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June 11, 2002
IPN-02-046

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

SUBJECT: Indian Point 3 Nuclear Power Plant
Docket No. 50-286
Request for Enforcement Discretion; Service Water System

REFERENCE: Regulatory Issue Summary 2001-020; "Revisions to Staff Guidance for Implementing NRC Policy on Notices of Enforcement Discretion," dated November 14, 2001.

Dear Sir:

This letter provides formal documentation of the request for enforcement discretion made by Entergy Nuclear Operations, Inc (ENO) for Indian Point 3 via conference calls of June 7 and 8, 2002. Details of the request based on the information requirements of the referenced Regulatory Issue Summary are provided in Attachment I.

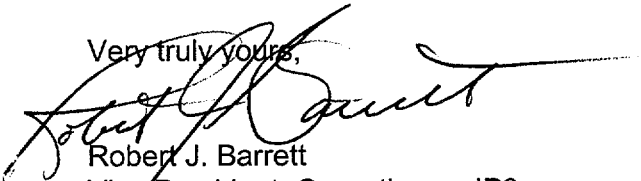
During the performance of routine inspections with the plant operating at 100% power, a nuclear plant operator discovered a small leak (approximately 1 drop per second) in a service water pipe. Subsequent engineering evaluation concluded that repairs were required to maintain established criteria for operability. Therefore, ENO declared the service water system inoperable in accordance with Indian Point 3 Technical Specification 3.7.9.E which provides for a 12-hour completion time. The affected section of piping was isolated and repairs were initiated, however ENO determined that repairs and system restoration could not be completed in the allotted 12-hour time limit. Therefore, ENO requested enforcement discretion to extend the completion time by up to 60 hours, for a total duration of 72 hours, to accomplish the repair without requiring a plant shutdown. The ENO Onsite Safety Review Committee reviewed the request and concurred with the safety basis and conclusion of no significant hazards consideration.

Following verbal approval of the request for enforcement discretion, ENO completed an ASME code repair of the weld. The total duration of inoperability of the service water system was approximately 44.5 hours.

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There are no new commitments identified in this letter. Conditions of approval for this extension, as discussed in our conference calls of June 7 and 8, 2002, are described in Attachment I. If you have any questions, please contact Mr. John McCann, Licensing Manager at 914-734-5074.

Very truly yours,



Robert J. Barrett
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Indian Point 3 Nuclear Power Plant

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ATTACHMENT I
JUSTIFICATION FOR REQUEST FOR ENFORCEMENT DISCRETION

The following sections provide supporting description and justification for the requested enforcement discretion based on the information requirements as stated in Part 9900 of the NRC Inspection Manual.

1. Affected Technical Specification

Indian Point 3 Technical Specification 3.7.9 states the following for the plant Service Water System (SWS):

Three pumps and required flow path for the essential SWS header shall be operable;

And

Two pumps and required flow path for the nonessential header shall be operable.

Conditions A, B, C, and D establish required actions and completion times for inoperable SWS pumps and for the supply valves to the emergency diesel coolers and the containment fan cooler units.

Condition E addresses "SWS piping and valves inoperable for reasons other than Conditions A, B, C, or D, with no loss of safety function. Condition E applies to the existing situation where there is a degraded condition in a portion of the service water piping. The affected piping section supplies service water to three Fan Cooler Units (FCU), 31, 32, and 35

2. Circumstances surrounding the situation

On June 5, 2002 while performing routine rounds, a nuclear plant operator discovered a small leak (approximately 1 drop per second) in an 18-inch service water header (line number 408). Engineering personnel inspected the pipe and confirmed a leak in a weld to a tee connection. The condition was entered into the IP3 corrective action program (CR-IP3-2002-02038). Actions were taken to perform non-destructive examination to characterize the extent of degradation. Radiographic testing was performed on June 6. Evaluation of the radiographs was not conclusive and ultrasonic testing was performed on June 7. Following evaluation of all data collected, ENO concluded at approximately 2035 hours on June 7, 2002 that the degraded condition did not provide sufficient structural integrity for the piping to meet code allowables for

pipe wall thinning and through wall leaks. Therefore Condition 3.7.9.E.1 was entered at that time and valves were closed to isolate the leak to facilitate repairs. A safety function determination was performed in accordance with Technical Specification 3.0.6 regarding the impact on the containment cooling system. The evaluation concluded that the safety function was still met by the remaining equipment consisting of two containment spray trains and two fan cooler units.

