ATTACHMENT I TO IPN-96-067

PROPOSED TECHNICAL SPECIFICATION CHANGES

REGARDING SURVEILLANCE INTERVALS FOR INSTRUMENT CHANNELS

TO ACCOMODATE A 24-MONTH OPERATING CYCLE

NEW YORK POWER AUTHORITY
INDIAN POINT 3 NUCLEAR POWER PLANT
DOCKET NO. 50-286
DPR-64

MINIMUM FREQUENCIES FOR CHECKS, CALIBRATIONS AND TESTS OF INSTRUMENT CHANNELS

Channel Description	Check	Calibrate	Test	Remarks
1. Nuclear Power Range	S	D (1) M (3)*	Q (2)** Q (4)	1) Heat balance calibration 2) Bistable action (permissive, rod stop, trips) 3) Upper and lower chambers for axial offset 4) Signal to Δ T
2. Nuclear Intermediate Range	S (1)	N.A.	P (2)	1) Once/shift when in service 2) Verification of channel response to simulated inputs
3. Nuclear Source Range	S (1)	N.A.	P (2)	1) Once/shift when in service 2) Verification of channel response to simulated inputs
4. Reactor Coolant Temperature	S (2)	24M	Q (1)	1) Overtemperature ΔT, overpower ΔT, and low T_{avg} 2) Normal Instrument check interval is once/shift T_{avg} instrument check interval reduced to every 30 minutes when: - T_{avg}-T_{ref} deviation and low T_{avg} alarms are not reset and, - Control banks are above 0 steps
5. Reactor Coolant Flow	S	24M	Q	
6. Pressurizer Water Level	S	18M	Q	
7. Pressurizer Pressure	S	24M	Q	High and Low

TABLE 4.1-1 (Sheet 3 of 6)

Channel Description	Check	Calibrate	Test	Remarks
e. Main Steam Lines Process Radiation Monitors (R-62A, R-62B, R-62C, and R-62D)	D	24M	Q	
f. Gross Failed Fuel Detectors (R-63A and R-63B)	D	24M	Q	
16. Containment Water Level Monitoring System:				
a. Containment Sump	N.A.	24M	N.A.	Narrow Range, Analog
b. Recirculation Sump	N.A.	24M	N.A.	Narrow Range, Analog
c. Containment Water Level	N.A.	24M	N.A.	Wide Range
17. Accumulator Level and Pressure	S***	24M	N.A.	
18. Steam Line Pressure	S	24M	Q	
19. Turbine First Stage Pressure	S	24M	Q	
20a. Reactor Trip Relay Logic	N.A.	N.A.	TM	
20b. ESF Actuation Relay Logic	N.A.	N.A.	TM	
21. Turbine Trip Low Auto Stop Oil Pressure	N.A.	24M	N.A.	
22. DELETED	DELETED	DELETED	DELETED	
23. Temperature Sensor in Auxiliary Boiler Feedwater Pump Building	N.A.	N.A.	18M	
24. Temperature Sensors in Primary Auxiliary Building				
a. Piping Penetration Area	N.A.	N.A.	24M	
b. Mini-Containment Area	N.A.	N.A.	24M	
c. Steam Generator Blowdown Heat Exchanger Room	N.A.	N.A.	24M	

Channel Description	Check	Calibrate	Test	Remarks
25. Level Sensors in Turbine Building	N.A.	N.A.	24M	
26. Volume Control Tank Level	N.A.	24M	N.A.	
27. Boric Acid Makeup Flow Channel	N.A.	24M	N.A.	
28. Auxiliary Feedwater:				
a. Steam Generator Level	S	24M	Q	Low-Low
b. Undervoltage	N.A.	24M	24M	
c. Main Feedwater Pump Trip	N.A.	N.A.	24M	
29. Reactor Coolant System Subcooling Margin Monitor	D	18M	N.A.	
30. PORV Position Indicator	N.A.	N.A.	24M	Limit Switch
31. PORV Position Indicator	D	24M	24M	Acoustic Monitor
32. Safety Valve Position Indicator	D	24M	24M	Acoustic Monitor
33. Auxiliary Feedwater Flow Rate	N.A.	18M	N.A.	
34. Plant Effluent Radioiodine/ Particulate Sampling	N.A.	N.A.	18M	Sample line common with monitor R-13
35. Loss of Power				
a. 480v Bus Undervoltage Relay	N.A.	24M	M	
b. 480v Bus Degraded Voltage Relay	N.A.	18M	M	
c. 480v Safeguards Bus Undervoltage Alarm	N.A.	24M	M	
36. Containment Hydrogen Monitors	D	Q	M	

