ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	G.2.1 Be in MODE 3. AND G.2.2 Be in MODE 4.	30 hours 36 hours
H. Main Boiler Feedwater Pump trip channel(s) inoperable.	H.1 Verify one channel associated with an operating MBFP is OPERABLE. AND H.2 Restore one channel associated with each operating MBFP to OPERABLE status.	~~1 hour~~ Immediately per IP3 & PORC 48 hours
I. Required Action and associated Completion Time of Condition H not met.	I.1 Be in MODE 3.	6 hours
J. One or more channels inoperable.	J.1 Verify interlock is in required state for existing unit condition. OR J.2.1 Be in MODE 3. AND J.2.2 Be in MODE 4.	1 hour 7 hours 13 hours

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

The LCO requires all instrumentation performing an ESFAS Function to be OPERABLE. A channel is OPERABLE with a trip setpoint value outside its calibration tolerance band provided the trip setpoint "as-found" value does not exceed its associated Allowable Value and provided the trip setpoint "as-left" value is adjusted to a value within the calibration tolerance band of the Nominal Trip Setpoint. A trip setpoint may be set more conservative than the Nominal Trip Setpoint as necessary in response to plant conditions. Failure of any instrument renders the affected channel(s) inoperable and reduces the reliability of the affected Functions.

The LCO generally requires OPERABILITY of four or three channels in each instrumentation function and two channels in each logic and manual initiation function. The two-out-of-three and the two-out-of-four configurations allow one channel to be tripped during maintenance or testing without causing an ESFAS initiation. Two logic or manual initiation channels are required to ensure no single random failure disables the ESFAS.

The required channels of ESFAS instrumentation provide unit protection in the event of any of the analyzed accidents. ESFAS protection functions are as follows:

1. Safety Injection

   Safety Injection (SI) provides two primary functions:

   1. Primary side water addition to ensure maintenance or recovery of reactor vessel water level (coverage of the active fuel for heat removal, clad integrity, and for limiting peak clad temperature to < 2200°F), and

   2. Boration to ensure recovery and maintenance of SDM (k_{eff} < 1.0).

   ~~These functions are~~ necessary to mitigate the effects of high energy line breaks (HELBs) both inside and outside of containment. The SI signal is also used to initiate other Functions such as:

   - Phase A Isolation,
   - Containment Purge Isolation,

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

b. Auxiliary Feedwater - Automatic Actuation Logic and Actuation Relays (Balance of Plant ESFAS)

Automatic actuation logic and actuation relays consist of the same features and operate in the same manner as described for ESFAS Function 1.b.

b.c. Auxiliary Feedwater - Steam Generator Water Level - Low Low

SG Water Level - Low Low provides protection against a loss of heat sink. A feed line break, inside or outside of containment, or a loss of MFW, would result in a loss of SG water level. SG Water Level - Low Low provides input to the SG Level Control System. Therefore, the actuation logic must be able to withstand both an input failure to the control system which may then require a protection function actuation and a single failure in the other channels providing the protection function actuation. Thus, four OPERABLE channels are required to satisfy the requirements with two-out-of-four logic. For units that have dedicated protection and control channels, only three protection channels are necessary to satisfy the protective requirements. For other units that have only three channels, a median signal selector is provided or justification is provided in Reference 7.

With the transmitters (d/p cells) located inside containment and thus possibly experiencing adverse environmental conditions (feed line break), the Trip Setpoint reflects the inclusion of both steady state and adverse environmental instrument uncertainties.

c.d. Auxiliary Feedwater - Safety Injection

An SI signal starts the motor driven and turbine driven AFW pumps. The AFW initiation functions are the same as the requirements for their SI function. Therefore, the requirements are not repeated in Table 3.3.2-1. Instead, Function 1, SI, is referenced for all initiating functions and requirements.

d.e. Auxiliary Feedwater - Loss of Offsite Power

A loss of offsite power to the service buses will be accompanied by a loss of reactor coolant pumping power and the subsequent

NUREG-1431 Markup Inserts
ITS SECTION 3.3.2 - Engineered Safety Feature Actuation System (ESFAS) Instrumentation

INSERT: B 3.3.2 – 29 – 03:

The SBO Function that generates Auxiliary Feedwater system start signals uses the channels required to be OPERABLE by LCO 3.3.5, "Loss of Power (LOP) Diesel Generator (DG) Start Instrumentation," Function c, including the differences in the actuation logic generated by a unit trip and the presence of an ESFAS safety injection signal. The SBO Function generates an automatic start signal for the turbine driven AFW pump if the undervoltage condition occurs in conjunction with a unit trip if no ESFAS safety injection signal is present. The SBO Function generates an automatic start signal for the motor driven AFW pumps if the undervoltage condition occurs in conjunction with a unit trip.

