

**Questions and Answers related to issuance of the
Staff Review of OIG Report on the NRC's Response to the Steam Generator
Tube Failure at Indian Point 2 and Related Issues**

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Q1. Why was the review conducted?

By memorandum dated August 30, 2000, Chairman Meserve directed a review and analysis of the issues raised in the report from the Office of the Inspector General (OIG) titled "NRC's Response to the February 15, 2000, Steam Generator (SG) Tube Rupture at Indian Point Unit 2 Power Plant," dated August 29, 2000. The Chairman also requested that the staff provide recommendations for improving NRC processes, as may be warranted, and provide a schedule for implementing them. This memorandum provides the results of our review and analysis and the recommendations we plan to pursue to improve our processes.

Q2. What were the OIG's findings?

The first finding in the OIG report is titled "NRC's Oversight of Events Leading Up to the February 15, 2000, SG Tube Rupture at IP2." Two issues are involved: (1) the NRC did not conduct a technical review of the licensee's IP2 SG inspection report dated July 29, 1997, at the time it was submitted because the staff is not required to conduct such a review; and (2) the NRR review of the licensee's 1999 amendment request to extend the SG inspection interval was not adequate.

The OIG report's second finding was titled "NRC Oversight of IP2 Emergency Preparedness Issues." Three EP issues are involved. First, the NRC decided that allowing IP2 time to correct its deficiencies outweighed the benefit of increasing NRC oversight.

The second EP issue is that NRC inspectors had concerns about licensee onsite performance during EP exercises since 1998, and that recurring uncorrected weaknesses appeared to play a role in IP2's emergency response performance during the February 15, 2000, event.

The third issue in the EP area was that communication between the county emergency operation centers (EOCs) and the NRC was nonexistent. Also, disjointed information and misinformation from IP2 during the February 15, 2000, event adversely impacted the offsite EP process.

Q3. Does the NRC staff agree with the findings?

The first finding in the OIG report is titled "NRC's Oversight of Events Leading Up to the February 15, 2000, SG Tube Rupture at IP2." Two issues are involved: (1) the NRC did not conduct a technical review of the licensee's IP2 SG inspection report dated July 29, 1997, at the time it was submitted because the staff is not required to conduct such a review; and (2) the NRR review of the licensee's 1999 amendment request to extend the SG inspection interval was not adequate.

(1) Licensees' technical specifications typically require that reports summarizing the results of their steam generator inspections be provided to the NRC within 12 months of completing the SG inspections (the IP2 technical specifications require them to be submitted within 45 days). These reports typically provide a summary of inspection scope and techniques in addition to tables of tubes plugged and the reasons for

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plugging. The summary reports usually do not contain an assessment of tube integrity. These reports provide limited information because when they are submitted, the outage is complete and the plant is operating. Consequently, the staff normally does not review these reports, and as indicated in the OIG report, the staff did not review the IP2 summary report for the 1997 SG inspections.

(2) Although the NRC review of the amendment request to extend the SG inspection interval could have been more thorough, we disagree that the review was inadequate because the scope and depth of the review conformed to staff guidance and was commensurate with the level of technical complexity and safety significance of the licensee's request.

The OIG report's second finding was titled "NRC Oversight of IP2 Emergency Preparedness Issues." Three EP issues are involved.

The first OIG issue in the EP area stated the NRC decided that allowing IP2 time to correct its deficiencies outweighed the benefit of increasing NRC oversight.

This conclusion appears to have been taken out of context from the notes of the 1998 senior management meeting (SMM) (page 12 of OIG report). The SMM notes referred to agency actions on overall IP2 deficiencies, not to EP specifically. The NRC increased oversight in the EP area as a result of inspection findings as early as 1998. As noted in the OIG report on page 25, supplemental NRC actions were taken in response to the 1998 full participation exercise.

The second EP issue is that NRC inspectors had concerns about licensee onsite performance during EP exercises since 1998, and that recurring uncorrected weaknesses appeared to play a role in IP2's emergency response performance during the February 15, 2000, event.

We agree with the OIG conclusion. IP2's EP program has been subject to additional NRC inspection due to performance issues during recent years. OIG's conclusions overall are consistent with the staff's views and inspection results.

The third issue in the EP area was that communication between the county emergency operation centers (EOCs) and the NRC was nonexistent. Also, disjointed information and misinformation from IP2 during the February 15, 2000, event adversely impacted the offsite EP process.

Regarding communication between the EOCs and the NRC, the primary communications during an event are from the utility (licensee) to the State and county EOCs. The NRC normally communicates directly with State officials in the State EOC. The NRC does not normally communicate with the local (county) EOC, but relies on the State as the single point of contact. During the February event, the NRC gave State officials in the State EOC in Albany information on plant conditions and event response actions and updated the information as it became available from the licensee. NRC communications during the event were in accordance with the NRC Incident Response Plan (NUREG-0728) and consistent with the NRC's incident response procedures as well as the State of New York and county emergency response plans.

