ATTACHMENT A

PROPOSED TECHNICAL SPECIFICATION CHANGES

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
INDIAN POINT UNIT NO. 2
DOCKET NO. 50-247
APRIL, 1994

Table 3.5-1

Engineered Safety Features Initiation Instrument Setting Limits

| No. | Functional Unit | Channel | Setting Limits |
|---|---|---|---|
| 1. | High Containment Pressure (Hi Level) | Safety Injection | ≤ 5.0 psig |
| 2. | High Containment Pressure (Hi-Hi Level) | a. Containment Spray<br>b. Steam Line Isolation | ≤ 24 psig |
| 3. | Pressurizer Low Pressure | Safety Injection | ≥ 1833 psig |
| 4. | High Differential Pressure Between Steam Lines | Safety Injection | ≤ 155 psi |
| 5. | High Steam Flow in 2/4 Steam Lines Coincident with Low $T_{avg}$ or Low Steam Line Pressure | a. Safety Injection<br>b. Steam Line Isolation | ≤ 40% of full steam flow at zero load<br>≤ 40% of full steam flow at 20% load<br>≤ 110% of full steam flow at full load<br>≥ 540°F $T_{avg}$<br>≥ 525 psig steam line pressure |
| 6. | Steam Generator Water Level (Low-Low) | Auxiliary Feedwater | ≥ 7% of narrow range instrument span each steam generator |
| 7. | Station Blackout (Undervoltage) | Auxiliary Feedwater | ≥ 40% nominal voltage |
| 8a. | 480V Emergency Bus Undervoltage (Loss of Voltage) | ------ | 220V + 100V, -20V<br>3 sec ± 1 sec |
| 8b. | 480V Emergency Bus Undervoltage (Degraded Voltage) | ------ | 403V ± 5V<br>180 sec ± 30 sec |

ATTACHMENT B

SAFETY ASSESSMENTS

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DESCRIPTION OF CHANGE

Table 3.5.1, entitled "Engineered Safety Features Initiation Instrumentation Setting Limits", contains a value of $\leq$2.0 psig for the High Containment Pressure (Hi Level) actuation setting that initiates Safety Injection. It is proposed that this value be revised to $\leq$5.0 psig which decreases the frequency of Containment venting and decreases the risk of having an open Containment penetration during normal operation.

To accomplish a revision of the Technical Specification limit it was found that the Safety Analysis limit of 7.3 psig must be revised to 10 psig. This revision of the Safety Analysis limit is necessary to accommodate the channel statistical allowance projected for a 30 month operating cycle. To support a change in the Safety Analysis limit, a safety evaluation pursuant to 10 CFR 50.59 was performed. It concluded that the revision will not adversely affect the overall safety analysis or safe plant operation.

The Containment Pressure High ESF trip affects the Containment integrity and LOCA-related analyses/evaluations, including Large Break LOCA, Small Break LOCA, post-LOCA Long-term Core Cooling, Hot Leg Switchover, and LOCA Hydraulic Forces. The potential effects on other safety-related components and licensing bases analyses have also been reviewed and found not to be affected by the containment pressure relaxation. These areas include:

- Primary Component and Systems Licensing Considerations
- Instrumentation and Controls/Equipment Qualification Considerations
- Radiological Consequences
- Non-LOCA Analyses
- Steam Generator Tube Rupture
- Probabilistic Risk Assessment
- Emergency Operating Procedures

The containment and radiological analyses safety evaluation demonstrated that the peak calculated containment pressure will be less than the Containment design and Integrated Leak Rate Test (ILRT) value of 47 psig as specified in the Indian Point Unit 2 Technical Specifications (Section 4.4.A.1.a). This evaluation also accounted for the effects of other plant changes, including effects stemming from the Ultimate Heat Sink (UHS) Program, the Containment Integrity Analysis to support the Stretch Power Program, degraded Residual Heat Removal (RHR) pump flows, and effect of degraded Emergency Core Cooling System (ECCS) flows due to a change in the flow balance criteria.

Details of the safety evaluation performed to support the change in the Safety Analysis limit follow.

Containment Integrity Analysis

The containment integrity analyses are described in Chapter 14 of the Indian Point Unit 2 FSAR. This chapter considers: Short Term and Long Term Mass and Energy Release Analyses for postulated Loss-of-Coolant Accidents (LOCAs); Containment Response Analyses following a LOCA or Steamline Break Inside Containment; and Subcompartment Pressure Transient Analyses.

Short Term Mass and Energy Releases/Subcompartment Pressure Analyses

For the short term mass and energy release and Subcompartment pressure analyses, the relaxation in the containment pressure Safety Analysis Limit (SAL) would have no effect on the calculated results since the SAL change does not factor into the analysis because of the short duration of the transient ($\leq$3 seconds). Thus, the current analysis remains valid.