As described in the Bases of LCO 3.3.5, the SBO relays (i.e., channels) consist of two sets of three relays with one set associated with 480 V safeguards bus 5A (SBO train 5A) and the other set associated with safeguards bus 6A (SBO train 6A). If there is a loss of voltage on 480 V bus 5A or 6A, two out of the three SBO undervoltage relays associated with either bus 5A or 6A will actuate the undervoltage portion of the SBO function.

The requirements of the SBO function for the number of OPERABLE channels, the Required Actions when one or more channels are inoperable, Surveillance Testing of SBO channels, and the allowable values for LCO 3.3.2, Function 6.d, Auxiliary Feedwater SBO (Emergency Bus 5A or 6A) are the same as those required by LCO 3.3.5, "LOP DG Start Instrumentation." The requirement in LCO 3.3.5 to enter applicable Condition(s) and Required Action(s) for all DGs inoperable when there is a loss of the SBO function provides all required compensatory actions for loss of AFW automatic start on an undervoltage condition because AFW pumps can still be manually started and loaded and automatic AFW start on SG low level and loss of feedwater are available. Additionally, LCO 3.3.2, Function 6.a, Auxiliary Feedwater - Automatic Actuation Logic and Actuation Relays, and LCO 3.7.5, Auxiliary Feedwater (AFW) System, establish Required Actions and Surveillance Testing for the Auxiliary Feedwater SBO (Emergency Bus 5A or 6A) function that are not addressed in LCO 3.3.5, "LOP DG Start Instrumentation." Therefore, LCO 3.3.2, Function 6.d, Auxiliary Feedwater SBO (Emergency Bus 5A or 6A) establishes requirements for the SBO function by referencing LCO 3.3.5 except for Applicability.

This function is needed because

BASES

SURVEILLANCE REQUIREMENTS (continued)

performed every 31 days on a STAGGERED TEST BASIS. The Frequency is adequate based on industry operating experience, considering instrument reliability and operating history data.

SR 3.3.2.6

SR 3.3.2.6 is the performance of a MASTER RELAY TEST. The MASTER RELAY TEST is the energizing of the master relay, verifying contact operation and a low voltage continuity check of the slave relay coil. Upon master relay contact operation, a low voltage is injected to the slave relay coil. This voltage is insufficient to pick up the slave relay, but large enough to demonstrate signal path continuity. This test is performed every 31 days on a STAGGERED TEST BASIS. The time allowed for the testing (6 hours) and the surveillance interval are justified in Reference 8.

SR 3.3.2.5

SR 3.3.2.5 is the performance of a COT.

A COT is performed on each required channel to ensure the entire channel will perform the intended Function. Setpoints must be found within the Allowable Values specified in Table 3.3.1-1. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL OPERATIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions.

The difference between the current "as found" values and the previous test "as left" values must be consistent with the drift allowance used in the setpoint methodology. The setpoint shall be left set consistent with the assumptions of the current unit specific setpoint methodology.

The "as found" and "as left" values must also be recorded and reviewed for consistency with the assumptions of the surveillance interval extension analysis (Ref. 8) when applicable.

The Frequency of 92 days is justified in Reference 8.

BASES

LCO (continued)

Two channels are required to be Operable for redundancy. Alternate indication is available using saturation pressure and steam tables. The plant computer subcooling margin readout can be used as a substitute for the RCS Subcooling Margin Monitor.

22. Refueling Water Storage Tank (RWST) Level

RWST Level is a Type A, Category II Function that is used to confirm RWST level prior to the manual switchover to the cold leg recirculation phase that is initiated when the RWST level has reached the low low alarm setpoint and sufficient coolant inventory to support pump operation in recirculation mode is verified in the containment.

