DUKE POWER COMPANY

OCONEE NUCLEAR STATION

UNIT 3

REACTOR CONTAINMENT BUILDING

INTEGRATED LEAK RATE TEST

March 1987

A017
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DUKE POWER COMPANY

Oconee Nuclear Station

Unit 3

Reactor Containment Building

Integrated Leak Rate Test

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1.0 Introduction

The periodic Containment Integrated Leak Rate Test (CILRT) of the Duke Power Company, Oconee Nuclear Station Unit 3 Containment Building was satisfactorily completed on March 18, 1987. The testing was conducted in accordance with the requirements of Technical Specification 4.4, BN-TOP-1 (Bechtel Testing Criteria for ILRT), ANSI ANS 56.8-1982 and 10CFR50, Appendix J, with one exception. The absolute method of testing was employed with the containment temperatures measured at 24 locations and containment dewpoint temperatures at two locations. Leakage was measured at half the design basis accident pressure of ~ 29.5 PSIG. A measured induced leakage was used to verify the results. Analysis of final test data shows the results to be well within the specified limits for this containment, which has a maximum allowable leak rate of 0.176 wt.%/day. The leak rate for the Oconee Unit 3 containment was measured at 0.1005 wt%/day, and the 95% upper confidence limit (UCL) was determined to be 0.1054 wt%/day.

Leakage savings due to As-Found and As-Left local leak rate testing was determined to be 0.009449 wt%/day. Adjusting the type "A" results for this savings leaves the leak rate at 0.1099 wt%/day, with the 95% UCL at 0.1148 wt%/day (See Tables 4.1-1, 4.1-1A, 4.1-2 and 4.1-2A).

2.0 Summary and Conclusions

2.1 Synopsis

The Unit 3 Containment ILRT was performed in accordance with the Periodic Test Procedure PT/3/A/0150/03A as approved for use on February 19, 1987.

Pressurization for the ILRT began at 0420 hours on March 16, 1987, using the 1 permanently installed compressor and 3 rental diesel compressors. Pressurization was stopped at 1405 hours on March 16, 1987 with the containment pressure at approx. 31.5 psig.

Stabilization began at 1405 hours on March 16, 1987, at which time a search for potential leaks began.

At ~ 1513 the pressure in the personnel hatch was found to be between 2.0 and 2.5 psig. Entry through the outer door was made and the inner door was bubble checked. The hand wheel gasket was found leaking.

At ~ 1612 the pressure between 3PR-1 and 3PR-2 (penetration 20) was reported to be 9 psig, between 3PR-5 and 3PR-6 (penetration 19) the pressure 0.5 psig.

At ~ 1615 1.7 cubic feet per hour of air was measured flowing out 3CF-44, this is the vent outside 3CF-40 and 3CF-41.

After a discussion with the NRC Inspector a decision was made to challenge only the outer door of the personnel hatch as the inner door was holding everywhere except at the hand wheel gasket which will be tested during the full hatch test. At ~ 2005 the personnel hatch was pressurized to 29 psig, at this same time the Reactor Building was ~31.2 psig.

At ~ 0013 on March 17 RTD 17 reading began to swing between negative and positive values. The volume fraction for RTD 16 was changed to include RTD 17 volume.

At ~ 0100 a small leak found at the emergency hatch equalization valve.

At ~ 0150 due to a data acquisition problem ~ 55 minutes worth of data was lost.

At ~ 1400 a leak of about 1.0 cubic foot per hour was measured at the pipe where a relief valve was removed to vent the low pressure nitrogen line.

At 0258 on March 18, 1987, the final data analysis was completed. The test period was fixed from 0240 on March 17, 1987, through 0258 March 18, 1987. The calculated leak rate was 0.100542 wt.%/day and the 95% upper confidence limit (UCL) was 0.105412 wt.%/day. These results were below the acceptance of 0.75 Lt. or 0.132 wt.%/day.

At ~ 0353 on March 18, 1987, the electrical power plug to the Ruska were found disconnected, two data sets were lost while adjusting the imposed leak flow for the verification test.

An imposed leak rate of 0.16987 wt.%/day or 7 SCFM was calculated for the verification leak rate test. This leak was imposed at 0319 on March 18, 1987.

At 0830 on March 18, 1987, the verification leak rate test was completed. The calculated leak rate was 0.246284 wt.%/day, which was within acceptable limits.

At ∿ 0850 on March 18, 1987, depressurization of the containment began. Depressurization was completed at 1315 on March 18, 1987. An entry to the containment was made at 1330 on March 18, 1987, to inspect for damage caused by the ILRT. No significant damage due to the Leak Rate Test was observed.

2.2 Supplemental Type "C" Leak Rate Tests

All penetrations were challenged during the test, therefore no supplemental Type "C" Leak Rate Tests were required.

2.3 Test Results

Tabulated below are the leak rates measured for the test. As can be seen, the acceptance criteria was met in both cases. All leak rates are reported in weight percent per day (Wt%/day) of containment mass at Post-Accident Conditions.

Test Pressure	Acceptance Criteria	Tech. Spec. Limit	Calculated Leak Rate	95% (UCL)
29.5 PSIG	0.132	0.176	0.100542	0.1080

The verification test consisted of imposing a known leak rate on the containment at the end of the CILRT. Results from this supplemental test are acceptable provided the difference between the Supplemental Test Data and the type A test data is within 25% of L_t.

Test Leak Rate 0.100542
Imposed Leak Rate. 0.16987

Total 0.270412
Verification Leak Rate (Calculated) 0.246284

Difference. 0.024128
Percent of L_t 13.71%

This verification data demonstrates the accuracy of the CILRT Data and demonstrates the validity of the verification test.

2.4 Error Analysis

Three kinds of errors can be introduced into the leak rate test calculations. They are: 1) systematic measurement error due to instrumentation; 2) random measurement error due to instrumentation; and 3) inclusion of a bad data point into the calculation. Each of these types of errors is addressed below and is based on information in ANS-N274, work group 56.8, revision 3, Nov., 1978.

A) <u>Systematic Measurement Errors</u>

Systematic error is the error introduced by a difference between the measured parameter and the actual value of the parameter, produced by predictable or identifiable effects.

Instrument calibration traceable to the National Bureau of Standards is one method of holding this error to a minimum. However, since the mass-plot data analysis technique calculates the leakage based on a ratio of these measured parameters and not the actual value, the overall effect of these systematic instrumentation errors can be considered negligible, if the instrument drift over the test period is not significant.

The instrument calibration, and instrument drift, can be determined to be acceptable at the end of the test period by the Verification Test. This test imposes a known leakage on the containment structure through an independently calibrated instrument which causes a known change in the leak rate. If the instrumentation has not experienced a calibration shift, and no other system change has occurred, the verification test measured leak rate would compare well with the sum of the test leak rate and the imposed leak rate. Therefore, a successful Verification Test confirms that the leak rate test instrumentation systematic error is within acceptable limits. Any other error associated with the measurement is due to random error.

B) Random Measurement Error

Random errors are those errors in the measured parameters whose sign and magnitude vary without pattern or discernable cause, such as instrument calibration.

For the leak rate test, the effect of random errors must be considered in the data analysis. This is accomplished by statistical techniques in which the deviation from at least a square fit regression line of measured data is bounded such that a certain fraction of the data points lie within the bounds. These bounds define a region called the confidence interval. The probability that any measured data point will fall within the confidence interval is called the confidence level.

The confidence level set for this test is 95%, and from this, the limits or values of the confidence interval are calculated. The lower limit of this interval is of no significant consequence since the reported leak rate is higher. If the actual leakage is lower than the reported value, due to the inclusion of erroneously high values, then the reported value is of a conservative nature. If, on the other hand, random measurement errors has caused the inclusion of erroneously low values, then the actual leakage would be higher than the reported value. For this reason, the upper boundary (limit) to the 95% confidence interval is of significance to the test results and is included in the report.

C) Inclusion of Bad Data Points in the Calculations

Criteria exist in statistical analysis for the rejection of bad data points in the process of data analysis. This is not necessary in the mass-plot method for two reasons. First, since the mass-plot calculation is based on a regression fit of all the data points, a single erroneous value will have little effect on the calculated leak rate. Secondly, since the random error analysis clearly shows the need to calculate and report the upper limit of the 95% confidence interval, the inclusion of a bad data point in the calculation is already accounted for in the data analysis.

D) Analysis Conclusions

The information above, on each type of error, demonstrates that if the 95% upper confidence limit is less than 75% L_t and that the verification test results are acceptable, then the containment leakage rate accurately accounts for any instrument errors in the leak rate measurement system.

2.5 Test Organization

The Performance Section at the Oconee Nuclear Station has overall responsibility for the CILRT. The testing activities were supervised by the test coordinator. The organizational chart is presented in Figure 2.6.1. The test personnel were as follows:

A.	Test Coordinator responsible for all ILRT activities	K. G. Rohde
B.	Shift Coordinator responsible for testing activities on the night shift	K. Chea
C.	Test Field Engineer (one per shift) responsible for maintaining communication between Shift Coordinator, Data Engr. and Search Party. Keep check on compressors.	T. P. Gillespie L. S. Hawthorne
D.	Data Engineer (one per shift) responsible for Data Analysis	R. D. Smith (GO) J. O. Lee
E.	Support Engineer (technical support-engineer from System Results Group, Duke Power) (as needed)	B. W. Roberts M. A. Hutchenson
F.	Operators (normal shift)	
G.	Observer (Catawba)	M. A. Geckle

OCONEE ILRT ORGANIZATION

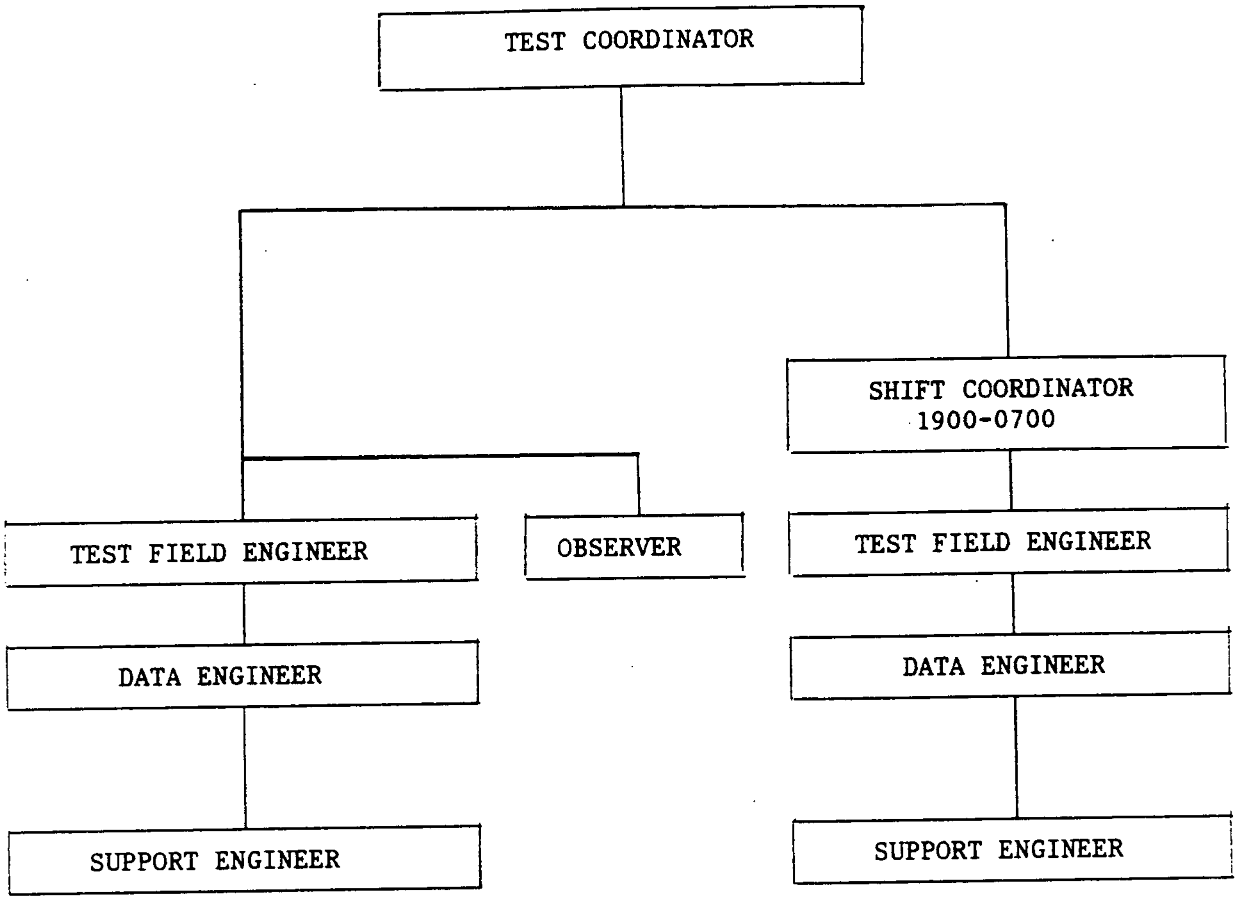


Figure 2.6-1

3.0 Design Information

3.1 Reactor Building

The reactor building is a reinforced and post-tensioned concrete structure designed to contain any accidental release of radioactivity from the reactor coolant system as defined in the Final Safety Analysis Report.

The structure consists of a post-tensioned reinforced concrete cylinder and dome connected to and supported by a massive reinforced concrete foundation slab as shown in Figure 3.1-1. The entire interior surface of the structure is lined with a 1/4 inch thick welded ASTM A36 steel plate to assure a high degree of leak tightness. Numerous mechanical and electrical systems penetrate the Reactor Building wall through welded steel penetrations.

Principal dimensions are as follows:

Inside Diameter	116 ft.
Inside Height (including Dome)	208-1/2 ft.
Vertical Wall Thickness	3-3/4 ft.
Dome Thickness	3-1/4 ft.
Foundation Slab Thickness	8-1/2 ft.
Liner Plate Thickness	1/4 inch
Internal Free Volume	1,910,000 Cu. ft.

3.2 Measurement Systems

Instrumentation used for the Oconee Unit 3 ILRT is similar to that used on initial tests conducted by Bechtel and subsequent periodic tests by Duke Power. The leak rate test measurement system is shown schematically in Figure 3.2-1.

