



Entergy Nuclear Northeast  
Entergy Nuclear Operations, Inc.  
Indian Point Energy Center  
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January 18, 2002

Re: Indian Point Unit No. 2  
Docket No. 50-247  
NL-02-010

Mr. Wayne D. Lanning  
Director  
Division of Reactor Safety  
U.S. Nuclear Regulatory Commission  
475 Allendale Road  
King of Prussia, PA 19406

Subject: Response to Significance Determination Related to a Yellow Finding For  
Operator Annual Requalification Exam Failures (EA 01-294)

Dear Mr. Lanning:

This letter responds to your December 5, 2001, correspondence notifying Entergy Nuclear Operations, Inc. ("Entergy") of the decision to impose a "Yellow" finding related to the Licensed Operator Requalification ("LOR") annual dynamic simulator examination crew failures at the Indian Point Unit 2 facility. The purposes of this letter are to: 1) reiterate Entergy's position regarding the risk-significance of this matter; 2) inform you of the corrective actions taken and planned as a result of a completed root cause investigation; and, 3) inform you of the plan to restore the area of inspection<sup>1</sup> to achieve a "non-escalated" status input for the Mitigating Systems cornerstone.<sup>2</sup>

Entergy has reviewed the December 5th letter, including the attached inspection report, and understands that the NRC Staff is aware of Entergy's position regarding the differences in the crew competencies evaluation methods. Although Entergy does not agree with the Yellow finding for the reasons to be stated, we have waived our opportunity for a regulatory conference based on the NRC Staff's application of the Significance Determination Process ("SDP"), as provided in the current version of Manual Chapter ("MC") 0609, Appendix I.

<sup>1</sup> NRC Inspection Procedure 71111, Attachment 11 "Licensed Operator Requalification Program" (August 16, 2001).

<sup>2</sup> The NRC Enforcement Manual, NUREG/BR-0195, Rev. 3, Section 1.6, characterizes any Reactor Oversight Process significance determination resulting in a White, Yellow, or Red finding as an "escalated enforcement action."

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Entergy has initiated actions we believe will improve our LOR processes and results. We are confident that these actions will assure that were there to be any findings during future similar inspections, they would be “non-escalated.” Entergy believes that in this case the SDP did not accurately assess the actual risk-significance associated with the performance of its simulator crews. Entergy believes that the actual risk significance of the matter was lower, in that we held our operating crews to a higher standard than that required by the regulatory guidance document.<sup>3</sup>

## 1. Background

The annual operating examinations for the LOR program at Indian Point Unit 2 (“IP2”) were conducted as scheduled and concluded on October 23, 2001. Results of the operating examinations were that four of seven crews examined failed the simulator portion of the examination. Two of the crews failed scenarios due to missed “critical tasks” and the remaining two crews failed due to unsatisfactory crew competency assessments that were performed following, and specific to, each scenario. It is important to note that regulatory guidance provided in NUREG-1021, Revision 8, Examiner’s Standard (“ES”) 604, provides that the NRC standard is to assess competency on the basis of all the scenarios administered to each crew collectively, rather than after each individual scenario.<sup>4</sup> Entergy had elected to assess crew competencies following each examination scenario to hold its crews to a more rigorous standard.

Following a telephone notification from Entergy to the Region I office, on October 18, 2001, that three IP2 LOR crews had failed the simulator portion of the LOR annual exam, the NRC observed a scheduled staff crew examination during the week of October 22, 2001. That observation concurred with the IP2 training staff failing the crew due to missing a critical task during one scenario. As of October 23, all seven crews scheduled to take the annual requalification exam had completed the dynamic simulator portion of the examination. Although only two of the seven crews would have failed using the NUREG-1021, ES-604 criteria, four crews had, by Entergy’s more demanding standards, failed the dynamic simulator portion of the exam.

The NRC discussed the situation with IP2 management during an October 23, 2001, exit meeting and the inspectors characterized the result as a potential Yellow finding. The IP2 management team responded to the Region by letter dated November 5, 2001, which provided an explanation of the situation and why Entergy’s declaration of two crew competency “failures” was

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<sup>3</sup> NUREG-1021 “Operator Licensing Examination Standards for Power Reactors,” Rev. 8 (April 1999).