Two channels of RWST Level indication are required consistent with LCO 3.5.4, "Refueling Water Storage Tank", requirements for OPERABILITY of two channels of the RWST level low low alarm. This is required because the IP2 ESFAS design does not include automatic switchover from the safety injection mode to the recirculation mode of operation based on low low level in the RWST coincident with a safety injection signal.

The LCO requirement for two channels of RWST level indication is satisfied by the OPERABILITY of LT-920 and LT-5751.

APPLICABILITY

The PAM instrumentation LCO is applicable in MODES 1, 2, and 3. These variables are related to the diagnosis and pre-planned actions required to mitigate DBAs. The applicable DBAs are assumed to occur in MODES 1, 2, and 3. In MODES 4, 5, and 6, unit conditions are such that the likelihood of an event that would require PAM instrumentation is low; therefore, the PAM instrumentation is not required to be OPERABLE in these MODES.

ACTIONS

A Note has been added in the ACTIONS to clarify the application of Completion Time rules. The Conditions of this Specification may be entered independently for each Function listed on Table 3.3.3-1. The Completion Time(s) of the inoperable channel(s) of a Function will be tracked separately for each Function starting from the time the Condition was entered for that Function.

3.3 INSTRUMENTATION

3.3.4 Remote Shutdown

IP3 has 3.0.4 exception

LCO 3.3.4 The Remote Shutdc ABLE.

3.0.4 exception dropped from IP2 specs. Why?

APPLICABILITY: MODES 1, 2, and 3

ACTIONS

- NOTE -
Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more required Functions inoperable.	A.1	Restore required Function to OPERABLE status.	30 days
B. Required Action and associated Completion Time not met.	B.1	Be in MODE 3.	6 hours
	AND		
	B.2	Be in MODE 4.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.4.1	Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	31 days
SR 3.3.4.2	Verify each required control circuit and transfer switch is capable of performing the intended function.	24 months

Table B 3.3.4-1 (pag
Remote Shutdown Instrumenta

Reg. Number of Functions not specified for T B 3.3.4-1 Items 3f, 3g, 3h, 3i, 4c

FUNCTION/INSTRUMENT OR CONTROL PARAMETER	REQUIRED NUMBER OF FUNCTIONS
1. REACTIVITY CONTROL	
a. Source Range Neutron Flux (NI-5143-1).	1
b. Reactor Trip and Bypass Breaker Position.	1 per breaker
c. Reactor Trip & Bypass Breaker Trip Switch; or 21 MG Set & 22 MG Set Trip Switch.	
d. Seal Injection Flow (FI-144, FI-143, FI-116 and FI-115)	1 per RCP
2. REACTOR COOLANT SYSTEM PRESSURE CONTROL	
a. 21 Pressurizer Backup Heater Local/Remote transfer switch.	1
b. Pressurizer Pressure (PI-3105-1).	1
3. DECAY HEAT REMOVAL via STEAM GENERATORS	
a. Hot Leg Temperature. (TI-5139 for Loop 21 and TI-5141 for Loop 22)	2
b. Cold Leg Temperature. (TI-5140 for Loop 21 and TI-5142 for Loop 22)	2
c. SG Pressure. (PI-1353, PI-1354, PI-1355 and PI-1356)	1 per SG
d. SG Level. (LI-5001-1 for 21 SG and LI-5002-1 for 22 SG)	2
e. CST Level.	1
f. Atmospheric Steam Dump Valve controls. (Local nitrogen control stations in AFW Pump Building)	1 ADV
g. Auxiliary Feedwater Pump 21. (Transfer switch EDC5 and breaker 1B)	