Basis

The containment is designed for a pressure of 47 psig. [1] While the reactor is operating, the internal environment of the containment will be air at essentially atmospheric pressure and an average maximum temperature of approximately 130°F. The limiting peak containment temperature, based on LOCA containment response, is 261.5°F. [7] The peak containment pressure, also based on LOCA containment response, is approximately 42.39 psig. [7] [8] The acceptance criteria of specification 4.4.A.2. was changed by amendment 98 to reflect analysis [4] done for the ultimate heat sink temperature increase. The acceptance criteria of 42.42 psig is conservative with respect to the current peak pressure of approximately 42.39.

Prior to initial operation, the containment was strength-tested at 54 psig and was leak-tested. The acceptance criterion for this pre-operational leakage rate test was established as 0.075 W/o (.75 L_a) per 24 hours at 40.6 psig and 263°F, which were the peak accident pressure and temperature conditions at that time. This leakage rate is consistent with the construction of the containment, [2] which is equipped with a Weld Channel and Penetration Pressurization System for continuously pressurizing the containment penetrations and the channels over certain containment liner welds. These channels were independently leak-tested during construction.

The safety analysis has been performed on the basis of a leakage rate of 0.10 W/o per day for 24 hours. With this leakage rate and with minimum containment engineered safeguards operating, the public exposure would be well below 10CFR100 values in the event of the design basis accident. [3]

The performance of a periodic integrated leakage rate test during plant life provides a current assessment of potential leakage from the containment in case of an accident that would pressurize the interior of the containment. In order to provide a realistic appraisal of the integrity of the containment under accident conditions, the containment isolation valves are to be closed in the normal manner and without preliminary exercising or adjustments.

These specifications have been developed using Appendix J (issue effective date March 16, 1973) of 10CFR50 (with the surveillance frequency exception noted previously) and ANSI N45.4-1972 "Leakage Rate Testing of Containment structures for Nuclear Reactors" (March 16, 1972) for guidance.

The maximum permissible inleakage rate from the containment isolation valves sealed with service water for the full 12-month period of post accident recirculation without flooding the internal recirculation pumps is 0.36 gpm per fan cooler.

REFERENCES

(1) FSAR - Section 5
(2) FSAR - Section 5.1.7
(3) FSAR - 14.3.5
(4) WCAP - 12269 Rev. 1, "Containment Margin Improvement Analysis for IP-3 Unit 3"
(5) FSAR - Section 6.6
(6) FSAR - Section 6.5
(7) SECL-92-131, Indian Point Unit 3 High Head Safety Injection Flow Changes Safety Evaluation, June 1992
(8) SECL-96-103, Indian Point Unit 3 Safety Evaluation of 24-Month Fuel Cycle Phase I Instrument Channel Uncertainties, June 1996

ATTACHMENT II TO IPN-96-067

SAFETY EVALUATION OF

PROPOSED TECHNICAL SPECIFICATION CHANGES

REGARDING SURVEILLANCE INTERVALS FOR INSTRUMENT CHANNELS

TO ACCOMODATE A 24-MONTH OPERATING CYCLE

NEW YORK POWER AUTHORITY
INDIAN POINT 3 NUCLEAR POWER PLANT
DOCKET NO. 50-286
DPR-64

Section I - Description of Changes

This application for amendment to the Indian Point 3 Technical Specifications proposes to change the frequency of instrument channel calibrations in Table 4.1-1, "Minimum Frequencies for Checks, Calibrations and Test of Instrument Channels" to accommodate operation with a 24 month operating cycle. The specific changes include the frequency for calibrating the following instrument channels:

- Line Item 7: Pressurizer Pressure;
- Line Item 17: Accumulator Level and Pressure; and
- Line Item 26: Volume Control Tank Level.

