (PASQUILL CATEGORY) [2] A. 60 - 10m	$\pm$ 0.1°C for temperature inputs	1

Note 1 The 60m and 122m level instruments are not required to meet the TRO but are maintained to support Indian Point 2 requirements.

Note 2 The 122-10m delta temperature instruments are not required to meet the TRO but are maintained to support Indian Point 2 requirements.

BASES

BACKGROUND

The meteorological monitoring instrumentation system was installed to meet the requirements, in part, of 10 CFR 50 Appendix A (Reference 1), 10 CFR 50 Appendix E (Reference 2), and 10 CFR 50.47(b)(9) (Reference 3). These sections require that adequate methods, systems, and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency be available.

Guidance on the meteorological monitoring requirements is provided in NUREG-0737 (Reference 4), NUREG-0654 (Reference 5), Regulatory Guide 1.23 (Reference 6), and Regulatory Guide 1.97 (Reference 7).

NUREG-0737 required that each nuclear facility "upgrade its emergency plans to provide reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. Specific criteria to meet this requirement is delineated in NUREG-0654." NUREG-0737 also provided a schedule of implementation milestones to be met in order to address the introduction of NUREG-0654, Appendix 2. Letter IPN-80-117 (Reference 8) addressed each item of NUREG-0737 that was applicable to Indian Point 3 (IP3) and which had not been previously identified as complete. IP3 agreed to the staged implementation schedule required by the NUREG in this letter.

NUREG-0654 was issued, in part, to provide a basis for the development of radiological emergency plans and the improvement of emergency preparedness. Appendix 2 of NUREG-0654 states that "the emergency facilities and equipment as stated in Appendix E to 10 CFR Part 50 shall include '(E)quipment for determining the magnitude of and for continuously assessing the impact of the release of radioactive materials to the environment.' To address this requirement, in part, the nuclear power plant operator shall have meteorological measurements from primary and backup systems. Each site ... shall have a primary meteorological measurements system. The primary system shall produce current and record historical local meteorological data ... The acceptance criteria for meteorological measurements are described in the proposed Revision 1 to U.S. NRC Regulatory Guide 1.23."

Regulatory Guide (RG) 1.23 provides information on meteorological instrument accuracy and meteorological instrument maintenance and servicing schedules. The meteorological instrument accuracies are listed in Table 3.3.B-1. The guidance from RG 1.23 section C.4 and C.5 on meteorological maintenance and servicing schedules is reflected in the "Surveillance Requirements" section of this Technical Requirement.

RG 1.97 describes a method for complying with the NRC's regulations to provide instrumentation to monitor, display and record plant variables and systems during and following an accident. Table 3 of the RG lists meteorological variables and the minimum ranges these variables should operate within. In addition, RG 1.97 stated that information gathered by these parameters "may be continually updated, stored in computer memory, and displayed on demand. Intermittent displays such as data loggers and scanning recorders may be used if no significant transient response information is likely to be lost by such a device."

The NRC issued a Confirmatory Order (Reference 9), requiring that IP3 perform certain additional actions to increase the margin of public health and safety. Included in the Order were a number of interim measures that pertained to the meteorological program and to Control Room instrumentation. Annex 1 to the Order laid out the meteorological acceptance criteria for emergency preparedness. The Annex essentially described the meteorological program as found in NUREG-0654 and added additional acceptance criteria from NUREG-75/087 section 2.3.3 (Reference 10).

NUREG-75/087, section 2.3.3 states that "Generally, the onsite meteorological programs must produce data which can be summarized to provide an adequate meteorological description of the site and its vicinity for the purpose of making atmospheric diffusion estimates for accidental and routine airborne releases of effluents. Guidance on an adequate program is given in Regulatory Guide 1.23."

IP3's response to the Confirmatory Order, letter IPN-80-77 (Reference 11), was to perform a detailed review of the meteorological program. The results of the review were that IP3 and IP2 complied with the Annex 1 meteorological criteria.

The NRC issued Generic Letter (GL) 82-33 (Reference 12) as a supplement to NUREG-0737. One purpose of the letter was to provide additional clarification regarding the application of RG 1.97 to emergency response facilities. In addition, the letter required licensees to evaluate how their post-accident monitoring instrumentation in the Control Room met the content of RG 1.97. Letter IPN-86-05 (Reference 13) outlined the status of IP3's compliance with RG 1.97 (e.g., the actual ranges that the meteorological variables should operate in and IP3's compliance with the requirements for data recording). The letter indicated that IP3 met the data recording requirements and also included the actual variable ranges used by the plant.

The meteorological variable ranges required by the RG are as follows:

Wind Direction	required: 0 to 360^{o}
Wind Speed	required: 0 to 50 mph
Atmospheric Stability (for Temperature inputs)	*required: -5 to 10^{o}C

*Note: The actual range (-4.44 to 11^{o}C) was deemed acceptable.

NRC Inspection Report 85-17 (Reference 14) documented a conversation between the NRC and IP3. During the conversation, the NRC stated that "Unit 2 technical specifications require that meteorological monitoring instrumentation channels be operable at all times with indication of the tabulated parameters available in the control room." As a result, the Authority stated that a method would be instituted to verify the readouts in the control room as well as at the meteorological tower. NRC Inspection Report No. 87-23 (Reference 15) closed this unresolved item. In this Inspection Report, the NRC stated, "The licensee has installed a meteorological tower display in the control room demand metering panel. The panel displays wind speed, wind direction, Pasquill category and the time of the last data update. The inspector reviewed Nuclear Safety Evaluation 87-03-049 INST, Rev. 0 for the modification."

In 1991, the NRC issued a Safety Evaluation (Reference 16) which re-evaluated IP3's conformance to RG 1.97. The evaluation was performed as a follow-up to determine if and how we were conforming to the contents of GL 82-33. Contained in this evaluation was the NRC's conclusion that "... the licensee (IP-3) has provided an explicit commitment on conformance to RG 1.97."

NRC Inspection Report 92-17 (Reference 17) documented an inspection involving IP3's Radiological Environmental Monitoring Program. The purpose of the inspection, in part, was to review the "meteorological monitoring program to determine whether the instrumentation and equipment were operable, calibrated and maintained in accord with licensee's requirements ... Based on the review of the program and discussions with the licensee's representatives, the inspector determined that overall the licensee has implemented an effective Meteorological Monitoring Program."
In addition to the above NRC commitments, IP3 will comply with the requirements of other outside agencies. These agencies include the Federal Aviation Administration, Environmental Protection Agency, etc.

APPLICABLE SAFETY ANALYSES

The meteorological system is described in FSAR chapter 2.6 (Reference 18), Emergency Plan Procedure, IP-EP-510, "Meteorological, Radiological & Plant Data Acquisition System" (Reference 19), and Nuclear Safety Evaluation 87-03-049 INST (Reference 20). The meteorological measurements program consists of primary and backup systems. The primary system consists of a 122m instrumented tower which provides measurements for wind speed and wind direction at a minimum of two levels, one of which is representative of the 10 meter level. Data obtained from the 10m elevation of the meteorological tower is transmitted through a computer system to a meteorological LED display panel in the Control Room. IP3 maintains responsibility of the Meteorological Monitoring Program, except for the Meteorological Computer System, which is the responsibility of IP2. The meteorological tower display indicates wind speed, wind direction, Pasquill Category and the time of the last update. The output to the LED display panel is the result of a fifteen minute average of computated data from the Meteorological Computer System. The LEDs are updated every fifteen minutes. Also located in the control room is a two-pen variable trend recorder (strip chart) which is used to trend wind speed and wind direction. The data displayed represents a 15-minute average.

In the event of a power outage, a diesel generator has been installed to provide immediate power to the meteorological tower system.

In the event of a failure of the primary meteorological measurement system, a backup meteorological system is used. Changeover from the primary system to the backup system occurs automatically.

This system is independent of the primary system and consists of two instrumented meteorological towers, a primary backup tower and a standby backup tower. The backup meteorological tower records wind direction and speed measurements at the 10m level. The backup system provides information in the real-time mode. In the event of primary power failure, power is supplied for six days by a battery located adjacent to the tower. In the event of a failure of the backup meteorological measurement system, changeover from the backup system to the standby system is accomplished manually.

TRO

The Meteorological Monitoring Instrument Channel must be OPERABLE to allow adequate assessing, monitoring and recording of actual or potential offsite consequences of a radiological emergency.

An OPERABLE Meteorological Monitoring Instrument Channel constitutes the following:

1. Instrumentation on the primary meteorological tower for providing wind direction and speed measurement, representative of the 10m level per Table 3.3.B-1, shall be OPERABLE.

2. The Meteorological Computer System shall be OPERABLE.

3. Power supply is available. A power supply must be available from the normal power supply or the meteorological diesel generator.

APPLICABILITY

The Meteorological Monitoring Instrumentation Channel are required to be OPERABLE at all times.

ACTIONS

A.1

The meteorological monitoring instrumentation was installed to meet the requirements of NUREG-0737 Section III.A.2.2. The operation of this equipment is also described in the IPEC Emergency Plan, stating that the Meteorological Monitoring Instrumentation Channel meets the requirements for indication and remote access. The channel is required in order to comply with the requirements of RG 1.97 which requires “the instrumentation signal may be displayed on an individual instrument or it may be processed for display on demand. Signals from meteorology monitors should be recorded. For recording, it may be continuously updated, stored in computer memory and displayed on demand.”

A Meteorological Monitoring Instrument Channel would be required for determining the magnitude if and for continuously assessing the impact of the release of radioactive materials to the environment.

With the meteorological monitoring instrumentation channel inoperable, the backup meteorological monitoring instrumentation channel(s) must be DEMONSTRATED OPERABLE within 1 hour. DEMONSTRATION shall be achieved using Emergency Plan Procedure IP-EP-510, which describes the means to obtain meteorological data.

A.2

With the meteorological monitoring instrumentation channel inoperable, IP2 shall be notified within 1 hour. This notification is not required for IP3 control room display and/or recorder inoperability as this equipment does not directly impact IP2.

A.3

With the meteorological monitoring instrumentation channel inoperable, the channel must be restored to OPERABLE status within 7 days. The meteorological monitoring instrumentation channel(s) would be required in the event of a radiological emergency.

The allowable outage time (AOT) of 7 days, which is specified by this Action, was developed, in part, by taking into consideration former Westinghouse Standard Technical Specifications section 3.3.3.4 (Reference 21) which specified a 7 day time frame. In addition, consideration was given to IP2's Technical Requirements Manual section 3.3.A (Reference 22) which also specifies an AOT of 7 days.

B.1

This Action shall be taken if the Required Actions and associated Completion Times of Condition A have not been met. A Special Report shall be prepared and submitted to the On-Site Safety Review Committee outlining the cause of the malfunction and the plans for restoring the meteorological monitoring instrumentation channel(s) to OPERABLE status. This reporting is necessary to ensure oversight for restoring the OPERABILITY of the Meteorological Monitoring Instrument Channel and the collection of meteorological data at the plant site. This data is used for estimating potential radiation doses to the public resulting from routine or accidental releases of radioactive materials to the atmosphere.

A meteorological data collection program, as described in this technical requirement, is necessary to meet the requirements of 10 CFR 50.36a(a)(2), Appendix E to 10 CFR 50 and 10 CFR 51.

The ten-day period for preparing and submitting the Special Report was developed by taking into consideration IP2 Technical Requirements Manual section 3.3.A. This section requires that with one or more of the required meteorological monitoring channels inoperable for more than seven (7) days, prepare and submit to the On-Site Safety Review Committee within the next 10 days . . . a Corrective Action Report . . . outlining the cause of the malfunction(s) and the plans for restoring the channel(s) to operable status.

SURVEILLANCE REQUIREMENTS

TRS 3.3.B.1

The performance of daily CHANNEL CHECKs is required to meet a commitment to the NRC. IP3 committed to daily CHANNEL CHECKs via a telephone conversation with the NRC (on August 12, 1985). The NRC acknowledged this verbal commitment in Inspection Report 85-17. Inspection Report 85-17 documented the conversation in which the NRC stated that Indian Point Unit 2 Technical Specifications (now Technical Requirements Manual) contain the requirement that "meteorological monitoring instrumentation channels be operable at all times with indication of the tabulated parameters available in the control room. Furthermore, the IP2 Technical Specifications also require a daily CHANNEL CHECK of the meteorological monitoring instrumentation and states that 'each meteorological monitoring channel shall be demonstrated operable' (T.S. 4.19.A)." As a result, IP3 agreed that the IP3 control room instrumentation should be DEMONSTRATED OPERABLE by a daily CHANNEL CHECK.

TRS 3.3.B.2

Based on engineering judgement, IP3 has concluded that the 24 month calibration interval of the meteorological strip chart recorder is adequate.

TRS 3.3.B.3

Based on engineering judgement, IP3 has concluded that monthly testing is adequate to demonstrate the OPERABILITY of the meteorological diesel generator.

TRS 3.3.B4

Based on engineering judgement, IP3 has concluded that annual testing is adequate to DEMONSTRATE diesel generator automatic power transfer.

TRS 3.3.B.5

The performance of semiannual instrument CHANNEL CALIBRATION is required to satisfy RG 1.23 section C.5. Compliance with RG 1.23 section C.5 is required per the NRC's February 11, 1980 Confirmatory Order. Section C.5 stated that meteorological "instruments should be calibrated at least semiannually." In addition, this calibration frequency is consistent with TRS 3.3.A.1 and TRS 3.3.A.2 of IP2's Technical Requirements Manual.

TRS 3.3.B.6

The performance of semiannual instrument CHANNEL OPERATIONAL TEST ensures the signal is being delivered through the instrument channel. The frequency is chosen to be consistent with the frequency for instrument CHANNEL CALIBRATION.

REFERENCES

1. Title 10, Code of Federal Regulations, Part 50 Appendix A, Criterion 64, "Monitoring Radioactivity Releases."

2. Title 10, Code of Federal Regulations, Part 50 Appendix E, Section E, "Emergency Facilities and Equipment."

3. Title 10, Code of Federal Regulations, Part 50.47, "Emergency Plans."

4. NUREG-0737, "Clarification of TMI Action Plans Requirements."

5. NUREG-0654/FEMA, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Appendix 2, "Meteorological Criteria for Emergency Preparedness at Operating Nuclear Power Plants."

6. Regulatory Guide 1.23, "Onsite Meteorological Programs."

7. NRC Regulatory Guide 1.97, "Instrumentation for Light-Water-Cooled Nuclear Power Plants to Assess Plant and Environs Conditions During and Following an Accident."

8. NYPA Letter IPN-80-117, J. P. Bayne to D. G. Eisenhut, dated December 30, 1980, "Post TMI Requirements."

9. NRC Confirmatory Order, H. R. Denton to E. R. Weiss, dated February 11, 1980.

10. NUREG-75/087, "Standard Review Plan."

11. NYPA Letter IPN-80-77, G. M. Wilverding to S. A. Varga, dated August 11, 1980, "Confirmatory Order (Interim Actions) Six Month Responses."

12. Generic Letter 82-33, dated December 17, 1982, "Supplement 1 to NUREG-0737 - Requirements for Emergency Response Capability."

13. NYPA Letter IPN-86-05, J. C. Brons to S. A. Varga, dated January 7, 1986, "Regulatory Guide 1.97 Implementation Program."

14. NRC Inspection Report No. 50-286/85-17, Section 7.0, T. T. Martin to W. Josiger, dated August 22, 1985, "Implementation of the Meteorological Monitoring Program."

15. NRC Inspection Report No. 50-286/87-23, E. C. Wenzinger to W. Josiger, dated October 15, 1987.

16. NRC Safety Evaluation, J. D. Neighbors to R. E. Beedle, dated April 3, 1991, "Emergency Response Capability - Conformance to Regulatory Guide 1.97, Revision 3, for Indian Point 3."

17. NRC Inspection Report No. 50-286/92-17, J. H. Joyner to J. E. Russell, dated July 18, 1992.

18. Indian Point 3 FSAR, Section 2.6.5, "Onsite Meteorological Measurements Program."

19. Emergency Plan Procedure, IP-EP-510, "Meteorological, Radiological & Plant Data Acquisition System."

20. Nuclear Safety Evaluation NSE 87-03-049 INST, "Control Room Meteorological Display Upgrade."

21. NUREG-1431, Westinghouse Standard Technical Specifications section 3.3.3.4, "Meteorological Instrumentation."

22. Unit 2 Technical Requirements Manual Section 3.3.B “Meteorological Monitoring."

3.3 INSTRUMENTATION

3.3.C Monitoring Instrumentation

TRO 3.3.C Monitoring Instrumentation in Table 3.3.C-1 shall be OPERABLE.

APPLICABILITY: MODE 1, 2, 3 and 4.

----------NOTES----------
1. Separate Condition Entry is allowed on each Function.
2. See ITS 3.3.3 for Post Accident Monitoring Instrumentation required in MODEs 1, 2, and 3.
3. For a listing of RG 1.97 required instruments, see FSAR section 7.5.4 and Table 7.5-1.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required Functions with one or more Required Channels inoperable.	A.1 Enter applicable Related Specification referenced in Table 3.3.C-1 as required by that Related Specification. AND	Immediately
	A.2 Restore Required Channel(s) to OPERABLE status, except for required recorder. AND	7 days
	A.3 Restore required recorder to OPERABLE status.	30 days
----------NOTE---------- Required Action B.1.3 or B.2 shall be completed whenever this Condition is entered. ----------		
B. Required Action and associated Completion Time of A not met, AND In MODE 1 or 2.	B.1.1 Be in MODE 3, AND	6 hours
	B.1.2 Be in MODE 4, AND	12 hours
	B.1.3 Restore the Required Channel(s) to OPERABLE status. OR	48 hours
	B.2 Be in MODE 5	66 hours

CONDITION	REQUIRED ACTION	COMPLETION TIME
----------NOTE---------- Required Action C.2 shall be completed whenever this condition is entered. ----------		
C. Required Action and associated Completion Time of A not met, AND In MODE 3 or 4.	C.1 Reactor coolant system temperature and pressure shall not be increased more than 25 °F and 100 psi, respectively, over existing values, AND C.2 Restore the Required Channel(s) to OPERABLE status.	Immediately 48 hours
D. Required Action and associated Completion Time of C.2 not met.	D.1 Be in MODE 4 AND D.2 Be in MODE 5	6 hours 30 hours

----------NOTE----------
Refer to Table 3.3.C-1 to determine which TRS(s) apply for each Function.

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
TRS 3.3.C.1	Perform a CHANNEL CHECK	24 hours
TRS 3.3.C.2	Perform a CHANNEL OPERATIONAL TEST.	18months
TRS 3.3.C.3	Perform a CHANNEL CALIBRATION.	24 months
TRS 3.3.C.4	Perform a CHANNEL OPERATIONAL TEST.	24 months

Table 3.3.C-1				
Function	Available Channels	**Required Channels**	**Surveillance**	**Related Specification** Improved Tech Spec (ITS)
TRO 3.3.C.1 Containment Narrow Range Pressure	6	2 w/ indication only	--------- NOTE ------- No TRS(s) required to be performed to meet TRO 3.3.C.1 for MODE 4. ---------- The TRO credits surveillance in ITS 3.3.2, i.e., SR 3.3.2.1, SR 3.3.2.4 and SR 3.3.2.7 for MODES 1, 2 and 3.	ITS 3.3.2 items (2.c), (3.b.3) and (4.c) for MODEs 1, 2 and 3.
TRO 3.3.C.2 RHR Recirculation Flow	4	4 w/ indication	TRS 3.3.C.3	NA
TRO 3.3.C.3 Containment Sump Narrow Range (Analog) Water Level	2	1 w/ indication & recorder	TRS 3.3.C.3	NA
TRO 3.3.C.4 Temperature Sensors in Piping Penetration Area	2	1 w/ alarm	TRS 3.3.C.4	NA
TRO 3.3.C.5 Temperature Sensors in Steam Generator Blowdown Heat Exchanger Room	2	1 w/ alarm	TRS 3.3.C.4	NA
TRO 3.3.C.6 Temperature Sensors in Mini-Containment Area	2	1 w/ alarm	TRS 3.3.C.4	NA

Table 3.3.C-1

Function	Available Channels	**Required Channels**	**Surveillance**	**Related Specification** Improved Tech Spec (ITS)
TRO 3.3.C.7 Temperature Sensors in Auxiliary Boiler Feedwater Pump Room	2	1 w/ alarm	TRS 3.3.C.2	NA
TRO 3.3.C.8 Level Sensors in Lower Level of Turbine Bldg.	2	1 w/ alarm	TRS 3.3.C.4	NA
TRO 3.3.C.9 PORV Position Indication (Acoustic Monitor)	1 / Valve	1 / Valve w/ indication	TRS 3.3.C.1 TRS 3.3.C.3 TRS 3.3.C.4	NA
TRO 3.3.C.10 PORV Position Indication (Limit Switch)	1 / Valve, (w/ alarm & indication).	---------- NOTE ---------- Except when the respective block valve is closed and the operator control circuit is de-energized as per ITS 3.4.11. ----------1 / Valve w/ alarm & indication	TRS 3.3.C.4	ITS 3.4.11
TRO 3.3.C.11 PORV Block Valve Position Indication (Limit Switch)	1 / Valve w/ indication, Except at times when valve operator control circuit is de-energized	---------- NOTE ---------- Except at times when valve is closed and the operator control circuit is de-energized as per ITS 3.4.11. ---------- 1 / Valve w/ indication	TRS 3.3.C.4	ITS 3.4.11
TRO 3.3.C.12 Safety Valve Position Indication (Acoustic Monitor)	1 / Valve w/ indication	1 / Valve w/ indication	TRS 3.3.C.1 TRS 3.3.C.3 TRS 3.3.C.4	NA

BASES

TRO 3.3.C.1 supports RG 1.97 required instrumentation in that these additional containment narrow range pressure instruments (PT-948 A, B, C and PT-949 A, B, C) provide a diverse means of establishing containment pressure. Refer to “Note O” of FSAR Table 7.5-1, Reference 2.

TRO 3.3.C.2 supports RG 1.97 required instrumentation in that these Recirculation flow indicators (FT-946A, B, C & D) are used to monitor RHR system flow rate during recirculation. Refer to “Index 401 (C, D, E, F) of FSAR Table 7.5-1, Reference 2.

TRO 3.3.C.3 supports RG 1.97 required instrumentation in that these narrow range containment sump level indicators (LT-1255 & LT-1256) provide two additional qualified level transmitters diverse to RWST level indication. Refer to “Index 212C&D, 306C&D and Note L & N” of FSAR Table 7.5-1, Reference 2.

TRO 3.3.C.4, 3.3.C.5, 3.3.C.6 and 3.3.C.7 ensure temperature monitoring instrumentation is maintained OPERABLE for areas subject to High Energy Line Break, see related FSAR analysis References 1 and 3.

TRO 3.3.C.8 ensures flood monitoring instrumentation is maintained OPERABLE for the Turbine Building, see FSAR flooding analysis (references 4 and 5).

TRO 3.3.C.9 supports RG 1.97 required instrumentation in that these acoustic monitor instruments at the PORV valves (455C & 456) are used to determine if the PORV is closed or not closed to monitor for loss of coolant. Refer to “Index 410 (A & B) of FSAR Table 7.5-1, Reference 2.

TRO 3.3.C.10 ensures PORV limit switch position indication is maintained OPERABLE. In addition to the acoustic monitors at the valves, this limit switch position indication provides a diverse means of determining if the PORV valve is closed or not closed to monitor for loss of coolant.

TRO 3.3.C.11 ensures PORV Block valve limit switch position indication is maintained OPERABLE. This limit switch position indication provides a diverse means of determining if the PORV Block valve is closed or not closed to monitor for loss of coolant.

TRO 3.3.C.12 supports RG 1.97 required instrumentation in that these acoustic monitor instruments at the safety relief valves (464, 466, 468) are used to determine if the valve is closed or not closed to monitor for loss of coolant. Refer to “Index 410 (C, D, E) of FSAR Table 7.5-1, Reference 2.

REFERENCES:

1. FSAR Appendix 6F, “Environmental Qualification Of Equipment Important To Safety”
2. FSAR section 7.5.4 and Table 7.5-1, “Regulatory Guide 1.97 Instruments Required”
3. FSAR section 10.2.1
4. FSAR section 10.2.4
5. FSAR section 16.1.3

3.3 INSTRUMENTATION

3.3.D Appendix R Alternate Safe Shutdown Instrumentation

TRO 3.3.D The Appendix R Safe Shutdown Functions in Table 3.3.D-1 shall be OPERABLE.

APPLICABILITY: MODE 1, 2, 3 and 4.

----------NOTES----------

1. TRO 3.0.C does not apply to Condition B and Condition C.
2. Separate Condition Entry is allowed on each channel/instrument.
3. See TRM section 3.7.B for Appendix R safe shutdown equipment and TRM section 3.8.B Appendix R Diesel Generator and electrical power scheme.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required Functions with one or more required instruments/channels in Table 3.3.D-1 inoperable.	A.1 Enter the Condition(s) referenced in Table 3.3.D-1, AND A.2 Enter applicable Related Specification referenced in Table 3.3.D-1 as required by that Related Specification.	Immediately Immediately
B. Enter Condition B as required by Table 3.3.D-1.	B.1 Establish an hourly fire watch in the Fire Watch Area(s) designated in Table 3.3.D-1 for the inoperable Function.	1 hour
C. Enter Condition C as required by Table 3.3.D-1.	C.1 Establish a fire watch patrol once every 8 hours in the Fire Watch Area(s) designated in Table 3.3.D-1 for the inoperable Function.	Once within 1 hour AND every 8 hours thereafter
D. Enter Condition D as required by Table 3.3.D-1.	D.1 Restore required Function(s) to OPERABLE status.	30 days
E. Required Action and associated Completion Time of D not met.	E.1. Be in MODE 3, AND E.2 Be in MODE 5.	6 hours 36 hours

----------Note----------
Refer to Table 3.3.D-1 to determine which TRS(s) apply for each Appendix R Function.

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
TRS 3.3.D.1	Perform a CHANNEL CHECK	92 days
TRS 3.3.D.2	----------NOTE---------- Neutron detectors are excluded from CHANNEL CALIBRATION ---------- Perform a CHANNEL CALIBRATION.	24 months
TRS 3.3.D.3	Perform a CHANNEL OPERATIONAL TEST when powered by 120v AC Distribution Panel POA (fed from 480v Bus 312 through 480V AC Distribution Panel PDP-TG-1)	24 months
TRS 3.3.D.4	Perform a CHANNEL CHECK	24 months

Table 3.3.D-1

Function	Required Instrument(s)/ Channel(s)	CONDITION	Fire Watch Area	Surveillance	Related Specification Improved Technical Specification (ITS)
TRO 3.3.D.1 Neutron Flux (source range only)	----------NOTE---------- Electrical Tunnel (ET) and Control Room (CR) indication not credited for Appendix R. ---------- N38, including the indicator at panel K9T in the PAB (near local control station PL6).	D	NA	TRS 3.3.D.1, TRS 3.3.D.2 including required PAB indicator; may include CR & ET indication TRS 3.3.D.3 with required PAB indicator & may include ET indication;	ITS 3.3.3, Table 3.3.3-1 (item 1) & ITS 3.3.4, Table B3.3.4-1 (item 1a – requires N38 only)
TRO 3.3.D.2 Source Range Neutron Flux	N31 indication N32 or N39 indication	D	NA	TRM testing not required. N31 and N32 testing is performed by ITS SR 3.3.1.7, SR 3.3.1.8 & SR 3.3.1.11. N39 testing is performed by ITS SR 3.3.3.1 and SR 3.3.3.2.	ITS 3.3.1, Table 3.3.1-1 (item 4 – requires N31 or N32 only) ITS, Table 3.3.1-1 (item 1)
TRO 3.3.D.3 Pressurizer Water Level	LT-459, LT-462, Including Indicators in the Control Room (CR) & AFW pump room panel PT2 & charging pump station PL6.	D	NA	TRS 3.3.D.1 (LT-459 CR & PT2 & PL6 indicators, LT-462 CR) TRS 3.3.D.2 (LT-459 CR & PT2 & PL6 indicators, LT-462 CR) TRS 3.3.D.3 (LT-459 PT2 & PL6 indicators).	ITS 3.3.1, Table 3.3.1-1 (item 8 for LT-459) & ITS 3.3.3, Table 3.3.3-1 (item 12) & ITS 3.3.4 Table B3.3.4.-1 (item 4a – requires LT-459 only)

Table 3.3.D-1

Function	Required Instrument(s)/ Channel(s)	CONDITION	Fire Watch Area	Surveillance	Related Specification Improved Technical Specification (ITS)
TRO 3.3.D.4 RCS Hot Leg Temperature	TE-413A, Including Indicators in the Control Room (CR) & on AFW pump room panel PT2.	B & D	Turbine Bldg & AFW Bldg	TRS 3.3.D.1 (only CR indicators), TRS 3.3.D.2 (TE-413A including PT2 indicator, TE-443A including CR recorder), TRS 3.3.D.3 (TE-413A only)	ITS 3.3.3, Table 3.3.3-1 (item 2) & ITS 3.3.4 Table B3.3.4.-1 (item 3a – requires TE-413A only)
	TE-443A, Associated Recorder, Including Indicators in the Control Room (CR)	D	NA		
TRO 3.3.D.5 RCS Cold Leg Temperature	TE-413B, Including Indicators in the Control Room (CR) & on AFW pump room panel PT2.	B & D	Turbine Bldg & AFW Bldg	TRS 3.3.D.1 (only CR indicators), TRS 3.3.D.2 (TE-413B including PT2 indicator, TE-443B including CR recorder), TRS 3.3.D.3 (TE-413B only)	ITS 3.3.3, Table 3.3.3-1 (item 3) & ITS 3.3.4 Table B3.3.4.-1 (item 3b – requires TE-413B only)
	TE-443B, Associated Recorder, Including Indicators in the Control Room (CR)	D	NA		

Table 3.3.D-1

Function	Required Instrument(s)/ Channel(s)	CONDITION	Fire Watch Area	Surveillance	Related Specification Improved Technical Specification (ITS)
TRO 3.3.D.6 RCS Wide Range Pressure	PT-402, PT-403, including indicators in the Control Room (CR) & AFW pump room panel PT2 & charging pump station PL6 & CR recorders. & PI-475 & PI-476.	D	NA	TRS 3.3.D.1(PT-402 & PT-403 & recorders in CR) TRS 3.3.D.2 (PT-402 CR & PT2 & PL6 indicators & CR recorder; PT-403 CR indicator & recorder; PI-475 & PI-476 local indicators) TRS 3.3.D.3 (PT-402 PT2 & PL6 indicators) TRS 3.3.D.4 (PI-475 & PI-476)	ITS 3.3.3, Table 3.3.3-1 (item 4) & ITS 3.3.4 Table B3.3.4.-1 (item 2a – requires PT-402 OR PT-455 only)
TRO 3.3.D.7 SG Wide Range Water Level	LT-417D, (LT-427D or LT-437D), LT-447D, Associated Recorder in the Control Room (CR) & indicator on AFW pump room panel PT2.	D	NA	TRS 3.3.D.1 (LT-417D & LT-427D & LT-437D CR Recorder & PT2 indicators & LT-447D CR Recorder). TRS 3.3.D.2 (LT-417D & LT-427D & LT-437D CR Recorder & PT2 indicators & LT-447D CR Recorder). TRS 3.3.D.3 (LT-417D & LT-427D & LT437D PT2 indicators).	ITS 3.3.3, Table 3.3.3-1 (item 14) & ITS 3.3.4 Table B3.3.4.-1 (item 3e – requires one channel associated with an OPERABLE SG/ADV only)

Table 3.3.D-1

Function	Required Instrument(s)/ Channel(s)	CONDITION	Fire Watch Area	Surveillance	Related Specification Improved Technical Specification (ITS)
TRO 3.3.D.8 SG Narrow Range Water Level	LT-417 (A or C)	B & D	Turbine Bldg & AFW Bldg	TRM testing not required because testing performed by: ITS 3.3.1, Table 3.3.1-1 (item 13 & 14) SR 3.3.1.1, SR 3.3.1.7, SR 3.3.1.10 & ITS 3.3.2, Table 3.3.2-1 (item 5b for all but LT-447B and item 6b for LT-447B) SR 3.3.2.1, SR 3.3.2.4 & 3.3.2.7	ITS 3.3.1, Table 3.3.1-1 (item 13 & 14) & ITS 3.3.2, Table 3.3.2-1 (item 5b and item 6b) & ITS 3.3.3, Table 3.3.3-1 (item 13) & ITS 3.3.4 Table B3.3.4.-1 (item 3e – requires one WR channel only)
	LT-427A LT-437A LT-447(A or B or C)	D	NA		
TRO 3.3.D.9 SG Pressure	SG ADV Local indicators PI-2531, PI-2532, PI-2533, PI-2534.	D	NA	TRS 3.3.D.1, TRS 3.3.D.2.	ITS 3.3.4 Table B3.3.4.-1 (item 3d – requires one channel associated with an OPERABLE SG/ADV only)

Table 3.3.D-1

Function	Required Instrument(s)/ Channel(s)	CONDITION	Fire Watch Area	Surveillance	Related Specification Improved Technical Specification (ITS)
TRO 3.3.D.10 Condensate Storage Tank (CST) Water Level	LI-1102S (local indication)	B & D	Turbine Bldg & AFW Bldg	TRS 3.3.D.1 (LI-1102S & LT-1128) TRS 3.3.D.2 (LI-1102S & LT-1128)	NA
		C & D	CST area		
	LT-1128(CR indication)	D	NA		
TRO 3.3.D.11 RWST Level	LIC-921 (local indicator only)	C & D	RWST area	TRS 3.3.D.1 TRS 3.3.D.2	The alarm switch of LIC-921 is governed by ITS LCO 3.5.4. However, local Indicator LIC-921 is governed by this TRO.

BASES

BACKGROUND

The instrumentation listed in this Technical Requirement are credited for certain Appendix R fire scenarios and are necessary to meet the requirements of 10CFR50.48 and 10CFR50, Appendix R, Section III.G and III.L.

10CFR50 Appendix R requires a licensee to demonstrate the ability to achieve MODE 3 from MODE 1 conditions, bring the plant to MODE 5 conditions and maintain the plant in that condition. Additionally, Appendix R requires that one train of equipment including instrumentation necessary to achieve MODE 3 from either the control room or emergency control station(s) must be maintained free of fire damage by a single fire including an exposure fire.

To support the Appendix R Safe Shutdown Analysis, the plant was divided into distinct analysis zones/areas. These zones/areas are primarily based on Fire Area boundaries with consideration of approved exemptions. These zones/areas are as follows:

CNT-1	Containment Building
PAB-2(1)	Primary Auxiliary Building (15’ elevation including RHR pump rooms and corridors)
PAB-2(2)	Primary Auxiliary Building (41’ elevation CCW pump area)
PAB-2(3)	Primary Auxiliary Building (55’ elevation Charging pump rooms)
PAB-2(4)	Primary Auxiliary Building (55’ elevation MCC area)
PAB-2(5)	Primary Auxiliary Building (remaining areas not covered by other analysis areas)
CTL-3	Control Building and Diesel Generator Building (including Control Room, Cable Spreading Room, 480v Switchgear Room, Battery Rooms, Service Water Valve Room and Control Building Fan Room)
ETN-4(1)	Electrical Tunnel (entryway)
ETN-4(2)	Electrical Tunnel (upper electrical tunnel)
ETN-4(3)	Electrical Tunnel (upper electrical penetration area and fan room)
ETN-4(4)	Electrical Tunnel (lower electrical tunnel and lower electrical penetration area)
TBL-5	Turbine Building and Auxiliary Feedwater Pump Building (except Auxiliary Feedwater Pump room)
AFW-6	Auxiliary Feedwater Pump Building (Auxiliary Feedwater Pump room)
Yard-7	External yard areas including Intake Structure, Appendix R Diesel Generator Enclosure, Backup Service Water pump area, and the Condensate Storage Tank area.

APPLICABLE SAFETY ANALYSES

Appendix R Safe Shutdown Analysis for IP3, (Analysis IP3-ANAL-FP –1503), latest revision
NSE 96-3-395FP, “Development of Administrative Procedure AP-64.1 and Evaluation of a Change to Operational Specification 3.2 and 3.5.”

TRO

This TRM ensures the OPERABILITY of a subset of the instruments that are necessary to address the Appendix R fire scenarios in the Appendix R Analysis. This TRM together with Technical Specifications and some other TRM specifications address the OPERABILITY of various instruments to meet the Appendix R Analysis. Some components credited by the analysis need not be specifically controlled because normal plant operation dictates that their credited function is maintained.

The instruments listed in Table 3.3.D-1 are credited in the IP3 Appendix R Analysis. These instruments are required to ensure the ability to achieve MODE 3 from MODE 1 conditions, bring the plant to MODE 5 conditions and maintain the plant in that condition either remotely or from the control room during an Appendix R fire scenario.