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
---------- - NOTE - Not applicable in MODE 5 or 6. ---------- B. Two or more SBO channels inoperable on one bus with three OPERABLE SBO channels on the other bus. OR One SBO channel inoperable on both buses.	B.1	Restore to OPERABLE status at least three SBO channels on one bus and two SBO channels on the other bus.	48 hours
C. Required Action and Completion Time of A or B not met.	C.1 AND C.2	Be in MODE 3. Be in MODE 5.	6 hours 36 hours
---------- - NOTE - Not applicable in MODE 1, 2, 3 or 4. ---------- D. One SBO channel inoperable on a required bus.	D.1	Place channel in trip.	48 hours
E. Two or more SBO channels inoperable on both buses in MODE 1, 2, 3 or 4. OR Required Action and Completion Time of D not met.	E.1	Enter applicable Condition(s) and Required Action(s) for all DGs inoperable.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
---------- - NOTE - Separate Condition entry is allowed for each bus. ---------- F. One Undervoltage Function channel inoperable.	F.1 Restore channel to OPERABLE status.	6 hours
G. ---------- - NOTE - Separate Condition entry is allowed for each bus. ---------- One Degraded Voltage Function channel inoperable.	G.1 Place channel in trip.	1 hour
H. Required Action and associated Completion Time of Condition F or G not met. OR Two Undervoltage Function channels inoperable on one or more buses. OR Two Degraded Voltage Function channels inoperable on one or more buses.	H.1 Enter applicable Condition(s) and Required Action(s) for the associated DG(s) made inoperable by LOP DG start instrumentation.	Immediately

3.3 INSTRUMENTATION

3.3.6 Containment Purge System and Pressure Relief Line Isolation Instrumentation

LCO 3.3.6 The Containment Purge System and Pressure Relief Line Isolation instrumentation for each Function in Table 3.3.6-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3 and 4,
During movement of recently irradiated fuel assemblies within containment.

ACTIONS

- NOTE -
Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One radiation monitoring channel inoperable.	A.1 Restore the affected channel to OPERABLE status.	7 days
B. One or both automatic actuation trains inoperable. OR Two radiation monitoring channels inoperable. OR Required Action and associated Completion Time of Condition A not met.	B.1 Enter applicable Conditions and Required Actions of LCO 3.6.3, "Containment Isolation Valves," for containment purge system and pressure relief line isolation valves made inoperable by isolation instrumentation.	Immediately

BASES

SURVEILLANCE REQUIREMENTS (continued)

Agreement criteria are determined by the unit staff, based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the sensor or the signal processing equipment has drifted outside its limit. A CHANNEL CHECK for a single channel instrument is satisfied by verification that the sensor or the signal processing equipment has not drifted outside its limit.

The Frequency is based on operating experience that demonstrates channel failure is rare. The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the LCO required channels.

SR 3.3.6.2

SR 3.3.6.2 is the performa Explain why STG SLAVE RELAY TEST not adopted! TEST. This test is performed every 31 day :ST BASIS. The Surveillance interval is ac nt reliability and industry operating experien

SR 3.3.6.3

SR 3.3.6.3 is the performance of a MASTER RELAY TEST. The MASTER RELAY TEST is the energizing of the master relay and verifying contact operation. Upon master relay contact operation, a low voltage is injected to the slave relay coil. This voltage is insufficient to pick up the slave relay, but large enough to demonstrate signal path continuity. This test is performed every 31 days on a STAGGERED TEST BASIS. The Surveillance interval is acceptable based on instrument reliability and industry operating experience.

SR 3.3.6.4

A COT is performed every 31 days on each radiation monitoring channel to ensure the entire channel will perform the intended Function. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL OPERATIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. This test verifies the capability of the instrumentation to provide

3.3 INSTRUMENTATION

3.3.7 Control Room Ventilation System (CRVS) Actuation Instrumentation

LCO 3.3.7 The CRVS actuation instrumentation for each Function in Table 3.3.7-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3 and 4,
During movement of recently irradiated fuel assemblies. -

mismatch recent = 100 hr. Addition A allows 72 h w/ loss of protection.

ACTIONS

- NOTE -
Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more Functions inoperable.	A.1	Place one CRVS train in pressurization mode.	72 hours
B. Required Action and associated Completion Time for Condition A not met.	B.1	Be in MODE 3.	6 hours
	AND		
	B.2	Be in MODE 5.	36 hours
C. Required Action and associated Completion Time for Condition A not met during movement of recently irradiated fuel assemblies.	C.1	Suspend movement of recently irradiated fuel assemblies.	Immediately

SURVEILLANCE REQUIREMENTS

- NOTE -
Refer to Table 3.3.7-1 to determine which SRs apply for each CRVS Actuation Function.

SURVEILLANCE		FREQUENCY
SR 3.3.7.1	Perform CHANNEL CHECK.	24 hours

[redacted]
Craig RAI

NUREG-1431 Markup Inserts
ITS SECTION 3.3.7 - Control Room Ventilation System (CRVS)
Actuation Instrumentation

INSERT: B 3.3.7 -- 3 -- 01:

In MODES 1, 2, 3 and 4, automatic CRVS actuation is needed to demonstrate compliance with 10 CFR 50.67, Accident Source Term (Ref. 1). OPERABILITY of CRVS Isolation Instrumentation ensures that exposures following each event analyzed for Modes 1, 2, 3 and 4 are significantly below the required limits (Ref. 2).

In MODES 5 and 6 without fuel handling in progress, automatic CRVS actuation need not be OPERABLE because the potential for radioactive releases is minimized and operator action is sufficient to ensure post accident offsite doses are maintained within the limits of Reference 1.

During movement of recently irradiated fuel assemblies either in containment or in the fuel handling building, automatic CRVS actuation must be OPERABLE to cope with the release from a fuel handling accident involving ~~handling~~ recently irradiated fuel. The CRVS is only required to be OPERABLE during fuel handling involving ~~handling~~ recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous 100 hours), due to radioactive decay.

INSERT: B 3.3.7 -- 3 -- 02:

Condition A applies if either Air Intake Radiation Monitor (R-38-1 or R-38-2), manual initiation or the input from ESFAS Train A or Train B to CRVS is inoperable. If the automatic CRVS start signal from either Function is inoperable, 72 hours is allowed to restore the Function consistent with the limit of 72 hours for loss of CRVS Function allowed by LCO 3.7.10.

RAI 3.7.10-1

> CRVS System LOF ≠ CRVS Instrumentation LOF
(their time to repair do not equate)

> CTS considers CRVS Act. Instr. to be ESF (SI) channels

> WCAP 10271 14333 and 15376 do not apply to CRVS Act. Instr.

> Typicals do Repair Acts (72hours) are not for LOF

Analog Channels
- PRE-TOP Maint Time = 1 hour
- TOP Maint Time = 6+6 hr.

→ or supply plant # bas on Mean-Time-To-Failure data

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
	B.1.2	Enter applicable Conditions and Required Actions for one CREFS train made inoperable by inoperable CREFS actuation instrumentation.	Immediately
	OR		
	B.2	Place both trains in *emergency [radiation protection]* mode.	Immediately
C. Required Action and B associated Completion Time for Condition A or B not met in MODE 1, 2, 3, or 4.	C.1	Be in MODE 3.	6 hours
	AND		
	C.2	Be in MODE 5.	36 hours
D. Required Action and associated Completion Time for Condition A or B not met during movement of [recently] irradiated fuel assemblies.	D.1	Suspend movement of [recently] irradiated fuel assemblies.	Immediately
E. [Required Action and associated Completion Time for Condition A or B not met in MODE 5 or 6.	E.1	Initiate action to restore one CREFS train to OPERABLE status.	Immediately]

<3.3.H.2>
<DOC H.2>
<DOC A.4>

STET

BASES

ACTIONS (continued)

C.1 and C.2

Condition C applies when the Required Action and associated Completion Time for Condition A or B have not been met and the unit is in MODE 1, 2, 3, or 4. The unit must be brought to a MODE in which the LCO requirements are not applicable. To achieve this status, the unit must be brought to MODE 3 within 6 hours and MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

D.1

Condition D applies when the Required Action and associated Completion Time for Condition A or B have not been met when [recently] irradiated fuel assemblies are being moved. Movement of [recently] irradiated fuel assemblies must be suspended immediately to reduce the risk of accidents that would require CREFS actuation.

X.1

E.1

Condition E applies when the Required Action and associated Completion Time for Condition A or B have not been met in MODE 5 or 6. Actions must be initiated to restore the inoperable train(s) to OPERABLE status immediately to ensure adequate isolation capability in the event of a waste gas decay tank rupture.

X.1

SURVEILLANCE REQUIREMENTS

A Note has been added to the SR Table to clarify that Table 3.3.7-1 determines which SRs apply to which CREFS Actuation Functions.

