

TENNESSEE VALLEY AUTHORITY
DIVISION OF POWER PRODUCTION

REACTOR BUILDING CONTAINMENT
INTEGRATED LEAK RATE TEST
SEQUOYAH NUCLEAR PLANT UNIT 1
CONDUCTED MARCH 13-16, 1979

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POOR ORIGINAL

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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
FOM	Figure of merit
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
L_T	Reduced-pressure maximum allowable leak rate
L_{TM}	Containment leak rate during reduced-pressure CILRT
LLRT	Local leak rate test
P	Pressure
P_a	Design accident pressure
P_T	Reduced test pressure
P_{TA}	Corrected containment pressure during CILRT
P_{TR}	Corrected containment pressure during verification
psia	Absolute pressure
psig	Gauge pressure
$^{\circ}\text{R}$	Temperature, degrees Rankine
SIT	Structural integrity test
T	Temperature
T_{dp}	Dew point temperature
t	Time
UCL	Upper confidence limit
V	Containment volume, cubic feet

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1.0 Summary

A reactor building containment integrated leak rate test (CILRT) was conducted on Sequoyah Nuclear Plant unit 1 March 13-16, 1979.

The measured leak rate for the reduced-pressure CILRT was 0.00264 percentage of containment air mass per day, while the upper confidence limit was 0.00576 percentage of containment air mass per day.

The measured leak rate for the full-pressure CILRT was 0.03864 percentage of containment air mass per day, while the observed upper confidence limit was 0.04008 percentage of containment air mass per day. This value represents less than 22 percent of the allowable 0.1872 percentage of containment air mass per day ($0.75 L_A$).

An analysis of the data clearly indicates that fully satisfactory results can be obtained for test durations significantly less than 24 hours.

2.0 Introduction

As prescribed in Sequoyah 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 24 hours 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 reactor building integrated leak rate tests be performed as a part of the startup and the surveillance programs to demonstrate the continuing leak-tight integrity of the reactor building primary containment.

A preoperational reactor building CILRT was successfully completed on Sequoyah unit 1 by personnel of the Tennessee Valley Authority on March 16, 1979. This test was conducted in accordance with a plant-approved preoperational test instruction, TVA-2A, which is on file at the plant site. This test instruction implements the requirements of Sequoyah unit 1 technical specifications and Appendix J to 10CFR50. The American National Standard for Containment Testing, ANSI N45.4-1972, and the proposed American Nuclear Society Standard for Containment Testing, N-274, provided guidance for the procedure implemented by the preoperational test instruction.

Sequoyah unit 1 is a 3,411-MW, pressurized-water reactor employing an ice condenser 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--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 compartment and upper ice condenser compartment. In the event of a LOCA, steam flows from the lower compartment through the ice condenser compartments and through to the upper compartment. The upper compartment is sealed from the lower compartment to ensure that any steam released in an accident will be forced through the energy-absorbing ice beds. For the performance of this CILRT, the lower and upper compartments were not sealed in order to allow the free flow of air in containment as would exist in a post LOCA condition.

This report outlines the objectives, principal events, special equipment used, and analysis of the test results for the CILRT completed on March 16 on Sequoyah unit 1.

3.0 Test Purpose and Results

3.1 Test Purpose

The objective of the preoperational CILRT performed on Sequoyah unit 1 was fivefold. The principal objective was to demonstrate the leak-tight integrity of the reactor building containment for power operation. For Sequoyah unit 1, the leak-tight integrity is defined by technical specification 4.6.1.2 to be that leakage of air from containment not to exceed 0.0078 percentage per hour (0.1872 percentage per day) of containment air mass at a pressure of P_a .

A problem unique to preoperational CILRT's is that of possible incomplete construction. Therefore, the second objective was to verify that there were no unidentified openings in the containment vessel.

The third objective of this CILRT was to evaluate a technique of modeling a multicompartment ice condenser pressure suppression containment. This was accomplished by using a computer-based data acquisition system that collected data from a number of sensors which sampled containment atmosphere in each of the four compartments.

The fourth objective was to evaluate the possibility of accurately measuring the containment leak rate in a shorter period of time.

Since temperature effect on containment during a CILRT could have a significant bearing on test results, the fifth objective was to examine the effects of day/night cycle temperature differences on the results of the CILRT.

3.2 Test Results

The leakage rate measured during the reduced-pressure CILRT was 0.00011 percentage of containment air mass per hour (0.00264 percentage per day) at a pressure of P_T (5.0 psig). The observed 95-percent upper confidence limit (UCL) for this measured leak rate was 0.00024 percentage of containment air mass per hour (0.00576 percentage per day).

After completion of the reduced-pressure CILRT, a supplemental forced leakage verification test was conducted to check the results of the CILRT. A forced leakage rate of 0.00494 percentage of containment mass per hour was imposed on the containment. The leak rate measured for the 4.8-hour verification test was 0.00570 percentage of containment air mass per hour.

The leakage rate measured in the 24-hour full-pressure CILRT was 0.00162 percentage of containment air mass per hour (0.03864 percentage per day) at a pressure of P_a (12.0 psig). The observed 95-percent upper confidence limit (UCL) for this measured leak rate was 0.00167 percentage of containment air mass per hour (0.04008 percentage per day). This measured leak rate represents less than 22 percent of that allowed under technical specification 4.6.1.2. These values include the leakage measured from types B and C tests from testable lines that were in service during the CILRT. Table 1 lists the lines that were in service during the test.

After the completion of the full-pressure CILRT, a supplemental forced leakage verification test was conducted to check the results of the CILRT. A forced leakage rate of 0.00677 percentage of containment mass per hour (0.16248 percentage per day) was imposed on the containment. The leak rate measured for the 4.90-hour verification test was 0.00769 percentage of containment air mass per hour (0.17112 percentage per day). Agreement as prescribed by Appendix J between the CILRT and the verification test was $-0.0668 L_A$, which is well within the $\pm 0.250 L_A$ required by technical specifications.

No leakage paths other than those identified as part of the types B and C test program were found in the performance of the CILRT or the supplemental verification test.

Evaluation of the CILRT performed on Sequoyah unit 1 conclusively demonstrates that accurate results can be obtained while reducing the time required to conduct the test. The technique of using a multi-compartment model for the ice condenser suppression accurately measured the leak rate. The computer-based instrumentation provided reliable and immediate calculations of test results. Section 6.4 of Data Analysis suggests that, for a test duration of considerably less than 24 hours, the test results are essentially unchanged.

Figure 1 indicates that there were no significant fluctuations in the containment vessel metal temperature. The total difference in temperature for the 24-hour period during the test was approximately 1°F . This small temperature difference of the vessel metal temperature suggests that the day/night cycle has a negligible effect on the test results of the CILRT.

4.0 Conduct of Test

Prior to the pressurization of the reactor building containment for the structural integrity test (SIT), local leak rate tests (LLRT's) were performed in accordance with section 6.2 of the Sequoyah Nuclear Plant FSAR.

All tests were conducted using TVA-prepared and plant-approved preoperational test procedures--TVA-2B for testable penetrations, TVA-2C for testable containment isolation valves, and TVA-3 for the containment personnel air locks.

All LLRT's were performed prior to the start of the SIT with the exception of those noted in table B.2 of Appendix B.

Valves 32-287, 32-297, and 32-377 were not installed prior to the performance of the SIT. Since only the outboard valve on each penetration served as the isolation boundary, the valve alignment was conservative. Since the conclusion of the test program, these valves have been installed, tested, and all acceptance criteria met.

Figure 2 depicts the sequence of events for the test program. The following is a detailed accounting of principal events.

3/10/79 0001 All special test instrumentation installed, functionally checked, and calibrated in preparation for the SIT and CILRT.

2100 Valve alignment for containment isolation completed.

Containment pressurization source installed and operational.

2105 Commenced pressurization of reactor building containment to a pressure of at least 13.5 psig for SIT. Containment pressure was raised in steps with interim rest periods in conformance with the ASME Boiler and Pressure Vessel Code requirements.

3/11/79 0700 SIT completed.

No external evidence of structural deformation or gross leakage observed during annulus inspection.

Depressurization of reactor building containment started.

1743 Depressurization to 3 psig (≥ 85 percent of $P_a/2$) completed.

Start 24-hour hold ("soak") period.

3/12/79 1010 Permission obtained from plant superintendent to enter reactor building containment for inspection of structural damage and ice condenser air-handling units.

Inspection identified several deformed electrical junction boxes (nonqualified), two damaged local radiation monitors, and deflated endwall seals in the ice condenser.

Repairs made to ice condenser endwall seals.

3/12/79 1900 Hold period at 3 psig completed.
Start pressurization for reduced-pressure test ($P_a/2$).

2014 Completed pressurization for reduced-pressure CILRT.
Final containment pressure, 6.7 psig.
Containment pressurization source isolated and disconnected from reactor building containment.

2145 Begin stabilization for reduced-pressure CILRT.
Inspection of all accessible penetrations revealed no evidence of leakage.

3/13/79 0445 Started reduced-pressure CILRT.

2030 Rapid rise in temperature in ice condenser compartments noted.
The Plant Operations Section determined that the ice condenser air-handling units had been inadvertently tripped.

2230 Air-handling units placed back in service by Plant Operations.
Temperature in ice condenser compartments began to decrease.

3/14/79 0814 Completed reduced-pressure CILRT.
Temporary tap to impose a leak on containment was placed on penetration X-110.

1105 Started reduced-pressure verification test.

1621 Plant Operations Review Committee approved a verification test of at least 4 hours' duration. NRC inspector concurred.

1625 Completed reduced-pressure verification test.
Pressurization source connected to reactor building containment.

1800 Started pressurization of reactor building containment to P_a for full-pressure CILRT.

2200 Completed pressurization, final pressure 12.66 psig.
Pressurization source isolated and disconnected from reactor building containment.
Containment stabilization started.

3/15/79 0100 Inspected all accessible penetrations in the annulus for evidence of leakage.

Temporary valve assembly on penetration X-118, used for depressurization, found leaking.

3/15/79 0303 Started full-pressure CILRT.

1425 Herb Whitner, an NRC inspector, discovered misaligned valve 70-702D, outboard vent valve for 70-85. Vent valve was inadvertently closed. Decision made to add local leak rate measured in TWA-2C from valve 70-65 to the measured containment leak rate to conservatively reflect possible leakage from 70-85.

3/16/79 0346 Full-pressure CILRT complete.

Temporary tap for full-pressure verification placed in service.

0500 Started full-pressure verification test.

Inspection of X-118 revealed temporary valve used for containment depressurization still leaking.

1235 Complete full-pressure verification test.

Preliminary calculated agreement well within allowed $\pm 0.25 L_A$.

1240 Start blowdown of reactor building containment.

3/17/79 Special test instrumentation functionally checked and removed from reactor building containment.

Plant Operations notified to begin return of containment to normal condition.

3/19/79 Reactor building containment returned to normal conditions.

Post test inspection of all accessible interior and exterior surfaces completed. No degradation or damage identified.

3/20/79 Type B test performed on permanent hatch for penetration X-118.

All acceptance criteria met.

4/19/79 Completed recalibration of all special test instrumentation.

Found one of four quartz manometers used to measure upper, lower, and upper ice compartment total pressure out of tolerance.

5.0 Measurements and Calculations

5.1 Test Equipment

An ice condenser reactor containment is unique in the fact that containment design pressure is only 12 psig. This low pressure requires more accurate instrumentation to detect leakage to the same degree as for conventional containments with design pressures of 50 to 60 psig.

For the Sequoyah unit 1 CILRT, the instrumentation consisted of a large number of sensors used to measure containment parameters that were used to calculate the final leakage rate. Table 2 identifies the parameters measured and the sensor specification.

Pressurization for the Sequoyah unit 1 CILRT was accomplished by portable high-capacity air compressors. Rated at 3,500 SCFM of dry, oil-free air, these compressors brought the containment to test pressure in less than 6 hours.

Prior to the start of the CILRT, all special test equipment was calibrated by the Tennessee Valley Authority Central Laboratories, traceable to the National Bureau of Standards. After the installation of special test sensors in the containment, each sensor was checked for functional operation. Upon test completion and depressurization, each sensor was again checked to ensure adherence to the calibration.

5.2 Sensor Location

For the CILRT performed on Sequoyah unit 1, the temperature and dew point sensor locations were selected so as to equalize the volume fraction of containment-free air represented by each measurement. No single sensor for temperature measurement represented more than 10 percent of the containment-free air volume. Appendix C lists the volumetric weighting factor for the vapor pressure, pressure, and temperature sensors. Figures 3-8 identify sensor locations.

5.3 Computer-Based Acquisition and Data Reduction System

Containment parameter measurements for the Sequoyah unit 1 CILRT were made and collected by a microprocessor-based data acquisition system. This raw data was automatically presented to a portable minicomputer system for correction to calibration curves and reduction to containment leakage rate. Statistical confidence levels of the calculated results were reported automatically to the test director as the data was acquired. Figure 9 depicts the functional relationship of the acquisition and data analysis system.

All calculations performed by the minicomputer system were in conformance with the procedures outlined in ANS N-274 (draft). Source listings for all computer programs are on file with the Division of Power Production, Plant Engineering 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 very limited.

Since an ice condenser containment typically exhibits a 40°F temperature differential between compartments, it is necessary to compensate for compartmentalization so the leak rate is accurately measured. For Sequoyah unit 1 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 10 depicts the four compartments used in the Sequoyah unit 1 reactor building containment model.

6.0 Analysis of Test Data

The previous sections of this report have identified the principal test objectives and results, outlined significant events, and described the special test instrumentation. In this section, problems that influenced test results are discussed.

6.1 Instrument Rejection

Part III, Section 3.1, of the Sequoyah Nuclear Plant Operational Quality Assurance Manual, requires that all tests performed with an instrument be reviewed if that instrument is found out of calibration. After completion of the CILRT, all special test instrumentation was checked for adherence to the pretest calibration. One precision quartz manometer (PT-3) was found to be out of tolerance.

Post test examination of the data revealed erratic behavior of one of the dewcells, DPE-7. Consequently, the data collected from PT-3 and DPE-7 was rejected. All results, data, and graphs in this report are the corrected values which do not include the data from these two instruments.

6.2 Compartmental Analysis

A. 6.0-Psig CILRT

The 6.0-psig CILRT was characterized by an extremely low leak rate. The data for the 6-psig CILRT is listed in tables 4-13.

During the 6-psig CILRT, the ice condenser air-handling units were inadvertently tripped. Data from tables 7 and 8, at about sample 80, reflect the corresponding temperature increase in the upper and lower ice condenser compartments. The temperature increase continued until approximately sample 92 in tables 7 and 8, at which time the air-handling units were placed back in service. However, the temperature in the upper and lower ice condenser compartments did not reach the lower initial temperatures. This suggests that the air-handling units did not completely defrost once put back in service.

There were no detectable leaks found during a soap test of all accessible penetrations during the 6-psig CILRT.

B. 12.0-Psig CILRT

Figure 11 is a graphical representation of the calculated containment leak rate for the 12.0-psig CILRT expressed as a percentage of containment mass.

The graph axes are percentage of air mass leakage per hour versus time. The slope of the least squares fit line to these data is the measured containment leak rate.

Figure 12 is a graphical representation of the total mass loss from containment during the 12.0-psig CILRT. The graph axes are containment dry air mass versus time.

Figures 13 and 14 graphically depict two alternate methods of determining containment leakage--the point-to-point and the total time methods.

In reviewing the graphs for the 12.0-psig CILRT, figures 15 and 18 reveal an increase in total mass in the upper and lower compartments, while figures 20 and 23 show a decrease in mass in the upper and lower ice condenser compartments. Since the reactor building containment was set up to prevent mass influx to containment, a definite flow path within containment is evident. The slopes of the different mass plots indicate that this flow path exists from the lower and upper ice condenser compartments to the upper compartment and finally to the lower compartment. Simply stated, the mass is going from an area of greater density (the ice condenser compartments) to one of lower density (the upper and lower compartments).

Examination of the compartment vapor pressure plots, figures 16, 19, 21, and 26, shows that the vapor pressure in all the compartments except the upper compartment increases. These increases are due to the sublimation of the ice in the ice condenser compartments and to the water levels of the containment sumps in the lower compartment.

One consideration unique to an ice bed suppression containment is the defrost cycle of the air-handling units for the ice condenser. Peaks in the graphs correspond to the cycling of the air-handling units. During the Sequoyah unit 1 CILRT, the air-handling units on the endwalls of the upper ice condenser compartment were set on 6-hour cycles. The effects of these cycles can be seen on the graphs but are most evident in figure 21. The four major peaks correspond to the defrost cycles of the air-handling units.

Figures 22 and 24 substantiate the assumption of the ideal gas relationship for purposes of leak rate calculations.

6.3 Discussion of Agreement (Verification Test)

Appendix J to 10CFR50 and ANSI N45.4 specify different techniques 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 $0.25 L_A$ or $0.25 L_T$, as applicable. ANSI 45.4 requires this difference be less than 0.25 of the measured containment leak rate with the imposed leak. Common test practice is to set the imposed leak at between 75 and 125 percentage of the maximum allowable leak rate.

A preoperational reduced-pressure CILRT presents a unique case since the maximum allowable containment leak rate is not determined until both the reduced- and the full-pressure test sequences are completed. Similarly, since Appendix J specifies agreement based on the maximum leak rate, it is not possible to determine whether agreement between the reduced-pressure CILRT and the subsequent verification is obtained until the full-pressure CILRT is completed.

During the reduced-pressure CILRT, all accessible penetrations were found to be leak tight when tested with a soap solution.

All accessible penetrations were again soap-solution tested during the full-pressure test. Penetration X-118, used for a temporary containment depressurization point, was observed to be leaking at 12 psig. Since this penetration did not leak at 6 psig, the ratio of L_{tm} to L_{AM} was significantly less than 0.7. The calculated L_T , when used for agreement specified by Appendix J, results in agreement not being obtained between the reduced-pressure CILRT and the subsequent verification test. By the procedure recommended in ANSI N45.4, agreement between the reduced-pressure CILRT and the subsequent verification test was obtained. Appendix D details the methods of agreement calculations. Table 24 compares the agreement by each method of calculation for the reduced- and full-pressure tests.

After completion of the test, TVA concluded that the extremely low L_T (0.00068 percent of containment air mass per hour) was an impractical limit to attempt to meet for the Sequoyah unit 1 surveillance program. Technical specifications for unit 1 have been modified to require that only full-pressure CILRT's may be conducted for future inservice surveillance testing.

A subsequent type B test after the CILRT on the permanent flange for penetration X-118 verified that the leakage from this penetration met all the acceptance criteria set forth in TVA-2B.

6.4 Instrumentation Performance

One of the primary objectives of this CILRT was to evaluate the accurate measurement of the leak rate for test durations less than 24 hours. The comparisons in table 25 show that, for test durations less than 24 hours, the leak rate is conservative. This conclusion is further supported by table 24, a comparison of agreement between different lengths of data collection for the full-pressure CILRT. In all cases considered, the agreement was well within the ± 0.25 required. For future CILRT's, TVA will seek to further demonstrate the reliability of the techniques outlined in this report while evaluating the possibility of decreasing the time required to perform a CILRT.

7.0 Conclusions

The Sequoyah unit 1 preoperational test series results yielded an allowable unit leakage limit for reduced-pressure inservice testing lower than practical for conducting inservice reduced-pressure CILRT's. Therefore, all future CILRT's on this unit will be performed at full pressure, P_a .

The results of the full-pressure CILRT clearly demonstrate the leak-tight integrity of Sequoyah unit 1. The total leak rate was less than 22 percent of the allowable leak rate under Sequoyah technical specifications.

The technique of modeling a multicompartment ice condenser pressure suppression containment using a computer-based data acquisition system yielded immediate results that accurately measured and displayed containment leak rate.

Data analysis shows that, for Sequoyah unit 1, the temperature effects of a day/night cycle cause no significant changes in test results.

An analysis of the data for this test clearly demonstrates that the test results remain essentially unchanged for test durations of considerably less than 24 hours.

T A B L E S

TABLE 1
TESTABLE PENETRATIONS REQUIRED TO BE IN SERVICE DURING TEST PERFORMANCE

<u>Penetration</u>	<u>Valve Number(s)</u>	<u>Description</u>	<u>Justification</u>
X-27C	52-Inboard 52-Outboard	Integrated Leak Rate System Pressure	Isolation valves required to be open to monitor containment pressure.
X-35	70-85/143	Component Cooling	To correct inadvertent valve misalignment.
X-47A	61-191 61-192/533	Ice Condenser System	Glycol cooling supply to air- handling units in ice condenser required to ensure ice condition is maintained.
X-47B	61-193 61-194/680	Ice Condenser System	Same as X-47A.
X-54	No valves - Type B test	Thimble Renewal	Used as pressurization point for air compressors.
X-98	52-Inboard 52-Outboard	Integrated Leak Rate System Pressure	Same as X-27C.
X-107	74-2	Residual Heat Removal System	Residual heat removal system required inservice to remove decay heat from fuel.
X-114	61-110 61-122/745	Ice Condenser System	Glycol return from air-handling units required to ensure ice condition is maintained.
X-115	61-96 61-97/692	Ice Condenser System	Same as X-114.
X-118	Type B test	Hatch	Used a source for verification flow and post test depressurization.

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TABLE 2
CONTAINMENT LEAKAGE MEASUREMENT SYSTEM
SPECIAL TEST EQUIPMENT

<u>Measured Parameter</u>	<u>Manufacturer and Model Number</u>	<u>Number Used</u>	<u>Instrument Specification</u>
Containment Temperature	Leeds and Northrup Model No. 178055	46	Range: 0-250°F Accuracy: $\pm 0.1^\circ\text{F}$ Repeatability: $\pm 0.02^\circ\text{F}$
Containment Pressure	Mensor Corporation Model No. 10100-001	3	Range: 0-30 psia; 400,000 counts F.S. Accuracy: $\pm 0.015\%$ reading Repeatability: $\pm 0.0005\%$ reading
Containment Dewpoint	Foxboro Corporation Model No. 2701 RG	9	Accuracy: $\pm 1^\circ\text{F}$ dewpoint Repeatability: $\pm 0.5^\circ\text{F}$ dewpoint
Analog to Digital Converter	Acurex Corporation Autodata Nine	1	Accuracy: $\pm 0.001^\circ\text{F}$ dewpoint $\pm 0.001^\circ\text{F}$ temperature ± 1 count pressure
Atmospheric Pressure	Texas Instruments Precision Pressure Gauge Model No. 145-01	1	Range: 0-50 psia Accuracy: $\pm 0.015\%$ F.S.
Verification Flow	Fischer Porter Rotameter TVA No. 1017	1	Accuracy: $\pm 0.01\%$ F.S.

TABLE 3
CONTAINMENT LEAKAGE MEASUREMENT
MINICOMPUTER ROUTINE SUMMARY

<u>Routine Name</u>	<u>Function</u>
FORE	<ul style="list-style-type: none"> a. Does all calculations for the test. b. FORE controlled by the Autodata 9, FORE runs when the A-9 sends data.
BASE	<ul style="list-style-type: none"> a. Redefines test start.
STARTN	<ul style="list-style-type: none"> a. Used for reading in calibration curve data for pressure gauges and other local inputs.
S.1	<ul style="list-style-type: none"> a. Creates all files. b. Tells system how many RTD's and DFE's are being used.
TALLY	<ul style="list-style-type: none"> a. Gives reportable test results.
LIST	<ul style="list-style-type: none"> a. Tabulates test results versus time. b. All graphics.
AM	<ul style="list-style-type: none"> a. Does calibrations.
CHECK	<ul style="list-style-type: none"> a. Reads data from Autodata 9. b. Enables a single RTD to be checked after calibration.
SEGSAM	<ul style="list-style-type: none"> a. Reads raw data file. b. Looks at a particular RTD reading after calibration.

TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT -- UNIT 1
CONTAINMENT LEAKAGE MEASUREMENT
TEST SUMMARY
ALL COMPARTMENTS
& PSIG CILRT

HOURS SINCE START	AIR MASS LOWER COMP. LBM	AIR MASS UPPER COMP. LBM	AIR MASS UPPER ICE LBM	AIR MASS LOWER ICE LBM	P-T-P LEAK RATE % PER HOUR	TOTAL TIME LEAK RATE % PER HOUR	MASS LEAK RATE % PER HOUR
0.000	41851.2	71005.1	5609.2	13289.3	0.00000	0.00000	0.00000
0.250	41851.5	71002.3	5608.4	13288.0	0.01523	0.01523	0.01528
0.500	41853.0	71004.3	5606.7	13286.6	-0.00455	0.00534	0.00536
0.750	41853.2	71006.3	5603.3	13286.7	0.00655	0.00574	0.00471
1.000	41853.0	71006.6	5603.0	13286.7	0.00375	0.00524	0.00440
1.250	41852.7	71004.3	5605.1	13284.6	0.00479	0.00515	0.00436
1.500	41853.2	71004.4	5606.1	13283.8	-0.00237	0.00390	0.00363
1.750	41854.6	71003.3	5605.9	13284.0	-0.00133	0.00315	0.00291
2.000	41853.8	71007.4	5606.1	13283.6	-0.00096	0.00164	0.00177
2.250	41854.4	71009.7	5606.3	13283.3	-0.00045	0.00050	0.00063
2.500	41854.9	71005.1	5607.6	13283.0	0.00921	0.00139	0.00049
2.750	41856.2	71011.0	5606.7	13282.7	-0.01016	-0.00039	-0.00045
3.000	41855.4	71008.4	5604.4	13281.5	0.02097	0.00139	-0.00025
3.250	41856.6	71006.3	5604.7	13281.3	0.00223	0.00145	-0.00027
3.500	41855.5	71008.9	5604.0	13280.2	0.00123	0.00144	0.00011
3.750	41855.7	71005.9	5604.1	13279.6	0.00987	0.00200	0.00042
4.131	41856.2	71008.6	5604.0	13279.0	-0.00510	0.00134	0.00050
4.381	41856.1	71006.9	5603.6	13278.6	0.00011	0.00173	0.00067
4.631	41858.2	71009.3	5606.0	13278.4	-0.02026	0.00054	0.00047
4.881	41857.8	71010.7	5605.5	13277.7	0.00057	0.00054	0.00032
5.131	41858.2	71010.0	5604.1	13277.1	0.00711	0.00086	0.00029
5.381	41858.0	71011.1	5605.8	13276.9	-0.00973	0.00037	0.00016
6.000	41860.1	71012.1	5598.9	13276.1	0.00577	0.00099	0.00024
6.330	41862.8	71015.7	5601.9	13277.3	-0.03165	-0.00030	-0.00004
6.500	41865.7	71020.5	5597.1	13277.4	-0.00897	-0.00063	-0.00032
6.830	41864.7	71020.9	5591.0	13276.7	0.02224	0.00021	-0.00035
7.000	41864.3	71018.3	5593.2	13276.3	0.00337	0.00032	-0.00034
7.330	41863.2	71017.6	5594.8	13275.6	0.00285	0.00041	-0.00032
7.500	41864.1	71016.6	5594.9	13275.2	0.00156	0.00045	-0.00020
7.830	41864.2	71018.1	5595.8	13274.2	-0.00474	0.00028	-0.00028
8.000	41864.7	71014.1	5595.7	13273.3	0.01367	0.00070	-0.00021
8.330	41864.4	71017.3	5596.7	13272.6	-0.00902	0.00038	-0.00019
8.500	41865.4	71014.2	5597.8	13272.3	0.00413	0.00049	-0.00016
8.830	41864.7	71017.0	5597.6	13271.0	-0.00105	0.00042	-0.00014
9.000	41864.6	71016.8	5599.0	13270.1	-0.00071	0.00039	-0.00012

Table 4

447 022

POOR ORIGINAL

TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT -- UNIT 1
CONTAINMENT LEAKAGE MEASUREMENT
TEST SUMMARY
ALL COMPARTMENTS
6 PSIG CILRT

HOURS SINCE START	AIR MASS LOWER COMP. LBM	AIR MASS UPPER COMP. LBM	AIR MASS UPPER ICE LBM	AIR MASS LOWER ICE LBM	P-T-P LEAK RATE % PER HOUR	TOTAL TIME LEAK RATE % PER HOUR	MASS LEAK RATE % PER HOUR
9.338	41865.8	71017.6	5599.9	13269.8	-0.00788	0.00017	-0.00015
9.588	41866.3	71017.7	5598.0	13269.4	0.00546	0.00031	-0.00014
9.842	41867.6	71020.1	5598.8	13269.2	-0.01281	-0.00004	-0.00019
10.092	41867.7	71019.9	5598.2	13268.8	0.00332	0.00004	-0.00022
10.342	41867.8	71020.3	5599.1	13268.3	-0.00266	-0.00002	-0.00024
10.592	41868.9	71019.6	5598.4	13268.1	0.00180	0.00002	-0.00026
10.842	41869.7	71021.9	5595.4	13267.7	0.00081	0.00004	-0.00028
11.092	41869.9	71019.7	5595.6	13267.0	0.00759	0.00021	-0.00027
11.342	41869.5	71019.6	5595.7	13266.7	0.00190	0.00025	-0.00026
11.592	41868.8	71018.9	5597.1	13265.7	0.00313	0.00031	-0.00024
11.842	41869.2	71018.2	5596.8	13265.7	0.00161	0.00034	-0.00021
12.092	41869.6	71019.8	5594.5	13265.3	0.00247	0.00038	-0.00019
12.342	41871.8	71022.5	5593.6	13265.3	-0.01219	0.00012	-0.00019
12.592	41874.7	71027.6	5591.5	13265.8	-0.01950	-0.00026	-0.00023
12.842	41874.7	71026.1	5589.9	13265.2	0.01109	-0.00004	-0.00025
13.092	41873.5	71026.4	5591.1	13265.0	0.00000	-0.00004	-0.00026
13.356	41873.6	71027.3	5592.2	13264.1	-0.00358	-0.00011	-0.00029
15.284	41886.3	71040.8	5573.5	13265.0	-0.00330	-0.00051	-0.00036
15.388	41886.6	71044.0	5572.1	13265.4	-0.01755	-0.00063	-0.00044
15.534	41888.2	71047.5	5569.9	13265.8	-0.01738	-0.00079	-0.00053
15.879	41891.4	71052.7	5563.7	13265.6	-0.00446	-0.00087	-0.00061
15.968	41891.3	71052.0	5563.0	13265.4	0.01435	-0.00079	-0.00067
16.129	41892.6	71053.3	5560.6	13265.3	-0.00051	-0.00078	-0.00073
16.379	41894.5	71058.3	5558.5	13265.2	-0.01414	-0.00099	-0.00080
16.629	41895.4	71059.2	5555.9	13265.1	0.00204	-0.00093	-0.00086
16.879	41896.6	71058.2	5554.1	13264.6	0.00626	-0.00082	-0.00089
17.129	41896.7	71060.4	5552.9	13264.6	-0.00323	-0.00086	-0.00094
17.379	41891.5	71049.9	5554.9	13262.2	0.04054	-0.00015	-0.00091
17.629	41889.4	71046.4	5561.8	13260.7	0.00119	-0.00013	-0.00088
17.879	41888.1	71041.8	5565.0	13259.3	0.01205	0.00004	-0.00083
18.129	41887.3	71040.8	5560.2	13258.2	-0.00047	0.00003	-0.00079
18.379	41887.4	71038.6	5569.6	13257.3	0.00446	0.00009	-0.00075
18.629	41886.0	71036.0	5573.2	13256.4	0.00171	0.00012	-0.00071
18.879	41886.5	71035.0	5574.3	13255.7	0.00280	0.00015	-0.00067
19.129	41886.3	71035.7	5576.2	13255.4	-0.00674	0.00006	-0.00063

Table 4

447 023

POOR ORIGINAL

TENNESSEE VALLEY AUTHORITY
 SEQUOYAH NUCLEAR PLANT -- UNIT 1
 CONTAINMENT LEAKAGE MEASUREMENT
 TEST SUMMARY
 ALL COMPARTMENTS
 6 PSIG CILRT

