## TABLE 3.5-5

## ACCIDENT MONITORING INSTRUMENTATION

| | INSTRUMENTATION | TOTAL NO. OF CHANNELS | MINIMUM CHANNELS OPERABLE | APPLICABLE ACTIONS |
|---|---|---|---|---|
| 1. | Pressurizer Water Level | 2 | 1 | 1,2 |
| 2. | Auxiliary Feedwater Flow Rate | 2 per generator | 1 per generator | 1,2 |
| 3. | Reactor Coolant System Subcooling Margin Monitor | 2 | 1 | 1,2 |
| 4. | PORV Position Indicator (Primary Detector) | 1/valve | 1/valve | 4 |
| 5. | PORV Block Valve Position Indicator | 1/valve | 1/valve | 4 |
| 6. | Safety Valve Position Indicator (Primary Detector) | 1/valve | 1/valve | 1,2 |
| 7. | Containment Pressure (Wide Range) | 2 | 1 | 1,2 |
| 8. | Containment Pressure (Narrow Range) | 2 | 1 | 3 |
| 9. | Containment Water Level (Wide Range) | 2 | 1 | 1,2 |
| 10. | Containment Water Level (Narrow Range) | 2 | 1 | 3 |
| 11. | Containment High Range Area Radiation | 2 | 1 | 5 |
| 12. | Containment Hydrogen Monitors | 2 | 1 | 6,7 |
| 13. | High Range - Noble Gas Effluent Monitors | | | |
| | a. Plant Vent Exhaust | 1 | 1 | 5 |
| | b. Unit 3 - Spent Fuel Pit Exhaust | 1 | 1 | 5 |
| | c. Condenser Air Ejectors | 1 | 1 | 5 |
| | d. Main Steam Lines | 1 | 1 | 5 |
| 14. | Incore Thermocouples (Core Exit Thermocouples) | 4/core quadrant | 2/core quadrant | 1,2 |
| 15 | Reactor Vessel Level Monitoring System | 2 (Note 1) | 1 (Note 1) | 8,9 |

Note 1: A channel is eight sensors in a probe. A channel is operable if a minimum of four sensors are operable.

TABLE 3.5-5 (Continued)

## ACTION STATEMENTS

ACTION 1 With the number of OPERABLE accident monitoring instrumentation channel(s) less than the Total Number of Channels shown in Table 3.5-5. either restore the inoperable channel(s) to OPERABLE status within 7 days, or be in a condition with $K_{eff}$, 0.99, % thermal power excluding decay heat equal to zero, and an average coolant temperature $T_{avg}$, 350°F within the next 12 hours.

ACTION 2 With the number of OPERABLE accident monitoring instrumentation channels less than the minimum channels OPERABLE requirements of Table 3.5-5, either restore the inoperable channel(s) to OPERABLE status within 48 hours, or be in a condition with $K_{eff}$, 0.99, % thermal power excluding decay heat equal to zero, and an average coolant temperature $T_{avg}$, 350°F within the next 12 hours.

ACTION 3 Operation may continue up to 30 days with less than minimum channels OPERABLE for narrow range instruments.

ACTION 4 Or close the associated block valve and open its circuit breaker.

ACTION 5 With the number of OPERABLE Channels less than required by the Minimum Channels OPERABLE requirements, initiate the preplanned 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 6.9.3 within 30 days following the event outlining the action taken, the cause of the inoperability, and the plans and schedule for restoring the system to OPERABLE status.

ACTION 6 With one hydrogen monitor inoperable, restore the inoperable monitor to OPERABLE status within 30 days or be in at least HOT SHUTDOWN within the next 6 hours.

ACTION 7 With both hydrogen monitors inoperable, restore at least one monitor to OPERABLE status within 72 hours or be in at least HOT SHUTDOWN within the next 6 hours.

ACTION 8 With the number of OPERABLE Channels one less than the Total Number of Channels, restore the system to OPERABLE status within 7 days. If repairs are not feasible without shutting down, prepare and submit a Special Report to the commission pursuant to the specification 6.9.3(j) within 30 days following the event outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status.