As a result of these changes, a change to the basis for Technical Specification 4.4 is required. The evaluation of instrumentation channel uncertainties in Attachment III resulted in a peak containment pressure change from 42.29 psig to approximately 42.39 psig. Technical Specification Pages 4.4-7 and 4.4-10 have been revised to reflect this change.

Section II - Evaluation of Changes

Starting with cycle nine (that began in August 1992), Indian Point 3 began operating on 24 month cycles, instead of the previous 18 month cycles. To avoid either a separate surveillance outage or an extended mid-cycle outage, changes are required to system surveillance test intervals. In evaluating the extension of instrument channel calibration intervals, the following factors were considered: past equipment performance and the effect on system safety functions, the results of loop accuracy and setpoint calculations, the effect on IP3 Emergency Operating Procedures (EOPs) and accident analyses, and safe plant shutdown.

Calibration Extension Program

The NRC staff has determined that licensees should address a number of issues in providing an acceptable basis for extending the calibration interval for instruments that are used to perform safety functions. NRC Generic Letter 91-04, Enclosure 2 (Reference 1) specifies the licensee actions to be taken to address these issues. These actions include:

1. confirming that instrument drift as determined by as-found and as-left calibration data from surveillance and maintenance records has not, except on rare occasions, exceeded acceptable limits for a calibration interval;

2. confirming that the values of drift for each instrument type (make, model and range) and application have been determined with a high probability and a high degree of confidence; and providing a summary of the methodology and assumptions used to determine the rate of instrument drift with time based upon historical plant calibration data;

3. confirming that the magnitude of instrument drift has been determined with a high

probability and a high degree of confidence for a bounding calibration interval of 30 months for each instrument type and application that performs a safety function; and providing a list of the channels by technical specification section that identifies these instrument applications;

4. confirming that a comparison of the projected instrument drift errors has been made with the values of drift used in the setpoint analysis; providing proposed technical specification changes to update trip setpoints to accommodate drift errors, if necessary, and providing a summary of the updated analysis conclusions to confirm that safety limits and safety analysis assumptions are not exceeded;

5. confirming that the projected instrument errors caused by drift are acceptable for control of plant parameters to effect a safe shutdown with the associated instrumentation;

6. confirming that all conditions and assumptions of the setpoint and safety analyses have been checked and are appropriately reflected in the acceptance criteria of plant surveillance procedures for channel checks, channel functional tests, and channel calibrations; and

7. providing a summary description of the program for monitoring and assessing the effects on increased calibration surveillance intervals on instrument drift and its effect on safety.

To satisfy the above requirements, NYPA has evaluated the instrument drift, determined uncertainty, updated loop accuracy/setpoint calculations and is incorporating the instruments in the drift monitoring program. The following sections describe how this was accomplished and provide the basis for compliance with the generic letter requirements.

<u>Instrument Drift Analysis</u>

Generic Letter 91-04 requires that plant instrument drift be reviewed for consistency with setpoint uncertainty calculations under the extended operating cycle. An assessment of past instrument drift was performed using the Westinghouse Drift Evaluation Methodology (Reference 2) which is consistent with the guidance of Generic Letter 91-04. The NRC has reviewed the Westinghouse methodology on other dockets and has approved at least one application. The methodology is discussed below.

The plant as left and as found calibration data (typically for a minimum of four calibrations) is organized into computer spreadsheets and converted to % span drift. The resulting drift data is examined along with site calibration records to identify and account for any data that is flawed by mechanistic causes such as obvious data recording errors, identifiable measurement and test equipment problems, or transmitters that were declared to be failed.

Following the initial screening, the data is examined with respect to distribution type. The sample data is extrapolated to the population using descriptive statistics and tolerance factors, resulting in drift allowances at specified probability and confidence levels. The drift is established using a graded approach, whereby the probability and confidence level of an evaluation is varied in accordance with the safety significance of the function. This approach results in drift evaluations being performed from a 95/95 to a 75/75 level. If the data is determined not to be from a normal population, appropriate conservatisms are introduced into the calculations.

