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822-1026

July 25, 1984

HAND DELIVERY

Herzel H. E. Plaine, Esquire
General Counsel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Plaine:

I am enclosing our analysis of the basis for a final no significant hazards consideration determination in connection with the proposed amendment to the TMI-1 operating license approving the method of repair of the steam generator tubes.

The analysis emphasizes the narrow scope of the actual amendment involved. I believe the analysis to be sound. I want to point out, however, that we did not oppose a broader scope of issues in the ongoing steam generator repair hearing and that at the prehearing conference on October 17, 1983, I in fact supported intervenors' position that contentions as to the cause of tube damage were within the scope of the hearing. This was partly to remove the potential for delay,

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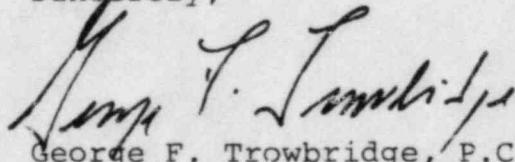
Herzel H. E. Plaine, Esquire

July 25, 1984

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including appeals on legal grounds, and because of our conviction that we would prevail on the merits without unduly prolonging the hearing. The contentions in question were in fact decided by summary disposition in licensee's favor.

Sincerely,

A handwritten signature in dark ink, appearing to read "George F. Trowbridge". The signature is fluid and cursive, with the first name "George" and last name "Trowbridge" clearly distinguishable.

George F. Trowbridge, P.C.

Counsel for
GPU Nuclear Corporation

cc w/encl:

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Office of the Secretary
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July 25, 1984

DOCKET
USNRC
TMI-1 Steam Generator Repair Amendment

'84 JUL 26 11:44
Basis for Determination of
No Significant Hazards Consideration

This memorandum has been prepared in support of the NRC Staff's recommendation to the Commission of a final determination of no significant hazards consideration in connection with an amendment to the TMI-1 operating license approving the method of repair of the steam generator tubes.

It is critical to the analysis of the question of significant hazards consideration to focus on the scope of the license amendment. In particular, it is necessary to focus on the difference between (1) the investigation of the cause of the tube damage and assurance that it will not recur and (2) the license amendment itself. The investigation of the cause and potential for recurrence did require extensive analysis by GPU and review by the NRC Staff. But this is wholly independent of the repair process or any associated license amendment.

As the NRC Staff interprets the present TMI-1 Technical Specifications, an amendment to the Technical Specifications is required to permit operation of the TMI-1 steam generators where tubes have been repaired by any means other than plugging. The amendment requested by licensee and proposed by the Staff would simply add the kinetic expansion technique employed by licensee as an additional approved method of repair. This is the entire scope of the proposed amendment.

This is not to say that GPU's and NRC's interest in the return of the steam generators to service was limited to whether the steam generators have been properly repaired by the kinetic expansion process. Both were concerned with the cause of the tube damage and with assurance that the damage would not recur. Evaluation of the cause and its possible recurrence was in fact the main element in GPU's research and investigations and in NRC's review. The point is, however, that NRC's concern about the causation of the tube damage and the possibility of recurrence was wholly independent of its review of the repair process. Once NRC was satisfied that the cause of tube damage had been identified and corrected no license amendment or other affirmative licensing action was necessary on that account. NRC simply recorded its satisfaction with licensee's conclusions, as it conventionally does, in a Safety Evaluation Report.

As to the license amendment which is required, i.e. to approve tube repair by kinetic expansion, the Staff correctly concluded that no "significant hazards consideration" was involved. The conclusion was correct even taking the view that the Commission's Sholly regulations should be interpreted in terms of significant new or unreviewed safety questions rather than degree of risk.

Licensee's approach to satisfying both itself and the NRC as to the suitability of the kinetic expansion process was to demonstrate that, as so repaired, the steam generators would

meet all of the NRC's already established structural acceptance criteria for the steam generators as originally licensed. No new or relaxed acceptance criteria were proposed. The NRC Staff accepted this licensing basis for the steam generator repair and was satisfied with the confirmatory test program provided by licensee. This is what the Staff attempted to explain to the Commission at the Commission meeting on December 7, 1983. (Tr. 33, 44, 46-49, 57, 59, 72.)

The views expressed by Commissioner Asselstine* on the question of no significant hazards consideration, and more particularly the four questions which he suggests involve significant new or unreviewed safety issues, do not properly take into account either the scope of the license amendment or the focus of the licensee and Staff review of the tube repair technique. Commissioner Asselstine's four questions are restated and discussed below:

Question (1) The nature and extent of the corrosion mechanism are unique. Has the corrosion mechanism been arrested? Has it affected other primary system components?