<sup>4</sup> “After administering the dynamic simulator scenario set as discussed in Section D, the NRC examiners and the facility evaluators independently evaluate the crew’s performance by completing a copy of Form ES-604-2.” NUREG-1021, Rev. 8, ES-604, Section E.1 (p. 6) *emphasis added*.

conservative, relative to standards set forth in NRC regulatory guidance. On December 5, 2001, the NRC issued its preliminary determination of a Yellow finding associated with the Mitigating Systems cornerstone, pursuant to IP 71111, Attachment 11, and MC 0609, Appendix I, for a 57% failure rate among examined simulator crews during the 2001 annual LOR operating exams. Among the items discussed during a teleconference on December 12, 2001, between members of the IP2 management team and NRC Region I, were actions relative to re-evaluation of individuals and crews and the NRC oversight of those re-evaluation efforts. Entergy sent the NRC a letter on December 13, 2001, which memorialized that discussion.<sup>5</sup>

## 2. Entergy's Position Regarding Risk Significance

Entergy maintains that, due to our more challenging crew competency grading practices, the performance of one (and possibly two) of the four failed crews would not have been determined to be "failures" under the NUREG-1021, ES-604 standards and, therefore, does not result in a condition warranting a Yellow safety significance. NUREG-1021, Rev. 8, ES-604, Section E.1 states that "[a]fter administering the dynamic simulator scenario set as discussed in Section D, the NRC examiners and the facility evaluators independently evaluate the crew's performance by completing a copy of Form ES-604-2."<sup>6</sup> Because the term "scenario set" is used, the competency evaluation performed by NRC evaluators would be done following observation of all of a crew's simulator examination scenarios (typically two scenarios). Therefore, shortcomings in one scenario may be offset by averaging that observation with a stronger performance in the same category in another scenario.

In order to challenge our operators to achieve a higher level of performance (exceeding the minimum requirements imposed by the NRC), Entergy performs these competency evaluations following *each* examination scenario, thereby eliminating the moderating effect of averaging. The NRC Staff applied the results of Entergy's more conservative approach, in combination with two crew failures due to "critical tasks," directly to the SDP related to LOR exam results (MC 0609, Appendix D), resulting in an unwarranted Yellow terminus.

Subsequent investigation revealed that if the crew competencies had been evaluated based upon the "simulator set," as described in the regulatory guidance, then one and possibly both of the crews failed due to "competencies" would have passed.<sup>7</sup> A failure of three of seven LOR crews

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<sup>5</sup> Subject to NRC acceptance of Entergy's response to the finding as described in this letter and based on actions resulting from the investigation, Entergy wishes to rescind its commitment to the items included in a December 13, 2001 letter. Letter from F. Dacimo to W. Lanning re: "Documentation of December 12, 2001, Telephone Conference between Entergy Nuclear Operations, Inc. and NRC," NL-01-148 (Dec. 13, 2001).

<sup>6</sup> *Id.*

<sup>7</sup> An independent assessment of the 2001 annual operating exam resulted in 5 of 7 crews passing. This assessment graded the crew competencies in a single evaluation for all

would have resulted in a White terminus using the MC 0609, Appendix I. A failure of two of the seven crews would have resulted in a Green terminus.

While MC 0609, Appendix I, provides significance determination for LOR-related findings, that document does not discuss what constitutes a "failure" for the purposes of applying the SDP guidance. It appears that the NRC perspective is that the licensee, using the applicable regulatory guidance, defines what constitutes a failure and the Staff will apply those results to the SDP. An important objective of the Reactor Oversight Process is to be objective and achieve consistency regarding evaluation of reactor licensee performance. Without a definition of what constitutes a failure for the purpose of applying the SDP, objectivity and consistency are undermined. Entergy's perspective is that our policy to strive for enhanced performance through application of more stringent requirements led to failures, and that the actual crew competencies were not of the risk significance commensurate with a Yellow finding.

Regarding regulatory compliance, 10 C.F.R. § 50.54(k) lists the required number of licensed operators that must be assigned to monitor plant conditions during the various modes of operation. Similarly, 10 C.F.R. § 55.53(h) places a condition on each Part 55 license requiring participation and completion of a requalification program as described in 10 C.F.R. § 55.59. At no time were any of these regulatory provisions violated. The NRC inspector cited no violation of any NRC regulations in the inspection report accompanying the December 5, 2001 letter.