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Regarding the second communication concern, inconsistent dissemination of information to the media and a local official during the event was cited by the NRC as a violation of NRC requirements. OIG's conclusions are consistent with the staff's views and inspection results regarding this concern. Although NRC inspections noted EP performance deficiencies over the 2-year period referenced by the OIG, both NRC and FEMA continue to sustain their findings that the onsite and offsite EP programs provided reasonable assurance that the public health and safety would be protected in a significant event. As directed by the new inspection program, the staff will conduct followup inspections in this area to verify licensee corrective actions.

Q4. The OIG report states that "had the NRC staff or contractor's with technical expertise evaluated the 1997 results of the IP2 steam generator inspection, the NRC could have identified the flaw in the U-bend of row 2, column 5, in steam generator number 24 that was indicated in the inspection report. This flaw, which was recently determined to be nearly 100 percent through the tube wall in 1997, was the cause of the February 15, 2000, IP2 steam generator tube rupture". Does the staff agree?

We disagree. The results of the licensee's 1997 steam generator inspections were provided to the staff in an inspection report from the licensee dated July 29, 1997, and as stated previously, the NRC did not review this report. However, this summary report did not provide information identifying the flaw in the U-bend of the row 2, column 5 tube in SG 24 because the licensee's inspections did not identify the subject defect in 1997. The existence of the flaw that led to the tube failure was only discovered after the February 2000 tube failure when a detailed re-review of the 1997 eddy current test data was performed at the location at which the failure occurred. The 1997 summary inspection report did identify a U-bend defect in a different tube in steam generator 24 and this tube was plugged. However, in 1997 the licensee was not aware of the flaw that led to the tube failure, and the staff could not have identified the flaw in the U-bend of the row 2, column 5 tube in SG 24 based on the information provided by the licensee in 1997.

Q5. Should specially trained NRC staff or contractors have identified the flaw that led to the February 2000 tube failure if they had reviewed and interpreted the actual or "raw" eddy-current test data taken by the licensee during the 1997 inspection.

Any conclusions in this regard must be recognized as purely speculative. Moreover, there are serious practical implications regarding any suggestion that NRC staff should bear the responsibility of a complete review of licensee eddy current data. The "raw" eddy current data consists of huge amounts of digitized electronic data. These data are not submitted to NRC; they are maintained on the licensee's site. Review of this data during a steam generator inspection requires a large number (a dozen or more) of highly specialized analysts working on the order of person-weeks, depending upon the scope and complexity of the inspection. In addition, there are usually many plants performing steam generator inspections at the same time during plant refueling outages which are normally conducted during the spring and fall time periods when demand for electrical power is low. The NRC provides training on the review and interpretation of eddy-current data to the NRC staff involved in steam generator activities and maintains specialized contractor support in this area. This training and contractor support allows for selected, sampling reviews of steam generator inspection data, and as part of our lessons-learned from the IP2 tube failure, we plan to reassess the best approach to applying

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NRC resources in this area. However, it is not practical for the NRC staff to perform comprehensive data reviews. The responsibility for performing effective steam generator inspections is, and should remain, the licensee's.

Q6. How is this document related to the SG Task Group report?

The IP2 SG tube failure lessons-learned task group reviewed the OIG report and considered the OIG findings that were within the scope of the task group's charter. The task group's report Q&As are attachment 1 to this Q&A document.

Q7. How is this document related to the IP2 EP Followup Inspection Report, final significance determination and notice of violation (NRC inspection report 05000247/2000-006)?

Some of the EP issues raised in the OIG report were previously discussed in the Q&As associated with these issues, which is attachment 2 to this Q&A document.

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**Questions and Answers related to issuance of the
Indian Point 2 Steam Generator Tube Failure Lessons-Learned Report**

Q1. Why was the Indian Point 2 Steam Generator Tube Failure Lessons-Learned Report written?

On February 15, 2000, a single tube in one of the four steam generators (SGs) at Consolidated Edison's (Con Ed's) Indian Point 2 (IP2) plant failed, leading to a transient and shutdown of the reactor. The tube failure consisted of a through-wall crack in one of the 3,260 tubes in one of the SGs that allowed reactor cooling water to flow through the crack into the steam generating side of the SG. The event resulted in a minor radiological release to the environment that was well within regulatory limits.

As part of the overall evaluation of the IP2 SG tube failure event, the NRC's Office of Nuclear Reactor Regulation (NRR) determined that the NRC staff should perform an evaluation of the lessons-learned from the event. The recommended approach and charter for this effort was provided in a memorandum from Samuel J. Collins to William D. Travers, dated May 24, 2000. This memo is publically available on the NRC web-site at <http://www.nrc.gov/NRC/REACTOR/IP/index.html> and in ADAMS at Accession No. ML003717020).