Discussion of Question (1) The nature and extent of the corrosion mechanism and the questions as

*Views of Commissioner James K. Asselstine on the NRC Staff's No Significant Hazards Consideration Determination on the Three Mile Island Unit 1 (TMI-1) License Amendment Application for Steam Generator Repairs (undated).

to whether corrosion has been arrested and whether it affected other primary system components were all extensively investigated by licensee and reviewed by the NRC Staff. Even assuming, however, that the investigations and review involved significant safety issues, they are not issues which are germane to the proposed license amendment, which has solely to do with the approval of kinetic expansion as a repair technique.

Question (2) The use of the kinetic expansion repair process has never before been applied to used, sensitized steam generator tubes. What acceptance criteria should the staff apply to the repair?

Discussion of Question (2) This does not involve a new or unreviewed safety issue. The licensee and Staff applied already established acceptance criteria for the original steam generators in evaluating the use and results of the kinetic expansion repair process.

In its submission to the Staff (Topical Report 008) licensee stated:

Based on a qualification program, the kinetic joint meets or exceeds the design bases of the original joint, including the following factors:

- a. Load-carrying capability.
- b. Tube preload.
- c. Minimization of residual stresses.

The qualification program demonstrates kinetic expansion in the upper tube-sheet is a safe and reliable method of repair for all tubes that will remain in service in the TMI-1 steam generators. The tube joints will remain structurally sound and essentially leak tight during all design conditions. (TR-008 at 48; see id. at 34-55.)

In its Safety Evaluation Report the Staff stated:

To establish acceptability of the repaired OTSG for return to service, the licensee instituted a test program to demonstrate that the repaired joint would meet the original design basis. * * * The kinetic joint meets the qualification requirements in terms of load carrying capability, tube preload and residual stresses. . . . Therefore, the kinetically expanded joint is within the original licensing basis for the plant. (SER at 16, 23; see id. at 16-23, 45.)

Question (3) Do the residues of the kinetic expansion process result in a potential for new corrosion phenomena?

Discussion of Question (3) Residues of the kinetic expansion process do not introduce a significant safety question because they were removed from the tubes by cleaning after the repair to previously

accepted industry standards, and therefore this does not involve a new or unreviewed safety issue.

In its Safety Evaluation Report the Staff stated:

To ensure that fragments of cartridges do not remain trapped or wedged in tubes, free flow air tests were conducted for each tube after expansion. The final cleaning involved blowing felt plugs through each individual tube. The head and the tubesheet were manually wiped down and then the generator was flushed to remove any remnants of the repair. (SER at 20.)

Question (4) Whether and to what extent the corrosion and subsequent repair lead to a need to change: (a) license conditions, (b) emergency procedures, and (c) analyses of loss of main feedwater transients.

Discussion of Question (4) Two of the three areas of possible change identified in this question have nothing to do with approval of the kinetic expansion repair process. Changes in emergency procedures referenced in the Staff's Safety Evaluation Report (SER at 38-44) are an outgrowth of an independent licensee review of emergency procedures and not of the repair program. Loss of main feedwater transient analyses were evaluated by the licensee and NRC Staff, but only to take into account the additional tubes that have been plugged and not the tubes

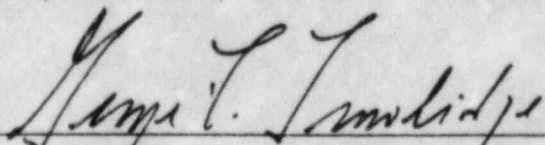
~~repaired~~ by kinetic expansion. (SER at 35-38)

The NRC Staff does plan to add new license conditions (e.g. acceptable leak rates and frequency of eddy current testing). These conditions simply impose license requirements reflecting commitments already made by licensee which will provide further confirmation of the adequacy of the repair program. They were not relied on by the Staff as the basis for approval of the repair technique. Thus the Staff has stated:

[The] license conditions are used only to verify and monitor that the repaired steam generators are performing as anticipated. They are not relied upon as the basis for determining that the kinetic expansion repair technique pertaining to tube rupture is adequate to provide sufficient assurance that tube ruptures will be detected in time and prevented to avoid endangering the health and safety of the public through release of radiation into the environment beyond permissible limits. (Affidavit of Conrad E. McCracken and Jai Raj N. Rajan in Support of [NRC Staff's Motion for] Summary Disposition of TMIA Contention 1.a at ¶ 3 (emphasis added), dated February 24, 1984.)

Thus none of Commissioner Asselstine's questions involve significant new or unreviewed safety questions with respect to the limited scope of the proposed license amendment.

SHAW, PITTMAN, POTTS & TROWBRIDGE

By 
George F. Trowbridge, P.C.