REACTOR CONTAINMENT BUILDING INTEGRATED LEAK RATE TEST

DONALD C. COOK PLANT

UNIT NO. 2

INDIANA AND MICHIGAN ELECTRIC COMPANY

1984

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D. C. COOK PLANT - UNIT TWO

CONTAINMENT INTEGRATED LEAK RATE TEST

JULY 1984

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1.0 Introduction

The third periodic containment Integrated Leak Rate Test (ILRT) for the Donald C. Cook Nuclear Plant Unit 2 reactor containment was successfully completed on July 30, 1984.

The ILRT was performed as specified in surveillance test procedure **12 THP 4030 STP.202, Rev. 4 in accordance with the requirements of American National Standard ANSI N45.4 - 1972, the Code of Federal Regulations 10 CFR 50 Appendix J, the plant FSAR, and Technical Specification 4.6.1.2.

The absolute method of testing was employed on the three compartment containment model developed for both the Unit One and Unit Two Preoperational Integrated Leak Rate Tests.

Data was collected at half hour intervals and was used to calculate the normalized weight of the initial dry air mass remaining in the containment at each half hour interval. The measured Type A leak rate, Lam, is the slope of a straight line determined for a linear least-squares fit of the calculated normalized weight vs. time.

Temperature measurements were taken at 46 locations inside the containment building, pressure and humidity readings at three locations. Leakage was measured at 12.4 psig (design basis accident pressure being 12 psig, +0.5, -0.0 psig). A measured induced leak was used to verify the test results.

Interpretation and final analysis of the test data show results well within the specified limits for this containment, which has a maximum allowable leak rate (La) of 0.75 La or 0.1875 weight percent of the containment atmosphere per day of design basis accident pressure.

2.0 Leakage Rate Measurement System

Measurement of overall containment pressure and leak rate was accomplished using the test instrumentation listed in Figure I, in conjunction with the ILR computer program for averaging and weighting of data, correction to standard conditions, and statistical calculation of the leak rate. A copy of the ILR program listing is found in Appendix A, and verification of program accuracy is contained in Appendix B. Changes were made to ILR software to permit terminal interface. The body of the program, containing the leak rate calculation, was not changed.

The measurement instrumentation used was arranged such that humidity and temperature transducers were located inside the containment building, with external recording capability of the transducer output. Pressure measuring equipment was located outside the containment building, utilizing permanently installed pressure sensing lines open to containment atmosphere.

Redundant instrumentation was used, to allow failure of one channel while still providing data aquisition capability. With the redundant instrumentation use, an average of the two values obtained was used for calculations performed by the ILR Program.

Recording of humidity and temperatue data was performed automatically by the programmed data logging system referenced in Figure I. Pressure measurements were obtained via direct reading of quartz manometers by test personnel, at the direction of the Official Test Timekeeper. Data was then compiled and transferred to data processing personnel, who entered the data into the ILR program and verified data entry accuracy.

For the duration of the test period, the reactor coolant system was at half loop operation, with constant level maintained by Operations Personnel.

A schematic arrangement of the leakage rate instrumentation system is shown in Figure II, with a detailed arrangement of the containment structure and temperature measurement system shown in Figure III. A schematic arrangement of the test personnel is contained in Figure IV.

3.0 TEST ORGANIZATION

3.1 INTRODUCTION

Performance of the containment Integrated Leak Rate Test was broken into five distinct segments, beginning with the pressurization period, followed by the required stablization period, the Type A test, the supplemental test, and the de-pressurization period. Each segment was documented with respect to date, time, and acceptance criteria. Test data was plotted throughout the duration of the test in order to disclose any gross variation that could indicate equipment failure.

Prior to the beginning of the pressurization period, an inspection of the containment structure was conducted to uncover any visible evidence of structural deterioration. None was evident. Valve line-ups were completed per procedure specification to isolate the containment structure, and pressurization began at 1300 hours on June 12, 1984.

Several items were not able to be removed from the containment building, but were determined to be of insignificant volume to affect the test. A list of these items follows:

Quantity	Item	Size
(4)	Miller welders	3' x 22.5" x 23"
	Hydrolasing Equipment	3 tanks and piping
(1)	Wood box on steam generator doghouse	17" x 8' x 4'
(1)	Wood box on steam generator doghouse	4'2" x 6' X 20"
(1)	Steel box on steam generator doghouse	44" x 44" X 14"
(1)	Green steel box	18" x 32" x 14"
	Various cables and lifting Equipment	

An error analysis was performed at the end of each test period, when all data for that period was available to calculate the maximium error.

3.2 PRESSURIZATION

At 1200 hours on June 12, 1984, the Unit 2 reactor containment building was cleared of all personnel, sump level measurements were taken, the lights were extinguished, and the access doors locked. At 1205 hours, the pressurization air dryer was placed in service and the control valve to containment was opened at 1255 hours to begin pressurization . Data aquisition for the pressurization period began with Run #1 at 1300 hours.

Two containment lower ventilation units were placed in service without cooling water flow to aid in air mixing inside containment. These units were run throughout the duration of the test, rotating two of the eight fans back into service as they tripped out on thermal overload due to high air density.

After one hour of pressurization, an ice condenser pressure sensing device was removed from service due to inconsistent readings. It was replaced by a quartz manometer formerly used to measure atmospheric pressure, and a mercury manometer was substituted for atmospheric pressure measurement.

Suspected leaks on the ice condenser air handler units drain line and the containment ventilation drain line, both at CPN-31, were investigated during pressurization. Airflow could not be verified on the vented side of the isolation valves on either line, and no maintenance or adjustments were made.

At 0933 hours on June 13, 1984, the control air dryer was taken out of service and the isolation valve to containment was closed. Containment was entered at approximately 1045 hours to clean hygrometers and to adjust sampling flowrates which were elevated due to high pressure. On exit from containment, personnel remarked that the airlock had been pressurized on entry. Investigation revealed that o-rings on the inner door had dislodged from the equalizing valve on door operation due to the high air velocity and subsequent lowered static pressures near the o-rings during the pressure equalization phase of door operation.

Upon investigation of the door sealing mechanism (see attached Figure V), two members were found bent (#1 and #2), and a broken pin was replaced (#3). An attempt to straighten the bent member using the bolt adjustment (#4) failed, and the bolt was broken in the process. Because the lower airlock door could not be used, the entire sealing assembly was removed through upper containment. Subsequent dislodging of the upper airlock o-rings due to containment exit necessitated replacement of the o-rings on that airlock also.

Measurement of the inner door leakage prior to repairs was not necessary, as leakage out of containment is determined by outer door leakage. A Type B test performed on the outer door just prior to the Type A test verified that there was no leakage through its seals.

Entry and exit of the containment structure necessitated re-pressurization, which commenced at 1450 hours on June 14, 1984. At 1835 hours on June 14, 1984, pressurization was stopped. An average containment pressure of 12.415 was recorded at 1900 hours.

3.3 STABILIZATION

At 1900 hours on June 14, 1984, the required stabilization period was begun. At 0000 hrs. on June 15, 1984, the stabilization period was complete. Acceptance criteria to verify stability are as follows:

1) Stabilization period has exceeded the maximum of four hours.

2) Containment pressure has been maintained at a pressure of 12.0 (+0.5, -0.0) psig for a minimum of the last two consecutive hours of the stabilization period.

3) The weighted average temperature in the upper, lower, and ice condenser compartments has not varied more than 0.1°F/hr. over the last four hour period of the stabilization.

4) No single upper, lower, or ice condenser containment temperature reading has changed more than 0.5°F during the last hour of the stabilization period.

Due to the cyclic defrost operation of the ice condenser air handling units, however, and the higher than normal heat load in the ice condenser compartment while under pressure, temperature criteria as they apply to the ice condenser may not be met. In this case, and only after all other stabilization criteria are met, it is specified by procedure that the specifications of criteria 3) and 4) may be waived as they apply to the ice condenser. This was done for the 1984 test.

All other criteria for stabilization was met as tabulated on the following page.

STABILIZATION CRITERIA

Containment Pressure	Time (hours)	Run Numbers	Pressure (psig)
	2200-2300	6-8	12.4049
	2300-2400	8-10	12.4098

Criteria: Avg. Cont. Pressure = 12.0 (+0.5, -0.0) psig for last two consecutive hours of stabilization

Weighted Average ΔT	Time	Run Numbers	ΔT Upper	ΔT Lower	ΔT Ice
	2000-2100	2-4	-0.0516	+0.0258	+0.1521
	2100-2200	4-6	-0.0514	+0.0629	+0.1983
	2200-2300	6-8	-0.0310	+0.0285	+0.0018
	2300-2400	8-10	-0.0637	+0.0281	+0.2237

Criteria: Weighted average temperature of each compartment has not varied more than 0.1°F over the last four hour period of the stabilization period.*

Highest indicated ΔT - Runs 8-10 2300-2400 hrs.

	ΔT Upper	ΔT Lower	ΔT Ice
ETR#	108	135	118
ΔT (°F)	0.20	-0.14	-1.94

Criteria: No single upper, lower, or ice condenser containment temperature reading has changed more than 0.5°F during the last hour.*

* Ice condenser criteria waived per **12 THP 4030 STP.202.

3.4 TYPE A TEST

The Type A test of the Unit 2 reactor containment building commenced on June 15, 1984 at 0000 hours. During the conduct of the Type A test, dewpoint hygrometers went into normal defrost cycles as listed below. The defrost cycle is necessary for proper functioning of the hygrometers, but as no output is available at that time, hygrometer data was deleted for the following:

Hygrometer	Data Runs
Lower Containment$_1$	9 through 12 38 through 60
Upper Containment$_1$	54
Upper Containment$_2$	10 through 32 51 through 60

Because both humidity detectors in upper containment were in the defrost mode, all data for run #54 was not used in the ILR Program.

At 1055 on June 15, 1984, test personnel were contacted to investigate a "lower airlock door unlatched" annunciator that was discovered during an Operations tour. Concerned that an airlock door leak may be present if a door was not fully closed, a local leak test was conducted on the outer door seal and indicated that there was no leakage. It was also verified that the inner door seal was not leaking, due to absence of pressure inside the airlock, as indicated on an existing pressure gage. As there was no exhibited leakage through the airlock, the Type A test was not affected and limit switch adjustments were made following test completion.

Total elapsed time of the type A test was 29.5 hours, fulfilling the requirement that the test exceed 24 hours.

The measured overall containment leak rate was determined to be -0.03404 wt. %/day (-0.1362 La) for the containment structure as left following repairs to containment isolation valves during the preceding surveillance period.

Containment leak rates amended for the as found condition of containment follow in Section 4.0.

Acceptance criteria for the Type A test stipulates that the leak rate as determined by the linear regression 95% upper confidence limit has converged to a value below the acceptance criteria for the actual measured leakage. At type A test completion, the 95% upper containment leak rate was determined to be -0.03874 wt %/day, or -0.155 La, which meets the acceptance criteria of $\geq$ -0.75 La.

3.5 SUPPLEMENTAL TEST

In order to verify the validity of Type A leak test data, a measured leak was induced in the containment structure, and measurement parameters used to quantify the containment overall leakage as determined in the Type A test were compared with the supplemental measuring system. Configuration of the supplemental test instrumentation is shown in Figure VI.

Data acquisition for the supplemental test began at 0700 hours on June 16, 1984. This allowed the minimum thirty minute stabilization period to elapse following leak imposition, which occured at 0630 hours.

The supplemental test began with the number two upper containment hygrometer out of service due to defrost, and it remained out for the duration of the test. At 1500 hours on June 16, 1984, the number one upper containment dewpoint hygrometer (VPU-1) also went into defrost, and due to lack of humidity sensing capability for the 1500 hrs. run, the entire data set was rejected. At 1530 hours, with VPU-1 restored, data entry into the ILR program was resumed.

Total elapsed time for the supplemental test was 14.5 hours, meeting the minimum period requirement of six hours.

During performance of the supplemental test, an error in calculation of the rotometer correction factor caused the induced leak to be greater than that specified by the procedure. This error was detected through corporate review of the procedure. Although the induced leak was above that specified, the correlation between the leak rate measured at the rotometer and the leak rate measured by the Type A test equipment was within the specified range of $\pm$ 0.25 La. Details of the independent review and subsequent calculations are contained in Appendix F.

3.6 DEPRESSURIZATION

Following completion of the supplemental test, depressurziation commenced at 0050 hours on June 17, 1984 at an initial containment pressure of 26.808 psia. Personnel were permitted to enter containment at 0800 hours, when pressure had decreased below 1.5 psig. Depressurization ended at 0930 hours, when Patm of 14.34 psia had been reached.

4.0 Analysis & Interpretation of Results:

Results of the third periodic integrated leak rate test demonstrating the acceptability of the Unit 2 containment structure are tabulated in Figure VII. Acceptance criteria and test values within the specified limits to demonstrate an acceptable containment leak rate are listed in chronological order of performance. Explanation of acceptance criteria are given by footnote where necessary, and penalties to correct the criteria are calculated in the sections which follow.

4.1 Penalty Leakages

Measurement of the overall containment leak rate must meet two sets of acceptance criteria based on the as-found and as-left condition of containment isolation valves for the period just prior to the test. Determination of the leak rate acceptance criteria is accomplished via the following equality for two sets of penalty leakages:

Acceptable leakage limit = -0.75 La - Penalty Leakage.

Two penalties assessed on the acceptable leak rate limit are defined as follows:

4.1.1 As-Left Undrained Systems Leakage Penalty:

This penalty takes into account the volume of air that would escape through a given volume of piping and its associated isolation valves were the system in a drained state during the test. It is based on the known condition of the piping and values quantified during the final Type C tests performed just prior to the Type A test. Calculation of this penalty leakage is contained in Appendix C.

Leakage Limit = -0.75 La - Penalty*

$$\text{Leakage Limit} = -0.75\ La - \left(-867\ \text{sccm} \times \frac{La}{110{,}220{,}74\ \text{sccm}}\right)$$

Leakage Limit = -0.75 La -(-0.00787 La)

Leakage Limit = -0.7421 La

* Requires conversion factor: 110,220.74 sccm = 1 La, per D. C. Cook Plant Surveillance Test Procedure (**12 THP 4030 STP.202, Rev. 4, Page 37 of 55).

4.1.2 Repaired Valves Leakage Penalty

Isolation valves on several system were repaired during the period prior to the type A test as a result of Types B&C leak testing. To more accurately reflect the as-found condition of the containment structure prior to these repairs, a penalty was assessed to correct the acceptable leakage limit. A list of the repaired systems and their associated penalty leakages is itemized in Appendix D.

$$\text{Leakage Limit}_2 = -0.7421\ La - \text{Penalty*}_2$$

$$\text{Leakage Limit}_2 = -0.7421\ La - \left(-34{,}941.8\ \text{SCCM} \times \frac{La}{110{,}220.74\ \text{SCCM}}\right)$$

$$\text{Leakage Limit}_2 = -0.4251\ La$$

This yields a stricter criteria for measured allowable leakage.

* Requires conversion factor: 110,220.74 sccm = 1 La, per D. C. Cook Plant Surveillance Test Procedure (**12 THP 4030 STP.202, Rev. 4, Page 37 of 55)

4.2 SUMP LEVEL CHANGES

Prior to pressurization of the containment structure,and immediately susbsequent to depressurization, sump levels were measured to determined whether a change in containment volume would result due to sump level change. As-found and as-left values for each sump are tabulated below. The measurements were taken from the top of the sump to the water level.

Sump Name	Sump Size	As-Found Level	As Left Level	Volume Change (ft^3)
Reactor Cavity	2'6"x4'6"	2 ft. 1 in	2 ft. 1 in.	0
Lower Containment	2'4"x4'10"	7 ft. 8.5 in.	7 ft. 8 in.	-0.47
Pipe	2'6"x4'6"	5 ft. 8 in.	4 ft. 0.5 in.	+18.28

The above represents a total volume change of 17.81 cubic feet, or 504,000 cubic centimeters. Assuming that the volume changed at a constant rate between the initial and final mesurements, this would correspond to a positive volume change of 504,000 cubic centimeters over a 116 hour period, or 73 cubic centimeters per minute.*

A positive change in volume over the duration of the Type A test would effectively mask an equivalent leakage out of containment. A penalty must be assessed on the measured containment leakage, therefore, to compensate for the small positive volume change. This results in a final leakage rate, considering an additional -73 ccm (-0.0002% wt/day), of -0.03424% wt/day, well within the acceptance criteria as listed in Figure VII.

* Rounding conservatively, based on smallest possible time elapsed between measurements - from June 12, 1984 at 1200 hours when the airlock gates were locked, until June 17, 1984 at 0800 when personnel were allowed in containment.

4.3 CONCLUSION

All acceptance criteria outlined in Figure VII being met as specified, and testing being accomplished in accordance with the required codes and standards, the leakage rate for the D. C. Cook Unit Two containment building is considered acceptable. The next scheduled test of the Unit Two containment is November 1987.

APPENDIX A

ILR PROGRAM LISTING

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DATE AND TIME OF LISTING: 09/21/84   09.49.16  DATA SET NAME:   FROM ANS ( )
      0000000001111111111222222222233333333334444444445555555555666666666677777777778
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  100 C                INTEGRATED LEAK RATE TEST PROGRAM
  200 C                           ILRTEST
  300 C
  400 C  DEVELOPED BY:   ISD-NEW YORK
  500 C  MAINTAINED BY:  ENGINEERING INFORMATION SYSTEMS
  600 C  LAST UPDATE:    060184 BY J. PROBST, EIS
  700 C  COMPUTER SYSTEM: CANTON
  800 C  LOAD MODULE:    ILRTEST (LIB.PEP)
  900 C  PROCS:         PILR (SINGLE OUTPUT LCTN)
 1000 C                 PILR2 (TERMINAL & PRINT OUTPUT)
 1100 C  USER INTERFACE: ILR ROSCOE INTERFACE - CANTON ROSCOE
 1200 C  USERS:         COOK PLANT PERFORMANCE SECTION (USED DURING EVERY
 1300 C                 LEAK RATE TEST - EVERY 3YRS PER UNIT)
 1400 C
 1500 C                           VARIABLE LIST
 1600 C
 1700 C ATUC(120) - WEIGHTED AVG TEMPS, UPPER CMPT
 1800 C APUC(120) - AVG CORRECTED PRESSURES, UPPER CMPT
 1900 C AVPUC(120)- AVG VAPOR PRESSURES, UPPER CMPT
 2000 C ATLC(120) - WEIGHTED AVG TEMPS, LOWER CMPT
 2100 C APLC(120) - AVG CORRECTED PRESSURES, LOWER CMPT
 2200 C AVPLC(120)- AVG VAPOR PRESSURES, LOWER CMPT
 2300 C ATIC(120) - WEIGHTED AVE TEMPS, ICE CMPT
 2400 C APIC(120) - AVG CORRECRED PRESSURES, ICE CMPT
 2500 C AVPIC(120)- AVG VAPOR PRESSURES, ICE CMPT
 2600 C ACPA      - AVG CONTAINMENT PRESSURE, PSIA
 2700 C ACPG      - AVG CONTAINMENT PRESSURE, PSIG
 2800 C A         - INTERCEPT OF W VS T LINE (ANUM/ADEM)
 2900 C ANUM      - NUMERATOR OF INTERCEPT VALUE (A)
 3000 C ADEM      - DENOMINATOR OF INTERCEPT VALUE (A) & SLOPE (B)
 3100 C B(120)    - MEASURED LEAK RATE (SLOPE OF W VS T LINE)
 3200 C BU(120)   - 95% UPPER CONFIDENCE LIMIT LEAK RATE
 3300 C BNUM      - NUMERATOR OF SLOPE (B)
 3400 C C(6)      - RTD CONVERSION COEFFICIENTS
 3500 C CA        - HAS VALUE OF 'A' FOR COMPARISON PURPOSES
 3600 C CS        - HAS VALUE OF 'S' FOR COMPARISON PURPOSES
 3700 C CC        - INDICATES WHICH COMPLETION CHECK TO PERFORM
 3800 C             'A' - TYPE A    'S' - SUPPLEMENTAL
 3900 C CC1 & CC2 - VALUES USED IN CHECKING FOR TEST COMPLETION
 4000 C DP(6)     - DEW POINTS (DEGREES F)
 4100 C DPCHK(6)  - INDICATOR FOR INVALID DEW POINTS
 4200 C DEL       - DIFF BETWEEN UPPER LIMIT AND MEAS LEAK RATE
 4300 C EKK       - VALUE FROM TABLE FOR N-2 DEGREES OF FREEDOM
 4400 C HYG(6)    - HYGROMETER MILLIVOLT READINGS
 4500 C IBYP      - INDICATOR TO BYPASS DATA FOR PROCESSING
 4600 C IXS       - RUN NUMBER AT WHICH PROCESSING BEGINS
 4700 C IXE       - RUN NUMBER AT WHICH PROCESSING ENDS
 4800 C IPR       - RUN NUMBER OF FIRST RUN TO BE PRINTED
 4900 C K(12)     - HYGROMETER CONVERSION COEFFICIENTS
 5000 C LUC       - TOTAL NO. OF UPPER CMPT TEMPS
 5100 C LLC       - TOTAL NO. OF LOWER CMPT TEMPS
 5200 C LIC       - TOTAL NO. OF ICE CMPT TEMPS
 5300 C LVP(6)    - LOG10 VAPOR PRESSURE ARRAY
 5400 C LRI       - IMPOSED LEAK RATE IN SCFH
 5500 C LRI2      - IMPOSED LEAK RATE IN %WT/DAY
 5600 C NRA(120)  - ARRAY OF ALL RUN #S USED IN PROCESSING
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      1234567890123456789012345678901234567890123456789012345678901234567890123456789 0
 5700  C NRD       - RUN NUMBER READ FROM INPUT DATA
 5800  C NRO       - CURRENT RUN NUMBER
 5900  C NR        - COUNTER OF RUNS USED IN PROCESSING
 6000  C PRES(7)   - UNCORRECTED PRESSURES, PSIA
 6100  C PRESC(7)  - CORRECTED PRESSURES, PSIA
 6200  C PRESCU    - AVG CORRECTED PRESSURE, UPPER
 6300  C PRESCL    - AVG CORRECTED PRESSURE, LOWER
 6400  C PRESCI    - AVG CORRECTED PRESSURE, ICE
 6500  C RTDL1(32) - LITERAL ARRAY, INTEGER*4
 6600  C RTDL2(48) - LITERAL ARRAY, INTEGER*4
 6700  C RTDL3(14) - LITERAL ARRAY, INTEGER*4
 6800  C SR(70) - MANOMETER CORRECTION COEFFICIENTS
 6900  C SIGMAB - VARIANCE OF MEAN
 7000  C TCLP - TYPE C LEAKAGE PENALTY, SCCM
 7100  C TCLP2 - TYPE C LEAKAGE PENALTY; %WT/DAY
 7200  C TALR - TYPE A MEASURED LEAK RATE, %WT/DAY
 7300  C TIME(120) - ELAPSED TIME SINCE INITIAL RUN
 7400  C TIMER(120) - TIME READ FROM DATA
 7500  C TIMEST - TIME OF INITIAL RUN
 7600  C TEMPUC(16) - UPPER TEMP RDGS, MILLIVOLTS
 7700  C TEMPLC(24) - LOWER TEMP RDGS, MILLIVOLTS
 7800  C TEMPIC(7) - ICE TEMP RDGS, MILLIVOLTS
 7900  C TEMPU(16) - CONVERTED UPPER TEMPS, F
 8000  C TEMPL(24) - CONVERTED LOWER TEMPS, F
 8100  C TEMPI(7) - CONVERTED ICE TEMPS; F
 8200  C TMSMUC - UPPER VOLUME WEIGHTED AVG TEMP; F
 8300  C TMSMUR - UPPER VOLUME WEIGHTED AVG TEMP, R
 8400  C TMSMLC - LOWER VOLUME WEIGHTED AVG TEMP; F
 8500  C TMSMLR - LOWER VOLUME WEIGHTED AVG TEMP; R
 8600  C TMSMIC - ICE VOLUME WEIGHTED AVG TEMP; F
 8700  C TMSMIR - ICE VOLUME WEIGHTED AVG TEMP; R
 8800  C TSS - SUM OF TIME SQUARED
 8900  C TS - SUM OF TIME
 9000  C T2SM - SUM OF (TIME * M)
 9100  C TABLE(118) - VALUES FROM CONFIDENCE LIMIT TABLE
 9200  C VWF1 - UPPER COMPARTMENT VOLUME WEIGHTING FACTOR
 9300  C VWF2 - LOWER COMPARTMENT VOLUME WEIGHTING FACTOR
 9400  C VWF3 - ICE COMPARTMENT VOLUME WEIGHTING FACTOR
 9500  C VWAC - USED IN WEIGHTED AVG TEMP CALCULATIONS
 9600  C VPAUC - AVG VAPOR PRESSURE - UPPER
 9700  C VPALC - AVG VAPOR PRESSURE - LOWER
 9800  C VPAIC - AVG VAPOR PRESSURE - ICE
 9900  C VPR(6) - VAPOR PRESSURES CALC FROM DEW POINTS
10000  C WDUP - LITERAL ARRAY
10100  C WDLO - LITERAL ARRAY
10200  C WDIC - LITERAL ARRAY
10300  C WTUP(16) - UPPER RTD WEIGHTING FACTORS
10400  C WTLOW(24) - LOWER RTD WEIGHTING FACTORS
10500  C WTICE(7) - ICE RTD WEIGHTING FACTORS
10600  C WUCDEM - INITIAL RUN UPPER WEIGHT REMAINING
10700  C WLCDEM - INITIAL RUN LOWER WEIGHT REMAINING
10800  C WICDEM - INITIAL RUN ICE WEIGHT REMAINING
10900  C WDEM - INITIAL RUN TOTAL WEIGHT REMAINING
11000  C WUCNUM - CURRENT RUN UPPER WEIGHT REMAINING
11100  C WUC(120) - UPPER WEIGHT FRACTION REMAINING
11200  C WLCNUM - CURRENT RUN LOWER WEIGHT REMAINING
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      1234567890123456789012345678901234567890123456789012345678901234567890123456789
11300 C WLC(120) - LOWER WEIGHT FRACTION REMAINING
11400 C WICNUM - CURRENT RUN ICE VOL WEIGHT REMAINING
11500 C WIC(120) - ICE VOL WEIGHT FRACTION REMAINING
11600 C WNUM - CURRENT RUN TOTAL WEIGHT REMAINING
11700 C W(120) - TOTAL WEIGHT FRACTION REMAINING
11800 C
11900 C
12000 C
12100       IMPLICIT REAL*8(A-H,P-Z)
12200       REAL*8 K,LVP,LRI,LRI2
12300       INTEGER DPCHK(6)                                          060184
12400       DIMENSION B(120),BU(120)
12500       DIMENSION TEMPUC(16),TEMPLC(24),TEMPIC(7)
12600       DIMENSION  TEMPU(16), TEMPL(24); TEMPI(7)
12700       DATA LUC,LLC,LIC/16,24,7/
12800       DIMENSION RTDL1(16),RTDL2(24),RTDL3(07),HYG(6)
12900       DATA RTDL1/'ETR-101 ','ETR-102 ','ETR-103 ','ETR-104 ','ETR-105',
13000      -           'ETR-106 ','ETR-107 ','ETR-108 ','ETR-109 ','ETR-110',
13100      -'ETR-111 ','ETR-112 ','ETR-114 ','ETR-128 ','ETR-133 ','ETR-113 '/
13200       DATA RTDL2/'ETR-122 ','ETR-123 ','ETR-124 ','ETR-125 ','ETR-126 ',
13300      -           'ETR-127 ','ETR-129 ','ETR-130 ','ETR-131 ','ETR-132 ',
13400      -           'ETR-134 ','ETR-135 ','ETR-136 ','ETR-137 ','ETR-138 ',
13500      -           'ETR-139 ','ETR-140 ','ETR-141 ','ETR-142 ','ETR-143 ',
13600      -           'ETR-144 ','ETR-145 ','ETR-146 ','ETR-113 '/
13700       DATA RTDL3/'ETR-115 ','ETR-116 ','ETR-117 ','ETR-118 ','ETR-119 ',
13800      -           'ETR-120 ','ETR-121 '/
13900       DIMENSION WUC(120),WLC(120),WIC(120),W(120),TIME(120),NRA(120),
14000      - ATUC(120),APUC(120),AVPUC(120),ATLC(120),APLC(120),AVPLC(120),
14100      - ATIC(120),APIC(120),AVPIC(120)
14200       DIMENSION K(18),SR(70),DP(6),LVP(6),PRES(7),PRESC(7),VPR(6)
14300       DIMENSION WTUP(16),WTLOW(24),WTICE(7),TABLE(118)
14400 C   THESE T DISTRIBUTION VALUES WERE OBTAINED FROM THE HANDBOOK OF
14500 C   STATISTICAL TABLES - VALUES 97 THRU 118 WERE ADDED 6/1/84     JAP
14600       DATA TABLE /6.314,2.920,2.353,2.132,2.015,1.943,1.895,1.860,1.833,
14700      -1.812,1.796,1.782,1.771,1.761,1.753,1.746,1.740,1.734,1.729,1.725,
14800      -1.721,1.717,1.714,1.711,1.708,1.706,1.703,1.701,1.699,1.697,1.695,
14900      -1.694,1.692,1.691,1.689,1.688,1.687,1.686,1.685,1.684,1.683,1.682,
15000      -1.681,1.680,1.679,1.679,1.678,1.677,1.676,1.676,1.675,1.675,1.674,
15100      -1.673,1.673,1.672,1.672,1.671,1.671,1.671,1.670,1.670,1.669,1.669,
15200      -1.669,3*1.668,3*1.667,3*1.666,4*1.665,4*1.664,5*1.663,5*1.662,
15300      -6*1.661,7*1.660,7*1.659,6*1.658/
15400       DATA WDUP,WDLO,WDIC/'UPPER   ','LOWER   ','ICE     '/
15500       DATA CA,CS/'A','S'/
15600 C      START OF PROGRAM
15700       WRITE (6,310)
15800  310  FORMAT(1H1,44X,'********** FIXED INPUT DATA **********'//)
15900       WRITE (10,320)
16000  320  FORMAT(1H1,44X,'*** ILR ERROR AND WARNING MESSAGES ***'//)
16100       WRITE (9,330)
16200  330  FORMAT(1H1,44X,'*** ILR PROGRAM RESULTS *** '//)
16300        I = 1
16400        DLGIOO = DLOG10(1013.246DO)
16500        DLGO   = DLOG10(6.1071DO)
16600        WDEH = 0.0
16700      READ (5,300,ERR=22,END=12) C1,C2,C3,C4,C5,C6,IXS,IXE,IPR,TCLP,TALR
16800     -,LRI,CC
      1234567890123456789012345678901234567890123456789012345678901234567890123456789
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DATE AND TIME OF LISTING: 09/21/84   09.49.16  DATA SET NAME:   FROM ANS ( )
      0000000001111111111222222222233333333334444444444555555555566666666667777777778
      1234567890123456789012345678901234567890123456789012345678901234567890123456789
16900   300 FORMAT(6F6.3,I3,I3,I3,F8.0,F7.0,F6.0,A1)                          02/22/78
17000       I = 2
17100       READ (5,301,ERR=22,END=12) K
17200   301 FORMAT(6F11.6/6F11.6/6F11.6)
17300       I = 3
17400       READ (5,302,ERR=22,END=12) SR
17500   302 FORMAT(10F8.5/10F8.5/10F8.5/10F8.5/10F8.5/10F8.5/10F8.5)
17600       I = 4
17700       READ (5,303,ERR=22,END=12) WTUP,WTLOW,WTICE
17800   303 FORMAT(10F6.5/6F6.5/11F6.5/13F6.5/7F6.5)
17900       I = 5
18000       READ (5,304,ERR=22,END=12) VWF1,VWF2,VWF3
18100   304 FORMAT(3F7.5)
18200       WRITE (6,305) IXS,IXE,C1,C2,C3,C4,C5,C6,K(1),K(2),K(3),K(7),K(8),
18300      - K(9),K(13),K(14),K(15),K(4),K(5),K(6),K(10),K(11),K(12),
18400      - K(16),K(17),K(18),SR
18500   305 FORMAT(1H ,
18600      *'TEST START = RUN # ',I3,5X,'TEST END = RUN # ',I3,/1H ,
18700      *   'RTD MILLI-VOLT TO FAHRENHEIT CONVERSION COEFFICIENTS'/1H ,6X,
18800      *   'UPPER',12X,'LOWER',13X,'ICE'/1H ,F5.2,3X,F5.2,4X,F5.2,3X,
18900      *   F5.2,4X,F5.2,3X,F5.2////1H ,'HYGROMETER MILLI-VOLT TO ',
19000      -   'FAHRENHEIT CONVERSION COEFFICIENTS'/1H ,T16,'UPPER-1',T52,
19100      -   'LOWER-1',T88,'ICE-1'/1H ,3(3(F10.5,1X),3X)//1H ,T16,'UPPER-2',
19200      -   T52,'LOWER-2',T88,'ICE-2'/1H ,3(3(F10.5,1X),3X)////1H ,'MANOMET
19300      -ER PRESSURE CORRECTION COEFFICIENTS'/1H ,T4,'W1',6X,'R1',8X,'W2',
19400      *   6X,'R2',8X,'W3',6X,'R3',8X,'W4',6X,'R4',8X,'W5',6X,'R5',
19500      *   //T40,'PU-1'/1H ,5(2(F7.4,1X),2X)/1H ,38X,
19600      *   'PU-2'/1H ,5(2(F7.4,1X),2X)//1H ,38X,'PL-1'/1X,5(2(F7.4,1X),2X)
19700      *   /1H ,38X,'PL-2'/1H ,5(2(F7.4,1X),2X)//1H ,38X,'PI-1'/
19800      *   1H ,5(2(F7.4,1X),2X)/1H ,38X,'PI-2'/1H ,5(2(F7.4,1X),2X)//
19900      *   1H ,38X,'P-ATM'/1H ,5(2(F7.4,1X),2X))
20000       WRITE (6,306) WTUP,WTLOW,WTICE,VWF1,VWF2,VWF3
20100   306 FORMAT(1H-,'RTD WEIGHTING FACTORS'/1H ,27X,'UPPER'/1H ,9(F5.4,1X),
20200      *   F5.4/1H ,5(F5.4,1X),F5.4//1H ,27X,'LOWER'/1H ,10(F5.4,1X),
20300      *   F5.4/1H ,12(F5.4,1X),F5.4//1H ,28X,'ICE'/1H ,6(F5.4,1X),F5.4//
20400      *   //1H ,'VOLUME WEIGHTING FACTORS'/1H ,1X,'UPPER',2X,'LOWER',3X,
20500      *   'ICE'/1H ,2(F6.4,1X),F6.4)
20600       WRITE (6,710) TCLP,TALR,LRI
20700   710 FORMAT(/' TYPE C LEAKAGE PENALTY=',F10.2,'(SCCH)} TYPE A MEASURED
20800      +LEAK RATE = ',F9.5,' (%WT/DAY)} IMPOSED LEAK RATE = ',F9.3,
20900      +' (SCFM)')
21000       IF (IXS.LE.0) IXS = 1
21100       IF (IXE.LE.0) IXE = 999                                          02/22/78
21200       IF (WTUP(16).LE.0.0) GO TO 701
21300       LLC = 23
21400       GO TO 702
21500   701 LUC = 15
21600   702 NR = 0
21700       NRO = 0                                                          060184
21800       LICP1 = LIC + 1
21900       LUCP1 = LUC + 1
22000 C     NR IS STORAGE INDEX,PROGRAM DATA ACCESS LOOP STARTS HERE.
22100       DO 20 IR = 1,120
22200       IBYP = 0
22300       READ (5,100,ERR=42,END=32) NRD,TIMER
22400   100 FORMAT(I3,1X,F5.2)                                               02/22/78
      1234567890123456789012345678901234567890123456789012345678901234567890123456789
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DATE AND TIME OF LISTING: 09/21/84   09.49.16  DATA SET NAME:   FROM AHS ()
     00000000011111111112222222222333333333344444444455555555556666666666777777777 8
     12345678901234567890123456789012345678901234567890123456789012345678901234567890
22500 C      INPUT SEQUENCE CHECK
22600       IF (NR.EQ.0.OR.NRD.GT.NRO) GO TO 703
22700       WRITE (10,901) NRD,NRO
22800   901 FORMAT ('0',2X,'ILR005I D **INCORRECT DATA SEQUENCE - RUN #',I3,' 02/24/78
22900      *ENTERED FOLLOWS RUN #',I3,'**')
23000       GO TO 23
23100    32  IF (IPR.NE.0) GO TO 40
23200        IPR = 120
23300        GO TO 55
23400   703 NRO = NRD
23500       IF (NRO.GT.IXE) GO TO 32
23600       IF (NRO.GE.IXS) GO TO 705
23700        IBYP = 1
23800       GO TO 707
23900   705 IF (NRO.EQ.IXS) TIMEST = TIMER
24000        NR = NR + 1
24100       TIME(NR) = TIMER - TIMEST
24200       NRA(NR) = NRD
24300   200 FORMAT(1H1,'RUN NUMBER',4X,I3/1H ,'ELAPSED TIME',2X,F5.2//1H ,    02/22/78
24400      *   'CONTAINMENT TEMPERATURES DATA CHECK'//1H ,7X,'UPPER VOLUME',
24500      *   21X,'LOWER VOLUME',19X,'ICE CONDENSER'/1H ,3X,'RTD',2X,
24600      *   'MILLI-VOLTS',2X,'DEG. F.',7X,'RTD',2X,'MILLI-VOLTS',2X,
24700      *   'DEG. F.',7X,'RTD',2X,'MILLI-VOLTS',2X,'DEG. F.')
24800   707 READ (5,101,ERR=42,END=62) TEMPUC
24900   101 FORMAT(10(F5.2,1X)/6(F5.2,1X))
25000       READ (5,102,ERR=42,END=62) TEMPLC
25100   102 FORMAT(11(F5.2,1X)/13(F5.2,1X))
25200       READ (5,103,ERR=42,END=62) TEMPIC
25300   103 FORMAT(7(F5.2,1X))
25400       IF (IBYP.EQ.1) GO TO 45
25500       THSMUC = 0.0
25600       VHAC   = 1.0
25700       DO 400 JAH1=1,LUC
25800        A = TEMPUC(JAH1)
25900       IF (A.LE.0.0) GO TO 801
26000        A = C1*A + C2
26100       THSMUC = THSMUC + A*HTUP(JAH1)
26200       GO TO 400
26300   801 VHAC = VHAC + HTUP(JAH1)
26400       WRITE (10,902) NRD,WDUP,JAH1
26500   902 FORMAT ('0',5X,'TEMPERATURE MISSING - RUN #',I3,',',2X,A7,      02/22/78
26600      *'CONTAINMENT ENTRY NUMBER ',I3)
26700   400 TEMPU(JAH1) = A
26800 C      ADJUSTMENT FOR MISSING TEMPERATURE
26900       IF (VHAC.EQ.1.0) GO TO 709
27000        THSMUC = THSMUC/VHAC
27100       VHAC   = 1.0
27200   709 THSMLC = 0.0
27300       DO 401 JAH2=1,LLC
27400        A = TEMPLC(JAH2)
27500       IF (A.LE.0.0) GO TO 803
27600        A = C3*A + C4
27700       THSMLC = THSMLC + A*HTLOW(JAH2)
27800       GO TO 401
27900   803  VHAC = VHAC + HTLOW(JAH2)
28000       WRITE (10,902) NRD,WDLO,JAH2
     12345678901234567890123456789012345678901234567890123456789012345678901234567890
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DATE AND TIME OF LISTING: 09/21/84   09.49.16  DATA SET NAME:   FROM AWS ()
      0000000001111111111222222222233333333334444444445555555556666666666777777777 8
      1234567890123456789012345678901234567890123456789012345678901234567890123456789 0
28100   401 TEMPL(JAW2) = A
28200       IF (VWAC.EQ.1.0) GO TO 711
28300       TMSMLC = TMSMLC/VWAC
28400       VWAC   = 1.0
28500   711 TMSMIC = 0.0
28600       DO 402 JAW3=1,LIC
28700        A = TEMPIC(JAW3)
28800       IF (A.LE.0.0) GO TO 805
28900        A = C5*A + C6
29000       TMSMIC = TMSMIC + A*WTICE(JAW3)
29100       GO TO 402
29200   805 VWAC = VWAC - WTICE(JAW3)
29300       WRITE (10,902) NRD,WDIC,JAW3
29400   402 TEMPI(JAW3) = A
29500       IF (VWAC.NE.1.0) TMSMIC = TMSMIC/VWAC
29600 C      CONVERT TO ABSOLUTE
29700       TMSMUR = TMSMUC + 459.7
29800       TMSMLR = TMSMLC + 459.7
29900       TMSMIR = TMSMIC + 459.7
30000 C      PRINT CONTROL IPR  0=LAST ONLY, N=N THRU LAST
30100       IF (IPR.EQ.0.OR.IPR.GT.NRD) GO TO 45
30200    55 WRITE (6,200) NRD,TIMER
30300       DO 500 IWRT=1,LIC
30400   500 WRITE (6,501) RTDL1(IWRT),TEMPUC(IWRT),TEMPU(IWRT),
30500      -                RTDL2(IWRT),TEMPLC(IWRT),TEMPL(IWRT),
30600      -                RTDL3(IWRT),TEMPIC(IWRT),TEMPI(IWRT)
30700   501 FORMAT (1H ,A8,2X,2(F6.2,5X),A8,2X,2(F6.2,5X),A8,2X,F6.2,5X,F6.2)
30800       DO 502 IWRT=LICP1,LUC
30900   502 WRITE (6,503) RTDL1(IWRT),TEMPUC(IWRT),TEMPU(IWRT),
31000      -                RTDL2(IWRT),TEMPLC(IWRT),TEMPL(IWRT)
31100   503 FORMAT (1H ,A8,2X,2(F6.2,5X),A8,2X,F6.2,5X,F6.2)
31200       DO 504 IWRT=LUCP1,LLC
31300   504 WRITE (6,505) RTDL2(IWRT),TEMPLC(IWRT),TEMPL(IWRT)
31400   505 FORMAT (1H ,32X,A8,2X,F6.2,5X,F6.2)
31500       WRITE (6,507) TMSMUC,TMSMLC,TMSMIC,TMSMUR,TMSMLR,TMSMIR
31600   507 FORMAT (1H-,17X,'SUMMARY OF WEIGHTED AVERAGE TEMPERATURES'//1H ,
31700      -'UPPER VOLUME (DEG. F.)    ',F5.2,4X,'LOWER VOLUME (DEG. F.)  ',
31800      -  F6.2,4X,'ICE CONDENSER (DEG. F.)     ',F5.2/1H ,
31900      -  'UPPER VOLUME (DEG. R.)   ',F6.2,4X,'LOWER VOLUME (DEG. R.)  ',
32000      -  F7.2,4X,'ICE CONDENSER (DEG. R.)  ',F7.2)
32100       IF (IPR.EQ.120) GO TO 35
32200    45 READ (5,509,ERR=42,END=62) HYG,PRES                              060184
32300   509 FORMAT (6F6.3/7F8.5)
32400       IF (IBYP.EQ.1) GO TO 20
32500       DP(1) = K(1)*HYG(1)*HYG(1) +  K(2)*HYG(1) +  K(3)               060184
32600       DP(2) = K(4)*HYG(2)*HYG(2) +  K(5)*HYG(2) +  K(6)               060184
32700       DP(3) = K(7)*HYG(3)*HYG(3) +  K(8)*HYG(3) +  K(9)               060184
32800       DP(4) =K(10)*HYG(4)*HYG(4) + K(11)*HYG(4) + K(12)               060184
32900       DP(5) =K(13)*HYG(5)*HYG(5) + K(14)*HYG(5) + K(15)               060184
33000       DP(6) =K(16)*HYG(6)*HYG(6) + K(17)*HYG(6) + K(18)               060184
33100 C   DPCHK IS INDICATOR FOR INVALID DEWPOINTS - 1=INVALID  0=VALID     060184
33200       DO 412 J=1,6                                                    060184
33300        DPCHK(J) = 0.0                                                 060184
33400   412 CONTINUE                                                        060184
33500       DO 403 J=1,4                                                    060184
33600        IF (DP(J).LT.32.) WRITE (10,409) DP(J),NRD                     060184
      1234567890123456789012345678901234567890123456789012345678901234567890123456789 0
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DATE AND TIME OF LISTING: 09/21/84   09.49.16  DATA SET NAME:   FROM ANS ( )
      0000000001111111111222222222233333333334444444445555555555666666666677777777778
      1234567890123456789012345678901234567890123456789012345678901234567890123456789
33700  409   FORMAT(' CONVERTED DEW POINT ',F6.2,' RUN NUMBER ',I3,' IS OUT OF 060184
33800     + RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED')       060184
33900       IF (DP(J).LT.32.0.OR.HYG(J).EQ.0.0) DPCHK(J) = 1                  060184
34000       IF (DP(J).LT.32.0.OR.HYG(J).EQ.0.0) GO TO 403                     060184
34100      CIOOC = 373.16/((DP(J)-32.)/1.8 + 273.16)
34200       LVP(J) = -7.90298*(CIOOC - 1.0) + 5.02808*DLOG10(CIOOC) +  DLGIOO
34300      -         -1.3816*(10**(-7.0))*(10**(11.344*(1.0-1.0/CIOOC)) -1.)
34400      -         +8.1328*(10**(-3.0))*(10**(-3.49149*(CIOOC - 1.0)) - 1.)
34500   403 CONTINUE
34600       DO 50 J=5,6
34700       IF (DP(J).LE.0.0.OR.DP(J).GT.32.) WRITE (10,410) DP(J),NRD        060184
34800  410   FORMAT(' CONVERTED DEW POINT ',F6.2,' RUN NUMBER ',I3,' IS OUT OF 060184
34900     + RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED')       060184
35000       IF (DP(J).LE.0.0.OR.DP(J).GT.32.OR.HYG(J).EQ.0.0) DPCHK(J) = 1    060184
35100       IF (DP(J).LE.0.0.OR.DP(J).GT.32.OR.HYG(J).EQ.0.0) GO TO 50        060184
35200       COC = 273.16/((DP(J)-32.0)/1.8 + 273.16)
35300       LVP(J) = -9.09718*(COC-1.0) - 3.56654*DLOG10(COC)
35400      -         +0.876793*(1.0 - 1.0/COC) +  DLGO
35500    50 CONTINUE
35600       DO 404 KAY =1,6
35700       IF (DPCHK(KAY).EQ.1) VPR(KAY) = 0.0                               060184
35800       IF (DPCHK(KAY).EQ.1) GO TO 404                                    060184
35900       VPR(KAY) = 0.0145038*10**LVP(KAY)
36000   404 CONTINUE
36100  C      CHECK FOR MISSING VAPOR PRESSURE AND CALCULATE AVERAGE:
36200       IF (DPCHK(1).EQ.1.AND.DPCHK(2).EQ.1) VPAUC = 0.0                  060184
36300       IF (DPCHK(1).EQ.1.AND.DPCHK(2).EQ.1) GO TO 717                    060184
36400       IF (DPCHK(1).EQ.1) GO TO 713                                      060184
36500       IF (DPCHK(2).NE.1) GO TO 715                                      060184
36600       VPAUC = VPR(1)
36700       VPR(2) = 0.0
36800       GO TO 717
36900   713 VPAUC = VPR(2)
37000       VPR(1) = 0.0
37100       GO TO 717
37200   715 VPAUC = 0.5*(VPR(1) + VPR(2))
37300   717 IF (DPCHK(3).EQ.1.AND.DPCHK(4).EQ.1) VPALC = 0.0                  060184
37400       IF (DPCHK(3).EQ.1.AND.DPCHK(4).EQ.1) GO TO 723                    060184
37500       IF (DPCHK(3).EQ.1) GO TO 719                                      060184
37600       IF (DPCHK(4).NE.1) GO TO 721                                      060184
37700       VPALC = VPR(3)
37800       VPR(4) = 0.0
37900       GO TO 723
38000   719 VPALC = VPR(4)
38100       VPR(3) = 0.0
38200       GO TO 723
38300   721 VPALC = 0.5*(VPR(3) + VPR(4))
38400   723 IF (DPCHK(5).EQ.1.AND.DPCHK(6).EQ.1) VPAIC = 0.0                  060184
38500       IF (DPCHK(5).EQ.1.AND.DPCHK(6).EQ.1) GO TO 729                    060184
38600       IF (DPCHK(5).EQ.1) GO TO 725                                      060184
38700       IF (DPCHK(6).NE.1) GO TO 727                                      060184
38800       VPAIC = VPR(5)
38900       VPR(6) = 0.0
39000       GO TO 729
39100   725 VPAIC = VPR(6)
39200       VPR(5) = 0.0
      1234567890123456789012345678901234567890123456789012345678901234567890123456789
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DATE AND TIME OF LISTING: 09/21/84   09.49.16  DATA SET NAME:   FROM AHS ()
      0000000001111111111222222222233333333334444444444555555555566666666667777777778
      1234567890123456789012345678901234567890123456789012345678901234567890123456789
39300         GO TO 729
39400    727 VPAIC = 0.5*(VPR(5) + VPR(6))
39500  C       LINEAR INTERPOLATION FOR PRESSURES.
39600    729 DO 405 M=1,70,10
39700         N1=M+1
39800         N2=M+9
39900         MY=((M-1)/10)+1
40000          PRDG = PRES(MY)
40100         IF (PRDG.EQ.0.0) GO TO 444
40200         DO 406 N=N1,N2,2
40300         IF (PRDG.LT.SR(N)) GO TO 406
40400         IF (PRDG.EQ.SR(N)) GO TO 731
40500         IF (N.EQ.N1) GO TO 444
40600         PRESC(MY)=SR(N-1)+ (PRDG-SR(N))*(SR(N-3)-SR(N-1))/(SR(N-2)-SR(N))
40700         GOTO 405
40800    406  CONTINUE
40900    444 WRITE (10,407) PRDG,NRD,MY                                          02/22/78
41000    407 FORMAT(T2,'***MANOMETER READING ',F9.4,' NOT IN CALIBRATION RANGE 02/22/78
41100       * - RUN #',I3,', ENTRY NUMBER ',I3)
41200    408  PRESC(MY) = 0.0
41300         GO TO 405
41400    731 PRESC(MY) = SR(N-1)
41500    405  CONTINUE
41600  C       AVERAGING PRESSURES ALLOWING FOR ZERO ENTRY.
41700         PRESCU = 0.5*(PRESC(1) + PRESC(2))
41800         PRESCL = 0.5*(PRESC(3) + PRESC(4))
41900         PRESCI = 0.5*(PRESC(5) + PRESC(6))
42000          IF (PRESC(1).LE.0.0.OR.PRESC(2).LE.0.0) PRESCU = 2.0*PRESCU
42100          IF (PRESC(3).LE.0.0.OR.PRESC(4).LE.0.0) PRESCL = 2.0*PRESCL
42200          IF (PRESC(5).LE.0.0.OR.PRESC(6).LE.0.0) PRESCI = 2.0*PRESCI
42300         ACPA=(PRESCU+PRESCL+PRESCI)/3
42400         ACPG=ACPA-PRESC(7)
42500         IF (IPR.EQ.0.OR.IPR.GT.NRD) GO TO 747
42600     35 WRITE (6,508) HYG(1),DP(1),VPR(1),PRES(1),PRESC(1),
42700        =                HYG(2),DP(2),VPR(2),PRES(2),PRESC(2),
42800        =                HYG(3),DP(3),VPR(3),PRES(3),PRESC(3),
42900        =                HYG(4),DP(4),VPR(4),PRES(4),PRESC(4),
43000        =                HYG(5),DP(5),VPR(5),PRES(5),PRESC(5),
43100        =                HYG(6),DP(6),VPR(6),PRES(6),PRESC(6),PRES(7),PRESC(7
43200        =),VPAUC,VPALC,PRESCU,VPAIC,PRESCL,PRESCI,ACPA,ACPG
43300     508 FORMAT ('0',11X,'CONTAINMENT VAPOR PRESSURE DATA CHECK',T83,
43400        *   'CONTAINMENT PRESSURES DATA CHECK'//1H ,19X,'MILLI-',8X,
43500        *   'DEW POINT',4X,'VAPOR PRESSURE',30X,'UNCORRECTED',7X,
43600        *   'CORRECTED'/1H ,2X,'HYGROMETER',8X,'VOLTS',8X,'(DEG. F.)',7X,
43700        *   '(PSIA)',23X,'MANOMETER',2X,'READING (PSIA)',2X,'READING ',
43800        *   '(PSIA)'/1H ,3X,'UPPER:',T81,'UPPER:'/1H ,5X,'VPU-1',9X,F6.2,
43900        *    9X,F6.2,9X,F7.4,25X,'PU-1',2(8X,F7.4)/T7,'VPU-2',2(9X,F6.2),
44000        = 9X,F7.4,T83,'PU-2',2(8X,F7.4)/T5,'LOWER:',T81,'LOWER:'/
44100        = T7,'VPL-1',2(9X,F6.2),9X,F7.4,T83,'PL-1',2(8X,F7.4)/
44200        = T7,'VPL-2',2(9X,F6.2),9X,F7.4,T83,'PL-2',2(8X,F7.4)/
44300        = T5,'ICE:',T81,'ICE:'/T7,'VPI-1',2(9X,F6.2),9X,F7.4,T83,'PI-1',
44400        = 2(8X,F7.4)/T7,'VPI-2',2(9X,F6.2),9X,F7.4,T83,'PI-2',2(8X,F7.4)/
44500        = T81,'AMBIENT',T95,F7.4,8X,F7.4/1H ,T24,'AVERAGE VAPOR PRESSURES'/
44600        = T86,'SUMMARY OF CORRECTED AVERAGE PRESSURES'/1X,T17,'UPPER CONTAI
44700        =NMENT (PSIA)',T47,F7.4/1X,T17,'LOWER CONTAINMENT (PSIA)',T47,F7.4
44800        =,T81,'AVERAGE UPPER PRESSURE (PSIA)',T120,F7.4/1H ,T17,
      1234567890123456789012345678901234567890123456789012345678901234567890123456789
```

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DATE AND TIME OF LISTING: 09/21/84   09.49.16  DATA SET NAME:   FROM ANS ()
     0000000001111111111222222222233333333334444444444555555555566666666667777777778
     1234567890123456789012345678901234567890123456789012345678901234567890123456789
44900      -'ICE CONDENSER     (PSIA)',T47,F7.4,T81,'AVERAGE LOWER PRESSURE (P
45000      -SIA)',T120;F7.4/T81;'AVERAGE ICE CONDENSER PRESSURE (PSIA)',T120,
45100      -F7.4/T81,'AVERAGE CONTAINMENT PRESSURE   (PSIA)',T120,F7.4/T81,
45200      - 'AVERAGE CONTAINMENT PRESSURE   (PSIG)',T120,F7.4)
45300        IF (IPR.EQ.120) GO TO 40
45400 C        CALCULATE NORMALIZED WEIGHT FRACTIONS; STORE WITH PRESSURES.
45500   747 WUCNUM = (PRESCU - VPAUC)/TMSMUR
45600       WLCNUM = (PRESCL - VPALC)/TMSMLR
45700       WICNUM = (PRESCI - VPAIC)/TMSMIR
45800       WNUM = VWF1*WUCNUM + VWF2*WLCNUM + VWF3*WICNUM
45900        IF (WDEM.GT.0.0) GO TO 749
46000       WUCDEM = WUCNUM
46100       WLCDEM = WLCNUM
46200       WICDEM = WICNUM
46300       WDEM   = WNUM
46400   749 WUC(NR) = WUCNUM/WUCDEM
46500       WLC(NR)=WLCNUM/WLCDEM
46600       WIC(NR)=WICNUM/WICDEM
46700       W(NR)=WNUM/WDEM
46800        ATUC(NR) = TMSMUC
46900        ATLC(NR) = TMSMLC
47000        ATIC(NR) = TMSMIC
47100        APUC(NR) = PRESCU
47200        APLC(NR) = PRESCL
47300        APIC(NR) = PRESCI
47400       AVPUC(NR) = VPAUC
47500       AVPLC(NR) = VPALC
47600       AVPIC(NR) = VPAIC
47700    20 CONTINUE
47800       WRITE (10,903)
47900   903 FORMAT ('0';2X;'ILR006I D ***DATA SPACE EXCEEDED***')          02/24/78
48000       GO TO 23
48100 C      END OF FILE AND OTHER ERROR MESSAGES
48200    12 WRITE (10,904) I
48300   904 FORMAT ('0';2X;'ILR002I D **END OF FIXED DATA - GROUP ';       02/24/78
48400      - I2;2X;'**')                                                  02/24/78
48500    23 WRITE (10,905)
48600   905 FORMAT ('-';2X;'ILR008I D ***ABNORMAL RUN TERMINATION***')     02/24/78
48700       GO TO 24
48800    22 WRITE (10,906) I
48900   906 FORMAT ('0';2X;'ILR001I D **READ ERROR IN FIXED DATA - GROUP '; 02/24/78
49000      - I2,2X,'**')                                                  02/24/78
49100       GO TO 23
49200    42 WRITE (10,907) NRD
49300   907 FORMAT ('0';2X;'ILR003I D **READ ERROR IN TEST DATA - RUN #';I3,2X02/24/78
49400      *;'**')
49500       GO TO 23
49600    62 WRITE (10,908) NRD
49700   908 FORMAT ('0';2X;'ILR004I D **END OF DATA IN TEST DATA RUN #';I3,2X;02/24/78
49800      *'**')
49900       GO TO 23
50000 C                RESULT PORTION OF PROGRAM
50100    40  IF (NR.GE.3) GO TO 41
50200       WRITE (10,909)
50300   909 FORMAT ('0';2X;'ILR007I D **LESS THAN 3 TEST POINTS - MORE DATA NE02/24/78
50400      -EDED**')                                                      02/24/78
     1234567890123456789012345678901234567890123456789012345678901234567890123456789
```

```
DATE AND TIME OF LISTING: 09/21/84   09.49.16  DATA SET NAME:   FROM AWS ()
      0000000001111111111222222222233333333334444444444555555555566666666667777777778
      1234567890123456789012345678901234567890123456789012345678901234567890123456789
50500         GO TO 23
50600      41  TSS = TIME(1)*TIME(1) + TIME(2)*TIME(2)
50700          TS  =  TIME(1) + TIME(2)
50800          T2SW = TIME(1)*W(1) + TIME(2)*W(2)
50900          WS = W(1) + W(2)
51000         WRITE (9,201)
51100     201 FORMAT(1H ,48X,'SUMMARY OF AVERAGES'///1H ,2X,'RUN #',2X,'ELAPSED
51200        -',2X,3(34HAVG TEMP  AVG PRESS  AVG V PRESS  )/1H ,10X,'TIME',6X,'U
51300        -PPER',6X,'UPPER',7X,'UPPER',6X,'LOWER',6X,'LOWER',7X,'LOWER',7X,'I
51400        -CE',8X,'ICE',9X,'ICE'/)
51500         DO 43 I=1,NR
51600      43 WRITE (9,202) NRA(I), TIME(I), ATUC(I),APUC(I),AVPUC(I),ATLC(I),
51700        -APLC(I),AVPLC(I),ATIC(I),APIC(I),AVPIC(I)
51800     202 FORMAT (1H ,2X, I3,4X,F6.2,2X,3(F9.4,2X,F9.4,3X,F9.4,2X))
51900         WRITE (9,205)
52000     205 FORMAT(1H1,34X, 'RESULTS OF THE LINEAR REGRESSION ANALYSIS'///
52100        -1H ,2X,'RUN #',8X,'W',11X,'LEAKAGE RATE',9X,'LEAKAGE',9X,
52200        -         'W UPPER',7X,'W LOWER',9X,'W ICE'/1H ,10X,'EXPERIMENTAL',
52300        -6X,'UPPER LIMIT',11X,'RATE',8X,                    'CONTAINMENT',3X,
52400        -'CONTAINMENT',5X,'CONDENSER'/)
52500  C           REGRESSION LOOP
52600         DO 44 I=3,NR
52700         TSS = TSS + TIME(I)*TIME(I)
52800         TS  = TS + TIME(I)
52900         WS  = WS + W(I)
53000         T2SW = T2SW + TIME(I)*W(I)
53100          ANUM = TSS*WS - TS*T2SW
53200          XNRR = I
53300         ADEM = XNRR*TSS - TS*TS
53400          A = ANUM/ADEM
53500          BNUM = XNRR*T2SW - TS*WS
53600         B(I) = BNUM/ADEM
53700          II = I
53800         WSUM = 0.0
53900  C       SUM OF SQUARED DIFFERENCES
54000         DO 46 L=1,II
54100         WLR = A + B(I)*TIME(L)
54200         IF (DABS(W(L)-WLR).LE.1.0D-39) GO TO 46
54300         WSUM = WSUM + (W(L)-WLR)*(W(L)-WLR)
54400      46 CONTINUE
54500         AT = TS/XNRR
54600         TOT = AT*AT
54700         DO 48 M=2,II
54800      48 TOT = TOT + (TIME(M)-AT)*(TIME(M)-AT)
54900          B(I) = 2400.0*B(I)
55000         EKK = TABLE(II-2)
55100         SIGMAB = DSQRT(WSUM/(TOT*(XNRR-2.0)))
55200         DEL = EKK*SIGMAB*2400.0
55300         BU(I) = B(I) + DEL
55400         WRITE (9,206) NRA(II),W(II),BU(I),B(I),WUC(II),WLC(II),WIC(II)
55500     206 FORMAT (T4,I3,5X,F9.5,2(9X,F9.5),7X,F9.5,5X,F9.5,6X,F9.5)
55600      44 CONTINUE
55700  C           END OF REGRESSION LOOP
55800         WRITE (9,203) B(NR),A
55900     203 FORMAT(1H0,21X,'FINAL LEAKAGE RATE (% PER DAY) =',F9.5,5X,'INTERCE
56000        -PT=',F9.5)
      .1234567890123456789012345678901234567890123456789012345678901234567890123456789
```