Amendment Nos. ____ and ____

TABLE 3.5-5 (Continued)

ACTION STATEMENTS

ACTION 9 With the number of OPERABLE Channels less than the Minimum Channels OPERABLE requirements, restore the inoperable channel(s) to OPERABLE status within 48 hours. If repairs are not feasible without shutting down:

1. Initiate an alternate method of monitoring the reactor vessel inventory; and

2. Prepare and submit a Special Report to the Commission pursuant to Specification 6.9.3(j) within 30 days following the event outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status; and

3. Restore at least one channel to OPERABLE status at the next scheduled refueling.

| | Channel Description | Check | Calibrate | Test | Remarks |
|---|---|---|---|---|---|
| 34. | Containment Water Level (Narrow Range) | M†† | R | N.A. | |
| 35. | Containment Water Level (Wide Range) | M†† | R | N.A. | |
| 36. | Containment High Range Area Radiation | S†† | R(Note 1) | M†† | |
| 37. | Containment Hydrogen Monitors | S† | Q(1) | M† | (1) Channel calibration using sample gas containing:<br>a. One volume percent hydrogen, balance nitrogen.<br>b. Four volume percent hydrogen, balance nitrogen. |
| 38. | High Range Noble Gas Effluent Monitors | | | | |
| | a. Plant Vent Exhaust | S | R | M | |
| | b. Unit 3 Spent Fuel Pit Exhaust | S | R | M | |
| | c. Condenser Air Ejectors | S† | R | M† | |
| | d. Main Steam Lines | S† | R | M† | |
| 39. | Incore Thermocouples (Core Exit Thermocouples) | M†† | R | N.A.(See Note 2) | |
| 40. | Reactor Vessel Level Monitoring System | M†† | R | N.A. | |

g. With untreated gaseous effluents exceeding the limits of 3.9.2.e pursuant to Specification 3.9.2.e.3, submit a report which includes the following information:

(1) Identification of the inoperable equipment or subsystems and the reason for inoperability,

(2) Action(s) taken to restore the inoperable equipment to OPERABLE status, and

(3) Summary description of action(s) taken to prevent a recurrence.

h. With the annual (calendar year) dose or dose commitment to any MEMBER OF THE PUBLIC from all uranium fuel cycle sources exceeding the limits of Technical Specification 3.9.2.h, submit a report that defines the corrective action to be taken to reduce subsequent releases to prevent recurrence of exceeding the limits of Specification 3.9.2.h and includes the schedule for achieving conformance with those limits. This report, as defined in 10 CFR Part 20.405c, shall include an analysis that estimates the radiation exposure (dose) to a MEMBER OF THE PUBLIC from uranium fuel cycle sources, including all effluent pathways and direct radiation, for the calendar year that includes the release(s) covered by this report. It shall also describe levels of radiation and concentrations of radioactive material involved, and the cause of the exposure levels or concentrations. If the estimated dose(s) exceeds the limits of Specification 3.9.2.h and if the release condition resulting in violation of 40 CFR Part 190 has not already been corrected, the report shall include a request for a variance in accordance with the provisions of 40 CFR Part 190. Submittal of the report is considered a timely request, and a variance is granted until staff action on the request is complete.

i. With the measured levels of radioactivity in environmental samples as a result of plant effluents pursuant to Specification 4.12.1.b, submit a report that identifies the cause(s) for exceeding the limit(s) and defines the corrective actions to be taken to reduce radioactive effluents so that the potential dose to a MEMBER OF THE PUBLIC is less than the limits of Specifications 3.9.1.b, 3.9.2.b and 3.9.2.c.

j. Reactor Vessel Level Monitoring System, Reference Table 3.5-5, Action Statements 8 and 9.

## B3.5 BASES FOR LIMITING CONDITIONS FOR OPERATION, INSTRUMENTATION

This specification outlines limiting conditions for operation necessary to preserve the effectiveness of the reactor and safety features instrumentation systems when any one or more of the channels is out of service.

Almost all reactor protection channels are supplied with sufficient redundancy to provide the capability for channel calibration and test at power. Exceptions are backup channels such as reactor coolant pump breakers. The removal of one trip channel is accomplished by placing that channel bistable in a tripped mode; e.g., a two-out-of-three circuit becomes a one-out-of-two circuit. Testing does not trip the system unless a trip condition exists in a concurrent channel.