Q2. Who wrote the report?

The report was written by the Lessons-Learned Task Group. The Task Group was formed in accordance with the charter and consisted of staff from NRR, the Office of Research (RES), and Region I. Support was provided by the Office of General Counsel.

Q3. What was the objective of the report?

The objective of the lessons-learned report was to conduct an evaluation of the NRC staff's technical and regulatory processes related to assuring SG tube integrity in order to identify and recommend areas for improvements applicable to the NRC and/or the industry.

Q4. What was the scope of the Task Group review?

The scope of the Task Group review included technical issues and regulatory process issues related to assuring steam generator tube integrity. Conclusions and recommendations were developed based on reviews of documentation and discussions with NRC staff, NRC SG expert consultants, nuclear industry representatives involved in SG programs, and Con Ed staff. Public input was not sought as part of the Task Group effort based on the understanding that the report and other efforts would be integrated into an activity that would allow for input from a broad range of stakeholders.

The documentation that the Task Group reviewed included IP2 plant-specific SG documentation (e.g., Con Ed SG examination results, NRC inspection reports, NRC/Con Ed correspondence, IP2 Technical Specifications), NRC generic SG-related documents (e.g., Information Notices, Generic Letters, Regulatory Guides, NUREG's, inspection procedures), and nuclear industry generic SG-related documents (e.g., NEI, EPRI).

Technical issues that the Task Group reviewed included:

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- 1) Risk insights associated with SG tube failure on both a plant-specific basis for the IP2 event and on a generic basis;
- 2) Con Ed's SG tube examination methods and practices;
- 3) Con Ed's SG condition monitoring and operational assessments;
- 4) Con Ed's implementation of SG regulatory requirements;
- 5) Con Ed's root cause evaluation associated with the tube failure event and the associated NRC Special Inspection Team report; and
- 6) Industry guidelines for SG inspection and assessment.

Regulatory process issues that the Task Group reviewed included:

- 1) The licensing review process associated with the NRC issuance of an IP2 license amendment that allowed a one-time extension of the SG inspection interval;
- 2) The NRC's oversight process and inspection program in the area of inservice inspection that relate to the SG tube examinations; and
- 3) The NRC's endorsement of industry guidelines.

The Task Group effort did not consider IP2 SG issues being addressed by other regulatory processes, such as a 2.206 petition or a differing professional opinion. Also, the Task Group review did not include NRC and Con Ed follow-up of the event that was not specifically related to SG tube integrity, such as emergency planning and degraded equipment issues. The Task Group did not evaluate Con Ed performance relative to regulatory requirements.

Q5. What are the major conclusions/lessons-learned in the report?

The major conclusions/lessons-learned reached by the Task Group include the following:

- 1) The IP2 tube failure resulted from degraded conditions allowed to exist in the SGs during the operating cycle. Con Ed's SG tube integrity program and QA program were deficient and did not detect the degraded conditions. These tube conditions presented a safety concern because of a reduction in safety margin and an increased risk of SG tube rupture during IP2's operating cycle 14.
- 2) Communicating the safety significance of the IP2 event is difficult. Notwithstanding the loss of safety margin, IP2 is designed to mitigate the effects of SG tube failure or tube rupture, IP2 shut down safely following the tube failure, there was no measurable radioactivity offsite above normal background levels, and the event resulted in no adverse consequences to the public health and safety.

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- 3) Weaknesses in Con Ed's implementation of the industry guidelines, combined with shortcomings in the technical guidance itself, contributed to the situation encountered at IP2.
- 4) During the 1997 SG eddy current examination by Con Ed, a defect caused by primary water stress corrosion cracking (PWSCC) was identified for the first time in a tube similar in type and location to the tube that failed at IP2, and Con Ed did not effectively evaluate the susceptibility of similar tubes to this degradation during the upcoming operating cycle.
- 5) During the 1997 SG examination, a form of degradation called tube denting was identified when restrictions were encountered as the eddy current probes were inserted into the U-bend portion of similar tubes. Con Ed did not evaluate the potential for, and significance of, this degradation.
- 6) During the 1997 examination, significant eddy current signal interference (noise) was encountered in the data obtained from a number of tubes similar to the tube that failed, and Con Ed's program was not adjusted to compensate for the noise, particularly when the new PWSCC defect was found in this area of the SG.
- 7) Based on Task Group discussions with NRR staff and outside expert contractors, there were different views on whether the flaw in the tube that failed in February 2000 could have been detected by the eddy current analysts during the 1997 SG examination due to problems with the noise in the data, absent further actions that should have been taken by Con Ed to compensate for high noise.
- 8) The significant conclusions from the Task Group review of the licensing review process associated with a Con Ed amendment request to extend the SG inspection interval are as follows:
 - a) There was an opportunity for Con Ed during preparation of the amendment request and subsequent response to an NRC request for additional information (RAI) to recognize the significance of a new degradation mechanism that was observed during the 1997 SG examination in a tube similar to the one that failed in February 2000 (PWSCC at tube apex in a small radius U-bend).
 - b) In hindsight, there were two opportunities during the amendment review process for the NRC staff to find inadequacies in Con Ed's operational assessment (i.e., during review of the RAI response and during review of the licensee's 1997 SG tube examination report). However, it is not clear to the Task Group if further follow-up in either one of these cases would have yielded a different result (e.g., denial of the amendment request).
 - c) The IP2 SG tube failure approximately 8 months after the originally scheduled inspection date (i.e., less than the duration justified by the recapture of the 10 month wet lay-up period). Therefore, the SG inspection interval extension of approximately 2 months, associated with the issuance of the amendment, did not