HOURS SINCE START	AIR MASS LOWER COMP. LBM	AIR MASS UPPER COMP. LBM	AIR MASS UPPER ICE LBM	AIR MASS LOWER ICE LBM	P-T-P LEAK RATE % PER HOUR	TOTAL TIME LEAK RATE % PER HOUR	MASS LEAK RATE % PER HOUR
19.379	41886.9	71032.9	5577.8	13254.7	0.00413	0.00011	-0.00060
19.629	41886.6	71034.5	5578.2	13254.3	-0.00403	0.00006	-0.00057
19.879	41886.9	71033.4	5579.5	13253.4	0.00123	0.00008	-0.00054
20.129	41887.0	71030.0	5581.0	13252.9	0.00697	0.00016	-0.00051
20.379	41887.6	71033.9	5582.7	13252.9	-0.01835	-0.00007	-0.00049
20.629	41889.0	71033.0	5583.7	13252.6	-0.00408	-0.00011	-0.00049
20.879	41890.9	71034.0	5581.8	13252.7	-0.00346	-0.00015	-0.00048
21.129	41893.9	71038.6	5579.3	13252.9	-0.01584	-0.00034	-0.00049
21.379	41895.0	71030.3	5573.5	13252.8	0.01551	-0.00015	-0.00048
21.629	41894.2	71036.2	5568.3	13251.9	0.02728	0.00016	-0.00045
21.879	41892.5	71033.8	5572.6	13250.9	0.00266	0.00019	-0.00042
22.129	41892.0	71032.6	5575.2	13250.0	-0.00047	0.00018	-0.00039
22.379	41892.1	71030.6	5576.6	13249.5	0.00304	0.00022	-0.00037
22.629	41891.2	71033.2	5575.9	13249.0	-0.00147	0.00020	-0.00034
22.879	41892.4	71026.3	5575.0	13248.5	0.02187	0.00043	-0.00030
23.129	41893.1	71028.6	5576.6	13247.9	-0.01215	0.00030	-0.00028
23.379	41892.2	71028.0	5576.2	13247.1	0.00016	0.00038	-0.00024
23.629	41892.1	71029.2	5577.9	13246.6	-0.00702	0.00030	-0.00022
23.879	41893.3	71025.9	5578.4	13246.4	0.00522	0.00035	-0.00019
24.129	41894.1	71020.9	5577.7	13245.8	0.00763	0.00043	-0.00016
24.379	41894.8	71027.5	5578.0	13245.1	0.01262	0.00056	-0.00013
24.629	41895.5	71028.1	5574.6	13245.1	-0.01818	0.00036	-0.00010
24.879	41896.4	71027.8	5576.2	13244.9	-0.00612	0.00030	-0.00008
25.129	41896.6	71027.2	5576.0	13244.8	0.00247	0.00032	-0.00006
25.379	41897.2	71029.2	5574.4	13244.8	-0.00299	0.00029	-0.00005
25.629	41897.5	71028.4	5572.5	13244.1	0.00925	0.00038	-0.00002
25.879	41897.7	71029.2	5571.7	13243.3	0.00161	0.00039	-0.00000
26.129	41897.5	71020.3	5572.0	13242.6	0.00460	0.00043	0.00002
26.379	41897.6	71023.9	5572.8	13241.9	0.01280	0.00055	0.00004
26.629	41897.4	71027.6	5571.8	13241.6	-0.00650	0.00048	0.00006
26.879	41899.9	71027.6	5574.3	13241.6	-0.01533	0.00033	0.00008
27.129	41901.6	71028.4	5569.3	13241.6	0.00787	0.00040	0.00009
27.379	41901.4	71030.6	5563.9	13240.8	0.01234	0.00051	0.00011

Table 4

POOR ORIGINAL

TENNESSEE VALLEY AUTHORITY
 SEQUOYAH NUCLEAR PLANT -- UNIT 1
 CONTAINMENT LEAKAGE MEASUREMENT
 TEST SUMMARY
 6 PSIG C/LRT
 UPPER COMPARTMENT

SAMPLE	HOURS SINCE START	TEMPERATURE DEG F.	CORRECTED PRESSURE PSIA	TOTAL MASS OF AIR LBM
30	0.000	60.6719	21.0266	71003.95
31	0.250	60.6609	21.0253	71001.29
32	0.500	60.6516	21.0256	71004.34
33	0.750	60.6380	21.0256	71006.32
34	1.000	60.6246	21.0251	71006.60
35	1.250	60.6121	21.0240	71004.27
36	1.500	60.5992	21.0235	71004.41
37	1.750	60.5877	21.0227	71003.32
38	2.000	60.5746	21.0234	71007.38
39	2.250	60.5573	21.0233	71009.70
40	2.500	60.5513	21.0217	71005.14
41	2.750	60.5382	21.0230	71011.04
42	3.000	60.5205	21.0215	71008.42
43	3.250	60.5173	21.0207	71006.34
44	3.500	60.4981	21.0207	71008.94
45	3.750	60.4986	21.0199	71005.95
46	4.131	60.4782	21.0198	71008.64
47	4.381	60.4663	21.0188	71006.90
48	4.631	60.4591	21.0192	71009.27
49	4.881	60.4495	21.0193	71010.67
50	5.131	60.4408	21.0187	71010.01
51	5.381	60.4226	21.0183	71011.09
52	6.000	60.3950	21.0175	71012.09
53	6.330	60.3970	21.0187	71015.73
54	6.500	60.3905	21.0198	71020.47
55	6.930	60.3718	21.0192	71020.89
56	7.000	60.3574	21.0178	71010.33
57	7.330	60.3404	21.0172	71017.63
58	7.500	60.3391	21.0166	71016.55
59	7.830	60.3237	21.0164	71018.09
60	8.000	60.3254	21.0153	71014.13
61	8.330	60.3122	21.0157	71017.33
62	8.500	60.3103	21.0147	71014.18
63	8.830	60.2917	21.0148	71017.00
64	9.000	60.2816	21.0143	71016.84

Table 5

POOR ORIGINAL

TENNESSEE VALLEY AUTHORITY
 SEQUOYAH NUCLEAR PLANT -- UNIT 1
 CONTAINMENT LEAKAGE MEASUREMENT
 TEST SUMMARY
 6 PSIG CILRT
 UPPER COMPARTMENT

SAMPLE	HOURS SINCE START	TEMPERATURE DEG F.	CORRECTED PRESSURE PSIA	TOTAL MASS OF AIR LBM
65	9.330	60.2728	21.0142	71017.55
66	9.508	60.2661	21.0139	71017.66
67	9.842	60.2640	21.0146	71020.08
68	10.092	60.2404	21.0139	71019.90
69	10.342	60.2413	21.0137	71020.29
70	10.592	60.2371	21.0133	71019.57
71	10.842	60.2232	21.0134	71021.88
72	11.092	60.2180	21.0126	71019.66
73	11.342	60.2018	21.0119	71019.57
74	11.592	60.1982	21.0116	71018.93
75	11.842	60.1933	21.0111	71018.21
76	12.092	60.1858	21.0113	71019.80
77	12.342	60.1779	21.0118	71022.48
78	12.592	60.1702	21.0130	71027.60
79	12.842	60.1548	21.0119	71026.13
80	13.092	60.1453	21.0116	71026.40
81	13.356	60.1399	21.0117	71027.29
82	15.284	60.0866	21.0135	71040.77
83	15.308	60.0837	21.0143	71043.98
84	15.534	60.0804	21.0153	71047.51
85	15.879	60.0503	21.0159	71052.73
86	15.968	60.0509	21.0157	71052.02
87	16.129	60.0542	21.0159	71053.33
88	16.579	60.0433	21.0170	71058.34
89	16.629	60.0371	21.0170	71059.16
90	16.879	60.0330	21.0165	71058.24
91	17.129	60.0254	21.0168	71060.38
92	17.379	60.0090	21.0131	71049.94
93	17.629	59.9882	21.0112	71046.38
94	17.879	59.9989	21.0103	71041.84
95	18.129	59.9992	21.0100	71040.77
96	18.379	59.9896	21.0089	71038.59
97	18.629	59.9929	21.0083	71036.02
98	18.879	59.9835	21.0076	71034.97
99	19.129	59.9854	21.0079	71035.73

Table 5

POOR ORIGINAL
 447 026

TENNESSEE VALLEY AUTHORITY
 SEQUOYAH NUCLEAR PLANT -- UNIT 1
 CONTAINMENT LEAKAGE MEASUREMENT
 TEST SUMMARY
 6 PSIG CILRT
 UPPER COMPARTMENT

SAMPLE	HOURS SINCE START	TEMPERATURE DEG F.	CORRECTED PRESSURE PSIA	TOTAL MASS OF AIR LBM
100	19.379	59.9843	21.0070	71032.88
101	19.629	59.9701	21.0070	71034.53
102	19.879	59.9701	21.0066	71033.44
103	20.129	59.9695	21.0055	71029.98
104	20.379	59.9612	21.0064	71033.88
105	20.629	59.9620	21.0062	71032.95
106	20.879	59.9579	21.0063	71034.02
107	21.129	59.9521	21.0074	71038.64
108	21.379	59.9527	21.0074	71038.26
109	21.629	59.9381	21.0062	71036.20
110	21.879	59.9438	21.0057	71033.77
111	22.129	59.9345	21.0050	71032.63
112	22.379	59.9374	21.0045	71030.61
113	22.629	59.9245	21.0047	71033.23
114	22.879	59.9268	21.0028	71026.25
115	23.129	59.9237	21.0033	71028.57
116	23.379	59.9212	21.0030	71027.99
117	23.629	59.9161	21.0032	71029.19
118	23.879	59.9155	21.0022	71025.94
119	24.129	59.9087	21.0028	71028.95
120	24.379	59.9031	21.0027	71027.48
121	24.629	59.9018	21.0023	71028.10
122	24.879	59.8988	21.0021	71027.84
123	25.129	59.8992	21.0019	71027.23
124	25.379	59.8961	21.0024	71029.17
125	25.629	59.8977	21.0022	71028.35
126	25.879	59.8912	21.0022	71029.19
127	26.129	59.8839	21.0016	71028.34
128	26.379	59.8910	21.0006	71023.91
129	26.629	59.8762	21.0011	71027.61
130	26.879	59.8789	21.0012	71027.63
131	27.129	59.8791	21.0014	71028.35
132	27.379	59.8728	21.0018	71030.56

Table 5

POOR ORIGINAL

447 027

TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT -- UNIT 1
CONTAINMENT LEAKAGE MEASUREMENT
TEST SUMMARY
6 PSIG CILRT
LOWER COMPARTMENT

SAMPLE	HOURS SINCE START	TEMPERATURE DEG F.	CORRECTED PRESSURE PSIA	TOTAL MASS OF AIR LBM
30	0.000	59.9800	21.0374	41851.18
31	0.250	59.9686	21.0371	41851.48
32	0.500	59.9461	21.0369	41852.96
33	0.750	59.9335	21.0365	41853.23
34	1.000	59.9204	21.0359	41852.98
35	1.250	59.9015	21.0350	41852.75
36	1.500	59.8833	21.0345	41853.16
37	1.750	59.8657	21.0345	41854.63
38	2.000	59.8547	21.0336	41853.81
39	2.250	59.8363	21.0332	41854.36
40	2.500	59.8205	21.0328	41854.94
41	2.750	59.8033	21.0328	41856.23
42	3.000	59.7869	21.0317	41855.39
43	3.250	59.7717	21.0317	41856.57
44	3.500	59.7621	21.0307	41855.46
45	3.750	59.7506	21.0304	41855.70
46	4.131	59.7277	21.0297	41856.23
47	4.381	59.7143	21.0294	41856.11
48	4.631	59.6996	21.0296	41858.21
49	4.881	59.6846	21.0287	41857.79
50	5.131	59.6670	21.0283	41858.19
51	5.381	59.6547	21.0280	41858.79
52	6.000	59.6197	21.0273	41860.07
53	6.330	59.6062	21.0281	41862.75
54	6.580	59.5925	21.0290	41865.67
55	6.830	59.5821	21.0281	41864.69
56	7.080	59.5675	21.0273	41864.28
57	7.330	59.5510	21.0261	41863.21
58	7.580	59.5391	21.0260	41864.05
59	7.830	59.5293	21.0257	41864.19
60	8.080	59.5137	21.0253	41864.67
61	8.330	59.5046	21.0248	41864.36
62	8.580	59.4884	21.0246	41865.36
63	8.830	59.4766	21.0238	41864.73
64	9.080	59.4668	21.0233	41864.57

Table 6

POOR ORIGINAL

TENNESSEE VALLEY AUTHORITY
SECOYAH NUCLEAR PLANT -- UNIT 1
CONTAINMENT LEAKAGE MEASUREMENT
TEST SUMMARY
& PSIG CILRT
LOWER COMPARTMENT

SAMPLE	HOURS SINCE START	TEMPERATURE DEG F.	CORRECTED PRESSURE PSIA	TOTAL MASS OF AIR LBM
65	9.338	59.4485	21.0232	41865.82
66	9.588	59.4489	21.0231	41866.26
67	9.842	59.4293	21.0234	41867.64
68	10.092	59.4179	21.0229	41867.71
69	10.342	59.4035	21.0224	41867.83
70	10.592	59.3901	21.0224	41868.88
71	10.842	59.3818	21.0225	41869.67
72	11.092	59.3612	21.0217	41869.88
73	11.342	59.3537	21.0212	41869.54
74	11.592	59.3419	21.0204	41868.79
75	11.842	59.3328	21.0202	41869.24
76	12.092	59.3237	21.0200	41869.55
77	12.342	59.3063	21.0205	41871.80
78	12.592	59.3045	21.0219	41874.74
79	12.842	59.2857	21.0211	41874.72
80	13.092	59.2760	21.0201	41873.51
81	13.356	59.2631	21.0196	41873.62
82	15.284	59.1770	21.0225	41886.31
83	15.388	59.1744	21.0225	41886.56
84	15.534	59.1729	21.0233	41888.23
85	15.879	59.1564	21.0242	41891.43
86	15.968	59.1557	21.0242	41891.35
87	16.129	59.1419	21.0243	41892.63
88	16.379	59.1348	21.0249	41894.45
89	16.629	59.1260	21.0250	41895.41
90	16.879	59.1125	21.0251	41896.64
91	17.129	59.1078	21.0249	41896.71
92	17.379	59.0932	21.0217	41891.49
93	17.629	59.0803	21.0201	41889.39
94	17.879	59.0692	21.0191	41888.13
95	18.129	59.0563	21.0181	41887.29
96	18.379	59.0435	21.0177	41887.41
97	18.629	59.0305	21.0160	41886.78
98	18.879	59.0176	21.0162	41886.51
99	19.129	59.0118	21.0158	41886.29

Table 6

POOR ORIGINAL
447 029

TENNESSEE VALLEY AUTHORITY
 SEQUOYAH NUCLEAR PLANT -- UNIT 1
 CONTAINMENT LEAKAGE MEASUREMENT
 TEST SUMMARY
 6 PSIG CILRT
 LOWER COMPARTMENT

SAMPLE	HOURS SINCE START	TEMPERATURE DEG F.	CORRECTED PRESSURE PSIA	TOTAL MASS OF AIR LBM
100	19.379	59.0025	21.0150	41886.94
101	19.629	58.9865	21.0149	41886.60
102	19.879	58.9773	21.0147	41886.91
103	20.129	58.9648	21.0143	41887.04
104	20.379	58.9568	21.0142	41887.58
105	20.629	58.9432	21.0144	41889.02
106	20.879	58.9344	21.0150	41890.88
107	21.129	58.9237	21.0161	41893.90
108	21.379	58.9162	21.0163	41895.04
109	21.629	58.8993	21.0152	41894.20
110	21.879	58.8867	21.0130	41892.47
111	22.129	58.8826	21.0134	41892.03
112	22.379	58.8718	21.0131	41892.11
113	22.629	58.8632	21.0122	41891.20
114	22.879	58.8516	21.0124	41892.36
115	23.129	58.8410	21.0123	41893.11
116	23.379	58.8308	21.0114	41892.16
117	23.629	58.8228	21.0110	41892.07
118	23.879	58.8085	21.0111	41893.34
119	24.129	58.7975	21.0111	41894.14
120	24.379	58.7900	21.0111	41894.78
121	24.629	58.7757	21.0109	41895.50
122	24.879	58.7693	21.0110	41896.40
123	25.129	58.7630	21.0109	41896.55
124	25.379	58.7563	21.0109	41897.17
125	25.629	58.7463	21.0107	41897.52
126	25.879	58.7318	21.0102	41897.74
127	26.129	58.7199	21.0096	41897.50
128	26.379	58.7153	21.0095	41897.61
129	26.629	58.7099	21.0091	41897.39
130	26.879	58.6927	21.0097	41899.89
131	27.129	58.6901	21.0105	41901.64
132	27.379	58.6725	21.0096	41901.43

Table 6

POOR ORIGINAL

TENNESSEE VALLEY AUTHORITY
 SEQUOYAH NUCLEAR PLANT -- UNIT 1
 CONTAINMENT LEAKAGE MEASUREMENT
 TEST SUMMARY
 6 PSIG CILRT
 UPPER ICE COMPARTMENT

SAMPLE	HOURS SINCE START	TEMPERATURE DEG F.	CORRECTED PRESSURE PSIA	TOTAL MASS OF AIR LBM
30	0.000	16.8974	21.0734	5609.65
31	0.250	17.0093	21.0735	5609.36
32	0.500	17.1244	21.0725	5606.73
33	0.750	17.3757	21.0706	5603.30
34	1.000	17.4149	21.0713	5603.02
35	1.250	17.2213	21.0707	5605.12
36	1.500	17.1301	21.0707	5606.10
37	1.750	17.1331	21.0699	5605.95
38	2.000	17.1019	21.0691	5606.11
39	2.250	17.0690	21.0683	5606.29
40	2.500	16.9555	21.0682	5607.59
41	2.750	17.0194	21.0677	5606.70
42	3.000	17.1938	21.0666	5604.36
43	3.250	17.1644	21.0667	5604.72
44	3.500	17.2062	21.0657	5603.97
45	3.750	17.1911	21.0654	5604.00
46	4.131	17.1751	21.0644	5603.98
47	4.301	17.1877	21.0635	5603.61
48	4.631	16.9897	21.0636	5605.97
49	4.801	17.0116	21.0630	5605.54
50	5.131	17.1279	21.0628	5604.11
51	5.301	16.9921	21.0631	5605.01
52	6.000	17.5562	21.0622	5598.94
53	6.330	17.2968	21.0619	5601.89
54	6.500	17.6033	21.0609	5597.09
55	6.830	18.1426	21.0582	5591.01
56	7.000	17.9668	21.0589	5593.24
57	7.330	17.8674	21.0604	5594.81
58	7.500	17.8468	21.0599	5594.92
59	7.830	17.7642	21.0596	5595.00
60	8.000	17.7528	21.0588	5595.72
61	8.330	17.6585	21.0583	5596.70
62	8.500	17.5661	21.0583	5597.79
63	8.830	17.5615	21.0574	5597.59
64	9.000	17.4393	21.0572	5598.98

Table 7

FOR ORIGINAL

TENNESSEE VALLEY AUTHORITY
 SEQUOIAH NUCLEAR PLANT -- UNIT 1
 CONTAINMENT LEAKAGE MEASUREMENT
 TEST SUMMARY
 6 PSIG CILRT
 UPPER ICE COMPARTMENT

SAMPLE	HOURS SINCE START	TEMPERATURE DEG F.	CORRECTED PRESSURE PSIA	TOTAL MASS OF AIR LBM
65	9.330	17.3481	21.0560	5599.93
66	9.580	17.5100	21.0567	5598.01
67	9.842	17.4468	21.0560	5598.78
68	10.092	17.4801	21.0563	5598.25
69	10.342	17.3931	21.0557	5599.12
70	10.592	17.4554	21.0557	5598.38
71	10.842	17.7168	21.0558	5595.36
72	11.092	17.6595	21.0544	5595.64
73	11.342	17.6550	21.0543	5595.67
74	11.592	17.5234	21.0537	5597.06
75	11.842	17.5451	21.0536	5596.77
76	12.092	17.7291	21.0531	5594.48
77	12.342	17.7925	21.0526	5593.63
78	12.592	17.9897	21.0533	5591.49
79	12.842	18.0662	21.0507	5589.90
80	13.092	17.9846	21.0515	5591.08
81	13.356	17.9198	21.0528	5592.18
82	15.204	19.5010	21.0520	5573.51
83	15.388	19.6202	21.0519	5572.09
84	15.534	19.8034	21.0516	5569.89
85	15.879	20.3307	21.0513	5563.68
86	15.968	20.3891	21.0514	5563.04
87	16.129	20.6061	21.0518	5560.64
88	16.379	20.7878	21.0517	5558.50
89	16.629	21.0162	21.0519	5555.91
90	16.879	21.1849	21.0523	5554.06
91	17.129	21.2934	21.0524	5552.85
92	17.379	21.0604	21.0501	5554.92
93	17.629	20.4650	21.0499	5561.77
94	17.879	20.1810	21.0495	5564.95
95	18.129	19.8973	21.0492	5568.15
96	18.379	19.7763	21.0492	5569.56
97	18.629	19.4541	21.0487	5573.17
98	18.879	19.3414	21.0480	5574.30
99	19.129	19.1764	21.0479	5576.20

Table 7

POOR ORIGINAL

TENNESSEE VALLEY AUTHORITY
 SEQUOYAH NUCLEAR PLANT -- UNIT 1
 CONTAINMENT LEAKAGE MEASUREMENT
 TEST SUMMARY
 6 PSIG CILRT
 UPPER ICE COMPARTMENT

SAMPLE	HOURS SINCE START	TEMPERATURE DEG F.	CORRECTED PRESSURE PSIA	TOTAL MASS OF AIR LBM
100	19.379	19.0307	21.0476	5577.81
101	19.629	18.9826	21.0469	5578.20
102	19.879	18.8680	21.0466	5579.45
103	20.129	18.7323	21.0463	5580.96
104	20.379	18.5944	21.0467	5582.66
105	20.629	18.4071	21.0460	5583.73
106	20.879	18.6499	21.0459	5581.81
107	21.129	18.0582	21.0454	5579.26
108	21.379	19.3394	21.0448	5573.47
109	21.629	19.6887	21.0406	5568.31
110	21.879	19.4280	21.0452	5572.56
111	22.129	19.1946	21.0449	5575.21
112	22.379	19.0677	21.0446	5576.59
113	22.629	19.1065	21.0437	5575.91
114	22.879	19.1677	21.0429	5574.99
115	23.129	19.0274	21.0428	5576.58
116	23.379	19.0506	21.0424	5576.21
117	23.629	18.9059	21.0425	5577.91
118	23.879	18.8463	21.0416	5578.39
119	24.129	19.3402	21.0421	5572.67
120	24.379	19.5044	21.0423	5569.98
121	24.629	19.1835	21.0422	5574.61
122	24.879	19.0368	21.0418	5576.20
123	25.129	19.0467	21.0414	5575.90
124	25.379	19.1762	21.0412	5574.44
125	25.629	19.3389	21.0411	5572.51
126	25.879	19.3974	21.0407	5571.74
127	26.129	19.3694	21.0406	5572.02
128	26.379	19.2881	21.0400	5572.82
129	26.629	19.3858	21.0403	5571.75
130	26.879	19.1718	21.0405	5574.30
131	27.129	19.5734	21.0391	5569.26
132	27.379	20.0309	21.0390	5563.93

Table 7

POOR ORIGINAL

447 033

TENNESSEE VALLEY AUTHORITY
 SEQUOYAH NUCLEAR PLANT -- UNIT 1
 CONTAINMENT LEAKAGE MEASUREMENT
 TEST SUMMARY
 6 PSIG CILRT
 LOWER ICE COMPARTMENT

SAMPLE	HOURS SINCE START	TEMPERATURE DEG F.	CORRECTED PRESSURE PSIA	TOTAL MASS OF AIR LBM
30	0.000	12.4902	21.0379	13289.31
31	0.250	12.5200	21.0372	13288.05
32	0.500	12.5319	21.0371	13287.64
33	0.750	12.5549	21.0366	13286.68
34	1.000	12.5714	21.0357	13285.69
35	1.250	12.5914	21.0349	13284.57
36	1.500	12.5989	21.0340	13283.82
37	1.750	12.5984	21.0340	13284.04
38	2.000	12.5851	21.0330	13283.59
39	2.250	12.5882	21.0328	13283.33
40	2.500	12.5925	21.0324	13282.96
41	2.750	12.5987	21.0322	13282.66
42	3.000	12.6107	21.0309	13281.55
43	3.250	12.6147	21.0308	13281.35
44	3.500	12.6221	21.0293	13280.21
45	3.750	12.6325	21.0288	13279.59
46	4.131	12.6423	21.0284	13279.03
47	4.381	12.6475	21.0279	13278.60
48	4.631	12.6518	21.0278	13278.43
49	4.881	12.6625	21.0271	13277.70
50	5.131	12.6729	21.0266	13277.05
51	5.381	12.6749	21.0264	13276.87
52	6.000	12.6699	21.0250	13276.14
53	6.330	12.6554	21.0262	13277.30
54	6.500	12.6702	21.0270	13277.40
55	6.830	12.6705	21.0259	13276.69
56	7.000	12.6578	21.0248	13276.33
57	7.330	12.6644	21.0239	13275.59
58	7.500	12.6757	21.0238	13275.20
59	7.830	12.7001	21.0233	13274.22
60	8.000	12.7128	21.0224	13273.29
61	8.330	12.7296	21.0221	13272.64
62	8.500	12.7364	21.0219	13272.34
63	8.830	12.7658	21.0211	13270.97
64	9.000	12.7837	21.0205	13270.11

Table 8

447 034
 POOR ORIGINAL

TENNESSEE VALLEY AUTHORITY
 SEQUOYAH NUCLEAR PLANT -- UNIT 1
 CONTAINMENT LEAKAGE MEASUREMENT
 TEST SUMMARY
 6 PSIG CILRT
 LOWER ICE COMPARTMENT

SAMPLE	HOURS SINCE START	TEMPERATURE DEG F.	CORRECTED PRESSURE PSIA	TOTAL MASS OF AIR LBM
65	9.330	12.7961	21.0206	13269.90
66	9.500	12.8053	21.0203	13269.38
67	9.842	12.8072	21.0202	13269.24
68	10.092	12.8087	21.0195	13268.77
69	10.342	12.8211	21.0193	13268.27
70	10.592	12.8264	21.0192	13268.09
71	10.842	12.8443	21.0195	13267.74
72	11.092	12.8463	21.0183	13266.98
73	11.342	12.8491	21.0181	13266.75
74	11.592	12.8605	21.0170	13265.71
75	11.842	12.8582	21.0169	13265.75
76	12.092	12.8700	21.0168	13265.33
77	12.342	12.8774	21.0170	13265.26
78	12.592	12.8892	21.0183	13265.76
79	12.842	12.8892	21.0174	13265.18
80	13.092	12.8781	21.0166	13264.96
81	13.356	12.8895	21.0157	13264.10
82	15.284	12.9222	21.0185	13264.96
83	15.388	12.9235	21.0192	13265.35
84	15.534	12.9208	21.0197	13265.77
85	15.879	12.9316	21.0200	13265.60
86	15.968	12.9400	21.0200	13265.36
87	16.129	12.9496	21.0202	13265.27
88	16.379	12.9633	21.0200	13265.24
89	16.629	12.9754	21.0211	13265.10
90	16.879	12.9845	21.0207	13264.58
91	17.129	12.9927	21.0212	13264.65
92	17.379	12.9949	21.0174	13262.24
93	17.629	13.0191	21.0160	13260.65
94	17.879	13.0396	21.0140	13259.32
95	18.129	13.0569	21.0138	13258.17
96	18.379	13.0722	21.0131	13257.34
97	18.629	13.0823	21.0120	13256.38
98	18.879	13.0928	21.0114	13255.67
99	19.129	13.1023	21.0114	13255.42

Table 8

POOR ORIGINAL
 447 035

TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT -- UNIT 1
CONTAINMENT LEAKAGE MEASUREMENT
TEST SUMMARY
6 PSIG CILRT
LOWER ICE COMPARTMENT

SAMPLE	HOURS SINCE START	TEMPERATURE DEG F.	CORRECTED PRESSURE PSIA	TOTAL MASS OF AIR LBM
100	19.379	13.1143	21.0107	13254.66
101	19.629	13.1221	21.0105	13254.29
102	19.879	13.1378	21.0098	13253.43
103	20.129	13.1491	21.0096	13252.94
104	20.379	13.1520	21.0096	13252.86
105	20.629	13.1609	21.0096	13252.61
106	20.879	13.1700	21.0102	13252.74
107	21.129	13.1800	21.0112	13252.87
108	21.379	13.1897	21.0111	13252.80
109	21.629	13.1937	21.0098	13251.86
110	21.879	13.2055	21.0088	13250.90
111	22.129	13.2214	21.0081	13250.00
112	22.379	13.2276	21.0077	13249.55
113	22.629	13.2348	21.0071	13249.01
114	22.879	13.2404	21.0070	13248.54
115	23.129	13.2624	21.0066	13247.87
116	23.379	13.2763	21.0059	13247.10
117	23.629	13.2837	21.0055	13246.60
118	23.879	13.2935	21.0056	13246.39
119	24.129	13.3091	21.0053	13245.76
120	24.379	13.3221	21.0049	13245.13
121	24.629	13.3290	21.0052	13245.14
122	24.879	13.3308	21.0049	13244.92
123	25.129	13.3357	21.0049	13244.80
124	25.379	13.3452	21.0053	13244.76
125	25.629	13.3579	21.0048	13244.11
126	25.879	13.3676	21.0040	13243.30
127	26.129	13.3806	21.0034	13242.77
128	26.379	13.3931	21.0029	13241.70
129	26.629	13.4058	21.0030	13241.62
130	26.879	13.4157	21.0034	13241.61
131	27.129	13.4306	21.0041	13241.58
132	27.379	13.4426	21.0034	13240.85

Table 8

POOR ORIGINAL

447 036

TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT -- UNIT 1
CONTAINMENT LEAKAGE MEASUREMENT
TEST SUMMARY
ALL COMPARTMENTS
6 PSIG VERIFICATION

HOURS SINCE START	AIR MASS LOWER COMP. LBM	AIR MASS UPPER COMP. LBM	AIR MASS UPPER ICE LBM	AIR MASS LOWER ICE LBM	P-T-P LEAK RATE % PER HOUR	TOTAL TIME LEAK RATE % PER HOUR	MASS LEAK RATE % PER HOUR
0.000	41905.0	71024.1	5568.2	13235.3	0.00000	0.00000	0.00000
0.250	41905.3	71022.8	5566.7	13234.6	0.00982	0.00982	0.00987
0.336	41904.6	71022.5	5565.9	13234.4	0.01616	0.01144	0.01111
0.452	41904.6	71020.3	5568.8	13233.8	0.00010	0.00852	0.00923
0.569	41904.0	71019.9	5569.2	13233.7	0.00488	0.00777	0.00799
0.686	41903.2	71018.3	5570.3	13233.4	0.00966	0.00810	0.00765
0.802	41902.9	71020.5	5571.5	13233.1	-0.01780	0.00433	0.00523
0.919	41902.8	71016.8	5571.8	13232.7	0.02437	0.00688	0.00549
1.036	41902.8	71017.1	5571.7	13232.6	0.00000	0.00610	0.00531
1.196	41902.3	71015.1	5573.0	13232.3	0.00756	0.00630	0.00533
1.269	41902.7	71018.1	5572.2	13232.3	-0.02818	0.00431	0.00451
1.386	41902.4	71017.6	5571.7	13232.0	0.01068	0.00484	0.00421
1.502	41902.5	71016.7	5570.3	13231.7	0.01586	0.00570	0.00437
1.619	41902.7	71017.2	5566.4	13231.8	0.02112	0.00681	0.00493
1.736	41904.0	71018.5	5565.5	13231.5	-0.00905	0.00575	0.00500
1.852	41903.6	71016.6	5564.2	13231.3	0.02410	0.00690	0.00545
1.999	41902.8	71017.5	5566.6	13231.0	-0.01099	0.00559	0.00532
2.116	41903.2	71011.0	5568.8	13230.4	0.02935	0.00690	0.00566
2.233	41902.9	71014.0	5570.0	13230.5	-0.02675	0.00514	0.00541
2.349	41903.6	71015.6	5569.4	13230.3	-0.00956	0.00441	0.00502
2.466	41903.1	71016.1	5568.2	13230.1	0.00875	0.00462	0.00479
2.583	41904.5	71017.9	5566.3	13230.5	-0.01070	0.00392	0.00442
2.699	41904.0	71016.1	5563.2	13230.2	0.03224	0.00515	0.00444
2.816	41905.4	71017.2	5560.2	13230.2	0.00844	0.00528	0.00449
2.892	41906.5	71019.5	5558.8	13230.2	-0.02118	0.00459	0.00438
2.933	41906.0	71015.9	5558.5	13230.2	0.00321	0.00569	0.00450
3.049	41906.4	71015.3	5558.4	13229.9	0.00366	0.00562	0.00464
3.166	41904.6	71015.2	5559.1	13228.8	0.01526	0.00597	0.00480
3.283	41904.0	71014.2	5561.6	13228.5	-0.00427	0.00561	0.00487
3.399	41904.0	71015.3	5560.6	13227.9	0.00366	0.00554	0.00492
3.516	41903.0	71011.5	5561.8	13227.4	0.02644	0.00623	0.00511
3.633	41902.5	71010.9	5563.3	13227.1	-0.00020	0.00603	0.00522
3.749	41902.0	71013.6	5564.1	13226.9	-0.01872	0.00526	0.00518
3.866	41901.8	71009.4	5564.4	13226.5	0.02929	0.00598	0.00521
3.983	41900.7	71011.3	5563.0	13226.3	0.00529	0.00596	0.00531