### Reactor Vessel Level Monitoring System

In the event more than four sensors in a Reactor Vessel Level channel are inoperable, repairs may only be possible during the next refueling outage. This is because the sensors are accessible only after the missile shield and reactor vessel head are removed. 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 in the nearest refueling outage.

Reference:
FSAR - Section 7.2.1

Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
Proposed License Amendment
Reactor Vessel Level Monitoring System

## Safety and No Significant Hazards Evaluation

As part of plant modifications required by Item II.F.2, NUREG-0737, Clarification of TMI Action Plan Requirements, Reactor Vessel Level Monitoring Systems have been installed and tested on Turkey Point Units 3 and 4. This system utilizes a Combustion Engineering Heated Junction Thermocouple System (HJTCS) comprised of two instrumented probes separated into two trains.

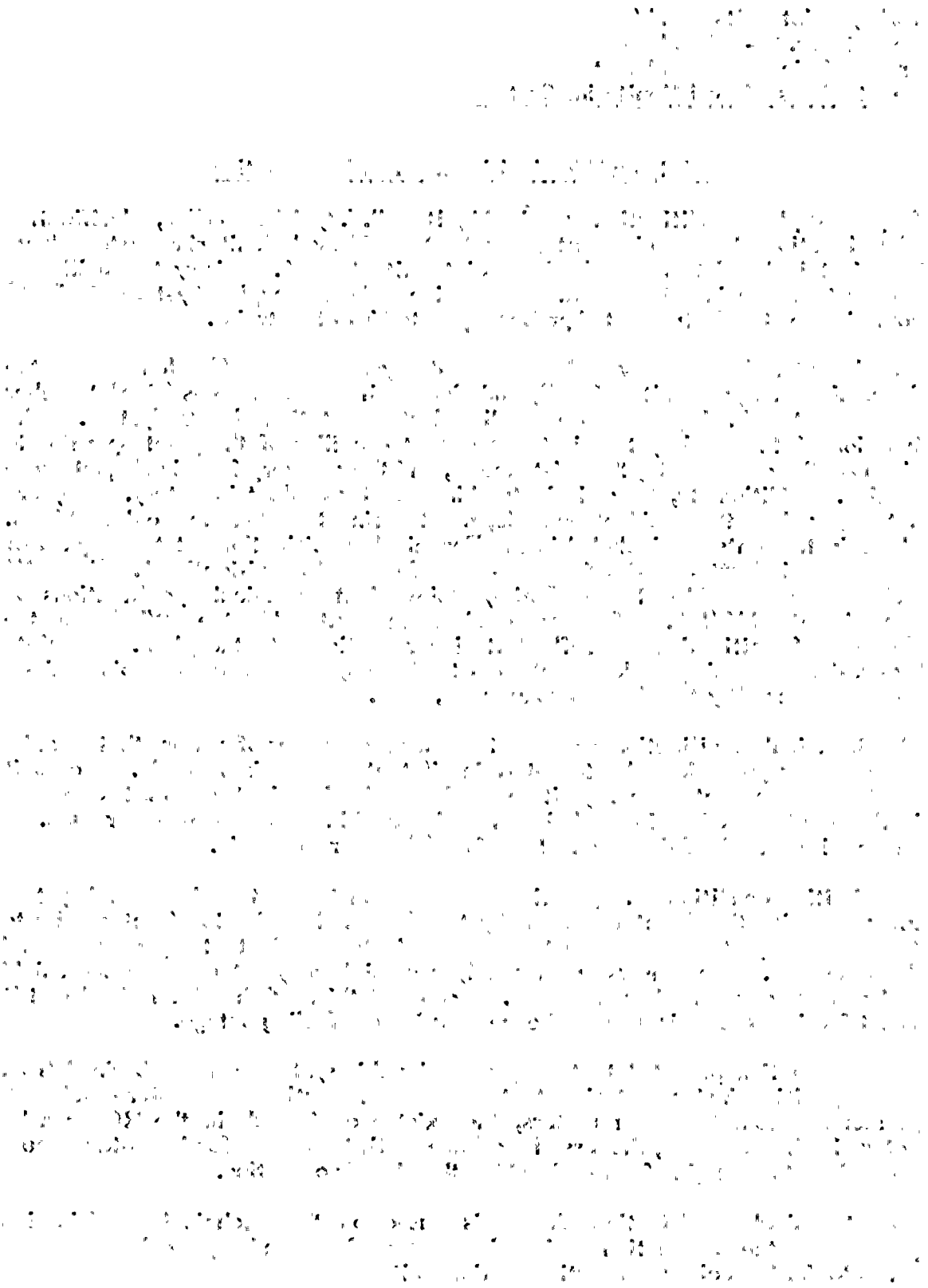
The Reactor Vessel Level Measurement System (RVLMS) along with the Subcooling Margin Monitor (SMM), and Core Exit Thermocouples (CET) together make up the Inadequate Core Cooling Instrumentation (ICCI) System. The function of the ICCI system is to enhance the ability of the plant operator to diagnose the approach to, the existence of, and the recovery from inadequate core cooling. Additionally, they aid in tracking reactor coolant inventory. They are not required by the accident analysis, nor to bring the plant to Cold Shutdown. These instruments are included in the Technical Specifications at the request of NRC Generic Letter 83-37, "NUREG-0737 Technical Specifications". The SMM and CETs were added to the Turkey Point Plant Technical Specifications by Amendments 110/104. This proposed amendment adds the RVLMS to the Technical Specifications to reflect its incorporation into the plant. A Safety Evaluation addressing implementation of the ICCI system for Turkey Point Units 3 and 4 was issued by the NRC on January 28, 1985.