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contribute to the tube failure event in February 2000. This conclusion is based on the fact that the tube failure took place in less than the number of effective full power days that was allowed between SG inspections. This is illustrated in the Appendix A timeline in the report.

- d) While the staff used existing NRC review guidance in performing the review, no specific guidance exists for SG inspection interval extensions, especially how to consider previous inspection reports, or how to consider or reference the inspection program.
- 9) The significant conclusions from the Task Group review of the NRC's oversight process and inspection program in the area of inservice inspection that relate to the SG tube examinations are as follows:
- a) The NRC's baseline inspection program does not include guidance on the scope and depth of NRC's inspection of licensee's SG tube examinations.
 - b) The NRR telephone calls (outage phone calls) with the licensees during the licensees' SG tube examinations can be effective, but are not formally included in either the licensing or inspection process.
 - c) Risk-informed thresholds have not been established in the Reactor Oversight Process (ROP) for either the baseline inspection program or the performance indicators (PIs) to identify adverse trends in primary-to-secondary leakage that warrant increased NRC interaction.
 - d) Risk-informed thresholds are necessary in the ROP to identify those plants experiencing a level of SG tube degradation that warrants NRC interaction above the baseline inspection program. However, the means to accomplish this have not been established either through the PIs or the significance determination process (SDP).

Q6. What are the major recommendations in the report?

The Task Group review resulted in the development of 36 recommendations as shown in Table 9-1 of the lessons-learned report. The major areas addressed in the recommendations include the following:

- 1) Con Ed must correct the deficiencies in its SG tube integrity program;
- 2) Industry should improve the EPRI guidelines;
- 3) Industry should improve the SG technical specifications;
- 4) Industry should improve the NEI 97-06 initiative;
- 5) The NRC should improve its SG oversight and inspection process;

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- 6) The NRC should improve its licensing review process;
- 7) The NRC should assign a high priority to its review of the NEI initiative and the associated EPRI guidelines;
- 8) The NRC should issue a generic communication regarding SG tube integrity program guidance; and
- 9) The NRC should improve risk communication to the public.

Overall, the Task Group believes that the lessons-learned from IP2 are important relative to assuring SG integrity and that the industry initiative should expeditiously incorporate the lessons-learned into the regulatory framework.

Q7. How will the recommendations be implemented?

The staff is developing an integrated action plan that considers all the SG generic activities. The action plan will address the input of the lessons-learned report as well as generic activities the staff had underway prior to the IP2 tube failure, specifically the NEI 97-06 steam generator industry initiative. The action plan will be made publicly available upon its completion.

Q8. Since many of the recommendations deal with issues that apply to the nuclear industry generically, why does the NRC feel that it is safe for other pressurized water reactors to operate before the recommendations can be implemented?

The staff has not been waiting for the results of the lessons-learned study to incorporate lessons learned from the IP2 SG tube failure in their review and inspection activities. Soon after the failure the staff requested that NEI take steps to ensure that lessons from IP2 would be addressed generically and factored into the fall 2000 SG inspections. NEI met with the staff on July 26, 2000, to discuss steps being taken and issued a letter to the NRC on October 6, 2000, that contains industry lessons-learned which were provided to PWR utilities for their action. The industry also took additional actions following the IP2 tube failure. Some of the plants with older SGs used the high frequency eddy current probe during inspections conducted last spring and this fall to help improve the inspections of the U-bend region of the tubes.

Also, the staff performs certain oversight functions to ensure that SG management programs are being implemented effectively. Specifically, the NRC performs on-site inspections and conducts phone calls with certain licensees in outages. Lessons-learned from the IP2 tube failure and related guidance for regional inspectors have been discussed during counterpart conferences between NRR and the regional inspectors and these inspectors have been focusing their baseline inservice inspections on SG issues related to the lessons from IP2. The NRR staff has continued to conduct phone calls with licensees to discuss the SG examination results and now asks licensees to discuss steps that they have been taking in response to the industry lessons-learned from the IP2 tube failure.