STS

Insert: B 3.3.7-5-01

SR 3.3.7.1

for R-38-1 and R38-2

24

Performance of the CHANNEL CHECK once every 12 hours ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

Insert: B 3.3.7-5-02

NUREG-1431 Markup Inserts
ITS SECTION 3.3.7 - Control Room Ventilation System (CRVS]
Actuation Instrumentation

INSERT: B 3.3.7 – 5 – 01: not for STS

Surveillance Requirements apply to the Air Intake Radiation Monitors (R-38-1 and R-38-2) and manual initiation only. Surveillance Requirements for the ESFAS Safety Injection Functions that initiate CRVS are specified in LCO 3.3.2. omits SI

INSERT: B 3.3.7 – 5 – 02:

A CHANNEL CHECK for a single channel instrument is satisfied by verification that the sensor or the signal processing equipment has not drifted outside its limit.

A.3 Rev. 1

3.3.7: Control Room Ventilation System (CRVS) Actuation Instrumentation

Category Administrative: No Technical Changes

DOC Summary:

Clarifies the requirement that the control room ventilation system be operable includes the requirement for automatic actuation on each of the following: 1) Manual Initiation, 2) Control Building air Intake Radiation Monitor; 3) Control Room air Intake Radiation ~~Manager~~ Monitor; and 4) Safety injection signal. These or a high radiation signal based on the CTS surveillance requirement for periodic verification that the control room ventilation system actuates on a safety injection signal or a high radiation signal.

Description of Change

CTS 3.3.H.1 requires that the control room ventilation system, including an implied requirement for actuation instrumentation, be operable. CTS 4.4.E.4.b, which is a surveillance that verifies that CTS 3.3.H.1 is met, requires periodic verification that the control room ventilation system actuates on a safety injection signal or a high radiation signal. This creates an implicit requirement that Clarifies the requirement that the control room ventilation system be operable includes the requirement for automatic actuation on each of the following: 1) Manual Initiation, 2) Control Building air Intake Radiation Monitor; 3) Control Room air Intake Radiation Manager; and 4) Safety injection signal, as described in the UFSAR.

ITS LCO 3.3.7 maintains the existing requirement for Operability of the control room ventilation system actuation instrumentation including: 1) Manual Initiation, 2) Control Building air Intake Radiation Monitor; 3) Control Room air Intake Radiation Manager; and 4) Safety injection signal.

Justification for Change

Adding explicit requirements for CRVS actuation instrumentation is an administrative change with no adverse impact of safety because it is an explicit statement of a reasonable interpretation of the existing requirement.

A.4 Rev. 0

3.3.7: Control Room Ventilation System (CRVS) Actuation Instrumentation

Category Administrative: No Technical Changes

DOC Summary:

Clarifies that the requirement that the reactor be brought "to a hot shutdown condition utilizing normal operating procedures" if requirements for the control room ventilation system are not met is equivalent to the ITS requirement that the reactor be in Mode 3 within 6 hours.

Description of Change

CTS 3.3.H.1 specifies that the reactor shall be brought to a hot shutdown condition (i.e., Mode 3) utilizing normal operating procedures if requirements for the control room ventilation system are not met within the specified completion time.

Under the same conditions, ITS LCO 3.3.7, Required Action B.1, requires that the reactor be in Mode 3 within 6 hours.

Justification for Change

This change is needed and is acceptable because it is a reasonable interpretation of the existing requirement and the allowed Completion Time is reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

M.1 3.3.7: Control Room Ventilation System (CRVS) Actuation Instrumentation

Rev. 1 **Category** More Restrictive:

hold

DOC Summary:

Reduces the allowable out of service time for loss of CRVS safety function, including actuation instrumentation, from 3.5 days to 72 hours.

hold for RAI 3.7.10-1

Description of Change

CTS 3.3.H.1 requires that control room air filtration (i.e., CRVS), including an implied requirement for actuation instrumentation, is operable. There is no requirement for redundancy for either the CRVS or the actuation instrumentation. Likewise, CTS 3.3.H.2 establishes requirements when the CRVS is not Operable but does not distinguish between a loss of CRVS redundancy and a loss of CRVS function. Therefore, CTS 3.3.H.2 specifies no Required Actions for a loss of CRVS redundancy and provides an allowable out of service time (AOT) of 3.5 days for a loss of CRVS function.
ITS LCO 3.7.10 requires that two CRVS trains are Operable to provide redundant CRVS capability (See ITS 3.7.10, DOC M.1); however, ITS LCO 3.3.7, maintains the requirement for a single train of CRVS actuation instrumentation consistent with the IP2 design.
ITS LCO 3.3.7, Required Action A.1, establishes a new AOT of 72 hours when one or both CRVS actuation instrumentation functions are not Operable.