ENO has not completed the root cause evaluation of this specific pipe leak. Based on prior experience, it is likely that erosion-induced corrosion of the weld metal is a contributing factor. This section of pipe has been in service since initial plant operation and based on the measured remaining wall thickness, there is a relatively low corrosion rate. ENO has previously established and is implementing a system improvement plan to provide for the long-term resolution of service water system reliability. Also, in addition to routine rounds performed by the nuclear plant operators, the system engineer performs a quarterly system walkdown to inspect the condition of service water piping.

The Service Water corrosion-monitoring program, required by Generic Letter 89-13, is implemented at Indian Point 3 by procedure TSP-048. The procedure establishes requirements for selecting locations for periodic examination and provides guidance on evaluating inspection results. The program requires that a minimum of 25 inspections be performed in each 2-year inspection interval. During the interval that ended June 2000, over 100 locations were inspected and approximately 70 locations will be inspected during the current interval. Selection criteria for inspections consider factors such as piping configuration, flow condition, and past leakage history. This specific weld was not previously included in past inspection samples. Although the root cause evaluation is not completed, a preliminary review of the NDE results for the leak location did not identify any new degradation mechanism that is not already considered by the monitoring program.

A similar weld on the opposite header (from the header with the leaking weld) was inspected as part of an extent of condition review. The ultrasonic test was performed on June 8, and the test results (ranging from a high of 0.556 inches to a low of 0.216 inches) showed that the acceptance criteria for minimum required weld thickness (0.140 inches) was met. Also, in a prior inspection interval part of this 18-inch line (409) was examined using a boroscope. This inspection revealed no signs of missing cement liner or biological growth which can be a precursor to erosion-induced corrosion of the piping or weld metal.

3. Safety Basis for the Request

The action taken to isolate the degraded section of SWS piping restores the safety function for all portions of the SWS except for the three fan cooler units. The safety function for containment cooling is still met with 2 FCUs in service as further described below.

Indian Point 3 Technical Specification 3.6.6 requires two containment spray trains and three containment fan cooler trains to be OPERABLE. The purpose of this LCO is to assure that the containment cooling and iodine removal safety function is accomplished following a design basis loss of cooling accident or steam line break inside containment.

Design assumptions regarding containment air-cooling and iodine removal are met by any of the following configurations:

- a) Two containment spray trains; or,
- b) Three fan cooler trains (i.e., five fan cooler units); or,
- c) One containment spray train and any two fan cooler trains (i.e., at least three fan cooler units).

This last configuration, one containment spray train and two fan cooler trains, is the configuration available following the loss of any safeguards power train (e.g., diesel failure).

The design of the containment fan cooler system consists of five fan cooler units grouped into three trains based on electrical power supply as follows:

- Fan Cooler Train 5A consists of FCU 31 and FCU 33;
- Fan Cooler Train 2A/3A consists of FCU 32 and FCU 34; and
- Fan Cooler Train 6A consists of FCU 35.

LCO 3.6.6 Condition D provides for a 72 hour completion time with two containment fan cooler trains inoperable. Up to four FCUs could be inoperable (31,33 and 32,34) under this condition statement, so that 1 FCU would remain in service.

The leak in the service water line affects three of the five FCUs (31, 32, and 35) so that 2 FCUs remain in service. Both containment spray trains are unaffected by the leak repair effort. The design basis of the plant with respect to iodine removal and containment cooling is still met with this configuration of components. In addition, the analysis of the containment cooling capability assumes an ultimate heat sink temperature of 95°F and at the time of the repair the actual temperature of the Hudson River is approximately 70°F. This lower temperature will increase the heat removal capability of these components above the design basis assumptions.

A risk assessment of the proposed increase in the completion time concluded that the change is insignificant. Unavailability of a FCU does not impact overall core damage frequency because the FCUs are not used to mitigate core damage. With respect to a radiological release from containment there is redundancy with the other FCUs and also with the containment spray trains. Furthermore, the Large Early Release Fraction (LERF) is dominated by containment bypass scenarios (e.g., steam generator tube rupture events and Loss-of-Coolant-Accidents outside containment) in which the FCUs do not provide an accident mitigating function. The baseline LERF value as reported in the IP3 IPE is 5.8637 E-7/ year. The LERF value for the temporary configuration with service water supply isolated to 3 FCUs is 5.868 E-7/ year. This is an increase of 5.0 E-10 / year which is a negligible change.

Using a conservative completion time of 96 hours (the enforcement discretion request was for 72 hours) the increase in Large Early Release Probability (LERP) is 5.5 E-12. The increase in CDP associated with shutting the plant down to perform the repair is approximately 2.6 E-6.

The increase in LERP associated with shutting the plant down is approximately 1.77 E-9 .