Note that the graded approach applies only to the drift allowances, and the probability/confidence level of the overall uncertainty calculation is increased if the calculation addresses all uncertainty terms.

In the Westinghouse implementation of the graded approach, the following bases are used:

- For those functions that provide RPS/ESFAS automatic actuation or critical control used to establish initial conditions for the accident analysis, the drift evaluation is based on a 95% probability at a 95% confidence level.

- For those functions that are used for Emergency Operating Procedures (EOP) or important NSSS control, the drift evaluation is based on a 75% probability at a 75% confidence level. This categorization is consistent with the categorization guidelines for the Group B category presented at an ISA 67.04 meeting in October 1992.

- For any functions that are considered to be miscellaneous control functions, a conservative engineering judgement evaluation is performed for drift without the use of a rigorous statistical approach.

In addition to the identification of data that is flawed by mechanistic causes, statistical outlier techniques may be employed on a limited basis (i.e. when a majority of points in a set are determined to be flawed) to remove suspect data sets.

Finally, the drift data is examined for the presence of time dependence using a combination of statistical and visual checks. If the drift data is considered not to be time dependent, the sample drift is applied as a 30-month drift value, without adjustment. If the drift data is considered to be time dependent, a linear regression is performed to predict a 30 month drift.

The results of the application of the Westinghouse methodology to the identified instruments can be summarized as follows:

- Pressurizer Pressure (PT-455, 456, 457 and 474)

  These are Foxboro model N-E11GM instruments. Pressurizer Pressure was evaluated at a 95/95 level since it provides Reactor Trip, Emergency Safeguards Actuation, and direct input to critical accident analysis assumptions (RTDP analysis explicitly require 95/95). The result was a drift of +0.3 bias ±1.6% span, random on a 95/95 bases and not time dependent.

- Accumulator Pressure (PT-936A to D and PT-937A to D)

  These are Foxboro model N-E11GM and E11GM instruments. The Accumulator Level and Pressure were evaluated for drift at a 75/75 probability/confidence level. The level and pressure indications and alarms are used to monitor and control the ECCS accumulators within the Technical Specification limits. The result was a drift of $\pm$0.5% span, random on a 75/75 bases and not time dependent.

- Accumulator Level (LT-934A to D and LT-935A to D)

  These are Rosemount model 1151DP instruments. The result was a +0.3 bias $\pm$1.7% span, random (based on 400 Mv span) on a 75/75 bases and not time dependent.

- Volume Control Tank Level (VCT) (LT-112)

  This is a Magnetrol model XE66-2Q3E-EZB instrument. There was insufficient input data for a rigorous drift evaluation. For VCT Level, conservative engineering judgement was used to specify a drift, based on the absence of historical data, and consistent with the categorization of the VCT Level function as 75/75 (or less) since it is a non-critical control system. The result was $\pm$2.0% span, random.

The Westinghouse review of the as found and as left data for the above instruments concluded that there were very few occasions where transmitter failure was detected based on the as found data. Therefore, extension of the surveillance interval is not expected to increase the incidence of transmitter inoperability.

Loop Accuracy / Setpoint Calculations

The loop accuracy calculations were evaluated/revised using the predicted drift allowance for the transmitters applicable for 30 months (the 24 month fuel cycle plus 25%) using the previously described methodology for 24 month submittals (Reference 3). For the portion of the loop tested quarterly, no additional drift allowance needs to be included. For portions of the loop not tested quarterly (or during the operating cycle) an additional drift allowance (i.e. rack drift) is included based on evaluation of past performance. For indicators, vendor literature does not identify any significant time dependent uncertainties. Further assurances of indicator operability is typically (except for VCT level) provided by channel checks performed each shift.

Drift Monitoring Program

In accordance with Generic Letter 91-04, a program to monitor future calibration data was established (Reference 4) to assess the effect a longer calibration interval has on instrument drift. The intent of the program is to confirm that future drift values are within the projected limits calculated in the instrument drift analyses (IDAs). The drift monitoring program was described in a prior submittal to extend the surveillance intervals (Reference 3) and at a meeting with NRC staff on February 23, 1993 to discuss extension of Reactor Protection

System surveillance intervals required for a 24-month refueling cycle. The Pressurizer Pressure, Accumulator Level and Pressure, and Volume Control Tank Level instrumentation will be included in the drift monitoring program by the next refueling outage.

