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Fred Dacimo
Site Vice President
Administration

February 28, 2007
Indian Point Unit No. 2
Docket No. 50-247
NL-07-011

Document Control Desk
U.S. Nuclear Regulatory Commission
Mail Stop O-P1-17
Washington, DC 20555-0001

Subject: Licensee Event Report # 2007-002-00, "Technical Specification Prohibited Condition Due to Exceeding Containment Air Temperature Limit Allowed Outage Time as a Result of Changes in Instrument Uncertainty"

Dear Sir:

Pursuant to 10 CFR 50.73(a)(1), Entergy Nuclear Operations Inc. (ENO) hereby provides Licensee Event Report (LER) 2007-002-00. The enclosed LER identifies an event where the plant was operated in a condition prohibited by Technical Specifications, which is reportable under 10 CFR 50.73(a)(2)(i)(B). This condition has been recorded in the Entergy Corrective Action Program as Condition Report CR-IP2-2006-05177.

There are no commitments contained in this letter. Should you or your staff have any questions regarding this matter, please contact Mr. Patric W. Conroy, Manager, Licensing, Indian Point Energy Center at (914) 734-6668.

Sincerely,

A handwritten signature in black ink, appearing to read "Fred R. Dacimo" with a stylized flourish.

Fred R. Dacimo
Site Vice President
Indian Point Energy Center

IE22

Attachment: LER-2007-002-00

cc:

Mr. Samuel J. Collins
Regional Administrator – Region I
U.S. Nuclear Regulatory Commission

U.S. Nuclear Regulatory Commission
Resident Inspector's Office
Resident Inspector Indian Point Unit 2

Mr. Paul Eddy
State of New York Public Service Commission

INPO Record Center

LICENSEE EVENT REPORT (LER)

Estimated burden per response to comply with this mandatory collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to the information collection.

1. FACILITY NAME: **INDIAN POINT 2**

2. DOCKET NUMBER
05000-247

3. PAGE
1 OF 5

4. TITLE: **Technical Specification Prohibited Condition Due to Exceeding Containment Air Temperature Limit Allowed Outage Time as a Result of Changes in Instrument Uncertainty**

| 5. EVENT DATE | | | 6. LER NUMBER | | | 7. REPORT DATE | | | 8. OTHER FACILITIES INVOLVED | |
|---------------|-----|------|---------------|-------------------|----------|----------------|-----|------|------------------------------|-------------------------------|
| MONTH | DAY | YEAR | YEAR | SEQUENTIAL NUMBER | REV. NO. | MONTH | DAY | YEAR | FACILITY NAME | DOCKET NUMBER |
| 1 | 3 | 2007 | 2007 | 002 | 00 | 02 | 28 | 2007 | FACILITY NAME | DOCKET NUMBER 05000 |
| | | | | | | | | | FACILITY NAME | DOCKET NUMBER 05000 |

