

August 4, 2003

Mr. Fred Dacimo
Site Vice President
Entergy Nuclear Northeast
Indian Point Energy Center
295 Broadway, Suite 1
P.O. Box 249
Buchanan, NY 10511-0249

SUBJECT: INDIAN POINT ENERGY CENTER UNIT 2 - NRC SUPPLEMENTAL
INSPECTION REPORT 05000247/2003010

Dear Mr. Dacimo:

On June 20, 2003, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Indian Point Energy Center Unit 2. The enclosed inspection report documents the inspection findings, which were discussed on June 20, 2003, with yourself and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel. Specifically, the inspection reviewed Entergy's actions in response to identification of deficiencies with the Central Control Room (CCR) West Wall, an issue determined to be of low to moderate safety significance (White). Additionally, the inspectors reviewed Design Basis Initiative work in the area of electrical distribution system and emergency diesel generators.

In our November 8, 2002, letter which forwarded the final white finding for the degraded CCR, we stated that our supplemental inspections of this issue would: (1) verify your corrective actions and extent-of-condition review for the fire walls; and (2) sample, for an extended time, other aspects of your design basis initiatives as documented in your Fundamentals Improvement Program. We consider your corrective actions and extent-of-condition review for the fire walls to be adequate; however, we believe continued NRC inspection is necessary to confirm the adequacy of your efforts to identify and correct the broader issues associated with design control related to past performance issues. We plan to continue with our sampling inspections in this area during the remainder of the current Reactor Oversight Process assessment period, culminating with the already scheduled Problem Identification and Resolution / Supplemental inspection in December 2003. Completing these activities with successful results, as well as continued progress in your DBI project, will permit closure of this finding.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response, if any, will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of

Mr. Fred Dacimo

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NRC's document system (ADAMS). ADAMS is accessible from the NRC website at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Brian E. Holian, Deputy Director
Division of Reactor Projects

Docket No. 50-247
License No. DPR-26

Enclosure: NRC Inspection Report 05000247/2003010
w/Attachments: Supplemental Information

cc w/encl:

G. J. Taylor, Chief Executive Officer, Entergy Operations
M. R. Kansler, President - Entergy Nuclear Operations, Inc.
J. Herron, Senior Vice President and Chief Operating Officer
C. Schwarz, General Manager - Plant Operations
D. Pace, Vice President, Engineering
R. Edington, Vice President, Operations Support
J. McCann, Manager, Nuclear Safety and Licensing
J. Kelly, Director, Nuclear Safety Assurance
J. Comiotes, Director, Nuclear Safety Assurance
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H. Salmon, Jr., Director of Oversight
J. Fulton, Assistant General Counsel, Entergy Nuclear Operations, Inc.
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C. Donaldson, Esquire, Assistant Attorney General, New York Department
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T. Walsh, Secretary, NFSC, Entergy Nuclear Operations, Inc.

cc w/encl (Cont'd):

D. O'Neill, Mayor, Village of Buchanan
J. G. Testa, Mayor, City of Peekskill
R. Albanese, Executive Chair, Four County Nuclear Safety Committee
S. Lousteau, Treasury Department, Entergy Services, Inc.
Chairman, Standing Committee on Energy, NYS Assembly
Chairman, Standing Committee on Environmental Conservation, NYS Assembly
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County Clerk, Westchester County Legislature
A. Spano, Westchester County Executive
R. Bondi, Putnam County Executive
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L. Puglisi, Supervisor, Town of Cortlandt
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Mr. Fred Dacimo

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No: 50-247

License No: DPR-26

Report No: 05000247/2003010

Licensee: Entergy Nuclear Operations, Inc.

Facility: Indian Point Energy Center

Location: Main and Bleakly Streets
Buchanan, New York

Dates: May 19 - 23 and June 16 - 20, 2003

Inspectors: R. Fuhrmeister, Senior Reactor Inspector
G. Morris, Reactor Inspector
L. James, Resident Inspector

Approved by: John F. Rogge, Chief
Electrical Branch
Division of Reactor Safety

Enclosure

SUMMARY OF FINDINGS

IR 05000247/2003-010, 5/19/03 - 5/23/03 and 6/16/03 - 6/20/03; Indian Point Energy Center Unit 2, Fire Protection, Problem Identification and Resolution.

The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG - 1649, "Reactor Oversight Process," Revision 3, dated July 2000.