In addition, the allowed outage times established by the Technical Specifications or Technical Requirements do not bound the Appendix R requirements, and could result in a required instrument being out of service indefinitely or during MODEs where this instrument is required OPERABLE by the Appendix R Analysis.

This condition is outside the design of many of the systems and is not bounded by Technical Specifications or the TRM. Therefore, this TRO establishes actions necessary to ensure OPERABILITY of instruments credited in the Appendix R Analysis to maintain the instruments.

Separate condition entries are allowed to clarify the application of the completion time rules. The basis for this allowance is LCO 3.3.4, “Remote Shutdown System”, of the Westinghouse Standard Technical Specifications (STS). This STS LCO allows separate entry for each function. The Appendix R Technical Requirements are modeled from the STS.

The below identified fire zones/areas are the zones/areas that have a limited set of equipment available and therefore require the controls as specified in this TRO. Other zones/areas not listed (e.g. Yard-7) for the components contained in this TRO and others, were credited but need not be controlled by this TRO.

Table 3.3.D-1 Components

<u>Neutron Flux (source range only) Detector/Indicator N38 (TRO 3.3.D.1)</u>

An OPERABLE instrument constitutes the ability to verify source range indication is available at panel K9T in the PAB near the charging pump local control station (PL6) while N38 is being powered from 120V AC Distribution Panel POE via Distribution Panel POA (fed from 480V (SWGR) Bus 312 through 480V AC Distribution Panel PDP-TG-1). Electrical tunnel and control room indication are not credited in the Appendix R Analysis. The source range indicators at panel K9T and in the electrical penetration area are not full range and do not indicate during MODEs 1 and 2.

The N38 Neutron Flux Detector (source range only) /indicator is credited to verify shutdown margin during a fire in the following zones/areas:

- CTL-3 Control Building and Diesel Generator Building (including Control Room, Cable Spreading Room, 480v Switchgear Room, Battery Rooms, Service Water Valve Room and Control Building Fan Room)

Source Range Neutron Flux Detectors/Indicators N31 and N32 (TRO 3.3.D.2)

An OPERABLE instrument constitutes the ability to verify source range indication in the Control Room.

The N31 Source Range Neutron Flux Detector/Indication is credited to verify shutdown margin during a fire in the following zones/areas:

- CNT-1 Containment Building
- ETN-4(1) Electrical Tunnel (entryway)
- ETN-4(2) Electrical Tunnel (upper electrical tunnel)
- ETN-4(3) Electrical Tunnel (upper electrical penetration area and fan room)

Either N32 Source Range Neutron Flux Detector/Indication or N39 Neutron Flux Detector/Indicator (Source Range only) is credited to verify shutdown margin during a fire in the following zone/area:

- CNT-1 Containment Building

Pressurizer Water Level (TRO 3.3.D.3)

An OPERABLE instrument(s) constitutes the ability to monitor pressurizer water level while LT-459 is powered from its alternate source 120V AC Distribution Panel POA (fed from 480V (SWGR) Bus 312 through 480V AC Distribution Panel PDP-TG-1), and LT-462 is powered from 118V ac Instrument Bus 33.

1. The use of Pressurizer Water Level Instrument LT-459 ensures that sufficient indication is available to monitor pressurizer water level during plant shutdown for a fire in the following zones/areas:

   - ETN-4(4) Electrical Tunnel (lower electrical tunnel and lower electrical penetration area)
   - CTL-3 Control Building and Diesel Generator Building (including Control Room, Cable Spreading Room, 480v Switchgear Room, Battery Rooms, Service Water Valve Room and Control Building Fan Room)
   - CNT-1 Containment Building

2. The use of Pressurizer Water Level Instrument LT-462 ensures that sufficient indication is available to monitor pressurizer water level during plant shutdown for a fire in the following zones/areas:

   - ETN-4(1) Electrical Tunnel (entryway)
   - ETN-4(2) Electrical Tunnel (upper electrical tunnel)
   - ETN-4(3) Electrical Tunnel (upper electrical penetration area and fan room)
   - PAB-2(4) Primary Auxiliary Building (55’ elevation MCC area)
   - CNT-1 Containment Building

RCS Hot Leg Temperature (TRO 3.3.D.4)

An operable instrument(s) constitutes the ability to monitor RCS hot leg temperature while TE-413A is powered from its alternate source 120V AC Distribution Panel POA and POE (fed from 480V (SWGR) Bus 312 through 480V AC Distribution Panel PDP-TG-1), and TE-443A is powered from 118V ac Instrument Bus 32.

1. The use of RCS hot leg temperature indicator TE-413A ensures that sufficient indication is available to monitor hot leg temperatures during plant shutdown for an Appendix R fire scenario in the following zones/areas:

   - ETN-4(4) Electrical Tunnel (lower electrical tunnel and lower electrical penetration area)
   - CTL-3 Control Building and Diesel Generator Building (including Control Room, Cable Spreading Room, 480v Switchgear Room, Battery Rooms, Service Water Valve Room and Control Building Fan Room)
   - CNT-1 Containment Building
   - TBL-5 Turbine Building and Auxiliary Feedwater Pump Building (except Auxiliary Feedwater Pump room)

2. The use of RCS hot leg temperature indicator TE-443A ensures that sufficient indication is available to monitor hot leg temperatures during plant shutdown for an Appendix R fire scenario in the following zones/areas:

   - ETN-4(1) Electrical Tunnel (entryway)
   - ETN-4(2) Electrical Tunnel (upper electrical tunnel)
   - ETN-4(3) Electrical Tunnel (upper electrical penetration area and fan room)
   - AFW-6 Auxiliary Feedwater Pump Building (Auxiliary Feedwater Pump room)
   - CNT-1 Containment Building

RCS Cold Leg Temperature (TRO 3.3.D.5)

An OPERABLE instrument(s) constitutes the ability to monitor RCS cold leg temperature while TE-413B is powered from its alternate source 120V AC Distribution Panel POA and POE (fed from 480V (SWGR) Bus 312 through 480V AC Distribution Panel PDP-TG-1), and TE-443B is powered from 118V AC Instrument Bus 34.

1. The use of RCS Cold Leg Temperature Indicator TE-413B ensures that sufficient indication is available to monitor cold leg temperatures during plant shutdown during a fire in the following zones/areas:

   - ETN-4(4) Electrical Tunnel (lower electrical tunnel and lower electrical penetration area)
   - CTL-3 Control Building and Diesel Generator Building (including Control Room, Cable Spreading Room, 480v Switchgear Room, Battery Rooms, Service Water Valve Room and Control Building Fan Room)
   - CNT-1 Containment Building
   - TBL-5 Turbine Building and Auxiliary Feedwater Pump Building (except Auxiliary Feedwater Pump room)

2. The use of RCS Cold Leg Temperature Indicator TE-443B ensures that sufficient indication is available to monitor cold leg temperatures during plant shutdown during a fire in the following zones/areas:

   - ETN-4(1) Electrical Tunnel (entryway)
   - ETN-4(2) Electrical Tunnel (upper electrical tunnel)
   - ETN-4(3) Electrical Tunnel (upper electrical penetration area and fan room)
   - AFW-6 Auxiliary Feedwater Pump Building (Auxiliary Feedwater Pump room)
   - CNT-1 Containment Building

RCS Wide Range Pressure (TRO 3.3.D.6)

An OPERABLE instrument(s) constitutes the ability to monitor the RCS wide range pressure while PT-402 is powered from its alternate source 120V AC Distribution Panel POA (fed from 480V (SWGR) Bus 312 through 480V AC Distribution Panel PDP-TG-1), and PT-403 is powered from 118V ac Instrument Bus 32. PI-475 and PI-476 are credited to verify RCS pressure before swapping onto RHR and thus must be OPERABLE or capable of being made OPERABLE. Local pressure indicator PI-475 or PI-476 is relied upon during cooldown to establish a measurement bias with PT-402 prior to RHR cut in.

1. RCS wide range pressure transmitter PT-402 ensures that sufficient indication is available to monitor RCS pressure during plant shutdown for a fire in the following zones/areas:

   - ETN-4(4) Electrical Tunnel (lower electrical tunnel and lower electrical penetration area)
   - CTL-3 Control Building and Diesel Generator Building (including Control Room, Cable Spreading Room, 480v Switchgear Room, Battery Rooms, Service Water Valve Room and Control Building Fan Room)
   - CNT-1 Containment Building

2. RCS wide range pressure transmitter PT-403 ensures that sufficient indication is available to monitor RCS pressure during plant shutdown for a fire in the following zones/areas:

   - ETN-4(1) Electrical Tunnel (entryway)
   - ETN-4(2) Electrical Tunnel (upper electrical tunnel)
   - ETN-4(3) Electrical Tunnel (upper electrical penetration area and fan room)
   - AFW-6 Auxiliary Feedwater Pump Building (Auxiliary Feedwater Pump room)
   - CNT-1 Containment Building
   - PAB-2(4) Primary Auxiliary Building (55’ elevation MCC area)

3. RCS Wide Range Local Pressure Indicator PI-475 or PI-476 ensure that sufficient indication is available to establish a measurement bias with PT-402 prior to RHR cut in for a fire in the following zones/areas:

   - ETN-4(4) Electrical Tunnel (lower electrical tunnel and lower electrical penetration area)
   - CTL-3 Control Building and Diesel Generator Building (including Control Room, Cable Spreading Room, 480v Switchgear Room, Battery Rooms, Service Water Valve Room and Control Building Fan Room)
   - CNT-1 Containment Building

Steam Generator Wide Range Water Level (TRO 3.3.D.7)

The Appendix R Compliance Strategy at IP3 credits the use of Steam Generator No. 31 and its associated ADV or Steam Generator No. 34 and its associated ADV to accomplish cooldown of the RCS to RHR entry temperature conditions for separate fire scenarios. Therefore, the associated wide range steam generator water level instrument, (LT-417D and LT-447D), must be monitored to ensure the proper steam generator level is maintained during the cooldown. For those fire scenarios that credit the use of the turbine driven Auxiliary Feedwater Pump, level indication of at least one of the steam generators that provides steam to the Auxiliary Feedwater Pump turbine, must be available. Therefore, LT-417D, (LT-427D or LT-437D), and LT-447D must be OPERABLE.

For fires in the indicated zones/areas below, the specified LT survives the postulated fire and this level instrument may be used for safe shutdown purposes, along with other instruments or components credited by the safe shutdown Appendix R methodology.

1. The use of Steam Generator Wide Range Water Level Instrument LT-417D ensures that sufficient indication is available to monitor steam generator levels during plant shutdown for fires in the following zones/areas:

    - CNT-1 Containment Building
    - PAB-2(1) Primary Auxiliary Building (15’ elevation including RHR pump rooms and corridors)
    - PAB-2(2) Primary Auxiliary Building (41’ elevation CCW pump area)
    - PAB-2(3) Primary Auxiliary Building (55’ elevation Charging pump rooms)
    - PAB-2(4) Primary Auxiliary Building (55’ elevation MCC area)
    - PAB-2(5) Primary Auxiliary Building (remaining areas not covered by other analysis areas)
    - CTL-3 Control Building and Diesel Generator Building (including Control Room, Cable Spreading Room, 480v Switchgear Room, Battery Rooms, Service Water Valve Room and Control Building Fan Room)
    - ETN-4(4) Electrical Tunnel (lower electrical tunnel and lower electrical penetration area)

2. The use of Steam Generator Wide Range Water Level Instrument LT-427D or LT-437D ensures that sufficient indication is available to monitor steam generator levels during plant shutdown for fires in the following zones/areas

    - CTL-3 Control Building and Diesel Generator Building (including Control Room, Cable Spreading Room, 480v Switchgear Room, Battery Rooms, Service Water Valve Room and Control Building Fan Room)
    - ETN-4(4) Electrical Tunnel (lower electrical tunnel and lower electrical penetration area)

3. The use of Steam Generator Wide Range Water Level Instrument LT-447D ensures that sufficient indication is available to monitor steam generator levels during plant shutdown for fires in the indicated zones/areas:

   - ETN-4(1) Electrical Tunnel (entryway)
   - ETN-4(2) Electrical Tunnel (upper electrical tunnel)
   - ETN-4(3) Electrical Tunnel (upper electrical penetration area and fan room)
   - CNT-1 Containment Building

NOTE: Channel E is not credited for Appendix R. Therefore, these indicators are not a part of this specification.

Steam Generator Narrow Range Water Level (TRO 3.3.D.8)

The Appendix R Compliance Strategy at IP3 credits the use of Steam Generator No. 31 and its associated ADV or Steam Generator No. 34 and its associated ADV to accomplish cooldown of the RCS to RHR entry temperature conditions for separate fire scenarios. Therefore, at least one of their associated narrow range steam generator water level indicators must be monitored to ensure the proper steam generator level is maintained during the cooldown, if the wide range indication is not available due to the fire. For those fire scenarios that credit the use of the turbine driven Auxiliary Feedwater Pump, level indication of at least one of the steam generators that provides steam to the Auxiliary Feedwater Pump turbine, must be available. For this function the analysis credits Steam Generator No. 32 during a fire in the Electrical Tunnel Entrance and credits Steam Generator No. 33 during fires in other areas. Therefore, based upon fire areas and the method credited for decay heat removal during shutdown, the minimum narrow range steam generator instruments we must control include: LT-417A or C, LT-427A, LT-437A and LT-447A, or B, or C. This means that at least one of the above specified steam generator narrow range indicator per Steam Generators 31, 32, 33 and 34 must be OPERABLE.

1. The use of steam generator narrow range indicator LT-417A or C ensures that sufficient indication is available to monitor 31 steam generator level during plant shutdown for a fire in the following zones/areas:

   - TBL-5 Turbine Building and Auxiliary Feedwater Pump Building (except Auxiliary Feedwater Pump room)

2. The use of steam generator narrow range indicator LT-427A ensures that sufficient indication is available to monitor 32 steam generator level during plant shutdown for a fire in the following zones/areas:

   - ETN-4(1) Electrical Tunnel (entryway)

3. The use of steam generator narrow range indicator LT-437A ensures that sufficient indication is available to monitor 33 steam generator level during plant shutdown for a fire in the following zones/areas:

   - ETN-4(2) Electrical Tunnel (upper electrical tunnel)
   - ETN-4(3) Electrical Tunnel (upper electrical penetration area and fan room)
   - AFW-6 Auxiliary Feedwater Pump Building (Auxiliary Feedwater Pump room)

4. The use of steam generator narrow range indicator LT-447A or B or C ensures that sufficient indication is available to monitor 34 steam generator level during plant shutdown for a fire in the following zones/areas:

    - AFW-6 Auxiliary Feedwater Pump Building (Auxiliary Feedwater Pump room)

Steam Generator Pressure Instruments (3.3.D.9)

The Appendix R Compliance Strategy at IP3 credits the use of Steam Generator No. 31 and its associated ADV or Steam Generator No. 34 and its associated ADV to accomplish cooldown of the RCS to RHR entry temperature conditions for separate fire scenarios. Therefore, their associated local steam generator pressure indicators (PI-2531, PI-2534) must be monitored to ensure the proper steam generator pressure is maintained during the cooldown from outside the control room, if the normal indication is not available due to the fire. Therefore, based upon fire areas and the method credited for decay heat removal during shutdown, the minimum steam generator pressure instruments we must control include: PI-2531 and PI-2534.

1. The use of steam generator pressure indicator PI-2531 ensures that sufficient indication is available to monitor 31 steam generator pressure during plant shutdown for a fire in the following zones/areas:

    - CTL-3 Control Building and Diesel Generator Building (including Control Room, Cable Spreading Room, 480v Switchgear Room, Battery Rooms, Service Water Valve Room and Control Building Fan Room)
    - ETN-4(4) Electrical Tunnel (lower electrical tunnel and lower electrical penetration area)
    - TBL-5 Turbine Building and Auxiliary Feedwater Pump Building (except Auxiliary Feedwater Pump room)

2. The use of steam generator pressure indicator PI-2534 ensures that sufficient indication is available to monitor 34 steam generator pressure during plant shutdown for a fire in the following zones/areas:

    - AFW-6 Auxiliary Feedwater Pump Building (Auxiliary Feedwater Pump room)

In addition, with the RCS hot leg temperature at 400°F it is expected that RCS cold leg temperature would be 380°F (reference 2). At this time in the cooldown steam generator pressure can be used to determine RCS cold leg temperature using steam generator pressure instruments PI-2531 through PI-2534. Accounting for instrument accuracy RCS cold leg temperature would not be below 368°F which is above the temperature at which the pressurizer safety would provide RCS protection (i.e. 365°F). These instruments are used in conjunction with the credited RCS pressure instruments to maintain the plant cooldown within applicable limits when performing a cool down from outside the Control Room.

4. Steam Generator Pressure instruments PI-2531 through 2534 are used to ensure that reactor coolant cold leg temperature indication is available to perform a plant cooldown from outside the Control Room.

Condensate Storage Tank (CST) Water Level (3.3.D.10)

The use of Condensate Storage Tank Level Instrumentation LI-1102S ensures that sufficient indication is available to monitor CST levels during plant shutdown for a fire in the following zones/areas:

- ETN-4(1) Electrical Tunnel (entryway)
- ETN-4(2) Electrical Tunnel (upper electrical tunnel)
- ETN-4(3) Electrical Tunnel (upper electrical penetration area and fan room)
- AFW-6 Auxiliary Feedwater Pump Building (Auxiliary Feedwater Pump room)
- CTL-3 Control Building and Diesel Generator Building (including Control Room, Cable Spreading Room, 480v Switchgear Room, Battery Rooms, Service Water Valve Room and Control Building Fan Room)
- TBL-5 Turbine Building and Auxiliary Feedwater Pump Building (except Auxiliary Feedwater Pump room)
- Yard-7 External yard areas including Intake Structure, Appendix R Diesel Generator Enclosure, Backup Service Water pump area, and the Condensate Storage Tank area.

The use of Condensate Storage Tank Level Instrumentation LT-1128 ensures that sufficient indication is available to monitor CST levels during plant shutdown for a fire in the following zones/areas:

- CNT-1 Containment Building
- AFW-6 Auxiliary Feedwater Pump Building (Auxiliary Feedwater Pump room)
- PAB-2(1) Primary Auxiliary Building (15’ elevation including RHR pump rooms and corridors)
- PAB-2(2) Primary Auxiliary Building (41’ elevation CCW pump area)
- PAB-2(3) Primary Auxiliary Building (55’ elevation Charging pump rooms)
- PAB-2(4) Primary Auxiliary Building (55’ elevation MCC area)
- PAB-2(5) Primary Auxiliary Building (remaining areas not covered by other analysis areas)
- ETN-4(4) Electrical Tunnel (lower electrical tunnel and lower electrical penetration area)

Refueling Water Storage Tank (RWST) Level (TRO 3.3.D.11)

RWST Level Indication LIC-921 ensures that sufficient indication is available to monitor RWST levels during plant shutdown for a fire in the following zones/areas:

- CTL-3 Control Building and Diesel Generator Building (including Control Room, Cable Spreading Room, 480v Switchgear Room, Battery Rooms, Service Water Valve Room and Control Building Fan Room)
- PAB-2(2) Primary Auxiliary Building (41’ elevation CCW pump area)
- PAB-2(4) Primary Auxiliary Building (55’ elevation MCC area)
- PAB-2(5) Primary Auxiliary Building (remaining areas not covered by other analysis areas)
- ETN-4(1) Electrical Tunnel (entryway)
- ETN-4(2) Electrical Tunnel (upper electrical tunnel)
- Yard-7 External yard areas including Intake Structure, Appendix R Diesel Generator Enclosure, Backup Service Water pump area, and the Condensate Storage Tank area.

ACTIONS

A.1. With any of the required functions listed in Table 3.3.D-1 inoperable, the conditions listed for the specific function must be entered without delay. This Required Action ensures the appropriate Condition is entered and Required Actions taken as referenced in Table 3.3.D-1.

A.2. This Action ensures the appropriate ITS specification is entered without delay and in an orderly manner. This is needed because in many cases ITS has specifications governing the same instruments.

B. When functions listed in Table 3.3.D-1, become inoperable it is necessary to ensure that the normal shutdown equipment, which these functions are credited to replace during an Appendix R fire scenario, are guarded by a fire watch patrol. This helps to ensure that the failure of this equipment due to fire is minimized (e.g. firewatch in Turbine Building and Auxiliary Feedwater Building when RCS Hot Leg Temperature Instruments are inoperable).

A fire watch is not prescribed in this Technical Requirement for those areas that have fire detection or suppression systems governed by TRM 3.7.A. The fire detection or suppression equipment required by TRM 3.7.A provides the protection against fires that would be provided by a fire watch in its absence. Should this fire detection and suppression equipment become inoperable the applicable portion of TRM 3.7.A would prescribe the necessary compensatory measures.

The completion time of 1 hour was selected as a reasonable time in which to post a fire watch patrol. IP3 Administrative procedures control combustibles and ignition sources during power operations. Based on the existence of these controls, the addition of an hourly fire watch patrol is judged to be adequate to ensure the failure of the subject components due to fire is minimized.

C. Establishing a fire watch patrol for unprotected areas is similar with compensatory actions taken in Action B above. With this instrument inoperable establishing an eight hour fire watch ensures compensatory action (identification of transient fire hazards) is taken for areas without detection and suppression systems in the Yard. For the Yard Area, establishing an eight-hour fire watch patrol is based on the low fire hazards in the RWST area and the limited access to the area that minimizes the potential for introducing transient fire loads.

D. This Required Action ensures that the OPERABILITY of the subject equipment is restored in a timely manner. For these components a 30 day allowed outage time was established based on Technical Specification 3.3.4, Remote Shutdown. This allowed outage time of 30 days without other compensatory action is acceptable for these components because the plant meets TRM 3.7.A, Fire Protection Systems, or its required compensatory actions.

E. The functions listed in Table 3.3.D-1, are credited in the IP3 Appendix R Analysis. Appendix R requires that one train of equipment necessary to achieve MODE 3 from either the control room or emergency control station(s) must be maintained free of fire damage by a single fire including an exposure fire.

When the credited equipment is not restored in a timely manner this Appendix R licensed condition cannot be met by the remaining equipment in table 3.3.D-1 for fires in the zones/areas credited for this equipment as listed in the bases discussion of Table 3.3.D-1.

Therefore, the plant must be placed in MODE 3 within 6 hours and in MODE 5 within 36 hours. The time requirements to place the plant in MODE3 and MODE 5 were chosen to be consistent with Technical Specification 3.0.3 and TRO 3.0.C.

SURVEILLANCE REQUIREMENTS

TRS 3.3.D.1 - (Applicable as per Table 3.3.D-1) – This test is designed to check the availability of the subject channels via their normal power supplies. Substantial calibration shifts within a channel (essentially a channel failure) will be revealed during routine checking. The frequency check of 92 days is sufficient to identify substantial calibration shifts within the subject channels. Information specific to particular instruments is noted below.

Source Range Flux (N38) - Using QSPDS or CFMS to read wide range N38 indication in the control room to accomplish this check is one method that is acceptable during power operation. Voltage indication in the Electrical Penetration Area can be used to perform a CHANNEL CHECK during power operation also. The alternate power supply of the instrument channel may affect the indication of the channel in the control room. Electrical tunnel and control room indication are not credited in the Appendix R analysis. The source range indicators at panel K9T and in the electrical penetration area are not full range and do not indicate during power operation.

Pressurizer Water Level - This test is designed to check availability of instrument channels for LT-459 at remote shutdown station panels PT2 and PL6 via its normal power supply and in the control room, and for LT-460 including its indicator in the control room. The alternate power supply of the instrument channel LT-459 may affect the indication of the channel in the control room.

RCS Hot Leg and Cold Leg Temperature - This test is designed to check availability of the instrument channels TE-413A, TE-413B, TE-443A and TE-443B using the control room indicators via normal power supply. Remote indication of TE-413A and TE-413B on PT2 panel during plant operation may not be accurate until alternate power is applied. The alternate power supply of the instrument channel may affect the indication of the channel in the control room for TE-413A. Therefore, the CHANNEL CHECK is performed using the Control Room indication.

RCS Wide Range Pressure - This test is designed to check availability of instrument channels for PT-402 and PT-403 in the Control Room including recorders. The alternate power supply of the instrument channel PT-402 may affect the indication of the channel in the Control Room.

Steam Generator Wide Range Level - This test is designed to check availability of instrument channels for LT-417D, LT-427D and LT-437D at remote shutdown station PT2 via its normal power supply including its indicators in the Control Room, and channel availability of LT-447D in the control room. The alternate power supply of the instrument channels LT-417D, LT-427D, and LT-437D may affect the indication of the channel in the Control Room.

Steam Generator Pressure – This test is designed to check availability of local steam generator pressure indicators PI-2531 through PI-2534.

CST Level - This test is designed to ensure the availability of LI-1102S local indication and LT-1128 indication in the Control Room.

RWST Level - This test is designed to ensure availability of LIC-921 from local indication.

TRS 3.3.D.2 - (Applicable as per Table 3.3.D-1) - This test is designed to ensure that presentation and acquisition of accurate information is obtainable in the Control Room and at local indication stations, as required. As stated in the Technical Specifications, the primary means of error are due to "drift" induced within the instrumentation itself and consequently it can tolerate long intervals between calibration. Substantial calibration shifts within a channel (essentially channel failure) will be revealed during routine checking and testing. Process system instrumentation errors induced by drift can be expected to remain within acceptable tolerances if calibration is performed at intervals of 24 months. Information specific to particular instruments is noted below.

Source Range Flux (N38) - This test is designed to ensure that presentation and acquisition of accurate information is obtainable at panel K9T (near the charging pump local station PL6 panel). Indication in the Electrical Penetration Area and Control Room is not credited, but may be included in the surveillance. The neutron sensor is excluded from CHANNEL CALIBRATION, which is consistent with Standard Technical Specifications.

Pressurizer Water Level – This test is designed to ensure that presentation and acquisition of accurate information is obtainable from LT-459 (Control Room and at remote stations PT2 and PL6) and LT-462 (Control Room).

RCS Hot Leg and Cold Leg Temperature - This test is designed to ensure that presentation and acquisition of accurate information is obtainable from TE-413A and TE-413B (Control Room and remote station PT2), and TE-443A and TE-443B (Control Room including Control Room recorder).

RCS Wide Range Pressure - This test is designed to ensure that presentation and acquisition of accurate information is obtainable from PT-402 (Control Room, Control Room recorder and at remote station PT2 and PL6), PT-403 (Control Room and Control Room recorder), PI-475 (local indicator), and PI-476 (local indicator).

Steam Generator Wide Range Water Level - This test is designed to ensure that presentation and acquisition of accurate information is obtainable from LT-417D, LT-427D, and LT-437D (remote shutdown station PT2 and Control Room), and LT-447D (Control Room).

Steam Generator Pressure – This test is designed to ensure that presentation and acquisition of accurate information is obtainable using the local gauges.

CST Water Level - This test is designed to ensure that presentation and acquisition of accurate information is obtainable in the Control Room.

RWST Level – This test is designed to ensure that presentation and acquisition of accurate information is available at the local indicator.

TRS 3.3.D.3 - (Applicable as per Table 3.3.D-1) - This test is designed to ensure that the listed instrument channels are available at their associated local control panels on the alternate power scheme. The performance of this test may not be feasible during power operations. The verification of local indication of the instrument channel may affect the indication of the channel in the Control Room. Therefore, the frequency of once per 24 months is judged to be sufficient.

Source Range Flux (N38) - This test is designed to ensure that the instrument channel N38 is available at panel K9T (near the charging pump local station PL6 panel) on the alternate power scheme. Indications at panel K9T and in the Electrical Penetration Area are not full range and do not indicate during plant operation.

Pressurizer Water Level – This test is designed to check availability of LT-459 at remote shutdown stations PT2 and PL6 via it's alternate power supply.

RCS Hot Leg and Cold Leg Temperature - This test is designed to ensure that the instrument channels TE-413A and TE-413B area available at the local control station (PT2) via its alternate power supply.

RCS Wide Range Pressure - This test is designed to check availability of instrument channel for PT-402 at remote shutdown stations PT2 and PL6 via its alternate power supply.

Steam Generator Wide Range Level - This test is designed to check availability of instrument channels for LT-417D, LT-427D, and LT-437D at remote shutdown station PT2 via its alternate power supply.

TRS 3.3.D.4 - (RCS Wide Range Pressure PI-475 & PI-476 only) - This test is designed to check the availability and accuracy of the subject local indication. Substantial calibration shifts within a channel (essentially a channel failure) will be revealed during routine checking. Since the local indicators are in the Vapor Containment, the frequency check of 24 months is sufficient to identify substantial calibration shifts within the subject indicators.

REFERENCES:

1) FSAR 9.6.2
2) NSE 98-3-097-RCS, Rev.0, "Application of Revised Cooldown Methodology to ONOP-FP-1B"
3) NSE 96-3-395, Rev.1, "Development of AP-64.1 and Evaluation of Change to OS 3.2 and 3.5."

3.3 INSTRUMENTATION

3.3.E Seismic Monitoring Instrumentation

TRO 3.3.E Each of the seismic monitoring instruments in Table 3.3.E-1 shall be OPERABLE.

APPLICABILITY: AT ALL TIMES

----------NOTES----------
1. Separate Condition entries are allowed only if one or more instrument with history or recording and with control room indication is OPERABLE.
2. TRO 3.0.C is not applicable.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required instruments inoperable.	A.1 Restore the inoperable instrument(s) to OPERABLE status	30 days
B. Required Action and associated Completion Time of Condition A not met.	B.1 Prepare and submit a Special Report, “Inoperable Seismic Monitoring Instrumentation,” to OSRC, outlining the cause of the malfunction and the plans for restoring the instrument(s) to OPERABLE status.	10 days
C. For each instrument actuated during a seismic event.	C.1 Restore to OPERABLE status, AND C.2 Perform a CHANNEL CALIBRATION, AND C.3 Retrieve data from actuated instruments and analyze to determine the magnitude of the vibratory ground motion, AND C.4 Prepare and submit a Special Report, “Seismic Event Analysis,” to the USNRC, Region 1 Administrator, describing the magnitude, frequency spectrum and resultant effect upon facility features important to safety.	48 hours 48 hours 5 days 10 days

SURVEILLANCE REQUIREMENTS

		SURVEILLANCE	FREQUENCY
TRS	3.3.E.1	----------NOTES---------- 1. Applicable to Table 3.3.E-1 items 1a, 1b, and 3a. 2. Not applicable to Items 1a, and 1b seismic triggers. ---------- Perform a CHANNEL CHECK.	31 days
TRS	3.3.E.2	----------NOTES---------- 1. Applicable to Table 3.3.E-1 items 1a, 1b, and 3a. ---------- Perform a CHANNEL OPERATIONAL TEST.	184 days
TRS	3.3.E.3	Perform a CHANNEL CALIBRATION.	24 months

TABLE 3.3.E-1

SEISMIC MONITORING INSTRUMENTATION

FUNCTION		INSTRUMENTS AND SENSOR LOCATIONS	MEASUREMENT RANGE	MINIMUM INSTRUMENTS OPERABLE
1	a)	Triaxial Time-History Accelograph - EL 46'-0" VC Base Mat	0 to $\pm$ 1G	1*
	b)	Triaxial Time-History Accelograph - EL 99'-0" VC Wall	0 to $\pm$ 1G	1*
2	a)	Triaxial Peak Accelograph – STM GEN #31	0 to $\pm$ 2G	1
	b)	Triaxial Peak Accelograph – RC Pump #31	0 to $\pm$ 2G	1
	c)	Triaxial Peak Accelograph – Pressurizer	0 to $\pm$ 2G	1
3	a)	Triaxial Response-Spectrum Recorder – EL 46'-0" VC Base Mat	0 to $\pm$ 1G	1*

* Note: With control room indication

BASES

The OPERABILITY of the seismic instrumentation ensures that sufficient capability is available to promptly determine the magnitude of a seismic event and evaluate the response of those features important to safety. This capability is required to permit comparison of the measured response to that used in the design basis for the facility and is consistent with the recommendations of Regulatory Guide 1.12, "Instrumentation for Earthquakes", April, 1974.

REFERENCES:

1. FSAR 16.1.6

3.3 INSTRUMENTATION

3.3.F Toxic Gas Monitoring Instrumentation

TRO 3.3.F The toxic gas monitoring instruments with the number of required channels for each function in Table 3.3.F-1 shall be OPERABLE.

APPLICABILITY: AT ALL TIMES

----------NOTE----------

1. Separate Condition entries are allowed only if one or more installed or alternate system channels capable of detecting chlorine, ammonia and oxygen, with control room alarm, are OPERABLE.
2. TRO 3.0.C is not applicable.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required channel for a monitored gas inoperable.	A.1 Restore the inoperable channel to OPERABLE status.	7 days
B. Required Action and associated Completion Time of Condition A not met.	B.1 Initiate and maintain operation in the Control Room of alternate monitoring system capable of detecting the gas monitored by the inoperable channel(s).	8 hours
C. Two required channels for a monitored gas inoperable.	C.1 Initiate and maintain operation in the Control Room of alternate monitoring system capable of detecting the gas monitored by the inoperable channel(s), AND C.2.1 Restore at least one channel for each monitored gas to OPERABLE status. OR C.2.2 Prepare and submit a Special Report, “Operation of Toxic Gas System,” to OSRC outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the monitoring systems to OPERABLE status.	8 hours 72 hours 14 days
D. Required Actions and Completion Times of B or C.1 AND C.2.1 not met.	D.1 Place the Control Room Ventilation System in 100% recirculation mode.	1 hour

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
TRS 3.3.F.1	Perform a CHANNEL CHECK.	24 hours
TRS 3.3.F.2	Perform a CHANNEL OPERATIONAL TEST.	31 days
TRS 3.3.F.3	Perform a CHANNEL CALIBRATION.	18 months

TABLE 3.3.F-1

Toxic Gas Monitoring System

MONITORED GAS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENT	ALARM
AMMONIA	2	TRS 3.3.F.1 TRS 3.3.F.2 TRS 3.3.F.3	≤35 PPM
CHLORINE	2	TRS 3.3.F.1 TRS 3.3.F.2 TRS 3.3.F.3	≤ 3 PPM
OXYGEN	2	TRS 3.3.F.1 TRS 3.3.F.2 TRS 3.3.F.3	----------NOTE--------- Alarms within instrument accuracy ---------- 19.5 %

BASES

The control room is equipped with two independent toxic gas monitoring systems. One system in the control room consists of a channel for oxygen (with two oxygen detectors) and a channel each for ammonia and chlorine. The second system in the control room ventilation intake consists of one channel each for oxygen, ammonia and chlorine. Oxygen detectors are used to indirectly monitor changes in carbon dioxide levels. These toxic gas monitoring systems are designed to alarm in the control room upon detection of the short term exposure limit (STEL) value. The operability of the toxic gas monitoring systems provides assurance that the control room operators will have adequate time to take protective action in the event of an accidental toxic gas release. Selection of the gases to be monitored are based on the results described in the Indian Point Unit 3 Habitability Study for the Control Room, dated July, 1981. The alarm setpoints will be in accordance with industrial ventilation standards as defined by the American Conference of Governmental Industrial Hygienists.(1) The alarm for oxygen is 19.5% within the instrument accuracy. The 19.5% is based upon the OSHA 29CFR1910.134 definition for oxygen deficient atmosphere that is <19.5% by volume.

ACTIONS

A.1

Restoring a channel to operable can consist of replacing the monitor with an “alternate” or equivalent monitor that meets the design requirements for the original monitors. That is, the operating characteristics are the same, as well as the mounting and qualifications. This also applies to Condition C.

B.1

Providing an “alternate” monitor under this action is intended to allow the provision of monitor such as a portable monitor that can detect the required gas and alarm but is not necessarily mounted or otherwise equivalent to the original monitor. This is acceptable as a temporary step while repairing or replacing the required monitor because there is no automatic action initiated and control room personnel can take required actions. This also applies to Condition C.

D.1

The Action to place the Control Room Ventilation System in 100% recirculation mode compensates for conditions where a channel is not restored in a timely manner or there is a problem taking the compensating action for an inoperable monitor. Since at least one channel of detection instrumentation is not restored or there is a potential for a single failure to render the second channel inoperable, it cannot be ensured that toxic gas detection will occur. Therefore, this action will ensure the control room ventilation system is in the mode of operation for a toxic gas event and is similar with NUREG-0452 (older version of STS).

REFERENCES:

1. American Conference of Governmental Industrial Hygienists 1982 Industrial Ventilation, 19th Edition
2. FSAR 1.3.2
3. FSAR 7.7.3
4. FSAR 9.9.2

3.3 INSTRUMENTATION

3.3.G Service Water Inlet Temperature Monitoring Instrumentation

TRO 3.3.G At least two service water inlet temperature monitoring instruments shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, with Service Water Inlet Temperature Exceeding 90°F.