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|--|---|---|---|---|--|--|--|--|--|--|--|--|
| 9. OPERATING MODE 1 | 11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply) | | | | | | | | | | | |
| | <input type="checkbox"/> 20.2201(b) | <input type="checkbox"/> 20.2203(a)(3)(i) | <input type="checkbox"/> 50.73(a)(2)(i)(C) | <input type="checkbox"/> 50.73(a)(2)(vii) | | | | | | | | |
| 10. POWER LEVEL 100% | <input type="checkbox"/> 20.2201(d) | <input type="checkbox"/> 20.2203(a)(3)(ii) | <input type="checkbox"/> 50.73(a)(2)(ii)(A) | <input type="checkbox"/> 50.73(a)(2)(viii)(A) | | | | | | | | |
| | <input type="checkbox"/> 20.2203(a)(1) | <input type="checkbox"/> 20.2203(a)(4) | <input type="checkbox"/> 50.73(a)(2)(ii)(B) | <input type="checkbox"/> 50.73(a)(2)(viii)(B) | | | | | | | | |
| | <input type="checkbox"/> 20.2203(a)(2)(i) | <input type="checkbox"/> 50.36(c)(1)(i)(A) | <input type="checkbox"/> 50.73(a)(2)(iii) | <input type="checkbox"/> 50.73(a)(2)(ix)(A) | | | | | | | | |
| | <input type="checkbox"/> 20.2203(a)(2)(ii) | <input type="checkbox"/> 50.36(c)(1)(ii)(A) | <input type="checkbox"/> 50.73(a)(2)(iv)(A) | <input type="checkbox"/> 50.73(a)(2)(x) | | | | | | | | |
| | <input type="checkbox"/> 20.2203(a)(2)(iii) | <input type="checkbox"/> 50.36(c)(2) | <input type="checkbox"/> 50.73(a)(2)(v)(A) | <input type="checkbox"/> 73.71(a)(4) | | | | | | | | |
| | <input type="checkbox"/> 20.2203(a)(2)(iv) | <input type="checkbox"/> 50.46(a)(3)(ii) | <input type="checkbox"/> 50.73(a)(2)(v)(B) | <input type="checkbox"/> 73.71(a)(5) | | | | | | | | |
| <input type="checkbox"/> 20.2203(a)(2)(v) | <input type="checkbox"/> 50.73(a)(2)(i)(A) | <input type="checkbox"/> 50.73(a)(2)(v)(C) | <input type="checkbox"/> OTHER | | | | | | | | | |
| <input type="checkbox"/> 20.2203(a)(2)(vi) | <input checked="" type="checkbox"/> 50.73(a)(2)(i)(B) | <input type="checkbox"/> 50.73(a)(2)(v)(D) | Specify in Abstract below or in NRC Form 366A | | | | | | | | | |

12. LICENSEE CONTACT FOR THIS LER

| | |
|---|---|
| NAME John Hill, Design Engineering Supervisor - I&C | TELEPHONE NUMBER (Include Area Code) (914) 271-7201 |
|---|---|

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

| CAUSE | SYSTEM | COMPONENT | MANUFACTURER | REPORTABLE TO EPIX | CAUSE | SYSTEM | COMPONENT | MANUFACTURER | REPORTABLE TO EPIX |
|-------|--------|-----------|--------------|--------------------|-------|--------|-----------|--------------|--------------------|
| | | | | | | | | | |

14. SUPPLEMENTAL REPORT EXPECTED

YES (If yes, complete 15. EXPECTED SUBMISSION DATE) NO

15. EXPECTED SUBMISSION DATE

| MONTH | DAY | YEAR |
|-------|-----|------|
| | | |

16. ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced type written lines)

On August 29, 2006, during a review of operator daily surveillance rounds (DSR), Engineering noted that the DSR had a containment temperature limit of 125 degrees F and a reference to Technical Specification (TS) 3.6.5 for actions when the limit was exceeded. TS 3.6.5, for Containment Air Temperature, requires that the containment average air temperature be between 50 degrees F and less than or equal to 130 degrees F. The Bases for the TS states the limits are analytical limits therefore, an appropriate allowance for instrument uncertainty must be applied to ensure the limits are met. Engineering review of the calculation for Containment Temperature Indication Instrument Loop Uncertainty, showed the uncertainty would result in containment temperature potentially exceeding the TS limit at approximately 122 degrees F and not the DSR referenced 125 degrees F limit. A completion of review of past containment temperature documentation on January 3, 2007, indicated that the TS limit was exceeded August 16-17, 2005 by approximately 1.25 degrees F. The direct cause was a failure to update procedure 2-PT-D001 to reflect revised criteria from the uncertainty calculation. The apparent cause was inappropriate closure of a corrective action (CA). The initial CA was closed without performing the task and no tracking activity was issued to ensure the document was updated. CAs included revising 2-PT-D001 for the correct temperature. Condition report (CR) quality issues were addressed in previous CR CAs addressing a similar issue. Previous CAs to the impact review process enhanced the engineering request response and closeout process for identifying and updating effected documents. The event had no effect on public health and safety.