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DATE AND TIME OF LISTING: 09/21/84   09.49.16  DATA SET NAME:   FROM ANS ()
      0000000001111111111222222222233333333334444444444555555555566666666677777777778
      1234567890123456789012345678901234567890123456789012345678901234567890123456789
56100         WRITE (9,204) BU(NR)
56200       204 FORMAT (1HO,21X,'UPPER CONFIDENCE LIMIT FOR THE RATE IS ',F9.5)
56300  C
56400  C           TYPE A TEST COMPLETION CRITERIA
56500  C               ADDED 040184      JAP
56600         IF (CC.NE.CA) GO TO 25
56700         TCLP2 = TCLP/440882.96
56800         WRITE (9,898) TCLP,TCLP2
56900       898 FORMAT(//'              ***TYPE A TEST COMPLETION CRITERIA MESSAGES
57000        -***'/' TYPE C LEAKAGE PENALTY = ',F10.2,' (SCCM) = ',F10.4,' (%WT/
57100        -DAY)')
57200         IF (TCLP2.NE.0.0) GO TO 875
57300         WRITE (9,876)
57400  876    FORMAT(' *** WARNING - TYPE C LEAKAGE PENALTY = 0.0 ***')
57500  875    IF (TIME(NR).GT.24.00) GO TO 880
57600         WRITE (9,890)
57700       890 FORMAT(' TEST DURATION HAS NOT EXCEEDED 24 HRS - CONTINUE TESTING'
57800        -)
57900         GO TO 24
58000       880 IF (BU(NR).LT.0.0.AND.B(NR).LT.0.0) GO TO 800
58100         WRITE(9,799)
58200       799 FORMAT(' THE LEAK RATE UPPER LIMIT AND MEASURED LEAK RATE ARE NOT
58300        -BOTH NEGATIVE - CONTINUE TESTING')
58400         GO TO 24
58500  C
58600       800 CC1 = -0.1875 - TCLP2
58700         CC1 = DABS(CC1)
58800         IF (DABS(BU(NR)).GE.CC1) GO TO 810
58900         WRITE(9,891)
59000       891 FORMAT(' THE LEAK RATE UPPER LIMIT HAS CONVERGED TO AN ACCEPTABLE
59100        -LEVEL')
59200         GO TO 820
59300       810 WRITE(9,892)
59400       892 FORMAT(' THE LEAK RATE UPPER LIMIT HAS NOT CONVERGED TO AN ACCEPTA
59500        -BLE LEVEL - CONTINUE TESTING')
59600         GO TO 24
59700  C
59800       820 CC2 = BU(NR) - B(NR)
59900         CC2 = DABS(CC2)
60000         IF (CC2.GE.0.0625) GO TO 830
60100         WRITE(9,893)
60200       893 FORMAT(' THE DIFFERENCE BETWEEN THE LEAK RATE UPPER LIMIT AND MEAS
60300        -URED LEAK RATE IS ACCEPTABLE FOR COMPLETION.')
60400         GO TO 840
60500       830 WRITE(9,894)
60600       894 FORMAT(' THE DIFFERENCE BETWEEN THE LEAK RATE UPPER LIMIT AND MEAS
60700        -URED LEAK RATE IS TOO LARGE - CONTINUE TESTING')
60800         GO TO 24
60900  C        CHECK UPPER LIMIT LEAK RATE
61000  840    IF (NR.LT.7) GO TO 24
61100         IF (BU(NR).LT.BU(NR-1)) GO TO 850
61200         IF (BU(NR-1).LT.BU(NR-2)) GO TO 850
61300         IF (BU(NR-2).LT.BU(NR-3)) GO TO 850
61400         IF (BU(NR-3).LT.BU(NR-4)) GO TO 850
61500         WRITE (9,895)
61600       895 FORMAT(' LEAK RATE UPPER LIMIT DOES NOT SHOW NEGATIVE TREND OVER L
      1234567890123456789012345678901234567890123456789012345678901234567890123456789
```

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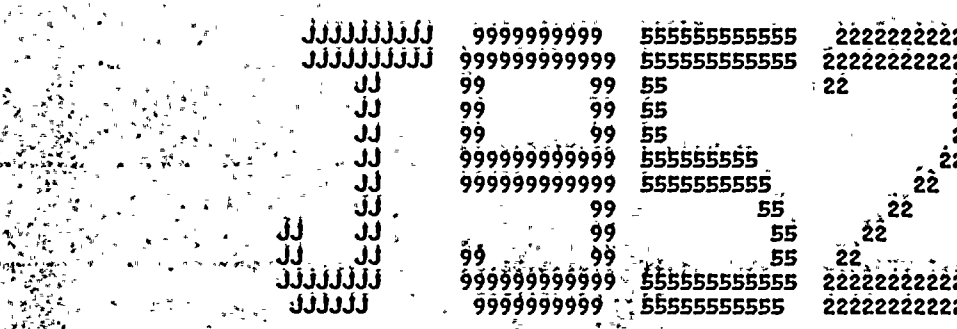
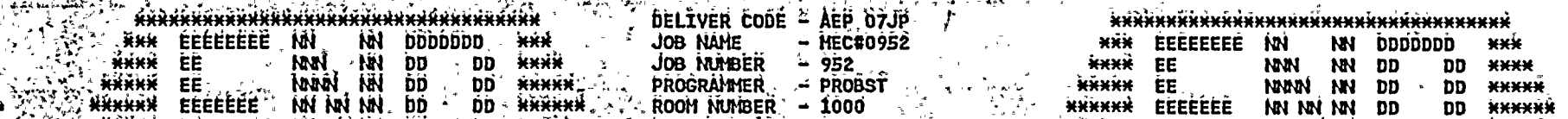
DATE AND TIME OF LISTING: 09/21/84   09.49.16  DATA SET NAME:   FROM AMS ()
      0000000001111111111222222222233333333334444444444555555555566666666677777777778
      1234567890123456789012345678901234567890123456789012345678901234567890123456789
61700       -AST 5 RUNS.')
61800        GO TO 870
61900    850 WRITE (9,896)
62000    896 FORMAT(' LEAK RATE UPPER LIMIT SHOWS NEGATIVE TREND WITHIN LAST 5
62100       -RUNS - CONTINUE TESTING')
62200        GO TO 24
62300  C        CHECK MEASURED LEAK RATE
62400    870 IF (B(NR).LT.B(NR-1)) GO TO 860
62500        IF (B(NR-1).LT.B(NR-2)) GO TO 860
62600        IF (B(NR-2).LT.B(NR-3)) GO TO 860
62700        IF (B(NR-3).LT.B(NR-4)) GO TO 860
62800        WRITE (9,207)
62900    207 FORMAT(' MEASURED LEAKAGE RATES DO NOT SHOW NEGATIVE TREND OVER LA
63000       -ST 5 RUNS'//' TYPE A TEST IS COMPLETE!')
63100        GO TO 24
63200    860 WRITE (9,897)
63300    897 FORMAT(' MEASURED LEAK RATE SHOWS NEGATIVE TREND IN LAST 5 RUNS -
63400       -CONTINUE TESTING')
63500        GO TO 24
63600  C
63700  C          SUPPLEMENTARY TEST COMPLETION CRITERIA
63800  C             ADDED 040184          JAP
63900     25 IF (CC.NE.CS) GO TO 24
64000        LRI2 = LRI/15.57
64100        WRITE (9,994) TALR,LRI,LRI2
64200    994 FORMAT(///'      ***SUPPLEMENTAL TEST COMPLETION CRITERIA MESSAGES
64300       -***'/' TYPE A LEAK RATE = ',F9.5,' (%WT/DAY)  IMPOSED LEAK RATE =
64400       -',F9.4,' (SCFH) = ',F9.4,' (%WT/DAY)')
64500        IF (TALR.NE.0.0) GO TO 975
64600        WRITE(9,976)
64700    976 FORMAT(' *** WARNING - TYPE A MEASURED LEAK RATE ENTERED AS 0.0 **
64800       -*')
64900    975 IF (LRI2.NE.0.0) GO TO 978
65000        WRITE(9,977)
65100    977 FORMAT(' *** WARNING - IMPOSED LEAK RATE ENTERED AS 0.0 ***')
65200    978 IF (TIME(NR).GT.6.00) GO TO 900
65300        WRITE (9,990)
65400    990 FORMAT(' TEST DURATION HAS NOT EXCEEDED THE 6 HR MINIMUM - CONTINU
65500       -E TESTING')
65600        GO TO 24
65700    900 WRITE(9,991)
65800    991 FORMAT(' TEST DURATION HAS EXCEEDED THE 6 HOUR MINIMUM')
65900        IF (B(NR).LT.0.0) GO TO 910
66000        WRITE (9,995)
66100    995 FORMAT(' MEASURED LEAK RATE IS NOT A NEGATIVE VALUE - CONTINUE TES
66200       -TING')
66300        GO TO 24
66400    910 CC1 = LRI2 + TALR + 0.0625
66500        CC1 = DABS(CC1)
66600        CC2 = LRI2 + TALR - 0.0625
66700        CC2 = DABS(CC2)
66800        IF (CC1.LT.DABS(B(NR)).AND.DABS(B(NR)).LT.CC2) GO TO 920
66900        WRITE (9,992)
67000    992 FORMAT(' THE MEASURED COMPOSITE LEAKAGE IS NOT WITHIN RANGE REQUIR
67100       -EMENTS - CONTINUE TESTING')
67200        GO TO 24
      1234567890123456789012345678901234567890123456789012345678901234567890123456789
```

```
DATE AND TIME OF LISTING: 09/21/84   09.49.16  DATA SET NAME:   FROM AWS ()
      00000000011111111112222222222333333333344444444455555555556666666666777777777 8
      12345678901234567890123456789012345678901234567890123456789012345678901234567890
67300    920 WRITE (9,993)
67400    993 FORMAT(' THE MEASURED COMPOSITE LEAKAGE MEETS RANGE REQUIREMENTS -
67500       - SUPPLEMENTARY TESTING COMPLETED!')
67600     24 CALL EXIT
67700        END
      12345678901234567890123456789012345678901234567890123456789012345678901234567890
   ************** END OF DATA FILE **************
```



```
DELIVER CODE = AEP 07JP
JOB NAME     = MEC#0952
JOB NUMBER   = 952
PROGRAMMER   = PROBST
ROOM NUMBER  = 1000
SYSOUT CLASS = C
PRINT TIME   = 9.54.12 AM EST
PRINT DATE   = 21 SEP 84
PRINT DEVICE = COLUMBUS.COCB.PRINTR3
```



APPENDIX B

ILR PROGRAM VERIFICATION

E.C.P. CALCULATION NO. 12-PI-06

A.E.P.S.C. CALCULATION
MECHANICAL ENGINEERING DIVISION
INSTRUMENTATION AND CONTROLS SECTION

E.C.P. CALCULATION No. 12-PI-06

TYPE PRELIMINARY OR FINAL FINAL

SUBJECT VERIFICATION OF ILRT COMPUTER PROGRAM "ILRTEST"

SUPERSEDES CALCULATION NO. 12-PI-06; Rev. 0

FILE LOCATION

SHEET 1 OF 50

PLANT D.C. COOK UNIT 1 OR 2

COMPANY INDIANA & MICHIGAN

CALCULATED BY M.J. TREZZA 5/26/78

CHECKED BY F.X. WALSH 5-31-78

APPROVED BY

AND DATE 6/6/78

PROBLEM DESCRIPTION: DEMONSTRATE ACCURACY OF THE CONTAINMENT INTEGRATED LEAK RATE TEST COMPUTER PROGRAM IDENTIFIED AS "ILRTEST."

DESIGN BASIS AND REFERENCES

1. COMPUTER PROGRAM "ILRTEST" PRINTOUTS OF UNIT 2 PRE-OP SUPPLEMENTAL TEST DATA.
2. COMPUTER PROGRAM "CCVDREPT/CCVREPT" PRINTOUTS OF UNIT 2 PRE-OP SUPPLEMENTAL TEST DATA.
3. PROGRAM LISTING "ILRTEST."
4. MEMO (3/14/78) DISCUSSION ON BAD TEMP. DATA. J.F. Holbrook → M.J. TREZZA
5. MEMO (5/12/78) ADDITIONAL PROGRAM VERIFICATION. J.F. Holbrook → M.J. TREZZA
6. OPERATIONS GUIDE FOR COMPUTER PROGRAM "ILRTEST."

E.C.P. REVISION NO.	DATE	CHANGE	NO CALCULATION CHANGE — CALCULATION BY/DATE	CHECKED BY/DATE	APPROVED BY/DATE
1	5/26/78		M.J. TREZZA	F.X. Walsh 5-31-78	6/6/78
		RECORDED ON E.C.P. PACKAGE REVISION RECORD			

SUPERSEDED BY E.C.P. CALCULATION NO. _____ REASON _____

E.C.P. 4
8/5/77

VERIFICATION OF ILRT COMPUTER PROGRAM "ILRTEST"

INTRODUCTION

In an effort to improve our containment Integrated Leak Rate Test (ILRT) program at the D.C. Cook Nuclear Plant, several revisions to the ILRT Computer Program originally identified as "CCVDREP"/ "CCVREPT" have been implemented. Improvements to the new program include:

1. Ability to select any data interval.
2. The addition of a second hygrometric data input for the Upper Volume and Ice Condenser Compartments, thus providing redundant readings for all containment volumes.
3. Ability to "lose" a single hygrometer and/or manometer reading per containment compartment without adverse affect on leak rate calculations.
4. Addition of computer error messages and warning messages.

Due to these improvements the computer program has been re-named "ILRTEST" to avoid confusion between the original and revised program.

In addition to the above changes, the computer calculations for confidence limits on the final leak rate have been revised. The use of a "one-sided" confidence test instead of a "two-sided" confidence limit test, as used in the past, will be implemented for future containment ILRT's by the computer program "ILRTEST".

The difference between the "one-sided" and "two-sided" confidence limit tests is that in the two-sided confidence test an upper and lower confidence limit is calculated. On that basis there is a 95 per cent confidence level that the final leakage rate (% per day) is within the upper and lower limits.

VERIFICATION OF ILRT COMPUTER PROGRAM "ILRTEST"

In reality we are not concerned if the actual leak rate may be less than the lower confidence limit but only in the probability of the containment leak rate being greater than an allowable value. Thus it should be realized that the lower limit is of no consequence in our particular application and, in fact, a "one-sided" confidence test should be applied in our statistical analysis. Using the "one-sided" confidence test it is said that there exists a 95 per cent confidence level that the final leakage rate does not exceed the upper confidence limit.

It should be noted, however, that the revised program's calculations for a) processing raw data to converted and/or weighted input, b) determination of the normalized air fraction W_n, and c) the linear regression analysis are performed on the exact basis as the original ILRT Computer program "CCVDREPT"/CCVREPT".

As required for all AEPSC computer applications, the original ILRT computer program "CCVDREPT"/CCVREPT", which was used during the Unit 2 Pre-Operational ILRT, was verified for accuracy by comparison to "hand calculations" as per E.C.P. Calculation 12-P1-06; Rev. 0.

In light of the above, the verification of accuracy for computer program "ILRTEST" will be demonstrated by direct comparison to the "CCVDREPT"/"CCVREPT" data processing and regression analysis performed for the Unit 2 Pre-Operational ILRT Supplemental Test.

The verification of the revised calculations for 95 per cent confidence limit using a "one-side" test shall be demonstrated by comparison to hand calculations.

VERIFICATION OF ILRT COMPUTER PROGRAM "ILRTEST"

PROGRAM VERIFICATION

As discussed in the Introduction, this computer verification will consist of direct comparison of the Unit 2 Pre-Operational ILRT Supplemental Test data as calculated by the original program "CCVDREPT"/"CCVREPT" and the revised program "ILRTEST". The computer printouts to be used in the comparison shall be identified as reference numbers 1.1, 1.2, 1.3 and 1.4 for the revised program and reference numbers 2.1, 2.2, 2.3 and 2.4 for the original program.

CONTAINMENT TEMPERATURES DATA CHECK

A comparison of reference numbers 1.1 and 2.1 indicated complete agreement in mV to ^{o}F conversions as well as the determination of weighted average temperatures as computed in in ^{o}F and ^{o}R values. It should also be noted that, as an added convenience, all input data on the revised program is printed out on a single page.

CONTAINMENT VAPOR PRESSURE DATA CHECK

As mentioned, in the Introduction, two additional hygrometric inputs have been added to the revised program. In order to use the Unit 2 test data as a basis for comparison the mV values from the VPU-1 and VPI-1, Upper Volume and Ice Condenser hygrometers respectively, were repeated as input for VPU-2 and VPI-2. Complete agreement between original and revised programs for vapor pressure can be seen as illustrated in references 1.1 and 2.1.

VERIFICATION OF ILRT COMPUTER PROGRAM "ILRTEST"

CONTAINMENT PRESSURES DATA CHECK

The summary of corrected average pressures, found on references 1.1 and 2.1, clearly shows no differences in the conversion of uncorrected readings to corrected as well as averaging of redundant manometers.

RESULTS OF LINEAR REGRESSION ANALYSIS

As indicated on references 1.2 and 2.2, the revised program is in complete accordance with the original program in determination of final leak rate, intercept and all calculations of individual compartment air fractions (W) as well as the total containment air fraction (W experimental).

SUMMARY OF AVERAGES

With respect to references 1.3 and 2.3, the Summary of Averages for both computer programs prove to be identical.

CHECK OF INPUT DATA

As shown on references 1.4 and 2.4, the "fixed" input data upon which the computer programs use to perform the RTD mV to ^{o}F conversions, hygrometer mV to ^{o}F conversions, manometer calibration corrections, temperature weighting and volume weighting are identical.

VERIFICATION OF ILRT COMPUTER PROGRAM "ILRTEST"

UPPER CONFIDENCE LIMITS

The Upper Confidence Limits were verified by comparison to the hand calculations performed and attached herein.

A summary of the hand calculation is listed below:

RUN NO.	W_n (% Wt./DAY) HAND*	COMPUTER	PER CENT DIFFERENCE
1	1.00000	N/A	N/A
2	1.00005	N/A	N/A
3	1.00006	1.00006	0
4	0.99992	0.99992	0

*W_n rounded-off to nearest 10^{-5} % Wt./day

RUN NO.	UPPER CONFIDENCE LIMIT HAND	COMPUTER	PER CENT DIFFERENCE
1	N/A	N/A	N/A
2	N/A	N/A	N/A
3	-0.19379	-0.19971	2.96
4	-0.55509	-0.55381	0.23

VERIFICATION OF ILRT COMPUTER PROGRAM "ILRTEST"

UPPER CONFIDENCE LIMITS CONT'D.

As can be seen in the tabularization of the hand and computer calculations for the Upper Confidence Limit acceptable correlation has been achieved.

CONCLUSION

By direct comparison of the revised ILRT computer program "ILRTEST" to the original program "CCVDREPT"/"CCVREPT" and the comparison of hand calculations to computer calculations for the "one-sided" 95 percent upper confidence limit it has been successfully demonstrated that the revised program "ILRTEST" is indeed accurate and by approval of this E.C.P. Calculation verified for use in all future containment Integrated Leak Rate Tests.

FORM 62-8

ENGINEERING DEPT.
AMERICAN ELECTRIC POWER SERVICE CORP.
2 BROADWAY
NEW YORK

SHEET 8 OF 50
DATE 5/26/78 BY mgt CK EQ
COMPANY INDIANA & MICH G.O.
PLANT D.C. COOK NUCLEAR PLANT

SUBJECT VERIFICATION OF ILRT COMPUTER PROGRAM.
E.C.P. 12-P1-06 REV. 1

RUN NO. 1

UPPER

P = 26.6254
PV = 0.0856
P-PV = 26.5398
T = 534.0581 (P-PV) ÷ (T) = 0.0496945931 [A]

LOWER

P = 26.6352
PV = 0.1843
P-PV = 26.4509 (P-PV) ÷ (T) = 0.0491496471 [B]
T = 538.1707

ICE

P = 26.6298
PV = 0.0408
P-PV = 26.5890 (P-PV) ÷ (T) = 0.0551742026 [C]
T = 481.91

$W_i = 2.0144$ [A] + [B] + 0.4559 [C]
$W_i = 0.1001047884 + 0.0491496471 + 0.0251539169$
$W_i = 0.1744083544$

$W_n = \frac{W_i}{W_o} = \frac{0.1744083544}{0.1744083544}$ W_n = 1.00000

FORM CE-8

ENGINEERING DEPT.
AMERICAN ELECTRIC POWER SERVICE CORP.
2 BROADWAY
NEW YORK

SHEET 9 OF 50
DATE 5/26/78 BY M.J.T CK
COMPANY INDIANA & MICH. G.O.
PLANT D.C. COOK NUCLEAR PLANT

SUBJECT VERIFICATION OF ILRT COMPUTER PROGRAM
F.C.P. 12-P1-06 REV. 1

RUN No. 1

$t =$	0	$t^2 =$	0	$\Sigma t^2 =$	0
$\Sigma t =$	0	$2t+1 =$	1	$\bar{t} =$	N/A
$(\Sigma t)^2 =$	0	$2t-1 =$	-1		

$W_n =$	1.00000	$\Sigma W_n =$	1.00000
$W_n t =$	0	$\Sigma W_n t =$	0

VERTICAL INTERCEPT a:

$$a = \frac{\Sigma t^2 \Sigma W_n - \Sigma t \, \Sigma W_n t}{(2t+1)\Sigma t^2 - (\Sigma t)^2}$$

$$a = \frac{\quad}{\quad} = \text{N/A}$$

SLOPE b:

$$b = \frac{(2t+1)\Sigma W_n t - \Sigma W_n \Sigma t}{(2t+1)\Sigma t^2 - (\Sigma t)^2}$$

$$b = \frac{\quad}{\quad} = \text{N/A}$$

VARIANCE OF W_n:

RUN	$(W_{n_i} - a_n - b_n t_i)$	$(W_{n_i} - a_n - b_n t_i)^2$	t	$(t_i - \bar{t}_n)^2$
1			0	
2			0.5	
3			1.0	
4			1.5	
Σ		N/A		N/A

FORM GE-8

ENGINEERING DEPT.
AMERICAN ELECTRIC POWER SERVICE CORP.
2 BROADWAY
NEW YORK

SHEET 10 OF 50
DATE 5/26/78 BY MJT CK
COMPANY INDIANA & MICH. C.O.
PLANT D.C. COOK NUCLEAR PLANT

SUBJECT VERIFICATION OF ILRT COMPUTER PROGRAM
E.C.P. 12-PI-06 REV 1

RUN No. 1

THE VARIANCE OF W_n IS GIVEN BY:

$$S^2_{W_n} = \frac{\sum (W_n - a - bt)^2}{(2t-1)}$$

$S^2_{W_n} =$ _____ $S^2_{W_n} =$ N/A

THE VARIANCE OF THE SLOPE b IS GIVEN BY:

$$S^2_b = \frac{S^2_{W_n}}{\sum (t-\bar{t})^2}$$ $S^2_b =$ _____

$S^2_b =$ $S_b =$ N/A

THE UPPER LIMIT IS GIVEN BY:

$b - KS_b$ = UPPER LIMIT

TO EXPRESS THE UPPER LIMIT IN %/DAY:

UPPER LIMIT = $b(2400) - KS_b(2400)$

FROM TABLE A-8 FOR A ONE-SIDED 95% CONFIDENCE LEVEL WITH THE DEGREES OF FREEDOM GIVEN BY $V = (\text{RUN NO.}) - 2$

$V =$ N/A $K =$ N/A

UPPER LIMIT = $b(2400) - KS_b(2400)$

UPPER LIMIT = N/A

SUBJECT VERIFICATION OF ILRT COMPUTER PROGRAM.

E.C.P. 12-P1-06 REV.1

RUN NO. 2

UPPER

P = 26.6246
PV = 0.0852
P-PV = 26.5394
T = 534.035

(P-PV) ÷ (T) = 0.0496959937 [A]

LOWER

P = 26.6341
PV = 0.1838
P-PV = 26.4503
T = 538.1432

(P-PV) ÷ (T) = 0.049151043 8 [B]

ICE

P = 26.6288
PV = 0.0394
P-PV = 26.5894
T = 481.8365

(P-PV) ÷ (T) = 0.055183449 1 [C]

W_i = 2.0144 [A] + [B] + 0.4559 [C]

W_i = 0.1001076097 + 0.0491510438 + 0.0251581344

W_i = 0.1744167879

$W_n = \frac{W_i}{W_o} = \frac{0.1744167879}{0.1744083544}$

W_n = 1.0000483 55

ENGINEERING DEPT.
AMERICAN ELECTRIC POWER SERVICE CORP.
2 BROADWAY
NEW YORK

SUBJECT VERIFICATION OF ILRT COMPUTER PROGRAM

E.C.P. 12-P1-06 REV.1

RUN No. 2

$t =$	0.5	$t^2 =$	0.25	$\Sigma t^2 =$	0.25
$\Sigma t =$	0.5	$2t+1 =$	2	$\bar{t} =$	N/A
$(\Sigma t)^2 =$	0.25	$2t-1 =$	0		

$W_n =$	1.000048355	$\Sigma W_n =$	2.000048355
$W_n t =$	0.5000241775	$\Sigma W_n t =$	0.5000241775

VERTICAL INTERCEPT a:

$$a = \frac{\Sigma t^2 \Sigma W_n - \Sigma t \Sigma W_n t}{(2t+1)\Sigma t^2 - (\Sigma t)^2}$$

$$a = \frac{\qquad}{\qquad} = \text{N/A}$$

SLOPE b:

$$b = \frac{(2t+1)\Sigma W_n t - \Sigma W_n \Sigma t}{(2t+1)\Sigma t^2 - (\Sigma t)^2}$$

$$b = \frac{\qquad}{\qquad} = \text{N/A}$$

VARIANCE OF W_n:

RUN	$(W_{n_i} - a_n - b_n t_i)$	$(W_{n_i} - a_n - b_n t_i)^2$	t	$(t_i - \bar{t}_n)^2$
1			0	
2			0.5	
3			1.0	
4			1.5	
Σ	X	N/A	X	N/A

SUBJECT VERIFICATION OF ILRT COMPUTER PROGRAM
E.C.P. 12-P1-06 REV.1

RUN Nº. 2

THE VARIANCE OF W_n IS GIVEN BY:

$$S^2_{W_n} = \frac{\Sigma (W_n - a - bt)^2}{(2t-1)}$$

$S^2_{W_n} =$ _____ $S^2_{W_n} =$ N/A

THE VARIANCE OF THE SLOPE b IS GIVEN BY:

$$S^2_b = \frac{S^2_{W_n}}{\Sigma (t-\bar{t})^2}$$

$S^2_b =$ _____

$S^2_b =$ $S_b =$ N/A

THE UPPER LIMIT IS GIVEN BY:

$$b - K S_b = \text{UPPER LIMIT}$$

TO EXPRESS THE UPPER LIMIT IN %/DAY:

$$\text{UPPER LIMIT} = b(2400) - K S_b (2400)$$

FROM TABLE A-8 FOR A ONE-SIDED 95% CONFIDENCE LEVEL WITH THE DEGREES OF FREEDOM GIVEN BY $V = (\text{RUN No.}) - 2$

$V =$ N/A $K =$ N/A

$$\text{UPPER LIMIT} = b(2400) - K S_b (2400)$$

UPPER LIMIT = N/A

SUBJECT VERIFICATION OF ILRT COMPUTER PROGRAM.

