Stephen B. Bram
Vice President

Consolidated Edison Company of New York, Inc.
Indian Point Station
Broadway & Bleakley Avenue
Buchanan, NY 10511
Telephone (914) 737-8116

August 27, 1993

Re: Indian Point Unit No. 2
Docket No. 50-247

Document Control Desk
US Nuclear Regulatory Commission
Mail Station P1-137
Washington, DC 20555

SUBJECT: Proposed Changes in Technical Specification Surveillance Intervals to Accommodate a 24 Month Fuel Cycle

REFERENCE: Con Edison Letter of May 5, 1993 transmitting the Fourth Submittal in a Series of Technical Specification Amendments to Accommodate a 24 Month Fuel Cycle

In the referenced Technical Specification Amendment, Con Edison requested changes in the limits for parameters associated with instrument channels pertaining to a 24 month fuel cycle. These changes were somewhat complex and involved changes to Technical Specification limits and/or Safety Analysis limits. In some instances these changes were necessary to accommodate projected instrument drift over a longer operating cycle. In other instances a limit was changed to increase operating flexibility so as to avoid a plant transient. For each safety assessment submitted, various combinations of changes have been requested.

To a large extent these changes are dictated by the channel statistical allowance, as calculated using the Westinghouse methodology. The objective is common, i.e., to provide sufficient margin between the Technical Specification limit and the Safety Analysis limit so that statistically it is improbable that the Safety Analysis limit will be exceeded over the operating cycle.

In order to simplify this submittal, as well as future submittals of a similar nature, it is proposed that standard formats be utilized for the No Significant Hazards Evaluation, which will consist of the following:

240029

A001

I. Change in Technical Specification Limits to support change in surveillance interval.

Basis for No Significant Hazards Consideration Determination

Description of change(s) to the Technical Specification limit(s).

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

1. A significant increase in the probability or consequences of an accident previously evaluated will not occur.

   A statistical analysis of channel uncertainty for a 30 month operating cycle has been performed based upon historical test data. Based on this analysis a change to the Technical Specifications is required. Sufficient margin exists between the Safety Analysis limit and the proposed Technical Specification limit to accommodate projected channel uncertainty over a 30 month operating cycle. A statistical basis exists to assure that protective action will occur to prevent Safety Analysis limits from being exceeded. Thus, there will not be a significant increase in the probability or consequences of an accident previously evaluated.

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

   Based upon a statistical analysis of past historical test data it has been demonstrated that reasonable assurance exists to conclude that Safety Analysis limits will not be exceeded over a 30 month operating cycle. The proposed Technical Specification limits provide margin with respect to the Safety Analysis limits and confidence that appropriate plant protective response will be provided to prevent the possibility of a new or different kind of accident from that previously evaluated from being created.

3. A significant reduction in a margin of safety is not involved.

   The proposed changes to the Technical Specification limits are being made to assure that the previously established margin remains the same between plant protective function set points and Safety Analysis limits. This margin is based upon an evaluation of past historical test data and analytical methods for projecting instrument channel uncertainty over a 30 month operating cycle. It is therefore concluded that the existing margin of safety has been preserved.

II. Changes in Safety Analysis limits to support an extended surveillance interval.

Basis for No Significant Hazards Consideration Determination

Description of changes to the Safety Analysis limits.

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

1. A significant increase in the probability or consequences of an accident previously evaluated will not occur.

   A statistical analysis of channel uncertainty for a 30 month operating cycle has been performed based upon historical test data. Based upon this analysis an evaluation has been performed of the relevant Safety Analysis limits contained in the licensing basis Safety Analysis. It has been determined that these Safety Analysis limits may be revised as proposed without involving an unreviewed safety question as defined by 10 CFR 50.59. A safety evaluation is on file which supports this determination. The proposed revision to the Safety Analysis limit is necessary to accommodate the projected channel uncertainty since the plant operating envelope prohibits revision of the current Technical Specification limits. The margin between the current Technical Specification limits and the proposed revised Safety Analysis limits provides assurance that plant protective actions will occur as required, preventing the possibility of a new or different kind of accident from that previously evaluated.

