ATTACHMENT A

REVISIONS TO BASES,
TECHNICAL SPECIFICATIONS 2.3 AND 3.5

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
INDIAN POINT UNIT NO. 2
DOCKET NO. 50-247
MARCH, 1993

C. The anticipatory reactor trip upon turbine trip shall be unblocked when the power range nuclear instrumentation indicates ≥ 35% of rated power.

3. The Control Rod Protection System shall open the reactor trip breakers during RCS cooldown prior to T_{cold} decreasing below 350°F.

Basis

The Reactor Trip Setpoint Limits specified herein are the nominal values at which the bistables may be set for each functional unit. The Trip Setpoints have been selected to ensure that the core and Reactor Coolant System are prevented from exceeding their Safety Limits during normal operation and design basis anticipated operational occurrences, and to assist the Engineered Safety Features Actuation system in mitigating the consequences of accidents. A Setpoint for a Reactor Trip System or interlock function is applicable to the process rack modules and is considered to be adjusted consistent with the nominal value when the "as left" value is within the band allowed for calibration accuracy. Sensor/transmitters are considered to be adjusted consistent with the band allowed for calibration accuracy. This band is defined as the arithmetic summation of calibration accuracy plus measurement and test equipment accuracy and is applied in both the conservative and non-conservative directions about the Trip Setpoint for process rack modules and the calibration point(s) for sensor/transmitters.

To accommodate the instrument drift which is assumed to occur between operational tests and the accuracy to which setpoints can be measured and calibrated, administrative limits for the Reactor Trip Setpoint have been determined. Operation with "as found" setpoints less conservative than the Trip Setpoint but within the administrative limit is acceptable since an allowance has been made in the safety analyses to accommodate these errors. Operation with "as found" setpoints less conservative than the administrative limit is indicative of drift outside of equipment or analysis design. Process rack modules or a sensor/transmitter found outside the "as left" band for calibration accuracy must be returned to within the band after the performance of each surveillance test.

Steamline Isolation

Steamline isolation signals are initiated by the Engineered Safety Features closing all steamline stop valves. In the event of a steamline break, this action prevents continuous, uncontrolled steam release from more than one steam generator by isolating the steamlines on high containment pressure (Hi-Hi Level) or high steamline flow. Protection is afforded for breaks inside or outside the containment even when it is assumed that there is a single failure in the steamline isolation system.

Feedwater Line Isolation

The feedwater lines are isolated upon actuation of the Safety Injection System in order to prevent excessive cooldown of the reactor coolant system. This mitigates the effect of an accident such as steam break which in itself causes excessive coolant temperature cooldown.

Feedwater line isolation also reduces the consequences of a steamline break inside the containment by stopping the entry of feedwater.

Setting Limits

The Engineered Safety Features Actuation System instrumentation trip setpoints Specified in Table 3.5-1 are the nominal values at which the bistables may be set for each functional unit. A setpoint for an Engineered Safety Features Actuation System or interlock function is applicable to the process rack modules and is considered to be adjusted consistent with the nominal value when the "as left" value is within the band allowed for calibration accuracy. Sensor/Transmitters are considered to be adjusted consistent with the nominal value when the "as left" value(s) at the calibration point(s) is (are) within the band allowed for calibration accuracy. This band is defined as the arithmetic summation of calibration accuracy plus measurement and test equipment accuracy, and is applied in both the conservative and non-conservative directions about the trip setpoint for process rack modules and calibration point(s) for sensor/transmitters.

To accommodate the instrument drift assumed to occur between operational tests and the accuracy to which setpoints can be measured and calibrated, administrative limits for the setpoints have been determined. Operation with "as found" setpoints less conservative than the Trip Setpoint but within the administrative limit is acceptable since an allowance has been made in the safety analyses to accommodate these errors. Operation with "as found" setpoints less conservative than the administrative limit is indicative of drift outside of equipment analysis. Process rack modules or a sensor/transmitter found outside the "as left" band for calibration accuracy must be returned to within the band after the performance of each surveillance test.

1. The Hi Level containment pressure limit is set at 2.0 psig containment pressure. Initiation of Safety Injection protects against loss-of-coolant[2,4] or steamline-break[3,4] accidents as discussed in the safety analysis.

2. The Hi-Hi Level containment pressure limit is set at about 50% of design containment pressure. Initiation of Containment Spray and Steamline Isolation protects against large loss of coolant[2] or steamline-break accidents[3] as discussed in the safety analysis.

