

TENNESSEE VALLEY AUTHORITY
DIVISION OF NUCLEAR POWER

REACTOR BUILDING CONTAINMENT
INTEGRATED LEAK RATE TEST
SEQUOYAH NUCLEAR PLANT UNIT 2
CONDUCTED November 20-21, 1984

DOCKET NUMBER 50-328

Submitted to
The United States Nuclear Regulatory Commission
Pursuant to
Facility Operating License

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DEFINITION OF SYMBOLS AND ABBREVIATIONS

CILRT	Containment integrated leak rate test
E	Repeatability error
e	Absolute error
ξ	Measurement system error
$^{\circ}\text{F}$	Temperature, degrees Fahrenheit
ISG	Instrument Selection Guide
L_A	Full-pressure design basis leakage
L_{AM}	Containment leak rate during full-pressure CILRT
L_R	Imposed leak rate for verification
L_{RM}	Containment leak rate during verification
LLRT	Local leak rate test
P	Pressure
P_a	Design accident pressure
psia	Absolute pressure
psig	Gauge pressure
$^{\circ}\text{R}$	Temperature, degrees Rankine
T	Temperature
T_{dp}	Dewpoint temperature
t	Time
UCL	Upper confidence limit
V	Containment volume, cubic feet
MLR	Mass Leak Rate
TTLR	Total Time Leak Rate

1.0 SUMMARY

A reactor building containment integrated leak rate test (CILRT) was conducted at Sequoyah Nuclear Plant (SNP) unit 2 November 20-21, 1984, in conjunction with the cycle 2 outage. The CILRT was concluded in 25 hours and 29.5 minutes and included 120 samples.

The initially measured leakage rate was approximately 0.22 percentage of containment air mass per day (% per day) as calculated by the mass leak rate (MLR) method prescribed in ANS 56.8. Thus the initially measured leakage rate exceeded the SNP unit 2 allowable limit of 0.1875 percentage of containment air mass per day ($.75 L_A$).

Packing leaks were found on the root valves of two containment pressure sensing lines located on panels 2-L-188 and 2-L-189 and were subsequently repaired. This resulted in a reduction in the measured leakage rate to below the allowable limit. Further discussion is included in the test results section of this report (section 7.0) along with a schedule for the future CILRT testing on unit 2.

The final reportable leakage rate was 0.16026 percentage of containment air mass per day as calculated by the mass leak rate (MLR) method prescribed in ANS 56.8, and the observed 95% upper confidence limit (UCL) was 0.16191% per day. The above mentioned 95% UCL includes leakage measured from Type B&C tests for testable lines that were in service during the test. The reportable mass leak rate was 85% of the allowable 0.1875% per day ($0.75 L_A$).

2.0 INTRODUCTION

As prescribed in Sequoyah Nuclear Plant (SNP) unit 2 Technical Specification 4.6.1.2, the leakage of air from the boundary forming the reactor building primary containment is limited to 0.25 percent by weight of the containment air mass per day at a pressure of P_a , 12.0 psig. In conformance with Title 10, Code of Federal Regulations, Part 50, Appendix J, Sequoyah Technical Specifications require that a reactor building CILRT be performed as part of the surveillance programs to demonstrate the continuing leak-tight integrity of the reactor building primary containment.

The first inservice reactor building CILRT was successfully completed on Sequoyah unit 2 by personnel of Tennessee Valley Authority (TVA) on November 21, 1984. This test was conducted in accordance with a plant approved surveillance instruction, SNP SI-156, which is on file at the plant site. This surveillance instruction implements the requirements of Sequoyah unit 2 technical specifications and 10 CFR 50, Appendix J. The American National Standard for Containment Testing, ANSI 45.4-1972, the proposed American Nuclear Society for Containment Testing, ANS 56.8, and the procedure outlined in Bechtel's topical report, "Testing Criteria for Integrated Leakage Rate Testing of Primary Containment Structures for Nuclear Power Plants" (BN-TOP-1, Revision 1) provided guidance for the procedure implemented by the surveillance instruction.

Sequoyah unit 2 is a 3,411 megawatts thermal, pressurized-water reactor employing an ice condenser pressure suppression containment. The Final Safety Analysis Report defines the calculated peak accident pressure, P_a , to be 12.0 psig. The reactor building containment is divided into four major compartments for the CILRT analysis--the lower ice condenser compartment which houses the energy-absorbing ice beds, the upper ice condenser compartment which encloses the support equipment for the ice condenser system, the lower compartment which contains the reactor and the main piping systems, and the upper compartment which provides for a large work area within containment and also can accommodate the displaced air mass from the other compartments in the unlikely event of a loss-of-coolant accident (LOCA). These four compartments are connected by means of blowout panels located between the lower compartment and the lower ice condenser compartment and between the upper and upper ice condenser compartments. In the event of a LOCA, steam flows from the lower compartment through the ice condenser compartments and into upper containment. The upper compartment is sealed from the lower compartment to ensure that any steam released in an accident will be forced through energy-absorbing ice beds. For the performance of the CILRT, the lower and upper compartments were not sealed from each other to promote the free flow of air in containment.

This report outlines the objectives, principal events, special equipment used, and analysis of the test results for the CILRT completed on November 21, 1984 on Sequoyah unit 2.

3.0 TEST PURPOSE AND RESULTS

3.1 Test Purpose

The objective of the inservice Containment Integrated Leak Rate Test was to demonstrate the continuing leak-tight integrity of the unit 2 reactor building containment for return-to-power operation.

For Sequoyah unit 2, the leak-tight integrity is defined in Technical Specification 4.6.1.2 to be that the leakage of air from containment is not to exceed 0.1875 percent per day (0.0078 percent per hour) at peak accident pressure, P_a .

3.2 Test Results

The initial pressurization of primary containment to 12.70 psig was completed at 1439 hours on November 17, and the pressurization penetration (X-54) was isolated.

The 4-hour stabilization period was satisfactorily completed at 1918 hours on the 17th (see table 7), during which the primary containment boundary was tested for previously undetected leakage using a soap solution. No significant leakage was discovered other than that found during the type B&C testing. The temperature and pressure data taken during the stabilization period are shown graphically in figures 10 and 11.

The CILRT sampling period began immediately after stabilization was reached at 1918 hours on the 17th. The leakage rate was approximately 0.24% per day and showed a slightly upward trend.

Test engineers noticed that the upper-ice compartment was experiencing a significant and steady temperature increase above its normal operating range of 19°F to a maximum temperature of 28.97°F at 2108 hours on the 17th (shown in figure 12). The shift engineer verified that two glycol recirculation pumps for unit 2 had tripped off, thereby causing the warming trend in this compartment. SNP operators restarted the two glycol recirculation pumps at 0318 hours on the 18th. This caused the upper-ice compartment temperature to immediately begin a rapid cooling trend that lasted for approximately 17 hours until the temperature in the upper-ice condenser compartment stabilized within its normal range (see figure 12). The containment leakage rate subsequently followed this cooling trend with a slightly downward trend to a value of approximately 0.22% per day at 1953 hours on November 18, shown in figure 13. TVA personnel continued efforts to locate previously unidentified leakage that could cause the leakage rate to exceed the allowable limit of 0.1875% per day (0.75 L_A).

Some problems were experienced with the mensor quartz manometer gauges used to measure the containment test pressure during the CILRT. One of the two gauges measuring the pressure in the upper compartment began malfunctioning and was replaced at 2100 hours on the 18th. Next, a small leak in a polyflo tubing connection terminating at the two gauges measuring the upper-ice compartment pressure was found and repaired at 0845 hours on the 19th. Finally, at 0755 hours on the 20th, another gauge monitoring the pressure in the upper compartment malfunctioned and was disconnected from the pressure sensing line leaving a single quartz manometer to measure pressure in this compartment.

The Reactor Coolant System (RCS) Pressurizer water level was continuously monitored by the CILRT data acquisition system throughout the CILRT period so that adjustments could be accurately made to the containment "free-air" volume calculations. Other component levels in the RCS were monitored via plant instrumentation by plant personnel during the CILRT to account for other "free-air" volume changes not reflected by the pressurizer. With the exception of the RCS, all other components exposed to CILRT pressure were at 100% level for the duration of the CILRT and subsequent verification test. Thus, no additional "free-air" volume adjustments were necessary. Test engineers requested that operations control the water level in the primary system so that no abrupt level changes would occur. Earlier on the 18th the RCS pressurizer water level transmitter signal was temporarily lost at two different times because the sensing cable was damaged and in each instance had to be repaired.

TVA personnel made two entries into primary containment on the 20th to search for unidentified leakage paths. The first containment entry was made at 0030 hours, followed by the second entry at 0930 hours, with neither entry detecting any significant leakage.

Packing leaks were found at 1030 hours on the 20th in the unit 2 annulus on root valves of containment pressure sensing lines located on panels 2-L-188 and 2-L-189. The packing was tightened and immediately the leakage rate began to decrease. The CILRT test period was rebased to sample 67 at 1245 hours on the 20th with the leakage rate at approximately 0.1690% per day and following a slightly downward trend.

The CILRT was conducted for 25.49 hours and 120 data samples were collected. The leak rate reported by the mass method (MLR) was 0.16026 percentage of containment air mass per day (0.0067% per hour), and is shown graphically in figure 14. The observed 95 percent upper confidence limit for the measured mass leak rate was 0.16191% per day (0.0067% per hour). This reportable leak rate represents 85% of the allowed 0.18750 percentage of containment air mass per day ($0.75L_A$) as described in Technical Specification 4.6.1.2. The calculated total time leak rate (TTLR) was 0.15692% per day and is shown graphically in figure 15, with a 95 percent upper confidence limit of 0.2207% per day. The higher TTLR confidence limit is due primarily to the different calculation technique used to determine confidence limits in the total time analysis as defined in BN-TOP-1, Revision 1.

After the completion of the CILRT, a supplemental imposed leakage verification test was conducted to check the results of the CILRT. The imposed leakage was measured using a mass flow meter technique, utilizing a Hastings Mass Flowmeter. A leakage rate (L_R) of $0.9581 L_A$ was imposed on the containment building.

The calculated containment mass leak rate (L_{RM}) during the 4.23 hour verification test was 0.36250 percentage of containment air mass per day shown graphically in figure 23. Agreement, as shown in Appendix B using MLR, between the CILRT and the verification test was achieved and was found to be $-0.1546 L_A$ which is clearly within the $\pm 0.25 L_A$ required by 10 CFR 50, Appendix J.

The calculated TTLR during the 4.23 hour verification test was 0.35692 percentage of containment air mass per day and is shown graphically in figure 24. Agreement, using TTLR, between CILRT and the verification test was also achieved and was found to be $-0.1635 L_A$.

The leak-tight integrity of Sequoyah Nuclear Plant unit 2 was accurately measured and recorded by computer-based instrumentation. The computer-based data acquisition system provided reliable, immediate calculations of test data, which allowed test engineers to more easily monitor important test parameters.

The CILRT and subsequent verification test were completed at 2242 hours on November 21, 1984.

4.0 CONDUCT OF TEST

In compliance with Surveillance Instruction SNP SI-157, local leak rate tests were performed on containment closures (hatches and resilient seals), bellows, and electrical penetrations. Local leak rate tests were also performed on valves forming the boundary of the primary containment in accordance with surveillance instruction SNP SI-158.1. The above mentioned surveillance instructions were performed prior to the CILRT. All valves and penetrations satisfactorily met leakage requirements prior to the performance of the CILRT.

Appendix D shows a complete summary of the LLRT performed on SNP unit 2 since the preoperational CILRT performed in February 1981.

Figure 1 depicts the sequence of events for the CILRT and its verification conducted November 20-21, 1984. The following is an accounting of significant events occurring during the test program.

<u>Date and Time</u>	<u>Event</u>
11/12/84 1600	RCS pressurizer water level sensing line connected to CILRT equipment.
11/15/84 0900	Received administrative control of unit 2 reactor building.
11/16/84 0500	All CILRT instrumentation in place and calibrated.
11/16/84 1900	Lower air lock door passed leak rate test.
11/16/84 1930	Temperature increasing significantly in upper-ice compartment.
11/16/84 2000	Upper airlock door passed leak rate test.
11/16/84 2200	Volume weighted dewpoint sensor location (8) to 0.00 and adjusted locations (7) and (9) accordingly due to erratic readings at location (8).

<u>Date and Time</u>		<u>Event</u>
11/16/84	2300	All prerequisites complete.
11/17/84	0033	Begin containment pressurization with one compressor.
11/17/84	0230	Compressor shut down.
11/17/84	0300	Both compressors are now in service. Resume pressurization of containment.
11/17/84	0512	Containment pressurization assembly rupture disk blew. Shut down compressors.
11/17/84	0516	Average containment pressure is 5.6451 psig.
11/17/84	0626	Rupture disk replaced.
11/17/84	0717	Resume pressurization with both compressors.
11/17/84	0730	Average containment pressure is 5.9935 psig shut compressors down.
11/17/84	0740	Resumed pressurization with both compressors.
11/17/84	0755	Second rupture disk blew. Shut compressors down.
11/17/84	1008	Rupture disk replaced. Resume pressurization.
11/17/84	1020	Average containment pressure is 6.39 psig.
11/17/84	1044	Average containment pressure is 7.1920 psig. Shut compressors down.
11/17/84	1054	Resumed pressuization with both compressors.
11/17/84	1059	Average containment pressure is 7.34 psig.
11/17/84	1135	Average containment pressure is 8.45 psig. Shut down compressors.
11/17/84	1145	Resume pressurization.
11/17/84	1224	Average containment pressure is 9.66 psig. Shut down compressors.
11/17/84	1234	Resume pressurization.
11/17/84	1309	Average containment pressure is 10.79 psig. Shut down compressors.
11/17/84	1319	Resume pressurization.
11/17/84	1359	Average containment pressure is 12.04 psig. Shut down compressors.

<u>Date and Time</u>		<u>Event</u>
11/17/84	1409	Resume pressurization with one compressor.
11/17/84	1429	Average containment pressure is 12.35 psig.
11/17/84	1439	Average containment pressure is 12.70 psig. Shut down compressors. Test pressure reached.
11/17/84	1500	Closed manual isolation valve on CILRT pressurization penetration (X-54). Compressor discharge line is vented.
11/17/84	1518	Sample 1 of stabilization period, average containment pressure at 12.68 psig.
11/17/84	1530	Began bubble testing of penetrations and leakage paths.
11/17/84	1800	Completed bubble testing of penetrations and leak paths.
11/17/84	1918	Containment temperature stabilization criteria met.
11/18/84	0318	Operations reported two glycol recirculation pumps tripped off. Pumps were restarted.
11/18/84	0730	Upper-ice compartment temperature rapidly cooling for previously four hours.
11/18/84	0920	RCS pressurizer water level transmitter was lost. Signal cable to CILRT data acquisition system was damaged.
11/18/84	1000	RCS pressurizer water level transmitter sensing cable is repaired.
11/18/84	1617	Pressurizer water level signal was lost again. Repairs were made to the sensing cable and sampling was resumed.
11/18/84	2100	A mensor quartz manometer measuring pressure in upper compartment is malfunctioning and was replaced.
11/18/84	2135	Entered annulus to identify possible leakage.
11/19/84	0845	Found leak in polyflo tubing terminating at CILRT pressure gauges measuring upper-ice compartment pressure. Leaks were repaired.
11/19/84	0902	Due to data disk storage limitations began sampling on a new CILRT data disk.
11/19/84	2005	Rebased CILRT to sample 54.

<u>Date and Time</u>		<u>Event</u>
11/20/84	0005	Mass leak rate is 0.199%/day.
11/20/84	0030	Entered containment to search for previously unidentified leakage.
11/20/84	0108	Operations filled RCS pressurizer to 34% level. CILRT data acquisition system accurately tracking volume increase to pressurizer.
11/20/84	0328	Exited containment. No leakage was identified.
11/20/84	0535	Rebased CILRT to exit from containment entry.
11/20/84	0755	Disconnected suspect mensor pressure gauge from pressure sensing line, leaving only a single quartz manometer measuring upper compartment pressure.
11/20/84	0805	Upper and lower compartment pressure readings agree with each other.
11/20/84	0915	Second containment entry.
11/20/84	0930	Test personnel entered annulus in search of leakage.
11/20/84	1015	Rebased CILRT to sample 139.
11/20/84	1030	Leakage was discovered at two containment pressure transmitter panels 2-L-188 and 2-L-189 located in the annulus.
11/20/84	1040	Leakage found on containment pressure transmitter panels was eliminated following repairs to transmitter root valves.
11/20/84	1215	Exited containment with no leakage detected.
11/20/84	1506	Removed DPE-10 from CILRT due to erratic readings.
11/20/84	1814	Rebased to sample 62.
11/21/84	0402	Mass leak rate is 0.16986%/day at sample 147.
11/21/84	0832	Mass leak rate trending slightly downward at 0.16558%/day.
11/21/84	1415	CILRT concluded with 25.491 hours of data, samples 67 through 186. Reportable MLR value 0.16026 per day and a TTLR value of 0.15692 per day.

<u>Date and Time</u>		<u>Event</u>
11/21/84	1725	Imposed leakage for verification test of 103653.55 SCCM.
11/21/84	1735	Verification sample 1.
11/21/84	2030	Rebased verification data to sample 8.
11/21/84	2242	Completed verification test with 4.232 hours of data, samples 8 through 58. Verification per the 10 CFR 50 Appendix J method was $-0.1546 L_A$ for MLR method and $-0.1635 L_A$ for TTLR method.
11/22/84	0000	Began depressurization of containment .
11/22/84	0620	Began post-test instrumentation in-place functional check.
11/22/84	0730	Depressurization complete.
11/22/84	1000	Completed post-test in-place functional check of CILRT instrumentation.

5.0 MEASUREMENTS AND CALIBRATIONS

5.1 Test Equipment

Table 1 lists the range, accuracy, and repeatability of the special test equipment used in the unit 2, cycle 2 CILRT. Prior to the start of the CILRT, all test equipment was calibrated by the TVA Central Laboratories or other facilities with standards traceable to the National Bureau of Standards. After installation of all special test equipment inside containment, each sensor was checked for functional operation. The special test instrumentation interfaces with a portable minicomputer which produces highly accurate remote scanning of temperature, pressure, and dewpoint sensors. Upon test completion and depressurization each sensor was again functionally checked to ensure adherence to calibration.

Pressurization for the CILRT was achieved using portable high-capacity air compressors. The compressors were rated at 3,500 SCFM of dry, oil-free air, and brought containment to test pressure in approximately 15 hours, including final "topping off" stages of presurization.

5.2 Sensor Location

Table 2 lists the final volumetric weighing factor for each temperature and dewpoint sensor based on the 4-compartment model. Figures 3 through 8 indicate sensor locations. The pressure sensors were divided so that initially two sensors measured

each of the four compartments through penetrations X-27C, X-87D, X-87A, and X-98. Utilizing two pressure sensors per compartment allows the removal of any one malfunctioning pressure gauge during the test and continue to accurately monitor containment pressure. An additional pressure gauge measured barometric pressure at the test station.

5.3 Computer-Based Data Acquisition and Data Reduction

The raw test data measured by the special test instrumentation during the Sequoyah Nuclear Plant unit 2 CILRT was scanned and collected by a microprocessor based data acquisition system. This raw test data was automatically presented to a portable minicomputer system for correction to calibration curves and reduction to containment leak rate. The minicomputer produced immediate statistical and graphical results of the containment test parameters, including temperature, pressure, vapor pressure, mass, and mass leak rate plots.

These calculated results were reported automatically to the test director as the data was collected. Figure 2 depicts the functional relationship between the special test instrumentation and the data acquisition and analysis system.

All calculations performed by the minicomputer system were in conformance with the procedures outlined in ANS 56.8, ANSI 45.4 and Bechtel Topical Report (BN-TOP-1, Revision 1).

Source listings for all computer programs are on file with the Division of Nuclear Services, Mechanical Branch, in Chattanooga, Tennessee. Table 3 identifies the principal function of each computer program.

5.4 Reactor Building Containment Model

An ice condenser pressure suppression containment presents special problems not normally encountered in the leak testing of dry containment structures. The pressure suppression design feature requires the reactor building containment to be divided into distinct compartments, where vastly different temperatures and vapor pressures may exist. While each compartment is vented to the containment atmosphere during the performance of the CILRT, the direct circulation of air is limited.

Since an ice condenser containment typically exhibits a 40°F temperature differential between the ice compartments and others, it is necessary to compensate by compartmentalization so the leak rate is accurately measured. For Sequoyah unit 2 CILRT, a 4-compartment containment model was used to measure the leak rate. The free air mass is calculated individually for each compartment, and containment leak rate is calculated

from the sum of the compartmental masses. Each sensor within a compartment is volume weighted for the calculation of compartment average temperature and vapor pressure. Figure 9 depicts the four compartments used in the Sequoyah unit 2 reactor building containment model.

6.0 ANALYSIS OF TEST DATA

The previous sections of this report have discussed the general test conduct, calibration methods, and test equipment. In this section events and problems that influenced the test results are discussed and are used to formulate conclusions on the performance of the Sequoyah unit 2, cycle 2 CILRT.

6.1 Instrument Check

The data presented in this section reflects the test results following recalibration and deletion, if necessary, of the special test equipment used during the test.

Two humidity sensors were deleted prior to the start of the CILRT due to erratic readings. DPE-8, as shown in figure 3, was deleted and its volume weight was set equal to zero, with the volume weights for DPE's 7 and 9 adjusted accordingly. DPE-10 was also deleted and the vol. wts. for DPE's 11, 12, and 13 were adjusted to account for the loss.

Two temperature sensors, RTD's 19 and 26 were deleted following recalibration of the instruments by TVA's Central Laboratory. The recalibration indicated that the RTD's were slightly out of tolerance for the 0°F calibration point. RTD-19, located in the upper-ice compartment, was volume weighted equal to zero, with the volume weights for RTD's 15, 16, 17, 18, and 20 properly adjusted. RTD-26, located in the lower compartment, was also volume weighted to zero and the remaining 24 RTD's measuring the compartment were adjusted to account for the loss of RTD-26.

One of seven Mensor Quartz Manometer pressure gauges was found to be slightly non-conservatively out of tolerance in the range of pressure used during the CILRT when the gauges were recalibrated following the CILRT. The calibration report provided by TVA's Central Laboratory indicated that the manometer was producing readings slightly higher than the actual pressure. Test engineers corrected each pressure reading taken by the manometer, which was one of two measuring the lower compartment, during the CILRT and subsequent verification test.

The corrections made to the final CILRT and verification test data did not effect the success of the CILRT performed on unit 2. In addition, all final test results and reported data in this report reflect the above mentioned corrections.

The instrumentation error analysis of Appendix A indicates that the instrumentation used in the unit 2, cycle 2 CILRT was accurate to $0.0057 L_A$ in determining the containment leak rate for unit 2, far surpassing the recommendations of ANS 56.8 which states that the measuring system be capable of detecting $0.25 L_A$.

6.2 Discussion of Graphical and Tabular Results

The November 20-21, 1984, CILRT that was performed on unit 2 at Sequoyah Nuclear Plant was concluded after 120 samples were taken in 25.491 hours of testing. Figure 14 is a graphical representation of the MLR and figure 15 is a graphical representation of the TTLR, expressed as a percentage of containment air mass per day, during the CILRT. Tabulated data accumulated during the CILRT is shown in Table 4.

During the CILRT there were four noticeable pressure drops in the lower compartment. The magnitude of the pressure drops was approximately 0.004 psi and were between 4 and 9 hours apart as shown in figure 16. These pressure drops resulted in corresponding changes to the mass points in the lower compartment at the same intervals (see figure 17). Efforts were made by test engineers both during the test and in the weeks thereafter to determine the cause of the pressure drops, but no exact reason was discovered.

The temperature trends in the upper-ice compartment were cyclic in nature (see figure 18). The reason for the trends is directly related to the defrost cycles of the ice condenser air handling units. Those temperature trends resulted in corresponding mass trends in the upper-ice compartment as shown in figure 19.

Figures 20 through 22 show graphical representations of average temperatures, pressures, and masses during the 25.491 hour CILRT. Table 4 is a tabular listing of important measured parameters and corresponding results for the unit 2 CILRT.

Final results indicate a MLR of 0.16026 percent per day and a TTLR of 0.15692 percent per day. The associated 95 percent upper confidence limits for the Sequoyah unit 2, cycle 2 CILRT were 0.16191 percent per day for MLR and 0.22071 percent per day for TTLR.

After instrumentation received post-test calibrations, the calibration reports indicated that all instrumentation used in the unit 2 CILRT and subsequent verification test was in proper tolerance, with the exception of items already mentioned.

6.3 Discussion of Agreement (Verification Test)

Appendix J to 10 CFR 50 specifies the technique for the calculation of agreement between the CILRT and its subsequent verification. Appendix J requires the absolute value of the difference between the measured containment leak rate with a superimposed leak and the sum of the imposed leak and the measured containment leak rate be less than $0.25 L_A$.

The verification test was concluded at 2242 hours on November 21, 1984.

After collecting 51 samples in approximately 4 hours, agreement, as prescribed by Appendix J of 10 CFR 50, between the CILRT (L_{AM}) and the imposed leak rate (L_R) was reached at $-0.1546 L_A$ using MLR, which is well within the $\pm 0.25 L_A$ allowable limit.

Agreement was also reached using TTLR and was found to be $-0.1635 L_A$. Appendix B details the methods of agreement calculations.

Tabulated data collected during the 4 hour verification test is shown in Table 5.

At 0.583 hours into the verification test (sample 15), a temperature drop of approximately 0.03°F was experienced in the lower compartment followed by increases of approximately 0.02°F and 0.01°F for samples 16 and 17 as shown in figure 25. The temperature changes resulted in a corresponding increase of approximately 2.0 lbm followed by decreases of approximately 3.0 and 2.0 lbm in the lower compartment (see figure 26).

Similar to the four pressure drops previously discussed that occurred in the lower compartment during the CILRT, a pressure drop of 0.004 psi occurred at 3.315 hours into the verification test. The pressure in the compartment increased the following sample by 0.003 psi and then resumed a more normal rate of descent in figure 27. The result was a drop in compartmental mass of approximately 8.0 lbm at sample 47. The lower compartment mass then followed the subsequent pressure increase by increasing approximately 6.0 lbm after which the mass in the compartment normalized.

Figures 23 through 24 shows the mass and total time leak rate plots during the 4 hour verification test, while Figures 28 through 30 show graphical representations of average temperature and pressure and mass.

7.0 CONCLUSIONS

The reactor building containment integrated leak rate test performed on Sequoyah Nuclear Plant unit 2, cycle 2 November 20-21, 1984, recorded a MLR of 0.16026 percentage of containment air mass

per day, which clearly demonstrates the leaktight integrity of unit 2. The total leak rate of 0.16191 percent per day was less than the allowable 0.1875 percent of containment air mass per day as prescribed under Sequoyah Technical Specifications.

The technique of multicompartment modeling coupled with a computer-based data acquisition system yielded immediate results that accurately measured and displayed the unit 2 containment leak rate.

The next Sequoyah unit 2 CILRT is scheduled to be performed during the cycle 4 refueling outage approximately 9/87 followed by another after cycle 6. This schedule complies with the normal schedule as outlined in Appendix J to 10 CFR 50 and plant technical specifications.

T A B L E S

Table 1

<u>Measured Parameter</u>	<u>Manufacturer and Model No.</u>	<u>Number Used</u>	<u>Instrument Specification</u>	
Containment Temperature	Leeds & Northrup Model No. 178055	47	Range: Accuracy: Repeatability:	0-250°F ±0.1°F ±0.001°F
Containment Pressure	Mensor Corporation Model No. 10100-001	7	Range: Accuracy: Repeatability:	0-30 psia, 400,000 counts F.S. ±0.015 percent reading ±0.0005 percent reading
Containment Dewpoint	Foxboro Corporation Model No. 2701 RG	11	Range: Accuracy: Repeatability:	-50 to +142°F ±1°F dewpoint ±0.10°F
Analog to Digital Converter	Acurex Corporation Autodata Ten/10	1	Accuracy:	±0.001°F dewpoint ±0.001°F temperature ±1 count pressure
Verification Flow	Teledyne-Hastings Mass Flow Meter Model AHL25 with H-3M Transducer TVA No. 4699.36	1	Range: Accuracy: Repeatability:	0-5 SCFM ±2 percent of range ±½% of range
Mensor Chamber Temperature	Princo ASTM 19L	7	Range: Accuracy:	49° to 57°C ±0.12°C
Atmospheric Pressure	Mensor Corporation Model No. 10100-001	1	Range: Accuracy:	0-30 psia ±0.015% reading
RCS Pressurizer Water Level	Plant Process Transmitter Model LT-68-321	1	Range: Accuracy:	0-100 level ±5 percent F.S.

TABLE 2
VOLUMETRIC WEIGHTING GROUPS

<u>Temperature</u>	<u>Number of Transducers</u>	<u>Segment Volume</u>	<u>Volumetric Weight Per Sensor by Compartment (Percent)</u>
I. Upper compartment	14	651,000	7.1429
II. Lower compartment	24	383,720	4.1667
III. Ice-upper compartment	5	47,000	20.0000
IV. Ice-lower compartment	4	110,500	25.0000
	<u>47</u>		
 <u>Dewpoint</u> 			
I. Upper compartment	3	651,000	33.3333
II. Lower compartment	3	383,720	33.3333
III. Ice-upper compartment	3	47,000	33.0000
IV. Ice-lower compartment	2	110,500	50.0000
	<u>11</u>		

TABLE 3

CONTAINMENT LEAKAGE MEASUREMENT
MINICOMPUTER ROUTINE SUMMARY

Routine Name

FORE	<ol style="list-style-type: none">a. Automatically acquires, stores, and corrects raw data to calibration curves.b. Calculates volumetric weighted containment air mass and leak rates as defined by ANS 56.8 (draft).c. Prints for each sample a summary with average parameters and containment leak rate.
TABLE	Provide a summary for all samples from test start of average parameters, including calculated containment leak rate.
TALLY	<ol style="list-style-type: none">a. Calculate statistical confidence levels for the measured leak rate from the test start.b. Provide a summary comparison of reportable leak rates as defined by ANS 56.8 (draft).
BASE	<ol style="list-style-type: none">a. Allow test director to change the sample considered the test base.b. Provide a summary for each sample leak rate recalculated with a shift in the test base.
PLOT	Provides graphical display of test data.
VERIFY	Calculates "induced-leakage" results during verification test.