Entergy maintains that the licensed operator performance at IP2 remains safe and continues to ensure the health and safety of the public. Crews staffing the IP2 control room were at all times qualified in accordance with the applicable regulations and regulatory guidance. Individuals were removed from licensed duties, examination performance remediation was performed in accordance with the regulatory guidance, and in some instances, licenses were revoked based on licensee identified criteria, as observed and commented on in the NRC inspection report.

The only guidance given discussing higher licensee standards for failing an operator or crew is in a section that discusses considerations to be assessed by the NRC when evaluating the overall LOR program. NUREG-1021, ES-601, item D.3.b.(7) contains the following paragraph:

The NRC also expects the facility program to explicitly link an operator's examination failure with *unsafe* performance. In this way, all facility failures and NRC failures will agree. In certain instances, the facility licensee's program may have operator performance standards that are *not* explicitly linked to unsafe performance, and thus do not meet the thresholds stated in this standard for the operator to fail the examination. In such instances, the facility licensee is expected to differentiate failures in which the operator performed at an unsafe level from those in which the operator failed for reasons other than safety (i.e., not meeting higher facility-established performance standards). In these instances,

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scenarios in the set, as the NRC evaluators would have done, pursuant to ES-604, Section E.1.

operators identified as failing for safety reasons would also be considered NRC failures.

No further guidance is given regarding how these differences in pass/fail criteria will be applied to inspections or evaluations that consider the total number of examination failures.

Accordingly, the NRC acknowledges that there may be licensee-determined “administrative failures,” yet guidance related to how these differences in failure classifications should be applied to NRC programs and requirements remains unclear. Entergy notes that this incident is the first application of the LOR SDP (Appendix I) that has resulted in a Yellow terminus since the inception of the revised Reactor Oversight Process in April of 2000. Therefore, additional NRC review of this SDP may be warranted.

### 3. Investigation Results and Corrective Actions

Corrective Action Program documentation of this issue was initiated by IP2 personnel on October 24, 2001. The applicable Condition Reports were consolidated and assigned a significance level requiring a root cause investigation. The root cause investigators performed a detailed review and analysis of LOR exam results, not limited to dynamic simulator evaluations, and also reviewed crew performance during the 2001 training sessions prior to the annual exams. Although the investigation team identified the requalification program at IP2 as satisfactory, their intrusive assessment of the issue identified several opportunities for enhancement. A summary of the causal factors were:

- Prior remediation efforts were narrowly focused;
- Some areas of training have been enhanced, but instructional delivery, trainee evaluation, and feedback incorporation processes need to be improved;
- High turn-over of Operations Training management and instructional staff; and
- Limited Operations Department involvement with Operations Training activities and initiatives.

Entergy has already devoted significant resources to understand this issue. Further, the actions resulting from the in-depth investigations will be broad, resource intensive, and beneficial to the station and its performance.

### Interim Corrective Actions

Interim corrective actions completed, external to the root cause investigation, include: an independent assessment of the 2001 Annual Operating Examination results; the oversight by NRC of certain remedial exam scenarios, as discussed in the December 13, 2001 letter from Entergy to the Region; and a self-assessment related to the implementation of the LOR training program. Remediation of individuals and crews was required prior to allowing individuals to perform licensed duties, pursuant to the requirements of 10 C.F.R. Part 55 and its regulatory guidance. Additionally, Entergy placed crew mentors from outside organizations in the control room on a continuous basis to monitor control room activities.

A unique circumstance arose following the remediation of one of the four failed crews. As part of the on-going investigation, the performance history of the operating crews were reviewed and analyzed. This analysis revealed that one of the shift crews, Crew D, exhibited a history of marginal performance. Crew D was then given additional simulator evaluation and failed one of the additional scenarios. Based on this insight and the ongoing investigation efforts, Entergy decided to take personnel performance-related action, rather than pursuing additional remediation. Actions were taken to reconstitute the crew, and Entergy, with the NRC evaluated the new crew prior to their assuming licensed duties. Entergy emphasizes that the actions associated with Crew D are considered personnel performance issues rather than a reflection on the efficacy of the IP2 remediation program. These actions associated with Crew D are reflected in the NRC inspection report as one of several bases for not requiring NRC-administered operational evaluations. To further support the adequacy of the Entergy remediation program, ten additional dynamic simulator scenarios were performed to evaluate one entire crew and four individual operators. All of the scenarios were observed by a NRC examiner and were satisfactory.