Cornerstone: Mitigating Systems

This supplemental inspection was performed to assess Entergy's evaluation associated with the degraded condition of the Central Control Room West Wall. This performance issue was previously characterized as having low to moderate risk significance (White) in NRC Inspection Report 50-247/02-010. During this inspection, performed in accordance with Inspection Procedure 95001, the inspectors determined that Entergy performed a comprehensive evaluation of the degraded fire barrier wall. Entergy's evaluation identified the primary cause of the performance issue to be inadequate design and construction of the original wall in 1978. Contributing causes were identified as poor workmanship and inadequate quality control verification of the CCR wall at the time, and inaccurate design drawings and lack of "as-built" drawings for the wall, which prevented a comprehensive verification of the adequacy of the wall. The inspectors concluded that corrective actions and extent-of-condition review for the fire wall deficiencies were adequate; however, we believe continued NRC inspection is necessary to confirm the adequacy of your efforts to identify and correct the broader issues associated with design control related to past performance issues. Our sampling review, contained in the enclosed inspection report, of your Design Basis Initiative (DBI) project on an electrical analysis DBI task and on adequate closure of DBI tasks are examples of issues that need additional attention in the design control area.

Report Details

01 INSPECTION SCOPE

The U.S. Nuclear Regulatory Commission (NRC) performed this supplemental inspection to assess the Entergy Nuclear Operations, Inc. (Entergy) evaluation associated with the degraded condition of the Indian Point Energy Center (IPEC) Unit 2 Central Control Room west wall. This performance issue was previously characterized as "white" in NRC Inspection Report No. 50-247/02-10, and is related to the mitigating systems cornerstone in the reactor safety strategic performance area. Additionally, since this white finding is representative of the extensive work necessary in Entergy's Design Basis Initiatives (DBI), the inspection sampled several DBI issues.

02 EVALUATION OF INSPECTION REQUIREMENTS

02.01 Problem Identification

- a. Determination of who (i.e., licensee, self-revealing, or NRC) identified the issue and under what conditions.

The degraded condition of the Central Control Room (CCR) west wall was identified in February 2002. Entergy removed decorative interior wall panels during an effort to reduce air leakage to the CCR and improve heating, ventilation, and air-conditioning system performance. The condition of the wall was revealed when the interior decorative panels were removed.

- b. Determination of how long the issue existed, and prior opportunities for identification.

Entergy determined that the wall had been degraded since its initial construction in 1978. Entergy also determined that this is the first time that the interior trim panels had been removed from the Central Control Room walls. There were no prior opportunities to identify the condition.

The inspectors agreed with Entergy's evaluation.

- c. Determination of the plant-specific risk consequences and compliance concerns associated with the issue.

Entergy's evaluation assigned a change in core damage frequency of less than 1×10^{-6} per year to this condition. The inspectors reviewed Entergy's evaluation and assumptions and did not agree with the analysis. The NRC evaluation of the condition assigned a change in core damage frequency of approximately 2×10^{-6} per year, resulting in the NRC concluding the issue was of low to moderate risk significance (White).

The compliance concern previously identified and cited (NRC Inspection Report No. 50-247/02-10), was that Entergy did not implement and maintain in effect all aspects of the approved fire protection program.

02.02 Root Cause and Extent of Condition Evaluation

- a. Evaluation of method(s) used to identify root cause(s) and contributing cause(s).

To evaluate this issue, Entergy used events and causal factor analysis techniques. The inspectors determined that Entergy followed its procedural guidance for performing root cause analysis. The procedure required conducting interviews with key personnel and preserving evidence associated with the issue. Entergy successfully accomplished this by performing a destructive examination of the CCR west wall, conducting a records search to determine the contractor who erected the wall and what other work they performed, and inspecting other fire barrier walls in the plant.

- b. Level of detail of the root cause evaluation.

Entergy's root cause evaluation was thorough and identified the primary cause of the performance issue to be nonconformance of the original design and construction of the wall, in 1978, with the referenced Underwriter's Laboratory (UL) design specification U902. Contributing causes identified by Entergy included poor workmanship, inadequate quality control verification of the wall at time of construction, inaccurate design drawings, and lack of as-built drawings which may have prevented a comprehensive verification of the adequacy of the original wall.

- c. Consideration of prior occurrences of the problem and knowledge of prior operating experience.