TENNESSEE VALLEY AUTHORITY
CONTAINMENT LEAKAGE MEASUREMENT
TEST SUMMARY
CILRT
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SAMPLE	HOURS SINCE START	AVERAGE TEMPERATURE (DEG F.)	CORRECTED PRESSURE (PSIA)	TOTAL MASS OF AIR (LBH)	P-T-P LEAK RATE (% PER DAY)	TOTAL TIME LEAK RATE (% PER DAY)	MASS LEAK RATE (% PER DAY)
67	0.000	65.3345	26.7419	164312.27	0.0000000	0.0000000	0.0000000
68	0.167	65.3279	26.7416	164312.78	-0.0451870	-0.0451870	-0.0431317
69	0.333	65.3298	26.7411	164308.47	0.3779262	0.1663702	0.1663643
70	0.500	65.3389	26.7410	164304.75	0.3259014	0.2195448	0.2366062
71	0.667	65.3241	26.7401	164303.58	0.1027024	0.1903330	0.2234617
72	0.833	65.3113	26.7390	164300.98	0.2273162	0.1977272	0.2197060
73	1.000	65.3009	26.7364	164288.38	1.1051027	0.3489438	0.3133594
74	1.167	65.3015	26.7360	164285.89	0.2177507	0.3301974	0.3442635
75	1.333	65.2992	26.7368	164291.52	-0.4930279	0.2273042	0.3028757
76	1.500	65.2971	26.7370	164294.19	-0.2342446	0.1760368	0.2525474
77	1.667	65.2903	26.7371	164296.69	-0.2191125	0.1365232	0.2037559
78	1.833	65.2934	26.7353	164284.69	1.0517238	0.2197162	0.2091347
79	2.000	65.2695	26.7341	164284.72	-0.0027391	0.2011779	0.2044078
80	2.167	65.2711	26.7336	164281.19	0.3095142	0.2095077	0.2045523
81	2.335	65.2681	26.7334	164281.56	-0.0307655	0.1912608	0.1979137
82	2.511	65.2803	26.7333	164277.00	0.4013439	0.2051516	0.1987982
83	2.678	65.2592	26.7330	164282.11	-0.4478579	0.1645084	0.1859318
84	2.844	65.2339	26.7306	164275.06	0.6176686	0.1910575	0.1852626
85	3.011	65.2371	26.7303	164272.11	0.2588567	0.1948074	0.1853141
86	3.178	65.2293	26.7292	164268.31	0.3328218	0.2020424	0.1874311
87	3.344	65.2291	26.7288	164266.02	0.2013413	0.2020048	0.1876312
88	3.511	65.2139	26.7294	164274.27	-0.7231951	0.1580923	0.1802199
89	3.678	65.2243	26.7291	164269.48	0.4191034	0.1699174	0.1757530
90	3.844	65.2224	26.7278	164261.78	0.6752418	0.1918189	0.1773727
91	4.011	65.1988	26.7264	164260.52	0.1109781	0.1884591	0.1780138
92	4.178	65.1914	26.7259	164260.05	0.0410920	0.1825790	0.1770080
93	4.344	65.1914	26.7256	164258.34	0.1493014	0.1813004	0.1765675
94	4.511	65.1889	26.7254	164258.06	0.0246555	0.1755122	0.1746333
95	4.678	65.1775	26.7250	164259.39	-0.1164291	0.1651110	0.1711038
96	4.844	65.1775	26.7241	164253.73	0.4958469	0.1764850	0.1703905

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CONTAINMENT LEAKAGE MEASUREMENT
TEST SUMMARY
CILRT
ALL COMPARTMENTS

SAFTE	HOURS SINCE START	AVERAGE TEMPERATURE (DEG F.)	CORRECTED PRESSURE (PSIA)	TOTAL MASS OF AIR (LBM)	P-T-P LEAK RATE (% PER DAY)	TOTAL TIME LEAK RATE (% PER DAY)	MASS LEAK RATE (% PER DAY)
97	5.011	65.1687	26.7219	164243.09	0.9328271	0.2016314	0.1742603
98	5.178	65.1486	26.7225	164252.94	-0.8630236	0.1673704	0.1716762
99	5.471	65.1720	26.7217	164241.25	0.5827237	0.1896097	0.1736503
100	5.637	65.1615	26.7212	164241.20	0.0041244	0.1841446	0.1741081
101	5.803	65.1550	26.7206	164239.20	0.1753465	0.1838897	0.1743984
102	5.970	65.1526	26.7199	164235.80	0.2986407	0.1870897	0.1754554
103	6.137	65.1511	26.7188	164229.75	0.5301667	0.1964009	0.1779100
104	6.303	65.1466	26.7192	164234.34	-0.4027771	0.1805629	0.1777372
105	6.470	65.1157	26.7191	164243.23	-0.7795026	0.1558406	0.1736577
106	6.637	65.1080	26.7187	164243.75	-0.0452060	0.1507921	0.1693757
107	6.803	65.1081	26.7175	164235.81	0.6958957	0.1641391	0.1675963
108	6.970	65.1213	26.7166	164225.09	0.9400368	0.1826774	0.1684685
109	7.137	65.1034	26.7157	164225.91	-0.0712415	0.1767482	0.1687122
110	7.303	65.1098	26.7160	164226.39	-0.0424707	0.1717459	0.1682936
111	7.688	65.1024	26.7155	164225.95	0.0166057	0.1639762	0.1667161
112	7.854	65.1017	26.7142	164217.95	0.7039617	0.1753860	0.1668819
113	8.021	65.1113	26.7133	164209.36	0.7535487	0.1873907	0.1687772
114	8.188	65.0874	26.7132	164215.70	-0.5562851	0.1722594	0.1683253
115	8.354	65.0725	26.7131	164219.56	-0.3384165	0.1620754	0.1668516
116	8.521	65.0660	26.7129	164220.34	-0.0685038	0.1575661	0.1651024
117	8.688	65.0729	26.7115	164209.36	0.9631582	0.1730107	0.1651498
118	8.854	65.0605	26.7100	164203.64	0.5014786	0.1791877	0.1660193
119	9.021	65.0601	26.7095	164201.31	0.2041610	0.1796466	0.1667838
120	9.188	65.0462	26.7087	164200.95	0.0315152	0.1769590	0.1671560
121	9.354	65.0384	26.7089	164204.83	-0.3399105	0.1677564	0.1667736
122	9.521	65.0469	26.7090	164203.03	0.1575728	0.1675763	0.1662770
123	9.688	65.0371	26.7089	164205.14	-0.1849788	0.1615130	0.1653067
124	9.854	65.0410	26.7080	164198.58	0.5754821	0.1685082	0.1652350
125	10.021	65.0304	26.7061	164189.97	0.7550079	0.1782542	0.1660389
126	10.188	65.0239	26.7060	164191.25	-0.1123664	0.1735010	0.1660891

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TENNESSEE VALLEY AUTHORITY
CONTAINMENT LEAKAGE MEASUREMENT
TEST SUMMARY
CILRT
ALL COMPARTMENTS

SAMPLE	HOURS SINCE START	AVERAGE TEMPERATURE (DEG F.)	CORRECTED PRESSURE (PSIA)	TOTAL MASS OF AIR (LBM)	P-T-F LEAK RATE (% PER DAY)	TOTAL TIME LEAK RATE (% PER DAY)	MASS LEAK RATE (% PER DAY)
127	10.354	65.0200	26.7055	164189.86	0.1219577	0.1726699	0.1663009
128	10.521	65.0211	26.7048	164185.03	0.4234298	0.1766374	0.1667440
129	10.688	65.0192	26.7043	164182.23	0.2452950	0.1777051	0.1672894
130	11.029	65.0044	26.7023	164175.66	0.2821507	0.1809257	0.1681323
131	11.278	64.9833	26.7022	164181.12	-0.3205032	0.1698416	0.1678684
132	11.528	64.9887	26.7020	164179.50	0.0950054	0.1682168	0.1676767
133	11.778	64.9650	26.7017	164185.16	-0.3307557	0.1576320	0.1663311
134	12.028	64.9654	26.6996	164172.09	0.7638185	0.1702184	0.1663671
135	12.278	64.9568	26.6992	164172.25	-0.0091356	0.1665662	0.1659431
136	12.528	64.9610	26.6987	164168.13	0.2412248	0.1680518	0.1657046
137	12.778	64.9659	26.6972	164157.19	0.6396273	0.1772666	0.1664250
138	13.028	64.9412	26.6964	164159.53	-0.1370470	0.1712369	0.1664889
139	13.278	64.9485	26.6951	164150.23	0.5437117	0.1782399	0.1671015
140	13.528	64.9404	26.6958	164157.06	-0.3993537	0.1675738	0.1668982
141	13.778	64.9419	26.6950	164150.70	0.3718545	0.1712745	0.1670024
142	14.028	64.9267	26.6919	164136.61	0.8242929	0.1828971	0.1680450
143	14.278	64.9149	26.6930	164147.11	-0.6141601	0.1689534	0.1678585
144	14.528	64.9104	26.6918	164141.66	0.3188823	0.1715282	0.1680122
145	14.778	64.9877	26.6907	164142.12	-0.0274170	0.1681634	0.1677002
146	15.028	64.9837	26.6893	164135.06	0.4130819	0.1722303	0.1678632
147	15.278	64.9721	26.6880	164131.03	0.2357527	0.1732658	0.1680518
148	15.528	64.9638	26.6879	164132.92	-0.1105891	0.1686980	0.1678195
149	15.778	64.9675	26.6875	164129.70	0.1882735	0.1690049	0.1677070
150	16.028	64.8529	26.6849	164118.25	0.6698153	0.1768057	0.1681648
151	16.278	64.8436	26.6849	164120.97	-0.1590414	0.1716509	0.1681563
152	16.528	64.8409	26.6850	164122.78	-0.1060258	0.1674529	0.1678589
153	16.778	64.8337	26.6842	164120.69	0.1224543	0.1667803	0.1675997
154	17.028	64.8308	26.6824	164110.66	0.5867991	0.1729364	0.1678226
155	17.278	64.8370	26.6813	164101.73	0.5219358	0.1779766	0.1684124
156	17.528	64.7931	26.6811	164114.39	-0.7403041	0.1648912	0.1678722

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TENNESSEE VALLEY AUTHORITY
CONTAINMENT LEAKAGE MEASUREMENT
TEST SUMMARY

CILRT
ALL COMPARTMENTS

SAMPLE	HOURS SINCE START	AVERAGE TEMPERATURE (DEG F.)	CORRECTED PRESSURE (PSIA)	TOTAL MASS OF AIR (LBM)	P-T-P LEAK RATE (% PER DAY)	TOTAL TIME LEAK RATE (% PER DAY)	MASS LEAK RATE (% PER DAY)
157	17.778	64.8071	26.6806	164107.11	0.4259484	0.1685548	0.1676748
158	18.028	64.7865	26.6790	164163.58	0.2074991	0.1690913	0.1676359
159	18.278	64.7788	26.6787	164104.78	-0.0712877	0.1658043	0.1672769
160	18.528	64.7616	26.6781	164106.88	-0.1224902	0.1619167	0.1667215
161	18.778	64.7700	26.6775	164100.11	0.3958029	0.1650237	0.1664149
162	19.028	64.7503	26.6759	164096.17	0.2303191	0.1658778	0.1661654
163	19.278	64.7414	26.6757	164098.47	-0.1343806	0.1623204	0.1656522
164	19.528	64.7438	26.6753	164095.25	0.1883131	0.1623204	0.1651678
165	19.778	64.7168	26.6745	164098.59	-0.1955942	0.1577990	0.1645633
166	20.028	64.7229	26.6727	164085.47	0.7678779	0.1654014	0.1642721
167	20.278	64.7097	26.6728	164089.97	-0.2632935	0.1601210	0.1638550
168	20.991	64.6924	26.6697	164076.73	0.2713565	0.1638885	0.1636876
169	21.241	64.6741	26.6685	164075.64	0.0640570	0.1627136	0.1633318
170	21.491	64.6791	26.6687	164075.37	0.0155426	0.1610015	0.1639479
171	21.741	64.6693	26.6686	164077.70	-0.1362262	0.1575861	0.1624797
172	21.991	64.6721	26.6664	164063.17	0.8501032	0.1654460	0.1624402
173	22.241	64.6526	26.6653	164062.39	0.0457169	0.1640995	0.1623337
174	22.491	64.6472	26.6635	164053.23	0.5358045	0.1682218	0.1624786
175	22.741	64.6342	26.6633	164056.02	-0.1627322	0.1645859	0.1623958
176	22.991	64.6276	26.6628	164055.42	0.0347464	0.1631736	0.1622537
177	23.241	64.6270	26.6620	164050.27	0.3017457	0.1646590	0.1621952
178	23.491	64.5973	26.6621	164060.75	-0.6134565	0.1563875	0.1616701
179	23.741	64.6028	26.6616	164055.63	0.2999072	0.1578939	0.1612049
180	23.991	64.6084	26.6600	164043.34	0.7187026	0.1637257	0.1611332
181	24.241	64.5751	26.6592	164048.25	-0.2870842	0.1590808	0.1608423
182	24.491	64.5829	26.6592	164045.13	0.1828842	0.1593207	0.1605509
183	24.741	64.5825	26.6574	164034.16	0.6419358	0.1641865	0.1605674
184	24.991	64.5676	26.6564	164032.77	0.0813756	0.1633566	0.1605267
185	25.241	64.5691	26.6555	164026.64	0.3584869	0.1652832	0.1605057
186	25.491	64.5474	26.6554	164033.92	-0.4261763	0.1594901	0.1602558

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CONTAINMENT LEAKAGE MEASUREMENT
TEST SUMMARY
VERIFICATION TEST
ALL COMPARTMENTS

SAMPLE	HOURS SINCE START	AVERAGE TEMPERATURE (DEG F.)	CORRECTED PRESSURE (PSIA)	TOTAL MASS OF AIR (LBM)	P-T-P LEAK RATE (% PER DAY)	TOTAL TIME LEAK RATE (% PER DAY)	MASS LEAK RATE (% PER DAY)
8	0.000	64.4739	26.6395	163960.66	0.0000000	0.0000000	0.0000000
9	0.083	64.4749	26.6391	163957.63	0.5322824	0.5322824	0.5348628
10	0.167	64.4739	26.6390	163957.94	-0.0549056	0.2387695	0.2387630
11	0.250	64.4738	26.6391	163958.16	-0.0384128	0.1463587	0.1251313
12	0.333	64.4670	26.6385	163956.55	0.2827631	0.1804494	0.1350249
13	0.417	64.4766	26.6374	163947.31	1.6224722	0.4687825	0.3500647
14	0.500	64.4779	26.6365	163941.25	1.0646514	0.5681068	0.5019806
15	0.583	64.4506	26.6361	163946.83	-0.9801636	0.3469940	0.4438500
16	0.667	64.4504	26.6357	163944.61	0.3896416	0.3523223	0.4116865
17	0.750	64.4640	26.6352	163937.36	1.2739120	0.4546823	0.4423291
18	0.833	64.4476	26.6346	163938.78	-0.2497143	0.3842268	0.4287464
19	0.917	64.4316	26.6351	163947.28	-1.4936051	0.2135755	0.3454713
20	1.000	64.4262	26.6347	163946.59	0.1207337	0.2058358	0.2880872
21	1.083	64.4261	26.6347	163946.42	0.0302001	0.1923286	0.2455280
22	1.167	64.4298	26.6341	163941.77	0.8181499	0.2370145	0.2324303
23	1.250	64.4238	26.6336	163940.42	0.2359874	0.2369442	0.2231857
24	1.333	64.4290	26.6319	163928.16	2.1552722	0.3567943	0.2550882
25	1.417	64.4228	26.6317	163928.72	-0.0987936	0.3299884	0.2708228
26	1.500	64.4305	26.6306	163919.73	1.5788155	0.3993336	0.3023092
27	1.583	64.4207	26.6305	163922.17	-0.4281277	0.3557760	0.3161736
28	1.667	64.4297	26.6302	163917.38	0.8429838	0.3801205	0.3325975
29	1.750	64.4201	26.6299	163918.94	-0.2744448	0.3489452	0.3380104
30	1.833	64.4243	26.6300	163918.52	0.0741401	0.3364564	0.3389775
31	1.917	64.4113	26.6292	163917.64	0.1537725	0.3285137	0.3377090
32	2.038	64.4136	26.6289	163915.03	0.3139972	0.3276423	0.3363695
33	2.121	64.4115	26.6290	163916.20	-0.2072020	0.3067642	0.3307666

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CONTAINMENT LEAKAGE MEASUREMENT
TEST SUMMARY
VERIFICATION TEST
ALL COMPARTMENTS

SAMPLE	HOURS SINCE START	AVERAGE TEMPERATURE (DEG F.)	CORRECTED PRESSURE (PSIA)	TOTAL MASS OF AIR (LBM)	P-T-P LEAK RATE (% PER DAY)	TOTAL TIME LEAK RATE (% PER DAY)	MASS LEAK RATE (% PER DAY)
34	2.204	64.4101	26.6285	163913.69	0.4421021	0.3118745	0.3272701
35	2.288	64.4060	26.6274	163907.97	1.0050426	0.3371069	0.3294591
36	2.383	64.4025	26.6267	163904.89	0.4756481	0.3426109	0.3324152
37	2.466	64.4062	26.6261	163899.14	1.0139314	0.3652088	0.3390942
38	2.549	64.4005	26.6256	163898.19	0.1674300	0.3587387	0.3429575
39	2.632	64.3937	26.6250	163896.23	0.3432847	0.3582455	0.3464832
40	2.716	64.3966	26.6247	163893.50	0.4806043	0.3619936	0.3499867
41	2.799	64.3949	26.6251	163896.56	-0.5379902	0.3351963	0.3484200
42	2.899	64.3920	26.6246	163894.92	0.2409637	0.3319518	0.3474255
43	2.982	64.3866	26.6246	163896.77	-0.3249600	0.3136508	0.3430303
44	3.065	64.3822	26.6236	163891.38	0.9474740	0.3308693	0.3422221
45	3.148	64.3700	26.6230	163891.83	-0.0796016	0.3200022	0.3393354
46	3.232	64.3830	26.6223	163893.44	1.4748082	0.3497573	0.3417337
47	3.315	64.3850	26.6208	163873.73	1.7046553	0.3838069	0.3478721
48	3.398	64.3867	26.6205	163871.61	0.3735495	0.3835506	0.3537473
49	3.482	64.3674	26.6201	163874.75	-0.5520913	0.3611687	0.3557502
50	3.565	64.3722	26.6194	163869.27	0.9635519	0.3752421	0.3594443
51	3.648	64.3855	26.6195	163865.45	0.6702100	0.3819695	0.3638861
52	3.732	64.3810	26.6188	163862.77	0.4721946	0.3839788	0.3678174
53	3.815	64.3798	26.6186	163862.00	0.1345967	0.3785309	0.3702877
54	3.898	64.3594	26.6180	163864.77	-0.4859315	0.3600524	0.3705876
55	3.982	64.3620	26.6184	163866.89	-0.3735699	0.3447065	0.3688574
56	4.065	64.3525	26.6183	163868.95	-0.3623787	0.3302111	0.3656434
57	4.148	64.3485	26.6175	163865.55	0.5987952	0.3355984	0.3631360
58	4.232	64.3621	26.6173	163859.72	1.0245655	0.3491511	0.3624960

STOP --

TABLE 5
Page 2

TABLE 6
TESTABLE PENETRATIONS REQUIRED TO BE IN SERVICE DURING TEST PERFORMANCE

<u>Penetration</u>	<u>Description</u>	<u>Justification</u>	<u>Leakage Rate Added to 95% UCL</u>
X-27(C)	Integrated Leak Rate System Pressure	Isolation valves required to be open to monitor containment pressure.	0.0000 SCFH
X-47A	Ice Condenser System	Glycol cooling supply to air handling units in ice condenser required to ensure ice condition is maintained.	0.0000 SCFH
X-47B	Ice Condenser System	Same as X-47A.	0.0000 SCFH
X-54	Thimble Renewal	Used as pressurization point for air compressors.	0.0000 SCFH
X-98	Integrated Leak Rate System Pressure	Same as X-27(C).	0.0000 SCFH
X-114	Ice Condenser System	Glycol return from air handling units required to ensure ice condition is maintained.	0.0000 SCFH
X-115	Ice Condenser System	Same as X-114.	
X-118	Hatch	Used as source for verification flow and post test depressurization.	0.0000 SCFH
X-46	Waste Disposal	Used to provide leakoff for RCP seals.	0.0000 SCFH

TABLE 6
 TESTABLE PENETRATIONS REQUIRED TO BE IN SERVICE DURING TEST PERFORMANCE

<u>Penetration</u>	<u>Description</u>	<u>Justification</u>	<u>Leakage Rate Added to 95% UCL</u>
X-110	UHI	Required since reactor coolant pressure will exceed test pressure.	0.0406 SCFH
X-87A	Integrated Leak Rate System Pressure	Same as X-27C.	0.0000 SCFH
X-87D	Integrated Leak Rate System Pressure	Same as X-27C.	0.0000 SCFH

TENNESSEE VALLEY AUTHORITY
CILRT
TEMPERATURE STABILIZATION

TEMP. STABILIZATION CRITERIA:
ABS(AVG. RATE OF TEMP. CHANGE FOR LAST 4 HOURS - AVG. RATE OF TEMP. CHANGE FOR LAST HOUR)
MUST BE LESS THAN OR EQUAL TO 0.5 (DEG.F/HR.)

SAMPLE NO.	TIME	TEMPERATURE	RATE OF CHANGE OF CONTAINMENT TEMP. (DEG.F/HR)
1	0.000	68.5335	0.0000
2	0.166	68.4362	0.5847
3	0.333	68.3629	0.4400
4	0.500	68.2976	0.3917
5	0.666	68.2634	0.2053
6	0.833	68.2195	0.2635
7	1.000	68.1794	0.2405
8	1.166	68.1584	0.1257
9	1.333	68.1371	0.1280
10	1.500	68.0993	0.2268
11	1.666	68.0694	0.1791
12	1.833	68.0486	0.1250
13	2.000	68.0263	0.1338
14	2.166	68.0027	0.1419
15	2.333	67.9825	0.1211
16	2.500	67.9572	0.1515
17	2.666	67.9311	0.1328
18	2.833	67.9356	0.0039
19	3.000	67.9095	0.1577
20	3.166	67.9000	0.0568
21	3.333	67.8873	0.0764
22	3.500	67.8636	0.1424
23	3.666	67.8558	0.0465
24	3.833	67.8203	0.2130
25	4.000	67.8091	0.0674

THE AVG. RATE OF TEMPERATURE CHANGE FOR THE LAST 4 HOURS= 0.1815 (DEG.F/HR).

THE AVG. RATE OF TEMPERATURE CHANGE FOR THE LAST HOUR= 0.1004 (DEG.F/HR).

THE TEMP. STABILIZATION CHECK INDICATED A VALUE OF 0.0811 DEG.F/HR.,
WHICH IS ONLY 16.21 PERCENT OF THE RECOMMENDED 0.5 (DEG.F/HR).