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NARRATIVE (If more space is required, use additional copies of NRC Form 366A) (17)

Note: The Energy Industry Identification System Codes are identified within brackets { }

DESCRIPTION OF EVENT

On August 29, 2006, during a review of operator daily surveillance rounds (DSR) by a Nuclear Analysis Engineer, it was noted that the DSR for containment {NH} temperature had a temperature limit of 125 degrees F and referenced Technical Specification (TS) 3.6.5 for actions when the temperature is found to exceed the limit. The TS 3.6.5, "Containment Air Temperature," Limiting Condition of Operation (LCO) requires for Modes 1-4, that the containment average air temperature be between 50 degrees F and less than or equal to 130 degrees F. The Bases for TS 3.6.5 states the LCO limits for containment temperature are analytical limits therefore, an appropriate allowance for instrument uncertainty must be applied to ensure the limits are met. Review of the calculation (FIX-00117-00), "Containment Temperature Indication Instrument Loop Uncertainty," showed that FIX-00117-00 calculates the loop uncertainty for containment temperature indication using instrument TI-1203 {TI} with an uncertainty of +/-8.4 degrees F, and the plant computer (PICS) {ID} using an uncertainty of +/-7.9 degrees F. Engineering concluded that the calculated instrument uncertainty would result in containment temperature potentially exceeding the TS limit at approximately 122 degrees F and not at the 125 degrees F limit referenced in the DSR. Additional review also discovered that the service water (SW) system {BI} operating procedure (SOP-24.1) for hot weather operations states, "If the containment temperature exceeds 130 degrees F, then containment cooling equipment will be beyond the design basis." Engineering concluded that instrument uncertainty had also not been accounted for in this SOP statement. The condition was recorded on August 29, 2006, in the IPEC corrective action program (CAP) as condition report CR-IP2-2006-005177. At the time the condition was identified, the plant was at 100% steady state reactor power with containment air temperature below 120 degrees F.

During the review, the Nuclear Analysis Engineer noted that containment temperature was now recorded in surveillance procedure 2-PT-D001, not DSR-08 and prior to conversion from the custom TS to the Improved TS (ITS), containment temperature was recorded on Operator Log 2-DSR-1. The instrument loop uncertainty calculation for containment temperature (FIX-00117-00) Revision 0, was approved on July 10, 2002, and was performed in response to a condition recorded on December 2, 2000, in CR-IP2-2000-09735. The purpose of the calculation (FIX-00117-00) was to ensure instrument inaccuracy was accounted for in the procedural acceptance criteria for the containment temperature operator log. This action was the result of an extent of condition review for a condition recorded on May 4, 2000, in condition report CR-IP2-2000-03224 for a safety evaluation deficiency regarding minimum containment temperature.

In 2000, during the condition report (CR) review, corrective actions (CA) were assigned to the Operations Procedure Group for revision of the Control Room Log for containment temperature (CR-IP2-2000-09735 CA-6) and to Design Engineering to perform the analysis necessary to determine suitable criteria for containment temperature (CR-IP2-2000-09735 CA-7). CR-IP2-2000-09735 was assigned to the Setpoint Group, which used the CA system to assign implementation and update actions as part of the setpoint process. The impact calculation review process per procedure ENN-DC-126 did not exist at that time. The corrective action (CA-6) for revising the operator log (2-DSR-1) was closed six months prior to its due date of December 31, 2000, citing lack of information from Design Engineering. CA-6 requested reassignment of the CA when the input information became available.

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The CA for performing an analysis (CA-7) was closed on August 27, 2002, after the calculation (FIX-00117-00) had been issued. A closure review was performed on September 23, 2002, but did not identify that the update to the containment temperature log procedure had not been completed. Calculation FIX-00117-00 Revision 0 did not identify any affected documents, although the need to update the operator log was identified previously in CA-6. During this time period (2002), the calculation impact review process had been implemented per procedure ENN-DC-126, but the operator surveillance requirement error was not identified. In 2003, the ITS conversion created a daily surveillance requirement for logging containment temperature and the requirement at that time became part of procedure 2-PT-D001. The containment temperature criterion of 125 degrees F contained in procedure 2-PT-D001 was carried over from the operator log procedure 2-DSR-1. At the time CR-IP2-2000-09735 was initiated, the 125 degree F containment temperature criterion established a supplemental log only and the action point to begin shutting down the reactor at 130 degrees F. At a time between the initiation of CR-IP2-2000-09735 in 2000, and the ITS implementation in 2003, the 125 degree F containment temperature criterion became an action point at which operators had to consider shutting down the reactor.