Specific Technical Specification Changes

1. Calibration of Pressurizer Pressure Channels

Four pressurizer pressure channels are used for high and low pressure protection (i.e., reactor trip and safety injection) and for overpower-overtemperature protection. Three of the pressure channels are also used for pressure control and compensation signals for rod control Pressurizer pressure indication is also provided in the control room for use during normal operation and in the Emergency Operating Procedures (EOPs).

The purpose of the low pressurizer pressure reactor trip is to protect against excessive core steam voids which could lead to a departure from nucleate boiling (DNB). The circuit trips the reactor on coincidence of two out of the four low pressurizer pressure signals. The signal is blocked when any three of the four power range channels and two of two turbine first stage pressure channel read below approximately 10% power (P-7).

The purpose of the high pressurizer pressure reactor trip is to limit the range of required protection from the overtemperature trip and to protect against reactor coolant system overpressure. The circuit trips the reactor on coincidence of two out of three of the pressurizer pressure signals.

A safety injection system (SIS) actuation trip occurs on a two out of three low pressurizer pressure signal. This signal is manually blocked or unblocked during startup and shutdown. This block is accomplished by separate switches for each redundant safety injection initiation circuits. The block will be automatically removed above a designated setpoint.

An evaluation of past pressurizer pressure transmitter performance was performed using the Westinghouse drift methodology described previously. The loop accuracy / setpoint calculations for pressurizer pressure were updated to include conservative values for 30 month calibration uncertainties using the sensor drift values determined by the Westinghouse methodology and extrapolated vendor specified uncertainties for rack indicating components not included in the quarterly channel functional tests consistent with industry methods described in ISA RP 67.04. The loop accuracy/setpoint calculations confirm that sufficient margin exists between the pressurizer pressure high and low pressure reactor trip, low pressurizer pressure SI, and overtemperature delta-temperature analytical limits and the existing field trip settings based on an extended calibration interval (References 5 to 12). In addition, the small increase in pressurizer pressure normal indication uncertainty due to increased sensor drift is within the readability of the indicator and has been incorporated into the pressurizer pressure initial conditions used in the safety analysis

(Reference 15). The post-accident indication uncertainties remain bounded by the existing uncertainties used in the EOPs (Reference 9 to 12).

Technical Specifications require that channel checks be performed each shift and that quarterly channel functional tests be performed. These provide assurance that RPS and ESF instrumentation and protection logic relays function as required. These on-line surveillances are designed to detect potential instrument failures and verify operability of pressurizer pressure channels. The refueling outage calibrations correct for possible instrument drift but are not relied upon to detect instrument failures.

Based on the information provided above, the pressurizer pressure channels calibration interval can be safely extend to 24 months.

2. Calibration of Accumulator Level and Pressure Channels

The accumulators are a passive subsystem of the SIS. The accumulators are designed to provide a sufficient quantity of borated water to the Reactor Coolant System (RCS), following a large break loss of coolant accident (LOCA) with depressurization, to quickly flood the core and provide core protection until the active portion of the SIS is operable.

Per Technical Specifications, the four accumulators are pressurized between 600 and 700 psig and each contains a minimum of 775 ft^3 and a maximum of 815 ft^3 of water at a boron concentration of $\geq$2000 ppm and $\leq$2600 ppm.

An evaluation of past accumulator level and pressure transmitter performance was performed using the Westinghouse drift evaluation methodology described previously. The loop accuracy/setpoint calculations for accumulator level and pressure were updated to include conservative values for 30-month calibration uncertainties using Westinghouse sensor drift values and extrapolated vendor specified uncertainties for rack and indicating components consistent with industry methods described in ISA RP 67.04 (References 13 and 14). The increased indicator uncertainty has been satisfactorily evaluated for both input parameters accumulator level and pressure assumed for the LOCA and Containment Integrity events in the safety analysis (Reference 15). Attachment III describes the basis for compliance with plant design basis as well as identifying a change in margin due to an increase, for LOCA, in the total peak clad temperature (less than 35°F) and the containment pressure. The increase in containment pressure resulted in a change to the basis of Technical Specification 4.4.