TABLE 7

FIGURES

CILRT - SEQUENCE OF EVENTS

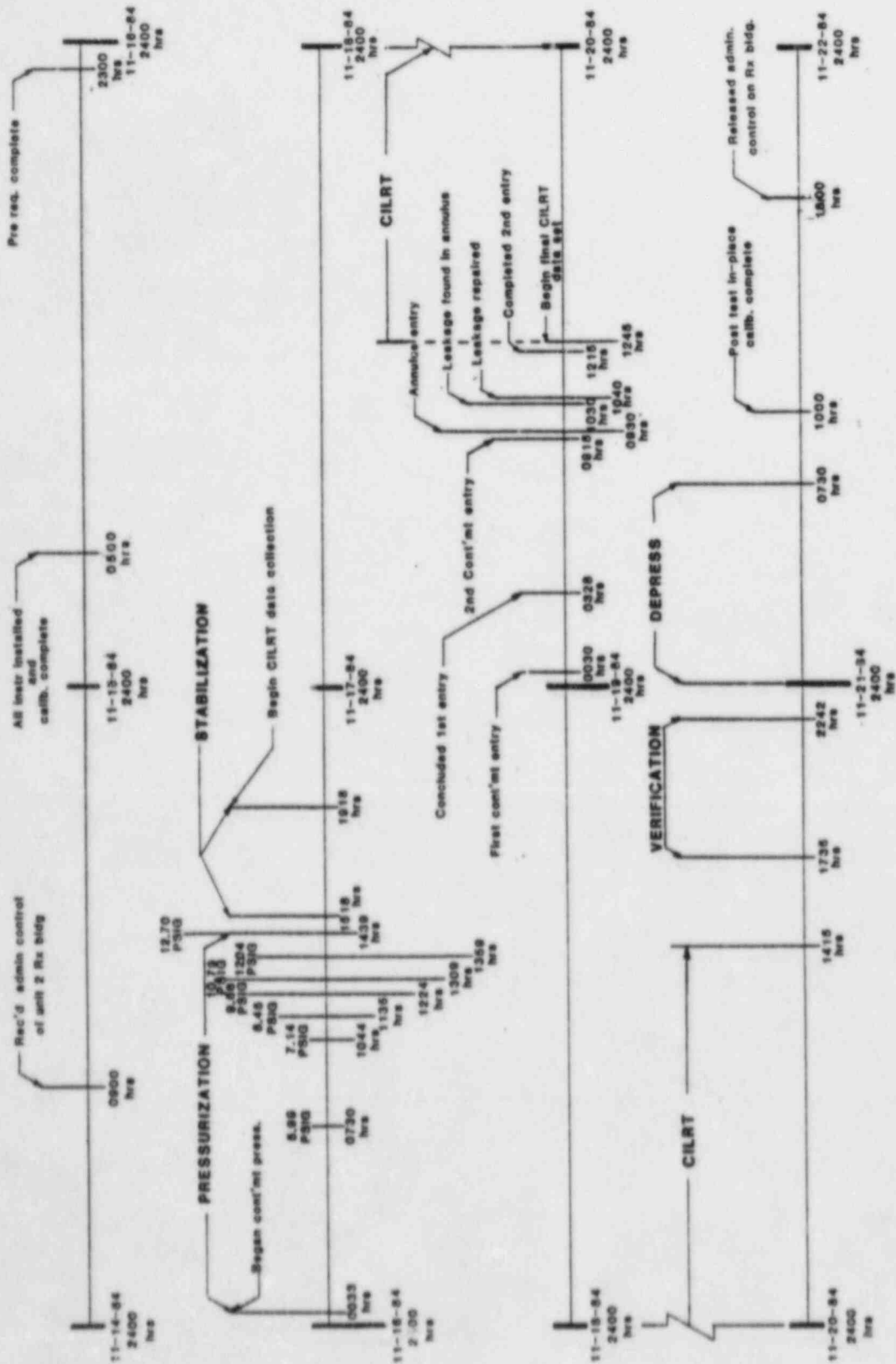


Figure 1

COMPUTER BASE ACQUISITION AND DATA REDUCTION SYSTEM

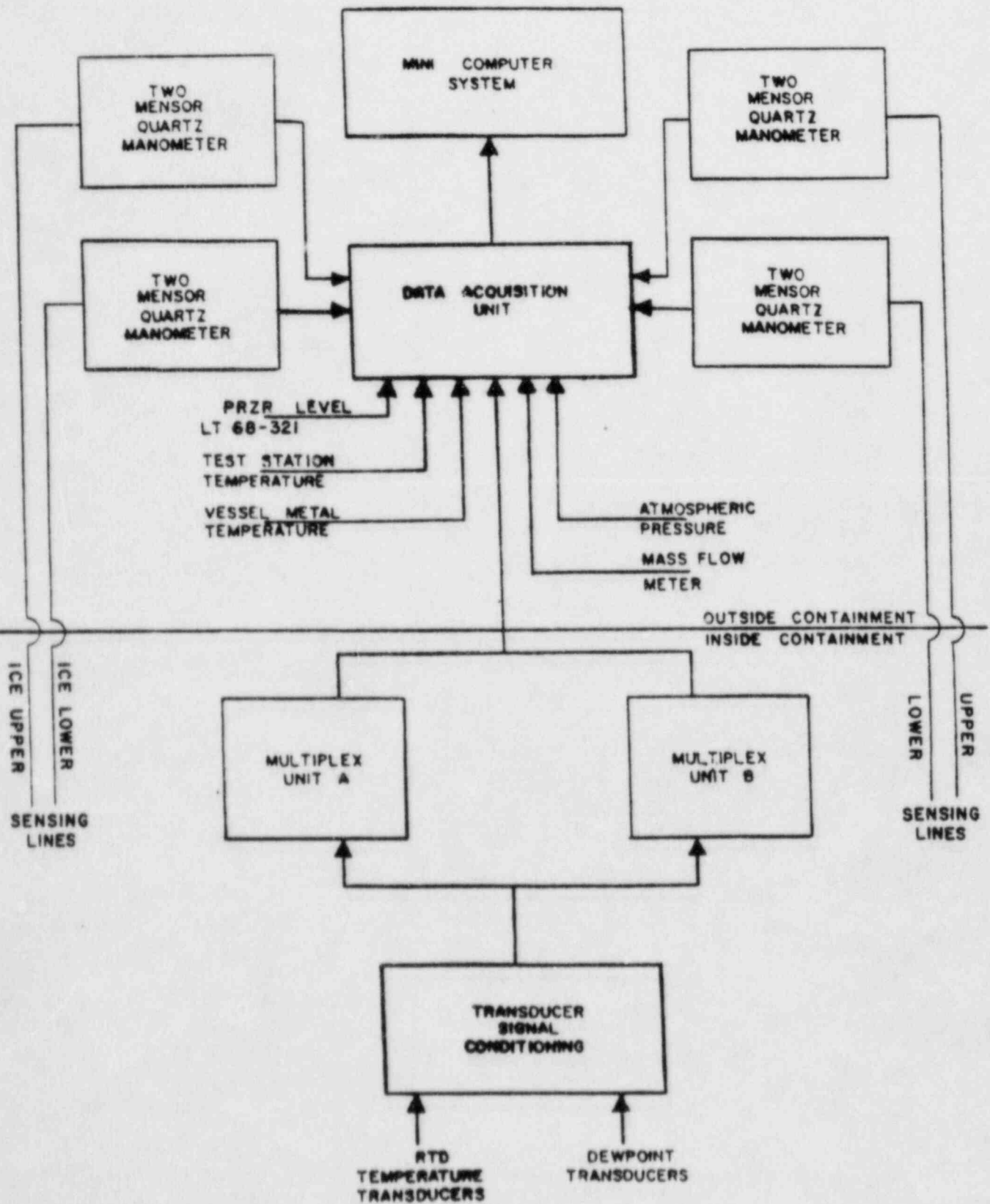


Figure 2

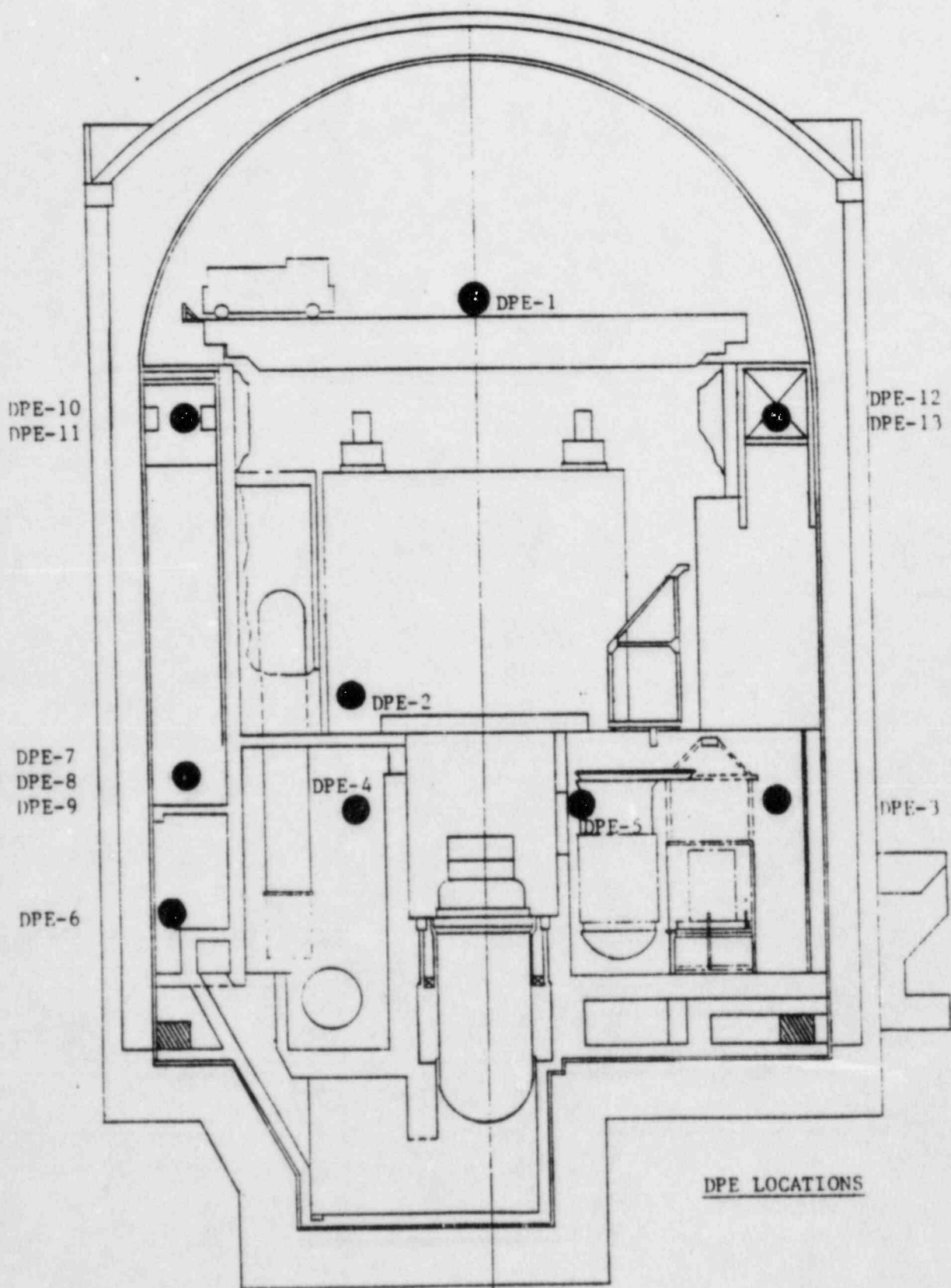


FIGURE 3

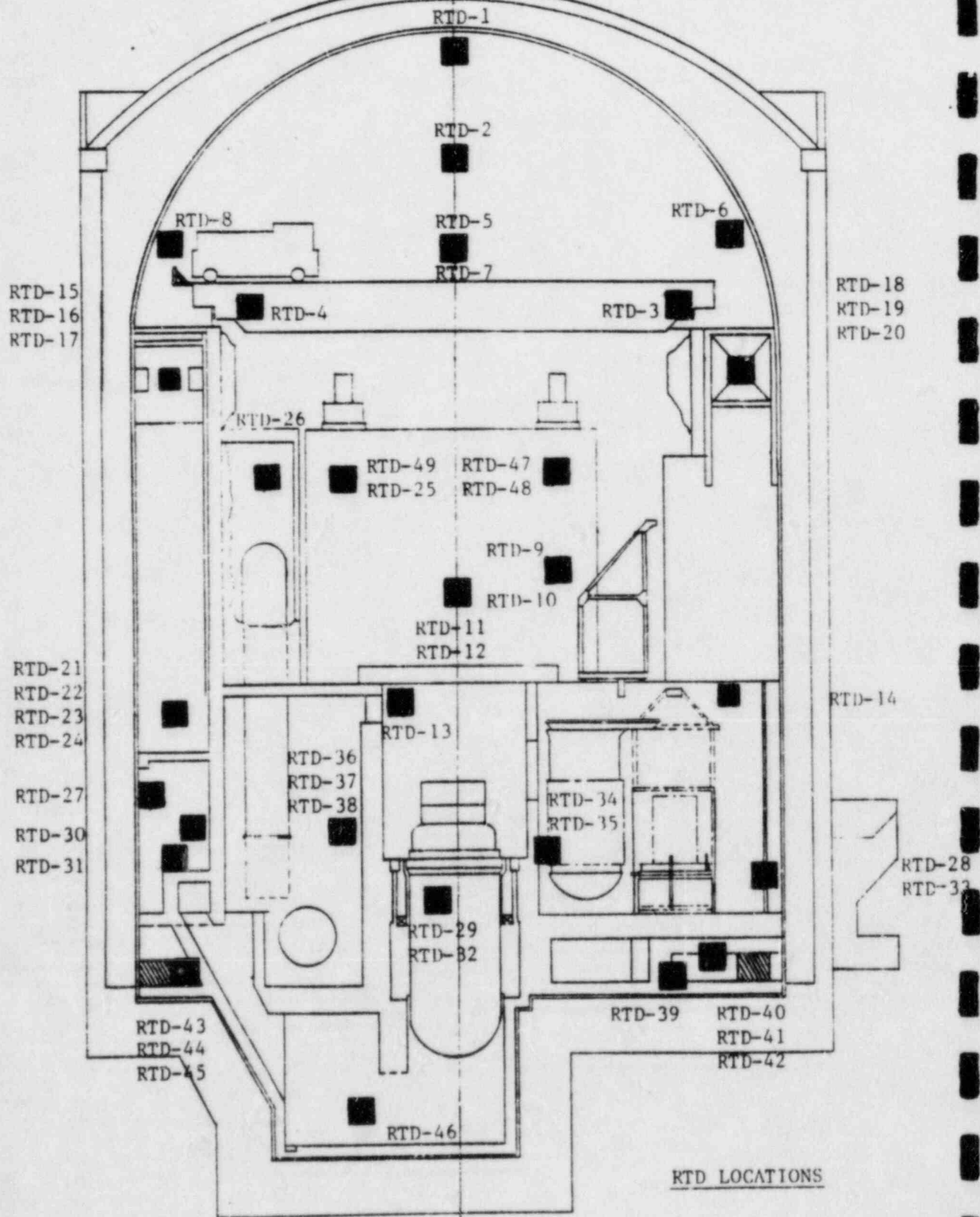
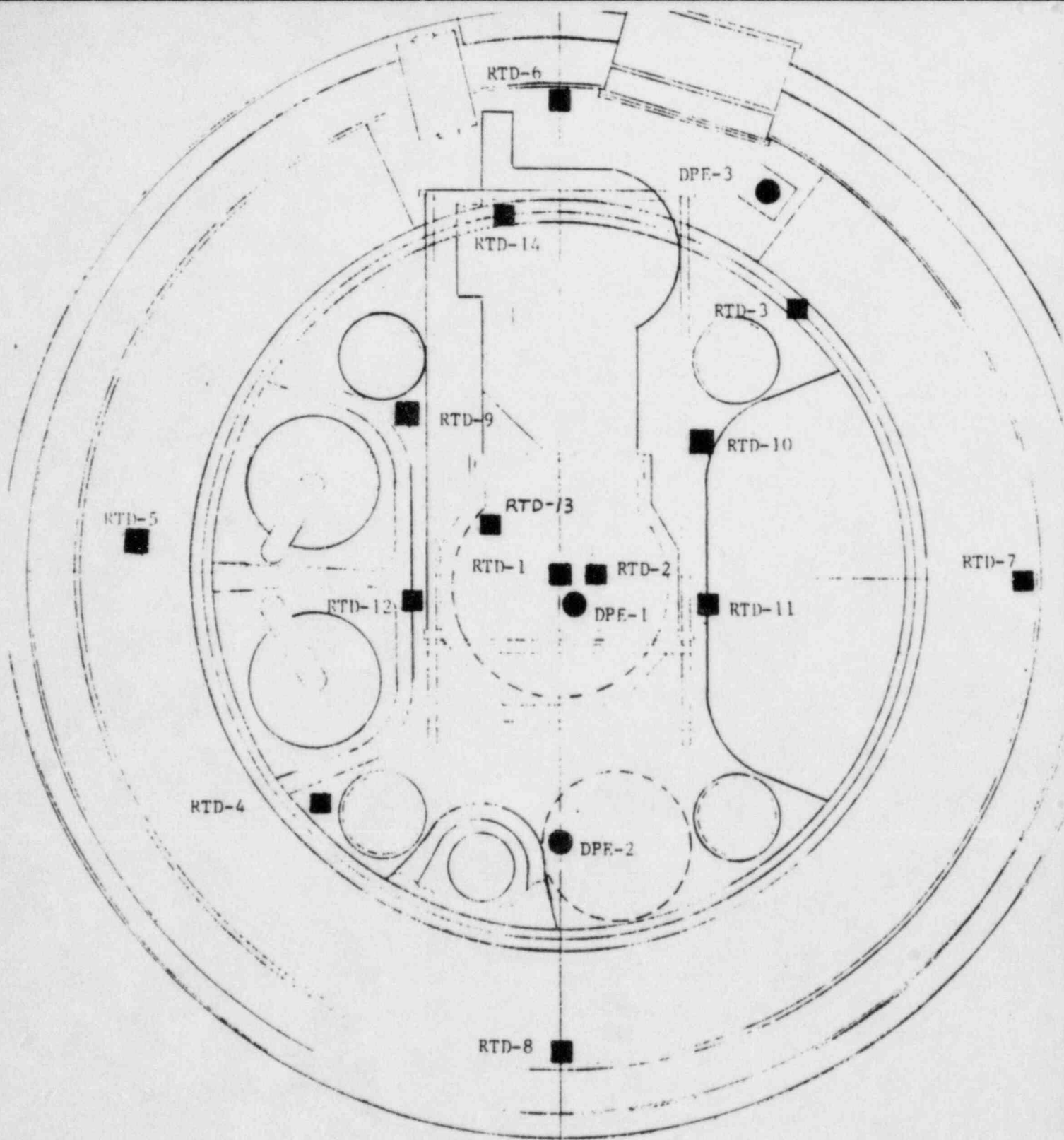
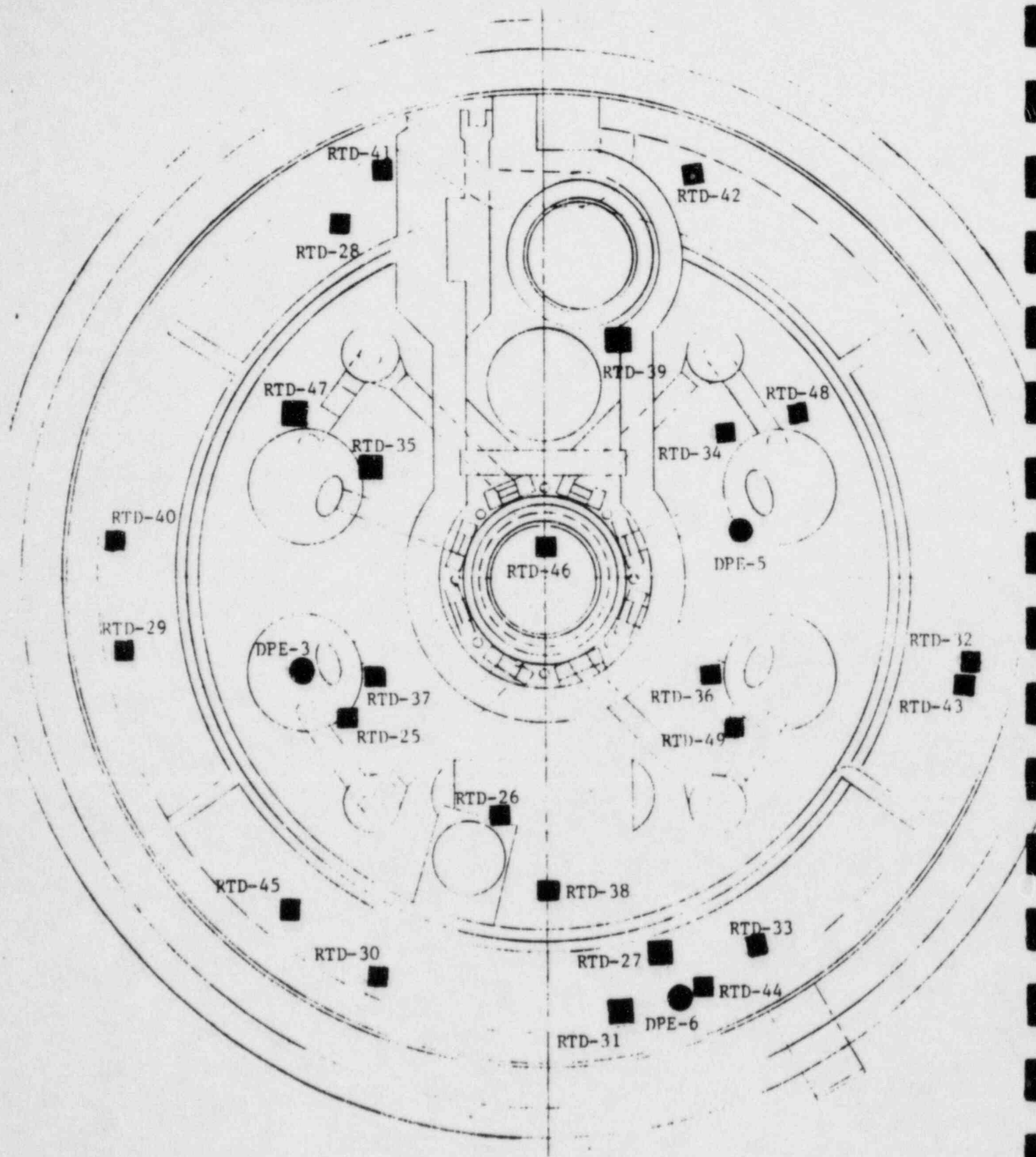


FIGURE 4



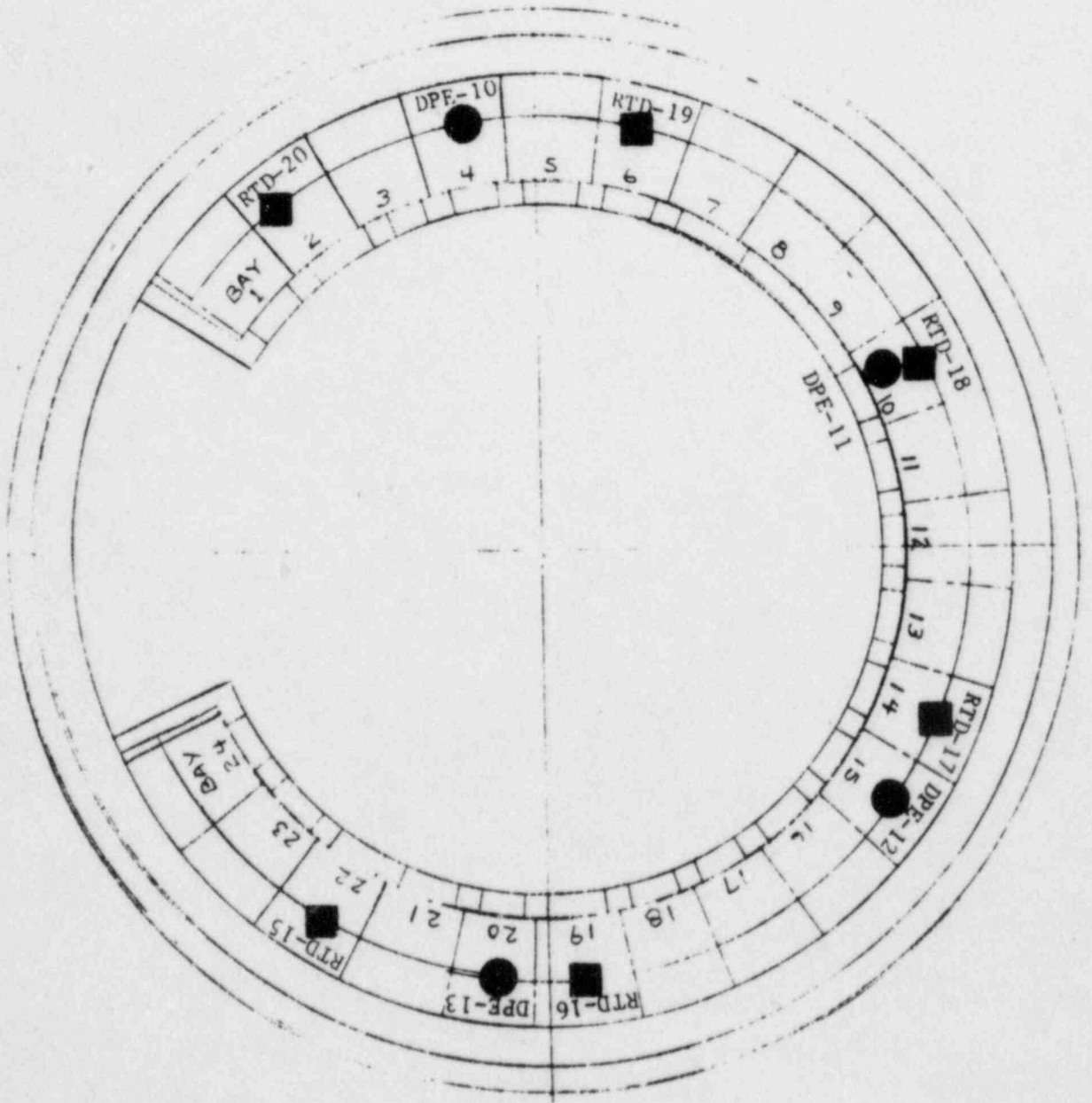
PLAN-UPPER COMPARTMENT
 SENSOR LOCATIONS

FIGURE 5



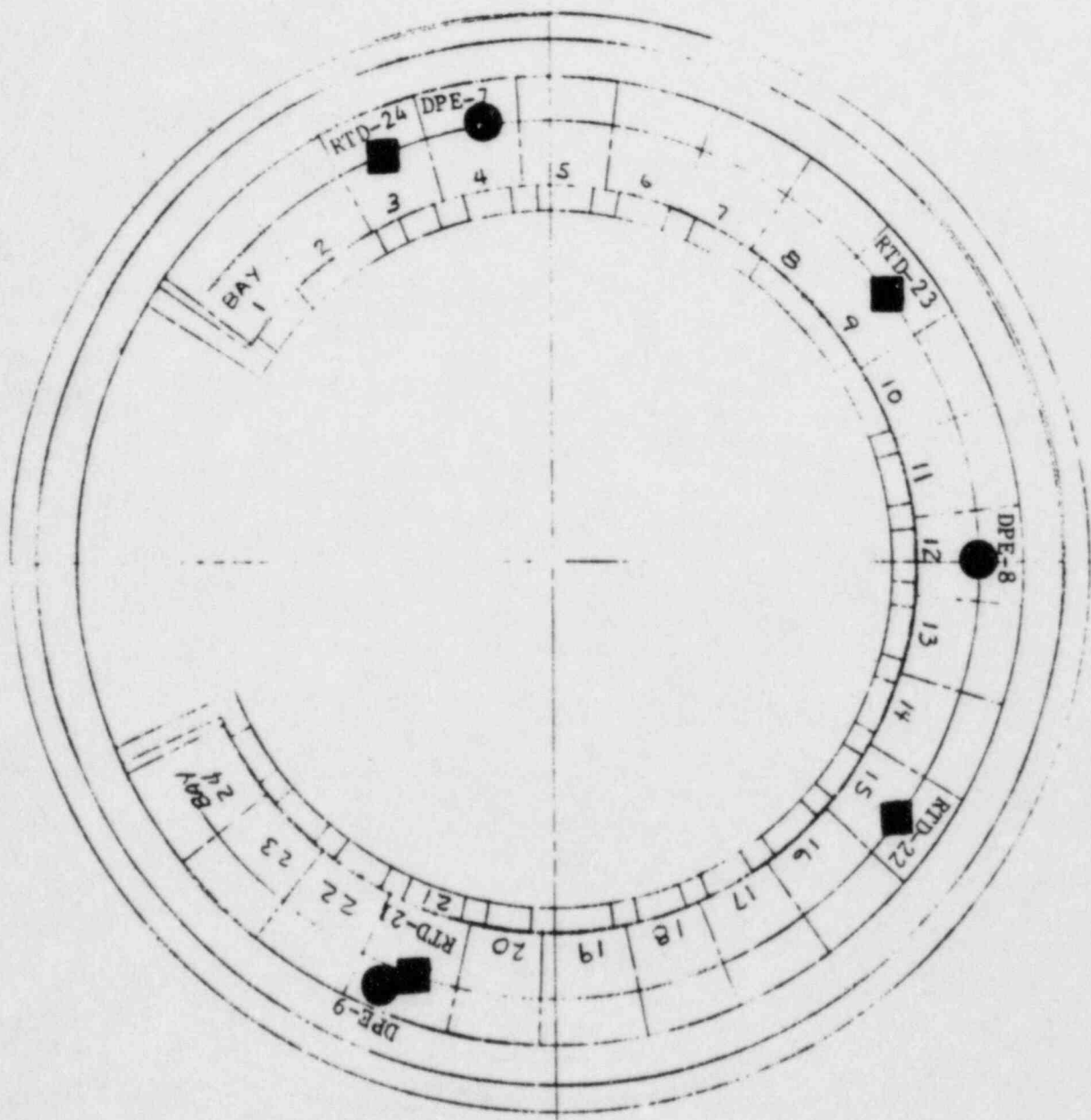
PLAN-LOWER COMPARTMENT
 SENSOR LOCATIONS

FIGURE 6



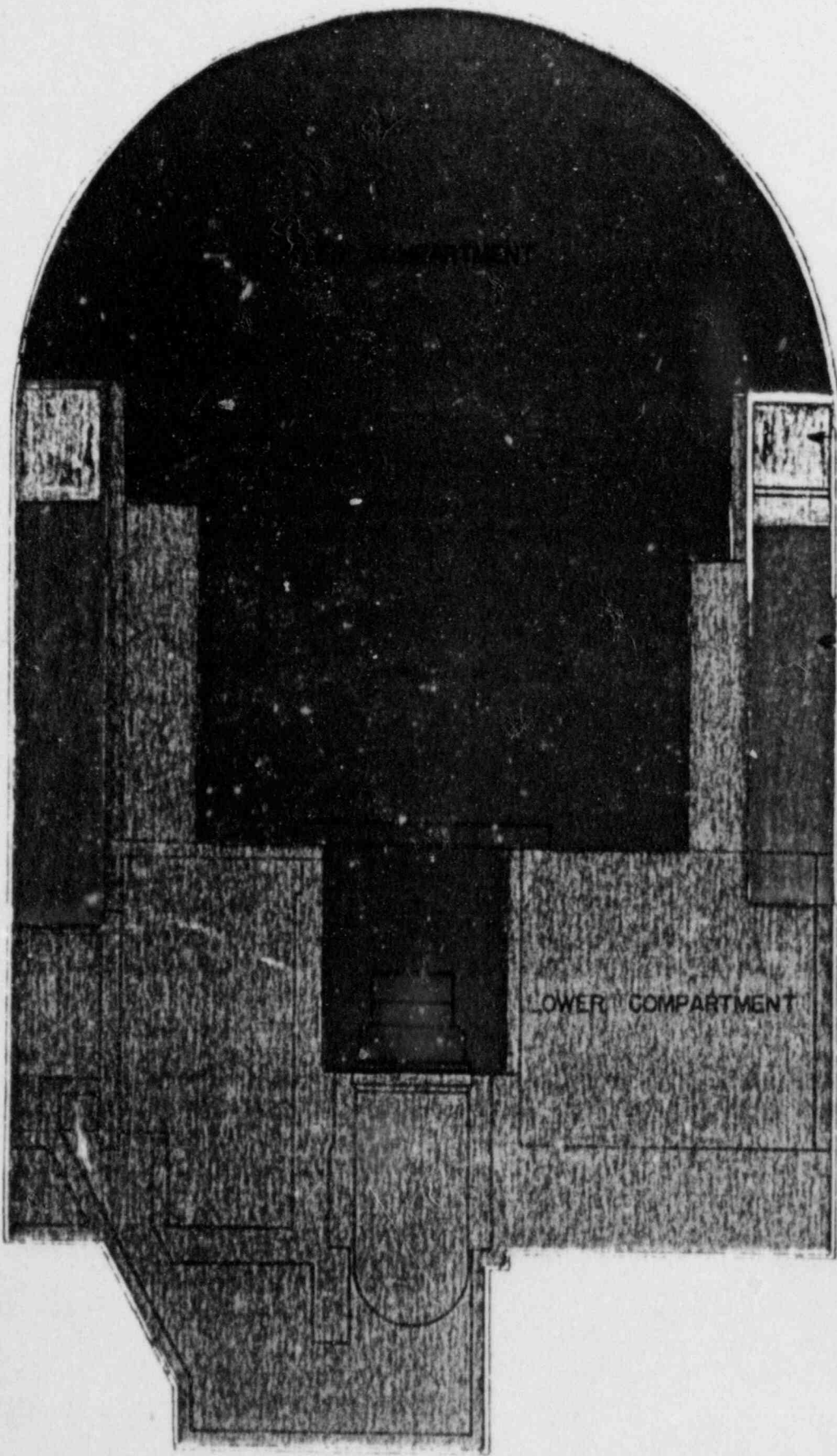
UPPER ICE COMPARTMENT

FIGURE 7



LOWER ICE COMPARTMENT

FIGURE 8



ICE CONDENSER
UPPER COMPARTMENT

ICE CONDENSER
LOWER COMPARTMENT

LOWER COMPARTMENT

Figure 9

TENNESSEE VALLEY AUTHORITY
SQNP-UNIT 2-CYCLE(2)

STABILIZATION
AVERAGE TEMPERATURE PLOT

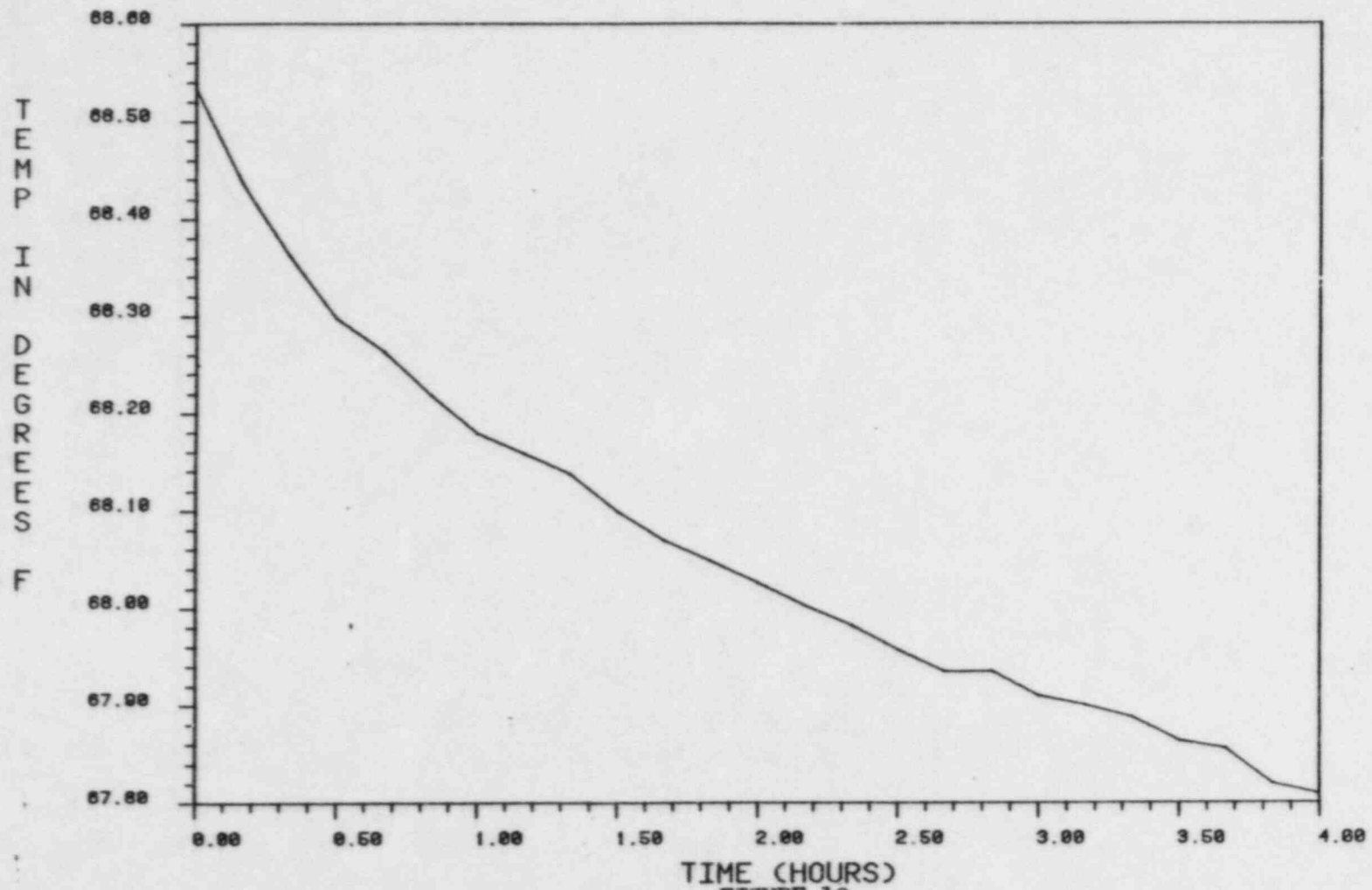


FIGURE 10

TENNESSEE VALLEY AUTHORITY
SQNP-UNIT 2-CYCLE(2)