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

   As substantiated by a safety analysis performed in accordance with 10 CFR 50.59, changes to the licensing basis Safety Analysis identified above have been made to accommodate the projected instrument channel uncertainty over a 30 month operating cycle. Thus, the margin provided between the Technical Specification Limit and the Safety Analysis assures that protective action will occur to prevent the occurrence of a new or different kind of accident from that previously analyzed.

3. A significant reduction in a margin of safety is not involved.

A safety evaluation has been performed in accordance with 10 CFR 50.59, which substantiates the changes to the Safety Analysis limits identified above. A key conclusion reached in the safety evaluation was that the margin of safety as defined in the basis for any technical specification has not been reduced. In addition, the margin provided by the change in the Safety Analysis limit to accommodate instrument channel uncertainty provides assurance that required protective actions will be taken to preserve the existing margin of safety defined in the plant design.

III. Changes in Safety Analysis Limits and Technical Specification Limits to support an extended surveillance interval.

Basis for No Significant Hazards Consideration Determination

Description of changes to the Safety Analysis limits and Technical Specification limits.

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

1. A significant increase in the probability or consequences of an accident previously evaluated will not occur.

A statistical analysis of channel uncertainty for a 30 month operating cycle has been performed based upon historical test data. Based upon this analysis it has been determined that the margin between the Technical Specification limit and the Safety Analysis limit must be increased to accommodate the instrument channel uncertainty projected for a 30 month operating cycle. A safety evaluation performed pursuant to 10 CFR 50.59 is on file, which supports the change in the Safety Analysis limit. Key conclusions of the Safety Evaluation are that neither the probability of occurrence nor the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report have been increased. The proposed change in the Technical Specification limit also will not result in an increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the Safety Analysis report. The change in the Technical Specification limit, together with the change in the Safety Analysis limit, provides adequate margin to accommodate the projected instrument channel uncertainty over a 30

month operating cycle. 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. A significant increase in the the probability or consequences of an accident previously evaluated is not involved.

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

3. A significant reduction in a margin of safety is not involved.

   The above changes to the Technical Specification limits and the Safety Analysis limit are being made to assure that sufficient margin exists to accommodate instrument channel uncertainty over the extended operating cycle. This margin is necessary to assure that protective safety functions will occur so that Safety Analysis limits are not exceeded. Thus, the margin provided is equivalent to the margin that previously existed.

IV. Change in Surveillance interval from 18 months (+25%) to 24 months (+25%)

Basis for No Significant Hazards Consideration Determination

Description of changes to the surveillance interval from 18 months (+25%) to 24 months (+)25%.

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

1. A significant increase in the probability or consequences of an accident previously evaluated will not occur.

   A statistical analysis of channel uncertainty for a 30 month operating cycle has been performed. Based upon this analysis it has been concluded that sufficient margin exists between the existing Technical Specification limit and the licensing basis Safety Analysis limit to accommodate the channel statistical error resulting from a 30 month operating cycle. The existing margin between the Technical Specification limit and the Safety Analysis limit provides assurance that plant protective actions will occur as required. It is therefore concluded that changing the surveillance interval from 18 months (+25%) to 24 months (+25%) will not result in a significant increase in the probability or consequences of an accident previously evaluated.

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

   The proposed change in operating cycle length due to an increased surveillance interval will not result in a channel statistical allowance which exceeds the current margin between the existing Technical Specification limit and the Safety Analysis limit. Plant equipment, which will be set at (or more conservatively than) Technical Specification limits, will provide protective functions to assure that Safety Analysis limits are not exceeded. This will prevent the possibility of a new or different kind of accident from any previously evaluated from occurring.

