**Commonwealth Edison**
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March 30, 1983

Director of Nuclear Reactor Regulation
Attention: Mr. A. Schwencer, Chief
Licensing Branch No. 2
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, DC 20555

Subject: LaSalle County Station Units 1 and 2
In-Plant SRV Test Results
NRC Docket Nos. 50-373 and 50-374

References (a): T.S. Table 3.3.7.5-1 "Accident Monitoring Instrumentation", License NPF-11.

(b): T.S. 3.6.2 "Suppression Chamber Limiting Condition", License NPF-11.

Dear Sir:

References (a) and (b) are germane to suppression chamber water temperature instrumentation and state in part:

> "Final requirement to be determined after demonstration of correlation of pool bulk temperature as measured by each division to pool bulk temperature as measured by both divisions. Results of demonstration and necessary changes to this specification shall be submitted to the commission within 90 days of demonstration."

This letter provides you with the preliminary or "quick look" results of the SRV demonstration test at LaSalle with respect to the performance of the suppression pool temperature monitors. This testing was completed on December 30, 1982. The attached discussion concludes that the existing pool water temperature instrumentation provides a bounding (i.e. conservative) indication of bulk pool temperature. This quick look information is depicted in Figures 7 and 8 where a conservative bias of between 5 to 15 degrees is evident. The sensor channels powered from either electrical division demonstrated equivalent conservative indications of pool bulk temperature.

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Pending a detailed statistical treatment of these indications to remove the apparent temperature bias and to correlate them with localized vertical thermal profiles of the suppression pool, this early data is being used to conservatively represent the bulk pool temperature. The SRV discharge tests validated that thermal stratification of the pool is a dominant effect for short-duration (15 second) blowdown events, both before and after the event, with maximum temperatures evidenced near the pool surface. That was the original reason for placement of the thermal monitors just below the surface of the pool.

The referenced Tech Spec table (a) above specifies that 7 operable thermal channels constitute the minimum monitoring capability for LaSalle, i.e. one electrical division can be inoperable. This specification is still conservative for LaSalle and justification for changing to a lesser number of monitoring channels must await the data refinement discussed above. At this time, no changes are necessary.

To the best of my knowledge and belief the statements contained herein and in the enclosure are true and correct. In some respects these statements are not based on my personal knowledge but upon information furnished by other Commonwealth Edison and contractor employees. Such information has been reviewed in accordance with Company practice and I believe it to be reliable.

One (1) signed original and forty (40) copies of this letter and enclosure are enclosed for your use.

If there are any further questions in this matter, please contact this office.

Very truly yours,

C W Schroeder 3/30/83

C. W. Schroeder
Nuclear Licensing Administrator

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Enclosure

cc: NRC Resident Inspector - LSCS

6302N

## Suppression Pool Temperature Monitoring System

### Suppression Pool Temperature Monitoring System Response

The suppression pool temperature monitoring system (SPTMS) consists of two independent trains of sensors located at 14 different locations along the outer pool boundary and pedestal. All sensors are located approximately one foot below the low water level. Dual element sensors are employed at each location resulting in a total of 28 temperature readings. Each sensor train monitors the temperature at seven locations.

Temperature readings were recorded on a pair of point recorders during each of the seven extended blowdown tests. These readings were tabulated for selected times during the test. The tabulated temperatures were plotted as a function of plant azimuth and compared with the corresponding bulk pool temperature for that time during the test run. Sample plots are given in Figures 7 and 8 for quencher G, Run 72. Temperature readings indicated by the permanent temperature monitoring system were found to be always higher than the calculated bulk pool temperature for all sensors and for all test runs. Table 3 lists the temperature difference between the minimum and the maximum of the SPTMS temperature readings and the calculated bulk pool temperature at different times for all the runs.

### Discussion of Results

The primary purpose of the suppression pool temperature monitoring system is to provide the operator with an indication of the bulk pool temperature. Since all sensor readings were above the corresponding bulk pool temperatures, the system provides a conservative measure of bulk pool temperature.

It was observed that an increase in pool temperature stratification occurred during the S/RV discharge. This stratification would tend to support the above conclusion that the SPTMS sensors, which are mounted near the pool surface, read higher than the bulk pool temperature.