It should be noted the recommendations of the lessons-learned report concern many issues that are not new to the staff and the industry. Many of these issues are discussed in previously

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issued NRC staff documents, such as information notices, and in certain industry guidelines. The IP2 tube failure and the staff's lessons-learned report have resulted in an increased focus on the importance of improving the treatment of these issues in various guidelines and procedures. The framework for addressing some of these improvements is provided by the NEI 97-06 industry initiative that has been the focus of industry and NRC staff efforts during the past three years and that has already resulted in significant improvements in the industry SG management programs.

Finally, we should not lose sight of the fact that plants are designed and operated with defense-in-depth. Licensees follow tube inspection and maintenance procedures intended to ensure that safety margins against tube burst and leakage are maintained. Primary-to secondary leakage monitoring is continually performed to ensure that plants experiencing significant leakage are shut down. Also, plants are designed with safety systems to bring the reactors to a safe shutdown condition should a steam generator tube failure occur.

**Q9. Did the report address the review done by the NRC's Office of Research (RES)?
In addition, when will NRR formally respond to RES on the results of its review?**

Yes. Following the IP2 tube failure event, NRR requested RES to review the NRC safety evaluation associated with an IP2 license amendment that approved an extension to the SG inspection interval. RES provided the results of its review in a memorandum dated March 16, 2000. The Task Group Charter (see Q1) states that the results of the RES review were to be considered as part of the Task Group's effort. The Task Group considered the issues raised in the RES review as discussed in Sections 6.2, 6.4, 7.0, and 8.1 of the lessons-learned report.

There are no plans for a formal written response from NRR to RES on the results of the RES review, and none was required or expected by RES.

Q10. Did the report address the inquiry done by the NRC's Office of the Inspector General (OIG)?

Yes. On August 29, 2000, the OIG issued its event inquiry, "NRC's Response to the February 15, 2000, Steam Generator Tube Rupture at Indian Point Unit 2 Power Plant." The OIG had initiated this inquiry because of concerns from Congress and the public about the IP2 event. The Task Group addressed the findings of the OIG report related to SG issues as discussed in Sections 6.3 and 8.1 of the lessons-learned report.

Q11. Is the report publically-available on the NRC web-site or in ADAMS?

Yes. The lessons-learned report is publically available on the NRC web-site at <http://www.nrc.gov/NRC/REACTOR/IP/index.html> and in ADAMS at Accession No. ML003762242.

Q12. Does the report change in any way the potential red finding related to Con Ed's 1997 SG inservice examinations as documented in the NRC's Special Inspection Report dated August 31, 2000?

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No. The Task Group reviewed the major aspects of the 1997 Con Ed SG examinations and the plans leading up to these examinations. These same activities were the subject of the NRC's Special Inspection Report dated August 31, 2000. The Task Group agrees that the inspection findings are of potential high significance, as proposed. The Task Group believes that the findings of the Special Inspection Team are reasonable and that corrective actions at IP2 should proceed in accordance with the ongoing inspection and enforcement process.

The Task Group's review of the risk insights related to the IP2 event concluded that the IP2 tube failure resulted from degraded conditions allowed to exist in the SGs during the operating cycle. Con Ed's SG tube integrity program and QA program were deficient and did not detect the degraded conditions. These tube conditions presented a safety concern because of a reduction in safety margin and an increased risk of SG tube rupture during IP2's operating cycle 14.

Q13. Does the report change in any way NRC actions toward IP2 relative to the conclusions in the Special Inspection Report?

No. The lessons-learned report does not in any way modify the conclusions of the Special Inspection Report. The licensee specific deficiencies identified in the Special Inspection Report and any further interactions between NRC and Con Ed relative to those deficiencies are being addressed under the NRC's oversight process.

Q14. Most of the recommendations in the report are for the Industry and NRC. What does this mean?

The lessons-learned report is not an "inspection report," and was meant to address numerous facets of SG inspection and oversight. The objective of the lessons-learned report was to conduct an evaluation of the NRC staff's technical and regulatory processes related to assuring SG tube integrity in order to identify and recommend areas for improvements applicable to the NRC and/or the industry. The recommendations for the industry apply to IP2 and also apply generically to other PWRs.

In addition to the generic industry recommendations, the lessons-learned report made one specific recommendation for Con Ed. Section 5.4 of the report recommends that Con Ed correct the deficiencies in its SG tube integrity program that led to the degraded SG condition during IP2 cycle 14. Otherwise, the long-term risk of steam generator tube rupture at IP2 could be affected.

Q15. The report appears to find much fault with "industry guidelines". Was IP2 a victim of poor industry guidelines?