3. A significant reduction in a margin of safety is not involved.

The above change in surveillance interval resulting from an increased operating cycle will not result in a channel statistical allowance which exceeds the margin which exists between the current Technical Specification limit and the licensing basis Safety Analysis limit. This margin, which is equivalent to the existing margin, is necessary to assure that protective safety functions will occur so that Safety Analysis limits are not exceeded.

In addition to the above change in Technical Specification limits and Safety Analysis limits necessitated by instrument channel uncertainty there will be instances when changes in the Technical Specifications and/or Safety Analyses will be made to obtain increased operating flexibility. These arise from plant evolutions where an unnecessary plant transient (e.g. Reactor Trip) could occur. These cannot be handled on a generic basis and must be folded into the individual safety assessment as they arise.

In accordance with the above discussion, we have enclosed revised Safety Assessments originally submitted by our May 5, 1993 letter as attachment A.

Should you have any questions regarding this matter, please contact Mr. Charles W. Jackson, Manager, Nuclear Safety and Licensing.

Very truly yours,

cc: Mr. Thomas T. Martin
Regional Administrator - Region I
US Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406

Mr. Francis J. Williams Jr., Project Manager
Project Directorate I-1
Division of Reactor Projects I/II
US Nuclear Regulatory Commission
Mail Stop 14B-2
Washington, DC 20555

Senior Resident Inspector
US Nuclear Regulatory Commission
PO Box 38
Buchanan, NY 10511

Mayor, Village of Buchanan
236 Tate Avenue
Buchanan, NY 10511

Ms. Donna Ross
Division of Policy Analysis and Planning
New York State Energy Office
Agency Building 2, Empire State Building
Albany, NY 12223

ATTACHMENT A

SAFETY ASSESSMENT

STEAM PRESSURE CHANNELS

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

DESCRIPTION OF CHANGE

Technical Specification Table 3.5-1, items 4 and 5, require that the steam pressure channels be capable of providing a safety injection signal on high differential pressure between steam lines, and low steam pressure coincident with high steam flow in two out of four steam lines. Furthermore, Table 4.1-1, item 23 requires a quarterly test and a calibration at refueling intervals. Currently the channels are calibrated at 18 month (+25%) intervals. It is proposed that the calibration interval be changed to 24 months (+25%). This change is being made in accordance with Generic Letter 91-04.

Completed test procedures from the February 1985 outage to the present were reviewed, including any midcycle calibrations resulting from channel failures or modifications, and the impact of Measurement and Test equipment (M&TE) used to record the data. The "As Left/As Found" data from the completed test procedures was statistically evaluated to determine a projected 30 month drift value with a 95% probability at a 95% confidence level. This drift value was used as an input to determine the Channel Statistical Allowance (CSA) using the Westinghouse setpoint methodology. Included in the evaluation along with instrument drift is the determination of all other channel uncertainties, including Sensor, Rack, M&TE, and Process Effects for normal environmental conditions.

The results of the channel statistical calculations show that the channel uncertainties exceed those which can be supported by the current Technical Specification setpoint. To accommodate the increased channel uncertainty due to a possible 30 months operating cycle, the high differential steam pressure setpoint reflected in the safety analysis was found to require revision. The current safety analysis limit for this trip is 215 psi. The required safety analysis limit is 270 psi, which also permits a slight change in the Technical Specification limit, currently 150 psi, to 155 psi to provide operating flexibility.

For the high steam flow coincident with low steam pressure ESF trip, additional plant operating flexibility is desired although not necessitated by channel uncertainty. A change in the safety analysis limit from 445 psig to 400 psig will permit revision of the Technical Specification limit from 600 psig to 525 psig.

A safety analysis has been performed which addresses the effect on safety related components and the licensing basis. It has been determined that the effect of the proposed changes are limited to non-LOCA safety analyses and safety systems setpoints. The other areas reviewed and determined not to be affected by the aforementioned changes include:

- Primary Components and System Licensing Considerations
- Instrumentation and Controls/Equipment Qualification Considerations
- Radiological Consequences
- Containment Design
- Non-LOCA Analyses

- Steam Generator Tube Rupture
- LOCA Related Analyses
- Probabilistic Risk Assessment
- Emergency Operating Procedures
- Technical Specifications

For the non-LOCA safety analyses, only the Steam Pipe Rupture event is affected.