STABILIZATION
AVERAGE PRESSURE PLOT

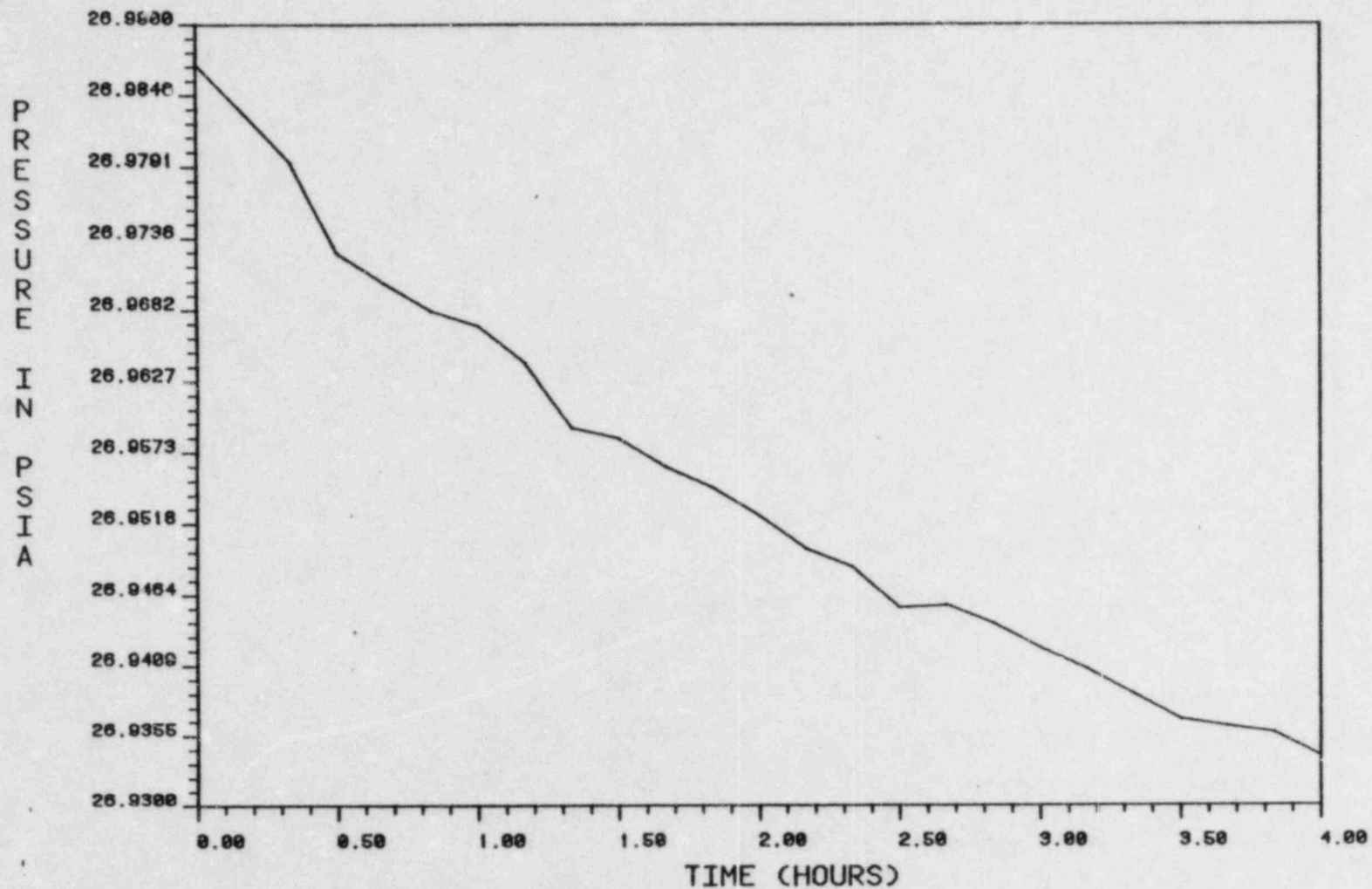


FIGURE 11

TENNESSEE VALLEY AUTHORITY
SQNP-UNIT 2-CYCLE(2)
COOLING OF UPPER-ICE COMPARTMENT
FOLLOWING GLYCOL RECIRC. PUMP TRIP/RESTART

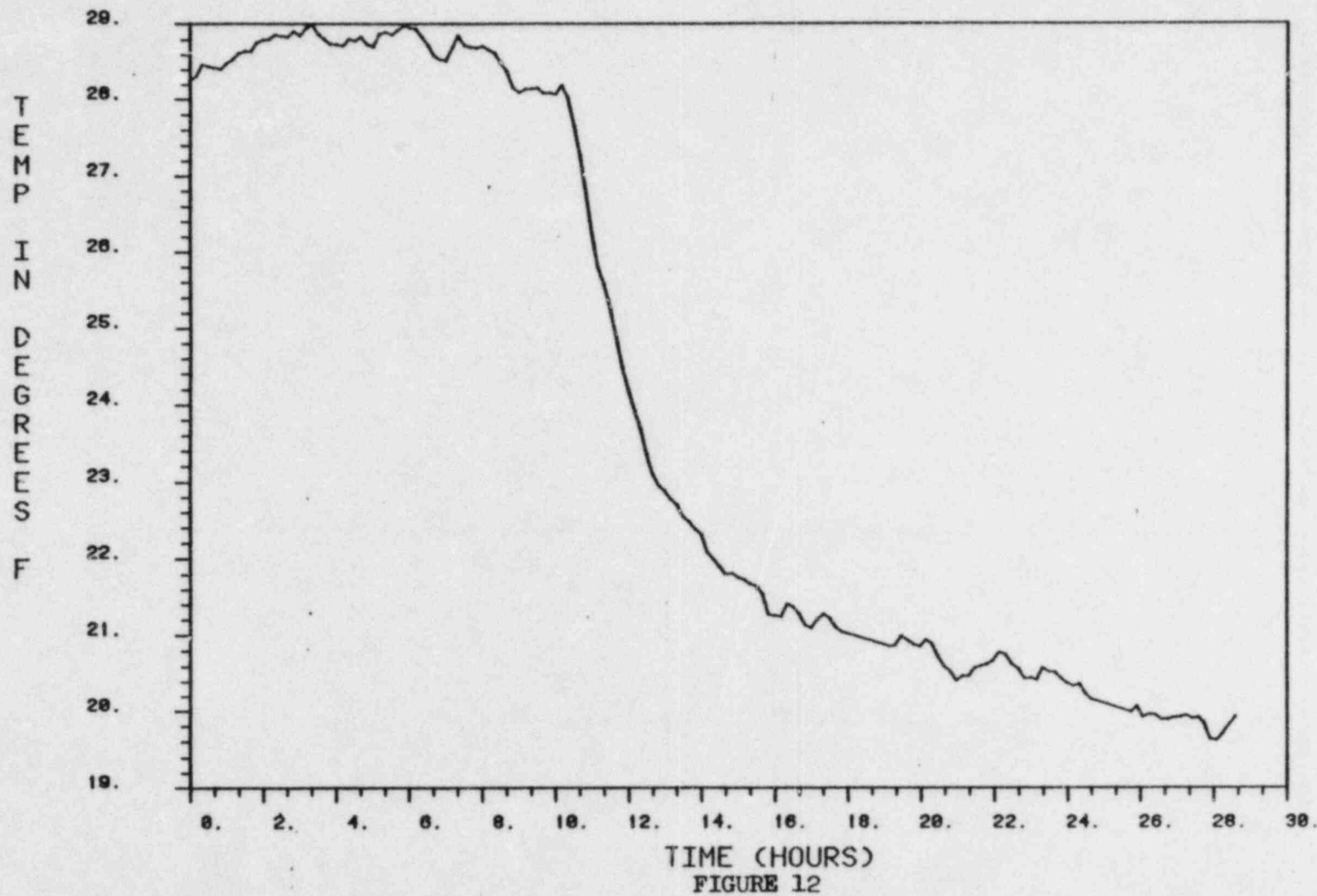


FIGURE 12

TENNESSEE VALLEY AUTHORITY
SQNP-UNIT 2-CYCLE(2)

AS FOUND MASS LEAK RATE

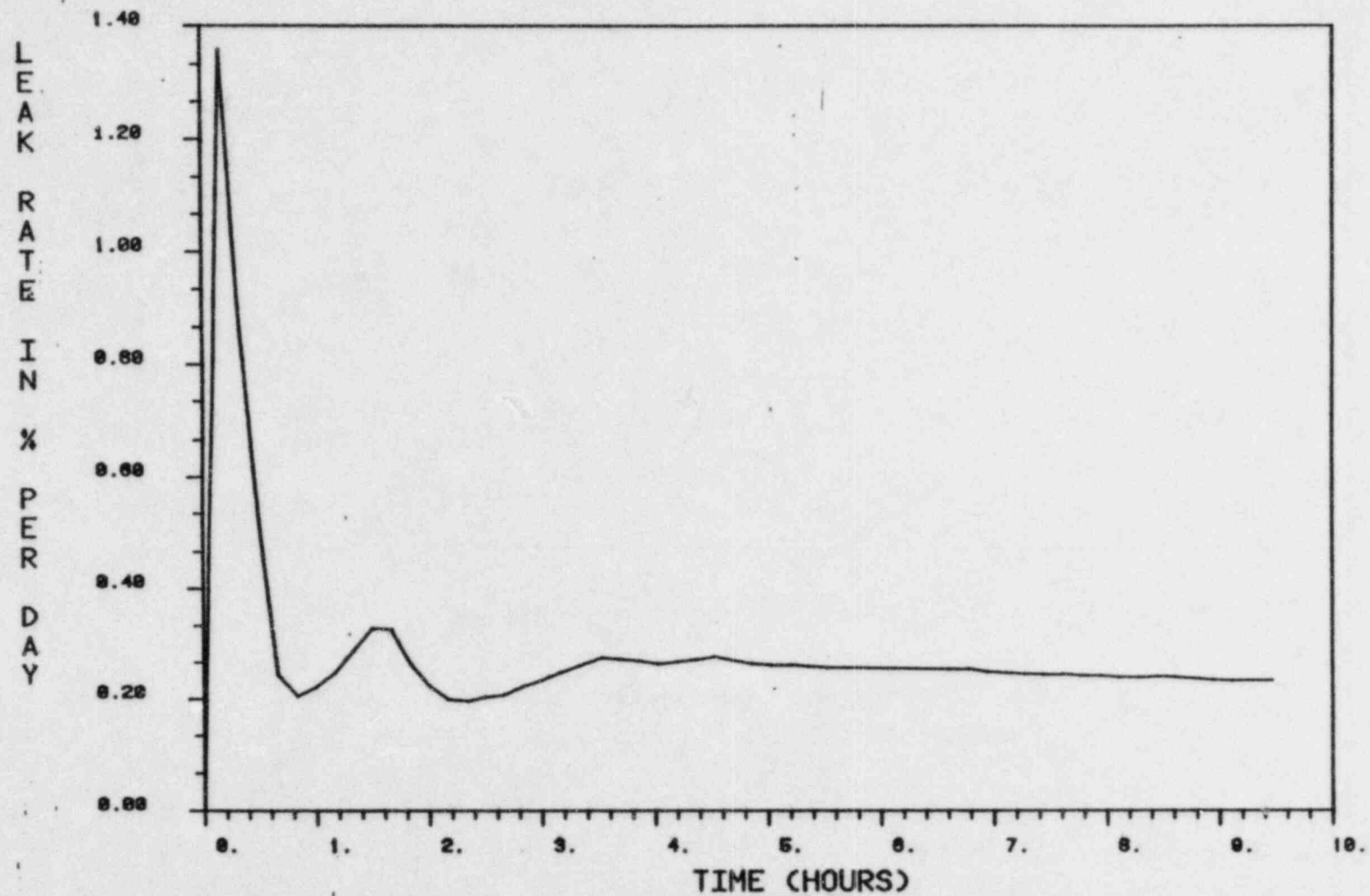


FIGURE 13

TENNESSEE VALLEY AUTHORITY
SQNP-UNIT 2-CYCLE(2)
CILRT

MASS LEAK RATE PLOT

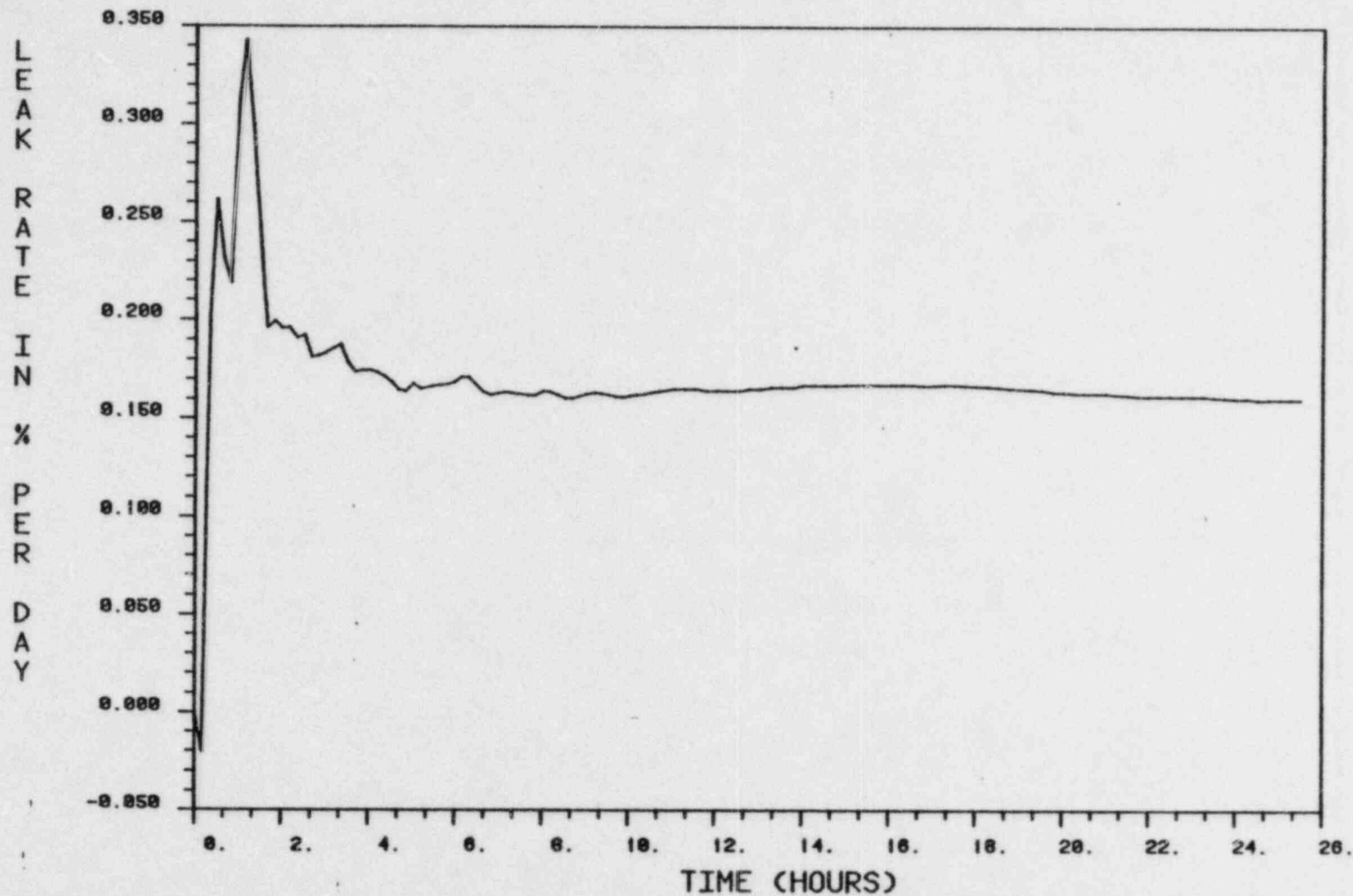


FIGURE 14

SQNP-UNIT 2-CYCLE(2)
CILRT

CALCULATED TOTAL TIME LEAK RATE PLOT

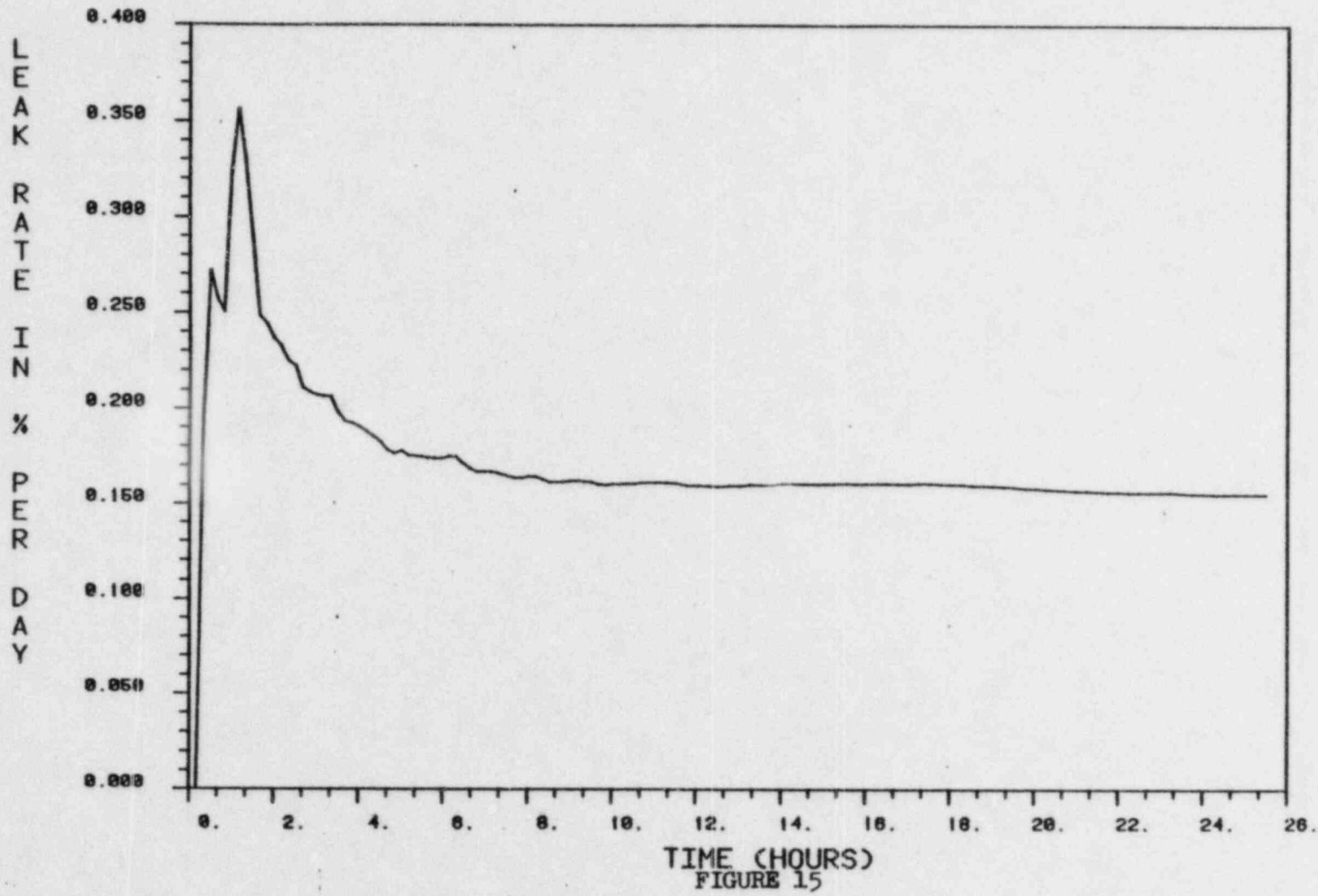


FIGURE 15

TENNESSEE VALLEY AUTHORITY
SQNP-UNIT 2-CYCLE(2)
CILRT

LOWER PRESSURE PLOT

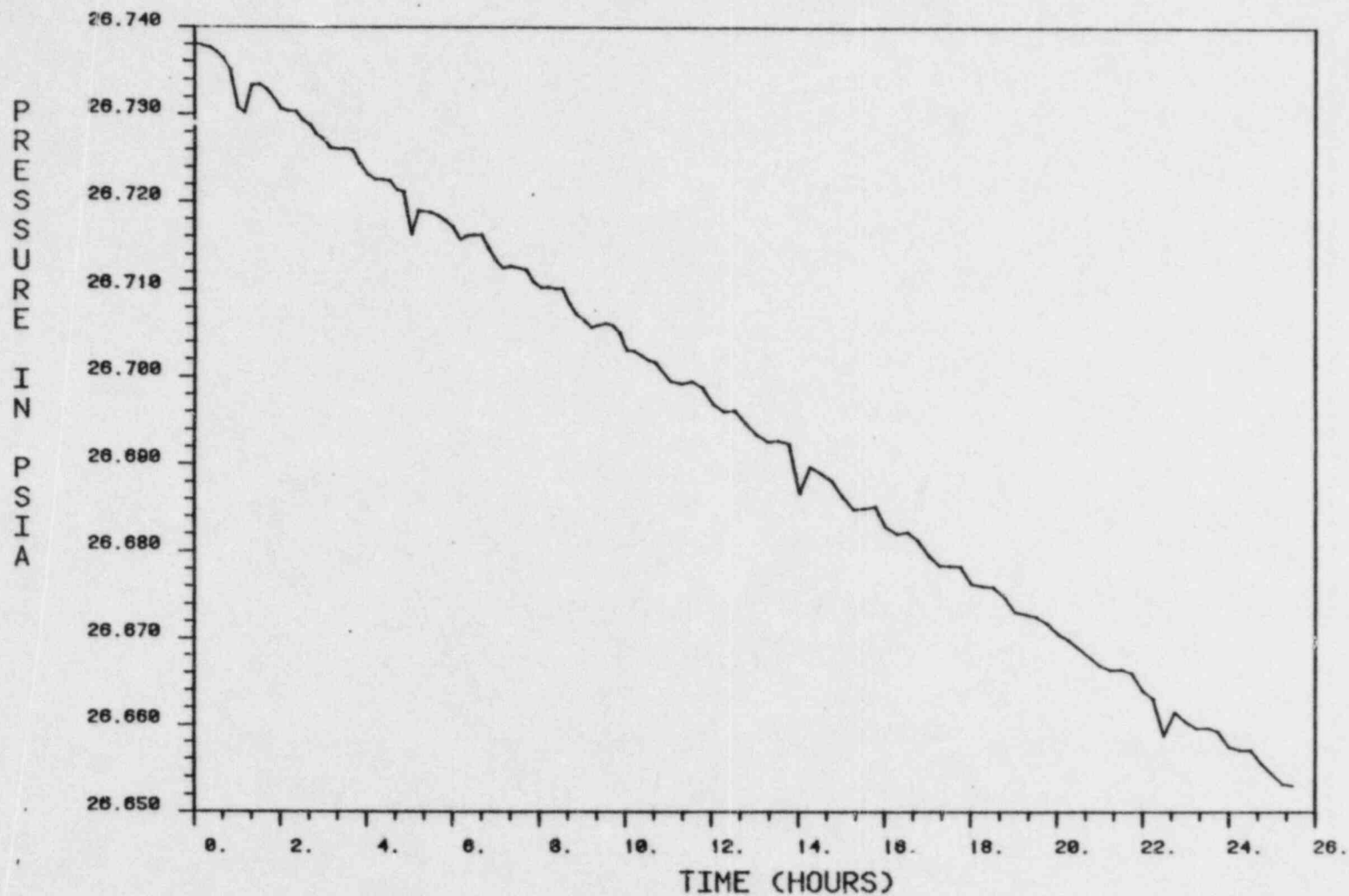


FIGURE 16

TENNESSEE VALLEY AUTHORITY
SONP-UNIT 2-CYCLE(2)
CILRT

LOWER MASS PLOT

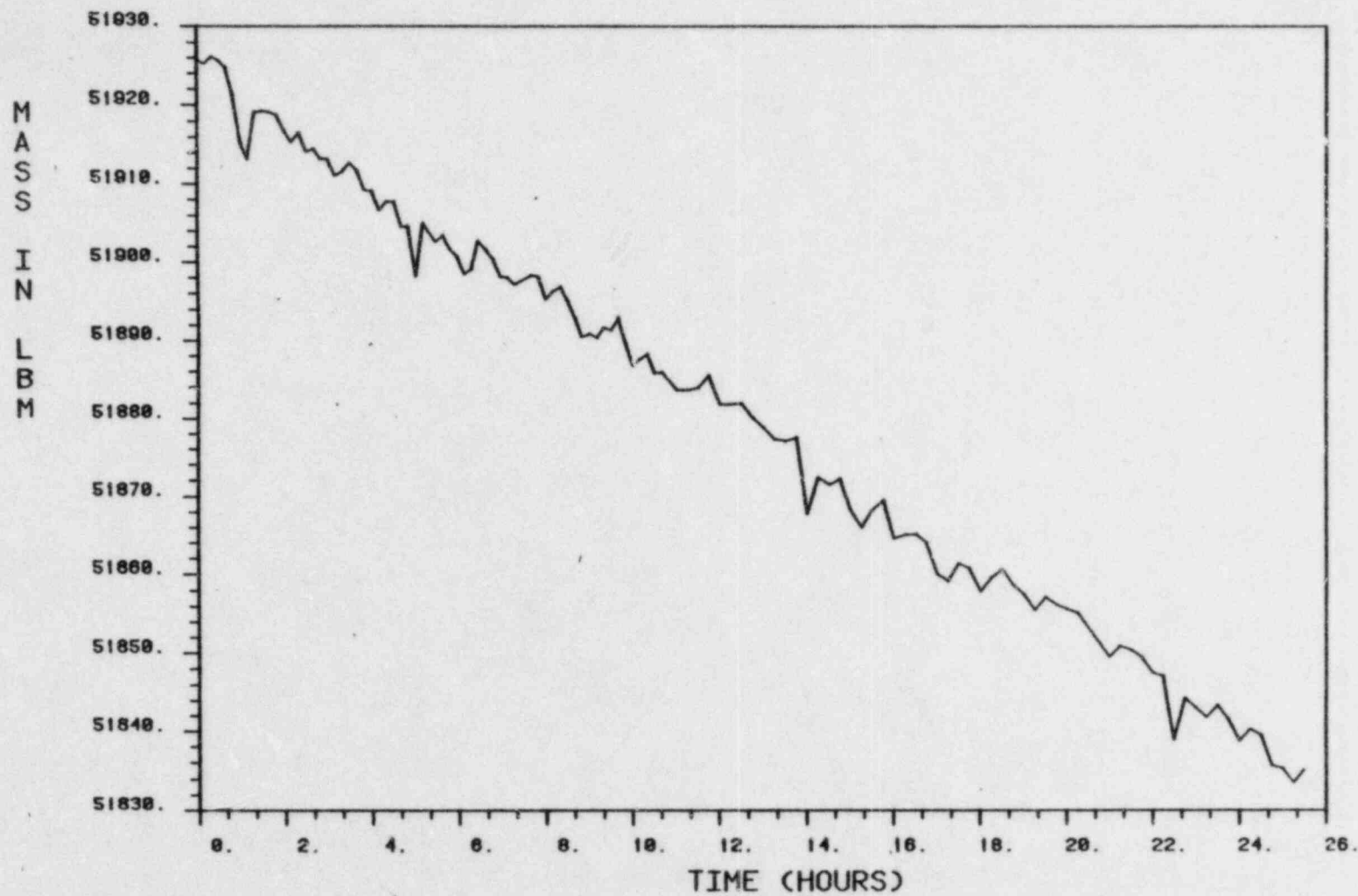
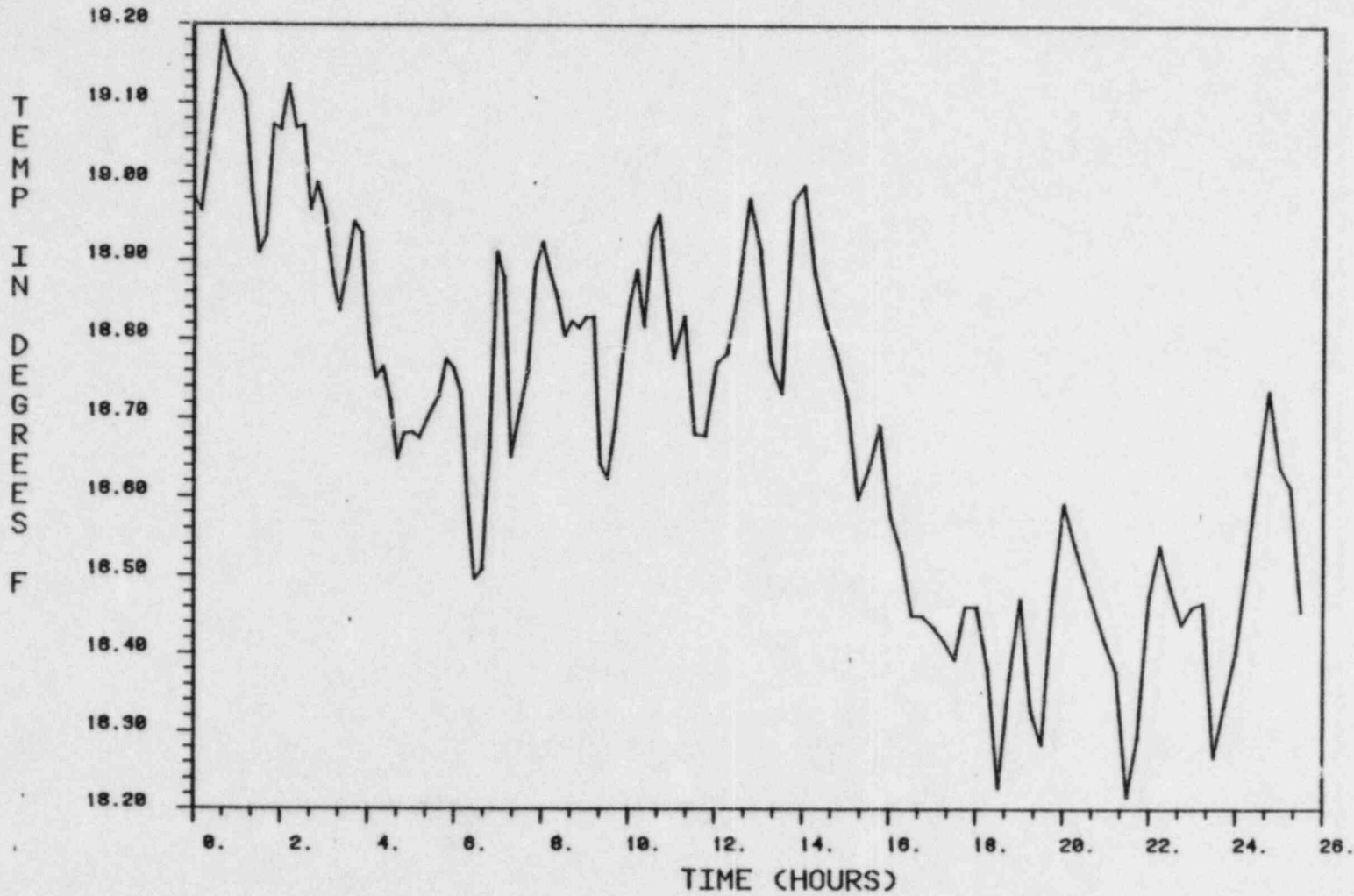


