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September 5, 1979
GQL: 1141

Director of Nuclear Reactor Regulations
Attention: R.W. Reid, Chief
Operating Reactors Branch #4
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

- References: a) GQL 1059 dated August 15, 1979
b) IE Bulletin No. 79-17 dated July 26, 1979

Three Mile Island Nuclear Station, Unit 1 (TMI-1)
Operating License No. DPR - 50
Docket No. 50-289
IGSCC Investigation

Dear Sir:

Background:

In the previous status report (reference a above) Metropolitan Edison referred to the use of a highly sensitive, state of the art, ultrasonic inspection technique (UT) which was capable of identifying an IGSCC which extended only .006" into the heat affected zone of the pipe ID. This previous report also recognized the fact that many of the indications identified by this highly sensitive UT technique were reflections from weld geometry and other welding related anomalies. The development of a screening procedure capable of classifying UT indications as to their probable cause has been recently completed. The attached procedure identified as UTL-UT-SP10 revision 4 embodies the results of this development.

The verification of this screening technique's ability to differentiate between geometric reflectors and IGSCC in an advanced state of growth is based on the following:

- 1) The evaluation technique has identified IGSCC in three samples which have been determined by metallography to have varying degrees of through wall crack growth (~25%, ~50%, 100% of wall thickness).
- 2) The screening technique has identified IGSCC in two weld joints, still in the Spent Fuel Cooling System, which have been confirmed using extremely sensitive radiography. These lines were drained specifically for this radiographic inspection.
- 3) The screening technique has determined that seven weld joints previously identified under the Phase I (sensitive) procedure were not IGSCC. The absence of IGSCC in these welds has subsequently been confirmed by Liquid Penetrant Examination of the pipe ID after these joints were removed from the system.

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Further corroborative evidence will be collected and documented with further radiographic inspections and when more samples are removed from the system. Presently an extensive re-examination of welds in 2½" diameter or larger piping in all engineered safeguard systems is under way.

Status:

The following matrix describes the 8/28/79 status of screened indications:

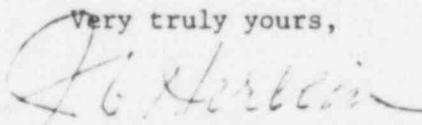
<u>Systems</u>	<u>Total No. of Welds</u>	<u>Total No. of Welds with all UT Inspections Completed</u>	<u>Total No. of UT Indications Using Sensitive Technique</u>	<u>Total No. of UT Indications after Screening</u>	<u>No. of Thru Wall Leaks</u>	<u>Total No. of UT Indications Evaluated to be Geometric Reflectors</u>
Spent Fuel	566	521	138	19	5	119
Decay Heat	408	277	99	10	1	89
Bldg. Spray	241	208	56	8	0	48
Make-Up	697*	693	96	1	0	95
Core Flood	31	31	1	0	0	0
RC Pzr. Surge	11	0	0	0	0	0
RC Pzr. Spray	28	28	1	0	0	1

(*Does not include 354 2½" welds in high radiation areas.)

At this point it is important to note that of the thirty-eight (38) screened indications, thirty-one (31) of them were welded in the field and of these thirty-one (31) field welds eleven (11) were repaired once. Also note that none of the thirty-eight(38) screened indications are in deoxygenated lines. Presently it is expected to take approximately two (2) weeks to complete all scheduled ultrasonic testing.

Met-Ed considers this report as a part of our continuing response to IE Bulletin 79-17. The next status report will be submitted by September 30, 1979.

Very truly yours,



J.G. Herbein
Vice President
Nuclear Operations

JGH/CDR/gme

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