For the Indian Point Unit 2 FSAR licensing basis non-LOCA transients, only SI actuation and steamline isolation is credited in the analysis of the Steam Pipe Rupture event as described in section 14.2.5 of the Indian Point Unit 2 FSAR. Therefore, an evaluation of the Main Steam Line Break (MSLB) cases for this event which specifically models these setpoints was performed. The results show that the revisions to these safety injection setpoints will have no adverse effect on MSLB core response or resulting mass and energy releases inside containment.

Specifically, for the limiting core response MSLB (postulated to occur upstream of the flow restrictor with offsite power), the increase in the High Steamline Differential Pressure setpoint to 270 psi results in the setpoint being reached in 2 loops (2 out of 4 logic) 0.6 seconds later. This delays feedwater isolation and safety injection actuation by 0.6 seconds. However, this has no adverse effect on the resulting MSLB core response transient conditions for this limiting case. Steamline isolation is still actuated on a high steam flow (HSF) coincident with Lo-Lo Tavg (536°F) at 12.3 seconds with isolation occurring at 21.3 seconds (i.e., no credit for the Low Steamline Pressure setpoint portion of the HSF coincidence logic is taken).

For the limiting hot full power (HFP) MSLB mass and energy release case (again, upstream of the flow restrictor with offsite power), the increase in the High Steamline Differential Pressure Setpoint to 270 psi results in the setpoint being reached in 2 loops (2 out of 4 logic) 0.4 seconds later. This delays Feedwater isolation and Safety Injection actuation by 0.4 seconds. However, this delay has no adverse effect on the resulting MSLB mass and energy release rates for this limiting case. Steamline isolation of the intact loops is assumed to occur via closure of the fast-closing reverse steam flow check valve in the faulted loop. Hence, no steamline isolation signal is required (i.e., no credit for the Low Steamline Pressure setpoint portion of the HSF coincidence logic is taken).

Therefore, it is concluded that an increase in the High Steamline Differential Pressure SI actuation setpoint from 215 psi to 270 psi and a decrease in the Low Steam line Pressure (on the High Steam Flow coincidence SIS Logic) SIS actuation setpoint from the 445 psig to 400 psig would be acceptable.

BASIS FOR NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

The results of the channel statistical calculations show that the channel uncertainties exceed those which can be supported by the current Technical Specification setpoint. To accommodate the increased channel uncertainty due to a possible 30 months operating cycle, the high differential steam pressure setpoint reflected in the safety analysis was found to require revision. The new safety analysis limit is 270 psi, which also permits a slight change in the Technical Specification limit, currently 150 psi, to 155 psi to provide operating flexibility.

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

1. A significant increase in the probability or consequences of an accident previously evaluated will not occur.

   A statistical analysis of channel uncertainty for a 30 month operating cycle has been performed based upon historical test data.

   For the high differential pressure setpoint, the possibility of an extended operating cycle requires revision of a Safety Analysis limit to accommodate the projected channel uncertainty since the plant operating envelope prohibits revision of the current Technical Specification setpoint in the direction that would be required. In fact, the Safety Analysis limit has been increased from 150 to 270 psig, so that the Technical Specification limit may be increased 5 psi to 155 psi to obtain plant operating flexibility.

   For the high steam flow coincident with low steam pressure ESF trip, the need for additional operating flexibility dictated a change in the Safety Analysis limit which permitted a change in the Technical Specification limit from 600 psig to 525 psig for plant operating flexibility.

   A safety evaluation performed pursuant to 10 CFR 50.59 is on file which supports the change in the Safety Analysis limits. Key conclusions of the Safety Evaluation are that neither the probability of occurrence nor the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report have been increased.