Technical Specifications require that channel checks be performed each shift. This on-line surveillance is designed to detect potential instrument failures and verify operability of the redundant accumulator level and pressure channels. The refueling outage calibrations correct for possible instrument drift but are not relied upon to detect instrument failures.

Based on the information provided above, the accumulator level and pressure channels calibration interval can be safely extended to 24 months.

3. Calibration of Volume Control Tank Level

Surges in the RCS volume due to load changes are normally accommodated in the pressurizer; however, the Volume Control Tank (VCT) is designed to accommodate pressurizer level mismatches that may occur due to $\pm 4^0$ temperature change. The instrumentation is not required to mitigate an accident condition but does provide the following functions:

- VCT High Level Diversion - High water level in the VCT actuates a hi-level alarm and causes letdown flow normally entering the VCT through level control valve LCV-112A to be redirected to the CVCS Holdup tanks. This actuation protects the VCT from overfilling which could lead to VCT failure.

- VCT Low Level Start Auto Makeup - The reactor makeup control is designed to normally function in the AUTO MAKEUP mode. This actuation is designed to protect the charging pumps from damage due to insufficient NPSH.

- VCT Lo-Lo Level - The charging pumps normally take suction from the VCT via level control valve LCV-112C and return the cooled, purified reactor coolant to the RCS via the charging path. A lo-lo level in the VCT actuate an alarm and causes the charging pumps' suction to be transferred to the Refueling Water Storage Tank (LCV-112C closes and LCV-112B opens). This actuation is designed to protect the charging pumps from damage due to insufficient NPSH.

- VCT Low Level Alarm - The alarm is provided by a level switch (LC-112D) mounted near the VCT to alert operators of a vessel level which is significantly below the normal operating level This condition would serve to alert the operators that charging pump suction is about to be realigned to the RWST unless steps are taken to recover level control of the VCT.

- VCT Level - Indication of VCT level (LI-112) in the control room is provided to alert operator of unusual conditions and to provides a means of verifying automatic system actuation and alarms.

An evaluation of past volume control tank level transmitter performance could not be performed using the Westinghouse Drift Evaluation Methodology described above because there was insufficient data since the instruments were recently replaced. The loop accuracy/setpoint calculation for VCT level was updated based on the increased drift and uncertainty predicted for a 30-month calibration interval and determined the existing setpoints remain valid to ensure the VCT instrumentation can perform the design function (Reference 16).

Based on the information provided above, the VCT level calibration interval can be safely extended to 24 months.

Section III - No Significant Hazards Evaluation

Consistent with the criteria of 10 CFR 50.92, this application is considered to involve no significant hazards based on the following information.

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

   Response:

   The proposed changes do not involve a significant increase in the probability or consequences of any accident previously evaluated. The proposed changes are being made to extend the calibration frequency to 24-months for the:

   - Pressurizer Pressure;
   - Accumulator Level and Pressure; and
   - Volume Control Tank Level.

   These changes are being made, using the guidance of Generic Letter 91-04, to accommodate a 24 month operating cycle. The proposed changes in the calibration frequencies do not involve any plant hardware changes(other than alarm adjustments) or the way the systems function. The results of the instrumentation drift analysis, loop accuracy/set point calculations and the evaluation of channel uncertainties indicate the calibrations can be safely extended to accommodate the 24-month operating cycle.