E.C.P. 12-P1-06 REV.1

RUN No. 3

UPPER

P = 26.6228
PV = 0.0831
P-PV = 26.5397
T = 533.9957

(P-PV)÷(T) = 0.049700212 9 [A]

LOWER

P = 26.6322
PV = 0.1844
P-PV = 26.4478
T = 538.1376

(P-PV)÷(T) = 0.049146909 6 [B]

ICE

P = 26.6268
PV = 0.0373
P-PV = 26.5895
T = 481.8880

(P-PV)÷(T) = 0.055177759 1 [C]

W_i = 2.0144 [A] + [B] + 0.4559 [C]

W_i = 0.100116108 9 + 0.049146909 6 + 0.025155404

W_i = 0.174418558 9

$W_n = \frac{W_i}{W_o} = \frac{0.174418558\,9}{0.174408354\,4}$ W_n = 1.000058509

FORM GE-8

ENGINEERING DEPT.
AMERICAN ELECTRIC POWER SERVICE CORP.
2 BROADWAY
NEW YORK

SHEET 15 OF 50
DATE 5/26/78 BY MJT CK
COMPANY INDIANA & MICH. G.O.
PLANT D.C. COOK NUCLEAR PLANT

SUBJECT VERIFICATION OF ILRT COMPUTER PROGRAM

E.C.P. 12-P1-06 REV.1

RUN No. 3

$t =$	1.0	$t^2 =$	1.0	$\Sigma t^2 =$	1.25
$\Sigma t =$	1.5	$2t+1 =$	3.0	$\bar{t} =$	0.5
$(\Sigma t)^2 =$	2.25	$2t-1 =$	1.0		

$W_n =$	1.0000058509	$\Sigma W_n =$	3.0001068 64
$W_n t =$	1.0000058509	$\Sigma W_n t =$	1.500008 2687

VERTICAL INTERCEPT a:

$$a = \frac{\Sigma t^2 \Sigma W_n - \Sigma t \Sigma W_n t}{(2t+1)\Sigma t^2 - (\Sigma t)^2}$$

$$a = \frac{(1.25)(3.000106864) - (1.5)(1.500008268)}{(3.0)(1.25) - (2.25)} = 1.000006367$$

SLOPE b:

$$b = \frac{(2t+1)\Sigma W_n t - \Sigma W_n \Sigma t}{(2t+1)\Sigma t^2 - (\Sigma t)^2}$$

$$b = \frac{(3.0)(1.500008268) - (3.000106864)(1.5)}{(3.0)(1.25) - (2.25)} = 5.851 \times 10^{-5}$$

VARIANCE OF W_n:

RUN	$(W_{n_i} - a_n - b_n t_i)$	$(W_{n_i} - a_n - b_n t_i)^2$	t	$(t_i - \bar{t}_n)^2$
1	-6.367×10^{-6}	$4.0538689 \times 10^{-11}$	0	0.25
2	1.2733×10^{-5}	$1.6212.9289 \times 10^{-10}$	0.5	0
3	-6.368×10^{-6}	$4.0551424 \times 10^{-11}$	1.0	0.25
4	N/A	N/A	1.5	N/A
Σ		$2.432.19402 \times 10^{-10}$		0.5

SUBJECT VERIFICATION OF ILRT COMPUTER PROGRAM
E.C.P. 12-P1-06 REV.1

RUN Nº. 3

THE VARIANCE OF W_n IS GIVEN BY:

$$S^2_{W_n} = \frac{\sum (W_n - a - bt)^2}{(2t-1)}$$

$$S^2_{W_n} = \frac{2.432194\,02 \times 10^{-10}}{1.0} \qquad S^2_{W_n} = \boxed{2.432194\,02 \times 10^{-10}}$$

THE VARIANCE OF THE SLOPE b IS GIVEN BY:

$$S^2_b = \frac{S^2_{W_n}}{\sum (t-\bar{t})^2} \qquad S^2_b = \frac{2.432194\,02 \times 10^{-10}}{0.5}$$

$$S^2_b = 4.864388\,08 \times 10^{-10} \qquad S_b = \boxed{2.205535\,772 \times 10^{-5}}$$

THE UPPER LIMIT IS GIVEN BY:

$$b - K S_b = \text{UPPER LIMIT}$$

TO EXPRESS THE UPPER LIMIT IN %/DAY:

$$\text{UPPER LIMIT} = b(2400) - K S_b (2400)$$

FROM TABLE A-8 FOR A ONE-SIDED 95% CONFIDENCE LEVEL WITH THE DEGREES OF FREEDOM GIVEN BY $V = (\text{RUN No.}) - 2$

$V = \boxed{1}$ $\quad K = \boxed{6.314}$

$$\text{UPPER LIMIT} = b(2400) - K S_b (2400)$$

$$= 5.851 \times 10^{-5}(2400) - 6.314(2.205535772 \times 10^{-5})(2400)$$

$$\text{UPPER LIMIT} = \boxed{-0.193\,79\ \%/\text{DAY}}$$

FORM 66-8

ENGINEERING DEPT.
AMERICAN ELECTRIC POWER SERVICE CORP.
2 BROADWAY
NEW YORK

DATE 5/26/78 BY mgT CK _____ SHEET 17 OF 50
COMPANY INDIANA & MICH G.O. _____
PLANT D.C. COOK NUCLEAR PLANT

SUBJECT VERIFICATION OF ILRT COMPUTER PROGRAM.
E.C.P. 12-P1-06 REV.1

RUN NO. 4

UPPER

P = 26.6196
PV = 0.0846
P-PV = 26.5350
T = 539.9916

(P-PV) ÷ (T) = 0.04969179929 [A]

LOWER

P = 26.6290
PV = 0.1838
P-PV = 26.4452
T = 538.1133

(P-PV) ÷ (T) = 0.0491442973 [B]

ICE

P = 26.6236
PV = 0.0391
P-PV = 26.5845
T = 481.8995

(P-PV) ÷ (T) = 0.0551660667 [C]

W_i = 2.0144 [A] + [B] + 0.4559 [C]

W_i = 0.100099476 + 0.0491442973 + 0.025150298

W_i = 0.1743936547

$W_n = \frac{W_i}{W_o} = \frac{0.1743936547}{0.174408354}$ W_n = 0.99991717

FORM GE-6

ENGINEERING DEPT.
AMERICAN ELECTRIC POWER SERVICE CORP.
2 BROADWAY
NEW YORK

SHEET 18 OF 50
DATE 5/26/78 BY MJT CK
COMPANY INDIANA & MICH G.O.
PLANT D C. COOK NUCLEAR PLANT

SUBJECT VERIFICATION OF ILRT COMPUTER PROGRAM
E.C.P. 12-P1-06 REV.1

RUN No. 4

$t =$	1.5	$t^2 =$	2.25	$\Sigma t^2 =$	3.5
$\Sigma t =$	3.0	$2t+1 =$	4.0	$\bar{t} =$	0.75
$(\Sigma t)^2 =$	9.0	$2t-1 =$	2.0		

$\bar{t} = \frac{0+0.5+1.0+1.5}{4} = 0.75$

$W_n =$	0.999915717	$\Sigma W_n =$	4.000022581
$W_n t =$	1.499873576	$\Sigma W_n t =$	2.999956263

VERTICAL INTERCEPT a:

$$a = \frac{\Sigma t^2 \Sigma W_n - \Sigma t \Sigma W_n t}{(2t+1)\Sigma t^2 - (\Sigma t)^2}$$

$$a = \frac{(3.5)(4.000022581) - (3.0)(2.999956263)}{(4.0)(3.5) - (9.0)} = 1.000042049$$

SLOPE b:

$$b = \frac{(2t+1)\Sigma W_n t - \Sigma W_n \Sigma t}{(2t+1)\Sigma t^2 - (\Sigma t)^2}$$

$$b = \frac{(4.0)(2.999956263) - (4.000022581)(3.0)}{(4.0)(3.5) - (9.0)} = -4.85382 \times 10^{-5}$$

VARIANCE OF W_n:

RUN	$(W_{n_i} - a_n - b_n t_i)$	$(W_{n_i} - a_n - b_n t_i)^2$	t	$(t_i - \bar{t}_n)^2$
1	-4.2049×10^{-5}	1.76812×10^{-9}	0	0.5625
2	3.05751×10^{-5}	9.34837×10^{-10}	0.5	0.0625
3	6.49982×10^{-5}	4.22477×10^{-9}	1.0	0.0625
4	-5.35247×10^{-5}	2.86489×10^{-9}	1.5	0.5625
Σ		9.79262×10^{-9}		1.25

FORM GE-6

ENGINEERING DEPT.
AMERICAN ELECTRIC POWER SERVICE CORP.
2 BROADWAY
NEW YORK

SHEET 19 OF 50
DATE 5/26/78 BY MJT CK KEA
COMPANY INDIANA & MICH. C.O.
PLANT D.C. COOK NUCLEAR PLANT

SUBJECT VERIFICATION OF ILRT COMPUTER PROGRAM
E.C.P. 12-P1-06 REV.1

RUN No. 4

THE VARIANCE OF W_n IS GIVEN BY:

$$S^2_{W_n} = \frac{\sum (W_n - a - bt)^2}{(2t-1)}$$

$$S^2_{W_n} = \frac{9.79262 \times 10^{-9}}{2.0} \qquad S^2_{W_n} = \boxed{4.89631 \times 10^{-9}}$$

THE VARIANCE OF THE SLOPE b IS GIVEN BY:

$$S^2_b = \frac{S^2_{W_n}}{\sum (t-\bar{t})^2} \qquad S^2_b = \frac{4.89631 \times 10^{-9}}{1.25}$$

$$S^2_b = 3.917048 \times 10^{-9} \qquad S_b = \boxed{6.25863 \times 10^{-5}}$$

THE UPPER LIMIT IS GIVEN BY:

$$b - K S_b = \text{UPPER LIMIT}$$

TO EXPRESS THE UPPER LIMIT IN %/DAY:

$$\text{UPPER LIMIT} = b(2400) - K S_b (2400)$$

FROM TABLE A-8 FOR A ONE-SIDED 95% CONFIDENCE LEVEL WITH THE DEGREES OF FREEDOM GIVEN BY $V = (\text{RUN No.}) - 2$

$V = \boxed{2}$ $\quad K = \boxed{2.920}$

$$\text{UPPER LIMIT} = b(2400) - K S_b (2400)$$
$$= -.485382 \times 10^{-5}(2400) - (2.920)(6.25863 \times 10^{-5})(2400)$$
$$= -0.11649 - 0.43860$$

$$\text{UPPER LIMIT} = \boxed{-0.55509\ \%/\text{DAY}}$$

RUN NUMBER 17
ELAPSED TIME 0.00

E.C.P. 12-P1-06 REV.1
REF NO. 11

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME RTD	MILLI-VOLTS	DEG. F.	LOWER VOLUME RTD	MILLI-VOLTS	DEG. F.	ICE CONDENSER RTD	MILLI-VOLTS	DEG. F.
ETR-101	36.99	73.98	ETR-122	45.67	91.34	ETR-115	11.58	23.16
ETR-102	36.93	73.86	ETR-123	45.06	90.12	ETR-116	10.97	21.94
ETR-103	36.96	73.92	ETR-124	45.25	90.50	ETR-117	13.92	27.84
ETR-104	37.21	74.42	ETR-125	45.42	90.84	ETR-118	12.73	25.46
ETR-105	36.47	72.94	ETR-126	39.62	79.24	ETR-119	10.33	20.66
ETR-106	36.88	73.76	ETR-127	38.39	76.78	ETR-120	10.58	21.16
ETR-107	36,74	73.48	ETR-129	37.49	74.98	ETR-121	11.51	23.02
ETR-108	36.90	73.80	ETR-130	39.75	79.50			
ETR-109	37.22	74.44	ETR-131	38.54	77.08			
ETR-110	37.25	74.50	ETR-132	37.13	74.26			
ETR-111	37.13	74.26	ETR-134	38.60	77.20			
ETR-112	37.67	75.34	ETR-135	38.84	77.68			
ETR-114	37.11	74.22	ETR-136	37.46	74.92			
ETR-128	35.55	71.10	ETR-137	39.08	78.16			
ETR-133	36.55	73.10	ETR-138	38.11	76.22			
ETR-113	38.34	76.68	ETR-139	37.20	74.40			
			ETR-140	33.63	67.26			
			ETR-141	36.62	73.24			
			ETR-142	36.32	72.64			
			ETR-143	34.67	69.34			
			ETR-144	37.11	74.22			
			ETR-145	38.14	76.28			
			ETR-146	36.39	72.78			

A.E.P.S.C.-M.E.D.
RECEIVED
MAY 25 1978
I & C SECTION

SUMMARY OF HEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	74.00	LOWER VOLUME (DEG. F.)	78.15	ICE CONDENSER (DEG. F.)	22.44
UPPER VOLUME (DEG. R.)	533.70	LOWER VOLUME (DEG. R.)	537.85	ICE CONDENSER (DEG. R.)	482.14

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
VPU-1	32.80	30.10	0.0820
VPU-2	32.80	30.10	0.0820
VPL-1	35.74	42.04	0.1317
VPL-2	39.57	57.41	0.2335
VPI-1	29.02	14.94	0.0395
VPI-2	29.02	14.94	0.0395

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.0820
LOWER CONTAINMENT	(PSIA)	0.1826
ICE CONDENSER	(PSIA)	0.0395

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
PU-1	26.5778	26.5996
PU-2	26.0581	26.5914
PL-1	26.4476	26.5945
PL-2	26.6960	26.6164
PI-1	26.5991	26.5964
PI-2	25.9021	26.6030
AMBIENT	14.2055	14.5166

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.5955
AVERAGE LOWER PRESSURE	(PSIA)	26.6054
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.5997
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.6002
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.0837

RESULTS OF THE LINEAR REGRESSION ANALYSIS

RUN #	H EXPERIMENTAL	LEAKAGE RATE UPPER LIMIT	LEAKAGE RATE	H UPPER CONTAINMENT	H LOWER CONTAINMENT	H ICE CONDENSER
3	1.00006	-0.19971	0.13844	1.00011	0.99994	1.00006
4	0.99992	-0.55381	-0.11720	0.99994	0.99989	0.99985
5	0.99990	-0.36695	-0.15681	0.99994	0.99985	0.99986
6	0.99988	-0.28998	-0.16493	0.99994	0.99982	0.99973
7	0.99982	-0.26226	-0.17743	0.99989	0.99980	0.99958
8	0.99984	-0.22423	-0.16031	0.99997	0.99980	0.99943
9	0.99983	-0.19709	-0.14649	0.99994	0.99976	0.99948
10	0.99971	-0.20512	-0.16210	0.99989	0.99972	0.99897
11	0.99965	-0.21266	-0.17532	0.99982	0.99970	0.99888
12	0.99969	-0.20061	-0.16925	0.99997	0.99969	0.99858
13	0.99951	-0.22126	-0.18836	0.99971	0.99964	0.99846
14	0.99945	-0.23537	-0.20341	0.99964	0.99956	0.99849
15	0.99949	-0.23078	-0.20327	0.99975	0.99951	0.99842
16	0.99955	-0.21906	-0.19293	0.99981	0.99950	0.99859
17	0.99946	-0.21339	-0.19029	0.99968	0.99953	0.99845

FINAL LEAKAGE RATE (% PER DAY) = -0.19029 INTERCEPT= 1.00007

UPPER CONFIDENCE LIMIT FOR THE RATE IS -0.21339

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E.C.P. 12-P1-06 REV.1
REF NO. 1.2

SUMMARY OF AVERAGES

RUN #	ELAPSED TIME	AVG TEMP UPPER	AVG PRESS UPPER	AVG V PRESS UPPER	AVG TEMP LOWER	AVG PRESS LOWER	AVG V PRESS LOWER	AVG TEMP ICE	AVG PRESS ICE	AVG V PRESS ICE
1	0.0	74.3581	26.6254	0.0856	78.4707	26.6352	0.1843	22.2100	26.6298	0.0408
2	0.50	74.3350	26.6246	0.0852	78.4432	26.6341	0.1838	22.1365	26.6288	0.0394
3	1.00	74.2957	26.6228	0.0831	78.4376	26.6322	0.1844	22.1880	26.6268	0.0373
4	1.50	74.2916	26.6196	0.0846	78.4133	26.6290	0.1838	22.1995	26.6236	0.0391
5	2.00	74.2781	26.6171	0.0828	78.3895	26.6266	0.1837	22.1671	26.6211	0.0383
6	2.50	74.2324	26.6156	0.0837	78.3780	26.6252	0.1835	22.0954	26.6197	0.0444
7	3.00	74.1826	26.6140	0.0857	78.3563	26.6237	0.1836	22.1167	26.6181	0.0453
8	3.50	74.1790	26.6131	0.0831	78.3526	26.6230	0.1832	22.1902	26.6173	0.0446
9	4.00	74.1498	26.6107	0.0827	78.3162	26.6207	0.1837	22.2186	26.6150	0.0395
10	4.50	74.1513	26.6089	0.0823	78.3167	26.6189	0.1829	22.3961	26.6130	0.0413
11	5.00	74.1333	26.6072	0.0832	78.2894	26.6172	0.1831	22.4337	26.6114	0.0398
12	5.50	74.0741	26.6060	0.0811	78.2669	26.6162	0.1834	22.4628	26.6083	0.0433
13	6.00	74.1038	26.6035	0.0839	78.2557	26.6137	0.1828	22.5664	26.6076	0.0400
14	6.50	74.0515	26.6003	0.0853	78.2331	26.6105	0.1828	22.4832	26.6046	0.0408
15	7.00	74.0333	26.5970	0.0799	78.1996	26.6072	0.1826	22.4475	26.6012	0.0412
16	7.50	74.0031	26.5967	0.0796	78.1890	26.6067	0.1828	22.3761	26.6008	0.0402
17	8.00	74.0003	26.5955	0.0820	78.1547	26.6054	0.1826	22.4391	26.5997	0.0395

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E.C.P. 12-P1-06 REV.1
REF NO. 13

*** THIS IS A CHECK OF THE INPUT DATA ***

RTD MILLI-VOLT TO FAHRENHEIT CONVERSION COEFFICIENTS

UPPER		LOWER		ICE	
2.00	0.0	2.00	0.0	2.00	0.0

HYGROMETER MILLI-VOLT TO FAHRENHEIT CONVERSION COEFFICIENTS

	UPPER-1			LOWER-1			ICE-1	
0.00227	3.87667	-99.49390	0.00234	3.86672	-99.14546	0.00192	3.90355	-99.95728
	UPPER-2			**LOWER-2**			**ICE-2**	
0.00227	3.87667	-99.49390	0.00277	3.83471	-98.67056	0.00192	3.90355	-99.95728

MANOMETER PRESSURE CORRECTION COEFFICIENTS

PU-1

27.9573 27.9346 27.4580 27.4347 26.9581 26.9376 26.4596 26.4373 25.9603 25.9388

PU-2

27.9573 27.4035 27.4580 26.9099 26.9581 26.4208 26.4596 25.9277 25.9603 25.4322

PL-1

27.9573 27.8136 27.4580 27.3102 26.9581 26.8110 26.4596 26.3128 25.9603 25.8090

PL-2

27.9573 28.0288 27.4580 27.5317 26.9581 27.0359 26.4596 26.5400 25.9603 26.0427

PI-1

27.9573 27.9575 27.4580 27.4606 26.9581 26.9630 26.4596 26.4614 25.9603 25.9613

PI-2

27.9573 27.2318 27.4580 26.7394 26.9581 26.2529 26.4596 25.7604 25.9603 25.2719

P-ATM

16.4746 16.1106 14.9769 14.6549 13.4792 13.1928 11.9815 11.7310 10.4838 10.2681

RTD WEIGHTING FACTORS

UPPER

.0628 .1161 .0831 .0831 .0960 .0960 .0960 .0960 .0296 .0296
.0296 .0296 .0740 .0105 .0167 .0513

LOWER

.0415 .0415 .0415 .0415 .0102 .0284 .0586 .0086 .0266 .0586 .1037
.1037 .1037 .1037 .0500 .0092 .0244 .0145 .0170 .0249 .0219 .0240 .0423 .0

ICE

.0750 .0750 .0725 .0725 .2213 .2766 .2071

VOLUME WEIGHTING FACTORS

UPPER	LOWER	ICE
2.0144	1.0000	0.4559

E.C.P. 12-P1-06 REV.1
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E.C.P. 12-P1-06 REV.1
PAGE 23 OF 50

RUN NUMBER 17
ELAPSED TIME 8.00

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	36.99	73.98	ETR-122	45.67	91.34	ETR-115	11.58	23.16
ETR-102	36.93	73.86	ETR-123	45.06	90.12	ETR-116	10.97	21.94
ETR-103	36.96	73.92	ETR-124	45.25	90.50	ETR-117	13.92	27.84
ETR-104	37.21	74.42	ETR-125	45.42	90.84	ETR-118	12.73	25.46
ETR-105	36.47	72.94	ETR-126	39.62	79.24	ETR-119	10.33	20.66
ETR-106	36.88	73.76	ETR-127	38.39	76.78	ETR-120	10.58	21.16
ETR-107	36.74	73.48	ETR-129	37.49	74.98	ETR-121	11.51	23.02
ETR-108	36.90	73.80	ETR-130	39.75	79.50			
ETR-109	37.22	74.44	ETR-131	38.54	77.08			
ETR-110	37.25	74.50	ETR-132	37.13	74.26			
ETR-111	37.13	74.26	ETR-134	38.60	77.20			
ETR-112	37.67	75.34	ETR-135	38.84	77.68			
ETR-114	37.11	74.22	ETR-136	37.46	74.92			
ETR-128	35.55	71.10	ETR-137	39.08	78.16			
ETR-133	36.55	73.10	ETR-138	38.11	76.22			
ETR-113	38.34	76.68	ETR-139	37.20	74.40			
			ETR-140	33.63	67.26			
			ETR-141	36.62	73.24			
			ETR-142	36.32	72.64			
			ETR-143	34.67	69.34			
			ETR-144	37.11	74.22			
			ETR-145	38.14	76.28			
			ETR-146	36.39	72.78			

SUMMARY OF HEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	74.00	LOWER VOLUME (DEG. F.)	78.15	ICE CONDENSER (DEG. F.)	22.44
UPPER VOLUME (DEG. R.)	533.70	LOWER VOLUME (DEG. R.)	537.85	ICE CONDENSER (DEG. R.)	482.14

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CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
VPU-1	32.80	30.10	0.0820
VPL-1	35.74	42.04	0.1317
VPL-2	39.57	57.41	0.2335
VPI-1	29.02	14.94	0.0395

SUMMARY OF VAPOR PRESSURES

UPPER CONTAINMENT (PSIA)	0.0820	
AVERAGE LOWER CONTAINMENT (PSIA)		0.1626
ICE CONDENSER (PSIA)	0.0395	

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REF NO. 2.1

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CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
PU-1	26.5778	26.5996
PU-2	26.0581	26.5914
PL-1	26.4476	26.5945
PL-2	26.6760	26.6164
PI-1	26.5991	26.5964
PI-2	25.9021	26.6030
AMBIENT	14.2055	14.5166

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE (PSIA)	26.5955
AVERAGE LOWER PRESSURE (PSIA)	26.6054
AVERAGE ICE CONDENSER PRESSURE (PSIA)	26.5997
AVERAGE CONTAINMENT PRESSURE (PSIA)	26.6002
AVERAGE CONTAINMENT PRESSURE (PSIG)	12.0837

RESULTS OF THE LINEAR REGRESSION ANALYSIS TEST

RUN #	H EXPERIMENTAL	LEAKAGE RATE LOWER LIMIT	LEAKAGE RATE	LEAKAGE RATE UPPER LIMIT	H UPPER CONTAINMENT	H LOWER CONTAINMENT	H ICE CONDENSER
3	1.00006	-0.54203	0.13844	0.81890	1.00011	0.99994	1.00006
4	0.99992	-0.76060	-0.11720	0.52620	0.99994	0.99989	0.99985
5	0.99990	-0.44098	-0.15681	0.12736	0.99994	0.99985	0.99986
6	0.99988	-0.32775	-0.16493	-0.00212	0.99994	0.99982	0.99973
7	0.99982	-0.28566	-0.17743	-0.06920	0.99989	0.99980	0.99958
8	0.99984	-0.24081	-0.16031	-0.07981	0.99997	0.99980	0.99943
9	0.99983	-0.20964	-0.14649	-0.08334	0.99994	0.99976	0.99948
10	0.99971	-0.21543	-0.16210	-0.10877	0.99989	0.99972	0.99897
11	0.99965	-0.22139	-0.17532	-0.12925	0.99982	0.99970	0.99868
12	0.99969	-0.20781	-0.16925	-0.13069	0.99997	0.99969	0.99858
13	0.99951	-0.22868	-0.18836	-0.14804	0.99971	0.99964	0.99846
14	0.99945	-0.24249	-0.20341	-0.16433	0.99964	0.99956	0.99849
15	0.99949	-0.23682	-0.20327	-0.16973	0.99975	0.99951	0.99842
16	0.99955	-0.22475	-0.19293	-0.16110	0.99981	0.99950	0.99959
17	0.99946	-0.21837	-0.19029	-0.16222	0.99968	0.99953	0.99845

FINAL LEAKAGE RATE (% PER DAY) = -0.19029 INTERCEPT= 1.00007

FINAL CONFIDENCE LIMITS FOR THE RATE ARE -0.21837 TO -0.16222

Supplemental Test - Actual Weight of Ice in Ice Condenser

E.C.P. 12-P1-06 REV.1
REF NO. 2.2

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SUMMARY OF AVERAGE

RUN #	ELAPSED TIME	AVG TEMP UPPER	AVG PRESS UPPER	AVG V PRESS UPPER	AVG TEMP LOWER	AVG PRESS LOWER	AVG V PRESS LOWER	AVG TEMP ICE	AVG PRESS ICE	AVG V PRESS ICE
1	0.0	74.3581	26.6254	0.0856	78.4707	26.6352	0.1843	22.2100	26.6298	0.0408
2	0.50	74.3350	26.6246	0.0852	78.4432	26.6341	0.1838	22.1365	26.6288	0.0394
3	1.00	74.2957	26.6228	0.0831	78.4376	26.6322	0.1844	22.1080	26.6268	0.0373
4	1.50	74.2916	26.6196	0.0846	78.4133	26.6290	0.1838	22.1995	26.6236	0.0391
5	2.00	74.2761	26.6171	0.0828	78.3895	26.6266	0.1837	22.1671	26.6211	0.0383
6	2.50	74.2324	26.6156	0.0837	78.3780	26.6252	0.1835	22.0954	26.6197	0.0444
7	3.00	74.1826	26.6140	0.0857	78.3563	26.6237	0.1836	22.1167	26.6181	0.0453
8	3.50	74.1790	26.6131	0.0831	78.3526	26.6230	0.1832	22.1902	26.6173	0.0446
9	4.00	74.1498	26.6107	0.0827	78.3162	26.6207	0.1837	22.2186	26.6150	0.0395
10	4.50	74.1513	26.6089	0.0823	78.3167	26.6189	0.1829	22.3961	26.6130	0.0413
11	5.00	74.1333	26.6072	0.0832	78.2894	26.6172	0.1831	22.4337	26.6114	0.0398
12	5.50	74.0741	26.6060	0.0811	78.2669	26.6162	0.1834	22.4628	26.6083	0.0433
13	6.00	74.1038	26.6035	0.0839	78.2557	26.6137	0.1828	22.5664	26.6076	0.0400
14	6.50	74.0515	26.6003	0.0853	78.2331	26.6105	0.1828	22.4832	26.6046	0.0408
15	7.00	74.0333	26.5970	0.0799	78.1996	26.6072	0.1826	22.4475	26.6012	0.0412
16	7.50	74.0031	26.5967	0.0796	78.1890	26.6067	0.1828	22.3761	26.6008	0.0402
17	8.00	74.0003	26.5955	0.0820	78.1547	26.6054	0.1826	22.4391	26.5997	0.0395

E.C.P. 12-P1-06 REV.1
REF NO. 2.3

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E.C.P. 12-P1-06 REV.1
PAGE 27 OF 50

SUPPLEMENTAL - ACTUAL WEIGHT OF ICE

THIS IS A CHECK OF INPUT DATA

RTD MILLI-VOLT TO FAHRENHEIT CONVERSION COEFFICIENTS

UPPER		LOWER		ICE	
2.00	0.0	2.00	0.0	2.00	0.0

HYGROMETER MILLI-VOLT TO FAHRENHEIT CONVERSION COEFFICIENTS

UPPER			LOWER-1		
0.00227	3.87667	-99.49390	0.00234	3.86672	-99.14546
LOWER-2			ICE		
0.00277	3.83471	-98.67056	0.00192	3.90355	-99.95728

MANOMETER PRESSURE CORRECTION COEFFICIENTS

PU-1

27.9573 27.9346 27.4580 27.4347 26.9581 26.9376 26.4596 26.4373 25.9603 25.9388

PU-2

27.9573 27.4035 27.4580 26.9099 26.9581 26.4208 26.4596 25.9277 25.9603 25.4322

PL-1

27.9573 27.8136 27.4580 27.3102 26.9581 26.8110 26.4596 26.3128 25.9603 25.8090

PL-2

27.9573 28.0288 27.4580 27.5317 26.9581 27.0359 26.4596 26.5400 25.9603 26.0427

PI-1

27.9573 27.9575 27.4580 27.4606 26.9581 26.9630 26.4596 26.4614 25.9603 25.9613

PI-2

27.9573 27.2318 27.4580 26.7394 26.9581 26.2529 26.4596 25.7604 25.9603 25.2719

P-ATM

16.4746 16.1106 14.9769 14.6549 13.4792 13.1928 11.9815 11.7310 10.4838 10.2681

A.E.P.S.C.-M.E.D.
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SUPPLEMENTAC - ACTUA

RTD [illegible]NG FACTORS

UPPER

.0628 .1161 .0831 .0831 .0960 .0960 .0960 .0960 .0296 .0296
.0296 .0296 .0740 .0105 .0167 .0513

LOWER

.0415 .0415 .0415 .0415 .0102 .0284 .0586 .0086 .0266 .0586 .1037
.1037 .1037 .1037 .0500 .0092 .0244 .0145 .0170 .0249 .0219 .0240 .0423 .0

ICE

.0750 .0750 .0725 .0725 .2213 .2766 .2071

VOLUME WEIGHTING FACTORS

UPPER	LOWER	ICE -
2.0144	1.0000	0.4559

E.C.P. 12-P1-06 REV.1
REF NO. 2.4

A.E.P.S.C.-M.E.D.
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SUPPLEMENTAL ACTUAL

VERIFICATION OF ILRT COMPUTER PROGRAM "ILRTEST"