Some of these interim corrective actions were acknowledged in the December 5, 2001, preliminary finding letter, in which the NRC Staff stated that an operator licensing specialist had observed and assessed key training and examination activities at IP2. Similarly, NRC resident inspectors monitored corrective actions and control room activities to ensure adequate licensed operator performance. The inspection report accompanying the December 5, 2001 letter documented favorable findings regarding the standards and integrity of the IP2 licensed operator requalification program. The report stated that the Region's examination specialist determined that NRC "for cause" requalification examinations were not necessary because the NRC Staff "most likely would not detect additional . . . deficiencies not identified by the Entergy staff, and because elements of the requalification program for the most part were acceptable."<sup>8</sup> Additionally, that same report stated:

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

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<sup>8</sup> NRC Inspection Report 050000247/2001-013, page 4.

crew performance to be satisfactory; and 2) IP2 compensatory actions appeared reasonable in order to minimize the effect of known K/A deficiencies.<sup>9</sup>

Therefore, the NRC Staff indicated its satisfaction with the overall rigor of the IP2 requalification program, as well as its satisfaction with the interim corrective actions.

#### Corrective Actions Taken Resulting From the Root Cause Investigation

Corrective actions already taken as a result of the root cause investigation include the implementation of a Training Management Team consisting of a variety of members that will assure more effective training. An additional completed action was the removal of a hiring freeze imposed on the training department by the previous plant owner. The hiring freeze had resulted in a heavy reliance on temporary contract instructors. Entergy believes that permanent instructors will have more ownership of the program and will prove to be beneficial in professional training development and instructional effectiveness.

Additionally, the Operations Manager conducted several separate two-day sessions with four of the five operating crews (one crew was already attending the more extensive 4 week training discussed below) in which he emphasized Entergy's operator performance expectations. These standards include procedure use and adherence, control board operations, and reactivity management.

Finally, the IP2 management team identified IP2 personnel who have both prior operational experience and who have the desire and abilities to become effective contributing members of the Operations Training organization, and made job offers to those individuals. The effectiveness of these completed corrective actions will be evaluated by means of follow-up assessments.

#### Corrective Actions Planned Resulting From the Root Cause Investigation

Corrective actions planned include the continued enhancement of an organization that is more supportive of training excellence. An Operations training succession plan will be developed to ensure that talent and expertise are maintained within the organization. The training department will develop and schedule high intensity LOR training to improve operator understanding of Emergency Operating Procedures ("EOPs"), including EOP bases, and Abnormal Operation Instructions. This training will occur over a 4 week period for each crew and address procedure use and adherence, understanding plant and system response, diagnosis of events, control board operations, and reactivity management.

Revisions to the LOR annual examination process will be made, commensurate with the guidelines provided in NUREG-1021. The IP2 Operations department will also include "training performance" as one of the elements measured as an operations crew performance indicator.

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<sup>9</sup> *Id.* at 5. The acronym "K/A" stands for "knowledges and abilities."

This action will aid in detection and publication of declining crew performance throughout the year. Plant personnel will also perform a review of the task-to-training matrix for operator training programs and initiate the necessary enhancements as appropriate. Entergy will identify marginal performers (licensed holders exhibiting marginal performance), based on heightened expectations from the Operations department, and will develop and implement performance improvement plans for the marginal performers. Additionally, Entergy will benchmark industry remediation processes and identify enhancements and improvements. Training department management has emphasized the expectation that remediation will be closely tailored to meet the identified training needs of individuals and crews. This includes where appropriate, review of performance history. These corrective actions will help assure continued competent control room operational skills.

Operations training will pilot some "closed-reference" questions for use in its weekly LOR examinations. Additionally, Operations training will pilot the use of "oral boards" as part of a current Shift Technical Advisor initial training course and will later assess the feasibility of oral boards for use in other Operations initial training programs.

These actions summarize the major enhancements planned to improve operator training efforts. There are over 80 individual action items resulting from the root cause. These actions are being taken to enhance the cognitive training level of Operations personnel. Entergy believes that these actions will result in improved performance in both plant operations and in the results of the annual LOR examinations. Many of the actions will be completed within the next few months, with the most remote scheduled action (e.g., a long-term assessment) being planned for September 2002.