----------NOTE----------

1. Refer to Technical Specification 3.7.10 for Service Water temperature limits and associated Actions.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required service water inlet temperature monitoring instruments inoperable.	A.1 Be in mode 3, AND A.2 Be in mode 4.	7 hours 13 hours

SURVEILLANCE REQUIREMENTS

----------NOTE----------

Surveillance requirements are only applicable when instruments required OPERABLE per TRO 3.3.G.

	SURVEILLANCE	FREQUENCY
TRS 3.3.G.1	Perform CHANNEL CHECK.	12 hours
TRS 3.3.G.2	Perform CHANNEL CALIBRATION on installed instrument(s).	18 months
TRS 3.3.G.3	Perform CHANNEL CALIBRATION on portable instrument(s).	Within 30 days prior to use AND every 92 days thereafter
TRS 3.3.G.4	----------NOTE---------- Service water inlet temperature shall be the average of two or more service water inlet temperature monitoring instrument readings per TRO 3.3.G taken within a five minute interval (instantaneous). ---------- Record Service Water inlet temperature.	-----NOTE---- With Service Water temperature >90°F ---------- Once per hour

BASES

The operability requirements on service water temperature monitoring instrumentation and the frequency of service water temperature monitoring insures that appropriate action can be taken to preclude operation beyond established limits. The locations selected for monitoring river water temperature are typically at the circulating or service water inlets, at the circulating water inlet boxes to the condenser hotwells or at the service water supply header to the fan cooler units. However, any combination of installed or portable instruments is sufficient to meet instrument requirements. Temperature measurements at each of these locations are representative of the river water temperature supplied to cool plant heat loads. Alternate locations may be acceptable on this basis.

REFERENCES

1. WCAP-12313, "Safety Evaluation for an Ultimate Heat Sink Temperature Increased to 95^{o} at IP-3"

2. FSAR 9.6.1

3.3 INSTRUMENTATION

3.3.H Explosive Gas Monitoring Instrumentation

TRO 3.3.H The explosive gas monitoring oxygen and hydrogen instrumentation channels shall be OPERABLE with their alarm / trip setpoints set to ensure that the limits of 2% by volume oxygen and 4 % by volume hydrogen are not exceeded.

APPLICABILITY: DURING WASTE GAS HOLDUP SYSTEM OPERATION

----------NOTE----------
1. Refer to TRO 3.7.D for system operation.
2. TRO 3.0.C does not apply.
3. Refer to Technical Specification 5.5.11 for program requirements.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required explosive gas monitoring instruments (i.e. Hydrogen monitor and Oxygen monitor) inoperable.	A.1 Stop operation of the waste gas holdup system. OR A.2.1 Obtain and analyze grab samples for oxygen and hydrogen from waste tank on reuse or receipt during degassing operations, AND A.2.2 Obtain and analyze grab samples for oxygen and hydrogen from waste tank on reuse or receipt during other operations, AND A.3 Return both monitors to OPERABLE status	Immediately Once per 4 hours Once per 24 hours 30 days
B. Required Action and associated COMPLETION TIME of A.3 not met.	B.1 Prepare and submit a report to OSRC explaining why monitor inoperability was not corrected within the required time frame.	30 days

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
TRS 3.3.H.1	Perform a CHANNEL CHECK.	24 hours
	----------NOTES---------- 1) Oxygen CHANNEL CALIBRATION shall include the use of standard gas samples containing: • Less than or equal to one volume percent oxygen, and • Greater than or equal to four volume percent oxygen. 2) Hydrogen CHANNEL CALIBRATION shall include the use of standard gas samples containing: • Less than or equal to two volume percent hydrogen, and • Greater than or equal to four volume percent hydrogen. ----------	
TRS 3.3.H.2	Perform a CHANNEL CALIBRATION.	31 days

BASES

Explosive Gas Monitoring Instrumentation

The explosive gas monitoring instrumentation is provided to monitor and control the concentrations of potentially explosive gas mixture in the waste holdup system. The OPERABILITY and the use of this instrumentation is consistent with the requirements of General Design Criteria 60 of Appendix A to 10 CFR Part 50.

Hydrogen rich systems are not designed to withstand a hydrogen explosion.

References:

1) FSAR 9.2
2) FSAR 11.1
3) ITS 5.5.11

3.3 INSTRUMENTATION

3.3.J Main Feedwater Leading Edge Flowmeter - DELETED

3.4 REACTOR COOLANT SYSTEM

3.4.A Low Temperature Overpressure Protection (RCS 330 °F – 411 °F)

TRO 3.4.A The pressurizer level shall be maintained at or below 73% (density compensated).

APPLICABILITY: MODES 3 AND 4, WITH RCS TEMPERATURE ≥ 330 ^{O}F AND ≤ 411 ^{O}F.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
	----------NOTE---------- Action to restore pressurizer level may be delayed during a rapid cooldown provided a dedicated operator monitors pressurizer level and responds without delay and in a controlled manner to a rapid increase in level. ----------	
A. Pressurizer level greater than 73% (density compensated).	A.1 Restore Pressurizer Level to below 73% (density compensated).	Immediately
	OR	
	A.2 Reduce RCS temperature to < 330 °F	Immediately
	OR	
	A.3 Increase RCS temperature > 411 ^{O}F.	Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
TRS 3.4.A.1	DEMONSTRATE that Pressurizer level meets TRO 3.4.A.	30 minutes

BASES

Protection of the reactor vessel and Reactor Coolant System (RCS) piping below 330°F is provided by ITS 3.4.12, "Low Temperature Overpressure Protection (LTOP)." Similarly, at temperatures of 411°F and above, the RCS is protected from overpressure by ITS 3.4.10, "Pressurizer Safety Valves." Between these two temperatures, operator vigilance is relied upon to ensure that the RCS pressure remains below the applicable Appendix G Pressure-Temperature curve. The absence of automatic protection in this temperature range is an acceptable position that has been approved by the manufacturer and accepted by the USNRC (ref. 1), due to the increased ductility of metal at high temperatures.

It should also be noted that at high RCS pressures (i.e. greater than 1600 psig) an inadvertent SI actuation would not result in actual mass injection to the RCS (Ref. 2). A review of uncorrected Appendix G limits in reference 2 shows that for most temperatures above the LTOPS arming setpoint the allowable pressure exceeds 1600 psig. This provides assurance that the effects of a mass injection event (i.e. SI actuation) will be minimal.

Operating with a pressurizer bubble within this temperature range affords margin to ensure that Appendix G limits will not be exceeded while performing normal activities during heatup and cooldown. A pressurizer level of 73% (actual as extrapolated from the Operations curves that provide density compensation for the cold or hot calibrated instrumentation) will allow for minor thermal-hydraulic corrections that occur as the plant changes MODE and give the operators some time to respond in the event of an inadvertent SI actuation.

Most plant transients will be performed with a pressurizer level of 73% or less. In cases involving rapid cooldown (non-routine cooldown at the discretion of the Shift Manager), Operations may desire a higher initial pressurizer level to allow for RCS fluid shrink during the cooldown process. In that case, the pressurizer level of 73% may be exceeded, if a dedicated licensed operator watches pressurizer level for as long as the pressurizer level exceeds 73%. During such time, the licensed operator should be prepared to respond without delay and in a controlled manner to a sudden increase in pressurizer level.

For all other times, the pressurizer level shall remain below 73% (density compensation) when in this temperature range. If level exceeds 73%, the operators should take action without delay and in a controlled manner to place the RCS in a less vulnerable position. This would include the options of lowering the pressurizer level below 73%, increasing RCS temperature above 411°F, or reducing RCS temperature to less than 330°F, where protection is assured by ITS 3.4.10, "Pressurizer Safety Valves," or ITS 3.4.12, "LTOPS," respectively.

REFERENCES:

1. Letter PENG-98-082, "Letter Report on Clarification of Basis for P-T Limits NYPA Indian Point 3", ABB-Combustion Engineering, April 1998.

2. LTR-SEE-03-207, "Indian Point Unit 3 – High Head Safety Injection System Flows for the Stretch Power Uprate (SPU) Program," September 26, 2003.

3. MISC-MPS-ER-005, "Indian Point 3 Final Report on Appendix G Reactor Vessel Pressure-Temperature Limits", ABB-Combustion Engineering, July 1991.

3.4 REACTOR COOLANT SYSTEM

3.4.B Reactor Coolant System Chemistry

TRO 3.4.B Concentrations of contaminants in the reactor shall not exceed the limits of Table 3.4.B-1.

APPLICABILITY: AT ALL TIMES

----------NOTES----------

1. For the purposes of correcting the contaminant concentrations to meet specifications in Table 3.4.B-1, increase in coolant temperature consistent with operation of reactor coolant pumps for a short period of time to assure mixing of the coolant shall be permitted. This increase in temperature to assure mixing shall in no case cause the coolant temperature to exceed 250°F.

2. Oxygen specifications do not apply during MODES 4 (below 250°F), 5 and 6

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more of the Normal Specifications as listed in Table 3.4.B-1 are exceeded, or if it is anticipated that they may be exceeded.	A.1 Take corrective action, AND A.2 For MODEs 1,2,3, and 4 (above 250°F) restore contaminants within specification, AND A.3 For MODEs 4 (below 250°F), 5 and 6, restore contaminants within specification.	Immediately 24 hours 48 hours
B. Required Action and associated Completion Time of Condition A.2 not met, OR Transient Specification as listed in Table 3.4.B-1 exceeded.	B.1 Be in MODE 3, AND B.2 Be in MODE 5.	6 hours 36 hours
C. Transient Specifications of Table 3.4.B-1 exceeded for greater than 24 hours.	----------NOTE---------- Safety review not required if transient limits exceeded during MODES 4 (below 250°F), 5 and 6 ---------- C.1 Perform a safety review.	Prior to exceeding 250°F in MODE 4

SURVEILLANCE REQUIREMENTS

		SURVEILLANCE	FREQUENCY
TRS	3.4.B.1	Sample reactor coolant for chlorides and oxygen.	----------NOTE---------- TRS 3.0.B surveillance extension does not apply to maximum time between analyses. ---------- 3 times per 7 days <u>AND</u> 3 days maximum between analyses
TRS	3.4.B.2	Sample reactor coolant for fluorides.	----------NOTE---------- TRS 3.0.B surveillance extension does not apply to maximum time between analyses. ---------- 7 days <u>AND</u> 10 days maximum between analyses
TRS	3.4.B.3	----------NOTE---------- This surveillance is not required to be performed to meet the TRO. ---------- Sample Boric Acid Storage Tanks for chlorides.	7 days
TRS	3.4.B.4	----------NOTE---------- This surveillance is not required to be performed to meet the TRO. ---------- Sample the Refueling Water Storage Tank for chlorides.	----------NOTE---------- TRS 3.0.B surveillance extension does not apply to maximum time between analyses. ---------- 31 days <u>AND</u> 45 days maximum between analyses

Table 3.4.B-1

Maximum Reactor Coolant Oxygen, Chloride And Fluoride Concentration

Contaminants	Normal Specification (PPM)	Transient Specification (PPM)
Oxygen (see Note 2 above)	0.10	1.00
Chloride	0.15	1.50
Fluoride	0.15	1.50

BASES

By maintaining the oxygen, chloride and fluoride concentrations in the reactor coolant below the limits as specified in Table 3.4.B-1, the integrity of the reactor coolant system is assured against stress corrosion cracking under all operating conditions. (1)

If these limits are exceeded, measures can be taken to correct the condition, e.g., replacement of ion exchange resin or adjustment of the hydrogen concentration in the volume control tank (2) during power operation. Because of the time dependent nature of any adverse effects arising from oxygen, chloride, and fluoride concentration in excess of the limits, it is unnecessary to shut down immediately, as the condition can be corrected. Thus, the periods of either 24 hours or 48 hours for corrective action to restore concentrations within the limits have been established. If the corrective action has not been effective at the end of the proper period (24 hours or 48 hours), then the reactor will be brought to the cold shutdown condition and the corrective action will continue.

The effects of contaminants in the reactor coolant are time and temperature dependent. It is consistent, therefore, to permit a transient concentration to exist for a longer period of time and still provide the assurance that the integrity of the primary coolant system will be maintained.

In order to restore the contaminant concentrations to within specification limits in the event such limits were exceeded, mixing of the primary coolant with the reactor coolant pumps may be required. This will result in a small heatup of short duration and will not increase the average coolant temperature above 250^{o}F.

REFERENCES:

1) FSAR Section 4.2
2) FSAR Section 9.2

3.4 REACTOR COOLANT SYSTEM

3.4.C Reactor Vessel Head Vents

TRO 3.4.C Two reactor vessel head vent paths each consisting of two valves in series with power available from emergency buses through manual action in the control room (i.e., replace fuses and operate individual selector switch) shall be OPERABLE.

APPLICABILITY: MODES 1, 2 and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One reactor vessel head vent path is inoperable.	A.1 Close the inoperable vent path, AND A.2 Remove power from the valve actuator of all the valves in the inoperable vent path, AND A.3 Restore the inoperable vent path to OPERABLE status.	Immediately Immediately 90 days
B. Both reactor vessel head vent paths are inoperable.	B.1 Close the inoperable vent paths, AND B.2 Remove power from the valve actuator of all the valves in the inoperable vent paths, AND B.3 Restore one vent path to OPERABLE status.	Immediately Immediately 7 days
C. Required Actions and Completion Times of A.3 OR B.3 not met.	C.1 Be in MODE 3, AND C.2 Be in MODE 4.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
TRS 3.4.C.1	DEMONSTRATE OPERABILITY of the reactor vessel head vents in accordance with the IST program.	In accordance with the IST program

BASES

Reactor vessel head vents are provided to exhaust noncondensible gases and/or steam from the primary system that could inhibit natural circulation core cooling. The OPERABILITY of at least one reactor vessel head vent path ensures that capability exists to perform this function.

The valve redundancy of the reactor coolant system vent paths serves to minimize the probability of inadvertent or irreversible actuation while ensuring that a single failure of a vent valve power supply or control system does not prevent isolation of the vent path.

The function, capabilities, and testing requirements of the reactor coolant system vent systems are consistent with the requirements of Item II.B.1 of NUREG-0737, "Clarification of TMI Action Plan Requirements," November, 1980.

REFERENCES:
1. FSAR 4.2.3
2. FSAR 4.2.11
3. FSAR APPENDIX 4D

3.4 REACTOR COOLANT SYSTEM

3.4.D Pressurizer Heatup & Cooldown

TRO 3.4.D The following conditions shall be observed:

- The pressurizer heatup rate shall not exceed 100°F/hr averaged over one hour.
- The pressurizer cooldown rate shall not exceed 200°F/hr averaged over one hour.
- The spray shall not be used if the temperature difference between the pressurizer and the spray fluid is greater than 320°F.

APPLICABILITY: AT ALL TIMES

----------NOTE----------
1. Required Actions A.2, B.2 and C.2 shall be completed whenever their Condition is entered.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Pressurizer heatup rate exceeds 100°F/hr averaged over one hour.	A.1 Stop Pressurizer heatup, AND A.2 Determine the pressurizer is acceptable for continued operation.	Immediately 72 hours
B. Pressurizer cooldown rate exceeds 200°F/hr averaged over one hour.	B.1 Stop Pressurizer cooldown, AND B.2 Determine the pressurizer is acceptable for continued operation.	Immediately 72 hours
C. The difference between the Pressurizer and the spray fluid is greater than 320°F.	C.1 Stop using Pressurizer spray, AND C.2 Determine the pressurizer is acceptable for continued operation.	Immediately 72 hours
D. Pressurizer unacceptable for continued operation.	D.1 Enter TRO 3.0.C	Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
TRS 3.4.D.1	----------NOTE---------- Only required to be performed during Pressurizer heatup and cooldown operations. ---------- Check Pressurizer temperature limits are not exceeded.	30 minutes
TRS 3.4.D.2	----------NOTE---------- Only required during pressurizer spray operations. ---------- Check Pressurizer spray water temperature difference within limits.	12 hours

BASES

Although the pressurizer operates at temperature ranges above those for which there is reason for concern about brittle fracture, operating limits are provided to assure compatibility of operation with the fatigue analysis performed in accordance with the ASME Boiler and Pressure Vessel Code, Section III, 1965 Edition and associated Code Addenda through the Summer 1966 Addendum.

REFERENCES:
1. FSAR 4.2

3.5 EMERGENCY CORE COOLING

3.5.A Accumulator Instrumentation

TRO 3.5.A One pressure and one level transmitter shall be OPERABLE per accumulator.

APPLICABILITY: MODES 1 AND 2,
MODE 3 WITH REACTOR COOLANT PRESSURE > 1000 PSIG

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more of the required accumulator pressure and level transmitters inoperable.	A.1 Restore required transmitter(s) to OPERABLE status, AND A.2 Enter ITS 3.5.1 as required by that specification.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
TRS 3.5.A.1	Perform a CHANNEL CALIBRATION on the accumulator pressure AND level transmitters.	24 months

BASES

Accumulator instrumentation supports OPERABILITY of the accumulators and the ability to perform the required level and cover pressure surveillances (i.e. ITS SR 3.5.1.2 and SR 3.5.1.3). If these instruments become inoperable these surveillances cannot be performed within the required frequency.

ACTIONS

A.2 Entry into ITS 3.5.1 Required Action B.1 would be required at the end of the 12 hour volume and pressure check (i.e. ITS SR 3.5.1.2 and 3.5.1.3) surveillance frequency or earlier if these SRs are expected not to be met (Ref. 1), due to accumulator instrumentation being inoperable.

REFERENCES:

1. ITS SR 3.0.1
2. FSAR 6.2

Section 3.6

NOT

USED

3.7 PLANT SYSTEMS

3.7.A FIRE PROTECTION SYSTEMS

3.7.A.1 High Pressure Water Fire Protection System

TRO 3.7.A.1 The High Pressure Water Fire Protection System shall be OPERABLE including: Two Main Fire Pumps properly aligned to the high pressure fire header; Main Fire Pump automatic initiation circuitry; piping and valves necessary for protection of safe shutdown systems; and two Fire Water Tanks.

APPLICABILITY: AT ALL TIMES

----------NOTES----------

1. TRO 3.0.C does not apply to Required Action A.2, A.3, F.1 and G.1.
2. Separate Condition Entry is allowed for Condition D and E.

ACTIONS

CONDITION	REQUIRED ACTIONS	COMPLETION TIME
A. Two Main Fire Pumps Inoperable, OR Both pumps incorrectly aligned, OR Their automatic initiation circuitry is inoperable.	A.1 Provide an alternate fire protection system. AND A.2 Convene OSRC to review the adequacy of the alternate fire protection system provided and to ensure the ability to achieve and maintain safe shutdown is not adversely affected in the event of a fire. AND A.3 Submit a Special Report to the OSRC in accordance with TRM 5.4.B.	24 hours 24 hours 14 days
B. Required Action and Completion Time of A.1 not met.	B.1 Be in MODE 3 AND B.2 Be in MODE 5.	24 hours 96 hours
C. One Main Fire Pump Inoperable OR Incorrectly aligned OR its automatic initiation circuitry is inoperable.	C.1 For the diesel driven fire pump, enter Condition F. AND C.2 Restore the main fire pump to OPERABLE status.	Immediately 7 days

CONDITION		REQUIRED ACTIONS		COMPLETION TIME
D.	Piping and Valves necessary for fire protection of safe shutdown systems inoperable.	D.1	Restore all piping and valves necessary for proper functioning of any portion of the system required for fire protection of safe shutdown systems to operability.	7 days
E.	One or more Fire Water Tanks inoperable (contain less than 300,000 gallons each).	E.1	Restore a minimum available water volume of 300,000 gallons in each of the two (2) Fire Water Tanks for fire protection purposes.	7 days
F.	Diesel Driven Fire Pump Inoperable	F.1	Establish an hourly fire watch patrol in the Turbine Building (15' elevation south loading well), Control Building (15' elevation) and the Administration Service Building (15' elevation near the fire brigade room).	1 hour
G.	Required Actions and Completion Times of C.2 OR D.1 OR E.1 OR F.1 not met.	G.1	Submit a Special Report to the OSRC in accordance with specification 5.4.B.	30 days

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
TRS 3.7.A.1.1	Fire Water Storage Tanks- Verify minimum water volume.	7 days
TRS 3.7.A.1.2	Main Fire Pump Operability - Operate Each pump for at least 15 minutes.	31 days
TRS 3.7.A.1.3	Valve Position Check - Verify that each valve (manual, power operated or automatic) in the flow path necessary for proper functioning of any portion of this system required for protection of safe shutdown systems is in its correct position. If the valve has an installed monitoring system, the valve can be checked via that monitoring system.	31 days
TRS 3.7.A.1.4	Valve Cycling Test - Exercise each valve necessary for proper functioning of any portion of this system required for protection of safe shutdown systems through at least one complete cycle. (i) Valves testable with plant on-line (ii) Valves not testable with plant on-line	 (i) 12 months (ii) 24 months
TRS 3.7.A.1.5	System Functional Test - Verify proper actuation of this system throughout its operating sequence, that each automatic valve in the flow path actuates to its correct position, and that each fire suppression pump starts (sequentially) to maintain fire water suppression system pressure.	24 months
TRS 3.7.A.1.6	Main Fire Pump Capacity and System Flow Check - Verify that each pump develops a flow of 2350 gpm at a system head of 250 feet.	24 months
TRS 3.7.A.1.7	System Flow Test - Perform a flow test in accordance with Chapter 5, Section 11 of the Fire Protection Handbook, 14th Edition, published by the National Fire Protection Association for any portion of this system required for protection of safe shutdown systems.	3 years
TRS 3.7.A.1.8	Perform System Flush - (May be done Concurrent with System Flow Test).	3 years
TRS 3.7.A.1.9	Verify that the Fire Pump Diesel Engine Fuel Oil Storage Tank contains at least 134 gallons of fuel.	31 days
TRS 3.7.A.1.10	Test Fire Pump Diesel Engine fuel sample to verify conformance with diesel manufacturers recommended minimum requirements for viscosity, water, and sediment.	92 days
TRS 3.7.A.1.11	Verify Fire Pump Diesel Engine starts from ambient conditions and operates for at least 30 minutes (May be done concurrent with 15 minute diesel pump test).	31 days
TRS 3.7.A.1.12	Conduct a thorough inspection of the Fire Pump Diesel Engine in accordance with procedures prepared in conjunction with the manufacturers' recommendations.	18 months

	SURVEILLANCE	FREQUENCY
TRS 3.7.A.1.13	Verify that the Fire Pump Diesel Engine starts from ambient conditions on the auto-start signal and is operated for greater than or equal to 30 minutes while loaded with the fire pump.	24 months
TRS 3.7.A.1.14	Verify electrolyte level of each Fire Pump Diesel Starting battery is above the plates and that the overall battery voltage is greater than or equal to 24 volts. Also verify that the specific gravity is appropriate for continued service of the battery.	31 days
TRS 3.7.A.1.15	Verify that the Fire Pump Diesel Starting batteries and battery racks show no visual indication of physical damage or abnormal deterioration and that the battery terminal connections are clean, tight and free of corrosion.	18 months

BASES

TRO

These Technical Requirements are established to assure the operability of fire protection and detection systems provided to protect equipment utilized for safe shutdown of the unit.

APPLICABLE SAFETY ANALYSIS

The fire protection and detection systems installed at IP3, conform to Appendix A of Branch Technical Position (BTP) APCSB 9.5-1 "Fire Protection for Nuclear Power Plants", as approved by the USNRC Regulatory Staff on March 6, 1979 as Amendment No. 24 to facility operating license No. DPR-64, and supplements thereto.

ACTIONS

F.1

The feeder cables associated with the normal and backup power supply for the Electric Driven Fire Pump are both routed through the same general area in the plant until they enter an underground raceway to the Fire Protection Pump House. The areas involved are: the Turbine Building (15’ elevation, south loading well), Control Building (15’ elevation) and the Administrative Service Building (15’ elevation near the fire brigade room). Although based on the physical separation of the feeder cables, the limited amount of combustibles in the area and the installed fire suppression capability (e.g., area wide wet pipe sprinkler system/CO2 system), it is unlikely that both feeder cables would be damaged, the required action is intended to ensure the availability of the Electric Driven Fire Pump when the Diesel Driven Fire Pump is inoperable.

SURVEILLANCE REQUIREMENTS	These Technical Requirements establish the surveillance program for Fire Protection and Detection Systems provided to protect equipment utilized for safe shutdown of the unit. This surveillance program is intended to verify the OPERABILITY of these systems and prevent any portion of the systems from performing its intended function. TRS 3.7.A.1.9 Calculation IP3-CALC-FP-02713, Revision 0 determined the minimum capacity of fuel oil storage tank (FOST) FP-T-3 necessary to ensure 8 hours of pump/engine operation is approximately 134 gallons. The requirement of 8 hours of operation is taken from NFPA 20-1976, Centrifugal Fire Pumps.

References:

1. FSAR 9.6.2

3.7 PLANT SYSTEMS

3.7.A FIRE PROTECTION SYSTEMS

3.7.A.2 Fire Protection Water Spray and Sprinkler Systems

TRO 3.7.A.2 The following Fire Protection Water Spray and Sprinkler Systems, as listed in AP-64.1, shall be OPERABLE:

a. Electrical Tunnel Preaction Water Spray System (El-34= & El-43=).
b. Diesel Generator Building Water Spray System (El-15').
c. Containment Fan Cooler Charcoal Filter Dousing System (El-68=).
d. Water Spray System at PAB door DR-1-PA to main transformer yard (El-18').
e. Turbine Building Pipe Bridge Water Spray System (El-41' 2 ½" & 52'4").
f. Auxiliary Feedwater Pump Room Wet Pipe Sprinkler System (El-18'6").

APPLICABILITY: Whenever equipment protected by the water spray or sprinkler system is required to be OPERABLE.

----------NOTES----------

1. Separate condition entries are allowed.
2. TRO 3.0.C is not applicable.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more systems described in TRO 3.7.A.2.a and TRO 3.7.A.2.f inoperable.	A.1.1	Establish a continuous fire watch and backup fire suppression equipment for the unprotected area(s),	1 hour
		OR	
	A.1.2.1	VERIFY smoke detectors in the affected area to be OPERABLE,	1 hour
		AND	
	A.1.2.2	Establish an hourly fire watch and backup fire suppression equipment for the unprotected area(s).	1 hour
	AND		
	A.2	Restore the inoperable system(s) to OPERABLE status.	14 days
B. One or more of the systems described in TRO 3.7.A.2.b, 3.7.A.2.c, 3.7.2.A.d, and 3.7.A.2.e inoperable.	B.1	Establish a continuous fire watch and backup fire suppression equipment for accessible unprotected area(s).	1 hour
	AND		
	B.2	Restore the inoperable system(s) to OPERABLE status.	14 days
C. Required Actions and Completion Times of A.2 OR B.2 not met.	C.1	Submit a Special Report to the On-Site Safety Review Committee according to TRM 5.4.B.	30 days

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
TRS 3.7.A.2.1 (1)	DEMONSTRATE that each accessible valve (manual, power operated, or automatic) in the flow path is in the correct position.	31 DAYS
TRS 3.7.A.2.2 (1)	Valve Cycling Test - Exercise each valve necessary for proper functioning of any portion of this system required for protection of safe shutdown systems through at least one complete cycle: (i) Valves testable with plant in MODE 1. (ii) Valves not testable with plant in MODE 1.	 (i) 12 months (ii) 24 months
TRS 3.7.A.2.3 (1)	System Functional Test - Includes simulated automatic / remotely operated actuation of system and verification that automatic / remotely operated valves in the flow path actuate to their correct position. (i) Systems described in TRO 3.7.A.2.a, 3.7.A.2.b, 3.7.A.2.d, 3.7.A.2.e, and 3.7.A.2.f (ii) System described in TRO 3.7.A.2.c	 (i) 18 months (ii) 24 months
TRS 3.7.A.2.4 (1)	Header Visual Inspection - DEMONSTRATE integrity. (i) Systems described in TRO 3.7.A.2.a, 3.7.A.2.b, 3.7.A.2.d, 3.7.A.2.e, and 3.7.A.2.f (ii) System described in TRO 3.7.A.2 c	 (i) 18 months (ii) 24 months
TRS 3.7.A.2.5 (1)	Visual Inspection of each Spray Nozzle - DEMONSTRATE that each nozzle's spray area is unobstructed. (i) Systems described in TRO 3.7.A.2.d and 3.7.A.2.e. (ii) System described in TRO 3.7.A.2 c	 (i) 18 months (ii) 24 months
TRS 3.7.A.2.6 (1)	Air Flow Test - Perform air flow test through each open spray nozzle and DEMONSTRATE each open spray nozzle is unobstructed.	3 years
TRS 3.7.A.2.7	For systems described in TRO 3.7.A.2.a, 3.7.A.2.b, and 3.7.A.2.f, automatic (i.e., closed head) spray nozzles and sprinklers shall be inspected visually to DEMONSTRATE that no damage exists and that the spray nozzle/ sprinkler is unobstructed.	18 months

Note 1: Surveillance requirements TRS 3.7.A.2.1 through 3.7.A.2.6 shall not apply to automatic (i.e., closed head) spray nozzles/sprinklers that are capable of only one actuation and cannot be cycled or tested periodically. The surveillance requirement for these automatic (i.e., closed head) spray nozzles/sprinklers is TRS 3.7.A.2.7.

BASES

TRO

This Technical Requirement ensures OPERABILITY of fire protection and detection systems that protect safety related systems and components that are required to shutdown the reactor and mitigate the consequences of postulated accidents and maintain it in a safe shutdown condition and those fire suppression systems which form in part the basis for compliance with 10 CFR 50, Appendix R.

APPLICABLE SAFETY ANALYSIS

IP3 fire protection and detection systems conform to:

- NRC FP SER dated March 6, 1979 as supplemented by NRC letter dated May 2, 1980
- NRC FP SER dated January 7, 1987.

SURVEILLANCE

This Technical Requirement establishes the surveillance program for Fire Protection Water Spray and Sprinkler Systems that protect safe shutdown equipment. This surveillance program DEMONSTRATES OPERABILITY of these systems and provides assurance that the systems will perform their intended function.

Containment is not considered normally accessible during plant operation.

ACTIONS

A.1.2.1

When implementing an hourly roving watch in lieu of a continuous watch, VERIFY smoke detectors to be OPERABLE in the affected area. IF the smoke detectors in the affected area are determined to be inoperable while applying this compensatory action, THEN within 1 hour, restore the smoke detector(s) to OPERABLE status or apply a continuous watch in the affected area (reference 2).

REFERENCES:

1. Nuclear Safety Evaluation NSE 95-03-334-FP, "Revision to the Operational Specifications to Reflect Electrical Tunnel Smoke Detector System Operability Criteria and Compensatory Measures for Spray/Sprinkler Systems."
2. Nuclear Safety Evaluation NSE 96-3-395-FP, “Development of Administrative Procedure AP-64.1 and Evaluation of a Change to Operational Specifications 3.2 and 3.5.”
3. FSAR 9.6.2

3.7 PLANT SYSTEMS

3.7.A FIRE PROTECTION SYSTEMS

3.7.A.3 Fire Separation Devices

TRO 3.7.A.3 Fire Seals, Fire Doors, Fire Dampers in required Fire Barriers, Controlled Barriers, Fire Barrier Wraps, and Radiant Energy Shields shall be OPERABLE (Refer to AP-64.1 for listing).

APPLICABILITY: AT ALL TIMES, except as modified in Note 3 or 4 below.

----------NOTES----------

1. Separate Condition Entries are allowed for individual features.
2. TRO 3.0.C does not apply.
3. For Fire Separation Devices that are only Appendix R type features as identified in AP-64.1, entry into Actions below is not required in Modes 5, 6 or when de-fueled.
4. For Fire Separation Devices that are not required because the equipment they are protecting is not required to be OPERABLE, entry into Actions below is not required.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more of the following Fire Protection or Appendix R features inoperable. (i.e. Fire Seals, Fire Doors, Fire Dampers in required Fire Barriers, Controlled Barriers, Fire Barrier Wraps, and Radiant Energy Shields.)	A.1.1	Establish a continuous fire watch on at least one side of the inoperable feature,	1 hour
		OR	
	A.1.2.1	VERIFY the operability of fire detectors on at least one side of the inoperable feature.	1 hour
		AND	
	A.1.2.2	For inoperable features outside the Containment Building, establish an hourly fire watch patrol, except when Condition B applies.	1 hour
		AND	
	A.1.2.3	For Fire Barrier Wraps and Radiant Energy Shields inside the Containment Building establish a fire watch patrol once every 8 hours when not in MODE 1.	2 hours
	AND		
	A.2	For Fire Protection features, restore the inoperable feature to OPERABLE status.	7 days
	AND		
	A.3	For Appendix R features, restore the inoperable feature to OPERABLE status.	30 days

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One or more fire doors or fire seals in the barriers separating the diesel generator compartments from each other or from the Control Building, inoperable, AND CO_2 fire suppression system of the diesel generator building, adjacent to the inoperable fire door or fire seal in the barrier(s), unavailable per TRO 3.7.A.7.	B.1 Establish a continuous fire watch with backup fire suppression equipment for the diesel generator compartments where the CO_2 fire suppression system(s) is (are) unavailable per TRO 3.7.A.7, AND B.2 Restore the inoperable feature to OPERABLE status.	1 hour 7 days
C. Required Actions and Completion Times of A.2, A.3 and/or B.2 not met.	C.1 Submit a Special Report to the OSRC in accordance with TRM 5.4.B.	14 days

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
TRS 3.7.A.3.1	DEMONSTRATE each barrier, wrap, and shield to be OPERABLE by visual inspection. Refer to AP 64.1 for listing.	24 months
TRS 3.7.A.3.2	- - - - - - - - - - - - - - - -NOTE - - - - - - - - - - - - - - - - - The inspection sample shall be determined as described in BASES TRS 3.7.A.3.2. - DEMONSTRATE 15% of fire seals located in fire barriers governed by this TRO (refer to AP 64.1 for listing) to be OPERABLE by visual inspection. (i) not readily accessible penetration seals as defined in the BASES TRS 3.7.A.3.2 (ii) inaccessible penetration seals as defined in the BASES TRS 3.7.A.3.2	24 months (i) when accessible but within 15 years (ii) not required AND Prior to declaring a fire seal OPERABLE following repairs or maintenance.
TRS 3.7.A.3.3	DEMONSTRATE each fire door to be OPERABLE by visual inspection and operation. (Refer to AP 64.1 for listing)	184 days
TRS 3.7.A.3.4	DEMONSTRATE each fire damper to be OPERABLE by visual inspection and operation (Refer to AP 64.1 for listing).	24 months

BASES

BACKGROUND
These specifications are established to assure the operability and provide surveillance requirements of fire protection and detection systems provided to protect equipment utilized for safe shutdown of the unit.

Fire Doors - Doors with specific fire resistance ratings as established by UL listing or FM approval, or otherwise established to be adequate for the specific fire protection service by engineering evaluation and/or licensing exemption granted by a Safety Evaluation Report (SER) issued by the NRC.

A fire door that is maintained open, blocked open, or that has cables, hose, etc. routed through the door opening in conjunction with a work activity is considered OPERABLE provided the door is continuously attended (i.e., within sight) by a member of the work party who is able to readily remove any cables, hose, etc. routed through the door opening, and close the door in the event of a fire emergency in the area or upon sounding of the station fire alarm. This relief does not include placement of obstructions that cannot be readily removed when required (e.g., scaffolding). The placement of such obstructions in a doorway renders the affected fire door INOPERABLE. Routing of cable, hose, etc. under an unattended fire door renders the affected door INOPERBLE unless specifically evaluated by engineering.

APPLICABLE SAFETY ANALYSIS
The fire protection and detection systems installed at IP3, conform to Appendix A of Branch Technical Position (BTP) APCSB 9.5-1 "Fire Protection for Nuclear Power Plants", as approved by the NRC Regulatory Staff on March 6, 1979 as Amendment No. 24 to facility operating license No. DPR-64, and supplements thereto, and IP3 Appendix R Analysis (latest revision). NSE 97-03-013-FBAR, revision 1, “Fire Barrier Penetration Seal Inspections,” justifies a change in inspection method at a frequency of 24 months from 100% sample inspection to a 15% defined sample inspection. NSE 97-3-302-FP-CO2, Rev. 0, allows an hourly fire watch patrol in lieu of a continuous fire watch in the emergency diesel generator compartment(s) when its CO2 fire protection system is unavailable with its fire barriers, sprinkler system and detection system meeting certain requirements. If its sprinkler system, barriers or detection system becomes degraded below these requirements then TRO 3.7.A.2, 3.7.A.3, and 3.7.A.4, respectively, require establishing a continuous fire watch for the affected diesel compartment(s). NSE 96-3-395FP, combined Operational Specification 3.2.13 and 3.5.3 (converted to TRO 3.7.A.3 for inclusion in TRM) into one specification and adapted AP 64.1 for listings.