Table 9

POOR ORIGINAL

447 037

TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT -- UNIT 1
CONTAINMENT LEAKAGE MEASUREMENT
TEST SUMMARY
ALL COMPARTMENTS
& PSIG VERIFICATION

HOURS SINCE START	LG. & COMP. LBM	AIR MASS UPPER COMP LBM	AIR MASS UPPER ICE LBM	AIR MASS LOWER ICE LBM	P-T-P LEAK RATE % PER HOUR	TOTAL TIME LEAK RATE % PER HOUR	MASS LEAK RATE % PER HOUR
4.099	41902.0	71011.8	5562.2	13226.2	-0.00631	0.00561	0.00538
4.216	41902.0	71009.7	5561.7	13225.9	0.01973	0.00600	0.00546
4.333	41901.8	71012.0	5561.2	13225.9	-0.01078	0.00555	0.00546
4.449	41901.9	71008.2	5562.1	13225.2	0.02285	0.00601	0.00552
4.566	41901.2	71007.1	5563.0	13224.8	0.00783	0.00605	0.00558
4.683	41900.8	71005.1	5563.8	13224.5	0.01282	0.00622	0.00565
4.799	41900.5	71005.8	5564.6	13224.4	-0.00702	0.00590	0.00570

Table 9

POOR ORIGINAL

TENNESSEE VALLEY AUTHORITY
 SEQUOYAH NUCLEAR PLANT -- UNIT 1
 CONTAINMENT LEAKAGE MEASUREMENT
 TEST SUMMARY
 6 PSIG VERIFICATION
 UPPER COMPARTMENT

SAMPLE	HOURS SINCE START	TEMPERATURE DEG F.	CORRECTED PRESSURE PSIA	TOTAL MASS OF AIR LBM
10	0.000	59.8353	20.9984	71024.06
11	0.250	59.8311	20.9979	71022.80
12	0.336	59.8343	20.9979	71022.53
13	0.452	59.8273	20.9970	71020.30
14	0.569	59.8289	20.9969	71019.86
15	0.686	59.8242	20.9963	71018.33
16	0.802	59.8212	20.9960	71020.48
17	0.919	59.8256	20.9959	71016.84
18	1.036	59.8140	20.9955	71017.06
19	1.196	59.8228	20.9953	71015.14
20	1.269	59.8191	20.9960	71018.15
21	1.386	59.8086	20.9954	71017.64
22	1.502	59.8155	20.9954	71016.74
23	1.619	59.8089	20.9953	71017.23
24	1.736	59.8031	20.9955	71018.40
25	1.852	59.8049	20.9950	71016.64
26	1.999	59.8013	20.9951	71017.46
27	2.116	59.8055	20.9933	71010.96
28	2.233	59.8022	20.9941	71013.97
29	2.349	59.7973	20.9944	71015.64
30	2.466	59.8001	20.9946	71016.11
31	2.583	59.8002	20.9952	71017.90
32	2.699	59.8015	20.9947	71016.10
33	2.816	59.7999	20.9949	71017.20
34	2.892	59.7904	20.9953	71019.55
35	2.933	59.7863	20.9940	71015.87
36	3.049	59.7913	20.9940	71015.32
37	3.166	59.7876	20.9939	71015.19
38	3.283	59.7818	20.9933	71014.21
39	3.399	59.7781	20.9935	71015.28
40	3.516	59.7700	20.9921	71011.45
41	3.633	59.7710	20.9919	71010.80
42	3.749	59.7665	20.9925	71013.63
43	3.866	59.7607	20.9911	71009.40
44	3.983	59.7535	20.9913	71011.25

Table 10

POOR ORIGINAL

TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT -- UNIT 1
CONTAINMENT LEAKAGE MEASUREMENT
TEST SUMMARY
6 PSIG VERIFICATION
UPPER COMPARTMENT

SAMPLE	HOURS SINCE START	TEMPERATURE DEG F.	CORRECTED PRESSURE PSIA	TOTAL MASS OF AIR LBM
45	4.099	59.7542	20.9915	71011.80
46	4.216	59.7574	20.9910	71008
47	4.333	59.7522	20.9915	7101
48	4.449	59.7542	20.9905	71008.22
49	4.566	59.7548	20.9902	71007.13
50	4.683	59.7574	20.9897	71005.14
51	4.799	59.7454	20.9894	71005.82

POOR ORIGINAL

Table 10

TENNESSEE VALLEY AUTHORITY
SEQUOIA NUCLEAR PLANT -- UNIT 1
CONTAINMENT LEAKAGE MEASUREMENT
TEST SUMMARY
& PSIC VERIFICATION
LOWER COMPARTMENT

SAMPLE	HOURS SINCE START	TEMPERATURE DEG F.	CORRECTED PRESSURE PSIA	TOTAL MASS OF AIR LBM
10	0.000	58.5594	21.0069	41905.04
11	0.250	58.5452	21.0064	41905.25
12	0.336	58.5426	21.0060	41904.63
13	0.457	58.5354	21.0057	41904.59
14	0.569	58.5300	21.0055	41903.96
15	0.686	58.5353	21.0050	41903.23
16	0.802	58.5291	21.0046	41902.90
17	0.919	58.5238	21.0043	41902.84
18	1.036	58.5231	21.0043	41902.83
19	1.196	58.5154	21.0037	41902.27
20	1.269	58.5104	21.0037	41902.72
21	1.306	58.5083	21.0035	41902.38
22	1.502	58.5034	21.0033	41902.48
23	1.619	58.5000	21.0033	41902.67
24	1.736	58.4924	21.0036	41904.00
25	1.852	58.4895	21.0033	41903.59
26	1.999	58.4879	21.0029	41902.80
27	2.116	58.4795	21.0027	41903.21
28	2.233	58.4790	21.0026	41902.92
29	2.349	58.4704	21.0026	41903.63
30	2.466	58.4695	21.0023	41903.14
31	2.583	58.4674	21.0029	41904.54
32	2.699	58.4627	21.0028	41904.77
33	2.816	58.4554	21.0029	41905.43
34	2.892	58.4537	21.0033	41906.53
35	2.933	58.4512	21.0030	41905.98
36	3.049	58.4446	21.0029	41906.43
37	3.166	58.4417	21.0019	41904.55
38	3.283	58.4373	21.0014	41904.01
39	3.399	58.4277	21.0010	41903.99
40	3.516	58.4281	21.0005	41903.00
41	3.633	58.4264	21.0002	41902.52
42	3.749	58.4246	20.9999	41901.98
43	3.866	58.4194	20.9996	41901.81
44	3.983	58.4169	20.9989	41900.70

Table 11

POOR ORIGINAL

447 041

TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT -- UNIT 1
CONTAINMENT LEAKAGE MEASUREMENT
TEST SUMMARY
& PSIG VERIFICATION
LOWER COMPARTMENT

SAMPLE	HOURS SINCE START	TEMPERATURE DEG F.	CORRECTED PRESSURE PSIA	TOTAL MASS OF AIR LBM
45	4.099	58.4106	20.9993	41902.04
46	4.216	58.4097	20.9993	41901.96
47	4.333	58.4057	20.9990	41901.80
48	4.449	58.3991	20.9988	41901.86
49	4.566	58.3922	20.9982	41901.23
50	4.683	58.3890	20.9978	41900.78
51	4.799	58.3828	20.9974	41900.51

POOR ORIGINAL

Table 11

TENNESSEE VALLEY AUTHORITY
 SEQUOYAH NUCLEAR PLANT -- UNIT 1
 CONTAINMENT LEAKAGE MEASUREMENT
 TEST SUMMARY
 6 PSIG VERIFICATION
 UPPER ICE COMPARTMENT

SAMPLE	HOURS SINCE START	TEMPERATURE DEG F.	CORRECTED PRESSURE PSIA	TOTAL MASS OF AIR LBM
10	0.000	19.6188	21.0372	5568.21
11	0.250	19.7273	21.0362	5566.70
12	0.336	19.7849	21.0359	5565.94
13	0.452	19.5338	21.0357	5568.81
14	0.569	19.5066	21.0359	5569.18
15	0.686	19.4187	21.0362	5570.27
16	0.802	19.2953	21.0354	5571.51
17	0.919	19.2738	21.0357	5571.83
18	1.036	19.2848	21.0358	5571.74
19	1.196	19.1637	21.0352	5572.98
20	1.269	19.2287	21.0350	5572.18
21	1.386	19.2546	21.0344	5571.72
22	1.502	19.3731	21.0344	5570.33
23	1.619	19.7087	21.0342	5566.38
24	1.736	19.7943	21.0347	5565.51
25	1.852	19.8941	21.0342	5564.24
26	1.999	19.6820	21.0337	5566.58
27	2.116	19.4757	21.0331	5568.80
28	2.233	19.3763	21.0334	5570.02
29	2.349	19.4407	21.0338	5569.38
30	2.466	19.5417	21.0339	5568.24
31	2.583	19.6899	21.0329	5566.27
32	2.699	19.8811	21.0290	5563.21
33	2.816	20.1888	21.0317	5560.15
34	2.892	20.3147	21.0322	5558.82
35	2.933	20.3449	21.0323	5558.50
36	3.049	20.3053	21.0300	5558.36
37	3.166	20.2497	21.0304	5559.11
38	3.283	20.0758	21.0323	5561.61
39	3.399	20.1433	21.0314	5560.60
40	3.516	20.0270	21.0309	5561.83
41	3.633	19.8988	21.0308	5563.29
42	3.749	19.8128	21.0303	5564.14
43	3.866	19.7860	21.0300	5564.37
44	3.983	19.9045	21.0301	5563.02

POOR ORIGINAL

Table 12

TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT -- UNIT 1
CONTAINMENT LEAKAGE MEASUREMENT
TEST SUMMARY
6 PSIG VERIFICATION
UPPER ICE COMPARTMENT

SAMPLE	HOURS SINCE START	TEMPERATURE DEG F.	CORRECTED PRESSURE PSIA	TOTAL MASS OF AIR LSM
45	4.099	19.9631	21.0296	5562.22
46	4.216	20.0049	21.0296	5561.73
47	4.333	20.0487	21.0294	5561.17
48	4.449	19.9503	21.0288	5562.14
49	4.566	19.8699	21.0285	5563.00
50	4.683	19.8034	21.0287	5563.82
51	4.799	19.7304	21.0283	5564.57

POOR ORIGINAL

TENNESSEE VALLEY AUTHORITY
 SEQUOYAH NUCLEAR PLANT -- UNIT 1
 CONTAINMENT LEAKAGE MEASUREMENT
 TEST SUMMARY
 6 PSIG VERIFICATION
 LOWER ICE COMPARTMENT

SAMPLE	HOURS SINCE START	TEMPERATURE DEG F.	CORRECTED PRESSURE PSIA	TOTAL MASS OF AIR LBM
10	0.000	13.5682	21.0001	13235.27
11	0.250	13.5743	20.9993	13234.59
12	0.336	13.5773	20.9992	13234.42
13	0.452	13.5812	20.9984	13233.79
14	0.569	13.5857	20.9985	13233.73
15	0.686	13.5854	20.9960	13233.44
16	0.802	13.5926	20.9978	13233.11
17	0.919	13.5936	20.9973	13232.75
18	1.036	13.5978	20.9972	13232.62
19	1.196	13.6027	20.9969	13232.27
20	1.269	13.6053	20.9971	13232.31
21	1.376	13.6066	20.9966	13231.99
22	1.500	13.6115	20.9965	13231.74
23	1.614	13.6151	20.9967	13231.77
24	1.736	13.6184	20.9963	13231.46
25	1.852	13.6233	20.9962	13231.27
26	1.999	13.6285	20.9961	13231.02
27	2.116	13.6340	20.9953	13230.36
28	2.233	13.6379	20.9957	13230.54
29	2.349	13.6442	20.9956	13230.27
30	2.466	13.6523	20.9956	13230.07
31	2.583	13.6493	20.9962	13230.54
32	2.699	13.6549	20.9960	13230.21
33	2.816	13.6608	20.9962	13230.21
34	2.892	13.6634	20.9963	13230.20
35	2.933	13.6643	20.9964	13230.23
36	3.049	13.6696	20.9961	13229.90
37	3.166	13.6771	20.9947	13228.81
38	3.283	13.6847	20.9946	13228.49
39	3.399	13.6912	20.9939	13227.88
40	3.516	13.7003	20.9935	13227.42
41	3.633	13.7046	20.9932	13227.05
42	3.749	13.7056	20.9929	13226.86
43	3.866	13.7095	20.9925	13226.52
44	3.983	13.7150	20.9924	13226.31

Table 13

POOR ORIGINAL

TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT -- UNIT 1
CONTAINMENT LEAKAGE MEASUREMENT
TEST SUMMARY
6 PSIG VERIFICATION
LOWER ICE COMPARTMENT

SAMPLE	HOURS SINCE START	TEMPERATURE DEG F.	CORRECTED PRESSURE PSIA	TOTAL MASS OF AIR LBM
45	4.099	13.7173	20.9924	13226.20
46	4.216	13.7203	20.9920	13225.89
47	4.333	13.7245	20.9922	13225.92
48	4.449	13.7291	20.9912	13225.16
49	4.566	13.7392	20.9911	13224.81
50	4.683	13.7412	20.9907	13224.47
51	4.799	13.7425	20.9906	13224.38

POOR ORIGINAL

Table 13

447 046

TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT -- UNIT 1
CONTAINMENT LEAKAGE MEASUREMENT
TEST SUMMARY
ALL COMPARTMENTS
12 PSIG CILRT

HOURS SINCE START	AIR MASS LOWER COMP. LBM	AIR MASS UPPER COMP. LBM	AIR MASS UPPER ICE LBM	AIR MASS LOWER ICE LBM	P-T-P LEAK RATE % PER HOUR	TOTAL TIME LEAK RATE % PER HOUR	MASS LEAK RATE % PER HOUR
0.000	53934.0	91140.5	7101.8	16969.5	0.00000	0.00000	0.00000
0.250	53932.8	91140.9	7100.8	16968.0	0.00020	0.00020	0.00021
0.500	53932.1	91144.1	7100.7	16966.7	-0.00280	0.00266	0.00266
0.750	53931.2	91139.6	7100.8	16965.0	0.01666	0.00733	0.00630
1.000	53930.1	91139.4	7102.0	16963.2	0.00277	0.00619	0.00633
1.250	53930.9	91139.6	7103.0	16962.1	-0.00040	0.00486	0.00534
1.500	53930.3	91142.5	7102.4	16960.6	-0.00037	0.00398	0.00439
1.750	53930.7	91142.5	7097.9	16959.1	0.01334	0.00532	0.00473
2.000	53929.8	91141.3	7097.6	16957.7	0.00887	0.00576	0.00518
2.250	53930.6	91142.6	7100.5	16956.6	-0.00901	0.00412	0.00463
2.500	53932.1	91143.2	7101.4	16955.6	-0.00481	0.00323	0.00391
2.750	53932.0	91145.0	7101.8	16954.6	-0.00277	0.00268	0.00322
3.000	53933.6	91140.9	7102.6	16953.8	-0.01278	0.00139	0.00229
3.250	53934.2	91151.2	7099.7	16952.4	0.00318	0.00153	0.00173
3.500	53932.4	91145.6	7098.9	16950.5	0.02373	0.00312	0.00191
3.750	53931.7	91146.2	7097.8	16949.3	0.00598	0.00331	0.00213
4.000	53931.9	91146.9	7097.4	16947.7	0.00248	0.00326	0.00228
4.250	53933.3	91148.9	7097.6	16947.1	-0.00728	0.00264	0.00223
4.500	53934.1	91149.7	7101.3	16946.6	-0.01130	0.00186	0.00197
4.750	53934.1	91151.4	7098.1	16945.5	0.00621	0.00209	0.00184
5.000	53934.4	91153.6	7092.6	16944.3	0.00991	0.00248	0.00186
5.250	53934.0	91152.1	7090.7	16943.1	0.01171	0.00292	0.00190
5.500	53933.3	91151.9	7094.1	16941.9	-0.02285	0.00266	0.00202
5.750	53933.4	91152.1	7096.2	16940.8	-0.00307	0.00241	0.00200
6.000	53934.4	91151.4	7098.6	16940.0	-0.00495	0.00210	0.00193
6.250	53935.0	91156.6	7098.0	16939.5	-0.01072	0.00159	0.00176
6.500	53936.9	91154.9	7096.8	16938.5	0.00499	0.00172	0.00164
6.630	53935.7	91155.0	7097.5	16937.9	0.00376	0.00176	0.00156
6.750	53935.1	91156.0	7095.9	16937.0	0.01057	0.00192	0.00152
7.077	53935.7	91155.7	7097.1	16935.3	0.00040	0.00185	0.00149
7.314	53935.1	91156.2	7093.7	16934.2	0.01170	0.00217	0.00153
7.564	53935.6	91156.3	7093.2	16932.9	0.00244	0.00218	0.00155
7.814	53935.0	91155.8	7093.4	16931.8	0.00499	0.00227	0.00160
8.064	53937.8	91157.9	7091.1	16931.3	-0.00525	0.00203	0.00159
8.314	53937.6	91157.9	7087.8	16930.1	0.01124	0.00231	0.00164

Table 14

POOR ORIGINAL

TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT -- UNIT 1
CONTAINMENT LEAKAGE MEASUREMENT
TEST SUMMARY
ALL COMPARTMENTS
12 PSIG CILRT

HOURS SINCE START	AIR MASS LOWER COMP. LBM	AIR MASS UPPER COMP. LBM	AIR MASS UPPER ICE LBM	AIR MASS LOWER ICE LBM	P-T-P LEAK RATE % PER HOUR	TOTAL TIME LEAK RATE % PER HOUR	MASS LEAK RATE % PER HOUR
8.564	53934.5	91156.0	7090.9	16928.5	0.00039	0.00249	0.00171
8.814	53936.0	91155.5	7091.1	16927.1	0.00026	0.00243	0.00177
9.064	53936.3	91155.7	7091.5	16926.2	0.00022	0.00236	0.00180
9.314	53937.2	91156.1	7092.4	16925.5	-0.00304	0.00220	0.00182
9.564	53938.1	91156.8	7090.3	16924.0	0.00311	0.00222	0.00184
9.814	53938.4	91159.3	7095.3	16924.1	0.00673	0.00234	0.00186
10.064	53938.5	91160.4	7093.7	16922.0	0.00425	0.00238	0.00190
10.314	53939.1	91159.2	7091.7	16921.0	-0.01527	0.00196	0.00187
10.564	53939.7	91162.3	7093.2	16921.2	-0.01116	0.00165	0.00181
10.814	53941.2	91163.6	7086.6	16920.5	0.01060	0.00185	0.00178
10.924	53940.8	91167.5	7084.0	16920.2	-0.00270	0.00181	0.00175
11.064	53942.1	91168.6	7090.7	16920.2	0.00389	0.00183	0.00172
11.314	53941.2	91166.2	7078.3	16918.6	0.01737	0.00218	0.00174
11.564	53939.7	91163.2	7062.0	16916.5	0.00473	0.00223	0.00177
11.814	53939.0	91163.9	7083.0	16915.2	-0.00396	0.00210	0.00178
12.064	53939.6	91163.5	7087.1	16914.3	-0.00122	0.00203	0.00178
12.314	53940.3	91164.5	7085.5	16913.5	0.00166	0.00202	0.00178
12.564	53939.7	91163.5	7086.0	16912.6	0.00433	0.00207	0.00179
12.814	53937.4	91164.2	7088.9	16911.0	0.00096	0.00205	0.00179
13.064	53937.5	91163.2	7090.1	16910.1	0.00155	0.00204	0.00179
13.314	53937.2	91163.7	7090.8	16909.1	0.00007	0.00200	0.00179
13.564	53937.0	91163.8	7089.9	16908.3	0.00436	0.00205	0.00180
13.814	53937.6	91166.9	7090.5	16907.5	-0.00835	0.00186	0.00179
14.064	53938.0	91169.4	7090.6	16906.9	-0.00750	0.00169	0.00175
14.314	53939.7	91170.3	7090.1	16906.2	-0.00152	0.00163	0.00172
14.564	53939.8	91168.5	7088.7	16905.3	0.00949	0.00177	0.00170
14.814	53941.6	91172.6	7085.6	16904.4	-0.00440	0.00167	0.00168
15.064	53941.9	91173.7	7079.9	16903.4	0.01231	0.00184	0.00167
15.314	53940.1	91172.5	7079.6	16902.1	0.01101	0.00199	0.00168
15.564	53939.9	91171.9	7079.6	16900.6	0.00573	0.00205	0.00169
15.814	53939.2	91172.3	7080.0	16899.6	0.00174	0.00205	0.00170
16.064	53940.2	91174.6	7078.4	16899.2	-0.00314	0.00197	0.00171
16.314	53941.4	91175.7	7079.8	16898.4	-0.00665	0.00183	0.00170
16.564	53941.1	91178.3	7079.8	16897.3	-0.00280	0.00176	0.00169
16.814	53942.4	91176.6	7074.3	16896.3	0.01640	0.00198	0.00170

Table 14

POOR ORIGINAL

447 048

TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT -- UNIT 1
CONTAINMENT LEAKAGE MEASUREMENT
TEST SUMMARY
ALL COMPARTMENTS
12 PSIG CILRT

HOURS SINCE START	AIR MASS LOWER COMP. LBM	AIR MASS UPPER COMP. LBM	AIR MASS UPPER ICE LBM	AIR MASS LOWER ICE LBM	P-T-P LEAK RATE % PER HOUR	TOTAL TIME LEAK RATE % PER HOUR	MASS LEAK RATE % PER HOUR
17.864	53941.1	91178.1	7072.9	16895.1	0.00551	0.00203	0.00171
17.314	53940.0	91174.6	7074.6	16893.8	0.00987	0.00215	0.00173
17.564	53940.4	91176.7	7077.8	16892.7	-0.01060	0.00196	0.00173
17.814	53940.6	91177.3	7073.2	16891.8	0.01102	0.00209	0.00175
18.064	53940.6	91177.6	7073.3	16890.7	0.00174	0.00209	0.00176
18.314	53940.4	91176.5	7079.8	16889.4	-0.00916	0.00193	0.00176
18.564	53940.2	91174.7	7081.2	16888.2	0.00399	0.00196	0.00176
18.814	53940.3	91176.9	7082.2	16887.4	-0.00569	0.00186	0.00176
18.936	53941.3	91178.2	7081.8	16887.4	-0.00962	0.00178	0.00175
19.186	53943.5	91179.3	7080.3	16886.7	-0.00255	0.00173	0.00173
19.436	53942.0	91180.1	7079.1	16885.5	0.00710	0.00180	0.00173
19.686	53940.9	91177.8	7079.1	16884.2	0.01135	0.00192	0.00173
19.936	53942.4	91178.4	7078.0	16883.3	-0.00041	0.00189	0.00173
20.186	53942.4	91177.6	7078.5	16882.4	0.00311	0.00190	0.00173
20.436	53942.5	91179.2	7078.6	16881.7	-0.00270	0.00185	0.00173
20.686	53942.3	91179.1	7078.6	16880.7	0.00303	0.00186	0.00173
20.936	53943.5	91179.6	7078.7	16880.2	-0.00299	0.00180	0.00172
21.186	53943.5	91180.5	7077.7	16879.3	0.00251	0.00181	0.00172
21.436	53943.6	91181.2	7077.9	16878.4	-0.00033	0.00179	0.00171
21.686	53943.4	91180.3	7078.7	16877.3	0.00299	0.00180	0.00170
21.936	53944.7	91181.9	7079.0	16876.7	-0.00780	0.00169	0.00169
22.186	53945.4	91184.1	7078.8	16876.5	-0.00399	0.00163	0.00168
22.436	53947.3	91187.3	7078.6	16876.0	-0.01020	0.00150	0.00166
22.686	53948.8	91188.9	7078.5	16875.6	-0.00603	0.00141	0.00163
22.936	53949.8	91191.7	7068.8	16875.1	0.01500	0.00156	0.00162
23.186	53949.6	91191.5	7062.2	16873.5	0.02026	0.00176	0.00162
23.436	53947.3	91189.3	7067.1	16871.9	0.00281	0.00177	0.00162
23.686	53945.6	91187.3	7070.8	16870.3	0.00366	0.00179	0.00162
23.936	53946.0	91183.1	7074.8	16869.3	0.00181	0.00179	0.00162
24.186	53946.0	91185.4	7074.0	16868.3	-0.00001	0.00177	0.00162
24.436	53946.6	91187.3	7073.8	16867.5	-0.00392	0.00171	0.00162
24.686	53946.0	91187.9	7074.8	16866.6	0.00022	0.00169	0.00161

POOR ORIGINAL

TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT -- UNIT 1
CONTAINMENT LEAKAGE MEASUREMENT
TEST SUMMARY
12 PSIG CILRT
UPPER COMPARTMENT

Sheet 1 of 3

SAMPLE	HOURS SINCE START	TEMPERATURE DEG F.	CORRECTED PRESSURE PSIA	TOTAL MASS OF AIR LBM
14	0.000	60.3159	26.9700	91140.51
15	0.250	60.2834	26.9692	91140.88
16	0.500	60.2597	26.9689	91144.07
17	0.750	60.2349	26.9663	91139.55
18	1.000	60.2087	26.9649	91139.41
19	1.250	60.1799	26.9635	91139.64
20	1.500	60.1603	26.9633	91142.45
21	1.750	60.1397	26.9623	91142.49
22	2.000	60.1183	26.9608	91141.27
23	2.250	60.0967	26.9601	91142.59
24	2.500	60.0817	26.9595	91143.20
25	2.750	60.0648	26.9591	91144.98
26	3.000	60.0430	26.9591	91148.85
27	3.250	60.0232	26.9588	91151.24
28	3.500	60.0041	26.9561	91145.59
29	3.750	59.9862	26.9554	91146.16
30	4.000	59.9657	26.9545	91146.90
31	4.250	59.9443	26.9540	91148.91
32	4.500	59.9305	26.9539	91149.67
33	4.750	59.9233	26.9537	91151.37
34	5.000	59.9054	26.9534	91153.65
35	5.250	59.8871	26.9520	91152.14
36	5.500	59.8683	26.9510	91151.90
37	5.750	59.8513	26.9501	91152.09
38	6.000	59.8388	26.9493	91151.45
39	6.250	59.8239	26.9500	91156.59
40	6.500	59.8107	26.9489	91154.86
41	6.630	59.7975	26.9482	91155.02
42	6.750	59.7898	26.9481	91155.98
43	7.077	59.7662	26.9460	91155.67
44	7.314	59.7507	26.9461	91156.17
45	7.564	59.7316	26.9452	91156.32
46	7.814	59.7221	26.9445	91155.75
47	8.064	59.7121	26.9446	91157.94
48	8.314	59.6932	26.9436	91157.88

Table 15

POOR ORIGINAL

TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT -- UNIT 1
CONTAINMENT LEAKAGE MEASUREMENT
TEST SUMMARY
12 PSIG CILRT
UPPER COMPARTMENT

Sheet 2 of 3

SAMPLE	HOURS SINCE START	TEMPERATURE DEG F.	CORRECTED PRESSURE PSIA	TOTAL MASS OF AIR Lbm
49	8.564	59.6770	26.9422	91156.00
50	8.814	59.6604	26.9412	91155.52
51	9.064	59.6468	26.9406	91155.70
52	9.314	59.6327	26.9400	91156.15
53	9.564	59.6187	26.9395	91156.83
54	9.814	59.5985	26.9391	91159.29
55	10.064	59.5859	26.9388	91160.36
56	10.314	59.5770	26.9380	91159.20
57	10.564	59.5563	26.9379	91162.34
58	10.814	59.5508	26.9379	91163.59
59	10.924	59.5382	26.9385	91167.54
60	11.064	59.5317	26.9384	91168.63
61	11.314	59.5182	26.9370	91166.20
62	11.564	59.4937	26.9349	91163.24
63	11.814	59.4794	26.9343	91163.91
64	12.064	59.4702	26.9337	91163.46
65	12.314	59.4521	26.9331	91164.48
66	12.564	59.4457	26.9325	91163.53
67	12.814	59.4214	26.9314	91164.21
68	13.064	59.4126	26.9307	91163.24
69	13.314	59.3959	26.9299	91163.71
70	13.564	59.3890	26.9296	91163.82
71	13.814	59.3730	26.9297	91166.88
72	14.064	59.3568	26.9296	91169.37
73	14.314	59.3500	26.9295	91170.30
74	14.564	59.3355	26.9282	91168.49
75	14.814	59.3193	26.9286	91172.59
76	15.064	59.3106	26.9285	91173.69
77	15.314	59.2933	26.9272	91172.48
78	15.564	59.2772	26.9262	91171.86
79	15.814	59.2630	26.9256	91172.34
80	16.064	59.2516	26.9257	91174.63
81	16.314	59.2439	26.9256	91175.70
82	16.564	59.2298	26.9256	91178.30
83	16.814	59.2168	26.9245	91176.59

Table 15

POOR ORIGINAL

TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT -- UNIT 1
CONTAINMENT LEAKAGE MEASUREMENT
TEST SUMMARY
12 PSIG GILRT
UPPER COMPARTMENT

Sheet 3 of 3

SAMPLE	HOURS SINCE START	TEMPERATURE DEG F.	CORRECTED PRESSURE PSIA	TOTAL MASS OF AIR LBM
84	17.064	59.2072	26.9244	91178.12
85	17.314	59.1880	26.9224	91174.65
86	17.564	59.1733	26.9222	91176.68
87	17.814	59.1614	26.9218	91177.34
88	18.064	59.1532	26.9214	91177.56
89	18.314	59.1414	26.9205	91176.46
90	18.564	59.1352	26.9197	91174.70
91	18.814	59.1188	26.9195	91176.87
92	18.936	59.1147	26.9196	91178.23
93	19.106	59.1118	26.9198	91179.29
94	19.436	59.0931	26.9191	91180.14
95	19.606	59.0854	26.9180	91177.79
96	19.736	59.0712	26.9174	91178.41
97	20.106	59.0655	26.9169	91177.56
98	20.436	59.0491	26.9165	91179.19
99	20.686	59.0435	26.9162	91179.10
100	20.936	59.0345	26.9159	91179.63
101	21.186	59.0243	26.9156	91180.48
102	21.436	59.0118	26.9152	91181.23
103	21.686	59.0004	26.9143	91180.34
104	21.936	58.9928	26.9144	91181.92
105	22.186	58.9866	26.9147	91184.12
106	22.436	58.9791	26.9153	91187.25
107	22.686	58.9760	26.9156	91188.85
108	22.936	58.9666	26.9159	91191.68
109	23.186	58.9504	26.9150	91191.46
110	23.436	58.9326	26.9135	91189.29
111	23.686	58.9282	26.9126	91187.30
112	23.936	58.9214	26.9111	91183.13
113	24.186	58.9086	26.9110	91185.36
114	24.436	58.8975	26.9110	91187.28
115	24.686	58.8852	26.9106	91187.87

Table 15

POOR ORIGINAL

447 052

TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT -- UNIT 1
CONTAINMENT LEAKAGE MEASUREMENT
TEST SUMMARY
12 PSIG CILRT
LOWER COMPARTMENT

SAMPLE	HOURS SINCE START	TEMPERATURE DEG F.	CORRECTED PRESSURE PSIA	TOTAL MASS OF AIR LBM
14	0.000	57.4774	26.9805	53934.04
15	0.250	57.4534	26.9786	53932.79
16	0.500	57.4365	26.9774	53932.14
17	0.750	57.4102	26.9756	53931.24
18	1.000	57.3894	26.9739	53930.06
19	1.250	57.3631	26.9730	53930.93
20	1.500	57.3500	26.9720	53930.35
21	1.750	57.3253	26.9709	53930.72
22	2.000	57.3126	26.9698	53929.78
23	2.250	57.2906	26.9690	53930.55
24	2.500	57.2618	26.9683	53932.05
25	2.750	57.2475	26.9675	53932.04
26	3.000	57.2288	26.9673	53933.58
27	3.250	57.2064	26.9665	53934.16
28	3.500	57.1935	26.9649	53932.43
29	3.750	57.1753	26.9636	53931.71
30	4.000	57.1551	26.9626	53931.08
31	4.250	57.1309	26.9621	53933.29
32	4.500	57.1249	26.9622	53934.14
33	4.750	57.1142	26.9616	53934.11
34	5.000	57.0975	26.9609	53934.45
35	5.250	57.0756	26.9596	53934.05
36	5.500	57.0635	26.9586	53933.30
37	5.750	57.0478	26.9570	53933.38
38	6.000	57.0299	26.9574	53934.42
39	6.250	57.0238	26.9574	53935.03
40	6.500	56.9942	26.9568	53936.91
41	6.630	56.9932	26.9561	53935.73
42	6.750	56.9893	26.9556	53935.07
43	7.077	56.9636	26.9545	53935.67
44	7.314	56.9529	26.9537	53935.07
45	7.564	56.9248	26.9525	53935.58
46	7.814	56.9215	26.9520	53935.02
47	8.064	56.8918	26.9519	53937.81
48	8.314	56.8838	26.9513	53937.59