E.C.P. 12-P1-06 Rev. 1

REFERENCE NO. 3

ILRTEST PROGRAM LISTING

A.E.P.S.C.-M.E.D.
RECEIVED
MAY 25 1978
I & C SECTION

E.C.P. 12-P1-06 REV.1
REF NO. 3

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000100 *      IMPLICIT REAL*8(A-H,P-Z)                                          ** 01/27/78
000200 *      REAL*8 K,LVP                                                      ** 02/02/78
000300 *      DIMENSION TEMPUC(16),TEMPLC(24),TEMPIC(7)                         ** 01/27/78
000400 *      DIMENSION  TEMPU(16), TEMPL(24), TEMPI(7)                         ** 01/27/78
000500 *      DATA LUC,LLC,LIC/16,24,7/                                         ** 01/27/78
000600 *      DIMENSION RTDL1(16),RTDL2(24),RTDL3(07)                           ** 01/27/78
000700 *      DATA RTDL1/'ETR-101 ','ETR-102 ','ETR-103 ','ETR-104 ','ETR-105',  ** 01/27/78
000800 *     -           'ETR-106 ','ETR-107 ','ETR-108 ','ETR-109 ','ETR-110',  ** 01/27/78
000900 *     -'ETR-111 ','ETR-112 ','ETR-114 ','ETR-128 ','ETR-133 ','ETR-113 '/  ** 01/27/78
001000 *      DATA RTDL2/'ETR-122 ','ETR-123 ','ETR-124 ','ETR-125 ','ETR-126 ',  ** 01/27/78
001100 *     -           'ETR-127 ','ETR-129 ','ETR-130 ','ETR-131 ','ETR-132 ',  ** 01/27/78
001200 *     -           'ETR-134 ','ETR-135 ','ETR-136 ','ETR-137 ','ETR-138 ',  ** 01/27/78
001300 *     -           'ETR-139 ','ETR-140 ','ETR-141 ','ETR-142 ','ETR-143 ',  ** 01/27/78
001400 *     -           'ETR-144 ','ETR-145 ','ETR-146 ','ETR-113 '/             ** 01/27/78
001500 *      DATA RTDL3/'ETR-115 ','ETR-116 ','ETR-117 ','ETR-118 ','ETR-119 ',  ** 01/27/78
001600 *     -           'ETR-120 ','ETR-121 '/                                   ** 01/27/78
001700 *      DIMENSION WUC(99),WLC(99),WIC(99),W(99),TIME(99),NRA(99),         ** 01/27/78
001800 *     - ATUC(99),APUC(99),AVPUC(99),ATLC(99),APLC(99),AVPLC(99),         ** 01/27/78
001900 *     - ATIC(99),APIC(99),AVPIC(99)                                      ** 01/27/78
002000 *      DIMENSION K(18),SR(70),DP(6),LVP(6),PRES(7),PRESC(7),VPR(6)       ** 01/27/78
002100 *      DIMENSION WTUP(16),WTLOW(24),WTICE(7),TABLE(97)                   ** 05/23/78
002200 *      DATA TABLE /6.314,2.920,2.353,2.132,2.015,1.943,1.895,1.860,1.833,  ** 05/23/78
002300 *     -1.812,1.796,1.782,1.771,1.761,1.753,1.746,1.740,1.734,1.729,1.725,  ** 05/23/78
002400 *     -1.721,1.717,1.714,1.711,1.708,1.706,1.703,1.701,1.699,1.697,1.695,  ** 05/23/78
002500 *     -1.694,1.692,1.691,1.689,1.688,1.687,1.686,1.685,1.684,1.683,1.682,  ** 05/23/78
002600 *     -1.681,1.680,1.679,1.679,1.678,1.677,1.676,1.676,1.675,1.675,1.674,  ** 05/23/78
002700 *     -1.673,1.673,1.672,1.672,1.671,1.671,1.671,1.670,1.670,1.669,1.669,  ** 05/23/78
002800 *     -1.669,3*1.668,3*1.667,3*1.666,4*1.665,4*1.664,5*1.663,5*1.662,     ** 05/23/78
002900 *     -5*1.661/                                                          ** 05/23/78
003000 *      DATA WOUP,WOLO,WOIC/'UPPER   ','LOWER   ','ICE     '/             ** 01/27/78
003100 *C      START OF PROGRAM                                                 ** 01/27/78
003200 *       I = 1                                                            ** 01/27/78
003300 *       DLGIOO = DLOG10(1013.246D0)                                      ** 01/27/78
003400 *       DLGO   = DLOG10(6.1071D0)                                        ** 01/27/78
003500 *       WOEM = 0.0                                                       ** 02/22/78
003600 *      READ (5,300,ERR=22,END=12) C1,C2,C3,C4,C5,C6,IXS,IXE,IPR          ** 01/27/78
003700 *  300 FORMAT(6F6.3,4X,I3,7X,I3,7X,I3)                    02/22/78**** 02/22/78
003800 *       I = 2                                                            ** 01/27/78
003900 *      READ (5,301,ERR=22,END=12) K                                      ** 01/27/78
004000 *  301 FORMAT(6F11.6/6F11.6/6F11.6)                                      ** 01/27/78
004100 *       I = 3                                                            ** 01/27/78
004200 *      READ (5,302,ERR=22,END=12) SR                                     ** 01/27/78
004300 *302   FORMAT(10F8.5/10F8.5/10F8.5/10F8.5/10F8.5/10F8.5/10F8.5)         ** 10/24/77
004400 *       I = 4                                                            ** 01/27/78
004500 *      READ (5,303,ERR=22,END=12) WTUP,WTLOW,WTICE                       ** 01/27/78
004600 *303   FORMAT(10F6.5/6F6.5/11F6.5/13F6.5/7F6.5)                         ** 10/18/77
004700 *       I = 5                                                            ** 01/27/78
004800 *      READ (5,304,ERR=22,END=12) VHF1,VHF2,VHF3                         ** 02/02/78
004900 *304   FORMAT(3F7.5)                                                    ** 10/18/77
005000 *      WRITE (6,305) C1,C2,C3,C4,C5,C6,K(1),K(2),K(3),K(7),K(8),K(9),    ** 01/27/78
005100 *     - K(13),K(14),K(15),K(4),K(5),K(6),K(10),K(11),K(12),              ** 01/27/78
005200 *     - K(16),K(17),K(18),SR                                             ** 01/27/78
005300 *305   FORMAT(1H1,44X,'*** THIS IS A CHECK OF THE INPUT DATA ***'////1H ,  ** 10/18/77
005400 *     *   'RTD MILLI-VOLT TO FAHRENHEIT CONVERSION COEFFICIENTS'/1H ,6X,  ** 10/18/77
005500 *     *   'UPPER',12X,'LOWER',13X,'ICE'/1H ,F5.2,3X,F5.2,4X,F5.2,3X,      ** 10/18/77
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005600 *      *   F5.2,4X,F5.2,3X,F5.2////1H ,'HYGROMETER MILLI-VOLT TO ',                  ** 10/18/77
005700 *      -   'FAHRENHEIT CONVERSION COEFFICIENTS'/1H ,T15,'UPPER-1',T48,               ** 01/27/78
005800 *      -   'LOWER-1',T82,'ICE-1'/1H ,9(F10.5,1X)//1H ,T15,'UPPER-2',T48,            ** 01/27/78
005900 *      -   'LOWER-2',T82,'ICE-2'/1H ,9(F10.5,1X)////1H ,'MANOMETER PRESSUR          ** 01/27/78
006000 *      -E CORRECTION COEFFICIENTS'/T40,'PU-1'/10(1X,F7.4)//1H ,38X,                ** 02/02/78
006100 *      *   'PU-2'/1H ,9(F7.4,1X),F7.4//1H ,38X,'PL-1'/1H ,9(F7.4,1X),              ** 10/24/77
006200 *      *   F7.4//1H ,38X,'PL-2'/1H ,9(F7.4,1X),F7.4//1H ,38X,'PI-1'/               ** 10/24/77
006300 *      *   1H ,9(F7.4,1X),F7.4//1H ,38X,'PI-2'/1H ,9(F7.4,1X),F7.4//               ** 10/24/77
006400 *      *   1H ,38X,'P-ATM'/1H ,9(F7.4,1X),F7.4)                                    ** 10/24/77
006500 *       WRITE (6,306) WTUP,WTLOW,WTICE,VWF1,VWF2,VWF3                             ** 01/27/78
006600 *   306 FORMAT(1H-,'RTD WEIGHTING FACTORS'/1H ,27X,'UPPER'/1H ,9(F5.4,1X),       ** 01/27/78
006700 *      *   F5.4/1H ,5(F5.4,1X),F5.4//1H ,27X,'LOWER'/1H ,10(F5.4,1X),            ** 10/18/77
006800 *      *   F5.4/1H ,12(F5.4,1X),F5.4//1H ,28X,'ICE'/1H ,6(F5.4,1X),F5.4//        ** 10/18/77
006900 *      *   //1H ,'VOLUME WEIGHTING FACTORS'/1H ,1X,'UPPER',2X,'LOWER',3X,        ** 10/18/77
007000 *      *   'ICE'/1H ,2(F6.4,1X),F6.4)                                            ** 10/18/77
007100 *       IF (IXS.LE.0) IXS = 1                                                    ** 01/27/78
007200 *        IF (IXE.LE.0) IXE = 999                                  02/22/78** 02/22/78
007300 *       IF (WTUP(16).LE.0.0) GO TO 701                                           ** 01/27/78
007400 *       LLC = 23                                                                 ** 01/27/78
007500 *       GO TO 702                                                                ** 01/27/78
007600 *   701 LUC = 15                                                                 ** 01/27/78
007700 *   702 NR = 0                                                                   ** 02/02/78
007800 *       LICP1 = LIC + 1                                                          ** 01/27/78
007900 *       LUCP1 = LUC + 1                                                          ** 01/27/78
008000 *C      NR IS STORAGE INDEX,PROGRAM DATA ACCESS LOOP STARTS HERE.                ** 01/27/78
008100 *       DO 20 IR = 1,99                                                          ** 01/27/78
008200 *        IBYP = 0                                                                ** 01/27/78
008300 *       READ (5,100,ERR=42,END=32) NRD,TIMER                                     ** 01/27/78
008400 *   100 FORMAT(I3,1X,F5.2)                                       02/22/78** 02/22/78
008500 *C      INPUT SEQUENCE CHECK                                                     ** 01/27/78
008600 *       IF (NR.EQ.0.OR.NRD.GT.NRO) GO TO 703                                     ** 02/09/78
008700 *       WRITE (10,901) IR,NRD                                                    ** 01/27/78
008800 *   901 FORMAT (1H0,2X,'ILR005I D INCORRECT DATA SEQUENCE',2X,I2,2X,I3)  02/24/78** 02/24/78
008900 *       GO TO 23                                                                 ** 01/27/78
009000 *    32  IF (IPR.NE.0) GO TO 40                                                  ** 01/27/78
009100 *        IPR = 99                                                                ** 01/27/78
009200 *        GO TO 55                                                                ** 01/27/78
009300 *   703 NRO = NRD                                                                ** 01/27/78
009400 *       IF (NRO.GT.IXE) GO TO 32                                                 ** 01/27/78
009500 *       IF (NRO.GE.IXS) GO TO 705                                                ** 01/27/78
009600 *        IBYP = 1                                                                ** 01/27/78
009700 *       GO TO 707                                                                ** 01/27/78
009800 *   705 IF (NRO.EQ.IXS) TIMEST = TIMER                                           ** 01/27/78
009900 *        NR = NR + 1                                                             ** 01/27/78
010000 *       TIME(NR) = TIMER - TIMEST                                                ** 02/02/78
010100 *       NRA(NR) = NRD                                                            ** 01/27/78
010200 *   200 FORMAT(1H1,'RUN NUMBER',4X,I3/1H ,'ELAPSED TIME',2X,F5.2///1H ,  02/22/78** 02/22/78
010300 *      *    'CONTAINMENT TEMPERATURES DATA CHECK'//1H ,7X,'UPPER VOLUME',          ** 10/18/77
010400 *      *   21X,'LOWER VOLUME',19X,'ICE CONDENSER'/1H ,3X,'RTD',2X,                 ** 10/24/77
010500 *      *   'MILLI-VOLTS',2X,'DEG. F.',7X,'RTD',2X,'MILLI-VOLTS',2X,                ** 10/18/77
010600 *      *   'DEG. F.',7X,'RTD',2X,'MILLI-VOLTS',2X,'DEG. F.')                       ** 10/18/77
010700 *   707 READ (5,101,ERR=42,END=62) TEMPUC                                        ** 01/27/78
010800 *   101 FORMAT(10(F5.2,1X)/6(F5.2,1X))                                           ** 10/18/77
010900 *       READ (5,102,ERR=42,END=62) TEMPLC                                        ** 01/27/78
011000 *   102 FORMAT(11(F5.2,1X)/13(F5.2,1X))                                          ** 10/24/77
011100 *       READ (5,103,ERR=42,END=62) TEMPIC                                        ** 01/27/78
011200 *   103 FORMAT(7(F5.2,1X))                                                       ** 10/18/77
011300 *       IF (IBYP.EQ.1) GO TO 45                                                  ** 01/27/78
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011400 *       THSMUC = 0.0                                                    ** 01/27/78
011500 *       VHAC   = 1.0                                                    ** 01/27/78
011600 *       DO 400 JAH1=1,LUC                                               ** 01/27/78
011700 *        A = TEMPUC(JAH1)                                               ** 01/27/78
011800 *       IF (A.LE.0.0) GO TO 801                                         ** 01/27/78
011900 *        A = C1*A + C2                                                  ** 01/27/78
012000 *       THSMUC = THSMUC + A*WTUP(JAH1)                                  ** 01/27/78
012100 *       GO TO 400                                                       ** 01/27/78
012200 *  801 VHAC = VHAC - WTUP(JAH1)                                         ** 01/27/78
012300 *       WRITE (10,902) NRD,WDUP,JAH1                                    ** 01/27/78
012400 *  902 FORMAT (1H0,5X,'TEMPERATURE MISSING',2X,I3,2X,A8,I2)    02/22/78** 02/22/78
012500 *  400 TEMPU(JAH1) = A                                                  ** 01/27/78
012600 *C      ADJUSTMENT FOR MISSING TEMPERATURE                             ** 01/27/78
012700 *       IF (VHAC.EQ.1.0) GO TO 709                                      ** 01/27/78
012800 *        THSMUC = THSMUC/VHAC                                           ** 01/27/78
012900 *       VHAC   = 1.0                                                    ** 01/27/78
013000 *  709 THSMLC = 0.0                                                     ** 01/27/78
013100 *       DO 401 JAH2=1,LLC                                               ** 01/27/78
013200 *        A = TEMPLC(JAH2)                                               ** 01/27/78
013300 *       IF (A.LE.0.0) GO TO 803                                         ** 01/27/78
013400 *        A = C3*A + C4                                                  ** 01/27/78
013500 *       THSMLC = THSMLC + A*WTLOW(JAH2)                                 ** 01/27/78
013600 *       GO TO 401                                                       ** 01/27/78
013700 *  803  VHAC = VHAC - WTLOW(JAH2)                                       ** 01/27/78
013800 *       WRITE (10,902) NRD,WDLO,JAH2                                    ** 01/27/78
013900 *  401 TEMPL(JAH2) = A                                                  ** 01/27/78
014000 *       IF (VHAC.EQ.1.0) GO TO 711                                      ** 01/27/78
014100 *       THSMLC = THSMLC/VHAC                                            ** 01/27/78
014200 *       VHAC   = 1.0                                                    ** 01/27/78
014300 *  711 THSMIC = 0.0                                                     ** 01/27/78
014400 *       DO 402 JAH3=1,LIC                                               ** 01/27/78
014500 *        A = TEMPIC(JAH3)                                               ** 01/27/78
014600 *       IF (A.LE.0.0) GO TO 805                                         ** 01/27/78
014700 *        A = C5*A + C6                                                  ** 01/27/78
014800 *       THSMIC = THSMIC + A*WTICE(JAH3)                                 ** 01/27/78
014900 *       GO TO 402                                                       ** 01/27/78
015000 *  805 VHAC = VHAC - WTICE(JAH3)                                        ** 01/27/78
015100 *       WRITE (10,902) NRD,WDIC,JAH3                                    ** 01/27/78
015200 *  402 TEMPI(JAH3) = A                                                  ** 01/27/78
015300 *       IF (VHAC.NE.1.0) THSMIC = THSMIC/VHAC                           ** 01/27/78
015400 *C      CONVERT TO ABSOLUTE                                            ** 01/27/78
015500 *       THSMUR = THSMUC + 459.7                                         ** 01/27/78
015600 *       THSMLR = THSMLC + 459.7                                         ** 01/27/78
015700 *       THSMIR = THSMIC + 459.7                                         ** 01/27/78
015800 *C      PRINT CONTROL IPR  0=LAST ONLY, N=N THRU LAST                   ** 01/27/78
015900 *       IF (IPR.EQ.0.OR.IPR.GT.NRD) GO TO 45                            ** 01/27/78
016000 *   55 WRITE (6,200) NRD,TIMER                                          ** 01/27/78
016100 *       DO 500 IWRT=1,LIC                                               ** 01/27/78
016200 *  500 WRITE (6,501) RTDL1(IWRT),TEMPUC(IWRT),TEMPU(IWRT),              ** 01/27/78
016300 *     -              RTDL2(IWRT),TEMPLC(IWRT),TEMPL(IWRT),              ** 01/27/78
016400 *     -              RTDL3(IWRT),TEMPIC(IWRT),TEMPI(IWRT)               ** 01/27/78
016500 *  501 FORMAT (1H ,A8,2X,2(F6.2,5X),A8,2X,2(F6.2,5X),A8,2X,F6.2,5X,F6.2) ** 01/27/78
016600 *       DO 502 IWRT=LICP1,LUC                                           ** 01/27/78
016700 *  502 WRITE (6,503) RTDL1(IWRT),TEMPUC(IWRT),TEMPU(IWRT),              ** 01/27/78
016800 *     -              RTDL2(IWRT),TEMPLC(IWRT),TEMPL(IWRT)               ** 01/27/78
016900 *  503 FORMAT (1H ,A8,2X,2(F6.2,5X),A8,2X,F6.2,5X,F6.2)                 ** 01/27/78
017000 *       DO 504 IWRT=LUCP1,LLC                                           ** 01/27/78
017100 *  504 WRITE (6,505) RTDL2(IWRT),TEMPLC(IWRT),TEMPL(IWRT)               ** 01/27/78
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017200 *  505 FORMAT (1H ,32X,A8,2X,F6.2,5X,F6.2)                              ** 01/27/78
017300 *      WRITE (6,507) TMSMUC,TMSMLC,TMSMIC,TMSMUR,TMSMLR,TMSMIR          ** 02/02/78
017400 *  507 FORMAT (1H-,17X,'SUMMARY OF WEIGHTED AVERAGE TEMPERATURES'//1H ,  ** 02/02/78
017500 *     -'UPPER VOLUME (DEG. F.)     ',F5.2,4X,'LOWER VOLUME (DEG. F.)   ',  ** 02/02/78
017600 *     -   F6.2,4X,'ICE CONDENSER (DEG. F.)      ',F5.2/1H ,             ** 02/02/78
017700 *     -   'UPPER VOLUME (DEG. R.)   ',F6.2,4X,'LOWER VOLUME (DEG. R.)  ',  ** 02/02/78
017800 *     -   F7.2,4X,'ICE CONDENSER (DEG. R.)    ',F7.2)                  ** 02/02/78
017900 *       IF (IPR.EQ.99) GO TO 35                                         ** 01/27/78
018000 *   45 READ (5,509,ERR=42,END=62) VPR1,VPR2,VPR3,VPR4,VPR5,VPR6,PRES    ** 01/27/78
018100 *  509 FORMAT (6F6.3/7F8.5)                                             ** 01/27/78
018200 *      IF (IBYP.EQ.1) GO TO 20                                          ** 01/27/78
018300 *      DP(1) = K(1)*VPR1*VPR1 + K(2)*VPR1 + K(3)                        ** 01/27/78
018400 *      DP(2) = K(4)*VPR2*VPR2 + K(5)*VPR2 + K(6)                        ** 01/27/78
018500 *      DP(3) = K(7)*VPR3*VPR3 + K(8)*VPR3 + K(9)                        ** 01/27/78
018600 *      DP(4) =K(10)*VPR4*VPR4 + K(11)*VPR4 + K(12)                      ** 01/27/78
018700 *      DP(5) =K(13)*VPR5*VPR5 + K(14)*VPR5 + K(15)                      ** 01/27/78
018800 *      DP(6) =K(16)*VPR6*VPR6 + K(17)*VPR6 + K(18)                      ** 01/27/78
018900 *      DO 403 J=1,4                                                     ** 01/27/78
019000 *       IF (DP(J).LE.0.0) GO TO 403                                     ** 01/27/78
019100 *      CIOOC = 373.16/((DP(J)-32.)/1.8 + 273.16)                        ** 01/27/78
019200 *      LVP(J) = -7.90298*(CIOOC - 1.0) + 5.02808*DLOG10(CIOOC) +  DLGIOO  ** 01/27/78
019300 *     -         -1.3816*(10**(-7.0))*(10**(11.344*(1.0-1.0/CIOOC)) - 1.)  ** 01/27/78
019400 *     -         +8.1328*(10**(-3.0))*(10**(-3.49149*(CIOOC - 1.0)) - 1.)  ** 01/27/78
019500 *  403 CONTINUE                                                         ** 01/27/78
019600 *      DO 50 J=5,6                                                      ** 01/27/78
019700 *       IF (DP(J).LE.0.0) GO TO 50 ,                                    ** 01/27/78
019800 *      COC = 273.16/((DP(J)-32.0)/1.8 + 273.16)                         ** 01/27/78
019900 *      LVP(J) = -9.09718*(COC-1.0) - 3.56654*DLOG10(COC)                ** 02/02/78
020000 *     -         +0.876793*(1.0 - 1.0/COC) +  DLGO                       ** 01/27/78
020100 *   50 CONTINUE                                                         ** 01/27/78
020200 *      DO 404 KAY =1,6                                                  ** 01/27/78
020300 *      IF (DP(KAY).LE.0.0) GO TO 404                                    ** 01/27/78
020400 *      VPR(KAY) = 0.0145038*10**LVP(KAY)                                ** 01/27/78
020500 *  404 CONTINUE                                                         ** 01/27/78
020600 *C      CHECK FOR MISSING VAPOR PRESSURE AND CALCULATE AVERAGE.          ** 01/27/78
020700 *      IF (DP(1).LE.0.0) GO TO 713                                      ** 01/27/78
020800 *      IF (DP(2).GT.0.0) GO TO 715                                      ** 01/27/78
020900 *      VPAUC = VPR(1)                                                   ** 01/27/78
021000 *       VPR(2) = 0.0                                                    ** 01/27/78
021100 *      GO TO 717                                                        ** 01/27/78
021200 *  713 VPAUC = VPR(2)                                                   ** 01/27/78
021300 *       VPR(1) = 0.0                                                    ** 01/27/78
021400 *      GO TO 717                                                        ** 01/27/78
021500 *  715 VPAUC = 0.5*(VPR(1) + VPR(2))                                    ** 01/27/78
021600 *  717  IF (DP(3).LE.0.0) GO TO 719                                     ** 01/27/78
021700 *       IF (DP(4).GT.0.0) GO TO 721                                     ** 01/27/78
021800 *      VPALC = VPR(3)                                                   ** 01/27/78
021900 *       VPR(4) = 0.0                                                    ** 01/27/78
022000 *      GO TO 723                                                        ** 01/27/78
022100 *  719 VPALC = VPR(4)                                                   ** 01/27/78
022200 *       VPR(3) = 0.0                                                    ** 01/27/78
022300 *      GO TO 723                                                        ** 01/27/78
022400 *  721 VPALC = 0.5*(VPR(3) + VPR(4))                                    ** 01/27/78
022500 *  723 IF (DP(5).LE.0.0) GO TO 725                                      ** 01/27/78
022600 *      IF (DP(6).GT.0.0) GO TO 727                                      ** 01/27/78
022700 *      VPAIC = VPR(5)                                                   ** 01/27/78
022800 *       VPR(6) = 0.0                                                    ** 01/27/78
022900 *      GO TO 729                                                        ** 01/27/78
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023000 *  725 VPAIC = VPR(6)                                                    ** 01/27/78
023100 *       VPR(5) = 0.0                                                    ** 01/27/78
023200 *      GO TO 729                                                        ** 01/27/78
023300 *  727 VPAIC = 0.5*(VPR(5) + VPR(6))                                    ** 01/27/78
023400 *C      LINEAR INTERPOLATION FOR PRESSURES.                             ** 01/27/78
023500 *  729 DO 405 M=1,70,10                                                 ** 01/27/78
023600 *      N1=M+1                                                           ** 10/20/77
023700 *      N2=M+9                                                           ** 10/20/77
023800 *      MY=((M-1)/10)+1                                                  ** 10/20/77
023900 *       PRDG = PRES(MY)                                                 ** 01/27/78
024000 *      IF (PRDG.EQ.0.0) GO TO 408                                       ** 02/09/78
024100 *      DO 406 N=N1,N2,2                                                 ** 10/20/77
024200 *      IF (PRDG.LT.SR(N)) GO TO 406                                     ** 01/27/78
024300 *      IF (PRDG.EQ.SR(N)) GO TO 731                                     ** 01/27/78
024400 *      IF (N.EQ.N1) GO TO 444                                           ** 01/27/78
024500 *      PRESC(MY)=SR(N-1)+ (PRDG-SR(N))*(SR(N-3)-SR(N-1))/(SR(N-2)-SR(N)) ** 01/27/78
024600 *      GOTO 405                                                         ** 10/20/77
024700 *406   CONTINUE                                                         ** 10/20/77
024800 *  444 WRITE (10,407) NRD,MY,PRDG                          02/22/78**** 02/22/78
024900 *  407 FORMAT(T2,'***MANOMETER READING OFF CALIBRATION***',2X,I3,2X,    02/22/78**** 02/22/78
025000 *     - I2,F9.4)                                           02/22/78**** 02/22/78
025100 *  408  PRESC(MY) = 0.0                                                 ** 02/09/78
025200 *      GO TO 405                                                        ** 01/27/78
025300 *  731 PRESC(MY) = SR(N-1)                                              ** 01/27/78
025400 *405   CONTINUE                                                         ** 10/20/77
025500 *C      AVERAGING PRESSURES ALLOWING FOR ZERO ENTRY.                    ** 01/27/78
025600 *      PRESCU = 0.5*(PRESC(1) + PRESC(2))                               ** 01/27/78
025700 *      PRESCL = 0.5*(PRESC(3) + PRESC(4))                               ** 01/27/78
025800 *      PRESCI = 0.5*(PRESC(5) + PRESC(6))                               ** 01/27/78
025900 *       IF (PRESC(1).LE.0.0.OR.PRESC(2).LE.0.0) PRESCU = 2.0*PRESCU     ** 01/27/78
026000 *       IF (PRESC(3).LE.0.0.OR.PRESC(4).LE.0.0) PRESCL = 2.0*PRESCL     ** 01/27/78
026100 *       IF (PRESC(5).LE.0.0.OR.PRESC(6).LE.0.0) PRESCI = 2.0*PRESCI     ** 01/27/78
026200 *      ACPA=(PRESCU+PRESCL+PRESCI)/3                                    ** 10/20/77
026300 *      ACPG=ACPA-PRESC(7)                                               ** 10/20/77
026400 *      IF (IPR.EQ.0.OR.IPR.GT.NRD) GO TO 747                            ** 01/27/78
026500 *   35 WRITE (6,508) VPR1,DP(1),VPR(1),PRES(1),PRESC(1),                ** 01/27/78
026600 *     -              VPR2,DP(2),VPR(2),PRES(2),PRESC(2),                ** 01/27/78
026700 *     -              VPR3,DP(3),VPR(3),PRES(3),PRESC(3),                ** 01/27/78
026800 *     -              VPR4,DP(4),VPR(4),PRES(4),PRESC(4),                ** 01/27/78
026900 *     -              VPR5,DP(5),VPR(5),PRES(5),PRESC(5),                ** 01/27/78
027000 *     -              VPR6,DP(6),VPR(6),PRES(6),PRESC(6),PRES(7),PRESC(7), ** 01/27/78
027100 *     - VPAUC,VPALC,PRESCU,VPAIC,PRESCL,PRESCI,ACPA,ACPG                 ** 02/02/78
027200 *  508 FORMAT (1H-,11X,'CONTAINMENT VAPOR PRESSURE DATA CHECK',T83,     ** 01/27/78
027300 *     *   'CONTAINMENT PRESSURES DATA CHECK'//1H ,19X,'MILLI-',6X,      ** 10/21/77
027400 *     *   'DEW POINT',4X,'VAPOR PRESSURE',30X,'UNCORRECTED',7X,         ** 10/21/77
027500 *     *   'CORRECTED'/1H ,2X,'HYGROMETER',8X,'VOLTS',8X,'(DEG. F.)',7X, ** 10/21/77
027600 *     *   '(PSIA)',23X,'MANOMETER',2X,'READING (PSIA)',2X,'READING ',   ** 10/21/77
027700 *     *   '(PSIA)'/1H ,5X,'VPU-1',10X,F5.2,10X,F5.2,9X,F7.4,25X,'PU-1', ** 10/24/77
027800 *     - 2(8X,F7.4)/T7,'VPU-2',2(10X,F5.2),9X,F7.4,T83,'PU-2',2(8X,F7.4)/ ** 01/27/78
027900 *     - T7,'VPL-1',2(10X,F5.2),9X,F7.4,T83,'PL-1',2(8X,F7.4)/           ** 01/27/78
028000 *     - T7,'VPL-2',2(10X,F5.2),9X,F7.4,T83,'PL-2',2(8X,F7.4)/           ** 01/27/78
028100 *     - T7,'VPI-1',2(10X,F5.2),9X,F7.4,T83,'PI-1',2(8X,F7.4)/           ** 01/27/78
028200 *     - T7,'VPI-2',2(10X,F5.2),9X,F7.4,T83,'PI-2',2(8X,F7.4)/           ** 01/27/78
028300 *     - T83,'AMBIENT',T95,F7.4,8X,F7.4/1H ,T24,'AVERAGE VAPOR PRESSURES'/ ** 02/02/78
028400 *     - T86,'SUMMARY OF CORRECTED AVERAGE PRESSURES'/                    ** 02/02/78
028500 *     - 1H ,T17,'UPPER CONTAINMENT (PSIA)',T47,F7.4/                     ** 02/02/78
028600 *     - 1H ,T17,'LOWER CONTAINMENT (PSIA)',T47,F7.4,T81,                 ** 01/27/78
028700 *     - 'AVERAGE UPPER PRESSURE (PSIA)',T120,F7.4/1H ,T17,               ** 01/27/78
```

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```
028800 *     -'ICE CONDENSER     (PSIA)',T47,F7.4,T81,'AVERAGE LOWER PRESSURE (P          ** 01/27/78
028900 *     -SIA)',T120,F7.4/T81,'AVERAGE ICE CONDENSER PRESSURE (PSIA)',T120,        ** 01/27/78
029000 *     -F7.4/T81,'AVERAGE CONTAINMENT PRESSURE   (PSIA)',T120,F7.4/T81,         ** 01/27/78
029100 *     - 'AVERAGE CONTAINMENT PRESSURE   (PSIG)',T120,F7.4)                     ** 01/27/78
029200 *       IF (IPR.EQ.99) GO TO 40                                                ** 01/27/78
029300 *C        CALCULATE NORMALIZED WEIGHT FRACTIONS; STORE WITH PRESSURES.         ** 01/27/78
029400 *  747 WUCNUM = (PRESCU - VPAUC)/TMSMUR                                        ** 01/27/78
029500 *      WLCNUM = (PRESCL - VPALC)/TMSMLR                                       ** 01/27/78
029600 *      WICNUM = (PRESCI - VPAIC)/TMSMIR                                       ** 01/27/78
029700 *      WNUM = VWF1*WUCNUM + VWF2*WLCNUM + VWF3*WICNUM                         ** 01/27/78
029800 *       IF (WDEM.GT.0.0) GO TO 749                                            ** 02/22/78
029900 *      WUCDEM = WUCNUM                                                        ** 01/27/78
030000 *      WLCDEM = WLCNUM                                                        ** 01/27/78
030100 *      WICDEM = WICNUM                                                        ** 01/27/78
030200 *      WDEM   = WNUM                                                          ** 01/27/78
030300 *  749 WUC(NR) = WUCNUM/WUCDEM                                                ** 01/27/78
030400 *      WLC(NR)=WLCNUM/WLCDEM                                                  **
030500 *      WIC(NR)=WICNUM/WICDEM                                                  **
030600 *      W(NR)=WNUM/WDEM                                                        **
030700 *       ATUC(NR) = TMSMUC                                                     ** 02/02/78
030800 *       ATLC(NR) = TMSMLC                                                     ** 02/02/78
030900 *       ATIC(NR) = TMSMIC                                                     ** 02/02/78
031000 *       APUC(NR) = PRESCU                                                     ** 02/02/78
031100 *       APLC(NR) = PRESCL                                                     ** 02/02/78
031200 *       APIC(NR) = PRESCI                                                     ** 02/02/78
031300 *      AVPUC(NR) = VPAUC                                                      ** 02/02/78
031400 *      AVPLC(NR) = VPALC                                                      ** 02/02/78
031500 *      AVPIC(NR) = VPAIC                                                      ** 02/02/78
031600 *   20 CONTINUE                                                               ** 01/27/78
031700 *      WRITE (10,903)                                                         ** 01/27/78
031800 *  903 FORMAT (1H0,2X,'ILR006I D ***DATA SPACE EXCEEDED***')          02/24/78** 02/24/78
031900 *      GO TO 23                                                               ** 01/27/78
032000 *C      END OF FILE AND OTHER ERROR MESSAGES                                  ** 01/27/78
032100 *   12 WRITE (10,904) I                                                       ** 01/27/78
032200 *  904 FORMAT (1H0,2X,'ILR002I D **END OF DATA IN SYSTEM GROUP ',     02/24/78** 02/24/78
032300 *     - I2,2X,'**')                                                  02/24/78** 02/24/78
032400 *   23 WRITE (10,905)                                                         ** 01/27/78
032500 *  905 FORMAT (1H-,2X,'ILR008I D ***ABNORMAL RUN TERMINATION***')     02/24/78** 02/24/78
032600 *      GO TO 24                                                               ** 01/27/78
032700 *   22 WRITE (10,906) I                                                       ** 01/27/78
032800 *  906 FORMAT (1H0,2X,'ILR001I D **READ ERROR IN SYSTEM DATA GROUP ',  02/24/78** 02/24/78
032900 *     - I2,2X,'**')                                                  02/24/78** 02/24/78
033000 *      GO TO 23                                                               ** 01/27/78
033100 *   42 WRITE (10,907) NRD                                                     ** 01/27/78
033200 *  907 FORMAT (1H0,2X,'ILR003I D **READ ERROR IN TEST GROUP ',I3,2X,'**')02/24/78** 02/24/78
033300 *      GO TO 23                                                               ** 01/27/78
033400 *   62 WRITE (10,908) NRD                                                     ** 01/27/78
033500 *  908 FORMAT (1H0,2X,'ILR004I D **END OF DATA IN TEST GROUP ',I3,'  **')02/24/78** 02/24/78
033600 *      GO TO 23                                                               ** 01/27/78
033700 *C                RESULT PORTION OF PROGRAM                                 ** 01/27/78
033800 *   40  IF (NR.GE.3) GO TO 41                                                 ** 01/27/78
033900 *      WRITE (10,909)                                                         ** 01/27/78
034000 *  909 FORMAT (1H0,2X,'ILR007I D **LESS THAN 3 TEST POINTS - MORE DATA NE02/24/78** 02/24/78
034100 *     -EDED**')                                                      02/24/78** 02/24/78
034200 *      GO TO 23                                                               ** 01/27/78
034300 *   41  TSS = TIME(1)*TIME(1) + TIME(2)*TIME(2)                               ** 01/27/78
034400 *       TS  =  TIME(1) + TIME(2)                                             ** 01/27/78
034500 *       T2SW = TIME(1)*W(1) + TIME(2)*W(2)                                   ** 01/27/78
```

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```
034600 *       WS = W(1) + W(2)                                                  ** 01/27/78
034700 *      WRITE (9,201)                                                      ** 01/27/78
034800 *  201 FORMAT(1H1,48X,'SUMMARY OF AVERAGES'///1H ,2X,'RUN #',2X,'ELAPSED  ** 01/27/78
034900 *     -',2X,3(34HAVG TEMP  AVG PRESS  AVG V PRESS  )/1H ,10X,'TIME',6X,'U  ** 01/27/78
035000 *     -PPER',6X,'UPPER',7X,'UPPER',6X,'LOWER',6X,'LOWER',7X,'LOWER',7X,'I  ** 02/02/78
035100 *     -CE',8X,'ICE',9X,'ICE'/)                                           ** 02/02/78
035200 *      DO 43 I=1,NR                                                      ** 01/27/78
035300 *   43 WRITE (9,202) NRA(I), TIME(I), ATUC(I),APUC(I),AVPUC(I),ATLC(I),  ** 01/27/78
035400 *     -APLC(I),AVPLC(I),ATIC(I),APIC(I),AVPIC(I)                         ** 01/27/78
035500 *  202 FORMAT (1H ,2X, I3,4X,F6.2,2X,3(F9.4,2X,F9.4,3X,F9.4,2X))         ** 01/27/78
035600 *      WRITE (9,205)                                                     ** 01/27/78
035700 *  205 FORMAT(1H1,34X, 'RESULTS OF THE LINEAR REGRESSION ANALYSIS'///    ** 01/27/78
035800 *     -1H ,2X,'RUN #',8X,'W',11X,'LEAKAGE RATE',9X,'LEAKAGE',9X,         ** 05/23/78
035900 *     -          'W UPPER',7X,'W LOWER',9X,'W ICE'/1H ,10X,'EXPERIMENTAL', ** 05/23/78
036000 *     -6X,'UPPER LIMIT',11X,'RATE',8X,                'CONTAINMENT',3X,  ** 05/23/78
036100 *     -'CONTAINMENT',5X,'CONDENSER'/)                                    ** 01/27/78
036200 *C          REGRESSION LOOP                                              ** 01/27/78
036300 *      DO 44 I=3,NR                                                      ** 01/27/78
036400 *      TSS = TSS + TIME(I)*TIME(I)                                       ** 01/27/78
036500 *      TS  = TS + TIME(I)                                                ** 01/27/78
036600 *      WS  = WS + W(I)                                                   ** 01/27/78
036700 *      T2SW = T2SW + TIME(I)*W(I)                                        ** 01/27/78
036800 *       ANUM = TSS*WS - TS*T2SW                                          ** 01/27/78
036900 *       XNRR = I                                                         ** 01/27/78
037000 *      ADEM = XNRR*TSS - TS*TS                                           ** 01/27/78
037100 *       A = ANUM/ADEM                                                    ** 01/27/78
037200 *       BNUM = XNRR*T2SW - TS*WS                                         ** 01/27/78
037300 *      B = BNUM/ADEM                                                     ** 01/27/78
037400 *       II = I                                                           ** 01/27/78
037500 *      WSUM = 0.0                                                        ** 01/27/78
037600 *C      SUM OF SQUARED DIFFERENCES                                       ** 01/27/78
037700 *      DO 46 L=1,II                                                      ** 01/27/78
037800 *      WLR = A + B*TIME(L)                                               ** 01/27/78
037900 *      IF (DABS(W(L)-WLR).LE.1.0D-39) GO TO 46                           ** 01/27/78
038000 *      WSUM = WSUM + (W(L)-WLR)*(W(L)-WLR)                               ** 01/27/78
038100 *   46 CONTINUE                                                          ** 01/27/78
038200 *      AT = TS/XNRR                                                      ** 01/27/78
038300 *      TOT = AT*AT                                                       ** 01/27/78
038400 *      DO 48 M=2,II                                                      ** 01/27/78
038500 *   48 TOT = TOT + (TIME(M)-AT)*(TIME(M)-AT)                             ** 02/02/78
038600 *       B = 2400.0*B                                                     ** 01/27/78
038700 *      EKK = TABLE(II-2)                                                 ** 01/27/78
038800 *      SIGMAB = DSQRT(WSUM/(TOT*(XNRR-2.0)))                             ** 01/27/78
038900 *      DEL = EKK*SIGMAB*2400.0                                           ** 01/27/78
039000 *      BU = B - DEL                                                      ** 05/23/78
039100 *      WRITE (9,206) NRA(II),W(II),BU,B,WUC(II),WLC(II),WIC(II)          ** 05/23/78
039200 *  206 FORMAT (T4,I3,5X,F9.5,2(9X,F9.5),7X,F9.5,5X,F9.5,6X,F9.5)         ** 05/23/78
039300 *   44 CONTINUE                                                          ** 01/27/78
039400 *C             END OF REGRESSION LOOP                                   ** 01/27/78
039500 *      WRITE (9,203) B,A                                                 ** 01/27/78
039600 *  203 FORMAT(1H0,21X,'FINAL LEAKAGE RATE (% PER DAY) =',F9.5,5X,'INTERCE ** 01/27/78
039700 *     -PT=',F9.5)                                                        ** 01/27/78
039800 *      WRITE (9,204) BU                                                  ** 05/23/78
039900 *  204 FORMAT (1H0,21X,'UPPER CONFIDENCE LIMIT FOR THE RATE IS ',F9.5)    ** 05/23/78
040000 *   24 CALL EXIT                                                         ** 01/27/78
040100 *      END                                                               **
```

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AMERICAN ELECTRIC POWER SERVICE CORPORATION

AMERICAN ELECTRIC POWER SYSTEM

DATE: March 14, 1978

SUBJECT: ILR Program - Bad Temperature Data

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REF NO. 4

FROM: J.F. Holbrook

TO: M.J. Trezza

In the event of bad temperature data during the integrated leak rate test the coder is first advised to enter a blank or zero for the RTD reading.

Normally the program calculates the average temperature for n zones within a region by the summation

$$T_{avg} = \sum_{1}^{n} w_i T_i$$

where T_i are the observed temperatures, w_i are the RTD weighting factors, and $\sum_{1}^{n} w_i = 1.0000$.

For a blank or zero temperature reading in zone j the summation $\sum_{1}^{n} w_i T_i$ will not include $w_j T_j$.

Furthermore a denominator VWAC is formed by the relation VWAC=VWAC-W_j, with VWAC initialized to 1.0000 for each test point and region. The average temperature is therefore calculated as:

$$T_{avg} = \frac{\sum_{1}^{n} w_i T_i \quad (i \neq j)}{VWAC}$$

Should the zone j contain a temperature that is not well represented by the average of the balance of the region, then it is the coder's responsibility to enter a temperature reading arrived at by other means, such as extrapolation of observed readings or trending from the region average.

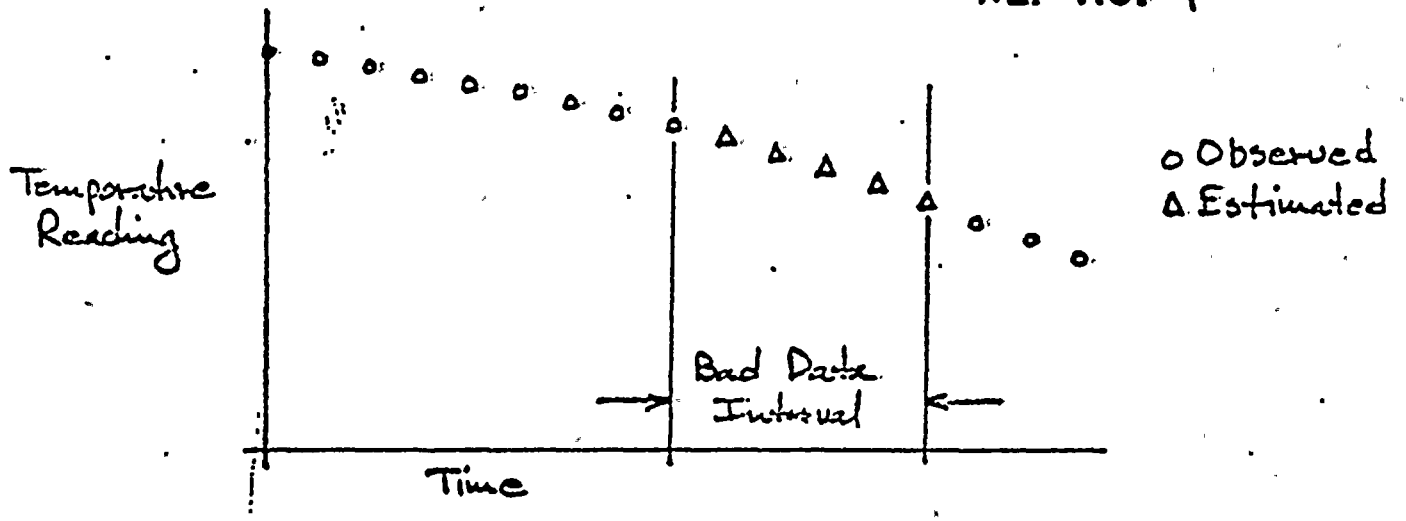

Figure 1. Extrapolating from Observed Data

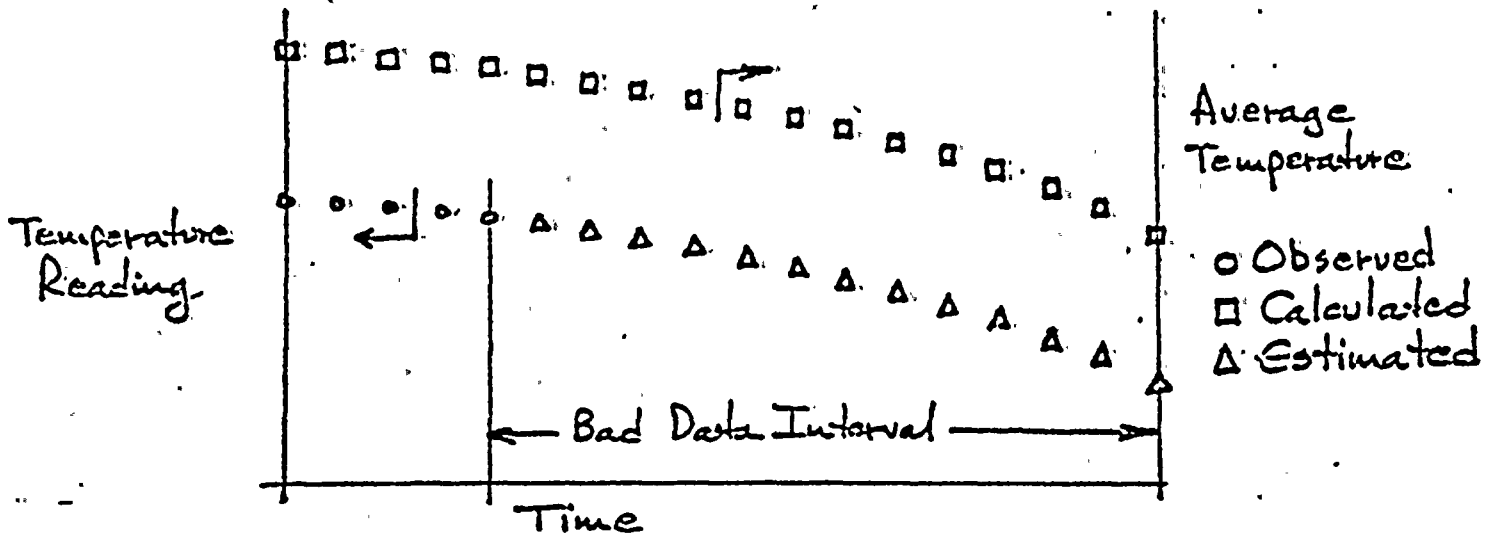

Figure 2. Trending from Region Average

Since entering the estimates for zone j will affect the average region temperatures, this becomes a convergence problem. It is therefore recommended that the regression analysis be performed over the span of test point data utilizing both zero and estimated zonal temperature readings. The final leakage rate and variances will indicate the sensitivity of the analysis to this particular zonal temperature reading.

AMERICAN ELECTRIC POWER SERVICE CORPORATION

AMERICAN ELECTRIC AEP POWER SYSTEM

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REF NO 5

A.E.P.S.C.-M.E.D.
RECEIVED
MAY 15 1978
I & C SECTION

DATE: May 12, 1978

SUBJECT:

FROM: Joe Holbrook

TO: M. Trezza – Mechanical Engineering

Approximately 25 computer runs were performed in February and March of 1978 to verify the functional design and correctness of calculation of the Integrated Leak Rate Test program. Only nine of these test run printouts have been saved, and are currently on file in my program workbook.

Test run printouts for normal production programs are not usually saved because of the sheer volume of such printouts. Where important for program documentation, such printouts will be saved providing the request is made beforehand. My apologies for not informing you that such a request could have been made and followed.

It was the intention of program testing to duplicate the calculations produced by the previous programs operating on the data of Cook Nuclear Plant Unit #1. This was achieved and printouts of these test runs were forwarded to Engineering.

Additional testing was performed to verify the program's handling of invalid and/or missing data, and to insure that the printed error and warning messages appearing in the Operations Guide were being correctly issued. This was done to my satisfaction except for error messages 1a, 1c, and 1f. Testing for 1f was not done because of the difficulty of fabricating the 83 additional sets of test print data; 1a and 1c were not simulated because they are normally caused by hardware faults and not by errors in data.

J.F. Holbrook
Computer Applications Division

JFH/drc

cc: J.A. Tesoro
S.T. Ehrmann

OPERATIONS GUIDE
FOR REMOTE JOB ENTRY TERMINAL (READER/PRINTER)
INTEGRATED LEAK RATE TEST

A.E.P.S.C.-M.E.D.
RECEIVED
MAR 13 1978
I & C SECTION

A. Job Control Data

```
//ILRTEST  JOB  (4990,0,ROOM,,,,,N),'USERNAME'
//         EXEC PILR
//GO.DATA  DD   *
              (DATA AS REQUIRED)
/*
```

The job control cards (cards whose first character is a slash) should be ordered as shown and submitted via the remote terminal for processing. See the attached Job Card Description (form CA-210) for an explanation of codes in the first job control card.

B. Machine Operating Instructions

Job can be restarted by computer operator.

C. Purpose and Description

The Integrated Leak Rate Test program converts the input data readings to temperatures and pressures and calculates a normalized weight fraction for the air in the containment volume. For three or more test points, the program will determine a leak rate by linear regression.

D. Frequency and Target Date of Processing

The FSAR and Technical Specifications limit the allowable leakage rate from containment. To verify that the allowable rate has not been exceeded, a minimum of 48 runs are required at half-hour intervals. Should the initial runs disclose an excessive leak rate, corrective actions must be taken by plant personnel and testing continued to complete a 24 hour period. It is therefore vital that turnaround time be minimized for each run.

JFH:rlh
3/9/78

OPERATIONS GUIDE
FOR REMOTE JOB ENTRY TERMINAL (READER/PRINTER)
INTEGRATED LEAK RATE TEST

D. Frequency and Target Date of Processing (cont.)

Since the unit cannot be returned to service until the leakage rate criteria have been met, it is also necessary to provide redundant paths for operation of the computer program. The first redundant path provides for access to the Canton, Ohio computer should the NY computer not be available. In the case of failure of the microwave network, telephone dial-up communication has been provided to either the Canton or New York computer.

In the event of failure of the Data 100 terminal, telephone communication would be used for verbal transmission of data from the plant and test results back to the plant.

G. Input Data Instructions

The data required for each run consists of fixed information and test point data. The fixed information appears first and consists of seventeen cards containing five types of data. The fixed information data form appears as Figure 1 and the punched cards must be assembled in the order given.

The indices at the right of card A1 control the range of data processed by the program as follows:

Cols. 41-43 Start Index	Program will begin processing test beginning with this run number; if blank, program will start at first data point run number.
Cols. 51-53 End Index	Program will include the data of this test point as the last run number to be processed; if blank, program will accept all data starting from the start index run number.

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INTEGRATED LEAK RATE TEST

G. Input Data Instructions (cont.)

Cols. 61-63 Print Index — Program will print data starting from this run number; if blank, only the last processed run number data is printed.

The test point data of Figure 2 follows the fixed information and consists of eight data cards containing four types of data.

The temperature measuring devices (ETR-101, ETR-102, etc.) on data cards T1 through T5 correspond to the RTD weighting factors given on cards D1 through D5 of the fixed information. Please note that device ETR-113 appears in the last field of both cards T2 and T4. Only one of these is to be used per leak test and such use is to be indicated by the last field of card D2. If this factor is greater than zero, ETR-113 will be expected on card T2, else ETR-113 will be expected on card T4.

I. Output Processing

1. Error Messages

a. ILR001I D **READ ERROR IN SYSTEM DATA GROUP N**

A data transmission error has occurred in reading the fixed information cards. Number N corresponds to the data type (1 = A, 2 = B, etc.). If a second attempt does not succeed, repunch the offending card group and try again. If still unsuccessful contact NY CAD Engineering and Management Section.

b. ILR002I D **END OF DATA IN SYSTEM GROUP N**

An end-of-file condition has been sensed in reading the fixed information cards. Usually caused by a misplaced /* card within the deck. Correct and retry.

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OPERATIONS GUIDE
FOR REMOTE JOB ENTRY TERMINAL (READER/PRINTER)
INTEGRATED LEAK RATE TEST

I. Output Processing (cont.)

1. Error Messages

c. ILR003I D **READ ERROR IN TEST GROUP N**

A data transmission error has occurred in reading the test point data cards. Number N corresponds to the run number of card R1. Retry as in message 1a.

d. ILR004I D **END OF DATA IN TEST GROUP N**

An end-of-file condition has been sensed in reading the test point data cards. See 1b. for corrective action.

e. ILR005I D INCORRECT DATA SEQUENCE N1 N2

A sequence stepdown has occurred in reading the test point data cards. N1 is the numerical order of the test point data group and N2 is the run number from card R1. There are several possible causes for this error to occur, but the three most likely are:

1. Mispunch of Cols. 1-3 in card R1.
2. Incorrect number of data cards within the preceeding group (eight are expected).
3. Repeating the sequence number of the preceeding test point.

To correct, find the cause of the sequence stepdown and then retry.

f. ILR006I D ***DATA SPACE EXCEEDED***

An attempt has been made to process more than 99 test point data groups. This has exceeded the program's capability and cannot be done.

g. ILR007I D **LESS THAN 3 TEST POINTS - MORE DATA NEEDED**

Three test points are needed for a linear regression. This message is normal if only two test points of data exist. After three test points have been obtained the message will persist if the start and end indices of card A1 are incorrect.

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OPERATIONS GUIDE
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INTEGRATED LEAK RATE TEST

I. Output Processing (cont.)

h. ILR008I D ***ABNORMAL RUN TERMINATION***

This message appears after the messages 1a. thru 1g. and indicates the need for subsequent computer runs to achieve successful processing.

i. IHN215I CONVERT - ILLEGAL DECIMAL CHARACTER X

This is a system issued error message produced by an attempt to read a non-numeric character within a field defined as numeric. Unfortunately the card causing the error is not listed, and the character X may even not be printable. The error, however, will usually occur in the last test point data group and a recheck of these cards will usually uncover the input data error.

For other system error messages consult NY CAD.

2. Warning Messages

a. TEMPERATURE MISSING N1 UPPER / LOWER / ICE N2

A zero or blank field was encountered on the temperature cards of test point group N1 at the position indicated by N2. For the upper zone this will be in cards T1 and T2, for the lower zone in cards T3 and T4, and on card T5 if in the ice condenser.

The program compensates for missing temperatures by increasing the remaining RTD weighting factors proportionally.

b. ***MANOMETER READING OFF CALIBRATION*** N1 N2 VALUE

The manometer reading of run N1 at position N2 of card P1 is outside the calibration range of cards C1-C7. The reading is printed as VALUE. The program corrective action sets the reading to zero. Should the reading be correct, then new calibration data will be required.

JFH:rlh
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OPERATIONS GUIDE
FOR REMOTE JOB ENTRY TERMINAL (READER/PRINTER)
INTEGRATED LEAK RATE TEST

I. Output Processing (cont.)

2. Warning Messages

No warning message is issued for a blank or zero pressure reading. If a zonal pressure reading is zero or blank, the program takes the other reading as the average. If both are blank, zero, or out of calibration, a zero average will result. At least one non-zero pressure must be present for each zone for successful program execution. If both zone pressures are bad the entire test point must be deleted. A zero ambient reading will only result in a false ambient pressure indication.

3. Report #1

a. Summary of Averages - a one-page listing of average temperatures, pressures, and vapor pressures, for each of the three containment zones is produced for each test point data group accepted for regression processing.

b. Results of Linear Regression - a one-page listing which follows the Summary of Averages. Starting with the third processed test data group, the normalized weight fractions are printed along with leakage rates calculated from previous test data points inclusive. In addition, high and low leakage rate values at 95% confidence level are printed. For the last inclusive test point, the 95% confidence leakage rates are separately printed along with the final leakage rate and intercept value.

4. Report #2

a. System Data Check - a one-page listing of the fixed information is always produced in the absence of error messages 1a. or 1b.

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OPERATIONS GUIDE
FOR REMOTE JOB ENTRY TERMINAL (READER/PRINTER)
INTEGRATED LEAK RATE TEST

I. Output Processing (cont.)

4. Report #2

b. Test Point Data Check - a one-page listing of input data and computed temperatures and pressures will be produced for each test point requested by the control indices of card R1 in the absence of error messages 1a. or 1b. If message 1c., 1d., or 1e., appears only the last valid test group will be listed. In the event of system error messages, the current test point printout may be partially or completely missing.

JFH:r1h
3/9/78

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INTEGRATED LEAK RATE TEST

N. Catalogued Procedure