TRO
Fire Separation Devices are those which are required by the Fire Protection Program to separate redundant safety-related systems or isolate safety related systems and components from unacceptable hazards. Appendix R barriers are those barriers which have been credited in the Appendix R Safe Shutdown Analysis. Refer to AP-64.1 for a listing of fire barriers, fire wrap or radiant energy shields governed by this Technical Requirement.

APPLICABILITY
Fire Protection Barriers are those that are required by the Fire Protection Program to separate redundant safety-related systems or isolate safety related systems and components from unacceptable hazards. Appendix R barriers are those barriers which have been credited in the Appendix R Safe Shutdown Analysis. Refer to AP-64.1 for a listing of fire barriers, fire wrap or radiant energy shields governed by this Technical Requirement.

ACTIONS
Note 1 modifies the Actions to clarify the application of Completion Times for inoperable Fire Protection and Appendix R features. Separate condition entry is allowed for each inoperable features separation device. The Completion Time(s) for the inoperable Fire Protection and Appendix R feature will be tracked separately for each feature starting from the time the Condition was entered for that feature.

Note 2 provides an exception to TRO 3.0.C and precludes a plant shutdown if the required actions are not performed in their completion time. These notes are acceptable because it is judged reasonable and determined not to adversely affect the ability to achieve and maintain safe shutdown in the event of a fire.

Note 3 modifies the applicability statement for Fire Separation Devices that are only required for Appendix R compliance. Note 3 is an allowance not to enter Action statement(s) when in modes 5, 6 or when de-fueled for inoperable Appendix R fire separation devices, since Appendix R only applies above cold shutdown.

Note 4 provides an allowance not to enter Action statement(s) for those inoperable fire separation devices when the equipment they are protecting is not required to be operable.

A.1.1, A.1.2.1 & A.1.2.2
Verification of OPERABILITY of fire detectors is satisfied if the last surveillance test that was performed satisfactorily demonstrated system or component OPERABILITY. If any information is available that challenges OPERABILITY, then the OPERABILITY is questionable until it is demonstrated by performing another test. Information that can challenge OPERABILITY can be (but is not limited to) visual observation, or PIDs, CRs, or work requests written against the system.

The completion time of 1 hour was selected as a reasonable time in which a continuous fire watch could be posted or verification of the OPERABILITY of fire detectors could be done along with the posting of an hourly fire watch patrol

A.1.2.3
The completion time of 2 hours was selected as a reasonable time in which a fire watch patrol could be established inside the Containment Building considering confined space issues and existing radiological controls governing such an entry. The establishment of an 8-hour fire watch patrol for areas inside the Containment Building was selected to limit radiation exposure to fire watch personnel while still maintaining reasonable compensatory measure given the potential fire hazard. Access to the Containment Building during MODE 1 is limited, as such the presence of transient combustibles or activities that could affect redundant systems and components is also limited.

A.2, A.3
With any barrier inoperable, the barrier must be restored to OPERABLE status within 1 hour or take compensatory actions and restore the barrier to OPERABLE status within 7 days and for Appendix R barrier within 30 days.

The completion times were selected as a reasonable time to restore the barrier to OPERABLE status with

compensatory measures in place.

B.1
The completion time of 1 hour was selected as a reasonable time in which a continuous fire watch could be posted.

B.2
The completion time of 7 days for restoring an inoperable fire protection feature to OPERABLE status was selected as a reasonable time to restore the barrier to OPERABLE status with compensatory measures in place.

SURVEILLANCE REQUIREMENTS

TRS 3.7.A.3.2
A minimum 15% sample of penetrations shall be visually inspected on a 24 month frequency. If a non-functional penetration seal is found during the initial inspection, a determination of the cause of unsatisfactory condition shall be performed and an additional 15% sample shall be generated based on that cause (i.e., penetrations most likely to experience the same problem) and inspected. This inspection process shall continue until a sample has rendered satisfactory inspection results.

The initial sample shall be determined based on environmental conditions to which the penetration seals are exposed (i.e., temperature, humidity and radiation). The sample selection shall also ensure that each type of seal is reasonably represented in the sample. In a effort to employ a systematic approach to the inspections thereby eliminating the potential of new penetrations being overlooked if only a few penetrations on any one wall are inspected, the initial sample shall also be determined based on fire barriers. That is, a group of fire barriers will be selected for each inspection period. The barriers will be selected based on environmental conditions. All penetrations in the selected barriers shall be inspected. The number of penetrations shall be reviewed to ensure that at least 15% of all penetrations is obtained. Further, the sample shall be reviewed to ensure that each type of seal is reasonably represented in the sample.

Should a penetration seal that is not readily accessible (as defined below) be selected as part of the sample, the inspection of that seal may be held in abeyance until such time that the several becomes accessible. This may be dependent on the preventive maintenance program (deenergized equipment), plant operating mode (radiation areas) or scaffolding program (physical accessibility, see note below). Another penetration shall be selected if required to fill the minimum 15% sample.

Penetration seals that are defined as not readily accessible include those that are located:
1) within energized electrical enclosures that are high voltage and have an exposed electrical connection or bus work
2) in locked or bolted panels and enclosures that are high voltage and have an exposed electrical connection or bus work, or have a significant trip risk
3) in locked high radiation areas, or high radiation areas where accessibility may be dependent on plant evolutions
4) in areas where physical access is significantly restricted and the use of remote mirrors, binoculars or scopes is significantly difficult
5) in the same fire zone where scaffolding has been erected and some of the inspection sample are readily accessible by use of the scaffolding

Note: Generally, the use of scaffolding does not provide the basis for relief from the above unless the erection of that scaffolding may cause a personnel hazard or potential plant transient.

Visual inspection of inaccessible penetration seals may be discontinued. Prior to discontinuing inspection of inaccessible penetration seals, an engineering evaluation in accordance with the guidance of Generic Letter (GL) 86-10 shall be performed for each seal. This evaluation should consider proximate combustible loading, hazards and consequences of seal failure as well as other mitigating features. Penetration seals that are defined as inaccessible include those which are located in areas where physical access is not possible or extreme measures are required to support inspection of the seal (i.e., where destructive measures are required or where removal of fixed equipment or building features is required).

TRS 3.7.A.3.3

The visual inspection and operation shall verify, as a minimum, the following conditions:

1) Door or frame is not structurally damaged
2) Door hardware (including latch, strike plate and hinges) is not loose or broken
3) There are no holes in the door surface
4) Closer is functional (i.e., the door will close and latch unassisted from the full open position) for any door not normally locked closed or not electrically supervised that alarms at a continuously manned location when the door is left open

REFERENCE FSAR 9.6.2

3.7 PLANT SYSTEMS

3.7.A FIRE PROTECTION SYSTEMS

3.7.A.4 Fire Detection Systems

TRO 3.7.A.4 The minimum number of fire detectors for each location listed in AP-64.1 shall be OPERABLE.

APPLICABILITY: Whenever equipment in that location is required to be OPERABLE.

----------NOTES----------
1. Separate Condition entries are allowed.
2. TRO 3.0.C is not applicable.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more fire locations with less than the minimum number of required fire detectors listed in AP-64.1 OPERABLE.	A.1 Establish an hourly fire watch patrol, where accessibility permits, in the affected location(s), AND A.2 Restore the required fire detectors to OPERABLE status.	1 hour 14 days
B. Less than the minimum number of required fire detectors in diesel generator compartment(s), OPERABLE AND CO_2 Fire Protection System(s) within affected compartment(s), unavailable.	B.1 Establish a continuous fire watch and backup fire suppression equipment for the diesel generator compartment(s) where the CO2 Fire Protection System(s) are unavailable, AND B.2 Restore required fire detectors in the affected diesel generator compartment(s) to OPERABLE status.	1 hour 14 days
C. Required Action and Completion Time of A.2 OR B.2 not met.	C.1 Submit a Special Report to the OSRC in accordance with specification 5.4.B.	30 days

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
TRS 3.7.A.4.1	Smoke Detectors - DEMONSTRATE OPERABILITY of the detectors listed in AP-64.1.	12 months
TRS 3.7.A.4.2	Heat Detectors - DEMONSTRATE OPERABILITY of the detectors listed in AP-64.1 as follows:	
	(i) All detectors except those associated with VC building FCUs and CO2 systems.	(i) 12 months
	(ii) Those detectors associated with the VC building FCUs and CO2 systems.	(ii) 24 months
TRS 3.7.A.4.3	Flame Detectors- DEMONSTRATE OPERABILITY of the detectors listed in AP-64.1.	184 days

BASES

TRO

These specifications are established to assure the OPERABILITY of Fire Detection Systems provided to protect equipment utilized for safe shutdown of the unit. Containment is not considered normally accessible during MODEs 1, 2, 3, and 4.

APPLICABLE SAFETY ANALYSIS

The fire protection and detection systems installed at IP3, conform to Appendix A of Branch Technical Position (BTP) APCSB 9.5-1 "Fire Protection for Nuclear Power Plants", as approved by the NRC Regulatory Staff on March 6, 1979 as Amendment No. 24 to facility operating license No. DPR-64, and supplements thereto.

NSE 97-3-302-FP-CO2, Rev. 0, allows an hourly fire watch patrol in lieu of a continuous fire watch in the emergency diesel generator compartment(s) when its CO2 fire protection system is unavailable with its fire barriers, sprinkler system and detection system meeting certain requirements. If its sprinkler system, barriers or detection system becomes degraded below these requirements then TRO 3.7.A.2, 3.7.A.3, and 3.7.A.4, respectively, require establishing a continuous fire watch for the affected diesel compartment(s).

NSE 97-3-400FP CO2, Rev. 1, evaluated the installation of a door release system for fire door FDR-30-CB. Fire door FDR-30-CB provides protection from the spread of a fire through the doorway in the fire barrier between the cable spreading room (fire area CTL-3) and the Electrical Tunnel (fire area ETN-4). Since the door is a normally open door, integrity of the barrier in the event of a fire, is assured by automatic closure of the door. Two pairs of heat detectors have been installed in the electrical tunnel entryway that will actuate the door release mechanism upon one pair detecting a

fire. Additionally, the door release mechanism will be actuated upon the cable spreading room heat detection associated with the CO2 system. The Fire door FDR-30-CB also provides a support function by remaining open during abnormal and accident conditions to ensure ventilation cooling of safety-related equipment in the cable spreading room by the Electrical Tunnel Ventilation System's exhaust fans.

NSE 96-3-395-FP, revision 1 justifies extending the frequency for testing smoke detectors from every 6 months to every 12 months. The frequency of 12 months for periodic testing smoke detectors is adequate for reasonable assurance of system functionality and availability. This is based in part on IP3 experience and NFPA 72-1996 as evaluated in NSE 96-3-395-FP, revision 1.

SURVEILLANCE

These Technical Requirements establish the surveillance program for Fire Detection Systems provided to protect equipment utilized for safe shutdown of the unit. This surveillance program is intended to DEMONSTRATE the OPERABILITY of these systems and provide assurance that the systems will perform their intended function.

TRS 3.7.A.4.1
The frequency of 12 months for periodic testing smoke detectors is adequate for reasonable assurance of system functionality and availability. This is based in part on IP3 experience and NFPA 72-1996 as evaluated in NSE 96-3-395-FP, revision 1.

TRS 3.7.A.4.2.(i)
The frequency for periodic testing of the heat detectors associated with the automatic release system provided for fire door FDR-30-CB, is based on the requirements of NFPA 72-1996. This test does not need to DEMONSTRATE that the fire door release mechanism actuates upon a simulated actuation signal because this DEMONSTRATION is performed per TRS 3.7.A.7.3

REFERENCES:

1. FSAR 9.6.2

3.7 PLANT SYSTEMS

3.7.A FIRE PROTECTION SYSTEMS

3.7.A.5 Fire Hose Stations

TRO 3.7.A.5 The fire hose stations listed in AP-64.1 shall be OPERABLE.

APPLICABILITY: Whenever equipment in the area is required to be OPERABLE.

----------NOTES----------
1. Separate Condition entries are allowed.
2. TRO 3.0.C is not applicable.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required fire hose stations listed in AP-64.1 inoperable.	A.1.1 Route an additional equivalent capacity hose to the affected area(s) from an operable hose station. OR A.1.2 Make available suitable portable fire fighting equipment at the location(s). AND A.2. Restore the fire hose station(s) to OPERABLE status.	1 hour 1 hour 14 days
B. Required Action and Completion Time of A.2 is not met.	B.1 Submit a Special Report to the OSRC in accordance with specification 5.4.B.	30 days

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
TRS 3.7.A.5.1	Visual Inspection Test - Visual inspection of the accessible(1) hose stations to assure all required equipment is at the station.	31 days
TRS 3.7.A.5.2	Hose Removal Check - Removal of the hose for inspection and replacement of all degraded gaskets in couplings.	24 months
TRS 3.7.A.5.3	Hose Flow Test - Partial opening of each hose station valve to verify valve operability and no flow blockage. (Vapor Containment hose stations are exempt from this requirement)	3 years
TRS 3.7.A.5.4	Hose Hydrostatic Test - Conduct a hose hydrostatic test at a pressure at least 50 psig greater than the maximum pressure available at that hose station.	3 years

Note 1) Containment is not considered normally accessible in MODES 1, 2, 3 and 4.

BASES

TRO	These Technical Requirements are established to assure the OPERABILITY of Fire Hose Stations provided to protect equipment utilized for safe shutdown of the unit. Containment is not considered normally accessible in MODEs 1, 2, 3 and 4.
APPLICABLE SAFETY ANALYSIS	The Fire Hose Stations installed at IP3, conform to Appendix A of Branch Technical Position (BTP) APCSB 9.5-1 "Fire Protection for Nuclear Power Plants", as approved by the NRC Regulatory Staff on March 6, 1979 as Amendment No. 24 to facility operating license No. DPR-64, and supplements thereto. NSE 96-03-050-FP, "Revision To Operational Specification Section 3.5, Fire Protection and Detection Systems."
APPLICABILITY	The fire hose stations listed in AP-64.1 shall be OPERABLE. This procedure represents the list of fire hose stations specifically committed to be installed in the safety evaluation report (SER) and supplement (NRC SER dated May 2, 1980) thereto for Amendment No. 24 to the facility operating license. The fire hose station installed in the waste hold-up tank area, elevation 56', has been abandoned in place and the adjacent station in the PAB, elevation 41', has been credited instead for the Fire Protection Program, as evaluated in DEM 90-3-089FP, “Deletion of 2 ½” Hose Station No. 292”.
ACTIONS	A.1 These ACTIONs (A.1.1 or A.1.2) ensures alternate fire fighting equipment is available in lieu of the inoperable hose station. The completion time of 1-hour is a reasonable time to supply alternate fire fighting equipment in the affected area without jeopardizing fire safety or plant safety. A.2 This ACTION restores the inoperable hose station(s) equipment within a reasonable Completion Time of 14 days. B.1 This ACTION requires a report to the OSRC within thirty days from the Completion Time of ACTION A.2 when an inoperable hose station was not restored within a reasonable time. This report is performed in accordance with TRM 5.4.B.

SURVEILLANCE REQUIREMENTS

This Technical Requirement establishes the surveillance program for Fire Hose Stations provided to protect equipment utilized for safe shutdown of the unit. This surveillance program is intended to verify the OPERABILITY of these fire hose stations and prevent any portion of the systems from performing its intended function.

TRS 3.7.A.5.1
The visual inspection of the accessible hose stations monthly assures all required equipment is at the hose station. This provides assurance that the fire brigade have sufficient equipment available to fight a fire in the affected area(s). When Vapor Containment is considered accessible (the plant is in MODE 5 or 6), then this visual inspection is additionally required for the stations in the VC.

TRS 3.7.A.5.2
This surveillance removes the hose for inspection and replacement of all degraded gaskets in couplings every twenty-four months. This assures that the hose and gaskets are in good condition and are in a racked position ready for fire fighting.

TRS 3.7.A.5.3
This surveillance requires partial opening of each hose station valve to verify valve operability and no flow blockage every three years. The Vapor Containment (VC) hose stations are exempt from this requirement because these hose stations are supplied by a superior water source (demineralized water) in contrast to the normal water supply which is city water (Reference 1). Flow to these hose stations is also assured by the periodic valve position check.

TRS 3.7.A.5.4
This surveillance requires a hose hydrostatic test every three years at a pressure at least 50 psig greater than the maximum pressure available at that hose station.

REFERENCES

1) NSE 96-03-050-FP, "Revision to Operational Specification Section 3.5, Fire Protection and Detection Systems."
2) FSAR 9.6.2

3.7 PLANT SYSTEMS

3.7.A FIRE PROTECTION SYSTEMS

3.7.A.6 Yard Fire Hydrants and Hydrant Hose Houses

TRO 3.7.A.6 The yard fire hydrants and associated hydrant hose houses listed in AP-64.1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3 and 4.

----------NOTES----------
1. Separate Condition entries are allowed.
2. TRO 3.0.C is not applicable.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required yard fire hydrants or associated hydrant hose house inoperable.	A.1 Have sufficient additional lengths of 2 1/2 inch diameter hose located in an adjacent operable hydrant hose house to provide service to the unprotected area(s). AND A.2 Restore the inoperable yard hydrant to service.	1 hour 14 days
B. Required Action and Completion Time of A.2 is not met.	B.1 Submit a Special Report to the OSRC in accordance with TRM 5.4.B.	30 days

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
TRS 3.7.A.6.1.a	Inspect hose houses associated with hydrants, listed in AP-64.1, for inventory, physical damage and obstructions. If tamper seal is used to seal the hose house, inspect tamper seal integrity in lieu of taking inventory and see TRS 3.7.A.6.1.b.	92 days
TRS 3.7.A.6.1.b	If tamper seal is used, visually inspect hose houses associated with hydrants listed in AP-64.1 in order to assure that all required equipment is inside.	366 days
TRS 3.7.A.6.2	Visually inspect those hydrant listed in AP-64.1 to verify that the hydrant barrel is dry and undamaged.	---------NOTE-------- Perform spring/fall ---------- 184 days
TRS 3.7.A.6.3	Flow check each hydrant serving safety related areas to DEMONSTRATE OPERABILITY (i.e. Hydrants #31, 32, 35, 36, 38, 39 and 310).	366 days
TRS 3.7.A.6.4	Conduct a hose hydrostatic test at a pressure at least 50 psi greater than the maximum pressure available at any yard hydrant. Also, inspect all gaskets and replace any degraded gaskets in the couplings.	366 days

BASES

BACKGROUND

These Technical Requirements are established to assure the OPERABILITY and provide surveillance requirements of Yard Fire Hydrants and Hydrant Hose Houses provided to protect equipment utilized for safe shutdown of the unit.

APPLICABLE SAFETY ANALYSIS

The Yard Fire Hydrants and Hydrant Hose Houses installed at IP3, conform to Appendix A of Branch Technical Position (BTP) APCSB 9.5-1 "Fire Protection for Nuclear Power Plants", as approved by the NRC Regulatory Staff on March 6, 1979 as Amendment No. 24 to facility operating license No. DPR-64, and supplements thereto.

NSE 97-03-124FP (Reference 1) provides the basis for defining the minimum inventory in a hose house, extending the frequency of hose house inspections, allowing the use of controlled tamper seals and allowing verification of tamper seal integrity in lieu of verifying hose house inventory. If a controlled tamper seal is used, inventory frequency may be extended to yearly with a quarterly inspection of the tamper seal. This evaluation included a review of previous inspections to ensure past experience supports extension of the inventory inspection frequency. In addition, the quarterly inspection will include an inspection for physical damage or obstructions to the hose house that could render it inaccessible.

The minimum set of equipment required to be contained in exterior hose houses is:

- 200' of 1½" hose;
- 200' of 2½" hose;
- 2 approved adjustable spray-solid stream nozzles with shutoff @ 1½";
- 1 approved adjustable spray-solid stream nozzle with shutoff @ 2½"
- 2 hydrant wrenches;
- 4 universal coupling spanner wrenches;
- 2 hose coupling gaskets for each size hose (2@1½", 2@2½");
- 1 valved wye (2½" x1½" x1½");
- 1 hydrant valve (2½").

REFERENCES:

1) NSE 97-03-124FP, “Revise Inventory and Extend Inspection Intervals for Exterior Hose Houses“
2) NSE 96-3-395FP, “Development of Administrative Procedure AP-64.1 and Evaluation of a Change to Operational Specification 3.2 and 3.5”
3) FSAR 9.6.2

3.7 PLANT SYSTEMS

3.7.A FIRE PROTECTION SYSTEMS

3.7.A.7 CO_2 Fire Protection System

TRO 3.7.A.7 As a minimum, one CO_2 Storage Tank shall be available with a minimum level of 60% and a minimum pressure of 275 psi and the CO_2 System Fire Protection available to supply the CO2 areas as listed in AP-64.1.

APPLICABILITY: Whenever equipment in these areas are required to be OPERABLE.

----------NOTES----------

1. Separate Condition entries are allowed.
2. TRO 3.0.C is not applicable.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. CO_2 Storage Tank inoperable OR CO_2 Fire Protection System unavailable	A.1.1	Establish a continuous fire watch and backup fire suppression equipment for the accessible unprotected area(s), OR	1 hour
	A.1.2.1	For the diesel generator room(s) only, VERIFY fire detectors in the affected room(s) are OPERABLE, AND	1 hour
	A.1.2.2	VERIFY the fire barriers between the affected room(s) and adjacent diesel generator room(s) and between the affected room(s) and the Control Building are OPERABLE, AND	1 hour
	A.1.2.3	VERIFY the diesel generator room sprinkler system in the affected room(s) are operable, AND	1 hour
	A.1.2.4	Establish an hourly fire watch patrol with backup fire suppression equipment for the affected diesel generator room(s).	1 hour
	AND A.2	Restore CO_2 Fire Protection System equipment to OPERABLE status.	14 days
B. Required Action and Completion Time of A.2 is not met.	B.	Submit a Special Report to the OSRC in accordance with specification 5.4.B.	30 days

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
TRS 3.7.A.7.1	DEMONSTRATE availability of CO_2 Supply Units 3-1 or 3-2 for that unit which is lined up to the Control and Diesel Generator Buildings by visual observation of level and pressure indication for associated tank.	7 days
TRS 3.7.A.7.2	DEMONSTRATE that each valve (manual, power operated or automatic) in the flow path is in its correct position.	31 days
TRS 3.7.A.7.3	System Functional Test: (i) DEMONSTRATE that system valves and associated ventilation dampers and fire door release mechanisms actuate upon receipt of a simulated actuation signal. (ii) Exercise fire dampers.	(i) 24 months (ii) 12 months
TRS 3.7.A.7.4	DEMONSTRATE flow from nozzles.	24 months

BASES

BACKGROUND

These Technical Requirements are established to assure the operability and provide surveillance requirements of fire protection and detection systems provided to protect equipment utilized for safe shutdown of the unit.

APPLICABLE SAFETY ANALYSIS

The fire protection and detection systems installed at IP3, conform to Appendix A of Branch Technical Position (BTP) APCSB 9.5-1 "Fire Protection for Nuclear Power Plants", as approved by the NRC Regulatory Staff on March 6, 1979 as Amendment No. 24 to facility operating license No. DPR-64, and supplements thereto.

NSE 97-3-302-FP-CO2, Rev. 0, allows an hourly fire watch patrol in lieu of a continuous fire watch in the emergency diesel generator compartment(s) when its CO2 fire protection system is unavailable with its fire barriers, sprinkler system and detection system meeting certain requirements. If its sprinkler system, barriers or detection system becomes degraded below these requirements then TRO 3.7.A.2, 3.7.A.3, and 3.7.A.4, respectively, require establishing a continuous fire watch for the affected diesel compartment(s).

NSE 97-3-400FP CO2, Rev.1, evaluates the use of dry air as an alternate test medium to CO2 during functional testing of the CO2 Fire Protection System.

NSE 97-3-424-FP-CO2, Rev. 2, evaluates the use of administrative controls during periodic functional testing of the CO2 system to ensure the support function of ventilation to the EDG is maintained ensuring continued operability of the EDG throughout the test. Implicit in the definition of operability of the EDGs, is the assumption that the associated ventilation systems that are required to maintain the room temperature below its design or limiting equipment qualification temperature, are also be capable of performing their function. These administrative controls are defined below in BASES Surveillance section.

NSE 98-03-048 FP CO2, Revision 0 recognized that, under specific conditions, it may be necessary to isolate CO2 storage tank 3-2 to correct deficiencies associated with one or more of the supplied systems. The NSE evaluated the effect on the operating mode (i.e., automatic versus manual) of the CO2 fire suppression systems provided for the main boiler feed pumps and concluded that the backup fire protection provides an acceptable level of protection until the tank valve is re-opened. The NSE specifically considered backup fire suppression (i.e., a manual water spray system or standpipe system); automatic fire detection (i.e., heat detectors or heat responsive automatic sprinklers) and a 24-hour staffed on site fire brigade.

TRO
The CO2 system fire protection availability by definition shall be interpreted to mean with the system in either the automatic or the manual mode of operation with the automatic mode as the primary mode of operation.

ACTIONS

A.1.1
Continuous fire watch means an individual is, without interruption, physically located in the unprotected area(s), (i.e., the area(s) lacking CO2 fire protection). Using a roving watch with other, concurrent responsibilities would not be satisfactory compensatory action. With the CO2 fire protection system out of service for the entire control building, three fire watches would be needed: 1) in the cable spreading room, 2) in the switch gear room, and 3) in the diesel generator building (the three diesel cells are contiguous in one fire area and have additional fire water protection). NSE 97-3-400FP CO2, Rev.1, evaluated that during CO2 functional testing, the continuous fire watch will remain in place unless occupying the Control Building poses an undue risk to personnel safety. In which case the continuous fire watch(es) will be temporarily relieved of their post(s) until the conditions of the building will allow re-entry.

A.1.2
Absent the availability of CO2 fire protection system in the Diesel Generator Building, fire detectors of the heat detection systems, the automatic water spray systems and fire walls between adjacent diesel generator rooms and from the Control Building, coupled with compensatory action in the form of an hourly fire watch patrol and backup fire suppression equipment will provide reasonable assurance that a fire will be promptly detected and will ensure that the material condition of the rooms are maintained consistent with the administrative controls established under the IP3 Fire Protection Program. This will provide reasonable assurance that if a fire gets started, fire damage would be limited to a single diesel generator room by means of the automatic water spray system or manual action by the on-site fire brigade. As such, the verification that the fire detectors in the affected room and the fire walls between the affected room and adjacent diesel generator rooms are operable, coupled with an operable water spray system within the diesel generator sump and above the day tank provides reasonable justification to allow for an hourly fire watch patrol in lieu of a continuous fire watch when a Diesel Generator Building CO2 fire protection system is unavailable.

SURVEILLANCE

Administrative controls are allowed during CO2 functional testing to maintain the ventilation system support function available with manual action ensuring continued EDG operability. During testing, the thermostatic controls of the associated exhaust fans will be defeated such that the fans cannot automatically start on high ambient room temperature. Since the actuation circuit of the CO2 system results in the cell intake air/smoke dampers to close, manual action is credited to reopen these dampers and restore EDG cell ventilation upon an EDG automatic start. The controls consist of a

dedicated person located in the EDG cell, or in an adjacent room with the door between the two cells open, to first manually restore the open position of the smoke damper located on the 15' elevation, then to reposition the control switch for one of the two exhaust fans to start, and lastly manually restore the open position of the smoke damper located in the crawl space below the 15' elevation. These actions to restore ventilation shall be proceduralized in the test and reviewed as part of the pre-test briefing along with the location of equipment, access through crawl space for the second smoke damper and the equipment necessary to access and hold open the smoke dampers (i.e., a hand-held flashlight and utilizing approved qualified smoke damper open devices, such as un-fused electrical thermo links (ETL). Reference 3.

REFERENCES:

1) NSE 97-3-302-FP-CO2, Rev. 0, "Change in the Compensatory Action in the Event of a CO2 Fire Protection System of the Diesel Generator Building is Unavailable."
2) NSE 97-3-400-FP-CO2, Rev. 1, "Installation of a Seismic Control Panel for the 480V Switchgear Room and Cable Spreading Room CO2 Systems."
3) NSE 97-3-424-FP-CO2, Rev. 2, "Installation of Seismic Control Panels for the EDG Cell CO2 Systems and Supporting System Improvements."
4) NSE 98-3-048-FP CO2, Rev. 0, "Operation of the Plant with an Inoperable CO2 Fire Suppression System for the Main Boiler Feed Pumps."
5) FSAR 9.6.2

3.7 PLANT SYSTEMS

3.7.B Appendix R Alternate Safe Shutdown Equipment

TRO 3.7.B The Appendix R Safe Shutdown Functions in Table 3.7.B-1 shall be OPERABLE.

APPLICABILITY: MODE 1, 2, 3 and 4, except for TRO 3.7.B.9, which is MODES 1, 2, 3 and 4 when MSIVs are open.

----------NOTES----------

1. Separate Condition Entry is allowed on each component and Function.
3. See TRM section 3.3.D for instrumentation associated with Appendix R safe shutdown equipment and TRM section 3.8.B for Appendix R Diesel and electrical power scheme.
4. TRO 3.0.C does not apply to Required Actions B.1, E.1 and G.1.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A One or more required Function(s) with one or more required component(s) in table 3.7.B-1 inoperable.	A.1 Enter the Condition(s) referenced in Table 3.7.B-1, AND A.2 Enter applicable Related Specification referenced in Table 3.7.B-1 as required by that Related Specification.	Immediately Immediately
B Enter Condition B as required by Table 3.7.B-1.	B.1 Establish an hourly fire watch in the Fire Watch Area(s) designated in Table 3.7.B-1 for the inoperable Function.	1 hour
C. Enter Condition C as required by Table 3.7.B-1.	C.1 Restore required Function(s) to OPERABLE status.	30 days
D. Required Action and associated Completion Time of C not met.	D.1. Be in MODE 3, AND D.2 Be in MODE 5.	6 hours 36 hours
E. Enter Condition E as required by Table 3.7.B-1.	E.1 Verify the availability of at least 8 portable lights with eight-hour capacity, AND E.2 Restore required Function(s) to OPERABLE status.	1 hour 30 days
F. Enter Condition F as required by Table 3.7.B-1.	F.1 Restore required Function(s) to OPERABLE status.	30 days
G. Required Action and associated Completion Time of E.2 or F not met.	G.1 Submit a special report to OSRC according to TRM 5.4.B.	14 days

----------NOTE----------
Refer to Table 3.7.B-1 to determine which TRS(s) apply for each Appendix R Function.

SURVEILLANCE

	SURVEILLANCE	FREQUENCY
TRS 3.7.B.1	Press “test button” and assure lamps illuminate and are properly aimed.	31 days
TRS 3.7.B.2	DEMONSTRATE pump performance is met by starting each pump and operating for 15 minutes or per IST requirements.	92 days OR Per IST require-ments
TRS 3.7.B.3	DEMONSTRATE backup supply of Nitrogen (bottles) is available to cycle ADVs.	92 days
TRS 3.7.B.4	DEMONSTRATE operability of each CR Supplemental A/C unit by running for 15 minutes.	92 days
TRS 3.7.B.5	DEMONSTRATE eight radios are available to support Appendix R safe shutdown activities.	92 days
TRS 3.7.B.6	Run Control Building Exhaust Fans 31, 32, 33, and 34 for a minimum of 15 minutes to DEMONSTRATE proper function.	92 days
TRS 3.7.B.7	Perform a visual inspection of each lighting unit, measure the battery float voltage, and press “test button” and assure lamps illuminate and are properly aimed. OR The battery in the emergency light SHALL be replaced every 2 years. There is no annual testing (e.g., measuring battery float voltage, measuring battery conductance, 8-hour battery discharge test, etc.) required if the Appendix R light unit batteries are replaced on a 2 year frequency. The monthly test (TSR 3.7.B.1) verifies the operation of the light unit and aim of the lamps.	366 days OR 24 months

	SURVEILLANCE	FREQUENCY
TRS 3.7.B.8	Perform conductance measurement to meet criterion in Table 3.7.B-3, and perform an eight-hour discharge test or replace emergency battery lights not satisfying the No Discharge Test Criteria in Table 3.7.B-3, and perform an eight-hour discharge test when measurements are taken while the batteries are in an environment above 110 °F. Waiving the criterion for batteries tested while their environment is below 60 °F is allowed if the battery passed the No Discharge Test Criteria six months ago ±25%. OR The battery in the emergency light unit SHALL be replaced every 2 years. There is no annual testing (e.g., measuring battery float voltage, measuring battery conductance, 8-hour battery discharge test, etc.) required if the Appendix R light unit batteries are replaced on a 2 year frequency.	366 days OR 24 months
TRS 3.7.B.9	Perform an eight-hour discharge test on 10% of units that passed the No Discharge Test Criteria in Table 3.7.B-2. An additional sample of 10% of each type that failed shall be tested. Sampling process shall continue until no failures or type is exhausted. OR The battery in the emergency light unit SHALL be replaced every 2 years. There is no annual testing (e.g., measuring battery float voltage, measuring battery conductance, 8-hour battery discharge test, etc.) required if the Appendix R light unit batteries are replaced on a 2 year frequency.	366 days OR 24 months
TRS 3.7.B.10	Perform an eight-hour discharge test on emergency battery light units not subject to conductivity measurement (i.e., units with Ni-Cad batteries, etc.). OR The battery in the emergency light unit SHALL be replaced every 2 years. There is no annual testing (e.g., measuring battery float voltage, measuring battery conductance, 8-hour battery discharge test, etc.) required if the Appendix R light unit batteries are replaced on a 2 year frequency.	24 months
TRS 3.7.B.11	Cycle ADV valves utilizing nitrogen.	24 months
TRS 3.7.B.12	DEMONSTRATE valve closure capability.	24 months
TRS 3.7.B.13	DEMONSTRATE valve opening capability.	24 months

	SURVEILLANCE	FREQUENCY
TRS 3.7.B.14	Start each pump and run for 15 minutes powered from its alternate power supply (MCC 312A) and through any applicable transfer switch.	24 months
TRS 3.7.B.15	DEMONSTRATE communication capability between the various local control stations.	24 months
TRS 3.7.B.16	Disable AC power to emergency lighting panel 39 and DEMONSTRATE that emergency lighting in the control room is available.	24 months

Table 3.7.B-1 Appendix R Alternate Safe Shutdown Equipment

Function TRO	Required Component(s)	Condition	Fire Watch Area	Surveillance	Related Specification
TRO 3.7.B.1 Backup Service Water Pump	Backup SWP #38	C	NA	TRS 3.7.B.2	NA
TRO 3.7.B.2 Component Cooling Water Pumps	CCWP #31, CCWP #32, CCWP #33	C	NA	TRS 3.7.B.2 TRS 3.7.B.14 (TRS 3.7.B.14 applies to CCWP #32 only)	ITS 3.7.8
TRO 3.7.B.3 Charging Flow & Isolation Capability (function)	Pumps (flow) CP # 31, CP # 32	C	NA	Pumps TRS 3.7.B.2 TRS 3.7.B.14	TRM 3.1.C.1 TRM 3.1.C.2
	Valves (opening) CH-AOV-212 (CR), CH-227 (locally)			Valves (opening) TRS 3.7.B.13	
	Valve (isolation) CH-AOV-204A (CR), CH-AOV-204B (CR), CH-AOV-200B (CR), CH-LCV-459 (CR), CH-LCV-460 (CR), CH-228 (locally)			Valves (isolation) TRS 3.7.B.12	
TRO 3.7.B.4 Atmospheric Dump Valves (i.e., local control capability)	PCV-1137	C	NA	TRS 3.7.B.3 TRS 3.7.B.11	ITS 3.7.4
	PCV-1134	B & C	Turbine Bldg & Aux Feed Pump Bldg		
TRO 3.7.B.5 Control Room Supplemental A/C	COND/EVAP – - #31, - #32, - - #33, - #34, - #35.	C	NA	TRS 3.7.B.4	NA
TRO 3.7.B.6 Control Room Emergency Lighting	Control Room Emergency Lighting DC Power Feed	E	NA	TRS 3.7.B.16	NA