Table 16

POOR ORIGINAL

TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT -- UNIT 1
CONTAINMENT LEAKAGE MEASUREMENT
TEST SUMMARY
12 PSIG CILRT
LOWER COMPARTMENT

Sheet 2 of 3

SAMPLE	HOURS SINCE START	TEMPERATURE DEG F.	CORRECTED PRESSURE PSIA	TOTAL MASS OF AIR LBM
49	8.564	56.8802	26.9496	53934.50
50	8.814	56.8457	26.9486	53936.02
51	9.064	56.8330	26.9480	53936.28
52	9.314	56.8074	26.9472	53937.23
53	9.564	56.7945	26.9469	53938.09
54	9.814	56.7874	26.9467	53938.42
55	10.064	56.7723	26.9460	53938.51
56	10.314	56.7543	26.9453	53939.11
57	10.564	56.7500	26.9454	53939.70
58	10.814	56.7345	26.9454	53941.25
59	10.924	56.7407	26.9455	53940.78
60	11.064	56.7310	26.9456	53942.10
61	11.314	56.7133	26.9442	53941.18
62	11.564	56.6885	26.9422	53939.69
63	11.814	56.6799	26.9414	53939.00
64	12.064	56.6576	26.9405	53939.63
65	12.314	56.6454	26.9402	53940.30
66	12.564	56.6387	26.9396	53939.70
67	12.814	56.6320	26.9381	53937.38
68	13.064	56.6224	26.9376	53937.48
69	13.314	56.6124	26.9370	53937.21
70	13.564	56.6060	26.9365	53937.00
71	13.814	56.5962	26.9363	53937.63
72	14.064	56.5853	26.9364	53938.82
73	14.314	56.5680	26.9359	53939.71
74	14.564	56.5588	26.9355	53939.82
75	14.814	56.5428	26.9355	53941.60
76	15.064	56.5354	26.9353	53941.94
77	15.314	56.5255	26.9339	53940.11
78	15.564	56.5060	26.9328	53939.86
79	15.814	56.5016	26.9322	53939.18
80	16.064	56.4946	26.9324	53940.25
81	16.314	56.4785	26.9321	53941.38
82	16.564	56.4769	26.9319	53941.10
83	16.814	56.4584	26.9315	53942.42

Table 16

POOR ORIGINAL

447 054

TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT -- UNIT 1
CONTAINMENT LEAKAGE MEASUREMENT
TEST SUMMARY
12 PSIA CILRT
LOWER COMPARTMENT

Sheet 3 of 3

SAMPLE	HOURS SINCE START	TEMPERATURE DEG F.	CORRECTED PRESSURE PSIA	TOTAL MASS OF AIR LBM
84	17.064	56.4477	26.9303	53941.06
85	17.314	56.4356	26.9292	53940.04
86	17.564	56.4196	26.9285	53940.35
87	17.814	56.4134	26.9283	53940.59
88	18.064	56.4032	26.9278	53940.62
89	18.314	56.3865	26.9268	53940.44
90	18.564	56.3753	26.9261	53940.22
91	18.814	56.3734	26.9261	53940.32
92	18.936	56.3680	26.9263	53941.33
93	19.186	56.3467	26.9263	53943.52
94	19.436	56.3458	26.9255	53942.02
95	19.686	56.3397	26.9246	53940.89
96	19.936	56.3129	26.9240	53942.44
97	20.186	56.3031	26.9234	53942.38
98	20.436	56.2938	26.9230	53942.55
99	20.686	56.2865	26.9225	53942.34
100	20.936	56.2756	26.9225	53943.46
101	21.186	56.2631	26.9219	53943.50
102	21.436	56.2515	26.9213	53943.59
103	21.686	56.2446	26.9209	53943.43
104	21.936	56.2293	26.9207	53944.65
105	22.186	56.2236	26.9200	53945.42
106	22.436	56.2161	26.9214	53947.32
107	22.686	56.2127	26.9219	53948.75
108	22.936	56.2146	26.9225	53949.77
109	23.186	56.1964	26.9214	53949.57
110	23.436	56.1911	26.9200	53947.30
111	23.686	56.1787	26.9186	53945.64
112	23.936	56.1646	26.9180	53946.04
113	24.186	56.1539	26.9174	53945.98
114	24.436	56.1424	26.9172	53946.62
115	24.686	56.1382	26.9166	53945.96

Table 16

POOR ORIGINAL

447 055

TENNESSEE VALLEY AUTHORITY
 SEQUOYAH NUCLEAR PLANT -- UNIT 1
 CONTAINMENT LEAKAGE MEASUREMENT
 TEST SUMMARY
 12 PSIG CILRT
 UPPER ICE COMPARTMENT

SAMPLE	HOURS SINCE START	TEMPERATURE DEG F.	CORRECTED PRESSURE PSIA	TOTAL MASS OF AIR LBM
14	0.000	22.6415	27.0005	7101.02
15	0.250	22.6824	26.9939	7100.82
16	0.500	22.6646	26.9975	7100.71
17	0.750	22.6237	26.9957	7100.83
18	1.000	22.4744	26.9947	7102.76
19	1.250	22.4492	26.9943	7103.02
20	1.500	22.4625	26.9926	7102.39
21	1.750	22.7586	26.9920	7097.86
22	2.000	22.7542	26.9908	7097.63
23	2.250	22.5445	26.9899	7100.46
24	2.500	22.4631	26.9887	7101.35
25	2.750	22.4190	26.9880	7101.82
26	3.000	22.3547	26.9874	7102.62
27	3.250	22.5395	26.9866	7099.67
28	3.500	22.5646	26.9851	7098.90
29	3.750	22.6247	26.9842	7097.80
30	4.000	22.6347	26.9833	7097.40
31	4.250	22.6090	26.9827	7097.63
32	4.500	22.3685	26.9833	7101.33
33	4.750	22.5343	26.9805	7098.15
34	5.000	22.9033	26.9799	7092.56
35	5.250	22.9947	26.9779	7090.68
36	5.500	22.7865	26.9792	7094.09
37	5.750	22.6283	26.9784	7096.22
38	6.000	22.4545	26.9780	7098.65
39	6.250	22.4950	26.9776	7097.96
40	6.500	22.5563	26.9765	7096.77
41	6.630	22.4966	26.9761	7097.52
42	6.750	22.5544	26.9755	7095.94
43	7.077	22.4995	26.9748	7097.14
44	7.314	22.7269	26.9742	7093.65
45	7.564	22.7402	26.9733	7093.23
46	7.814	22.7093	26.9721	7092.35
47	8.064	22.8427	26.9710	7091.12
48	8.314	23.0632	26.9700	7087.83

Table 17

POOR ORIGINAL

447 056

TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT -- UNIT 1
CONTAINMENT LEAKAGE MEASUREMENT
TEST SUMMARY
12 PSIG CILRT
UPPER ICE COMPARTMENT

Sheet 2 of 3

SAMPLE	HOURS SINCE START	TEMPERATURE DEG F.	CORRECTED PRESSURE PSIA	TOTAL MASS OF AIR LBM
49	8.564	22.8267	26.9692	7090.86
50	8.814	22.8133	26.9692	7091.07
51	9.064	22.7814	26.9689	7091.47
52	9.314	22.7071	26.9683	7092.39
53	9.564	22.8436	26.9679	7090.27
54	9.814	23.1668	26.9671	7085.33
55	10.064	23.2645	26.9663	7083.68
56	10.314	22.7007	26.9658	7091.72
57	10.564	22.6169	26.9664	7093.23
58	10.814	23.0113	26.9634	7086.63
59	10.924	23.2065	26.9643	7084.02
60	11.064	23.4363	26.9645	7080.68
61	11.314	23.5785	26.9635	7078.33
62	11.564	23.2632	26.9630	7082.84
63	11.814	23.0482	26.9622	7085.70
64	12.064	22.9425	26.9613	7087.09
65	12.314	23.0438	26.9607	7085.46
66	12.564	22.9909	26.9600	7086.04
67	12.814	22.7731	26.9589	7083.94
68	13.064	22.6812	26.9581	7090.08
69	13.314	22.6273	26.9579	7090.82
70	13.564	22.6852	26.9576	7089.89
71	13.814	22.6344	26.9571	7090.51
72	14.064	22.6201	26.9565	7090.57
73	14.314	22.6409	26.9560	7090.14
74	14.564	22.7254	26.9552	7088.68
75	14.814	22.9425	26.9555	7085.57
76	15.064	23.3235	26.9552	7079.90
77	15.314	23.3170	26.9537	7079.62
78	15.564	23.3107	26.9532	7079.56
79	15.814	23.2687	26.9526	7080.03
80	16.064	23.3693	26.9521	7078.41
81	16.314	23.2704	26.9519	7079.02
82	16.564	23.2583	26.9512	7079.79
83	16.814	23.6109	26.9499	7074.29

Table 17

POOR ORIGINAL

447 057

TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT -- UNIT 1
CONTAINMENT LEAKAGE MEASUREMENT
TEST SUMMARY
12 PSIG / ILRT
UPPER ICE COMPARTMENT

Sheet 3 of 3

SAMPLE	HOURS SINCE START	TEMPERATURE DEG F.	CORRECTED PRESSURE PSIA	TOTAL MASS OF AIR LBM
84	17.064	23.6917	26.9493	7072.95
85	17.314	23.5678	26.9488	7074.64
86	17.564	23.3641	26.9495	7077.82
87	17.814	23.6669	26.9488	7073.20
88	18.064	23.6488	26.9482	7073.31
89	18.314	23.1984	26.9477	7079.78
90	18.564	23.0867	26.9471	7081.24
91	18.814	23.0201	26.9469	7082.18
92	18.936	23.0468	26.9470	7081.81
93	19.186	23.1382	26.9463	7080.29
94	19.436	23.2082	26.9459	7079.14
95	19.686	23.1938	26.9450	7079.13
96	19.936	23.2578	26.9444	7078.02
97	20.186	23.2145	26.9439	7078.54
98	20.436	23.1995	26.9434	7078.61
99	20.686	23.1978	26.9433	7078.61
100	20.936	23.1877	26.9432	7078.73
101	21.186	23.2472	26.9425	7077.68
102	21.436	23.2293	26.9422	7077.86
103	21.686	23.1616	26.9418	7078.74
104	21.936	23.0819	26.9415	7079.83
105	22.186	23.1499	26.9414	7078.81
106	22.436	23.1572	26.9409	7078.57
107	22.686	23.1520	26.9401	7078.46
108	22.936	23.0202	26.9407	7068.81
109	23.186	24.1681	26.9349	7062.21
110	23.436	23.9312	26.9404	7067.11
111	23.686	23.6519	26.9388	7070.80
112	23.936	23.3745	26.9387	7074.81
113	24.186	23.4196	26.9380	7073.99
114	24.436	23.4203	26.9375	7073.82
115	24.686	23.3547	26.9374	7074.78

Table 17

POOR ORIGINAL

447 058

TENNESSEE VALLEY AUTHORITY
 SEQUOYAH NUCLEAR PLANT -- UNIT 1
 CONTAINMENT LEAKAGE MEASUREMENT
 TEST SUMMARY
 12 PSIG CLRT
 LOWER ICE COMPARTMENT

SAMPLE	HOURS SINCE START	TEMPERATURE DEG F.	CORRECTED PRESSURE PSIA	TOTAL MASS OF AIR LBM
14	0.000	14.5283	26.9799	16969.54
15	0.250	14.5426	26.9782	16967.96
16	0.500	14.5593	26.9771	16966.72
17	0.750	14.5759	26.9753	16964.98
18	1.000	14.5900	26.9733	16963.22
19	1.250	14.6083	26.9725	16962.86
20	1.500	14.6302	26.9714	16960.61
21	1.750	14.6491	26.9701	16959.08
22	2.000	14.6690	26.9691	16957.72
23	2.250	14.6851	26.9682	16956.62
24	2.500	14.6978	26.9674	16955.64
25	2.750	14.7141	26.9666	16954.59
26	3.000	14.7340	26.9665	16953.77
27	3.250	14.7506	26.9653	16952.40
28	3.500	14.7709	26.9634	16950.52
29	3.750	14.7895	26.9624	16949.25
30	4.000	14.8062	26.9609	16947.69
31	4.250	14.8183	26.9607	16947.11
32	4.500	14.8303	26.9605	16946.59
33	4.750	14.8522	26.9600	16945.88
34	5.000	14.8714	26.9592	16944.26
35	5.250	14.8828	26.9580	16943.09
36	5.500	14.8968	26.9568	16941.87
37	5.750	14.9144	26.9561	16940.78
38	6.000	14.9274	26.9556	16940.03
39	6.250	14.9411	26.9556	16939.51
40	6.500	14.9574	26.9548	16938.46
41	6.630	14.9676	26.9545	16937.87
42	6.750	14.9784	26.9537	16937.03
43	7.077	15.0055	26.9525	16935.31
44	7.314	15.0221	26.9517	16934.17
45	7.564	15.0381	26.9506	16932.91
46	7.814	15.0554	26.9498	16931.82
47	8.064	15.0727	26.9499	16931.28
48	8.314	15.0923	26.9492	16930.11

Table 18

POOR ORIGINAL

447 059

TENNESSEE VALLEY AUTHORITY
 SEQUOYAH NUCLEAR PLANT -- UNIT 1
 CONTAINMENT LEAKAGE MEASUREMENT
 TEST SUMMARY
 12 PSIG CILRT
 LOWER ICE COMPARTMENT

SAMPLE	HOURS SINCE START	TEMPERATURE DEG F.	CORRECTED PRESSURE PSIA	TOTAL MASS OF AIR LBM
49	8.564	15.1063	26.9474	16928.50
50	8.814	15.1253	26.9463	16927.14
51	9.064	15.1423	26.9458	16926.21
52	9.314	15.1507	26.9452	16925.52
53	9.564	15.1634	26.9447	16924.79
54	9.814	15.1790	26.9445	16924.08
55	10.064	15.1997	26.9436	16922.78
56	10.314	15.2192	26.9431	16921.76
57	10.564	15.2365	26.9432	16921.24
58	10.814	15.2555	26.9432	16920.54
59	10.924	15.2617	26.9430	16920.20
60	11.064	15.2731	26.9437	16920.19
61	11.314	15.2897	26.9420	16918.57
62	11.564	15.3119	26.9400	16916.49
63	11.814	15.3263	26.9388	16915.25
64	12.064	15.3417	26.9381	16914.27
65	12.314	15.3541	26.9376	16913.51
66	12.564	15.3724	26.9373	16912.64
67	12.814	15.3917	26.9357	16910.98
68	13.064	15.4132	26.9355	16910.06
69	13.314	15.4272	26.9347	16909.08
70	13.564	15.4409	26.9342	16908.26
71	13.814	15.4585	26.9340	16907.50
72	14.064	15.4725	26.9338	16906.92
73	14.314	15.4886	26.9335	16906.17
74	14.564	15.5059	26.9332	16905.33
75	14.814	15.5284	26.9330	16904.42
76	15.064	15.5484	26.9326	16903.43
77	15.314	15.5660	26.9315	16902.11
78	15.564	15.5849	26.9301	16900.60
79	15.814	15.6015	26.9295	16899.61
80	16.064	15.6202	26.9299	16899.20
81	16.314	15.6359	26.9295	16898.39
82	16.564	15.6571	26.9290	16897.33
83	16.814	15.6764	26.9284	16896.28

Table 18

POOR ORIGINAL

TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT -- UNIT 1
CONTAINMENT LEAKAGE MEASUREMENT
TEST SUMMARY
12 PSIG GILRT
LOWER ICE COMPARTMENT

Sheet 3 of 3

SAMPLE	HOURS SINCE START	TEMPERATURE DEG F.	CORRECTED PRESSURE PSIA	TOTAL MASS OF AIR LBM
84	17.064	15.6943	26.9275	16895.09
85	17.314	15.7084	26.9262	16893.75
86	17.564	15.7276	26.9256	16892.71
87	17.814	15.7456	26.9252	16891.78
88	18.064	15.7655	26.9245	16890.67
89	18.314	15.7858	26.9236	16889.36
90	18.564	15.8058	26.9229	16888.20
91	18.814	15.8227	26.9226	16887.40
92	18.936	15.8318	26.9230	16887.38
93	19.186	15.8518	26.9231	16886.72
94	19.436	15.8711	26.9223	16885.53
95	19.686	15.8867	26.9211	16884.22
96	19.936	15.9043	26.9207	16883.33
97	20.186	15.9187	26.9200	16882.39
98	20.436	15.9295	26.9195	16881.69
99	20.686	15.9481	26.9190	16880.70
100	20.936	15.9596	26.9188	16880.21
101	21.186	15.9733	26.9181	16879.28
102	21.436	15.9925	26.9179	16878.42
103	21.686	16.0127	26.9172	16877.30
104	21.936	16.0284	26.9172	16876.71
105	22.186	16.0444	26.9176	16876.46
106	22.436	16.0637	26.9180	16875.90
107	22.686	16.0849	26.9186	16875.61
108	22.936	16.1055	26.9189	16875.06
109	23.186	16.1251	26.9175	16873.52
110	23.436	16.1444	26.9160	16871.88
111	23.686	16.1669	26.9148	16870.29
112	23.936	16.1849	26.9142	16869.29
113	24.186	16.1989	26.9134	16868.29
114	24.436	16.2166	26.9132	16867.53
115	24.686	16.2322	26.9125	16866.56

POOR ORIGINAL

Table 18

447 061

TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT -- UNIT 1
CONTAINMENT LEAKAGE MEASUREMENT
TEST SUMMARY
ALL COMPARTMENTS
12 PSIG VERIFICATION

HOURS SINCE START	AIR MASS LOWER COMP. LBM	AIR MASS UPPER COMP. LBM	AIR MASS UPPER ICE LBM	AIR MASS LOWER ICE LBM	P-T-P LEAK RATE % PER HOUR	TOTAL TIME LEAK RATE % PER HOUR	MASS LEAK RATE % PER HOUR
0.000	53940.4	91175.9	7073.6	16850.9	0.00000	0.00000	0.00000
0.117	53940.8	91176.5	7073.4	16850.2	-0.00055	-0.00055	-0.00051
0.233	53939.6	91176.0	7070.3	16849.9	0.02615	0.01200	0.01274
0.350	53939.3	91175.8	7067.5	16848.9	0.02187	0.01582	0.01685
0.467	53939.4	91175.1	7067.1	16848.8	0.00570	0.01329	0.01541
0.583	53937.9	91172.2	7064.6	16848.0	0.03907	0.01844	0.01839
0.700	53938.5	91173.4	7063.5	16847.9	-0.00341	0.01400	0.01707
0.817	53936.5	91172.5	7063.4	16846.8	0.02029	0.01559	0.01681
0.933	53936.3	91169.8	7066.8	16846.4	0.00000	0.01364	0.01553
1.050	53936.1	91170.0	7067.9	16846.0	-0.00373	0.01171	0.01383
1.167	53934.5	91167.0	7069.5	16845.2	0.01970	0.01251	0.01319
1.283	53935.7	91167.9	7071.2	16844.9	-0.01752	0.00978	0.01166
1.400	53934.7	91166.5	7073.2	16844.3	0.00483	0.00937	0.01051
1.517	53934.4	91167.6	7073.5	16844.0	-0.00412	0.00833	0.00936
1.633	53934.2	91167.3	7074.3	16843.6	0.00000	0.00774	0.00838
1.750	53934.9	91170.6	7073.3	16843.6	-0.01506	0.00622	0.00722
1.867	53934.4	91169.8	7073.9	16843.0	0.00658	0.00624	0.00637
1.983	53935.0	91169.8	7072.4	16842.9	0.00506	0.00617	0.00576
2.100	53934.5	91168.6	7071.3	16842.1	0.01703	0.00682	0.00553
2.217	53933.6	91171.0	7072.6	16841.4	-0.01030	0.00592	0.00516
2.333	53932.7	91167.3	7071.9	16840.5	0.03107	0.00718	0.00519
2.450	53932.6	91165.9	7072.8	16839.9	0.00642	0.00714	0.00525
2.567	53931.6	91164.1	7072.4	16839.4	0.01902	0.00768	0.00541
2.683	53932.1	91164.9	7070.6	16838.8	0.00570	0.00760	0.00556
2.800	53931.9	91163.4	7067.6	16838.2	0.02711	0.00841	0.00580
2.917	53930.5	91163.9	7068.1	16837.5	0.00555	0.00829	0.00612
3.033	53929.6	91163.8	7068.7	16836.8	0.00499	0.00817	0.00629
3.150	53928.7	91161.3	7068.2	16836.1	0.02346	0.00873	0.00658
3.267	53929.5	91161.5	7068.5	16835.9	-0.00595	0.00821	0.00671
3.383	53928.9	91163.3	7069.5	16835.0	-0.00641	0.00770	0.00675
3.500	53929.3	91159.3	7067.9	16835.0	0.02679	0.00834	0.00689
3.617	53929.2	91162.2	7066.7	16834.6	-0.00610	0.00787	0.00693
3.733	53929.0	91161.2	7064.9	16833.8	0.01926	0.00823	0.00703
3.850	53928.9	91161.7	7064.4	16833.1	0.00373	0.00809	0.00709
3.967	53928.8	91162.2	7063.5	16832.8	0.00404	0.00797	0.00713

Table 19

POOR ORIGINAL

447 062

TENNESSEE VALLEY AUTHORITY
 SEQUOYAH NUCLEAR PLANT -- UNIT 1
 CONTAINMENT LEAKAGE MEASUREMENT
 TEST SUMMARY
 ALL COMPARTMENTS
 12 PSIG VERIFICATION

HOURS SINCE START	AIR MASS LOWER C.C., LBM	AIR MASS UPPER COMP., LBM	AIR MASS UPPER ICE LBM	AIR MASS LOWER ICE LBM	P-T-P LEAK RATE % PER HOUR	TOTAL TIME LEAK RATE % PER HOUR	MASS LEAK RATE % PER HOUR
4.083	53927.6	91159.4	7064.4	16831.8	0.02148	0.00836	0.00723
4.200	53927.4	91157.3	7064.9	16831.4	0.01108	0.00844	0.00734
4.317	53926.4	91157.7	7065.2	16830.5	0.00587	0.00837	0.00742
4.433	53924.9	91155.5	7065.0	16829.9	0.02244	0.00874	0.00755
4.550	53923.9	91155.3	7066.3	16829.3	0.00317	0.00859	0.00763
4.667	53923.9	91155.6	7065.9	16829.0	0.00214	0.00843	0.00769
4.783	53925.0	91156.8	7065.0	16828.6	-0.00563	0.00809	0.00771
4.900	53924.8	91158.0	7063.9	16828.0	0.00301	0.00797	0.00769

POOR ORIGINAL

Table 19

447 063

TENNESSEE VALLEY AUTHORITY
 SEQUOYAH NUCLEAR PLANT -- UNIT 1
 CONTAINMENT LEAKAGE MEASUREMENT
 TEST SUMMARY
 12 PSIG VERIFICATION
 UPPER COMPARTMENT

SAMPLE	HOURS SINCE START	TEMPERATURE DEG F.	CORRECTED PRESSURE PSIA	TOTAL MASS OF AIR LBM
30	0.000	58.7388	26.8994	91175.87
31	0.117	58.7309	26.8992	91176.50
32	0.233	58.7312	26.8991	91175.95
33	0.350	58.7233	26.8986	91175.80
34	0.467	58.7193	26.8982	91175.13
35	0.583	58.7183	26.8973	91172.16
36	0.700	58.7154	26.8975	91173.38
37	0.817	58.7059	26.8967	91172.54
38	0.933	58.7013	26.8957	91169.81
39	1.050	58.6958	26.8955	91170.01
40	1.167	58.6858	26.8941	91167.05
41	1.283	58.6833	26.8942	91167.88
42	1.400	58.6840	26.8938	91166.47
43	1.517	58.6754	26.8937	91167.63
44	1.633	58.6739	26.8936	91167.34
45	1.750	58.6579	26.8937	91170.59
46	1.867	58.6552	26.8933	91169.76
47	1.983	58.6514	26.8931	91169.80
48	2.100	58.6443	26.8924	91168.64
49	2.217	58.6398	26.8929	91170.97
50	2.333	58.6318	26.8914	91167.32
51	2.450	58.6306	26.8909	91165.91
52	2.567	58.6257	26.8901	91164.12
53	2.683	58.6176	26.8899	91164.85
54	2.800	58.6166	26.8894	91163.41
55	2.917	58.6103	26.8892	91163.91
56	3.033	58.6022	26.8888	91163.84
57	3.150	58.5993	26.8879	91161.34
58	3.267	58.5896	26.8875	91161.51
59	3.383	58.5769	26.8873	91163.29
60	3.500	58.5840	26.8865	91159.29
61	3.617	58.5784	26.8871	91162.19
62	3.733	58.5749	26.8866	91161.16
63	3.850	58.5682	26.8864	91161.73
64	3.967	58.5607	26.8862	91162.20

POOR ORIGINAL

Table 20

TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT -- UNIT 1
CONTAINMENT LEAKAGE MEASUREMENT
TEST SUMMARY
12 PSIG VERIFICATION
UPPER COMPARTMENT

SAMPLE	HOURS SINCE START	TEMPERATURE DEG F.	CORRECTED PRESSURE PSIA	TOTAL MASS OF AIR LBM
65	4.083	58.5544	26.8850	91159.38
66	4.200	58.5493	26.8841	91157.25
67	4.317	58.5447	26.8840	91157.66
68	4.433	58.5370	26.8830	91155.55
69	4.550	58.5295	26.8825	91155.28
70	4.667	58.5311	26.8827	91155.61
71	4.783	58.5220	26.8826	91156.78
72	4.900	58.5147	26.8825	91157.99

POOR ORIGINAL

Table 20

447 065

TENNESSEE VALLEY AUTHORITY
SEQUOIA NUCLEAR PLANT -- UNIT 1
CONTAINMENT LEAKAGE MEASUREMENT
TEST SUMMARY
12 PSIG VERIFICATION
LOWER COMPARTMENT

SAMPLE	HOURS SINCE START	TEMPERATURE DEG F.	CORRECTED PRESSURE PSIA	TOTAL MASS OF AIR LBM
30	0.000	55.9869	26.9059	53940.41
31	0.117	55.9802	26.9058	53940.82
32	0.233	55.9842	26.9054	53939.62
33	0.350	55.9743	26.9048	53939.34
34	0.467	55.9671	26.9044	53939.36
35	0.583	55.9676	26.9037	53937.86
36	0.700	55.9566	26.9034	53938.49
37	0.817	55.9536	26.9023	53936.55
38	0.933	55.9473	26.9018	53936.28
39	1.050	55.9430	26.9015	53936.14
40	1.167	55.9452	26.9008	53934.46
41	1.283	55.9324	26.9007	53935.66
42	1.400	55.9260	26.8999	53934.66
43	1.517	55.9333	26.9001	53934.36
44	1.633	55.9283	26.8998	53934.23
45	1.750	55.9195	26.8997	53934.91
46	1.867	55.9190	26.8994	53934.36
47	1.983	55.9130	26.8994	53935.02
48	2.100	55.9055	26.8988	53934.52
49	2.217	55.9093	26.8985	53933.63
50	2.333	55.8989	26.8975	53932.72
51	2.450	55.8914	26.8971	53932.57
52	2.567	55.8938	26.8967	53931.59
53	2.683	55.8804	26.8962	53932.12
54	2.800	55.8766	26.8959	53931.06
55	2.917	55.8799	26.8954	53930.47
56	3.033	55.8746	26.8947	53929.63
57	3.150	55.8681	26.8939	53928.68
58	3.267	55.8616	26.8940	53929.54
59	3.383	55.8550	26.8933	53928.93
60	3.500	55.8510	26.8933	53929.28
61	3.617	55.8495	26.8932	53929.20
62	3.733	55.8399	26.8926	53929.01
63	3.850	55.8353	26.8923	53928.89
64	3.967	55.8308	26.8920	53928.78

Table 21

447 066

POOR ORIGINAL

TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT -- UNIT 1
CONTAINMENT LEAKAGE MEASUREMENT
TEST SUMMARY
12 PSIG VERIFICATION
LOWER COMPARTMENT

SAMPLE	HOURS SINCE START	TEMPERATURE DEG F.	CORRECTED PRESSURE PSIA	TOTAL MASS OF AIR LBM
65	4.083	55.8211	26.8909	53927.63
66	4.200	55.8148	26.8905	53927.42
67	4.317	55.8103	26.8897	53926.39
68	4.433	55.8147	26.8892	53924.95
69	4.550	55.8204	26.8890	53923.86
70	4.667	55.8167	26.8888	53923.86
71	4.783	55.7999	26.8885	53925.02
72	4.900	55.7968	26.8883	53924.85

POOR ORIGINAL

TENNESSEE VALLEY AUTHORITY
 SEQUOYAH NUCLEAR PLANT -- UNIT 1
 CONTAINMENT LEAKAGE MEASUREMENT
 TEST SUMMARY
 12 PSIG VERIFICATION
 UPPER ICE COMPARTMENT

SAMPLE	HOURS SINCE START	TEMPERATURE DEG F.	CORRECTED PRESSURE PSIA	TOTAL MASS OF AIR LBM
30	0.000	23.2362	26.9265	7073.64
31	0.117	23.2459	26.9262	7073.41
32	0.233	23.4245	26.9243	7070.30
33	0.350	23.5766	26.9219	7067.46
34	0.467	23.6445	26.9243	7067.08
35	0.583	23.7883	26.9228	7064.60
36	0.700	23.8596	26.9226	7063.50
37	0.817	23.8514	26.9217	7063.38
38	0.933	23.6461	26.9233	7066.79
39	1.050	23.5688	26.9231	7067.87
40	1.167	23.4548	26.9228	7069.46
41	1.283	23.3351	26.9226	7071.17
42	1.400	23.1782	26.9216	7073.20
43	1.517	23.1506	26.9212	7073.50
44	1.633	23.0945	26.9212	7074.32
45	1.750	23.1524	26.9207	7073.34
46	1.867	23.1108	26.9207	7073.94
47	1.983	23.2104	26.9204	7072.41
48	2.100	23.2630	26.9192	7071.34
49	2.217	23.1779	26.9193	7072.60
50	2.333	23.2057	26.9182	7071.90
51	2.450	23.1417	26.9182	7072.85
52	2.567	23.1697	26.9180	7072.38
53	2.683	23.2699	26.9168	7070.61
54	2.800	23.4731	26.9165	7067.55
55	2.917	23.4434	26.9168	7068.06
56	3.033	23.3864	26.9159	7068.67
57	3.150	23.4047	26.9152	7068.20
58	3.267	23.3777	26.9149	7068.51
59	3.383	23.3027	26.9145	7069.51
60	3.500	23.4042	26.9142	7067.94
61	3.617	23.4840	26.9138	7066.68
62	3.733	23.5932	26.9133	7064.94
63	3.850	23.6197	26.9128	7064.43
64	3.967	23.6769	26.9125	7063.52

Table 22

447 068
POOR ORIGINAL

TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT -- UNIT 1
CONTAINMENT LEAKAGE MEASUREMENT
TEST SUMMARY
12 PSIG VERIFICATION
UPPER ICE COMPARTMENT

SAMPLE	HOURS SINCE START	TEMPERATURE DEG F.	CORRECTED PRESSURE PSIA	TOTAL MASS OF AIR LBM
65	4.083	23.5845	26.9105	7064.35
66	4.200	23.5617	26.9112	7064.86
67	4.317	23.5204	26.9101	7065.17
68	4.433	23.5414	26.9106	7064.99
69	4.550	23.4483	26.9103	7066.28
70	4.667	23.4671	26.9098	7065.87
71	4.783	23.5171	26.9093	7065.01
72	4.900	23.5847	26.9089	7063.92

POOR ORIGINAL

TENNESSEE VALLEY AUTHORITY
 SEQUOYAH NUCLEAR PLANT -- UNIT 1
 CONTAINMENT LEAKAGE MEASUREMENT
 TEST SUMMARY
 12 PSIG VERIFICATION
 LOWER ICE COMPARTMENT