   In both cases, the margin between the current Technical Specification limits and the proposed revised Safety Analysis limits provides assurance that plant protective actions will occur as required which will not significantly increase the probability or consequences of an accident previously evaluated.

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

   As substantiated by a safety analysis performed in accordance with 10 CFR 50.59, changes to the licensing basis Safety Analysis identified above have been made. The margin thus provided between the Technical Specification Limit and the Safety Analysis assures that protective action will occur to prevent the occurrence of a new of different kind of accident from that previously analyzed.

3. A significant reduction in a margin of safety is not involved.

A safety evaluation has been performed in accordance with 10 CFR 50.59 which substantiates the changes to the Safety Analysis limits identified above. A key conclusion reached in the safety evaluation is that the margin of safety as defined in the basis for any Technical Specification has not been reduced. In addition, the margin provided by the change in the Safety Analysis limit provides assurance that required protective actions will be taken to preserve the existing margin of safety defined in the plant design.

SAFETY ASSESSMENT

CONTAINMENT PRESSURE CHANNELS

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

DESCRIPTION OF CHANGE

The current Indian Point Unit 2 Technical Specifications require that the Containment Pressure channels be capable of providing a High Safety Injection signal with a Nominal Trip Setpoint of $\leq$2.0 psig (Table 3.5-1 item #1); containment spray and steam line isolation with a Nominal Trip Setpoint of $\leq$30.0 psig (per Table 3.5-1 item #2); and, that a channel calibration be performed at every refueling outage (Table 4.1-1, items #18a, 18b, and 18c). Currently this calibration is performed every 18 months (+25%). It is proposed that this calibration frequency be revised to every 24 months (+25%). This change is being made in accordance with the guidance contained in Generic Letter 91-04.

All completed test procedures from the February 1986 outage to the present were reviewed. This review included any midcycle outage calibrations that may have resulted due to channel failures or modifications, and the impact of Measurement and Test Equipment (M&TE) used to record the data. The "As Left/As Found" data from the completed test procedures was statistically evaluated to determine a projected 30 month drift value with a 95% probability at a 95% confidence level for the Technical Specification parameters.

The results of the channel statistical calculations show that the channel uncertainties exceed those which can be supported by the current Technical Specification and the current safety analysis limits. For the containment high pressure setpoint, revision of the safety analysis limit (SAL) from 2 psig to 7.3 psig was found necessary to maintain the current Technical Specification limit of 2 psig. Revising this value lower is impractical from the viewpoint of plant operation. For the containment high high pressure limit, the safety analyses limit is being maintained at 30 psig and the Technical Specification value is being revised to 24 psig.

Since the proposed increase in the containment pressure setpoint to 7.3 psig is not considered in the current licensing basis LOCA accident analyses, an evaluation of the effects of the increase on the analysis assumptions and results for LOCA related accident analyses has been performed.

The potential impacts on the other safety-related components and licensing basis analyses have been reviewed and found not to be affected by the containment pressure SAL 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 evaluation demonstrated that the peak calculated containment pressure will be less than the containment design and Integrated Leak Test (ILRT) value of 47 psig as identified in WCAP-12237, entitled, "Containment Integrity Analysis for Indian Point Unit 2 - December, 1989", and as specified in the Indian Point Unit 2 Technical Specifications (Section 4.4 A.1.a). This evaluation also accounted for other effects. These include effects stemming from the Ultimate Heat Sink (UHS) program, the Containment Integrity Analysis to support the Stretch Program, degraded RHR pump flows, and effect of degraded ECCS flows due to a change in the flow balance criteria.

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 (LOCA's); 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, relaxation in the containment pressure SAL would have no effect on the calculated results, since the SAL change would 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 depressurization and secondary side heat transfer. The analyses considered the total energy available to the containment from both the primary and secondary side sources at all particular time segments of the transient.