TABLE 3

RANGE OF SPTMS SENSOR READINGS ABOVE
BULK POOL TEMPERATURE (F)

| Quencher | Run No. | t = 0 min | t = 2 min | t = 4 min | t = 8 min | t = $t_f$ [1] | $T_{b,f}$ [2] |
|---|---|---|---|---|---|---|---|
| G | 69 | 6.4/10.9 | 3.7/13.4 | 5.9/14.2 | 5.4/14.2 | 5.7/12.9 | 78.4 |
| | 72 | 5.1/9.3 | 3.0/12.2 | 4.1/13.2 | 5.3/11.5 | 3.6/12.5 | 96.9 |
| C | 70 | 6.7/11.1 | 5.6/13.3 | 5.5/15.1 | 5.3/15.4 | 6.3/15.1 | 82.5 |
| | 71 | 6.8/10.6 | 5.0/11.4 | 4.1/12.7 | 5.0/15.0 | 4.8/14.4 | 86.0 |
| | 73 | 5.2/8.7 | 2.5/9.7 | 2.2/13.0 | 4.0/13.0 | 4.3/13.4 | 88.0 |
| | 74 | 5.3/9.1 | 2.7/10.8 | 3.4/13.3 | 3.1/12.6 | 2.6/12.8 | 86.7 |
| | 75 | 8.4/12.2 | 5.8/11.3 | 4.4/14.0 | 3.5/12.9 | 3.2/13.0 | 93.9 |

1) $t_f$ is 14, 15, 15, 14, 12, 10, and 13 minutes for the runs listed.

2) $T_b$,f is the calculated bulk pool temperature at t = $t_f$.