Table 3.7.B-1 Appendix R Alternate Safe Shutdown Equipment

Function TRO	Required Component(s)	Condition	Fire Watch Area	Surveillance	Related Specification
TRO 3.7.B.7 Emergency Lighting Units (Appendix R)	Refer to Table 3.7.B-3 for a listing.	E	NA	TRS 3.7.B.1 TRS 3.7.B.7 TRS 3.7.B.8 TRS 3.7.B.9 TRS 3.7.B.10	NA
TRO 3.7.B.8 Condenser Make-up Isolation Capability.	CT-7-2, CT-8, CT-12, CT-45, CT-46-2 CT-400	C	NA	TRS 3.7.B.12	NA
TRO 3.7.B.9 Secondary Steam Isolation (from Control Room, except MS-9-2 and MS-11-2)	MS-HCV-127-1, MS-HCV-127-2, MS-HCV-127-3, MS-HCV-127-4, MS-MOV-6-1, MS-MOV-6-2, MS-MOV-6-3, MS-MOV-6-4, MS-9-2 (locally), MS-11-2 (locally), PCV-1120, PCV-1121, PCV-1122, PCV-1123, PCV-1124, PCV-1125, PCV-1126, PCV-1127, PCV-1128, PCV-1129, PCV-1130, PCV-1131.	B & C	MSIV(s) vicinity	TRS 3.7.B.12 (from Control room, except MS-9-2 and MS-11-2 locally)	NA
TRO 3.7.B.10 Control Building Ventilation	CB Fan #31 CB Fan #32 CB Fan #33 CB Fan #34 FD-DF-1 (damper) FP-DF-2 (damper) FP-DF-9 (damper) FP-DF-10 (damper) FP-DF-11 (damper) FP-DF-50 (damper) CBL-320 (louver) CBL-319 (louver)	C	NA	TRS 3.7.B.6	NA

Table 3.7.B-1 Appendix R Alternate Safe Shutdown Equipment					
Function TRO	Required Component(s)	Condition	Fire Watch Area	Surveillance	Related Specification
TRO 3.7.B.11 Communication Capability	Eight Appendix R Radio Units	F	NA	TRS 3.7.B.5 TRS 3.7.B.15	NA

Table 3.7.B-2
Appendix R Emergency Battery Lighting Units

Unit No.	Building	Location	Elevation
EBR-1-EDG	Control Building	Sump & Valve Room	15'
EBR-2-EDG	Diesel Generator Building	33 Diesel Generator Room	15'
EBR-3-EDG	Diesel Generator Building	33 Diesel Generator Room	15'
EBR-4-EDG	Diesel Generator Building	32 Diesel Generator Room	15'
EBR-5-EDG	Diesel Generator Building	31 Diesel Generator Room	15'
EBR-6-EDG	Diesel Generator Building	32 Diesel Generator Room	15'
EBR-7-EDG	Diesel Generator Building	31 Diesel Generator Room	15'
EBR-8-EDG	Diesel Generator Building	Outside EDG 31 Room	15'
EBR-1-CB	Control Building	West Doorway	15'
EBR-2-CB	Control Building	Center of Room	15'
EBR-3-CB	Control Building	East Doorway	15'
EBR-4-CB	Control Building	East Doorway	15'
EBR-5-CB	Control Building	Stairway	15'
EBR-6-CB	Control Building	West Doorway	33'
EBR-7-CB	Control Building	Center of Room	33'
EBR-8-CB	Control Building	East 480V Transformer	33'
EBR-9-CB	Control Building	Stairway East	33'
EBR-10-CB	Control Building	Stairway East	33'
EBR-11-CB	Control Building	Control Room Front Door	55'
EBR-12-CB	Control Building	Control Room Back Door	55'
EBR-13-CB	Control Building	Control Room Back Door Stairway	55'
EBR-14-CB	Control Building	At Switchgear	15'
EBR-15-CB	Control Building	At Switchgear	15'
EBR-16-CB	Control Building	At Switchgear	15'
EBR-17-CB	Control Building	At Switchgear	15'
EBR-18-CB	Control Building	Control Room North Wall	55’
EBR-44-CB	Control Building	North Wall Center	33'
EBR-1-TB	Turbine Building	South East of 6.9KV Swgr @ Doorway	15'
EBR-2-TB	Turbine Building	Outside Oil Room	15'
EBR-3-TB	Turbine Building	Outside Elevator	15'
EBR-4-TB	Turbine Building	FACING MCC 312A	15'
EBR-5-TB	Turbine Building	NEAR MBFP 31, COL. A-14	15'

Unit No.	Building	Location	Elevation
EBR-6-TB	Turbine Building	Near MBFP 31, COL. BB-16	25'
EBR-7-TB	Turbine Building	Near MBFP 32, COL. A-12.5	15'
EBR-8-TB	Turbine Building	South Side of Column	15'
EBR-9-TB	Turbine Building	6.9 kV Switchgear	15'
EBR-10-TB	Turbine Building	6.9 kV Switchgear	15'
EBR-11-TB	Turbine Building	6.9 kV Switchgear	15'
EBR-12-TB	Turbine Building	6.9 kV Switchgear	15'
EBR-13-TB	Turbine Building	CT-7-2 and CT-8 Area	33'
EBR-14-TB	Turbine Building	NE Stairwell AT Col. F-20/21	15'
EBR-30-TB	Turbine Building	Stairwell to 15' Elevation	36'-9"
EBR-31-TB	Turbine Building	Near Hatch, Col. D-11	36'-9"
EBR-32-TB	Turbine Building	Near Hatch, Col. C-11	36'-9"
EBR-33-TB	Turbine Building	Near OE Review Grp Office, Col. A-12	36'-9"
EBR-37-TB	Turbine Building	Near NE Stairway @ COL. F-20	36'-9"
EBR-38-TB	Turbine Building	@ COL. F-20	53'
EBR-39-TB	Turbine Building	@ COL. F-18	53'
EBR-40-TB	Turbine Building	@ COL. F-14	53'
EBR-41-TB	Turbine Building	@ COL. F-11	53'
EBR-42-TB	Turbine Building	Stairway to 36'-9" Elevation	53'
EBR-43-TB	Turbine Building	Turbine 55' Front Standard	55'
EBR-46-TB	Turbine Building	Lube Oil East Wall Room	15'
EBR-1-FH	Fan House	Stairway	55'
EBR-2-FH	FanHouse	Pipe Penetration Walkway	55'
EBR-3-FH	Fan House	Pipe Penetration Area	55'
EBR-7-FH	Fan House	Stairway	73'
EBR-8-FH	Fan House	Valve Area	73'
EBR-9-FH	Fan House	Valve Area	73
EBR-10-FH	Fan House	NE Fan House	73'
EBR-18-FH	Fan House	West Fan House	73'
EBR-1-PAB	Primary Auxiliary Building	Stairway	15'
EBR-2-PAB	Primary Auxiliary Building	Hallway	15'
EBR-3-PAB	Primary Auxiliary Building	Hallway	15'
EBR-4-PAB	Primary Auxiliary Building	West Stairway	43'-6"
EBR-5-PAB	Primary Auxiliary Building	West Stairway	43'-6"
EBR-7-PAB	Primary Auxiliary Building	Safety Injection Pump Room	43'-6"
EBR-10-PAB	Primary Auxiliary Building	Pipe Tunnel	32'-6"
EBR-12-PAB	Primary Auxiliary Building	Corridor Outside CCWP RM	41'
EBR-13-PAB	Primary Auxiliary Building	Corridor Outside CCWP RM	41'
EBR-14-PAB	Primary Auxiliary Building	CCWP Stair Area	41'
EBR-15-PAB	Primary Auxiliary Building	CCWP Stair Area	41'
EBR-16-PAB	Primary Auxiliary Building	SE. Stairway	41'
EBR-17-PAB	Primary Auxiliary Building	CS Pump Area-SE. PAB	41'
EBR-19B-PAB	Primary Auxiliary Building	Behind CCWP'S	41'
EBR-19-PAB	Primary Auxiliary Building	Near MCC'S	55'
EBR-20-PAB	Primary Auxiliary Building	Near Sample Rooms	55'
EBR-22-PAB	Primary Auxiliary Building	Charging Pump Area	55'

EBR-23-PAB	Primary Auxiliary Building	Near RAMS Door	55'
Unit No.	**Building**	**Location**	**Elevation**
EBR-24-PAB	Primary Auxiliary Building	North Storage Area	55'
EBR-25-PAB	Primary Auxiliary Building	PAB Outside CAF	73'
EBR-26-PAB	Primary Auxiliary Building	PAB Outside CCW Exchanger Area	73'
EBR-27-PAB	Primary Auxiliary Building	73' PAB Above Hose Station	73'
EBR-28-PAB	Primary Auxiliary Building	55' PAB on North Wall Behind Ltg Swgr	55'
EBR-29-PAB	Primary Auxiliary Building	Charging Pump 31 Cell	55'
EBR-30-PAB	Primary Auxiliary Building	Charging Pump 32 Cell	55'
EBR-31-PAB	Primary Auxiliary Building	Outside Charging Pumps	55'
EBR-32-PAB	Primary Auxiliary Building	Clothing Area	55'
EBR-33-PAB	Primary Auxiliary Building	Outside Waste Gas Compressor Room	55'
EBR-36-PAB	Primary Auxiliary Building	Outside VCT Isolation Valve Cell	73'
EBR-37-PAB	Primary Auxiliary Building	@ VCT Isolation Valve LCV-112C	73'
EBR-38-PAB	Primary Auxiliary Building	On North Wall Near SW Valves	73'
EBR-42-PAB	Primary Auxiliary Building	RHR Pump RM #31	15'
EBR-43-PAB	Primary Auxiliary Building	RHR Pump RM #32	15'
EBR-45-PAB	Primary Auxiliary Building	South Wall Pipe Tunnel	41'
EBR-46-PAB	Primary Auxiliary Building	Pipe Tunnel	35'
EBR-47-PAB	Primary Auxiliary Building	Pipe Tunnel	35'
EBR-48-PAB	Primary Auxiliary Building	Pipe Tunnel	35'
EBR-55-PAB	Primary Auxiliary Building	Walkway - Admin. Building to PAB	64'-3"
EBR-56-PAB	Primary Auxiliary Building	Walkway - Admin. Building to PAB	64'-3"
EBR-57-PAB	Primary Auxiliary Building	Walkway - Admin. Building to PAB	64'-3"
EBR-58-PAB	Primary Auxiliary Building	Walkway at CCW Pumps	41'
EBR-59-PAB	Primary Auxiliary Building	Pipe Penetration Area	55'
EBR-60-PAB	Primary Auxiliary Building	Walkway - Admin. Building to PAB	55'
EBR-61-PAB	Primary Auxiliary Building	Walkway - Admin. Building to PAB	55'
EBR-1-ET	Electrical Tunnel	Lower Electrical Tunnel	34'
EBR-2-ET	Electrical Tunnel	Lower Electrical Tunnel	34'
EBR-3-ET	Electrical Tunnel	Lower Electrical Tunnel	34'
EBR-4-ET	Electrical Tunnel	Lower Electrical Tunnel	34'
EBR-6-ET	Electrical Tunnel	Lower Electrical Tunnel	34'
EBR-8-ET	Electrical Tunnel	Upper Electrical Tunnel	44'
EBR-9-ET	Electrical Tunnel	Upper Electrical Tunnel	44'
EBR-10-ET	Electrical Tunnel	Upper Electrical Tunnel	44'
EBR-11-ET	Electrical Tunnel	Upper Electrical Tunnel	44'
EBR-12-ET	Electrical Tunnel	Upper Electrical Tunnel	44'
EBR-13-ET	Electrical Tunnel	Upper Electrical Tunnel	48'

Unit No.	Building	Location	Elevation
EBR-14-ET	Electrical Tunnel	Upper Electrical Tunnel	46'
EBR-15-ET	Electrical Tunnel	Electrical Penetration Area	46'
EBR-16-ET	Electrical Tunnel	Electrical Penetration Area	46'
EBR-17-ET	Electrical Tunnel	Electrical Penetration Area Stairway	58'
EBR-1-ABFP	Aux. Feedwater Pmp Bldg	ABFP Room	18'-6"
EBR-2-ABFP	Aux. Feedwater Pmp Bldg	ABFP Room	18'-6"
EBR-3-ABFP	Aux. Feedwater Pmp Bldg	Outside ABFP Room	15'
EBR-4-ABFP	Aux. Feedwater Pmp Bldg	Near Feedwater Regulator Valves	26'
EBR-5-ABFP	Aux. Feedwater Pmp Bldg	Stairway	30'
EBR-6-ABFP	Aux. Feedwater Pmp Bldg	Feedwater Bartoms	27'
EBR-7-ABFP	Aux. Feedwater Pmp Bldg	Chemical Addition Tank	27'
EBR-8-ABFP	Aux. Feedwater Pmp Bldg	Near Louver	43'
EBR-9-ABFP	Aux. Feedwater Pmp Bldg	Near Door	43'
EBR-10-ABFP	Aux. Feedwater Pmp Bldg	Stairway Area	43'
EBR-11-ABFP	Aux. Feedwater Pmp Bldg	Stairway Area	60'
EBR-12-ABFP	Aux. Feedwater Pmp Bldg	Steam Bridge	55'
EBR-13-ABFP	Aux. Feedwater Pmp Bldg	Steam Bridge	55'
EBR-14-ABFP	Aux. Feedwater Pmp Bldg	MS-1-32 Local	64'
EBR-15-ABFP	Aux. Feedwater Pmp Bldg	MS-1-34 Local	64'
EBR-16-ABFP	Aux. Feedwater Pmp Bldg	MS-1-31 Local	77'
EBR-17-ABFP	Aux. Feedwater Pmp Bldg	MS-1-33 Local	77'
EBR-47-ABFP	Aux. Feedwater Pmp Bldg	South East Containment Wall	18'-6"
EBR-48-ABFP	Aux. Feedwater Pmp Bldg	South East ABFP Room	18'-6"
EBR-49-ABFP	Aux. Feedwater Pmp Bldg	South West of ABFP Room	18'-6"
EBR-50-ABFP	Aux. Feedwater Pmp Bldg	On Containment Wall	43'
EBR-51-ABFP	Aux. Feedwater Pmp Bldg	43' South East ABFP Room	43'
EBR-31-ADM	Admin Service Building	3rd Floor Stairway, COL. C-8	47’6”
EDR-41-ADM	Admin Service Building	4th Floor Stairway, COL. BC-8	61'
EBR-43-ADM	Admin Service Building	4th Floor hallway	61'
EBR-44-ADM	Admin Service Building	4th Floor by old respirator room	61'
EBR-45-ADM	Admin Service Building	4th Floor past turnstiles	61'
EBR-52-ADM	Admin Service Building	1st Floor @ A1-7	15'
EBR-53-ADM	Admin Service Building	1st Floor @ C_c-7	15'
EBR-4-EDGR	App R Diesel Ggenerator	Control Panel Room	15'
EBR-1-INT	Intake Structure	Intake Structure Southeast	15'
EBR-2-INT	Intake Structure	Intake Structure South	15'
EBR-8-INT	Intake Structure	Intake Structure Pit South	15'
EBR-9-INT	Intake Structure	Intake Structure Pit North	15'
EBR-10-INT	Intake Structure	Intake Structure Pit Entrance	15'
EBR-52-GT	GT substation	Gas Turbine Breaker GT-CP	15'
EBR-53-GT	GT substation	Gas Turbine Breaker GT-BT	15'
EBR-54-GT	GT substation	Gas Turbine Breaker GT-2F	15'

Table 3.7.B-3
No Discharge Test Criteria & Preventative Maintenance Replacement Criteria

Note 1: Criterion is not applicable to Ni-Cad Batteries.
Note 2: Criterion is not applicable when measurements are taken while batteries are in an environment below 60°F or above 110°F.
Note 3: *Criteria values must be adjusted up 1% of mhos for each 1.0°F above a 90°F environment.

Unit Type	Loading	Criteria for No Discharge Test (avg. of batteries)	Preventative Maintenance Replacement Criteria (min. each battery)
B-200	2 – 12 watt heads	150 mhos*	140 mhos*
	4 – 12 watt heads	180 mhos*	140 mhos*
	40 watt head	165 mhos*	140 mhos*
Big Beam in areas other than Electrical Tunnel & Intake Structure	All	350 mhos*	275 mhos*
Big Beam in areas of Electrical Tunnel & Intake Structure	All	480mhos*	275 mhos*

BASES

BACKGROUND

The equipment and systems listed in this Technical Requirement are credited in Appendix R Scenarios and are necessary to meet the requirements of 10CFR50.48 and 10CFR50, Appendix R, Section III.G.

10CFR50 Appendix R requires a licensee to demonstrate the ability to achieve MODE 3 from power operation conditions, bring the plant to MODE 5 conditions and maintain the plant in that condition. Additionally, Appendix R requires that one train of equipment necessary to achieve MODE 3 from either the control room or emergency control station(s) must be maintained free of fire damage by a single fire including an exposure fire.

To support the Appendix R Safe Shutdown Analysis, the plant was divided into distinct analysis zones/areas. These zones/areas are primarily based on Fire Area boundaries with consideration of approved exemptions. These zones/areas are as follows:

CNT-1	Containment Building
PAB-2(1)	Primary Auxiliary Building (15' elevation including RHR pump rooms and corridors)
PAB-2(2)	Primary Auxiliary Building (41' elevation CCW pump area)
PAB-2(3)	Primary Auxiliary Building (55' elevation Charging pump rooms)
PAB-2(4)	Primary Auxiliary Building (55' elevation MCC area)
PAB-2(5)	Primary Auxiliary Building (remaining areas not covered by other analysis areas)
CTL-3	Control Building and Diesel Generator Building (including Control Room, Cable Spreading Room, 480v Switchgear Room, Battery Rooms, Service Water Valve Room and Control Building Fan Room)
ETN-4(1)	Electrical Tunnel (entryway)
ETN-4(2)	Electrical Tunnel (upper electrical tunnel)
ETN-4(3)	Electrical Tunnel (upper electrical penetration area and fan room)
ETN-4(4)	Electrical Tunnel (lower electrical tunnel and lower electrical penetration area)
TBL-5	Turbine Building and Auxiliary Feedwater Pump Building (except Auxiliary Feedwater Pump room)
AFW-6	Auxiliary Feedwater Pump Building (Auxiliary Feedwater Pump room)
Yard-7	External yard areas including Intake Structure, Appendix R Diesel Generator Enclosure, Backup Service Water pump area, and the Condensate Storage Tank area.

APPLICABLE SAFETY ANALYSES

Appendix R Safe Shutdown Analysis for IP3, IP3-ANAL-FP –1503, Latest Revision
NSE 96-3-395FP, "Development of Administrative Procedure AP-64.1 and Evaluation of a Change to Operational Specification 3.2 and 3.5"
NSE-98-3-091EML, "Changes to Operational Specifications to Reflect a Change in Surveillance Testing of Emergency Lights"

TRO

This TRM ensures the OPERABILITY of a subset of the components that are necessary to address the Appendix R fire scenarios in the Appendix R Analysis. This TRM together with Technical Specifications and some other TRM specifications address the OPERABILITY of various components to meet the Appendix R Analysis. Some components credited by the analysis need not be specifically controlled because normal plant operation dictates that their credited function is maintained.

The components listed in Table 3.7.B-1 are credited in the IP3 Appendix R Analysis. These components are required to ensure the ability to achieve MODE 3 from MODE 1 conditions, bring the plant to MODE 5 conditions and maintain the plant in that condition either remotely or from the control room during an Appendix R fire scenario.

In addition, the allowed outage times established by the Technical Specifications or Technical Requirements do not bound the Appendix R requirements, and could result in a required component being out of service indefinitely or during MODEs where this component is required OPERABLE by the Appendix R Analysis.

This condition is outside the design of many of the systems and is not bounded by Technical Specifications or the TRM. Therefore, this TRO establishes actions necessary to ensure OPERABILITY of components credited in the Appendix R Analysis to maintain the components.

Separate condition entries are allowed to clarify the application of the completion time rules. The basis for this allowance is LCO 3.3.4, “Remote Shutdown System”, of the Westinghouse Standard Technical Specifications (STS). This STS LCO allows separate entry for each function. The Appendix R Technical Requirements are modeled from the STS.

The below identified fire zones/areas are the zones/areas that have a limited set of equipment available and therefore require the controls as specified in this TRO. Other zones/areas not listed (e.g. Yard-7) for the components contained in this TRO and others, were credited but need not be controlled by this TRO.

TABLE 3.7.B-1 COMPONENTS

<u>Backup Service Water Pump (TRO 3.7.B.1)</u>

Backup Service Water Pump 38 must be OPERABLE to demonstrate the capability to achieve MODE 3 from MODE 1 and maintain the plant in that condition. This pump is powered directly from MCC 312A. Acceptable levels for performance of an OPERABLE Backup Service Water Pump shall be that the pump starts and reaches its required developed head for at least fifteen minutes.

The Backup Service Water Pump 38 provides cooling water to essential/non-essential equipment required to achieve and maintain MODE 5. The IP3 Appendix R compliance strategy credits the use of Backup Service Water Pump 38 for fires in the following zones/areas:

- CTL-3 Control Building and Diesel Generator Building (including Control Room, Cable Spreading Room, 480v Switchgear Room, Battery Rooms, Service Water Valve Room and Control Building Fan Room)
- Yard-7 External yard areas including Intake Structure, Appendix R Diesel Generator Enclosure, Backup Service Water pump area, and the Condensate Storage Tank area.

Component Cooling Water Pumps (TRO 3.7.B.2)

The CCW Pumps must be OPERABLE to provide cooling water to plant equipment necessary to achieve and maintain MODE 5. CCW pump 32 is powered from MCC-312A and is the only CCW pump powered from Appendix R power supplies. Acceptable levels of performance for the determination of an OPERABLE CCW Pump shall be that the pump starts, reaches its required developed head as dictated by IST requirements.

The CCW Pumps provide cooling water to essential/non-essential equipment required to achieve and maintain MODE 5.The IP3 Appendix R Compliance Strategy credits the use of CCW Pump 31 for fire in the following zones/areas:

- PAB-2(1) Primary Auxiliary Building (15' elevation including RHR pump rooms and corridors)
- PAB-2(2) Primary Auxiliary Building (41' elevation CCW pump area)(for a fire affecting 32 & 33 CCWP)

The IP3 Appendix R Compliance Strategy credits the sole use of CCW Pump 32 for fires in the following zones/areas:

- CTL-3 Control Building and Diesel Generator Building (including Control Room, Cable Spreading Room, 480v Switchgear Room, Battery Rooms, Service Water Valve Room and Control Building Fan Room)
- ETN-4(1) Electrical Tunnel (entryway)
- ETN-4(2) Electrical Tunnel (upper electrical tunnel)
- PAB-2(4) Primary Auxiliary Building (55' elevation MCC area)

The IP3 Appendix R compliance strategy credits the sole use of CCW Pump 33 for fires in the following area:

- PAB-2(2) Primary Auxiliary Building (41' elevation CCW pump area)(for a fire affecting 31 CCWP)

Charging Pump Flow & Isolation Capability (function)(TRO 3.7.B.3)

Charging pumps 31 and 32 and the listed valves must be OPERABLE to provide RCS makeup capability and RCP seal cooling whenever the plant is above MODE 5. Charging Pump 31 and 32 are powered from MCC-312A. Acceptable levels for the determination of OPERABLE Charging Pumps 31 and 32 shall be that the pump starts, reaches its required developed head and flow and operate for at least fifteen minutes.

The IP3 Appendix R Compliance Strategy credits the use of charging pumps 31 or 32 for fires in the following zones/areas:

1. Charging Pump 31:
   - ETN-4(4) Electrical Tunnel (lower electrical tunnel and lower electrical penetration area)
   - PAB-2(3) Primary Auxiliary Building (55' elevation Charging pump rooms) (when 32 is affected)
   - PAB-2(4) Primary Auxiliary Building (55' elevation MCC area)
   - ETN-4(1) Electrical Tunnel (entryway)

2. Charging Pump 32:
   - ETN-4(1) Electrical Tunnel (entryway)
   - ETN-4(2) Electrical Tunnel (upper electrical tunnel)
   - PAB-2(3) Primary Auxiliary Building (55' elevation Charging pump rooms) (when 31 is affected)
   - PAB-2(5) Primary Auxiliary Building (remaining areas not covered by other analysis areas)

This Technical Requirement requires the below listed valves to be OPERABLE. The functions necessary for these valves to be declared OPERABLE are as follows:

- CH-AOV-204A and 204B: Isolation function
- CH-228: Isolation function
- CH-227: Open function
- CH-AOV-212: Open function
- CH-AOV-200B: Isolation function
- CH-LCV 459 & 460: Isolation function

Atmospheric Dump Valves (TRO 3.7.B.4)

The Steam Generator Atmospheric Dump Valves PCV-1134 and PCV-1137 must be OPERABLE to allow transition to MODE 5 and to maintain steam generator integrity. An acceptable level of performance for the determination of OPERABILITY is the ability to cycle the Atmospheric Dump Valves (ADVs) utilizing the nitrogen backup to the accumulators.

Nitrogen backup for the ADVs consists of a manual pressure regulator feed by either of two sources of nitrogen. One nitrogen source is piped from bottles located on the 15' elevation of the Auxiliary Feedwater Pump Building. The other source is available by installing a jumper from a local nitrogen bottle supplied at the control panel on 43' elevation of the Auxiliary Feedwater Pump Building. Either nitrogen supply must be manually valved in on loss of instrument air.

The Appendix R analysis credits Steam Generator ADVs PCV-1134 and PCV-1137 in a fire scenario to maintain steam generator integrity and to provide a means of heat removal during transition to MODE 5.

The Appendix R Compliance strategy credits the use of PCV-1134 and PCV-1137 for fires in the following zones/areas:

1. Steam Generator Atmospheric Dump Valve PCV-1134:

   - CNT-1 Containment Building
   - CTL-3 Control Building and Diesel Generator Building (including Control Room, Cable Spreading Room, 480v Switchgear Room, Battery Rooms, Service Water Valve Room and Control Building Fan Room)
   - ETN-4(4) Electrical Tunnel (lower electrical tunnel and lower electrical penetration area)
   - TBL-5 Turbine Building and Auxiliary Feedwater Pump Building (except Auxiliary Feedwater Pump room)

2. Steam Generator Atmospheric Dump Valve PCV-1137:

   - CNT-1 Containment Building
   - ETN-4(1) Electrical Tunnel (entryway)

- ETN-4(2) Electrical Tunnel (upper electrical tunnel)
- ETN-4(3) Electrical Tunnel (upper electrical penetration area and fan room)

In addition, either PCV-1134 or PCV-1137 must be operable for all other areas of the plant not mentioned above.

Control Room Supplemental A/C (TRO 3.7.B.5)

The Supplemental Control Room Air Conditioning (all five units) must be OPERABLE to maintain an acceptable and habitable environment in the control room during Appendix R scenarios. An OPERABLE Supplemental Control Room Air Conditioning System constitutes the ability to start and maintain Control Room temperatures at acceptable levels. This includes the power supply for the A/C units including BM6 480V ac/120 V ac transformer and 208V ac distribution panel DP-CCR/AC.

The Supplemental Control Room Air Conditioning System is credited in various Appendix R fire scenarios to maintain an acceptable and habitable environment in the control room.

The Appendix R Safe Shutdown Analysis credits the use of the Supplemental Control Room Air Conditioning System, during shutdown in the event of a fire in the following zones/areas:

- PAB-2(4) Primary Auxiliary Building (55' elevation MCC area)
- ETN-4(1) Electrical Tunnel (entryway)
- ETN-4(2) Electrical Tunnel (upper electrical tunnel)

Control Room Emergency Lighting (TRO 3.7.B.6)

The control room emergency lighting is required in the event that normal control room lighting is lost during an Appendix R fire scenario. The function of the control room emergency lighting is to ensure that the control room operators have sufficient lighting to monitor critical plant parameters from the control room. OPERABLE Control Room Emergency Lighting constitutes the functioning of emergency lights upon loss of AC power to emergency lighting panel 39.

The control room emergency lighting is credited for various Appendix R fire scenarios.

Emergency Lighting Units (Appendix R) (TRO 3.7.B.7)

The Appendix R compliance strategy requires the use of remote control stations for safe shutdown during a fire in the control room. 10CFR50 Appendix R requires emergency lighting units with at least an 8 hour battery supply to be provided in all areas needed for the operation of safe shutdown equipment and in access and egress routes thereto.
An OPERABLE emergency light constitutes the ability to provide sufficient lighting to accomplish the safe shutdown operations.

The availability of at least 8 portable lights that have an 8 hour capacity must be staged and available in the Safe Shutdown Locker to ensure each member of the shutdown crew will have lighting while performing required tasks in 3-AOP-SSD-1 and access/egress to shutdown stations.

Condenser Makeup Isolation Capability (TRO 3.7.B.8)

Valves CT-7-2, CT-8, CT-12, CT-45, CT-46-2, and CT-400 are required in the event that a fire

renders valves LCV-1158-1 and LCV-1158-2 inoperable. These valves are required to isolate the Condensate Storage Tank (CST) flow to the condensers and to align CST flow to the suction of the Auxiliary Feedwater Pumps. An acceptable level of performance for the determination of OPERABLE valve status is the ability to isolate.

Valves CT-7-2, CT-8, CT-12, CT-45, CT-46-2, and CT-400 are credited in one postulated fire scenario to isolate flow to the condensers from the CST. The Appendix R Safe Shutdown Analysis credits the use of valves CT-7-2 , CT-8, CT-12, CT-45, CT-46-2, and CT-400 for a postulated fire in the Auxiliary Feedwater Pump Room, area AFW-6.

Secondary Steam Isolation (from control room, except MS-9-2 and MS-11-2)(TRO 3.7.B.9)

The secondary steam isolation valves that are normally aligned during 100% power operation (Appendix R Initiating condition) are credited in Appendix R scenarios where the ability to isolate the main steam lines by utilizing the Main Steam Isolation Valves (MSIVs) is not available. MCC-32 provides control power to reheat valves MS-MOV-6-3 and MS-MOV-6-4. MCC-33 provides control power to reheat valves MS-MOV-6-1 and MS-MOV-6-2.

The secondary steam isolation valves are required in the event that main steam isolation cannot be maintained through the use of MSIVs. This function is required to isolate main steam loss from the steam generators and therefore these valves must be OPERABLE. OPERABLE valves constitute the following:

1. Main Turbine Stop Valves MS-HCV-127-1, -2, -3, -4 able to isolate, AND
2. All steam valves PCV-1120 through PCV-1131 able to isolate, AND
3. All reheat valves MS-MOV-6-1 through MS-MOV-6-4 able to isolate, AND
4. Main Steam to Air Ejectors MS-PCV-1132 Inlet Isolation Valve MS-9-2 able to isolate, AND
5. Main Steam to Hoggers MS-PCV-1133 Inlet Isolation Valve MS-11-2 able to isolate.

If any of these valves are isolated, then OPERABILITY of the isolated valves is not required.

The secondary steam isolation valves covered by this TRO are credited in various Appendix R scenarios to maintain steam generator integrity during MODE 3 and transition to MODE 5 with the MSIVs being open. The Appendix R Compliance Strategy credits the use of secondary steam isolation during a fire in the MSIV area (TBL-5).

Control Building Ventilation (TRO 3.7.B.10)

The Control Building Ventilation System must be OPERABLE to maintain an acceptable environment In the Cable Spreading Room and 480V Switchgear during normal, abnormal, and incident conditions.
An OPERABLE Control Building Ventilation System constitutes the ability to start and maintain the Cable Spreading Room and the 480V Switchgear Room at acceptable temperature levels.

The Control Building Ventilation System covered by this TRO is credited in the Appendix R Safe Shutdown Analysis to maintain an acceptable environment in the Cable Spreading Room and the 480V Switchgear Room. The Appendix R Safe Shutdown Analysis credits the use of the Control Building Ventilation System for all areas except the Control Building and the Diesel Generator Building.
With few exceptions, both exhaust fans of the 480V Switchgear Room Ventilation System are unaffected by a postulated fire. Control Building Fan 34 is credited in the Appendix R Safe Shutdown Analysis to maintain an acceptable environment in the 480V switchgear room in the event Control

Building Fan 33 is lost as a result of a postulated fire in the following zones/areas:

- PAB-2(4) Primary Auxiliary Building (55' elevation MCC area)
- ETN-4(1) Electrical Tunnel (entryway)
- ETN-4(2) Electrical Tunnel (upper electrical tunnel)

Control Building Fan 33 is credited in the Appendix R safe shutdown analysis to maintain an acceptable environment in the 480V switchgear room in the event the flowpath through FP-DF-9 is affected as a result of a postulated fire in the following zone/area:

- TBL-5 Turbine Building and Auxiliary Feedwater Pump Building (except Auxiliary Feedwater Pump room)(near the damper)

Cooling of the Cable Spreading Room is accomplished by either the Cable Spreading Room Ventilation System or the Electrical Tunnel Ventilation System. With few exceptions both systems are unaffected by a postulated fire. Control Building Fans 31 and 32 are credited in the Appendix R Safe Shutdown Analysis to maintain an acceptable and habitable environment in the event the Electrical Tunnel Ventilation System is lost as a result of a postulated fire in the following zones/areas:

- PAB-2(4) Primary Auxiliary Building (55' elevation MCC area)
- PAB-2(5) Primary Auxiliary Building (remaining areas not covered by other analysis areas)
- ETN-4(1) Electrical Tunnel (entryway)
- ETN-4(2) Electrical Tunnel (upper electrical tunnel)
- ETN-4(3) Electrical Tunnel (upper electrical penetration area and fan room)
- ETN-4(4) Electrical Tunnel (lower electrical tunnel and lower electrical penetration area)

Communication Capability (TRO 3.7.B.11)

The Appendix R compliance strategy at IP3 requires the use of remote control stations for safe shutdown during a fire in the control room. In the event that a fire prevents control of equipment required to achieve and maintain MODE 3, it would become necessary to perform a safe shutdown from outside of the Control Room. Portable radios would be relied upon to provide communications between various members of the operating crew during shutdown. An OPERABLE communication capability constitutes the following:

1. Eight portable radios, AND
2. Chargers for the eight radios.

ACTIONS

A. With any of the required functions listed in Table 3.7.B-1 inoperable, the conditions listed for the specific function must be entered and the related specification must also be entered without delay. This allows reasonable measures to be taken without jeopardizing plant safety. This Required Action ensures the appropriate Condition is entered and Required Actions taken as referenced in Table 3.7.B-1.

B. When components for a function listed in Table 3.7.B-1, become inoperable it is necessary to ensure that the equipment for which these components are credited to replace during an Appendix R scenario are guarded by a fire watch patrol. This helps to ensure that the failure

of this equipment due to fire is minimized (e.g. fire watch in MSIV vicinity when Secondary Steam Isolation is inoperable).

A fire watch is not prescribed in this Technical Requirement for those areas that have fire detection or suppression systems governed by TRM 3.7.A. The fire detection or suppression equipment required by TRM 3.7.A provides the protection against fires that would be provided by a fire watch in its absence. Should this fire detection and suppression equipment become inoperable the applicable portion of TRM 3.7.A would prescribe the necessary compensatory measures.

The completion time of 1 hour was selected as a reasonable time in which to post a fire watch patrol. IP3 Administrative procedures control combustibles and ignition sources during power operations. Based on the existence of these controls, the addition of an hourly fire watch patrol is judged to be adequate to ensure the failure of the subject components due to fire is minimized.

C. This Required Action ensures that the OPERABILITY of the subject equipment is restored in a timely manner. For these components a 30 allowed outage time was established based on Technical Specification 3.3.4, Remote Shutdown. This allowed outage time of 30 days without other compensatory action is acceptable for these components because the plant meets TRM 3.7.A, Fire Protection Systems, or its required compensatory actions.

D. The functions listed in Table 3.7.B-1 are credited in the IP3 Appendix R Analysis. Appendix R requires that one train of equipment necessary to achieve MODE 3 from either the control room or emergency control station(s) must be maintained free of fire damage by a single fire including an exposure fire.

- When the credited equipment is not restored in a timely manner this Appendix R licensed condition cannot be met by the remaining equipment in table 3.7.B-1 for fires in the zones/areas credited for this equipment as listed in the bases discussion of Table 3.7.B-1.

Therefore, the plant must be placed in MODE 3 within 6 hours and in MODE 5 within 36 hours. The time requirements to place the plant in MODE3 and MODE 5 were chosen to be consistent with Technical Specification 3.0.3 and TRO 3.0.C.

E. The completion time of 1 hour was selected as a reasonable time frame in which to put compensatory measures in place. The use of portable lighting can support operations personnel to perform the required tasks until such time that the emergency lighting can be made OPERABLE.

The compensatory measures put in place (i.e. availability of at least 8 portable lights with 8-hour capacity) is adequate for extended periods of time. The allowed outage time of 30 days is based on Technical Specification 3.3.4, Remote Shutdown.

F. The allowed outage time of 30 days is based on Technical Specification 3.3.4, Safe Shutdown. The allowed outage time of 30days without other compensatory action is acceptable because the plant meets TRO 3.7.A or its required compensatory actions.

