

6-2-01



Issues/NRC Review Status re.  
NEI Steam Generator  
Generic Change Package

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ae/f

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## Background

- SGGCP initially submitted February 4, 2000
  - Revised submittal dated December 11, 2000.
- Staff review was delayed by year, largely as a result of the Indian Point 2 tube failure on February 15, 2000 and related NRC follow up activities.
- NRC IP-2 SG Tube Failure Lessons Learned Report, October 2000.
- Regulatory Information Summary (RIS) 2000-22
- NRC SG Action Plan, November 2000
- DPO Action Plan, May 2001.

## Issues

1. Are the minimum requirements for SG Operability adequately defined?

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- Resolution on this issue has been reached.
- Industry will revise its proposal to include new tech spec LCO
  - The LCO basically ties SG operability to meeting the SG tube integrity performance criteria

## Issues

2. Are NRC Action Plan issues (i.e., issues stemming from the Indian Point 2 lessons learned report and RIS 2000-22) and DPO Action Plan issues adequately addressed by the SGPP? How are new issues stemming from operating experience or the results of industry and NRC studies to be addressed?

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- Industry is preparing its response to each of the action plan issues.
  - A partial draft response has been provided to NRC staff.
- The NRC staff believes that most action plan issues do not have direct implications regarding the acceptability of the SGPP, although they may suggest the need for interim industry guidance, revisions to sub-tier guidelines, or further study.

## Issue 2 (Continued)

- Certain action plan issues may have potential impact on the staff's review of the SGPP. These involve issues relating to the effectiveness of condition monitoring assessments.
  - Site specific NDE qualification (RIS 5, LL 2d, LL 2g)
  - In situ test screening criteria (RIS 6, LL 2h, LL 2i)
  - Assessment of incomplete in situ test results (RIS 7)
  - Assessment of NDE flaw sizing accuracy (RIS 5, LL2i)

These issues are being evaluated as part of issues 3 and 4 (next in this presentation)

- DPO Action plan does not appear to have implications affecting the staff's review of the SGPP. It may have implication for licensees requesting new ARCs or repair methods.

## Issue 2 (Continued)

- Industry is developing a protocol for identifying technical issues and tracking their resolution.
  - to include current technical issues not directly impacting the staff's review of the SGPP (e.g., the NRC action plan issues).
  - to include new issues as a result of operating experience, new information stemming from industry or NRC studies (e.g., DPO action plan), technology changes, etc.

## Issues

3. Does NRC have an adequate “regulatory assurance” which ensures that the SG Program will promptly identify conditions adverse to quality (failure to meet the performance criteria)?
  - NRC staff must be able to reach a positive finding on this issue.
4. Are certain details of sub-tier industry guidelines critical to the effectiveness of the SG Program to achieve this objective?
  - If so, does the NRC need to review these details for endorsement? How can an appropriate regulatory assurance be established for these details?

## Issues 3 and 4

These general issues have grown out of specific staff concerns relating to the sub-tier guidelines, including:

- adequacy of screening criteria for in situ pressure testing in accounting for NDE flaw sizing uncertainty
- inadequate guidance for estimation of NDE flaw sizing uncertainty
  - necessary attributes of supporting performance demonstration are not defined
- inadequate guidance for assessing results of incomplete in situ test
- future revisions to SG examination guidelines may allow for substantial increases in inspection interval lengths
  - How is the staff assured that a tube condition not meeting the performance criteria will be promptly detected?

## Outline of Admin Tech Spec

An **SG Program** shall be established and implemented to ensure SG tube integrity performance criteria are maintained.

*Note: Licensee's will commit to developing the **SG Program** in accordance with NEI 97-06.*

- Condition monitoring assessments of as-found tube condition vs the performance criteria shall be performed at each SG inspection outage. Requirements for condition monitoring are defined in the **SG Program**.
- Use NRC approved performance criteria.
- Use NRC approved rtube repair criteria and repair methods.

## NEI 97-06

NEI 97-06 expresses the essence of what constitutes an acceptable condition monitoring assessment:

*These assessments shall account for all significant uncertainties so as to provide a conservative assessment relative to the performance criteria. Conservative assumptions should be employed to account for uncertainties not directly treated in the analysis.*

Staff is concerned that sub-tier guidelines are not fully consistent with this objective and/or provide incomplete guidance.

Even if the sub-tier guidelines are consistent

licensees may take exception to certain critical provisions

industry may revise the guidelines

## Discussion

Staff continues to believe that a regulatory structure centered around NEI 97-06 can provide added assurance of SG tube integrity while at the same time provide licensees the flexibility to manage their steam generators in a cost effective manner.

Staff is concerned that the sub-tier guidelines may not ensure that all significant uncertainties are accounted for such as to ensure a conservative analysis as called for by NEI 97-06.

## Discussion (Cont)

It may be necessary to reach a consensus on some details in the sub-tier guidelines which are critical to the effectiveness of condition monitoring to ensure prompt detection of tubes which do not satisfy the performance criteria.

What are acceptable methods for quantifying NDE flaw size measurement uncertainty

What are the essential elements of a site applicable performance demo used for identifying NDE flaw size measurement uncertainty

When should in situ pressure testing be performed/what sampling level

How to assess incomplete in situ pressure test results

## Discussion (Cont)

To the extent these details are critical to maintaining tube integrity, staff must also ensure that it has acceptable regulatory controls such as to be assured that tube integrity is being maintained.

Inspection intervals beyond those specified in Rev 5 of the examination guidelines poses a unique issue:

Inspection interval must be justified not on just an operational assessment, but a degradation assessment which provides reasonable assurance that the occurrence of new degradation mechanisms will not impair tube integrity and that failure to satisfy the performance criteria will be promptly detected.

NRC staff needs to be assured that the frequency of condition monitoring will ensure prompt detection of tubes which do not satisfy the performance criteria.

An interim regulatory control on inspection intervals may be necessary until such time as the industry develops the necessary guidance.

## NRC Review Status

- Staff is currently focused on better defining its concerns relative to issues 3 and 4
  - We anticipate communicating these concerns with industry representatives later this month. We will be prepared to discuss any needed remedy to these concerns at that time.
- Staff plans to issue SGGCP SE in a Regulatory Issue Summary (RIS)
- Target Date for Completion: Previous target of 10/31/01 has slipped at least three months due to issues outstanding. New target date will depend on how quickly issues 3 and 4 can be satisfactorily resolved.