FIGURE 17

TENNESSEE VALLEY AUTHORITY
SQNP-UNIT 2-CYCLE(2)
CILRT

ICE-UPPER TEMPERATURE PLOT



TIME (HOURS)
FIGURE 18

TENNESSEE VALLEY AUTHORITY
SONP-UNIT 2-CYCLE(2)
CILRT
ICE-UPPER MASS PLOT

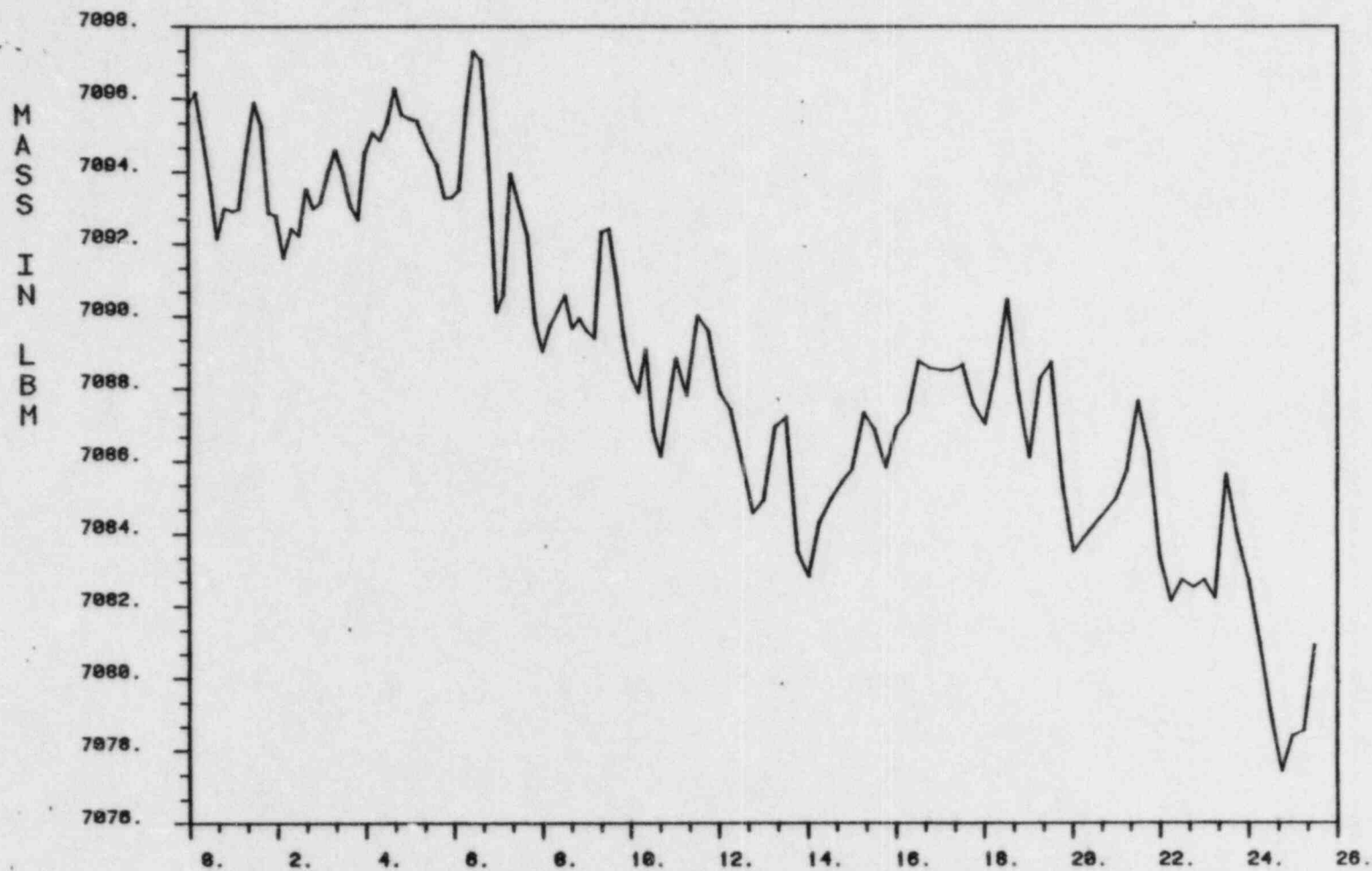


FIGURE 19

TENNESSEE VALLEY AUTHORITY
SQNP-UNIT 2-CYCLE(2)
CILRT

AVERAGE TEMPERATURE PLOT

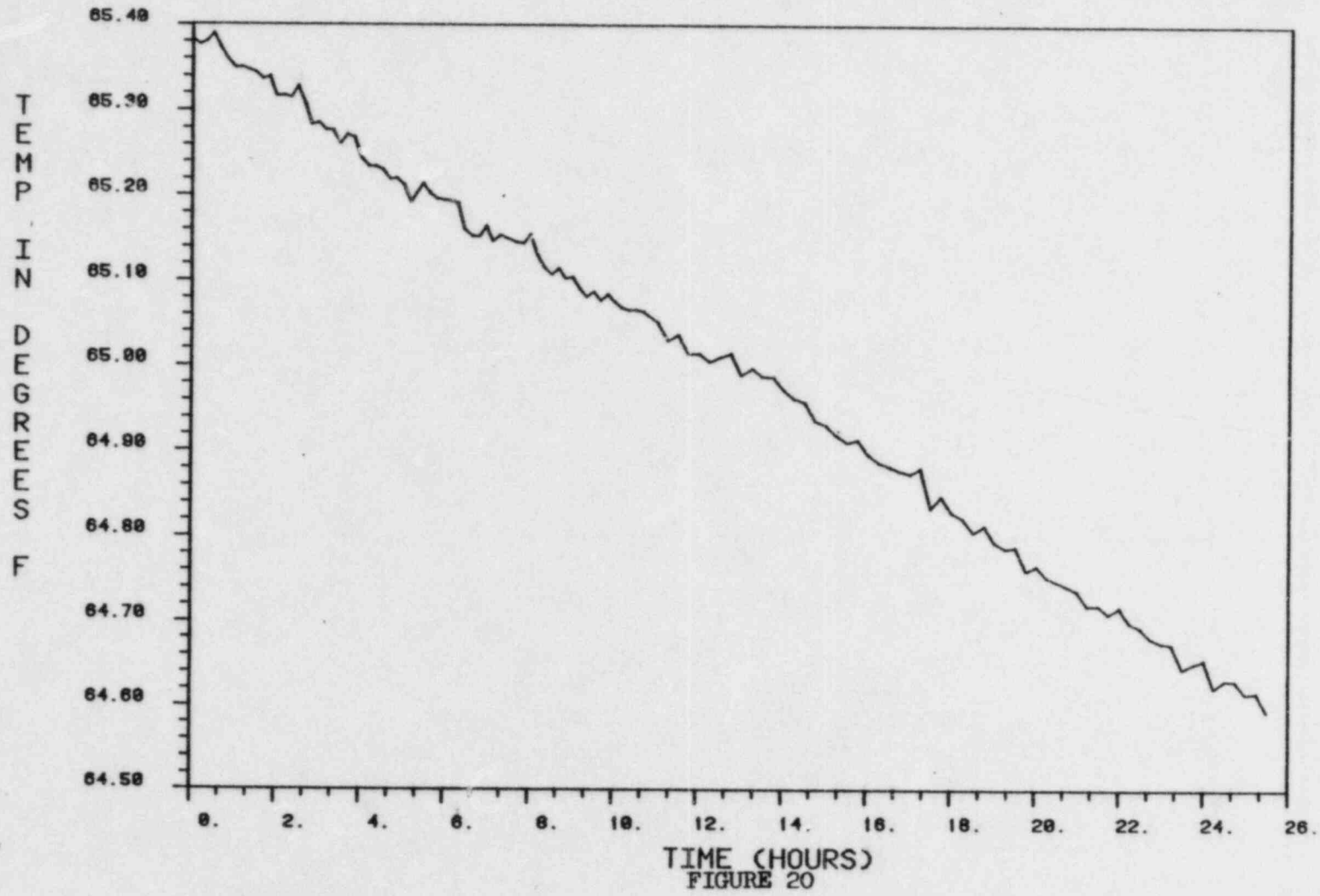


FIGURE 20

TENNESSEE VALLEY AUTHORITY
SQNP-UNIT 2-CYCLE(2)
CILRT
AVERAGE PRESSURE PLOT

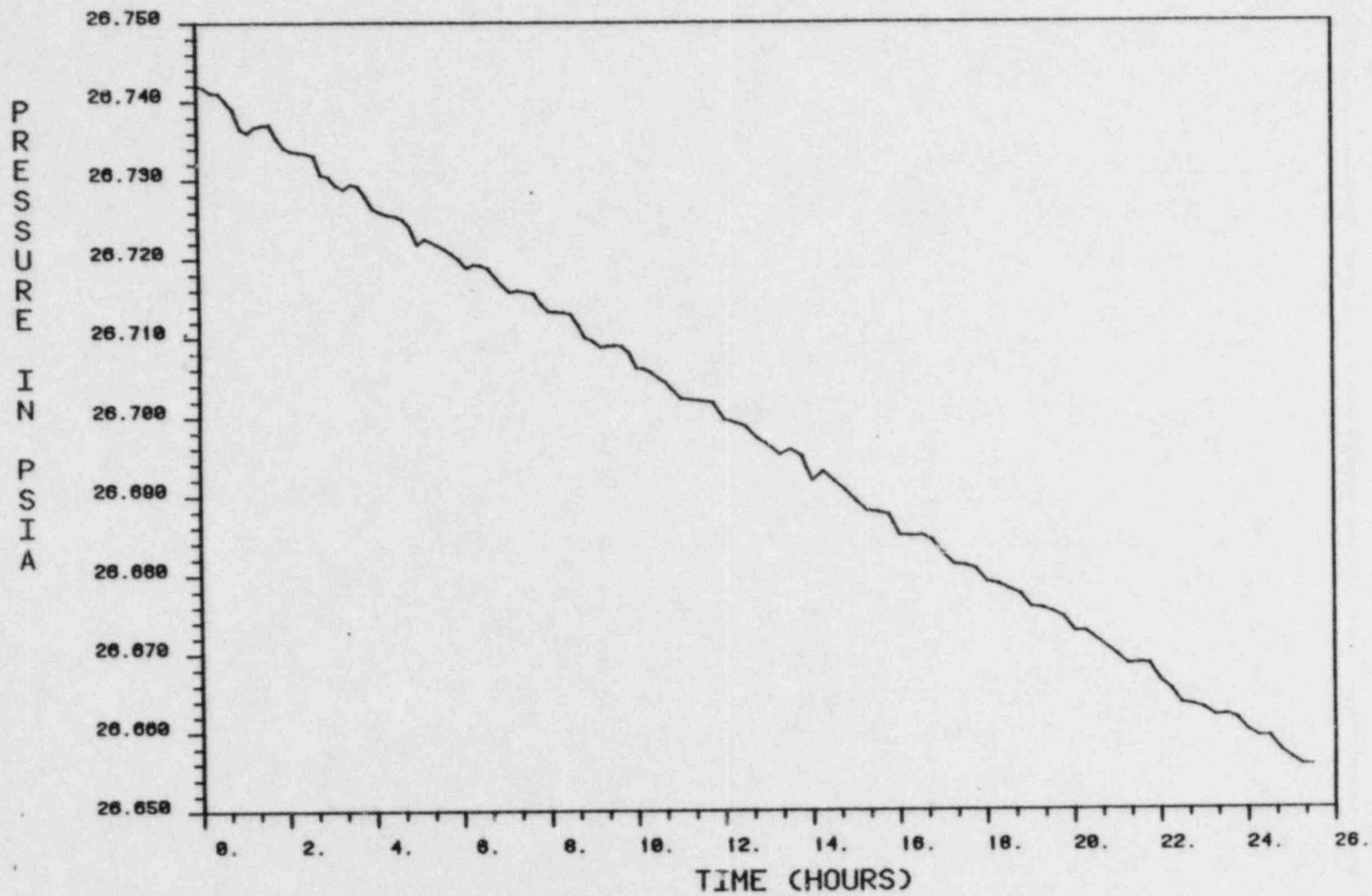


FIGURE 21

TENNESSEE VALLEY AUTHORITY
SQNP-UNIT 2-CYCLE(2)
CILRT
AVERAGE MASS PLOT

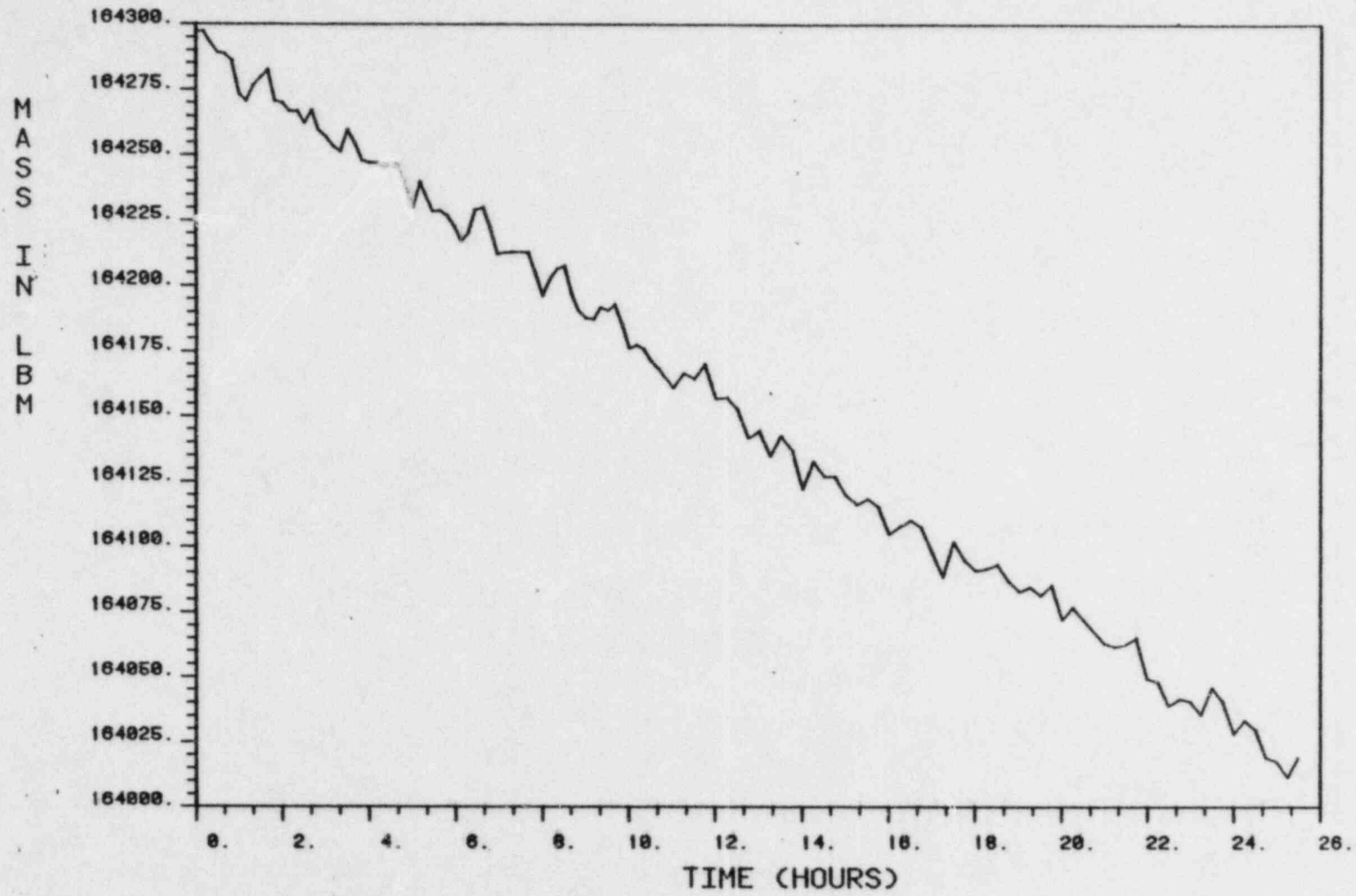


FIGURE 22

TENNESSEE VALLEY AUTHORITY
SONP-UNIT 2-CYCLE(2)
VERIFICATION TEST
MASS LEAK RATE PLOT

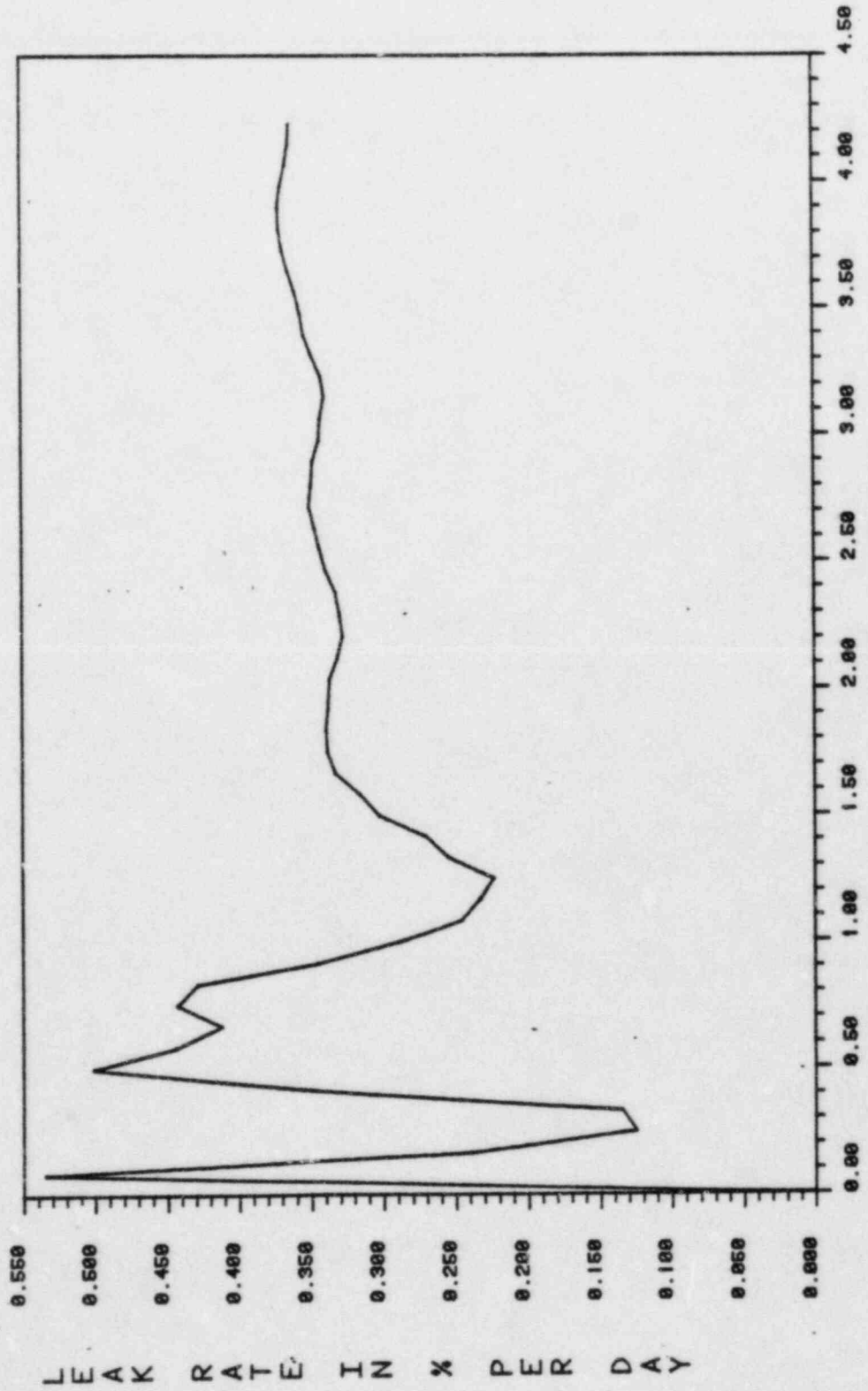


FIGURE 23

TENNESSEE VALLEY AUTHORITY
SQNP-UNIT 2-CYCLE(2)
VERIFICATION TEST

CALCULATED TOTAL TIME LEAK RATE PLOT

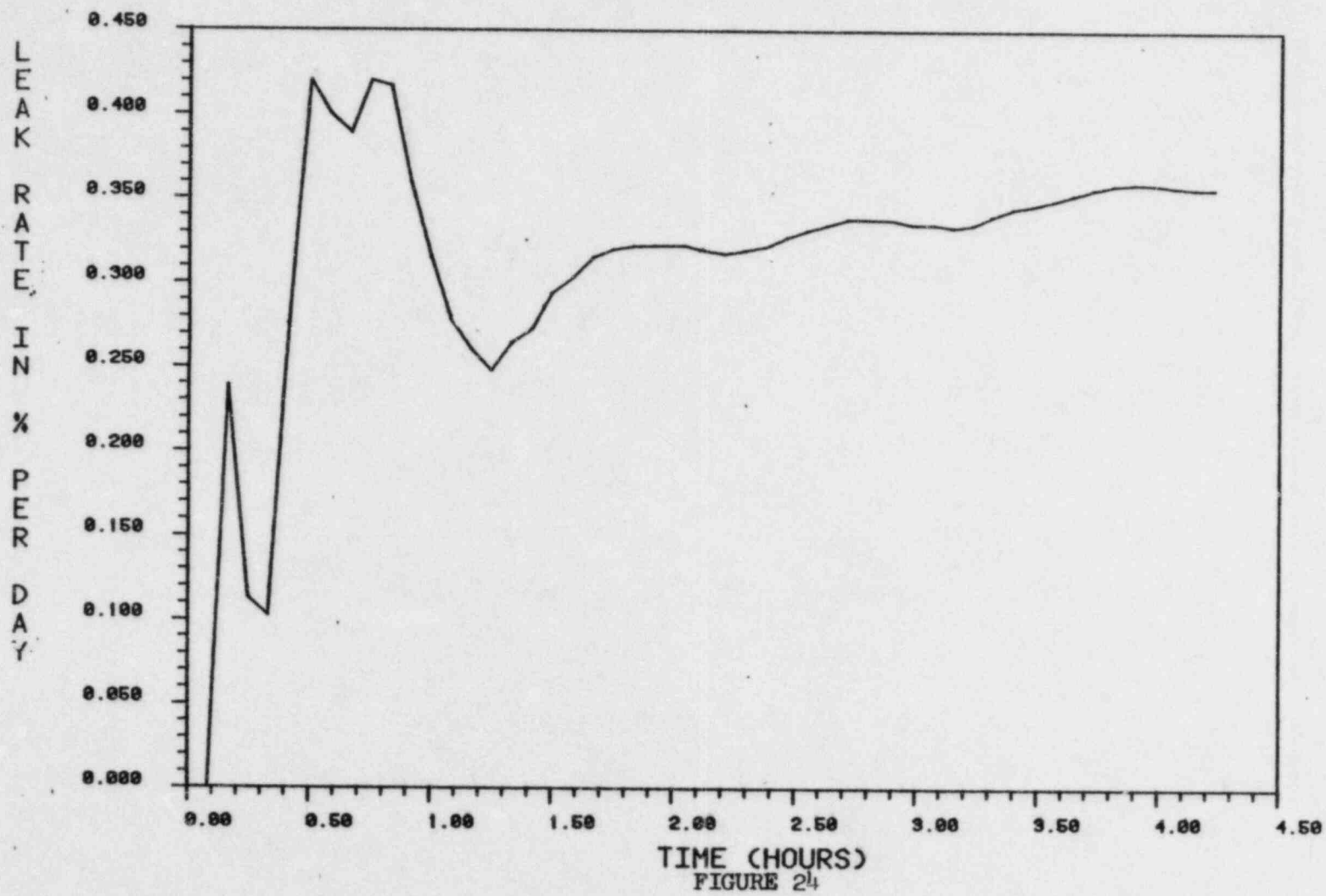


FIGURE 24

TENNESSEE VALLEY AUTHORITY
SQNP-UNIT 2-CYCLE(2)
VERIFICATION TEST
LOWER TEMPERATURE PLOT

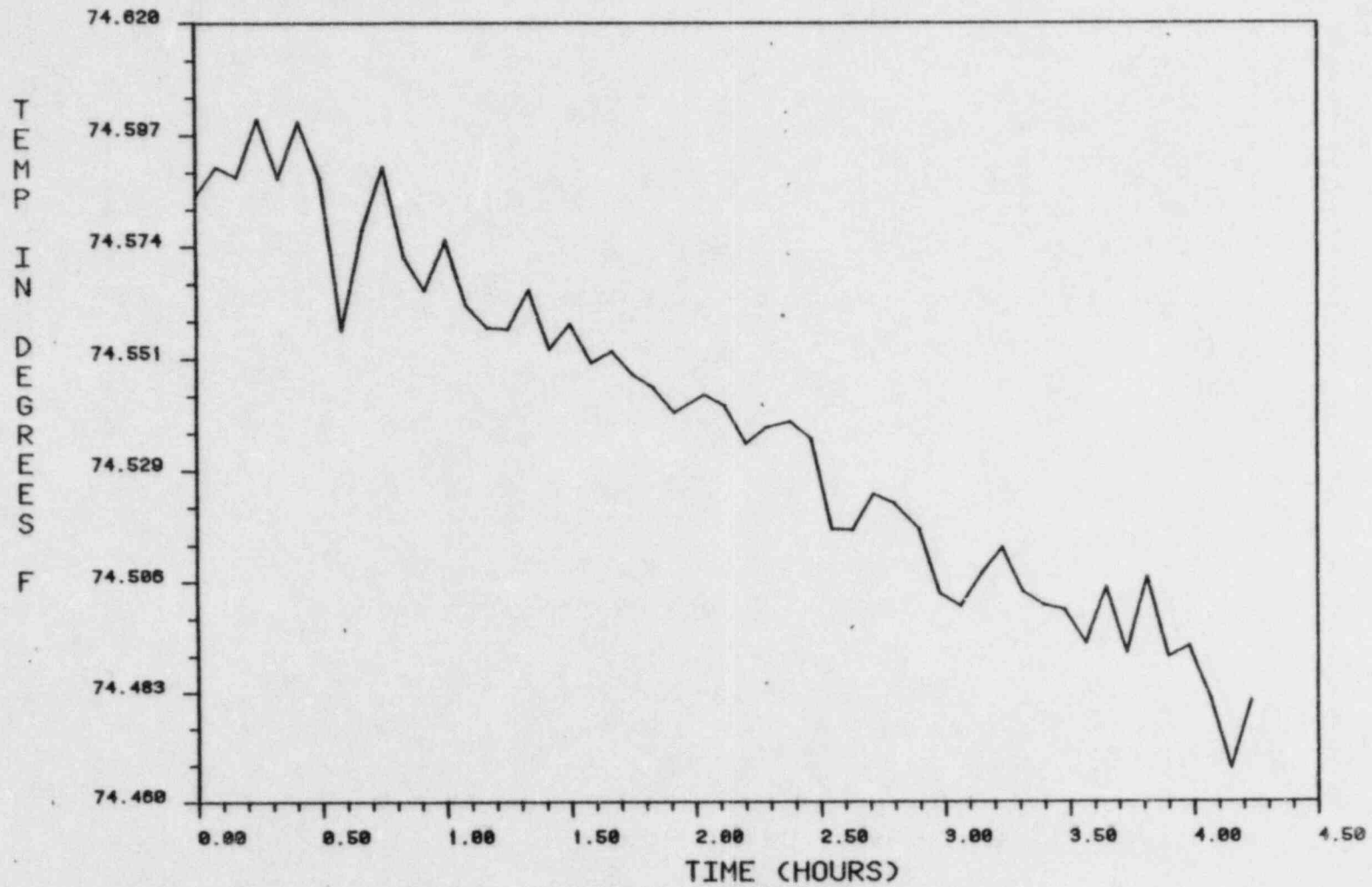


FIGURE 25

TENNESSEE VALLEY AUTHORITY
SQNP-UNIT 2-CYCLE(2)
VERIFICATION TEST
LOWER MASS PLOT

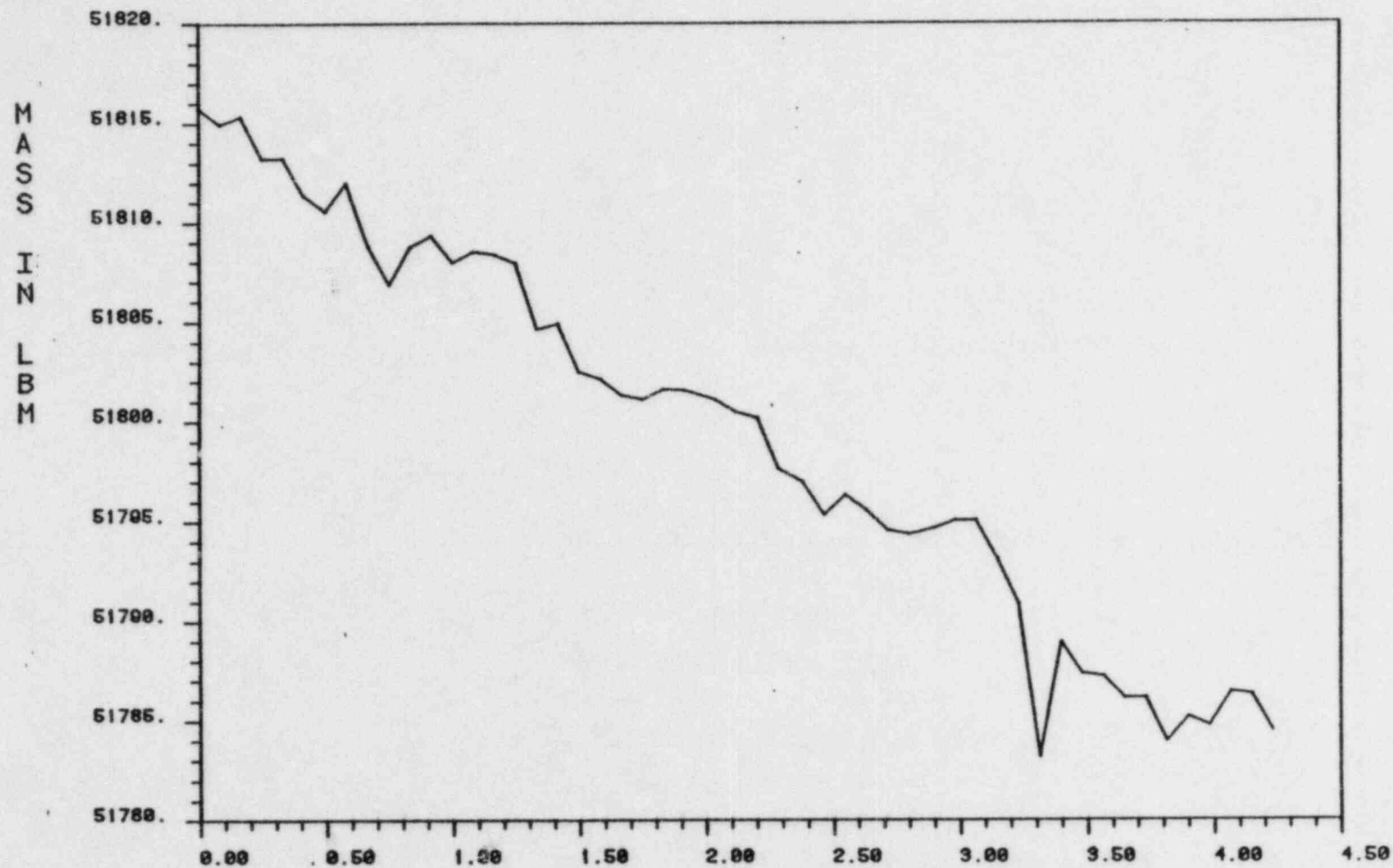


FIGURE 26

TENNESSEE VALLEY AUTHORITY
SQNP-UNIT 2-CYCLE(2)
VERIFICATION TEST
LOWER PRESSURE PLOT

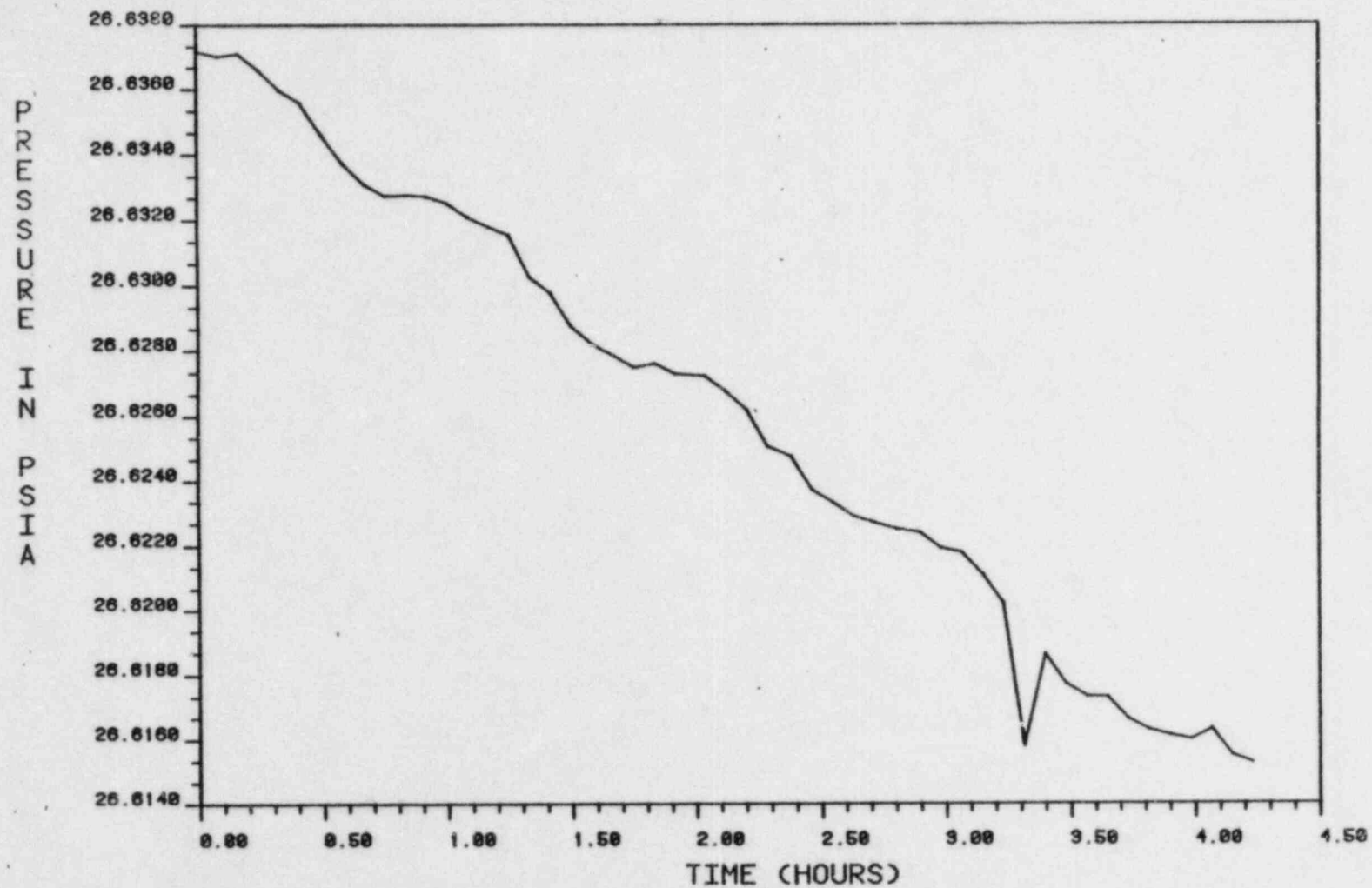
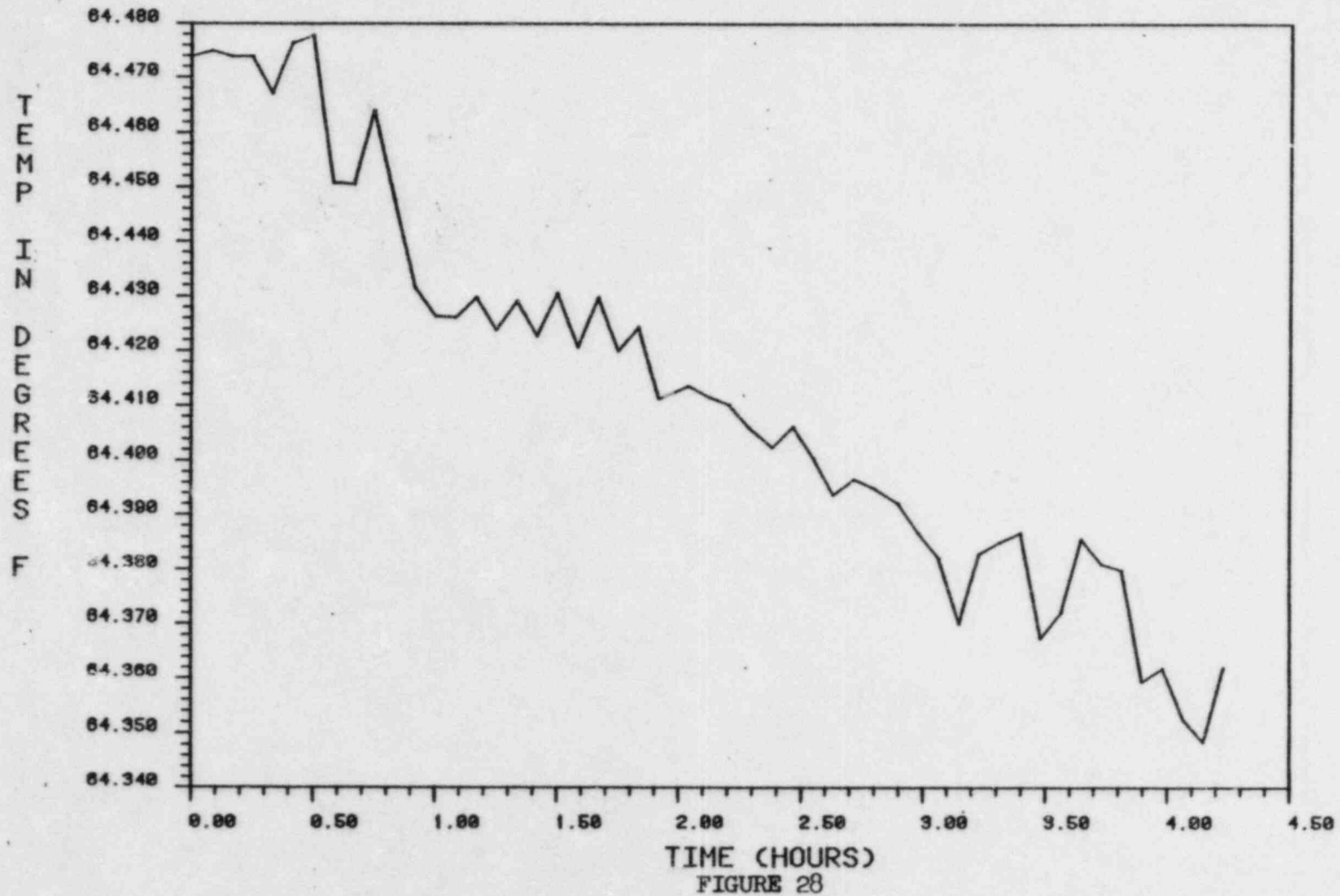


FIGURE 27

TENNESSEE VALLEY AUTHORITY
SQNP-UNIT 2-CYCLE(2)
VERIFICATION TEST

AVERAGE TEMPERATURE PLOT



TENNESSEE VALLEY AUTHORITY
SONP-UNIT 2-CYCLE(2)
VERIFICATION TEST
AVERAGE PRESSURE PLOT

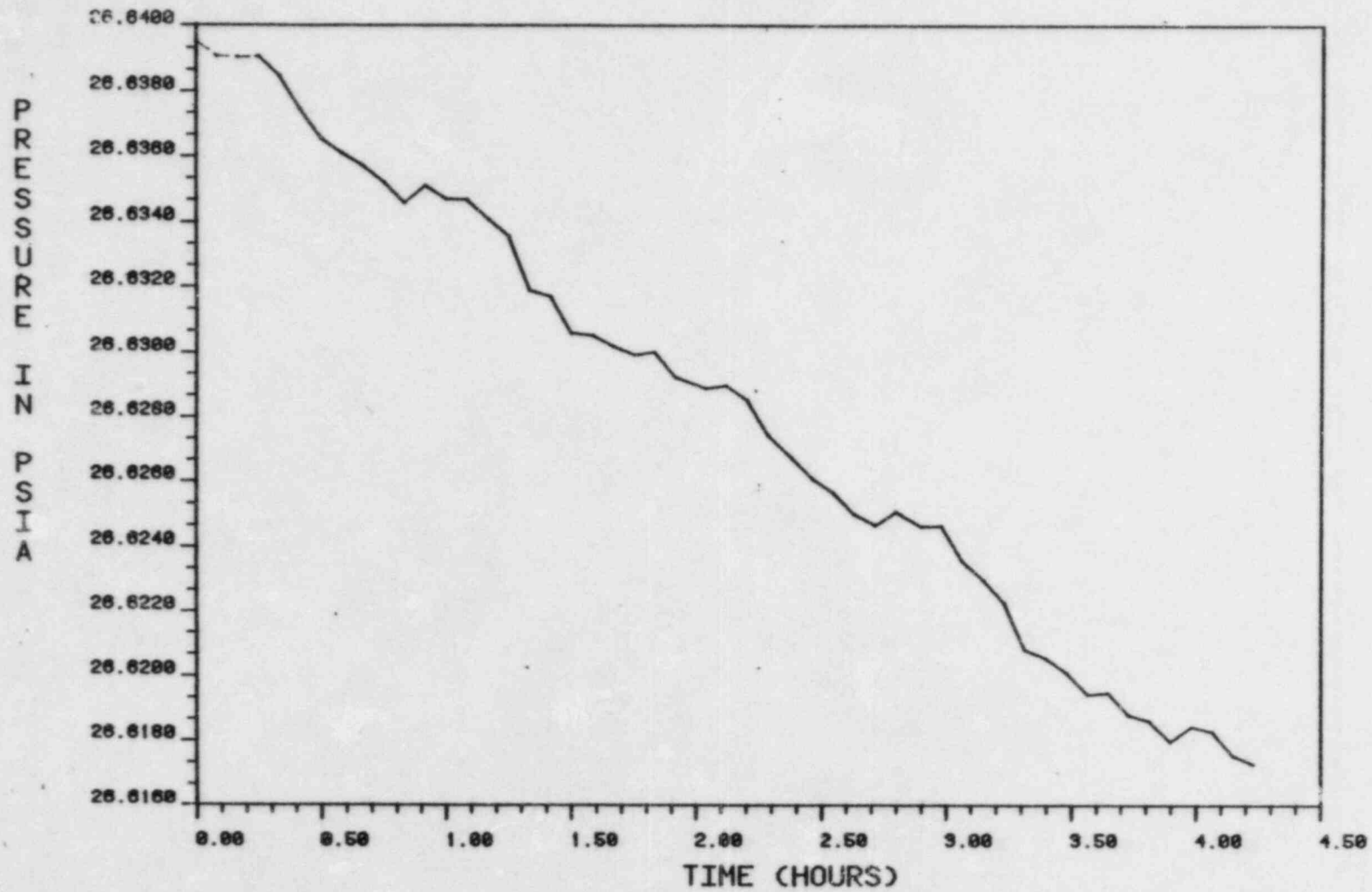


FIGURE 29

TENNESSEE VALLEY AUTHORITY
SQNP-UNIT 2-CYCLE(2)
VERIFICATION TEST
AVERAGE MASS PLOT

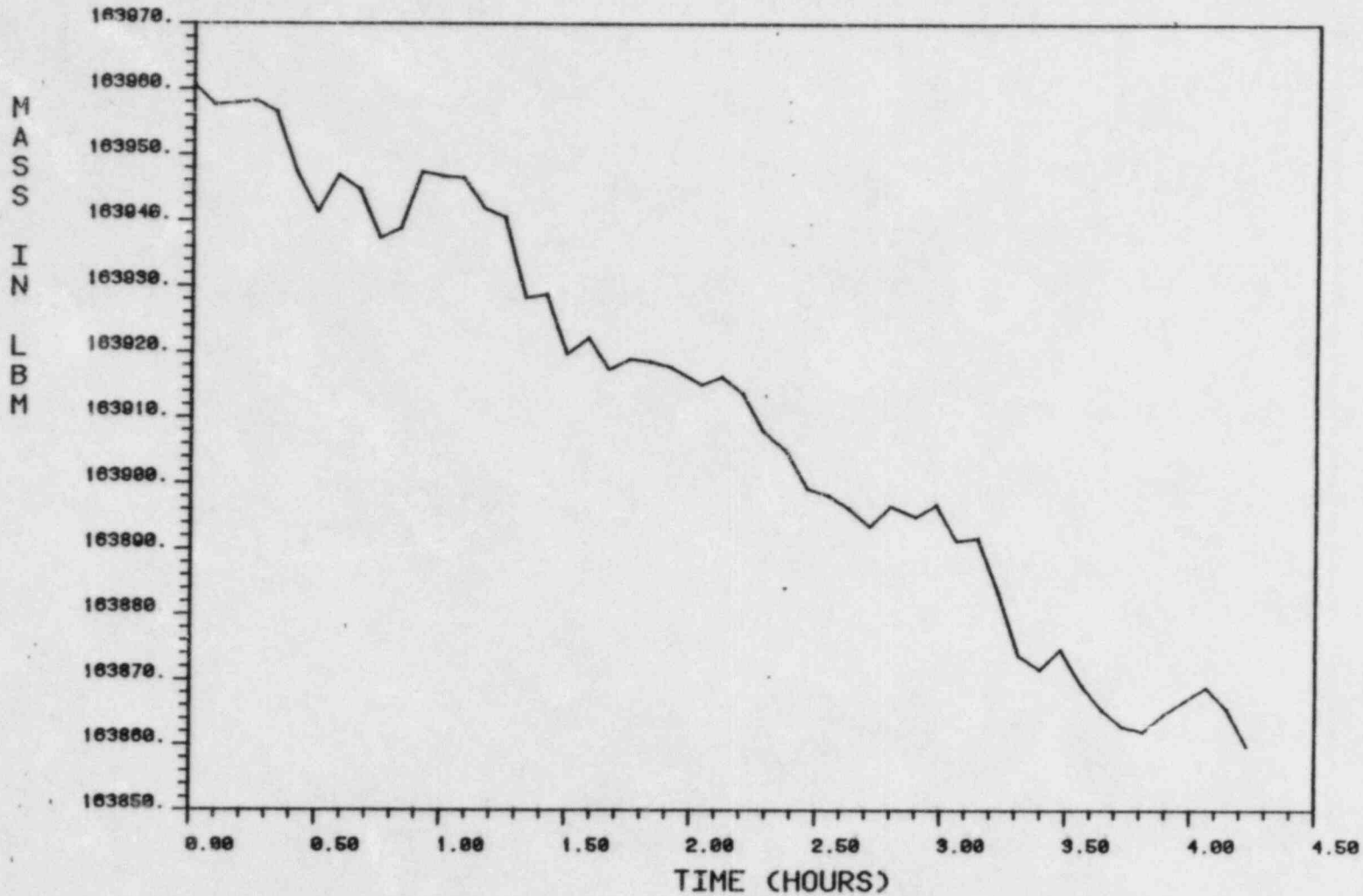


FIGURE 30

A P P E N D I C E S

APPENDIX A

INSTRUMENTATION ERROR ANALYSIS
INSTRUMENT ERROR ANALYSIS: (AS DEFINED IN APPENDIX G, ANS 56.8 DRAFT)

ASSUMED CONDITIONS AT THE TIME OF TEST:

P=26.696 PSIA
T=524.67 DEG R
T(DEW PT.)=60.00 DEG F--DEW PT.
TIME=25.490 HOURS

USING THE ABSOLUTE METHOD:

1. TOTAL ABSOLUTE PRESSURE METHOD.

NUMBER OF PRESS. SENSORS: 7.
RANGE: 0- 30. PSIA
ERROR IN PRESSURE= 0.0000579 PSIA (USING REPEATABILITY)
ERROR IN PRESSURE= 0.0015138 PSIA (USING ACCURACY)

2. WATER VAPOR PRESSURE

NUMBER OF SENSORS: 11.
ERROR IN VAPOR PRESSURE= 0.0002774 PSIA (USING REPEATABILITY)
ERROR IN PRESSURE= 0.0027739 PSIA (USING ACCURACY)

3. TEMPERATURE

NUMBER OF SENSORS: 47.
ERROR IN TEMPERATURE= 0.0002063 DEG R (USING REPEATABILITY)
ERROR IN TEMPERATURE= 0.0145872 DEG R (USING ACCURACY)

4. ISG (USING REPEATABILITY)

$ISG = 2400 / TM * (\text{SQRT}(2 * ((EPR/P)**2) + 2 * ((EPVR/P)**2) + 2 * ((ETR/T)**2)))$
ISG= 0.00141 PERCENT/DAY= 0.00566 LA

5. ISG (USING ACCURACY)

$ISG = 2400 / TM * (\text{SQRT}(2 * ((EPA/P)**2) + 2 * ((EPVA/P)**2) + 2 * ((ETA/T)**2)))$
ISG= 0.01619 PERCENT/DAY= 0.06476 LA

APPENDIX B

CALCULATION OF AGREEMENT (USING MLR)

Agreement: $\frac{L_{RM} - L_R - L_{AM}}{L_A} = \pm 0.25$

Where: L_{RM} = containment leak rate measured during verification

L_R = imposed leak rate for verification

L_{AM} = containment leak rate measured during CILRT

L_A = full pressure design basis leakage

$L_{RM} = 156016.70$ SCCM

$L_R = 103653.55$ SCCM

$L_{AM} = 69086.91$ SCCM

$L_A = 108188.19$ SCCM

$$\frac{L_{RM} - L_R - L_{AM}}{L_A} = \frac{156016.70 - 103653.55 - 69086.91}{108188.19} = -0.1546$$

Agreement: $-0.1546 L_A < \pm 0.25 L_A$

Therefore, compliance with Appendix J, using the MLR, has easily been met.

APPENDIX B

CALCULATION OF AGREEMENT (USING TTLR)

Where: $\frac{L_{RM} - L_R - L_{AM}}{L_A} = \pm 0.25$

Where: L_{RM} = containment leak rate measured during verification

L_R = imposed leak rate for verification

L_{AM} = containment leak rate measured during CILRT

L_A = full pressure design basis leakage

$L_{RM} = 153617.13$ SCCM

$L_R = 103653.55$ SCCM

$L_{AM} = 67650.56$ SCCM

$L_A = 108188.19$ SCCM

$$\frac{L_{RM} - L_R - L_{AM}}{L_A} = \frac{153617.13 - 103653.55 - 67650.56}{108188.19} = -0.1635$$

Agreement: $-0.1635 L_A < \pm 0.25 L_A$ Therefore, compliance with Appendix J using the TTLR, has also been met.

APPENDIX C

SPECIAL TEST INSTRUMENTATION

I. Pressure Measurement: (8 Total)

Two Mensor Quartz Manometers Per Compartment

II. Temperature Measure (48 Total)

Upper Compartment (14 Total)

V = 651,000 cubic feet

RTD -1
RTD -2
RTD -3
RTD -4
RTD -5
RTD -6
RTD -7
RTD -8

RTD - 9
RTD -10
RTD -11
RTD -12
RTD -13
RTD -14

Lower Compartment (24 Total)

V = 383,720 cubic feet

RTD -25
RTD -27
RTD -28
RTD -29
RTD -30
RTD -31
RTD -32
RTD -33
RTD -34
RTD -35
RTD -36
RTD -37

RTD -38
RTD -39
RTD -40
RTD -41
RTD -42
RTD -43
RTD -44
RTD -45
RTD -46
RTD -47
RTD -48
RTD -49

Ice Condenser (9 Total)

Upper Volume

V = 47,000 cubic feet

RTD -15
RTD -16
RTD -17
RTD -18
RTD -20

Lower Volume

V = 110,500 cubic feet

RTD -21
RTD -22
RTD -23
RTD -24

APPENDIX C

SPECIAL TEST INSTRUMENTATION

(Continued)

III. Vapor Pressure Measurement (11 Total):

Upper Compartment (3 Total)

DPE -1
DPE -2
DPE -3

Lower Compartment (3 Total)

DPE -4
DPE -5
DPE -6

Ice Condenser (5 Total)

Upper Volume

DPE -11
DPE -12
DPE -13

Lower Volume

DPE -7
DPE -9

IV. Test Station Equipment

Temperature: 1 RTD

Barometric Pressure: 1 Pressure Gauge

APPENDIX D
LOCAL LEAK RATE TEST SUMMARY

A. Type B Tests

Two methods were used to perform the type B tests - the absolute method (pressure decay) and the volumetrics mass flowmeter method. Both methods use air or nitrogen as the test medium, with the testable volume pressurized to a designated test pressure. The absolute method determines the leakage rate by a measured pressure drop during a set time specified in Sequoyah's surveillance instruction, SNP SI-157, for testable penetrations and SNP SI-159 for the personnel air lock test. The Volumetrics mass flowmeter makes a direct mass flow measurement with readings given in standard cubic centimeters per minute (SCCM).

All testable penetrations were tested prior to the performance of the CILRT.

