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Fred Dacimo
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December 22, 2004

Re: Indian Point Unit No. 3
Docket No. 50-286
NL-04-163

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

SUBJECT: **Supplement to Proposed License Amendment Regarding Control Room Ventilation System (TAC No. MC3351)**

References:

1) Entergy letter NL-04-138 to NRC, "Proposed License Amendment Regarding Control Room Ventilation System", dated October 26, 2004

2) Entergy letter NL-04-158 to NRC, "Supplement to Proposed Change to Technical Specifications Regarding Full Scope Adoption of Alternate Source Term (TAC No. MC3351)", dated December 15, 2004

3) Entergy letter NL-04-068 to NRC, "Proposed Change to Technical Specifications Regarding Full Scope Adoption of Alternate Source Term", dated June 2, 2004

Dear Sir:

The purpose of this letter is to supplement the proposed "interim" amendment to the Operating License for Indian Point Nuclear Generating Unit No. 3 (IP3) regarding the Control Room Ventilation System (CRVS) (Reference 1) in response to discussions with NRC staff.

Reference 1 requested the following proposed changes to the Technical Specifications:

- A one-time allowance to place the Control Room Ventilation System (CRVS) in a new (alternate) configuration in support of tracer gas testing. The one-time allowance would have permitted the new configuration to remain in place for the duration of tracer gas testing and through the end of

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the current operating cycle (Cycle 13), a time period of approximately two months based on the current tracer gas testing schedule.

- A change to the Bases for Technical Specification 3.7.11 to support the use of self-contained breathing apparatus (SCBA) and potassium iodide (KI) pills as compensatory measures for control room operators in the event that the tracer gas test results are not bounded by the dose evaluations prepared by Entergy for this test. There was no time limit on these compensatory measures.

Entergy now proposes to align the CRVS in the alternate configuration only for purposes of tracer gas testing. The alternate configuration would render the CRVS inoperable based on the current design and licensing basis of the system. As the current Completion Time for an inoperable CRVS train in Technical Specification 3.7.11.A is 7 days and for two inoperable CRVS trains is 72 hours, an extension of these Completion Times to 14 days is required to support tracer gas testing. The "interim" change to SR 3.7.11.4 proposed in Reference 1 would also no longer be required. Therefore, the following changes to the Technical Specification changes proposed in Reference 1 are required:

- Replace the note that stated, "The system may be aligned in an alternate configuration for purposes of tracer gas testing and for the remaining period of time in Cycle 13. This note expires March 31, 2005." with a footnote to the 7-day Completion Time in Technical Specification 3.7.11.A and the 72-hour Completion Time in Technical Specification 3.7.11.B that states, "This Completion Time may be extended to 14 days on a one-time only basis to permit tracer gas testing. This applies to tracer gas testing only and is for no other purpose." A markup of page 3.7.11-1 is included in Attachment 1 with this proposed change and with the note that was added by Reference 1 now deleted.

- Delete the note that was added in SR 3.7.11.4 that stated, "With the system aligned in the alternate configuration, the required makeup flow rate is $\geq$ 1500 cfm, not $\leq$ 400 cfm. This Note expires March 31, 2005." Page 3.7.11-2 is now proposed to remain unchanged, and a markup is included in Attachment 1 with the note that was added by Reference 1 now deleted.

Reference 1 included Technical Specification Bases page B 3.7.11-5 with a new note that stated, "In the event that tracer gas testing identifies unfiltered inleakage in excess of limits established in applicable dose consequence analyses, SCBA and KI pills may be implemented as compensatory measures as long as an evaluation concludes that the operator dose limits of GDC-19 continue to be met." A time limit is being imposed on the use of these compensatory measures. Accordingly, Entergy will remove this note in conjunction with the implementation of Alternate Source Term (AST), which is currently under review by the NRC with an anticipated approval prior to startup from the Cycle 13 refueling outage.

Dose analyses and evaluations in support of Reference 1 (and contained in Reference 3 and as supplemented in Attachment 2 herein) establish bounding limits for unfiltered air inleakage. These bounding limits are applicable for two CRVS configurations (400 CFM filtered make-up and 1000 CFM recirculation, and $\geq$ 1500 CFM filtered make-up and no recirculation). Compensatory measures in the form of KI and SCBA remain available, if needed, to limit dose to control room operators to within existing design basis values should unfiltered air inleakage rates exceed the assumptions in the dose analyses and evaluations. Additional information in support of Reference 1 in regard to the use of KI and SCBA is also provided in Attachment 2 to this letter.

