U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-289/87-18

Docket No. 50-269

License No. DPR-50 Priority - Category C

Licensee: GPU Nuclear Corporation

P. O. Box 480

Middletown, Pennsylvania 17057

Facility Name: Three Mile Island, Unit 1

Inspection At: Middletown, Pennsylvania

Inspection Conducted: September 14-17, and 21-23, 1987

Inspectors: S. K. Chaudhary, Senior Reactor Engineer — date: 12/2/87

Approved by: J. R. Strosnider, Chief, MPS, EB, DRS — date: 12/2/87

Inspection Summary: Routine Unannounced Inspection on September 14-17, and 21-23, 1987 (Report No. 50-289/87-18)

Areas Inspected: A routine unannounced inspection of the licensee's actions on previously identified items and calibration of foxboro transmitters was conducted.

Results: No violations or deviations were identified.

Details

1. Persons Contacted

GPU Nuclear Corporation

*P. E. Dojka, I&C Engineer
*C. E. Hartman, Manager, Plant Engineering
*E. G. Lawrence, Preventive Maintenance Engineer
*C. W. Smyth, TMI-1 Licensing Manager
*V. P. Orlandi Lead I&C Engineer

US Nuclear Regulatory Commission

R. J. Conti, Senior Resident Inspector, TMI-1

The inspector also held discussions with other licensee personnel during the course of the inspection.

*Denotes those present during the exit meeting on September 23, 1987.

2. Follow-up Actions On Previously Identified Items.

(Closed) Violation 87-06-04: This violation was related to ambiguity in procedure SP-1302-5-10, Rev. 14 regarding calibration of instrument loops. The licensee has revised the procedure clarifying that an instrumentation loop may be calibrated in segments, if necessary, and approved by the responsible engineer and the supervisor. This item is closed.

(Open) Unresolved Item 87-09-06: This item pertains to zero point shift in foxboro transmitters. The inspector reviewed the licensee's corrective actions to ascertain the effectiveness of the new calibration procedure in eliminating the zero point shift. The original problem in this area appeared to have been the result of several contributing factors, i.e. 1) the failure to perform a zero static alignment, 2) air apparatus failure to fully account for the zero shift due to cover reinstallation, and 3) a last minute setpoint change that was not well understood.

The inspector reviewed the licensee's new calibration procedure to determine if the procedure was technically adequate to address the above apparent problems, and was sufficiently detailed to procedurally assure effective implementation and the repeatability of calibration.

Based on the above review and discussions with cognizant licensee personnel, this inspection determined that the procedure was sufficiently detailed to assure effective implementation. However, the repeatability of the calibration by the new procedure had not been established, in that

the current practice of channel cross-check verification was not adequate to provide quantitative data for evaluating the magnitude of zero point shift. The determination of zero-point shift is still a qualitative determination which may or may not be accurate without a quantitative assessment of the magnitude of zero point shift. Thus, the effectiveness of the new calibration procedure and its ability to satisfy Regulatory Guide 1.97 cannot be ascertained. This item, therefore, remains open pending further evaluation of data to determine the acceptability of the new calibration procedure.

(Closed) IE Information Notice 85-100: This notice contains information regarding the zero point shift in Rosemount transmitters. The problem of the zero point shift in Rosemount transmitters were similar in nature as discussed above for foxboro transmitters. However, the licensee's actions to correct this problem were found adequate to resolve this issue. The licensee initiated two licensing actions (86-9029 and 86-9122) providing adjustment in the use and applicability of these transformers. The calibration procedure and surveillance requirements were also adjusted to assure accuracy of the transmitter signals. These actions appeared to be adequate to solve the problem. This item is closed.

3. Concrete Anchor Bolts

During the course of an in-service examination of the Control Room Chilled Water System, the licensee identified improper installation of concrete anchor bolts in support base plates. Two of the support plates (CHE-20 and CHE-54) in the system had one of the four bolts welded at the back of the support plate giving the appearance of proper installation. In an other case, it was found that the shell of the anchor bolt was cut short to avoid interference with reinforcing bars and to provide ease in installation. The licensee initiated a material nonconformance report (NMCR-123-87) to evaluate the safety of the system, and an engineering investigation to ascertain the root cause and the extent of this problem.

The inspector reviewed the licensee's follow-up actions to assess the validity of the technical approach, and the adequacy of any corrective action that may have been necessary.

The two support plates discussed above are part of a pipe support at elevation 322-0 in the chilled Water system that consists of a structural frame and two base plates mark number CHE-20 (east plate) and CHE-54 (west plate). The supports in the Chilled Water system were included in the inspection and testing program in response to IE Bulletin 79-02. The licensee's program included pull testing of one anchor per base plate which conformed to the sampling method described in the Appendix A of the bulletin. From the licensee' investigation of this problem, it appears that the two specific anchors (deceit bolts) were not in the random sample

of one bolt per plate that was tested. During a modification (NM-31) of CHE-20 involving washer plate installation and addition of longer bolts no further pull tests were performed as no additional bolts were installed. However, a review of document package NM-31 disclosed that a welder identified as No. 65-065 was the installer of the welded washer on the base plate. Further review of the specific welder assignments disclosed that nine additional supports were worked on in various degrees by the same individual. A one hundred percent inspection of these nine supports, all on the Chilled Water system, with the use of ultrasonic techniques to determine the length of embedded bolts disclosed no additional deceit bolting. On the basis of this determination, the licensee concluded that the incident of deceit boltings were isolated cases, and were probably originated during the construction phase of the plant; because, the anchor bolt for on CHE-54 was never installed, and on CHE-20 an attempted installation was evidenced by a hole at this location. The modification drawings for ECM-116-280 had required only welded washer plates and bolt replacement and no work on the shell itself.

The engineering evaluation of this as found condition, as documented in GPN Calculation C1101-104-5321-020 determined that the base plates with deceit bolts still provided a factor of safety of greater than two; which was mandated by bulletin 79-02 for continued operability of the plant (short term factor of safety). A repair was, however, required to bring the factor of safety of the shell type anchors to a minimum of greater than four.

It appears that the occurrence of this deficiency is not wide spread or representative of shell type anchors at TMI-1. Also, it appears that the validity of the IEB79-02 inspection and testing program and the resulting modifications are not affected. The overall statistical results and the confidence level of the bulletin sampling program is still valid.

No deviation or violation was identified.

4. Exit Meeting

At the conclusion of this inspection, the inspector met with licensee representatives (denoted * in paragraph 1) on September 23, 1987 to summarize the scope and findings of the inspection.

At no time during this inspection was written material provided to the licensee by the inspector; also, the licensee did not indicate that any proprietary information was contained within the scope of this inspection.