G. The failure of Appendix R Emergency Lighting Units, Control Room Emergency Lighting, or the Appendix R Communication Capability does not directly affect the OPERABILITY of safe shutdown equipment. The use of alternate equipment would provide the same function as the

designated equipment. The purpose of this Required Action and associated Completion Time is to ensure that plant management is aware of the inoperable equipment and the subsequent delays in completing repairs to the system. After not restoring the proper equipment in a timely manner the 14 day report to OSRC in accordance with TRM 5.4.B provides the appropriate assessment and review.

SURVEILLANCE REQUIREMENTS

TRS 3.7.B.1- (Appendix R Emergency Lighting Units) - This test is designed to verify proper operation of the emergency lighting unit by simulating a loss of power and to ensure that no major equipment failure has been induced. This test is consistent with manufacturer's recommendations and guidance identified in EPRI/NMAC Report TR-100249. This periodic check also ensures that the lights are properly aimed to illuminate areas and equipment required for Appendix R safe shutdown activities.

TRS 3.7.B.2 - (Backup Service Water Pump 38, CCW Pumps [31, 32, 33], and Charging Pumps [31,32]) – This test is designed to demonstrate that the subject pumps are capable of providing their rated head and where appropriate using the IST program criteria. The frequency of 92 days is based on similar judgements used in determining the surveillance frequency of other pumps. The test interval of 92 days or where appropriate the IST program frequency is based on the judgment that more frequent testing would not significantly increase the reliability, yet more frequent testing would result in increased wear over a longer period.

TRS 3.7.B.3 - (S/G ADVs) – This test is to ensure that the motive force utilized to operate the ADVs during an Appendix R event is available.

TRS 3.7.B.4 - (Control Room Supplemental A/C) – This test is used to ensure the availability and capability of the Control Room Supplemental Air Conditioning System to maintain the Control Room in a safe, habitable condition. The frequency check of 92 days is sufficient to ensure the availability of the system, if required.

TRS 3.7.B.5 - (Appendix R Radio Units) – The purpose of this test is to verify the availability of at least 8 radios to support Appendix R safe shutdown activities.

TRS 3.7.B.6 - (Control Building Ventilation) – This test ensures the availability and the capability of the Control Building Ventilation System to maintain the 480V Switchgear Room and Cable Spreading Room at an acceptable condition. The 92-day frequency check is sufficient to ensure the availability of the system, if required.

TRS 3.7.B.7 - (Appendix R Emergency Lighting Units) – This test is designed to ensure the batteries are maintaining a sufficient charge and through visual inspection of the electrolyte level that the structural integrity of the battery case has been maintained. In addition, this test ensures the lights are properly aimed to illuminate areas and equipment necessary for Appendix R safe shutdown activities. The 366-day frequency is sufficient to ensure OPERABILITY of the equipment. The test is consistent with manufacturer's recommendations and guidance identified in EPRI/NMAC Report TR-100249.

OR

In lieu of the annual test, the battery in the emergency light unit is replaced every 2 years. There is no annual testing (e.g., measuring battery float voltage, measuring battery conductance, 8-hour battery discharge test, etc.) required if the Appendix R light unit batteries are replaced on a 2 year frequency. The monthly periodic test verifies the operation of the lighting unit and aim of the lamps.

TRS 3.7.B.8 - (Appendix R Emergency Lighting Units) – This surveillance monitors battery conductance in accordance with Table 3.7.B-3 to determine which batteries are in a condition to exclude them from a discharge test program and which batteries should be scheduled for replacement under the preventative maintenance program. The conductance test method is not applicable to units with Ni-Cad batteries nor to batteries in environments above 110°F.

For temperatures below 60°F, the conductance values will be lower than the same battery at a warmer temperature. This may result in unnecessary action, hence it is allowed to wave the criterion if the last test performed 192 days ago ±25% passed the No Discharge Test criteria. If batteries are in environments above 90°F, the test and replacement criterion needs to be adjusted up 1% of mhos per each 1°F. Batteries governed under the conductance test program that do not satisfy the No Discharge Test Criteria in Table 3.7.B-3 will be either replaced or subjected to an 8 hour discharge test annually. Batteries in environments above 110°F require discharge testing.

OR

In lieu of the annual test, the battery in the emergency light unit is replaced every 2 years. There is no annual testing (e.g., measuring battery float voltage, measuring battery conductance, 8-hour battery discharge test, etc.) required if the Appendix R light unit batteries are replaced on a 2 year frequency. The monthly periodic test verifies the operation of the lighting unit and aim of the lamps.

TRS 3.7.B.9 - (Appendix R Emergency Lighting Units) – Annually, a 10% sample of batteries that pass the conductance No Discharge Test Criteria in Table 3.7.B-3 are subjected to an 8 hour discharge test to demonstrate the adequacy of the conductance test program. An additional 10% of each type that failed shall be tested. The sampling process shall continue until no failures are identified or the type is exhausted. Conductance testing methodology reviewed in NSE-98-3-091EML is based on EPRI/NMAC Report TR-106826.

OR

In lieu of the annual test, the battery in the emergency light unit is replaced every 2 years. There is no annual testing (e.g., measuring battery float voltage, measuring battery conductance, 8-hour battery discharge test, etc.) required if the Appendix R light unit batteries are replaced on a 2 year frequency. The monthly periodic test verifies the operation of the lighting unit and aim of the lamps.

TRS 3.7.B.10 - (Appendix R Emergency Lighting Units) – This test is designed to verify that the emergency lighting unit can operate for the design operating time. This test is consistent with the manufacturer's recommendations and guidance identified in EPRI/NMAC Report TR-100249. This test is applicable to EBLs with Ni-Cad or other types of batteries not within the scope of the conductance test program.

OR

In lieu of the annual test, the battery in the emergency light unit is replaced every 2 years. There is no annual testing (e.g., measuring battery float voltage, measuring battery conductance, 8-hour battery discharge test, etc.) required if the Appendix R light unit batteries are replaced on a 2 year frequency. The monthly periodic test verifies the operation of the lighting unit and aim of the lamps.

TRS 3.7.B.11 - (S/G ADVs) – This test is to ensure the capability of the subject valves to operate as required utilizing the nitrogen backup. The frequency of 24 months was selected to coincide with refueling outages so that normal plant operations would not be affected.

TRS 3.7.B.12 - (Charging Flow, Condenser Makeup, Secondary Steam Isolation) – The purpose of this test is to ensure the capability of the subject valves to operate as required. The frequency of 24 months is selected to coincide with refueling outages. The Condenser Makeup 24 month frequency is also based on Technical Specification 3.7.5, Auxiliary Feedwater, that requires other valves in the system to be tested every 24 months. These valves perform an isolation function and as such it is not practical to perform this surveillance during normal plant operations.

TRS 3.7.B.13 - (Charging flow) - The purpose of this test is to ensure the capability of the listed Charging System valves to operate as required. The frequency of once per 24 months is selected to coincide with refueling outages. As these valves are normally positioned to support overall CVCS system operation, it is not practical to perform this complete surveillance during normal plant operations.

TRS 3.7.B.14 - (CCW Pump 32, Charging Pumps [31, 32]) – The purpose of this test is to verify the ability to power the subject pumps from the electrical system lineup utilized in the Appendix R Compliance Strategy. The frequency of 24 months was selected to coincide with plant refueling outages in order not to interfere with normal plant operations. The frequency of 24 months is also consistent with testing requirements for auxiliary electrical equipment. Therefore it is judged that more frequent testing would not significantly increase the reliability of the system.
Note that operation via the local control station of the Charging Pumps is not credited during Appendix R fire scenarios but operation via this control station may be used for this surveillance.

TRS 3.7.B.15 - (Communication Capability) – The purpose of this test is to ensure that radio communications are achievable with the available equipment between the various local control stations. The 24 month frequency was selected to be consistent with refueling outages.

TRS 3.7.B.16 - (Control Room Lighting) – This test is designed to verify the proper operation of the emergency lighting unit by simulating a loss of power and to ensure that no major equipment failure has been induced. The frequency of 24 months was selected to coincide with refueling outages such that normal plant operations would not be affected.

REFERENCES:

1. FSAR 1.3.1
2. FSAR 7.2.1
3. FSAR 9.6.1
4. FSAR 9.6.2
5. FSAR 9.9.1
6. FSAR 10.2.6
7. NSE 96-3-395, Rev.1, “Development of AP-64.1 and Evaluation of Change to OS 3.2 and 3.5.”

2. Charging Pump 32:
   - ETN-4(1) Electrical Tunnel (entryway)
   - ETN-4(2) Electrical Tunnel (upper electrical tunnel)
   - PAB-2(3) Primary Auxiliary Building (55' elevation Charging pump rooms) (when 31 is affected)
   - PAB-2(5) Primary Auxiliary Building (remaining areas not covered by other analysis areas)

This Technical Requirement requires the below listed valves to be OPERABLE. The functions necessary for these valves to be declared OPERABLE are as follows:

- CH-AOV-204A and 204B: Isolation function
- CH-228: Isolation function
- CH-227: Open function
- CH-AOV-212: Open function
- CH-AOV-200B: Isolation function
- CH-LCV 459 & 460: Isolation function

Atmospheric Dump Valves (TRO 3.7.B.4)

The Steam Generator Atmospheric Dump Valves PCV-1134 and PCV-1137 must be OPERABLE to allow transition to MODE 5 and to maintain steam generator integrity. An acceptable level of performance for the determination of OPERABILITY is the ability to cycle the Atmospheric Dump Valves (ADVs) utilizing the nitrogen backup to the accumulators.

Nitrogen backup for the ADVs consists of a manual pressure regulator feed by either of two sources of nitrogen. One nitrogen source is piped from bottles located on the 15' elevation of the Auxiliary Feedwater Pump Building. The other source is available by installing a jumper from a local nitrogen bottle supplied at the control panel on 43' elevation of the Auxiliary Feedwater Pump Building. Either nitrogen supply must be manually valved in on loss of instrument air.

The Appendix R analysis credits Steam Generator ADVs PCV-1134 and PCV-1137 in a fire scenario to maintain steam generator integrity and to provide a means of heat removal during transition to MODE 5.

The Appendix R Compliance strategy credits the use of PCV-1134 and PCV-1137 for fires in the following zones/areas:

1. Steam Generator Atmospheric Dump Valve PCV-1134:

   - CNT-1 Containment Building
   - CTL-3 Control Building and Diesel Generator Building (including Control Room, Cable Spreading Room, 480v Switchgear Room, Battery Rooms, Service Water Valve Room and Control Building Fan Room)
   - ETN-4(4) Electrical Tunnel (lower electrical tunnel and lower electrical penetration area)
   - TBL-5 Turbine Building and Auxiliary Feedwater Pump Building (except Auxiliary Feedwater Pump room)

2. Steam Generator Atmospheric Dump Valve PCV-1137:

   - CNT-1 Containment Building
   - ETN-4(1) Electrical Tunnel (entryway)

- ETN-4(2) Electrical Tunnel (upper electrical tunnel)
- ETN-4(3) Electrical Tunnel (upper electrical penetration area and fan room)

In addition, either PCV-1134 or PCV-1137 must be operable for all other areas of the plant not mentioned above.

Control Room Supplemental A/C (TRO 3.7.B.5)

The Supplemental Control Room Air Conditioning (all five units) must be OPERABLE to maintain an acceptable and habitable environment in the control room during Appendix R scenarios. An OPERABLE Supplemental Control Room Air Conditioning System constitutes the ability to start and maintain Control Room temperatures at acceptable levels. This includes the power supply for the A/C units including BM6 480V ac/120 V ac transformer and 208V ac distribution panel DP-CCR/AC.

The Supplemental Control Room Air Conditioning System is credited in various Appendix R fire scenarios to maintain an acceptable and habitable environment in the control room.

The Appendix R Safe Shutdown Analysis credits the use of the Supplemental Control Room Air Conditioning System, during shutdown in the event of a fire in the following zones/areas:

- PAB-2(4) Primary Auxiliary Building (55' elevation MCC area)
- ETN-4(1) Electrical Tunnel (entryway)
- ETN-4(2) Electrical Tunnel (upper electrical tunnel)

Control Room Emergency Lighting (TRO 3.7.B.6)

The control room emergency lighting is required in the event that normal control room lighting is lost during an Appendix R fire scenario. The function of the control room emergency lighting is to ensure that the control room operators have sufficient lighting to monitor critical plant parameters from the control room. OPERABLE Control Room Emergency Lighting constitutes the functioning of emergency lights upon loss of AC power to emergency lighting panel 39.

The control room emergency lighting is credited for various Appendix R fire scenarios.

Emergency Lighting Units (Appendix R) (TRO 3.7.B.7)

The Appendix R compliance strategy requires the use of remote control stations for safe shutdown during a fire in the control room. 10CFR50 Appendix R requires emergency lighting units with at least an 8 hour battery supply to be provided in all areas needed for the operation of safe shutdown equipment and in access and egress routes thereto.
An OPERABLE emergency light constitutes the ability to provide sufficient lighting to accomplish the safe shutdown operations.

The availability of at least 8 portable lights that have an 8 hour capacity must be staged and available in the Safe Shutdown Locker to ensure each member of the shutdown crew will have lighting while performing required tasks in 3-AOP-SSD-1 and access/egress to shutdown stations.

Condenser Makeup Isolation Capability (TRO 3.7.B.8)

Valves CT-7-2, CT-8, CT-12, CT-45, CT-46-2, and CT-400 are required in the event that a fire

renders valves LCV-1158-1 and LCV-1158-2 inoperable. These valves are required to isolate the Condensate Storage Tank (CST) flow to the condensers and to align CST flow to the suction of the Auxiliary Feedwater Pumps. An acceptable level of performance for the determination of OPERABLE valve status is the ability to isolate.

Valves CT-7-2, CT-8, CT-12, CT-45, CT-46-2, and CT-400 are credited in one postulated fire scenario to isolate flow to the condensers from the CST. The Appendix R Safe Shutdown Analysis credits the use of valves CT-7-2 , CT-8, CT-12, CT-45, CT-46-2, and CT-400 for a postulated fire in the Auxiliary Feedwater Pump Room, area AFW-6.

Secondary Steam Isolation (from control room, except MS-9-2 and MS-11-2)(TRO 3.7.B.9)

The secondary steam isolation valves that are normally aligned during 100% power operation (Appendix R Initiating condition) are credited in Appendix R scenarios where the ability to isolate the main steam lines by utilizing the Main Steam Isolation Valves (MSIVs) is not available. MCC-32 provides control power to reheat valves MS-MOV-6-3 and MS-MOV-6-4. MCC-33 provides control power to reheat valves MS-MOV-6-1 and MS-MOV-6-2.

The secondary steam isolation valves are required in the event that main steam isolation cannot be maintained through the use of MSIVs. This function is required to isolate main steam loss from the steam generators and therefore these valves must be OPERABLE. OPERABLE valves constitute the following:

1. Main Turbine Stop Valves MS-HCV-127-1, -2, -3, -4 able to isolate, AND
2. All steam valves PCV-1120 through PCV-1131 able to isolate, AND
3. All reheat valves MS-MOV-6-1 through MS-MOV-6-4 able to isolate, AND
4. Main Steam to Air Ejectors MS-PCV-1132 Inlet Isolation Valve MS-9-2 able to isolate, AND
5. Main Steam to Hoggers MS-PCV-1133 Inlet Isolation Valve MS-11-2 able to isolate.

If any of these valves are isolated, then OPERABILITY of the isolated valves is not required.

The secondary steam isolation valves covered by this TRO are credited in various Appendix R scenarios to maintain steam generator integrity during MODE 3 and transition to MODE 5 with the MSIVs being open. The Appendix R Compliance Strategy credits the use of secondary steam isolation during a fire in the MSIV area (TBL-5).

Control Building Ventilation (TRO 3.7.B.10)

The Control Building Ventilation System must be OPERABLE to maintain an acceptable environment In the Cable Spreading Room and 480V Switchgear during normal, abnormal, and incident conditions.
An OPERABLE Control Building Ventilation System constitutes the ability to start and maintain the Cable Spreading Room and the 480V Switchgear Room at acceptable temperature levels.

The Control Building Ventilation System covered by this TRO is credited in the Appendix R Safe Shutdown Analysis to maintain an acceptable environment in the Cable Spreading Room and the 480V Switchgear Room. The Appendix R Safe Shutdown Analysis credits the use of the Control Building Ventilation System for all areas except the Control Building and the Diesel Generator Building.
With few exceptions, both exhaust fans of the 480V Switchgear Room Ventilation System are unaffected by a postulated fire. Control Building Fan 34 is credited in the Appendix R Safe Shutdown Analysis to maintain an acceptable environment in the 480V switchgear room in the event Control

Building Fan 33 is lost as a result of a postulated fire in the following zones/areas:

- PAB-2(4) Primary Auxiliary Building (55' elevation MCC area)
- ETN-4(1) Electrical Tunnel (entryway)
- ETN-4(2) Electrical Tunnel (upper electrical tunnel)

Control Building Fan 33 is credited in the Appendix R safe shutdown analysis to maintain an acceptable environment in the 480V switchgear room in the event the flowpath through FP-DF-9 is affected as a result of a postulated fire in the following zone/area:

- TBL-5 Turbine Building and Auxiliary Feedwater Pump Building (except Auxiliary Feedwater Pump room)(near the damper)

Cooling of the Cable Spreading Room is accomplished by either the Cable Spreading Room Ventilation System or the Electrical Tunnel Ventilation System. With few exceptions both systems are unaffected by a postulated fire. Control Building Fans 31 and 32 are credited in the Appendix R Safe Shutdown Analysis to maintain an acceptable and habitable environment in the event the Electrical Tunnel Ventilation System is lost as a result of a postulated fire in the following zones/areas:

- PAB-2(4) Primary Auxiliary Building (55' elevation MCC area)
- PAB-2(5) Primary Auxiliary Building (remaining areas not covered by other analysis areas)
- ETN-4(1) Electrical Tunnel (entryway)
- ETN-4(2) Electrical Tunnel (upper electrical tunnel)
- ETN-4(3) Electrical Tunnel (upper electrical penetration area and fan room)
- ETN-4(4) Electrical Tunnel (lower electrical tunnel and lower electrical penetration area)

Communication Capability (TRO 3.7.B.11)

The Appendix R compliance strategy at IP3 requires the use of remote control stations for safe shutdown during a fire in the control room. In the event that a fire prevents control of equipment required to achieve and maintain MODE 3, it would become necessary to perform a safe shutdown from outside of the Control Room. Portable radios would be relied upon to provide communications between various members of the operating crew during shutdown. An OPERABLE communication capability constitutes the following:

1. Eight portable radios, AND
2. Chargers for the eight radios.

ACTIONS

A. With any of the required functions listed in Table 3.7.B-1 inoperable, the conditions listed for the specific function must be entered and the related specification must also be entered without delay. This allows reasonable measures to be taken without jeopardizing plant safety. This Required Action ensures the appropriate Condition is entered and Required Actions taken as referenced in Table 3.7.B-1.

B. When components for a function listed in Table 3.7.B-1, become inoperable it is necessary to ensure that the equipment for which these components are credited to replace during an Appendix R scenario are guarded by a fire watch patrol. This helps to ensure that the failure

of this equipment due to fire is minimized (e.g. fire watch in MSIV vicinity when Secondary Steam Isolation is inoperable).

A fire watch is not prescribed in this Technical Requirement for those areas that have fire detection or suppression systems governed by TRM 3.7.A. The fire detection or suppression equipment required by TRM 3.7.A provides the protection against fires that would be provided by a fire watch in its absence. Should this fire detection and suppression equipment become inoperable the applicable portion of TRM 3.7.A would prescribe the necessary compensatory measures.

The completion time of 1 hour was selected as a reasonable time in which to post a fire watch patrol. IP3 Administrative procedures control combustibles and ignition sources during power operations. Based on the existence of these controls, the addition of an hourly fire watch patrol is judged to be adequate to ensure the failure of the subject components due to fire is minimized.

C. This Required Action ensures that the OPERABILITY of the subject equipment is restored in a timely manner. For these components a 30 allowed outage time was established based on Technical Specification 3.3.4, Remote Shutdown. This allowed outage time of 30 days without other compensatory action is acceptable for these components because the plant meets TRM 3.7.A, Fire Protection Systems, or its required compensatory actions.

D. The functions listed in Table 3.7.B-1 are credited in the IP3 Appendix R Analysis. Appendix R requires that one train of equipment necessary to achieve MODE 3 from either the control room or emergency control station(s) must be maintained free of fire damage by a single fire including an exposure fire.

- When the credited equipment is not restored in a timely manner this Appendix R licensed condition cannot be met by the remaining equipment in table 3.7.B-1 for fires in the zones/areas credited for this equipment as listed in the bases discussion of Table 3.7.B-1.

Therefore, the plant must be placed in MODE 3 within 6 hours and in MODE 5 within 36 hours. The time requirements to place the plant in MODE3 and MODE 5 were chosen to be consistent with Technical Specification 3.0.3 and TRO 3.0.C.

E. The completion time of 1 hour was selected as a reasonable time frame in which to put compensatory measures in place. The use of portable lighting can support operations personnel to perform the required tasks until such time that the emergency lighting can be made OPERABLE.

The compensatory measures put in place (i.e. availability of at least 8 portable lights with 8-hour capacity) is adequate for extended periods of time. The allowed outage time of 30 days is based on Technical Specification 3.3.4, Remote Shutdown.

F. The allowed outage time of 30 days is based on Technical Specification 3.3.4, Safe Shutdown. The allowed outage time of 30days without other compensatory action is acceptable because the plant meets TRO 3.7.A or its required compensatory actions.

G. The failure of Appendix R Emergency Lighting Units, Control Room Emergency Lighting, or the Appendix R Communication Capability does not directly affect the OPERABILITY of safe shutdown equipment. The use of alternate equipment would provide the same function as the

designated equipment. The purpose of this Required Action and associated Completion Time is to ensure that plant management is aware of the inoperable equipment and the subsequent delays in completing repairs to the system. After not restoring the proper equipment in a timely manner the 14 day report to OSRC in accordance with TRM 5.4.B provides the appropriate assessment and review.

SURVEILLANCE REQUIREMENTS

TRS 3.7.B.1- (Appendix R Emergency Lighting Units) - This test is designed to verify proper operation of the emergency lighting unit by simulating a loss of power and to ensure that no major equipment failure has been induced. This test is consistent with manufacturer's recommendations and guidance identified in EPRI/NMAC Report TR-100249. This periodic check also ensures that the lights are properly aimed to illuminate areas and equipment required for Appendix R safe shutdown activities.

TRS 3.7.B.2 - (Backup Service Water Pump 38, CCW Pumps [31, 32, 33], and Charging Pumps [31,32]) – This test is designed to demonstrate that the subject pumps are capable of providing their rated head and where appropriate using the IST program criteria. The frequency of 92 days is based on similar judgements used in determining the surveillance frequency of other pumps. The test interval of 92 days or where appropriate the IST program frequency is based on the judgment that more frequent testing would not significantly increase the reliability, yet more frequent testing would result in increased wear over a longer period.

TRS 3.7.B.3 - (S/G ADVs) – This test is to ensure that the motive force utilized to operate the ADVs during an Appendix R event is available.

TRS 3.7.B.4 - (Control Room Supplemental A/C) – This test is used to ensure the availability and capability of the Control Room Supplemental Air Conditioning System to maintain the Control Room in a safe, habitable condition. The frequency check of 92 days is sufficient to ensure the availability of the system, if required.

TRS 3.7.B.5 - (Appendix R Radio Units) – The purpose of this test is to verify the availability of at least 8 radios to support Appendix R safe shutdown activities.

TRS 3.7.B.6 - (Control Building Ventilation) – This test ensures the availability and the capability of the Control Building Ventilation System to maintain the 480V Switchgear Room and Cable Spreading Room at an acceptable condition. The 92-day frequency check is sufficient to ensure the availability of the system, if required.

TRS 3.7.B.7 - (Appendix R Emergency Lighting Units) – This test is designed to ensure the batteries are maintaining a sufficient charge and through visual inspection of the electrolyte level that the structural integrity of the battery case has been maintained. In addition, this test ensures the lights are properly aimed to illuminate areas and equipment necessary for Appendix R safe shutdown activities. The 366-day frequency is sufficient to ensure OPERABILITY of the equipment. The test is consistent with manufacturer's recommendations and guidance identified in EPRI/NMAC Report TR-100249.

OR

In lieu of the annual test, the battery in the emergency light unit is replaced every 2 years. There is no annual testing (e.g., measuring battery float voltage, measuring battery conductance, 8-hour battery discharge test, etc.) required if the Appendix R light unit batteries are replaced on a 2 year frequency. The monthly periodic test verifies the operation of the lighting unit and aim of the lamps.

TRS 3.7.B.8 - (Appendix R Emergency Lighting Units) – This surveillance monitors battery conductance in accordance with Table 3.7.B-3 to determine which batteries are in a condition to exclude them from a discharge test program and which batteries should be scheduled for replacement under the preventative maintenance program. The conductance test method is not applicable to units with Ni-Cad batteries nor to batteries in environments above 110°F.

For temperatures below 60°F, the conductance values will be lower than the same battery at a warmer temperature. This may result in unnecessary action, hence it is allowed to wave the criterion if the last test performed 192 days ago ±25% passed the No Discharge Test criteria. If batteries are in environments above 90°F, the test and replacement criterion needs to be adjusted up 1% of mhos per each 1°F. Batteries governed under the conductance test program that do not satisfy the No Discharge Test Criteria in Table 3.7.B-3 will be either replaced or subjected to an 8 hour discharge test annually. Batteries in environments above 110°F require discharge testing.

OR

In lieu of the annual test, the battery in the emergency light unit is replaced every 2 years. There is no annual testing (e.g., measuring battery float voltage, measuring battery conductance, 8-hour battery discharge test, etc.) required if the Appendix R light unit batteries are replaced on a 2 year frequency. The monthly periodic test verifies the operation of the lighting unit and aim of the lamps.

TRS 3.7.B.9 - (Appendix R Emergency Lighting Units) – Annually, a 10% sample of batteries that pass the conductance No Discharge Test Criteria in Table 3.7.B-3 are subjected to an 8 hour discharge test to demonstrate the adequacy of the conductance test program. An additional 10% of each type that failed shall be tested. The sampling process shall continue until no failures are identified or the type is exhausted. Conductance testing methodology reviewed in NSE-98-3-091EML is based on EPRI/NMAC Report TR-106826.

OR

In lieu of the annual test, the battery in the emergency light unit is replaced every 2 years. There is no annual testing (e.g., measuring battery float voltage, measuring battery conductance, 8-hour battery discharge test, etc.) required if the Appendix R light unit batteries are replaced on a 2 year frequency. The monthly periodic test verifies the operation of the lighting unit and aim of the lamps.

TRS 3.7.B.10 - (Appendix R Emergency Lighting Units) – This test is designed to verify that the emergency lighting unit can operate for the design operating time. This test is consistent with the manufacturer's recommendations and guidance identified in EPRI/NMAC Report TR-100249. This test is applicable to EBLs with Ni-Cad or other types of batteries not within the scope of the conductance test program.

OR

In lieu of the annual test, the battery in the emergency light unit is replaced every 2 years. There is no annual testing (e.g., measuring battery float voltage, measuring battery conductance, 8-hour battery discharge test, etc.) required if the Appendix R light unit batteries are replaced on a 2 year frequency. The monthly periodic test verifies the operation of the lighting unit and aim of the lamps.

TRS 3.7.B.11 - (S/G ADVs) – This test is to ensure the capability of the subject valves to operate as required utilizing the nitrogen backup. The frequency of 24 months was selected to coincide with refueling outages so that normal plant operations would not be affected.

TRS 3.7.B.12 - (Charging Flow, Condenser Makeup, Secondary Steam Isolation) – The purpose of this test is to ensure the capability of the subject valves to operate as required. The frequency of 24 months is selected to coincide with refueling outages. The Condenser Makeup 24 month frequency is also based on Technical Specification 3.7.5, Auxiliary Feedwater, that requires other valves in the system to be tested every 24 months. These valves perform an isolation function and as such it is not practical to perform this surveillance during normal plant operations.

TRS 3.7.B.13 - (Charging flow) - The purpose of this test is to ensure the capability of the listed Charging System valves to operate as required. The frequency of once per 24 months is selected to coincide with refueling outages. As these valves are normally positioned to support overall CVCS system operation, it is not practical to perform this complete surveillance during normal plant operations.

TRS 3.7.B.14 - (CCW Pump 32, Charging Pumps [31, 32]) – The purpose of this test is to verify the ability to power the subject pumps from the electrical system lineup utilized in the Appendix R Compliance Strategy. The frequency of 24 months was selected to coincide with plant refueling outages in order not to interfere with normal plant operations. The frequency of 24 months is also consistent with testing requirements for auxiliary electrical equipment. Therefore it is judged that more frequent testing would not significantly increase the reliability of the system.
Note that operation via the local control station of the Charging Pumps is not credited during Appendix R fire scenarios but operation via this control station may be used for this surveillance.

TRS 3.7.B.15 - (Communication Capability) – The purpose of this test is to ensure that radio communications are achievable with the available equipment between the various local control stations. The 24 month frequency was selected to be consistent with refueling outages.

TRS 3.7.B.16 - (Control Room Lighting) – This test is designed to verify the proper operation of the emergency lighting unit by simulating a loss of power and to ensure that no major equipment failure has been induced. The frequency of 24 months was selected to coincide with refueling outages such that normal plant operations would not be affected.

REFERENCES:

1. FSAR 1.3.1
2. FSAR 7.2.1
3. FSAR 9.6.1
4. FSAR 9.6.2
5. FSAR 9.9.1
6. FSAR 10.2.6
7. NSE 96-3-395, Rev.1, “Development of AP-64.1 and Evaluation of Change to OS 3.2 and 3.5.”

3.7 PLANT SYSTEMS

3.7.C Snubbers

TRO 3.7.C During any mode of operation for which a safety-related system is required to be OPERABLE, the snubbers in such systems shall be OPERABLE.

APPLICABILITY: AT ALL TIMES

----------NOTE----------

1. Separate Condition entries are only allowed on different systems, they are not allowed for multiple Condition entries within the same system.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
----------NOTES---------- 1. Technical Specification LCO 3.0.6 applies when removing a snubber from service for maintenance, testing, replacement or when found inoperable. 2. Required Action A.2 shall be completed whenever this condition is entered. ---------- A. One or more safety-related snubbers are determined to be inoperable in a system which at that time is required to be OPERABLE.	----------NOTE---------- Entry into Required Actions may be delayed for the RHR system for 7 days when the plant is in MODEs 5 and 6 and snubbers are being removed for scheduled testing or maintenance. ---------- A.1.1 Replace or restore the inoperable snubber(s) to OPERABLE status, <u>OR</u> A.1.2 Perform an engineering evaluation which shows that the inoperable snubber is not required, <u>AND</u> A.2 Perform an engineering evaluation per Table 3.7.C-3, Item 4, on the supported system or component.	 72 hours 72 hours 72 hours
B. Required Action and associated Completion Time of Condition A not met, <u>OR</u> Evaluations performed for Condition A not acceptable.	B.1 Declare supported system inoperable, <u>AND</u> B.2 Enter the appropriate Improved Technical Specification (ITS) Condition and follow Required Action(s) for that system.	Immediately Immediately

CONDITION	REQUIRED ACTION	COMPLETION TIME
----------NOTE---------- Required Action C.2 shall be completed whenever this condition is entered. ---------- C. One or more safety-related snubbers, are determined to be inoperable in a system which at that time is <u>not required</u> to be OPERABLE.	C.1.1 Replace or restore the inoperable snubber(s) to OPERABLE status, <u>OR</u> C.1.2 Perform an engineering evaluation which shows that the inoperable snubber is not required, <u>AND</u> C.2 Perform an engineering evaluation per Table 3.7.C-3, Item 4, on the supported system or component.	Prior to bringing the plant to the MODE or Condition that requires such system to be OPERABLE
D. Required Action and associated Completion Time of Condition C not met, <u>OR</u> Evaluations performed for Condition C not acceptable.	D.1 Declare supported system inoperable, <u>AND</u> D.2 Enter the appropriate ITS or TRM Condition and follow Required Action(s) for that system.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
TRS 3.7.C.1	Visually Inspect safety-related snubbers in accordance with Table 3.7.C-1 and Table 3.7.C-2.	Per Table 3.7.C-1
TRS 3.7.C.2	Functionally test a representative sample of 10% of all safety related hydraulic snubbers during plant shutdown per requirements of Table 3.7.C-3.	24 months
TRS 3.7.C.3	Review the installation and maintenance records for each safety-related snubber to verify that the indicated service life has not been exceeded or will not be exceeded prior to the next scheduled snubber service life review. If the indicated service life will be exceeded prior to the next scheduled snubber service life review, the snubber service life shall be reevaluated or the snubber shall be replaced or reconditioned so as to extend its service life beyond the date of the next scheduled service life review. This reevaluation, replacement or reconditioning shall be indicated in the records. A record of the service life of each snubber, the date at which the designated service life commences, as well as the installation and maintenance records on which the designated service life is based shall be maintained as required by Section 5.5 of the Technical Requirements Manual. The service life may be modified based on a performance evaluation.	24 months

Table 3.7.C-1

Size of Population or Category (Notes 1 & 2)	Number Of Unacceptable Snubbers		
	Column A Extend Interval (Note 3)	Column B Repeat Interval (Note 4)	Column C Reduce Interval (Note 5)
1	0	0	1
20	0	0	1
40	0	0	1
60	0	0	1
80	0	0	2
90	0	0	3
100	0	1	4
120	0	1	5
130	0	2	6
140	0	2	7
150	0	3	8
160	0	3	9
170	0	3	10
180	1	4	11
190	1	4	12
200	2	5	13

Note1: The next visual inspection interval for a snubber population or category size shall be determined based upon the previous inspection interval and the number of unacceptable snubbers found during that interval. Snubbers may be categorized, based upon their accessibility during power operation, as accessible or inaccessible. These categories may be examined separately or jointly. This decision shall be made and documented before any inspection and shall be used as the basis upon which to determine the next inspection interval for that category.

Note2: Interpolation between population or category sizes and the number of unacceptable snubbers is permissible. The next lower integer for the value of the limit for Columns A, B, C shall be used if that integer includes a fractional value of unacceptable snubbers as determined by interpolation.

Note3: If the number of unacceptable snubbers is equal to or less than the number in Column A, the next inspection interval may be twice the previous interval but not greater than 48 months. TRS 3.0.B applies to this surveillance frequency.

Note4: If the number of unacceptable snubbers is equal to or less than the number in Column B, but greater than the number in Column A, the next inspection interval shall be the same as the previous interval.

Note5: If the number of unacceptable snubbers is equal to or greater than the number in Column C, the next inspection interval shall be two-thirds of the previous interval. However, if the number of unacceptable snubbers is less than the number in Column C, but greater than the number in Column B, the next interval shall be reduced by a factor that is one-third of the ratio of the difference between the number of unacceptable snubbers found during the previous interval and the number Column B to the difference in the numbers in Column B and C.

Table 3.7.C-2
Visual Inspection

1. Visual inspection shall verify:

   a. That there are no visible indications of damage or impaired OPERABILITY, and

   b. Attachments to the foundations or supporting structure are secure.

2. Snubbers which appear inoperable as a result of visual inspections shall be classified as unacceptable and may be reclassified acceptable for the purpose of establishing the next visual inspection interval, provided that:

   a. The cause of the rejection is clearly established and remedied for the particular snubber and for other snubbers that may be generically susceptible; and

   b. The affected snubber is functionally tested in the as found condition and determined OPERABLE per Table 3.7.C-3, Item 5.

3. When the fluid port of a hydraulic snubber is found to be uncovered, the snubber shall be declared inoperable via functional testing for the purpose of establishing the next visual inspection period. All snubbers connected to an inoperable common hydraulic fluid reservoir shall be counted as inoperable snubbers.

Table 3.7.C-3
Functional Testing

1. At least once per 24 months during plant shutdown, a representative sample of 10% of all the safety-related hydraulic snubbers shall be functionally tested for OPERABILITY, either in place or on a bench test. For each snubber that does not meet the requirement of Table 3.7.C-3, Item 5, an additional 10% of the total installed of that type of hydraulic snubber shall be functionally tested. This additional testing will continue until no failures are found or until all snubbers of the same type have been functionally tested. The representative sample shall include each size and type of snubber in use in the plant.

2. The representative sample selected for functional testing should include the various configurations, operating environments, sizes and capacities of snubbers. At least 25%, or the maximum possible if less than 25%, of the snubbers in the representative sample should include snubbers from the following three categories:

   a. The first snubber away from each reactor vessel nozzle.

   b. Snubbers within 5 feet of heavy equipment (valve, pump, turbine, motor, etc.)

   c. Snubbers within 10 feet of the discharge from a safety or relief valve.

   Snubbers identified as "Especially Difficult to Remove" or in "High Radiation Zones During Shutdown" shall also be included in the representative samples. Permanent or other exemptions from functional testing for individual snubbers in these categories may be granted by the USNRC only if a justifiable basis for exemption is presented and/or snubber life destructive testing was performed to quality snubber OPERABILITY for all design conditions.

