

REVISED TECHNICAL SPECIFICATION PAGE
FOR DEFINITION OF INSTRUMENT CALIBRATION

Revised Page

2

BACKGROUND/DISCUSSION

1. The NRC recently conducted an inspection of the District's compliance to Regulatory Guide 1.97 at Cooper Nuclear Station (CNS). During that inspection, the NRC Inspection Team questioned the adequacy of the District's channel calibration for the containment monitoring instrumentation which utilizes Resistance Temperature Detectors (RTDs) or Thermocouples (TCs) as the sensor. The District has calibrated instrument channels with RTD and TC sensors by removing the sensors from the loop, inserting a known resistance or voltage source (as applicable) to correspond to the known sensor output at a given temperature, and adjusting, as necessary, the channel output. (This is in accordance with standard industry practices.) The District's position has been that RTD or TC calibration is not warranted, required, or possible due to the fact that these type of sensors have a fixed input-output response that cannot be adjusted. The NRC Inspection Team questioned the District's position that RTDs and TCs do not require calibration, as defined in CNS Technical Specifications (1.1.2).

Therefore, to clarify the District's position, the District proposes to change the Instrument Calibration Definition (Technical Specification 1.1.2) by adding a statement to address the fact that for Resistance Temperature Detector (RTD) or Thermocouple (TC) sensors, since

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adjustment of the sensor is not possible, an operability verification is performed on the sensing element and a calibration is performed on the remaining adjustable devices in the channel. This is true regardless of the specification which requires instrument calibration. It is, therefore, appropriate to address this condition by modifying the definition. Therefore, the District requests the following Cooper Nuclear Station (CNS) Technical Specification revision.

- * The proposed change to the definition section, on page 2 of the Technical Specification under "Instrument Calibration" (Specification 1.1.2) is underlined below.

2. Instrument Calibration - An instrument calibration means, the adjustment, as necessary, of an instrument signal output so that it corresponds, within acceptable range, and accuracy, to a known value(s) of a parameter which the instrument monitors. Calibration shall encompass the entire instrument including sensor, alarm/or trip functions and shall include the functional test. The calibration may be performed by any series of sequential, overlapping or total channel steps such that the entire channel is calibrated. Calibration of instrument channels with resistance temperature detector (RTD) or thermocouple sensors shall consist of verification of operability of the sensing element and adjustment, as necessary, of the remaining adjustable devices in the channel.

This proposed change clarifies the intent of the definition when Resistance Temperature Detector (RTD) or Thermocouple (TC) sensors are

involved. The intent of the channel calibration is to adjust the channel output so that the channel responds with known range, and accuracy. Most instrument channels contain an adjustable transmitter (sensor) which is also subject to drift. Thus, for most channels, a channel calibration includes adjustments to the transmitter (sensor) to re-establish proper input-output relationships.

Certain types of sensing elements, by their design, construction and application have an inherent resistance to drift. They are designed such that they have a fixed input-output response which cannot be adjusted or changed once installed. When there does not exist a credible mechanism which can cause change or drift in this fixed response, then it is not necessary to test in the same manner as the other remaining devices in the channel in order to ensure their proper operation. RTDs and thermocouples are sensing elements that fall into such a category. Thus, for these types of sensors, the appropriate calibration at the frequencies specified in the Technical Specifications would consist of a verification of operability of the sensing element and a calibration of the remaining adjustable devices in the channel. Calibration of the adjustable devices in the channel is performed by applying the sensing elements (RTDs or thermocouples) fixed input-output relationships to the remainder of the channel and making the necessary adjustments to ensure range and accuracy of the loop.

The NRC has previously approved a similar change requested by Detroit Edison for Fermi - 2 (Docket 5-341) on the clarification to the definition

of Instrument Calibration. Therefore, the issue of what constitutes an acceptable channel calibration for those loops with RTDs or TCs as the sensing element has already been addressed by the staff and found to be acceptable.