Any penetrations or hatch covers opened after the completion of the CILRT will be tested prior to unit startup under the applicable plant-approved surveillance instructions.

A summary of all type B test data since the unit 2 preoperational CILRT conducted in February 1981 is included in this appendix (see Table D-2 and Table D-5).

B. Type C Tests

Three methods were used to perform the type C tests--an airflow method, a water displacement method, and the volumetrics mass flowmeter method. The airflow method consists of a rotameter flow facility in line with the testable valve through a test connection. An air supply is connected to the rotameter facility, which measures the flow of air necessary to replace the air leakage past the valve being tested. From this, a leakage rate is determined.

The water displacement method consists of a calibrated water test tank equipped with a sight glass. A timed water level drop is measured to calculate the leakage past the valve(s) being tested. A separate air source is used to maintain the water pressure at the prescribed test pressure. A special "water inventory test" is conducted on containment spray, applicable only to valves FCV-72-2 and FCV-72-39 and the remainder of test utilizing the water displacement method are the ERCW discharge isolation valves.

The Volumetrics mass flowmeter is also used to conduct type C tests.

All testable containment isolation valves were tested prior to the performance of the CILRT. The results of these tests are noted in the summary of type C data in this appendix (see Tables D-1 and D-4).

Any maintenance action or repairs on containment isolation valves subject to type C tests which would affect leakage from primary containment will be retested under the applicable plant-approved surveillance instruction before unit startup.

A summary of the data for all type C tests since the unit 2 pre-operational CILRT is included in this appendix. Penetrations in water-sealed systems subject to inventory restrictions and penetrations whose leakage might bypass the shield building emergency gas treatment system are identified in table D-1 and table D-4 of this appendix.

APPENDIX D

SUMMARY OF LOCAL LEAKAGE RATES

I. Unit 2, Cycle 1

Type B Leakage	<u>As Left</u>
A. Bellows	0.0000 SCFH
B. Electrical	0.0000 SCFH
C. Resilient Seals	0.0000 SCFH
D. Air Lock Doors	5.4294 SCFH
Total Type B Leakage	5.4294 SCFH
Total C Leakage	2.1440 SCFH

	<u>As Left</u>	<u>Maximum Allowable</u>
Total (Types B and C):	7.5734 SCFH	141.9 SCFH
Penetrations defined as potential bypass leakage paths:	0.4688 SCFH	59.1250 SCFH
Penetrations water sealed to at least 1.1 P subject to inventory restrictions:		
A. ERCW discharge	0.0386 CFH	0.24 CFH
B. Containment Spray	0.0000 CFH	0.08 CFH

APPENDIX D

SUMMARY OF LOCAL LEAKAGE RATES

II. Unit 2, Cycle 2

Type B Leakage	<u>As Left</u>
A. Bellows	0.0437 SCFH
B. Electrical	0.1449 SCFH
C. Resilient Seals	0.0000 SCFH
D. Air Lock Doors	13.8156 SCFH
Total Type B	14.0042 SCFH
Total C Leakage	3.1868 SCFH

	<u>As Left</u>	<u>Maximum Allowable</u>
Total (Types B and C):	17.1910 SCFH	141.9 SCFH
Penetrations defined as potential bypass leakage paths:	0.4533 SCFH	59.1250 SCFH

Penetrations water
sealed to at least
1.1 P subject to
inventory restrictions:

A. ERCW discharge	0.0180 CFH	0.24 CFH
B. Containment Spray	0.0093 CFH	0.08 CFH

TABLE D-1
Type C Test Summary
Cycle 1 - Unit 2

Path Leakage Tabulation

<u>Leakage Path</u>	<u>System Name</u>	<u>Isolation Valve Number</u>	<u>As Found</u>		<u>As Left</u>		<u>Test Date</u>
			<u>Valve Leak Rate SCFH</u>	<u>Path Leak Rate SCFH</u>	<u>Valve Leak Rate SCFH</u>	<u>Path Leak Rate SCFH</u>	
X-97	Ventilation	30-134/135	0.0000	0.0000	0.0000	0.0000	05/22/82 AF/AL
			0.0000	0.0000	0.0000	0.0000	07/22/80 AF/AL
X-111	Ventilation	30-46/571	25.8876	25.8876	0.0000	0.0000	05/24/82 AF/AL
			1.1508	1.1508	1.1508	1.1508	07/23/80 AF/AL
X-112	Ventilation	30-47/572	0.0000	0.0000	0.0000	0.0000	05/24/82 AF/AL
			1.7965	1.7965	0.0875	0.0875	07/23/83 AF 07/31/83 AL
X-113	Ventilation	30-48/573	0.0862	0.0862	0.0862	0.0862	05/24/82 AF/AL
			27.8127	27.8127	0.1999	0.1999	07/22/83 AF 07/31/83 AL
**X-15	CVCS	62-72/73/74 62-77	81.4575		0.0000		11/16/82
			0.0000	0.0000	0.0000	0.0000	AF/AL
			0.0000		0.0000		07/28/83
			0.0000	0.0000	0.0000	0.0000	AF/AL

TABLE D-1
Type C Test Summary
Cycle 1 - Unit 2

Path Leakage Tabulation

<u>Leakage Path</u>	<u>System Name</u>	<u>Isolation Valve Number</u>	<u>As Found</u>		<u>As Left</u>		<u>Test Date</u>
			<u>Valve Leak Rate SCFH</u>	<u>Path Leak Rate SCFH</u>	<u>Valve Leak Rate SCFH</u>	<u>Path Leak Rate SCFH</u>	
**X-39A	SIS	63-64 77-868	0.0000	0.0000	0.0000		11/18/82
			4.0706		4.0706	4.0706	AF/AL
			0.0000	0.0000	0.0000		07/23/83
			0.0000		0.0000	0.0000	AF/AL
**X-39B	Main Cooling	68-305 77-849	0.0000	0.0000	0.0000		05/17/82 AF
			0.4269		0.4269	0.4269	11/18/82 AL
			0.1894	0.1894	0.0000		07/23/83 AF
			18.0095		0.0000	0.0000	08/10/83 AL
**X-41	Waste Disposal	77-127 77-128	0.0000	0.0000	0.0000		05/22/82
			0.0000		0.0000	0.0000	AF/AL
			0.0000		0.0000	0.0000	08/24/83
			0.0000	0.0000	0.0000	AF/AL	
**X-42	Primary Water	81-12 81-502	0.0000	0.0000	0.0000		11/18/82
			0.0000		0.0000	0.0000	AF/AL
			0.0000	0.0000	0.0000		07/22/83
			0.0000		0.0000	0.0000	AF/AL

TABLE D-1
Type C Test Summary
Cycle 1 - Unit 2

Path Leakage Tabulation

<u>Leakage Path</u>	<u>System Name</u>	<u>Isolation Valve Number</u>	<u>As Found</u>		<u>As Left</u>		<u>Test Date</u>
			<u>Valve Leak Rate SCFH</u>	<u>Path Leak Rate SCFH</u>	<u>Valve Leak Rate SCFH</u>	<u>Path Leak Rate SCFH</u>	
X-48B	Containment Spray	72-2	0.0000	0.0000	0.0000	0.0000	05/15/82
			0.0000	0.0000	0.0000	0.0000	AF/AL 07/22/83 AF/AL
**X-50B	Component Cooling	70-134 70-679	40.9599	40.9599	0.0000		05/21/81 AF
			500.+		0.1200	0.1200	06/08/81 AL
			11.2905		0.0000		11/15/82 AF
			0.6802	0.6802	0.0000	0.0000	11/17/82 AL
			0.0000	0.0000	0.0000		07/26/83 AF
			0.3320		0.0000	0.0000	08/03/83 AL
**X-51	Fire Protection	26-240 26-1260	0.0000	0.0000	0.0000		05/19/82
			0.0000		0.0000	0.0000	AF/AL
			0.0000	0.0000	0.0000		08/03/83
			0.0000		0.0000	0.0000	AF/AL