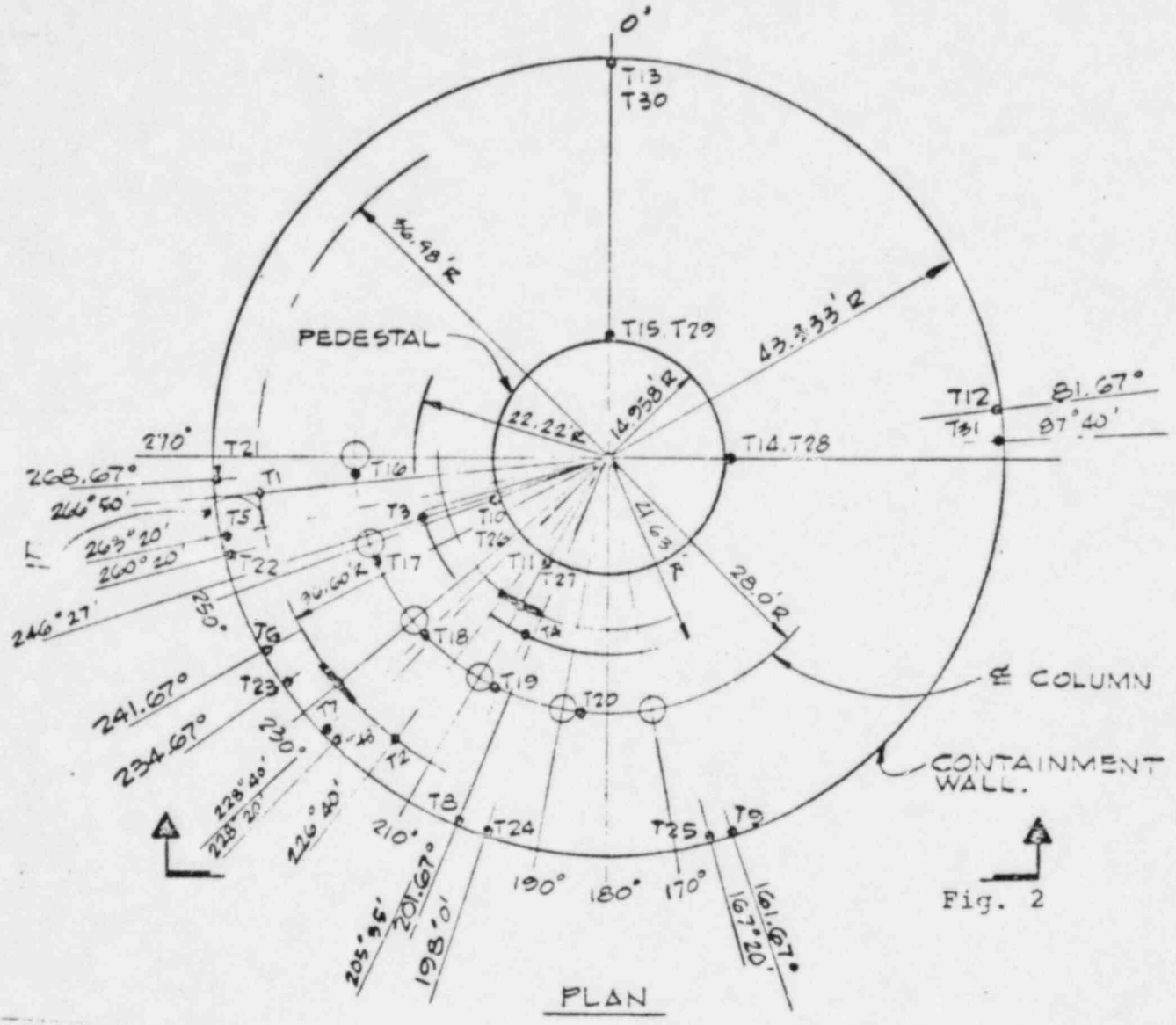
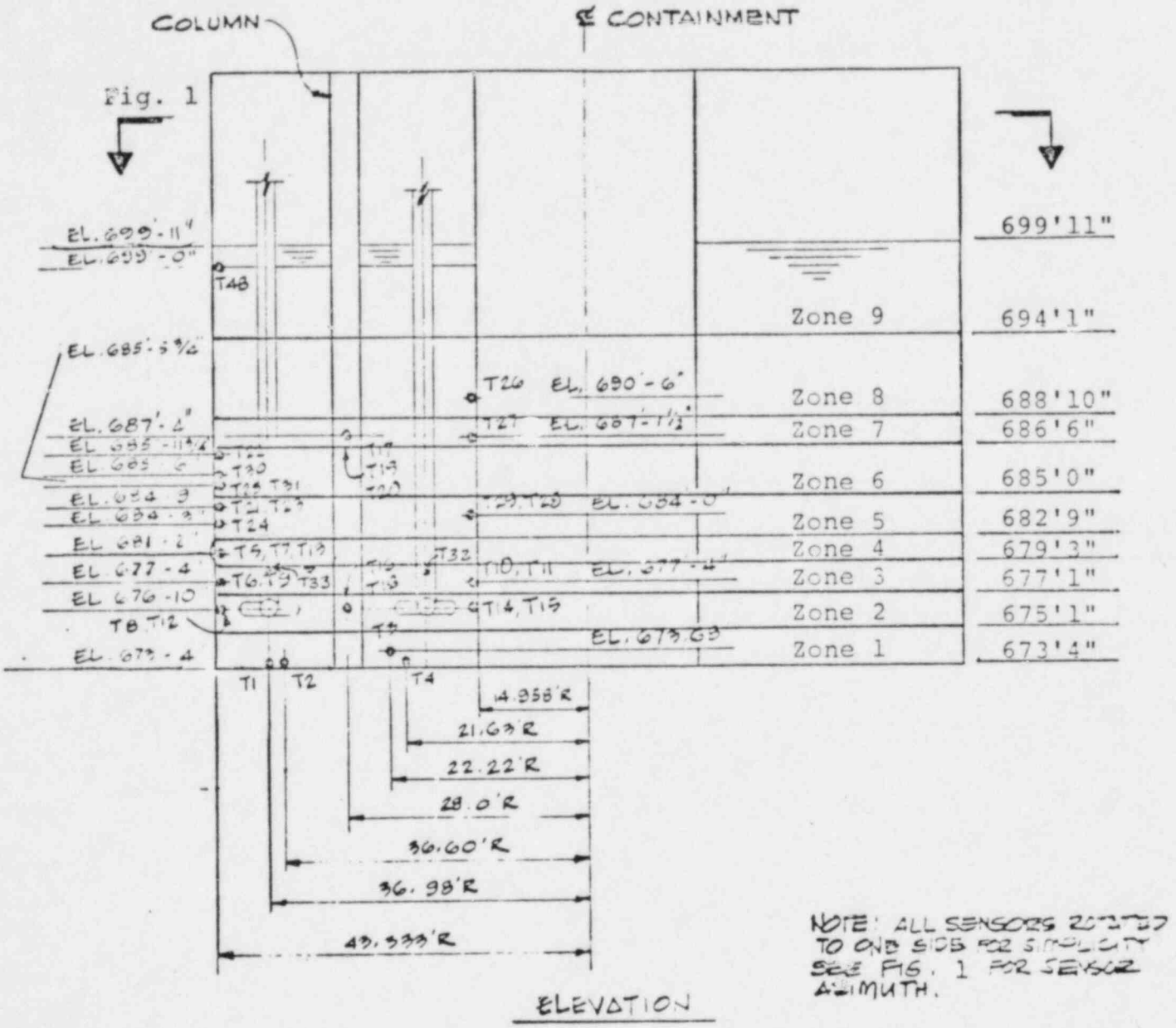