   The four pressurizer pressure channels are used for high and low pressure protection (i.e., reactor trip and safety injection) and for overpower-overtemperature protection. Three of the pressure channels are also used for pressure control and compensation signals for rod control. Pressurizer pressure indication is also provided in the control room for use during normal operation and while using the EOPs. The loop accuracy/setpoint calculations confirm that sufficient margin exists between the pressurizer high and low pressure reactor trip, low pressurizer pressure SI, and overtemperature delta-temperature analytical limits and the existing field trip settings based on an extended calibration interval. A small increase in pressurizer pressure normal indication uncertainty due to increased sensor drift is within the readability of the indicator and has been incorporated into the pressurizer pressure initial conditions used in the evaluation of channel uncertainties (Reference 15). The post-accident indication uncertainties remain bounded by the existing uncertainties used in the EOPs. Assurance that the RPS and ESF instrumentation and protection logic relays will function as required is also provided by on-line surveillance (channel checks performed each shift and quarterly channel functional tests) that are designed to detect potential instrument failures and verify operability of pressurizer pressure channels.

   Water level and pressure in each accumulator is monitored by two redundant channels designed to provide indication in the control room. High and low level alarm functions alert the operator to initiate operations to maintain the accumulator water volume or pressure within the Technical Specifications limits. The level and pressure instrumentation do not provide an active protective or control function and are not required to mitigate an accident condition. The level (or volume) and pressure limits are important since they are initial conditions assumed in the safety analysis. The loop accuracy/setpoint calculations for accumulator level and pressure were updated to include conservative values for 30-month calibration uncertainties using Westinghouse sensor drift values and extrapolated vendor specified uncertainties for rack and indicating components consistent with industry methods. The increased indicator uncertainty has been evaluated for both input parameters (accumulator level and pressure) assumed for the LOCA and Containment Integrity events (Reference 15) and a non significant increase in both the peak clad temperature and containment pressure was identified.

The volume control tank (VCT) level instrumentation is not required to mitigate the consequences of an accident. The instrumentation provides control room indication and initiates automatic actions of the chemical and volume control system (e.g., diverts letdown to the holdup tanks on high level, initiates makeup on low level, changes the charging pump suction on low low level). The loop accuracy/setpoint calculation for VCT level, updated based on the increased drift and uncertainty, determined that the existing setpoints remain valid to ensure the VCT instrumentation can perform the required design function.

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

   Response:

   The proposed changes do not create the possibility of a new or different kind of accident from any previously evaluated. The proposed changes extend the calibration frequency to 24 months for the Pressurizer Pressure, Accumulator Pressure and Level, and Volume Control Tank Level instrumentation to accommodate a 24 month operating cycle. The proposed changes in calibration frequencies do not involve any plant hardware changes, nor do they change the way that the systems function.

   The extension of the calibration and surveillance test intervals were evaluated and the results, documented in Reference 15, indicate that the calibrations can be safely extended to accommodate the 24 month operating cycle.

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

   Response:

   The proposed changes do not involve a significant reduction in a margin of safety.

The proposed changes extend the calibration frequency to 24 months for the Pressurizer Pressure, Accumulator Pressure and Level, and Volume Control Tank Level instrumentation to accommodate a 24 month operating cycle.

The proposed changes result in an increased instrument channel uncertainty for the pressurizer pressure. An evaluation (Reference 15) has determined that: all current cycle 9 safety analysis limits based on pressurizer pressure uncertainties remain bounding for extended surveillance intervals (high and low pressure trips); the safety analysis limits for K1 (a constant used in the overtemperature ΔT trip setpoint) remain applicable; and, Engineered Safety Feature Actuation System trip settings based on pressurizer pressure uncertainty remain bounding (low pressure safety injection).

The proposed changes result in an increased instrument channel uncertainty for the accumulator level and pressure. An evaluation (Reference 15) has determined that increasing the uncertainty results in non significant (defined by 10 CFR 50.46(a)(3)(i) as less than 50°F) increases in the total peak clad temperature (less than 35°F) for the large break and small break LOCA but the values remain well within regulatory acceptance criteria. The evaluation also determined that the peak calculated pressure in containment following a LOCA would increase due to the lower bound on pressure and the higher bound on volume in the accumulators. An assessment of the approximate effect on the peak containment pressure determined that the Technical Specification integrated leak rate testing value of 42.42 psig (the licensing basis peak pressure) remains bounding.

The proposed changes result in an increased instrument channel uncertainty for the VCT level but there are no changes to any margins of safety because this instrumentation supports a control function.