   Snubber selection for functional testing is developed from an engineering evaluation and is based on a rotating basis. In addition to the regular sample, snubber locations that failed the previous functional test shall be retested during the next test period. If a spare snubber has been installed in place of a failed snubber, then both the previously failed snubber (if it is repaired and currently installed in another position) and the installed spare snubber shall be retested. Test results of these snubbers may not be included for the sampling required by Table 3.7.C-3, Item 1.

3. If any snubber selected for functional testing either fails to lockup or fails to move, i.e., frozen in place, the cause will be evaluated and if caused by manufacturer or design deficiency all snubbers of the same manufacturer and model, subject to the same defect and located in a similar environment, shall be functionally tested.

4. For the snubber(s) found inoperable, an engineering evaluation shall be performed on the components that are supported by the snubber(s). The purpose of this engineering evaluation shall be to determine if the components supported by the inoperable snubber(s) remain capable of performing their intended function in their intended manner after the Required Action statements of A.1 or C.1 were performed as necessary.

5. The hydraulic snubber functional test shall verify that:

   a. Activation (restraining action) is achieved within the specified range of velocity or acceleration in both tension and compression.

   b. Snubber bleed or release rate, where required, is within the specified range in compression or tension. For snubbers specifically required to not displace under continuous load, the ability of the snubber to withstand load without displacement shall be verified.

BASES

ACTIONS

Snubbers are required to prevent unrestrained pipe motion under dynamic loads as might occur during an earthquake or severe transient, while allowing normal thermal motion. The consequences of an inoperable snubber can be an increase in the probability of structural damage to piping in the event of dynamic or thermal loads. It is therefore required that snubbers necessary to protect the primary coolant system or any other safety system or component be OPERABLE. Because the snubber lockup protection is required only during low probability events, when a Safety Function Determination is performed per Technical Specification 3.0.6 a period of 72 hours is allowed for repairs or replacements before the system must be declared inoperable. When an engineering evaluation completed within 72 hours per Actions A.1.2 and C.1.2 can prove otherwise, the snubber need not be repaired or replaced within the 72 hour time frame. The 72 hour allowed outage time for a snubber is part of the licensing basis of the plant. The performance of an evaluation per Technical Specification LCO 3.0.6 ensures that the safety function of the supported system is not degraded by removal or loss of the snubber. If the evaluation determines that the safety function is degraded, then LCO 3.0.6 ensures that the appropriate condition is entered for the supported system in accordance with Technical Specification requirements. The engineering evaluations from Required Actions A.1.2 and C.1.2 shall determine whether or not the operability of a system or component may be affected by eliminating the inoperable snubber. The engineering evaluations from Required Actions A.2 and C.2 shall determine if the system or component supported by a failed snubber experienced degradation that would prevent the system or component from performing its intended function in its intended manner assuming that the Required Action statements A.1 and C.1 were performed as necessary.

SURVEILLANCE REQUIREMENTS

The visual inspection frequency is based upon maintaining a constant level of snubber protection to systems. Performance of periodic visual inspections of snubbers complements the existing functional testing and provides additional confidence in snubber OPERABILITY. The visual inspection interval for the snubbers is based on the number of unacceptable snubbers found during the previous inspection in proportion to the sizes of the various populations or categories and may be as long as two refueling cycles with good overall visual inspection results. The visual inspection interval will not exceed 48 months. However, as for all surveillance activities, unless otherwise noted, allowable tolerances of 25% are applicable for snubbers. These tolerances are necessary to provide operational flexibility because of scheduling and performance considerations. The words "will not exceed" associated with a surveillance interval do not negate this allowable tolerance. Inspections performed before the interval has elapsed may be used as a new reference point to determine the next scheduled inspection; however, the results of such early inspections performed before the original required time interval has elapsed may not be used to lengthen the required inspection interval. Any inspection whose results require a shorter inspection interval will override the previous schedule. The results of random inspections of individual snubbers, conducted at other than scheduled inspection intervals, will be evaluated on a case-by-case basis to determine if they should impact the scheduled interval.

When the cause of the rejection of a snubber is clearly established and remedied for that snubber and for any other snubbers that may be generically susceptible, and verified OPERABLE by inservice functional testing, that snubber may be exempted from being counted as inoperable.

Generically susceptible snubbers are those which are of a specific make or model and have the same design features directly related to rejection of the snubber by visual inspection, and are similarly located or exposed to the same environmental conditions such as temperature, radiation, and vibration.

When a snubber is found inoperable, an engineering evaluation is performed, in addition to the determination of the snubber mode of failure, in order to determine if any safety-related component or system has been adversely affected by the inoperability of the snubber.

The engineering evaluation shall determine whether or not the snubber mode of failure has imparted a significant effect or degradation on the supported component or system by determining if the system or component was exposed to a dynamic transient that required the inoperable snubber to mitigate the transient.

To provide assurance of snubber functional reliability, a representative sample of 10% of the installed snubbers will be functionally tested during plant shutdowns. The representative sample selected for functional testing includes various configurations, operating environments, locations and the range of size and capacity of snubbers. An engineering evaluation, which addresses snubber performance environments and history, selects the representative sample that is based on a rotating basis. Selection of a representative sample of hydraulic snubbers provides a confidence level within acceptable limits that these supports will be in an OPERABLE condition. Observed failures of these sample snubbers shall require functional testing of additional units of the same type.

If a snubber fails a functional test, that snubber location will be retested during the next snubber testing period to determine if the failure was environmentally caused. If the failed snubber was repaired and re-installed elsewhere in the system, during the functional test effort the snubber will be retested during the next testing period to verify if the repair addressed the cause of a failure. If a failed snubber is repaired and not reinstalled in the system during the functional test effort it shall be retested before it is subsequently installed in the system as added assurance that the repair addressed the cause of failure. The results of these augmented testing efforts are intended to address previous failure modes and these test results (passing or failure) may not be included in the Table 3.7.C-3, Item 1, sample selection.

The service life of a snubber is evaluated via engineering evaluation, test data, service data, manufacturer input, snubber service conditions and snubber service history (newly installed snubber, seal replaced, spring replaced, in high radiation area, high temperature area, etc....). The requirement to monitor the snubber service life is included to ensure that the snubbers periodically undergo a performance evaluation in view of their age and operating conditions. These records will provide statistical bases for future consideration of snubber service life. The requirements for the maintenance of records and the snubber service life review are not intended to affect plant operation.

REFERENCES:

1. Generic Letter 84-13, "Technical Specifications for Snubbers"

2. Generic Letter 90-09, "Alternative Requirements For Snubber Visual Inspection Intervals and Corrective Actions."

3. FSAR 16.1.4

3.7 PLANT SYSTEMS

3.7.D Explosive Gas Monitoring System

TRO 3.7.D The concentration of oxygen in the waste gas holdup system shall be limited to less than or equal to 2% by volume whenever the hydrogen concentration exceeds 4% by volume.

APPLICABILITY: AT ALL TIMES

----------NOTES----------

1. Refer to TRO 3.3.H for instrumentation requirements.
2. TRO 3.0.C is not applicable.
3. Refer to Technical Specifications 5.5.11 for program requirements.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Oxygen concentration in the waste gas holdup system is greater than 2% by volume, AND Oxygen concentration in the waste gas holdup system less than or equal to 4% by volume, AND Hydrogen concentration in the waste gas holdup system is greater than 4% by volume.	A.1 Reduce oxygen concentration in the waste gas holdup system to less than or equal to 2% by volume.	48 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Stop all additions of waste gases to this portion of the system, AND B.2 Reduce oxygen concentration in the waste gas holdup system to less than or equal to 2% by volume.	Immediately Immediately
C. Oxygen concentration in the waste gas holdup system is greater than 4% by volume, AND Hydrogen concentration in the waste gas holdup system is greater than 2% by volume.	C.1 Stop all additions of waste gases to this portion of the system, AND C.2 Reduce oxygen concentration in the waste gas holdup system to less than or equal to 2% by volume.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
TRS 3.7.D.1	----------NOTE---------- Required to be performed when monitors are operable per TRO 3.3.H ---------- Record hydrogen and oxygen levels using monitors required OPERABLE by TRO 3.3.H.	24 hours

BASES

This Technical Requirement is provided to ensure that the concentration of potentially explosive gas mixtures contained in the waste gas holdup system is maintained below those that could support hydrogen ignition. Maintaining the concentration of hydrogen and oxygen within the stated limits provides assurance that the release of radioactive materials will be controlled in conformance with the requirements of General Design Criteria 60 of Appendix A to 10 CFR Part 50.

Hydrogen rich systems are not designed to withstand a hydrogen explosion.

REFERENCES:

1. FSAR 11.1
2. ITS 5.5.11

3.7 PLANT SYSTEMS

3.7.E River Water Level

TRO 3.7.E The Hudson River water level as measured at Indian Point 3 intake structure shall be less than 11'-0" above mean sea level.

APPLICABILITY: AT ALL TIMES

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. River water ≥ 11'-0" above mean sea level.	A.1 Initiate actions to sandbag the service water pumps, AND A.2 Complete actions to sandbag the service water pumps.	Immediately Before River Water Level reaches 15'-0" above mean sea level.
B. River water ≥ 12'-5" above mean sea level.	B.1. Be in MODE 3, AND B.2. Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
TRS 3.7.E.1	----------NOTE---------- Monitoring of the Hudson River water elevation will not be required until there is a flood warning notice disseminated by the New York City National Oceanographic and Atmosphere Administration (NOAA) office. ---------- DEMONSTRATE river water level to be < 11'-0" above mean sea level at the intake structure.	12 hours
TRS 3.7.E.2	DEMONSTRATE river water level to be < 12'- 5" above mean sea level at the intake structure when river water level ≥ 11"-0" above mean sea level.	Once per 1 hour

BASES

Analyses have been performed which indicate that the river water elevation would have to reach 15'-3" above mean sea level before it would seep into the lowest floor elevation of any of the buildings housing equipment vital for safe shutdown of the reactor. [1] Monitoring of the Hudson River water elevation will not be required until there is a flood warning notice disseminated by the New York City National Oceanographic and Atmosphere Administration (NOAA) office.

REFERENCE

1. FSAR Section 2.5.

3.7.F Ventilation System

3.7.F Fuel Storage Building Emergency Ventilation System (FSBEVS) and Containment Purge System (CPS)

TRO 3.7.F OPERABLE FSBEVS and CPS

APPLICABILITY: When moving irradiated fuel in associated buildings

----------NOTE----------
1. TRO 3.0.C is not applicable.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. CPS inoperable.	A. Restore operability.	6 days
B. FSBEVS inoperable.	B.1 Restore operability. AND B.2 Isolate the FSBEVS when moving irradiated fuel in the FSB.	6 days Immediately
C. Required Action and Completion Time of B.2 not met.	C. Suspend movement of irradiated fuel in the associated building	Immediately
D. Required Action and Completion Time of A or B.1 not met.	D. Present a report to OSRC on planned corrective action.	12 days

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
TRS 3.7.F.1	Perform an inplace test of the high efficiency particulate air (HEPA) filters in accordance with Section 10 of ASME N510-1989 that shows the penetration and system bypass leakage is $\geq$ 99% at flow of 80% to 120% of design.	24 months
TRS 3.7.F.2	Perform an inplace test of the charcoal adsorber in accordance with Section 11 of ASME N510-1989 that shows the specified penetration and system bypass leakage is $\geq$ 99% at flow of 80% to 120% of design.	24 months And following removal of sample affecting integrity
TRS 3.7.F.3	Perform a laboratory test of a sample of the charcoal adsorber in accordance with ASTM D3803-1989 that shows the methyl iodide removal efficiency of $\geq$ 90% when tested at a temperature of 86^{O}F, a relative humidity of 95%, and a face velocity of 31 ft/min for CPS and 59 ft/min for FSBEVS.	24 months
TRS 3.7.F.4	Perform an inplace test that shows the pressure drop across the combined HEPA filters, the demisters and prefilters (if installed), and the charcoal adsorbers is less than 6 inches wg at flow $\geq$ 90% of design.	24 months
TRS 3.7.F.5	----------NOTE---------- After each complete or partial replacement of the HEPA filter train or charcoal adsorber filter; or, After any structural maintenance on the system housing that could alter system integrity; or, After significant painting, fire, or chemical release in any ventilation zone communicating with the system while it is in operation. ---------- Perform Surveillances 3.7.F.1, 3.7.F.2 and 3.7.F.3.	After each noted event

BASES

BACKGROUND

The Containment Purge System includes provisions for both supply and exhaust air. The purge system is maintained isolated whenever the plant is above the cold shutdown condition per TS 3.6.3. The supply system includes roughing filters, heating coils, fan, supply penetration with two butterfly valves for bubble tight shutoff, and a purge supply distribution header inside containment. The exhaust system includes exhaust penetration with two butterfly valves identical to those above, exhaust ductwork, filter bank with roughing, HEPA and charcoal filters, fans and exhaust vent. The purge system flow rate is approximately 28,000 cfm. A wide range plant vent gas monitor (FSAR Section 11.2.3.1) provides continuous indication of noble gas releases passing through the plant vent to the atmosphere. During normal plant operations, Radiation Monitoring System Channels R-11 and R-12 provide continuous indication of the containment atmosphere gross air particulate activity and gross gaseous activity, respectively. Backup monitoring during purging is provided by Radiation Monitoring System Channels R-14, plant vent gas monitor and R-27, plant vent wide range gas monitor.

Carbon filters, together with suitable face dampers and manual isolation devices are part of the normal Fuel Storage Building Emergency Ventilation System (FSBEVS). The carbon filters and motor operated dampers are located in the fan plenum downstream from the roughing and HEPA filters. The fuel storage building supply air fans are provided with motor operated dampers located on the discharge side of the fan. These dampers are interlocked with their respective fan motors and arranged to close when fan motor stops and open during fan motor operation. Manual isolation devices will be installed during all fuel handling operations and leak tested to ensure that all of the air from the fuel storage building is discharged through the roughing HEPA and charcoal filters. A radiation indicator located in the spent fuel pit area automatically initiates the emergency mode of operation by stopping fuel storage building supply fans. The exhaust system has a capacity of approximately 20,000 cfm which maintains a negative pressure in the fuel storage building.

Technical Specification Amendment 224 removed the FSBEVS and CPS from Technical Specifications. They had been required by the TS for limiting offsite doses in the fuel handling accident. During the approval process for this amendment the NRC questioned compliance with Section II.D of Appendix I to 10 CFR Part 50 that requires licensees to include all items of reasonably demonstrated technology that can, for a favorable cost-benefit ratio, effect reductions in dose to the population. The response, Reference 1, indicated that the requirements for testing the FSB emergency ventilation system and the CPS would be relocated and revised, as appropriate, for testing consistent with 10 CFR 50 Appendix I utilizing the guidance of Regulatory Guide 1.140 (Reference 2). The current licensing bases for the FSBEVS and CPS were deemed acceptable for purposes of compliance with the surveillance requirements of RG 1.140. The surveillance requirements differ from RG 1.140 as follows: 1) the visual inspection requirement was not adopted since it was not in the licensing basis; 2) the rated flow requirement of $\pm$ 10% was not used for the FSBEVS, $\pm$ 20% was the licensing basis, and the CPS rated flow was changed to $\pm$ 20% for consistency; 3) the HEPA acceptance criteria was kept at $\geq$ 99%, the licensing basis, rather than at $\geq$ 99.95%; and 4) the test for pressure drop was maintained which is not a RG 1.140 requirement.

APPLICABLE SAFETY ANALYSES

The Appendix I analysis defined requirements for keeping offsite doses to a minimum during purging operations consistent with economic guidelines. Purging is normally used to maintain the FSB and containment habitable and to ensure all releases are monitored out the stack. Purging the FSB can occur at any time. The CPS is required to be closed by TS 3.6.3 in Modes 1, 2, 3, and 4 and the CPS can be used for purging in other modes. The intent of Appendix I is that purging will normally be through the filtration system. If this is not feasible, the Offsite Dose Calculation Manual (ODCM) provides limits on purging.

The fuel handling accident analysis for containment and FSB provided the basis for removal of these systems from TS. These analyses assumed no credit for isolation of the CPS and did not credit the HEPA / charcoal filtration of either system. The analyses also assumed a stack level release over 2 hours. Isolation of the CPS will occur in response to a signal from R-11 or R-12 governed by TS 3.3.6 and preserves the assumptions. The FSBEVS will go to an incident response mode in response to a signal from R-5 governed by TS 3.3.8 and, when operable, will filter sufficient radioactivity to ensure the dose analyses is bounding.

APPLICABILITY

The requirement is to have the ventilation systems operable whenever there is irradiated fuel movement. This is based on the need to preserve accident analysis assumptions. Appendix I requires the filtration systems to be operating to remove radioactivity from normal releases but this is monitored by the ODCM and an LCO is not the subject of this TRM.

LCO

The CPS are OPERABLE when they meet their surveillance requirements, and the CPS is capable of isolating on signals per TS 3.3.6, if operating. The FSBEVS is considered operable if capable of initiating / maintaining emergency mode with filtration. To be capable of initiating / maintaining the emergency mode the applicable SR of TS 3.3.9 must be met unless operating in the emergency mode. The surveillance requirements of TS 3.7.13 are not repeated in this TRM but are assumed to be met for operability. Since SR 3.7.13.3 references the VFTP and the FSBEVS was removed from VFTP, those requirements are met by the surveillance requirements in this TRM for Appendix I systems.

ACTIONS

A. When the CPS is inoperable, the system should be repaired commensurate with the importance to safety, minimizing normal releases to the public. The period of 6 days was considered a reasonable time to make most repairs considering that the system is only operated during outages to purge the containment. The CPS is not required to be isolated when moving fuel if inoperable if it will isolate on a high radiation signal. Requiring the isolation assures that the time delay assumed in the accident analysis for release of the source term while still allowing irradiated fuel movement. When the CPS isolates during a fuel handling accident the analytical assumptions are met since the containment is

administratively closed (e.g., roll up door is closed and penetrations to be closed are tracked) in accordance with a commitment made in the submittal to NRC. TS 3.3.6 continue to require the R-11 and R-12 monitors and the actuation circuitry for isolation of the CPS on high radiation.

B. When the FSBEVS is inoperable, the system should be repaired commensurate with the importance to safety, minimizing normal releases to the public. The period of 6 days was considered a reasonable time to make most repairs considering that the system is only operated during irradiated fuel movement. The FSBEVS is required to be isolated when moving irradiated fuel if the FSBEVS is not operable. Requiring the isolation assures that the time delay for release of the source term can be met while still allowing irradiated fuel movement and a prior analysis submitted to the NRC staff demonstrated that the ground level releases under such circumstances would be acceptable (Reference 3). TS 3.3.8 requires the FSBEVS R-5 monitor and actuation circuitry to ensure that the instrumentation necessary for local manual and automatic operation of the FSBEVS is available. Isolation of the FSBEVS does not render this instrumentation system inoperable since it can still function as designed and it is a support system for the FSBEVS. Administrative controls are required to isolate the FSBEVS such that the instrumentation is still functional yet will not activate the FSBEVS.

C This condition addresses the inability to assure immediate isolate the FSBEVS. It requires the immediate suspension of irradiated fuel handling activities to prevent fuel movement that could result in the FHA. The immediate action does allow the placement of any fuel bundle being handled to a safe condition.

D Reporting to OSRC when a system cannot be fixed within a reasonable time frame is an administrative requirement that provides management oversight of the problems with the system and the efforts being undertaken to restore the system to operability.

SURVEILLANCES TRS 3.7.F.1

In-place aerosol leak tests for HEPA filters upstream from the carbon adsorber in normal atmosphere cleanup systems should be performed at least once each 24 months, after each partial or complete replacement of a HEPA filter bank, and following painting, fire, or chemical release in any ventilation zone communicating with the system that may have an adverse effect on the functional capability of the system. Evaluate the need for such testing following penetration or intrusion of water or other material into any portion of a normal atmosphere cleanup system that may have an adverse effect on the functional capability of the filters. The test should be performed in accordance with Section 10 of ASME N510-1989. The leak test should confirm a combined penetration and leakage (or bypass) of the normal atmosphere cleanup system of less than 0.1% of the challenge aerosol at rated flow ±20%. A filtration system satisfying this condition can be considered to warrant a 98.1% removal efficiency for particulates.

HEPA filter sections in normal atmosphere cleanup systems that fail to satisfy the appropriate leak-test conditions should be examined to determine the location and cause of leaks. Repairs, such as alignment of filter frames and tightening of filter hold-down bolts may be made. Otherwise filters should be replaced and not repaired. HEPA filters that fail to satisfy test conditions should be replaced. After repairs or filter replacement, the normal atmosphere cleanup system should be

retested.

In accordance with ASME N510-1989, the standard challenge aerosol used in the in-place leak testing of HEPA filters is polydisperse droplets of dioctyl phthalate (DOP), also known as di-2-ethylhexyl-phthalate (DEHP). The 0.3 micrometer monodisperse DOP aerosol is used for efficiency testing of individual HEPA filters by manufacturers. Alternative challenge agents may be used to perform in-place leak testing of HEPA filters when their selection is based on the following.

1. The challenge aerosol has the approximate light scattering droplet size specified in Article TA-1130 of ASME AG-1-1997
2. The challenge aerosol has the same in-place leak test results as DOP.
3. The challenge aerosol has similar lower detection limit, sensitivity, and precision as DOP.
4. The challenge aerosol causes no degradation of the HEPA filter or the other normal air cleaning system components under test conditions.
5. The challenge aerosol is listed in the Environmental Protection Agency's “Toxic Substance Control Act” (TSCA) (Ref. 11) inventory for commercial use.

TRS 3.7.F.2

In-place leak testing for adsorbers should be performed at least once each 24 months, following removal of an adsorber sample for laboratory testing if the integrity of the adsorber section is affected, after each partial or complete replacement of carbon adsorber in an adsorber section, and following painting, fire, or chemical release in any ventilation zone communicating with the system that may have an adverse effect on the functional capability of the system. Evaluate the need for such testing following penetration or intrusion of water or other material into any portion of a normal atmosphere cleanup system that may have an adverse effect on the functional capability of the adsorbers. The test should be performed in accordance with Section 11 of ASME N510-1989. The leak test should confirm a combined penetration and leakage of the adsorber section of 0.1% or less of the challenge gas at rated flow±20%.

Adsorber sections that fail to satisfy the appropriate leak-test conditions should be examined to determine the location and cause of leaks. Repairs, such as alignment of adsorber cells, tightening of adsorber cell hold-down bolts, or tightening of test canister fixtures, may be made. Otherwise adsorbers should be replaced. After repairs or adjustments have been made, the adsorber sections should be retested.

In accordance with ASME N510-1989 the standard challenge gas used in the in-place leak testing of adsorbers is Refrigerant-11 (trichloromonofluoromethane). Alternative challenge gases may be used to perform in-place leak testing of adsorbers when their selection is based on meeting the characteristics specified in Appendix TA-C of ASME AG-1-1997.

TRS 3.7.F.3
The efficiency of the activated carbon adsorber section should be determined by laboratory testing of representative samples of the activated carbon exposed simultaneously to the same service conditions as the adsorber section. Each representative sample should be not less than 2 inches in both length and diameter, and each sample should have the same qualification and batch test characteristics as the system adsorbent. There should be a sufficient number of representative samples located in parallel with the adsorber section to estimate the amount of penetration of the

system adsorbent throughout its service life. The design of the samples should be in accordance with Appendix A to ASME N509-1989. Once representative samples are removed for laboratory testing, their positions in the sampling array should be blocked off.

Sampling and analysis should be performed at intervals of approximately 24 months, and following painting, fire, or chemical release in any ventilation zone communicating with the system that may have an adverse effect on the functional capability of the carbon media. An evaluation of the need for testing should be conducted penetration of water or other material into any portion of the filter system that may have an adverse effect on the functional capability of the carbon media.

The activated carbon adsorber section should be replaced with new unused activated carbon if testing results in a representative sample that fails to pass the acceptance criterion or no representative sample is available for testing.

TRS 3.7.F.4

Pressure drop testing confirms that the system continues to operate within the allowable parameters of design.

TRS 3.7.F.5

The identified events could affect operability so the TRS identified must be performed to assure continued operability.

REFERENCES:

1. NL-04-162, dated December 22, 2004.
2. RG 1.140, INSPECTION, AND TESTING CRITERIA FOR AIR FILTRATION AND ADSORPTION UNITS OF NORMAL ATMOSPHERE CLEANUP SYSTEMS IN LIGHT-WATER-COOLED NUCLEAR POWER PLANTS, Rev 2
3. NRC SER for Issuance of Amendment 224 Adopting full Scope Alternate Source Term, Dated March 22, 2005.

3.8 ELECTRICAL POWER

3.8.A Turbine-Generator Electrical Output Limitations/Overspeed Protection

TRO 3.8.A The gross turbine-generator electrical output at all times shall be within the limitation of Figure 3.8.A-1 or Figure 3.8.A-2 for the applicable conditions of turbine overspeed setpoint, number of operable low pressure steam dump lines, and condenser back pressure as noted thereon, with closure capability of turbine stop and control valves.

APPLICABILITY: MODE 1 with the turbine latched.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Turbine-generator electrical output exceeds one or more limitations of Figure 3.8-1 or Figure 3.8-2.	A.1 Initiate actions to restore gross turbine-generator electrical output to within limitations of Figure 3.8.A-1 or Figure 3.8.A-2, as applicable, AND A.2 Complete actions to restore gross turbine-generator electrical output to within limitations of Figure 3.8.A-1 or Figure 3.8.A-2, as applicable.	Immediately 1 hour
B. One of the two in-series Turbine Stop and Control Valves inoperable.	B.1 Restore valve to OPERABLE status.	72 hours
C. Required Action and associated Completion Time of A.2 or B.1 not met.	C.1. Unlatch the turbine.	6 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
TRS 3.8.A.1	DEMONSTRATE opening capability of the Low Pressure Steam Dump Valve System (6 lines).	31 days
TRS 3.8.A.2	DEMONSTRATE Closure of the Turbine Steam Stop and Control Valves	----------Note---------- TRS 3.0.B (i.e., 25% extension) does not apply. ---------- Not to exceed 184 days
TRS 3.8.A.3	DEMONSTRATE overspeed trip setpoint.	24 months

BASES

The limitations placed on turbine-generator electrical output due to conditions of turbine overspeed setpoint, number of operable steam dump lines, and condenser back pressure are established to assure that turbine overspeed (during conditions of loss of plant load) will be within the design overspeed value considered in the turbine missile analysis. In the preparation of Figures 3.8.A-1 and 3.8.A-2, the specified number of operable L.P. steam dump lines is shown as one (1) greater than the minimum number required to act during a plant trip. The limitations on electrical output, as indicated in Figures 3.8.A-1 and 3.8.A-2, thus consider the required performance of the L.P. Steam Dump System in the event of a single failure for any given number of operable dump lines.

ACTION

B. With one stop valve or one governor valve inoperable, the degree of redundancy has been diminished and action is required to restore it within 72 hours (Ref. 5 and 6). This completion time is based on older Standard Technical Specification, NUREG-0452, and is bounded by the worst case scenario discussed in reference 5.

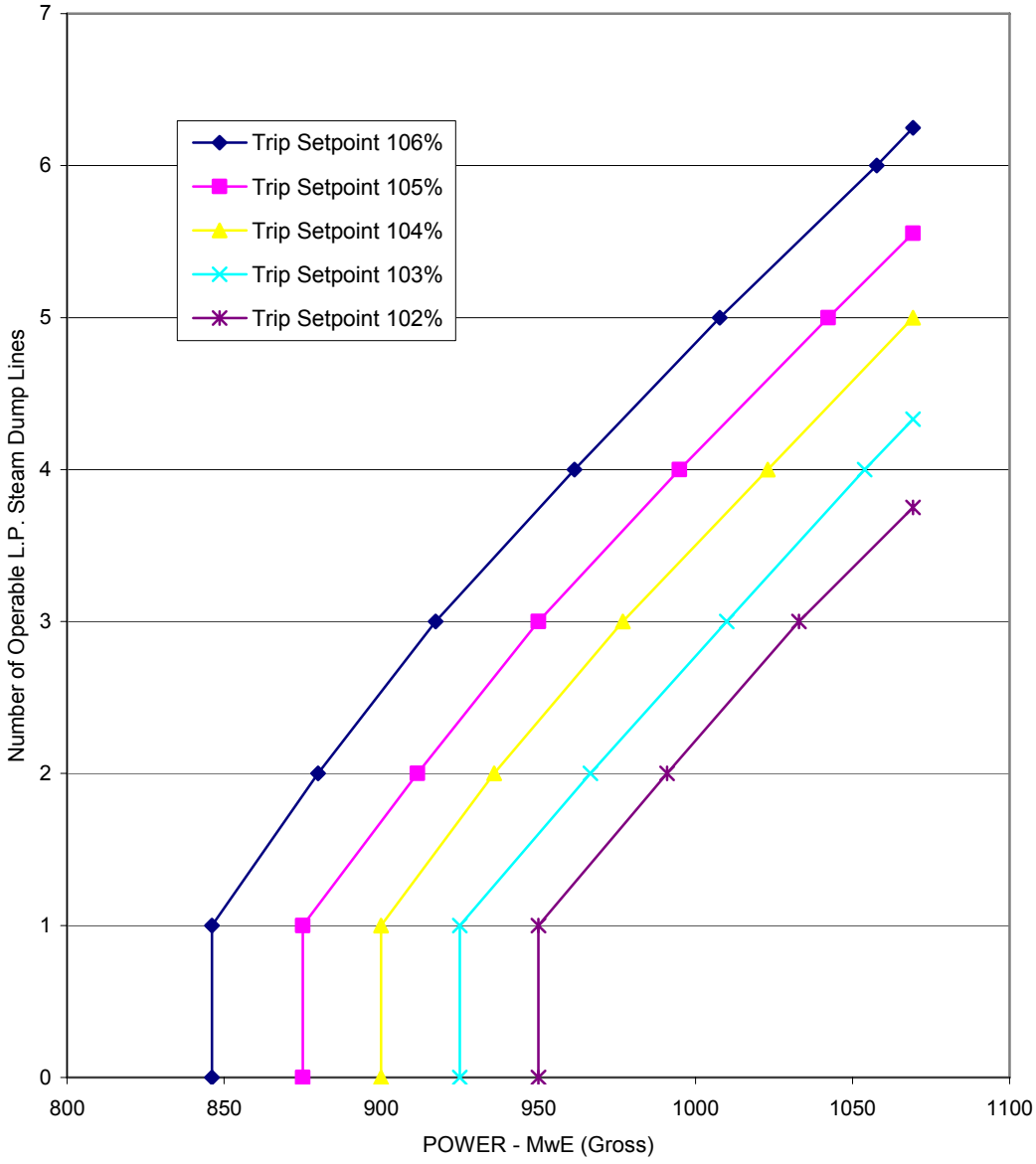
SURVEILLANCE REQUIREMENTS

The turbine steam stop and control valves shall be tested at a frequency determined by the methodology presented in WCAP-11525, "Probabilistic Evaluation of Reduction in Turbine Valve Test Frequency," as updated by Westinghouse Report, WOG-TVTF-93-17, "Update of BB-95/96 Turbine Valve Failure Rates and Effect on Destructive Overspeed Probabilities." The maximum test interval for these valves shall not exceed six months. Surveillance interval extension as per Technical Requirements Manual TRS 3.0.B is not applicable to the maximum test interval

REFERENCES:

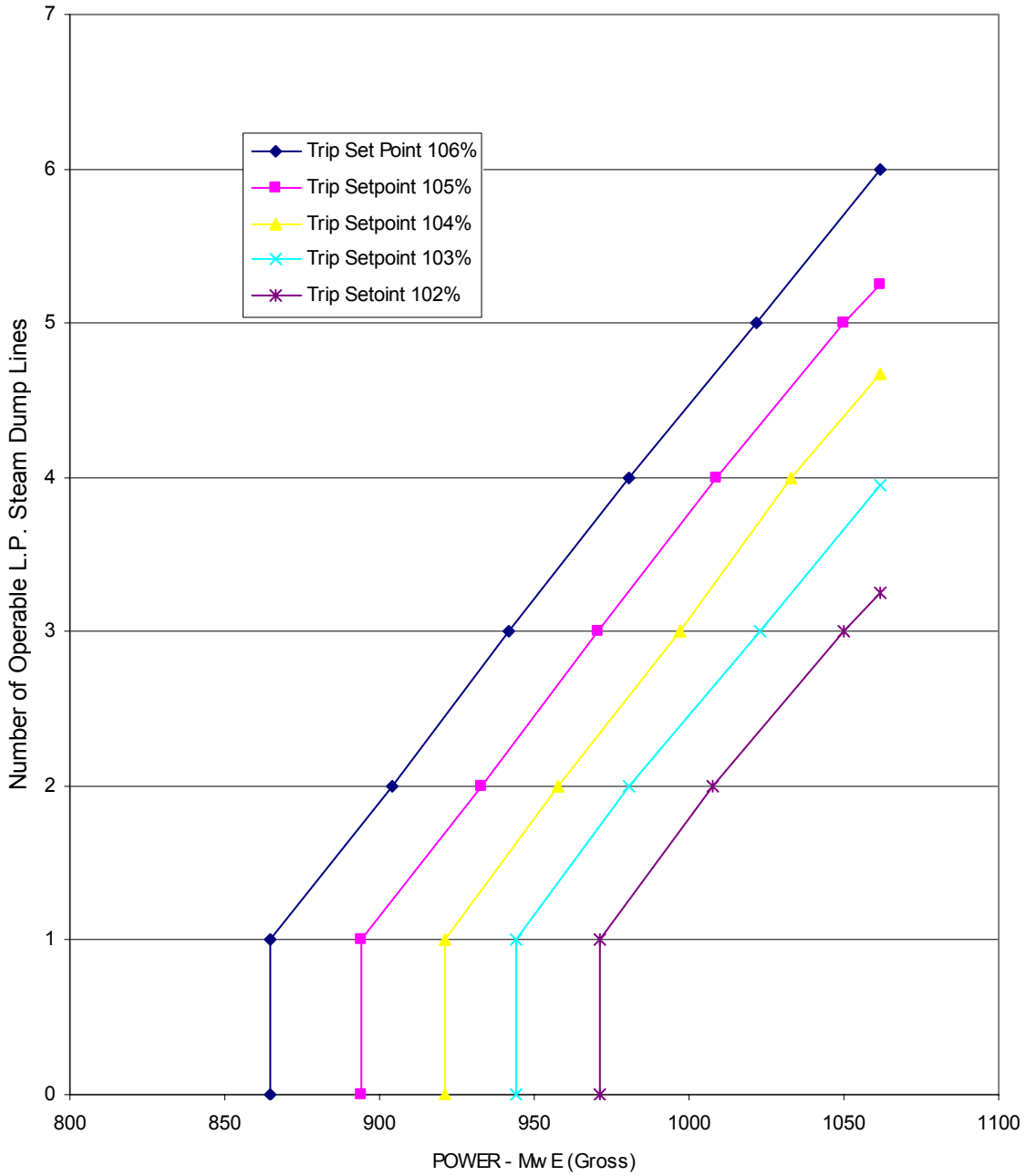
1. FSAR 10.1
2. FSAR 10.2
3. FSAR 10.3
4. FSAR 10.4
5. FSAR, Appendix 14A
6. NUREG-0452, Westinghouse Standard Technical Specifications, Specification 3/4.3.4, “Turbine Overspeed Protection”, Dated November 2, 1981.