Fig. 2

FIGURE: 1 - TEMPERATURE SENSOR LOCATIONS IN SUPPRESSION POOL - PLAN VIEW




TEMPERATURE SENSOR LOCATION AND ZONE MAP FOR SUPPRESSION POOL - ELEVATION VIEW

FIGURE 2

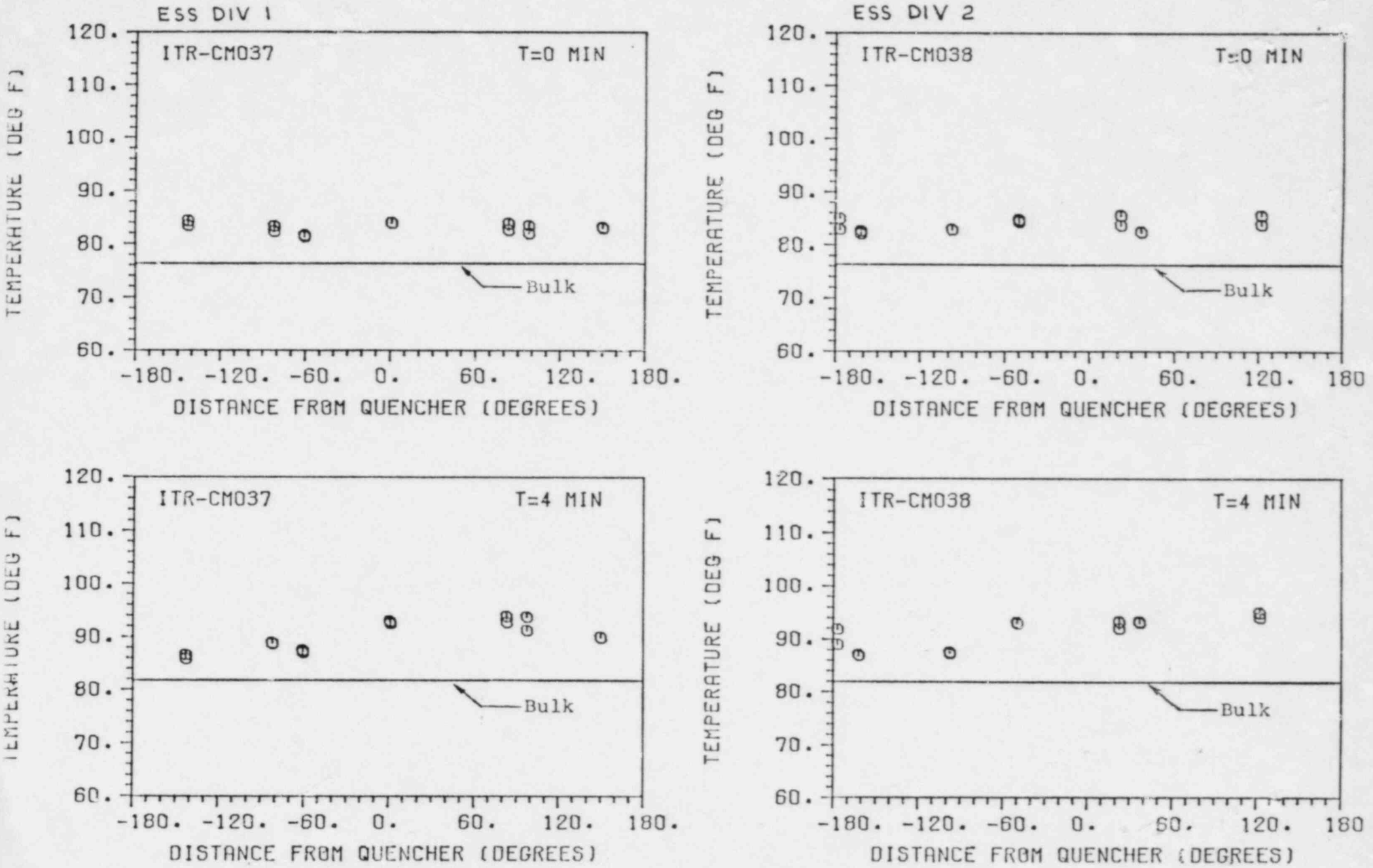
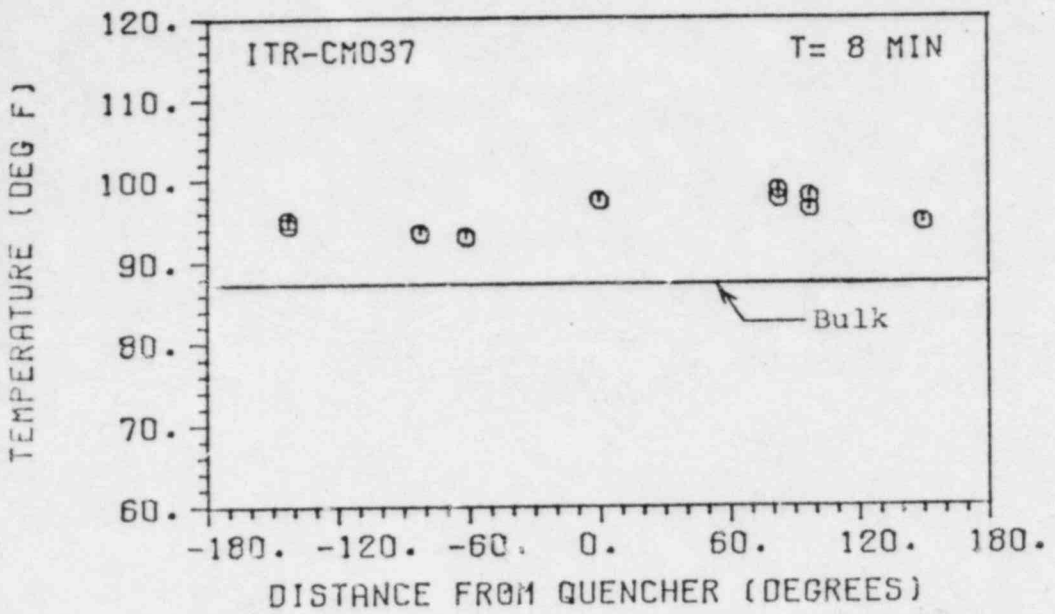
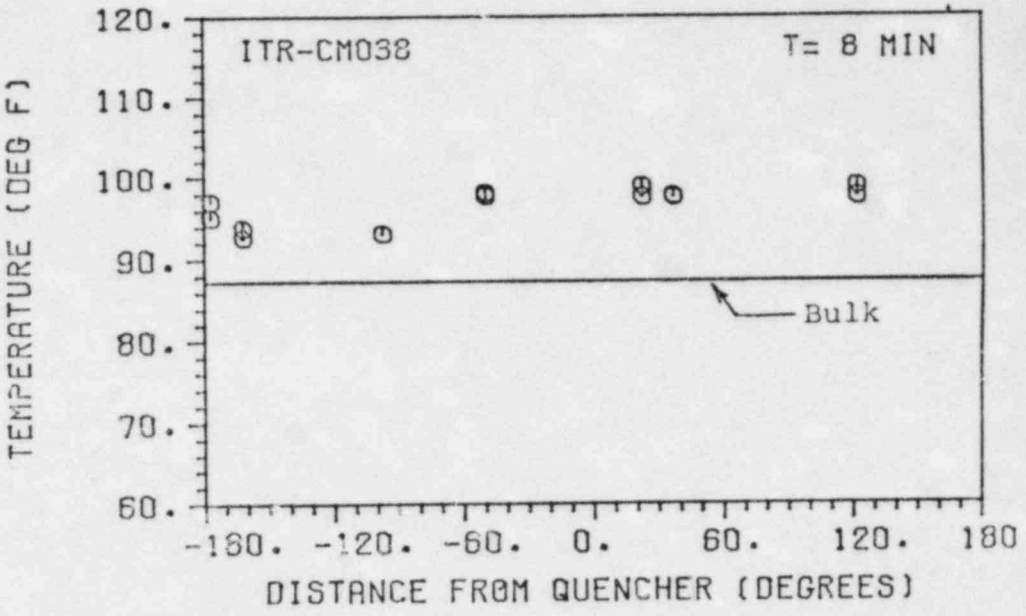
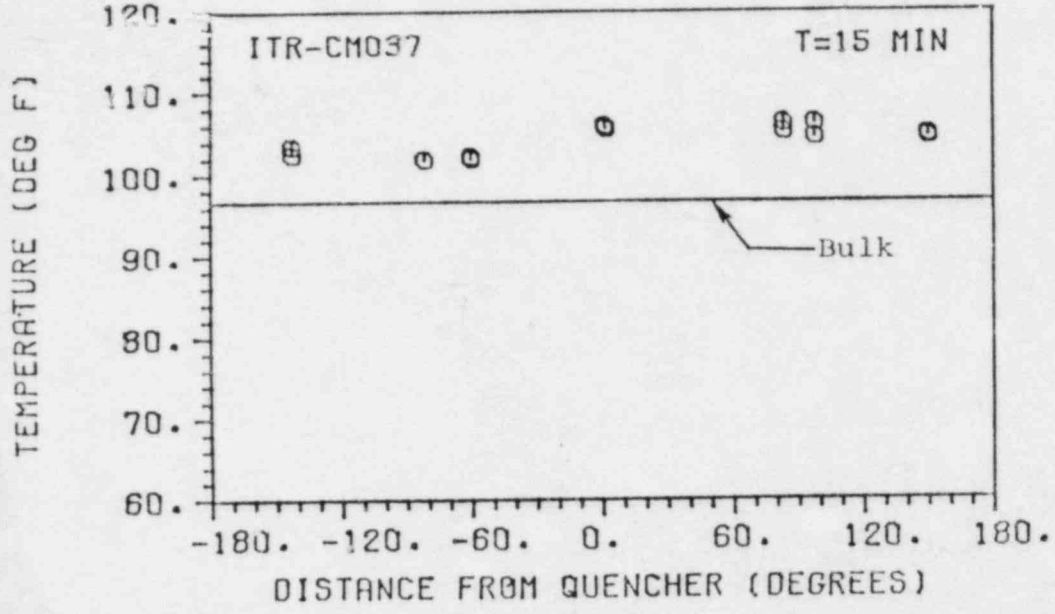



