



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

March 30, 1984

TO: R. Conte, Senior Resident Inspector, TMI-1 *RC 3/30/84*
FROM: F. Young, Resident Inspector, TMI-1
SUBJECT: Once Through Steam Generator Sulfur Corrosion and
Eddy Current Testing

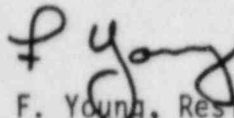
This is in response to your inquiry on the status of Once Through Steam Generator (OTSG) Eddy Current Testing (ECT) inservice inspection at TMI-1 and dissemination of OTSG Sulfur Corrosion information as addressed in the stated enclosures.

In regard to the Steam Generator ECT inservice inspection (ISI), the subject was discussed in enclosure 1. The subject was also addressed for TMI-1 in the staff's Safety Evaluation Report (SER) NUREG 1019. Based on this SER, the staff concluded that a specific extended post-repair eddy current inservice inspection plan would be required. The scope of the ECT would include inspection of the full length of the tube. Even though the referenced memorandum to NRR did not generate the TS change that was desired, requirements to be imposed on TMI-1 (from NUREG 1019) will address the concern. I assume that the referenced memorandum that was forwarded to the NRR will be properly addressed generically.

With respect to the NRC dissemination to the industry of OTSG Sulfur Corrosion information, the subject was briefly addressed in IE Information Notice 82-14, (Enclosure 2). The IE information notice is somewhat outdated. In addition, the problem was discussed in a AEOD Engineering Evaluation Report Number AEOD/E313 (Enclosure 3). The AEOD engineering evaluation addressed sulfur induced stress corrosion cracking (SCC) of fuel assembly nozzles stored in the Prairie Island spent fuel pool and briefly mentioned the TMI-1 case. This engineering evaluation appears to indicate that sulfur SCC may be symptomatic of a potential generic issue. Apparently due to the unavailability of information at that time, the AEOD evaluation could not address many of the unique aspects of sulfur induced SCC that were noted in the TMI problem. The most important of these aspects appear to be: (1) alloy chemistry; (2) heat treatment, resulting microstructure and strength level; (3) grain size (4) temperature of the environment and (5) type or species of sulfur that causes SCC and how that species is formed in the plant. Our current knowledge about sulfur induced SCC is more complete. The unique aspects about this type of corrosion as described in NUREG 1019 in conjunction with later AEOD evaluations, if any, should be highlighted to other licensees.

Based on the above, it appears that NRC staff should update the industry (probably by IE Information Notice) on these and any other similar events known to date.

I will be glad to respond to any comments you may have.



F. Young, Resident Inspector
TMI-1

cc: A. Fasano
E. Conner
R. Keimig
R. Starostecki

Enclosures:

- (1) Memorandum from E. Jordan, Director, Division of Engineering and Quality Assurance, IE to D. Eisenhut, Director, Division of Licensing, NRR, dated July 19, 1982.
- (2) IE Notice 82-14, dated May 12, 1982.
- (3) AEOD Engineering Evaluation Report Number AEOD/E313, dated June 15, 1983