Reactor Building pressure was measured by a Ruska Instrument precision pressure gauge. The unit was calibrated before the test.

Reactor Building temperature was measured by twenty-four (24) calibrated RTDs and read on a Acurex digital recorder. Each RTD was assumed to be representative of a fraction of the total containment volume.

Reactor Building dewpoint temperature was measured by two (2) General Eastern Dewpoint Hygrometers.

The relative location of the humidity sensors is shown in Figure 3.4-1. A 0.8-10.2 SCFM Fischer Porter rotometer was used in establishing a known leak rate.

3.2.1 Instrument List

Specifications for the instrumentation used for the Oconee Unit 3 ILRT are listed in Table 3.2-1.

3.2.2 Temperature Sensor Locations

The locations of temperature sensors within the Reactor Building are shown in Figures 3.2-2 through 3.2-6.

3.2.3 RTD and Dewpoint Volume Fractions

Volume fractions were used for calculating the average temperature and the average dewpoint temperature in the containment. These fractions were determined using an equivalent volume for each sensor. The free volume of the containment was divided into "cells" with a sensor center in each. Volume fractions are given in Table 3.2-2.

3.3 Pressurization System

Reactor Building pressurization was accomplished by one (1) electric motor driven and three (3) diesel driven air compressors operating in parallel. These compressors also include aftercoolers as integral equipment. The discharge from the compressors passes through a air dryer which reduces the moisture content in the air prior to its entry into the Reactor Building. The specifications for these components are as follows:

A. One (1) electric driven Joy Turbo-Air (20V2) centrifugal type air compressors with a capacity of 2300 SCFM @ 80 PSIG. Three (3) diesel driven Atlas Compco Oil Free Air Compressors with a capacity of 1500 SCFM @ 102 PSIG.

B. One (1) Basco size 22048 aftercoolers (Integral to Compressors), type "ES" Fixed Tubesheet, with a capacity of 2100 SCFM @ 14.4 PSIA and with a design pressure of 150 PSIG. One (1) RP Adams Aftercoolers with a capacity of 5500 SCFM @ 80 PSIA and a design pressure of 150 PSIG.

C. Three (3) Arrow (Model 3519) refrigerator type air dryer with inertial impingement separator, and a capacity of 1800 SCFM (135°F Pressure Dewpoint) @ 100 PSIG. Three (3) Atlas Copco Water Cooled Type HD-32 Air Dryer with a capacity of 1500 SCFM @ 100 psig each.

These valves, 3LRT-15, 3LRT-16, and 3LRT-17 are used to control pressurization of the Reactor Building. The controls for these valves are located in the test panel. The pressurization system is shown schematically in Figure 3.3-1. The valves used to control depressurization are as follows: 3LRT-15, 3LRT-16, and 3LRT-17 for minimum release, LRT-10, LRT-13, 2LRT-15, 2LRT-16, 1LRT-15, and 1LRT-16 for increased release, finally remove rental equipment leaving flange open to Unit 3, remove flange to Unit 1, 2 for unlimited release rate.

3.4 Recirculation System

One Reactor Building Cooling Fan was on low speed for this test.

3.5 Computer Programs

The containment integrated leak rate test specified that the test would utilize the IBM 9000 Program or the GE computer program in data analysis. Both programs calculate the mass-plot leak rate.

The off-line programs were written for and run on the IBM 9000 system. One program was used to calculate the corrected values of building pressure, temperature, and to calculate the leak rate. Tables of temperature and pressure were stored in separate permanent files.

3.5.1 ILRT Program

3.5.1.1 Purpose

This program is used to process the raw data for use in leak rate calculations and print out these values.

3.5.1.2 Program Inputs

a) 24 RTD temperatures in °F

b) 2 Dewpoint temperature in °F

c) absolute pressure in psia

3.5.1.3 Calculations

Three calculations are performed with the input data. They are:

a) Corrected building temperature

b) Vapor pressure of water from dewpoint temperatures

c) Corrected building pressure

3.5.1.4 Temperature

a) Apply the instrument calibration correction factors for each RTD, loaded as part of the program.

b) Multiply each temperature by the volume fraction associated with each RTD.

c) Sum the volume weighted temperatures for building average.

3.5.1.5 Dewpoint Temperature

a) The values entered into this program have already been corrected for instrument calibration.

b) Average the two values.

c) From the dewpoint temperature (Saturation Temperature), the vapor pressure (Saturation Pressure) is determined from the steam tables. The tables are available from the IBM as a library program.

3.5.1.6 Pressure

a) Subtract vapor pressure from input absolute pressure.

3.5.1.7 Program Summary

This program will calculate the leak rate and 95% UCL from the input data, corrected pressure and temperature, based on the mass-plot method. It includes two output options, either the leak rate calculated from the designated start/stop points or a table of the leak rate and 95% UCL for each data point. The calculations are based on the formulas in Appendix B to ANS N274, work group 56.8, revision 3 - Nov. 15, 1978. As this work is readily available, it is not duplicated here.

TABLE 3.2-1

INSTRUMENT SPECIFICATIONS

Absolute Pressure Gauge

Mfg.	Ruska
Model	6000-151-100
Range	0-100 PSIA
Resolution	0.01%
Accuracy	0.006% + 0.024 PSI
Oconee I.D.	28024 and 28025

Pressure Gauge

Mfg.	Heise
Range	0-100 psig
Accuracy	0.1 psi
Repeatability	0.1 psi

Temperature Elements

Mfg.	Rosemount
Model	78S
Type	RTD, 100 ohms
Range	0-200°F
Repeatability and hysterisis	±0.025% operating range or ±0.5°C whichever is greater
Accuracy	±.0.45°F

Temperature, Pressure and Dewpoint Indication for Sensors

Mfg.	Acurex
Model	10/50
Type	Multi Input Scanner
Range	±10V
GO I.D.	SNPRF-44075
Accuracy	±0.005 Range ±0.015% Reading RTD ±0.005 Range ±0.005% Reading Ruska and Dewpoint

Dewpoint Temperature

Mfg.	General Eastern
Model	712
Range	120°F
Accuracy	±0.4°F
Sensitivity	±0.05°F
Standard Lab I.D.	SNPRF40378 and SNPRF40379

TABLE 3.2-1 (Cont'd)

Flow Indicator

Mfg.	Fischer Porter
Type	Rotometer
Model	10A3555S
Range	0.8 to 10.2 SCFM
Accuracy	± 1% of Maximum Flow
Repeatability	±0.5 Full Scale
Serial No.	OCPRF 28202

TABLE 3.2-2

VOLUME FRACTIONS

Volume Fractions for RTDS

RTD #		Volume Fraction
1		.03
2		.02
3		.02
4		.05
5		.02
6		.03
7		.01
8		.08
9		.05
10		.05
11		.02
12		.02
13		.01
14		.02
15		.02
16		.01
17		.05
18		.09
19		.11
20		.01
21		.01
22		.09
23		.11
24		.07
	Total	1.00

Dewpoint Sensors Volume Fraction

Dewpoint Sensor #		Volume Fraction
1 (Azimuth 100° Elevation 850')		0.4
2 (Azimuth 260° Elevation 850')		0.6
	Total	1.0

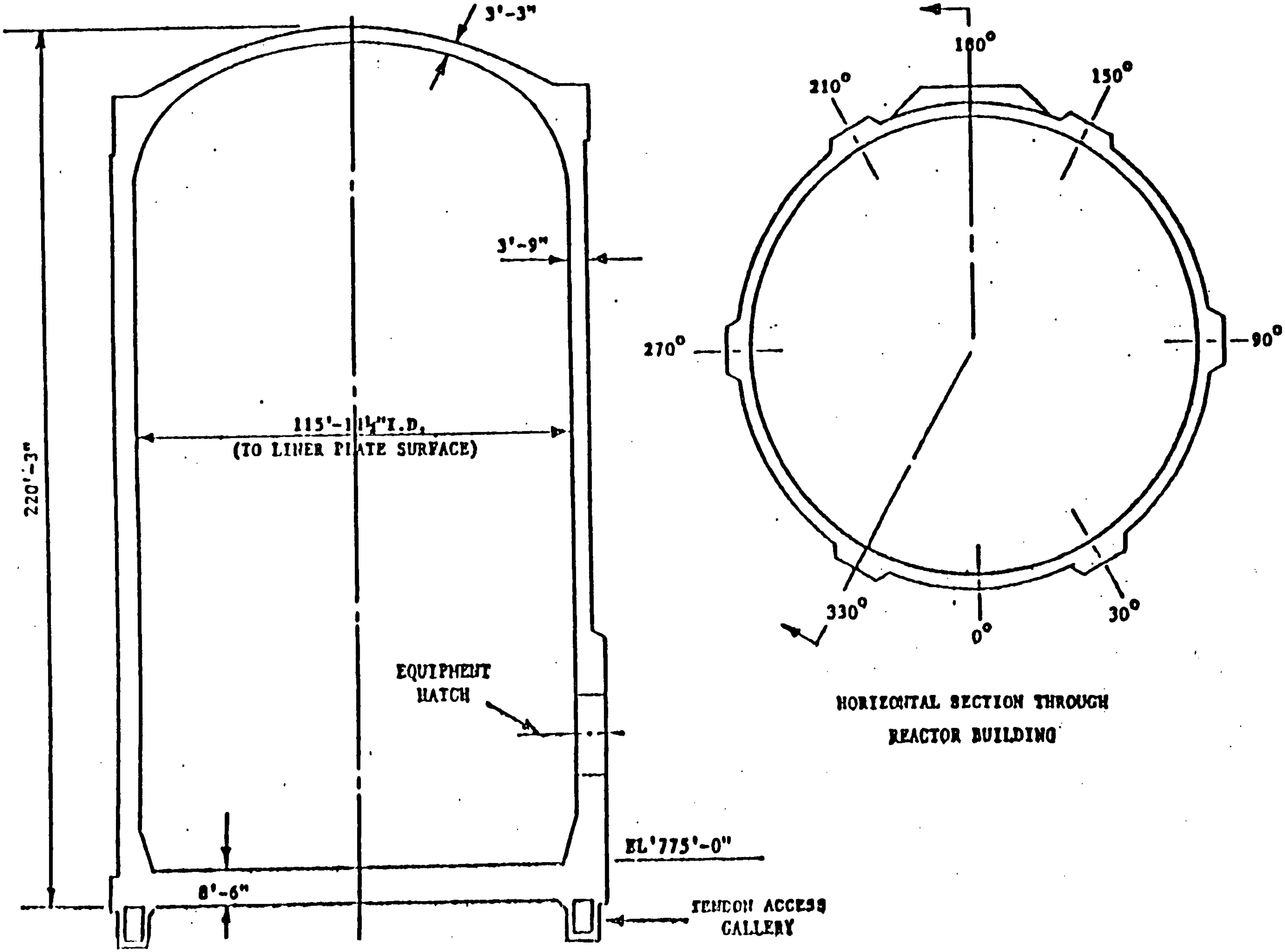

3'-3"
3'-9"
220'-3"
115'-11¼" I.D.
(TO LINER PLATE SURFACE)
EQUIPMENT HATCH
EL'775'-0"
8'-6"
TENDON ACCESS GALLERY
180°
210°
150°
270°
90°
330°
0°
30°
HORIZONTAL SECTION THROUGH REACTOR BUILDING

Figure 3.1-1

LEAK RATE MEASUREMENT SYSTEM

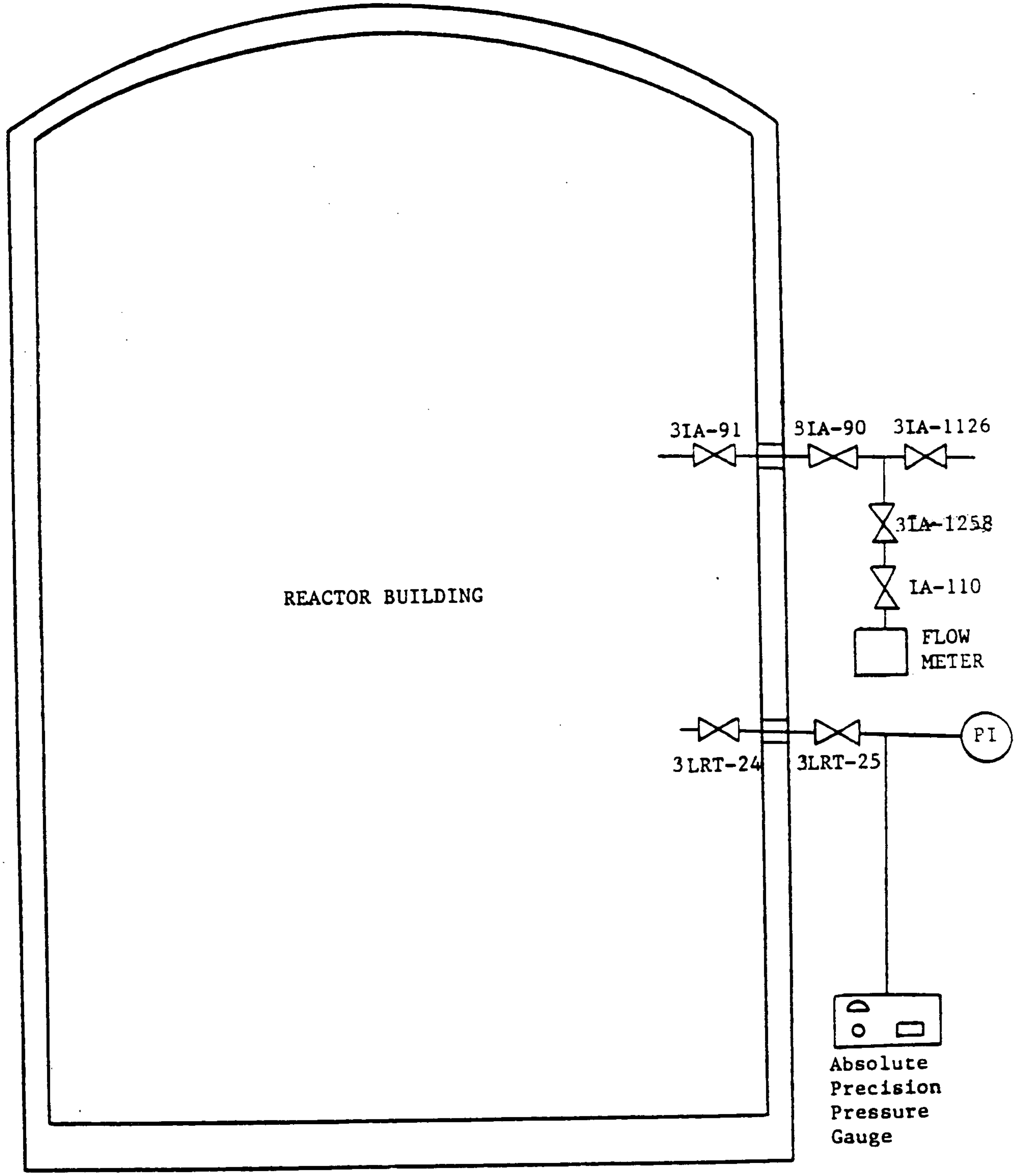


Figure 3.2-1 Test Measurement System Schematic.