Entergy's evaluation included a review to see if similar problems had previously been reported with masonry walls at the site or industry wide. No previous instances at IPEC were identified. One industry occurrence was identified which shared several common features: incorrect original fabrication, inaccessible since construction, and not in conformance with design drawings. The Entergy extent of condition evaluation took these factors into consideration.

- d. Consideration of potential common cause and extent of condition of the problem.

Entergy's evaluation considered the potential for common cause and extent of condition associated with the poor initial construction quality. Entergy tracked back through the existing records to determine whether the contractor had constructed other masonry walls at the station. Entergy inspected masonry fire barriers credited in the Appendix R analysis for fire area separation, credited in exemption requests, and those fire barriers which enclose the compartments of the highest risk Individual Plant Evaluation for External Events (IPEEE) fire scenarios.

Entergy identified missing mortar or bricks in walls between the 480V Switchgear Room and the Water Factory, between the Cable Spreading Room and the 12 and 22 Battery Rooms, and between the Central Control Room and the Field Shift Supervisor's Office.

02.03 Corrective Actions

a. Appropriateness of corrective actions.

Entergy took immediate actions to station fire watches to compensate for degraded fire barriers. Entergy brought in outside experts to assist in the evaluation of the condition, and develop plans to restore the fire barriers.

In addition, Entergy is continuing with its Fire Protection Improvement Plan, which is contained in Design Basis Improvement Project PI-1. The goals of this project include updating the post-fire safe shutdown analysis, full integration of the safe shutdown analysis into fire safe shutdown procedures, correcting identified deficiencies and weaknesses, resolving open items, clarifying organizational roles and responsibilities and clarifying program controls.

The inspectors determined that the proposed corrective actions were appropriate.

b. Prioritization of corrective actions.

Entergy's immediate actions restored compliance with the fire protection program plan. The construction activities to restore the degraded barriers were promptly initiated.

c. Establishment of schedule for implementing and completing the corrective actions.

The recovery of the degraded barriers was completed in October 2002.

Completion of the post-fire safe shutdown analysis is scheduled for October 2003. Integration of post-fire shutdown procedures is scheduled for completion in December, with full implementation of the procedures anticipated in Spring 2004.

d. Establishment of quantitative or qualitative measures of success for determining the effectiveness of the corrective actions to prevent recurrence.

Entergy performed a self-assessment to evaluate the response to the identified deficiencies in the CCR west wall. A CR was initiated to document the review, and evaluated whether corrective actions were being appropriately implemented, whether the repairs were effective in restoring the fire barriers to their design fire resistance rating, and whether the extent of condition review was adequate to ensure similar problems did not exist in other fire barriers.

03 PROBLEM IDENTIFICATION AND RESOLUTION SAMPLE

03.01 Annual Sample Associated With The Review of Design Basis Initiative Project Condition Reports

Reactor Safety Cornerstone - Initiating Events and Mitigating Systems

a. Inspection Scope

The inspectors reviewed Entergy's response to the past condition reports that documented problems related to the electrical distribution system, including the emergency diesel generators and circuit breaker malfunctions for a circulating water pump and the alternate shutdown system power supply to a service water pump, to determine the timeliness and effectiveness of corrective actions. The inspectors interviewed engineering and operations personnel, reviewed Entergy's procedural guidance and reviewed Entergy's corrective actions to ensure they had appropriately addressed the problems related to the adequacy of the calculations and analyses supporting the electrical distribution system.

The Design Basis Initiative (DBI) Project Plan initially had nearly 200 condition reports (CRs) with 300 corrective action assignments associated with the electrical distribution system. Some of the CRs dated back to 1996, and five of the 63 significance level (SL) 2 items dated back to 2000, and included questions on the degraded grid analysis. The inspectors sampled 11 of the significance level 2 (SL-2) CRs and found 5 still open. These CRs concerned degraded voltage, the DC electrical distribution system analysis, equipment ratings and protective device coordination.

b. Findings

As of June 16, 2003, Entergy had not fully addressed some of the electrical analysis questions raised during NRC inspections following the August 31, 1999, reactor trip and some questions raised during the NRC 95003 inspection as documented in reports 50-247/99-14 and 50-247/01-02.

Entergy needs to complete its updating of analyses to refine the margins of the capacity and capability of the onsite and offsite electrical power systems. Although known analysis errors and associated conservatism are not considered to be detrimental to the availability, reliability or capacity of the related mitigating systems, resolution of these discrepancies is important and has been slow. Entergy had previously initiated corrective actions that included reorganizing the DBI program and giving it more senior management visibility.