FIGURE 7: POOL TEMPERATURE MONITORING SYSTEM - RUN 72



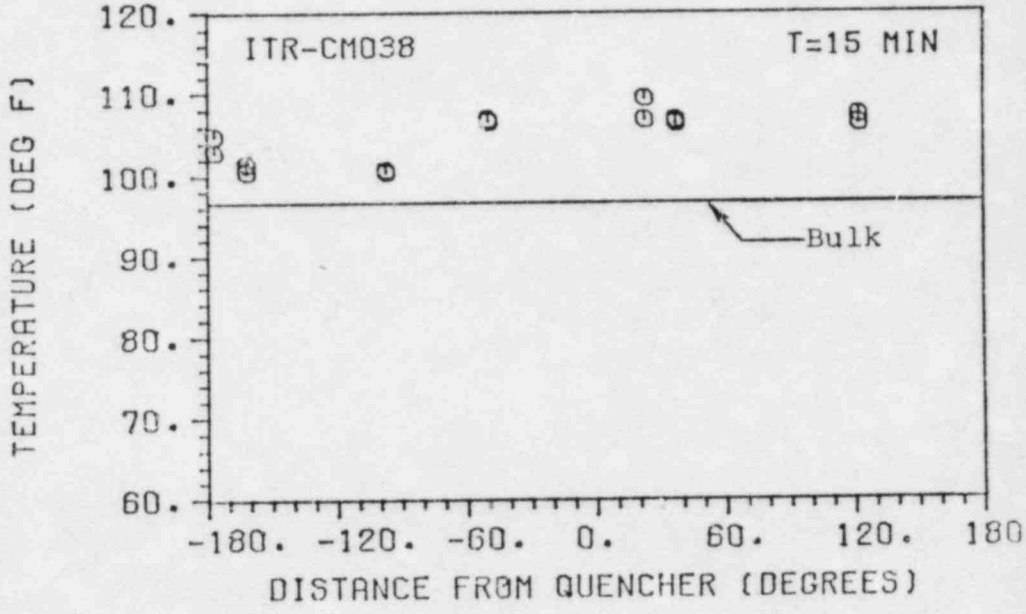




FIGURE 8: POOL TEMPERATURE MONITORING SYSTEM - RUN 72