Similar to the short term analysis evaluation basis, 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 containment pressure SAL relaxation change, this evaluation accounted for the effects of other plant changes as identified earlier. Based upon the results of the evaluation there is a reduction of 0.6 psi on the peak pressure at the stretch power level of 3083.4 MWt, when the cumulative effect of the containment pressure SAL relaxation and the issues identified earlier are included. At the increased power level of 3216 MWt, a reduction of 0.8 psi was calculated. The resulting peak pressure at the stretch power level of 3083.4 MWt becomes 40.89 psig (at the increased power of 3216 MWt, the peak pressure becomes 41.49 psig), both less than the containment design and integrated Leak Rate Test (ILRT) Technical Specification value of 47 psig. Therefore, the Indian Point Unit 2 design basis analysis of record and its conclusions remain valid, and margin is maintained between the peak calculated containment pressure and the design pressure.

MSLB Inside Containment

Containment response calculations for postulated steam line break mass and energy releases inside containment demonstrate that the containment pressure would 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 have been taken in the steamline break analyses used to generate the existing licensing basis mass and energy release for Indian Point Unit 2. For the containment response calculation credit for the containment pressure signal is assumed. The limiting case was reanalyzed assuming a relaxed SAL Limit of 7.3 psig. The peak containment pressure for the limiting MSLB event was calculated to be 40.03 psig, or a 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 FSAR Chapter 14 safety analysis. However, the results are input for the Ultimate Heat Sink Analysis. There is an insignificant impact with respect to the containment pressure SAL relaxation considered herein on the current peak sump temperature. The value remains at 250°F.

LOCA RELATED ANALYSES

LOCA related accident analyses are described in Chapter 14 of the Indian Point Unit 2 FSAR. An assessment of the LOCA related analyses was included within the scope of this evaluation addressing the proposed increase to the containment high pressure setpoint. 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 impacted because the containment pressure high ESF trip setpoint is modeled in a portion of the 1981 Evaluation Model with BASH. The current safety analysis limit is 2 psig. This is also the current value given in the Technical Specifications. It was determined that the increase in the containment high pressure setpoint would cause an approximate delay of 3 seconds in delivering the pumped ECCS injection. The delay time for the safety

injection assumed in the analysis is 25 seconds. Thus, the time at which 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 the analysis of record, the end of bypass time (EOB) 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 pumped safety injection past the EOB time, the LBLOCA analysis will be unaffected, since all safety injection flow before that time exits out the break. Consequently, the LBLOCA analysis is unaffected by the proposed increase in the containment high pressure setpoint.

Originally the high containment pressure set point was limited to provide a diverse backup to low pressurizer pressure reactor trip. The value was limited to 2 psig in order that a diverse signal would occur prior to emptying of the pressurizer. Raising the containment pressure actuation point to 7.3 psig will not provide the same timely reactor trip from containment pressure although it will continue to provide a diverse signal. Rather diversity of signal is now provided by the low pressurizer ESF trip signal which is derived from a separate and diverse logic train. In addition, the over temperature delta-temperature (OTDT) reactor trip is available for a diverse reactor trip in the event of a depressuration of the primary system. The change in the containment pressure actuation limit does not significantly affect the protection system diversity for small breaks in the primary system.

Small Break LOCA

Small Break LOCA (SBLOCA) does not model the effects of containment pressure or temperature due to the prolonged duration of the transient. Further, the containment pressure does not reach the containment high set point before the pressurizer pressure low setpoint is reached. Thus, during a SBLOCA, the reactor would not trip on the containment high pressure setpoint, and the SBLOCA analysis is not impacted by an increase in the containment high pressure setpoint.

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) 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 Large Break LOCA, the reactor would become subcritical initially due to massive voiding in the core region. Since credit for control rod insertion is not taken for Large Break LOCA, the boron concentration of injected water must be sufficiently high as 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 in this evaluation methodology, the LTCC evaluation methodology is not impacted by the proposed increase in the containment high pressure setpoint.