SAMPLE	HOURS SINCE START	TEMPERATURE DEG F.	CORRECTED PRESSURE PSIA	TOTAL MASS OF AIR LBM
30	0.000	16.4768	26.9013	16850.89
31	0.117	16.4837	26.9006	16850.19
32	0.233	16.4909	26.9005	16849.88
33	0.350	16.4997	26.8993	16848.85
34	0.467	16.5035	26.8994	16848.76
35	0.583	16.5130	26.8987	16847.99
36	0.700	16.5188	26.8990	16847.94
37	0.817	16.5283	26.8977	16846.83
38	0.933	16.5355	26.8975	16846.40
39	1.050	16.5417	26.8972	16846.00
40	1.167	16.5459	26.8961	16845.16
41	1.283	16.5521	26.8960	16844.88
42	1.400	16.5612	26.8956	16844.31
43	1.517	16.5694	26.8955	16843.96
44	1.633	16.5727	26.8950	16843.55
45	1.750	16.5802	26.8954	16843.56
46	1.867	16.5864	26.8950	16843.04
47	1.983	16.5926	26.8950	16842.87
48	2.100	16.6004	26.8943	16842.10
49	2.217	16.6109	26.8938	16841.42
50	2.333	16.6217	26.8929	16840.53
51	2.450	16.6295	26.8924	16839.91
52	2.567	16.6400	26.8922	16839.41
53	2.683	16.6485	26.8917	16838.78
54	2.800	16.6573	26.8912	16838.18
55	2.917	16.6697	26.8908	16837.48
56	3.033	16.6766	26.8901	16836.79
57	3.150	16.6854	26.8895	16836.10
58	3.267	16.6932	26.8896	16835.92
59	3.383	16.7011	26.8886	16835.01
60	3.500	16.7093	26.8890	16834.96
61	3.617	16.7168	26.8889	16834.61
62	3.733	16.7263	26.8880	16833.76
63	3.850	16.7345	26.8874	16833.10
64	3.967	16.7429	26.8875	16832.82

Table 23

POOR ORIGINAL
 447 070

TENNESSEE VALLEY AUTHORITY
 SEQUOYAH NUCLEAR PLANT -- UNIT 1
 CONTAINMENT LEAKAGE MEASUREMENT
 TEST SUMMARY
 12 PSIG VERIFICATION
 LOWER ICE COMPARTMENT

SAMPLE	HOURS SINCE START	TEMPERATURE DEG F.	CORRECTED PRESSURE PSIA	TOTAL MASS OF AIR LBM
65	4.083	16.7481	26.8861	16831.75
66	4.200	16.7553	26.8859	16831.38
67	4.317	16.7642	26.8850	16830.55
68	4.433	16.7733	26.8845	16829.86
69	4.550	16.7831	26.8841	16829.30
70	4.667	16.7929	26.8841	16828.96
71	4.783	16.7972	26.8838	16828.59
72	4.900	16.8040	26.8833	16828.04

POOR ORIGINAL

TABLE 24
CONTAINMENT LEAKAGE MEASUREMENT
COMPARISON OF TEST DURATION AND AGREEMENT WITH SUPPLEMENTAL TEST

Reduced-pressure test:

<u>CILRT Duration (Hrs)</u>	<u>Agreement 1*</u>	<u>Agreement 2**</u>
27.379	0.9559	0.1140

Full-pressure test:

<u>CILRT Duration (Hrs)</u>	<u>Agreement 1*</u>	<u>Agreement 2**</u>
6	-0.0966	-0.1308
8	-0.0639	-0.0866
10	-0.0937	-0.1269
12	-0.0822	-0.1113
24	-0.0668	-0.0905

*Using calculation procedure in Appendix J to 10CFR50

**Using calculation procedure in ANSI N45.4, 1972

TABLE 25
CONTAINMENT LEAKAGE MEASUREMENT
CILRT RESULTS AS A FUNCTION OF TEST DURATION

<u>CILRT Duration</u> <u>(Hours)</u>	<u>Number of</u> <u>Samples</u>	<u>PTP Leak*</u> <u>Rate</u> <u>% Per Hour</u>	<u>UCL PTP*</u> <u>Leak Rate</u> <u>% Per Hour</u>	<u>Mass Leak</u> <u>Rate</u> <u>% Per Hour</u>	<u>UCL Mass</u> <u>Leak Rate</u> <u>% Per Hour</u>
6	25	0.00456	0.00470	0.00193	0.00238
8	34	0.00323	0.00336	0.00159	0.00188
10	42	0.00254	0.00265	0.00190	0.00211
12	51	0.00296	0.00307	0.00178	0.00193
24	100	0.00248	0.00258	0.00162	0.00168

*As defined in ANS-274 (draft)

447 073

FIGURES

TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT
FULL PRESSURE METAL TEMPERATURE PLOT

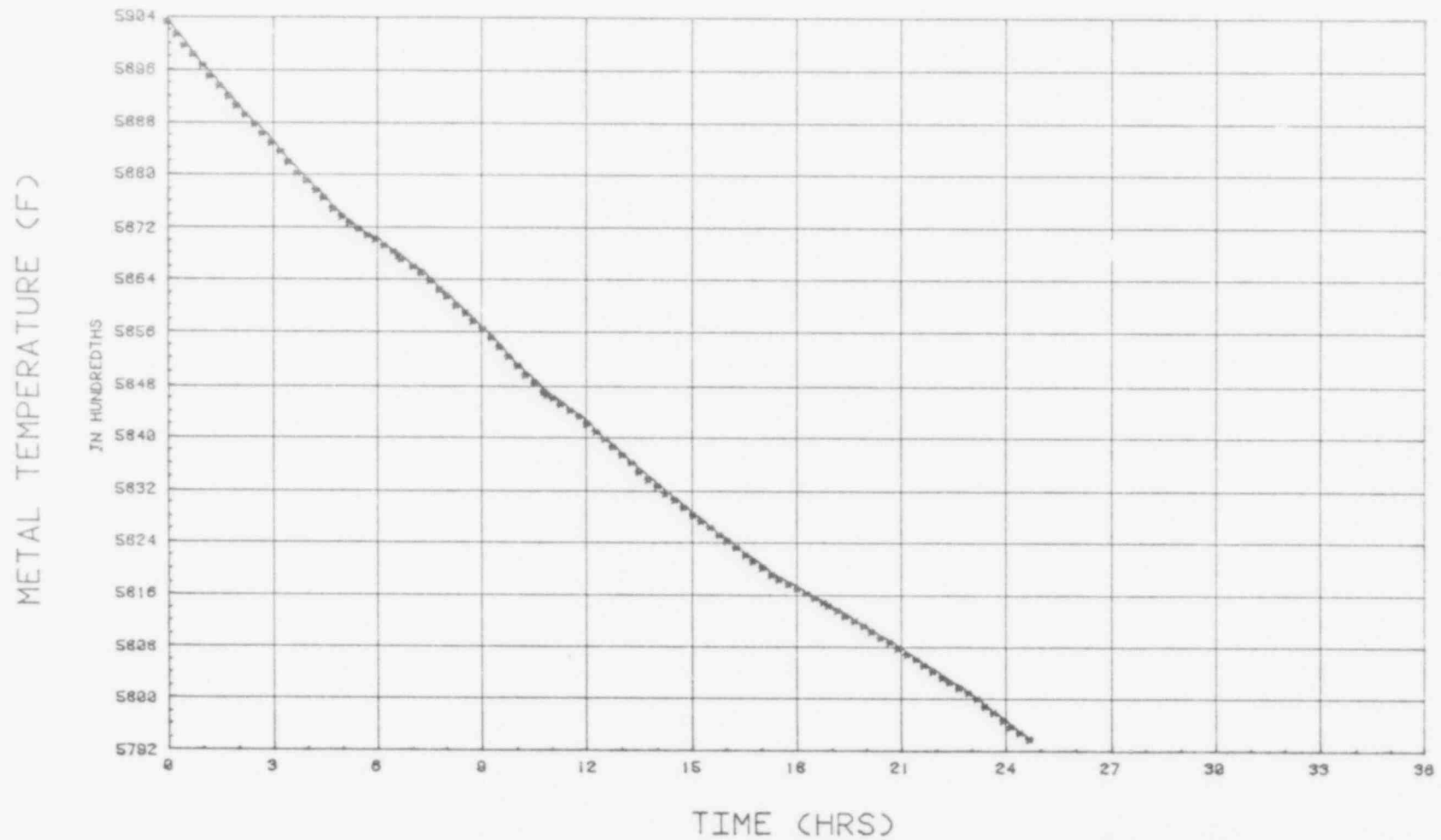


Figure 1

447 075

CILRT TIMETABLE

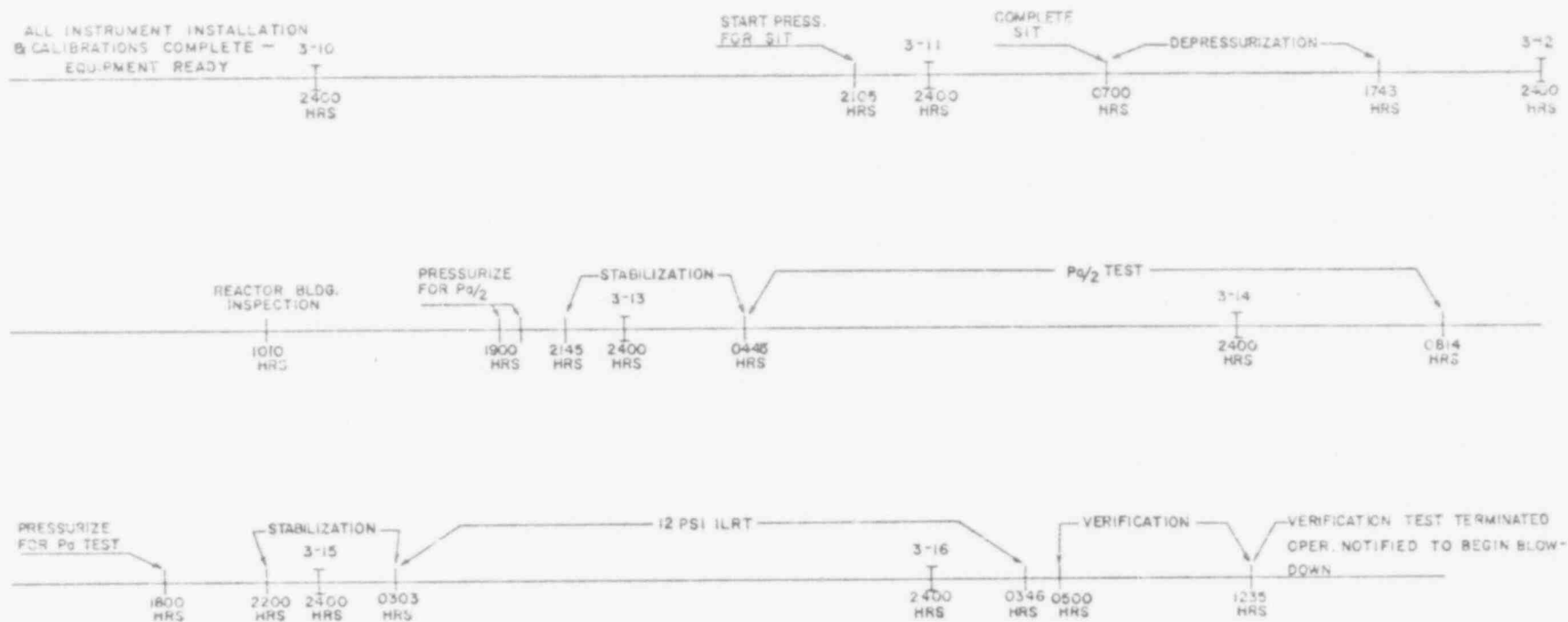


Figure 2

POOR ORIGINAL

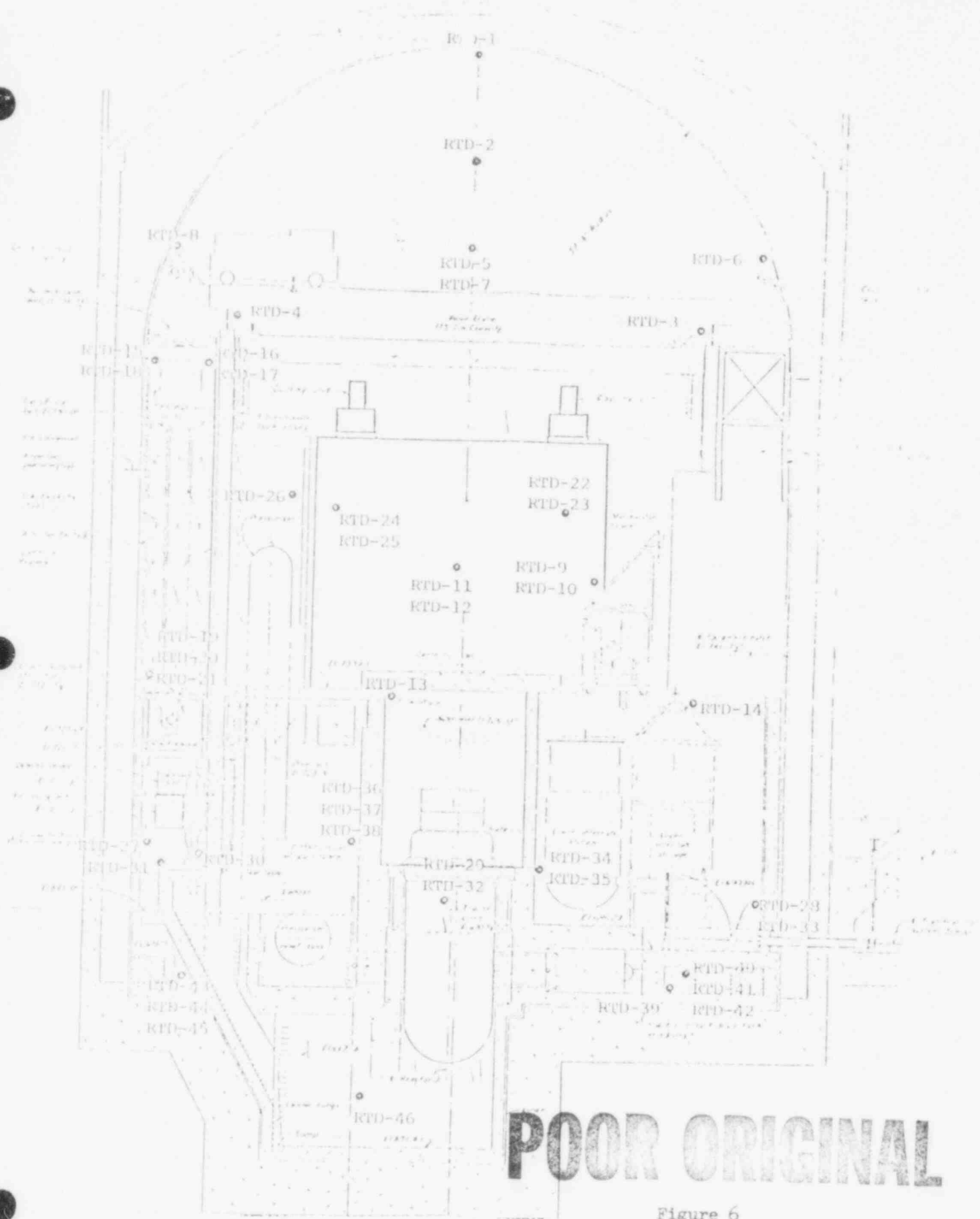
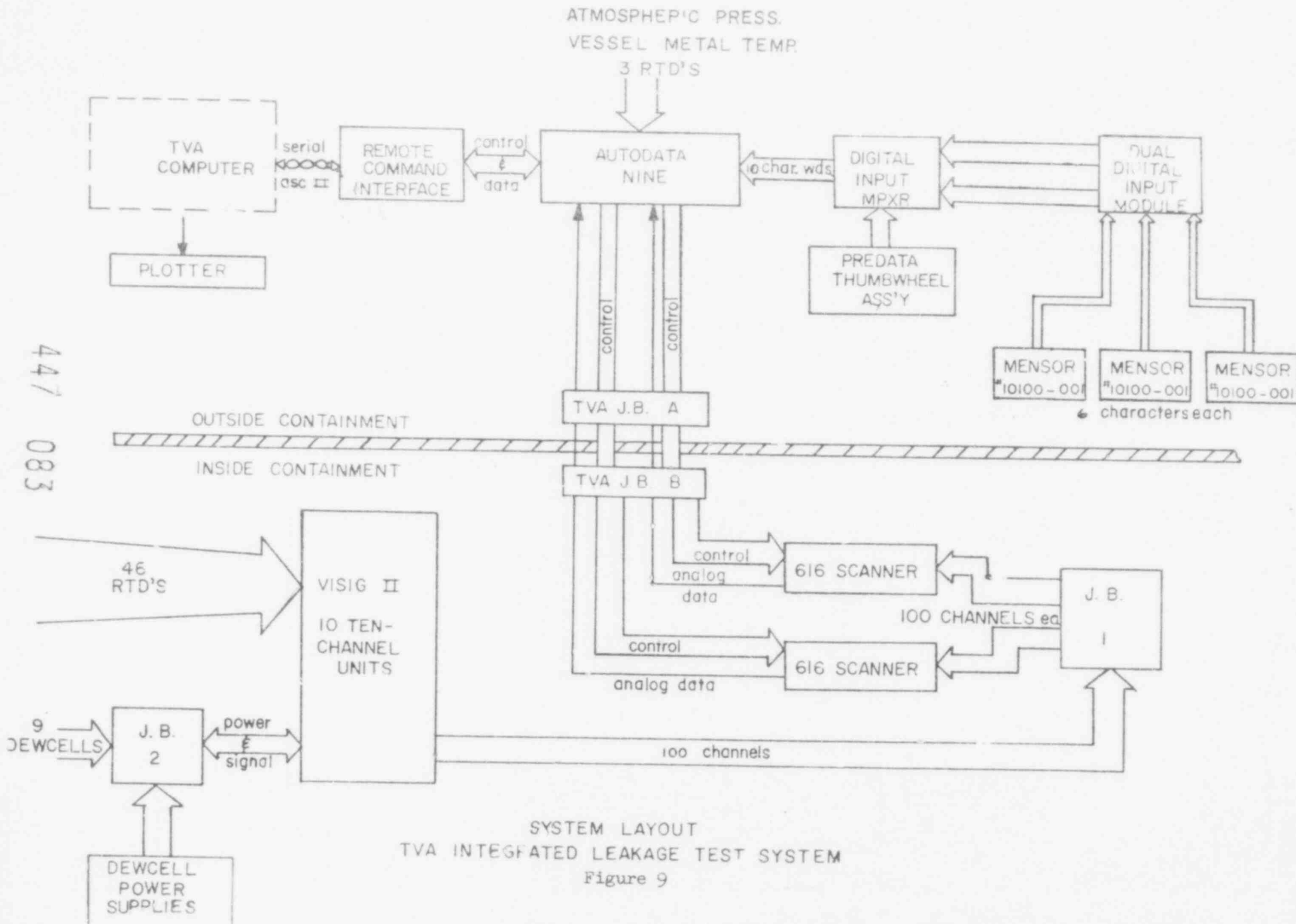
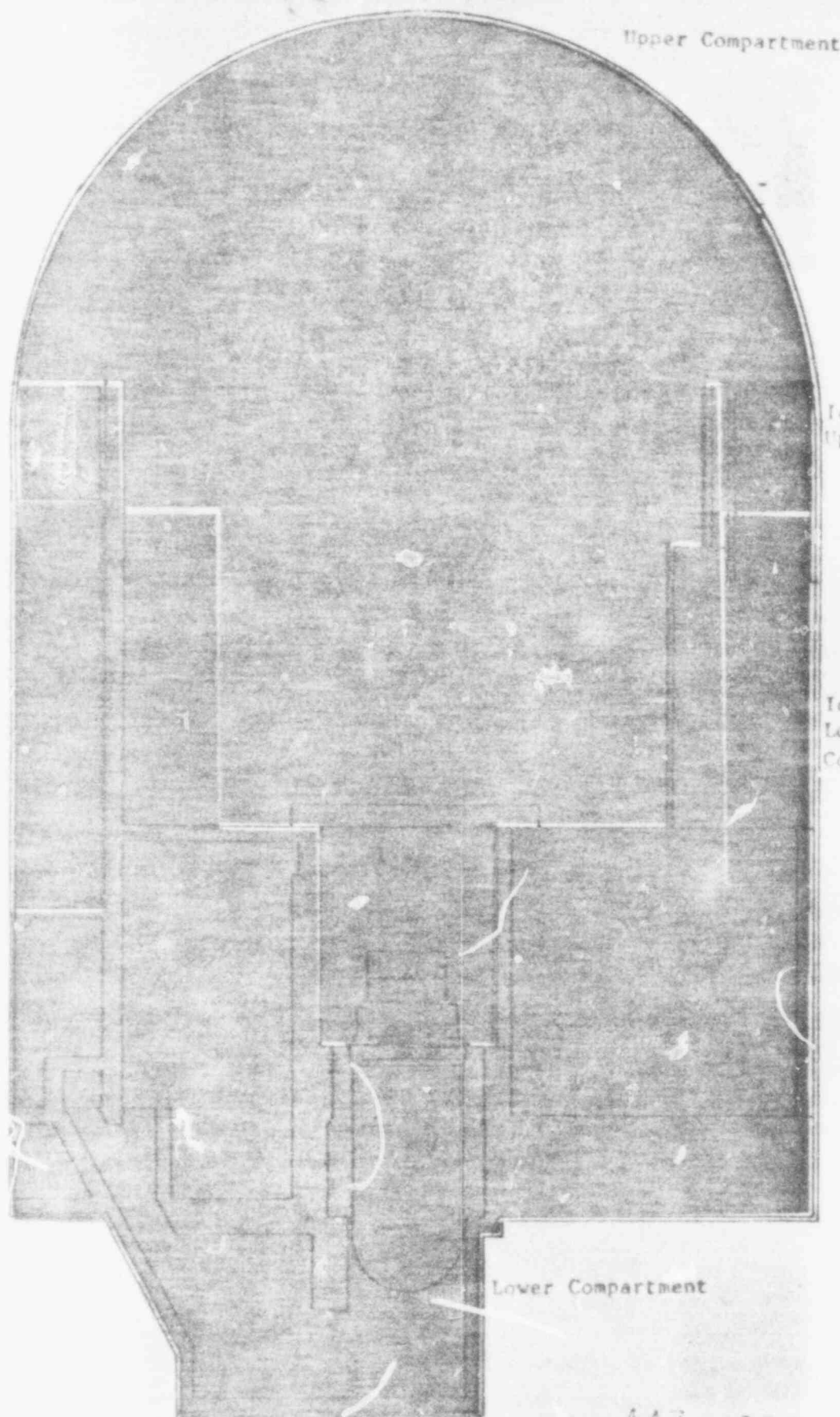