The inspectors also found that corrective actions associated with the emergency diesel generators had been closed to project change notices (PCNs) against the Diesel Generator Design Basis Document without resolving all technical questions. Additionally, corrective action assignments in CRs 2002-05377, 2002-05384 and 2002-05411 were closed in this manner on January 31, 2003, but at the time of the inspection

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the PCNs had not yet been written and existed only as tracking numbers in the PCN system. Entergy documented this issue in CR 2003-04245.

The adequacy of Entergy's corrective actions associated with design basis issues remains unresolved pending further NRC review of the completed electrical analysis to ensure adequate design margin is available and to review corrective actions to address the apparent programmatic problems associated with the closing of corrective actions to PCNs. **(URI 50-247/03-010-01)**

04 MANAGEMENT MEETINGS

Exit Meeting Summary

The inspectors presented their preliminary conclusions at a debriefing with station management on May 23, 2003.

The inspection results were presented to Mr. F. Dacimo and other members of Entergy staff at an exit meeting on June 20, 2003.

Several of the calculations reviewed were marked as proprietary. All proprietary material was returned to Entergy at the end of the inspection.

SUPPLEMENTAL INFORMATION

Key Points of Contact

Licensee Personnel

F. Dacimo, Vice President - Operations
C. Schwartz, Plant Manager
J. Ventosa, Engineering Manager
J. McCann, Licensing Manager
S. Wilkie, Fire Protection Supervisor
S. Jones, Fire Protection Engineer
K. Elliot, Fire Protection Engineer
G. Dahl, Fire Protection Engineer
T. Jones, Licensing Engineer
J. Bonner, Entergy Offsite Power Coordinator
R. Burroni, I&C Maintenance Supervisor
P. Gropp, DBI Program Manager
T. Klein, Senior Design Engineer
R. Milici, Electrical Design Engineering Supervisor
T. McCaffrey, Electrical System Engineering Supervisor
S. Petrosi, Design Engineering Manager
J. Quirk, DBD Coordinator
J. Raffaele, DBI Project Sr. Lead Electrical Engineer
J. Tuohy, Engineering Support Manager

NRC Personnel

J. Linville, Electrical Branch Chief
D. Frumkin, NRR Fire Protection Engineer
M. Salley, NRR Fire protection Engineer

Items Opened, Closed, or Updated

Open/Closed

50-247/03-010-01	FIN	Improper closure of condition reports associated with emergency diesel generator design basis document
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Opened

50-247/03-010-01	URI	NRC review of Entergy's completed corrective actions associated with condition reports related to electrical calculations within the design basis initiative project.
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Documents ReviewedCondition Reports

IP2-2002-05818	IP2-2002-06357	IP2-2002-06054	IP2-2002-05807
IP2-2002-06162	IP2-2002-02031	IP3-LO-2003-00351	IP2-1998-07874
IP2-1999-06643	IP2-2000-00978	IP2-2000-09088	IP2-2000-09884
IP2-2000-09892	IP2-2001-00559	IP2-2001-00750	IP2-2002-05411
IP2-2002-05377	IP2-2002-05379	IP2-2002-05384	IP2-2002-06578
IP2-2002-07521	IP2-2002-07918	IP2-2002-08627	IP2-2002-03284
IP2-2001-00591	IP2-2001-00149		

Work Orders

IP2-02-47724	IP2-02-02812	IP2-02-48053	IP2-02-50153
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Design Change Package

DCP-2002-05981-C, Rev. 1

Procedures

ENN-LI-102, Rev. 2, Corrective Action Process

SAO-112, Rev. 6, Condition Reporting Process (superceded by ENN-LI-102)

Design Basis Documents

Emergency Diesel Generators

480 Volt AC System

List of Acronyms

CCR	Central Control Room
CR	Condition Report
DBI	Design Basis Initiative
DC	Direct Current
IPEC	Indian Point Energy Center
IPEEE	Individual Plant Examination for External Events
NRC	Nuclear Regulatory Commission
NRR	Office of Nuclear Reactor Regulation
PCN	Project Change Notice
SL-2	Significance Level 2
SL-3	Significance Level 3
UL	Underwriters Laboratories
URI	Unresolved Item