Industry Guidelines are just that - guidelines. NRC regulations, in particular 10 CFR 50, Appendix B, require a licensee to take corrective actions for significant conditions adverse to quality. Therefore, even though industry guidelines could be improved to help assist a licensee in their tasks, lack of guidelines does not excuse a licensee from the requirement for timely and effective corrective actions for conditions adverse to quality.

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Q16. What are the Task Group recommendations regarding the Technical Specification primary-to-secondary leakage limits given that the existing IP2 limits did not prevent the tube failure?

As discussed in the lessons-learned report, IP2 Technical Specification (TS) Section 3.1.F.2a, Primary-to-Secondary Leakage, contains the operational leakage limits for the SG tubes. It establishes a limit of 0.3 gallons per minute (gpm), or 432 gallons per day (gpd) in any SG which does not contain tube sleeves, or 150 gpd for any SG that contains sleeves. The TS also requires that if the limit is exceeded, or if leakage from two or more SGs in any 20-day period is observed, the reactor shall be brought to cold shutdown within 24 hours. As indicated in the basis section of the TSs, the intent of such safety measures is to prevent small leaks from developing into larger ones and possible gross failure.

Section 4.5 of the NRC's Augmented Inspection Team (AIT) Report, dated April 28, 2000, states that following plant startup in October 1999, the leak rate in SG 24 appeared to vary from 2 to 4 gallons per day (gpd) but returned to pre-shutdown levels of 1.5 to 2.0 gpd through December 1999. Starting in January 2000, the leak rate slowly increased to about 3 to 4 gpd just prior to the tube failure on February 15, 2000. The leak rates observed prior to the event were significantly below the limit at which any mitigating action would need to be taken in accordance with the IP2 TSs.

The Task Group concluded that the IP2 TS limit on primary-to-secondary leakage did not provide pro-active indication of upcoming tube failure. The experience from the IP2 event where the SG leakage did not exceed the TS limit before a tube failed indicates that IP2 TS leakage limits, by themselves, are not always sufficient to prevent such a failure or provide meaningful indication of an impending failure. The Task Group recommended that the industry assess the adequacy of the TS regarding operational leakage limits.

Even if improvements can be made industry-wide to the TSs on leakage limits (and SG tube integrity programs in general), it is likely that tube failures and ruptures will occur in the future. Leakage monitoring is a defense-in-depth measure and it should not be expected to provide indication of all impending SG tube failures and ruptures.

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- Q17. The Executive Summary and Section 8.2 of the lessons-learned report discuss the phone calls held between the NRC and Con Ed during the 1997 outage to discuss the results of the licensee's SG tube examinations. The report states that some NRC staff members interviewed by the Task Group indicated that they had specifically asked Con Ed during the phone calls if any degradation in small radius U-bends had been identified and that there was no indication that the crack discovered in the tube similar to the tube that failed was discussed (tube R2C67 in SG24). Why isn't the NRC taking enforcement action against Con Ed for this apparent violation of 10 CFR 50.9, "Completeness and accuracy of information," or 10 CFR 50.5, "Deliberate misconduct?"**

Several phone calls were held between the NRC and Con Ed during the 1997 outage to discuss the IP2 SG examination results. However, no documentation was found by the Task Group that indicated at what point in the outage the NRC questioned Con Ed about degradation in small radius U-bends. It is also was not clear to the Task Group at what point in the outage the eddy current data was analyzed and that a determination was made by Con Ed that there was a crack in the apex of tube R2C67 in SG24. NRR's Division of Engineering has reviewed the information in the lessons-learned report and has referred this issue to the NRR Office Allegations Coordinator. The allegation review process will make the determination if there is a basis for enforcement action.

ATTACHMENT 2

Questions and Answers on the
IP2 EP Inspection Report (05000247/2000-006)

COMMUNICATIONS SUMMARY FOR

FINAL SIGNIFICANCE DETERMINATION AND NOTICE OF VIOLATION (NRC INSPECTION REPORT 05000247/2000-006)

The purpose of the letter was to provide the licensee with the NRC's final determination on the three preliminary White findings related to the Indian Point 2 Nuclear Power Plant emergency preparedness (EP) program identified in the subject inspection report. These inspection findings were assessed using the Significance Determination Process (SDP) and were preliminarily characterized as White (issues with low to moderate importance to safety, which may require additional NRC inspections). On June 2, 2000, the NRC completed the subject inspection of the Indian Point 2 Nuclear Power Plant EP program, and preliminary findings presented at an exit meeting. Following the review of the preliminary findings by an NRC SDP panel, the licensee was informed of the results by telephone on July 14, 2000. These results were also documented in NRC Inspection Report 05000247/2000-006 issued on the same day.