This technical specification change establishes the number of sensors that must be operable per probe in order to determine if that channel is operable. Each unit has two independent channels, with each channel having eight sensors, two located in the reactor head region and six below the head in the upper plenum region. A channel is operable if that channel has four (4) sensors operable.

The limiting conditions of operation are based on the system design and system interface with the Reactor Coolant System (RCS). In order to effect repairs to these probes, the RCS must be cooled to ambient temperatures and depressurized. The sensors are normally accessible only after the missile shield and reactor vessel head are removed. Because of this, FPL has determined that it is not feasible to repair a channel except during a refueling outage.

The information provided to the operator by this system can be obtained from other qualified instrumentation that provide core outlet temperature and RCS pressure. From these parameters, the existence of voids in the RCS can be determined. Therefore, the loss of a channel until the next refueling outage would not reduce the margin of safety in which the plant is operating.

This technical specification change is based on the Technical Specification proposed by the Combustion Engineering Owners Group and approved by the NRC for Palo Verde Nuclear Generating Station Unit 1.



The proposed change discussed above does not involve a significant hazards consideration in that:

1) Operation of the facility in accordance with this proposed change would not involve a significant increase in the probability or consequences of an accident previously evaluated.

   The Reactor Vessel Level Monitoring System (RVLMS) is neither credited nor required in the mitigation of any previously evaluated accident, and is not relied upon for reactor trip or initiation of any plant safety systems. Therefore, the proposed change does not affect the probability or consequences of an accident previously evaluated.

2) Operation of the facility in accordance with this proposed amendment would not create the possibility of a new or different kind of accident from any accident previously evaluated.

   Although the RVLMS has been utilized in the Emergency Procedures for corroboration of selected indications, no change to normal operating procedures is involved; thus no new path is created which may lead to a new or different kind of accident. The proposed change is intended solely to enhance the ability of the operator to manage accidents and transients by providing the operator with additional corroborative information.

3) Operation of the facility in accordance with this proposed amendment would not involve a significant reduction in margin of safety.

   The specific purpose of the proposed amendment is to enhance accident and transient monitoring capability and therefore, to increase the margin of safety.

The Commission has provided guidance concerning the application of the standards for determining whether a significant hazards consideration exists by providing certain examples (48 FR 24870) of amendments that are considered not likely to involve significant hazards consideration. Example (ii) related to a change that constitutes an additional limitation, restriction or control not presently included in the technical specifications. The proposed change is representative of Example (ii) in that it is an addition to the accident monitoring instrumentation required by the Nuclear Regulatory Commission's post-TMI-2 Action Plan.