Hot Leg Switchover to Prevent Potential Boron Precipitation

Post LOCA hot leg switchover time is determined for inclusion in emergency operating procedures 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 to the containment high pressure 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 setpoint because the net change to the integrated safety injection is negligible compared to the total integrated safety injection over 24 hours.

DIESEL GENERATOR LOADING STUDY

Indirect Impacts Due to Containment Pressure Increases

As noted in the containment integrity evaluations, the pressure following a LOCA event decreases approximately 0.6 psi for stretch power level of 3083.4 MWt due to the combined effects plant specific reanalysis. As a result of decreased peak containment pressure, the loads on the diesel generator will decrease because the fan cooler units will require less power to operate at the lower containment pressure. The current diesel generator loading analysis is based upon the higher design basis analysis; therefore, these calculations remain bounding.

With respect to the changes in the Technical Specification limit for the high high containment pressure signal, the change is in the conservative direction initiating ESF actuation at a lower containment pressure.

BASIS FOR NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

The results of the channel statistical calculations show that the channel uncertainties exceed those which can be supported by the current technical specification and the current safety analysis limits. For the containment high pressure setpoint, revision of the Safety Analysis limit (SAL) from 2 psig to 7.3 psig was found necessary to maintain the current Technical Specification limit of 2 psig. Revising this value lower is impractical from the viewpoint of plant operation. For the containment high high pressure limit, the safety analyses limit is being maintained at 30 psig and the Technical Specification value is being revised to 24 psig.

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

1. A significant increase in the probability or consequences of an accident previously evaluated will not occur.

   A statistical analysis of the containment pressure channel uncertainty for a 30 month operating cycle has been performed based upon historical test data.

   Based upon this analysis it has been determined that the margin between the Technical Specification limit and the Safety Analysis limit must be increased to accommodate the instrument channel uncertainty for the high pressure setpoint projected for a 30 month operating cycle. A revision of the Safety Analysis limit from 2 psig to 7.3 psig is necessary. The Technical Specification limit of 2 psig remains unchanged. A safety evaluation performed pursuant to 10 CFR 50.59 is on file which supports the change in the Safety Analysis limit. Key conclusions of the Safety Evaluation are that neither the probability of occurrence nor the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report have been increased.

   For the high-high pressure setpoint, a change in the Technical Specification limit from 30 psig to 24 psig provides adequate margin to accommodate the projected instrument channel uncertainty over a 30 month operating cycle. The proposed change in the Technical Specification limit also will not result in an increase in the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the Safety Analysis report.

   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. A significant increase in the the probability or consequences of an accident previously evaluated is not involved.

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

3. A significant reduction in a margin of safety is not involved.

The above changes to the Technical Specification limit and the Safety Analysis limit are being made to assure that sufficient margin exists to accommodate instrument channel uncertainty over the extended operating cycle. This margin is necessary to assure that protective safety functions will occur so that Safety Analysis limits are not exceeded. The margin thus provided is equivalent to the margin that previously existed.

SAFETY ASSESSMENT

REACTOR COOLANT TEMPERATURE CHANNELS

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

DESCRIPTION OF CHANGE

Technical Specification Table 4.1-1, Item #4, requires that the Reactor Coolant Temperature Channels be calibrated at refueling intervals. Currently, this surveillance is performed every 18 months (+25%). It is proposed that the surveillance frequency be changed to every 24 months (+25%). This change is being proposed in accordance with the guidance contained in Generic Letter 91-04.

The current Indian Point Unit 2 Technical Specifications require that the RCS narrow range temperature channels (Tavg and Delta T) be capable of providing a reactor trip on Overtemperature ΔT with a nominal setpoint based on $K1 \leq 1.25$; Overpower ΔT with a nominal setpoint based on $K4 \leq 1.074$ (Section 2.3.B); and, providing Safety Injection initiation and Steam Line Isolation on Low Tavg coincident with High Steam Flow with a nominal trip setpoint of $\geq$ 540 Deg F (Table 3.5-1). In addition to the reactor trip and SI functions, Tavg Indication is used by the operators as the method of determining acceptable operating Tavg (Rod Control).