Curve of Power Level versus Number of Operable Dump Lines with Parameters of Trip Set Point Required to Limit Maximum Overspeed to 132% Based on 1.0" Hg abs. Condenser Pressure



Gross Electrical Output 1.0 inch Hg Backpressure
Figure 3.8.A.1

Curve of Power Level versus Number of Operable L.P. Dump Lines with Parameters of Trip Set Point Required to Limit Maximum Overspeed to 132% Based on 1.5" Hg abs. Condenser Pressure



Gross Electrical Output 1.5 inch Hg Backpressure

Figure 3.8.A-2

3.8 ELECTRICAL POWER

3.8.B Appendix R Diesel Generator and Electrical Distribution System

TRO 3.8.B The Appendix R Diesel Generator and Electrical Distribution System shall be OPERABLE

APPLICABILITY: MODES 1, 2, 3 and 4

----------NOTES----------
1. Portions of the electrical distribution system are also governed by Technical Specification 3.8.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Appendix R diesel generator is inoperable.	A.1 Restore the Appendix R diesel generator to OPERABLE status.	30 Days
B. The electrical line-up from the Switchgear to Bus 312 via Bus 5, Bus 1 and Station Service Transformer 312 is inoperable, AND The electrical line-ip from the Switchgear to Bus 312 via Bus 6, Bus 3, Station Service Transformer 313, and Bus 313 is inoperable.	B.1 Restore either electrical line-up to OPERABLE status.	30 Days
C. Required Actions and Completion Times of A and/or B not met.	C.1 Be in MODE 3, AND C.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
TRS 3.8.B.1	Inspect the Appendix R diesel generator support systems, including check of the diesel fuel oil level and the closed cooling water system temperature.	7 days
TRS 3.8.B.2	Start and run the Appendix R diesel generator for a period of time sufficient to reach stable operating temperatures. DEMONSTRATE proper operation of the output breaker.	92 days

TRS 3.8.B.3.a	Measure overall voltage, each cell voltage, and the temperature and specific gravity of the pilot cells, of the Appendix R diesel generator battery.	31 days
TRS 3.8.B.3.b	Measure the specific gravity of each cell of the Appendix R diesel generator battery.	92 days
TRS 3.8.B.4	Start the Appendix R diesel generator, load it between 2400 to 2500 kW, and run for at least 2 hours.	24 Months
TRS 3.8.B.5	DEMONSTRATE the ability to line up and provide power from the Appendix R diesel via either 6.9 KV bus 5 tied to bus 1, or 6.9 KV bus 6 tied to bus 3 to 480V bus 313, to 480 V bus 312.	24 Months (alternating 6.9 Kv bus 1 and 3 line-up)
TRS 3.8.B.6	Perform battery capacity test of the Appendix R diesel generator battery.	24 Months
TRS 3.8.B.7	Sample and analyze fuel oil from the Appendix R Diesel under ground storage tank to ensure applicable standards are met.	184 days

BASES

BACKGROUND

10CFR50 Appendix R requires that alternative or dedicated shutdown capability provided for a specific fire area shall be able to, achieve and maintain subcritical reactivity conditions in the reactor, maintain reactor coolant inventory, achieve and maintain hot standby conditions, achieve cold shutdown within 72 hours and maintain cold shutdown conditions thereafter. IP3 elected to install an Appendix R diesel generator and associated switchgear necessary to achieve and maintain cold shutdown conditions independent of the normal safeguards and instrumentation power supplies.

APPLICABLE SAFETY ANALYSIS

The Indian Point Unit 3 alternative shutdown capability consists of an arrangement of 6.9KV and 480V ac switchgear, 480V ac motor control centers, power cables, 480V ac power transfer switches, 120V ac distribution panels, instrument isolation and power cabinets, local instrument indication cabinets and associated instrument cables designed to provide an alternative safe shutdown capability. The Appendix R diesel power system is designed to be independent and sufficiently isolated from the existing emergency power system to ensure the availability of power to the safe shutdown pumps and instruments of concern in the event of fires in the Control Building, Diesel Generator Buildings, Upper Electrical Tunnel, Electrical Tunnel Entrance from the Cable Spreading Room, Intake Structure, Diesel Oil Transfer Pump Pit and PAB 55' Elevation near MCC-36A & B. The Appendix "R" Diesel also supports compliance with Station Blackout (SBO).

The overall IP3 alternative shutdown capability is comprised of:

(1) On-site alternative diesel generator capable of supplying ac power to:
- One of two charging pumps (#31 or #32)
- One component cooling water pump (#32)
- One back-up service water pump (#38)
- One channel of essential process monitoring instrumentation
- One RHR pump (through post-fire repairs)
- One VC FCU (through post-fire repairs)
- One PAB exhaust fan (32)

(2) 6.9KV buses fed from the Appendix R diesel generator (i.e., bus 5 tied to bus 1 and bus 6 tied to bus 3)

(3) 480V ac switchgear 312 and 313, with MCC 312A powered from switchgear 312, distributes 480V ac power to the safe shutdown pumps.

(4) 480V ac distribution panel PDP-TG-1 powered by switchgear 312.

(5) 480V/120V ac step-down transformer, BH8, and 120V ac distribution panel POA powered by panel PDP-TG-1.

(6) Instrument isolation and power cabinets KH-4 and POE which provide circuit isolation and transfer to local instrument indications for:
- Wide-range steam generator level for steam generators 31, 32 and 34.
- Wide-range RCS pressure PT-402, pressurizer level LT-459 and neutron flux source range N38
- RCS hot and cold leg temperatures TE-413A and TE-413B

(7) 480V ac power transfer switches for charging pumps 31 and 32, component cooling water

pump 32 and PAB exhaust fan 32.

(8) Local instrument indication panels PT2 in the AFW pump room and PL6 at the charging pump station (including panel K9T for N38 near the charging pump station).

(9) Alternative shutdown power and instrumentation cables routed in the Turbine Building and Aux Feed Pump Building, yard, electrical tunnel and electrical penetration area and PAB.

The alternative 480V ac MCC-312A is powered by 480V bus 312 directly or from bus 313 through 480V bus 312. MCC 312A feeds the following selected safe shutdown components:

- CCW pump 32
- SW pump 38
- Charging pump 31 or 32
- PAB exhaust fan 32

Supporting services for this on-site ac power source are provided independent of the supporting equipment used by the three emergency diesel generators (e.g., cooling water, DC power, starting air, ventilation and fuel oil).

TRO

The Appendix R diesel generator must be operable to provide an independent source of power to safe shutdown pumps and instrumentation. An OPERABLE Appendix R diesel generator constitutes the capability to supply sufficient power to the 6.9KV buses 5 and 6 that are tied to bus 1 and 3, respectively, to power:

- One of two charging pumps (31 or 32)
- One component cooling water pump (32)
- One back-up service water pump (38)
- One channel of essential process monitoring instrumentation
- One RHR pump (through post-fire repairs)
- One VC FCU (through post-fire repairs)
- One PAB exhaust fan (32)

APPLICABILITY

10CFR50 Appendix R requires that one train of equipment necessary to achieve MODE 3 from either the control room or emergency control station(s) must be maintained free of fire damage by a single fire including an exposure fire. With the Appendix R diesel or its electrical distribution system inoperable, this condition cannot be met for the Control Building, Diesel Generator Building, PAB 55' Elevation near MCC-36A and B, Service Water Intake Structure, Diesel Oil Transfer Pump Pit, Electrical Tunnel Entrance from the Cable Spreading Room and the Upper Electrical Tunnel. Therefore the Appendix R diesel is required prior to going above MODE 5.

ACTIONS

A. & B. With the Appendix R diesel and/or the required electrical line-up inoperable, these systems must be restored to OPERABLE status within 30 days. The allowable Outage Time (AOT) of 30 days is based on Standard Technical Specification 3.3.4, “Remote Shutdown System.” The focus of this TRM is to establish actions to ensure the operability of the Appendix R diesel generator and electrical distribution system is maintained in accordance with the bounds of the IP3 license. This is accomplished by

ensuring the operability of the Appendix R diesel generator (or independent power supply meeting the same requirements as the existing power supply) and its electrical distribution system, or the plant is put into a cold shutdown condition.

C. If the Appendix R diesel and/or its electrical distribution system are not restored within the allowed outage time, then compliance with 10CFR50 Appendix R is considered not met and therefore the plant must be placed in MODE 5. The time requirement of 6 hours for MODE 3 and 36 hours for MODE 5 is selected to be consistent with TRO 3.0.C.

SURVEILLANCE REQUIREMENTS

TRS 3.8.B.1 Inspect the Appendix R diesel generator support systems, including check of the diesel fuel oil level and the closed cooling water system temperature. This surveillance is consistent with industry practice.

TRS 3.8.B.2 Start and run the Appendix R diesel generator for a period of time sufficient to reach stable operating temperatures. DEMONSTRATE proper operation of the output breaker. Starting and bringing the Appendix R diesel to operating conditions on a quarterly frequency is consistent with the Alternate AC Power Criteria identified in Appendix B section B10 of NUMARC 87-00, "Guidelines and Technical Bases for NUMARC Initiatives."

TRS 3.8.B.3a&b For the Appendix R diesel generator battery, measure overall voltage, each cell voltage, and specific gravity and temperature of the pilot cells on a monthly frequency. In addition, on a quarterly frequency measure the specific gravity of each cell of the Appendix R diesel generator battery. These surveillances are consistent with industry practice.

TRS 3.8.B.4 Start the Appendix R diesel generator, load it between 2400 to 2500 kW, and run for at least 2 hours. Starting and loading the Appendix R diesel to rated capacity on a refueling frequency is consistent with the Alternate AC Power Criteria identified in Appendix B section B10 of NUMARC 87-00, "Guidelines and Technical Bases For NUMARC Initiatives."

TRS 3.8.B.5 DEMONSTRATE the ability to line up and provide power from the Appendix R diesel to either 6.9 KV bus 1 and 480 V bus 312 or 6.9 KV bus 3 and 480 V bus 312. This ensures the ability for power transfer from either bus.

TRS 3.8.B.6 Perform a battery capacity test of the Appendix R diesel generator battery. This test ensures that the capacity of the batteries is maintained and is consistent with industry practice. The frequency of once per 24 months is deemed sufficient.

TRS 3.8.B.7 The surveillance to sample and analyze fuel oil from under ground bulk storage according to applicable standards meets the Alternate AC Power Criteria identified in Appendix B section B8(c) of NUMARC 87-00, "Guidelines and Technical Bases For NUMARC Initiatives." The frequency of once per 6 months is deemed sufficient.

References:

1. FSAR 1.3
2. FSAR 8.1
3. FSAR 8.2
4. FSAR 9.6
5. FSAR 16.2

3.8 ELECTRICAL POWER

3.8.C Technical Support Center (TSC) Diesel Generator and TSC Plant Computer Uninterruptible Power Supply (UPS)

TRO 3.8.C The TSC Diesel Generator and TSC Plant Computer UPS shall be OPERABLE:

APPLICABILITY: MODES 1, 2, 3 and 4.

----------NOTE----------
1. TRO 3.0.C is not applicable.

ACTIONS

CONDITION		REQUIRED ACTION		COMPLETION TIME
A.	TSC Diesel Generator or TSC Plant Computer UPS inoperable.	A.1	Restore TSC Diesel Generator and TSC Plant Computer UPS to OPERABLE.	6 days
B.	Required Action and associated Completion Time of Condition A not met.	B.1	Prepare and submit a special report to the On-Site Safety Review Committee outlining the actions taken, the cause of the inoperability and the plans for restoring the inoperable components.	7 days

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
TRS 3.8.C.1	Perform an inventory leakage test of the TSC Diesel Generator underground fuel storage tank DEMONSTRATE the leakage limit of less than or equal to (0.05) of a gallon per hour is being met.	12 months
TRS 3.8.C.2	Perform manual sampling of the interstitial space of the double walled TSC Diesel Generator tank to determine tightness by detecting if leaks are present.	7 days
TRS 3.8.C.3	----------NOTE---------- Battery charger OPERABILITY is not required to support TSC Diesel Generator OPERABILITY. ---------- DEMONSTRATE that total TSC Diesel Generator battery voltage is ≥ 28.0 VDC and single cell voltage is ≥ 1.35 VDC.	31 days
TRS 3.8.C.4	----------NOTE---------- Backup gasoline engine OPERABILITY is not required to support TSC Diesel Generator OPERABILITY. ---------- DEMONSTRATE start capability of the TSC Diesel Generator and the TSC Diesel Generator backup gasoline engine.	92 days
TRS 3.8.C.5	----------NOTE---------- Air Compressor OPERABILITY is not required to support TSC Diesel Generator OPERABILITY. ---------- DEMONSTRATE that fuel oil and air start capacities can support starting and running the TSC diesel generator. DEMONSTRATE oil temperature > 70 °F, water temperature >100 °F, main storage tank fuel oil level ≥ 2,158 gallons, fuel oil day tank level ≥ 3/4, battery charger float voltage in range of 28.0 - 32.0 VDC and air receiver pressure ≥ 125 psig.	7 days
TRS 3.8.C.6	DEMONSTRATE that total float voltage for each string (A, B and C) of TSC Plant Computer Batteries is ≥ 270.0 VDC and individual battery voltage is ≥12.5 VDC.	31 days

BASES

BACKGROUND

NUREG-0696, "Functional Criteria for Emergency Response Facilities" (Reference 1) describes the facilities and systems to be used to improve responses to emergency situations. The facilities include the Control Room, onsite Technical Support Center (TSC), onsite Operational Support Center (OSC), and nearsite Emergency Operations Facility (EOF). Data systems are the safety parameter display system (SPDS) and nuclear data link (NDL). Together, these facilities and systems make up the total Emergency Response Facilities (ERFs).

The Authority installed the Emergency Response Facilities Data Acquisition and Display System (ERFDADS) via modification MOD 82-03-049 COMP (Reference 2) to meet the requirements of NUREG-0696. The ERFDADS consists of the Qualified Safety Parameter Display System (QSPDS) and the Critical Functional Monitoring System (CFMS).

The ERFDADS is provided with battery backup, and uninterruptible power sources to eliminate momentary interruptions, and to filter out AC transients under normal conditions. The QSPDS is provided with battery backup from station batteries 31 and 32. The CFMS is provided with battery backup through the TSC Plant Computer UPS batteries. The CFMS provides all data acquisition and display capabilities required to support the TSC, EOF, NDL and the primary safety parameter in the Control Room. The TSC Plant Computer UPS is comprised of equipment located on the 15'-0" elevation of the Administration Service Building.

This Technical Requirement addresses only the Technical Support Center (TSC) Diesel Generator and TSC Plant Computer UPS. The QSPDS is addressed in Technical Requirement 3.3.A.

NUREG-0696 provides the following guidance: "Sufficient alternate or backup power sources shall be provided to maintain continuity of TSC functions and to immediately resume data acquisition, storage, and display of TSC data if loss of the primary TSC power sources occurs." The TSC Diesel Generator and TSC Plant Computer Battery UPS serve as these backup power sources.

The requirement to have a TSC comes from NUREG-0654 (Reference 3) and Article IV.E.8 of 10 CFR 50, Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities" (Reference 4). NUREG-0654 requires that each licensee shall establish a Technical Support Center and an onsite Operations Support Center (assembly area) in accordance with NUREG-0696, Revision 1. Article IV.E of 10 CFR 50, Appendix E requires that adequate provisions shall be made and described for emergency facilities and equipment. Item 8 of article IV.E requires, "A licensee onsite technical support center and a licensee near-site emergency operations facility from which effective direction can be given and effective control can be exercised during an emergency." The TSC is located on the west side of the second floor of the Administration Building adjacent to the Turbine Building.

The following equipment relies on the TSC Plant Computer UPS in the event of loss of normal power:

1. Master and slave CFMS computers (CFMS Computers A & B) and peripherals

2. All of data acquisition equipment (that processes non isolated signals) in the CFMS Multiplexer Room located on the turbine deck outside of the control room.

3. QSPDS Channel N (Non-safety related signals)

4. Historical Data Storage & Retrieval

5. Anticipated Transients Without Scram (ATWS) Mitigating Systems Actuation Circuitry (AMSAC) System

   The peripherals identified in item 1 above consist of the following terminals and printers:

   - Three (3) terminals in the TSC with corresponding printers
   - Four (4) terminals and 3 printers in the central control room (CCR)

Other CFMS display terminals (peripherals), which do not rely on the TSC Plant Computer UPS, are at the EOF and at the Alternate Emergency Operations Facility (AEOF) located at the NYPA headquarters in White Plains. Although the EOF and AEOF terminals do not rely on the TSC Plant Computer UPS for power they do receive their signals from the CFMS. Therefore, if CFMS were inoperable, the EOF and AEOF terminals would not have an input signal to display.

During emergency conditions the TSC terminals allow personnel assigned to the TSC to continuously monitor plant parameters. The CCR terminals provide the operators with CRT displays of individual plant parameters. Safety related signals that are displayed on the two (2) gas plasma displays in the CCR would not be affected upon loss of the TSC Plant Computer UPS because they are powered off of the station instrument busses. However, upon loss of normal power (MCC K and L) and TSC Plant Computer UPS the QSPDS Channel N (Non-safety related signals) would be lost to the gas plasma displays.

The TSC Diesel Generator provides emergency power for MCC K and MCC L. Some of the loads off of these MCCs include TSC Heating Ventilation and Air Conditioning (HVAC) and TSC lighting (Reference 5). The normal supply for MCC K and L is Bus 313 and 312 respectively (Reference 6). The TSC Diesel Generator has auto start capability on loss of the normal supply to MCC K or L (auto start transfer switch OTSC-ATS-1, -2). The switches are normal seeking and will return to their normal position on the restoration of normal power.

The AMSAC system is normally powered from the TSC Plant Computer UPS Static Inverter via panel P48 (see Reference 5). The normal feed to the inverter is from the TSC Plant Computer UPS Battery Charger. The battery charger feed is from MCC "K". Should there be a failure of the inverter, battery charger or its normal feed an automatic electronic transfer switch transfers the P48 feed to MCC "L" (upon battery exhaustion). In the event of a problem with the battery charger or the inverter, or if maintenance is required, a manually operated maintenance bypass switch can be positioned to supply power directly to panel P48 from MCC "L". When the manually operated maintenance bypass switch is utilized, the automatic electronic transfer switch is isolated. These transfers (automatic or manual) are accomplished without a loss of power to AMSAC.

Should power be interrupted to MCC K and L, automatic bus transfer switches OTSC-ATS-1, and -2 will shift to divert power from the normal supplies of Bus 313 or Bus 312 respectively to the TSC Diesel Generator. During this type of transfer, power to AMSAC will be momentarily lost until the TSC Diesel Generator assumes full load. Restoration of power will cause the AMSAC system to go into a reboot mode (a design feature of AMSAC). There is a high degree of redundancy and flexibility to provide power to the AMSAC system if the TSC Plant Computer UPS Battery Charger or inverter are inoperable. However, AMSAC would rely on the TSC DG should power be interrupted to MCC "K" and "L". AMSAC is addressed in Technical Requirement 3.1.A.

The CFMS equipment identified above is also powered from the TSC Plant Computer UPS Static Inverter (see Reference 5). As identified above, the normal feed to the inverter is from the TSC Plant Computer UPS Battery Charger. The battery charger feed is from MCC "K". In this normal configuration, the CFMS is provided with battery backup through the TSC Plant Computer UPS batteries. In the event of a problem with the battery charger or the inverter a manually operated maintenance bypass switch can be positioned to supply power directly to panel P48 from MCC "L". However, with power being supplied from MCC "L" the CFMS would not have the battery backup from the TSC Plant Computer UPS batteries.

IP3 preventative maintenance program has procedures that were developed to address the appropriate vendor recommendations (See references 7 & 15).

APPLICABLE SAFETY ANALYSIS

On June 1, 1991, IP3 submitted to the NRC the conceptual design for upgrading the emergency support facilities (Reference 8). In this submittal, IP3 indicated that a standby emergency diesel generator set would start up automatically upon sensing normal power supply failure to the TSC. IP3 also indicated that a UPS would be utilized to eliminate normal line transients and those associated with the starting of the diesel generator. The NRC responded to IP3's June 1, 1991 submittal by letter dated November 19, 1981 (Reference 9). Reference 9 documents the NRC's evaluation of how well IP3's design plan met the overall design concepts of NUREG-0696. The NRC indicated that the electrical power equipment for the TSC facility met the concepts of NUREG-0696.

As indicated in NUREG-0696, "TSC instrumentation data system equipment and power supplies need not meet safety-grade or Class 1E requirements." The TSC Plant Computer Battery was installed by modification MOD 82-03-049 COMP (Reference 2) and is classified as Safety Related (Reference 10).

TRO

The TSC Diesel Generator and TSC Plant Computer Battery must be OPERABLE to provide backup power to the TSC facility if loss of the primary TSC power source occurs.

An OPERABLE TSC Diesel Generator constitutes the following:

1. Greater than or equal to 2,158 gallons of fuel oil in the storage tank. This fuel must be automatically available to the day tank.

2. Day tank $\geq$ 3/4 full and day tank pump operable.

3. OPERABLE TSC Diesel Generator batteries.

4. OPERABLE Air receiver No. 31 and 32 at pressure $\geq$ 125 psig (Reference 14).

5. Automatic Transfer Switches OTSC-ATS-1 and OTSC-ATS-2.

The value of greater than or equal to 2,158 gallons of fuel oil in the 4,000 gallon TSC underground storage was made based on a requirement for the Emergency Diesel Generators (31, 32, 33) to have a volume of fuel required to operate two diesels at a minimum safeguards for at least 48 hours. The 2,158 gallon value for the TSC DG does not take into consideration allowances such as calibration tolerances, safety margin or possible unavailable fuel when tank is low. The TSC DG can run at full load for approximately 89 hours with a 4,000 gallon fuel supply and for approximately 48 hours with a 2,158 gallon fuel supply. The 48 hours of operating time that 2,158 gallons affords is sufficient time to bring in an alternate supply of fuel oil (e.g., tanker).

IF an alternate method of providing the 2,158 gallon fuel oil storage requirement is chosen, THEN the shift supervisor must ensure that the alternate method is capable of performing the intended functions in the intended manner. The delivery of fuel oil to the day tank occurs automatically when day tank level is low. Any alternate method must also be automatic (i.e., no operator action). In an accident scenario where the TSC diesel was relied upon, access around the plant site could be severely restricted because of radiological or toxic environments.

An OPERABLE TSC Plant Computer UPS constitutes the following:

1. Float voltage for battery string "A", "B" and "C is greater than or equal to 270.0 VDC.

2. All individual battery voltage is greater than or equal to 12.5 VDC.

3. OPERABLE UPS Static Inverter

4. OPERABLE UPS Battery Charger

5. OPERABLE Battery Disconnect Switch

A UPS energy status panel is located on the west wall of the TSC communications room. This panel provides status lights that indicate system status (e.g., system normal, computer now powered from bypass source, computer now powered from batteries, bypass source malfunction, and UPS system environment). The panel has an audible alarm to alert in case of abnormal system status.
Those required support systems that upon their failure do not require declaring the TSC Diesel

Generator inoperable are as follows:

1. Air Compressor
2. Backup gasoline engine (for air compressor)
3. TSC Diesel Generator battery charger

APPLICABILITY

The TSC Diesel Generator and TSC Plant Computer UPS are required to be OPERABLE during all plant operating conditions above MODE 5 in accordance with NUREG-0696. The TSC has no MODE 5 unavailability goal while the reactor is in MODE 5.

ACTIONS

A.1

NUREG-0696 requires the total TSC data system reliability shall be designed to achieve an operational unavailability goal of 0.01 during all plant operating conditions above MODE 5. According to the NUREG, the operational unavailability goal shall be defined in units of time as follows:

$$\text{Operational unavailability} = \frac{\text{Downtime}}{\text{Operating time}}$$

With a 24 month fuel cycle, 60 day refueling outage and no scheduled midcycle maintenance outage the operating time is at most considered to be 22 months. The downtime allowed to maintain an operational unavailability goal of 0.01 is 6.6 days. Therefore, the completion time of Required Action A.1 has been conservatively established as 6 days instead of the calculated 6.6 days.

The inoperability of the TSC Diesel Generator or TSC Plant Computer UPS does not constitute a major loss of emergency assessment capability, and does not require notifying the NRC Operations Center via the Emergency Notification System in accordance with 10CFR50.72 (b)(1)(v). As noted in NUREG-0696, the TSC is one of the facilities that make up the total emergency response facilities (ERFs). Code of Federal Regulations 10CFR50.72 (b)(1)(v) requires a one hour report for any event that results in a major loss of emergency assessment capability, or communications capability (e.g., significant portion of control room indication, Emergency Notification System, or offsite notification system). There is no corresponding Part 50.73 requirement. Therefore, no Licensee Event Report is required.

Section 3.2.7 of NUREG-1022 (Reference 11) indicates that unavailability of certain systems and facilities (including the TSC) constitute a major loss of emergency assessment, offsite response, or communications capability. The NUREG clarifies that a major loss of emergency assessment capability would include those events that significantly impair safety assessment capability. Some engineering judgement is needed to determine the significance of the loss of particular equipment. Based on the following engineering judgement the loss of TSC Diesel Generator or TSC

Plant Computer UPS equipment alone does not constitute a major loss of emergency assessment, offsite response, or communications capability and one hour reporting does not apply.

A one hour report due to "unavailability" of the TSC would result from the following scenario (this is the only scenario identified to date, however, this may not be the only possible scenario):

1. Condition where the TSC was uninhabitable (e.g., due to fire, radiation, high temperature due to complete loss of TSC HVAC). If the TSC becomes uninhabitable when it is supposed to be activated, the TSC manager will send several individuals to the Central Control Room (CCR) to perform accident assessment and will request that various members of the TSC staff report to the EOF and establish communication with the accident assessment team in the CCR.

The following scenarios would not constitute "unavailability" of the TSC:

1. Loss of both normal and backup power to the TSC. Normal power supply for MCC K and L is Bus 313 and 312 respectively. Backup power is provided by the TSC Diesel Generator and TSC Plant Computer UPS. Loss of the TSC Plant Computer UPS alone would not constitute unavailability of the TSC because only the three (3) TSC CRTs would be affected. Long term TSC functions (e.g., TSC HVAC, and TSC lighting) would be unaffected. Even the CRTs would be OPERABLE once the TSC diesel is started and the plant computer is restarted.

2. Condition where all three (3) TSC CRTs are inoperable. These CRTs are in place to continuously monitor plant parameters. Emergency Plan Procedure IP-2106 (Reference 12) indicates that if SPDS is not available in the TSC (through the TSC CRTs), the information can be obtained via fax from the CCR. Therefore, with this source of information, TSC personnel would still be able to perform their functions.

B.1

Prepare and submit a special report to the On-Site Safety Review Committee outlining the actions taken, the cause of the inoperability, the plans for restoring the inoperable components and the impact upon the availability goal. The 7 day completion time was chosen because it is assumed that for the first 6 days, efforts were concentrated on returning the equipment to OPERABLE. Seven additional days is sufficient time to prepare a report for OSRC. At the end of the additional seven days, the availability goal for the TSC data system has been exceeded by two times. The OSRC should be informed, in the special report, of the impact that the inoperable condition has had upon the availability goal.

SURVEILLANCE REQUIREMENTS

TRS 3.8.C.1

By design the TSC diesel generator tank is unmetered (i.e., there is no device installed which measures inventory usage) and contains petroleum for consumptive use on the premises. For unmetered underground tanks, the requirements of Westchester County Department of Health (WCDOH) Petroleum Bulk Storage Regulation §873.2516, “Inventory Monitoring for Underground Storage Facilities” are met by performing a WCDOH approved tightness test of the tank in lieu of daily inventory monitoring. If the required testing is not performed or if the tank is found to be leaking, it must be taken out of service as required by §873.2517(1)(c) and §873.2516(4) respectively.

IP3 registered the TSC diesel generator tank with the New York State Department of Environmental Conservation (NYSDEC) via letter dated July 30, 1993 (Reference 13). In this letter IP3 indicated that the tank would be designed and installed in accordance with 6 NYCRR Part 614. Part 614 is entitled, "Standards for New and Substantially Modified Petroleum Storage Facilities". Section 614.2(c) requires that a new tank must employ all practices and equipment for handling and storage of petroleum required in Part 613 before the tank is placed in-service. As described above, the annual standpipe analysis serves to comply with 613.4. In July 1998 the NYSDEC delegated enforcement of petroleum bulk storage regulations to the WCDOH. The WCDOH petroleum bulk storage regulations are a reiteration of the NYSDEC regulations. Consequently the annual standpipe analysis is also required in order to comply with §873.2516(b).

Indian Point 3 Technical Specifications entitled, "Environmental Technical Specification Requirements Non-Radiological Environmental Protection Plan" states in section 1.0 that one of the principal objectives of the Environmental Protection Plan (EPP) is to coordinate NRC requirements and maintain consistency with other Federal, State and local requirements for environmental protection. Therefore, meeting the state requirement of performing the annual standpipe analysis is also meeting the intent of our license.

TRS 3.8.C.2

In accordance with WCDOH Regulation §873.2524(2), "Monitoring of double-walled tanks" the interstitial space of the double walled TSC diesel tank must be monitored for tightness once per week. Manual sampling is an acceptable method. This surveillance is a Westchester County requirement and is required to meet the intent of our license for the same reasons that surveillance requirement 3.8.C.1 (above) is required to meet the intent of our license.

TRS 3.8.C.3

This surveillance requirement captures IP3's engineering judgement for DEMONSTRATING the readiness of TSC Diesel Generator support systems. This engineering judgement was developed from the recommendations of Institute of Electrical and Electronics Engineers (IEEE) Standard 450-1980, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Large Lead Storage Batteries for Generating Stations and Substations" which recommends that inspection readings should be taken in accordance with the manufacturer's instructions.

TRS 3.8.C.4

This surveillance requirement captures IP3's engineering judgement for DEMONSTRATING the OPERABILITY of the TSC Diesel Generator and gasoline power motor. This engineering judgement was developed from a review of vendor maintenance recommendations (Reference 7).

TRS 3.8.C.5

This surveillance requirement captures IP3's engineering judgement for DEMONSTRATING the readiness of TSC Diesel Generator support systems. This engineering judgement was developed from a review of vendor maintenance recommendations (Reference 7).

TRS 3.8.C.6

This surveillance requirement captures IP3's engineering judgement for DEMONSTRATING the readiness of TSC UPS support system. This engineering judgement was developed from the recommendations of Institute of Electrical and Electronics Engineers (IEEE) Standard 450-1980, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Large Lead Storage Batteries for Generating Stations and Substations" which recommends that inspection readings should be taken in accordance with the manufacturer's instructions.

REFERENCES:

1. NUREG-0696, "Functional Criteria for Emergency Response Facilities", Published February 1981.
2. Modification Procedure MOD 82-03-049 COMP, Revision 3, "Emergency Facilities Data Acquisition and Display System and Plant Computer Replacement Installation".
3. NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants".
4. Code of Federal Regulations 10 CFR 50, Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities".
5. Drawing No. 9321-F-91493, "MCC "K" & "L" One Line Diagram Administration Service BLDG."
6. Drawing No. 9321-F-33853, "Electrical Distribution & Transmission System".
7. Cummins Construction/Industrial Diesel Engines Operation and Maintenance Manual (NYPA Vendor Manual No. 1108-100000814) (CU-004).
8. Letter to the NRC dated June 1, 1981 (IPN-81-37), "Conceptual Design for Upgrading Emergency Support Facilities".
9. Letter from Steven A. Varga (NRC) to George T. Berry (NYPA) dated November 19, 1981.
10. Material Substitution Evaluation MSE 92-03-242 COMP, "TSC Computer UPS Battery Replacement (RES 92-03-125 COMP, Changed from DCPWR)".
11. NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and50.73", Rev. 1, Second Draft.
12. Emergency Plan Procedure IP-2106, "TSC Clerks", Rev 0.
13. Letter from Nicholas Rella (NYPA) to the NYSDEC dated July 30, 1993.
14. IP3-CALC-TSCDG-1386, "TSC D/G Starting Air System Pressure Switch Setpoint Change, " dated 01/20/95; and IP3-95-008, Change Request, dated 01/30/95.
15. IP3-95-046, Change Request, dated 8/16/95.

3.8 ELECTRICAL POWER

3.8.D Lighting Panel 318

TRO 3.8.D The circuit breaker on the electrical feeder to lighting panel (LP) 318 for inside containment shall be locked open.

APPLICABILITY: MODES 1 and 2

----------NOTES----------

1. The circuit breaker on the electrical feeder to lighting panel 318 may be closed only when containment access is required during MODEs 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Circuit breaker to LP- 318 not locked open.	A.1 Initiate actions to lock open breaker to LP-318, AND A.2 Complete actions to lock open LP-318.	Immediately 1 hour
B. Required Action not met.	B.1. Be in MODE 3.	6 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
TRS 3.8.D.1	DEMONSTRATE the circuit breaker on the electrical feeder to lighting panel 318 for inside containment is locked open.	31 days

BASES

As a result of an investigation of the effect components that might become submerged following a LOCA may have on ECCS, containment isolation and other safety-related functions, a fuse and a locked open circuit breaker were provided on the electrical feeder to lighting panel 318 for inside containment. With the circuit breaker in the open position, containment electrical penetration H-70 is de-energized during the accident condition. Personnel access to containment may be required during power operation. Since it is highly improbable that a LOCA would occur during this short period of time, the circuit breaker may be closed during that time to provide lighting inside containment for personnel safety.

Section 3.9

NOT

USED

Section 4.0

NOT

USED

5.0 ADMINISTRATIVE CONTROLS

5.1 Responsibilities

5.1.A The plant manager shall be responsible for overall unit operation in accordance with Technical Requirements Manual.

5.1.B The shift manager shall be responsible for ensuring plant operations are in accordance with Technical Requirements Manual.

Example: Technical Requirements for Operation (TRO) are met or Required Actions are met within associated Completion Time.

5.1.C Department managers shall be responsible for ensuring work activities are performed in accordance with Technical Requirements Manual.

Example: Technical Requirement Surveillance (TRS) are met; Technical Requirements for Operations (TRO) are met.

5.1.D The Quality Assurance Manager shall be responsible for reviewing effectiveness of Technical Requirements Manual implementation at least once every three years.

5.0 ADMINISTRATIVE CONTROLS (continued)

5.2 Technical Requirements Manual Update & Basis Control

5.2.A Changes to the Technical Requirements Manual (TRM) and Basis shall be made in accordance with SMM-LI-113, "Technical Specification Bases, Technical Requirements Manual and Updated Final safety Analysis (UFSAR) Amendment Preparation and Control."

5.0 ADMINISTRATIVE CONTROLS

5.3 Procedures

5.3.A Written procedures shall be established, implemented, and maintained covering the Technical Requirements Manual activities.

5.3.B Each procedure of Requirement 5.3.A, and changes thereto, shall be reviewed and approved in accordance with an approved process that meets the requirements of the Quality Assurance Program Manual (QAPM) prior to implementation.

5.0 ADMINISTRATIVE CONTROLS

5.4 Reporting Requirements

5.4.A The following reports shall be made in accordance with 10 CFR 50.72 and 10 CFR 50.73.

- AMSAC Actuation as per Technical Requirements Manual 3.1.A Condition D.
- AMSAC Inoperability as per Technical Requirements Manual 3.1.A Condition C.

5.4.B Submit a Special Report to the OSRC outlining the cause of the inoperability of required fire protection equipment, the extent of condition, and the plans and schedule for restoring the inoperable equipment to OPERABLE status. The review of the inoperability must consider, in aggregate, the other fire equipment inoperability/TROs. The review must determine whether or not the condition would adversely affect the ability to achieve and maintain safe shutdown in the event of a fire. A copy of the report should be sent to the senior manager responsible for oversight of the Fire Protection.

5.4.C Operating Data Report

Provide to the NRC, using an industry database (e.g., INPO's Consolidated Data Entry (CDE) program), the operating data for each calendar month that is described in Generic Letter 97-02, "Revised Contents of the Monthly Operating Report," by the last day of the month following the end of each calendar quarter.

5.4.D Provide annual occupational exposure information to the NRC which supports the appointment of station doses to differentiate between operating (IP2 and IP3) and shutdown units (IP1). The data will provide the summary distribution of annual whole body doses as presented in Appendix B of NUREG-0713 for operating and shutdown units. The information is to be included in the annual 10 CFR 20.2206. [COM NL-04-135-2]

5.0 ADMINISTRATIVE CONTROLS

5.5 Record Retention

In addition to the applicable record retention requirements of Title 10, Code of Federal Regulations, the following records shall be retained for at least the minimum period indicated.

5.5.A The following records shall be retained for at least 5 years:

a. Records of changes made to the procedures required by Technical Requirements Manual.

b. Records and logs of principal maintenance activities, inspections, repair, and replacement of principal items of equipment related to Technical Requirements Manual.

c. Records of surveillance activities, inspections, and calibrations required by the Technical Requirements Manual.

5.5.B The following records shall be retained for the duration of the unit Operating License:

a. Records of reviews performed for changes made to procedures or equipment or reviews of tests and experiments required by Technical Requirements Manual and pursuant to 10 CFR 50.59.

b. Records of the reviews and audits required by Technical Requirements Manual.

c. Records of service lives of all safety-related snubbers including the date at which the service life commences and associated installation and maintenance records.

5.0 ADMINISTRATIVE CONTROLS

5.6 Audits

5.6.A Quality Assurance shall perform an effectiveness audit of Technical Requirements Manual implementation at least once every three years.

5.0 ADMINISTRATIVE CONTROLS

5.7 Training & Organization

5.7.A A training program for the Fire Brigade shall be maintained and shall meet or exceed the requirements of NFPA 27-1975 with the exception of the training program schedule.

5.7.B A Fire Brigade of at least five members shall be maintained on site. This excludes four members of the minimum shift crew necessary for safe shutdown of the plant and any personnel required for other essential functions during a fire emergency. During periods of cold shutdown the Fire Brigade will exclude two members of the minimum shift crew.