```
//PILR      PROC PROG=ILRTEST,LIB='LIB.PEP',REG=128K,C=A
//GO        EXEC PGM=&PROG,REGION=&REG
//STEPLIB   DD   DSN=&LIB,DISP=SHR
//FT05F001  DD   DDNAME=DATA
//FT10F001  DD   SYSOUT=&C,DCB=(RECFM=FBA,LRECL=133,BLKSIZE=931)
//FT09F001  DD   SYSOUT=&C,DCB=(RECFM=FBA,LRECL=133,BLKSIZE=931)
//FT06F001  DD   SYSOUT=&C,DCB=(RECFM=FBA,LRECL=133,BLKSIZE=931)
```


JFH:rlh
3/9/78

INTEGRATED LE[illegible] RATE TEST PAGE __ OF [illegible]

DATA BY _____ D.C. COOK UNIT __ DATE _____

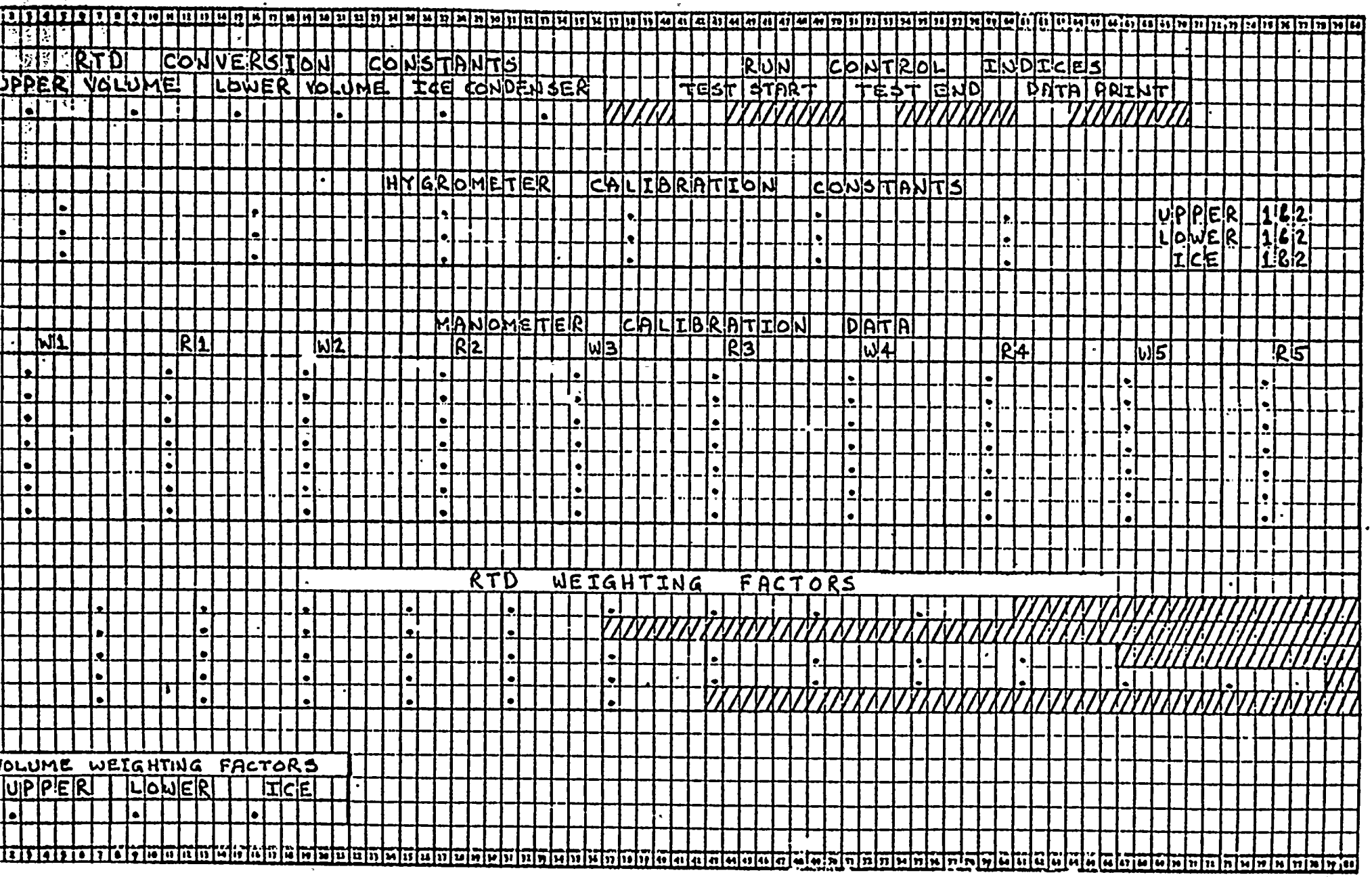

FIGURE 1. FIXED INFORMATION

FORM 4CA-
REV. 2/1

INTEGRAT[illegible] LEAK RATE TEST
D. C. [illegible]K UNIT____

AEP

PREPARED BY _____ DATE _____ PAGE _____ OF _____

CARD TYPE	RUN NO.				ELAPSED TIME				
	1	2	3	4	5	6	7	8	9
R1							•		

RUN NO.							
65	66	67	68	69	70	71	72
R	U	N	=				

| CARD TYPE | TEMPERATURE READINGS | | | | | | |

APPENDIX C

UNDRAINED SYSTEMS PENALTY LEAKAGE

AS-LEFT CONDITION

ECP NO. 2-NO-09

A.E.P.S.C. - M.E.D.

INSTRUMENTATION AND CONTROLS SECTION

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V. A. S. Grimes

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DRAWING REVISION NO.	REVISION DESCRIPTION AND AUTHORIZING DOCUMENT I.D.	LOGIC DIAGRAM: DIGITAL	LOGIC DIAGRAM: ANALOG	SCHEMATIC DIAGRAM	CALIBRATION DATA	CALCULATIONS	REVISION BY	APPROVED BY DATE ISSUED
0	Initial Issue - NRC requirements on ILRT Test Reports					I	SEF	ABB 10-2-84

Dept. DCR 8-B
Volume #

PLANT D.C. Cook
E.C.P. PACKAGE REVISION RECORD

DWG. 2-NS-09
SHEET 1 OF 19

A.I.D. E.C.P. 030877

A.E.P.S.C. CALCULATION
MECHANICAL ENGINEERING DIVISION
INSTRUMENTATION AND CONTROLS SECTION

E.C.P. CALCULATION No. 2-NO-89

TYPE PRELIMINARY OR FINAL Final

SUBJECT 1984 Unit 2 ELRT Type B&C Leakage Penalties

SUPERSEDES CALCULATION NO.

FILE LOCATION

SHEET 1 OF 25

PLANT Cook UNIT 2

COMPANY MED/E&C

CALCULATED BY S.C. Farber

CHECKED BY D.V. Athiwen 4.3.1

APPROVED BY R.S. Shoberg

AND DATE 10-2-84

PROBLEM DESCRIPTION:

Calculate variations leakage units corrected to complete the June 1984 Unit 2 ELRT Final Report

DESIGN BASIS AND REFERENCES

1) June 6, 1984 memo from S.C. Farber to G. Smith

2) 1984 Unit 2 Type B&C Test Results (Computer Printout)

3) ECP 12-NO-07 Type B&C Test Reference Correction Factors

E.C.P. REVISION

NO.	DATE	CHANGE

RECORDED ON E.C.P. PACKAGE REVISION RECORD

NO CALCULATION CHANGE

CALCULATION BY/DATE	CHECKED BY/DATE	APPROVED BY/DATE

SUPERSEDED BY E.C.P. CALCULATION NO. REASON

SUPERSEDED BY/DATE

A.E.P.S.C. E.C.P. 4
030877

I. Summary:

In order to complete the ILRT two leakage penalty values must be computed in addition to the As found and As left leakage values. This calculation is divided into three sections:

A. Type C penalty for systems which are not vented during the Type A test.

B. The As found minus As left penalty for repaired type B & C components.

C. The overall Type B and C leakage, both As found and As Left.

The type C penalty for unvented systems is generated by applying AEPSC generated guidelines to the "Type C Penalty Form" from Plant Procedure 12 THP 4030 STP.202. This penalty is based on the As left condition of the valves listed on the above form.

The As found minus As Left Type B & C penalty is generated by applying AEPSC generated guidelines to Type B & C Components which were repaired during performance of Plant Procedure 2 THP 4030 STP.203.

The total type B & C As found and As left leakages are generated by applying AEPSC generated guidelines to all type B & C component leakages measured during performance of Plant Procedure 12 THP 4030 STP.203.

II. Results:

A. Calculated Values (uncorrected)

Type C Penalty for unvented systems	850.0 sccm
Type B & C As found-As left penalty	34256.7 sccm
Total type B & C Leakage (As found)	37130.1 sccm
Total type B & C Leakage (As left)	3676.8 sccm

B. Corrected Values

The flow meters used for performing the type B & C test are small ball float meters calibrated at 12 psig and 70°F. Due to variations in instrument sizes and nonlinear viscous correction factors, a uniform correction factor is not available. Calculations (ECP 12-NO-07) were performed to show that at 60°F (lowest recorded test temperature) and 12.5 psig (highest recorded test pressure) the correction factor is less than 2% of the indicated reading; therefore, conservative corrected values are 102% of the calculated values:

Type C Penalty for unvented systems	867.0 sccm
Type B & C As found-As left penalty	34941.8 sccm
Total type B and C Leakage (As found)	37872.7 sccm
Total type B and C Leakage (As left)	3750.3 sccm

III. Calculations

A. Type C Penalty for unvented systems.

From appendix D.1 in 12 THP 4030 STP.202 there are 11 conditions to review. Test Steps are from 12 THP 4030 STP 203 (Type C):

	Leakage Penalty (sccm)
1. CPN-40 Valves DCR-205 and DCR-206 Test Step 63	
No indicated leakage	0.0
2. CPN-43 Valve ICM-265 Test Step 81	
No indicated leakage	0.0
3. CPN-36 Valves SF-152, and SF-154 Test Step 71	
No indicated leakage	0.0
4. CPN-41 Valves DCR-600 and DCR-601 Test Step 64	
No indicated leakage	0.0
5. CPN 17,18,19,20,21,22,23,24,26,27,73,84,85 Valves WCR-900 to 915, WCR-920 to 935, WCR-941 to 948, WCR-951 to 958, WCR-960 to 967 Test Steps 1-28	
a. Test Steps 1 & 2 WCR-900,901,902,903	
No indicated leakage	0.0
b. Test Steps 3 & 4 WCR-912,913,914,915	
No indicated leakage	0.0
c. Test Steps 5 & 6 WCR-920,921,922,923	
No indicated leakage	0.0
d. Test Steps 7 & 8 WCR-932,933,934,935 Use guideline C.1 (Attachment 1) Use smaller of 0.0 or 280.0	0.0

	Leakage Penalty (sccm)
e. Test Steps 9 & 10 Valves Wcr -941,945,951,955	
No indicated leakage	0.0
f. Test Steps 11 & 12 Valves WCR-944,948,954,958	
No indicated leakage	0.0
g. Test Steps 13 & 14 Valves WCR-904,905,906, & 907 Use guideline C.1 (Attachment 1) Use smaller of 60.0 or 80.0	60.0
h. Test Steps 15 & 16 Valves WCR-908,909,910,911 Use guideline C.1 (Attachment 1) Use smaller of 40.0 or 100.0	40.0
i. Test Steps 17 & 18 Valves WCR-924,925,926,927 Use guideline C.1 (Attachment 1) Use smaller of 0.0 or 300.0	0.0
j. Test Steps 19 & 20 Valves WCR-928,929,930,931	
No indicated leakage	0.0
k. Test Steps 21 & 22 Valves WCR-942,946,952,956	
No indicated leakage	0.0
l. Test Steps 23 & 24 Valves WCR-943,947,953,957	
No indicated leakage	0.0
m. Test Steps 25 & 26 Valves WCR-960,961,962,963	
No indicated leakage	0.0
n. Test Steps 27 & 28 Valves WCR-964,965,966,967	
No indicated leakage	0.0

		Leakage Penalty (sccm)
6.	CPN-11,12,13,14 Valves CS-442-1, CS-442-2, CS-442-3, CS-442-4 Test Steps 46,47,48,49	
	No indicated leakage	0.0
7.	CPN-34,37 Valves QCR-300,301, QCM-250,350 Test Steps 65,66,67	
	For steps 65 and 66 use criteria E (Attachment 1) Use lower of 0.0 or 30.0	0.0
	For step 67 No indicated leakage	0.0
8.	CPN-81 Valves ICR-5,6 Test Step 78	
	No indicated leakage	0.0
9.	CPN-66 Valves NCR 107,108,109,110 Test Steps 74,75	
	No indicated leakage	0.0
10.	CPN-35 Valve CS-321 Test Step 55 Note:This valve was repaired. Use As left value for this calculation. Use criteria E (Attachment 1) As left leakage 750.0	750.0
11.	CPN 56,86 Valves VCR 10,11,20,21, R-156,R-157 Test Steps 57,58,116,117	
	For Test Steps 57,58 No indicated leakage	0.0
	For Test Steps 116,117 Use criteria E Note:Valve R-157 was repaired. For this calculation use As left leakage value.	
	No indicated leakage	0.0
	Total Type C Penalty for Unvented Systems	850.0 sccm

Attachment 1

Guidelines for Calculation of Type B & C
Leak Rates for Inclusion in Type A Test Results

Assumptions:

These guidelines were developed by application of the following premises:

1) Containment Boundary Leakage through a given penetration will be no higher than the leakage through the most restrictive component.

2) Class 1 piping and components forming a closed loop inside containment between two penetrations will remain leak tight.

3) The leak rate for two valves in series will be equal to or less than one third of the leak rate observed when pressurization is accomplished from between the valves. This premise is not to be used when the leak rate measured from between the valves exceeds 2 scfm.

Guidelines:

A) Leakage of 2 scfm or higher for any local test shall require that the valve with the larger leakage be located and only that valve will be repaired. The leakage identified during the first acceptable retest shall be attributed to the second valve and shall be the "As Found" leakage for that line. Thereafter the second valve can be repaired if appropriate.

B) In cases where a leak rate of less than 2 scfm is determined by pressurization between two series isolation valves on the same penetration. The "As Found" leak rate penalty shall be one third of the measured leak rate or the leak rate measured after the repair of one valve; whichever is less.

C) In cases where leak rate is determined by pressurization between two or more valves on different penetrations the following shall apply:.

C.1 Non Essential Service Water (Class II connecting piping, valves in series on each penetration)

The "As Found" leak rate for the combined penetrations shall be the smaller of the leak rates measured by the testing of either valve on each penetration.

C.2 Component Cooling Water (Class I connecting piping single or series valves on each penetration)

The "As Found" leak rate shall not be included because the system forms a closed loop inside containment.

D. In cases where leak rate is determined by pressurization between the two discs of a gate valve; the "As Found" leak rate shall be one-third of the measured leak rate.

E. In cases where a leak tight cap or non-containment isolation valve is used to facilitate a local test; the "As Found" leak rate for the Containment Penetration shall be the lowest measured leak rate. This also applies if the leak rate monitor is attached to the containment end of a sensing line.

F. The "As Found" leak rate for Type B Tests shall be the "As Left" leak from the most recent test performed under Procedure 12HP 4030STP204.

APPENDIX D

REPAIRED VALVES PENALTY LEAKAGE CALCULATION

AS-FOUND VS. AS-LEFT CONDITION

ECP NO.2-NO-09

A.E.P.S.C. - M.E.D.

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V. A. S. Grimes

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0	Initial Issue - NRC requirements on ILRT Test Reports					I	SR	AB 10-2-84

Dept. DCR 8-B
Volume #

PLANT D.C. Cook
E.C.P. PACKAGE REVISION RECORD

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SHEET 1 OF 19

A.I.D. E.C.P. 030877

A.E.P.S.C. CALCULATION
MECHANICAL ENGINEERING DIVISION
INSTRUMENTATION AND CONTROLS SECTION

E.C.P. CALCULATION No. 2-NO-09

TYPE PRELIMINARY OR FINAL Final

SUBJECT 1984 Unit 2 ILRT Type B&C Leakage Penalties

SUPERSEDES CALCULATION NO.

FILE LOCATION

SHEET 1 OF 25

PLANT Cook UNIT 2

COMPANY MED/E&C

CALCULATED BY S K Fadel

CHECKED BY D V Achiwen 4.3.1

APPROVED BY R. S. Skibitz

AND DATE 10-2-84

PROBLEM DESCRIPTION:

Calculate Various leakage values required to complete the June 1984 Unit 2 ILRT Final Report.

DESIGN BASIS AND REFERENCES

1) June 6, 1984 memo from S K Fadel to J G Smith

2) 1984 Unit 2 Type B & C Test Results (Computer Printout)

3) ECP 12-NO-07 Type B&C Test Rotameter Correction Factors

E.C.P. REVISION NO.	DATE	CHANGE	NO CALCULATION CHANGE		
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I. Summary:

In order to complete the ILRT two leakage penalty values must be computed in addition to the As found and As left leakage values. This calculation is divided into three sections:

A. Type C penalty for systems which are not vented during the Type A test.

B. The As found minus As left penalty for repaired type B & C components.

C. The overall Type B and C leakage, both As found and As Left.

The type C penalty for unvented systems is generated by applying AEPSC generated guidelines to the "Type C Penalty Form" from Plant Procedure 12 THP 4030 STP.202. This penalty is based on the As left condition of the valves listed on the above form.

The As found minus As Left Type B & C penalty is generated by applying AEPSC generated guidelines to Type B & C Components which were repaired during performance of Plant Procedure 2 THP 4030 STP.203.

The total type B & C As found and As left leakages are generated by applying AEPSC generated guidelines to all type B & C component leakages measured during performance of Plant Procedure 12 THP 4030 STP.203.

II. Results:

A. Calculated Values (uncorrected)

Type C Penalty for unvented systems	850.0 sccm
Type B & C As found-As left penalty	34256.7 sccm
Total type B & C Leakage (As found)	37130.1 sccm
Total type B & C Leakage (As left)	3676.8 sccm

B. Corrected Values

The flow meters used for performing the type B & C test are small ball float meters calibrated at 12 psig and 70°F. Due to variations in instrument sizes and nonlinear viscous correction factors, a uniform correction factor is not available. Calculations (ECP 12-NO-07) were performed to show that at 60°F (lowest recorded test temperature) and 12.5 psig (highest recorded test pressure) the correction factor is less than 2% of the indicated reading; therefore, conservative corrected values are 102% of the calculated values:

Type C Penalty for unvented systems	867.0 sccm
Type B & C As found-As left penalty	34941.8 sccm
Total type B and C Leakage (As found)	37872.7 sccm
Total type B and C Leakage (As left)	3750.3 sccm

B. As found vs As left Type B & C Penalty

During Performance of Plant Procedure 2 THP 4030 STP.203 the following components were repaired to reduce leakage:

Item	Type C Test Step	Component
1	33	VCR-105,205
2	51	SM-1
3	53	N-159
4	55	CS-321
5	59	DCR-207
	60	N-160
6	62	DCR-620,621
7	68	ICM-305
8	79	ECR-33,35
9	82	ECR-31,32
10	101	ICM-251
11	102	ICM-250
12	108	CCW-243-72
13	117	R-157
14	120	ECR-416
	121	ECR-417
	Type B Test Step	Component
15	4	Zone 4 Penetration Bellows

Penalty (sccm)

1. Test Step 33 Valves VCR-105,205
   As found leakage - 20000.0 sccm
   As left leakage - 80.0 sccm

   As found leakage is less than 2 scfm (56632 sccm) therefore, apply guideline B (Attachment 1)

   Penalty= 1/3 (20000)-1/3 (80)=6640 — 6640.0

2. Test Step 51 Valve SM-1
   Valve SM-1 and Valve ECR-36 (Test Step 124) are in series. Valve ECR-36 had no indicated leakage.
   Use the smaller of 625.0 or 0.0 — 0.0

3. Test Step 53 Valve N-159
   Valve N-159 and Valve GCR-301 (Test Step 85) are in series.
   Valve GCR-301 had no indicated leakage. Use the smaller of 570.0 or 0.0. — 0.0

Penalty (sccm)

4. Test Step 55 Valve CS-321

This is a single isolation valve. Use As found leakage of 24000 minus the As left leakage of 750. 24000.0 - 750.0 = 23250 sccm — 23250.0

5. Test Steps 59,60 Valves DCR-207, N-160

Valves N-160 and DCR-207 are in series. The As found leakages were 1650 and 300 respectively. The As left leakages were 260 and 20 respectively. Since these valves were tested separately use the lower As found minus the lower As left for the penalty.
300.0-20.0 = 280.0 sccm — 280.0

6. Test Step 62 Valves DCR-620,621
Use guideline B (Attachment 1)
Penalty=1/3 As found - 1/3 as left
=1/3 (2400) - 1/3 (0)= 800 sccm — 800.0

7. Test Step 68 Valve ICM-305
Use guideline D (Attachment 1)
Penalty=1/3 As found - 1/3 As left
=1/3 (6000) - 1/3 (0) = 2000 sccm — 2000.0

8. Test Step 79 Valves ECR-33,35
Use guideline B (Attachment 1)
Penalty=1/3 As found - 1/3 As left
= 1/3 (2500) - 1/3 (1900)=200 sccm — 200.0

9. Test Step 82 Valves ECR-31,32
Use guideline B (Attachment 1)
Penalty=1/3 as found - 1/3 as left
=1/3(1300)-1/3 (1250)=16.7 sccm — 16.7

10. Test Step 101 Valve ICM-251
Use guideline D (Attachment 1)
Penalty=1/3 as found - 1/3 as left
=1/3 (700) - 1/3(40)=220sccm — 220.0

11. Test Step 102 Valve ICM-250
Use guideline D (Attachment 1)
Penalty=1/3 as found - 1/3 as left
=1/3 (1850) - 1/3 (50) = 600 sccm — 600.0

12. Test Step 108 Valve CCW-243-72
Use guideline C.2 (Attachment 1)
No penalty — 0.0

	Penalty (sccm)
13. Test Step 117 Valve R-157 Note: For this calculation this valve is taken to be in series with valve VCR-20 (Test Step 58) For two series isolation valves tested separately use the lower leakage rate. Use lower of 8000.0 or 0.0	0.0
14. Test Step 120,121 Valve ECR-416,417 Valves ECR-416 and ECR-417 are in series. The penalty is computed by using the lower As found minus the lower As left. Penalty=250.0-0.0 = 250 sccm	250.0
15. Test Step 4 (type 3) Zone 4 Penetrations Bellows The Zone 4 Penetrations Bellows are not part of the containment pressure boundary;therefore, this leakage is not included in the penalty.	0.0
Total As found - As left Penalty (sccm)	34256.7

C. Total type B & C As found and As left leakages.

This calculation applies AEPSC generated guidelines to each Test Step to establish leak rates for both the As found and As left conditions.

	As found	As left
1. Test Steps 1-6 No indicated leakage	0.0	0.0
2. Test Steps 7,8 Valves WCR-932,933,934,935 No Repairs;therefore, As found=As left Use guideline C.1 (Attachment 1) Use smaller of 280.0 or 0.0	0.0	0.0
3. Test Steps 9-12 No indicated leakage	0.0	0.0
4. Test Steps 13,14 Valves WCR-904,905,906,907 No repairs;therefore, As found=As left Use guideline C.1 (Attachment 1) Use smaller of 60.0 or 80.0	60.0	60.0
5. Test Steps 15,16 Valves WCR-908,909,910,911 No repairs;therefore, As found=As left Use guideline C.1 (Attachment 1) Use smaller of 40.0 or 100.0	40.0	40.0

APPENDIX E

LEAKAGE TEST RESULTS OF TYPE A, B, and C TESTS

D. C. COOK PLANT

UNIT 2 - 1984

```
 AAAAAAAAAA   EEEEEEEEEEEE  PPPPPPPPPPP                00000000    777777777777    JJJJJJJJJJ  PPPPPPPPPPP
AAAAAAAAAAAA  EEEEEEEEEEEE  PPPPPPPPPPPP              0000000000   777777777777    JJJJJJJJJJ  PPPPPPPPPPPP
AA        AA  EE            PP         PP           00      0000  77      77        JJ      PP         PP
AA        AA  EE            PP         PP           00      00 00         77        JJ      PP         PP
AA        AA  EE            PP         PP           00    00   00        77        JJ      PP         PP
AAAAAAAAAAAA  EEEEEEEE      PPPPPPPPPPPP           00   00     00       77        JJ      PPPPPPPPPPPP
AAAAAAAAAAAA  EEEEEEEE      PPPPPPPPPPP            00  00      00       77        JJ      PPPPPPPPPPP
AA        AA  EE            PP                     00 00       00       77        JJ      PP
AA        AA  EE            PP                     0000        00       77      JJ  JJ      PP
AA        AA  EE            PP                     000         00       77      JJ  JJ      PP
AA        AA  EEEEEEEEEEEE  PP                      0000000000          77      JJJJJJJJ    PP
AA        AA  EEEEEEEEEEEE  PP                       00000000           77       JJJJJJ     PP

     IIIIIIIIII   LL           RRRRRRRRRRR     ##    ##        11       8888888888     00000000     3333333333
    IIIIIIIIII    LL           RRRRRRRRRRRR    ##    ##       111      888888888888   0000000000   333333333333
      II      LL              RR        RR  ############     1111      88        88  00      0000  33        33
     II       LL             RR        RR  ############      11       88        88  00    00 00            33
    II        LL             RR        RR    ##    ##        11       88      88    00    00 00            33
   II         LL             RRRRRRRRRRRR    ##    ##        11        88888888    00    00    00        3333
  II          LL             RRRRRRRRRRR     ##    ##        11        88888888    00  00      00        3333
 II           LL             RR    RR        ##    ##        11       88      88   00 00      00          33
II            LL             RR     RR    ############      11       88        88  0000       00          33
II            LL             RR      RR   ############      11       88        88  000        00  33      33
 IIIIIIIIII   LLLLLLLLLLLL   RR       RR    ##    ##     1111111111   888888888888   0000000000   333333333333
  IIIIIIIIII  LLLLLLLLLLLL   RR       RR    ##    ##     1111111111   8888888888     00000000     3333333333

          JJJJJJJJJJ      11       8888888888     00000000     3333333333              AAAAAAAAAA
          JJJJJJJJJJ     111      888888888888   0000000000   333333333333            AAAAAAAAAAAA
              JJ        1111      88        88  00      0000  33        33            AA        AA
              JJ          11      88        88  00    00 00            33            AA        AA
              JJ          11      88        88  00    00  00           33            AA        AA
              JJ          11       88888888    00   00   00         3333            AAAAAAAAAAAA
              JJ          11       88888888    00   00   00         3333            AAAAAAAAAAAA
              JJ          11      88      88   00 00      00           33            AA        AA
          JJ  JJ          11      88        88  0000       00          33            AA        AA
          JJ  JJ          11      88        88  000        00  33      33            AA        AA
          JJJJJJJ     1111111111  888888888888   0000000000   333333333333          AA        AA
           JJJJJ      1111111111   8888888888     00000000     3333333333           AA        AA

********** GENERAL INFORMATION ********************************************************************** JOB THROUGHPUT SUMMARY **********
                                    *********                          *********
     DELIVER CODE - AEP 07JP       *******  AMERICAN ELECTRIC POWER  *******      INPUT FROM CANTON.CCC2.INTRDR
     JOB NAME     - ILR#1803       *****     SERVICE CORPORATION     *****    ON 01 OCT 84 AT 1.39.13 PM EST
     JOB NUMBER   - 1803            ***                              ***       EXECUTION BEGAN ON CANTON.CCC2
     PROGRAMMER   - PROBST          ***      **  COLUMBUS    **      ***     ON 01 OCT 84 AT 1.39.16 PM EST IN CLASS  C .
     ROOM NUMBER  - 07JP            *****    ***  OPERATIONS  ***     *****      PRINTED ON COLUMBUS.COCB.PRINTR3
     SYSOUT CLASS - A.              *******   **  COMPLEX     **    *******   ON 01 OCT 84 AT 2.02.13 PM EST
                                    *********                          *********
**********************************************************************************************************************************
```

```
 AAAAAAAAAA   EEEEEEEEEEEE  PPPPPPPPPPP                00000000    777777777777    JJJJJJJJJJ  PPPPPPPPPPP
AAAAAAAAAAAA  EEEEEEEEEEEE  PPPPPPPPPPPP              0000000000   77777777777     JJJJJJJJJJ  PPPPPPPPPPPP
AA        AA  EE            PP        PP            00      0000  77      77          JJ      PP        PP
AA        AA  EE            PP        PP            00      00 00 77      77          JJ      PP        PP
AA        AA  EE            PP        PP            00     00  00       77           JJ      PP        PP
AAAAAAAAAAAA  EEEEEEEE      PPPPPPPPPPPP            00    00   00      77            JJ      PPPPPPPPPPPP
AAAAAAAAAAAA  EEEEEEEE      PPPPPPPPPPP             00   00    00      77            JJ      PPPPPPPPPPP
AA        AA  EE            PP                      00 00     00      77            JJ      PP
AA        AA  EE            PP                      0000      00      77      JJ    JJ      PP
AA        AA  EE            PP                      000       00      77      JJ    JJ      PP
AA        AA  EEEEEEEEEEEE  PP                       0000000000      77      JJJJJJJJ      PP
AA        AA  EEEEEEEEEEEE  PP                        00000000       77       JJJJJJ       PP

          IIIIIIIIII   LL          RRRRRRRRRRR     ##    ##        11      8888888888     00000000     3333333333
          IIIIIIIIII   LL          RRRRRRRRRRRR    ##    ##       111      888888888888   0000000000   333333333333
             II        LL          RR        RR  ##############    1111     88      88  00      0000  33        33
             II        LL          RR        RR  ##############     11      88      88  00    00 00            33
             II        LL          RR        RR    ##    ##        11      88      88  00    00  00          33
             II        LL          RRRRRRRRRRR     ##    ##        11      88888888    00    00  00        3333
             II        LL          RRRRRRRRRRR     ##    ##        11      88888888    00  00    00        3333
             II        LL          RR    RR        ##    ##        11      88      88  00 00     00          33
             II        LL          RR     RR    ##############     11      88      88  0000      00          33
             II        LL          RR     RR    ##############     11      88      88  000       00  33      33
          IIIIIIIIII   LLLLLLLLLLL  RR      RR    ##    ##     1111111111   888888888888   0000000000   333333333333
          IIIIIIIIII   LLLLLLLLLLL  RR      RR    ##    ##     1111111111   8888888888     00000000     3333333333

                    JJJJJJJJJJ      11       8888888888     00000000     3333333333              AAAAAAAAAA
                    JJJJJJJJJJ     111      888888888888   0000000000   333333333333            AAAAAAAAAAAA
                       JJ         1111      88      88  00      0000  33        33              AA        AA
                       JJ           11      88      88  00    00 00            33              AA        AA
                       JJ           11      88      88  00    00  00           33              AA        AA
                       JJ           11       88888888   00    00  00         3333              AAAAAAAAAAAA
                       JJ           11       88888888   00    00  00         3333              AAAAAAAAAAAA
                       JJ           11      88      88  00 00     00           33              AA        AA
                    JJ JJ           11      88      88  0000      00           33              AA        AA
                    JJ JJ           11      88      88  000       00  33       33              AA        AA
                    JJJJJJJ     1111111111  888888888888   0000000000   333333333333        AA        AA
                     JJJJJ      1111111111   8888888888     00000000     3333333333          AA        AA

********** GENERAL INFORMATION ********************************************************************** JOB THROUGHPUT SUMMARY ************
                                  *********                                 *********
     DELIVER CODE - AEP 07JP      *******  AMERICAN ELECTRIC POWER         *******      INPUT FROM CANTON.CCC2.INTRDR
     JOB NAME     - ILR#1803      *****      SERVICE CORPORATION           *****     ON 01 OCT 84 AT 1.39.13 PM EST
     JOB NUMBER   - 1803          ***                                      ***       EXECUTION BEGAN ON CANTON.CCC2
     PROGRAMMER   - PROBST        ***       **  COLUMBUS     **           ***       ON 01 OCT 84 AT 1.39.16 PM EST IN CLASS  C .
     ROOM NUMBER  - 07JP          *****     ***  OPERATIONS   ***          *****       PRINTED ON COLUMBUS.COCB.PRINTR3
     SYSOUT CLASS - A             *******    **  COMPLEX      **          *******     ON 01 OCT 84 AT 2.02.13 PM EST
                                  *********                                 *********
**********************************************************************************************************************************
```

J E S 2 J O B L O G -- S Y S T E M C C C 2 -- N O D E C A N T O N

```
13.39.15 JOB 1803  $HASP901 ILR#1803 JOB 1803 CLASS=C CPU TIME=     1
13.39.16 JOB 1803  $HASP373 ILR#1803 STARTED - INIT  6 - CLASS C - SYS CCC2
13.39.16 JOB 1803  IEF403I ILR#1803 - STARTED
13.39.18 JOB 1803  $HASP375 ILR#1803 ESTIMATED LINES EXCEEDED
13.39.18 JOB 1803  $HASP375 ILR#1803 ESTIMATED LINES EXCEEDED BY      2000
13.39.19 JOB 1803  IEF404I ILR#1803 - ENDED
13.39.19 JOB 1803  $HASP395 ILR#1803 ENDED

------- JES2 JOB STATISTICS -------

 01 OCT 84 JOB EXECUTION DATE

       500 CARDS READ

     3,670 SYSOUT PRINT RECORDS

         0 SYSOUT PUNCH RECORDS

      0.05 MINUTES EXECUTION TIME
```

```
 1    //ILR#1803  JOB (4989,52,07JP,1,1,0,,1,,),'PROBST',MSGLEVEL=(1,1),      JOB 1803
      //        REGION=128K,MSGCLASS=H,CLASS=C
      ***ROUTE PRINT N08R000                                          S020R502
      ***ROUTE PUNCH N08R000                                          S020R502
      ***DELIVER $AEP07JP
      ***ROUTE PRINT LOCAL
      ***JOBPARM COPIES=2
      ***DELIVER $AEP07JP
 2    // EXEC PILR,C='*'
 3    XXPILR  PROC  PROG=ILRTEST,REG=128K,C=A                                 80169001
 4    XXGO  EXEC  PGM=&PROG,REGION=&REG                                       80169002
 5    XXSTEPLIB  DD  DSN=LIB.PEP,DISP=SHR                                     80169003
 6    XXFT05F001  DD  DDNAME=DATA                                             80169004
 7    XXFT10F001  DD  SYSOUT=&C,DCB=(RECFM=FBA,LRECL=133,BLKSIZE=931)         80169005
 8    XXFT09F001  DD  SYSOUT=&C,DCB=(RECFM=FBA,LRECL=133,BLKSIZE=931)         80169006
 9    XXFT06F001  DD  SYSOUT=&C,DCB=(RECFM=FBA,LRECL=133,BLKSIZE=931)         80169007
10    //GO.DATA   DD *
```

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 STMT NO. MESSAGE
-
    4     IEF653I SUBSTITUTION JCL - PGM=ILRTEST,REGION=128K
    7     IEF653I SUBSTITUTION JCL - SYSOUT=*,DCB=(RECFM=FBA,LRECL=133,BLKSIZE=931)
    8     IEF653I SUBSTITUTION JCL - SYSOUT=*,DCB=(RECFM=FBA,LRECL=133,BLKSIZE=931)
    9     IEF653I SUBSTITUTION JCL - SYSOUT=*,DCB=(RECFM=FBA,LRECL=133,BLKSIZE=931)
IEF236I ALLOC. FOR ILR#1803 GO
IEF237I A60  ALLOCATED TO STEPLIB
IEF237I 961  ALLOCATED TO SYS00697
IEF237I JES2 ALLOCATED TO FT05F001
IEF237I JES2 ALLOCATED TO FT10F001
IEF237I JES2 ALLOCATED TO FT09F001
IEF237I JES2 ALLOCATED TO FT06F001
IEF142I ILR#1803 GO - STEP WAS EXECUTED - COND CODE 0000
IEF285I   LIB.PEP                                 KEPT
IEF285I   VOL SER NOS= CD0183.
IEF285I   SYSCTLG.VCDB001                         KEPT
IEF285I   VOL SER NOS= CDB001.
IEF285I   JES2.JOB01803.SI0101                    SYSIN
IEF285I   JES2.JOB01803.SO0102                    SYSOUT
IEF285I   JES2.JOB01803.SO0103                    SYSOUT
IEF285I   JES2.JOB01803.SO0104                    SYSOUT
IEF373I STEP /GO      / START 84275.1339
IEF374I STEP /GO      / STOP  84275.1339 CPU    0MIN 01.23SEC SRB    0MIN 00.03SEC VIRT    72K SYS   256K
IEF375I  JOB /ILR#1803/ START 84275.1339
IEF376I  JOB /ILR#1803/ STOP  84275.1339 CPU    0MIN 01.23SEC SRB    0MIN 00.03SEC
```

*** ILR ERROR AND WARNING MESSAGES ***

CONVERTED DEW POINT -0.01 RUN NUMBER 1 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
***MANOMETER READING 0.0 NOT IN CALIBRATION RANGE - RUN # 1, ENTRY NUMBER 3
CONVERTED DEW POINT -0.01 RUN NUMBER 2 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
***MANOMETER READING 0.0 NOT IN CALIBRATION RANGE - RUN # 2, ENTRY NUMBER 3
CONVERTED DEW POINT -0.01 RUN NUMBER 3 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
***MANOMETER READING 0.0 NOT IN CALIBRATION RANGE - RUN # 3, ENTRY NUMBER 3
CONVERTED DEW POINT -0.01 RUN NUMBER 4 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
***MANOMETER READING 0.0 NOT IN CALIBRATION RANGE - RUN # 4, ENTRY NUMBER 3
CONVERTED DEW POINT -0.01 RUN NUMBER 5 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
***MANOMETER READING 0.0 NOT IN CALIBRATION RANGE - RUN # 5, ENTRY NUMBER 3
CONVERTED DEW POINT -0.01 RUN NUMBER 6 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
***MANOMETER READING 0.0 NOT IN CALIBRATION RANGE - RUN # 6, ENTRY NUMBER 3
CONVERTED DEW POINT -0.01 RUN NUMBER 7 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
***MANOMETER READING 0.0 NOT IN CALIBRATION RANGE - RUN # 7, ENTRY NUMBER 3
CONVERTED DEW POINT -0.01 RUN NUMBER 8 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
***MANOMETER READING 0.0 NOT IN CALIBRATION RANGE - RUN # 8, ENTRY NUMBER 3
CONVERTED DEW POINT -0.01 RUN NUMBER 9 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
***MANOMETER READING 0.0 NOT IN CALIBRATION RANGE - RUN # 9, ENTRY NUMBER 3
CONVERTED DEW POINT 29.48 RUN NUMBER 10 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
CONVERTED DEW POINT -0.01 RUN NUMBER 10 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
***MANOMETER READING 0.0 NOT IN CALIBRATION RANGE - RUN # 10, ENTRY NUMBER 3
CONVERTED DEW POINT 30.38 RUN NUMBER 11 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
CONVERTED DEW POINT -0.01 RUN NUMBER 11 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
***MANOMETER READING 0.0 NOT IN CALIBRATION RANGE - RUN # 11, ENTRY NUMBER 3
CONVERTED DEW POINT 30.92 RUN NUMBER 12 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
CONVERTED DEW POINT -0.01 RUN NUMBER 12 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
***MANOMETER READING 0.0 NOT IN CALIBRATION RANGE - RUN # 12, ENTRY NUMBER 3
CONVERTED DEW POINT 31.64 RUN NUMBER 13 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
CONVERTED DEW POINT -0.01 RUN NUMBER 13 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
***MANOMETER READING 0.0 NOT IN CALIBRATION RANGE - RUN # 13, ENTRY NUMBER 3
***MANOMETER READING 0.0 NOT IN CALIBRATION RANGE - RUN # 14, ENTRY NUMBER 3
***MANOMETER READING 0.0 NOT IN CALIBRATION RANGE - RUN # 15, ENTRY NUMBER 3
***MANOMETER READING 0.0 NOT IN CALIBRATION RANGE - RUN # 16, ENTRY NUMBER 3
***MANOMETER READING 0.0 NOT IN CALIBRATION RANGE - RUN # 17, ENTRY NUMBER 3
***MANOMETER READING 0.0 NOT IN CALIBRATION RANGE - RUN # 18, ENTRY NUMBER 3
***MANOMETER READING 0.0 NOT IN CALIBRATION RANGE - RUN # 19, ENTRY NUMBER 3
***MANOMETER READING 0.0 NOT IN CALIBRATION RANGE - RUN # 20, ENTRY NUMBER 3
***MANOMETER READING 0.0 NOT IN CALIBRATION RANGE - RUN # 21, ENTRY NUMBER 3
***MANOMETER READING 0.0 NOT IN CALIBRATION RANGE - RUN # 22, ENTRY NUMBER 3
***MANOMETER READING 0.0 NOT IN CALIBRATION RANGE - RUN # 23, ENTRY NUMBER 3
***MANOMETER READING 0.0 NOT IN CALIBRATION RANGE - RUN # 24, ENTRY NUMBER 3
***MANOMETER READING 0.0 NOT IN CALIBRATION RANGE - RUN # 25, ENTRY NUMBER 3
***MANOMETER READING 0.0 NOT IN CALIBRATION RANGE - RUN # 26, ENTRY NUMBER 3
***MANOMETER READING 0.0 NOT IN CALIBRATION RANGE - RUN # 27, ENTRY NUMBER 3
***MANOMETER READING 0.0 NOT IN CALIBRATION RANGE - RUN # 28, ENTRY NUMBER 3
***MANOMETER READING 0.0 NOT IN CALIBRATION RANGE - RUN # 29, ENTRY NUMBER 3
***MANOMETER READING 0.0 NOT IN CALIBRATION RANGE - RUN # 30, ENTRY NUMBER 3
***MANOMETER READING 0.0 NOT IN CALIBRATION RANGE - RUN # 31, ENTRY NUMBER 3
***MANOMETER READING 0.0 NOT IN CALIBRATION RANGE - RUN # 32, ENTRY NUMBER 3
***MANOMETER READING 0.0 NOT IN CALIBRATION RANGE - RUN # 33, ENTRY NUMBER 3
***MANOMETER READING 0.0 NOT IN CALIBRATION RANGE - RUN # 34, ENTRY NUMBER 3
***MANOMETER READING 0.0 NOT IN CALIBRATION RANGE - RUN # 35, ENTRY NUMBER 3
***MANOMETER READING 0.0 NOT IN CALIBRATION RANGE - RUN # 36, ENTRY NUMBER 3
***MANOMETER READING 0.0 NOT IN CALIBRATION RANGE - RUN # 37, ENTRY NUMBER 3
CONVERTED DEW POINT -0.01 RUN NUMBER 38 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
***MANOMETER READING 0.0 NOT IN CALIBRATION RANGE - RUN # 38, ENTRY NUMBER 3
CONVERTED DEW POINT -0.01 RUN NUMBER 39 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED

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***MANOMETER READING     0.0    NOT IN CALIBRATION RANGE  - RUN # 39, ENTRY NUMBER   3
CONVERTED DEW POINT  -0.01 RUN NUMBER  40 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
***MANOMETER READING     0.0    NOT IN CALIBRATION RANGE  - RUN # 40, ENTRY NUMBER   3
CONVERTED DEW POINT  29.66 RUN NUMBER  41 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
CONVERTED DEW POINT  -0.01 RUN NUMBER  41 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
***MANOMETER READING     0.0    NOT IN CALIBRATION RANGE  - RUN # 41, ENTRY NUMBER   3
CONVERTED DEW POINT  31.28 RUN NUMBER  42 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
CONVERTED DEW POINT  -0.01 RUN NUMBER  42 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
***MANOMETER READING     0.0    NOT IN CALIBRATION RANGE  - RUN # 42, ENTRY NUMBER   3
CONVERTED DEW POINT  -0.01 RUN NUMBER  43 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
***MANOMETER READING     0.0    NOT IN CALIBRATION RANGE  - RUN # 43, ENTRY NUMBER   3
CONVERTED DEW POINT  -0.01 RUN NUMBER  44 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
***MANOMETER READING     0.0    NOT IN CALIBRATION RANGE  - RUN # 44, ENTRY NUMBER   3
CONVERTED DEW POINT  -0.01 RUN NUMBER  45 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
***MANOMETER READING     0.0    NOT IN CALIBRATION RANGE  - RUN # 45, ENTRY NUMBER   3
CONVERTED DEW POINT  -0.01 RUN NUMBER  46 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
***MANOMETER READING     0.0    NOT IN CALIBRATION RANGE  - RUN # 46, ENTRY NUMBER   3
CONVERTED DEW POINT  -0.01 RUN NUMBER  47 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
***MANOMETER READING     0.0    NOT IN CALIBRATION RANGE  - RUN # 47, ENTRY NUMBER   3
***MANOMETER READING     0.0    NOT IN CALIBRATION RANGE  - RUN # 48, ENTRY NUMBER   3
***MANOMETER READING     0.0    NOT IN CALIBRATION RANGE  - RUN # 49, ENTRY NUMBER   3
CONVERTED DEW POINT  -0.01 RUN NUMBER  50 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
***MANOMETER READING     0.0    NOT IN CALIBRATION RANGE  - RUN # 50, ENTRY NUMBER   3
CONVERTED DEW POINT  -0.01 RUN NUMBER  51 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
***MANOMETER READING     0.0    NOT IN CALIBRATION RANGE  - RUN # 51, ENTRY NUMBER   3
CONVERTED DEW POINT  28.22 RUN NUMBER  52 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
CONVERTED DEW POINT  -0.01 RUN NUMBER  52 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
***MANOMETER READING     0.0    NOT IN CALIBRATION RANGE  - RUN # 52, ENTRY NUMBER   3
CONVERTED DEW POINT  28.40 RUN NUMBER  53 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
CONVERTED DEW POINT  -0.01 RUN NUMBER  53 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
***MANOMETER READING     0.0    NOT IN CALIBRATION RANGE  - RUN # 53, ENTRY NUMBER   3
CONVERTED DEW POINT  29.12 RUN NUMBER  55 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
CONVERTED DEW POINT  -0.01 RUN NUMBER  55 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
***MANOMETER READING     0.0    NOT IN CALIBRATION RANGE  - RUN # 55, ENTRY NUMBER   3
CONVERTED DEW POINT  29.48 RUN NUMBER  56 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
CONVERTED DEW POINT  -0.01 RUN NUMBER  56 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
***MANOMETER READING     0.0    NOT IN CALIBRATION RANGE  - RUN # 56, ENTRY NUMBER   3
CONVERTED DEW POINT  29.84 RUN NUMBER  57 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
CONVERTED DEW POINT  -0.01 RUN NUMBER  57 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
***MANOMETER READING     0.0    NOT IN CALIBRATION RANGE  - RUN # 57, ENTRY NUMBER   3
CONVERTED DEW POINT  30.20 RUN NUMBER  58 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
CONVERTED DEW POINT  -0.01 RUN NUMBER  58 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
***MANOMETER READING     0.0    NOT IN CALIBRATION RANGE  - RUN # 58, ENTRY NUMBER   3
CONVERTED DEW POINT  30.02 RUN NUMBER  59 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
CONVERTED DEW POINT  -0.01 RUN NUMBER  59 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
***MANOMETER READING     0.0    NOT IN CALIBRATION RANGE  - RUN # 59, ENTRY NUMBER   3
CONVERTED DEW POINT  30.38 RUN NUMBER  60 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
CONVERTED DEW POINT  -0.01 RUN NUMBER  60 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
***MANOMETER READING     0.0    NOT IN CALIBRATION RANGE  - RUN # 60, ENTRY NUMBER   3
```

*** ILR PROGRAM RESULTS ***

SUMMARY OF AVERAGES

RUN #	ELAPSED TIME	AVG TEMP UPPER	AVG PRESS UPPER	AVG V PRESS UPPER	AVG TEMP LOWER	AVG PRESS LOWER	AVG V PRESS LOWER	AVG TEMP ICE	AVG PRESS ICE	AVG V PRESS ICE
1	0.0	73.6350	26.8910	0.1063	72.9923	26.9007	0.1088	16.5234	26.9328	0.0378
2	0.50	73.6328	26.8908	0.1066	73.0032	26.8999	0.1090	16.5008	26.9331	0.0381
3	1.00	73.6021	26.8893	0.1059	72.9950	26.8990	0.1090	16.6170	26.9366	0.0403
4	1.50	73.6069	26.8907	0.1062	72.9993	26.8999	0.1090	16.5822	26.9323	0.0400
5	2.00	73.5646	26.8897	0.1069	73.0450	26.8987	0.1091	16.5737	26.9325	0.0424
6	2.50	73.5487	26.8860	0.1042	73.0282	26.8956	0.1092	16.7174	26.9290	0.0388
7	3.00	73.5097	26.8845	0.1045	73.0557	26.8943	0.1092	16.5888	26.9282	0.0398
8	3.50	73.5279	26.8862	0.1050	73.0486	26.8954	0.1089	16.5525	26.9281	0.0421
9	4.00	73.5105	26.8859	0.1052	73.0481	26.8950	0.1090	16.4978	26.9289	0.0392
10	4.50	73.4839	26.8843	0.1017	73.0703	26.8939	0.1092	16.5131	26.9248	0.0391
11	5.00	73.4658	26.8825	0.1022	73.0629	26.8923	0.1093	16.5279	26.9231	0.0419
12	5.50	73.4574	26.8838	0.1026	73.0982	26.8932	0.1092	16.5164	26.9248	0.0345
13	6.00	73.4181	26.8809	0.1025	73.0873	26.8898	0.1092	16.6447	26.9228	0.0332
14	6.50	73.4004	26.8809	0.1023	73.0979	26.8896	0.1100	16.5743	26.9206	0.0340
15	7.00	73.3917	26.8801	0.1024	73.1176	26.8894	0.1104	16.5798	26.9202	0.0368
16	7.50	73.3882	26.8810	0.1021	73.0999	26.8904	0.1107	16.6251	26.9210	0.0352
17	8.00	73.3430	26.8798	0.1017	73.1157	26.8890	0.1111	16.5111	26.9197	0.0338
18	8.50	73.3737	26.8791	0.1028	73.1392	26.8875	0.1116	16.5315	26.9181	0.0353
19	9.00	73.3160	26.8756	0.1026	73.1169	26.8847	0.1118	16.5893	26.9156	0.0385
20	9.50	73.3240	26.8744	0.1025	73.1290	26.8842	0.1122	16.6241	26.9150	0.0344
21	10.00	73.2817	26.8745	0.1024	73.1148	26.8841	0.1124	16.4346	26.9151	0.0360
22	10.50	73.2598	26.8745	0.1017	73.1151	26.8841	0.1126	16.4425	26.9152	0.0369
23	11.00	73.2144	26.8722	0.1022	73.1285	26.8812	0.1129	16.6325	26.9127	0.0395
24	11.50	73.2130	26.8759	0.1026	73.1661	26.8844	0.1121	16.6040	26.9166	0.0357
25	12.00	73.2055	26.8743	0.1022	73.1428	26.8834	0.1126	16.6286	26.9150	0.0397
26	12.50	73.1777	26.8714	0.1024	73.1564	26.8805	0.1129	16.7941	26.9123	0.0375
27	13.00	73.1413	26.8693	0.1028	73.1766	26.8782	0.1133	16.8032	26.9109	0.0394
28	13.50	73.1214	26.8724	0.1025	73.1848	26.8821	0.1136	16.7762	26.9165	0.0405
29	14.00	73.1088	26.8716	0.1022	73.1861	26.8808	0.1140	16.7471	26.9110	0.0394
30	14.50	73.0655	26.8704	0.0980	73.2041	26.8797	0.1144	16.8159	26.9089	0.0390
31	15.00	73.0370	26.8672	0.0977	73.2839	26.8764	0.1148	16.8130	26.9049	0.0410
32	15.50	73.0720	26.8704	0.0941	73.2359	26.8797	0.1147	16.7908	26.9087	0.0437
33	16.00	73.0165	26.8664	0.0957	73.2042	26.8757	0.1152	16.9242	26.9047	0.0390
34	16.50	72.9861	26.8653	0.0957	73.2203	26.8748	0.1157	16.8093	26.9035	0.0375
35	17.00	72.9818	26.8631	0.0967	73.2525	26.8727	0.1163	16.8521	26.9016	0.0426
36	17.50	72.9545	26.8665	0.0960	73.2520	26.8759	0.1167	16.8890	26.9055	0.0377
37	18.00	72.9398	26.8650	0.0962	73.2606	26.8742	0.1173	16.8739	26.9043	0.0380
38	18.50	72.9190	26.8631	0.0956	73.2271	26.8724	0.1073	16.8975	26.9025	0.0392
39	19.00	72.8819	26.8599	0.0967	73.2532	26.8690	0.1074	16.9193	26.8980	0.0419
40	19.50	72.8787	26.8601	0.0966	73.2619	26.8694	0.1074	16.9741	26.8967	0.0377
41	20.00	72.8323	26.8600	0.0984	73.2629	26.8688	0.1074	16.8934	26.8962	0.0392
42	20.50	72.8278	26.8604	0.0984	73.2242	26.8695	0.1075	16.9347	26.8970	0.0421
43	21.00	72.8049	26.8581	0.0937	73.2522	26.8673	0.1076	17.1532	26.8945	0.0445
44	21.50	72.7894	26.8622	0.0946	73.2594	26.8714	0.1076	17.1978	26.8991	0.0433
45	22.00	72.7762	26.8609	0.0953	73.2436	26.8708	0.1077	17.2892	26.8982	0.0440
46	22.50	72.7554	26.8593	0.0957	73.2545	26.8686	0.1078	17.4887	26.8961	0.0454
47	23.00	72.7289	26.8581	0.0957	73.2705	26.8672	0.1077	17.5459	26.8944	0.0454
48	23.50	72.7151	26.8610	0.0958	73.2566	26.8701	0.1131	17.5147	26.8981	0.0422
49	24.00	72.7202	26.8605	0.0951	73.2505	26.8699	0.1134	17.5125	26.8978	0.0425
50	24.50	72.6949	26.8600	0.0952	73.2834	26.8690	0.1078	17.5982	26.8966	0.0432
51	25.00	72.6849	26.8579	0.0986	73.2875	26.8670	0.1080	17.6243	26.8945	0.0429

52	25.50	72.6477	26.8581	0.0993	73.2760	26.8674	0.1080	17.4559	26.8949	0.0437
53	26.00	72.6652	26.8533	0.0989	73.2651	26.8623	0.1078	17.4347	26.8900	0.0383
55	27.00	72.6368	26.8494	0.0921	73.3084	26.8584	0.1079	17.1104	26.8868	0.0396
56	27.50	72.6281	26.8530	0.0931	73.2612	26.8619	0.1067	17.1975	26.8904	0.0383
57	28.00	72.6123	26.8563	0.0927	73.2602	26.8604	0.1068	17.1651	26.8890	0.0377
58	28.50	72.5976	26.8538	0.0931	73.2702	26.8595	0.1069	17.2051	26.8882	0.0404
59	29.00	72.5783	26.8545	0.0928	73.2619	26.8598	0.1070	17.2416	26.8889	0.0451
60	29.50	72.5853	26.8520	0.0935	73.2703	26.8533	0.1072	17.3535	26.8865	0.0355

RESULTS OF THE LINEAR REGRESSION ANALYSIS

RUN #	H EXPERIMENTAL	LEAKAGE RATE UPPER LIMIT	LEAKAGE RATE	H UPPER CONTAINMENT	H LOWER CONTAINMENT	H ICE CONDENSER
3	0.99996	-0.12190	-0.08438	1.00001	0.99992	0.99985
4	0.99998	-0.12136	-0.03094	1.00004	0.99995	0.99978
5	0.99994	-0.10272	-0.05191	1.00006	0.99981	0.99971
6	0.99988	-0.15827	-0.09610	1.00005	0.99973	0.99941
7	0.99988	-0.14356	-0.10153	1.00006	0.99963	0.99962
8	0.99990	-0.12050	-0.08513	1.00007	0.99969	0.99960
9	0.99993	-0.09872	-0.06168	1.00008	0.99967	0.99985
10	0.99996	-0.07724	-0.04015	1.00020	0.99958	0.99968
11	0.99989	-0.07180	-0.04190	1.00015	0.99954	0.99948
12	0.99995	-0.05718	-0.02924	1.00020	0.99951	0.99984
13	0.99987	-0.05809	-0.03414	1.00017	0.99940	0.99955
14	0.99988	-0.05500	-0.03465	1.00021	0.99934	0.99958
15	0.99984	-0.05752	-0.03935	1.00019	0.99928	0.99945
16	0.99988	-0.05262	-0.03657	1.00025	0.99934	0.99945
17	0.99992	-0.04600	-0.03072	1.00030	0.99925	0.99969
18	0.99979	-0.05182	-0.03692	1.00017	0.99913	0.99953
19	0.99972	-0.06233	-0.04614	1.00016	0.99906	0.99920
20	0.99968	-0.07194	-0.05495	1.00010	0.99900	0.99925
21	0.99978	-0.07006	-0.05474	1.00019	0.99902	0.99960
22	0.99981	-0.06622	-0.05208	1.00026	0.99901	0.99955
23	0.99968	-0.06963	-0.05613	1.00024	0.99886	0.99896
24	0.99982	-0.06501	-0.05200	1.00036	0.99894	0.99930
25	0.99977	-0.06265	-0.05063	1.00033	0.99893	0.99905
26	0.99964	-0.06586	-0.05423	1.00027	0.99878	0.99868
27	0.99957	-0.07135	-0.05944	1.00024	0.99865	0.99854
28	0.99973	-0.06871	-0.05750	1.00041	0.99877	0.99876
29	0.99970	-0.06702	-0.05656	1.00041	0.99870	0.99866
30	0.99976	-0.06367	-0.05346	1.00061	0.99861	0.99845
31	0.99962	-0.06435	-0.05473	1.00055	0.99832	0.99824
32	0.99980	-0.06041	-0.05049	1.00074	0.99854	0.99832
33	0.99968	-0.05917	-0.04984	1.00064	0.99843	0.99807
34	0.99970	-0.05751	-0.04866	1.00065	0.99835	0.99832
35	0.99954	-0.05964	-0.05100	1.00054	0.99819	0.99797
36	0.99972	-0.05726	-0.04884	1.00074	0.99829	0.99822
37	0.99967	-0.05589	-0.04787	1.00071	0.99819	0.99820
38	0.99975	-0.05324	-0.04523	1.00070	0.99856	0.99803
39	0.99961	-0.05310	-0.04550	1.00061	0.99838	0.99772
40	0.99962	-0.05261	-0.04539	1.00062	0.99838	0.99772
41	0.99963	-0.05181	-0.04493	1.00064	0.99835	0.99781
42	0.99965	-0.05063	-0.04402	1.00066	0.99845	0.99765
43	0.99961	-0.05001	-0.04370	1.00080	0.99831	0.99701
44	0.99976	-0.04769	-0.04120	1.00095	0.99845	0.99713
45	0.99970	-0.04607	-0.03972	1.00090	0.99846	0.99688
46	0.99958	-0.04600	-0.03992	1.00086	0.99835	0.99633
47	0.99953	-0.04638	-0.04053	1.00086	0.99827	0.99615
48	0.99963	-0.04542	-0.03977	1.00100	0.99820	0.99647
49	0.99962	-0.04453	-0.03907	1.00099	0.99819	0.99646
50	0.99964	-0.04350	-0.03819	1.00102	0.99831	0.99620
51	0.99949	-0.04408	-0.03893	1.00083	0.99822	0.99608
52	0.99957	-0.04361	-0.03865	1.00088	0.99826	0.99642
53	0.99942	-0.04481	-0.03990	1.00068	0.99809	0.99648
55	0.99951	-0.04469	-0.03996	1.00085	0.99786	0.99699
56	0.99965	-0.04329	-0.03856	1.00096	0.99813	0.99699
[illegible]	0.99974	-0.04141	-0.03645	[illegible]0113	0.99807	0.99703

58	0.99965	-0.04020	-0.03530	1.00105	0.99801	0.99682
59	0.99967	-0.03888	-0.03401	1.00112	0.99804	0.99659
60	0.99952	-0.03874	-0.03404	1.00099	0.99777	0.99663

FINAL LEAKAGE RATE (% PER DAY) = -0.03404 INTERCEPT= 0.99994

UPPER CONFIDENCE LIMIT FOR THE RATE IS -0.03874

TYPE A TEST COMPLETION CRITERIA MESSAGES
TYPE C LEAKAGE PENALTY = -867.00 (SCCM) = -0.0020 (%WT/DAY)
THE LEAK RATE UPPER LIMIT HAS CONVERGED TO AN ACCEPTABLE LEVEL
THE DIFFERENCE BETWEEN THE LEAK RATE UPPER LIMIT AND MEASURED LEAK RATE IS ACCEPTABLE FOR COMPLETION.
LEAK RATE UPPER LIMIT DOES NOT SHOW NEGATIVE TREND OVER LAST 5 RUNS.
MEASURED LEAK RATE SHOWS NEGATIVE TREND IN LAST 5 RUNS - CONTINUE TESTING

********** FIXED INPUT DATA **********

TEST START = RUN # 0 TEST END = RUN # 0

RTD MILLI-VOLT TO FAHRENHEIT CONVERSION COEFFICIENTS

UPPER		LOWER		ICE	
2.00	0.0	2.00	0.0	2.00	0.0

HYGROMETER MILLI-VOLT TO FAHRENHEIT CONVERSION COEFFICIENTS

	UPPER-1			LOWER-1			ICE-1	
0.00053	1.97638	-0.05018	0.00061	1.96939	-0.01108	0.00069	1.96622	-0.03787
	UPPER-2			LOWER-2			ICE-2	
0.0	18.00000	32.00000	0.00063	1.96888	-0.00869	0.0	18.00000	32.00000

MANOMETER PRESSURE CORRECTION COEFFICIENTS

W1	R1	W2	R2	W3	R3	W4	R4	W5	R5
				PU-1					
34.9568	35.2180	29.9629	30.1800	24.9693	25.1380	19.9754	20.0950	14.9815	15.0680
				PU-2					
29.9632	29.9634	28.4652	28.4663	26.9671	26.9684	25.4689	25.4688	0.0	0.0
				PL-1					
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
				PL-2					
29.9632	29.9648	28.4652	28.6466	26.9671	26.9688	25.4689	25.4694	0.0	0.0
				PI-1					
29.9632	29.9609	28.4652	28.4640	26.9671	26.9681	25.4689	25.4688	0.0	0.0
				PI-2					
29.9632	29.9618	28.4652	28.4656	26.9671	26.9685	25.4689	25.4689	0.0	0.0
				P-ATM					
14.7020	14.7100	13.5010	13.5010	11.5010	11.4960	9.5020	9.5020	7.5020	7.5000

RTD WEIGHTING FACTORS

UPPER

.0628 .1161 .0831 .0831 .0960 .0960 .0960 .0960 .0296 .0296
.0296 .0296 .0740 .0105 .0167 .0513

LOWER

.0415 .0415 .0415 .0415 .0102 .0284 .0586 .0086 .0266 .0586 .1037
.1037 .1037 .1037 .0500 .0092 .0244 .0145 .0170 .0249 .0219 .0240 .0423 .0

ICE

.0735 .0735 .0711 .0711 .2231 .2789 .2089

VOLUME WEIGHTING FACTORS

UPPER	LOWER	ICE
2.0144	1.0000	0.3713

[redacted]C LEAKAGE PENALTY= -867.00(SCCM); TYPE A MEASURED LEAK R[redacted]= -0.02065 (%WT/DAY); IMPOSED LEAK RATE = -3.000 (SCFM

********** FIXED INPUT DATA **********

TEST START = RUN # 0 TEST END = RUN # 0

RTD MILLI-VOLT TO FAHRENHEIT CONVERSION COEFFICIENTS

UPPER		LOWER		ICE	
2.00	0.0	2.00	0.0	2.00	0.0

HYGROMETER MILLI-VOLT TO FAHRENHEIT CONVERSION COEFFICIENTS

	UPPER-1			LOWER-1			ICE-1	
0.00053	1.97638	-0.05018	0.00061	1.96939	-0.01108	0.00069	1.96622	-0.03787
	UPPER-2			LOWER-2			ICE-2	
0.0	18.00000	32.00000	0.00063	1.96888	-0.00869	0.0	18.00000	32.00000

MANOMETER PRESSURE CORRECTION COEFFICIENTS

W1	R1	W2	R2	W3	R3	W4	R4	W5	R5
				PU-1					
34.9568	35.2180	29.9629	30.1800	24.9693	25.1380	19.9754	20.0950	14.9815	15.0680
				PU-2					
29.9632	29.9634	28.4652	28.4663	26.9671	26.9684	25.4689	25.4688	0.0	0.0
				PL-1					
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
				PL-2					
29.9632	29.9648	28.4652	28.6466	26.9671	26.9688	25.4689	25.4694	0.0	0.0
				PI-1					
29.9632	29.9609	28.4652	28.4640	26.9671	26.9681	25.4689	25.4688	0.0	0.0
				PI-2					
29.9632	29.9618	28.4652	28.4656	26.9671	26.9685	25.4689	25.4689	0.0	0.0
				P-ATM					
14.7020	14.7100	13.5010	13.5010	11.5010	11.4960	9.5020	9.5020	7.5020	7.5000

RTD WEIGHTING FACTORS

UPPER

.0628 .1161 .0831 .0831 .0960 .0960 .0960 .0960 .0296 .0296
.0296 .0296 .0740 .0105 .0167 .0513

LOWER

.0415 .0415 .0415 .0415 .0102 .0284 .0586 .0086 .0266 .0586 .1037
.1037 .1037 .1037 .0500 .0092 .0244 .0145 .0170 .0249 .0219 .0240 .0423 .0

ICE

.0735 .0735 .0711 .0711 .2231 .2789 .2089

VOLUME WEIGHTING FACTORS

UPPER	LOWER	ICE
2.0144	1.0000	0.3713

TYPE C LEAKAGE PENALTY= -867.00(SCCM); TYPE A MEASURED LEAK RATE = -0.02065 (%WT/DAY); IMPOSED LEAK RATE = -3.000 (SCFM)

RUN NUMBER 1
ELAPSED TIME 0.0

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	40.88	81.76	ETR-122	35.70	71.40	ETR-115	9.13	18.26
ETR-102	38.89	77.78	ETR-123	36.54	73.08	ETR-116	9.08	18.16
ETR-103	35.83	71.66	ETR-124	37.11	74.22	ETR-117	8.86	17.72
ETR-104	35.75	71.50	ETR-125	35.83	71.66	ETR-118	10.49	20.98
ETR-105	36.82	73.64	ETR-126	35.94	71.88	ETR-119	7.93	15.86
ETR-106	36.96	73.92	ETR-127	33.99	67.98	ETR-120	7.57	15.14
ETR-107	36.77	73.54	ETR-129	36.94	73.88	ETR-121	7.98	15.96
ETR-108	36.74	73.48	ETR-130	35.62	71.24			
ETR-109	35.55	71.10	ETR-131	34.07	68.14			
ETR-110	35.38	70.76	ETR-132	37.54	75.08			
ETR-111	35.59	71.18	ETR-134	36.53	73.06			
ETR-112	35.60	71.20	ETR-135	36.39	72.78			
ETR-114	34.73	69.46	ETR-136	36.50	73.00			
ETR-128	36.35	72.70	ETR-137	36.11	72.22			
ETR-133	34.31	68.62	ETR-138	36.57	73.14			
ETR-113	37.34	74.68	ETR-139	33.58	67.16			
			ETR-140	36.40	72.80			
			ETR-141	37.02	74.04			
			ETR-142	36.00	72.00			
			ETR-143	37.52	75.04			
			ETR-144	36.80	73.60			
			ETR-145	41.47	82.94			
			ETR-146	36.90	73.80			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	73.63	LOWER VOLUME (DEG. F.)	72.99	ICE CONDENSER (DEG. F.)	16.52
UPPER VOLUME (DEG. R.)	533.33	LOWER VOLUME (DEG. R.)	532.69	ICE CONDENSER (DEG. R.)	476.22

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	18.37	36.43	0.1058
VPU-2	0.26	36.68	0.1068
LOWER:			
VPL-1	0.0	-0.01	0.0
VPL-2	18.76	37.15	0.1088
ICE:			
VPI-1	7.88	15.50	0.0406
VPI-2	-1.08	12.56	0.0351

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT (PSIA)	0.1063
LOWER CONTAINMENT (PSIA)	0.1088
ICE CONDENSER (PSIA)	0.0378

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0510	26.8639
PU-2	26.9194	26.9182
LOWER:		
PL-1	0.0	0.0
PL-2	26.9023	26.9007
ICE:		
PI-1	26.9231	26.9221
PI-2	26.9449	26.9435
AMBIENT	14.5050	14.4984

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE (PSIA)	26.8910
AVERAGE LOWER PRESSURE (PSIA)	26.9007
AVERAGE ICE CONDENSER PRESSURE (PSIA)	26.9328
AVERAGE CONTAINMENT PRESSURE (PSIA)	26.9082
AVERAGE CONTAINMENT PRESSURE (PSIG)	12.4098

RUN NUMBER 2
ELAPSED TIME 0.50

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	40.86	81.72	ETR-122	35.65	71.30	ETR-115	9.30	18.60
ETR-102	38.87	77.74	ETR-123	36.54	73.08	ETR-116	9.21	18.42
ETR-103	35.80	71.60	ETR-124	37.12	74.24	ETR-117	8.75	17.50
ETR-104	35.77	71.54	ETR-125	35.86	71.72	ETR-118	10.08	20.16
ETR-105	36.85	73.70	ETR-126	35.96	71.92	ETR-119	7.94	15.88
ETR-106	36.95	73.90	ETR-127	34.01	68.02	ETR-120	7.59	15.18
ETR-107	36.79	73.58	ETR-129	36.97	73.94	ETR-121	7.96	15.92
ETR-108	36.74	73.48	ETR-130	35.61	71.22			
ETR-109	35.53	71.06	ETR-131	34.01	68.02			
ETR-110	35.34	70.68	ETR-132	37.54	75.08			
ETR-111	35.59	71.18	ETR-134	36.55	73.10			
ETR-112	35.60	71.20	ETR-135	36.39	72.78			
ETR-114	34.74	69.48	ETR-136	36.49	72.98			
ETR-128	36.35	72.70	ETR-137	36.13	72.26			
ETR-133	34.31	68.62	ETR-138	36.59	73.18			
ETR-113	37.35	74.70	ETR-139	33.58	67.16			
			ETR-140	36.41	72.82			
			ETR-141	37.02	74.04			
			ETR-142	36.01	72.02			
			ETR-143	37.52	75.04			
			ETR-144	36.81	73.62			
			ETR-145	41.48	82.96			
			ETR-146	36.90	73.80			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	73.63	LOWER VOLUME (DEG. F.)	73.00	ICE CONDENSER (DEG. F.)	16.50
UPPER VOLUME (DEG. R.)	533.33	LOWER VOLUME (DEG. R.)	532.70	ICE CONDENSER (DEG. R.)	476.20

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	18.41	36.51	0.1061
VPU-2	0.26	36.73	0.1070
LOWER:			
VPL-1	0.0	-0.01	0.0
VPL-2	18.78	37.19	0.1090
ICE:			
VPI-1	7.68	15.11	0.0398
VPI-2	-1.04	13.28	0.0364

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.1066
LOWER CONTAINMENT	(PSIA)	0.1090
ICE CONDENSER	(PSIA)	0.0381

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0510	26.8639
PU-2	26.9189	26.9177
LOWER:		
PL-1	0.0	0.0
PL-2	26.9015	26.8999
ICE:		
PI-1	26.9231	26.9221
PI-2	26.9455	26.9441
AMBIENT	14.5050	14.4984

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8908
AVERAGE LOWER PRESSURE	(PSIA)	26.8999
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.9331
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.9079
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.4096

RUN NUMBER 3
ELAPSED TIME 1.00

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	40.85	81.70	ETR-122	35.69	71.38	ETR-115	9.52	19.04
ETR-102	38.86	77.72	ETR-123	36.56	73.12	ETR-116	9.25	18.50
ETR-103	35.80	71.60	ETR-124	37.11	74.22	ETR-117	8.98	17.96
ETR-104	35.78	71.56	ETR-125	35.89	71.78	ETR-118	10.21	20.42
ETR-105	36.79	73.58	ETR-126	35.96	71.92	ETR-119	7.95	15.90
ETR-106	36.94	73.88	ETR-127	34.02	68.04	ETR-120	7.60	15.20
ETR-107	36.76	73.52	ETR-129	36.97	73.94	ETR-121	8.00	16.00
ETR-108	36.67	73.34	ETR-130	35.61	71.22			
ETR-109	35.53	71.06	ETR-131	34.02	68.04			
ETR-110	35.35	70.70	ETR-132	37.55	75.10			
ETR-111	35.58	71.16	ETR-134	36.46	72.92			
ETR-112	35.61	71.22	ETR-135	36.41	72.82			
ETR-114	34.74	69.48	ETR-136	36.48	72.96			
ETR-128	36.36	72.72	ETR-137	36.11	72.22			
ETR-133	34.31	68.62	ETR-138	36.58	73.16			
ETR-113	37.38	74.76	ETR-139	33.59	67.18			
			ETR-140	36.41	72.82			
			ETR-141	37.04	74.08			
			ETR-142	36.02	72.04			
			ETR-143	37.53	75.06			
			ETR-144	36.82	73.64			
			ETR-145	41.50	83.00			
			ETR-146	36.92	73.84			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	73.60	LOWER VOLUME (DEG. F.)	73.00	ICE CONDENSER (DEG. F.)	16.62
UPPER VOLUME (DEG. R.)	533.30	LOWER VOLUME (DEG. R.)	532.69	ICE CONDENSER (DEG. R.)	476.32

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	18.33	36.35	0.1054
VPU-2	0.26	36.59	0.1064
LOWER:			
VPL-1	0.0	-0.01	0.0
VPL-2	18.79	37.21	0.1090
ICE:			
VPI-1	8.15	16.02	0.0416
VPI-2	-0.96	14.72	0.0390

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.1059
LOWER CONTAINMENT	(PSIA)	0.1090
ICE CONDENSER	(PSIA)	0.0403

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0490	26.8620
PU-2	26.9179	26.9167
LOWER:		
PL-1	0.0	0.0
PL-2	26.9006	26.8990
ICE:		
PI-1	26.9219	26.9209
PI-2	26.9536	26.9522
AMBIENT	14.5050	14.4984

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8893
AVERAGE LOWER PRESSURE	(PSIA)	26.8990
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.9366
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.9083
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.4099

RUN NUMBER 4
ELAPSED TIME 1.50

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	40.83	81.66	ETR-122	35.71	71.42	ETR-115	9.42	18.84
ETR-102	38.85	77.70	ETR-123	36.57	73.14	ETR-116	9.23	18.46
ETR-103	35.81	71.62	ETR-124	37.09	74.18	ETR-117	8.86	17.72
ETR-104	35.77	71.54	ETR-125	35.88	71.76	ETR-118	10.17	20.34
ETR-105	36.83	73.66	ETR-126	35.97	71.94	ETR-119	7.95	15.90
ETR-106	36.93	73.86	ETR-127	34.01	68.02	ETR-120	7.61	15.22
ETR-107	36.76	73.52	ETR-129	36.95	73.90	ETR-121	8.00	16.00
ETR-108	36.66	73.32	ETR-130	35.63	71.26			
ETR-109	35.59	71.18	ETR-131	34.03	68.06			
ETR-110	35.45	70.90	ETR-132	37.56	75.12			
ETR-111	35.58	71.16	ETR-134	36.55	73.10			
ETR-112	35.63	71.26	ETR-135	36.35	72.70			
ETR-114	34.73	69.46	ETR-136	36.48	72.96			
ETR-128	36.36	72.72	ETR-137	36.09	72.18			
ETR-133	34.30	68.60	ETR-138	36.59	73.18			
ETR-113	37.35	74.70	ETR-139	33.61	67.22			
			ETR-140	36.43	72.86			
			ETR-141	37.05	74.10			
			ETR-142	36.04	72.08			
			ETR-143	37.53	75.06			
			ETR-144	36.82	73.64			
			ETR-145	41.49	82.98			
			ETR-146	36.92	73.84			

SUMMARY OF HEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	73.61	LOWER VOLUME (DEG. F.)	73.00	ICE CONDENSER (DEG. F.)	16.58
UPPER VOLUME (DEG. R.)	533.31	LOWER VOLUME (DEG. R.)	532.70	ICE CONDENSER (DEG. R.)	476.28

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	18.35	36.39	0.1056
VPU-2	0.26	36.66	0.1067
LOWER:			
VPL-1	0.0	-0.01	0.0
VPL-2	18.79	37.21	0.1090
ICE:			
VPI-1	8.05	15.84	0.0412
VPI-2	-0.97	14.54	0.0387

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.1062
LOWER CONTAINMENT	(PSIA)	0.1090
ICE CONDENSER	(PSIA)	0.0400

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0510	26.8639
PU-2	26.9187	26.9175
LOWER:		
PL-1	0.0	0.0
PL-2	26.9015	26.8999
ICE:		
PI-1	26.9230	26.9220
PI-2	26.9440	26.9426
AMBIENT	14.5069	14.5003

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8907
AVERAGE LOWER PRESSURE	(PSIA)	26.8999
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.9323
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.9076
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.4074

RUN NUMBER 5
ELAPSED TIME 2.00

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	40.80	81.60	ETR-122	35.71	71.42	ETR-115	9.24	18.48
ETR-102	38.83	77.66	ETR-123	36.56	73.12	ETR-116	9.19	18.38
ETR-103	35.78	71.56	ETR-124	37.12	74.24	ETR-117	8.86	17.72
ETR-104	35.76	71.52	ETR-125	35.88	71.76	ETR-118	10.13	20.26
ETR-105	36.81	73.62	ETR-126	35.96	71.92	ETR-119	7.96	15.92
ETR-106	36.91	73.82	ETR-127	33.98	67.96	ETR-120	7.67	15.34
ETR-107	36.73	73.46	ETR-129	36.94	73.88	ETR-121	7.98	15.96
ETR-108	36.64	73.28	ETR-130	35.61	71.22			
ETR-109	35.56	71.12	ETR-131	34.03	68.06			
ETR-110	35.37	70.74	ETR-132	37.56	75.12			
ETR-111	35.58	71.16	ETR-134	36.59	73.18			
ETR-112	35.60	71.20	ETR-135	36.45	72.90			
ETR-114	34.70	69.40	ETR-136	36.53	73.06			
ETR-128	36.38	72.76	ETR-137	36.13	72.26			
ETR-133	34.31	68.62	ETR-138	36.58	73.16			
ETR-113	37.37	74.74	ETR-139	33.61	67.22			
			ETR-140	36.44	72.88			
			ETR-141	37.07	74.14			
			ETR-142	36.04	72.08			
			ETR-143	37.54	75.08			
			ETR-144	36.83	73.66			
			ETR-145	41.50	83.00			
			ETR-146	36.90	73.80			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	73.56	LOWER VOLUME (DEG. F.)	73.04	ICE CONDENSER (DEG. F.)	16.57
UPPER VOLUME (DEG. R.)	533.26	LOWER VOLUME (DEG. R.)	532.74	ICE CONDENSER (DEG. R.)	476.27

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	18.43	36.55	0.1063
VPU-2	0.27	36.84	0.1075
LOWER:			
VPL-1	0.0	-0.01	0.0
VPL-2	18.80	37.23	0.1091
ICE:			
VPI-1	8.74	17.21	0.0441
VPI-2	-0.91	15.62	0.0408

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.1069
LOWER CONTAINMENT	(PSIA)	0.1091
ICE CONDENSER	(PSIA)	0.0424

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0500	26.8629
PU-2	26.9176	26.9164
LOWER:		
PL-1	0.0	0.0
PL-2	26.9003	26.8987
ICE:		
PI-1	26.9213	26.9203
PI-2	26.9460	26.9446
AMBIENT	14.4992	14.4926

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8897
AVERAGE LOWER PRESSURE	(PSIA)	26.8987
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.9325
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.9069
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.4143

RUN NUMBER 6
ELAPSED TIME 2.50

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME RTD	MILLI-VOLTS	DEG. F.	LOWER VOLUME RTD	MILLI-VOLTS	DEG. F.	ICE CONDENSER RTD	MILLI-VOLTS	DEG. F.
ETR-101	40.81	81.62	ETR-122	35.75	71.50	ETR-115	9.21	18.42
ETR-102	38.81	77.62	ETR-123	36.56	73.12	ETR-116	9.21	18.42
ETR-103	35.80	71.60	ETR-124	37.14	74.28	ETR-117	8.91	17.82
ETR-104	35.74	71.48	ETR-125	35.85	71.70	ETR-118	10.96	21.92
ETR-105	36.80	73.60	ETR-126	35.97	71.94	ETR-119	7.98	15.96
ETR-106	36.91	73.82	ETR-127	34.02	68.04	ETR-120	7.66	15.32
ETR-107	36.71	73.42	ETR-129	36.96	73.92	ETR-121	8.02	16.04
ETR-108	36.62	73.24	ETR-130	35.63	71.26			
ETR-109	35.55	71.10	ETR-131	34.01	68.02			
ETR-110	35.36	70.72	ETR-132	37.56	75.12			
ETR-111	35.57	71.14	ETR-134	36.50	73.00			
ETR-112	35.59	71.18	ETR-135	36.41	72.82			
ETR-114	34.71	69.42	ETR-136	36.52	73.04			
ETR-128	36.38	72.76	ETR-137	36.13	72.26			
ETR-133	34.31	68.62	ETR-138	36.60	73.20			
ETR-113	37.35	74.70	ETR-139	33.61	67.22			
			ETR-140	36.46	72.92			
			ETR-141	37.07	74.14			
			ETR-142	36.04	72.08			
			ETR-143	37.55	75.10			
			ETR-144	36.84	73.68			
			ETR-145	41.50	83.00			
			ETR-146	36.92	73.84			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	73.55	LOWER VOLUME (DEG. F.)	73.03	ICE CONDENSER (DEG. F.)	16.72
UPPER VOLUME (DEG. R.)	533.25	LOWER VOLUME (DEG. R.)	532.73	ICE CONDENSER (DEG. R.)	476.42

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	17.83	35.36	0.1013
VPU-2	0.26	36.75	0.1071
LOWER:			
VPL-1	0.0	-0.01	0.0
VPL-2	18.81	37.25	0.1092
ICE:			
VPI-1	7.90	15.54	0.0406
VPI-2	-1.02	13.64	0.0370

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.1042
LOWER CONTAINMENT	(PSIA)	0.1092
ICE CONDENSER	(PSIA)	0.0388

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0460	26.8590
PU-2	26.9142	26.9130
LOWER:		
PL-1	0.0	0.0
PL-2	26.8972	26.8956
ICE:		
PI-1	26.9181	26.9171
PI-2	26.9422	26.9408
AMBIENT	14.5050	14.4984

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8860
AVERAGE LOWER PRESSURE	(PSIA)	26.8956
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.9290
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.9035
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.4052

RUN NUMBER 7
ELAPSED TIME 3.00

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	40.79	81.58	ETR-122	35.70	71.40	ETR-115	9.04	18.08
ETR-102	38.79	77.58	ETR-123	36.56	73.12	ETR-116	9.02	18.04
ETR-103	35.78	71.56	ETR-124	37.14	74.28	ETR-117	8.70	17.40
ETR-104	35.76	71.52	ETR-125	35.88	71.76	ETR-118	10.50	21.00
ETR-105	36.71	73.42	ETR-126	35.97	71.94	ETR-119	7.98	15.96
ETR-106	36.91	73.82	ETR-127	34.03	68.06	ETR-120	7.68	15.36
ETR-107	36.60	73.20	ETR-129	36.93	73.86	ETR-121	8.04	16.08
ETR-108	36.61	73.22	ETR-130	35.63	71.26			
ETR-109	35.54	71.08	ETR-131	34.03	68.06			
ETR-110	35.45	70.90	ETR-132	37.56	75.12			
ETR-111	35.57	71.14	ETR-134	36.56	73.12			
ETR-112	35.60	71.20	ETR-135	36.46	72.92			
ETR-114	34.73	69.46	ETR-136	36.52	73.04			
ETR-128	36.42	72.84	ETR-137	36.16	72.32			
ETR-133	34.32	68.64	ETR-138	36.60	73.20			
ETR-113	37.34	74.68	ETR-139	33.62	67.24			
			ETR-140	36.46	72.92			
			ETR-141	37.08	74.16			
			ETR-142	36.05	72.10			
			ETR-143	37.55	75.10			
			ETR-144	36.85	73.70			
			ETR-145	41.50	83.00			
			ETR-146	36.93	73.86			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	73.51	LOWER VOLUME (DEG. F.)	73.06	ICE CONDENSER (DEG. F.)	16.59
UPPER VOLUME (DEG. R.)	533.21	LOWER VOLUME (DEG. R.)	532.76	ICE CONDENSER (DEG. R.)	476.29

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	17.89	35.48	0.1018
VPU-2	0.26	36.77	0.1072
LOWER:			
VPL-1	0.0	-0.01	0.0
VPL-2	18.81	37.25	0.1092
ICE:			
VPI-1	8.21	16.15	0.0419
VPI-2	-1.00	14.00	0.0377

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.1045
LOWER CONTAINMENT	(PSIA)	0.1092
ICE CONDENSER	(PSIA)	0.0398

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0440	26.8570
PU-2	26.9132	26.9120
LOWER:		
PL-1	0.0	0.0
PL-2	26.8959	26.8943
ICE:		
PI-1	26.9168	26.9158
PI-2	26.9420	26.9406
AMBIENT	14.5050	14.4984

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8845
AVERAGE LOWER PRESSURE	(PSIA)	26.8943
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.9282
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.9023
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.4040

RUN NUMBER 8
ELAPSED TIME 3.50

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	40.78	81.56	ETR-122	35.73	71.46	ETR-115	9.07	18.14
ETR-102	38.77	77.54	ETR-123	36.59	73.18	ETR-116	9.03	18.06
ETR-103	35.80	71.60	ETR-124	37.15	74.30	ETR-117	8.73	17.46
ETR-104	35.78	71.56	ETR-125	35.88	71.76	ETR-118	10.37	20.74
ETR-105	36.76	73.52	ETR-126	35.99	71.98	ETR-119	7.98	15.96
ETR-106	36.90	73.80	ETR-127	34.01	68.02	ETR-120	7.63	15.26
ETR-107	36.68	73.36	ETR-129	36.98	73.96	ETR-121	8.04	16.08
ETR-108	36.60	73.20	ETR-130	35.62	71.24			
ETR-109	35.56	71.12	ETR-131	34.01	68.02			
ETR-110	35.41	70.82	ETR-132	37.57	75.14			
ETR-111	35.58	71.16	ETR-134	36.51	73.02			
ETR-112	35.60	71.20	ETR-135	36.46	72.92			
ETR-114	34.68	69.36	ETR-136	36.52	73.04			
ETR-128	36.43	72.86	ETR-137	36.11	72.22			
ETR-133	34.32	68.64	ETR-138	36.61	73.22			
ETR-113	37.38	74.76	ETR-139	33.62	67.24			
			ETR-140	36.48	72.96			
			ETR-141	37.11	74.22			
			ETR-142	36.06	72.12			
			ETR-143	37.55	75.10			
			ETR-144	36.85	73.70			
			ETR-145	41.49	82.98			
			ETR-146	36.93	73.86			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	73.53	LOWER VOLUME (DEG. F.)	73.05	ICE CONDENSER (DEG. F.)	16.55
UPPER VOLUME (DEG. R.)	533.23	LOWER VOLUME (DEG. R.)	532.75	ICE CONDENSER (DEG. R.)	476.25

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	17.94	35.58	0.1022
VPU-2	0.27	36.90	0.1077
LOWER:			
VPL-1	0.0	-0.01	0.0
VPL-2	18.77	37.17	0.1089
ICE:			
VPI-1	8.83	17.38	0.0444
VPI-2	-0.94	15.08	0.0397

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.1050
LOWER CONTAINMENT	(PSIA)	0.1089
ICE CONDENSER	(PSIA)	0.0421

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0460	26.8590