Completed test procedures from the February 1986 outage to the present were reviewed, including midcycle outage calibrations that may have resulted due to channel failures or modifications, and the impact of Measurement and Test Equipment (M&TE) used to record the data. The "As Left/As Found" data from the completed test procedures was statistically evaluated to determine a projected 30 month Allowance (CSA) using the Westinghouse setpoint methodology. Included in the evaluation along with instrument drift was the determination of all other channel uncertainties including Sensor, Rack, M&TE, and Process Effects for normal environmental conditions.

The RCS Temperature channels were reviewed using the Westinghouse methodology for evaluating channel uncertainties. Each uncertainty term was determined according to the instrument characteristics/specifications and with specific calculations for process effects. Particular effort was made to predict a drift for the instrumentation over a 30 month period based on a statistical evaluation of plant recorded "As Left/As Found" data taken at the site since 1986. Past cycle calibration data was evaluated to determine how well the instruments had performed from one cycle to the next. This evaluation included a review of any work order data that may have been taken during a midcycle outage, or any modifications to the channels. Also, past M&TE accuracies were reviewed to insure that the M&TE used was of an equivalent accuracy such that it would not have biased the data in a non-conservative direction.

Evaluation of Tavg Control (Rod Control) was based on operator use of the control board indicators and not on the accuracy of the Auto Rod Control system. The operators will use the mathematical average of the Tavg indicators to determine actual plant Tavg and move rods accordingly to achieve the correct Tavg.

The results of the channel statistical calculations showed that the channel uncertainties would exceed those which can be supported by the current Technical Specification setpoint and the current Safety Analysis Limits for the K1 factor in the Overtemperature ΔT setpoint. The K4 factor for Overpower ΔT setpoint, and the Tavg Low setpoint, are acceptable as is.

Based on the use of plant indications for Tavg (rod control), Consolidated Edison will put into place administrative procedures which provide that the operators will control the plant to within the temperature uncertainty currently assumed in the safety analysis. The temperature uncertainty currently assumed in the analysis is 7.5 deg F.

BASIS FOR NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

A change in the K1 factor for the Overtemperature ΔT Technical Specification limit from 1.25 to 1.22, is required to support a change in the surveillance interval from 18 months (+25%) to 24 months (+25%).

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

1. A significant increase in the probability or consequences of an accident previously evaluated will not occur.

   A statistical analysis of the Reactor Coolant Temperature channel uncertainty for a 30 month operating cycle has been performed based upon historical test data. Based on this analysis a change to the Technical Specification constant K1 from 1.25 to 1.22 is required. No change is necessary in K4. Sufficient margin now exists between the Safety Analysis limits and the proposed Technical Specification limits to accommodate projected channel uncertainty over a 30 month operating cycle. A statistical basis will then exist to assure that protective action will occur to prevent Safety Analysis limits from being exceeded. Thus, there will not be a significant increase in the probability or consequences of an accident previously evaluated.

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

   Based upon a statistical analysis of past historical test data it has been demonstrated that reasonable assurance exists to conclude that Safety Analysis limits will not be exceeded over a 30 month operating cycle. The Technical Specification limits provide margin with respect to the Safety Analysis limits and confidence that appropriate plant protective response will be provided to prevent the possibility of a new or different kind of accident from that previously evaluated from being created.

3. A significant reduction in a margin of safety is not involved.

   The change to the Technical Specification limit proposed is being made to assure that the previously established margin remains between plant protective function set points and Safety Analysis limits. This margin is based upon an evaluation of past historical test data and analytical methods for projecting instrument channel uncertainty over a 30 month operating cycle. It is therefore concluded that the existing margin of safety has been preserved.