The letter sent with the inspection report provided IP2 the opportunity to attend a regulatory conference or submit a written response to the findings. In a telephone conversation with Mr. R. Conte of NRC, Region I, on July 18, 2000, Mr. F. Inzirillo, ConEd, the licensee indicated that Consolidated Edison did not contest the characterization of the risk significance of these findings and felt there was no need for a Regulatory Conference or a written response at that time.

The NRC has concluded that these three inspection findings are appropriately characterized as White. These White findings involved failures to meet NRC emergency planning standards for: (1) the timely augmentation by the emergency response organization, (2) the timely accountability of onsite radiation emergency workers, and (3) the factual and consistent dissemination of information to the media and a local official. These failures contributed to emergency response deficiencies that were exhibited during the course of the SGTF Alert event. Using the SDP, we determined the findings to be White based on the failures to meet the associated emergency planning standards in 10 CFR 50.47(b).

The failures to meet the emergency planning standards of 10 CFR 50.47(b) are violations and are described in the attached Notice of Violation to the subject letter. These violations are being cited in accordance with the NRC Enforcement Policy for the NRC Power Reactor Oversight Process, as described in NUREG 1600, because they are associated with White findings.

ConEd is required to respond to this letter. The NRC will use the response, in part, to determine whether further enforcement action is necessary to ensure compliance with regulatory requirements. The NRC will also notify ConEd by separate correspondence of any additional agency follow up actions as determined by the NRC Action Matrix.

We found that the short-term corrective actions taken in response to the problems highlighted during the February event were adequate. While ConEd continued to exhibit some

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weaknesses in the Joint News Center activities, the emergency response organization demonstrated its ability to implement the onsite emergency plan during the June 1, 2000, exercise.

As you are aware, Indian Point 2 is an agency-focus plant and has a Long Term Improvement Program in progress. In accordance with the NRC letter issued May 23, 2000 (subsequent to the NRC Senior Management Meeting), we expect to be reviewing the progress of the licensee's Improvement Program which is aimed at improving overall station performance. In that vein, a meeting will be conducted in the future between the NRC and the licensee to further understand the results of the licensee's assessment of their progress towards improvement, to review the status of the licensee's progress, and to understand remaining planned actions regarding completing their Long Term Improvement Program.

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Q1. Can you summarize the findings? In plain English?

See above summary (particularly the 3rd paragraph).

Q2. What does it mean when you say "These findings were assessed..... as significant findings that were preliminarily determined to be "white" findings with some increased importance to safety..."?

In accordance with the NRC's new oversight process, the NRC issues a report with its preliminary findings for those findings of "white" or higher significance. Then, the licensee may provide its view before any final determinations are made on significance - thus, the term preliminary. If the final determination is that they are indeed "white" or higher findings, it means that the findings had some increased importance to safety, which may require additional NRC inspection.

The licensee views would be factored into our final determination. We consider information provided by the licensee to ensure that NRC has all the necessary and accurate facts to make the final determination on significance. The licensee's input is not an opportunity for them to adversely assuage us or influence our decision.

In this case, the licensee opted not to have a regulatory conference and did not provide any written response.

Q3. It appears that the licensee opted to not have a regulatory conference to avoid continued bad publicity in the emergency preparedness area as manifested in the Alert of February 15, 2000. Do you know for sure why they opted not to have a conference?

The licensee reported that our report was accurate overall with respect to the three white-finding determinations (minor inaccuracies in detail may later be identified but they were confident the inaccuracies would not effect the white findings and related determinations). Accordingly, they reported that they felt there was no need for a regulatory conference or written response.

Q4. Doesn't that mean this plant shouldn't restart before these issues have been properly addressed?

No. The findings did not involve risk significant planning standards directly affecting the protection of public health and safety. Accordingly the findings are not tied to restart but they are important problems that need to be resolved. All issues have been acknowledged by the licensee and were either corrected or placed in its CA program, including the more significant white findings.

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Q5. What type of enforcement is this action?

It is escalated enforcement because of the significant findings (white); however, there is no civil penalty. In accordance with NRC enforcement policy dated May 1, 2000 (page 8 NUREG 1600) NRC uses colored findings depending on significance in the Oversight Process along with an Agency Action Matrix in order to determine appropriate action. Our final significance determination was three white findings which were also violations of NRC requirements. No civil penalty was assessed because there were no actual consequences in terms of the capability of local authorities taking protective actions for the public.

As indicated in the cover letter for this enforcement action, the next step is to place the white findings into the Action Matrix along with the findings in the other cornerstones. Since the instructions in the notice of violation requires a response in 30 days, we (NRC staff) anticipate that our additional action will not occur before receiving the licensee's response letter. (See projects as to when we would do this (practically but this is hard to estimate right now?))

Q6. Doesn't the new Reactor Oversight Process preclude fines for this type of issue? Are you assessing this plant under the old program or the new?

We are assessing the findings under the new program. Violations that are assessed by the SDP may be cited and are not normally subject to civil penalties. The issuance of a civil penalty now depends on actual consequences.

