

December 5, 2001

EA 01-294

Mr. Fred Dacimo
Vice President - Operations
Entergy Nuclear Operations, Inc.
Indian Point Nuclear Generating Units 1 & 2
295 Broadway, Suite 1
Post Office Box 249
Buchanan, NY 10511-0249

SUBJECT: INDIAN POINT 2 NUCLEAR POWER STATION—NRC INSPECTION REPORT
50-247/01-013; PRELIMINARY YELLOW FINDING

Dear Mr. Dacimo:

The enclosed report documents an inspection at Indian Point 2 during October 22 - 26, 2001, and in the regional office on November 5, 2001, regarding operator crew failures during facility-administered annual licensed operator requalification examinations. The findings of this inspection were discussed at an exit with you and members of your staff on October 26, 2001. This letter also acknowledges receipt of your November 5, 2001 letter providing your bases for continued operation and compensatory measures taken to strengthen licensed operator performance. Furthermore, this letter notifies you of an operational evaluation that we intend to conduct to verify effectiveness of these measures.

This inspection was an examination of 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. Inspection activities consisted of independent assessment of licensed operators' performance, evaluation of scenario quality, evaluation of remediation, and interviews of members of your training and operations staff.

This report discusses a finding that appears to have substantial safety significance. It relates to multiple crews (four of seven or 57%) failing to pass facility administered annual requalification examinations. Using the Significance Determination Process (SDP), this finding was preliminarily determined to be Yellow, a finding with substantial importance to safety that will result in additional NRC inspection and potentially other NRC actions.

Following the requalification program test failures, you removed involved operators and crews from shift duties until remedial training and subsequent evaluations were completed. Later, on November 15, you informed us that, as part of on-going self assessments of your requalification program, one of two operating crews examined failed plant simulator training evaluations. This crew was one of the operating crews that had failed its annual examination. You again removed this crew from shift duties and you replaced several of the operators on the crew. You are providing remedial training for this restaffed crew and will complete performance evaluations before returning them to duty. Based on these results, you did a simulator evaluation of the other operating crew who had failed the annual test. This crew passed this evaluation.

One of our operator licensing examiner specialists has been on site, on three occasions, to

directly observe and assess key training and examination activities, including corrective actions you have initiated. Also, our resident inspectors continue to observe control room activities as part of our enhanced oversight program. They have verified that crew mentors you retained from outside organizations are continuously monitoring control room activities. While, following guidelines of our reactor oversight process, we initially did not have a basis to independently conduct operational evaluations following the failures on the annual tests, results from the subsequent training evaluation now lead us to conclude that such an independent evaluation is warranted. We plan to conduct this evaluation on December 7, 2001, to directly assess effectiveness of your crew remediation efforts. Additional short-term follow up activities will be determined following results of this evaluation and other, ongoing inspections of Indian Point 2 operations. Long-term follow up will be determined when we complete our final significance determination. There will likely be additional follow up inspections.

In this regard, we believe that we have sufficient information to make our final significance determination for the crew high failure rate issue. We understand from your letter of November 5, 2001, that you believe the high failure rate is a result of Entergy's use of grading standards that are more strict than those used by the NRC. You have the opportunity to either send us your position on the finding's significance and the basis for your position in writing (in addition to your letter of November 5, 2001) or request a regulatory conference to discuss your evaluation and any differences with the NRC evaluation. Please contact Richard Conte at (610) 337-5183 within 10 days of the date of this letter to inform the NRC of your intentions. If we have not heard from you within 10 days, we will continue with our significance determination and enforcement decision, and you will be advised by separate correspondence of the results of our deliberations on this matter.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosures will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm.html> (the Public Electronic Reading Room).

Should you have any questions regarding this report, please contact Mr. Richard J. Conte at (610) 337-5183.

Sincerely,

/RA/

Wayne D. Lanning, Director
Division of Reactor Safety

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

Enclosure: Inspection Report No. 50-247/01-013

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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: 50-247/01-013

Licensee: Entergy Nuclear Generation Company

Facility: Indian Point 2 Nuclear Power Station

Dates: October 22 - 26, 2001 (on-site)
November 5, 2001 (in-office)

Examiner: T. Fish, Operations Engineer, DRS

Approved by: Richard J. Conte, Chief
Operational Safety Branch
Division of Reactor Safety

SUMMARY OF FINDINGS

IR 05000247/2001-013, on 10/22-26/2001; Entergy Nuclear Operations, Inc., Indian Point 2 Nuclear Power Station. Crew high failure rate during annual facility administered licensed operator requalification examinations.

This inspection was conducted by a region based examiner. The inspection identified one Preliminary Yellow finding, which is not a violation. The significance of issues is indicated by their color (Green, White, Yellow, Red) using IMC 0609 "Significance Determination Process" (SDP). Findings for which the SDP does not apply are indicated by "No Color" or by the severity level of the applicable violation.