Figure 6



SYSTEM LAYOUT
TVA INTEGRATED LEAKAGE TEST SYSTEM
Figure 9

447
083



Upper Compartment

Ice Condenser
Upper Compartment

Ice Condenser
Lower
Compartment

Lower Compartment

447 084

Figure 10

POOR ORIGINAL

TENNESSEE VALLEY AUTHORITY
 SEQUOYAH NUCLEAR PLANT
 FULL PRESSURE LEAK RATE PLOT
 MASS CALCULATION

580 085 447 % OF AIR MASS PER HOUR

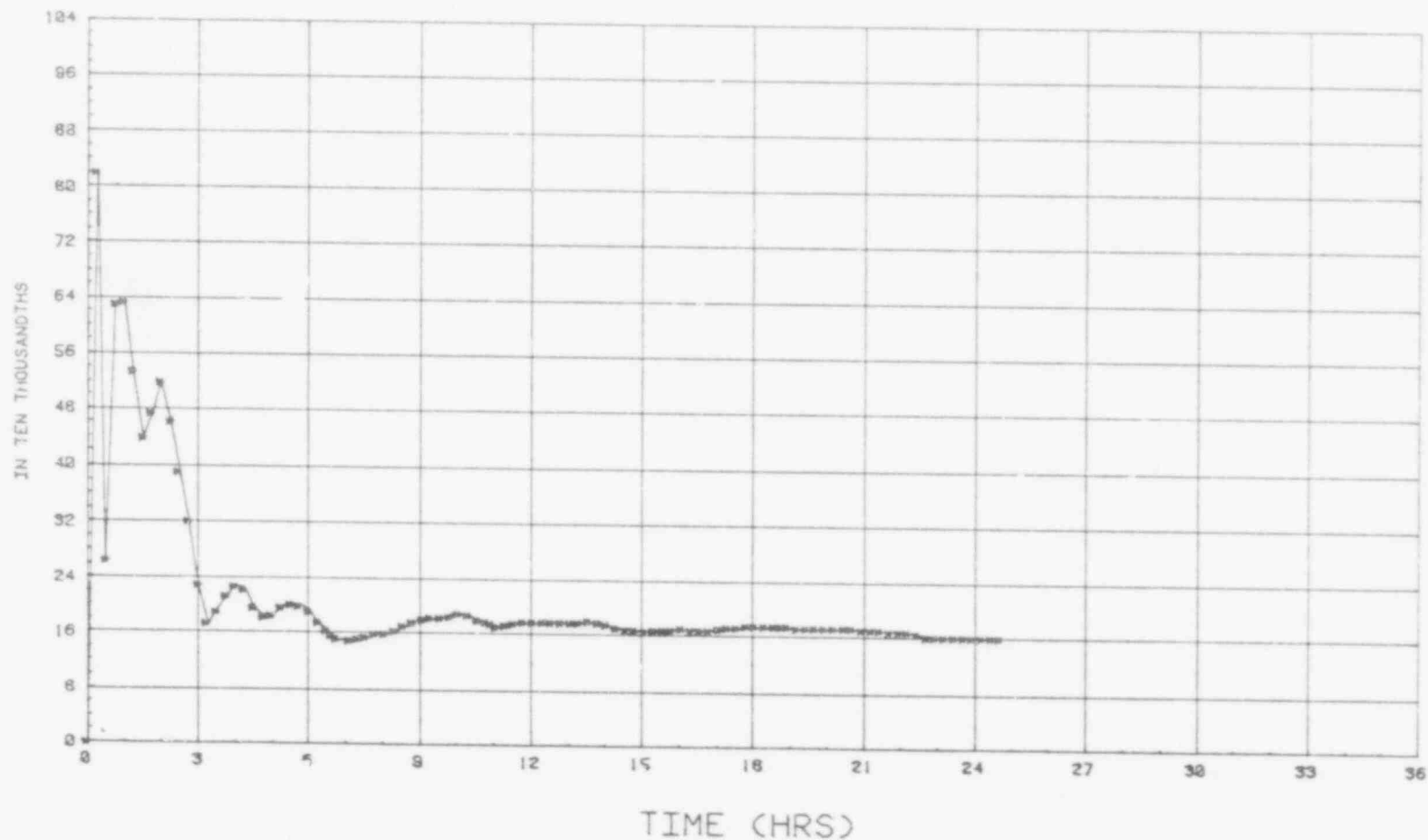


Figure 11

TENNESSEE VALLEY AUTHORITY
 SEQUOYAH NUCLEAR PLANT
 FULL PRESSURE MASS PLOT

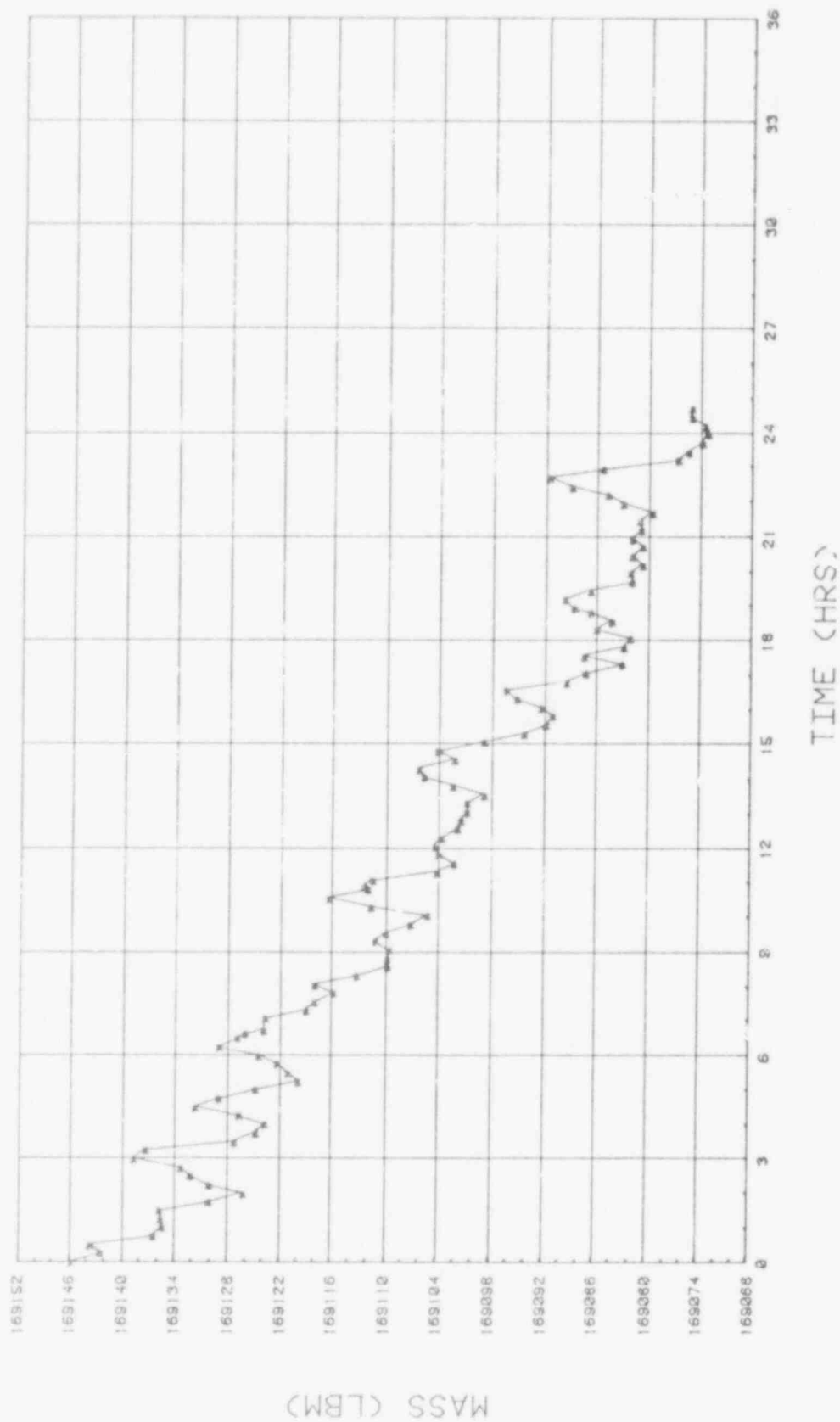


Figure 12

TENNESSEE VALLEY AUTHORITY
 SEQUOYAH NUCLEAR PLANT
 FULL PRESSURE LEAK RATE PLOT
 POINT-TO-POINT CALCULATION

% OF AIR MASS PER HOUR

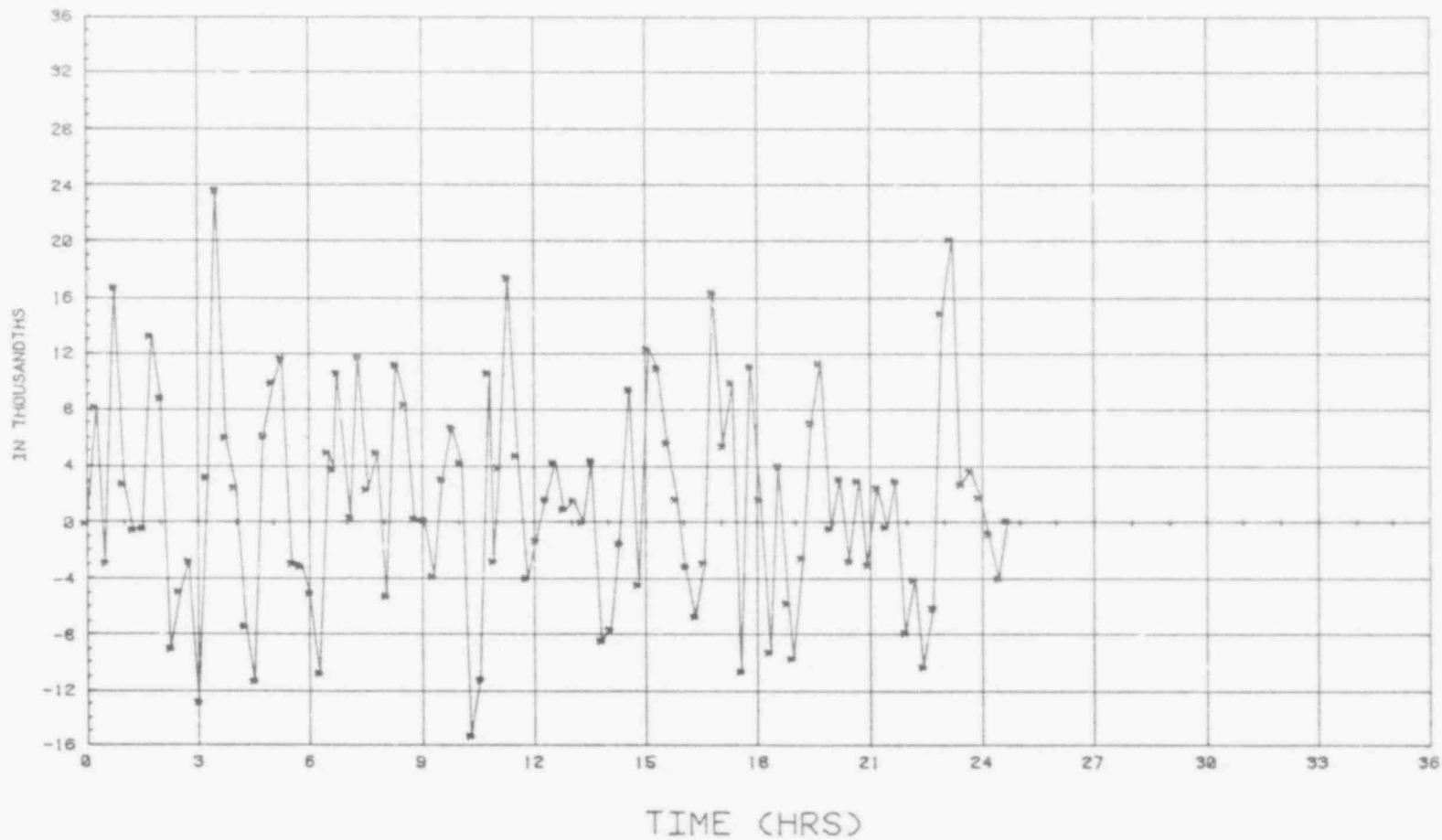


Figure 13

447 087

TENNESSEE VALLEY AUTHORITY
 SEQUOYAH NUCLEAR PLANT
 FULL PRESSURE LEAK RATE PLOT
 TOTAL TIME CALCULATION

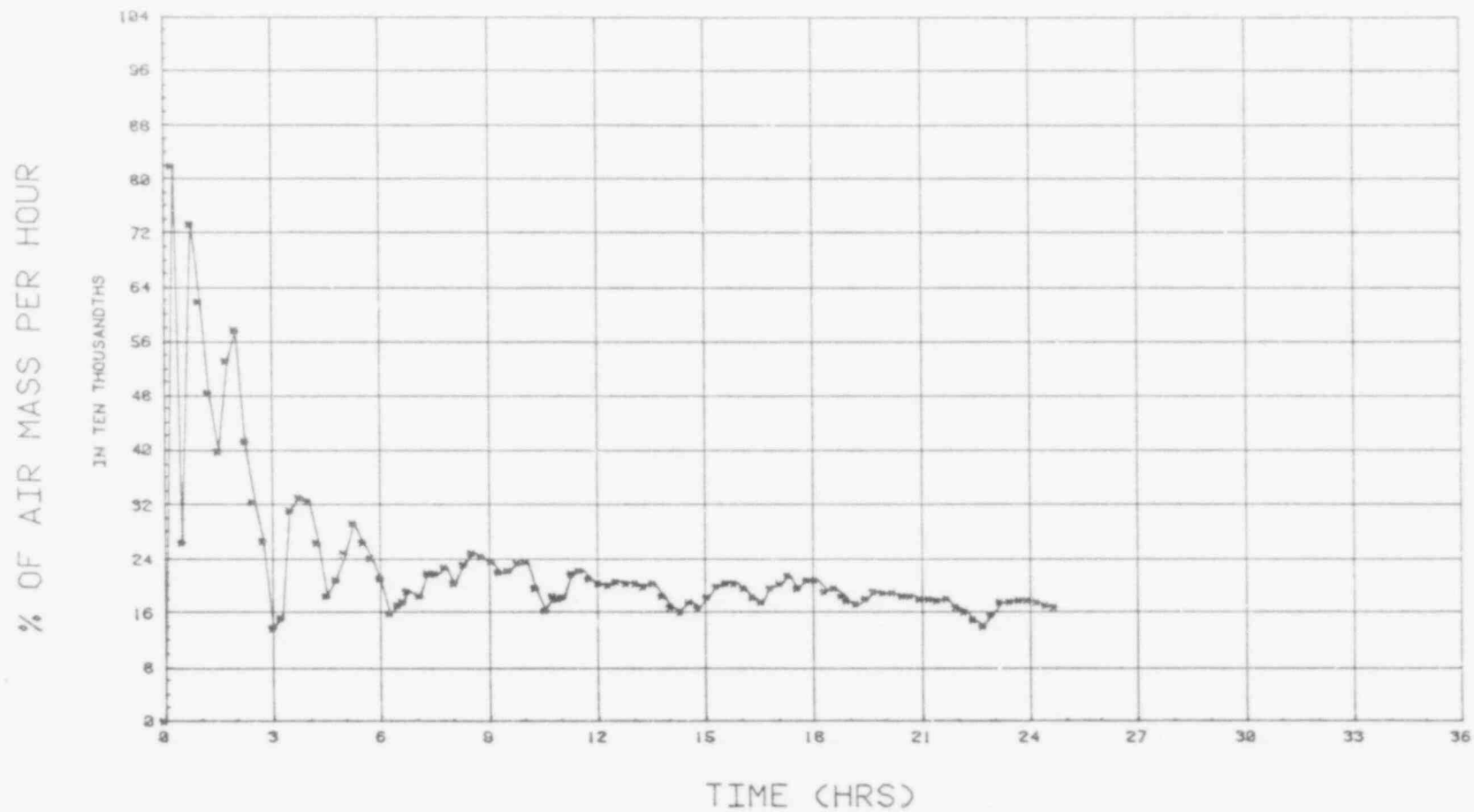
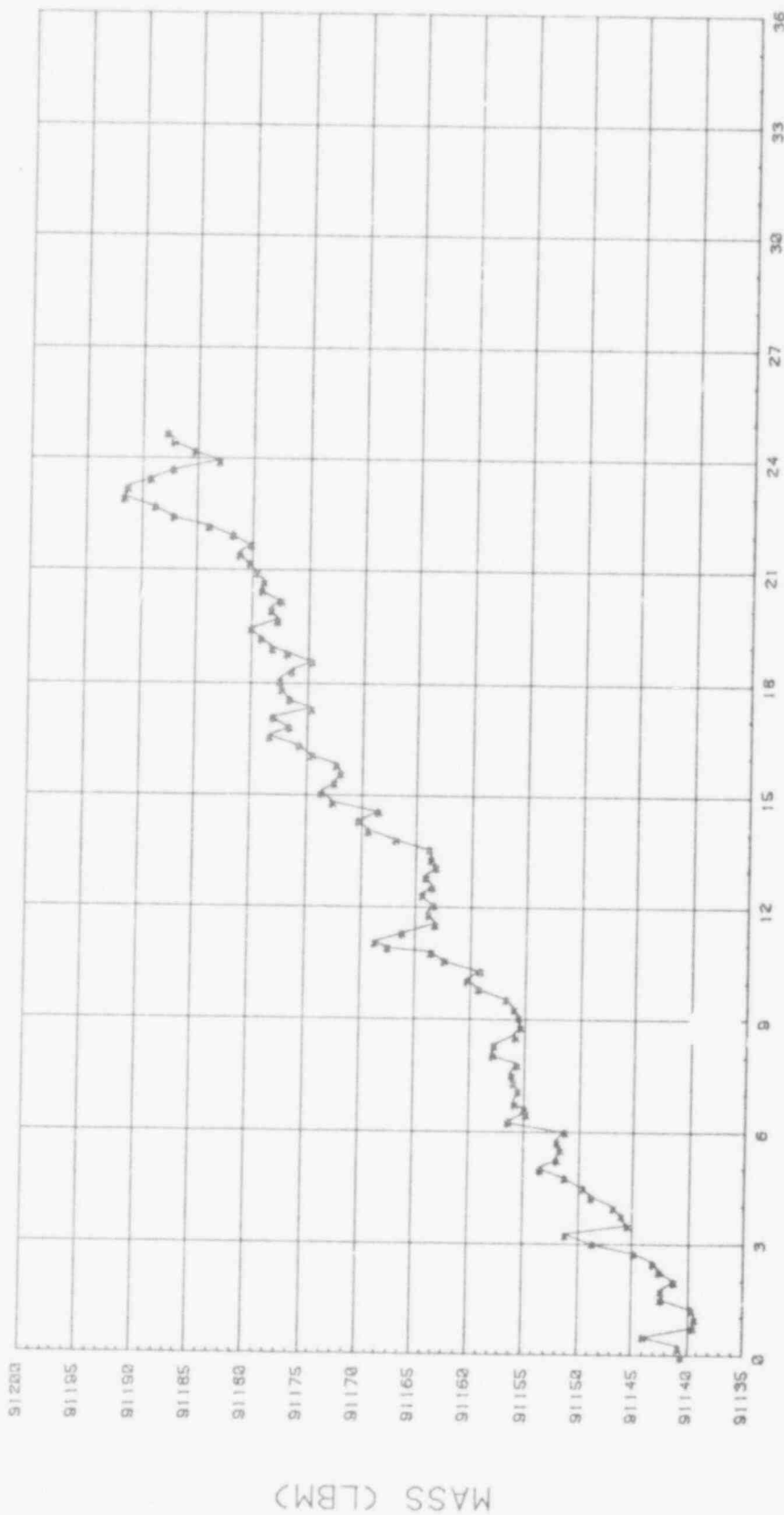


Figure 14

TENNESSEE VALLEY AUTHORITY
 SEQUOYAH NUCLEAR PLANT
 FULL PRESSURE MASS PLOT
 UPPER COMPARTMENT



TIME (HRS)

Figure 15

TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT
FULL PRESSURE VAPOR PRESSURE PLOT
UPPER COMPARTMENT

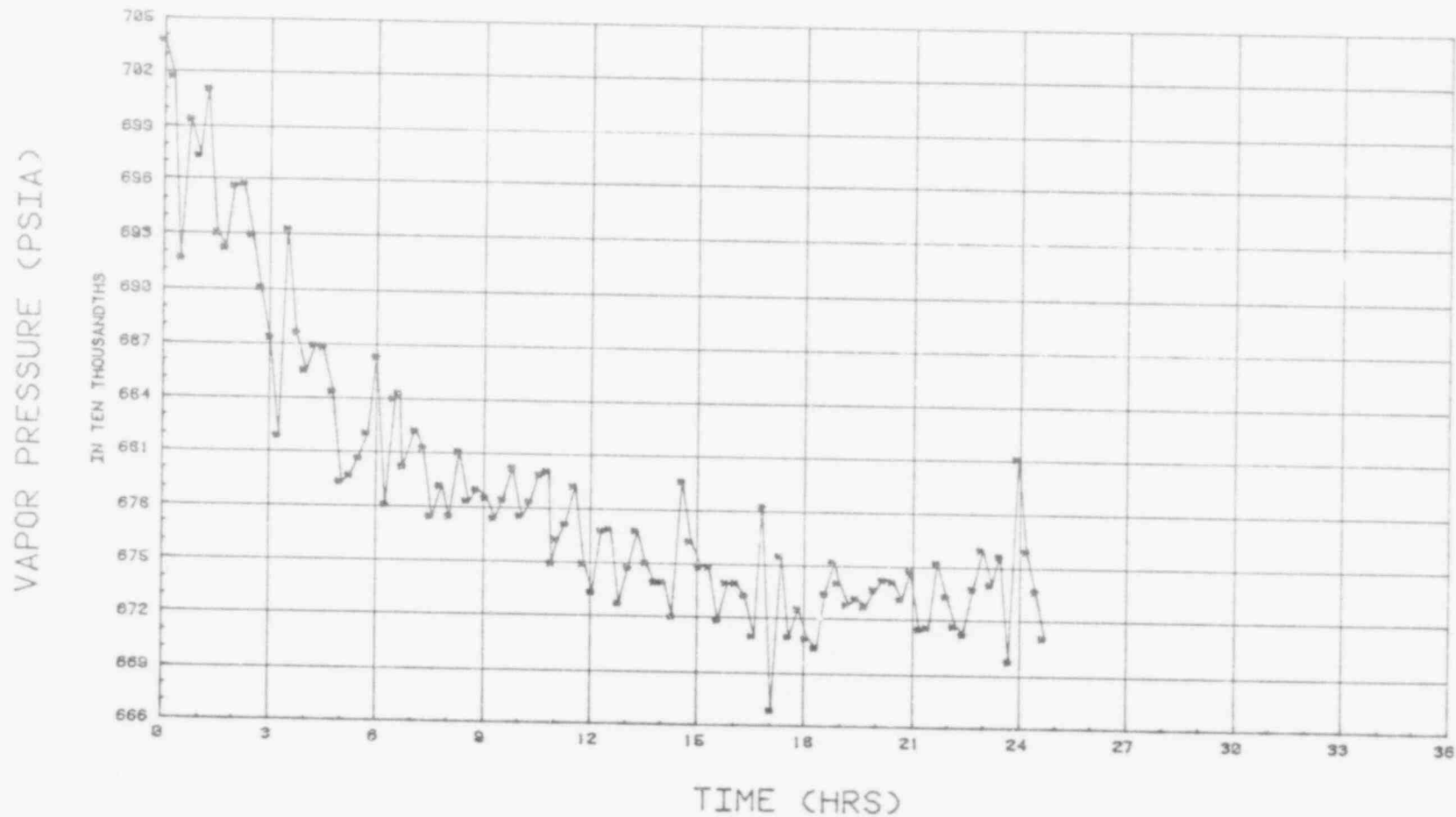


Figure 16

447 090

TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT
FULL PRESSURE MASS AND VAPOR PRESSURE VS. TIME PLOT
UPPER COMPARTMENT

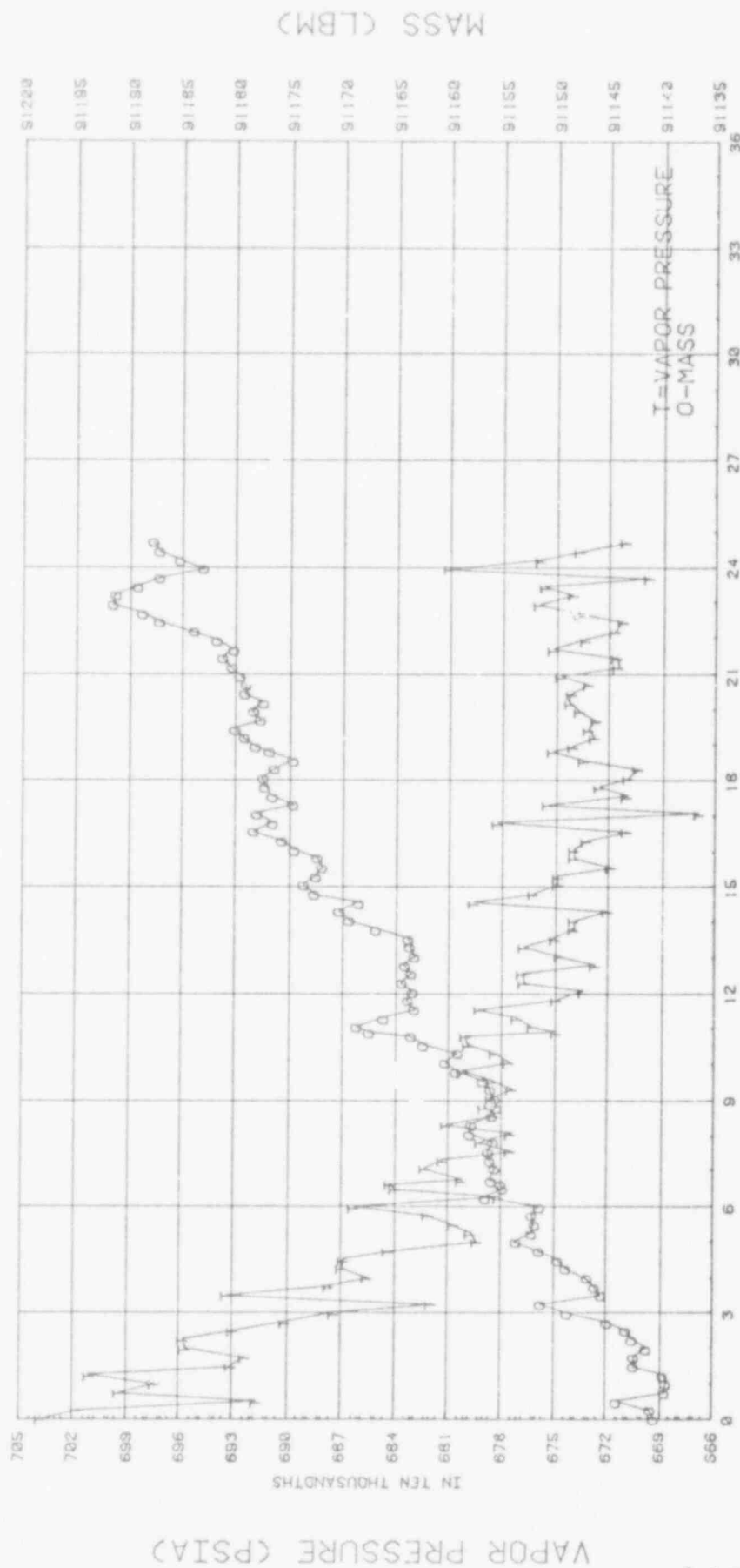


Figure 17

TENNESSEE VALLEY AUTHORITY
 SEQUOYAH NUCLEAR PLANT
 FULL PRESSURE MASS PLOT
 LOWER COMPARTMENT

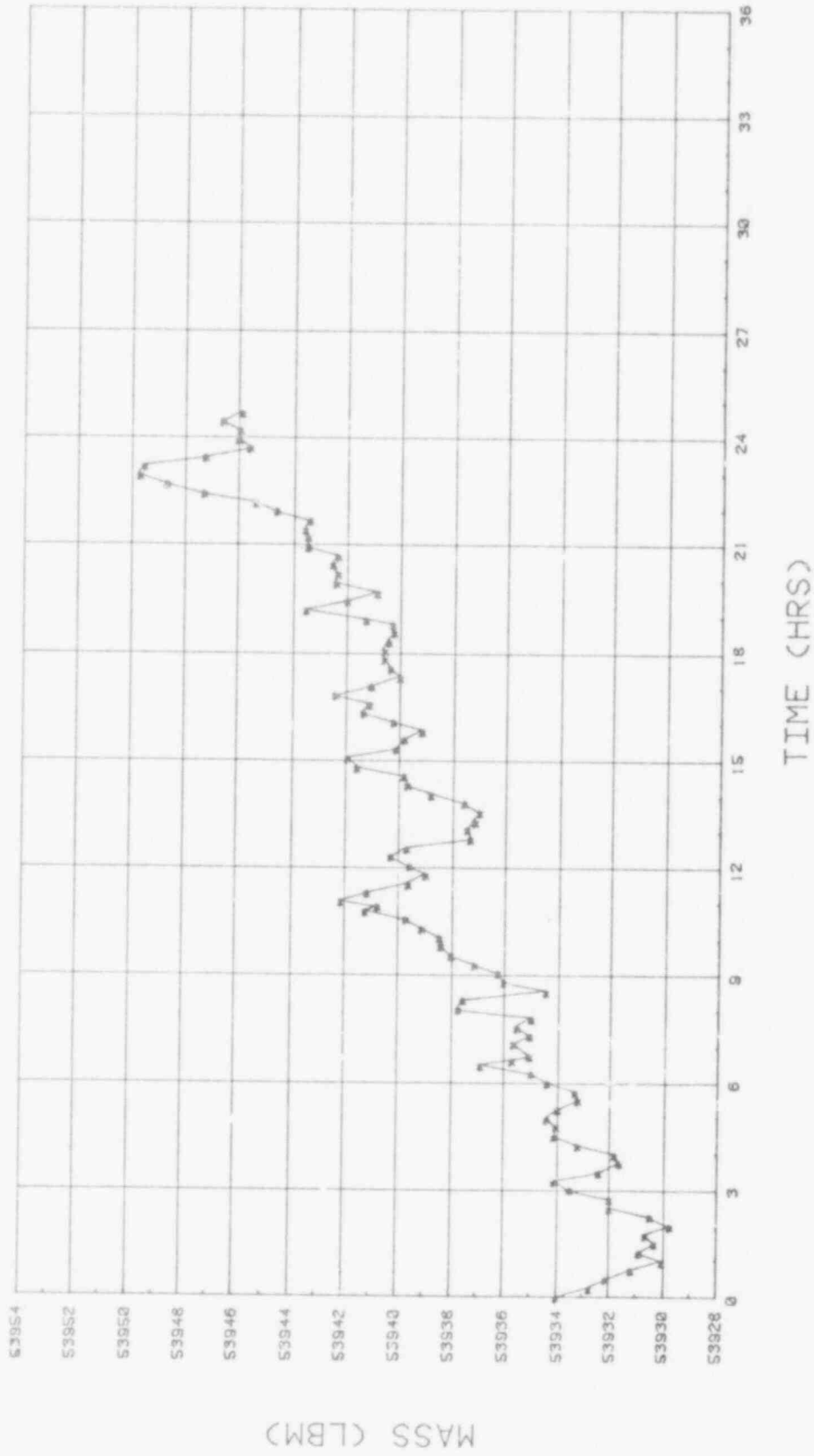
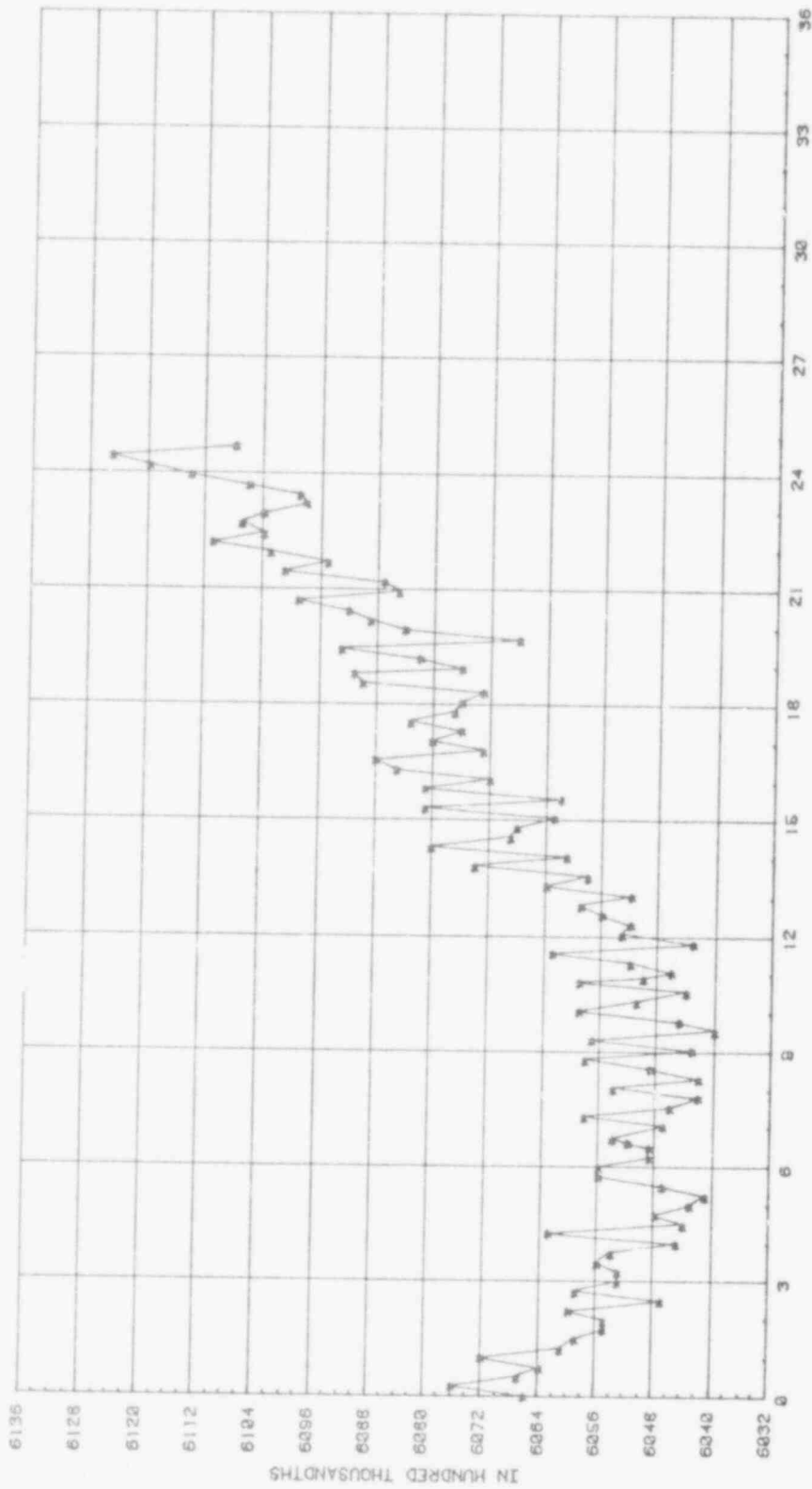


Figure 18

VAPOR PRESSURE (PSIA)

447 098

TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT
FULL PRESSURE VAPOR PRESSURE PLOT
LOWER COMPARTMENT



TIME (HRS)

Figure 19

TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT
FULL PRESSURE MASS PLOT
UPPER ICE COMPARTMENT

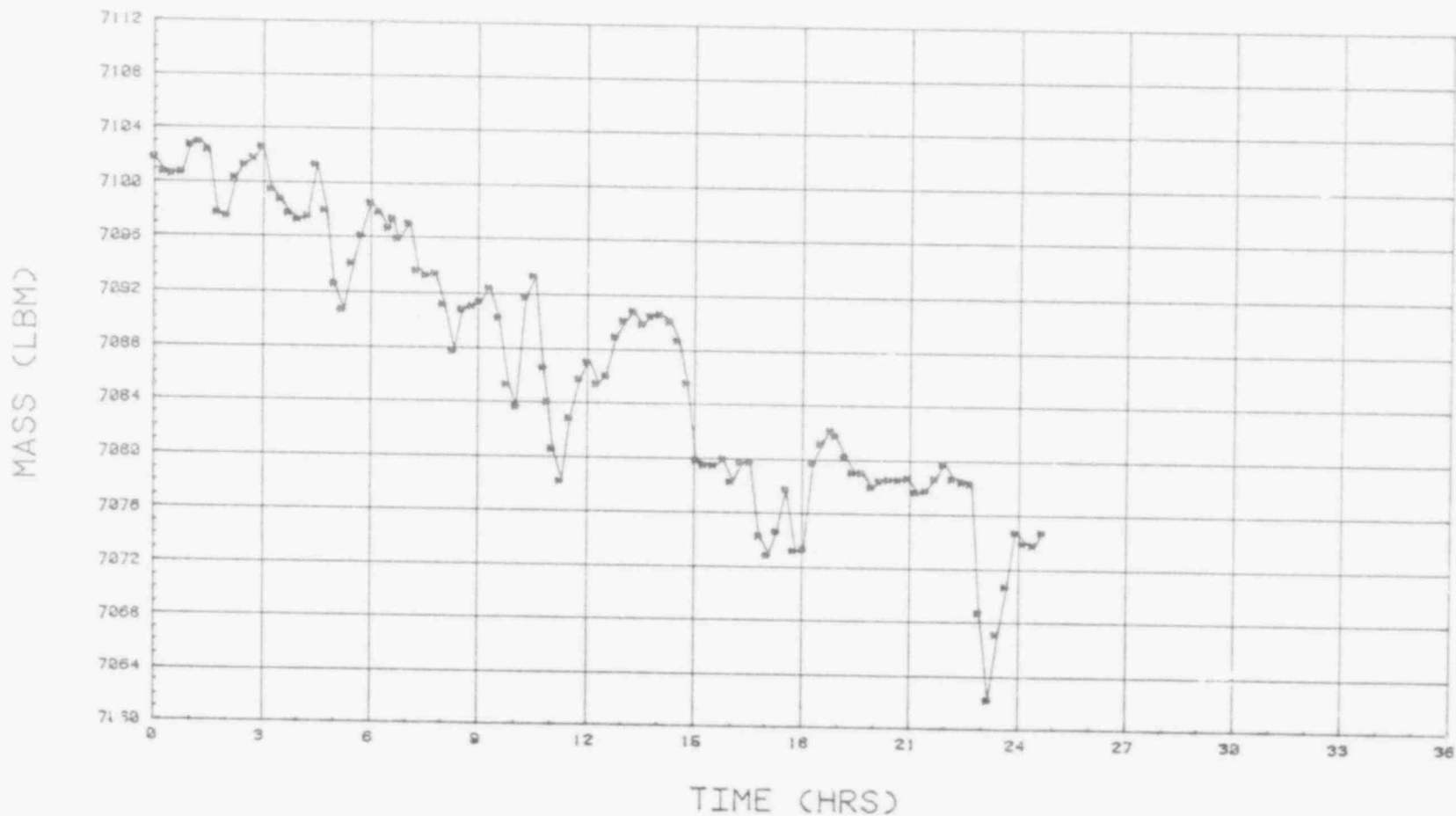


Figure 20

447

094

TENNESSEE VALLEY AUTHORITY
 SEQUOYAH NUCLEAR PLANT
 FULL PRESSURE VAPOR PRESSURE PLOT
 UPPER ICE COMPARTMENT

VAPOR PRESSURE (PSIA)

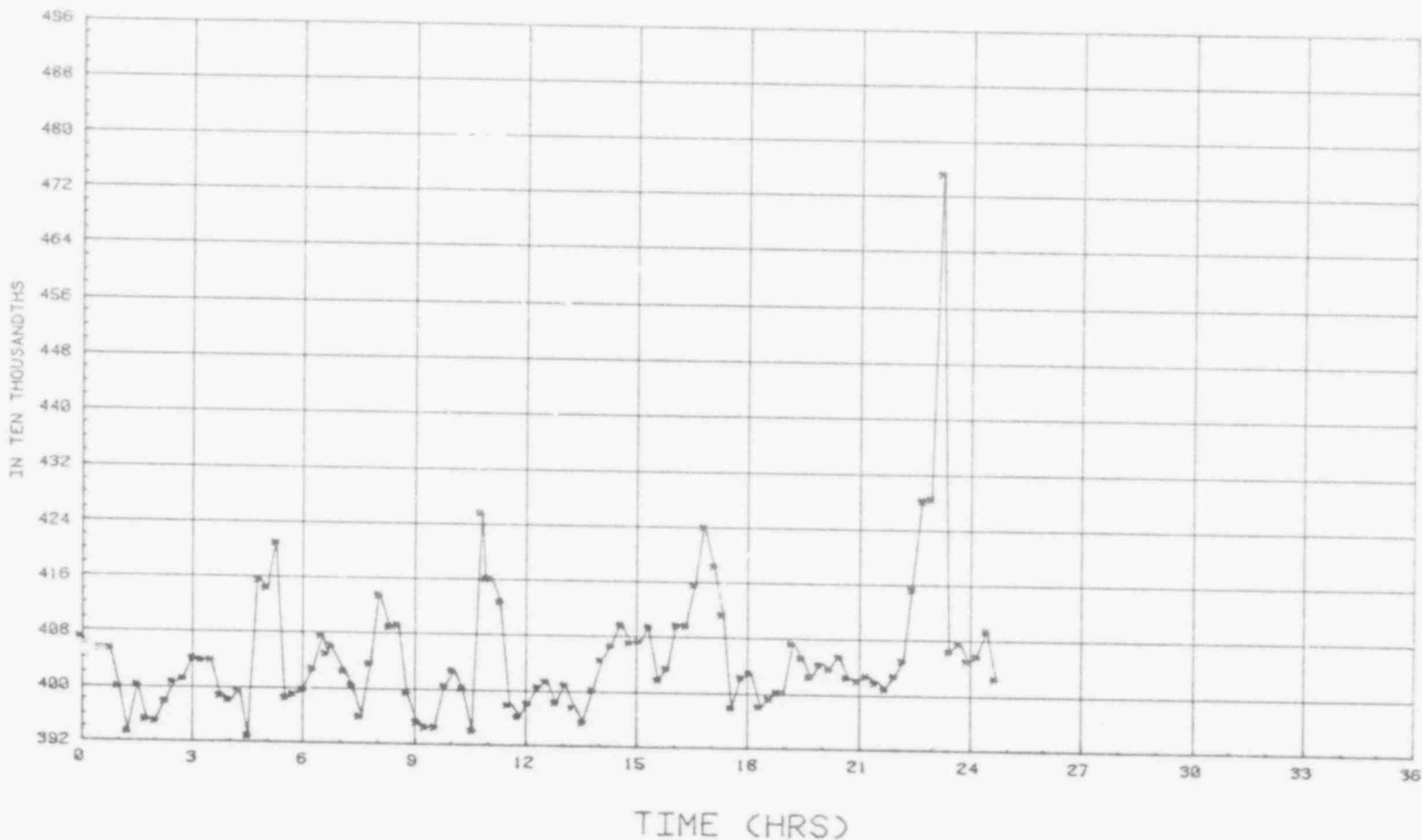


Figure 21

447 095

TENNESSEE VALLEY AUTHORITY
 SEQUOYAH NUCLEAR PLANT
 FULL PRESSURE MASS AND VAPOR PRESSURE VS. TIME PLOT
 UPPER ICE COMPARTMENT