The compensatory measures discussed in Section 6 along with the relatively low river water temperature are adequate to offset the minimal risk affects of increased completion time. Therefore, the requested increase in completion time to perform the repair without shutting the plant down is justified and there is no net increase in radiological risk.

4. Conclusion of No Significant Hazards Consideration

ENO has performed a review of the proposed extension of the completion time and concludes that the proposed extension does not involve a significant hazards consideration.

The service water supply to the fan cooler units is not an accident initiator and isolating the service water line to support repair of a pipe weld does not increase the probability of an accident occurring. The design of the plant is such that the consequences of previously evaluated accidents can be mitigated by operation of two containment spray trains. The plant configuration for the duration of the extended completion time will have two containment spray trains and two fan cooler units. Therefore the consequences of an accident previously evaluated are not significantly increased.

The proposed increase in completion time is being requested to facilitate the leak repair in a section of service water piping to restore the plant to the design as described in the Final Safety Analysis Report. There are no modifications to the plant or changes in the method of operating the plant that would create the possibility of a new or different kind of accident from any previously evaluated.

The proposed increase in completion time also does not involve a reduction in a margin of safety. The plant configuration during the pipe repair will meet the safety analysis assumptions regarding containment cooling capability for mitigating a design basis accident. Although the SWS will be classified as inoperable during the extended completion time, the leak location will be isolated so that all unisolated components will continue to meet design basis service water flowrates and within design pressure limits. The isolated components will be three fan cooler units. A similar plant configuration that would allow up to four fan cooler units to be isolated has previously been evaluated and has a technical specification allowed completion time of 72 hours. Therefore, the combination of plant configuration and compensatory measures established for the duration of the extended completion time (72 hours) assure that a significant reduction in a margin of safety is not involved.

5. Conclusion of No Adverse Environmental Consequences

The plant will continue to operate within established environmental requirements while the repair is being made. The proposed extension of the allowed outage time does not involve adverse environmental consequences.

6. Compensatory Measures

- ENO will invoke administrative controls (AP 19.1) for a special evolution for the period of time that the service water system is inoperable for purposes of performing the leak repair. The administrative controls include designating a special evolution manager to provide extra management oversight and provisions to assure that certain redundant components are protected from being taken out of service.
- The specific equipment to be protected are the 2 remaining fan cooler units, the 2 containment spray trains, the 3 emergency diesel generators, and offsite electrical feeders.
- The offsite electrical supply for Indian Point 3 includes four qualified feeders, all of which were available at the time of this special evolution. Only one feeder is required to meet design basis loading requirements and two feeders are required by Technical Specifications to satisfy single failure criteria.
- A walkdown of the service water header that will remain in service was performed and no leakage was identified.

7. Justification of Duration of Noncompliance

The repair of the service water piping consists of removing the affected portion of the system from service, grinding out the degraded area, weld buildup as required to restore structural integrity, and post-repair verification testing. Although the repair activities were initiated during the 12-hour completion time allowed by Condition 3.7.9.E.1, additional time is needed to complete the repairs and the associated post-maintenance activities. A project schedule was prepared and the out-of-service time was estimated to be 39 hours. This duration included time to isolate the system, complete the repair, and realign the system.

The actual duration for this effort was approximately 44.5 hours.

8. Review by Onsite Safety Review Committee

The ENO Onsite Safety Review Committee has reviewed this request and concurred with the proposed increase in completion time with respect to plant safety and to verify the no significant hazards consideration conclusions.

9. Applicable NOED Criterion

The applicable criterion from Part 9900 of the Inspection Manual is item B.2.1.1a. Indian Point 3 is currently operating at 100% power and the requested enforcement discretion is desired to minimize operational transients by avoiding a plant shutdown that is not needed to perform the repair.

10. Follow-up License Amendment

This is a one-time request to facilitate a repair to a service water pipe and a follow-up license amendment request is not required. However, ENO will evaluate whether a future License Amendment Request is appropriate to expand the definition of conditions for inoperable fan cooler units.

11. Additional Information (based on conference call with NRC staff on June 7, 2002)

As a result of the conference calls with the NRC, ENO provided the following additional information:

- ENO provided additional information (in Section 2) about the Generic Letter 89-13 inspection program at Indian Point 3 which governs the inspection of piping and welds in the service water system.
- ENO agreed to add offsite electrical feeders (section 2) to the list of equipment protected on the administrative controls of the special evolution procedure.
- ENO agreed to perform a non-destructive examination inspection of a weld in line 409 similar to the weld found to be leaking in line 408 (see Section 2).
- ENO performed a walkdown (as stated in Section 6) of the service water supply piping (line 409) to the two FCUs that will remain in service (33 and 34) and verified that no leaks were evident.