A. Examiner Identified Findings

Cornerstone: Mitigating Systems

(TBD) The examiner determined that the crew high failure rate during facility administered annual NRC requalification exams had substantial safety significance. The crew failure is more than minor (credible effect on safety) because the rate is greater than 20% and the deficiencies identified during the exams reflected the potential inability of the crew to take appropriate safety related actions in response to actual abnormal or emergency conditions. The issue had substantial safety significance because of the multiple crew failures in that four of seven crews (57%) failed to meet Entergy requalification program requirements. (Section R11)

Report Details

1. REACTOR SAFETY

R11 Licensed Operator Requalification (71111.11)

Cornerstone: Mitigating Systems

Background

The purpose of this inspection was to follow up on a facility licensee telephone report of October 18 which conveyed results of facility-administered annual operating tests required by NRC regulation 10 CFR 55.59. During the call, IP2 training staff reported that three of six crews had failed the dynamic simulator portion of the operating test. IP2 staff also indicated that the last crew, a staff crew, was to be examined the week of October 22, 2001.

a. Inspection Scope

During the week of October 22, 2001, when IP2 staff was scheduled to examine the final crew (seven crews, total), a Region I examiner was on site to independently evaluate exam results and assess the licensee's evaluation and remediation process in accordance with baseline requalification inspection procedure, 71111, Attachment 11. Using the guidance of Attachment 11, the examiner:

- (1) independently evaluated the staff crew tested on October 23 and 24, 2001;
- (2) evaluated all 2001 annual requalification exam scenarios for adequacy to ensure that: a) the crews who passed had equally challenging scenarios as the crews that failed; and, b) NRC staff understood the bases for the crews who failed;
- (3) conducted interviews to assess perspectives and elements of change as potential root causes and significance of the high failure rate in the area of simulator testing; and
- (4) assessed remediation with a focus on the operating crews that IP2 staff had failed, remediated, reevaluated, and subsequently returned to watchstanding duties.

b. Findings

Introduction:

A preliminary yellow finding existed based on the high failure rate of the crews, with four of seven crews failing a facility-administered annual simulator exam as a part of the licensed operator requalification training program.

Description:

As graded by Entergy training staff, the crew that was tested October 22-23 failed one of its simulator exams. The examiner's independent evaluation also failed the crew. The scenario involved events that led to station blackout and then required the crew to cool down the plant using the steam generator atmospheric dump valves (ADV's). The crew believed (incorrectly) that they were cooling down the plant using the ADV's, however the ADV's had actually drifted closed due to the loss of all operating air (which in turn was due to the station blackout). The crew did not correct this situation for at least 25 minutes, and consequently they did not effectively cool down the plant. Depressurizing the plant using intact steam generators was defined as a crew critical task, per the criteria established in the Examinations Standards, NUREG-1021. This crew failure, in addition to the three crews previously reported to have failed, resulted in four of seven crews failing a simulator exam. A summary of the failures follows:

- | | |
|--------|--|
| Crew 1 | competency failure surrounding untimely manual safety injection when automatic function did not work. |
| Crew 2 | competency failure surrounding loss of an instrument bus and then not taking timely actions in order to restore equipment. |
| Crew 3 | critical task failure based on unsuccessful completion of transfer of ECCS suction from RWST to containment sump for cold leg recirculation mode of cooling. |
| Crew 4 | critical task failure based on crew's failure to depressurize intact steam generators (the crew took at least 25 minutes to identify steam generator ADV's were not open). |

Ten of the forty-four operators making up the seven crews also failed as individuals based on some responsibility for the crew failures.

During the inspection week, facility staff also generated a preliminary review of completed simulator exams and noted that knowledge and ability (K/A) deficiencies observed during requalification exams were very similar to K/A deficiencies associated with actual plant events. Preliminarily, those K/A deficiencies were 1) use and adherence to procedures; 2) understanding plant/systems response; 3) diagnosis of events and conditions; 4) control board operations; and 5) reactivity control. The examiner independently observed the first three deficiencies during the simulator exam that resulted in the staff crew's failure the week of October 22-23, 2001.

Entergy staff generated a Significance Level 1 Condition Report, CR #200110167, to investigate the cause for high crew failure rate.

Analysis:

This issue is more than minor (credible effect on safety) because greater than 20% of the crews failed and the conditions found reflected the potential inability of the crew to take appropriate safety related actions in response to actual abnormal or emergency conditions.

The safety significance of the finding was determined using the matrix in Inspection Manual Chapter 0609, Attachment I, Operator Requalification Human Performance Significance Determination Process (SDP). The matrix was entered using the number of crews that took the annual operating test, 7, and the number of crews with UNSAT performance in the annual operating test, 4. Based on these numbers, the finding was characterized by the SDP as having substantial safety significance (i.e., greater than 50% failure, or Yellow, page 4, decision block 32).

Based on the percentage of individual failures (23%-10 of the 44 operators examined failed), the finding was characterized by the SDP as having very low risk significance (i.e., Green, page 1, decision block 9).

The examiner determined that the Yellow finding prevailed. The issue is of substantial safety significance because greater than 50% of the crews tested failed (as graded by the facility evaluators in accordance with the facility requalification program). We also noted the deficiencies identified during scenarios were evident in actual plant events that occurred during the past two years. (e.g., use and adherence to procedures, understanding plant/system response, and diagnosis of events and conditions). **(FIN 50-247/01-013-01)**

Enforcement:

10 CFR 55.59 requires, in part, that licensed operators pass an annual operating test; the rule does not specify pass/fail rates. If a failure occurs, the requirement is met by restricting the operator from licensed duties until the operator has been remediated and successfully retested. Therefore, the examiner did not identify any violations of regulatory requirements related to crew or individual high failure rate.