REACTOR BUILDING

BASEMENT FLOOR

ELEVATION 787'

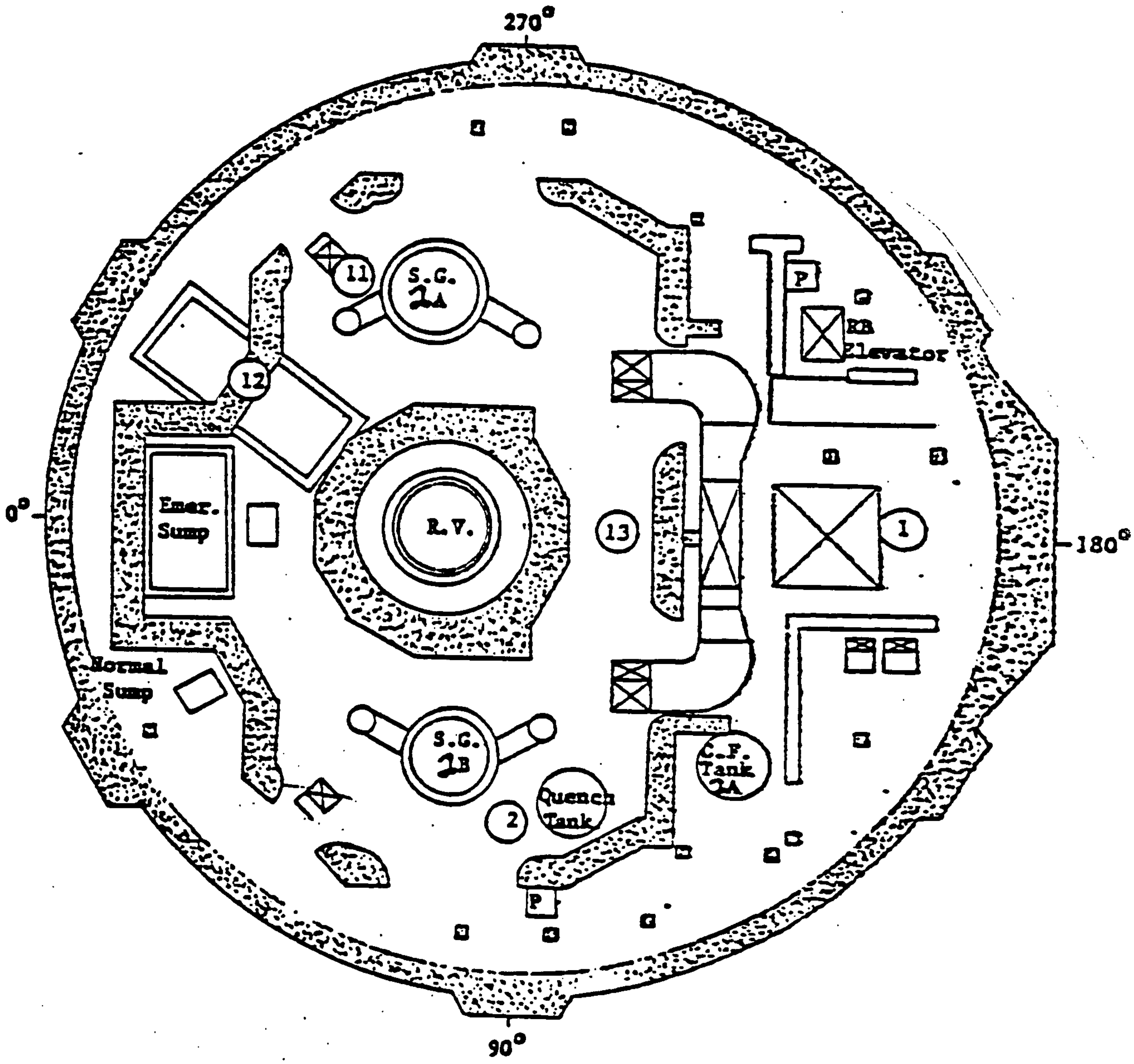


Figure 3.2-2

REACTOR BUILDING

INSTERMEDIATE FLOOR

ELEVATION 830'

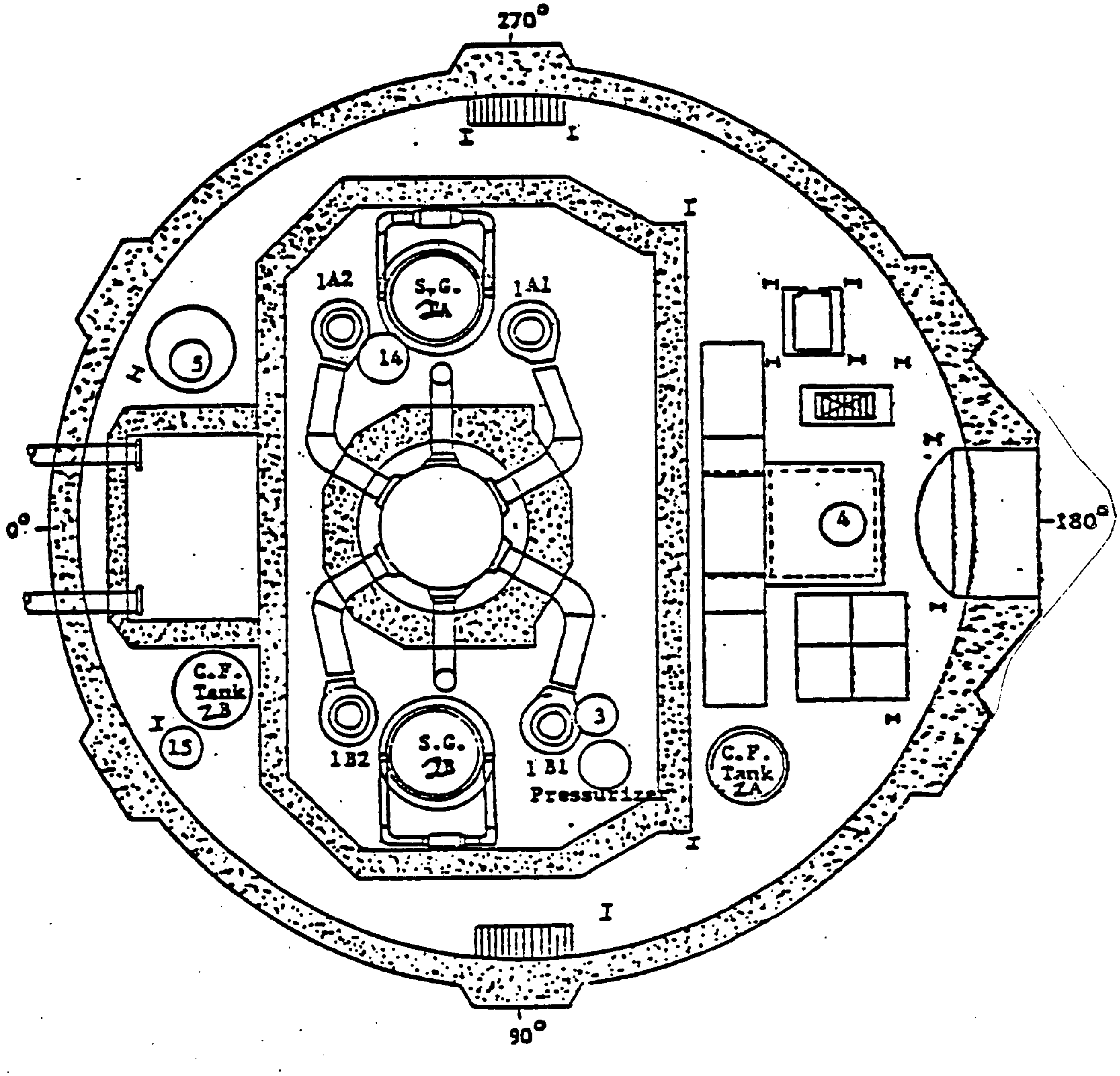


Figure 3.2-3

REACTOR BUILDING
OPERATING FLOOR
ELEVATION 850'

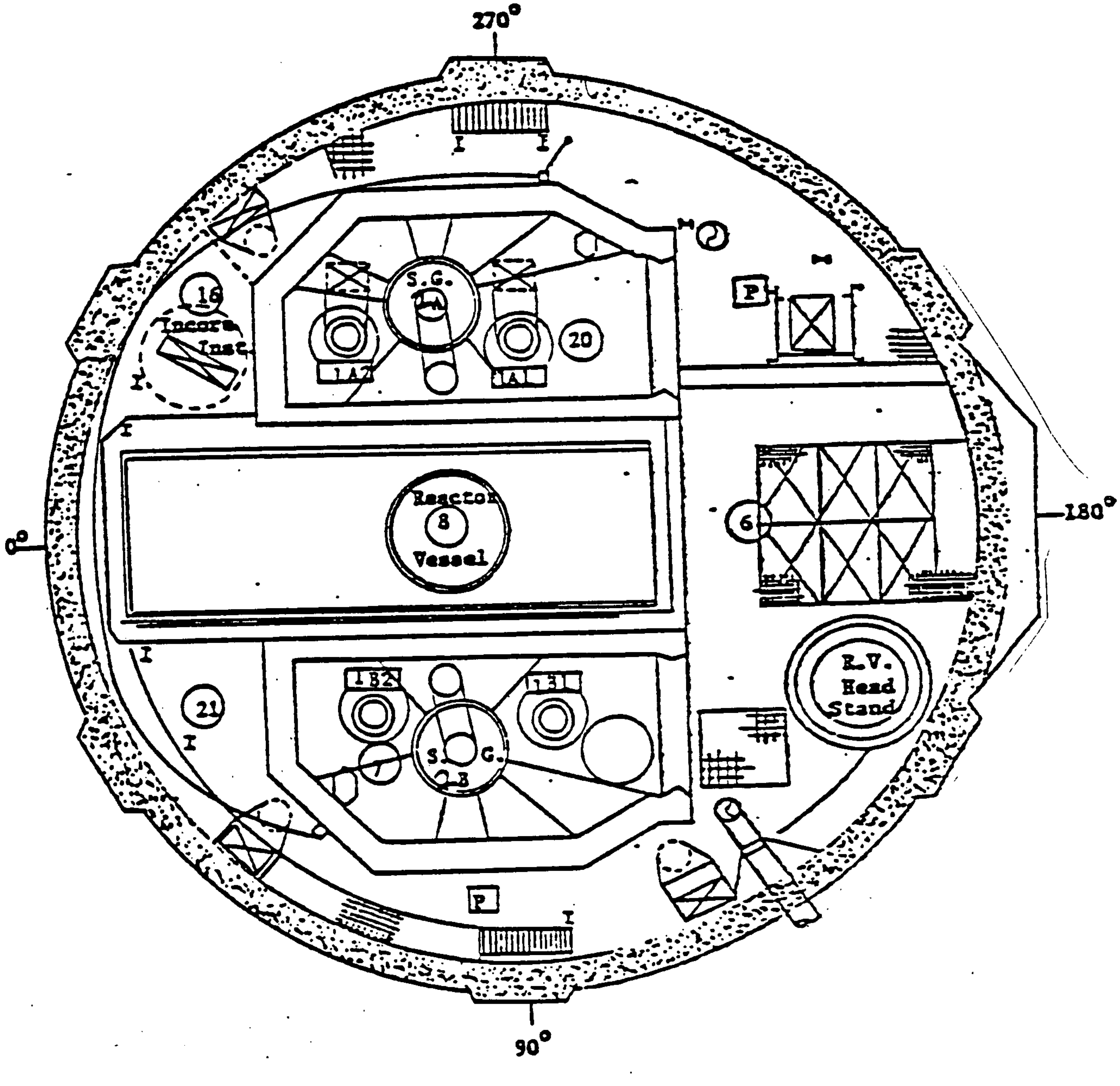


Figure 3.2-4

REACTOR BUILDING

SHIELDING FLOOR

ELEVATION 866'