Justification for Change

This change is acceptable because it does not introduce any operation which is un-analyzed while requiring a more restrictive AOT for a loss of CRVS function. Therefore, this change has no significant adverse impact on safety.

M.2 3.3.7: Control Room Ventilation System (CRVS) Actuation Instrumentation

Rev. 0 **Category** More Restrictive:

DOC Summary:

Eliminates an allowance permitting the reactor to remain in hot shutdown condition (Mode 3) for 48 hours prior to initiating plant cooldown (to Mode 5) when the control room ventilation system actuation instrumentation is not restored to an operable status within the time period specified.

Description of Change

CTS 3.3.H.2 specifies that if the Control Room Ventilation System, including actuation instrumentation, is not restored to an operable status within the time period specified, then the reactor shall be brought to the hot standby condition utilizing normal operating procedures. Thereafter, CTS 3.3.H.2 allows an additional 48 hours to restore CRVS before the reactor must be placed in cold shutdown (i.e., Mode 5).
ITS LCO 3.3.7, Required Action B.1, maintains the requirement to be in hot shutdown condition utilizing normal operating procedures (See ITS 3.3.7, DOC A.3); however, Required Action B.2, requires that the plant be in Mode 5 in 36 hours (i.e., the 48 hour allowable out of service time in Mode 3 is deleted).

Justification for Change

This change is needed and is acceptable because the plant must be placed outside the applicable Mode promptly when LCO requirements are not met. Therefore, this change has no adverse impact on safety.

BASES

BACKGROUND (*continued*)

CRVS Train A is powered from safeguards power train 2A/3A (MCC-26C) and is supported by DG-22. CRVS Train A includes: Filter booster fan (CCRBF-21) associated isolation damper (CCRF-1); HEPA/adsorber filter unit bypass damper (CCRA1); Toilet area exhaust fan (K-8) isolation damper (CCRD4); and, air conditioning unit fan (CCRF-21).

CRVS Train B is powered from safeguards power train 6A (MCC-26B) and is supported by DG-23. CRVS Train B includes: filter booster fan (CCRF-22) and associated isolation damper (CCRG-1); HEPA/adsorber filter unit bypass damper (CCRA2); toilet area exhaust fan (K-8) isolation damper (CCRD5); and, air conditioning unit bypass fan (CCRCF-22).

The HEPA/adsorber filter unit is considered a passive component and is common to both units.

APPLICABLE SAFETY ANALYSES

At Indian Point 2, radiological consequence analyses have been revised to demonstrate compliance with 10 CFR 50.67, Accident Source Term (References 2, 3 and 4). 10 CFR 50.67 requires that accident analyses show adequate radiation protection is provided to permit access to and occupancy of the control room under accident conditions without personnel receiving radiation exposures in excess of 5 rem total effective dose equivalent for the duration of the accident.

The re-analysis of the large-break LOCA, Steam Line Break and Steam Generator Tube Rupture accidents performed to demonstrate compliance with 10 CFR 50.67 modeled the control room air filtration system in the pressurization mode of operation (mode 2). The analysis assumed 1800 cfm of outside air is drawn through HEPA and charcoal filters via booster fans and discharged into the control room envelope. The design of the control room ventilation system in the pressurization mode (mode 2) is to bring in approximately 2000 cfm of outside air and direct it through the HEPA/charcoal filters into the control room. The analysis also assumes 700 cfm of unfiltered leakage into the control room. The dose to personnel is affected more by the inleakage of unfiltered air than by the intake of filtered air, and the calculated dose to an operator in the control room is more than 20 percent below the acceptance criteria in 10 CFR 50.67.

In MODES 5 and 6 without fuel handling in progress, CRVS need not be OPERABLE because the potential for radioactive releases is minimized and operator action is sufficient to ensure post accident offsite doses are maintained within the limits of Reference 3.