LOCA Mass and Energy Release

The long term mass and energy release and containment pressure response calculations following a lOCA consider the effects of long term depressurizing and secondary side heat transfer. The analyses consider the total energy available to the containment for both the primary and secondary side sources at all particular time segments of the transient.

Similar to the short term analysis evaluation basis, the mass and energy release analyses were performed to conservatively maximize the mass and energy release available to the containment.

In addition to the effect of the subject Containment Pressure SAL Relaxation change, this safety evaluation accounted for the effects of other plant changes as identified in the Indian Point Unit 2 High Head Safety Injection (HHSI) Performance Evaluation. Based upon the result of the evaluation, there is a reduction of 0.6 psi on the peak pressure at the current licensing basis power level of 3083.4 MWt. At the increased power level of 3216 MWt, a reduction of 0.8 psi is calculated. The resulting peak pressure at 3083.4 MWt becomes 40.89 psig (at the increased power of 3216 MWt, the peak pressure becomes 41.49 psig), which are both less than the containment design and Integrated Leak Rate Test (ILRT) T/S value of 47 psig. Therefore, the Indian Point Unit 2 design basis analysis of record and its conclusions main valid, and margin is maintained between the peak calculated containment pressure and the design pressure.

Main Steam Line Break (MSLB) Inside Containment

Containment response calculations for postulated steam line break mass and energy releases inside containment are performed to ensure that the containment pressure does not exceed acceptable levels. The Hot Full Power, Feedwater Control Valve failure case is the current limiting case for containment response following a MSLB. The existing MSLB mass and energy releases inside containment for Indian Point Unit 2 are not affected by changing the High Pressure setpoint. Specifically, no credit for these signals has been taken in the steam line break analyses used to generate the existing licensing basis mass and energy release for Indian Point Unit 2. For the containment response calculations, credit for the containment pressure signal is assumed. The limiting case was reanalyzed with the relaxed SAL limit of 10.0 psig. The peak containment pressure for the limiting MSLB event was calculated to be 40.1 psig, or an increase of 0.04 psi resulting from the relaxation of the SAL containment pressure limit assumed in the previous containment analysis. This pressure is less than the containment design and ILRT pressure of 47 psig. Thus, margin is maintained between the peak calculated containment pressure and the design pressure.

Peak Sump Temperature

The peak sump temperature calculation is not an explicit Chapter 14 safety analysis. There is an insignificant effect with respect to the Containment Pressure SAL Relaxation on the current peak sump temperature. The value remains at 250°F.

Diesel Generator Loading Study

Indirect Impacts Due to Containment Pressure Increases.

As noted in the containment integrity evaluation, the pressure following a LOCA event decreases approximately 0.6 psi for the stretch power due to the combined effects plant specific reanalysis. As a result of decreased peak containment pressure, the loads on the Emergency Diesel Generator (EDG) will decrease. This has an indirect impact on the EDG loads because the fan cooler units will require less power to operate at the lower containment pressure.

LOCA-Related Analyses

LOCA-related accident analyses are described in Chapter 14 of the Indian Point Unit 2 FSAR. The following LOCA-related analyses were evaluated:

- Large Break LOCA
- Small Break LOCA
- Post-LOCA Long-Term Core Cooling
- Hot Leg Switchover
- LOCA Hydraulic Forces

Large Break LOCA

The large break lOCA (LBLOCA) analysis is affected because the Containment High Pressure ESF SAL setpoint is modeled in a portion of the 1981 Evaluation model with BASH. The containment High Pressure setpoint assumed in the current analysis is 2 psig. This was also the previous value given in the Technical Specifications. It was determined that the increase in the Containment High Pressure SAL setpoint to 10 psig would cause an approximate delay of 3 seconds in delivering the ECCS injection. The delay time for the safety injection assumed in the analysis is equal to 25.5 seconds. Thus, the time at which the safety injection would be delivered is increased from the previous time of 25.5 seconds to the revised time of 28.5 seconds. However, from Table 14.3-4 in the Indian Point Unit 2 FSAR, the End of Bypass (EOB) time is 37.2 seconds. This is the time at which the water in the vessel has exited through the break. At this time, the refill period begins, whereby the vessel begins to refill by pumped safety injection. Since the increase in the safety injection time does not increase the delivery time of the pumps' safety injection past the EOB time, the LBLOCA analysis will be unaffected by the proposed increase in the containment high pressure SAL setpoint.