Additional Information

In accordance with Section -03 of Attachment 71111.11, General Guidance, NRC staff considered conducting "for cause" requalification exams or operational evaluations based on the Yellow finding.

"For cause" requalification exams

The examiner considered two factors in determining if there was a sound basis for NRC staff to administer "for cause" requalification exams. First, the examiner addressed whether IP2 staff had identified all operator knowledge and ability deficiencies (K/As), e.g., adherence to and use of procedures, understanding plant/system response, etc. Second, the examiner looked for evidence that the

requalification program itself was seriously deficient. The examiner noted the following:

- The new, diverse, and valid scenarios that were used during the 2001 annual requalification exams broadly sampled operator K/As that met or exceeded the NRC examination standards.
- Entergy staff review of plant events back to 1998 did not reveal additional K/A deficiencies.
- Application of conservative grading criteria in evaluating crew performance by the facility licensee.
- Critical and consistent evaluations of operator performance during annual operating tests gave the examiner confidence in the quality of Entergy training staff's evaluation abilities, based on documented results and independent review during the inspection week.
- Reliable exam administration gave the examiner confidence in the IP2 exam process.
- The walkthrough portion of the operating exam had a very good success rate: only 1 operator failed of 44 examined (this operator also failed the simulator test).
- The majority of the areas that the NRC staff would inspect within a requalification program (e.g., exam quality, exam administration practices, facility evaluation, conformance with license conditions, training feedback) were judged acceptable, based on a sample of those areas.

Determination: NRC staff determined that "for cause" requalification exams were unnecessary at this time because the staff most likely would not detect additional substantial K/A deficiencies not already identified by Entergy staff, and because elements of the requalification program for the most part were acceptable.

Operational evaluations

In determining whether NRC staff should conduct operational evaluations of IP2 crews, the examiner considered the following:

- Crews that passed the simulator exam had demonstrated proficiency on scenarios that met or exceeded NRC examination standards.
- Crews that initially failed the simulator exam received remediation in accordance with the IP2 operator requalification training program and were subsequently re-evaluated on scenarios that met or exceeded NRC examination standards.
- Application of conservative grading criteria in evaluating crew performance by the facility licensee.

- Of 67 crew critical tasks that were to be demonstrated during the simulator exams, operators missed only two - an error rate of about 3%.
- Entergy training staff had evaluated all crews, and the examiner understood the performance of all crews, based on licensee-documented evaluations.
- The facility's compensatory actions for crew failures were aimed at preventing known K/A deficiencies from causing major plant upsets. Compensatory actions included termination of two licenses, restriction of seven licenses from control room watch standing duties, postponement of remediation for five licenses (and, consequently, prohibition of those licenses from control room watch standing duties), and assignment of shift mentors to the control room watch.

Determination: Based on the results of the inspection, NRC-conducted operational evaluations were not necessary for all crews because: 1) IP2 staff had examined all crews on acceptable scenarios (including those used for reevaluation) and had evaluated crew performance to be satisfactory; and 2) IP2 compensatory actions appeared reasonable in order to minimize the effect of known K/A deficiencies.

40A6 Exit Meeting

The examiner and the Chief, Operational Safety Branch, Division of Reactor Safety, presented the inspection results at an exit meeting with Mr. Dacimo and other licensee staff at the conclusion of the inspection on October 26, 2001. The NRC staff stated they had no immediate safety concerns. They noted, however, that IP2's basis for continued plant operation and their process for identifying K/A deficiencies was under review. The NRC staff also noted the development of compensatory measures. No proprietary information was discussed.

In response to the above NRC staff comments at the exit meeting, IP2 senior management voluntarily submitted a letter dated November 5, 2001 (ADAMS Accession Number ML013190259). The letter adequately addressed: 1) the licensee's basis for continued operations in light of the knowledge and ability deficiencies found and that potentially the deficiencies continued to exist; 2) whether IP2 staff had identified additional generic knowledge and ability deficiencies, other than those previously discussed; and 3) compensatory actions being taken related to the known deficiencies if plant operations were to continue.

KEY POINTS OF CONTACT

Licensee

R. Allen	Nuclear Safety and Licensing
F. Dacimo	Vice President, Nuclear IP2
M. Kansler	Chief Operating Officer
E. Libby	Operations Training, IP2
J. McCann	Manager, Nuclear Safety and Licensing
D. Morris	General Manager, Quality Assurance and Licensing
T. Noonan	General Manager, Business Services
G. Schwartz	Director, Design Engineering
W. Smith	Operations, IP2
N. Stuart	Training Manager, IP2
L. Temple	Plant Manager, IP2
J. Wheeler	Training Manager, IP3

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened:

FIN 50-247/01-013-01	Proposed Yellow finding due to high crew failure rate during the 2001 annual requalification simulator examinations.
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