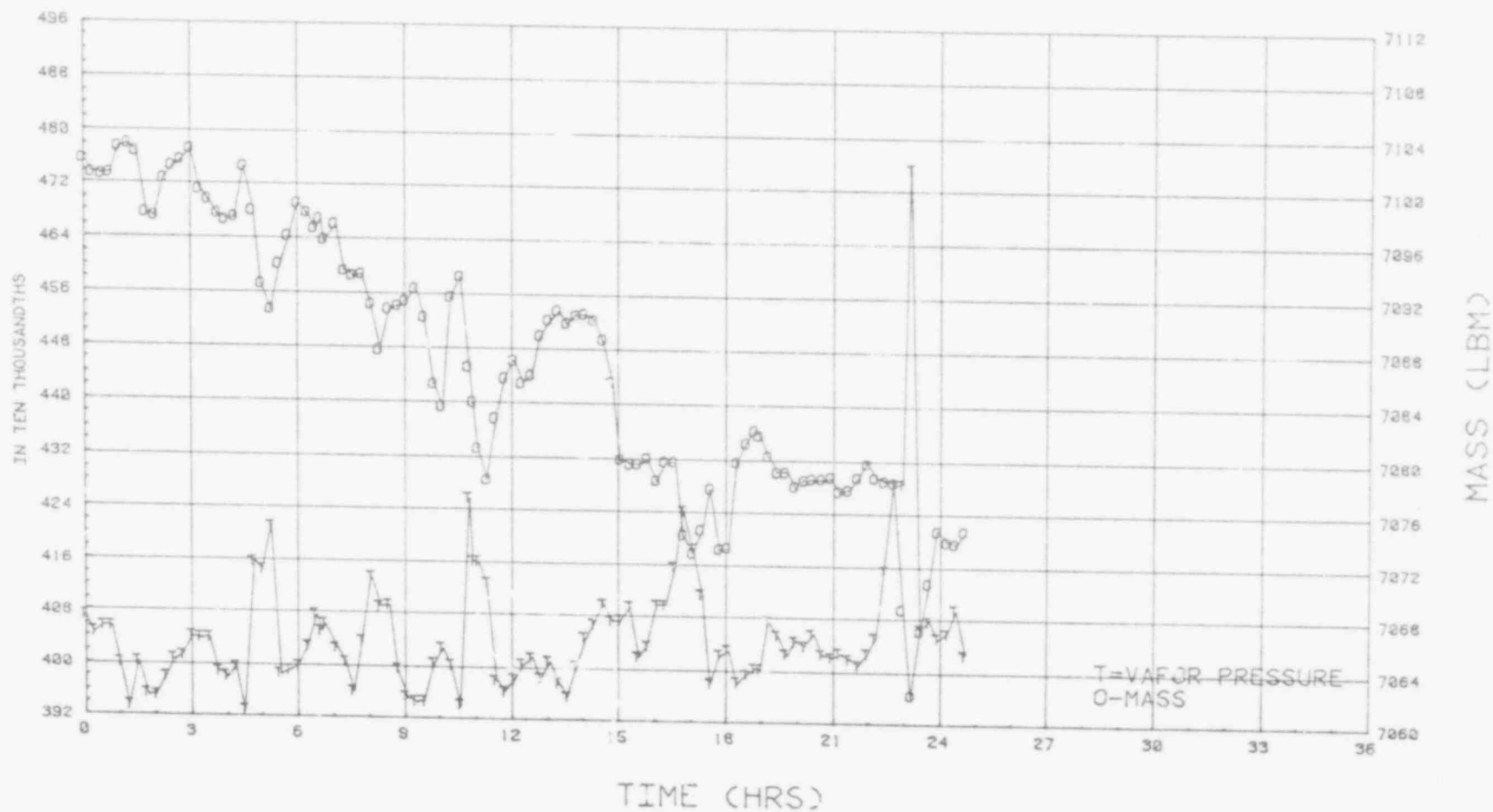


Figure 22

447 096

TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT
FULL PRESSURE TEMPERATURE PLOT
UPPER ICE COMPARTMENT

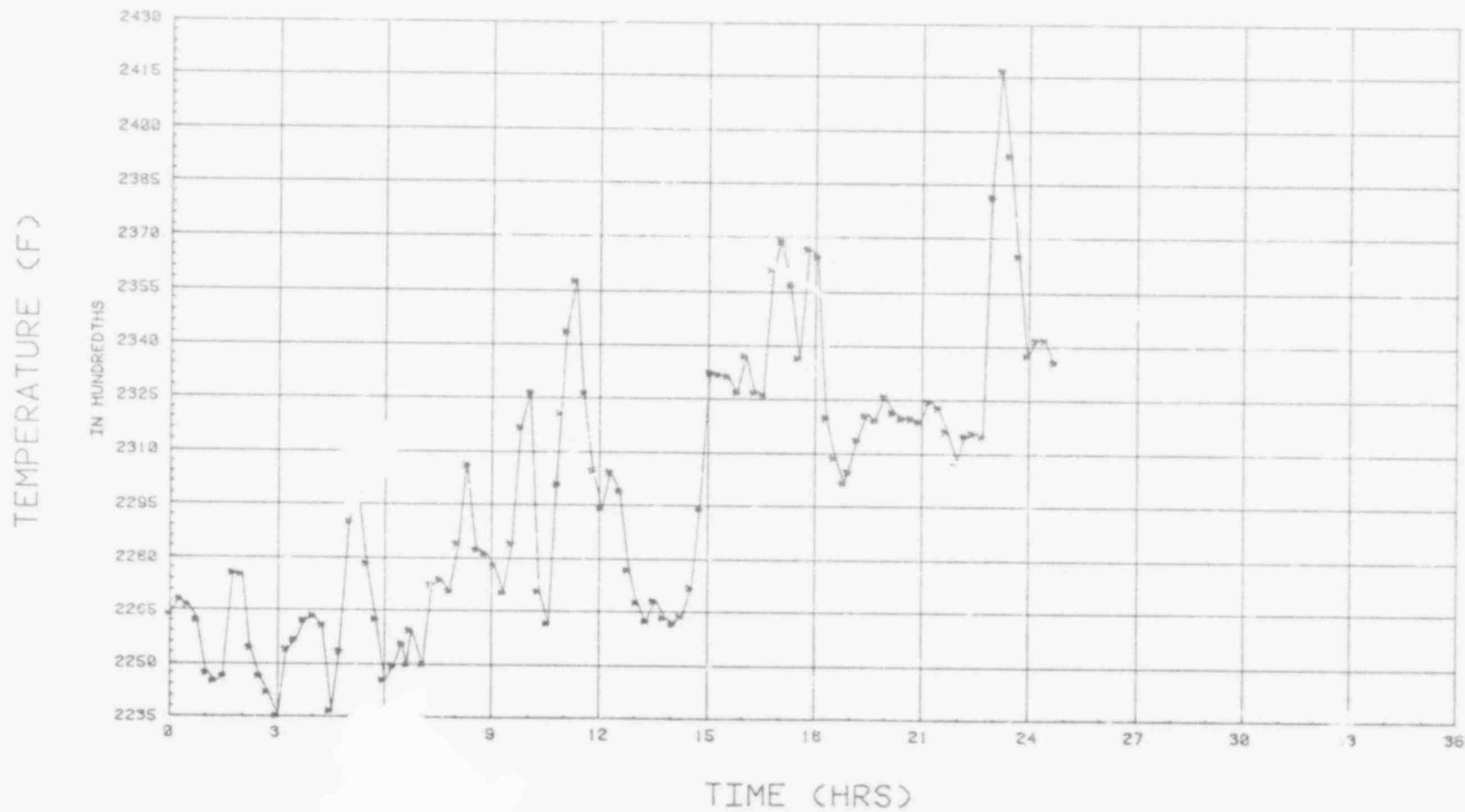


Figure 23

447 097
B60

TENNESSEE VALLEY AUTHORITY
 SEQUOYAH NUCLEAR PLANT
 FULL PRESSURE MASS AND TEMPERATURE VS. TIME PLOT
 UPPER ICE COMPARTMENT



Figure 24

TENNESSEE VALLEY AUTHORITY
 SEQUOYAH NUCLEAR PLANT
 FULL PRESSURE MASS PLOT
 LOWER ICE COMPARTMENT

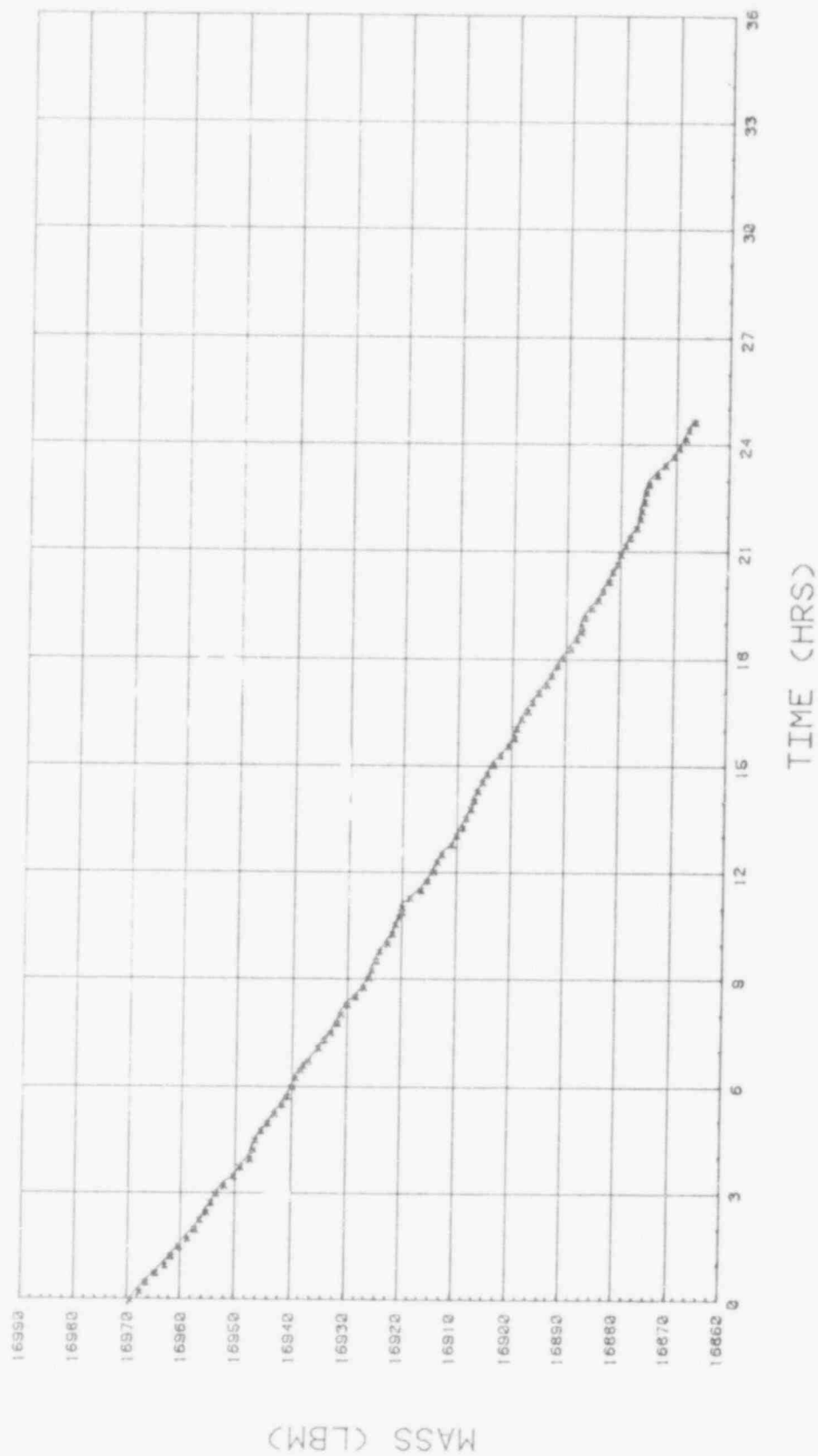


Figure 25

TENNESSEE VALLEY AUTHORITY
 SEQUOYAH NUCLEAR PLANT
 FULL PRESSURE VAPOR PRESSURE PLOT
 LOWER ICE COMPARTMENT

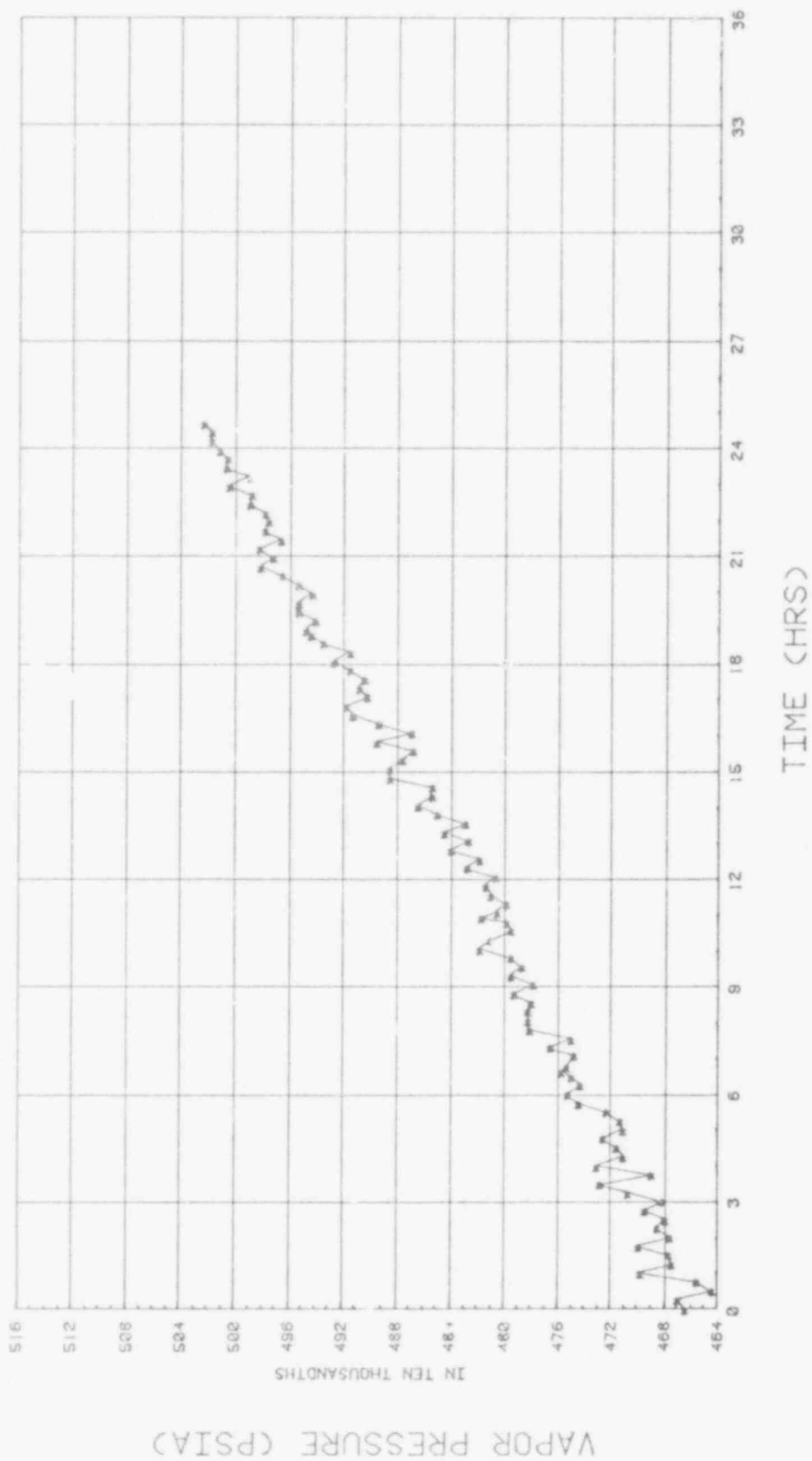


Figure 26

TENNESSEE VALLEY AUTHORITY
 SEQUOYAH NUCLEAR PLANT
 FULL PRESSURE MASS AND VAPOR PRESSURE VS. TIME PLOT
 LOWER ICE COMPARTMENT

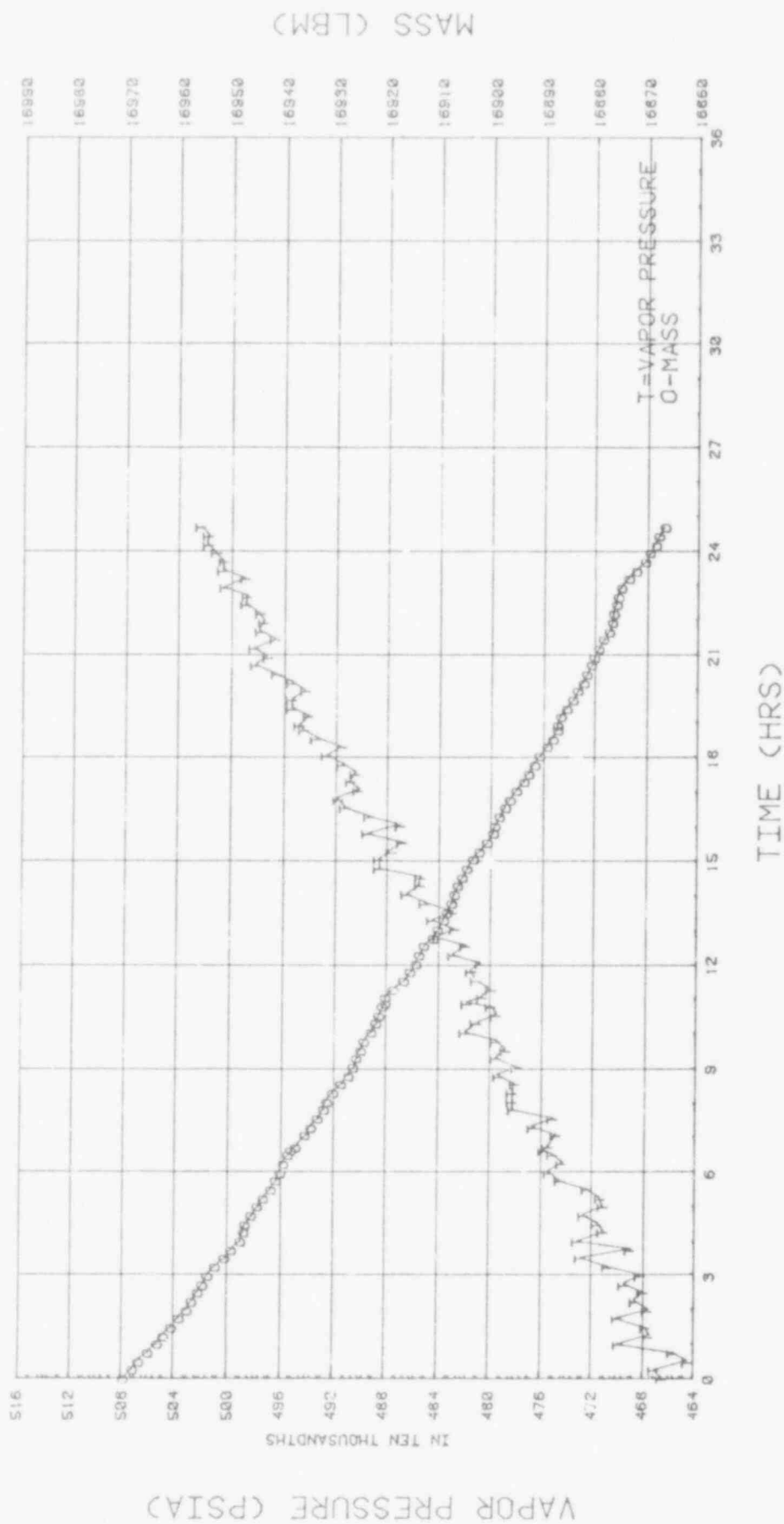
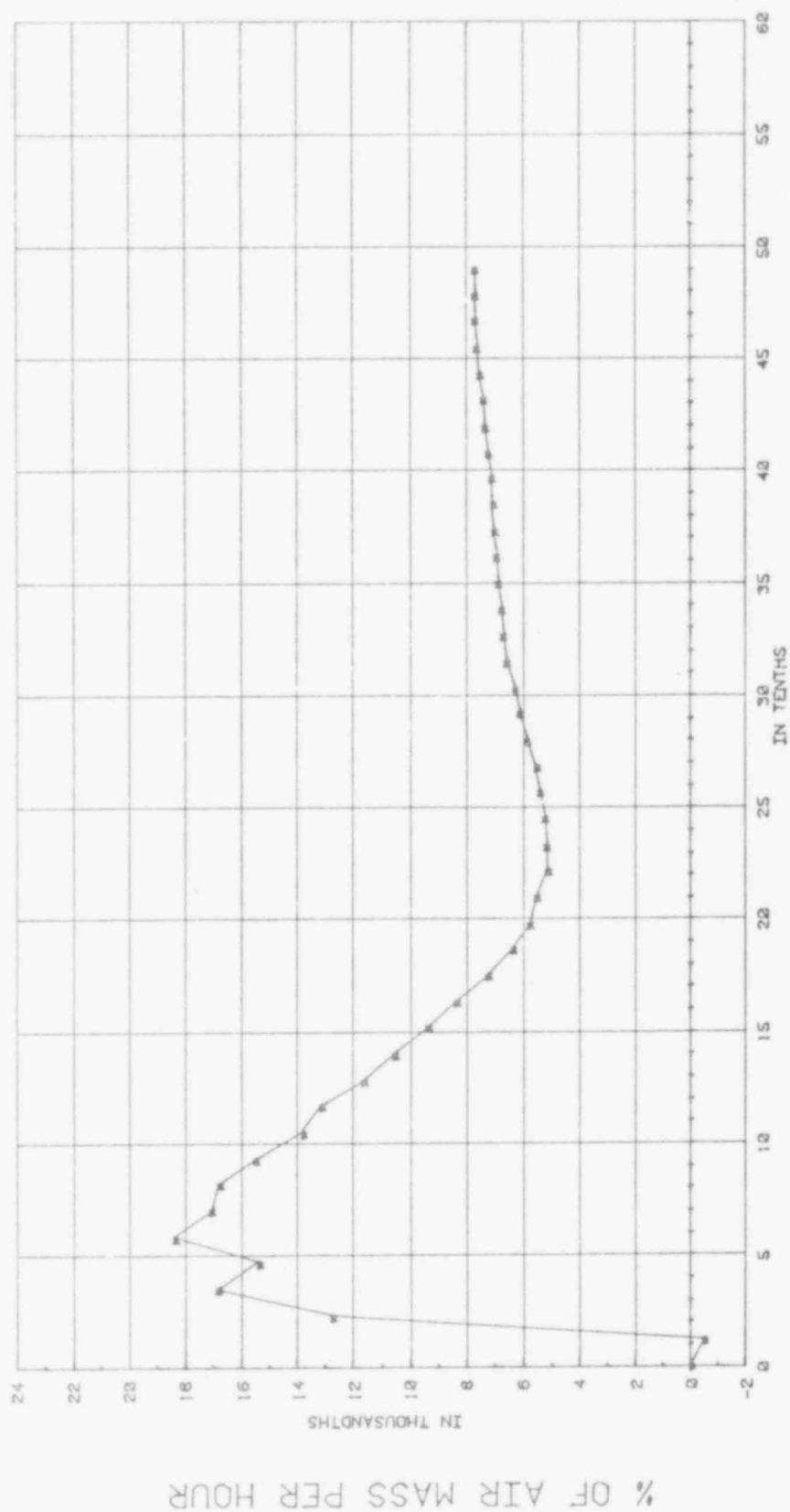


Figure 27

TENNESSEE VALLEY AUTHORITY
 SEQUOYAH NUCLEAR PLANT
 FULL PRESSURE LEAK RATE VERIFICATION PLOT
 MASS CALCULATION



TIME (HRS)

Figure 28

TENNESSEE VALLEY AUTHORITY
SEQUOYAH NUCLEAR PLANT
FULL PRESSURE MASS VERIFICATION PLOT

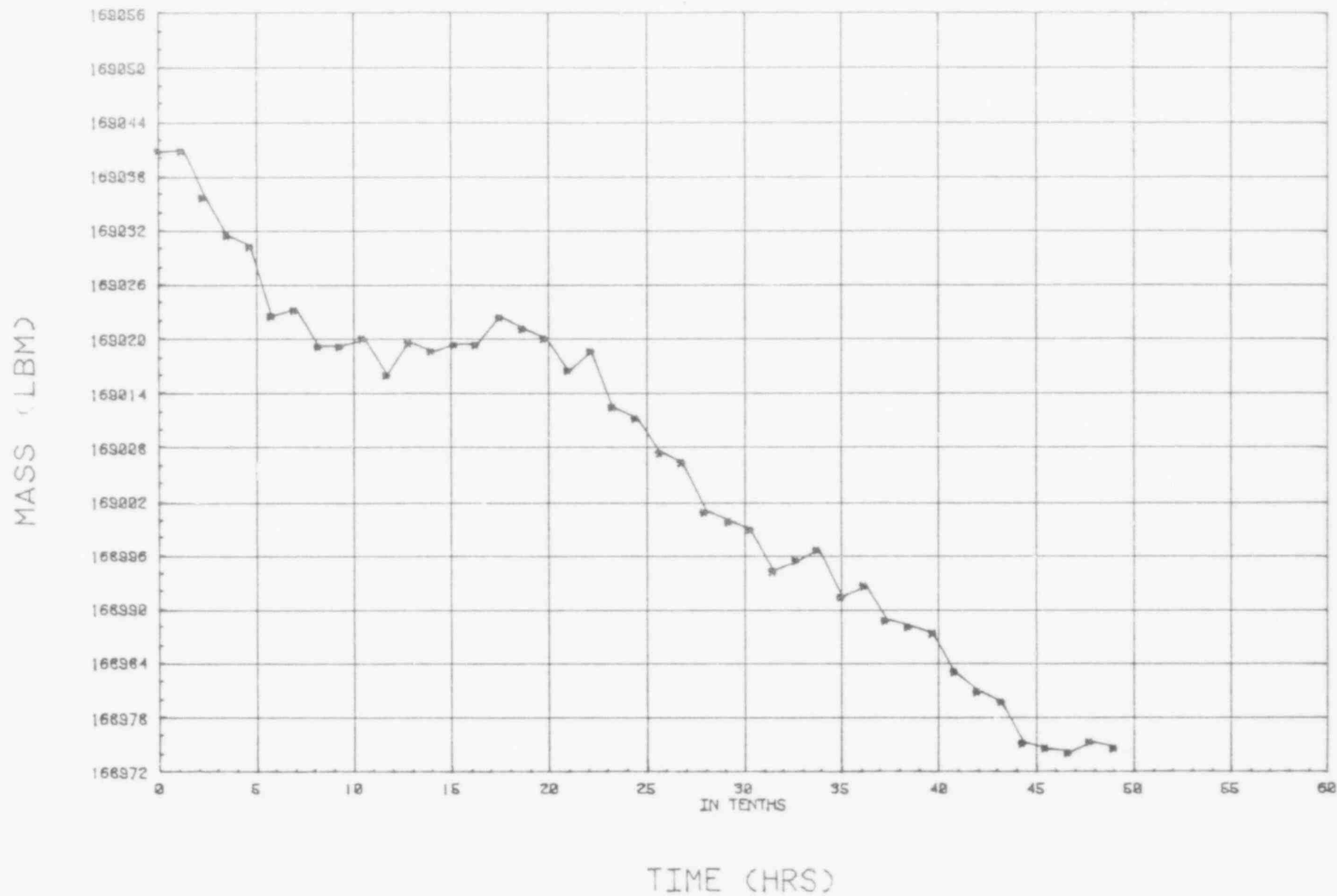


Figure 29

447 108

TENNESSEE VALLEY AUTHORITY
 SEQUOYAH NUCLEAR PLANT
 FULL PRESSURE LEAK RATE VERIFICATION PLOT
 POINT-TO-POINT CALCULATION

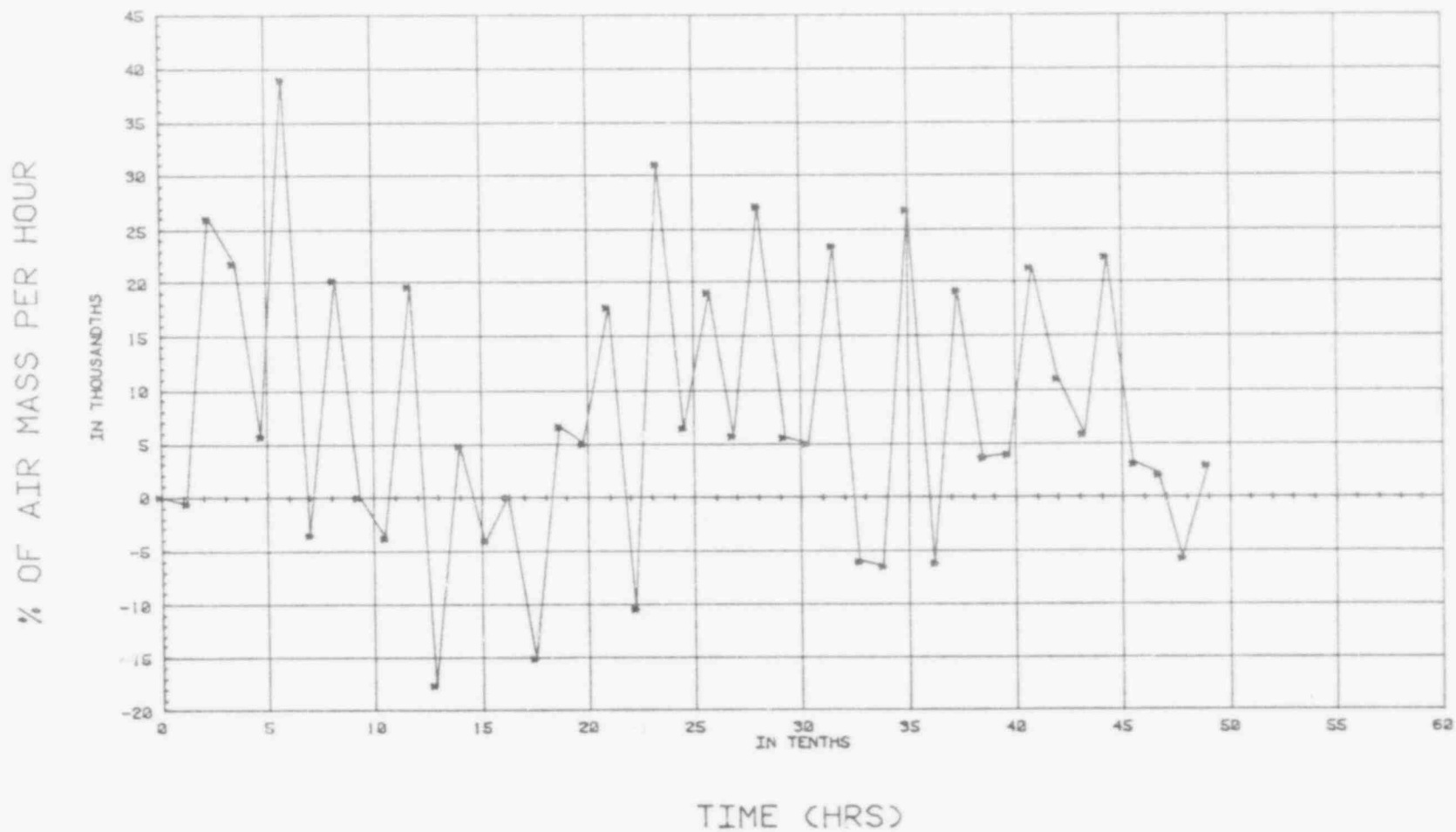
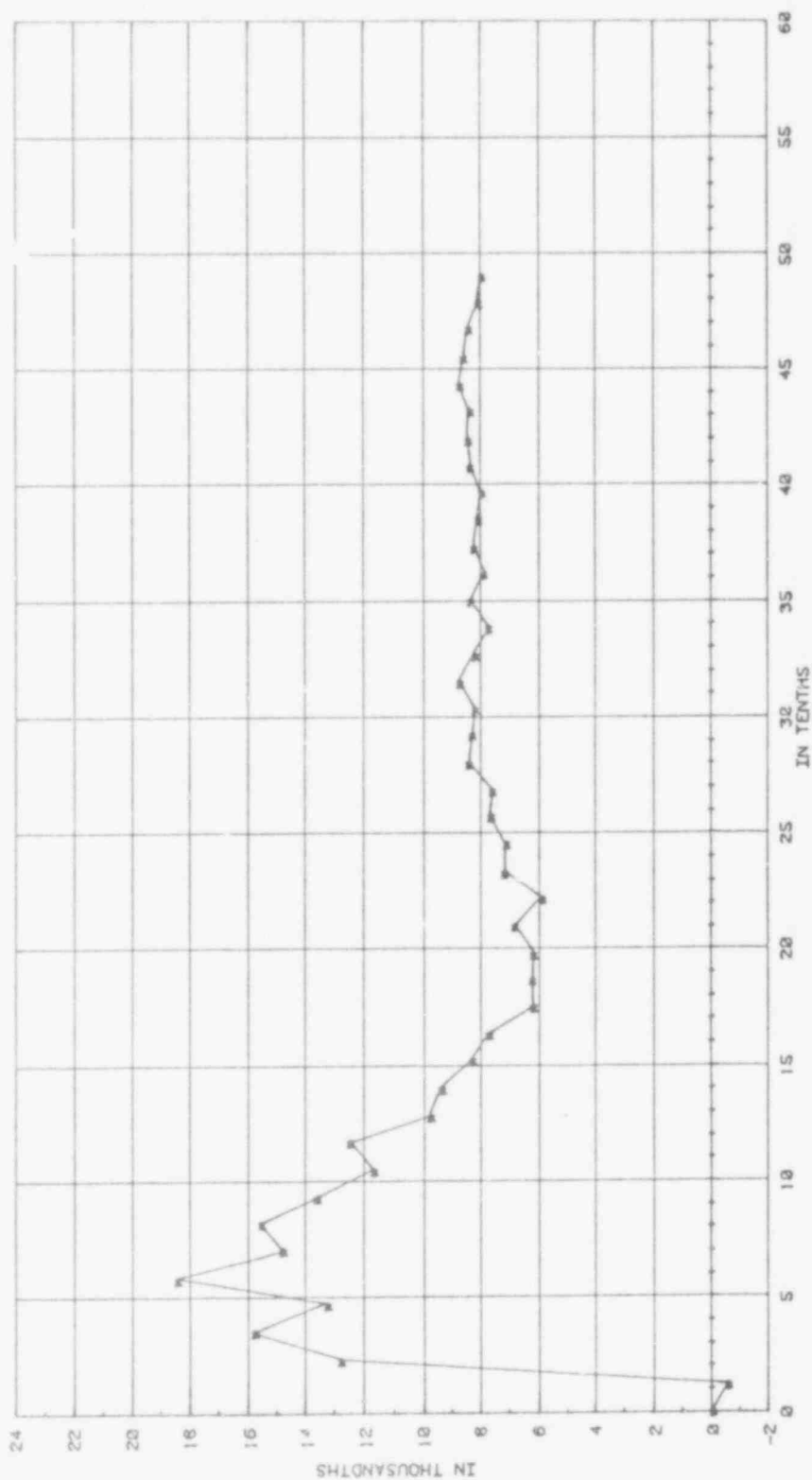


Figure 30

TENNESSEE VALLEY AUTHORITY
 SEQUOYAH NUCLEAR PLANT
 FULL PRESSURE LEAK RATE VERIFICATION PLOT
 TOTAL TIME CALCULATION



TIME (HRS)

Figure 31

APPENDICES

APPENDIX A
ERROR ANALYSIS

Equations and derivations for these equations can be found in Appendix G of Proposed ANSI N-247/ANS-56.6, Draft 1, Revision 3, June 25, 1976.