#### 4. Plan to Restore Cornerstone Input to "Non-Escalated" Status

Entergy has initiated action to restore conditions related to future LOR inspection results to "non-escalated" conditions. Specifically, initiatives by Entergy include sweeping personnel, facility, and programmatic changes, as mentioned in the previous discussion of corrective actions. A significant amount of time, effort, and resources have already been devoted to this issue. A Training Improvement Plan developed by Entergy, which is consistent with the actions stated in the root cause investigations, will assure continued devotion of efforts and resources to preclude recurrence of adverse LOR exam results.

Entergy views any inference regarding the competency of its staff as a serious matter. The corrective action, which better aligns the ENTERGY LOR examination evaluation practices with those used by the NRC alone, would have precluded the potential Yellow inspection finding. Using the results from its 2001 LOR examinations, Entergy broadened the scope of its review and resulting corrective actions. We have already implemented some introspective and significant corrective actions to ensure training at a higher cognitive level will be provided for our operators. Similarly, we have chosen to enhance all aspects of operator training and evaluation, rather than focus only on obtaining more favorable examination results. These actions are reflected in our personnel, facility, and programmatic changes, as summarized above. The creation of the Training Improvement Plan has heightened the awareness of the IP2 plant

management teams and the on-going actions have raised this issue to the forefront of the IP2 management priorities. Therefore, Entergy is confident that our actions will restore conditions related to future LOR inspection results to "non-escalated" conditions.

## 5. Conclusion

Entergy believes that licensed operator performance at Indian Point Unit 2 continues to ensure the health and safety of the general public and is in compliance with all legal and regulatory requirements. At no time did operation of the facility violate the requirements of 10 C.F.R. § 50.54(k) and 10 C.F.R. § 55.59. Corrective actions will ensure that the finding made by the NRC Staff will not recur and those actions will benefit the site by enhancing the overall operator training program, which will lead to optimal control room crew performance.

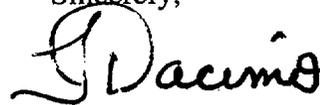
Entergy has declined a Regulatory Conference on this matter. This letter serves to inform you that the planned actions to restore the inspection finding to a non-escalated status are already underway and Entergy is confident that future inspection findings, if any, will be more favorable. Accordingly, this letter also serves as a response to the preliminary Yellow finding because it contains:

- The reason for the finding;
- The corrective steps that have been taken and the results achieved;
- The corrective steps that will be taken to avoid future findings; and
- The date when full compliance will be achieved.

Commitments made by Entergy in this letter are provided in the Attachment to this letter. Subject to your acceptance of Entergy's actions in response to the finding, Entergy wishes to rescind its commitment to the actions included in a December 13, 2001, correspondence to you.<sup>10</sup>

Should you or your staff have any questions regarding this matter, please contact me or Mr. John McCann, Manager - Nuclear Safety & Licensing, at (914) 734-5074.

Sincerely,



Fred Dacimo  
Vice President - Operations  
Indian Point 2

Attachment

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<sup>10</sup> Letter from F. Dacimo to W. Lanning re: "Documentation of December 12, 2001, Telephone Conference between Entergy Nuclear Operations, Inc. and NRC," NL-01-148 (Dec. 13, 2001).

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Attachment

Regulatory Commitments

Entergy Nuclear Operations, Inc.  
Indian Point Unit No. 2  
Docket No. 50-247

### Regulatory Commitments

The following list identifies those actions committed to by Entergy Nuclear Operations Inc. in this document. No further regulatory commitments are contained herein.

Commitment	Due Date
An Operations training succession plan will be implemented to ensure that talent and expertise are maintained within the organization.	September 18, 2002
Operations Training will develop and schedule high intensity LOR training to improve operator understanding of Emergency Operating Procedures ("EOPs"), including EOP bases, and Abnormal Operation Instructions. This training will occur over a 4 week period for each crew and address procedure use and adherence, understanding plant and system response, diagnosis of events, control board operations, and reactivity management.	August 30, 2002
Conduct a review of enhancements and improvements in the remediation policies and procedures. Revise procedures to incorporate "Best of Best" processes.	June 30, 2002