Small Break LOCA

The Containment High Pressure ESF setpoint is not modeled in the Indian Point Unit 2 Small Break LOCA analysis. In Westinghouse's small break LOCA analyses, the Low Pressurizer pressure ESF setpoint is assumed to be active and is typically the only ESF setpoint modeled. Since the containment High Pressure ESF setpoint is not modeled, the results of the Indian point Unit 2 Small Break LOCA analysis will not be affected by a change in its value. Thus, none of the 10 CFR 50.46 acceptance criteria will be challenged (with respect to the small break LOCA analysis) as a result of the change in the Containment High Pressure ESF setpoint of Indian Point Unit 2.

LOCA Hydraulic Forcing Functions

The blowdown hydraulic forcing functions resulting from a LOCA are also considered in the FSAR. The LOCA Hydraulic Forcing Functions are primarily affected by temperature, pressure, density, enthalpy, and losses in the reactor vessel, reactor coolant loop, and steam generators. The lOCA Hydraulic Forcing Functions (LHFF) transient occurs over the duration of a 500 millisecond interval. In this time period, the containment pressure does not reach the containment high pressure setpoint. Furthermore, the LHFF analysis methodology does not model setpoints. As such, the proposed increase in the containment high pressure setpoint does not affect the LHFFs.

Post-LOCA Long-Term Core Cooling

Following a postulated LBLOCA, the reactor initially becomes subcritical due to massive voiding in the core region. Since credit for control rod insertion is not taken for LBLOCA, the boron concentration of injected water must be sufficiently high to maintain the core in a shutdown condition. This calculation is based on the primary system water volumes and boron concentrations. The Long Term Core Cooling (LTCC) sump criticality evaluation is affected by changes in volumes and boron concentrations of the Emergency Core Cooling System Components. Since setpoints are not modeled, the LTCC evaluation methodology is not affected by the proposed increase to the containment high pressure SAL setpoint.

Hot Leg Switchover to Prevent Potential Boron Precipitation

Post-LOCA hot leg switchover time is determined for inclusion in Emergency Operating Procedures (EOPs) to ensure no boron precipitation in the reactor vessel following boiling in the core. This time is strongly dependent on initial core power and the boron concentration of the fluid residing in the sump/RCS post-LOCA. The proposed increase in the containment high pressure SAL setpoint will increase the calculated time at which safety injection is initiated. The hot leg switchover analysis is not affected by the increase in the containment pressure high SAL setpoint because the net change to the integrated safety injection is negligible compared to the total integrated safety injection over 24 hours.

BASIS FOR NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

The proposed change does not involve a significant hazards consideration since:

1. There is no significant increase in the probability or consequences of an accident.

   It is proposed that the High Containment Pressure (Hi Level) actuation setting of $\leq$2.0 psig be revised to $\leq$5.0 psig. This additional operating flexibility will decrease the frequency of Containment venting necessary to relieve containment of non-condensible gases which build up during normal operation.

   Based upon a statistical analysis of the containment pressure channel uncertainty for a 30 month operating cycle, a margin must be allowed between the Technical Specification limit (plant setting) and the Safety Analysis limit so that the Safety Analysis limit(s) will not be exceeded under the worst circumstances. For a Technical Specification value of $\leq$5.0 psig, the corresponding Safety Analysis limit must be increased to 10 psig to provide margin for the channel statistical allowance. A safety evaluation performed pursuant to 10 CFR 50.59 is on file which supports a change in the Safety Analysis limit from 7.3 psig (current value) to 10.0 psig. Key conclusions of the Safety Evaluation are that neither the probability nor the consequences of an accident or malfunction of equipment important to safety previously evaluated in the Safety Analysis report would be increased.

   Thus, assurance is provided that appropriate protective actions in accordance with the Technical Specifications will be taken so that Safety Analysis limits are not exceeded.

2. The possibility of a new or different kind of accident from any previously analyzed has not been created.

   The proposed change in the Technical Specification limit together with the change in the Safety Analysis limit provides adequate margin to accommodate instrument channel uncertainty over a 30 month operating cycle. Plant equipment, which would be set at the Technical Specification limit, will therefore provide protective functions to assure that safety analysis limits are not exceeded. This would prevent the possibility of a new or different kind of accident from that previously evaluated from occurring.

3. There has been no reduction in the margin of safety.

   The proposed change to the Technical Specification limit would decrease the frequency of containment purges necessary to vent the build up of non-condensible gases during normal operation. This would result in a decrease in the amount of radioactivity discharged to the environment (due to decay), decrease the potential for high Containment pressure alarms and increase the margin for an ESF trip. The change to the Safety Analysis limits, justified by a safety Evaluation performed in accordance with 10 CFR 50.59, assures sufficient margin exists to accommodate channel instrument uncertainty over the maximum operating cycle length. This margin is necessary so that safety functions will occur and Safety Analysis limits will be preserved.