Assumed conditions at the time of test:

$$\begin{aligned}P &= 27 \text{ psia} \\T &= 514^{\circ}\text{R} \\T_{dp} &= 30^{\circ}\text{F} \\t &= 24 \text{ hours}\end{aligned}$$

Using the Absolute Method:

1. Total absolute pressure:

No. of sensors: 3*
Range: 0-30 psia

Measurement system repeatability error (E) = $\pm 0.0005\%$ reading = ± 0.000135 psia

$$\xi_p = (1/400,000) \times 30 \text{ psia} = 0.000075 \text{ psia}$$

$$e_p = \pm \left\{ (E_p)^2 + (\xi_p)^2 \right\}^{\frac{1}{2}} / \left\{ \text{No. of sensors} \right\}^{\frac{1}{2}}$$

$$e_p = \pm 0.0000892 \text{ psia}$$

2. Water vapor pressure:

No. of sensors: 9**
Sensor repeatability error (E): $\pm 0.5^{\circ}\text{F}$
Measurement system error (ξ), excluding sensor: $\pm 0.001^{\circ}\text{F}$

At a dew point temperature of 30°F , the equivalent water vapor change

(as determined by the ASME calculation for vapor pressure) is:

$$e_{pv} = \pm \left\{ (E_{pv})^2 + (\xi_{pv})^2 \right\}^{\frac{1}{2}} / \left\{ \text{No. of sensors} \right\}^{\frac{1}{2}}$$

$$E_{pv} = \pm 0.5^{\circ}\text{F}(0.00167 \text{ psia}/^{\circ}\text{F}) = 0.000835$$

$$\xi_{pv} = \pm 0.001^{\circ}\text{F}(0.00167 \text{ psia}/^{\circ}\text{F}) = 0.0000017$$

$$e_{pv} = \pm 0.00028 \text{ psia}$$

3. Temperature

No. of sensors: 46

Sensor repeatability error = $\pm 0.02^{\circ}\text{F}$

Measurement system error (ξ), excluding sensor = $\pm 0.001^{\circ}\text{R}$

$$e_T = \pm \left\{ (E_T)^2 + (\xi_T)^2 \right\}^{\frac{1}{2}} / \left\{ \text{No. of sensors} \right\}^{\frac{1}{2}}$$

$$e_T = \pm 0.002953^{\circ}\text{R}$$

4. FOM

$$\text{FOM} = \pm \frac{2400}{t} \left\{ 2 \left(\frac{e_p}{P} \right)^2 + 2 \left(\frac{e_{pv}}{P} \right)^2 + 2 \left(\frac{e_T}{T} \right)^2 \right\}^{\frac{1}{2}}$$

$$\text{FOM} = \pm \frac{2400}{24} \left\{ 2 \left(\frac{0.0000892}{27} \right)^2 + 2 \left(\frac{0.00028}{27} \right)^2 + 2 \left(\frac{0.002953}{514} \right)^2 \right\}^{\frac{1}{2}}$$

$$\text{FOM} = \pm 0.001740 \%/\text{day}$$

$$\text{or } \pm 0.0000725 \%/\text{hour}$$

*Test started with four pressure gauges. Subsequent checks revealed that one was out of calibration.

**Test started with 10 dewcells. Post test evaluation of the data revealed an erratic behavior pattern of one dewcell, which was consequently deleted from the leak rate calculations.

APPENDIX B
LOCAL LEAK RATE TEST SUMMARY

A. Type B Tests

One method was used to perform the type B tests--the absolute method (pressure decay). Using air or nitrogen as a test medium, the testable volume was pressurized to the designated test pressure. The leakage rate was then determined by a measured pressure drop during a set time specified in the applicable preoperational procedures, TVA-2B, Containment Vessel Pressure and Leak Test - Testable Penetrations, and TVA-3, Containment Vessel Pressure and Leak Test - Personnel Air Lock.

All testable penetrations, with the exception of those listed in this appendix, were tested prior to the performance of the CILRT. These penetrations were tested following the completion of the CILRT, and the leakage rates were added to the total leak rate.

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 instruction.

A summary of all type B test data is included in this appendix.

B. Type C Tests

Two methods were used to perform the type C tests--an airflow method and a water displacement 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. Fifty valves were tested with water or a water-glycol mixture and converted to air leakage for the first fuel cycle for reasons stated in table 6.2-35 of the FSAR. The results of these tests and the corresponding air leakage rates are noted in the summary of type C data in this appendix.

All testable containment isolation valves, with the exception of those listed in this appendix and the inboard control air valves (system 32), were tested prior to the performance of the CILRT. The internals of the inboard control air valves were replaced and, at the time of the CILRT, were not on site. Therefore, for the performance of the CILRT, a conservative valve lineup using only the outboard isolation valves was used.

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 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 tables B.2, B.3.1, and B.3.2.

TABLE F.1
SUMMARY OF LOCAL LEAKAGE RATES

Type B Leakage:

A. Bellows	0.0095 SCFH
B. Electrical	0.0694 SCFH
C. Resilient Seals	0.0008 SCFH
D. Air Lock Doors	11.8841 SCFH

Total Type B 11.9638 SCFH

Type C Leakage: 16.3916 SCFH

	<u>Actual</u>	<u>Maximum Allowable</u>
Total (Types B and C)	28.3554 SCFH	141.9 SCFH

Penetrations defined as
potential bypass leakage
paths:

16.4633 SCFH 59.1250 SCFH

Penetrations water sealed
to at least 1.1 P_a subject
to inventory restriction:

0.0041 SCFH 0.24 SCFH

TABLE B.2
TYPE C TEST DATA

<u>Penetration Number</u>	<u>System Name</u>	<u>Valve Number(s)</u>	<u>Test Date</u>	<u>Individual Leakage (SCFH)</u>	<u>Penetration Leakage (SCFH)</u>
X-4	Ventilation	30-56/57	12/19/78	0.0000	0.0000
X-5	Ventilation	30-58/59	12/29/78	0.0000	0.0000
X-6	Ventilation	30-52/53	1/6/79	0.0000	0.0000
X-7	Ventilation	30-50/51	12/29/78	0.0000	0.0000
X-9A	Ventilation	30-7/8	12/29/78	0.0000	0.0000
X-9B	Ventilation	30-9/10	1/6/79	0.0000	0.0000
X-10A	Ventilation	30-14/15	12/19/78	0.0000	0.0000
X-10B	Ventilation	30-16/17	12/19/78	0.0000	0.0000
X-11	Ventilation	30-19/20	1/5/79	0.0000	0.0000
X-15 ⁽⁴⁾	CVCS	62-72/73/74	1/2/79	0.5407 ⁽¹⁾	0.5407
		62-77	2/25/79	0.4573 ⁽¹⁾	
X-25A ⁽⁴⁾	Sampling	43-2	2/28/79	0.0000	0.0000
		43-3	2/28/79	0.0000	
X-25B ⁽⁴⁾	Sampling	43-11	2/28/79	0.0000	0.0000
		43-12	2/26/79	0.0000	
X-26B ⁽²⁾	Control Air	32-102/297	3/5/79	0.0000	0.0000
		32-297			

<u>Penetration Number</u>	<u>System Name</u>	<u>Valve Number(s)</u>	<u>Test Date</u>	<u>Individual Leakage (SCFH)</u>	<u>Penetration Leakage (SCFH)</u>
X-27C ⁽⁴⁾	ILRT	52-Inboard	3/28/79	0.0000	0.0000
		52-Outboard	3/28/79	0.0000	
X-29 ⁽⁴⁾	Component Cooling	70-89/698	12/23/78	0.1245 ⁽¹⁾	0.1483
		70-92	12/23/78	0.1483 ⁽¹⁾	
X-30 ⁽⁴⁾	SIS	63-71	1/6/79	0.0000	0.0000
		63-84/23	1/6/79	0.0000	
X-34 ⁽⁴⁾	Control Air	32-110/375	3/4/79	0.0000	0.0000
		32-377 ⁽²⁾	5/2/79	0.0000	
X-35 ⁽⁴⁾	Component Cooling	70-85/143	2/20/79	0.0000 ⁽¹⁾	0.0000
X-39A ⁽⁴⁾	SIS	63-64	1/6/79	0.0000	0.0000
		77-868	2/13/79	0.0000	
447 X-39B ⁽⁴⁾	Main Coolant	68-305	1/6/79	0.0000	0.0000
		77-849	1/6/79	0.0000	
X-41 ⁽⁴⁾	Waste Disposal	77-127	2/16/79	0.5243 ⁽¹⁾	0.5243
63		77-128	2/15/79	0.4573 ⁽¹⁾	

<u>Penetration Number</u>	<u>System Name</u>	<u>Valve Number(s)</u>	<u>Test Date</u>	<u>Individual Leakage (SCFH)</u>	<u>Penetration Leakage (SCFH)</u>
X-42 (4)	Primary Water	81-12	3/3/79	0.2948 ⁽¹⁾	0.6207
		81-502	3/2/79	0.6207 ⁽¹⁾	
X-44	CVCS	62-61/639	2/8/79	0.2145 ⁽¹⁾	0.2145
		62-63	1/2/79	0.0994 ⁽¹⁾	
X-45 (4)	Waste Disposal	77-18	2/14/79	0.0000	0.0000
		77-19/20	2/21/79	0.0000	
X-46 (4)	Waste Disposal	77-9	3/3/79	0.0000	0.0000
		77-10	3/3/79	0.0000	
X-47A (3)(4)	Ice Condenser	61-191	4/3/79	0.0000 ⁽¹⁾	0.0000
		61-192/533	4/3/79	0.0000 ⁽¹⁾	
X-47B (3)(4)	Ice Condenser	61-193	4/4/79	0.0000 ⁽¹⁾	0.0000
		61-194/680	4/4/79	0.0000 ⁽¹⁾	
X-50A (4)	Component Cooling	70-87/687	12/28/78	0.0000	0.0000
		70-90	12/28/78	0.0000	
X-50B (4)	Component Cooling	70-134	3/10/79	0.0779	0.0779
		70-679	3/6/79	0.0000	

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Table B.2
Sheet 4 of 9

<u>Penetration Number</u>	<u>System Name</u>	<u>Valve Number(s)</u>	<u>Test Date</u>	<u>Individual Leakage (SCFH)</u>	<u>Penetration Leakage (SCFH)</u>
X-51 ⁽⁴⁾	Fire Protection	26-1260	3/3/79	0.0722	0.0722
		26-1240	3/3/79	0.0000	
X-52	Component Cooling	70-140	2/26/79	2.8363 ⁽¹⁾	5.7138
		70-692	2/26/79	5.7138 ⁽¹⁾	
X-56	ERCW	67-107	12/29/78	0.2948 ⁽¹⁾	1.7715
		67-562D	2/25/79	1.7715 ⁽¹⁾	
X-58	ERCW	67-83	12/29/78	0.1931 ⁽¹⁾	0.7432
		67-562A	2/25/79	0.7432 ⁽¹⁾	
X-60	ERCW	67-99	12/27/78	0.3874 ⁽¹⁾	0.8024
		67-562B	2/25/79	0.8024 ⁽¹⁾	
X-62	ERCW	67-91	12/29/78	0.2555 ⁽¹⁾	0.5891
		67-562C	2/25/79	0.5891 ⁽¹⁾	
447 X-64 ⁽⁴⁾	Ventilation	31C-222	3/7/79	0.2555 ⁽¹⁾	0.2555
		31C-223/752	3/1/79	0.0994 ⁽¹⁾	
115 X-65 ⁽⁴⁾	Ventilation	31C-224	2/23/79	0.5731 ⁽¹⁾	0.5731
		31C-225/734	3/1/79	0.1483 ⁽¹⁾	

Table B.2
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Penetration Number	System Name	Valve Number(s)	Test Date	Individual Leakage (SCFH)	Penetration Leakage (SCFH)
X-66 ⁽⁴⁾	Ventilation	31C-229	3/2/79	0.1931 ⁽¹⁾	0.2352
X-67 ⁽⁴⁾	Ventilation	31C-230/715	3/2/79	0.2352 ⁽¹⁾	
		31C-231	2/23/79	0.5891 ⁽¹⁾	0.5891
		31C-232/697	2/23/79	0.4052 ⁽¹⁾	
X-68	ERCW	67-141	1/22/79	0.2145 ⁽¹⁾	1.1892
		67-580D	1/16/79	1.1892 ⁽¹⁾	
X-69	ERCW	67-130	12/30/78	0.2145 ⁽¹⁾	0.2145
		67-580A	12/30/78	0.2145 ⁽¹⁾	
X-74	ERCW	67-138	12/30/79	0.2145 ⁽¹⁾	0.2145
		67-580B	12/30/79	0.0000 ⁽¹⁾	
X-75	ERCW	67-133	12/30/78	0.2555 ⁽¹⁾	0.3512
		67-580C	12/30/78	0.3512 ⁽¹⁾	
447 X-76	Service Air	33-704	3/10/79	0.0000	0.0000
		33-740	2/19/79	0.0000	
111 X-77 ⁽⁴⁾	Deminerelized water	59-522/529	2/20/79	0.0994 ⁽¹⁾	0.1245
		59-633	2/19/79	0.1245 ⁽¹⁾	
X-78 ⁽⁴⁾	fire protection	26-243	3/3/79	0.0000	0.0145
		26-196	3/3/79	0.0145	

Table B.2
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Penetration Number	System Name	Valve Number(s)	Test Date	Individual Leakage (SCFH)	Penetration Leakage (SCFH)
X-80	Ventilation	30-37/40	1/5/79	0.0000	0.0000
X-81 ⁽⁴⁾	Waste Disposal	77-16	2/20/79	0.0000	
		77-17	2/27/79	0.0000	0.0000
X-82 ⁽⁴⁾	Fuel Pool Cooling	78-560	1/10/79	0.387 ⁽¹⁾	
		78-561	1/11/79	0.5407 ⁽¹⁾	0.5407
X-83 ⁽⁴⁾	Fuel Pool Cooling	78-557/558	1/10/79	0.0000	0.0000
X-84A ⁽⁴⁾	Main Coolant	68-307	2/28/79	0.0000	
		68-308	2/28/79	0.0000	0.0000
X-85A ⁽⁴⁾	Sampling System	43-75	2/28/79	0.0000	
		43-77	2/25/79	0.0000	0.0000
X-90 ⁽⁴⁾	Control Air	32-287 ⁽²⁾	5/4/79	0.0000	
		32-80/285	3/4/79	0.0000	0.0000
X-92	Sampling System	43-207	2/23/79	0.0000	
		43-208	2/23/79	0.0145	0.0145
X-93 ⁽⁴⁾	Sampling System	43-34	2/28/79	0.0000	
		43-35	2/25/79	0.0000	0.0000

Table B.2

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Penetration Number	System Name	Valve Number(s)	Test Date	Individual Leakage (SCFH)	Penetration Leakage (SCFH)
X-94 A/B/C ⁽⁴⁾	Radiation Monitoring	90-113	3/9/79	0.0000	
		90-114	3/9/79	0.0000	
		90-115	3/8/79	0.0000	0.0000
		90-116	3/6/79	0.0000	
		90-117	3/3/79	0.0000	
X-95 A/B/C ⁽⁴⁾	Radiation Monitoring	90-107	2/28/79	0.0000	
		90-108	3/9/79	0.0000	
		90-109	3/7/79	0.0000	0.0000
		90-110	3/9/79	0.0000	
		90-111	3/7/79	0.0000	
X-96C ⁽⁴⁾	Sampling System	43-22	2/28/79	0.0000	
		43-23	2/25/79	0.0000	0.0000
X-97	Ventilation	30-134/135	2/12/79	0.0000	0.0000
X-98	ILMT	52-Inboard	2/3/79	0.0000	0.0000
118		52-Outboard	2/3/79	0.0000	
X-99	Sampling System	43-202	2/23/79	0.0000	0.0000

Table B.2
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Penetration Number	System Name	Valve Number(s)	Test Date	Individual Leakage (SCFH)	Penetration Leakage (SCFH)
X-100	Sampling System	43-201	2/23/79	0.0000	0.0000
X-107 ⁽⁴⁾	RHR	74-2	2/27/79	0.0000	0.0000
X-110 ⁽⁴⁾	Upper Head Injection	87-7/8/9	1/2/79	0.0000 ⁽¹⁾	0.0000
X-111	Ventilation	30-46/571	3/6/79	0.0000	0.0000
X-112	Ventilation	30-47/572	3/6/79	0.0000	0.0000
X-113	Ventilation	30-48/573	3/4/79	0.0000	0.0000
X-114 ⁽³⁾⁽⁴⁾	Ice Condenser	61-110	4/2/79	0.0000 ⁽¹⁾	0.0000
X-115 ⁽³⁾⁽⁴⁾	Ice Condenser	61-122/745	4/2/79	0.0000 ⁽¹⁾	0.0000
		61-96	4/3/79	0.0000 ⁽¹⁾	0.0000
		61-97/692	4/3/79	0.0000 ⁽¹⁾	0.0000

Notes: (1) Converted from water leakage

(2) Inboard isolation valves tested after CILRT

(3) Performed after CILRT and added to total leak rate

(4) Isolation valves subject to bypass leakage requirements

*Penetrations Subject to Inventory Requirements

Penetration Number	System Name	Valve Number(s)	Test Date	Individual Leakage (SCFH)	Penetration Leakage (SCFH)
X-59	EROW	67-87/575A	12/27/78	0.0008	0.0011
		67-88	2/6/79	0.0011	
X-63	EROW	67-95/575C	12/27/78	0.0005	0.0014
		67-96	12/27/78	0.0014	
X-61	EROW	67-103/575B	12/27/78	0.0002	0.0002
		67-104	12/27/78	0.0000	
X-57	EROW	67-111/575D	12/27/76	0.0000	0.0000
		67-112	12/27/78	0.0000	
X-73	EROW	67-131	12/30/76	0.0000	0.0000
		67-295/565A	12/30/78	0.0000	
X-71	EROW	67-134	12/30/76	0.0003	0.0003
		67-296/565C	12/30/76	0.0001	
X-70	EROW	67-139	12/30/76	0.0006	0.0006
		67-297/565B	12/30/78	0.0001	
X-72	EROW	67-142	12/30/76	0.0005	0.0005
		67-298/565D	12/30/76	0.0001	

*Leakage from these penetrations is not added to the total type C leakage.

POOR ORIGINAL

TABLE B.3.1
AIR LOCK DOOR TESTS

<u>Leakage path</u>	<u>Leakage (SCFH)</u>	<u>Date Tested</u>
X-2A Resilient Seal		
Inner Door	0.0013	3/10/79
Outer Door	0.0001	3/10/79
X-2B Resilient Seal		
Inner Door	0.0000	3/10/79
Outer Door	0.0006	3/10/79
*X-2A Overall	6.7909	3/1/79
*X-2B Overall	5.0932	2/28/79

*Penetrations subject to bypass leakage requirements.

TABLE B.3.2
TYPE B TEST SUMMARY

Resilient Seals

<u>Leakage Path</u>	<u>Leakage (SCFH)</u>	<u>As Left</u>
	<u>As Left</u>	<u>Date</u>
X-1	0.0003	3/9/79
*X-3	0.0004	3/8/79
X-54	0.0000	3/20/79
X-79A	0.0000	3/2/79
X-79B	0.0000	3/2/79
X-118	0.0000	3/20/79
X-111	0.0001	1/30/79
X-112	0.0000	1/30/79
*X-113	0.0000	1/30/79
*X-40D	<u>0.0000</u>	3/7/79
Total	0.0008	

*Penetrations subject to bypass leakage requirements.

MEC:WJF
5/7/79

TABLE B.3.3
TYPE B TEST SUMMARY

Electrical

<u>Leakage Path</u>	<u>Leakage (SCFH) As Left</u>	<u>As Left Date</u>
X-120E	0.0000	1/20/79
X-121E	0.0000	1/20/79
X-122E	0.0000	1/16/79
X-123E	0.0000	1/20/79
X-124E	0.0000	1/20/79
X-126E	0.0066	1/16/79
X-127E	0.0000	1/17/79
X-128E	0.0000	1/17/79
X-129E	0.0000	1/15/79
X-131E	0.0154	1/15/79
X-132E	0.0000	1/17/79
X-133E	0.0000	1/17/79
X-134E	0.0000	1/16/79
X-135E	0.0000	1/16/79
X-136E	0.0000	1/16/79
X-137E	0.0024	1/16/79
X-138E	0.0000	1/16/79
X-139E	0.0000	1/16/79
X-140E	0.0000	1/16/79
X-141E	0.0000	1/20/79
X-142E	0.0001	1/20/79
X-143E	0.0000	1/17/79
X-144E	0.0000	1/17/79
X-145E	0.0000	1/15/79
X-146E	0.0188	1/15/79
X-147E	0.0008	1/16/79
X-148E	0.0000	1/16/79
X-149E	0.0000	1/16/79
X-150E	0.0001	1/16/79
X-151E	0.0000	1/16/79
X-152E	0.0001	1/17/79
X-153E	0.0084	1/17/79
X-154E	0.0000	1/17/79
X-156E	0.0017	1/17/79
X-157E	0.0000	1/17/79
X-158E	0.0037	1/17/79
X-159E	0.0000	1/17/79

Electrical (Continued)

<u>Leakage Path</u>	<u>Leakage (SCFH)</u> <u>As Left</u>	<u>As Left</u> <u>Date</u>
X-160E	0.0001	1/17/79
X-161E	0.0000	1/17/79
X-163E	0.0069	1/17/79
X-164E	0.0000	1/17/79
X-165E	0.0001	1/17/79
X-166E	0.0034	1/17/79
X-167E	0.0008	1/15/79
X-168E	0.0000	1/18/79
X-169E	0.0001	1/18/79
X-170E	<u>0.0000</u>	1/18/79
Total	0.0694	

MEC:BJP
5/7/79

TABLE B.3.4
TYPE B TEST SUMMARY

Bellows

<u>Leakage path</u>	<u>Leakage (SCFH) As Left</u>	<u>As Left Date</u>
X-12A Inboard	0.0000	1/29/79
Outboard	0.0002	1/29/79
X-12B Inboard	0.0002	3/6/79
Outboard	0.0004	3/6/79
X-12C Inboard	0.0002	1/30/79
Outboard	0.0001	1/30/79
X-12D Inboard	0.0001	1/29/79
Outboard	0.0010	1/29/79
X-13A Inboard	0.0001	1/29/79
Outboard	0.0000	1/29/79
X-13B Inboard	0.0000	1/30/79
Outboard	0.0015	1/30/79
X-13C Inboard	0.0000	1/30/79
Outboard	0.0000	1/30/79
X-13D Inboard	0.0006	1/29/79
Outboard	0.0001	1/29/79
X-14A	0.0002	1/4/79
X-14B	0.0000	1/4/79
X-14C	0.0006	1/4/79
X-14D	0.0000	1/4/79
X-15	0.0000	12/12/78
X-17	0.0000	12/26/78
X-20A	0.0004	12/12/78
X-20B	0.0000	12/12/78
X-21	0.0000	12/12/78
X-22	0.0000	12/12/78
X-24	0.0000	12/12/78
X-30	0.0001	12/26/78
X-32	0.0000	12/12/78
X-33	0.0010	12/12/78
X-45	0.0000	1/4/79
X-46	0.0014	1/4/79
X-47A Inboard	0.0000	1/16/79
Outboard	0.0000	1/16/79
X-47B Inboard	0.0000	1/16/79
Outboard	0.0000	1/16/79
X-81	0.0004	1/4/79
X-107	0.0000	12/12/78
X-108	0.0000	2/3/79
X-109	0.0002	2/3/79
K-14	0.0000	1/4/79
K-15	0.0007	1/4/79

Total 0.0095

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5/7/79

APPENDIX C
SPECIAL TEST INSTRUMENTATION

I. Pressure Measurement: (3 Total)

One Quartz Manometer for Ice Condenser pressure, Elevation 722

Two Quartz Manometers for Upper and Lower Compartment pressure
Elevation: 667, 700, 796

II. Temperature Measure (46 Total)

Upper Compartment (14 Total)

V = 651,000 cubic feet

RTD -1	RTD - 8
RTD -2	RTD - 9
RTD -3	RTD -10
RTD -4	RTD -11
RTD -5	RTD -12
RTD -6	RTD -13
RTD -7	RTD -14

Lower Compartment (25 Total)

V = 383,000 cubic feet

RTD -22	RTD -35
RTD -23	RTD -36
RTD -24	RTD -37
RTD -25	RTD -38
RTD -26	RTD -39
RTD -27	RTD -40
RTD -28	RTD -41
RTD -29	RTD -42
RTD -30	RTD -43
RTD -31	RTD -44
RTD -32	RTD -45
RTD -33	RTD -46
RTD -34	

Ice Condenser (7 Total)

Upper Volume

V = 47,000 cubic feet

Lower Volume

V = 110,500

cubic feet

RTD -15	RTD -19
RTD -16	RTD -20
RTD -17	RTD -21
RTD -18	

III. Vapor Pressure Measurement (9 Total):

Upper Compartment (3 Total)

DPE -1 DPE -5
DPE -2

Lower Compartment (3 Total)

DPE -3 DPE -6
DPE -4

Ice Condenser (3 Total)

Upper Volume

DPE - 9
DPE -10

Lower Volume

DPE -8

IV. Test Station Environment

Temperature: 1 RTD

Total Pressure: 1 Quartz Manometer

APPENDIX D
CALCULATION OF AGREEMENT

A. Reduced-Pressure Test:

$$\text{Agreement} = \frac{L_{AM} - L_R - L_{TM}}{L_T}$$

Where:

$$L_{AM} = 0.00570$$

$$L_R = 0.00494$$

$$L_{TM} = 0.00011$$

for L_T :

$$\text{if } \left(\frac{L_{TM}}{L_{AM}} \right) > 0.7, \text{ then:}$$

$$L_T = L_A \left(\frac{L_T}{L_A} \right)^{\frac{1}{2}}$$

$$\text{if } \left(\frac{L_{TM}}{L_{AM}} \right) \leq 0.7, \text{ then:}$$

$$L_T = \left(\frac{L_{TM}}{L_{AM}} \right) L_A$$

for this test:

$$\frac{L_{TM}}{L_{AM}} = \frac{0.00011}{0.00152} = 0.07290 \leq 0.7$$

$$\text{Therefore } L_T = \left(\frac{L_{TM}}{L_{AM}} \right) L_A$$

$$= \left(\frac{0.00011}{0.00152} \right) \left(\frac{0.25}{24} \right)$$

$$= 0.00068\% \text{ containment air mass per hour}$$

$$\text{Agreement} = \frac{(0.00570) - (0.00494) - (0.00011)}{(0.00068)}$$

= 0.9559 which is greater than the 0.25 allowable

If L_T is replaced with L_{RM} :

$$\text{Agreement} = \frac{(0.00570) - (0.00494) - (0.00011)}{(0.00570)}$$

= 0.1140 which is less than the 0.25 allowable

APPENDIX B
CALCULATION OF AGREEMENT

B. Full-Pressure Test:

$$\text{Agreement} = \frac{L_{RM} - L_R - L_{AM}}{L_A}$$

Where:

$$\begin{aligned} L_{RM} &= \left(\frac{\% L_{RM}^*}{100} \right) \times V \times \left(\frac{28,316.85}{60} \right) \times \left(\frac{P_{TR}}{14.696} \right) \\ &= \left(\frac{0.00769}{100} \right) \times (1.1916 \times 10^6) \times \left(\frac{28,316.85}{60} \right) \times \left(\frac{26.5780}{14.696} \right) \\ &= 79,094.8726 \end{aligned}$$

$$\begin{aligned} L_R &= \frac{L_R(\text{SCFH})}{60} \times 28,316.85 \\ &= \frac{147.4715}{60} \times 28,316.85 \\ &= 69,573.3206 \end{aligned}$$

$$\begin{aligned} L_{AM} &= \left(\frac{\% L_{AM}^*}{100} \right) \times (V) \times \left(\frac{28,316.85}{60} \right) \times \left(\frac{P_{TA}}{14.696} \right) \\ &= \left(\frac{0.00162}{100} \right) \times (1.1916 \times 10^6) \times \left(\frac{28,316.85}{60} \right) \times \left(\frac{26.9234}{14.696} \right) \\ &= 16,590.5761 \end{aligned}$$

$$\begin{aligned} L_A &= \frac{1}{100} \times \frac{0.25}{24} \times (V) \times \frac{28,316.85}{60} \times \frac{P_{TA}}{14.696} \\ &= \frac{1}{100} \times \frac{0.25}{24} \times (1.1916 \times 10^6) \times \frac{28,316.85}{60} \times \frac{26.9234}{14.696} \\ &= 107,340.6869 \end{aligned}$$

$$\text{Agreement} = \frac{(79,094.8726) - (69,573.3206) - (16,693.6232)}{(107,340.6869)}$$

= -0.0668 which is less than the ± 0.25 allowable

*percent per hour of containment mass

If L_A is replaced with L_{RM} :

$$\text{Agreement} = \frac{(79,094.8726) - (69,573.3200) - (15,793.6232)}{(79,094.8726)}$$

= 0.0907 which is less than the ± 0.25 allowable

APPENDIX E

References

1. 10CFR50, 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 N274, 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