3. The pressurizer low-pressure limit is set substantially below system operating pressure limits. However, it is sufficiently high to protect against a loss-of-coolant accident as shown in the safety analysis[2].

4. The steamline high differential pressure limit is set well below the differential pressure expected in the event of a large steamline-break accident as shown in the safety analysis[3].

ATTACHMENT B

SUPPORTING INFORMATION FOR CHANGES TO BASES,
TECHNICAL SPECIFICATION 2.3 AND 3.5

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TECHNICAL SPECIFICATION 2.3, LIMITING SAFETY SYSTEM SETTINGS, PROTECTIVE INSTRUMENTATION

This section of the Technical Specifications applies to reactor trip settings for instrument channels monitoring reactor power and reactor coolant pressure, temperature, flow and pressurizer level. The change in the Basis section acknowledges that the values specified within Section 2.3 are nominal values and that "as left" settings are subject to calibration accuracy.

The methodology employed to derive the trip setpoints is based upon combining all of the uncertainties for a channel utilizing a Square-Root-of-the-Sum-of-the-Squares approach. This approach, and its assumptions, is described in detail in a plant specific setpoint study. Sensor/transmitters and other instrumentation utilized in these channels are expected to operate with the allowances utilized in the setpoint study. Rack drift of a sufficient magnitude such that an administrative limit is exceeded is a demonstration that the process rack modules may not be operating within allowances. The same can be said for a sensor/transmitter which exhibits drift in excess of the allowance assumed in the uncertainty calculations. Inasmuch as there is a statistical probability (typically quite small) that drift in excess of allowance will occur, infrequent occurrence is expected and considered acceptable. Rack or sensor/transmitter drift in excess of allowance occurring on a more than occasional basis for a specific piece of equipment may be indicative of a more serious problem which warrants further investigation.

The various Reactor Trip circuits automatically open the Reactor Trip breakers whenever a condition monitored by the Reactor Trip System reaches a preset or calculated level. In addition to redundant channels and trains, the design approach provides a Reactor Trip System which monitors numerous system variables, thereby providing Trip System functional diversity. Functional capability at the specified trip setting is required for those anticipatory or diverse Reactor Trips for which no direct credit was assumed in the safety analysis to enhance the overall reliability of the Reactor Trip System. The Reactor Trip System initiates a Turbine Trip signal whenever Reactor Trip is initiated. This prevents the reactivity insertion that would otherwise result from excessive Reactor Coolant System cooldown and unnecessary Engineered Safety Features actuation.

TECHNICAL SPECIFICATION 3.5, INSTRUMENTATION SYSTEM

This section of the technical specification applies to plant instrumentation systems. In particular, its provides for automatic initiation of the Engineered Safety Features in the event that the principal process variable limits are exceeded, amongst other items. The change in the Basis section acknowledges that the setpoints specified here and elsewhere in the technical specifications are nominal values and that "as left" settings are subject to calibration accuracy.

The operability of these systems is required to provide the overall reliability, redundancy, and diversity assumed available in the facility design for the protection and mitigation of accident and transient conditions. The integrated operation of each of these systems is consistent with the assumptions used in the safety analyses. The surveillance requirements specified for these systems ensure that the overall system functional capability is maintained comparable to the original design standards. The periodic surveillance tests performed at the specified frequencies are sufficient to demonstrate this capability.

The methodology employed to derive these setpoints is based upon combining all of the uncertainties for a channel utilizing a Square-Root-of-the-Sum-of-the-Squares approach. This approach, and its assumptions, is described in detail in a plant specific setpoint study. Sensor/transmitters and other instrumentation utilized in these channels are expected to operate within the allowances set forth in the setpoint study. Rack drift of a sufficient magnitude such that an administrative limit is exceeded is a demonstration that the process rack modules may not be operating within allowances. The same can be said for a sensor/transmitter which exhibits drift in excess of the allowance assumed in the uncertainty calculations. Inasmuch as there is a statistical probability (typically quite small) that drift in excess of allowance will occur, infrequent occurrence is expected and considered acceptable. Rack or sensor/transmitter drift in excess of allowance occurring on a more than occasional basis for the specific piece of equipment may be indicative of a more serious problem which warrants further investigation.

The Engineered Safety Features Actuation System senses selected plant parameters and determines whether or not predetermined limits are being exceeded. If they are, the signals are combined into logic matrices sensitive to combinations indicative of various accidents, events and transients. Once the required logic combination is completed, the system sends actuation signals to these Engineered Safety Features components whose aggregate function best serves the requirements of the condition.