The "no significant hazards consideration" submitted with Reference 1 is unchanged by these proposed changes since the duration of time that the CRVS is placed in the alternate configuration has been reduced from the time period of approximately 2 months originally proposed in Reference 1 to 14 days, which is more limiting. Further, the use of KI and SCBA as compensatory measures in the event unfiltered air inleakage exceeds allowable limits established in applicable dose consequence analyses remains unchanged as proposed in Reference 1. However, the ability to credit KI and SCBA will expire in conjunction with implementation of AST, which is more limiting than previously proposed (no time limit).

Reference 2 indicated that the CRVS would be modified to enable it to be operated in the alternate configuration for Control Room Habitability, and that the modification would be installed prior to the next scheduled refueling outage. With the changes proposed herein, the CRVS would be temporarily modified to support tracer gas testing prior to the next scheduled refueling outage, would be restored to the current design basis configuration after completion of tracer gas testing, and would be permanently modified as part of the implementation of AST, which is currently under review by the NRC with an anticipated approval prior to startup from the Cycle 13 refueling outage.

A copy of this letter and the associated attachments are being submitted to the designated New York State official.

There are no new commitments contained in this letter. If you have any questions or require additional information, please contact Mr. Patric W. Conroy at 914-734-6668.

I declare under penalty of perjury that the foregoing is true and correct. Executed on 12/22/04.

Sincerely,

E. O'Donnell

for Fred R. Dacimo
Site Vice President
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Attachments:
1. Proposed Technical Specification Changes
2. Additional Information in Support of the Proposed License Amendment Regarding Control Room Ventilation System (submitted in Entergy letter NL-04-138)

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ATTACHMENT 1

to NL-04-163

Proposed Technical Specification Changes

Entergy Nuclear Operations, Inc.
Indian Point Nuclear Generating Unit No. 3
Docket No. 50-286

3.7 PLANT SYSTEMS

3.7.11 Control Room Ventilation System (CRVS)

LCO 3.7.11 Two CRVS trains shall be OPERABLE.

NOTE

The system may be aligned in an alternate configuration for purposes of tracer gas testing and for the remaining period of time in Cycle 13. This note expires March 31, 2005.

APPLICABILITY: MODES 1, 2, 3, 4.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One CRVS train inoperable.	A.1	Restore CRVS train to OPERABLE status.	7 days *
B. Two CRVS trains inoperable.	B.1	Restore one CRVS train to OPERABLE status.	72 hours *
C. Required Action and associated Completion Time of Condition A or B not met.	C.1	Be in MODE 3.	6 hours
	AND		
	C.2	Be in MODE 5.	36 hours

* This Completion Time may be extended to 14 days on a one-time only basis to permit tracer gas testing. This applies to tracer gas testing only and is for no other purpose.

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.11.1	Operate each CRVS train for ≥ 15 minutes.	31 days
SR 3.7.11.2	Perform required CRVS filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with VFTP
SR 3.7.11.3	Verify each CRVS train actuates on an actual or simulated actuation signal.	24 months
SR 3.7.11.4	Verify one CRVS train can maintain a slight positive pressure relative to the adjacent enclosed area during the 10% incident mode of operation at a makeup flow rate of ≤ 400 cfm. ---------- NOTE ---------- With the system aligned in the alternate configuration, the required makeup flow rate is ≥ 1500 cfm, not ≤ 400 cfm. This Note expires March 31, 2005. ----------	24 months on a STAGGERED TEST BASIS

ATTACHMENT 2

to NL-04-163

Additional Information in Support of the
Proposed License Amendment Regarding Control Room Ventilation System
(submitted in Entergy letter NL-04-138)

Entergy Nuclear Operations, Inc.
Indian Point Nuclear Generating Unit No. 3
Docket No. 50-286

1. **Demonstrate that the large break LOCA is limiting for the determination of unfiltered inleakage threshold for the control room (i.e. the 240 CFM value)**

Response

The base analysis for the large break LOCA is the analysis contained in Reference 3. This analysis was revised to demonstrate that the thyroid dose limit of 30 rem could be met provided the control room unfiltered inleakage rate does not exceed 240 CFM. Changes to the base analysis were made as follows:

a. Credit for the fan cooler filters was assumed for removal of all forms of iodine (the base analysis takes no credit for these filters). Flow through each fan cooler filter was assumed to be 7000 CFM, and filter efficiencies were 90% for elemental iodine and particulates, and 70% for organic iodine;

b. The assumed ECCS post-LOCA leakage outside containment was reduced to one gallon per hour from the base analysis value of two gallons per hour (this was doubled to two gallons per hour in the analysis).