Q7. In addition to the "white" findings, you also list six additional findings involving failures to implement regulatory requirements. Taken as a whole, doesn't this mean this system is broken?

No. The other violations were determined to have Green significance. GREEN findings are indicative of issues that, while they may not be desirable, represent very low safety significance. The licensee is required to correct these problems; however, in the new oversight process we do not integrate Green findings as a part of the assessment process. GREEN indicators represent performance at a level requiring no additional NRC oversight beyond the baseline inspections.

If needed: White or higher findings input into the assessment process are considered in accordance with the agency Action Matrix.

WHITE findings indicate issues that are of low to moderate safety significance. WHITE corresponds to performance that may result in increased NRC oversight.

YELLOW findings are issues that are of substantial safety significance. YELLOW represents performance that minimally reduces safety margin and requires even more NRC oversight.

RED findings represent issues that are of high safety significance with a significant reduction in safety margin. RED indicates performance that represents a significant reduction in safety margin but still provides adequate protection to public health and safety.

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Performance indicator data will be compared to established criteria for measuring licensee performance in terms of potential safety. Based on prescribed thresholds, the indicators will be classified by color representing varying levels of performance and incremental degradation in safety: GREEN, WHITE, YELLOW, and RED.

Q8. The original inspection report stated that the additional violations were entered into ConEd's corrective action process. Is this the same process that failed to correct similar problems identified in August and September?

Yes, however, their corrective action process is improving as evidenced by improved performance in certain areas. Further, the Green findings documented in the EP follow-up report occurred at the time of the event on February 15-16, 2000. The report notes that a number of the green findings have been corrected or are well on the way to being corrected. The corrective action process at IP2 exhibits some weaknesses but it is resulting in improvements.

Q9. How can we have confidence these issues will be addressed this time around?

We have confidence because the inspection noted improvements being made in the emergency preparedness program. Some of the problems are so deep-rooted that it will take some time to resolve. Notwithstanding those problems, there is reasonable assurance that the licensee will take protective measure for public health and safety since there are no deficiencies associated with risk significant planning standards directly affecting public health and safety.

Q10. Don't all of these findings contradict the AIT findings and the discussion of EP at the AIT exit meeting? Why wasn't the public aware of these shortcomings before?

Not at all. The AIT report formed the factual basis for focus, follow-up, and determinations by the AIT follow-up and EP (emergency preparedness) follow-up inspection teams. Both teams were on site in overlapping weeks and there was a coordinated effort between both teams to segregate EP related problems and performance issues from the non-EP areas.

The public was made aware of the EP performance issues through inspection reports 99-12 issued January, 2000 and 2000-006, (recently issued).

Q11. Did you develop these findings after the "ConEd internal memo" was brought to your attention?

No. The NRC began this inspection and was aware of all of the broad EP performance issues well before the internal memo was publicized. The exercise of June 1st was the fulfillment of a commitment ConEd made to the NRC when weaknesses were identified shortly after the September 1999 exercise (IR 99-012). The commitment was for them to be subjected to another evaluated exercise by NRC staff by June 30, 2000. The commitment date was provided by the licensee and was a reasonable time when program improvements would be made and sufficient training was conducted.

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Although relatively new since September 1999, the program findings on augmentation, accountability, and operation of the Joint News Center were initially developed by the Augmented Inspection Team and followed up on by the EP follow-up team. In light of these new findings and the urgency of the matter, the licensee scheduled the evaluated exercise to be on June 1, 2000.

ConEd's internal memo addresses essentially the same performance issues identified during the AIT and in this report. These aren't new issues, just further development of details and examples.

Q12. You already know evacuation is impossible, the steam generators are broken and now the emergency planning group has all of these problems. How can you even begin to consider allowing this plant to restart?

Con Ed is in the process of replacing the steam generators. FEMA has reaffirmed the adequacy of the state and local county emergency plans. As far as the onsite emergency planning problems go, the company has addressed most of them and is in the process of correcting others. We believe they have made sufficient progress in this area.

EDO Principal Correspondence Control

FROM: DUE: 02/23/01 EDO CONTROL: G20010020
DOC DT: 01/11/01
FINAL REPLY:

James P. Riccio
Public Citizen's Critical Mass Energy and
Environment Program

TO:

William Travers

FOR SIGNATURE OF : ** GRN **

CRC NO:

Collins

DESC:

ROUTING:

2.206 Petition to Revoke Operating License for
Indian Point 2

Travers
Paperiello
Miraglia
Norry
Craig
Burns/Cyr, OGC
Goldberg, OGC
Subbaratnam, NRR
Miller, RI
OIG

DATE: 01/17/01

ASSIGNED TO:

CONTACT:

NRR

Collins

SPECIAL INSTRUCTIONS OR REMARKS:

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