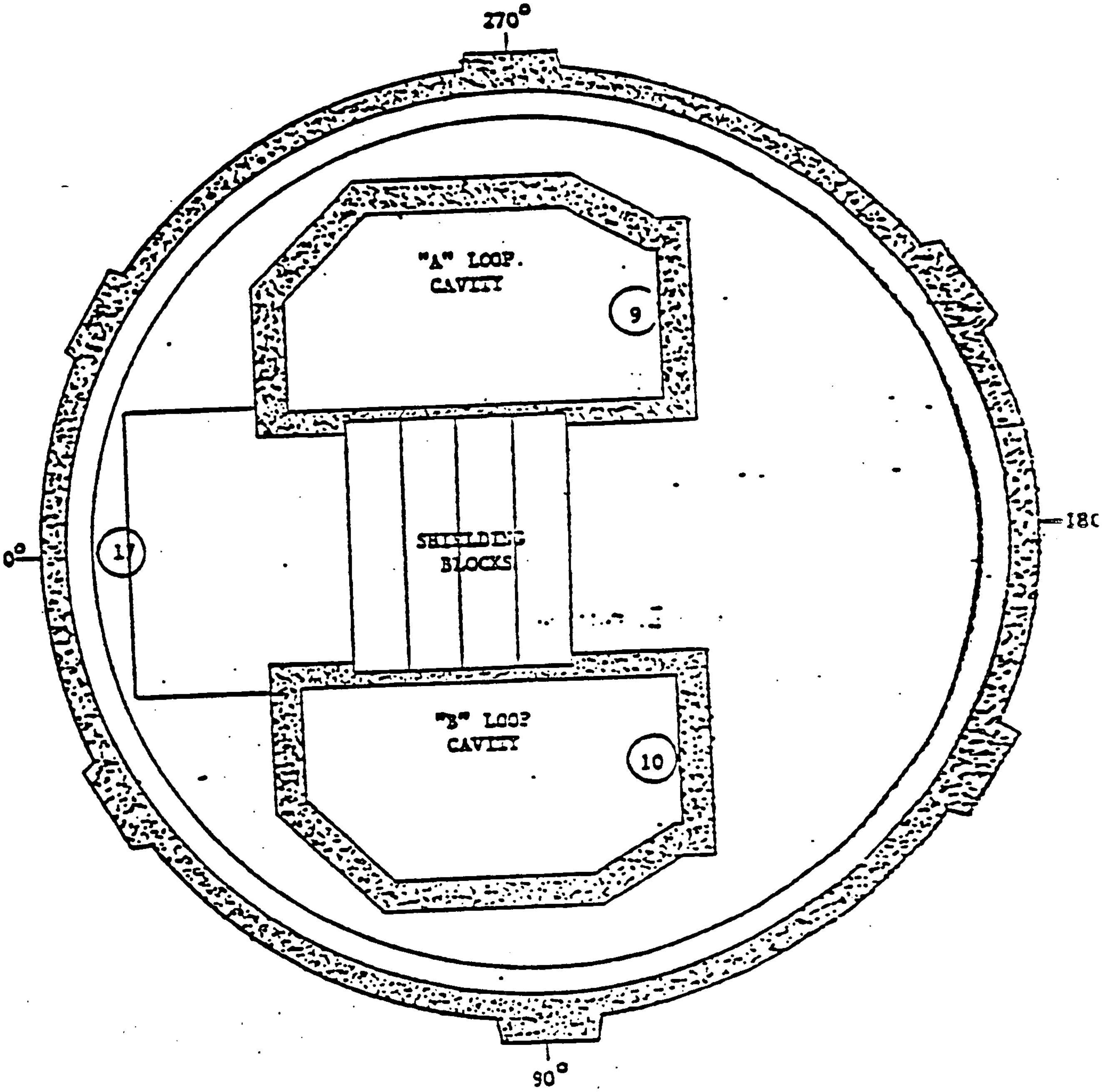


Figure 3.2-5

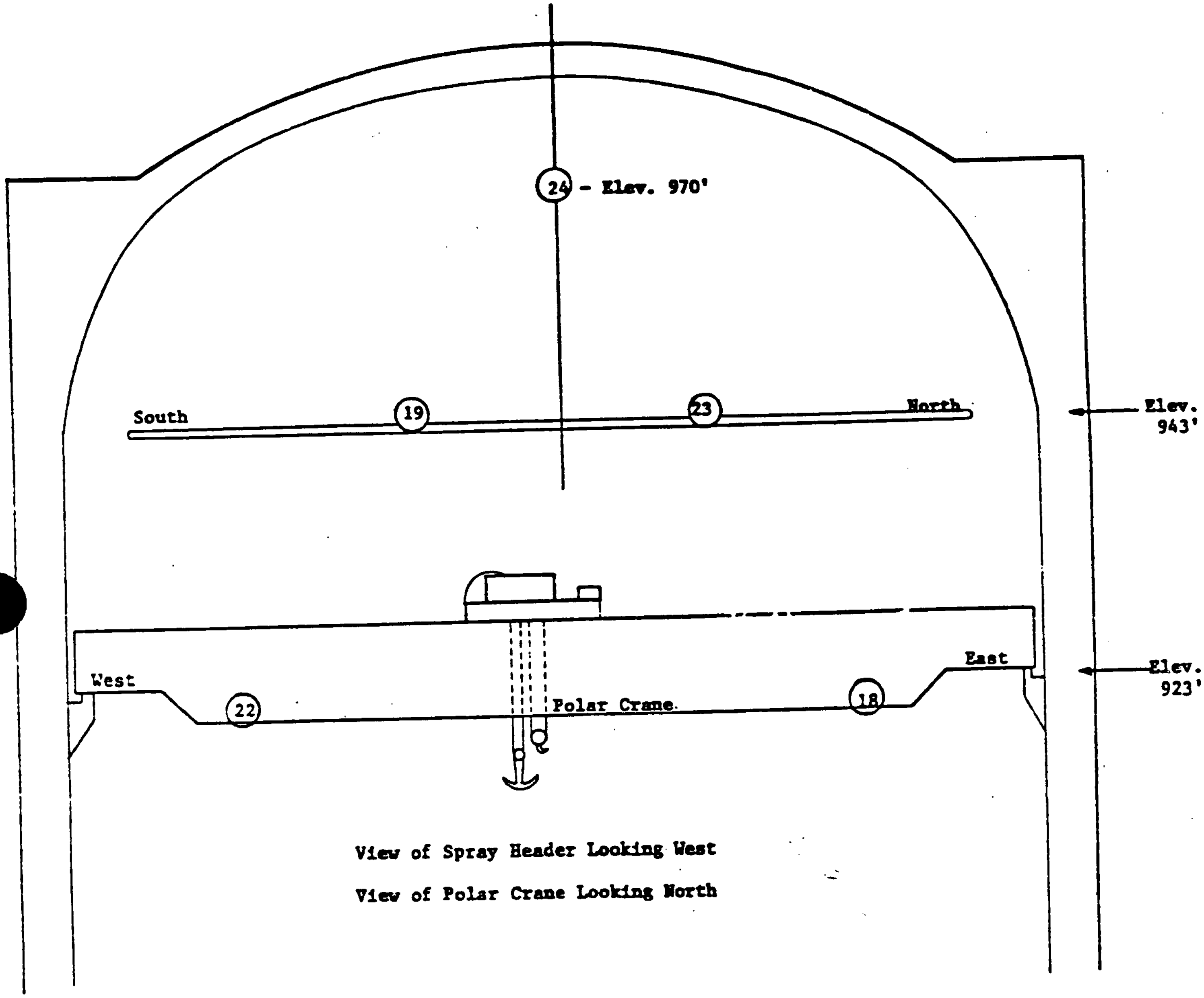

24 - Elev. 970'
South
19
23
North
Elev. 943'
West
22
Polar Crane
18
East
Elev. 923'
View of Spray Header Looking West
View of Polar Crane Looking North

Figure 3.2-6

REACTOR BUILDING PRESSURIZATION SYSTEM

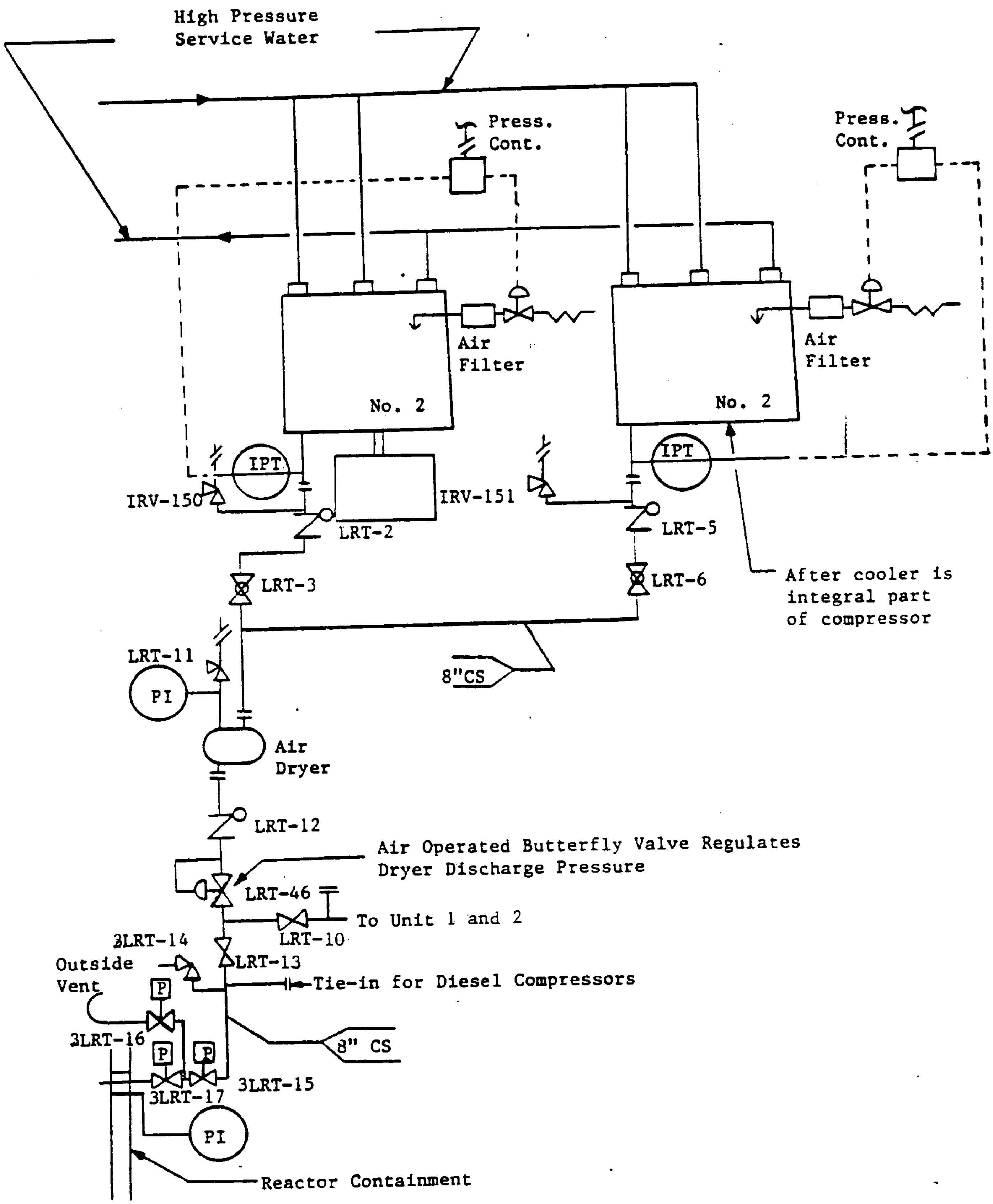


Figure 3.3-1

REACTOR BUILDING AIR RECIRCULATION SYSTEM

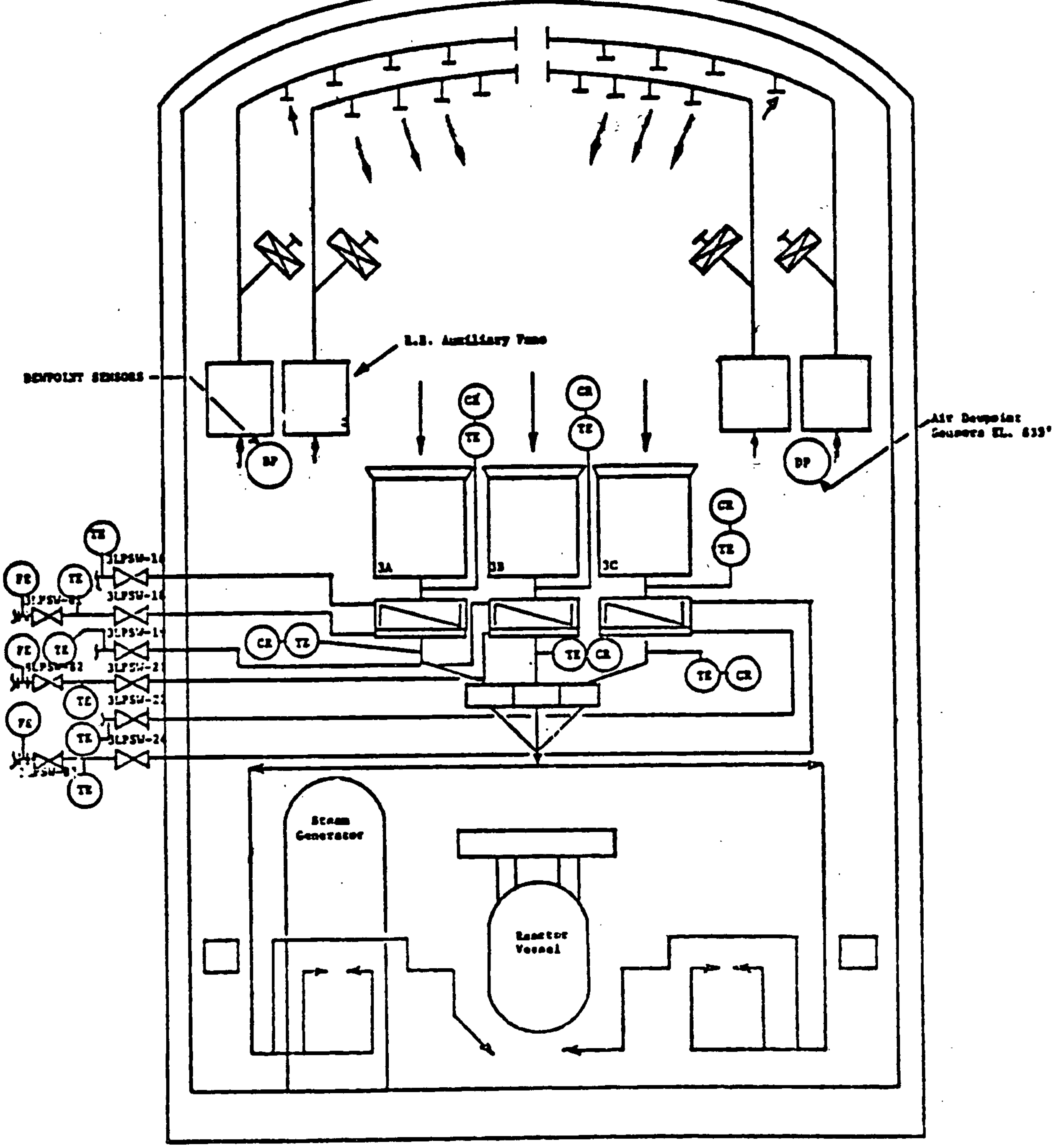


Figure 3.4-1

4.0 Conduct of Local Leak Tests

4.1 Local Leak Rate Test

The purpose of the Local Leak testing program was to systematically check the integrity of valves (seats and packing), flanges, pipe and electrical penetration welds, seals and compression fittings that are part of the boundaries of the containment system. These tests, specified by section 4.4.1.2 of the Technical Specifications, have a combined Acceptance Criteria of less than or equal to 0.125% of the Reactor Building atmosphere per 24 hours. Final analysis of all penetration leakage rates shows that the total as left penetration leakage rate was approximately 11.1 percent of the allowable, see Table 4.1-1. The total as found penetration leakage is given in Table 4.1-1A.