TABLE D-1
Type C Test Summary
Cycle 1 - Unit 2

Path Leakage Tabulation

Leakage Path	System Name	Isolation Valve Number	As Found		As Left		Test Date
			Valve Leak Rate SCFH	Path Leak Rate SCFH	Valve Leak Rate SCFH	Path Leak Rate SCFH	
X-52	Component Cooling	70-140	2.1432		0.0000	0.0000	11/15/82 AF
			4.0559	2.1432	0.0000		11/17/82 AL
		70-692	0.0000	0.0000	0.0000		07/25/83 AF
			1.2591		0.0000	0.0000	07/28/83 AL
X-56	ERCW	67-107	0.0000		0.0000	0.0000	05/16/82 AF
			0.0000	0.0000	0.0000		05/23/82 AL
		67-562D	0.0000	0.0000	0.0000		07/29/83
			0.0000		0.0000	0.0000	AF/AL
X-57	ERCW	67-111/575D	0.0436		0.0436	0.0436	05/16/82
			0.0000	0.0000	0.0000		AF/AL
		67-112	1.9543				07/31/83 AF
			0.0011	0.0011	0.0011	0.0011	08/19/83 AL
X-58	ERCW	67-83	0.0000	0.0000	0.0000		05/23/82
			0.0000		0.0000	0.0000	AF/AL
		67-562A	33.5900		0.0000	0.0000	11/15/82 AF
			33.3600	33.36	0.0000		11/18/82 AL
			0.0000	0.0000	0.0000		07/31/83 AF
			500.0+		0.0000	0.0000	08/04/83 AL

TABLE D-1
Type C Test Summary
Cycle 1 - Unit 2

Path Leakage Tabulation

Leakage Path	System Name	Isolation Valve Number	As Found		As Left		Test Date
			Valve Leak Rate SCFH	Path Leak Rate SCFH	Valve Leak Rate SCFH	Path Leak Rate SCFH	
X-59	ERCW	67-87/575A 67-88	0.0015	0.0015	0.0015		05/18/82
			0.0066		0.0066	0.0066	AF/AL
			0.0009		0.0009	0.0009	08/01/83
			0.0000	0.0000	0.0000	0.0000	AF/AL
X-60	ERCW	67-99 67-562B	0.0000	0.0000	0.0000	0.0000	11/22/82
			146.3515		0.0000	0.0000	AF/AL
			0.0000	0.0000	0.0000	0.0000	07/28/83 AF
			190.1000		0.0000	0.0000	08/16/83 AL
X-61	ERCW	67-103/575B 67-104	0.0008	0.0008	0.0008		05/17/82
			0.0012		0.0012	0.0012	AF/AL
			0.0002		0.0002	0.0002	07/30/83
			0.0000	0.0000	0.0000	0.0002	AF/AL
X-62	ERCW	67-91 67-562C	14.6620	14.6620	0.0000		11/15/82 AF
			16.7600		0.0000	0.0000	11/19/82 AL
			0.0886		0.0886	0.0886	07/31/83 AF
			521.54	0.0886	0.0000	0.0000	08/11/83 AL

TABLE D-1
 Type C Test Summary
 Cycle 1 - Unit 2

Path Leakage Tabulation

<u>Leakage Path</u>	<u>System Name</u>	<u>Isolation Valve Number</u>	<u>As Found</u>		<u>As Left</u>		<u>Test Date</u>
			<u>Valve Leak Rate SCFH</u>	<u>Path Leak Rate SCFH</u>	<u>Valve Leak Rate SCFH</u>	<u>Path Leak Rate SCFH</u>	
X-63	ERCW	67-95/575C 67-96	0.6000		0.0012		08/04/81 AF
			0.0057	0.0057	0.0057	0.0057	08/14/81 AL
			0.0082	0.0082	0.0082		05/18/82
			0.0248		0.0248	0.0248	AF/AL
**X-64	Chilled Water	31C-222 31C-223/752	0.0004	0.0004	0.0004		07/31/83
			0.0023		0.0023	0.0023	AF/AL
			0.0000	0.0000	0.0000		11/15/82
			0.0000		0.0000	0.0000	AF/AL
**X-65	Chilled Water	31C-224 31C-225/734	0.0000	0.0000	0.0000		11/15/82 AF
			4.6520		0.0000	0.0000	11/19/83 AL
			0.0000	0.0060	0.0000		07/31/83
			0.0000		0.0000	0.0000	AF/AL

TABLE D-1
Type C Test Summary
Cycle 1 - Unit 2

Path Leakage Tabulation

Leakage Path	System Name	Isolation Valve Number	As Found		As Left		Test Date
			Valve Leak Rate SCFH	Path Leak Rate SCFH	Valve Leak Rate SCFH	Path Leak Rate SCFH	
**X-66	Chilled Water	31C-229	0.0000	0.0000	0.0000		11/21/82
			31C-230/715	0.0000		0.0000	0.0000
			0.7461	0.7461	0.0000		07/28/83 AF
			6.9603		0.0000	0.0000	07/29/83 AL
**X-67	Chilled Water	31C-231	0.0000	0.0000	0.0000		11/21/83 AF
			31C-232/697	0.7637		0.0000	0.0000
			0.0000	0.0000	0.0000		07/28/83
			0.0000		0.0000	0.0000	AF/AL
X-68	ERCW	67-141	0.0000	0.0000	0.0000		11/16/82
			67-580D	0.0000		0.0000	0.0000
			0.0000	0.0000	0.0000		07/25/83 AF
			50.6727		0.0789	0.0789	07/30/83 AL
X-69	ERCW	67-130	0.0000	0.0000	0.0000		11/15/82
			67-580A	0.0000		0.0000	0.0000
			0.0000	0.0000	0.0000		07/25/83 AF
			1.4498		0.0000	0.0000	08/11/83 AL

TABLE D-1
Type C Test Summary
Cycle 1 - Unit 2

Path Leakage Tabulation

<u>Leakage Path</u>	<u>System Name</u>	<u>Isolation Valve Number</u>	<u>As Found</u>		<u>As Left</u>		<u>Test Date</u>
			<u>Valve Leak Rate SCFH</u>	<u>Path Leak Rate SCFH</u>	<u>Valve Leak Rate SCFH</u>	<u>Path Leak Rate SCFH</u>	
X-70	ERCW	67-139 67-297/585B	0.3189		0.0027	0.0027	11/16/82 AF
			0.2815	0.2815	0.0000		11/19/82 AL
			0.0257 0.0190	0.0190	0.0257 0.0190	0.0257	07/25/83 AF/AL
X-71	ERCW	67-134 67-296/585C	0.0000	0.0000	0.0000	0.0000	11/15/82
			0.0000		0.0000		AF/AL
			0.0010 0.0005	0.0005	0.0010 0.0005	0.0010	07/24/83 AF/AL
X-72	ERCW	67-142 67-298/585D	0.0008	0.0008	0.0008		11/16/82
			0.0010		0.0010	0.0010	AF/AL
			2.3586 2.3586	2.3586	0.0052 0.0018	0.0052	07/25/83 AF 07/29/83 AL
X-73	ERCW	67-131 67-295/585A	0.0000	0.0000	0.0000		11/15/82
			0.0000		0.0000	0.0000	AF/AL
			0.0010 0.0018	0.0010	0.0010 0.0018	0.0010 0.0018	07/24/83 AF/AL

TABLE D-1
Type C Test Summary
Cycle 1 - Unit 2

Path Leakage Tabulation

<u>Leakage Path</u>	<u>System Name</u>	<u>Isolation Valve Number</u>	<u>As Found</u>		<u>As Left</u>		<u>Test Date</u>
			<u>Valve Leak Rate SCFH</u>	<u>Path Leak Rate SCFH</u>	<u>Valve Leak Rate SCFH</u>	<u>Path Leak Rate SCFH</u>	
X-74	ERCW	67-138	0.0000	0.0000	0.0000		11/16/82 AF
			9.4601		0.0000	0.0000	12/02/82 AL
		67-580B	0.0000	0.0000	0.0000		07/25/83 AF
			1.7345		0.0000	0.0000	08/05/83 AL
X-75	ERCW	67-133	0.0000	0.0000	0.0000		11/15/82
			0.0000		0.0000	0.0000	AF/AL
		67-580C	0.0000	0.0000	0.0000		07/25/83 AF
			1.4498		0.0000	0.0000	08/12/83 AL
**X-76	Service Air	33-722	0.0000	0.0000	0.0000		11/14/82
			0.0000		0.0000	0.0000	AF/AL
		33-739	0.0000	0.0000	0.0000		07/20/83 AF
			15.7480		0.3800	0.3800	09/26/83 AL
**X-77	Demin Water	59-522/529	0.0000	0.0000	0.0000		05/21/82
			0.0000		0.0000	0.0000	AF/AL
		59-633	0.0000	0.0000	0.0000		07/20/83 AF
			0.0000		0.0000	0.0000	09/01/83 AL

TABLE D-1
Type C Test Summary
Cycle 1 - Unit 2

Path Leakage Tabulation

Leakage Path	System Name	Isolation Valve Number	As Found				As Left				Test Date
			Valve Leak Rate SCFH	Path Leak Rate SCFH	Valve Leak Rate SCFH	Path Leak Rate SCFH					
**X-84A	Main Coolant	68-307	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	05/21/82	
		68-308	0.0000			0.0000	0.0000			AF/AL	
**X-85A	Sampling System	43-75	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	07/26/83	
		43-77	0.0000			0.0000	0.0000			AF/AL	
**X-90	Control Air	32-81/353	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	05/21/82	
		32-358	4.7430			0.0000	0.0000			AF/AL	
X-92	Sampling System	43-207	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	07/26/83	
		43-208	0.0000			0.0000	0.0000			AF/AL	
			0.0000	214.47	0.0000	0.0000	0.0000	0.0000	0.0000	08/01/83 AF	
					0.0000	0.0000	0.0000	0.0000	0.0000	08/29/83 AL	
			0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	05/16/82	
			0.0000			0.0000	0.0000	0.0000	0.0000	AF/AL	
			0.0000			0.0000	0.0000	0.0000	0.0000	07/27/83	
			0.0000			0.0000	0.0000	0.0000	0.0000	AF/AL	

TABLE D-1
 Type C Test Summary
 Cycle 1 - Unit 2

Path Leakage Tabulation

Leakage Path	System Name	Isolation Valve Number	As Found				As Left				Test Date
			Valve Leak Rate SCFH	Path Leak Rate SCFH	Valve Leak Rate SCFH	Path Leak Rate SCFH					
**X-93	Sampling System	43-34 43-35	0.0000 0.0000	0.0000	0.0000 0.0000	0.0000 0.0000	0.0000	0.0000 0.0000	0.0000	05/21/82 AF/AL	
**X-94A/B	Radiation Monitoring	90-107 90-108/109	0.0000 0.0000	0.0000	0.0000 0.0000	0.0000 0.0000	0.0000	0.0000 0.0000	0.0000	07/26/83 AF/AL	
**X-94C	Radiation Monitoring	90-110 90-111	0.0000 0.0000	0.0000	0.0000 0.0000	0.0000 0.0000	0.0000	0.0000 0.0000	0.0000	11/17/82 AF/AL	
**X-95A/B	Radiation Monitoring	90-113 90-114/115	0.0000 0.0000	0.0000	0.0000 0.0000	0.0000 0.0000	0.0000	0.0000 0.0000	0.0000	07/30/83 AF/AL	
			0.0000 0.0000	0.0000	0.0000 0.0000	0.0000 0.0000	0.0000	0.0000 0.0000	0.0000	11/17/82 AF/AL	
			0.0000 0.0000	0.0000	0.0000 0.0000	0.0000 0.0000	0.0000	0.0000 0.0000	0.0000	08/02/83 AF/AL	

TABLE D-1
Type C Test Summary
Cycle 1 - Unit 2

Path Leakage Tabulation

<u>Leakage Path</u>	<u>System Name</u>	<u>Isolation Valve Number</u>	<u>As Found</u>		<u>As Left</u>		<u>Test Date</u>
			<u>Valve Leak Rate SCFH</u>	<u>Path Leak Rate SCFH</u>	<u>Valve Leak Rate SCFH</u>	<u>Path Leak Rate SCFH</u>	
**X-95C	Radiation Monitoring	90-116	0.0000	0.0000	0.0000	0.0000	11/17/82
		90-117	0.0000		0.0000		AF/AL
			0.0000	0.0000	0.0000	0.0000	08/02/82
			0.0000		0.0000		AF/AL
**X-96C	Sampling System	43-22	0.0000	0.0000	0.0000	0.0000	05/20/82
		43-23	0.0000		0.0000		AF/AL
			0.0000	0.0000	0.0000	0.0000	07/25/83
			0.0000		0.0000		AF/AL
X-98	1LRT	52-IN	0.0000	0.0000	0.0000	0.0000	05/16/82
		52-OUT	0.0000		0.0000		AF/AL
			0.0000	0.0000	0.0000	0.0000	07/24/83
			0.0000		0.0000		AF/AL
X-99	Sampling System	43-202	0.0000	0.0000	0.0000	0.0000	05/16/82
			0.0000	0.0000	0.0000	0.0000	07/27/83
						AF/AL	

TABLE D-1
Type C Test Summary
Cycle 1 - Unit 2

Path Leakage Tabulation

Leakage Path	System Name	Isolation Valve Number	As Found				As Left				Test Date
			Valve Leak Rate SCFH	Path Leak Rate SCFH	Valve Leak Rate SCFH	Path Leak Rate SCFH					
X-100	Sampling System	43-201	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	05/16/82 AF/AL	
**X-110	Upper Head Injection	87-7/8/9	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	07/27/83 AF/AL	
**X-114	Ice Condenser	51-110 61-122	0.0000 0.0000	0.0000	0.0000	0.0000 0.0000	0.0000	0.0000	0.0000	11/18/82 AF/AL	
**X-115	Ice Condenser	61-96 61-97	0.0000 0.0000	0.0000	0.0000	0.0000 0.0000	0.0000	0.0000	0.0000	08/01/83 AF/AL	
			0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	11/23/82 AF/AL	
			0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	08/27/83 AF/AL	
			0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	11/23/82 AF/AL	
			0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	08/27/83 AF/AL	

**Indicates isolation valves subject to bypass leakage requirements.

TABLE D-2
Type B Test Summary
Cycle 1 - Unit 2

I. Bellows

Leakage Path X-12A

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000 (INB)	11/19/82
0.0000 (OUTB)	11/19/82
0.0000 (INB)	07/31/83
0.0000 (OUTB)	07/30/83

Leakage Path X-13A

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000 (INB)	11/19/82
0.0000 (OUTB)	11/19/82
0.0000 (INB)	07/28/83
0.0000 (OUTB)	07/31/83

Leakage Path X-12B

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000 (INB)	11/17/82
0.0000 (OUTB)	11/17/82
0.0000 (INB)	08/03/83
0.0000 (OUTB)	07/30/83

Leakage Path X-13B

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000 (INB)	11/18/82
0.0000 (OUTB)	11/18/82
0.0000 (INB)	07/28/83
0.0000 (OUTB)	07/29/83

Leakage Path X-12C

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000 (INB)	11/17/82
0.0000 (OUTB)	11/17/82
0.0000 (INB)	08/01/83
0.0000 (OUTB)	08/01/83

Leakage Path X-13C

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000 (INB)	11/17/82
0.0000 (OUTB)	11/17/82
0.0000 (INB)	07/28/83
0.0000 (OUTB)	07/29/83

Leakage Path X-12D

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000 (INB)	11/19/82
0.0000 (OUTB)	11/19/82
0.0000 (INB)	07/30/83
0.0000 (OUTB)	07/31/83

Leakage Path X-13D

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000 (INB)	11/18/82
0.0000 (OUTB)	11/18/82
0.0000 (INB)	07/28/83
0.0000 (OUTB)	07/31/83

TABLE D-2
Type B Test Summary
Cycle 1 - Unit 2

I. Bellows (continued)

Leakage Path X-14A

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	11/18/82
0.0000	07/31/83

Leakage Path X-17

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0021	11/19/82
0.0000	07/30/83

Leakage Path X-14B

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	11/18/82
0.0000	07/31/83

Leakage Path X-20A

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	11/19/82
0.0000	07/31/83

Leakage Path X-14C

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	11/19/82
0.0000	07/31/83

Leakage Path X-20B

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0021	11/19/82
0.0000	07/31/83

Leakage Path X-14D

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	11/18/82
0.0000	07/31/83

Leakage Path X-21

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	11/19/82
0.0000	07/31/83

Leakage Path X-15

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	11/19/82
0.0000	07/31/83

Leakage Path X-22

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0021	11/19/82
0.0000	07/31/83

TABLE D-2
Type B Test Summary
Cycle 1 - Unit 2

I. Bellows (continued)

Leakage Path X-24

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	11/19/82
0.0000	07/31/83

Leakage Path X-46

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	11/20/82
0.0000	08/01/83

Leakage Path X-30

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	11/20/82
0.0000	08/01/83

Leakage Path X-47A

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000 (OUTB)	11/21/82
0.0021 (INB)	11/21/82
0.0000 (INB)	08/03/83
0.0000 (OUTB)	08/03/83

Leakage Path X-32

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	11/20/82
0.0000	07/31/83

Leakage Path X-47B

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0021 (OUTB)	11/21/82
0.0000 (INB)	11/21/82
0.0000 (INB)	08/03/83
0.0000 (OUTB)	08/03/83

Leakage Path X-33

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	11/20/82
0.0000	08/01/83

Leakage Path X-81

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	11/20/82
0.0000	08/01/83

Leakage Path X-45

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	11/20/82
0.0000	07/31/83

Leakage Path X-107

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	11/20/82
0.0000	08/01/83

TABLE D-2
Type B Test Summary
Cycle 1 - Unit 2

I. Bellows (continued)

Leakage Path X-108

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	11/17/82
0.0000	08/01/83

Leakage Path K-14

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	11/13/82
0.0000	08/03/83

Leakage Path X-109

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	11/17/82
0.0000	08/01/83

Leakage Path K-15

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	11/13/82
0.0000	08/03/83

TABLE D-2
Type B Test Summary
Cycle 1 - Unit 2

II. Electrical

Leakage Path X-120E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0126	05/28/82
0.0000	07/26/83

Leakage Path X-124E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0084	05/25/82
0.0000	07/26/83

Leakage Path X-121E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0042	05/24/82
0.0000	07/23/83

Leakage Path X-126E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	05/24/82
0.0000	07/22/83

Leakage Path X-122E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0402	05/24/82
0.0000	07/21/83

Leakage Path X-127E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	11/14/82
0.0000	07/22/83

Leakage Path X-123E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	11/17/82
0.0000	07/25/83

Leakage Path X-128E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	11/14/82
0.0000	07/23/83

TABLE D-2
Type B Test Summary
Cycle 1 - Unit 2

II. Electrical (continued)

Leakage Path X-129E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	05/25/82
0.0000	07/22/83

Leakage Path X-134E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0021	05/24/82
0.0000	07/21/83

Leakage Path X-131E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	05/25/82
0.0000	07/28/83

Leakage Path X-135E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0063	05/24/82
0.0000	07/21/83

Leakage Path X-132E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	11/17/82
0.0000	07/23/83

Leakage Path X-136E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0021	05/24/82
0.0000	07/21/83

Leakage Path X-133E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	11/17/82
0.0000	07/23/83

Leakage Path X-137E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	11/14/82
0.0000	07/21/83

TABLE D-2
Type B Test Summary
Cycle 1 - Unit 2

II. Electrical (continued)

Leakage Path X-138E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0021	05/24/82
0.0000	07/21/83

Leakage Path X-143E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	11/17/82
0.0000	07/25/83

Leakage Path X-139E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	05/24/82
0.0000	07/22/83

Leakage Path X-144E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	11/17/82
0.0000	07/25/83

Leakage Path X-140E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	05/24/82
0.0000	07/21/83

Leakage Path X-145E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0021	05/25/82
0.0000	07/28/83

Leakage Path X-141E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	11/17/82
0.0000	07/25/83

Leakage Path X-146E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0021	05/25/82
0.0000	07/28/83

Leakage Path X-142E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0063	05/24/82
0.0000	07/21/83

Leakage Path X-147E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	05/24/82
0.0000	07/22/83

TABLE D-2
Type B Test Summary
Cycle 1 - Unit 2

II. Electrical (continued)

Leakage Path X-148E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	05/24/82
0.0000	07/22/83

Leakage Path X-152E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	05/24/82
0.0000	07/22/83

Leakage Path X-149E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	05/24/82
0.0000	07/22/83

Leakage Path X-153E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	11/14/82
0.0000	07/22/83

Leakage Path X-150E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	05/24/82
0.0000	07/22/83

Leakage Path X-154E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	11/14/82
0.0000	07/22/83

Leakage Path X-151E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	05/24/82
0.0000	07/22/83

Leakage Path X-156E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	11/14/82
0.0000	07/22/83

TABLE D-2
Type B Test Summary
Cycle 1 - Unit 2

II. Electrical (continued)

Leakage Path X-157E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	11/14/82
0.0000	07/22/83

Leakage Path X-163E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0021	11/14/82
0.0000	07/25/83

Leakage Path X-158E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	11/14/82
0.0000	07/22/83

Leakage Path X-164E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	11/14/82
0.0000	07/25/83

Leakage Path X-159E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	11/14/82
0.0000	07/23/83

Leakage Path X-165E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	11/14/82
0.0000	07/25/83

Leakage Path X-160E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	11/14/82
0.0000	07/23/83

Leakage Path X-166E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	11/14/82
0.0000	07/22/83

Leakage Path X-161E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	11/14/82
0.0000	07/23/83

Leakage Path X-167E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0042	05/25/82
0.0000	07/22/83

TABLE D-2
Type B Test Summary
Cycle 1 - Unit 2

II. Electrical (continued)

Leakage Path X-169E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0064	05/25/82
0.0000	07/22/83

Leakage Path X-170E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	05/25/82
0.0000	07/22/83

Leakage Path X-168E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0064	05/25/82
0.0000	07/22/83

TABLE D-2
Type B Test Summary
Cycle 1 - Unit 2

III. Resilient Seals

Leakage Path X-1

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	06/25/81
0.0005	08/19/81
*0.0070	10/19/81 AF
*0.0001	10/19/81 AL
0.0000	05/15/82
*2.1019	05/26/82 AF
*0.0000	05/26/82 AL
0.0001	11/13/82
0.0000	07/19/83
0.0089	09/26/83
0.0000	11/27/83

Leakage Path X-54

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	06/25/81
0.0000	08/18/81
0.0000	08/27/81
0.0000	10/21/81
0.0000	10/15/81
0.0000	05/15/82
0.0000	05/22/82
0.0000	11/21/82
0.0000	07/19/83
0.0000	09/14/83
0.0000	11/26/83

Leakage Path X-3

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0001	08/18/81
0.0000	09/28/83
0.0000	07/20/83
0.0000	11/26/83

Leakage Path X-79A

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	06/25/81
0.0000	08/19/81
0.0000	08/27/81
0.0000	10/15/81
0.0000	11/21/82
0.0001	12/23/82
0.0000	07/20/83
0.0000	09/27/83

Leakage Path X-40D

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	06/30/81
0.0000	08/18/81
0.0000	10/21/81
0.0000	10/15/81
0.0000	11/21/82
0.0000	07/19/83

Leakage Path X-79B

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	06/25/81
0.0000	08/19/81
0.0000	08/27/81
0.0000	10/15/81
0.0000	11/21/82
0.0000	07/20/83
0.0000	09/27/83

TABLE D-2
Type B Test Summary
Cycle 1 - Unit 2

III. Resilient Seals (continued)

Leakage Path X-111

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0022	08/19/81
0.0001	10/15/81
0.0021	11/21/82
0.0000	07/30/82

Leakage Path X-113

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0004	08/19/81
0.0000	10/15/81
0.0021	11/21/82

Leakage Path X-112

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	08/19/81
0.0000	10/15/81
0.0021	11/21/82
0.0000	07/30/83

Leakage Path X-118

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	06/25/81
0.0038	08/18/81
0.0020	08/20/81
0.0007	08/20/81
0.1482	08/18/81
0.0000	10/21/81
0.0000	10/15/81
0.0000	11/17/82
0.0000	07/19/83
0.0000	11/26/83

Leakage Path X-88

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	09/14/83

TABLE D-2
Air Lock Door Tests
Cycle 1 - Unit 2

IV. Air Lock Door Test

<u>Leakage Path X-2A</u>		<u>Leakage Path X-2B</u>	
<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>	<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
3.3101	08/14/82	0.8284	02/11/82
1.6945	02/12/82	3.2954	05/22/82
0.0000	05/20/82	9.8861	11/22/82
2.0983	11/23/83	1.5306	05/17/83
2.4761	05/19/83	4.9340	08/02/83
*26.5437	09/11/83 AF	1.7014	09/23/83
*3.7280	09/25/83 AL		

*Denotes a single condition: either AF for the "as found" or AL for the "as left" condition only. Otherwise, the leakages shown are both the AF and the AL conditions.

TABLE D-3
Type B and C Tests
Cycle 1 - Unit 2

Path Leakage Tabulation

Summary

	<u>As Found</u>	<u>As Left</u>
A. Type B Leakage		
I Bellows	0.0000 SCFH	0.0000 SCFH
II Electrical	0.0000 SCFH	0.0000 SCFH
III Resilient Seals	0.0000 SCFH	0.0000 SCFH
IV Air Lock Doors	31.4777 SCFH	5.4294 SCFH
B. Type C Leakage	39.1562 SCFH	2.1440 SCFH

TABLE D-4
Type C Test Summary
Cycle 2 - Unit 2

Path Leakage Tabulation

<u>Leakage Path</u>	<u>System Name</u>	<u>Isolation Valve Number</u>	<u>As Found</u>		<u>As Left</u>		<u>Test Date</u>
			<u>Valve Leak Rate SCFH</u>	<u>Path Leak Rate SCFH</u>	<u>Valve Leak Rate SCFH</u>	<u>Path Leak Rate SCFH</u>	
X-4	Ventilation	30-56/57	0.0391	0.0391	0.0391	0.0391	06/05/84
			0.0391	0.0391	0.0391	0.0391	06/08/84
			0.0390	0.0390	0.0390	0.0390	06/11/84
			0.0390	0.0390	0.0390	0.0390	06/13/84
			0.0390	0.0390	0.0390	0.0390	06/15/84
			0.0390	0.0390	0.0390	0.0390	06/18/84
			0.0830	0.0830	0.0830	0.0830	06/20/84
			0.0390	0.0390	0.0390	0.0390	06/25/84
			0.0389	0.0389	0.0389	0.0389	06/26/84
			0.0389	0.0389	0.0389	0.0389	06/29/84
			0.4017	0.4017	0.4017	0.4017	06/30/84
			0.0391	0.0391	0.0391	0.0391	07/02/84
			0.0389	0.0389	0.0389	0.0389	07/04/84
			0.0389	0.0389	0.0389	0.0389	07/06/84
			0.0387	0.0387	0.0387	0.0387	07/08/84
			0.0389	0.0389	0.0389	0.0389	07/11/84
			0.0389	0.0389	0.0389	0.0389	07/13/84
			0.0388	0.0388	0.0388	0.0388	07/16/84
			0.0388	0.0388	0.0388	0.0388	07/18/84
			0.0387	0.0387	0.0387	0.0387	07/20/84
0.0389	0.0389	0.0389	0.0389	07/23/84			
0.0389	0.0389	0.0389	0.0389	07/25/84			
0.0387	0.0387	0.0387	0.0387	07/27/84			
0.0389	0.0389	0.0389	0.0389	07/30/84			
0.0391	0.0391	0.0391	0.0391	08/01/84			
0.0833	0.0833	0.0833	0.0833	08/03/84			

TABLE D-4
Type C Test Summary
Cycle 2 - Unit 2

Path Leakage Tabulation

<u>Leakage Path</u>	<u>System Name</u>	<u>Isolation Valve Number</u>	<u>As Found</u>		<u>As Left</u>		<u>Test Date</u>
			<u>Valve Leak Rate SCFH</u>	<u>Path Leak Rate SCFH</u>	<u>Valve Leak Rate SCFH</u>	<u>Path Leak Rate SCFH</u>	
X-4	Ventilation	30-56/57	0.1770	0.1770	0.1770	0.1770	08/06/84
			0.0388	0.0388	0.0388	0.0388	08/08/84
			0.0389	0.0389	0.0389	0.0389	08/10/84
			0.0388	0.0388	0.0388	0.0388	08/13/84
			0.3208	0.3208	0.3208	0.3208	08/15/84
			0.0388	0.0388	0.0388	0.0388	08/17/84
			0.2986	0.2986	0.2986	0.2986	08/20/84
			0.0391	0.0391	0.0391	0.0391	08/25/84
			0.0391	0.0391	0.0391	0.0391	08/27/84
			0.0389	0.0389	0.0389	0.0389	08/29/84
			0.0388	0.0388	0.0388	0.0388	08/31/84
			0.0389	0.0389	0.0389	0.0389	09/03/84
			0.0390	0.0390	0.0390	0.0390	09/05/84
			0.0389	0.0389	0.0389	0.0389	09/07/84
			0.0691	0.0691	0.0691	0.0691	09/10/84
			0.0390	0.0390	0.0390	0.0390	09/11/84
			0.0391	0.0391	0.0391	0.0391	09/12/84
			0.0391	0.0391	0.0391	0.0391	09/14/84
			0.0995	0.0995	0.0995	0.0995	09/17/84
			0.0835	0.0835	0.0835	0.0835	09/19/84
0.0390	0.0390	0.0390	0.0390	09/24/84			
0.0391	0.0391	0.0391	0.0391	09/26/84			
1.1643	1.1643	1.1643	1.1643	09/28/84			

TABLE D-4
Type C Test Summary
Cycle 2 - Unit 2

Path Leakage Tabulation

<u>Leakage Path</u>	<u>System Name</u>	<u>Isolation Valve Number</u>	<u>As Found</u>		<u>As Left</u>		<u>Test Date</u>
			<u>Valve Leak Rate SCFH</u>	<u>Path Leak Rate SCFH</u>	<u>Valve Leak Rate SCFH</u>	<u>Path Leak Rate SCFH</u>	
X-6	Ventilation	30-50/51	0.0388	0.0388	0.0388	0.0388	08/14/84
			0.0392	0.0392	0.0392	0.0392	08/25/84
			0.0390	0.0390	0.0390	0.0390	09/11/84
			0.0391	0.0391	0.0391	0.0391	09/26/84
			0.0392	0.0392	0.0392	0.0392	09/30/84
X-7	Ventilation	30-52/53	0.0000	0.0000	0.0000	0.0000	11/06/83
			0.0000	0.0000	0.0000	0.0000	11/28/83
			0.0000	0.0000	0.0000	0.0000	12/26/83
			0.0000	0.0000	0.0000	0.0000	12/27/83
			0.0000	0.0000	0.0000	0.0000	02/01/84
			0.0000	0.0000	0.0000	0.0000	02/16/84
			0.0000	0.0000	0.0000	0.0000	03/26/84
			0.0000	0.0000	0.0000	0.0000	04/09/84
			0.0396	0.0396	0.0396	0.0396	05/03/84
			0.0394	0.0394	0.0394	0.0394	05/04/84
			0.0392	0.0392	0.0392	0.0392	05/05/84
			0.1361	0.1361	0.1361	0.1361	06/20/84
			0.0390	0.0390	0.0390	0.0390	06/25/84
			0.0389	0.0389	0.0389	0.0389	06/26/84
			0.0388	0.0388	0.0388	0.0388	06/30/84
			0.0388	0.0388	0.0388	0.0388	07/31/84
			0.0391	0.0391	0.0391	0.0391	08/25/84
0.6103	0.6103	0.6103	0.6103	09/28/84			
0.0392	0.0392	0.0392	0.0392	09/29/84			