PU-2	26.9147	26.9135
LOWER:		
PL-1	0.0	0.0
PL-2	26.8970	26.8954
ICE:		
PI-1	26.9188	26.9178
PI-2	26.9397	26.9383
AMBIENT	14.5050	14.4984

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8862
AVERAGE LOWER PRESSURE	(PSIA)	26.8954
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.9281
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.9032
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.4049

RUN NUMBER 9
ELAPSED TIME 4.00

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	40.77	81.54	ETR-122	35.74	71.48	ETR-115	9.24	18.48
ETR-102	38.76	77.52	ETR-123	36.55	73.10	ETR-116	8.99	17.98
ETR-103	35.81	71.62	ETR-124	37.16	74.32	ETR-117	8.57	17.14
ETR-104	35.75	71.50	ETR-125	35.90	71.80	ETR-118	9.85	19.70
ETR-105	36.75	73.50	ETR-126	35.99	71.98	ETR-119	8.00	16.00
ETR-106	36.89	73.78	ETR-127	33.98	67.96	ETR-120	7.64	15.28
ETR-107	36.66	73.32	ETR-129	36.95	73.90	ETR-121	8.06	16.12
ETR-108	36.60	73.20	ETR-130	35.63	71.26			
ETR-109	35.55	71.10	ETR-131	34.04	68.08			
ETR-110	35.33	70.66	ETR-132	37.57	75.14			
ETR-111	35.58	71.16	ETR-134	36.49	72.98			
ETR-112	35.60	71.20	ETR-135	36.42	72.84			
ETR-114	34.69	69.38	ETR-136	36.53	73.06			
ETR-128	36.45	72.90	ETR-137	36.15	72.30			
ETR-133	34.31	68.62	ETR-138	36.61	73.22			
ETR-113	37.39	74.78	ETR-139	33.64	67.28			
			ETR-140	36.49	72.98			
			ETR-141	37.10	74.20			
			ETR-142	36.06	72.12			
			ETR-143	37.56	75.12			
			ETR-144	36.87	73.74			
			ETR-145	41.52	83.04			
			ETR-146	36.95	73.90			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	73.51	LOWER VOLUME (DEG. F.)	73.05	ICE CONDENSER (DEG. F.)	16.50
UPPER VOLUME (DEG. R.)	533.21	LOWER VOLUME (DEG. R.)	532.75	ICE CONDENSER (DEG. R.)	476.20

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	17.96	35.61	0.1024
VPU-2	0.27	36.95	0.1079
LOWER:			
VPL-1	0.0	-0.01	0.0
VPL-2	18.79	37.21	0.1090
ICE:			
VPI-1	8.19	16.11	0.0418
VPI-2	-1.03	13.46	0.0367

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.1052
LOWER CONTAINMENT	(PSIA)	0.1090
ICE CONDENSER	(PSIA)	0.0392

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0460	26.8590
PU-2	26.9140	26.9128
LOWER:		
PL-1	0.0	0.0
PL-2	26.8966	26.8950
ICE:		
PI-1	26.9174	26.9164
PI-2	26.9427	26.9413
AMBIENT	14.5050	14.4984

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8859
AVERAGE LOWER PRESSURE	(PSIA)	26.8950
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.9289
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.9032
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.4049

RUN NUMBER 10
ELAPSED TIME 4.50

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	40.76	81.52	ETR-122	35.73	71.46	ETR-115	9.27	18.54
ETR-102	38.74	77.48	ETR-123	36.56	73.12	ETR-116	8.93	17.86
ETR-103	35.77	71.54	ETR-124	37.19	74.38	ETR-117	8.63	17.26
ETR-104	35.76	71.52	ETR-125	35.90	71.80	ETR-118	9.94	19.88
ETR-105	36.78	73.56	ETR-126	35.99	71.98	ETR-119	7.99	15.98
ETR-106	36.87	73.74	ETR-127	34.00	68.00	ETR-120	7.66	15.32
ETR-107	36.58	73.16	ETR-129	37.01	74.02	ETR-121	8.04	16.08
ETR-108	36.56	73.12	ETR-130	35.63	71.26			
ETR-109	35.55	71.10	ETR-131	34.03	68.06			
ETR-110	35.38	70.76	ETR-132	37.56	75.12			
ETR-111	35.58	71.16	ETR-134	36.57	73.14			
ETR-112	35.61	71.22	ETR-135	36.43	72.86			
ETR-114	34.74	69.48	ETR-136	36.51	73.02			
ETR-128	36.43	72.86	ETR-137	36.15	72.30			
ETR-133	34.31	68.62	ETR-138	36.59	73.18			
ETR-113	37.34	74.68	ETR-139	33.65	67.30			
			ETR-140	36.49	72.98			
			ETR-141	37.12	74.24			
			ETR-142	36.07	72.14			
			ETR-143	37.56	75.12			
			ETR-144	36.86	73.72			
			ETR-145	41.52	83.04			
			ETR-146	36.95	73.90			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	73.48	LOWER VOLUME (DEG. F.)	73.07	ICE CONDENSER (DEG. F.)	16.51
UPPER VOLUME (DEG. R.)	533.18	LOWER VOLUME (DEG. R.)	532.77	ICE CONDENSER (DEG. R.)	476.21

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	17.87	35.44	0.1017
VPU-2	-0.14	29.48	0.0
LOWER:			
VPL-1	0.0	-0.01	0.0
VPL-2	18.81	37.25	0.1092
ICE:			
VPI-1	8.20	16.13	0.0418
VPI-2	-1.04	13.28	0.0364

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.1017
LOWER CONTAINMENT	(PSIA)	0.1092
ICE CONDENSER	(PSIA)	0.0391

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0440	26.8570
PU-2	26.9128	26.9116
LOWER:		
PL-1	0.0	0.0
PL-2	26.8955	26.8939
ICE:		
PI-1	26.9160	26.9150
PI-2	26.9360	26.9346
AMBIENT	14.5108	14.5041

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8843
AVERAGE LOWER PRESSURE	(PSIA)	26.8939
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.9248
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.9010
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3969

RUN NUMBER 11
ELAPSED TIME 5.00

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	40.71	81.42	ETR-122	35.76	71.52	ETR-115	9.11	18.22
ETR-102	38.72	77.44	ETR-123	36.56	73.12	ETR-116	9.03	18.06
ETR-103	35.77	71.54	ETR-124	37.16	74.32	ETR-117	8.61	17.22
ETR-104	35.74	71.48	ETR-125	35.90	71.80	ETR-118	9.94	19.88
ETR-105	36.73	73.46	ETR-126	35.99	71.98	ETR-119	7.99	15.98
ETR-106	36.85	73.70	ETR-127	33.99	67.98	ETR-120	7.70	15.40
ETR-107	36.64	73.28	ETR-129	37.00	74.00	ETR-121	8.05	16.10
ETR-108	36.55	73.10	ETR-130	35.62	71.24			
ETR-109	35.55	71.10	ETR-131	34.02	68.04			
ETR-110	35.38	70.76	ETR-132	37.57	75.14			
ETR-111	35.58	71.16	ETR-134	36.54	73.08			
ETR-112	35.60	71.20	ETR-135	36.40	72.80			
ETR-114	34.73	69.46	ETR-136	36.51	73.02			
ETR-128	36.43	72.86	ETR-137	36.16	72.32			
ETR-133	34.31	68.62	ETR-138	36.60	73.20			
ETR-113	37.36	74.72	ETR-139	33.66	67.32			
			ETR-140	36.49	72.98			
			ETR-141	37.12	74.24			
			ETR-142	36.07	72.14			
			ETR-143	37.56	75.12			
			ETR-144	36.87	73.74			
			ETR-145	41.54	83.08			
			ETR-146	36.97	73.94			

SUMMARY OF HEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	73.47	LOWER VOLUME (DEG. F.)	73.06	ICE CONDENSER (DEG. F.)	16.53
UPPER VOLUME (DEG. R.)	533.17	LOWER VOLUME (DEG. R.)	532.76	ICE CONDENSER (DEG. R.)	476.23

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	17.94	35.58	0.1022
VPU-2	-0.09	30.38	0.0
LOWER:			
VPL-1	0.0	-0.01	0.0
VPL-2	18.82	37.27	0.1093
ICE:			
VPI-1	8.99	17.69	0.0451
VPI-2	-0.97	14.54	0.0387

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.1022
LOWER CONTAINMENT	(PSIA)	0.1093
ICE CONDENSER	(PSIA)	0.0419

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0420	26.8550
PU-2	26.9112	26.9100
LOWER:		
PL-1	0.0	0.0
PL-2	26.8939	26.8923
ICE:		
PI-1	26.9146	26.9136
PI-2	26.9340	26.9326
AMBIENT	14.5108	14.5041

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8825
AVERAGE LOWER PRESSURE	(PSIA)	26.8923
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.9231
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8993
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3952

RUN NUMBER 12
ELAPSED TIME 5.50

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	40.71	81.42	ETR-122	35.75	71.50	ETR-115	9.05	18.10
ETR-102	38.71	77.42	ETR-123	36.59	73.18	ETR-116	9.03	18.06
ETR-103	35.79	71.58	ETR-124	37.15	74.30	ETR-117	8.59	17.18
ETR-104	35.77	71.54	ETR-125	35.89	71.78	ETR-118	9.90	19.80
ETR-105	36.71	73.42	ETR-126	35.99	71.98	ETR-119	8.00	16.00
ETR-106	36.85	73.70	ETR-127	33.95	67.90	ETR-120	7.71	15.42
ETR-107	36.63	73.26	ETR-129	37.01	74.02	ETR-121	8.04	16.08
ETR-108	36.50	73.00	ETR-130	35.62	71.24			
ETR-109	35.55	71.10	ETR-131	34.00	68.00			
ETR-110	35.38	70.76	ETR-132	37.57	75.14			
ETR-111	35.56	71.12	ETR-134	36.59	73.18			
ETR-112	35.59	71.18	ETR-135	36.46	72.92			
ETR-114	34.76	69.52	ETR-136	36.57	73.14			
ETR-128	36.46	72.92	ETR-137	36.17	72.34			
ETR-133	34.30	68.60	ETR-138	36.60	73.20			
ETR-113	37.34	74.68	ETR-139	33.67	67.34			
			ETR-140	36.50	73.00			
			ETR-141	37.13	74.26			
			ETR-142	36.08	72.16			
			ETR-143	37.57	75.14			
			ETR-144	36.87	73.74			
			ETR-145	41.54	83.08			
			ETR-146	36.95	73.90			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	73.46	LOWER VOLUME (DEG. F.)	73.10	ICE CONDENSER (DEG. F.)	16.52
UPPER VOLUME (DEG. R.)	533.16	LOWER VOLUME (DEG. R.)	532.80	ICE CONDENSER (DEG. R.)	476.22

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	17.99	35.67	0.1026
VPU-2	-0.06	30.92	0.0
LOWER:			
VPL-1	0.0	-0.01	0.0
VPL-2	18.81	37.25	0.1092
ICE:			
VPI-1	7.73	15.21	0.0400
VPI-2	-1.29	8.78	0.0290

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.1026
LOWER CONTAINMENT	(PSIA)	0.1092
ICE CONDENSER	(PSIA)	0.0345

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0440	26.8570
PU-2	26.9119	26.9107
LOWER:		
PL-1	0.0	0.0
PL-2	26.8948	26.8932
ICE:		
PI-1	26.9156	26.9146
PI-2	26.9364	26.9350
AMBIENT	14.5185	14.5118

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8838
AVERAGE LOWER PRESSURE	(PSIA)	26.8932
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.9248
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.9006
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3888

RUN NUMBER 13
ELAPSED TIME 6.00

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	40.68	81.36	ETR-122	35.78	71.56	ETR-115	9.00	18.00
ETR-102	38.70	77.40	ETR-123	36.57	73.14	ETR-116	9.01	18.02
ETR-103	35.77	71.54	ETR-124	37.16	74.32	ETR-117	8.70	17.40
ETR-104	35.75	71.50	ETR-125	35.90	71.80	ETR-118	10.90	21.80
ETR-105	36.65	73.30	ETR-126	35.99	71.98	ETR-119	8.01	16.02
ETR-106	36.84	73.68	ETR-127	33.97	67.94	ETR-120	7.66	15.32
ETR-107	36.56	73.12	ETR-129	36.99	73.98	ETR-121	8.05	16.10
ETR-108	36.55	73.10	ETR-130	35.63	71.26			
ETR-109	35.57	71.14	ETR-131	34.02	68.04			
ETR-110	35.32	70.64	ETR-132	37.58	75.16			
ETR-111	35.56	71.12	ETR-134	36.50	73.00			
ETR-112	35.58	71.16	ETR-135	36.50	73.00			
ETR-114	34.73	69.46	ETR-136	36.54	73.08			
ETR-128	36.47	72.94	ETR-137	36.17	72.34			
ETR-133	34.30	68.60	ETR-138	36.59	73.18			
ETR-113	37.32	74.64	ETR-139	33.67	67.34			
			ETR-140	36.51	73.02			
			ETR-141	37.13	74.26			
			ETR-142	36.09	72.18			
			ETR-143	37.57	75.14			
			ETR-144	36.87	73.74			
			ETR-145	41.55	83.10			
			ETR-146	36.97	73.94			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	73.42	LOWER VOLUME (DEG. F.)	73.09	ICE CONDENSER (DEG. F.)	16.64
UPPER VOLUME (DEG. R.)	533.12	LOWER VOLUME (DEG. R.)	532.79	ICE CONDENSER (DEG. R.)	476.34

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	17.97	35.63	0.1025
VPU-2	-0.02	31.64	0.0
LOWER:			
VPL-1	0.0	-0.01	0.0
VPL-2	18.81	37.25	0.1092
ICE:			
VPI-1	6.88	13.51	0.0368
VPI-2	-1.27	9.14	0.0296

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.1025
LOWER CONTAINMENT	(PSIA)	0.1092
ICE CONDENSER	(PSIA)	0.0332

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0410	26.8540
PU-2	26.9089	26.9077
LOWER:		
PL-1	0.0	0.0
PL-2	26.8914	26.8898
ICE:		
PI-1	26.9125	26.9116
PI-2	26.9355	26.9341
AMBIENT	14.5205	14.5137

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8809
AVERAGE LOWER PRESSURE	(PSIA)	26.8898
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.9228
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8978
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3841

RUN NUMBER 14
ELAPSED TIME 6.50

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME RTD	MILLI-VOLTS	DEG. F.	LOWER VOLUME RTD	MILLI-VOLTS	DEG. F.	ICE CONDENSER RTD	MILLI-VOLTS	DEG. F.
ETR-101	40.67	81.34	ETR-122	35.71	71.42	ETR-115	8.97	17.94
ETR-102	38.68	77.36	ETR-123	36.59	73.18	ETR-116	8.93	17.86
ETR-103	35.78	71.56	ETR-124	37.17	74.34	ETR-117	8.68	17.36
ETR-104	35.73	71.46	ETR-125	35.92	71.84	ETR-118	10.37	20.74
ETR-105	36.59	73.18	ETR-126	36.00	72.00	ETR-119	8.02	16.04
ETR-106	36.84	73.68	ETR-127	33.99	67.98	ETR-120	7.68	15.36
ETR-107	36.57	73.14	ETR-129	37.02	74.04	ETR-121	8.07	16.14
ETR-108	36.50	73.00	ETR-130	35.63	71.26			
ETR-109	35.54	71.08	ETR-131	34.02	68.04			
ETR-110	35.42	70.84	ETR-132	37.58	75.16			
ETR-111	35.57	71.14	ETR-134	36.54	73.08			
ETR-112	35.61	71.22	ETR-135	36.47	72.94			
ETR-114	34.72	69.44	ETR-136	36.55	73.10			
ETR-128	36.50	73.00	ETR-137	36.17	72.34			
ETR-133	34.31	68.62	ETR-138	36.61	73.22			
ETR-113	37.35	74.70	ETR-139	33.68	67.36			
			ETR-140	36.52	73.04			
			ETR-141	37.14	74.28			
			ETR-142	36.09	72.18			
			ETR-143	37.57	75.14			
			ETR-144	36.88	73.76			
			ETR-145	41.53	83.06			
			ETR-146	36.98	73.96			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	73.40	LOWER VOLUME (DEG. F.)	73.10	ICE CONDENSER (DEG. F.)	16.57
UPPER VOLUME (DEG. R.)	533.10	LOWER VOLUME (DEG. R.)	532.80	ICE CONDENSER (DEG. R.)	476.27

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	17.95	35.60	0.1023
VPU-2	0.0	32.00	0.0
LOWER:			
VPL-1	18.99	37.61	0.1108
VPL-2	18.81	37.25	0.1092
ICE:			
VPI-1	7.36	14.46	0.0385
VPI-2	-1.27	9.14	0.0296

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.1023
LOWER CONTAINMENT	(PSIA)	0.1100
ICE CONDENSER	(PSIA)	0.0340

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0410	26.8540
PU-2	26.9090	26.9078
LOWER:		
PL-1	0.0	0.0
PL-2	26.8912	26.8896
ICE:		
PI-1	26.9124	26.9115
PI-2	26.9312	26.9298
AMBIENT	14.5224	14.5157

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8809
AVERAGE LOWER PRESSURE	(PSIA)	26.8896
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.9206
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8970
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3814

RUN NUMBER 15
ELAPSED TIME 7.00

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	40.64	81.28	ETR-122	35.75	71.50	ETR-115	9.05	18.10
ETR-102	38.66	77.32	ETR-123	36.58	73.16	ETR-116	9.11	18.22
ETR-103	35.75	71.50	ETR-124	37.18	74.36	ETR-117	8.60	17.20
ETR-104	35.71	71.42	ETR-125	35.91	71.82	ETR-118	10.12	20.24
ETR-105	36.64	73.28	ETR-126	36.01	72.02	ETR-119	8.03	16.06
ETR-106	36.83	73.66	ETR-127	33.98	67.96	ETR-120	7.69	15.38
ETR-107	36.51	73.02	ETR-129	37.04	74.08	ETR-121	8.08	16.16
ETR-108	36.50	73.00	ETR-130	35.63	71.26			
ETR-109	35.55	71.10	ETR-131	34.03	68.06			
ETR-110	35.37	70.74	ETR-132	37.58	75.16			
ETR-111	35.57	71.14	ETR-134	36.59	73.18			
ETR-112	35.61	71.22	ETR-135	36.50	73.00			
ETR-114	34.80	69.60	ETR-136	36.54	73.08			
ETR-128	36.50	73.00	ETR-137	36.17	72.34			
ETR-133	34.32	68.64	ETR-138	36.61	73.22			
ETR-113	37.37	74.74	ETR-139	33.68	67.36			
			ETR-140	36.52	73.04			
			ETR-141	37.16	74.32			
			ETR-142	36.09	72.18			
			ETR-143	37.57	75.14			
			ETR-144	36.87	73.74			
			ETR-145	41.53	83.06			
			ETR-146	36.98	73.96			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	73.39	LOWER VOLUME (DEG. F.)	73.12	ICE CONDENSER (DEG. F.)	16.58
UPPER VOLUME (DEG. R.)	533.09	LOWER VOLUME (DEG. R.)	532.82	ICE CONDENSER (DEG. R.)	476.28

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	17.96	35.61	0.1024
VPU-2	0.0	32.00	0.0
LOWER:			
VPL-1	19.08	37.79	0.1116
VPL-2	18.81	37.25	0.1092
ICE:			
VPI-1	8.26	16.25	0.0421
VPI-2	-1.20	10.40	0.0315

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.1024
LOWER CONTAINMENT	(PSIA)	0.1104
ICE CONDENSER	(PSIA)	0.0368

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0400	26.8530
PU-2	26.9083	26.9071
LOWER:		
PL-1	0.0	0.0
PL-2	26.8910	26.8394
ICE:		
PI-1	26.9122	26.9113
PI-2	26.9305	26.9291
AMBIENT	14.5243	14.5176

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8801
AVERAGE LOWER PRESSURE	(PSIA)	26.8894
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.9202
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8965
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3790

RUN NUMBER 16
ELAPSED TIME 7.50

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	40.62	81.24	ETR-122	35.75	71.50	ETR-115	9.40	18.80
ETR-102	38.65	77.30	ETR-123	36.56	73.12	ETR-116	9.07	18.14
ETR-103	35.76	71.52	ETR-124	37.19	74.38	ETR-117	8.72	17.44
ETR-104	35.69	71.38	ETR-125	35.91	71.82	ETR-118	9.91	19.82
ETR-105	36.69	73.38	ETR-126	36.00	72.00	ETR-119	8.03	16.06
ETR-106	36.82	73.64	ETR-127	34.01	68.02	ETR-120	7.69	15.38
ETR-107	36.50	73.00	ETR-129	37.01	74.02	ETR-121	8.11	16.22
ETR-108	36.51	73.02	ETR-130	35.63	71.26			
ETR-109	35.56	71.12	ETR-131	33.97	67.94			
ETR-110	35.36	70.72	ETR-132	37.58	75.16			
ETR-111	35.56	71.12	ETR-134	36.53	73.06			
ETR-112	35.58	71.16	ETR-135	36.49	72.98			
ETR-114	34.80	69.60	ETR-136	36.56	73.12			
ETR-128	36.52	73.04	ETR-137	36.17	72.34			
ETR-133	34.30	68.60	ETR-138	36.60	73.20			
ETR-113	37.35	74.70	ETR-139	33.68	67.36			
			ETR-140	36.53	73.06			
			ETR-141	37.16	74.32			
			ETR-142	36.09	72.18			
			ETR-143	37.57	75.14			
			ETR-144	36.88	73.76			
			ETR-145	41.54	83.08			
			ETR-146	36.96	73.92			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	73.39	LOWER VOLUME (DEG. F.)	73.10	ICE CONDENSER (DEG. F.)	16.63
UPPER VOLUME (DEG. R.)	533.09	LOWER VOLUME (DEG. R.)	532.80	ICE CONDENSER (DEG. R.)	476.33

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	17.92	35.54	0.1021
VPU-2	0.0	32.00	0.0
LOWER:			
VPL-1	19.15	37.93	0.1122
VPL-2	18.82	37.27	0.1093
ICE:			
VPI-1	7.88	15.50	0.0406
VPI-2	-1.26	9.32	0.0298

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT (PSIA)	0.1021
LOWER CONTAINMENT (PSIA)	0.1107
ICE CONDENSER (PSIA)	0.0352

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0410	26.8540
PU-2	26.9092	26.9080
LOWER:		
PL-1	0.0	0.0
PL-2	26.8920	26.8904
ICE:		
PI-1	26.9130	26.9121
PI-2	26.9314	26.9300
AMBIENT	14.5300	14.5232

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE (PSIA)	26.8810
AVERAGE LOWER PRESSURE (PSIA)	26.8904
AVERAGE ICE CONDENSER PRESSURE (PSIA)	26.9210
AVERAGE CONTAINMENT PRESSURE (PSIA)	26.8975
AVERAGE CONTAINMENT PRESSURE (PSIG)	12.3743

RUN NUMBER 17
ELAPSED TIME 8.00

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	40.58	81.16	ETR-122	35.73	71.46	ETR-115	9.15	18.30
ETR-102	38.63	77.26	ETR-123	36.59	73.18	ETR-116	8.90	17.80
ETR-103	35.77	71.54	ETR-124	37.17	74.34	ETR-117	8.57	17.14
ETR-104	35.72	71.44	ETR-125	35.91	71.82	ETR-118	9.81	19.62
ETR-105	36.56	73.12	ETR-126	36.01	72.02	ETR-119	8.03	16.06
ETR-106	36.81	73.62	ETR-127	33.98	67.96	ETR-120	7.69	15.38
ETR-107	36.50	73.00	ETR-129	37.02	74.04	ETR-121	8.07	16.14
ETR-108	36.50	73.00	ETR-130	35.63	71.26			
ETR-109	35.54	71.08	ETR-131	33.99	67.98			
ETR-110	35.35	70.70	ETR-132	37.59	75.18			
ETR-111	35.56	71.12	ETR-134	36.60	73.20			
ETR-112	35.59	71.18	ETR-135	36.47	72.94			
ETR-114	34.73	69.46	ETR-136	36.54	73.08			
ETR-128	36.53	73.06	ETR-137	36.18	72.36			
ETR-133	34.30	68.60	ETR-138	36.59	73.18			
ETR-113	37.33	74.66	ETR-139	33.70	67.40			
			ETR-140	36.55	73.10			
			ETR-141	37.16	74.32			
			ETR-142	36.10	72.20			
			ETR-143	37.58	75.16			
			ETR-144	36.89	73.78			
			ETR-145	41.57	83.14			
			ETR-146	37.00	74.00			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	73.34	LOWER VOLUME (DEG. F.)	73.12	ICE CONDENSER (DEG. F.)	16.51
UPPER VOLUME (DEG. R.)	533.04	LOWER VOLUME (DEG. R.)	532.82	ICE CONDENSER (DEG. R.)	476.21

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	17.87	35.44	0.1017
VPU-2	0.0	32.00	0.0
LOWER:			
VPL-1	19.23	38.09	0.1129
VPL-2	18.82	37.27	0.1093
ICE:			
VPI-1	7.49	14.72	0.0390
VPI-2	-1.31	8.42	0.0285

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.1017
LOWER CONTAINMENT	(PSIA)	0.1111
ICE CONDENSER	(PSIA)	0.0338

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0400	26.8530
PU-2	26.9078	26.9066
LOWER:		
PL-1	0.0	0.0
PL-2	26.8906	26.8890
ICE:		
PI-1	26.9115	26.9106
PI-2	26.9302	26.9288
AMBIENT	14.5300	14.5232

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8798
AVERAGE LOWER PRESSURE	(PSIA)	26.8890
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.9197
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8962
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3730

RUN NUMBER 18
ELAPSED TIME 8.50

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	40.57	81.14	ETR-122	35.80	71.60	ETR-115	9.02	18.04
ETR-102	38.60	77.20	ETR-123	36.58	73.16	ETR-116	8.94	17.88
ETR-103	35.75	71.50	ETR-124	37.18	74.36	ETR-117	8.53	17.06
ETR-104	35.71	71.42	ETR-125	35.94	71.88	ETR-118	9.82	19.64
ETR-105	36.64	73.28	ETR-126	36.02	72.04	ETR-119	8.04	16.08
ETR-106	36.80	73.60	ETR-127	34.03	68.06	ETR-120	7.75	15.50
ETR-107	36.56	73.12	ETR-129	37.04	74.08	ETR-121	8.07	16.14
ETR-108	36.50	73.00	ETR-130	35.65	71.30			
ETR-109	35.57	71.14	ETR-131	34.00	68.00			
ETR-110	35.42	70.84	ETR-132	37.59	75.18			
ETR-111	35.56	71.12	ETR-134	36.61	73.22			
ETR-112	35.60	71.20	ETR-135	36.50	73.00			
ETR-114	34.77	69.54	ETR-136	36.54	73.08			
ETR-128	36.53	73.06	ETR-137	36.19	72.38			
ETR-133	34.31	68.62	ETR-138	36.61	73.22			
ETR-113	37.39	74.78	ETR-139	33.70	67.40			
			ETR-140	36.54	73.08			
			ETR-141	37.17	74.34			
			ETR-142	36.11	72.22			
			ETR-143	37.58	75.16			
			ETR-144	36.89	73.78			
			ETR-145	41.53	83.06			
			ETR-146	36.98	73.96			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	73.37	LOWER VOLUME (DEG. F.)	73.14	ICE CONDENSER (DEG. F.)	16.53
UPPER VOLUME (DEG. R.)	533.07	LOWER VOLUME (DEG. R.)	532.84	ICE CONDENSER (DEG. R.)	476.23

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	18.01	35.71	0.1028
VPU-2	0.0	32.00	0.0
LOWER:			
VPL-1	19.34	38.31	0.1139
VPL-2	18.82	37.27	0.1093
ICE:			
VPI-1	8.08	15.89	0.0413
VPI-2	-1.28	8.96	0.0293

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT (PSIA)	0.1028
LOWER CONTAINMENT (PSIA)	0.1116
ICE CONDENSER (PSIA)	0.0353

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0400	26.8530
PU-2	26.9063	26.9051
LOWER:		
PL-1	0.0	0.0
PL-2	26.8891	26.8875
ICE:		
PI-1	26.9099	26.9090
PI-2	26.9287	26.9273
AMBIENT	14.5400	14.5331

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE (PSIA)	26.8791
AVERAGE LOWER PRESSURE (PSIA)	26.8875
AVERAGE ICE CONDENSER PRESSURE (PSIA)	26.9181
AVERAGE CONTAINMENT PRESSURE (PSIA)	26.8949
AVERAGE CONTAINMENT PRESSURE (PSIG)	12.3618

RUN NUMBER 19
ELAPSED TIME 9.00

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	40.55	81.10	ETR-122	35.79	71.58	ETR-115	9.01	18.02
ETR-102	38.57	77.14	ETR-123	36.57	73.14	ETR-116	9.08	18.16
ETR-103	35.76	71.52	ETR-124	37.18	74.36	ETR-117	8.57	17.14
ETR-104	35.69	71.38	ETR-125	35.94	71.88	ETR-118	10.15	20.30
ETR-105	36.59	73.18	ETR-126	36.02	72.04	ETR-119	8.04	16.08
ETR-106	36.77	73.54	ETR-127	34.00	68.00	ETR-120	7.71	15.42
ETR-107	36.47	72.94	ETR-129	37.05	74.10	ETR-121	8.09	16.18
ETR-108	36.48	72.96	ETR-130	35.63	71.26			
ETR-109	35.56	71.12	ETR-131	34.00	68.00			
ETR-110	35.36	70.72	ETR-132	37.59	75.18			
ETR-111	35.56	71.12	ETR-134	36.55	73.10			
ETR-112	35.59	71.18	ETR-135	36.46	72.92			
ETR-114	34.75	69.50	ETR-136	36.56	73.12			
ETR-128	36.53	73.06	ETR-137	36.17	72.34			
ETR-133	34.33	68.66	ETR-138	36.60	73.20			
ETR-113	37.36	74.72	ETR-139	33.71	67.42			
			ETR-140	36.55	73.10			
			ETR-141	37.17	74.34			
			ETR-142	36.11	72.22			
			ETR-143	37.58	75.16			
			ETR-144	36.89	73.78			
			ETR-145	41.54	83.08			
			ETR-146	36.99	73.98			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	73.32	LOWER VOLUME (DEG. F.)	73.12	ICE CONDENSER (DEG. F.)	16.59
UPPER VOLUME (DEG. R.)	533.02	LOWER VOLUME (DEG. R.)	532.82	ICE CONDENSER (DEG. R.)	476.29

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	17.99	35.67	0.1026
VPU-2	0.0	32.00	0.0
LOWER:			
VPL-1	19.40	38.43	0.1144
VPL-2	18.82	37.27	0.1093
ICE:			
VPI-1	9.06	17.83	0.0454
VPI-2	-1.20	10.40	0.0315

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT (PSIA)	0.1026
LOWER CONTAINMENT (PSIA)	0.1118
ICE CONDENSER (PSIA)	0.0385

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0360	26.8491
PU-2	26.9033	26.9021
LOWER:		
PL-1	0.0	0.0
PL-2	26.8863	26.8847
ICE:		
PI-1	26.9074	26.9065
PI-2	26.9261	26.9247
AMBIENT	14.5400	14.5331

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE (PSIA)	26.8756
AVERAGE LOWER PRESSURE (PSIA)	26.8847
AVERAGE ICE CONDENSER PRESSURE (PSIA)	26.9156
AVERAGE CONTAINMENT PRESSURE (PSIA)	26.8920
AVERAGE CONTAINMENT PRESSURE (PSIG)	12.3588

RUN NUMBER 20
ELAPSED TIME 9.50

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	40.52	81.04	ETR-122	35.75	71.50	ETR-115	8.94	17.88
ETR-102	38.56	77.12	ETR-123	36.60	73.20	ETR-116	8.92	17.84
ETR-103	35.76	71.52	ETR-124	37.17	74.34	ETR-117	8.56	17.12
ETR-104	35.72	71.44	ETR-125	35.94	71.88	ETR-118	10.77	21.54
ETR-105	36.65	73.30	ETR-126	36.02	72.04	ETR-119	8.04	16.08
ETR-106	36.77	73.54	ETR-127	33.97	67.94	ETR-120	7.70	15.40
ETR-107	36.49	72.98	ETR-129	37.05	74.10	ETR-121	8.06	16.12
ETR-108	36.45	72.90	ETR-130	35.63	71.26			
ETR-109	35.54	71.08	ETR-131	34.01	68.02			
ETR-110	35.39	70.78	ETR-132	37.60	75.20			
ETR-111	35.56	71.12	ETR-134	36.53	73.06			
ETR-112	35.59	71.18	ETR-135	36.51	73.02			
ETR-114	34.76	69.52	ETR-136	36.58	73.16			
ETR-128	36.54	73.08	ETR-137	36.18	72.36			
ETR-133	34.31	68.62	ETR-138	36.60	73.20			
ETR-113	37.34	74.68	ETR-139	33.72	67.44			
			ETR-140	36.55	73.10			
			ETR-141	37.18	74.36			
			ETR-142	36.11	72.22			
			ETR-143	37.58	75.16			
			ETR-144	36.89	73.78			
			ETR-145	41.54	83.08			
			ETR-146	37.00	74.00			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	73.32	LOWER VOLUME (DEG. F.)	73.13	ICE CONDENSER (DEG. F.)	16.62
UPPER VOLUME (DEG. R.)	533.02	LOWER VOLUME (DEG. R.)	532.83	ICE CONDENSER (DEG. R.)	476.32

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	17.97	35.63	0.1025
VPU-2	0.0	32.00	0.0
LOWER:			
VPL-1	19.46	38.55	0.1149
VPL-2	18.83	37.29	0.1094
ICE:			
VPI-1	7.88	15.50	0.0406
VPI-2	-1.32	8.24	0.0283

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.1025
LOWER CONTAINMENT	(PSIA)	0.1122
ICE CONDENSER	(PSIA)	0.0344

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0340	26.8471
PU-2	26.9029	26.9017
LOWER:		
PL-1	0.0	0.0
PL-2	26.8858	26.8842
ICE:		
PI-1	26.9066	26.9057
PI-2	26.9257	26.9243
AMBIENT	14.5400	14.5331

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8744
AVERAGE LOWER PRESSURE	(PSIA)	26.8842
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.9150
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8912
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3581

RUN NUMBER 21
ELAPSED TIME 10.00

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	40.50	81.00	ETR-122	35.81	71.62	ETR-115	8.77	17.54
ETR-102	38.53	77.06	ETR-123	36.60	73.20	ETR-116	8.72	17.44
ETR-103	35.76	71.52	ETR-124	37.19	74.38	ETR-117	8.40	16.80
ETR-104	35.72	71.44	ETR-125	35.91	71.82	ETR-118	10.07	20.14
ETR-105	36.56	73.12	ETR-126	36.01	72.02	ETR-119	8.03	16.06
ETR-106	36.75	73.50	ETR-127	33.98	67.96	ETR-120	7.70	15.40
ETR-107	36.44	72.88	ETR-129	37.06	74.12	ETR-121	8.04	16.08
ETR-108	36.45	72.90	ETR-130	35.63	71.26			
ETR-109	35.53	71.06	ETR-131	33.98	67.96			
ETR-110	35.33	70.66	ETR-132	37.60	75.20			
ETR-111	35.56	71.12	ETR-134	36.57	73.14			
ETR-112	35.60	71.20	ETR-135	36.43	72.86			
ETR-114	34.76	69.52	ETR-136	36.53	73.06			
ETR-128	36.56	73.12	ETR-137	36.18	72.36			
ETR-133	34.31	68.62	ETR-138	36.61	73.22			
ETR-113	37.35	74.70	ETR-139	33.74	67.48			
			ETR-140	36.56	73.12			
			ETR-141	37.20	74.40			
			ETR-142	36.11	72.22			
			ETR-143	37.59	75.18			
			ETR-144	36.89	73.78			
			ETR-145	41.54	83.08			
			ETR-146	36.97	73.94			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	73.28	LOWER VOLUME (DEG. F.)	73.11	ICE CONDENSER (DEG. F.)	16.43
UPPER VOLUME (DEG. R.)	532.98	LOWER VOLUME (DEG. R.)	532.81	ICE CONDENSER (DEG. R.)	476.13

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	17.96	35.61	0.1024
VPU-2	0.0	32.00	0.0
LOWER:			
VPL-1	19.52	38.66	0.1155
VPL-2	18.82	37.27	0.1093
ICE:			
VPI-1	8.46	16.65	0.0429
VPI-2	-1.29	8.78	0.0290

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.1024
LOWER CONTAINMENT	(PSIA)	0.1124
ICE CONDENSER	(PSIA)	0.0360

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0340	26.8471
PU-2	26.9031	26.9019
LOWER:		
PL-1	0.0	0.0
PL-2	26.8857	26.8841
ICE:		
PI-1	26.9068	26.9059
PI-2	26.9257	26.9243
AMBIENT	14.5400	14.5331

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8745
AVERAGE LOWER PRESSURE	(PSIA)	26.8841
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.9151
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8912
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3581

RUN NUMBER 22
ELAPSED TIME 10.50

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	40.45	80.90	ETR-122	35.83	71.66	ETR-115	9.00	18.00
ETR-102	38.51	77.02	ETR-123	36.61	73.22	ETR-116	8.90	17.80
ETR-103	35.78	71.56	ETR-124	37.19	74.38	ETR-117	8.40	16.80
ETR-104	35.67	71.34	ETR-125	35.94	71.88	ETR-118	9.77	19.54
ETR-105	36.54	73.08	ETR-126	36.01	72.02	ETR-119	8.03	16.06
ETR-106	36.74	73.48	ETR-127	33.99	67.98	ETR-120	7.69	15.38
ETR-107	36.43	72.86	ETR-129	37.02	74.04	ETR-121	8.03	16.06
ETR-108	36.44	72.88	ETR-130	35.63	71.26			
ETR-109	35.54	71.08	ETR-131	33.97	67.94			
ETR-110	35.41	70.82	ETR-132	37.61	75.22			
ETR-111	35.56	71.12	ETR-134	36.55	73.10			
ETR-112	35.59	71.18	ETR-135	36.43	72.86			
ETR-114	34.78	69.56	ETR-136	36.53	73.06			
ETR-128	36.56	73.12	ETR-137	36.17	72.34			
ETR-133	34.31	68.62	ETR-138	36.60	73.20			
ETR-113	37.31	74.62	ETR-139	33.73	67.46			
			ETR-140	36.57	73.14			
			ETR-141	37.19	74.38			
			ETR-142	36.12	72.24			
			ETR-143	37.60	75.20			
			ETR-144	36.90	73.80			
			ETR-145	41.55	83.10			
			ETR-146	37.02	74.04			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	73.26	LOWER VOLUME (DEG. F.)	73.12	ICE CONDENSER (DEG. F.)	16.44
UPPER VOLUME (DEG. R.)	532.96	LOWER VOLUME (DEG. R.)	532.82	ICE CONDENSER (DEG. R.)	476.14

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	17.87	35.44	0.1017
VPU-2	0.0	32.00	0.0
LOWER:			
VPL-1	19.58	38.78	0.1160
VPL-2	18.81	37.25	0.1092
ICE:			
VPI-1	8.79	17.30	0.0443
VPI-2	-1.27	9.14	0.0296

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.1017
LOWER CONTAINMENT	(PSIA)	0.1126
ICE CONDENSER	(PSIA)	0.0369

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0340	26.8471
PU-2	26.9032	26.9020
LOWER:		
PL-1	0.0	0.0
PL-2	26.8857	26.8841
ICE:		
PI-1	26.9067	26.9058
PI-2	26.9260	26.9246
AMBIENT	14.5400	14.5331

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8745
AVERAGE LOWER PRESSURE	(PSIA)	26.8841
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.9152
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8913
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3581

RUN NUMBER 23
ELAPSED TIME 11.00

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	40.44	80.88	ETR-122	35.83	71.66	ETR-115	9.29	18.58
ETR-102	38.48	76.96	ETR-123	36.61	73.22	ETR-116	9.11	18.22
ETR-103	35.77	71.54	ETR-124	37.19	74.38	ETR-117	8.86	17.72
ETR-104	35.69	71.38	ETR-125	35.91	71.82	ETR-118	9.99	19.98
ETR-105	36.46	72.92	ETR-126	36.02	72.04	ETR-119	8.04	16.08
ETR-106	36.72	73.44	ETR-127	33.95	67.90	ETR-120	7.71	15.42
ETR-107	36.37	72.74	ETR-129	37.06	74.12	ETR-121	8.04	16.08
ETR-108	36.36	72.72	ETR-130	35.63	71.26			
ETR-109	35.54	71.08	ETR-131	33.98	67.96			
ETR-110	35.44	70.88	ETR-132	37.61	75.22			
ETR-111	35.55	71.10	ETR-134	36.51	73.02			
ETR-112	35.60	71.20	ETR-135	36.50	73.00			
ETR-114	34.80	69.60	ETR-136	36.54	73.08			
ETR-128	36.58	73.16	ETR-137	36.19	72.38			
ETR-133	34.31	68.62	ETR-138	36.63	73.26			
ETR-113	37.33	74.66	ETR-139	33.73	67.46			
			ETR-140	36.57	73.14			
			ETR-141	37.19	74.38			
			ETR-142	36.13	72.26			
			ETR-143	37.59	75.18			
			ETR-144	36.89	73.78			
			ETR-145	41.56	83.12			
			ETR-146	36.99	73.98			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	73.21	LOWER VOLUME (DEG. F.)	73.13	ICE CONDENSER (DEG. F.)	16.63
UPPER VOLUME (DEG. R.)	532.91	LOWER VOLUME (DEG. R.)	532.83	ICE CONDENSER (DEG. R.)	476.33

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	17.94	35.58	0.1022
VPU-2	0.0	32.00	0.0
LOWER:			
VPL-1	19.65	38.92	0.1166
VPL-2	18.81	37.25	0.1092
ICE:			
VPI-1	9.50	18.71	0.0474
VPI-2	-1.20	10.40	0.0315

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.1022
LOWER CONTAINMENT	(PSIA)	0.1129
ICE CONDENSER	(PSIA)	0.0395

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0320	26.8451
PU-2	26.9005	26.8993
LOWER:		
PL-1	0.0	0.0
PL-2	26.8828	26.8812
ICE:		
PI-1	26.9040	26.9031
PI-2	26.9236	26.9223
AMBIENT	14.5400	14.5331

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8722
AVERAGE LOWER PRESSURE	(PSIA)	26.8812
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.9127
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8887
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3556

RUN NUMBER 24
ELAPSED TIME 11.50

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	40.42	80.84	ETR-122	35.80	71.60	ETR-115	9.28	18.56
ETR-102	38.46	76.92	ETR-123	36.61	73.22	ETR-116	9.10	18.20
ETR-103	35.77	71.54	ETR-124	37.19	74.38	ETR-117	8.66	17.32
ETR-104	35.70	71.40	ETR-125	35.95	71.90	ETR-118	9.94	19.88
ETR-105	36.46	72.92	ETR-126	36.03	72.06	ETR-119	8.05	16.10
ETR-106	36.72	73.44	ETR-127	33.96	67.92	ETR-120	7.72	15.44
ETR-107	36.38	72.76	ETR-129	37.06	74.12	ETR-121	8.04	16.08
ETR-108	36.41	72.82	ETR-130	35.63	71.26			
ETR-109	35.52	71.04	ETR-131	34.00	68.00			
ETR-110	35.37	70.74	ETR-132	37.62	75.24			
ETR-111	35.56	71.12	ETR-134	36.64	73.28			
ETR-112	35.60	71.20	ETR-135	36.50	73.00			
ETR-114	34.76	69.52	ETR-136	36.55	73.10			
ETR-128	36.59	73.18	ETR-137	36.20	72.40			
ETR-133	34.31	68.62	ETR-138	36.63	73.26			
ETR-113	37.36	74.72	ETR-139	33.74	67.48			
			ETR-140	36.57	73.14			
			ETR-141	37.20	74.40			
			ETR-142	36.13	72.26			
			ETR-143	37.60	75.20			
			ETR-144	36.90	73.80			