Evaluation of This Revision with Respect to 10CFR50.92

This License Amendment proposes to clarify the definition of Instrument Calibration.

The enclosed Technical Specification change is judged to involve no significant hazards based on the following:

1. Does the proposed license amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

Evaluation

The additional language provides clarification as to the intent of the term "Instrument Calibration" for those channels with RTDs and thermocouples as the sensing element. The methodology described ensures that any credible failure or misadjustment of the temperature channel is detected and corrected. This methodology is consistent with general industry practice and has been previously reviewed and found

acceptable by the NRC staff on another docket. As such, the change does not represent a modification from the calibration practices intended by the Technical Specifications, and therefore, does not increase the probability or consequences of any previously evaluated accident.

2. Does the proposed license amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

Evaluation

The proposed amendment only adds a statement to the definition of "Instrument Calibration" to clarify the term Instrument Calibration for those channels with RTDs and TCs as the sensing element. The change does not result in any modifications to the plant or system operations and no safety related equipment is altered. The requested change does not create any new mode of plant operation and does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does the proposed amendment involve a significant reduction in the margin of safety?

The safety margin is maintained since the proposal does not modify actual calibration practices but rather, clarifies the current intent of the Technical Specifications. The proposed amendment does not alter any plant operating setpoints or limiting safety system settings and does not involve a significant reduction in the margin of safety.

- F. Functional Test - A functional test is the manual operation or initiation of a system, subsystem or component to verify that it functions within design tolerances (e.g. the manual start of a core spray pump to verify that it runs and that it pumps the required volume of water).
- F.A Gaseous Radwaste Treatment System - A GASEOUS RADWASTE TREATMENT SYSTEM is any system designed and installed to reduce radioactive gaseous effluents by collecting primary coolant system offgases from the primary system and providing for delay or holdup for the purpose of reducing the total radioactivity prior to release to the environment.
- G. Hot Standby Condition - Hot standby condition means operation with coolant temperature greater than 212°F, system pressure less than 1000 psig, and the mode switch in "Startup/Hot Standby".
- H. Immediate - Immediate means that the required action will be initiated as soon as practicable considering the safe operation of the unit and the importance of the required action.
- I. Instrumentation
1. Instrument Functional Test - Analog instrument functional test means the injection of a simulated signal into the instrument as close to the sensor as practical to verify the proper instrument channel response, alarm and/or initiating action. Bistable channels - the injection of a simulated signal into the sensor to verify OPERABILITY including alarm and/or trip functions.
 2. Instrument Calibration - An instrument calibration means the adjustment, as necessary, of an instrument signal output so that it corresponds, within acceptable range, and accuracy, to a known value(s) of the parameter which the instrument monitors. Calibration shall encompass the entire instrument including sensor, alarm/or trip functions and shall include the functional test. The calibration may be performed by any series of sequential, overlapping or total channel steps such that the entire channel is calibrated. Calibration of instrument channels with resistance temperature detector (RTD) or thermocouple sensors shall consist of verification of operability of the sensing element and adjustment, as necessary, of the remaining adjustable devices in the channel.
 3. Instrument Channel - An instrument channel means an arrangement of a sensor and auxiliary equipment required to generate and transmit a signal related to the plant parameter monitored by that instrument channel.
 4. Instrument Check - An instrument check is the qualitative determination of acceptable operability by observation of instrument behavior during operation. This determination shall include, where possible, comparison of the instrument with other independent instruments measuring the same variable.
 5. Logic System Functional Test - A logic system functional test means a test of relays and contacts of a logic circuit from sensor to activated device to ensure components are operable per design intent. Where practicable, action will go to completion; i.e., pumps will be started and valves operated.
 6. Protective Action - An action initiated by the protection system when a limiting safety system setting is reached. A protective action can be at a channel or system level.
 7. Protective Function - A system protective action which results from the protective action of the channels monitoring a particular plant condition.