4.1.1 Test Method

All electrical and mechanical penetration, including locks and hatches, were tested by pressurizing ~59 PSIG. The pressure, temperature and barometric pressure were recorded before and after the leak test (duration of test determined by penetration volume) and the leak rate determined by the mass difference method, or volume make-up method.

4.1.2 Penetration Test Results

Per Technical Specification 4.4.1.2.3, the total leakage from all penetrations and isolation valves shall not exceed 0.125% of the Reactor Building air mass in 24 hours. The total measured leak rate from all penetrations prior to this test was ~0.023 wt% per 24 hours. Results of all local penetration tests done since the last type A test are given in Tables 4.1-3 through 4.1-4.

4.2 Additional Local Leak Rate Tests

The purpose of the Local Leak testing program was to systematically check the integrity of valves (seats and packing) that are part of the boundaries of the containment system. Final analysis of all these penetration leakage rates shows that the contribution to the total as left leakage rate was approximately 7.9 percent of the allowable, see Table 4.1-2. The as found leakage is given in Table 4.1-2A.

4.3 Local Leak Test Failure Data

Per 10CFR50, Appendix J, V.B.3, a listing of all type "C local leak tests that have failed to meet the acceptance criteria since the last ILRT are reported in Table 4.2.

TABLE 4.1-1

LOCAL TYPE "C" VALVE TESTS
AS LEFT

PENETRATION IDENTIFICATION	LOW LEAKAGE VALVE(S)	LOW LEAKAGE LEAK WT%/DAY	HIGH LEAKAGE VALVE(S)	HIGH LEAKAGE LEAK WT%/DAY
2	3FDW-106, 117, 118	4.286×10^{-5}	3FDW-105	4.286×10^{-5}
3	3CC-24	1.116×10^{-4}	3CC-24	3.768×10^{-5}
5a	3LWD-1	8.95×10^{-6}	3LWD-27, 28, 2	1.794×10^{-5}
5b	3RC-165	6.123×10^{-6}	3RC-164	9.892×10^{-6}
6	3HP-3, 4	6.17×10^{-5}	3HP-5, 36, 37	2.228×10^{-4}
7	3HP-21, 68, 69	3.015×10^{-5}	3HP-20	7.489
10a	3HP-216, 225, 285	0.000	3HP-146	0.000
10b	3HP-147	1.404×10^{-4}	3HP-285 223, 225	2.823×10^{-4}
11a	Flange	0.000		0.000
11b	SSF-3SF-82, 98, 99	2.308×10^{-5}	SSF-3SF-97	5.652×10^{-4}
11c	3SF-72, 73	0.000	3SF-74	0.000
12a	Flange	9.421×10^{-7}		9.421×10^{-7}
12b	SSF-3HP-405, 417, 423, 425, 426	6.684×10^{-5}	SSF-3HP-428	0.000
18	3GWD-12	1.884×10^{-5}	3GWD-10, 11, 13	5.276×10^{-5}
19	PR-6	7.518×10^{-4}	PR-5, 29	1.504×10^{-3}
20	PR-1	4.585×10^{-3}	PR-2, 27	9.17×10^{-3}
23a	3HP-145	7.89×10^{-5}	3HP-283, 209, 211	1.623×10^{-4}

TABLE 4.1-1 (Cont'd)
AS LEFT

PENETRATION IDENTIFICATION	LOW LEAKAGE		HIGH LEAKAGE	
	VALVE(S)	LEAK WT%/DAY	VALVE(S)	LEAK WT%/DAY
23b	3HP-144	1.538×10^{-4}	3HP-284, 202, 204	3.086×10^{-4}
24	3PR-81	0.000	3HP-84	0.000
29	3CS-5, 24	1.743×10^{-5}	3CS-6, 23, 25	0.000
38	3CS-12	1.296×10^{-4}	3CS-18, 11, 17	2.501×10^{-4}
42	3PR-90	0.000	3PR-87	0.000
44	3CC-76	3.528×10^{-4}	3CC-77, 80, 82	4.352×10^{-4}
45a	3LRT-24	0.000	3LRT-25	0.000
45b	3LRT-39	0.000	3LRT-38	1.696×10^{-5}
45c	3LRT-36	1.366×10^{-5}	3LRT-37	2.92×10^{-5}
46	3FW-64	6.759×10^{-6}	3FW-65, 66	1.352×10^{-7}
54	3CC-7	1.507×10^{-5}	3CC-8, 54, 55, 56	3.297×10^{-5}
55	3DW-60	0.000	3DW-59	2.308×10^{-6}
58a	3RC-7, 49, 50	0.000	3RC-5, 6	0.000
58b	3FDW-107	0.000	3FDW-108, 122, 123	6.123×10^{-6}
60	3PR-7, 59	2.355×10^{-5}	3PR-8, 23, 68	4.71×10^{-5}
61	3PR-9, 60	2.355×10^{-6}	3PR-10, 25	4.71×10^{-6}

TABLE 4.1-1A

LOCAL TYPE "C" VALVE TESTS
AS FOUND

PENETRATION IDENTIFICATION	LOW LEAKAGE VALVE(S)	LOW LEAKAGE LEAK WT%/DAY	HIGH LEAKAGE VALVE(S)	HIGH LEAKAGE LEAK WT%/DAY
2	3FDW-105	0.000	3FDW-106, 117, 118	1.201×10^{-3}
3	3CC-20, 21, 22	1.829×10^{-3}	3CC-24	could not be determined
5a	3LWD-1	0.000	3LWD-27, 29	3.768×10^{-8}
5b	3RC-165	6.123×10^{-6}	3RC-164	9.892×10^{-6}
6	3HP-5, 36, 37	1.126×10^{-4}	3HP-3, 4	1.351×10^{-4}
7	3HP-20	1.507×10^{-5}	3HP-21, 68, 69	3.015×10^{-5}
10a	3HP-146	1.13×10^{-6}	3HP-286, 216, 218	2.261×10^{-6}
10b	3HP-147	4.973×10^{-4}	3HP-285, 223, 225	1.007×10^{-3}
11a	Flange	0.000		0.000
11b	SSF-3SF-97	5.652×10^{-6}	SSF-3SF-82, 98, 99	2.308×10^{-5}
11c	3SF-72, 73	0.000	3SF-74	0.000
12a	Flange	0.000		0.000
12b	SSF-3HP-428	0.000	SSF-3HP-405, 417, 423, 425, 426	6.684×10^{-5}
18	3GWD-12		3GWD-10, 11, 13	2.52×10^{-4}
19	PR-5 PR-6	2.578×10^{-3}	PR-5 PR-6	5.158×10^{-3}
20	PR-1 PR-2	2.171×10^{-3}	PR-1 PR-2	4.342×10^{-3}

TABLE 4.1-1A (Cont'd)
AS FOUND

PENETRATION IDENTIFICATION	LOW LEAKAGE		HIGH LEAKAGE	
	VALVE(S)	LEAK WT%/DAY	VALVE(S)	LEAK WT%/DAY
22	Inside Valves	9.383×10^{-5}	3LPSW-15, 144, 145	3.618×10^{-3}
23a	3HP-145	7.89×10^{-5}	3HP-283, 209, 211	1.623×10^{-4}
23b	3HP-144	1.813×10^{-6}	3HP-284, 202, 204	4.616×10^{-6}
24	3PR-81	0.000	3HP-84	0.000
29	3CS-5	1.491×10^{-3}	3CS-6, 23 24, 25	3.07×10^{-3}
38	3CS-12	1.276×10^{-4}	3CS-11, 17, 18	2.501×10^{-4}
42	3PR-90	0.000	3PR-87	0.000
44	3CC-76	1.294×10^{-3}	3CC-77, 80, 82	Could not be determined
45a	3LRT-24	0.000	3LRT-25	0.000
45b	3LRT-39	0.000	3LRT-38	1.696×10^{-5}
45c	3LRT-37	0.000	3LRT-36	1.502×10^{-4}
46	3FW-64	3.65×10^{-4}	3FW-65, 66	7.301×10^{-4}
54	3CC-7	3.266×10^{-3}	3CC-8, 56	1.025×10^{-2}
55	3DW-60	0.000	3DW-59	2.308×10^{-6}
58a	3RC-5, 6	0.000	3RC-7	2.355×10^{-6}
58b	3FDW-107	9.421×10^{-7}	3FDW-108, 122, 123	4.71×10^{-6}
60	3PR-7, 59	2.567×10^{-5}	3PR-8, 23, 68	5.398×10^{-5}
61	3PR-9, 60	6.076×10^{-6}	3PR-10, 25	1.215×10^{-5}

TABLE 4.1-2

ADDITIONAL LOCAL TYPE "C" VALVE TESTS
AS LEFT

PENETRATION IDENTIFICATION	LOW LEAKAGE		HIGH LEAKAGE	
	VALVE(S)	LEAK WT%/DAY	VALVE(S)	LEAK WT%/DAY
4	3FDW-104	7.513×10^{-6}	3FDW-	2.179×10^{-5}
39	3CF-34	0.000	3CF-35, 36	0.000
41	3IA-90	1.276×10^{-4}	3IA-91	2.252×10^{-4}
43	3FDW-103	1.696×10^{-6}	3FDW-103	1.015×10^{-5}
48	3BA-53	2.176×10^{-4}	3BA-33	2.586×10^{-4}
51	3LRT-17	6.006×10^{-5}	3LRT-17	6.006×10^{-5}
53	3N-263	0.000	3N-246, 247	0.000
RB Emer Hatch Equalizer Valve	Outer	0.000	Inner	1.170×10^{-7}
RB Emer Hatch Equalizer Line	Outer	1.170×10^{-7}	Inner	4.680×10^{-6}

TABLE 4.1-2A

ADDITIONAL LOCAL TYPE "C" VALVE TESTS
AS FOUND

PENETRATION IDENTIFICATION	LOW LEAKAGE VALVE(S)	LOW LEAKAGE LEAK WT%/DAY	HIGH LEAKAGE VALVE(S)	HIGH LEAKAGE LEAK WT%/DAY
4	3FDW-104	5.252×10^{-6}	3FDW-	1.726×10^{-5}
39	3CF-34	0.000	3CF-35, 36, 37	0.000
41	3IA-91	6.679×10^{-4}	3IA-90	9.505×10^{-4}
43	3FDW-103	2.325×10^{-5}	3FDW-	7.89×10^{-4}
48	3BA-33	1.464×10^{-3}	3BA-5	1.959×10^{-3}
51	3LRT-17	6.006×10^{-5}	3LRT-17	6.006×10^{-5}
53	3N-263	3.189×10^{-4}	3N-246, 247	1.322×10^{-3}
RB Emer Hatch Equalizer Valve	Outer	0.000	Inner	1.170×10^{-7}
RB Emer Hatch Equalizer Line	Outer	1.170×10^{-7}	Inner	4.680×10^{-6}

TABLE 4.1-3

TYPE "B" TESTS

PERFORMED SINCE THE LAST ILRT

PENETRATION	DATE	WT%/DAY LEAKAGE
Electrical Penetrations	11/14/85	9.421×10^{-7}
	09/04/85	2.167×10^{-6}
	01/23/87	1.903×10^{-5}
Equipment Hatch	10/01/85	4.710×10^{-7}
	10/21/85	4.710×10^{-7}
	11/14/85	4.710×10^{-7}
	12/19/86	4.239×10^{-6}
	05/23/84	2.595×10^{-4}
	08/28/84	1.557×10^{-3}
	11/15/84	2.356×10^{-3}
	02/14/85	5.134×10^{-5}
	03/28/85	3.639×10^{-3}
	10/03/85	0.000
	10/22/85	2.986×10^{-4}
	11/15/85	0.000
	12/10/85	0.000
	05/16/86	7.376×10^{-4}
	10/19/86	1.660×10^{-3}
	10/27/86	0.000
Personnel Hatch O'Rings	09/11/84	1.884×10^{-6}
	09/25/84	6.59×10^{-6}
	10/08/24	8.008×10^{-6}
	10/23/84	9.421×10^{-6}
	11/04/84	3.203×10^{-5}
	11/18/84	9.421×10^{-6}
	11/20/84	6.123×10^{-6}
	01/07/85	1.884×10^{-6}
	01/17/85	1.036×10^{-5}
	02/17/85	2.214×10^{-5}
	03/30/85	1.884×10^{-5}
	04/08/85	5.652×10^{-6}
	04/11/85	3.768×10^{-6}
	04/13/85	7.536×10^{-8}
	04/15/85	1.884×10^{-6}
	04/19/85	5.652×10^{-6}
	04/24/85	3.203×10^{-6}
	07/03/85	3.768×10^{-6}
	10/06/85	3.297×10^{-6}
	10/08/85	5.652×10^{-6}
	10/24/85	5.652×10^{-6}
	11/17/85	9.421×10^{-6}
	11/22/85	3.768×10^{-6}
	12/05/85	6.594×10^{-6}
	03/20/86	7.536×10^{-6}
	05/29/86	8.290×10^{-6}

TABLE 4.1-3 (Cont'd)

PENETRATION	DATE	WT%/DAY LEAKAGE
Personnel Hatch O'Rings (Cont'd)	06/04/86	7.536×10^{-6}
	06/11/86	1.324×10^{-5}
	06/20/86	6.594×10^{-6}
	06/25/86	1.554×10^{-5}
	06/28/86	8.479×10^{-6}
	07/02/86	7.536×10^{-6}
	07/30/86	1.149×10^{-5}
	08/11/86	6.971×10^{-6}
	08/22/86	9.421×10^{-6}
	09/11/86	1.319×10^{-5}
	10/22/86	8.950×10^{-6}
	10/29/86	1.206×10^{-5}
	10/31/86	4.852×10^{-6}
	11/20/86	8.102×10^{-6}
	09/11/84	1.554×10^{-4}
	12/06/84	2.845×10^{-4}
	04/25/85	3.307×10^{-4}
	09/25/85	2.591×10^{-4}
	02/19/86	1.262×10^{-4}
	07/17/86	1.192×10^{-4}
	03/10/87	1.412×10^{-4}
Purge Valves	11/15/84	2.308×10^{-3}
	05/22/84	3.457×10^{-3}
	10/01/85	3.663×10^{-3}
	10/21/85	4.500×10^{-3}
	11/14/85	6.974×10^{-3}
	12/06/85	7.569×10^{-3}
	10/18/86	8.649×10^{-3}
	10/26/86	9.074×10^{-3}
	12/18/86	9.500×10^{-3}

TABLE 4.1-4

TYPE "C" TESTS

PERFORMED SINCE THE LAST ILRT

PENETRATION	DATE	WT%/DAY LEAKAGE
Mechanical Penetration	09/29/85	3.541×10^{-3}
	10/18/85	2.276×10^{-3}
	08/22/86	2.826×10^{-7}
	10/19/86	5.994×10^{-3}

TABLE 4.2

LOCAL TEST FAILURE DATA

ITEM	DATE	REASON FOR FAILURE	CORRECTIVE ACTION
Type C			
3LRT-87	08/14/85	Packing Leak	
3LRT-24	08/13/85	Packing Leak	Replaced Packing
3CC-7	08/19/85	Leaking Past Seat	Repaired Seat and Repacked Valve
3PR-10	09/20/85	Leaking Past Seat	Replaced Diaphram
3HP-417	08/16/85	Leaking Past Seat	Tightened nut on Stem Adapter
3LWD-27	08/29/85	Packing Leak	Added Packing
3GWD-11	10/15/86	Leaking Past Seat	Replaced Valve
3HP-68	10/06/86	Leaking Past Seat	Replaced Valve
3CS-5	10/15/86	Leaking Past Seat	Reset Limit Switch
3CS-23	10/18/86	Leaking Past Seat	Replaced Valve
3PR-6	03/20/85	Leaking Past Seat	Adjusted Seat
3PR-1	03/20/85	Leaking Past Seat	Adjusted Seat
3PR-2	03/20/85	Leaking Past Seat	Adjusted Seat
3PR-5	03/13/87	Leak Past Seat	Adjusted Valve Seat
3PR-6	03/13/87	Leak Past Seat	Adjusted Valve Seat.
3PR-2	03/14/87	Leak Past Seat	Adjusted Valve Seat
3PR-1	03/15/87	Leak Past Seat	Adjusted Valve Seat

DUKE POWER COMPANY

OCONEE NUCLEAR STATION UNIT 3

CONTAINMENT INTEGRATED LEAK RATE TEST March 17/18,1987

LEAK RATE ANALYSIS BY READING PAGE 1

RDG	TIME (MINUTES)	NORM. MASS	OBSERVED LEAK (%/DAY)	MAXIMUM LEAK (%/DAY)
129	0	.100000D+01	??????????????	??????????????
130	10	.100033D+01	-.474234D+01	??????????????
131	20	.100022D+01	-.160531D+01	.138910D+02
132	30	.100026D+01	-.964959D+00	.165441D+01
133	40	.100038D+01	-.999778D+00	.211367D+00
134	50	.100036D+01	-.825403D+00	-.781532D-01
135	60	.100026D+01	-.512038D+00	.107336D+00
136	70	.100029D+01	-.375424D+00	.934057D-01
137	80	.100017D+01	-.178240D+00	.237633D+00
138	90	.100014D+01	-.377963D-01	.321031D+00
139	100	.100028D+01	-.521541D-01	.237063D+00
140	110	.100024D+01	-.353587D-01	.203220D+00
141	120	.100021D+01	-.141663D-01	.186828D+00
142	132	.100013D+01	.361230D-01	.214605D+00
143	142	.999942D+00	.134207D+00	.317632D+00
144	152	.100034D+01	.700738D-01	.242422D+00
145	162	.100021D+01	.617868D-01	.213303D+00
146	172	.100008D+01	.881680D-01	.224854D+00
147	182	.100010D+01	.101626D+00	.224189D+00
148	192	.100001D+01	.128002D+00	.241051D+00
149	202	.100014D+01	.121254D+00	.223443D+00
150	212	.100010D+01	.121968D+00	.214612D+00
151	221	.100003D+01	.131872D+00	.216719D+00
152	232	.999988D+00	.143931D+00	.222280D+00
153	242	.100010D+01	.137436D+00	.209549D+00
154	252	.100010D+01	.130831D+00	.197516D+00
155	262	.100009D+01	.135240D+00	.187074D+00
156	272	.999926D+00	.137632D+00	.190195D+00
157	282	.100004D+01	.135820D+00	.190270D+00
158	292	.999955D+00	.140955D+00	.191940D+00
159	302	.100006D+01	.133237D+00	.181459D+00
160	312	.999952D+00	.135890D+00	.181114D+00
161	322	.100006D+01	.129624D+00	.172500D+00
162	332	.999934D+00	.128774D+00	.169095D+00
163	342	.999841D+00	.137886D+00	.176698D+00
164	352	.999912D+00	.140385D+00	.177279D+00
165	362	.999780D+00	.149926D+00	.186023D+00
166	372	.999859D+00	.152880D+00	.187174D+00
167	382	.999764D+00	.159996D+00	.193244D+00
168	392	.999919D+00	.157465D+00	.183128D+00

LEAK RATE ANALYSIS BY READING PAGE 2

RDG	TIME (MINUTES)	NORM. MASS	OBSERVED LEAK (%/DAY)	MAXIMUM LEAK (%/DAY)
169	402	.999943D+00	.153687D+00	.184015D+00
170	412	.999855D+00	.153940D+00	.182810D+00
171	422	.999704D+00	.160489D+00	.188733D+00
172	432	.999859D+00	.159000D+00	.185988D+00
173	442	.999738D+00	.162287D+00	.188262D+00
174	452	.999870D+00	.155472D+00	.184459D+00
175	462	.999831D+00	.158059D+00	.182014D+00
176	472	.999705D+00	.161007D+00	.184134D+00
177	482	.999793D+00	.160133D+00	.182223D+00
178	492	.999767D+00	[illegible]	[illegible]
179	514	.999779D+00	.158406D+00	.178855D+00
180	524	.999842D+00	.154726D+00	.174632D+00
181	535	.999815D+00	.151930D+00	.171211D+00
182	545	.999711D+00	.152227D+00	.170754D+00
183	555	.999720D+00	.151933D+00	.169751D+00
184	565	.999675D+00	.152634D+00	.169797D+00
185	575	.999751D+00	.150978D+00	.167586D+00
186	585	.999821D+00	.147460D+00	.163813D+00
187	595	.999722D+00	.146465D+00	.162272D+00
188	605	.999840D+00	.142574D+00	.158277D+00
189	615	.999781D+00	.140164D+00	.155583D+00
190	625	.999632D+00	.141043D+00	.155583D+00
191	635	.999564D+00	.143078D+00	.157583D+00
192	645	.999534D+00	.145313D+00	.159518D+00
193	655	.999659D+00	.144678D+00	.158451D+00
194	665	.999589D+00	.145256D+00	.158616D+00
195	675	.999651D+00	.144435D+00	.157413D+00
196	685	.999744D+00	.141836D+00	.154672D+00
197	695	.999823D+00	.137598D+00	.150918D+00
198	705	.999559D+00	.138613D+00	.151276D+00
199	715	.999659D+00	.137470D+00	[illegible]
200	725	.999691D+00	.135746D+00	.147860D+00
201	735	.999476D+00	.137366D+00	[illegible]
202	745	.999596D+00	.136692D+00	.148457D+00
203	755	.999608D+00	.136120D+00	.147408D+00
204	765	.999461D+00	.137386D+00	.148443D+00
205	775	.999660D+00	.135639D+00	.146537D+00
206	786	.999663D+00	.133851D+00	.144606D+00
207	795	.999533D+00	.133805D+00	.144287D+00
208	806	.999547D+00	.133463D+00	.142087D+00

DUKE POWER COMPANY

OCONEE NUCLEAR STATION UNIT 3

CONTAINMENT INTEGRATED LEAK RATE TEST March 17/18,1987

LEAK RATE ANALYSIS BY READING PAGE 3

RDG	TIME (MINUTES)	NORM. MASS	OBSERVED LEAK (%/DAY)	MAXIMUM LEAK (%/DAY)
209	816	.999599D+00	.132370D+00	.142397D+00
210	826	.999597D+00	.131263D+00	.141103D+00
211	836	.999464D+00	.131724D+00	.141337D+00
212	846	.999580D+00	.130685D+00	.140122D+00
213	858	.999522D+00	.130257D+00	.139480D+00
214	868	.999440D+00	.130681D+00	.139698D+00
215	878	.999513D+00	.130168D+00	.138991D+00
216	888	.999442D+00	.130354D+00	.138977D+00
217	896	.999641D+00	.128350D+00	.136996D+00
218	908	.999433D+00	.128518D+00	.136973D+00
219	916	.999580D+00	.127108D+00	.135488D+00
220	928	.999268D+00	.128763D+00	.137114D+00
221	938	.999518D+00	.127635D+00	.136055D+00
222	948	.999426D+00	.127739D+00	.135784D+00
223	958	.999362D+00	.126163D+00	.136249D+00
224	968	.999648D+00	.125902D+00	.133926D+00
225	978	.999380D+00	.126063D+00	.133524D+00
226	988	.999450D+00	.125533D+00	.133254D+00
227	998	.999380D+00	.125556D+00	.133118D+00
228	1008	.999445D+00	.124958D+00	.132391D+00
229	1018	.999439D+00	.124379D+00	.131687D+00
230	1028	.999449D+00	.123683D+00	.130881D+00
231	1038	.999403D+00	.123323D+00	.130390D+00
232	1048	.999513D+00	.122074D+00	.129109D+00
233	1056	.999345D+00	.122094D+00	.128995D+00
234	1069	.999453D+00	.121198D+00	.128024D+00
235	1079	.999448D+00	.120372D+00	.127116D+00
236	1089	.999478D+00	.119315D+00	.126014D+00
237	1099	.999455D+00	.118418D+00	.125251D+00
238	1109	.999367D+00	.118116D+00	.124636D+00
239	1119	.999473D+00	.117261D+00	.123547D+00
240	1129	.999357D+00	.116778D+00	.123152D+00
241	1139	.999391D+00	.116232D+00	.122515D+00
242	1149	.999467D+00	.115178D+00	.121434D+00
243	1159	.999413D+00	.114467D+00	.122654D+00
244	1169	.999434D+00	.113612D+00	.119747D+00
245	1179	.999475D+00	.112502D+00	.118627D+00
246	1189	.999227D+00	.112883D+00	.118917D+00
247	1199	.999350D+00	.112476D+00	.118421D+00
248	1209	.999329D+00	.112167D+00	.118021D+00

LEAK RATE ANALYSIS BY READING PAGE 4

RDG	TIME (MINUTES)	NORM. MASS	OBSERVED LEAK (%/DAY)	MAXIMUM LEAK (%/DAY)
249	1219	.999410D+00	.111367D+00	.117177D+00
250	1229	.999346D+00	.110921D+00	.116654D+00
251	1239	.999303D+00	.110591D+00	.116334D+00
252	1249	.999407D+00	.109866D+00	.115475D+00
253	1259	.999413D+00	.109205D+00	.114567D+00
254	1269	.999346D+00	.108498D+00	.114014D+00
255	1279	.999424D+00	.107570D+00	.113073D+00
256	1289	.999477D+00	.106380D+00	.111917D+00
257	1299	.999165D+00	.106768D+00	.112233D+00
258	1309	.999384D+00	.106223D+00	.111452D+00
259	1319	.999419D+00	.105102D+00	.110521D+00
260	1329	.999201D+00	.105231D+00	.110571D+00
261	1339	.999311D+00	.104804D+00	.110060D+00
262	1349	.999401D+00	.103942D+00	.109804D+00
263	1359	.999224D+00	.103894D+00	.109081D+00
264	1369	.999341D+00	.103287D+00	.108431D+00
265	1379	.999187D+00	.103363D+00	.108433D+00
266	1389	.999404D+00	.102452D+00	.107526D+00
267	1399	.999391D+00	.101604D+00	.106573D+00
268	1417	.999288D+00	.102034D+00	.107045D+00
269	1427	.999177D+00	.102036D+00	[illegible]
270	1437	.999128D+00	.102812D+00	[illegible]
271	1447	[illegible]	[illegible]	[illegible]
272	1456	.999332D+00	.102542D+00	[illegible]

DUKE POWER COMPANY

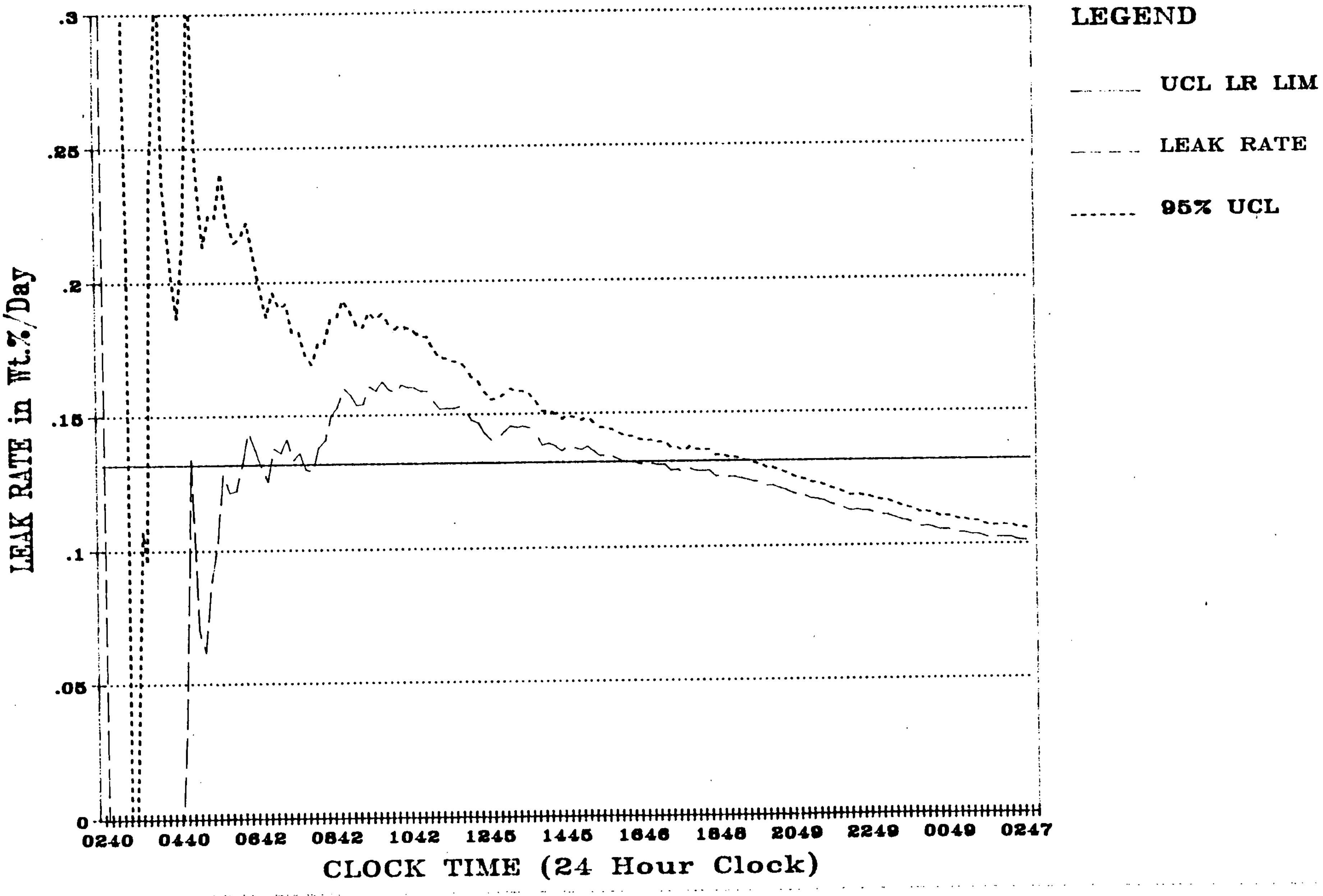
OCONEE NUCLEAR STATION UNIT 3

VERIFICATION TEST

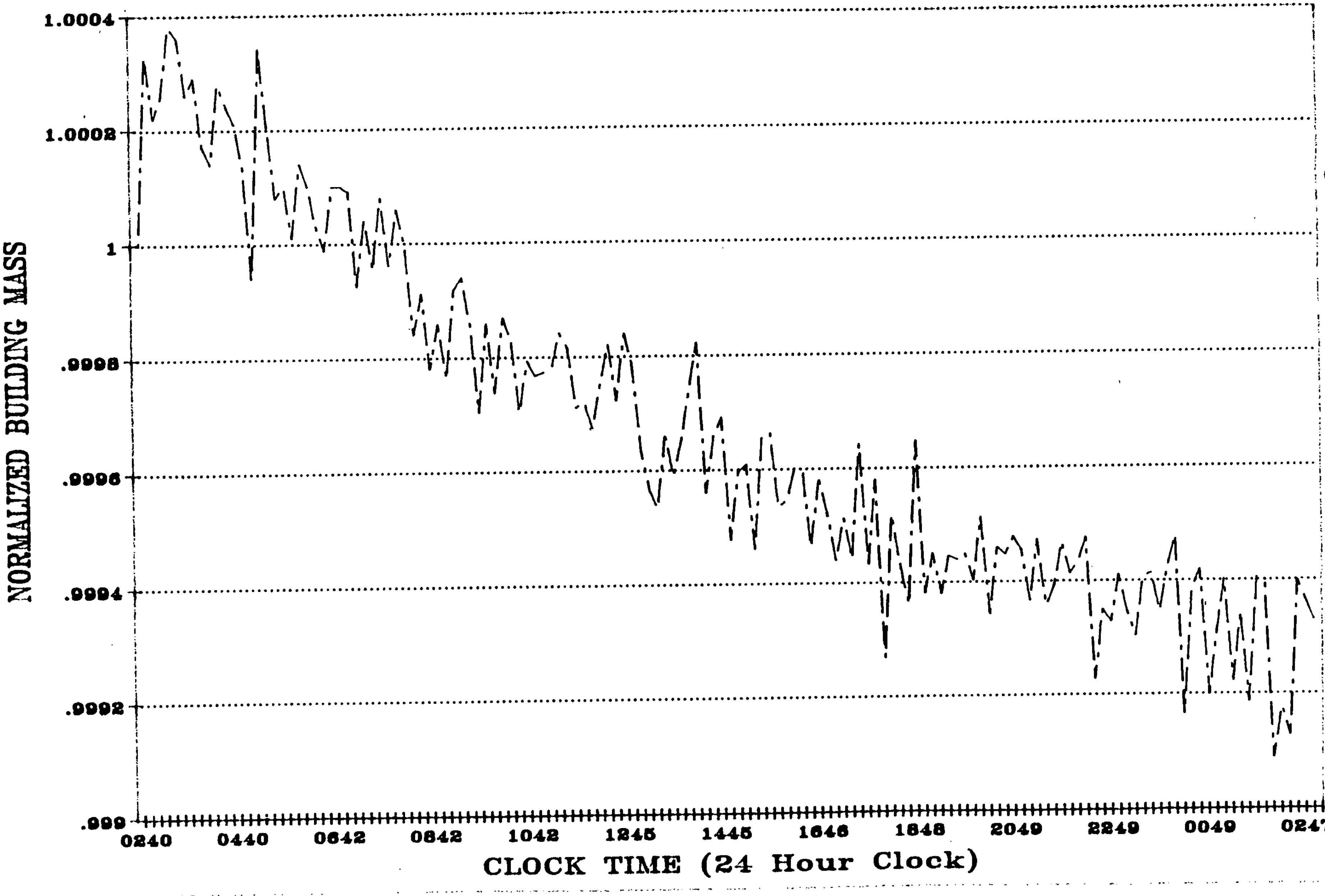
LEAK RATE ANALYSIS BY READING

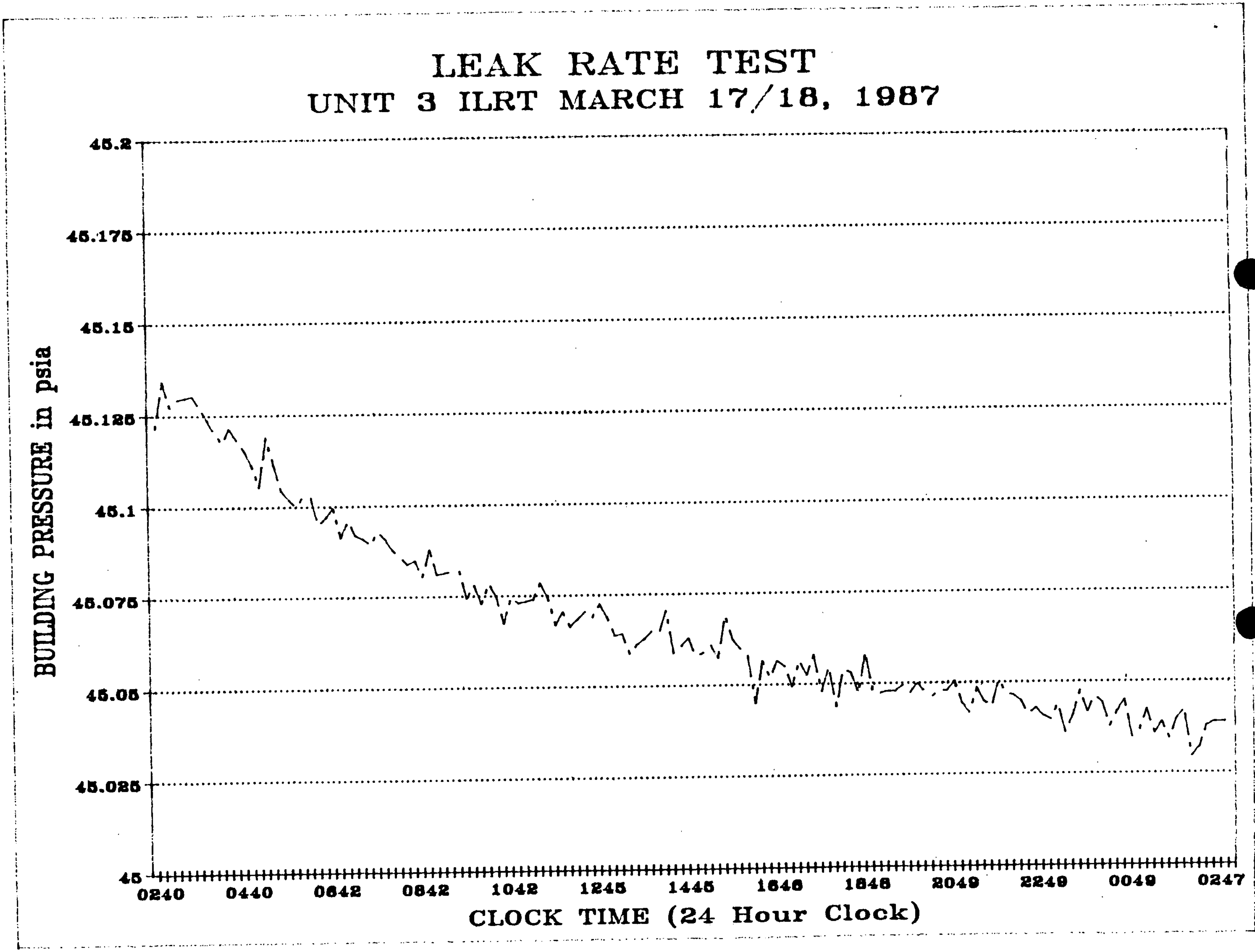
RDG	TIME (MINUTES)	NORM. MASS	OBSERVED LEAK (%/DAY)	MAXIMUM LEAK (%/DAY)
277	0	.100000D+01	?????????????	?????????????
278	10	.100011D+01	-.163592D+01	?????????????
279	20	.100005D+01	-.327094D+00	.613871D+01
280	30	.100016D+01	-.582984D+00	.502162D+00
281	40	.999926D+00	.150269D+00	.126600D+01
282	50	.100011D+01	-.353410D-01	.654335D+00
283	60	.999965D+00	.122175D+00	.624422D+00
284	70	.999962D+00	.180630D+00	.547544D+00
285	80	.999988D+00	.170766D+00	.448082D+00
286	90	.999844D+00	.269668D+00	.511372D+00
287	100	.100005D+01	.179130D+00	.395999D+00
288	110	.999890D+00	.206760D+00	.387499D+00
289	120	.999962D+00	.182460D+00	.335899D+00
290	130	.999932D+00	.174263D+00	.304938D+00
291	140	.999832D+00	.200480D+00	.316077D+00
292	150	.999817D+00	.218279D+00	.320432D+00
293	160	.999792D+00	.233316D+00	.324266D+00
294	170	.999793D+00	.239490D+00	.320211D+00
295	180	.999823D+00	.233465D+00	.305658D+00
296	191	.999834D+00	.223019D+00	.288498D+00
297	201	.999653D+00	.246436D+00	.309833D+00
298	211	.999696D+00	.253664D+00	.311538D+00
299	221	.999723D+00	.252051D+00	.304757D+00
300	231	.999816D+00	.235001D+00	.286050D+00
301	241	.999695D+00	.235629D+00	.282491D+00
302	251	.999704D+00	.233018D+00	.276264D+00
303	261	.999685D+00	.231202D+00	.271212D+00
304	271	.999624D+00	.234500D+00	.271734D+00
305	281	.999516D+00	.246284D+00	.282768D+00

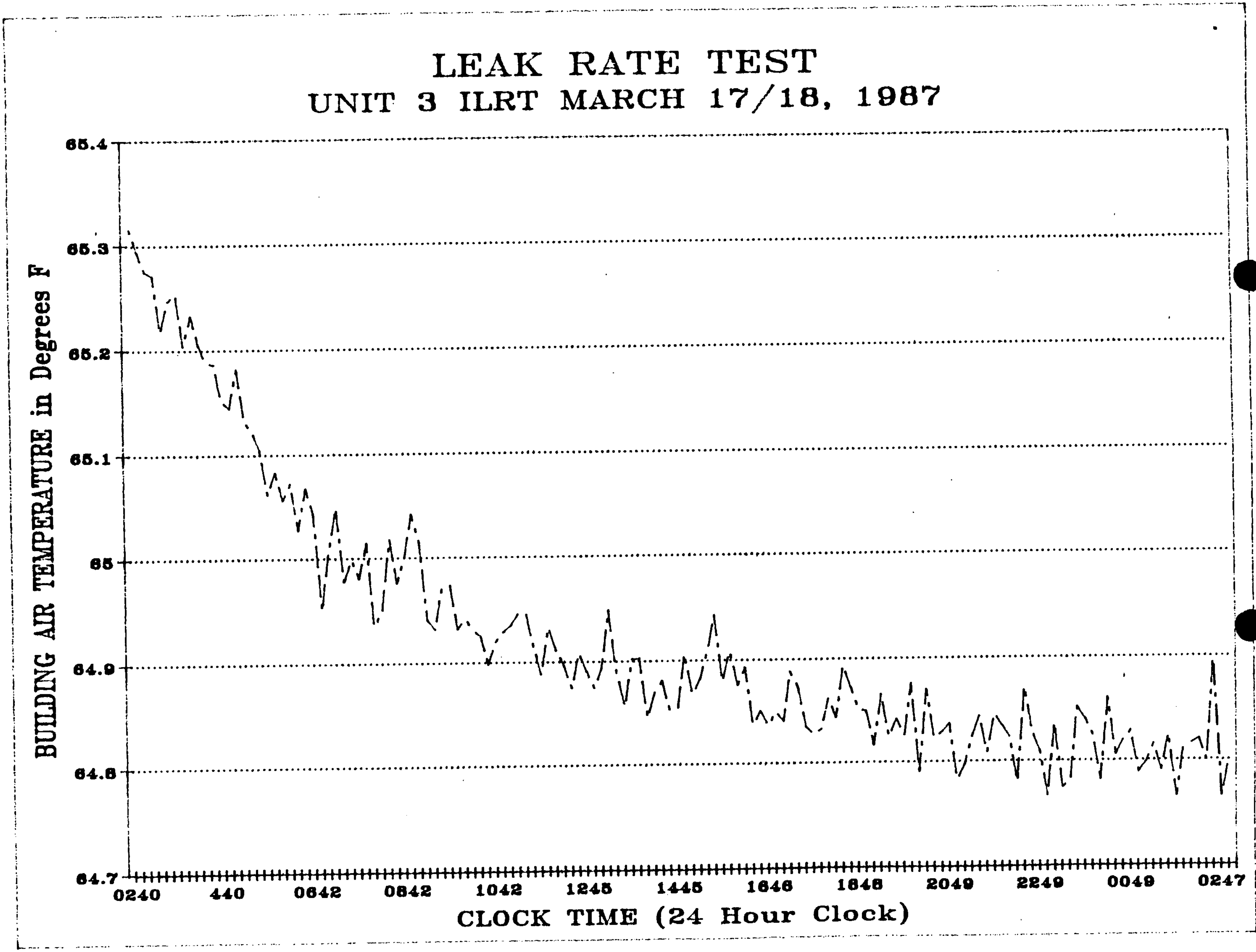
LEAK RATE TEST
UNIT 3 ILRT MARCH 17/18, 1987



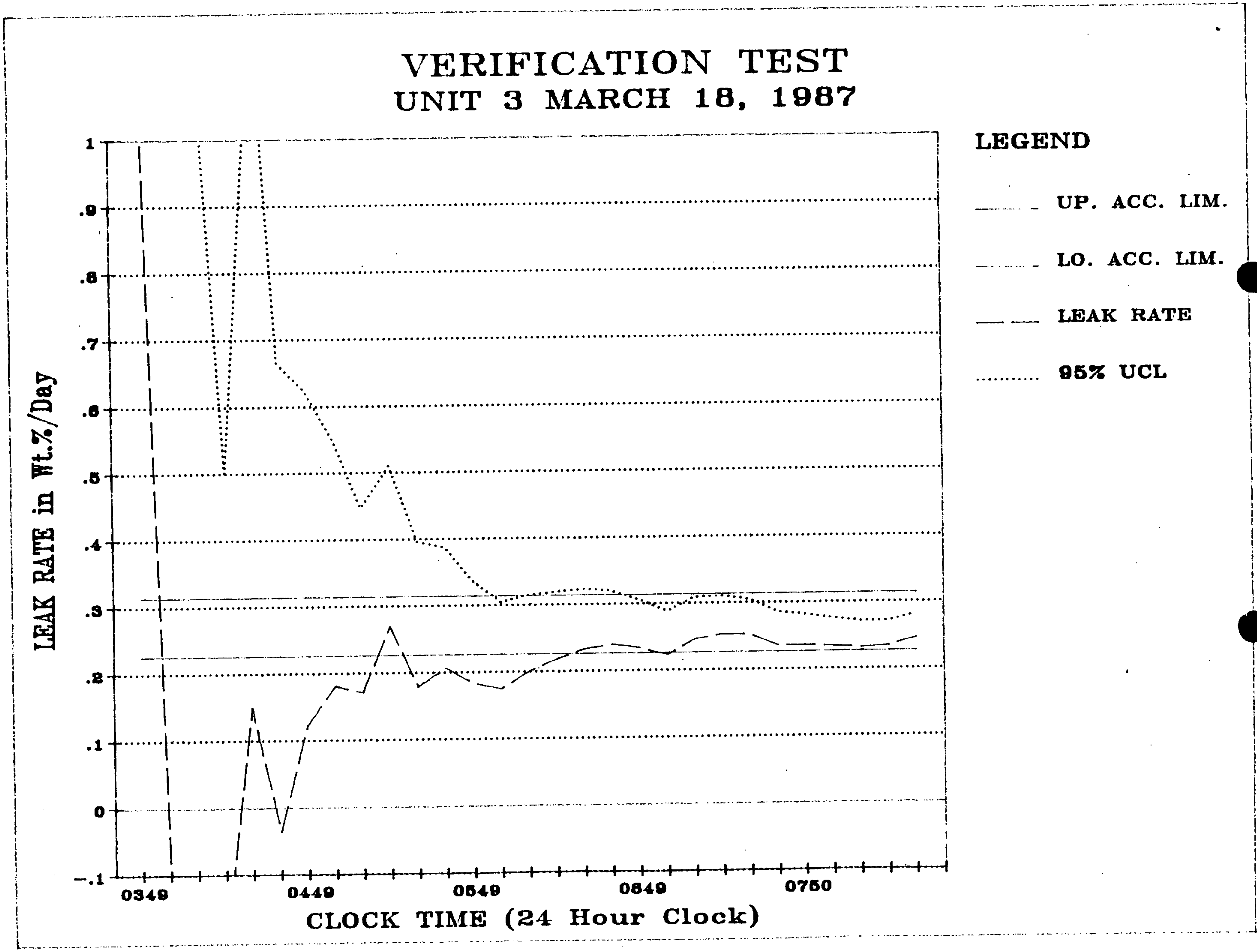
LEAK RATE TEST
UNIT 3 ILRT MARCH 17/18, 1987

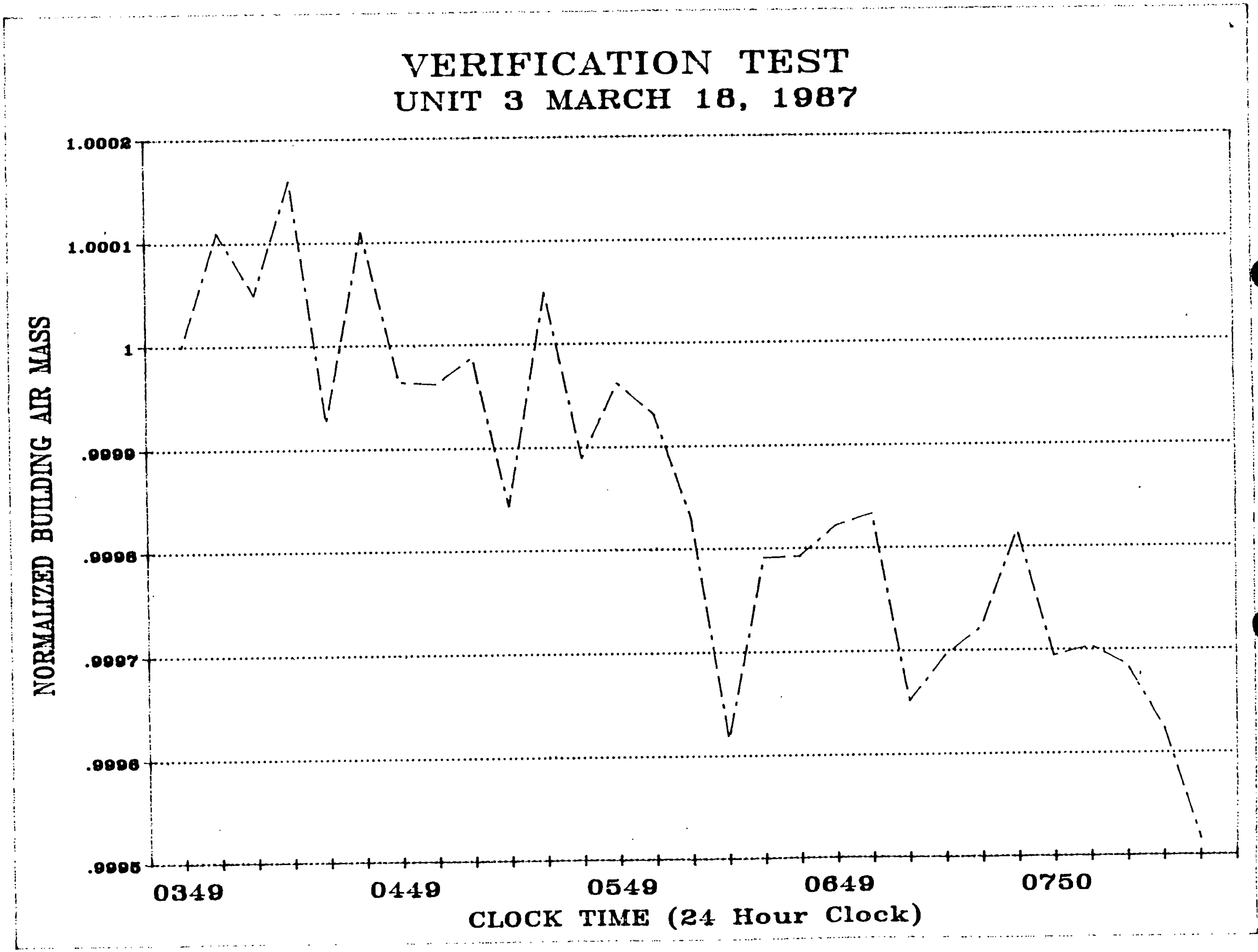



LEAK RATE TEST
UNIT 3 ILRT MARCH 17/18, 1987
BUILDING PRESSURE in psia
45.2
45.175
45.15
45.125
45.1
45.075
45.05
45.025
45
0240
0440
0642
0842
1042
1245
1445
1646
1848
2049
2249
0049
0247
CLOCK TIME (24 Hour Clock)

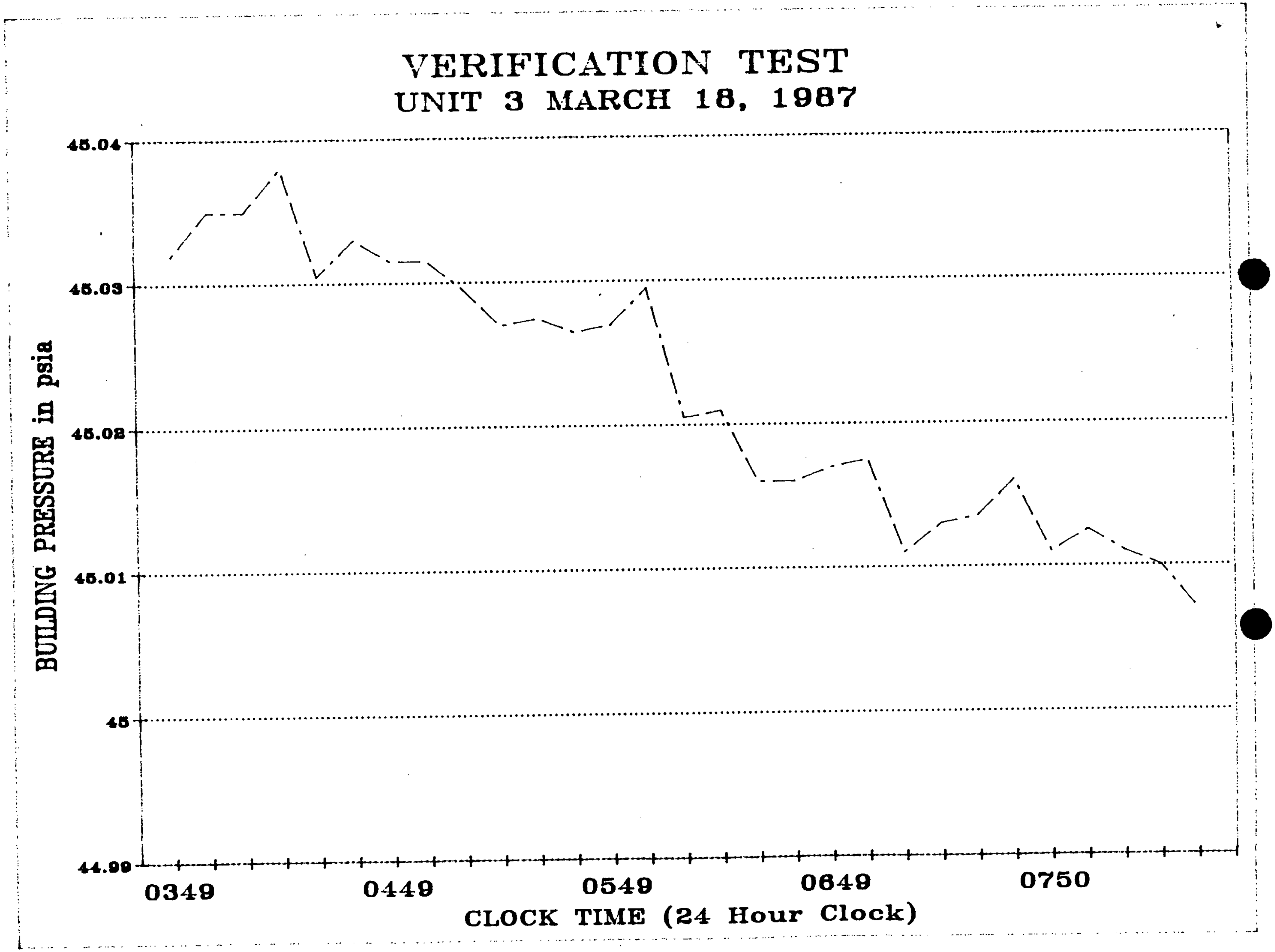


LEAK RATE TEST
UNIT 3 ILRT MARCH 17/18, 1987
65.4
65.3
65.2
65.1
65
64.9
64.8
64.7
BUILDING AIR TEMPERATURE in Degrees F
0240
440
0642
0842
1042
1245
1445
1646
1848
2049
2249
0049
0247
CLOCK TIME (24 Hour Clock)


VERIFICATION TEST
UNIT 3 MARCH 18, 1987
LEGEND
UP. ACC. LIM.
LO. ACC. LIM.
LEAK RATE
95% UCL
LEAK RATE in Wt.%/Day
1
.9
.8
.7
.6
.5
.4
.3
.2
.1
0
-.1
0349
0449
0549
0649
0750
CLOCK TIME (24 Hour Clock)



VERIFICATION TEST
UNIT 3 MARCH 18, 1987
NORMALIZED BUILDING AIR MASS
1.0002
1.0001
1
.9999
.9998
.9997
.9996
.9995
0349
0449
0549
0649
0750
CLOCK TIME (24 Hour Clock)


VERIFICATION TEST
UNIT 3 MARCH 18, 1987
BUILDING PRESSURE in psia
45.04
45.03
45.02
45.01
45
44.99
0349
0449
0549
0649
0750
CLOCK TIME (24 Hour Clock)

VERIFICATION TEST
UNIT 3 MARCH 18, 1987