TABLE 2-5

Instrumentation Operating Requirements for Other Safety Feature Functions

No.	Functional Unit	Minimum Operable Channels	Minimum Degree of Redundancy	Permissible Bypass Conditions
1	CEA Position Indication Systems	1	None	None
2	Pressurizer Level	1	None	Not Applicable
~~3~~	~~Subcooling Margin Monitor~~	~~1~~	~~None~~	~~Not Applicable~~
~~4~~ 3	PORV Acoustic Position Indication-Direct	1[ac]	None	Not Applicable
~~5~~ 4	Safety Valve Acoustic Position Indication	1[ac]	None	Not Applicable
~~6~~ 5	PORV/Safety Valve Tail Pipe Temperature	1[db]	None	Not Applicable

NOTES:

a One channel per valve.
b One RTD for both PORV's; two RTD's, one for each code safety.
c If item ~~6~~ is operable, requirements of specification 2.15 are modified for items ~~4~~ and ~~5~~ to "Restore inoperable channels to operability within 7 days or be in hot shutdown within 12 hours."
d If items ~~4~~ and ~~5~~ are operable, requirements of specification 2.15 are modified for item ~~6~~ to "Restore inoperable channels to operability within 7 days or be in hot shutdown within 12 hours."

2.0 LIMITING CONDITIONS FOR OPERATION

2.21 Post-Accident Monitoring Instrumentation

Applicability

Applies to post-accident monitoring instrumentation not included as part of the Reactor Protective System or Engineered Safety Features. This specification is applicable while in modes 1, 2 and 3.

Objective

To assure that instrumentation necessary to monitor plant parameters during post-accident conditions is operable or that backup methods of analysis are available.

Specifications

Post-accident instrumentation shall be operable as provided in Table 2-10. If the required instrumentation is not operable, then the appropriate action specified in Table 2-10 shall be taken.

Basis

Post-accident monitoring instrumentation provides information during and following an accident, which is considered helpful to the operator in determining the plant condition. It is desirable that this instrumentation be operable at all times during operation of the plant. However, none of the post-accident monitors are required for safe shutdown of the plant nor are any control or safety actions initiated by the monitors.

In general, the post-accident monitors provide wide range capabilities for parameters which are beyond the range of normal protective and control instrumentation. They also provide remote sampling and analysis capability to reduce personnel exposure under post-accident conditions. Because the information necessary to assess the effect of an accident (i.e., core damage) can be obtained from other sources and by manual methods, it is not necessary that the post-accident monitors be operable at all times.

The subcooled margin monitor, the Heated Junction Thermocouple (HJTC), and the Core Exit Thermocouple (CET) comprise the Inadequate Core Cooling Instrumentation (ICCI) System required by item II.F.2 of NUREG-0737. The function of the ICCI is to enhance the ability of the plant operator to diagnose the approach to, the existence of, and the recovery from ICC. Additionally, it aids in tracking reactor coolant inventory. These instruments are included in the Technical Specifications at the request of Generic Letter 83-37. They are not required by accident analysis, or to bring the plant to cold shutdown.

In the event more than four (4) sensors in a reactor vessel level (HJTC) channel are inoperable, repairs may only be possible during the next refueling outage. This is because the sensors are accessible only after the missile shields are removed, and the reactor vessel head cable trays are removed. It is not feasible to repair a channel except during a refueling outage. If only one channel is inoperable, it should be restored to operable status in a refueling outage as soon as reasonably possible. If both channels are inoperable, at least one channel shall be restored to operable status during the next refueling outage.

The core exit thermocouples were installed pursuant to NUREG-0737. There are seven (7) installed per core quadrant, four of which were required by the NUREG. This is clarified via the footnote to Table 2-10.

TABLE 2-10

Post-Accident Monitoring Instrumentation Operating Limits

	Instrument	Minimum Operable Channels	Action
1.	Containment Wide Range Radiation Monitors (RM-091A & B)	2	(a)
2.	Wide Range Noble Gas Stack Monitor		
	RM-063L (Noble Gas Portion Only)	1	(a)
	RM-063M (Noble Gas Portion Only)	1	(a)
	RM-063H (Noble Gas Portion Only)	1	(a)
3.	Main Steam Line Radiation Monitor (RM-064)	1	(a)
4.	Containment Hydrogen Monitor (VA-81A & B)	2	(b)(c)
5.	Containment Water Level		
	Narrow Range (LT-599 & LT-600)	1	(d)
	Wide Range (LT-387 & LT-388)	2	(b)(c)
6.	Containment Wide Range Pressure	2	(b)(c)

Add attached →

(a) With the number of OPERABLE channels less than required by the minimum channels operable requirements, initiate the pre-planned alternate method of monitoring the appropriate parameter(s) within 72 hours, and

1. either restore the inoperable channel(s) to OPERABLE status within 7 days of the event, or

2. prepare and submit a special report to the Commission pursuant to specification 5.9.3 within 14 days following the event outlining the action taken, the cause of the inoperability, and the plans and schedules for restoring the system to OPERABLE status.