A review of past containment air temperatures for the summers of 2004, 2005, and 2006, based on the plant computer (PICS/PI) data, indicated that the TS limit of 130 degrees was exceeded in 2005 and 2006 considering the revised monitoring uncertainties. At some point each day from July 25 through August 26, 2005, and August 2 through August 19, 2006, the indicated temperature exceeded 122.1 degrees F. The limiting value initially used was 122.1 degrees F (TS limit of 130 degrees F minus 7.9 degrees F for calculated uncertainty). The calculation of uncertainty was reviewed to determine if conservatisms were considered. Engineering determined that the uncertainty for the five temperature elements was included as if it were one module when these elements are input to an averaging device. ISA Standard 67.04-2000, provides a methodology for propagating uncertainty through a summing device which entails combining the uncertainties for each temperature element using the square root of the sum of the squares (SRSS) and dividing by five (circuit with 5 inputs). After re-evaluating the temperatures using the alternate method, the loop uncertainties were determined to be +/-6.1 degrees F for 2-PT-D001, and +/-5.4 degrees F for the PICS computer. These results would revise the acceptance limits to 123.9 degrees F and 124.6 degrees F. When the remaining past temperatures that exceeded the limit considered the TS Allowed Outage Time (AOT) of 8 hours, the only period remaining that exceeded 124.6 degrees F for 8 hours was on August 16-17, 2005. Engineering determined the temperature exceeded 124.6 degrees F at 6:59 AM on August 16 (peak of 125.85 degrees F) and did not return to within limits until 5:46 AM on August 17, 2005, a period of approximately 22 hours, 47 minutes. The peak temperature difference during this time was 1.25 degrees F. A completion of review of past containment temperature documentation on January 3, 2007, confirmed that the TS limit was exceeded on August 16-17, 2005.

CAUSE OF EVENT

The direct cause of the condition was a failure to update surveillance procedure 2-PT-D001 (latest surveillance requirements) to reflect revised criteria from calculation FIX-00117-00 Revision 0, at the time the calculation was created (approved July 10, 2002). The apparent cause was inappropriate closure of a CA. The initial CA was closed without performing the task and no tracking activity was issued to ensure the document was updated. Contributing causes (CC) included CC1: CR closure review was not thorough enough to identify that the required update of procedure 2-PT-D001 was not implemented, CC2: The ENN-DC-126 impact review process did not identify affected procedures when preparing calculation FIX-00117-00 under CA-7 of CR-IP2-2000-09735.

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CORRECTIVE ACTIONS

The following corrective actions have been performed under the Corrective Action Program (CAP) to address the causes of this event.

- Surveillance procedure 2-PT-D001, "Control Room Operations Surveillance Requirements," was changed to a new containment temperature criteria of 121 degrees F by revision 14 and the revised surveillance distributed. Action completed on November 2, 2006.
- The apparent and contributing causes associated with CR-IP2-2006-05177 are considered to be historical condition report quality issues. These issues are considered historical because the conditions described occurred prior to conditions recorded in CR-IP2-2003-05886 and CR-IP2-2003-01185. CR-IP2-2003-05886 was initiated to address the lack of rigor, thoroughness, and standalone quality of CR evaluations. CR-IP2-2003-01185 was initiated to address CR closeout issues. The containment temperature surveillance issues identified by the condition recorded in CR-IP2-2006-05177 are enveloped by the evaluations and corrective actions implemented under CR-IP2-2003-05886 and CR-IP2-2003-01185 for condition report quality issues.
- An extent of condition review was performed which concluded that the apparent and contributing cause of inadequate CR closure review are CR quality issues that have the potential to affect any plant department and any CR. The issue with CR quality has been addressed previously. The contributing cause for failure to identify impacted documents under the calculation review process is also considered historical as the impact review process was strengthened by its inclusion in the ER response and closeout process under previous CRs. The reason surveillance procedure 2-PT-D001 was not identified during impact review could not be ascertained, but engineering had identified that the impact review process per ENN-DC-126 was weak. Consequently, changes per EN-DC-126 Revision 6, require the use of the EN-DC-115 ER Response process when preparing a calculation and identifying affected documents. The revision also requires use of the EN-DC-118 closeout process to ensure that all required plant documents are updated.