TABLE D-4
Type C Test Summary
Cycle 2 - Unit 2

Path Leakage Tabulation

<u>Leakage Path</u>	<u>System Name</u>	<u>Isolation Valve Number</u>	<u>As Found</u>		<u>As Left</u>		<u>Test Date</u>
			<u>Valve Leak Rate SCFH</u>	<u>Path Leak Rate SCFH</u>	<u>Valve Leak Rate SCFH</u>	<u>Path Leak Rate SCFH</u>	
X-10A	Ventilation	30-14/15	0.0391	0.0391	0.0391	0.0391	05/26/84
			0.0391	0.0391	0.0391	0.0391	05/29/84
			0.0392	0.0392	0.0392	0.0392	06/01/84
			0.0389	0.0389	0.0389	0.0389	06/04/84
			0.0391	0.0391	0.0391	0.0391	06/05/84
			0.0389	0.0389	0.0389	0.0389	06/08/84
			0.0390	0.0390	0.0390	0.0390	06/11/84
			0.0390	0.0390	0.0390	0.0390	06/13/84
			0.0390	0.0390	0.0390	0.0390	06/15/84
			0.0390	0.0390	0.0390	0.0390	06/18/84
			0.0388	0.0388	0.0388	0.0388	06/20/84
			0.0390	0.0390	0.0390	0.0390	06/21/84
			0.0390	0.0390	0.0390	0.0390	06/25/84
			0.0389	0.0389	0.0389	0.0389	06/26/84
			0.0389	0.0389	0.0389	0.0389	06/29/84
			0.0389	0.0389	0.0389	0.0389	06/30/84
			0.0391	0.0391	0.0391	0.0391	07/02/84
			0.2727	0.2727	0.2727	0.2727	07/04/84
			0.0389	0.0389	0.0389	0.0389	07/06/84
			0.0387	0.0387	0.0387	0.0387	07/08/84
0.0389	0.0389	0.0389	0.0389	07/11/84			
0.0389	0.0389	0.0389	0.0389	07/13/84			
0.0389	0.0389	0.0389	0.0389	07/16/84			
0.0388	0.0388	0.0388	0.0388	07/18/84			
0.1561	0.1561	0.1561	0.1561	07/20/84			
0.0389	0.0389	0.0389	0.0389	07/23/84			

TABLE D-4
Type C Test Summary
Cycle 2 - Unit 2

Path Leakage Tabulation

<u>Leakage Path</u>	<u>System Name</u>	<u>Isolation Valve Number</u>	<u>As Found</u>		<u>As Left</u>		<u>Test Date</u>
			<u>Valve Leak Rate SCFH</u>	<u>Path Leak Rate SCFH</u>	<u>Valve Leak Rate SCFH</u>	<u>Path Leak Rate SCFH</u>	
X-10A	Ventilation	30-14/15	0.0389	0.0389	0.0389	0.0389	07/25/84
			0.0387	0.0387	0.0387	0.0387	07/27/84
			0.0389	0.0389	0.0389	0.0389	07/30/84
			0.0389	0.0389	0.0389	0.0389	08/01/84
			0.0390	0.0390	0.0390	0.0390	08/03/84
			0.2239	0.2239	0.2239	0.2239	08/06/84
			0.0388	0.0388	0.0388	0.0388	08/08/84
			0.0389	0.0389	0.0389	0.0389	08/10/84
			0.0388	0.0388	0.0388	0.0388	08/13/84
			0.2620	0.2620	0.2620	0.2620	08/15/84
			0.1349	0.1349	0.1349	0.1349	08/17/84
			0.0390	0.0390	0.0390	0.0390	08/20/84
			0.0392	0.0392	0.0392	0.0392	08/25/84
			0.0391	0.0391	0.0391	0.0391	08/27/84
			0.0389	0.0389	0.0389	0.0389	08/29/84
			0.4268	0.4268	0.4268	0.4268	08/31/84
			0.0390	0.0390	0.0390	0.0390	09/03/84
			0.0390	0.0390	0.0390	0.0390	09/05/84
			0.0389	0.0389	0.0389	0.0389	09/07/84
			0.0390	0.0390	0.0390	0.0390	09/10/84
0.0390	0.0390	0.0390	0.0390	09/11/84			
0.0391	0.0391	0.0391	0.0391	09/12/84			
0.2970	0.2970	0.2970	0.2970	09/14/84			
0.0834	0.0834	0.0834	0.0834	09/17/84			
0.0391	0.0391	0.0391	0.0391	09/19/84			
0.0389	0.0389	0.0389	0.0389	09/21/84			

TABLE D-4
Type C Test Summary
Cycle 2 - Unit 2

Path Leakage Tabulation

Leakage Path	System Name	Isolation Valve Number	As Found				As Left				Test Date
			Valve Leak Rate SCFH	Path Leak Rate SCFH	Valve Leak Rate SCFH	Path Leak Rate SCFH					
**X-15	CVCS	62-72/73/74 62-77/662	0.0000 0.0000	0.0000	0.0000 0.0000	0.0000 0.0000	0.0000	0.0000 0.0000	0.0000	10/08/84 AF 10/12/84 AL	
**X-25A	Sampling	43-2 43-3	0.0000 0.0000	0.0000	0.0000 0.0000	0.0000 0.0000	0.0000	0.0000 0.0000	0.0000	10/10/84 AF/AL	
**X-25D	Sampling	43-11 43-12	0.0000 0.0000	0.0000	0.0000 0.0000	0.0000 0.0000	0.0000	0.0000 0.0000	0.0000	10/10/84 AF/AL	
**X-26	Control Air	32-103/341 32-348	0.1664 0.0000	0.0000	0.0000 0.0000	0.1664 0.0000	0.0000	0.1664 0.0000	0.1664	10/06/84 AF/AL	
X-27	ILRT	52-IN 52-OUT	0.0000 0.0000	0.0000	0.0000 0.0000	0.0000 0.0000	0.0000	0.0000 0.0000	0.0000	10/07/84 AF/AL	
**X-29	Component Cooling	70-89/698 70-92	0.0000 0.0000	0.0000	0.0000 0.0000	0.0000 0.0000	0.0000	0.0000 0.0000	0.0000	10/04/84 AF 10/15/84 AL	
**X-30	SIS	63-71 63-84/23	0.0000 0.0000	0.0000	0.0000 0.0000	0.0000 0.0000	0.0000	0.0000 0.0000	0.0000	10/24/84 AF/AL	

TABLE D-4
Type C Test Summary
Cycle 2 - Unit 2

Path Leakage Tabulation

Leakage Path	System Name	Isolation Valve Number	As Found		As Left		Test Date
			Valve Leak Rate SCFH	Path Leak Rate SCFH	Valve Leak Rate SCFH	Path Leak Rate SCFH	
**X-34	Control Air	32-111/385 32-387	0.0000 0.0000	0.0000	0.0000 0.0000	0.0000	10/11/84 AF/AL
**X-35	Component Cooling	70-85/143/703	0.0000 0.0000	0.0000 0.0000	0.0000 0.0000	0.0000 0.0000	10/04/84 AF 10/23/84 AL
**X-39A	SIS	63-64 77-868	0.9646 2.8228	0.9646	0.0000 0.0591	0.0591	10/02/84 AF 10/22/84 AL
**X-39B	Main Cooling	68-305 77-849	0.0000 0.0000	0.0000	0.0000 0.0000	0.0000	10/03/84 AF/AL
**X-41	Waste Disposal	77-127 77-128	0.0000 0.0000	0.0000	0.0000 0.0000	0.0000	10/06/84 AF/AL
**X-42	Primary Water	81-12 81-502	0.0500 0.0000	0.0000	0.0500 0.0000	0.0500	10/02/84 AF/AL
X-44	CVCS	62-61/639 62-63	0.0000 0.1570	0.0000	0.0000 0.1570	0.1570	10/08/84 AF/AL

TABLE D-4
Type C Test Summary
Cycle 2 - Unit 2

Path Leakage Tabulation

<u>Leakage Path</u>	<u>System Name</u>	<u>Isolation Valve Number</u>	<u>As Found</u>		<u>As Left</u>		<u>Test Date</u>
			<u>Valve Leak Rate SCFH</u>	<u>Path Leak Rate SCFH</u>	<u>Valve Leak Rate SCFH</u>	<u>Path Leak Rate SCFH</u>	
**X-45	Waste Disposal	77-18 77-19/20	0.0000 0.0000	0.0000	0.0000 0.0000	0.0000	10/06/84 AF 10/07/84 AL
**X-46	Waste Disposal	77-9 77-10	0.0000 0.0000	0.0000	0.0000 0.0000	0.0000	10/06/84 AF/AL
**X-47A	Ice Condenser	61-191 61-192/533	0.0000 81.3064	0.0000	0.0000 0.0000	0.0000	10/02/84 AF 11/10/84 AL
**X-47B	Ice Condenser	61-193 61-194/680	0.0000 0.8455	0.0000	0.0000 0.0000	0.0000	10/02/84 AF 11/10/84 AL
**X-50A	Component Cooling	70-87/687 70-90	0.0000 0.0000	0.0000	0.0000 0.0000	0.0000	10/09/84 AF/AL
X-48A	Containment Spray	72-39	0.0000	0.0000	0.0000	0.0000	10/04/82 AF/AL
X-48B	Containment Spray	72-2	0.0000	0.0000	0.0000	0.0000	10/05/84 AF/AL

TABLE D-4
Type C Test Summary
Cycle 2 - Unit 2

Path Leakage Tabulation

<u>Leakage Path</u>	<u>System Name</u>	<u>Isolation Valve Number</u>	<u>As Found</u>		<u>As Left</u>		<u>Test Date</u>
			<u>Valve Leak Rate SCFH</u>	<u>Path Leak Rate SCFH</u>	<u>Valve Leak Rate SCFH</u>	<u>Path Leak Rate SCFH</u>	
**X-50B	Component Cooling	70-134 70-679	0.0000 0.0000	0.0000	0.0000 0.0000	0.0000	10/04/84 AF/AL
**X-51	Fire Protection	26-240 26-1260	617.9286 513.4494	513.4494	0.0000 0.0000	0.0000	10/11/84 AF 11/12/84 AL
X-52	Component Cooling	70-140 70-692	0.0000 190.4706	0.0000	0.0000 0.0000	0.0000	10/04/84 AF 10/15/84 AL
X-56	ERCW	67-107 67-562D	0.0000 24.8063	0.0000	0.0000 0.0000	0.0000	10/12/84 AF 10/19/84 AL
X-57	ERCW	67-111/575D 67-112	0.0017 0.0000	0.0000	0.0017 0.0000	0.0017	10/05/84 AF 10/12/84 AL
X-58	ERCW	67-83 67-562A	1020.0196 1264.8243	1020.0196	0.0000 0.0000	0.0000	10/06/84 AF 10/24/84 AL

TABLE D-4
Type C Test Summary
Cycle 2 - Unit 2

Path Leakage Tabulation

Leakage Path	System Name	Isolation Valve Number	As Found		As Left		Test Date
			Valve Leak Rate SCFH	Path Leak Rate SCFH	Valve Leak Rate SCFH	Path Leak Rate SCFH	
X-59	ERCW	67-87/575A 67-88	0.0001 0.0000	0.0000	0.0001 0.0076	0.0076	10/06/84 AF 10/24/84 AL
X-60	ERCW	67-99 67-562B	0.0000 10.5804	0.0000	0.0000 0.0000	0.0000	10/05/84 AF 10/16/84 AL
X-61	ERCW	67-103/575B 67-104	0.0814 0.0000	0.0000	0.0000 0.0019	0.0019	10/05/84 AF 10/18/84 AL
X-62	ERCW	67-91 67-562C	0.0000 204.0039	0.0000	0.0763 0.0000	0.0763	10/06/84 AF 10/22/84 AL
X-63	ERCW	67-95/575C 67-96	0.0014 0.0038	0.0014	0.0014 0.0019	0.0019	10/06/84 AF 10/22/84 AL
**X-64	Chilled Water	31C-222 31C-223/752	0.0000 0.0000	0.0000	0.0000 0.0000	0.0000	10/06/84 AF, AL
**X-65	Chilled Water	31C-224 31C-225/734	0.0000 13.9894	0.0000	0.0000 0.0000	0.0000	10/06/84 AF 10/18/84 AL

TABLE D-4
Type C Test Summary
Cycle 2 - Unit 2

Path Leakage Tabulation

Leakage Path	System Name	Isolation Valve Number	As Found		As Left		Test Date
			Valve Leak Rate SCFH	Path Leak Rate SCFH	Valve Leak Rate SCFH	Path Leak Rate SCFH	
**X-66	Chilled Water	31C-229	0.0000	0.0000	0.0000		10/08/84
		31C-230/715	0.0000		0.0000	0.0000	AF/AL
**X-67	Chilled Water	31C-231	0.0000	0.0000	0.0000		10/08/84
		31C-232/697	0.0000		0.0000	0.0000	AF/AL
X-68	ERCW	67-141	0.0000	0.0000	0.0000		10/03/84 AF
		67-580D	250.7128		0.0000	0.0000	10/22/84 AL
X-69	ERCW	67-130	0.0000	0.0000	0.0000		10/02/84 AF
		67-580A	231.0583		0.0000	0.0000	11/03/84 AL
X-70	ERCW	67-139	0.0486	0.0486	0.0021	0.0021	10/03/84 AF
		67-297/585B	0.0506		0.0003		10/05/84 AL
X-71	ERCW	67-134	0.0011	0.0011	0.0011	0.0018	10/02/84
		67-296/585C	0.0018		0.0018		AF/AL
X-72	ERCW	67-142	0.0000	0.0000	0.0000	0.0000	10/03/84
		67-298/585D	0.0002		0.0002		AF/AL

TABLE D-4
Type C Test Summary
Cycle 2 - Unit 2

Path Leakage Tabulation

<u>Leakage Path</u>	<u>System Name</u>	<u>Isolation Valve Number</u>	<u>As Found</u>		<u>As Left</u>		<u>Test Date</u>
			<u>Valve Leak Rate SCFH</u>	<u>Path Leak Rate SCFH</u>	<u>Valve Leak Rate SCFH</u>	<u>Path Leak Rate SCFH</u>	
X-73	ERCW	67-131 67-295/585A	0.0008 0.0002	0.0002	0.0008 0.0002	0.0008	10/02/84 AF/AL
X-74	ERCW	67-138 67-580B	0.0000 230.1626	0.0000 0.0000	0.0000 0.0000	0.0000	10/03/84 AF 10/10/84 AL
X-75	ERCW	67-133 67-580C	0.0000 176.0684	0.0000	0.0000 0.0000	0.0000	10/02/84 AF 11/11/84 AL
**X-76	Service Air	33-722 33-739	0.0000 0.0000	0.0000	0.0000 0.0000	0.0000	10/01/84 AF/AL
**X-77	Demin Water	59-522/529 59-633	0.0894 0.0000	0.0000	0.0894 0.0000	0.0894	10/01/84 AF 10/02/84 AL
**X-78	Fire Protection	26-243 26-1296	0.0000 0.0000	0.0000	0.0000 0.0000	0.0000	10/04/84 AF/AL
**X-81	Waste Disposal	77-16 77-17	0.0000 0.0000	0.0000	0.0000 0.0000	0.0000	10/08/84 AF/AL

TABLE D-4
Type C Test Summary
Cycle 2 - Unit 2

Path Leakage Tabulation

Leakage Path	System Name	Isolation Valve Number	As Found		As Left		Test Date
			Valve Leak Rate SCFH	Path Leak Rate SCFH	Valve Leak Rate SCFH	Path Leak Rate SCFH	
**X-82	Fuel Pool Cooling	78-560 78-561	0.0000 0.0000	0.0000	0.0000 0.0000	0.0000	10/01/84 AF/AL
**X-83	Fuel Pool Cooling	78-557 78-558	0.0000 0.0000	0.0000	0.0000 0.0000	0.0000	10/01/84 AF/AL
**X-84A	Main Coolant	68-307 68-308	0.0000 0.0000	0.0000	0.0000 0.0000	0.0000	10/10/84 AF/AL
**X-85A	Sampling System	43-75 43-77	0.0000 0.0000	0.0000	0.0000 0.0000	0.0000	10/08/84 AF/AL
X-87B	ILRT	52-502 52-503	0.0000 0.0000	0.0000	0.0000 0.0000	0.0000	10/07/84 AF/AL
X-87D	ILRT	52-500 52-501	0.0000 0.0000	0.0000	0.0000 0.0000	0.0000	10/07/84 AF/AL
**X-90	Control Air	32-81/353 32-358	0.0000 0.0000	0.0000	0.0000 0.0000	0.0000	10/03/84 AF/AL

TABLE D-4
Type C Test Summary
Cycle 2 - Unit 2

Path Leakage Tabulation

Leakage Path	System Name	Isolation Valve Number	As Found				As Left				Test Date
			Valve Leak Rate SCFH	Path Leak Rate SCFH	Valve Leak Rate SCFH	Path Leak Rate SCFH					
X-92A	Sampling System	43-207 43-208	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	10/17/84 AF/AL
			0.0000	0.0000	0.0000	0.0000					
**X-93	Sampling System	43-34 43-35	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	10/10/84 AF/AL
			0.0000	0.0000	0.0000	0.0000					
**X-95B	Radiation Monitoring	90-113 90-114/115	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	10/04/84 AF/AL
			0.0000	0.0000	0.0000	0.0000					
**X-95C	Radiation Monitoring	90-116 90-117	0.0000	0.0000	0.0000	0.0000	0.0000	0.0473	0.0000	0.0473	10/04/84 AF/AL
			0.0473	0.0000	0.0000	0.0000					
**X-94B	Radiation Monitoring	90-107 90-108/109	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	10/02/84 AF/AL
			0.0000	0.0000	0.0000	0.0000					
**X-94	Radiation Monitoring	90-110 90-111	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	10/02/84 AF 10/03/84 AL
			0.0000	0.0000	0.0000	0.0000					
**X-96C	Sampling System	43-22 43-23	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	10/08/84 AF/AL
			0.0000	0.0000	0.0000	0.0000					

TABLE D-4
Type C Test Summary
Cycle 2 - Unit 2

Path Leakage Tabulation

<u>Leakage Path</u>	<u>System Name</u>	<u>Isolation Valve Number</u>	<u>As Found</u>		<u>As Left</u>		<u>Test Date</u>
			<u>Valve Leak Rate SCFH</u>	<u>Path Leak Rate SCFH</u>	<u>Valve Leak Rate SCFH</u>	<u>Path Leak Rate SCFH</u>	
X-97	Ventilation	30-134 30-135	0.0000	0.0000	0.0000	0.0000	10/07/84 AF/AL
X-98	ILRT	52-IN 52-OUT	0.0000 0.0000	0.0000	0.0000 0.0000	0.0000	10/07/84 AF/AL
X-99	Sampling System	43-202	0.0000	0.0000	0.0000	0.0000	10/17/84 AF/AL
X-100	Sampling System	43-201	0.0000	0.0000	0.0000	0.0000	10/17/84 AF/AL
**X-110	Upper Head Injection	87-7/8/9	0.0406	0.0406	0.0406	0.0406	10/10/84 AF/AL
X-111	Ventilation	30-46/571	81.9159	81.9159	0.0000	0.0000	10/05/84 AF 11/08/84 AL
X-112	Ventilation	30-47/572	0.5578	0.5578	0.5578	0.5578	10/05/84 AF/AL

TABLE D-4
 Type C Test Summary
 Cycle 2 - Unit 2

Path Leakage Tabulation

<u>Leakage Path</u>	<u>System Name</u>	<u>Isolation Valve Number</u>	<u>As Found</u>		<u>As Left</u>		<u>Test Date</u>
			<u>Valve Leak Rate SCFH</u>	<u>Path Leak Rate SCFH</u>	<u>Valve Leak Rate SCFH</u>	<u>Path Leak Rate SCFH</u>	
X-113	Ventilation	30-48/573	0.3672	0.3672	0.3672	0.3672	10/05/84 AF/AL
**X-23	PASF	43-309 43-310	0.0000 0.3114	0.0000	0.0000 0.0000	0.0000	10/23/84 AF AF/AL
**X-91	PASF	43-250 43-251	0.0000 0.6464	0.0000	0.0000 0.0000	0.0000	10/23/84 AF 11/03/84 AL
**X-101	PASF	43-318 43-319	0.1428 0.0000	0.0000	0.0000 0.0000	0.0000	10/23/84 AF 11/03/84 AL
**X-103	PASF	43-461 43-317/341	0.0000 0.0000	0.0000	0.0000 0.0000	0.0000	10/23/84 AF/AL
**X-116	PASF	43-288 43-287	0.8729 0.0000	0.0000	0.0000 0.0000	0.0000	10/25/84 AF 11/04/84 AL
**X-106	PASF	43-460 43-325/307	1.0175 0.0000	0.0000	0.0000 0.0000	0.0000	10/24/84 AF 11/02/84 AL

TABLE D-4
Type C Test Summary
Cycle 2 - Unit 2

Path Leakage Tabulation

<u>Leakage Path</u>	<u>System Name</u>	<u>Isolation Valve Number</u>	<u>As Found</u>		<u>As Left</u>		<u>Test Date</u>
			<u>Valve Leak Rate SCFH</u>	<u>Path Leak Rate SCFH</u>	<u>Valve Leak Rate SCFH</u>	<u>Path Leak Rate SCFH</u>	
**X-114	Ice Condenser	61-110	0.0000		0.0000	0.0000	10/02/84 AF
		61-122/745	0.6406	0.0000	0.0000		11/10/84 AL
**X-115	Ice Condenser	61-96	1.1237	0.0000	0.0000	0.0000	10/02/84 AF
		61-97/692	0.0000		0.0000		11/10/84 AL

**Indicates isolation valves subject to bypass leakage requirements.

TABLE D-5
Type B Test Summary
Cycle 2 - Unit 2

I. Bellows

Leakage Path X-12A

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000 (INB)	10/13/84
0.0000 (OUTB)	10/13/84

Leakage Path X-13A

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000 (INB)	10/14/84
0.0233 (OUTB)	10/14/84

Leakage Path X-12B

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000 (INB)	10/14/84
0.0119 (OUTB)	10/14/84

Leakage Path X-13B

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000 (INB)	10/17/84
0.0000 (OUTB)	10/17/84

Leakage Path X-12C

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000 (INB)	10/14/84
0.0000 (OUTB)	10/14/84

Leakage Path X-13C

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000 (INB)	10/17/84
0.0000 (OUTB)	10/17/84

Leakage Path X-12D

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000 (INB)	10/13/84
0.0000 (OUTB)	10/13/84

Leakage Path X-13D

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000 (INB)	10/14/84
0.0000 (OUTB)	10/13/84

Leakage Path X-14A

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0085	10/13/84

Leakage Path X-17

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	10/13/84

TABLE D-5
Type B Test Summary
Cycle 2 - Unit 2

I. Bellows (continued)

<u>Leakage Path</u> X-14B		<u>Leakage Path</u> X-20A	
<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>	<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	10/13/84	0.0000	10/13/84
<u>Leakage Path</u> X-14C		<u>Leakage Path</u> X-20B	
<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>	<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	10/13/84	0.0000	10/13/84
<u>Leakage Path</u> X-14D		<u>Leakage Path</u> X-21	
<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>	<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	10/13/84	0.0000	10/13/84
<u>Leakage Path</u> X-15		<u>Leakage Path</u> X-22	
<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>	<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	10/13/84	0.0000	10/13/84
<u>Leakage Path</u> X-24		<u>Leakage Path</u> X-46	
<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>	<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	10/13/84	0.0000	10/16/84
<u>Leakage Path</u> X-30		<u>Leakage Path</u> X-47A	
<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>	<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	10/16/84	0.0000 (INB)	10/17/84
		0.0000 (OUTB)	10/17/84

TABLE D-5
Type B Test Summary
Cycle 2 - Unit 2

I. Bellows (continued)

Leakage Path X-32

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	10/16/84

Leakage Path X-47B

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000 (OUTB)	10/17/84
0.0000 (INB)	10/17/84

Leakage Path X-33

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	10/16/84

Leakage Path X-81

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	10/16/84

Leakage Path X-45

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	10/16/84

Leakage Path X-107

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	10/16/84

Leakage Path X-108

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	10/16/84

Leakage Path K-14

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	10/18/84

Leakage Path X-109

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	10/16/84

Leakage Path K-15

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	10/18/84

TABLE D-5
Type B Test Summary
Cycle 2 - Unit 2

II. Electrical

Leakage Path X-120E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0051	10/07/84

Leakage Path X-124E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	10/07/84

Leakage Path X-121E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0284	10/07/84

Leakage Path X-126E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	10/07/84

Leakage Path X-122E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	10/06/84

Leakage Path X-127E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0038	10/06/84

Leakage Path X-123E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	10/08/84

Leakage Path X-128E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	10/06/84

Leakage Path X-129E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0047	10/07/84

Leakage Path X-134E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	10/06/84

Leakage Path X-131E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0004	10/08/84

Leakage Path X-135E

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0057	10/06/84

TABLE D-5
Type B Test Summary
Cycle 2 - Unit 2

II. Electrical (continued)

<u>Leakage Path</u> X-132E		<u>Leakage Path</u> X-136E	
<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>	<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0051	10/08/84	0.0000	10/06/84
<u>Leakage Path</u> X-133E		<u>Leakage Path</u> X-137E	
<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>	<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0227	10/08/84	0.0000	10/06/84
<u>Leakage Path</u> X-138E		<u>Leakage Path</u> X-143E	
<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>	<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	10/06/84	0.0191	10/08/84
<u>Leakage Path</u> X-139E		<u>Leakage Path</u> X-144E	
<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>	<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	10/07/84	0.0000	10/08/84
<u>Leakage Path</u> X-140E		<u>Leakage Path</u> X-145E	
<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>	<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	10/06/84	0.0000	10/08/84
<u>Leakage Path</u> X-141E		<u>Leakage Path</u> X-146E	
<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>	<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	10/08/84	0.0000	10/08/84

TABLE D-5
Type B Test Summary
Cycle 2 - Unit 2

II. Electrical (continued)

<u>Leakage Path</u> X-148E		<u>Leakage Path</u> X-152E	
<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>	<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	10/07/84	0.0089	10/07/84
<u>Leakage Path</u> X-149E		<u>Leakage Path</u> X-153E	
<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>	<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	10/07/84	0.0000	10/06/84
<u>Leakage Path</u> X-150E		<u>Leakage Path</u> X-154E	
<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>	<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0025	10/07/84	0.0000	10/06/84
<u>Leakage Path</u> X-151E		<u>Leakage Path</u> X-156E	
<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>	<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0053	10/07/84	0.0000	10/06/84
<u>Leakage Path</u> X-157E		<u>Leakage Path</u> X-163E	
<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>	<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	10/06/84	0.0000	10/06/84
<u>Leakage Path</u> X-158E		<u>Leakage Path</u> X-164E	
<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>	<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	10/06/84	0.0000	10/06/84

TABLE D-5
Type B Test Summary
Cycle 2 - Unit 2

II. Electrical (continued)

<u>Leakage Path</u> X-159E		<u>Leakage Path</u> X-165E	
<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>	<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	10/06/84	0.0042	10/06/84
 <u>Leakage Path</u> X-160E		 <u>Leakage Path</u> X-166E	
<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>	<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	10/06/84	0.0059	10/06/84
 <u>Leakage Path</u> X-161E		 <u>Leakage Path</u> X-167E	
<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>	<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	10/06/84	0.0119	10/07/84
 <u>Leakage Path</u> X-169E		 <u>Leakage Path</u> X-170E	
<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>	<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	10/07/84	0.0000	10/07/84
 <u>Leakage Path</u> X-168E		 <u>Leakage Path</u> X-142E	
<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>	<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0112	10/07/84	0.0000	10/07/84
 <u>Leakage Path</u> X-147E			
<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>		
0.0000	10/07/84		

TABLE D-5
Type B Test Summary
Cycle 2 - Unit 2

III. Resilient Seals

Leakage Path X-1

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	09/30/84
0.0000	11/14/84

Leakage Path X-54

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	09/30/84

Leakage Path X-3

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	09/30/84
0.0000	11/14/84

Leakage Path X-79A

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	10/01/84
0.0000	11/14/84

Leakage Path X-40D

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	09/30/84

Leakage Path X-79B

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	10/01/84
0.0000	11/14/84

Leakage Path X-111

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	10/05/84

Leakage Path X-113

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	10/05/84

Leakage Path X-112

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	10/05/84

Leakage Path X-118

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	09/30/84

Leakage Path X-88

<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
0.0000	09/30/84

TABLE D-5
Air Lock Door Tests
Cycle 2 - Unit 2

IV. Air Lock Door Test

<u>Leakage Path X-2A</u>		<u>Leakage Path X-2B</u>	
<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>	<u>Leakage, SCFH</u> <u>AF/AL</u>	<u>Test</u> <u>Date</u>
3.3447	04/20/84	0.4220	04/23/84
10.7922	10/26/84	3.0234	11/02/84

TABLE D-6
Type B and C Tests
Cycle 2 - Unit 2

Path Leakage Tabulation

Summary

	<u>As Found</u>	<u>As Left</u>
A. Type B Leakage		
I Bellows	0.0437 SCFH	0.0437 SCFH
II Electrical	0.1449 SCFH	0.1449 SCFH
III Resilient Seals	0.0000 SCFH	0.0000 SCFH
IV Air Lock Doors	13.8156 SCFH	13.8156 SCFH
B. Type C Leakage	1618.9499 SCFH	3.1868 SCFH

APPENDIX E

References

1. 10 CFR 50, Appendix J, "Reactor Containment Leakage Testing for Water-Cooled Power Reactors"
2. ANSI N45.4-1972, American National Standard, "Leakage Rate Testing of Containment Structures of Nuclear Service"
3. ANS 56.8, American Nuclear Society, "Containment System Leakage Testing Requirements"
4. Sequoyah Nuclear Plant FSAR Chapters 6.2 and 6.3
5. Sequoyah Nuclear Plant Technical Specification 4.6.1.2
6. Bechtel Topical Report, "Testing Criteria for Integrated Leakage Rate Testing of Primary Containment Structures for Nuclear Power Plants" - BN-TOP-1, Revision 1