Section IV - Impact of Changes

The proposed changes will not adversely effect the ALARA Program, the Security and Fire Protection Programs, the Emergency Plan, the FSAR and SER Conclusions or the Overall Plant Operations and the Environment. This conclusion is based on the type of changes being made. The extension of the calibration frequency to 24 months for the Pressurizer Pressure, Accumulator Level and Pressure, and Volume Control Tank Level instrumentation to accommodate a 24 month operating cycle will not result in any hardware changes and only small adjustments to alarm setpoints that are used for operator actions to maintain plant conditions.

Section V - Conclusions

The incorporation of these changes: a) will not increase the probability nor the consequences of an accident or malfunction of equipment important to safety as previously evaluated in the Final Safety Analysis Report; b) will not increase the possibility for an accident or malfunction of a different type than any previously evaluated ion the Final Safety Analysis Report; and, c) will not significantly reduce the margin of safety as defined in the bases for any Technical

Specification. Therefore, the proposed change involves no significant hazards considerations as defined in 10 CFR 50.92.

Section VI - References

1. NRC Generic Letter 91-04, "Changes in Technical Specification Surveillance Intervals to Accommodate A 24-Month Fuel Cycle.

2. IP3-RPT-UNSPEC-01976, Revision 1, "IP3 Surveillance Interval Extension Project - Phase 1 Drift Results."

3. NYPA Letter, R. E. Beedle to the NRC Document Control Desk, concerning extending Reactor Protection System test and calibration intervals, dated February 18, 1993 (IPN-93-007).

4. IC-AD-34, Revision 0, "Drift Monitoring Program."

5. IP3-CALC-ESS-00254, Revision 1, "Instrument Loop Accuracy/Setpoint Calculation Low Pressurizer Pressure: Safety Injection and Unblock Safety Injection."

6. IP3-CALC-RPC-00288, Revision 1, "Instrument Loop Accuracy/Setpoint Calculation Low and High Pressurizer Pressure Reactor Trip."

7. IP3-CALC-RPC-00290, Revision 1, "Instrument Loop Accuracy/Setpoint Calculation Overpower Delta-T (OPΔT) and Overtemperature Delta-T (OTΔT) Reactor Trip."

8. IP3-CALC-ESS-00693, Revision 1, "Instrument Loop Accuracy/Setpoint Calculation Low Pressurizer Pressure: Safety Injection Due to Steam Generator Tube Rupture (SGTR) or Credible Steam Line Break (CSLB)."

9. EQ-GC-99.141 P-455, Revision 1, "Instrument Accuracy Calculation for P-455 Pressurizer Pressure - Emergency Operating Conditions."

10. EQ-GC-99.141 P-456, Revision 1, "Instrument Accuracy Calculation for P-456 Pressurizer Pressure - Emergency Operating Conditions."

11. EQ-GC-99.141 P-457, Revision 1, "Instrument Accuracy Calculation for P-457 Pressurizer Pressure - Emergency Operating Conditions."

12. EQ-GC-99.141 P-474, Revision 1, "Instrument Accuracy Calculation for P-474 Pressurizer Pressure - Emergency Operating Conditions."

13. IP3-CALC-SI-01949, Revision 0, "Accumulator Level Instrument Uncertainty Calculation (24 Month Refueling Cycle)."

14. IP3-CALC-SI-01977, Revision 0, "Accumulator Pressure Instrument (PC-936A to D and

PC-937A to D) Uncertainty Calculation (24 Month Refueling Cycle)."

15. Westinghouse Safety Evaluation of 24-Month Fuel Cycle Phase 1 Instrument Channel Uncertainties, SECL-96-103, dated June 18, 1996.

16. IP3-CALC-CVCS-00764, Revision 1, "24 Month Operating Cycle Loop Accuracy Calculation for VCT Level Instrumentation."

ATTACHMENT III TO IPN-96-067

SAFETY EVALUATION OF 24-MONTH FUEL CYCLE PHASE I INSTRUMENT CHANNEL UNCERTAINTIES BY WESTINGHOUSE ELECTRIC CORPORATION

NEW YORK POWER AUTHORITY
INDIAN POINT 3 NUCLEAR POWER PLANT
DOCKET NO. 50-286
DPR-64