EVENT ANALYSIS

The event is reportable under 10CFR50.73(a)(2)(i)(B). The licensee shall report any operation or condition which was prohibited by the plant TS. This event meets the reporting criteria because the containment temperature exceeded an instrument value of 124.6 degrees F at 6:59 AM on August 16 (124.74 degrees F) and did not return to within limits until 5:46 AM on August 17, 2005 (124.58 degrees F), a period of approximately 22 hours, 47 minutes. This error resulted in the monitored containment air temperature potentially exceeding the TS Limiting Condition of Operation (LCO) upper limit of 130 degrees after considering instrument uncertainty. The time in which the condition existed exceeded the 8-hour AOT for TS 3.6.5 and the required actions were not performed. If the DSR had contained the correct value as recorded by the calculation, operators would have been alerted to the condition and could have taken appropriate steps. The date of the event for reportability is January 3, 2007, because the evaluation of past temperature conditions was not finalized until that date. The date of discovery for an actual occurrence was not known when the condition was recorded in CR-IP2-2006-05177. There was no safety system that could not have performed its safety function as a result of the containment temperature exceeding the TS limit. Therefore, there was no safety system functional failure reportable under 10 CFR 50.73(a)(2)(v).

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PAST SIMILAR EVENTS

A review of the past two years of Licensee Event Reports (LERs) for events that involved instrument uncertainty errors that resulted in exceeding TS allowed completion times did not identify any LERs.

SAFETY SIGNIFICANCE

This event had no effect on the health and safety of the public. There were no actual safety consequences for the event because there were no accidents or transients. The TS required number of containment fan cooler units (FCUs) {BK} were operable and could have provided the required cooling to maintain containment temperature below the TS limit. The 24 FCU was removed from service August 16, 2005, at approximately 5:30 AM for a PM on its supply breaker. The FCU was returned to service on August 17, 2005, at approximately 5:30 AM. The remaining four FCUs were available for cooling. In addition, during the TS prohibited condition, the temperature of the river water used for FCU cooling water was well below the design maximum of 95 degrees F, therefore there was margin for cooling. If the containment temperature surveillance procedure had contained the correct value as recorded by the calculation, operators would have been alerted to the condition and could have taken appropriate steps to maintain the proper temperature.

There were no significant potential safety consequences of this event under reasonable and credible alternative conditions. The containment average air temperature limit of 130 degrees F is an initial condition used in the Design Basis Analysis (DBA). The temperature limit is also used to establish the containment environmental qualification operating envelope for both containment pressure and temperature. The temperature limit ensures that operation is maintained within the assumptions used in the DBA analysis for containment. The limiting DBAs relative to containment are the Loss of Coolant Accident (LOCA) and Main Steam Line Break (MSLB). The containment air temperatures which were determined to exceed the TS limits were small (1.25 degrees F) and within the safety margin of the accident analysis evaluation and therefore would not have a significant effect on safety. The containment temperature exceeded the instrument limit of 124.6 degrees F at 6:59 AM on August 16 (maximum of 125.85 degrees F), a difference of 1.25 degrees F, and returned to within limits at 5:46 AM on August 17, 2005 (124.58 degrees F). The 124.6 degrees F instrument limit ensures the actual temperature will not exceed the design limit of 130 degrees F. FSAR Section 14.3.5 identifies the calculated LOCA peak pressure as 45.71 psig, and the peak LOCA temperature as 266.81 degrees F, assuming an initial containment temperature of 130 degrees F. The LOCA containment response bounds the MSLB. TS Bases 3.6.6 lists the design pressure as 47 psig and the design temperature as 271 degrees F. The pressure/temperature margin envelopes the small exceedance on initial containment temperature assumed in the DBA analysis.