



NUCLEAR ENERGY INSTITUTE

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BY BROADCAST FAX

November 7, 1996

TO: NEI Nuclear Strategic Issues Advisory Committee (NSIAC)

SUBJECT: Generic Letter 96-06 - "Assurance of Equipment Operability and Containment Integrity During Design Basis Accident (DBA) Conditions"

On September 30, 1996, the NRC issued the subject generic letter in order to: (1) notify licensees about safety-significant issues that could affect containment integrity and equipment operability under DBA conditions, (2) request certain information be submitted from licensees relative to those issues, and (3) request that licensees implement actions as appropriate to address those issues. The purpose of this letter is to apprise you of NEI actions and plans in connection with this issue.

NEI hosted a meeting of licensee representatives and NRC staff on October 29, 1996, to discuss questions concerning the generic letter. The NRC staff in attendance were those directly responsible for reviewing licensee responses to the generic letter. NRC staff answered questions NEI had provided in advance of the meeting, as well as those raised during it. They plan to issue a meeting summary including answers to questions posed during the meeting, within three weeks.

The following key points were made during the discussion:

- NRC staff views timely review and response to be very important. The *emergency nature* of the generic letter (e.g., being issued without the opportunity for public comment) was provided as rationale for NRC staff expecting that plants currently in a shutdown condition would at least determine if their systems are susceptible to two-phase flow, water hammer, or overpressurization conditions, and if so, complete an operability evaluation prior to plant restart regardless of the response date requested in the generic letter of January 28, 1997.

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- NRC staff does not plan to review and approve all operability evaluations, but would expect such evaluations to be on file at the utility for review.
- NRC staff has yet to determine a review plan or process.
- Some licensee representatives believe the generic letter statements on pages 6 and 8 relative to U.S.A. Standard B31.1 or ASME piping design code requirements for overpressure protection are incorrect. (Note: We are aware of discussions between a code committee member and NRC staff that should result in clarification of the NRC staff position. We will promptly inform your staff of any change.)

We appreciate the NRC's reasons for requesting licensee review and submittal of information relative to the issues reported in the generic letter. Several licensee event reports indicated that system performance under DBA conditions may not be as analyzed in their FSAR. Yet, based on the technical insights discussed during the remainder of the industry meeting (noted below), there is strong evidence to suggest that despite the two-phase fluid conditions, containment heat removal and integrity would still be achieved.

Licensee representatives from five plants with event reports described in the generic letter presented their assessment and corrective action activities. The following technical insights are important:

- Many plants have already determined that two-phase rather than single-phase fluid conditions may occur during the hypothetical DBA. But most plants have not completed the engineering assessment of the significance of a two-phase fluid condition relative to system operability under DBA conditions.
- Limited testing of scaled plant-specific system configurations by two licensees demonstrated only small transient loads are induced by the two-phase fluid condition and subsequent system response. These results indicate that for the two plants analyzed, the containment and containment air cooling system would meet their design requirements.
- Plant-specific system design and layout vary considerably and make generic, bounding assessments difficult.
- Potential design modifications to preclude two phase conditions in containment air coolers, especially for an open system design, can be complex and expensive.

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Based on these discussions, it appears further coordinated industry efforts could result in more cost-effective utility responses to the generic letter request. Thus, NEI is taking the following steps:

1. Establish an NEI issue task force to respond to the generic issues raised in the generic letter. We expect the task force to consist of representatives from licensees, EPRI, INPO, applicable ASME code committees, and an architect/engineer.
2. Request that EPRI sponsor analytical and experimental work to evaluate the impact of the two-phase fluid condition in varying containment air cooler system configurations.
3. Meet with NRC staff to ensure that relevant technical information resulting from generic industry work is well understood. We would use such meetings to explain any differing views industry may have regarding the validity of statements made in the generic letter and subsequent NRC staff written responses to the industry questions posed at the industry meeting. Obviously, some information would be available prior to the 120-day response date whereas other information may be developed later.

In summary, we believe that development and sharing of additional technical and regulatory information will assist licensees in providing responses to the generic letter that are more systematic, complete, and cost-effective. Your personal attention to this matter is important. We respectfully request that you:

- Provide NEI (attention of Dave Modeen) a copy of your 30- and 120-day (due January 28, 1997) response letters.
- Complete the attached survey form for each of your plants by November 20, 1996. The survey will provide critical parameters for grouping of plants with similar containment air cooling system configurations.
- Support the EPRI effort to develop a more robust technical bases for analyzing and explaining the impact of two-phase fluid conditions and water hammer. EPRI has a draft plan for the collaborative effort which can include non-members of EPRI. Interested parties should contact the EPRI project manager, Avtar Singh at 415-855-2384 or by e-mail at avsingh@msm.epri.com.

Any questions should be directed to Dave Modeen at (202) 739-8084 or by e-mail at djm@nei.org.

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Sincerely,

A handwritten signature in dark ink, appearing to read "Ralph E. Beedle", written in a cursive style.

Ralph E. Beedle

DJM/amj
Enclosure

c: NEI Administrative Points of Contact

Generic Letter 96-06
Containment Fan Cooler Evaluation
Plant Classification Survey

Utility: _____ Plant: _____

Is the plant in an outage between now and January 28, 1997?

Yes	No
-----	----

Are the containment fan coolers credited in the LOCA/MSLB analyses (peak temperature and pressure)?

Yes	No
-----	----

If yes:

Is the service water for the containment fan coolers in an open system?

Yes	No
-----	----

If yes:

Are the fan coolers located on an elevation ≥ 32 feet above the lake/river water level?

Yes	No
-----	----

If no:

Is the surge tank at atmospheric pressure?

Yes	No
-----	----

If yes:

Are the fan coolers located on an elevation ≥ 32 feet above the surge tank water level?

Yes	No
-----	----

If no:

Does the service water supply to the containment fan coolers isolate on SI signal?

Yes	No
-----	----

If yes:

Are relief devices provided for thermal expansion of trapped fluids?

Yes	No
-----	----

Are there other heat loads (possibly isolated under accident conditions) that rely on the same service water system?

Yes	No
-----	----

Have you concluded the containment fan coolers are susceptible to the two-phase fluid condition?

Yes	No
-----	----

The following data will help to further classify fan cooler evaluation issues:

Maximum LOCA containment temperature

°F

Fan cooler data:

Manufacturer and model

Number of fan coolers

Number of coils per fan cooler unit

Number of tube passes

Design fouling factor for fan cooler

Accident service water flow rate

Accident service water inlet and discharge temperature

gpm

°F

What do you see as the next step to coordinate the industry response to this issue:
