REACTOR CONTAINMENT BUILDING
INTEGRATED LEAK RATE TEST

TYPE A, B, AND C
SURVEILLANCE TEST

FLORIDA POWER AND LIGHT COMPANY

TURKEY POINT PLANT
UNIT NO. 3

MARCH 1982

TABLE OF CONTENTS

LIST OF ATTACHMENTS

REFERENCES

1. 10CFR50, Appendix J, Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors, April 19, 1976.

2. Florida Power & Light Turkey Point Plant Operating Procedure 13100.1, Integrated Leak Rate Test - Unit 3.

3. ANSI/ANS-56.8, Containment System Leakage Testing Requirements, February 19, 1981.

4. Bechtel Corporation's Testing Criteria for Integrated Leakage Rate Testing of Primary Containment Structures for Nuclear Power Plants, BN-TOP-1, Revision 1, November 1, 1972.

SECTION 1

PURPOSE

The purpose of this report is to present a description and analysis of the March, 1982 Type A Containment Integrated Leak Rate Test (CILRT), and a summary of the Type B and C tests performed since the last CILRT conducted on the Florida Power and Light (FP&L) Turkey Point Plant Unit 3.

This report is submitted as required by 10CFR50, Appendix J, Paragraph V.B (Reference 1).

SECTION 2

SUMMARY

2.1 TYPE A TEST

On March 27, 1982, pressurization for the CILRT commenced at approximately 2130 hours. An investigation of all penetration areas for leakage was conducted during the pressurization period and throughout the Type A Test. At 0330 hours on March 28, 1982, 2 psig was observed in the personnel airlock. The pressure in the airlock was vented off and the outer door was opened for leakage investigation. Air leakage was noted around the lubrication fittings on the upper reach rods which are used for remote control of the inner and outer doors' equalizing valves. The grease fittings were checked to see if the cavity was filled. It was determined by the pressure on the grease gun that the cavity was full. The outer door was then closed.

Test pressure (68.6 psia) was reached and containment pressurization was secured at approximately 0944 hours. A local leak rate test (LLRT) was conducted on the personnel airlock at 1400 hours, to quantify the leakage of the inner door. This LLRT was conducted by opening a test connection between the inner and outer doors, and connecting a line to the LLRT panel to measure the downstream leakage. The LLRT panel was vented to the atmosphere. The inner door leakage was measured to be 8,000 standard cubic centimeters per minute (SCCM).

Temperature stabilization criteria was satisfied and the Type A Test was initiated at 1900 hours. The inner door LLRT was monitored throughout the entire test period and remained essentially constant.

Temperature, humidity, and pressure data was continuously recorded at 20 minute intervals. Calculated mass trends, from 1900 hours on March 28, 1982 to approximately 0200 hours on March 29, 1982, indicated an acceptable upper confidence limit-total time (UCL-TT) of about 0.173 percent/day. This rate satisfied the requirements of FP&L's CILRT procedure No. 13100.1.

The Type A Test was successfully completed at 0700 hours, with a calculated UCL-TT of 0.134654 percent/day. A superimposed leak rate test was successfully completed from 0820 to 1220 hours on March 29, 1982.

At 1820 hours, a LLRT was performed to quantify the leakage of the personnel airlock excluding the inner door which had equal pressure on both sides. Both the containment and airlock pressures were continuously monitored by precision quartz manometers. Using the make-up air method, a resultant leak rate was measured to be 14,000 SCCM. Readings were taken over a period of one hour to ensure that pressure and temperature stabilization had occurred.

This LLRT demonstrated that the leakage of the outer door was indeed insignificant to the outcome of the test. When the LLRT result (0.010436 percent/day) was added to the Type A Test results (0.134654 percent/day), the reported total (0.145090 percent/day) was well within the maximum allowable leakage rate (UCL-TT) of 0.25 percent/day.

Depressurization of the containment commenced at 1940 hours.

During depressurization, an entry was made into the personnel airlock. At approximately 2000 hours, a liquid "snoop" inspection of the inner wall revealed the same leakage locations as noted previously at 0330 hours on March 28, 1982. It appeared that the two upper reach rods were leaking at approximately the same rate as was observed on March 28, 1982, according to the inspector who had made both entries.

Complete depressurization of the containment was achieved at 1200 hours on March 30, 1982.

2.2 LOCAL LEAK RATE TESTS (TYPES B AND C)

The Local Leak Rate Tests of containment isolation valves and other containment penetrations were performed by the methods described in FP&L's operating procedure No. 13404.1, "Containment Boundary Isolation Valves - Local Leak Rate Tests". Section 4 of this report summarizes the data for the three surveillance periods (1979/1980, 1981, and 1982) of LLRT's performed since the last Type A Test in accordance with Appendix J to 10CFR50, Paragraph V.3.

SECTION 3

TYPE A TEST

3.1 EDITED LOG OF EVENTS

March 27, 1982

2130 - Containment pressurization was initiated.

2354 - Inspection for leakage paths was started.

March 28, 1982

0330 - 2 psig was observed in the personnel airlock.

0400 - Performed leakage investigation of personnel airlock. Fittings on the inner shaft penetrations were checked for grease.

0944 - Compressors were secured. Peak instantaneous pressure of 68.604 psia was achieved.

1400 - "Downstream" LLRT of the personnel airlock was monitored, and an inner door leakage of 8,000 SCCM was recorded.

1900 - Temperature stabilization was completed.

March 29, 1982

0700 - Leak rate test was completed.

0820 - Superimposed leak rate test was started.

1220 - Superimposed leak rate test was completed.

1305 - Superimposed leak rate test was secured.

1820 - Make-up LLRT of the personnel airlock (outer door) was initiated.

1920 - Make-up LLRT of the personnel airlock was completed with a recorded outer door leakage of 14,000 SCCM.

1940 - Containment depressurization was initiated.

2000 - Follow-up leakage investigations of the personnel airlock were performed and similar leakage observations were noted.

March 30, 1982

1200 - Containment depressurization was completed.

3.2 GENERAL TEST DESCRIPTION

3.2.1 Prerequisites

In accordance with the test procedure (Reference 2), the following is a partial listing of the prerequisites that were completed and documented prior to containment pressurization:

a. General inspection of accessible interior and exterior surfaces of the containment structures and components completed.

b. All equipment and instrumentation, that could be damaged by test pressure, removed or protected.

c. All instrumentation, required for the test, calibrated or functionally verified.

d. Required valve line-ups completed, including closure of containment isolation valves.

e. All computer software, used for test calculations, tested and operational.

f. All Type B and Type C leak rate testing completed.

g. The Official Log of Events book established and available prior to commencement of the test.

h. Site meteorology data recorded at least three days prior to and during CILRT (Attachment 3.2A).

3.2.2 Equipment and Instrumentation

Pressurization of the containment was achieved by utilizing a temporary system consisting of eight air compressors manifolded to aftercoolers and refrigerated air dryers. The total capacity of the air compressors was rated at approximately 8,500 standard cubic feet per minute (SCFM). The system included the necessary valving and instrumentation to maintain proper monitoring and control during pressurization.

The variables required to calculate containment leakage during the test were monitored using instrumentation which consisted of twenty resistance temperature detectors (RTD's), nine relative humidity detectors (RHD's), and two absolute pressure quartz manometers. Pertinent data for the test instrumentation is listed in Attachment 3.2B, and the

general locations of the RTD's and RHD's are shown in Attachments 3.2C-3.2F.

A rotameter was used during the superimposed leak rate test.

3.2.3 Data Acquisition System

The Turkey Point Plant Unit No. 3 CILRT sensor data was recorded at approximately 20 minute intervals during the test. A programmable, multi-channel data logger was used to scan and record data from 20 RTD's and 9 RHD's signal inputs. Readings of the manometers and flowmeter were manually recorded.

The CILRT utilized a portable programmable calculator to average the test data. Periodically during the test period, weighted average temperature, weighted average relative humidity, absolute pressure, vapor pressure, and mass values were computed.

3.2.4 Data Resolution System

After the appropriate data had been acquired and averaged, the results were manually input to FP&L's offsite computer system for leak rate calculations.

3.2.4.1 Absolute Method of Mass Point Analysis

The Absolute Method of Mass Point Analysis consists of calculating the air mass within the containment structure, over a minimum of 8 hours, using pressure, temperature, and dewpoint observations made during the CILRT. The air mass is computed using the ideal gas law as follows:

$$M = \frac{144V\ (P-Pv)}{RT} \qquad \text{(Eq. 1)}$$

where:
- M = air mass, lb
- P = total pressure, psia
- Pv = average vapor pressure, psia
- R = 53.35 ft lbf/lbm°R (for air)
- T = average containment temperature, °R
- V = containment free volume, 1.55×10^6 ft^3

The leakage rate is determined by plotting the air mass as a function of time, using a least-squares fit to determine the slope, A = dM/dT. The leak rate is expressed as a percentage of the air mass lost in 24 hours or symbolically:

$$\text{Leak rate} = A/B\ (-2400) \qquad \text{(Eq. 2)}$$

where A is the slope of the least-squares curve and B is the y-intercept. The sign convention is such that an outward leak is positive and the units are in percent/day.

The air mass is calculated and correlated as a function of time by means of a least-squares curve fit of the form:

$$M = At + B \qquad \text{(Eq. 3)}$$

The slope A and y-intercept B are used in Equation 2 to determine the leak rate.

A 95 percent confidence interval is calculated using a Student T distribution. The sum of the leakage rate and the 95 percent confidence interval is the upper confidence limit (UCL). The measured leak rate may be described as 95 percent accurate to within the value of the upper confidence limit - mass point (UCL-MP).

3.2.4.2 Absolute Method of Total Time Analysis

The Absolute Method of Total Time Analysis consists of calculating air lost from the containment, using pressure, temperature, and dewpoint observations made during the CILRT.

The containment air mass is computed using Equation 1 (Section 3.2.4.1).

The measured leakage rate at any time (t) is determined by subtracting the mass at that time (Mt) from the initial mass (Mi) and dividing by the initial mass. The measured leak rate is expressed as a percentage of containment mass lost in 24 hours or symbolically:

$$\text{Measured Leak Rate} = \frac{Mi - Mt}{Mi(\Delta t)}\ (2400) \qquad \text{(Eq. 4)}$$

The sign convention is such that an outward leak is positive and the units are in percent/day.

The calculated leakage rate is determined by plotting the measured leak rate as a function of time and then performing a least-squares curve fit of the measured leak rate values as follows:

$$\text{Calculated Leak Rate} = At + B \qquad \text{(Eq. 5)}$$

A is the slope and B is the y-intercept of the least-squares curve.

The 95 percent confidence interval is calculated using a Student T distribution. The sum of the calculated leak rate and the 95 percent confidence interval is the UCL-TT.

This analysis method was used in conjunction with the procedure.

ATTACHMENT 3.2A

SITE METEOROLOGY

Date	Time	Temperature Ambient, °F	Barometric Pressure, in. Hg	Wind Velocity, mph	Wind Direction
3/23/82	1900	74	30.00	5	185
	2300	74	30.00	5	180
3/24/82	0300	74	30.00	5	180
	0700	78	30.00	9	170
	1100	82	30.00	7	150
	1500	82	30.00	10	180
	1900	78	29.95	7	170
	2300	77	30.00	4	195
3/25/82	0300	75	29.95	4	260
	0700	79	30.00	4	230
	1100	86	30.03	6	220
	1530	90	29.95	2	120
	1900	79	29.95	4	170
	2300	73	30.05	7	270
3/26/82	0300	79	30.05	9	190
	0700	77	29.97	5	300
	1100	82	29.99	2	270
	1900	79	30.00	5	180
	2000	78	30.00	5	180
	2100	77	30.00	5	180
	2200	76	30.00	5	180
	2300	75	30.00	5	180
	2400	75	30.00	5	180
3/27/82	0100	75	30.00	5	180
	0200	75	30.00	5	180
	0300	75	30.00	5	180
	0400	74	29.90	5	180
	0500	74	29.90	0	-
	0600	74	30.00	0	-
	0700	75	30.00	8	60
	0800	75	30.00	8	60
	0900	76	30.10	9	60
	1000	77	30.10	9	70
	1100	79	30.12	9	60
	1200	79	30.12	8	60
	1300	78	30.10	7	60
	1400	77	29.99	8	70
	1500	76	29.80	11	60
	1600	76	30.05	11	60
	1700	75	30.05	10	60
	1800	75	30.08	12	50
	1900	75	30.10	12	60
	2000	75	30.10	12	60

ATTACHMENT 3.2A (Cont.)

Date	Time	Temperature Ambient, °F	Barometric Pressure, in. Hg	Wind Velocity, mph	Wind Direction
3/27/82	2100	75	30.10	12	60
	2130 CILRT Started				
	2200	75	30.11	12	60
	2300	74	30.11	12	60
	2400	74	30.11	14	60
3/28/82	0100	74	30.12	14	60
	0200	74	30.10	13	60
	0300	73	30.08	16	50
	0400	73	30.08	16	50
	0500	73	30.10	20	50
	0600	73	30.10	16	50
	0700	73	30.10	22	60
	0800	72	30.12	22	40
	0900	73	30.15	22	40
	1000	74	30.14	27	60
	1100	74	30.16	23	60
	1200	74	30.15	24	60
	1300	72	30.12	25	70
	1400	73	30.10	24	80
	1500	73	30.10	23	80
	1600	70	30.09	15	60
	1700	70	30.08	18	70
	1800	74	30.08	20	90
	1900	73	30.08	18	90
	2000	74	30.12	18	90
	2100	74	30.12	16	90
	2200	74	30.12	26	90
	2300	74	30.12	24	90
	2400	74	30.07	22	110
3/29/82	0100	74	30.07	26	120
	0200	73	30.06	12	140
	0300	73	30.05	12	180
	0400	73	30.05	10	190
	0500	71	30.05	2	180
	0600	71	30.05	0	200
	0700	70	30.07	3	240
	0800	72	30.05	5	309
	0900	71	30.08	9	300
	1000	74	30.10	8	300
	1100	76	30.09	17	310
	1200	71	30.08	15	305
	1300	71	30.08	28	5
	1400	71	30.08	29	5
	1500	71	30.09	29	20
3/29/82	1600	71	30.07	29	30

ATTACHMENT 3.2A (Cont.)

Date	Time	Temperature Ambient, °F	Barometric Pressure, in. Hg	Wind Velocity, mph	Wind Direction
	1700	71	30.10	29	30
	1800	71	30.10	28	30
	1900	71	30.10	23	22
	1940 CILRT Completed				
	2000	72	30.12	26	30
	2100	72	30.13	25	40
	2200	73	30.14	26	43
	2300	73	30.14	24	47
	2400	73	30.14	20	45

ATTACHMENT 3.2B

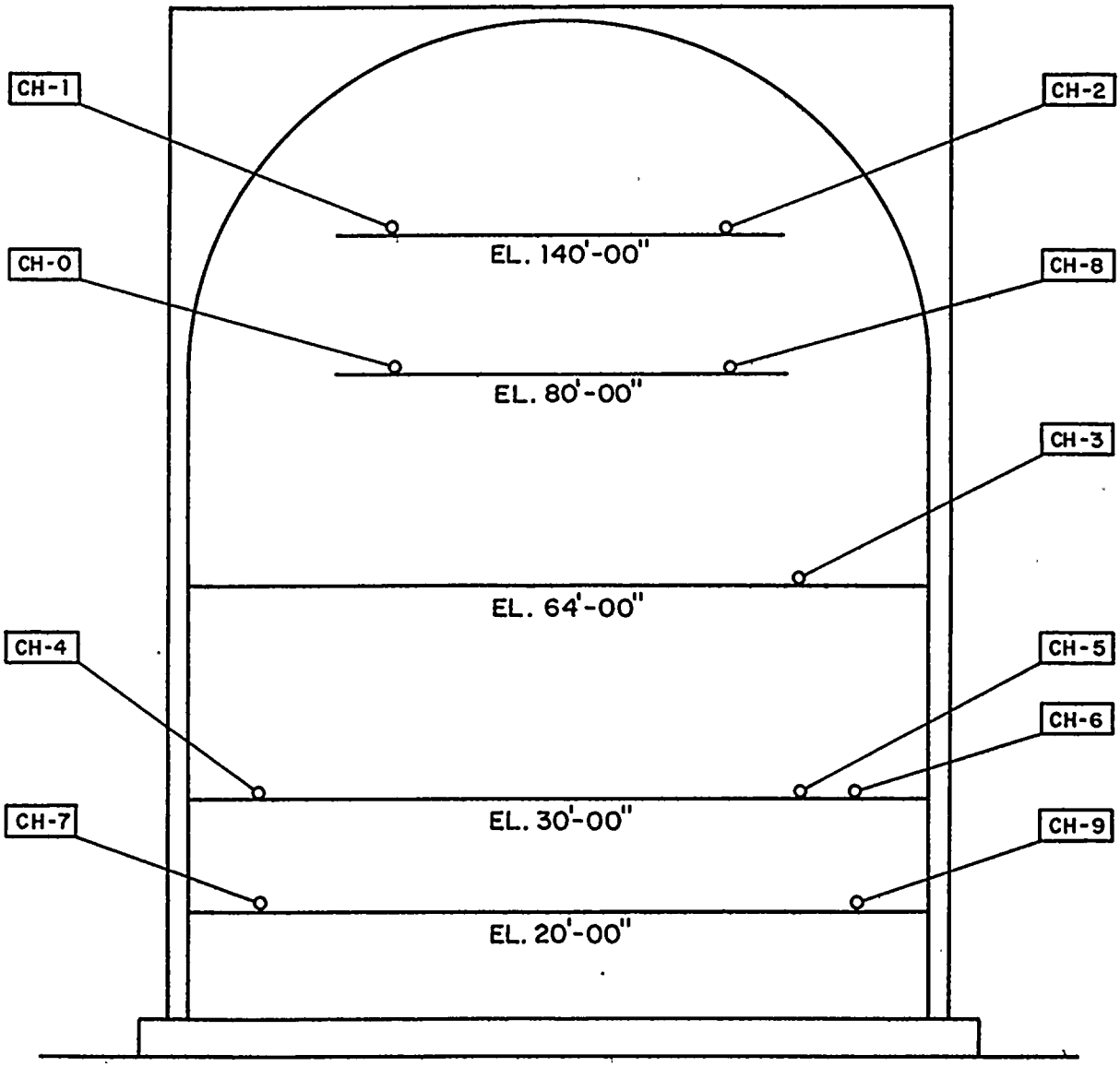
INSTRUMENTATION TABLE

The following instruments were calibrated or functionally verified within 6 months prior to the performance of this test and in accordance with 10CFR50, Appendix J, and Field Calibration Procedures, using instrumentation traceable to the National Bureau of Standards.

NOTE: Instruments that were assigned a zero weight factor were not used in the leak rate calculations.

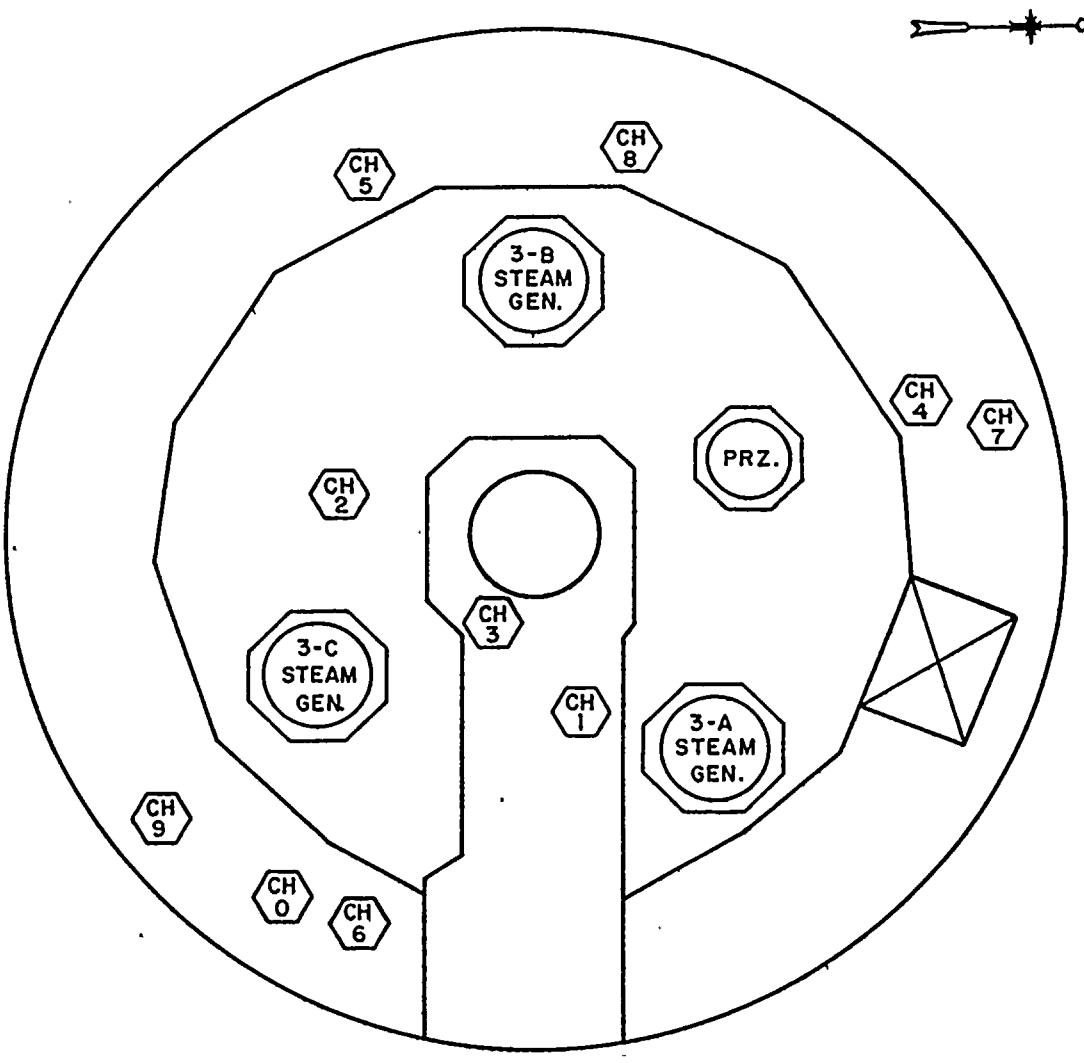
Channel	Instrument	Weight Factor	Accuracy
CH-0	RHD	0.00	±2.5%RH
CH-1	RHD	0.16	±2.5%RH
CH-2	RHD	0.16	±2.5%RH
CH-3	RHD	0.241	±2.5%RH
CH-4	RHD	0.0396	±2.5%RH
CH-5	RHD	0.0396	±2.5%RH
CH-6	RHD	0.0396	±2.5%RH
CH-7	RHD	0.0396	±2.5%RH
CH-8	RHD	0.241	±2.5%RH
CH-9	RHD	0,0396	±2.5%RH
CH-10	RTD	0.00	±0.5°F
CH-11	RTD	0.03	±0.5°F
CH-12	RTD	0.0905	±0.5°F
CH-13	RTD	0.03	±0.5°F
CH-14	RTD	0.16	±0.5°F
CH-15	RTD	0.00	±0.5°F
CH-16	RTD	0.0905	±0.5°F
CH-20	RTD	0.018	±0.5°F

Channel	Instrument	Weight Factor	Accuracy
CH-21	RTD	0.018	±0.5°F
CH-22	RTD	0.018	±0.5°F
CH-23	RTD	0.018	±0.5°F
CH-24	RTD	0.018	±0.5°F
CH-25	RTD	0.018	±0.5°F
CH-26	RTD	0.018	±0.5°F
CH-27	RTD	0.018	±0.5°F
CH-30	RTD	0.018	±0.5°F
CH-31	RTD	0.018	±0.5°F
CH-32	RTD	0.0905	±0.5°F
CH-33	RTD	0.018	±0.5°F
CH-34	RTD	0.0905	±0.5°F
CH-35	RTD	0.03	±0.5°F
CH-36	RTD	0.16	±0.5°F
TI-145 Quartz	Manometer 1	N/A	0-100 psia
TI-145 Quartz	Manometer 2	N/A	0-100 psia
Rotameter	0-28 SCFM at 50 psig		±1.0% F.S.



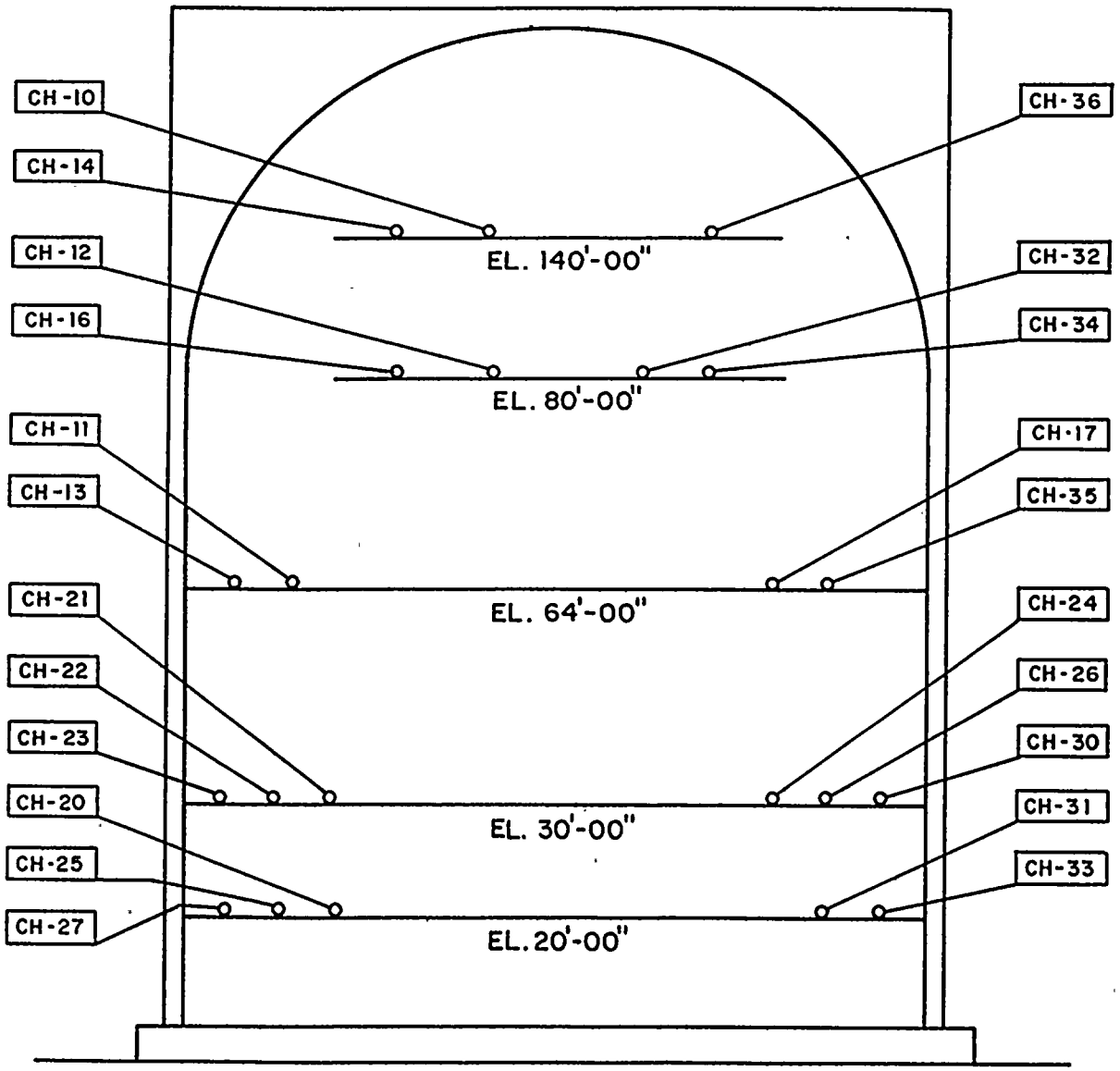
PROFILE VIEW

ATTACHMENT 3.2C
INSTRUMENTATION LOCATION
RELATIVE HUMIDITY
DETECTORS (RHD'S) .
TURKEY POINT PLANT-UNIT 3
INTEGRATED LEAK RATE TEST



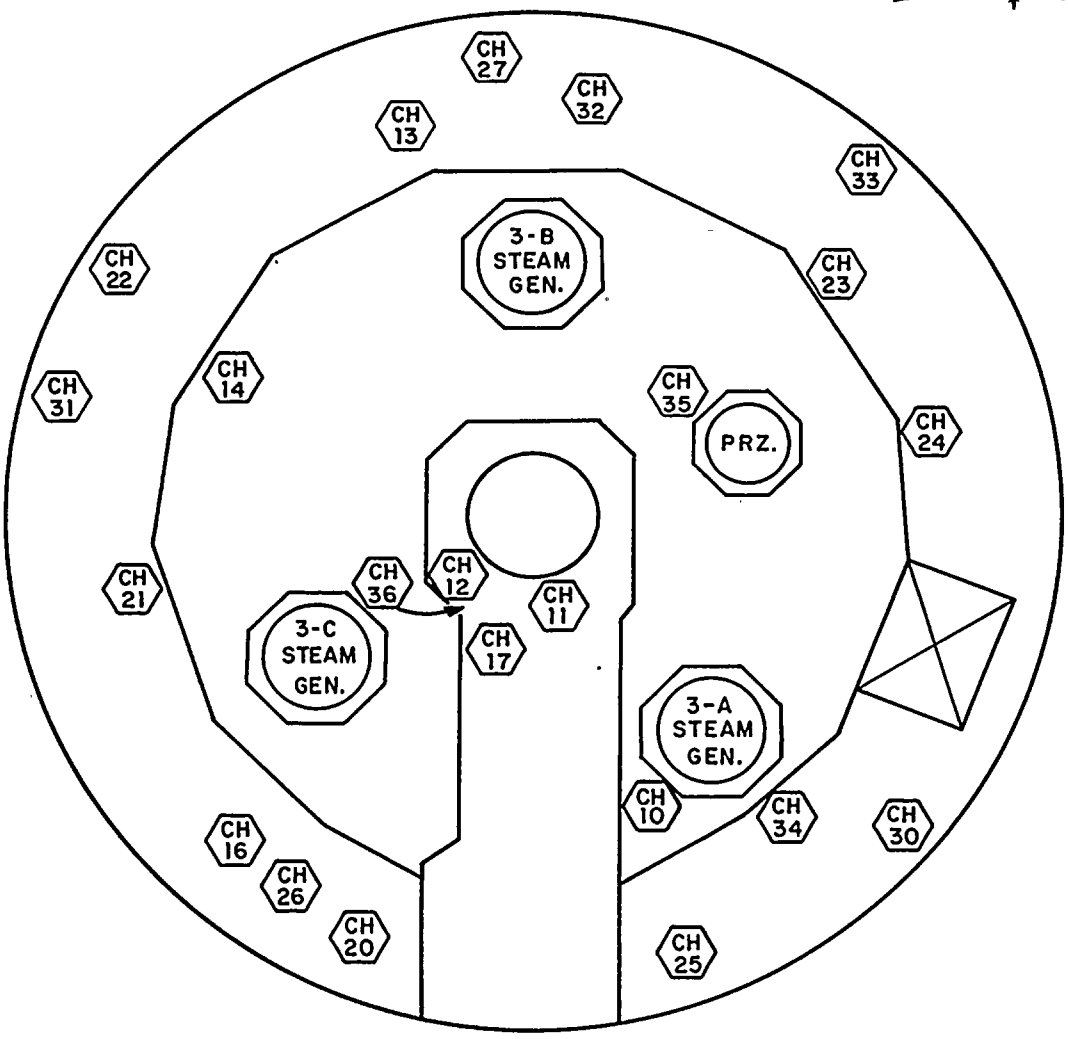
PLAN VIEW

ATTACHMENT 3.2D
INSTRUMENTATION LOCATION
RELATIVE HUMIDITY
DETECTORS (RHD'S)
TURKEY POINT PLANT-UNIT 3
INTEGRATED LEAK RATE TEST



PROFILE VIEW

ATTACHMENT 3.2E
INSTRUMENTATION LOCATION
RESISTANCE TEMPERATURE
DETECTORS (RTD'S)
TURKEY POINT PLANT-UNIT 3
INTEGRATED LEAK RATE TEST



PLAN VIEW

ATTACHMENT 3.2F
INSTRUMENTATION LOCATION
RESISTANCE TEMPERATURE
DETECTORS (RTD'S)
TURKEY POINT PLANT-UNIT 3
INTEGRATED LEAK RATE TEST

3.3 TEST ANALYSIS

Mass data acquired from the start of stabilization to the termination of the supplemental leak test are shown as a graph in Attachment 3.4D. The graph is divided into the following zones:

Zone A - Depicts temperature stabilization period from 0944 to 1900 hours on March 28, 1982.

Zone B - Depicts acceptable mass trend from 1900 hours on March 28, 1982 to 0700 hours on March 29, 1982. This zone contains the data used for the leakage rate calculations.

Zone C - Depicts superimposed leak rate test from 0820 to 1220 hours on March 29, 1982.

The leakage rate analysis was performed by using FP&L's CILRT program (Section 3.2.4). The reduced data is shown in Attachment 3.4A.

The Absolute Method of Mass Point Analysis (Section 3.4.1) represents the results of the containment leakage rate. The results, as shown in Attachment 3.4B, show the UCL-MP to be 0.1070 percent/day which is within the acceptable limit of 0.1875 percent/day (0.75 La).

The Absolute Method of Total Time Analysis (Section 3.4.2) is used in conjunction with the Instrument Selection Guide (Reference 3) to determine the duration of the CILRT. The data used in Zone B (Attachment 3.4D) satisfied the requirements of the test procedure. The results of the total time analysis, tabulated in Attachment 3.4C, show the UCL-TT to be 0.1347 percent/day, which is within the acceptable limit of 0.25 percent/day (La).

To evaluate the effect of the personnel airlock leakage noted on March 28, 1982, the following actions were conducted:

a. The outer door was effectively removed as a containment boundary by performing a LLRT on the inner door throughout the entire Type A Test period. Thus, the inner door leakage was included in the reported leakage rates.

b. The inner door was effectively removed as a containment boundary by performing a LLRT on the outer door after the supplemental test had been

completed. This result was added as a penalty to the Type A Test results.

The inclusion of both of these LLRT's in the Type A Test results indicates that the reported leak rates are both well within the respective acceptance criteria. Thus, considering the conservative manner used to report the leakage rates, it is concluded that the personnel airlock leakage did not have any effect on the acceptability of this Type A Test.

The following graphs are provided by this report:

Attachment	Description
3.4D	Containment Air Mass vs Time (0944 hours on 3-28-82 to 1200 hours on 3-29-82)
3.4E	Containment Leak Rate and UCL vs Time, Mass Point Analysis (1900 hours on 3-28-82 to 0700 hours on 3-29-82)
3.4F	Calculated Containment Leak Rate vs Time, Total Time Analysis (1900 hours on 3-28-82 to 0700 hours on 3-29-82)

The Superimposed Leak Rate Test (Section 3.4.3), performed from 0820 to 1305 hours on March 29, 1982, was used to verify the leakage rate test calculations. The results of the verification test satisfied the acceptance criteria of the CILRT procedure.

3.4 TEST RESULTS

3.4.1 CILRT Results - Mass Point Method

1.	Leakage rate calculated, Lam	0.099315 percent/day
2.	95 percent upper confidence	0.007662 percent/day
3.	UCL-MP, Lam leakage rate plus 95 percent confidence interval (1+2)	0.106977 percent/day
4.	Correction for Type B Leakage: Personnel Airlock	0.010436 percent/day
5.	Total Type A Leak Rate (3+4)	0.117413 percent/day

Results were within the acceptable limit of 0.1875 percent/day.

3.4.2 CILRT Results - Total Time Method

1.	Leakage rate calculated, Lam	0.097074 percent/day
2.	95 percent upper confidence	0.037580 percent/day
3.	UCL-TT, Lam leakage rate plus 95 percent confidence interval (1+2)	0.134654 percent/day
4.	Correction for Type B Leakage Personnel Airlock	0.010436 percent/day
5.	Total reported Type A Leak Rate (3+4)	0.145090 percent/day

Results were within the acceptable limit of 0.25 percent/day.

3.4.3 Superimposed Leakage Rate Test Results

1. The Superimposed Leak Rate Test is acceptable if Lc falls within the following range:

   $(Lo + Lam - 0.25La) \leq Lc \leq (Lo + Lam + 0.25La)$

   where:

   Lc = containment leakage rate calculated during the verification test

   Lo = leakage rate imposed on containment using a flow measuring device (0.21108 percent/day)

   La = maximum allowable leakage rate for ILRT (0.25 percent/day)

   Lam = total measured containment leakage rate

   a. Mass Point

      $(0.099315 + 0.14858) \leq 0.280676 \leq (0.099315 + 0.27358)$

      $0.247895 \leq 0.280676 \leq 0.372895$

   b. Total Time

      $(0.097074 + 0.14858) \leq 0.282901 \leq (0.097074 + 0.27358)$

      $0.245654 \leq 0.282901 \leq 0.370654$

2. The Superimposed Leakage Rate Test met the requirements set forth in Reference 3.

ATTACHMENT 3.4A
FP&L TURKEY POINT PLANT UNIT 3
INTEGRATED LEAK RATE TEST
FROM 1900 HOURS ON 3/28/82 TO 0700 HOURS ON 3/29/82

CONTAINMENT INPUT VARIABLES

Time (Hours)	Abs Pressure (Psia)	Rel Humidity (Pct)	Vap Pressure (Psia)	Dry Bulb Temperature (°F)	Mass (Lbm)
0.000	68.020	76.080	0.5763	92.61	510879.1018
0.334	68.010	76.213	0.5760	92.54	510868.8089
0.667	68.001	76.364	0.5761	92.48	510857.3621
1.000	67.992	76.462	0.5759	92.43	510836.9133
1.334	67.982	76.563	0.5756	92.37	510818.9545
1.667	67.974	76.674	0.5752	92.30	510827.0981
2.000	67.965	76.775	0.5754	92.27	510785.6759
2.334	67.957	76.821	0.5746	92.21	510788.9900
2.667	67.949	76.914	0.5743	92.15	510783.6161
3.000	67.941	76.989	0.5740	92.11	510766.8400
3.334	67.934	77.041	0.5734	92.05	510772.2989
3.667	67.927	77.032	0.5724	91.99	510775.9270
4.000	67.919	77.080	0.5720	91.96	510754.2518
4.334	67.913	77.141	0.5719	91.93	510737.1005
4.667	67.906	77.176	0.5711	91.86	510750.4906
5.000	67.899	77.242	0.5706	91.81	510748.8316
5.334	67.893	77.312	0.5706	91.78	510734.3603
5.667	67.886	77.345	0.5700	91.73	510729.1271
6.000	67.879	77.399	0.5699	91.70	510700.9766
6.334	67.874	77.428	0.5694	91.66	510706.5765

ATTACHMENT 3.4A (Cont.)

Time (Hours)	Abs Pressure (Psia)	Rel Humidity (Pct)	Vap Pressure (Psia)	Dry Bulb Temperature (°F)	Mass (LBM)
6.667	67.868	77.463	0.5690	91.62	510698.5518
7.000	67.862	77.590	0.5694	91.59	510679.6497
7.334	67.856	77.569	0.5684	91.55	510684.3480
7.667	67.851	77.608	0.5680	91.51	510683.3637
8.000	67.845	77.641	0.5681	91.50	510649.5524
8.334	67.839	77.694	0.5674	91.44	510665.1922
8.667	67.834	77.723	0.5670	91.40	510661.5913
9.000	67.829	77.759	0.5670	91.39	510635.2140
9.334	67.824	77.778	0.5666	91.36	510630.5277
9.667	67.819	77.767	0.5658	91.32	510636.4453
10.000	67.814	77.750	0.5650	91.28	510637.6627
10.334	67.809	77.719	0.5644	91.26	510627.0821
10.667	67.804	77.741	0.5639	91.22	510625.8181
11.000	67.799	77.743	0.5629	91.17	510646.0811
11.334	67.795	77.643	0.5619	91.15	510642.4312
11.667	67.790	77.521	0.5610	91.15	510611.2494
12.000	67.785	77.396	0.5592	91.10	510632.0925

ATTACHMENT 3.4B

FP&L TURKEY POINT PLANT UNIT 3
INTEGRATED LEAK RATE TEST
FROM 1900 HOURS ON 3/28/82 TO 0700 HOURS ON 3/29/82

ABSOLUTE TEST METHOD, MASS POINT ANALYSIS

Time (Hours)	Mass (Lbm)	Leakage (Pct/Day)	Conf (Pct/Day)	UCL (Pct/Day)
0	510879.10	0.000000	0.000000	0.000000
0.334	510868.81	0.000000	0.000000	0.000000
0.667	510857.36	0.153114	0.034697	0.187811
1.000	510836.91	0.194517	0.092543	0.287060
1.334	510818.95	0.214453	0.055213	0.269666
1.667	510827.10	0.173142	0.072641	0.245783
2.000	510785.68	0.202386	0.064421	0.266807
2.334	510788.99	0.193790	0.047433	0.241224
2.667	510783.62	0.181921	0.039070	0.220991
3.000	510766.64	0.179018	0.030674	0.209692
3.334	510772.30	0.165654	0.030132	0.195786
3.667	510775.93	0.149614	0.032174	0.181788
4.000	510754.25	0.145065	0.027484	0.172549
4.334	510737.10	0.144958	0.023303	0.168261
4.667	510750.49	0.136551	0.022592	0.159143
5.000	510748.83	0.128433	0.022041	0.150474
5.334	510734.36	0.124337	0.019965	0.144302
5.667	510729.13	0.120576	0.018235	0.138811
6.000	510700.98	0.122246	0.016360	0.138606

ATTACHMENT 3.4B (Cont.)

Time (Hours)	Mass (Lbm)	Leakage (Pct/Day)	Cont (Pct/Day)	UCL (Pct/Day)
6.334	510706.58	0.120586	0.014796	0.135382
6.667	510698.55	0.119262	0.013429	0.132691
7.000	510679.65	0.120014	0.012198	0.132212
7.334	510684.35	0.118559	0.011238	0.129797
7.667	510683.35	0.116395	0.010593	0.126989
8.000	510649.55	0.118034	0.009916	0.127950
8.334	510665.19	0.116429	0.009329	0.125758
8.667	510661.59	0.114634	0.008879	0.123513
9.000	510635.21	0.115099	0.008246	0.123345
9.334	510630.53	0.115133	0.007663	0.122796
9.667	510636.45	0.113880	0.007292	0.121172
10.000	510637.66	0.112064	0.007140	0.119205
10.334	510627.08	0.110777	0.006854	0.117631
10.667	510625.82	0.109213	0.006688	0.115902
11.000	510646.08	0.105921	0.007384	0.113304
11.334	510642.43	0.102900	0.007806	0.110706
11.667	510611.25	0.101872	0.007462	0.109334
12.000	510632.09	0.099315	0.007662	0.106977

Initial estimated mass = 510847.65

Final estimated mass = 510593.98

ATTACHMENT 3.4C

FP&L TURKEY POINT PLANT UNIT 3
INTEGRATED LEAK RATE TEST
FROM 1900 HOURS ON 3/28/82 TO 0700 HOURS ON 3/29/82

ABSOLUTE TEST METHOD, TOTAL TIME ANALYSIS

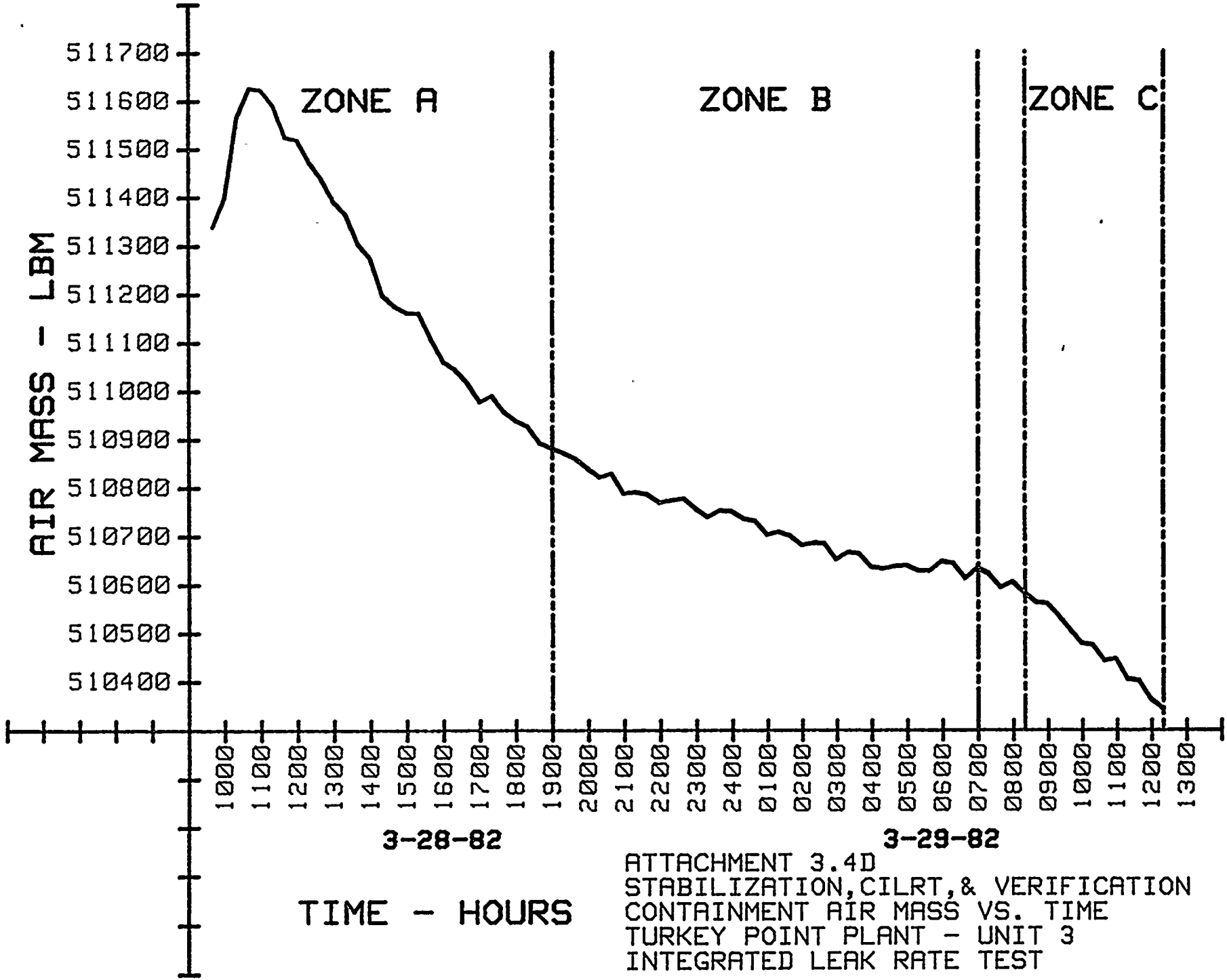
Time (Hours)	Mass (Lbm)	Meas Leakage (Pct/Day)	Mean of Meas Leakage	Calc Leakage (Pct/Day)	Conf (Pct/Day)	UCL (Pct/Day)
0.000	510879.10	0.000000	0.000000	0.000000	0.000000	0.000000
0.334	510868.81	0.144731	0.000000	0.000000	0.000000	0.000000
0.667	510857.36	0.153118	0.000000	0.000000	0.000000	0.000000
1.000	510836.91	0.198200	0.165350	0.192084	0.145123	0.337207
1.334	510818.95	0.211823	0.176968	0.213942	0.054954	0.268895
1.667	510827.10	0.146542	0.170883	0.183347	0.134754	0.318101
2.000	510785.68	0.219434	0.178974	0.205210	0.107214	0.312424
2.334	510788.99	0.181370	0.179317	0.199770	0.094340	0.294110
2.667	510783.62	0.168183	0.177925	0.190581	0.088044	0.278624
3.000	510766.64	0.176104	0.177723	0.187361	0.079248	0.266609
3.334	510772.30	0.150487	0.174999	0.176199	0.077556	0.253755
3.667	510775.93	0.132171	0.171106	0.162372	0.077760	0.240132
4.000	510754.25	0.146630	0.169066	0.156500	0.072658	0.229158
4.334	510737.10	0.153919	0.167901	0.154130	0.067922	0.222052
4.667	510750.49	0.129458	0.165155	0.146083	0.065370	0.211453
5.000	510748.83	0.122396	0.162304	0.138137	0.063062	0.201198
5.334	510734.36	0.127476	0.160128	0.133035	0.060138	0.193173
5.667	510729.13	0.124321	0.158021	0.128326	0.057518	0.185844
6.000	510700.98	0.139462	0.156990	0.127655	0.055676	0.183332

ATTACHMENT 3.4C (Cont.)

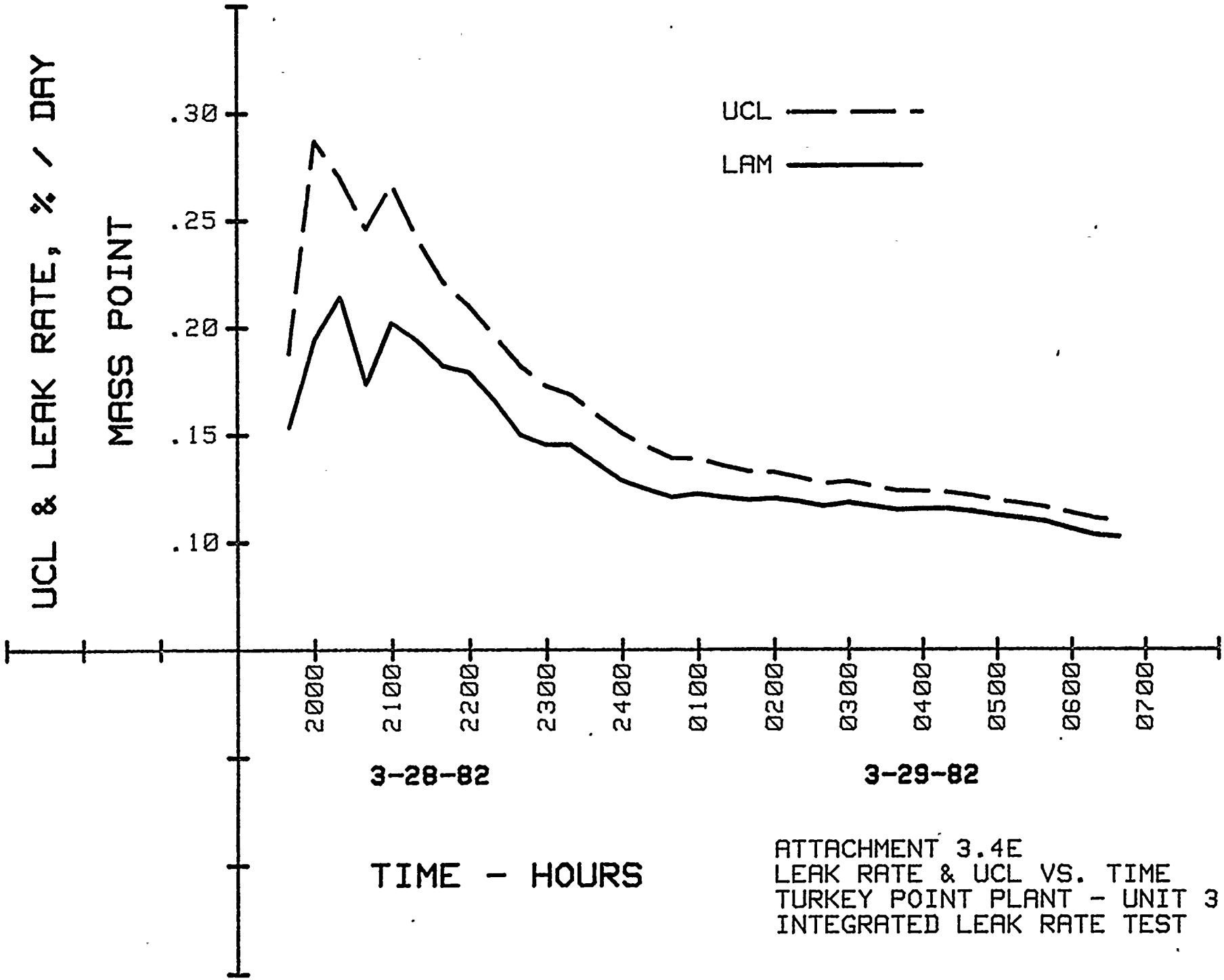
Time (Hours)	Mass (Lbm)	Meas Leakage (Pct/Day)	Mean of Meas Leakage	Calc Leakage (Pct/Day)	Conf (Pct/Day)	UCL (Pct/Day)
6.334	510706.58	0.127954	0.155462	0.124929	0.053572	0.178500
6.667	510698.55	0.127221	0.154050	0.122595	0.051722	0.174317
7.000	510679.65	0.133853	0.153088	0.121872	0.050452	0.172324
7.334	510684.35	0.124747	0.151800	0.119764	0.048932	0.168696
7.667	510683.35	0.119941	0.150415	0.117242	0.047489	0.164731
8.000	510649.55	0.134797	0.149764	0.117452	0.047008	0.164460
8.334	510665.19	0.120579	0.148597	0.115532	0.045813	0.161346
8.667	510661.59	0.117897	0.147416	0.113523	0.044690	0.158214
9.000	510635.21	0.127305	0.146671	0.113126	0.044113	0.157240
9.334	510630.53	0.125105	0.145901	0.112514	0.043474	0.155988
9.667	510636.45	0.117918	0.144936	0.111075	0.042614	0.153689
10.000	510637.66	0.113423	0.143886	0.109264	0.041739	0.151003
10.334	510627.08	0.114567	0.142940	0.107818	0.040982	0.148800
10.667	510625.82	0.111545	0.141959	0.106202	0.040232	0.146435
11.000	510646.08	0.099516	0.140673	0.103390	0.039496	0.142886
11.334	510642.43	0.098096	0.139420	0.100722	0.038783	0.139505
11.667	510611.25	0.107851	0.138518	0.099417	0.038238	0.137655
12.000	510632.09	0.096700	0.137357	0.097074	0.037580	0.134654

Initial calculated leakage = 0.179946

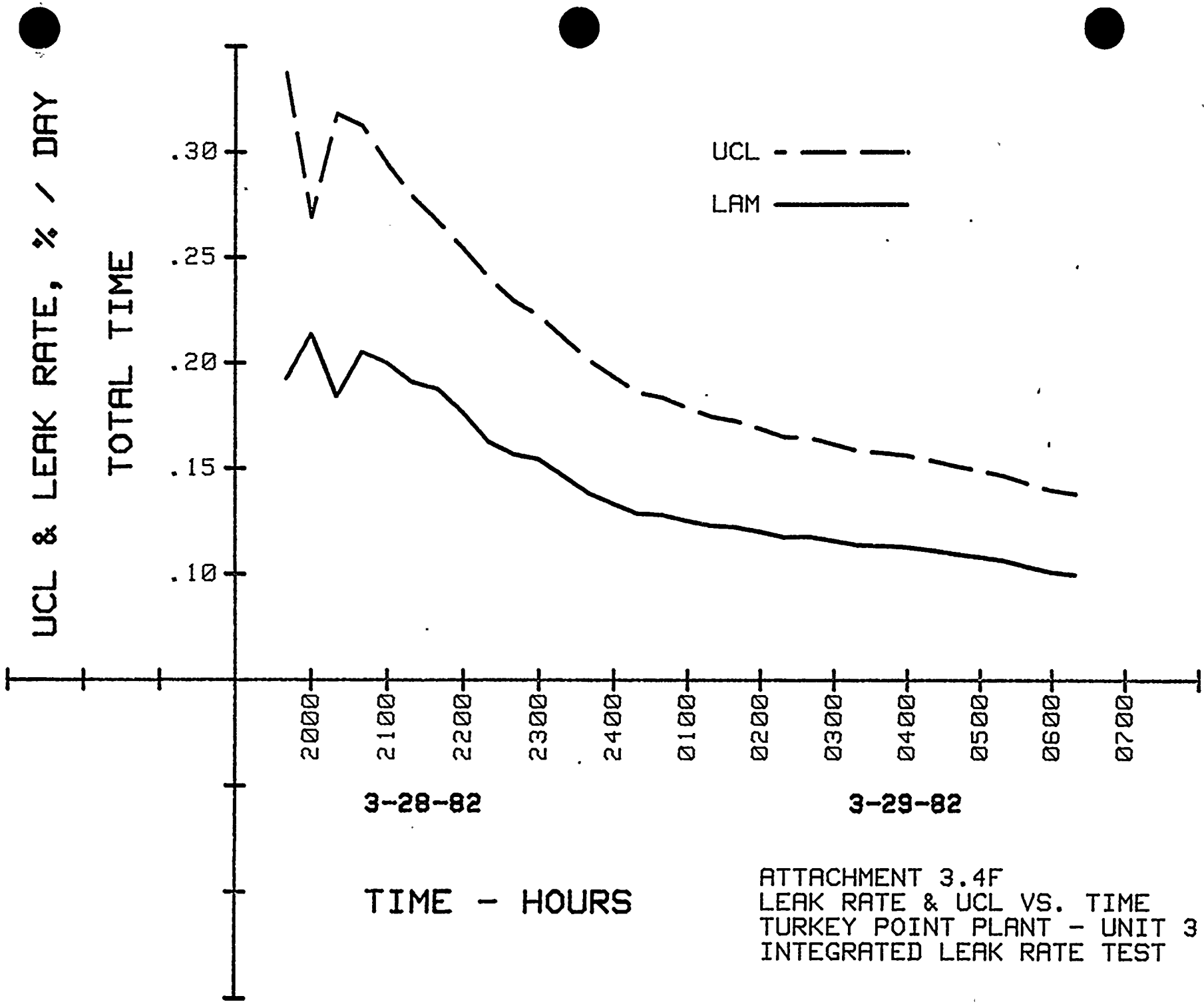
Final calculated leakage = 0.097074



ATTACHMENT 3.4D
STABILIZATION, CILRT, & VERIFICATION
CONTAINMENT AIR MASS VS. TIME
TURKEY POINT PLANT - UNIT 3
INTEGRATED LEAK RATE TEST



ATTACHMENT 3.4E
LEAK RATE & UCL VS. TIME
TURKEY POINT PLANT - UNIT 3
INTEGRATED LEAK RATE TEST



ATTACHMENT 3.4F
LEAK RATE & UCL VS. TIME
TURKEY POINT PLANT - UNIT 3
INTEGRATED LEAK RATE TEST

SECTION 4

LOCAL LEAK RATE TESTS (TYPE B AND C)

Attachments 4A and 4B, which follow, summarize the LLRT data which has been obtained from periodic testing performed since the last Type A Test. Prerepair data is provided for surveillance testing performed in 1979/1980, 1981, and 1982. These LLRT's were performed by pressurizing the listed penetrations with air and either measuring leakage across the containment isolation valves (Type C) or across the resilient seals (Type B).

The acceptance criteria for Type B and C testing is in accordance with 10CFR50, Appendix J. The combined leakage rate for all penetrations and valves, subject to Type B and C tests, is less than 0.6 La. The LLRT's performed in 1979/1980, 1981, and 1982 were well below the acceptance limit.

New valves added during the 1982 outage were generally attributed to a TMI upgrade.

The attachments for this section are:

Attachment No.	Title	Surveillance Period
4A	1982 Type B Data Summary	1/8/82 - 3/30/82
	1981 Type B Data Summary	2/5/81 - 6/6/81
	1979/1980 Type B Data Summary	12/4/79 - 1/23/80
4B	1982 Type C Data Summary	1/8/82 - 3/30/82
	1981 Type C Data Summary	2/5/81 - 6/6/81
	1979/1980 Type C Data Summary	12/4/79 - 1/23/80

ATTACHMENT 4A

TYPE B DATA SUMMARY

Penetration No.	Equipment Tested	As Found Leakage (cc/min)	As Left Leakage (cc/min)	Remarks
1982 TYPE B DATA SUMMARY				
38 Electrical Cannisters	O-Ring and Body	0	0	
39 Fuel Transfer Tube Flange	O-Ring and Body	80	80	
40 Equipment Access Hatch	O-Ring and Body	0	0	
41 Personnel Air Lock	O-Ring and Body	16,500	16,500	
49 Emergency Air Lock	O-Ring and Body	0	0	

ATTACHMENT 4A (Cont.)

TYPE B DATA SUMMARY

Penetration No.	Equipment Tested	As Found Leakage (cc/min)	As Left Leakage (cc/min)	Remarks
1981 TYPE B DATA SUMMARY				
38 Electrical Cannisters	O-Ring and Body	0	0	
39 Fuel Transfer Tube Flange	O-Ring and Body	65	65	
40 Equipment Access Hatch	O-Ring and Body	135	0	Retest required after fuel movement;
41 Personnel Air Lock	O-Ring and Body	0	0	
49 Emergency Air Lock	O-Ring and Body	75	75	

ATTACHMENT 4A (Cont.)

TYPE B DATA SUMMARY

Penetration No.	Equipment Tested	As Found Leakage (cc/min)	As Left Leakage (cc/min)	Remarks
1979/1980 TYPE B DATA SUMMARY				
38 Electrical Cannisters	O-Ring and Body	0	0	
39 Fuel Transfer Tube Flange	O-Ring and Body	140	140	
40 Equipment Access Hatch	O-Ring and Body	0	0	
41 Personnel Air Lock	O-Ring and Body	-	-	
49 Emergency Air Lock	O-Ring and Body	-	-	

ATTACHMENT 4B

TYPE C DATA SUMMARY

Penetration No.	Valves Tested	As Found Leakage (cc/min)	As Left Leakage (cc/min)	Remarks
1982 TYPE C DATA SUMMARY				
1 To RHR from Loop C Hot Leg	MOV-751 (ISC)	0	0	
5 PRT to Gas Analyzer	CV-516 (OSC)	0	0	
	SV-516 (OSC)	0	0	SV-516 new valve;
6 Nitrogen to PRT	CK-518 (ISC)	1180	1180	
	ST-CK-519 (ISC)	840	840	ST-CK-519 new valve;
7 PW to PRT and RCP Standpipes	CV-519A (OSC)	0 (combined)	0	
	CV-519B (ISC)			
	CV-522A (ISC)			
	CV-522B (ISC)			
	CV-522C (ISC)			
8 PRZ Steam Samples	CV-951 (ISC)	0	1020	CV-951 replaced valve;
	CV-956A (OSC)	0	0	
9 PRZ Liquid Samples	CV-953 (ISC)	0	0	CV-953 replaced valve;
	CV-956B (OSC)	0	0	
10 RCDT and PRT Vent and Nitrogen to RCDT	CV-4658B (OSC)	0	0	
	PCV-3-1014 (OSC)	1500	1500	
11 Alternate Low Head SI to Loops	MOV-872 (OSC)	38	38	
14 Letdown to Nonregenerative Heat Exchanger	CV-200A (ISC)	<35 (CV-200A)	<35 (CV-200A)	
	CV-200B (ISC)	(CV-200B)	(CV-200B)	
	CV-200C (ISC)	(CV-200C)	(CV-200C)	
	CV-204 (OSC)	<30	<30	
15 Charging to Regenerative Heat Exchanger	CK-312C (ISC)	<35	<35	
	HCV-121 (OSC)	35 (HCV-121)	35 (HCV-121)	
	HCV-333 (OSC)	(HCV-333)	(HCV-333)	

ATTACHMENT 4B (Cont.)

TYPE C DATA SUMMARY

Penetration No.	Valves Tested	As Found Leakage (cc/min)	As Left Leakage (cc/min)	Remarks
1982 TYPE C DATA SUMMARY				
16 PACVS, Hydrogen Removal	HV-3-2 (OSC)	145	145	
17 SI Test Line	V-895V (OSC)	220	220	
19A Containment Spray A	CK-890A (OSC) MOV-880A (OSC)	300 0	300 0	
19B Containment Spray B	CK-890B (OSC) MOV-880B (OSC)	0 0	0 0	
20 A and B Hot Leg Sample	CV-955A (ISC) CV-955B (ISC) CV-956C (OSC) SV-956C	0 0 0 0	0 0 0 0	CV-955A and CV-955B valves were replaced;
23 Containment Sump to WHT	SV-2822 (OSC) CV-2821 (OSC)	0 50	0 50	
24A Seal Water Injection to A RCP	CK-298A (ISC)	<35	<35	
24B Seal Water Injection to B RCP	CK-298B (ISC)	0	0	
24C Seal Water Injection to C RCP	CK-298C (ISC)	0	0	
25 RCP Seal Water Return	MOV-381 (OSC) MOV-381A (ISC)	0 30,000	0 <30	MOV-381A new valve; system flushed;
29 Instrument Air Supply	CK-336 (ISC) CV-3-2803 (OSC) CK-340A (ISC)	400 40 >52,000	400 40 830	CK-340A new valve; valve seat cleaned and lapped;
31 RCDT to Gas Analyzer	CV-4659B (OSC)	0	0	
32 Containment Air Sample Return	CK-11-003 (ISC) SV-2912 (OSC)	35 55	35 55	

NOTIFICATION

TEST TYPE C DATA

Test Date	
Test Time	
Ambient Temp	
Barometric Pressure	
Test Fuel	
Test Fuel Batch No.	
Test Fuel Specific Gravity	
Test Fuel Temperature	
Test Fuel Density	
Test Fuel Weight	
Test Fuel Volume	
Test Fuel Specific Heat	
Test Fuel Heat Capacity	
Test Fuel Heat Capacity Factor	
Test Fuel Heat Capacity Factor Correction	
Test Fuel Heat Capacity Factor Correction Factor	
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Test Fuel Heat Capacity Factor Correction

ATTACHMENT 4B (Cont.)

TYPE C DATA SUMMARY

Penetration No:	Valves Tested	As Found Leakage (cc/min)	As Left Leakage (cc/min)	Remarks
1982 TYPE C DATA SUMMARY				
33 Containment Air Sample	SV-2913 (OSC) SV-2911 (OSC)	1400 239	1400 239	
34 Service Air	CK-205 (ISC) V-204 (OSC)	2300 20	35 30	CK-205 valve seat cleaned;
35 Containment Purge Inlet	PV-2600 (OSC) PV-2601 (ISC)	1400 (combined)	1400	
36 Containment Purge Outlet	PV-2602 (OSC) PV-2603 (ISC)	3700 (combined)	3700	PV-2602 and PV-2603 half or valve seals replaced due to cracks;
42 Nitrogen to Accumulators	CV-855 (OSC) CK-945E (OSC)	1020 0	1020 0	CK-945E new valve;
47 Primary Water Supply to Wash Header	CK-10-567 (OSC)	25	25	
52 RCDT Pump Discharge	CV-4668B (OSC)	0	0	
53 PACVS	HV-3-4 (OSC)	3200	300	HV-3-4 replaced valve;
54A Containment Recirc Sump to RHR Pump A	MOV-861A (OSC)	0	0	
54B Containment Recirc Sump to RHR Pump B	MOV-861B (OSC)	0	0	
55 Accumulator Sampling	CV-955C (ISC) CV-955D (ISC) CV-955E (ISC) CV-956D (OSC)	0 0 10,000 410	0 0 980 410	CV-955C and CV-955D valves replaced; CV-955E valve stroke adjusted;
61B Deadweight Tester to PT	Valve "C" (OSC)	0	0	
63 Instrument Air Bleed	CV-2819 (ISC) CV-2826 (OSC) SV-2819	20,000 11,000 240	258 11,000 240	CV-2819 valve seat cleaned and lapped;

ATTACHMENT 4B (Cont.)

TYPE C DATA SUMMARY

Penetration No.	Valves Tested	As Found Leakage (cc/min)	As Left Leakage (cc/min)	Remarks
1982 TYPE C DATA SUMMARY				
65A Containment Air Test Air In-Out	Flange 'E' (OSC)	520	520	
65B Containment Air Test Pressure	Valve 'F' (OSC)	45	45	
65C Containment Air Test Leakage Flow	Valve 'G' (OSC)	0	0	

ATTACHMENT 4B (Cont.)

TYPE C DATA SUMMARY

Penetration No.	Valves Tested	As Found Leakage (cc/min)	As Left Leakage (cc/min)	Remarks
1981 TYPE C DATA SUMMARY				
1 To RHR from Loop C Hot leg	MOV-751 (ISC)	0	0	
5 PRT to Gas Analyzer	CV-516 (OSC)	0	0	
6 Nitrogen to PRT	CK-518 (ISC)	35	35	
7 PW to PRT and RCP Standpipes	CV-519A (OSC) CV-519B (ISC) CV-522A (ISC) CV-522B (ISC) CV-522C (ISC)	<30 (combined)	<30	
8 PRZ Steam Samples	CV-951 (ISC) CV-956A (OSC)	60 0	60 0	
9 PRZ Liquid Samples	CV-953 (ISC) CV-956B (OSC)	0 0	0 0	
10 RCDT and PRT Vent and Nitrogen to RCDT	CV-4658B (OSC) PCV-3-1014 (OSC)	0 150	0 150	
11 Alternate Low Head SI to Loops	MOV-872 (OSC)	0	0	
14 Letdown to Nonregenerative Heat Exchanger	CV-200A (ISC) CV-200B (ISC) CV-200C (ISC) CV-204 (OSC)	40 (CV-200A) (CV-200B) (CV-200C) 0	40 (CV-200A) (CV-200B) (CV-200C) 0	
15 Charging to Regenerative Heat Exchanger	CK-312C (ISC) HCV-121 (OSC) HCV-333 (OSC)	200 500 (HCV-121) (HCV-333)	200 500 (HCV-121) (HCV-333)	

ATTACHMENT 4B (Cont.)

TYPE C DATA SUMMARY

Penetration No.	Valves Tested	As Found Leakage (cc/min)	As Left Leakage (cc/min)	Remarks
1981 TYPE C DATA SUMMARY				
16 PACVS, Hydrogen Removal	HV-3-2 (OSC)	0	0	
17 SI Test Line	GL-895V (OSC)	0	0	
19A Containment Spray A	CK-890A (OSC) MOV-880A (OSC)	23,000 0	1,450 0	CK-890A valve cleaned and lapped;
19B Containment Spray B	CK-890B (OSC) MOV-880B (OSC)	0 0	0 0	
20 A and B Hot Leg Sample	CV-955A (ISC) CV-955B (ISC) CV-956C (OSC)	0 0 0	0 0 0	
23 Containment Sump to WHT	CV-2822 (OSC) CV-2821 (OSC)	60 2500	60 400	CV-2821 valve stroke adjusted and seat cleaned;
24A Seal Water Injection to A RCP	CK-298A (ISC)	0	0	
24B Seal Water Injection to B RCP	CK-298B (ISC)	0	0	
24C Seal Water Injection to C RCP	CK-298C (ISC)	0	0	
25 RCP Seal Water Return	MOV-381 (OSC)	0	0	
29 Instrument Air Supply	CK-336 (ISC) CV-2803 (OSC)	250 60	250 60	
31 RCDT to Gas Analyzer	CV-4659B (OSC)	0	0	
32 Containment Air Sample Return	CK-11-003 (ISC) SV-2912 (OSC)	2500 1700	90 <30	CK-11-003 valve cleaned and lapped; SV-2912 solenoid valve internals were replaced;

ATTACHMENT 4B (Cont.)

TYPE C DATA SUMMARY

Penetration No.	Valves Tested	As Found Leakage (cc/min)	As Left Leakage (cc/min)	Remarks
1981 TYPE C DATA SUMMARY				
33 Containment Air Sample	SV-2913 (OSC) SV-2911 (OSC)	70 750	70 75	SV-2911 solenoid valve internals were replaced;
34 Service Air	CK-205 (ISC) CV-204 (OSC)	>52,000 1800	10 200	CK-205 cleaned valve; CV-204 valve stroke adjusted; cleaned valve;
35 Containment Purge Inlet	PV-2600 (OSC) PV-2601 (ISC)	25 (combined)	25	
36 Containment Purge Outlet	PV-2602 (OSC) PV-2603 (ISC)	95 (combined)	95	
42 Nitrogen to Accumulators	CV-855 (OSC)	8000	90	CV-855 valve stroke adjusted;
47 Primary Water Supply to Wash Header	CK-10-567 (OSC)	200	200	
52 RCDT Pump Discharge	CV-4668B (OSC)	0	0	
53 PACVS	HV-3-4 (OSC)	0	0	
54A Containment Recirc Sump to RHR Pump A	MOV-861A (OSC)	0	0	
54B Containment Recirc Sump to RHR Pump B	MOV-861B (OSC)	0	0	
55 Accumulator Sampling	CV-955C (ISC) CV-955D (ISC) CV-955E (ISC) CV-956D (OSC)	0 (CV-955C) (CV-955D) (CV-955E) 0	0 (CV-955C) (CV-955D) (CV-955E) 0	
61B Deadweight Tester to PT	Valve "C" (OSC)	0	0	
63 Instrument Air Bleed	CV-2819 (ISC) CV-2826 (OSC)	15 540	15 540	

ATTACHMENT 4B (Cont.)

TYPE C DATA SUMMARY

Penetration No.	Valves Tested	As Found Leakage (cc/min)	As Left Leakage (cc/min)	Remarks
1981 TYPE C DATA SUMMARY				
65A Containment Air Test Air In-Out	Flange 'E' (OSC)	0	0	
65B Containment Air Test Pressure	Valve 'F' (OSC)	180	180	
65C Containment Air Test Leakage Flow	Valve 'G' (OSC)	0	0	

TYPE C DATA SUMMARY

Penetration No.	Valves Tested	As Found Leakage (cc/min)	As Left Leakage (cc/min)	Remarks
1979/1980 TYPE C DATA SUMMARY				
1 To RHR from Loop C Hot Leg	MOV-751 (ISC)	160	160	
5 PRT to Gas Analyzer	CV-516 (OSC)	0	0	
6 Nitrogen to PRT	CK-518 (ISC)	50	50	
7 PW to PRT and RCP Standpipes	CV-519A (OSC) CV-519B (ISC) CV-522A (ISC) CV-522B (ISC) CV-522C (ISC)	30 (combined)	30	
8 PRZ Steam Samples	CV-951 (ISC) CV-956A (OSC)	0 >52,000	0 0	CV-956A valve seating surface cleaned;
9 PRZ Liquid Samples	CV-953 (ISC) CV-956B (OSC)	0 >52,000	0 35	CV-956B valve stroke adjusted and seating surface cleaned;
10 RCDT and PRT Vent and Nitrogen to RCDT	CV-4658B (OSC) PCV-3-1014 (OSC)	0 90	0 90	
11 Alternate Low Head SI to Loops	MOV-872 (OSC)	0	0	
14 Letdown to Nonregenerative Heat Exchanger	CV-200A (ISC) CV-200B (ISC) CV-200C (ISC) CV-204 (OSC)	30 (CV-200A) (CV-200B) (CV-200C) 15	30 (CV-200A) (CV-200B) (CV-200C) 15	
15 Charging to Regenerative Heat Exchanger	312C (ISC) HCV-121 (OSC) HCV-333 (OSC)	300 10 (HCV-121) (HCV-333)	300 10 (HCV-121) (HCV-333)	

ATTACHMENT 4B (Cont.)

TYPE C DATA SUMMARY

Penetration No.	Valves Tested	As Found Leakage (cc/min)	As Left Leakage (cc/min)	Remarks
1979/1980 TYPE C DATA SUMMARY				
16 PACVS, Hydrogen Removal	HV-3-2 (OSC)	30	30	
17 SI Test Line	895V (OSC)	0	0	
19A Containment Spray A	CK-890A (OSC) MOV-880A (OSC)	40 0	40 0	
19B Containment Spray B	CK-890B (OSC) MOV-880B (OSC)	0 0	0 0	
20 A and B Hot Leg Sample	CV-955A (ISC) CV-955B (ISC) CV-956C (OSC)	0 0 0	0 0 0	
23 Containment Sump to WHT	CV-2822 (OSC) CV-2821 (OSC)	0 10,000	0 0	CV-2821 valve seating surface cleaned;
24A Seal Water Injection to a RCP	CK-298A (ISC)	0	0	
24B Seal Water Injection to B RCP	CK-298B (ISC)	0	0	
24C Seal Water Injection to C RCP	CK-298C (ISC)	0	0	
25 RCP Seal Water Return	MOV-381 (OSC)	0	0	
29 Instrument Air Supply	CK-336 (ISC) CV-2803 (OSC)	5,000 0	200 0	CK-336 cleaned valve; lapped valve seat;
31 RCDT to Gas Analyzer	CV-4659B (OSC)	0	0	
32 Containment Air Sample Return	CK-11-003 (ISC) SV-2912 (OSC)	1,600 4,000	360 0	CK-11-003 valve seat cleaned and lapped; SV-2912 solenoid valve internals were replaced;

ATTACHMENT 4B (Cont.)

TYPE C DATA SUMMARY

Penetration No.	Valves Tested	As Found Leakage (cc/min)	As Left Leakage (cc/min)	Remarks
1979/1980 TYPE C DATA SUMMARY				
33 Containment Air Sample	SV-2913 (OSC) SV-2911 (OSC)	20,000 500	0 0	SV-2913 solenoid valve internals were replaced; SV-2911 solenoid valve internals were replaced;
34 Service Air	CK-205 (ISC) CV-204 (OSC)	12,000 10	0 10	CK-205 cleaned valve;
35 Containment Purge Inlet	PV-2600 (OSC) PV-2601 (ISC)	>52,000 (combined)	110	PV-2600 and PV-2601 valve seals replaced;
36 Containment Purge Outlet	PV-2602 (OSC) PV-2603 (ISC)	45 (combined)	45	
42 Nitrogen to Accumulators	CV-855 (OSC)	0	0	
47 Primary Water Supply to Wash Header	CK-10-567 (OSC)	60	60	
52 RCDT Pump Discharge	CV-4668B (OSC)	0	0	
53 PACVS	HV-3-4 (OSC)	75	75	
54A Containment Recirc Sump to RHR Pump A	MOV-861A (OSC)	0	0	
54B Containment Recirc Sump to RHR Pump B	MOV-861B (OSC)	30	30	
55 Accumulator Sampling	CV-955C (ISC) CV-955D (ISC) CV-955E (ISC) CV-956D (OSC)	0 (CV-955C) (CV-955D) (CV-995E) 0	0 (CV-955C) (CV-955D) (CV-955E) 0	
61B Deadweight Tester to PT	Valve "C" (OSC)	0	0	
63 Instrument Air Bleed	CV-2819 (ISC) CV-2826 (OSC)	150 750	150 750	

ATTACHMENT 4B (Cont.)

TYPE C DATA SUMMARY

Penetration No.	Valves Tested	As Found Leakage (cc/min)	As Left Leakage (cc/min)	Remarks
1979/1980 TYPE C DATA SUMMARY				
65A Containment Air Test Air In-Out	Flange 'E' (OSC)	90	90	
65B Containment Air Test Pressure	Valve 'F' (OSC)	105	105	
65C Containment Air Test Leakage Flow	Valve 'G' (OSC)	0	0	