Other design basis accidents were evaluated to confirm that the large break LOCA with 240 cfm control room inleakage is limiting. Reductions in the plant operating limits for primary coolant iodine concentration and for primary-to-secondary leakage were credited in order to have the large break LOCA remain the bounding event for control room dose. Current plant operation values for primary coolant iodine concentration and for primary-to-secondary leakage are well below the values used in these evaluations.

Rod Ejection Accident: This event was evaluated using the base analysis from Reference 3, and it was determined that a control room inleakage greater than 240 CFM was needed to exceed the 30 rem thyroid dose limit.

Small Break LOCA: This event was evaluated using the base analysis from Reference 3, and it was determined that a control room inleakage greater than 240 CFM was needed to exceed the 30 rem thyroid dose limit.

Steam Generator Tube Rupture (SGTR): This event was evaluated using the base analysis from Reference 3 but with a reactor coolant iodine concentration at 25%

of the Technical Specification limit, and it was determined that a control room inleakage greater than 240 CFM was needed to exceed the 30 rem thyroid dose limit.

Main Steam Line Break: This event was evaluated using the base analysis from Reference 3 but with a reactor coolant iodine concentration at 25% of the Technical Specification limit, and it was determined that a control room inleakage greater than 240 CFM was needed to exceed the 30 rem thyroid dose limit.

Locked Rotor: This event was evaluated using the base analysis from Reference 3 but with a primary to secondary leakage of 500 gpd for all steam generators (instead of the Technical Specification limit of 1440 gpd), and it was determined that a control room inleakage greater than 240 CFM was needed to exceed the 30 rem thyroid dose limit.

These bounding limits are applicable for two CRVS configurations (400 CFM filtered make-up and 1000 CFM recirculation, and $\geq$ 1500 CFM filtered make-up and no recirculation).

2. **Describe the analysis that was performed to demonstrate that if credit is taken for potassium iodide or respirators, the Control Room thyroid dose for the large-break LOCA is less than 30 rem even with an un-filtered inleakage of 10,500 CFM.**

Response

The large-break LOCA base analysis was re-run with no changes to the analysis inputs and assumptions but with thyroid doses being calculated. The resulting thyroid dose was 239.7 rem (234 rem from iodine and 5.7 rem from other nuclides). Given that there is credit for a factor of 10 reduction in thyroid dose associated with the use of potassium iodide (with the reduction applied only to the dose from iodine), the CR thyroid dose is reduced to 29.1 rem.

Alternatively, if respirator use is credited, the dose reduction factor identified in 10 CFR 20, Appendix A varies from 10 to 10,000, depending on the respirator design characteristics. Thus, the use of respirators would reduce the CR thyroid dose to 24 rem for a reduction factor of 10 and to as low as 0.024 rem for a reduction factor of 10,000.

Additional evaluations were performed using the base analysis to show that the inleakage of 10,500 cfm assumed for the large-break LOCA calculated thyroid dose to the Control Room operators bounds the dose that would result from any of the other design basis accidents (i.e., rod ejection, locked rotor, SGTR, steam line break, and small-break LOCA). In addition, the Control Room dose for the Fuel Handling accident would not exceed the 5.0 rem TEDE dose limit even with CR inleakage of 10,500 cfm.

These bounding limits are applicable for two CRVS configurations (400 CFM filtered make-up and 1000 CFM recirculation, and $\geq$ 1500 CFM filtered make-up and no recirculation).

3. **Address existing licensing-basis analyses with non-AST source term basis for dose analysis and**
   a. **identify the analyses and their locations in the licensing basis, and**
   b. **evaluate the thyroid dose contribution before and after CRVS in service.**

Response

3.a. UFSAR Table 14.3-17 reports Control Room doses for a large-break LOCA. USFAR Section 14.2.5.5 reports Control Room doses for a Steam Line Break.

3.b. These analyses assume that CRVS is in emergency mode as a result of a SI signal at the beginning of the event, thus there is no dose contribution before CRVS is in service to report.

References:

1) Entergy letter NL-04-138 to NRC, "Proposed License Amendment Regarding Control Room Ventilation System", dated October 26, 2004

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