(b) With one channel inoperable, restore the inoperable monitor to OPERABLE status within 30 days or be in at least HOT SHUTDOWN within the next 12 hours.

(c) With both channels inoperable, restore at least one channel to OPERABLE status within 72 hours or be in at least HOT SHUTDOWN within the next 12 hours.

(d) With the number of OPERABLE channels less than required by the minimum channels operable requirements, operation may continue until the next cold shutdown, at which time the required channel(s) shall be made operable.

Add attached →

Add The Following To Table 2-10:

7.	Reactor Coolant System Subcooled Margin Monitor	2	(E) (F)
8.	Core Exit Thermocouples (I)	2/Core Quadrant	(G) (H)
9.	Reactor vessel level (HJTC) (J)	2	(K) (L)

Add The Following Footnotes To The Table:

E. With the number of OPERABLE channels one less than the minimum channels operable requirement, either

1. restore the inoperable channel(s) to OPERABLE status within 7 days, or

2. initiate an alternate means of monitoring the subcooled margin, or

3. be in at least HOT SHUTDOWN within the next 12 hours.

F. With both channels inoperable,

1. restore the inoperable channel(s) to OPERABLE status within 48 hours, or

2. initiate an alternate means of monitoring the subcooled margin, or

3. be in at least HOT SHUTDOWN within the next 12 hours.

G. With the number of OPERABLE channels one less than the minimum channels operable requirement, either restore the inoperable channel to OPERABLE status within 7 days, or be in at least HOT SHUTDOWN within the next 12 hours.

H. With both channels inoperable, either restore the inoperable channel(s) to OPERABLE status within 48 hours or be in at least HOT SHUTDOWN within the next 12 hours.

I. With the number of OPERABLE Core Exit Thermocouples less than the four required by NUREG-0737, either restore to at least four OPERABLE channels within seven days of discovery of loss of operability, or prepare and submit a special report to the Commission pursuant to Specification 5.9.3 within 30 days, outlining the actions taken, the cause of the inoperability and the plans for restoring the inoperable channel to OPERABLE status.

J. A channel is eight sensors in a probe. A channel is OPERABLE if four or more sensors, two or more in the upper four and two or more in the lower four, are OPERABLE.

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TABLE 3-3 (Continued)

MINIMUM FREQUENCIES FOR CHECKS, CALIBRATIONS AND TESTING OF MISCELLANEOUS INSTRUMENTATION AND CONTROLS

	Channel Description	Surveillance Function	Frequency	Surveillance Method
19.	Auxiliary Feedwater Flow	Check	M	Channel check.
		Calibrate	R	Known pressure inputs.
20.	Subcooled Margin Monitor	Check	M	Channel check.
		Calibrate	R	Known pressure inputs and known resistance substituted for RTD inputs.
21.	PORV Operation and Acoustic Position Indication	Check	M	Channel check.
		Calibrate	R	Apply acoustic input.
		Verify	R	Operation on emergency power supply.
22.	PORV Block Valve Operation and Position Indication	Check	Q	Cycle valve.
		Calibrate	R	Check valve stroke against limit switch position.
		Verify	R	Operability on emergency power supply.
23.	Safety Valve Acoustic Position Indication	Check	M	Circuit check.
		Calibrate	R	Apply acoustic input.
24.	PORV/Safety Valve Tail Pipe Temperature	Check	M	Circuit check.
		Calibrate	R	Apply known input.

TABLE 3-3 (Continued)

MINIMUM FREQUENCIES FOR CHECKS, CALIBRATIONS AND TESTING
OF MISCELLANEOUS INSTRUMENTATION AND CONTROLS

Channel Description	Surveillance Function	Frequency	Surveillance Method
YIS-6287A&B (N_2H_4, NH_3)	a. Check	S	a. Comparison of readings from redundant channels.
	b. Calibrate	Q	b. Gas calibration.
30. Core Exit Thermocouple	a. Check	M	a. Comparison of readings from redundant channels.
	b. Calibrate	R	b. Calibration of A/D converters with known voltage sources.

Q - Quarterly
S - Each Shift
D - Daily
M - Monthly
A - Annually
R - 18 months
P - Prior to each startup if not performed within previous week.
PM - Prior to scheduled cold leg cooldown below 300°F; monthly whenever temperature remains below 300°F and reactor vessel head is installed.

31. Heated Junction Thermocouple (YE-116A and YE-116B)	a. Check	M	a. Comparison of readings from redundant channels.
	b. Calibrate	R	b. Calibration of A/D converters from known voltage sources.

Amendment No. 87, 1/97

ATTACHMENT C

Justification and No Significant Hazards
Consideration Discussion

Omaha Public Power District (OPPD) proposes to change the Fort Calhoun Station Technical Specifications as follows. The request is to revise Section 2.15, Instrumentation and Control System, Section 2.21, Post Accident Monitoring Instrumentation, and Section 3.1, Instrumentation and Control Systems Surveillance Requirements.

The proposed changes add Inadequate Core Cooling Instrumentation (ICCI) to Technical Specification 2.21, Post-Accident Monitoring Instrumentation. Added are the Heated Junction Thermocouples (HJTC) and Core Exit Thermocouples, (CET). The Subcooled Margin Monitor (SMM) is moved from Section 2.15, Instrumentation and Control to Section 2.21. Additionally, the surveillance requirements for these components are added to Table 3-3. This implements Item II.F.2 "Instrumentation for Detection of Inadequate Core Cooling," as required by NRC Generic Letter No. 83-37, NUREG-0737 Technical Specification, dated November 1, 1983.

Following the March 1979 accident at the Three Mile Island Unit 2, many features were added to nuclear power plants to enhance the ability of the operator to manage accidents and transients. The ICCI System is one of these enhancements and serves to provide information to the plant operators relative to Reactor Coolant System (RCS) inventory. The proposed change adds the ICCI System to the Technical Specifications to reflect its incorporation into the plant.

A statement concerning required number of channels is included as a footnote to Table 2-10, (item (I)). Item (I) requires a special report to be submitted within 30 days if the number of operable channels falls below the required number of channels for greater than 7 days.

As alternate means exist for the calculation of the subcooled margin, (separate from the calculation done via the "inadequate core cooling system instrumentation"), the Specification for the Reactor Coolant System subcooled margin monitor provides an additional alternative to plant shutdown. The action statements (as noted in footnotes E and F), allow for restoring the inoperable channel(s) to operable status within 7 days, or initiating an alternate means of determining the subcooled margin, or initiating a plant shutdown within the next 12 hours.

Pursuant to the requirements of 10 CFR 50.92, the proposed changes to the Technical Specifications were assessed to determine if there was potential for a significant hazards finding.

Will the proposed change increase significantly the probability or consequences of any accident of malfunction of equipment previously evaluated in the Safety Analysis Report?

No, the implementation of the proposed changes would not significantly increase the probability or consequences of any accident previously evaluated. The inadequate core cooling instrumentation system was installed in order to provide for the post accident monitoring of the condition of the reactor core. The systems themselves only serve in a monitoring capacity, and do not directly control any automatic function associated with the accident. Failure of any portion of the system would be, first of all, controlled by the added limiting conditions for operation, assuring that the operations Staff is aware of the requirements of the system. Additionally, the failure of the system would have no impact on the course of any accident previously analyzed in the Safety Analysis Report. By adding limiting conditions for operation, the likelihood of any accident occurring with the system unavailable is lessened.

Will the proposed change in any way create the possibility for a new or different accident than any previously analyzed in the Safety Analysis Report?

No, since the proposed change is only intended to impose operability requirements on an existing system. The imposition of these requirements in no way creates any new or different accidents than those previously included in the Safety Analysis Report.

Does the proposed change significantly reduce the margin of safety as defined in the basis of the Technical Specifications?

No, because this change is intended to impose operability requirements on the Inadequate Core Cooling Instrumentation System. It does not lessen any requirements of the existing Technical Specifications, and hence does not reduce the margin of safety.

For the above reasons, the Omaha Public Power District does not believe that the proposed changes to the Technical Specifications involve any significant hazards considerations.

The Commission has provided guidance concerning the application of the standards for determining whether a significant hazards consideration exists by providing certain examples (51 FR 7751) of amendments that are considered not likely to involve significant hazards considerations. Example (ii) relates to a change that constitutes an additional limitation, restriction, or control not presently included in the Technical Specifications, e.g., a more stringent surveillance requirement. The proposed change is representative of Example (ii) in that it is an addition to the post-accident monitoring instrumentation required by the Nuclear Regulatory Commission's Post TMI Action Plan.

Based on the above discussion, the proposed change does not involve a significant hazards consideration in that it does not: (1) involve a significant increase in the probability or consequences of an accident previously evaluated; (2) create the possibility of an new or different kind of accident from any accident previously evaluated; or (3) involve a significant reduction in a margin of safety. In addition, it is concluded that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by the proposed change; and that (2) these proposed Technical Specifications will not result in a condition which alters the impact of the station on the environment as described in the NRC's Final Environmental Statement.