			ETR-145	41.55	83.10			
			ETR-146	37.01	74.02			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	73.21	LOWER VOLUME (DEG. F.)	73.17	ICE CONDENSER (DEG. F.)	16.60
UPPER VOLUME (DEG. R.)	532.91	LOWER VOLUME (DEG. R.)	532.87	ICE CONDENSER (DEG. R.)	476.30

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	17.99	35.67	0.1026
VPU-2	0.0	32.00	0.0
LOWER:			
VPL-1	19.72	39.06	0.1173
VPL-2	18.54	36.71	0.1069
ICE:			
VPI-1	7.34	14.43	0.0385
VPI-2	-1.15	11.30	0.0329

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.1026
LOWER CONTAINMENT	(PSIA)	0.1121
ICE CONDENSER	(PSIA)	0.0357

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0360	26.8491
PU-2	26.9040	26.9028
LOWER:		
PL-1	0.0	0.0
PL-2	26.8860	26.8844
ICE:		
PI-1	26.9078	26.9069
PI-2	26.9276	26.9262
AMBIENT	14.5400	14.5331

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8759
AVERAGE LOWER PRESSURE	(PSIA)	26.8844
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.9166
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8923
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3592

RUN NUMBER 25
ELAPSED TIME 12.00

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	40.40	80.80	ETR-122	35.81	71.62	ETR-115	9.13	18.26
ETR-102	38.45	76.90	ETR-123	36.57	73.14	ETR-116	9.12	18.24
ETR-103	35.77	71.54	ETR-124	37.20	74.40	ETR-117	8.72	17.44
ETR-104	35.72	71.44	ETR-125	35.94	71.88	ETR-118	9.96	19.92
ETR-105	36.44	72.88	ETR-126	36.02	72.04	ETR-119	8.06	16.12
ETR-106	36.72	73.44	ETR-127	33.98	67.96	ETR-120	7.77	15.54
ETR-107	36.35	72.70	ETR-129	37.08	74.16	ETR-121	8.04	16.08
ETR-108	36.41	72.82	ETR-130	35.63	71.26			
ETR-109	35.54	71.08	ETR-131	33.99	67.98			
ETR-110	35.43	70.86	ETR-132	37.62	75.24			
ETR-111	35.56	71.12	ETR-134	36.52	73.04			
ETR-112	35.61	71.22	ETR-135	36.48	72.96			
ETR-114	34.76	69.52	ETR-136	36.56	73.12			
ETR-128	36.59	73.18	ETR-137	36.21	72.42			
ETR-133	34.32	68.64	ETR-138	36.64	73.28			
ETR-113	37.34	74.68	ETR-139	33.75	67.50			
			ETR-140	36.57	73.14			
			ETR-141	37.22	74.44			
			ETR-142	36.13	72.26			
			ETR-143	37.60	75.20			
			ETR-144	36.90	73.80			
			ETR-145	41.54	83.08			
			ETR-146	37.01	74.02			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	73.21	LOWER VOLUME (DEG. F.)	73.14	ICE CONDENSER (DEG. F.)	16.63
UPPER VOLUME (DEG. R.)	532.91	LOWER VOLUME (DEG. R.)	532.84	ICE CONDENSER (DEG. R.)	476.33

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	17.94	35.58	0.1022
VPU-2	0.0	32.00	0.0
LOWER:			
VPL-1	19.78	39.18	0.1178
VPL-2	18.59	36.81	0.1073
ICE:			
VPI-1	8.48	16.68	0.0430
VPI-2	-1.04	13.28	0.0364

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.1022
LOWER CONTAINMENT	(PSIA)	0.1126
ICE CONDENSER	(PSIA)	0.0397

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0340	26.8471
PU-2	26.9028	26.9016
LOWER:		
PL-1	0.0	0.0
PL-2	26.8850	26.8834
ICE:		
PI-1	26.9057	26.9048
PI-2	26.9265	26.9251
AMBIENT	14.5400	14.5331

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8743
AVERAGE LOWER PRESSURE	(PSIA)	26.8834
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.9150
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8909
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3578

RUN NUMBER 26
ELAPSED TIME 12.50

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	40.36	80.72	ETR-122	35.83	71.66	ETR-115	9.15	18.30
ETR-102	38.41	76.82	ETR-123	36.60	73.20	ETR-116	9.19	18.38
ETR-103	35.75	71.50	ETR-124	37.20	74.40	ETR-117	8.87	17.74
ETR-104	35.68	71.36	ETR-125	35.94	71.88	ETR-118	10.81	21.62
ETR-105	36.41	72.82	ETR-126	36.03	72.06	ETR-119	8.07	16.14
ETR-106	36.70	73.40	ETR-127	33.99	67.98	ETR-120	7.78	15.56
ETR-107	36.43	72.86	ETR-129	37.08	74.16	ETR-121	8.04	16.08
ETR-108	36.38	72.76	ETR-130	35.63	71.26			
ETR-109	35.50	71.00	ETR-131	33.95	67.90			
ETR-110	35.39	70.78	ETR-132	37.63	75.26			
ETR-111	35.56	71.12	ETR-134	36.59	73.18			
ETR-112	35.60	71.20	ETR-135	36.45	72.90			
ETR-114	34.74	69.48	ETR-136	36.53	73.06			
ETR-128	36.59	73.18	ETR-137	36.23	72.46			
ETR-133	34.34	68.68	ETR-138	36.63	73.26			
ETR-113	37.38	74.76	ETR-139	33.75	67.50			
			ETR-140	36.59	73.18			
			ETR-141	37.22	74.44			
			ETR-142	36.14	72.28			
			ETR-143	37.61	75.22			
			ETR-144	36.92	73.84			
			ETR-145	41.56	83.12			
			ETR-146	37.02	74.04			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	73.18	LOWER VOLUME (DEG. F.)	73.16	ICE CONDENSER (DEG. F.)	16.79
UPPER VOLUME (DEG. R.)	532.88	LOWER VOLUME (DEG. R.)	532.86	ICE CONDENSER (DEG. R.)	476.49

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	17.96	35.61	0.1024
VPU-2	0.0	32.00	0.0
LOWER:			
VPL-1	19.85	39.32	0.1185
VPL-2	18.59	36.81	0.1073
ICE:			
VPI-1	7.98	15.70	0.0409
VPI-2	-1.11	12.02	0.0341

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.1024
LOWER CONTAINMENT	(PSIA)	0.1129
ICE CONDENSER	(PSIA)	0.0375

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0310	26.8441
PU-2	26.8999	26.8987
LOWER:		
PL-1	0.0	0.0
PL-2	26.8821	26.8805
ICE:		
PI-1	26.9026	26.9017
PI-2	26.9242	26.9229
AMBIENT	14.5400	14.5331

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8714
AVERAGE LOWER PRESSURE	(PSIA)	26.8805
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.9123
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8880
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3549

RUN NUMBER 27
ELAPSED TIME 13.00

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	40.32	80.64	ETR-122	35.79	71.58	ETR-115	9.27	18.54
ETR-102	38.38	76.76	ETR-123	36.59	73.18	ETR-116	9.15	18.30
ETR-103	35.74	71.48	ETR-124	37.22	74.44	ETR-117	8.86	17.72
ETR-104	35.71	71.42	ETR-125	35.96	71.92	ETR-118	10.77	21.54
ETR-105	36.44	72.88	ETR-126	36.03	72.06	ETR-119	8.08	16.16
ETR-106	36.69	73.38	ETR-127	33.99	67.98	ETR-120	7.78	15.56
ETR-107	36.31	72.62	ETR-129	37.12	74.24	ETR-121	8.04	16.08
ETR-108	36.33	72.66	ETR-130	35.63	71.26			
ETR-109	35.49	70.98	ETR-131	33.95	67.90			
ETR-110	35.40	70.80	ETR-132	37.63	75.26			
ETR-111	35.56	71.12	ETR-134	36.64	73.28			
ETR-112	35.60	71.20	ETR-135	36.44	72.88			
ETR-114	34.75	69.50	ETR-136	36.58	73.16			
ETR-128	36.60	73.20	ETR-137	36.20	72.40			
ETR-133	34.35	68.70	ETR-138	36.66	73.32			
ETR-113	37.37	74.74	ETR-139	33.77	67.54			
			ETR-140	36.59	73.18			
			ETR-141	37.23	74.46			
			ETR-142	36.15	72.30			
			ETR-143	37.61	75.22			
			ETR-144	36.90	73.80			
			ETR-145	41.54	83.08			
			ETR-146	37.04	74.08			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	73.14	LOWER VOLUME (DEG. F.)	73.18	ICE CONDENSER (DEG. F.)	16.80
UPPER VOLUME (DEG. R.)	532.84	LOWER VOLUME (DEG. R.)	532.88	ICE CONDENSER (DEG. R.)	476.50

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	18.01	35.71	0.1028
VPU-2	0.0	32.00	0.0
LOWER:			
VPL-1	19.92	39.46	0.1191
VPL-2	18.60	36.83	0.1074
ICE:			
VPI-1	8.53	16.78	0.0432
VPI-2	-1.06	12.92	0.0357

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.1028
LOWER CONTAINMENT	(PSIA)	0.1133
ICE CONDENSER	(PSIA)	0.0394

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0290	26.8422
PU-2	26.8976	26.8964
LOWER:		
PL-1	0.0	0.0
PL-2	26.8798	26.8782
ICE:		
PI-1	26.9008	26.8999
PI-2	26.9232	26.9219
AMBIENT	14.5400	14.5331

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8693
AVERAGE LOWER PRESSURE	(PSIA)	26.8782
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.9109
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8861
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3530

RUN NUMBER 28
ELAPSED TIME 13.50

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	40.28	80.56	ETR-122	35.83	71.66	ETR-115	9.22	18.44
ETR-102	38.35	76.70	ETR-123	36.63	73.26	ETR-116	9.14	18.28
ETR-103	35.78	71.56	ETR-124	37.21	74.42	ETR-117	8.90	17.80
ETR-104	35.73	71.46	ETR-125	35.95	71.90	ETR-118	10.50	21.00
ETR-105	36.36	72.72	ETR-126	36.04	72.08	ETR-119	8.10	16.20
ETR-106	36.68	73.36	ETR-127	34.02	68.04	ETR-120	7.79	15.58
ETR-107	36.26	72.52	ETR-129	37.11	74.22	ETR-121	8.04	16.08
ETR-108	36.35	72.70	ETR-130	35.63	71.26			
ETR-109	35.54	71.08	ETR-131	33.99	67.98			
ETR-110	35.43	70.86	ETR-132	37.63	75.26			
ETR-111	35.57	71.14	ETR-134	36.59	73.18			
ETR-112	35.60	71.20	ETR-135	36.45	72.90			
ETR-114	34.75	69.50	ETR-136	36.57	73.14			
ETR-128	36.61	73.22	ETR-137	36.25	72.50			
ETR-133	34.34	68.68	ETR-138	36.65	73.30			
ETR-113	37.37	74.74	ETR-139	33.78	67.56			
			ETR-140	36.60	73.20			
			ETR-141	37.25	74.50			
			ETR-142	36.16	72.32			
			ETR-143	37.61	75.22			
			ETR-144	36.90	73.80			
			ETR-145	41.57	83.14			
			ETR-146	37.02	74.04			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	73.12	LOWER VOLUME (DEG. F.)	73.18	ICE CONDENSER (DEG. F.)	16.78
UPPER VOLUME (DEG. R.)	532.82	LOWER VOLUME (DEG. R.)	532.88	ICE CONDENSER (DEG. R.)	476.48

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	17.98	35.65	0.1025
VPU-2	0.0	32.00	0.0
LOWER:			
VPL-1	19.99	39.60	0.1198
VPL-2	18.59	36.81	0.1073
ICE:			
VPI-1	8.86	17.45	0.0446
VPI-2	-1.04	13.28	0.0364

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT (PSIA)	0.1025
LOWER CONTAINMENT (PSIA)	0.1136
ICE CONDENSER (PSIA)	0.0405

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0320	26.8451
PU-2	26.9010	26.8998
LOWER:		
PL-1	0.0	0.0
PL-2	26.8837	26.8821
ICE:		
PI-1	26.9048	26.9039
PI-2	26.9305	26.9291
AMBIENT	14.5400	14.5331

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE (PSIA)	26.8724
AVERAGE LOWER PRESSURE (PSIA)	26.8821
AVERAGE ICE CONDENSER PRESSURE (PSIA)	26.9165
AVERAGE CONTAINMENT PRESSURE (PSIA)	26.8903
AVERAGE CONTAINMENT PRESSURE (PSIG)	12.3572

RUN NUMBER 29
ELAPSED TIME 14.00

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	40.25	80.50	ETR-122	35.84	71.68	ETR-115	9.40	18.80
ETR-102	38.32	76.64	ETR-123	36.61	73.22	ETR-116	9.20	18.40
ETR-103	35.75	71.50	ETR-124	37.22	74.44	ETR-117	8.79	17.58
ETR-104	35.68	71.36	ETR-125	35.97	71.94	ETR-118	10.04	20.08
ETR-105	36.44	72.88	ETR-126	36.04	72.08	ETR-119	8.10	16.20
ETR-106	36.65	73.30	ETR-127	33.99	67.98	ETR-120	7.79	15.58
ETR-107	36.31	72.62	ETR-129	37.08	74.16	ETR-121	8.08	16.16
ETR-108	36.32	72.64	ETR-130	35.63	71.26			
ETR-109	35.53	71.06	ETR-131	33.98	67.96			
ETR-110	35.40	70.80	ETR-132	37.64	75.28			
ETR-111	35.56	71.12	ETR-134	36.62	73.24			
ETR-112	35.59	71.18	ETR-135	36.45	72.90			
ETR-114	34.76	69.52	ETR-136	36.57	73.14			
ETR-128	36.63	73.26	ETR-137	36.23	72.46			
ETR-133	34.33	68.66	ETR-138	36.65	73.30			
ETR-113	37.37	74.74	ETR-139	33.78	67.56			
			ETR-140	36.60	73.20			
			ETR-141	37.24	74.48			
			ETR-142	36.17	72.34			
			ETR-143	37.62	75.24			
			ETR-144	36.91	73.82			
			ETR-145	41.56	83.12			
			ETR-146	37.04	74.08			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	73.11	LOWER VOLUME (DEG. F.)	73.19	ICE CONDENSER (DEG. F.)	16.75
UPPER VOLUME (DEG. R.)	532.81	LOWER VOLUME (DEG. R.)	532.89	ICE CONDENSER (DEG. R.)	476.45

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	17.94	35.58	0.1022
VPU-2	0.0	32.00	0.0
LOWER:			
VPL-1	20.07	39.76	0.1205
VPL-2	18.60	36.83	0.1074
ICE:			
VPI-1	8.67	17.06	0.0438
VPI-2	-1.08	12.56	0.0351

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT (PSIA)	0.1022
LOWER CONTAINMENT (PSIA)	0.1140
ICE CONDENSER (PSIA)	0.0394

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0310	26.8441
PU-2	26.9002	26.8990
LOWER:		
PL-1	0.0	0.0
PL-2	26.8824	26.8808
ICE:		
PI-1	26.9036	26.9027
PI-2	26.9207	26.9194
AMBIENT	14.5400	14.5331

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE (PSIA)	26.8716
AVERAGE LOWER PRESSURE (PSIA)	26.8808
AVERAGE ICE CONDENSER PRESSURE (PSIA)	26.9110
AVERAGE CONTAINMENT PRESSURE (PSIA)	26.8878
AVERAGE CONTAINMENT PRESSURE (PSIG)	12.3547

RUN NUMBER 30
ELAPSED TIME 14.50

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	40.21	80.42	ETR-122	35.85	71.70	ETR-115	9.51	19.02
ETR-102	38.30	76.60	ETR-123	36.64	73.28	ETR-116	9.21	18.42
ETR-103	35.76	71.52	ETR-124	37.24	74.48	ETR-117	8.92	17.84
ETR-104	35.71	71.42	ETR-125	35.97	71.94	ETR-118	10.23	20.46
ETR-105	36.33	72.66	ETR-126	36.04	72.08	ETR-119	8.10	16.20
ETR-106	36.64	73.28	ETR-127	33.99	67.98	ETR-120	7.80	15.60
ETR-107	36.21	72.42	ETR-129	37.11	74.22	ETR-121	8.08	16.16
ETR-108	36.28	72.56	ETR-130	35.65	71.30			
ETR-109	35.54	71.08	ETR-131	33.97	67.94			
ETR-110	35.45	70.90	ETR-132	37.64	75.28			
ETR-111	35.57	71.14	ETR-134	36.62	73.24			
ETR-112	35.61	71.22	ETR-135	36.47	72.94			
ETR-114	34.79	69.58	ETR-136	36.57	73.14			
ETR-128	36.64	73.28	ETR-137	36.25	72.50			
ETR-133	34.35	68.70	ETR-138	36.65	73.30			
ETR-113	37.36	74.72	ETR-139	33.80	67.60			
			ETR-140	36.60	73.20			
			ETR-141	37.26	74.52			
			ETR-142	36.17	72.34			
			ETR-143	37.62	75.24			
			ETR-144	36.92	73.84			
			ETR-145	41.56	83.12			
			ETR-146	37.04	74.08			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	73.07	LOWER VOLUME (DEG. F.)	73.20	ICE CONDENSER (DEG. F.)	16.82
UPPER VOLUME (DEG. R.)	532.77	LOWER VOLUME (DEG. R.)	532.90	ICE CONDENSER (DEG. R.)	476.52

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	17.41	34.52	0.0980
VPU-2	0.0	32.00	0.0
LOWER:			
VPL-1	20.16	39.94	0.1214
VPL-2	18.60	36.83	0.1074
ICE:			
VPI-1	8.60	16.93	0.0435
VPI-2	-1.10	12.20	0.0345

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.0980
LOWER CONTAINMENT	(PSIA)	0.1144
ICE CONDENSER	(PSIA)	0.0390

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0300	26.8431
PU-2	26.8989	26.8977
LOWER:		
PL-1	0.0	0.0
PL-2	26.8813	26.8797
ICE:		
PI-1	26.9022	26.9013
PI-2	26.9179	26.9166
AMBIENT	14.5400	14.5331

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8704
AVERAGE LOWER PRESSURE	(PSIA)	26.8797
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.9089
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8863
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3532

RUN NUMBER 31
ELAPSED TIME 15.00

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	40.18	80.36	ETR-122	35.83	71.66	ETR-115	9.44	18.88
ETR-102	38.27	76.54	ETR-123	36.63	73.26	ETR-116	9.29	18.58
ETR-103	35.76	71.52	ETR-124	37.21	74.42	ETR-117	8.89	17.78
ETR-104	35.69	71.38	ETR-125	35.94	71.88	ETR-118	10.21	20.42
ETR-105	36.30	72.60	ETR-126	36.04	72.08	ETR-119	8.10	16.20
ETR-106	36.64	73.28	ETR-127	34.03	68.06	ETR-120	7.82	15.64
ETR-107	36.20	72.40	ETR-129	37.14	74.28	ETR-121	8.06	16.12
ETR-108	36.27	72.54	ETR-130	35.63	71.26			
ETR-109	35.56	71.12	ETR-131	33.98	67.96			
ETR-110	35.46	70.92	ETR-132	37.64	75.28			
ETR-111	35.56	71.12	ETR-134	36.63	73.26			
ETR-112	35.61	71.22	ETR-135	36.46	72.92			
ETR-114	34.73	69.46	ETR-136	36.60	73.20			
ETR-128	36.63	73.26	ETR-137	36.26	72.52			
ETR-133	34.35	68.70	ETR-138	36.66	73.32			
ETR-113	37.39	74.78	ETR-139	37.78	75.56			
			ETR-140	36.61	73.22			
			ETR-141	37.25	74.50			
			ETR-142	36.18	72.36			
			ETR-143	37.62	75.24			
			ETR-144	36.92	73.84			
			ETR-145	41.54	83.08			
			ETR-146	37.03	74.06			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	73.04	LOWER VOLUME (DEG. F.)	73.28	ICE CONDENSER (DEG. F.)	16.81
UPPER VOLUME (DEG. R.)	532.74	LOWER VOLUME (DEG. R.)	532.98	ICE CONDENSER (DEG. R.)	476.51

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	17.37	34.44	0.0977
VPU-2	0.0	32.00	0.0
LOWER:			
VPL-1	20.25	40.12	0.1222
VPL-2	18.60	36.83	0.1074
ICE:			
VPI-1	9.19	18.09	0.0460
VPI-2	-1.05	13.10	0.0360

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.0977
LOWER CONTAINMENT	(PSIA)	0.1148
ICE CONDENSER	(PSIA)	0.0410

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0270	26.8402
PU-2	26.8955	26.8943
LOWER:		
PL-1	0.0	0.0
PL-2	26.8780	26.8764
ICE:		
PI-1	26.8985	26.8976
PI-2	26.9136	26.9123
AMBIENT	14.5300	14.5232

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8672
AVERAGE LOWER PRESSURE	(PSIA)	26.8764
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.9049
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8828
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3596

RUN NUMBER 32
ELAPSED TIME 15.50

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME RTD	MILLI-VOLTS	DEG. F.	LOWER VOLUME RTD	MILLI-VOLTS	DEG. F.	ICE CONDENSER RTD	MILLI-VOLTS	DEG. F.
ETR-101	40.16	80.32	ETR-122	35.84	71.68	ETR-115	9.28	18.56
ETR-102	38.24	76.48	ETR-123	36.63	73.26	ETR-116	9.27	18.54
ETR-103	35.76	71.52	ETR-124	37.22	74.44	ETR-117	8.84	17.68
ETR-104	35.68	71.36	ETR-125	35.95	71.90	ETR-118	10.08	20.16
ETR-105	36.37	72.74	ETR-126	36.04	72.08	ETR-119	8.12	16.24
ETR-106	36.63	73.26	ETR-127	34.02	68.04	ETR-120	7.85	15.70
ETR-107	36.31	72.62	ETR-129	37.12	74.24	ETR-121	8.07	16.14
ETR-108	36.26	72.52	ETR-130	35.65	71.30			
ETR-109	35.51	71.02	ETR-131	34.01	68.02			
ETR-110	35.49	70.98	ETR-132	37.65	75.30			
ETR-111	35.57	71.14	ETR-134	36.69	73.38			
ETR-112	35.60	71.20	ETR-135	36.52	73.04			
ETR-114	34.81	69.62	ETR-136	36.58	73.16			
ETR-128	36.66	73.32	ETR-137	36.25	72.50			
ETR-133	34.35	68.70	ETR-138	36.67	73.34			
ETR-113	37.43	74.86	ETR-139	33.80	67.60			
			ETR-140	36.61	73.22			
			ETR-141	37.26	74.52			
			ETR-142	36.18	72.36			
			ETR-143	37.63	75.26			
			ETR-144	36.93	73.86			
			ETR-145	41.54	83.08			
			ETR-146	37.05	74.10			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	73.07	LOWER VOLUME (DEG. F.)	73.24	ICE CONDENSER (DEG. F.)	16.79
UPPER VOLUME (DEG. R.)	532.77	LOWER VOLUME (DEG. R.)	532.94	ICE CONDENSER (DEG. R.)	476.49

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	17.46	34.62	0.0984
VPU-2	0.02	32.34	0.0898
LOWER:			
VPL-1	20.33	40.28	0.1230
VPL-2	18.49	36.61	0.1065
ICE:			
VPI-1	9.85	19.40	0.0490
VPI-2	-0.98	14.36	0.0383

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT (PSIA)	0.0941
LOWER CONTAINMENT (PSIA)	0.1147
ICE CONDENSER (PSIA)	0.0437

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0300	26.8431
PU-2	26.8988	26.8976
LOWER:		
PL-1	0.0	0.0
PL-2	26.8813	26.8797
ICE:		
PI-1	26.9023	26.9014
PI-2	26.9173	26.9160
AMBIENT	14.5300	14.5232

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE (PSIA)	26.8704
AVERAGE LOWER PRESSURE (PSIA)	26.8797
AVERAGE ICE CONDENSER PRESSURE (PSIA)	26.9087
AVERAGE CONTAINMENT PRESSURE (PSIA)	26.8862
AVERAGE CONTAINMENT PRESSURE (PSIG)	12.3630

RUN NUMBER 33
ELAPSED TIME 16.00

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	40.13	80.26	ETR-122	35.84	71.68	ETR-115	9.22	18.44
ETR-102	38.20	76.40	ETR-123	36.64	73.28	ETR-116	9.24	18.48
ETR-103	35.75	71.50	ETR-124	37.24	74.48	ETR-117	8.87	17.74
ETR-104	35.69	71.38	ETR-125	35.95	71.90	ETR-118	11.03	22.06
ETR-105	36.36	72.72	ETR-126	36.04	72.08	ETR-119	8.13	16.26
ETR-106	36.60	73.20	ETR-127	33.99	67.98	ETR-120	7.84	15.68
ETR-107	36.22	72.44	ETR-129	37.10	74.20	ETR-121	8.09	16.18
ETR-108	36.24	72.48	ETR-130	35.64	71.28			
ETR-109	35.51	71.02	ETR-131	33.97	67.94			
ETR-110	35.46	70.92	ETR-132	37.65	75.30			
ETR-111	35.56	71.12	ETR-134	36.61	73.22			
ETR-112	35.61	71.22	ETR-135	36.47	72.94			
ETR-114	34.76	69.52	ETR-136	36.60	73.20			
ETR-128	36.66	73.32	ETR-137	36.22	72.44			
ETR-133	34.34	68.68	ETR-138	36.66	73.32			
ETR-113	37.39	74.78	ETR-139	33.79	67.58			
			ETR-140	36.62	73.24			
			ETR-141	37.26	74.52			
			ETR-142	36.18	72.36			
			ETR-143	37.63	75.26			
			ETR-144	36.92	73.84			
			ETR-145	41.57	83.14			
			ETR-146	37.06	74.12			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	73.02	LOWER VOLUME (DEG. F.)	73.20	ICE CONDENSER (DEG. F.)	16.92
UPPER VOLUME (DEG. R.)	532.72	LOWER VOLUME (DEG. R.)	532.90	ICE CONDENSER (DEG. R.)	476.62

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	17.46	34.62	0.0984
VPU-2	0.07	33.19	0.0929
LOWER:			
VPL-1	20.40	40.42	0.1236
VPL-2	18.52	36.67	0.1067
ICE:			
VPI-1	8.75	17.23	0.0441
VPI-2	-1.12	11.84	0.0338

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.0957
LOWER CONTAINMENT	(PSIA)	0.1152
ICE CONDENSER	(PSIA)	0.0390

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0260	26.8392
PU-2	26.8948	26.8936
LOWER:		
PL-1	0.0	0.0
PL-2	26.8773	26.8757
ICE:		
PI-1	26.8982	26.8973
PI-2	26.9134	26.9121
AMBIENT	14.5200	14.5133

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8664
AVERAGE LOWER PRESSURE	(PSIA)	26.8757
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.9047
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8822
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3690

RUN NUMBER 34
ELAPSED TIME 16.50

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME RTD	MILLI-VOLTS	DEG. F.	LOWER VOLUME RTD	MILLI-VOLTS	DEG. F.	ICE CONDENSER RTD	MILLI-VOLTS	DEG. F.
ETR-101	40.12	80.24	ETR-122	35.89	71.78	ETR-115	9.12	18.24
ETR-102	38.18	76.36	ETR-123	36.59	73.18	ETR-116	9.12	18.24
ETR-103	35.74	71.48	ETR-124	37.28	74.56	ETR-117	8.79	17.58
ETR-104	35.66	71.32	ETR-125	35.98	71.96	ETR-118	10.50	21.00
ETR-105	36.27	72.54	ETR-126	36.05	72.10	ETR-119	8.13	16.26
ETR-106	36.59	73.18	ETR-127	33.98	67.96	ETR-120	7.84	15.68
ETR-107	36.23	72.46	ETR-129	37.13	74.26	ETR-121	8.10	16.20
ETR-108	36.22	72.44	ETR-130	35.65	71.30			
ETR-109	35.52	71.04	ETR-131	33.96	67.92			
ETR-110	35.39	70.78	ETR-132	37.66	75.32			
ETR-111	35.57	71.14	ETR-134	36.56	73.12			
ETR-112	35.60	71.20	ETR-135	36.50	73.00			
ETR-114	34.80	69.60	ETR-136	36.59	73.18			
ETR-128	36.67	73.34	ETR-137	36.27	72.54			
ETR-133	34.36	68.72	ETR-138	36.67	73.34			
ETR-113	37.39	74.78	ETR-139	33.82	67.64			
			ETR-140	36.62	73.24			
			ETR-141	37.27	74.54			
			ETR-142	36.19	72.38			
			ETR-143	37.63	75.26			
			ETR-144	36.94	73.88			
			ETR-145	41.57	83.14			
			ETR-146	37.05	74.10			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.99	LOWER VOLUME (DEG. F.)	73.22	ICE CONDENSER (DEG. F.)	16.81
UPPER VOLUME (DEG. R.)	532.69	LOWER VOLUME (DEG. R.)	532.92	ICE CONDENSER (DEG. R.)	476.51

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	17.41	34.52	0.0980
VPU-2	0.07	33.31	0.0934
LOWER:			
VPL-1	20.49	40.60	0.1245
VPL-2	18.54	36.71	0.1069
ICE:			
VPI-1	9.05	17.81	0.0454
VPI-2	-1.27	9.14	0.0296

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.0957
LOWER CONTAINMENT	(PSIA)	0.1157
ICE CONDENSER	(PSIA)	0.0375

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0250	26.8382
PU-2	26.8937	26.8925
LOWER:		
PL-1	0.0	0.0
PL-2	26.8764	26.8748
ICE:		
PI-1	26.8967	26.8958
PI-2	26.9125	26.9112
AMBIENT	14.5200	14.5133

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8653
AVERAGE LOWER PRESSURE	(PSIA)	26.8748
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.9035
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8812
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3679

RUN NUMBER 35
ELAPSED TIME 17.00

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME RTD	MILLI-VOLTS	DEG. F.	LOWER VOLUME RTD	MILLI-VOLTS	DEG. F.	ICE CONDENSER RTD	MILLI-VOLTS	DEG. F.
ETR-101	40.13	80.26	ETR-122	35.84	71.68	ETR-115	9.26	18.52
ETR-102	38.15	76.30	ETR-123	36.62	73.24	ETR-116	9.28	18.56
ETR-103	35.75	71.50	ETR-124	37.25	74.50	ETR-117	8.85	17.70
ETR-104	35.69	71.38	ETR-125	35.97	71.94	ETR-118	10.49	20.98
ETR-105	36.25	72.50	ETR-126	36.05	72.10	ETR-119	8.13	16.26
ETR-106	36.58	73.16	ETR-127	33.98	67.96	ETR-120	7.84	15.68
ETR-107	36.18	72.36	ETR-129	37.13	74.26	ETR-121	8.08	16.16
ETR-108	36.21	72.42	ETR-130	35.64	71.28			
ETR-109	35.59	71.18	ETR-131	33.98	67.96			
ETR-110	35.49	70.98	ETR-132	37.66	75.32			
ETR-111	35.55	71.10	ETR-134	36.74	73.48			
ETR-112	35.60	71.20	ETR-135	36.48	72.96			
ETR-114	34.81	69.62	ETR-136	36.60	73.20			
ETR-128	36.67	73.34	ETR-137	36.27	72.54			
ETR-133	34.35	68.70	ETR-138	36.66	73.32			
ETR-113	37.41	74.82	ETR-139	33.82	67.64			
			ETR-140	36.63	73.26			
			ETR-141	37.29	74.58			
			ETR-142	36.18	72.36			
			ETR-143	37.63	75.26			
			ETR-144	36.94	73.88			
			ETR-145	41.58	83.16			
			ETR-146	37.06	74.12			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.98	LOWER VOLUME (DEG. F.)	73.25	ICE CONDENSER (DEG. F.)	16.85
UPPER VOLUME (DEG. R.)	532.68	LOWER VOLUME (DEG. R.)	532.95	ICE CONDENSER (DEG. R.)	476.55

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	17.51	34.72	0.0988
VPU-2	0.09	33.66	0.0947
LOWER:			
VPL-1	20.60	40.82	0.1256
VPL-2	18.56	36.75	0.1071
ICE:			
VPI-1	10.02	19.73	0.0498
VPI-2	-1.07	12.74	0.0354

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.0967
LOWER CONTAINMENT	(PSIA)	0.1163
ICE CONDENSER	(PSIA)	0.0426

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0230	26.8362
PU-2	26.8913	26.8901
LOWER:		
PL-1	0.0	0.0
PL-2	26.8743	26.8727
ICE:		
PI-1	26.8948	26.8939
PI-2	26.9106	26.9093
AMBIENT	14.5200	14.5133

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8631
AVERAGE LOWER PRESSURE	(PSIA)	26.8727
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.9016
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8791
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3659

RUN NUMBER 36
ELAPSED TIME 17.50

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	40.10	80.20	ETR-122	35.85	71.70	ETR-115	9.58	19.16
ETR-102	38.12	76.24	ETR-123	36.67	73.34	ETR-116	9.27	18.54
ETR-103	35.75	71.50	ETR-124	37.25	74.50	ETR-117	8.92	17.84
ETR-104	35.67	71.34	ETR-125	36.01	72.02	ETR-118	10.10	20.20
ETR-105	36.27	72.54	ETR-126	36.06	72.12	ETR-119	8.15	16.30
ETR-106	36.56	73.12	ETR-127	34.00	68.00	ETR-120	7.86	15.72
ETR-107	36.16	72.32	ETR-129	37.15	74.30	ETR-121	8.12	16.24
ETR-108	36.21	72.42	ETR-130	35.65	71.30			
ETR-109	35.51	71.02	ETR-131	33.98	67.96			
ETR-110	35.48	70.96	ETR-132	37.66	75.32			
ETR-111	35.57	71.14	ETR-134	36.60	73.20			
ETR-112	35.60	71.20	ETR-135	36.54	73.08			
ETR-114	34.78	69.56	ETR-136	36.63	73.26			
ETR-128	36.68	73.36	ETR-137	36.26	72.52			
ETR-133	34.35	68.70	ETR-138	36.66	73.32			
ETR-113	37.40	74.80	ETR-139	33.81	67.62			
			ETR-140	36.64	73.28			
			ETR-141	37.29	74.58			
			ETR-142	36.18	72.36			
			ETR-143	37.64	75.28			
			ETR-144	36.93	73.86			
			ETR-145	41.55	83.10			
			ETR-146	37.07	74.14			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.95	LOWER VOLUME (DEG. F.)	73.25	ICE CONDENSER (DEG. F.)	16.89
UPPER VOLUME (DEG. R.)	532.65	LOWER VOLUME (DEG. R.)	532.95	ICE CONDENSER (DEG. R.)	476.59

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	17.44	34.58	0.0982
VPU-2	0.08	33.42	0.0938
LOWER:			
VPL-1	20.69	41.00	0.1265
VPL-2	18.55	36.73	0.1070
ICE:			
VPI-1	7.72	15.18	0.0399
VPI-2	-1.07	12.74	0.0354

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.0960
LOWER CONTAINMENT	(PSIA)	0.1167
ICE CONDENSER	(PSIA)	0.0377

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0260	26.8392
PU-2	26.8950	26.8938
LOWER:		
PL-1	0.0	0.0
PL-2	26.8775	26.8759
ICE:		
PI-1	26.8986	26.8977
PI-2	26.9147	26.9134
AMBIENT	14.5100	14.5033

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8665
AVERAGE LOWER PRESSURE	(PSIA)	26.8759
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.9055
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8826
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3793

RUN NUMBER 37
ELAPSED TIME 18.00

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	40.05	80.10	ETR-122	35.87	71.74	ETR-115	9.49	18.98
ETR-102	38.09	76.18	ETR-123	36.65	73.30	ETR-116	9.24	18.48
ETR-103	35.76	71.52	ETR-124	37.24	74.48	ETR-117	8.88	17.76
ETR-104	35.71	71.42	ETR-125	35.99	71.98	ETR-118	10.17	20.34
ETR-105	36.24	72.48	ETR-126	36.05	72.10	ETR-119	8.14	16.28
ETR-106	36.56	73.12	ETR-127	33.98	67.96	ETR-120	7.85	15.70
ETR-107	36.11	72.22	ETR-129	37.16	74.32	ETR-121	8.14	16.28
ETR-108	36.20	72.40	ETR-130	35.65	71.30			
ETR-109	35.59	71.18	ETR-131	33.96	67.92			
ETR-110	35.38	70.76	ETR-132	37.66	75.32			
ETR-111	35.57	71.14	ETR-134	36.65	73.30			
ETR-112	35.60	71.20	ETR-135	36.51	73.02			
ETR-114	34.84	69.68	ETR-136	36.62	73.24			
ETR-128	36.70	73.40	ETR-137	36.31	72.62			
ETR-133	34.36	68.72	ETR-138	36.64	73.28			
ETR-113	37.39	74.78	ETR-139	33.83	67.66			
			ETR-140	36.64	73.28			
			ETR-141	37.28	74.56			
			ETR-142	36.18	72.36			
			ETR-143	37.64	75.28			
			ETR-144	36.93	73.86			
			ETR-145	41.57	83.14			
			ETR-146	37.08	74.16			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.94	LOWER VOLUME (DEG. F.)	73.26	ICE CONDENSER (DEG. F.)	16.87
UPPER VOLUME (DEG. R.)	532.64	LOWER VOLUME (DEG. R.)	532.96	ICE CONDENSER (DEG. R.)	476.57

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	17.46	34.62	0.0984
VPU-2	0.08	33.48	0.0940
LOWER:			
VPL-1	20.78	41.18	0.1273
VPL-2	18.57	36.77	0.1072
ICE:			
VPI-1	8.03	15.80	0.0411
VPI-2	-1.09	12.38	0.0348

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.0962
LOWER CONTAINMENT	(PSIA)	0.1173
ICE CONDENSER	(PSIA)	0.0380

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0250	26.8382
PU-2	26.8930	26.8918
LOWER:		
PL-1	0.0	0.0
PL-2	26.8758	26.8742
ICE:		
PI-1	26.8967	26.8958
PI-2	26.9141	26.9128
AMBIENT	14.5100	14.5033

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8650
AVERAGE LOWER PRESSURE	(PSIA)	26.8742
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.9043
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8811
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3778

RUN NUMBER 38
ELAPSED TIME 18.50

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	40.04	80.08	ETR-122	35.85	71.70	ETR-115	9.37	18.74
ETR-102	38.06	76.12	ETR-123	36.65	73.30	ETR-116	9.30	18.60
ETR-103	35.75	71.50	ETR-124	37.25	74.50	ETR-117	8.89	17.78
ETR-104	35.67	71.34	ETR-125	35.97	71.94	ETR-118	10.17	20.34
ETR-105	36.20	72.40	ETR-126	36.05	72.10	ETR-119	8.15	16.30
ETR-106	36.54	73.08	ETR-127	33.96	67.92	ETR-120	7.92	15.84
ETR-107	36.17	72.34	ETR-129	37.18	74.36	ETR-121	8.11	16.22
ETR-108	36.19	72.38	ETR-130	35.65	71.30			
ETR-109	35.56	71.12	ETR-131	33.97	67.94			
ETR-110	35.43	70.86	ETR-132	37.66	75.32			
ETR-111	35.57	71.14	ETR-134	36.56	73.12			
ETR-112	35.61	71.22	ETR-135	36.46	72.92			
ETR-114	34.79	69.58	ETR-136	36.64	73.28			
ETR-128	36.71	73.42	ETR-137	36.26	72.52			
ETR-133	34.36	68.72	ETR-138	36.65	73.30			
ETR-113	37.42	74.84	ETR-139	33.84	67.68			
			ETR-140	36.66	73.32			
			ETR-141	37.29	74.58			
			ETR-142	36.18	72.36			
			ETR-143	37.64	75.28			
			ETR-144	36.94	73.88			
			ETR-145	41.58	83.16			
			ETR-146	37.07	74.14			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.92	LOWER VOLUME (DEG. F.)	73.23	ICE CONDENSER (DEG. F.)	16.90
UPPER VOLUME (DEG. R.)	532.62	LOWER VOLUME (DEG. R.)	532.93	ICE CONDENSER (DEG. R.)	476.60

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	17.42	34.54	0.0981
VPU-2	0.07	33.22	0.0931
LOWER:			
VPL-1	0.0	-0.01	0.0
VPL-2	18.58	36.79	0.1073
ICE:			
VPI-1	8.42	16.57	0.0427
VPI-2	-1.06	12.92	0.0357

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.0956
LOWER CONTAINMENT	(PSIA)	0.1073
ICE CONDENSER	(PSIA)	0.0392

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0230	26.8362
PU-2	26.8913	26.8901
LOWER:		
PL-1	0.0	0.0
PL-2	26.8740	26.8724
ICE:		
PI-1	26.8948	26.8939
PI-2	26.9124	26.9111
AMBIENT	14.5100	14.5033

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8631
AVERAGE LOWER PRESSURE	(PSIA)	26.8724
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.9025
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8793
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3760

RUN NUMBER 39
ELAPSED TIME 19.00

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	39.99	79.98	ETR-122	35.87	71.74	ETR-115	9.31	18.62
ETR-102	38.03	76.06	ETR-123	36.63	73.26	ETR-116	9.42	18.84
ETR-103	35.72	71.44	ETR-124	37.25	74.50	ETR-117	8.85	17.70
ETR-104	35.67	71.34	ETR-125	35.94	71.88	ETR-118	10.28	20.56
ETR-105	36.24	72.48	ETR-126	36.06	72.12	ETR-119	8.16	16.32
ETR-106	36.53	73.06	ETR-127	33.96	67.92	ETR-120	7.91	15.82
ETR-107	36.10	72.20	ETR-129	37.14	74.28	ETR-121	8.12	16.24
ETR-108	36.16	72.32	ETR-130	35.67	71.34			
ETR-109	35.50	71.00	ETR-131	33.96	67.92			
ETR-110	35.45	70.90	ETR-132	37.66	75.32			
ETR-111	35.57	71.14	ETR-134	36.69	73.38			
ETR-112	35.61	71.22	ETR-135	36.55	73.10			
ETR-114	34.79	69.58	ETR-136	36.59	73.18			
ETR-128	36.71	73.42	ETR-137	36.26	72.52			
ETR-133	34.36	68.72	ETR-138	36.64	73.28			
ETR-113	37.39	74.78	ETR-139	33.84	67.68			
			ETR-140	36.65	73.30			
			ETR-141	37.29	74.58			
			ETR-142	36.18	72.36			
			ETR-143	37.64	75.28			
			ETR-144	36.94	73.88			
			ETR-145	41.55	83.10			
			ETR-146	37.08	74.16			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.88	LOWER VOLUME (DEG. F.)	73.25	ICE CONDENSER (DEG. F.)	16.92
UPPER VOLUME (DEG. R.)	532.58	LOWER VOLUME (DEG. R.)	532.95	ICE CONDENSER (DEG. R.)	476.62

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	17.57	34.84	0.0993
VPU-2	0.09	33.53	0.0942
LOWER:			
VPL-1	0.0	-0.01	0.0
VPL-2	18.60	36.83	0.1074
ICE:			
VPI-1	9.13	17.97	0.0457
VPI-2	-0.99	14.18	0.0380

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.0967
LOWER CONTAINMENT	(PSIA)	0.1074
ICE CONDENSER	(PSIA)	0.0419

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0200	26.8332
PU-2	26.8878	26.8866
LOWER:		
PL-1	0.0	0.0
PL-2	26.8706	26.8690
ICE:		
PI-1	26.8913	26.8904
PI-2	26.9069	26.9056
AMBIENT	14.4953	14.4888

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8599
AVERAGE LOWER PRESSURE	(PSIA)	26.8690
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.8980
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8756
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3869

RUN NUMBER 40
ELAPSED TIME 19.50

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	40.00	80.00	ETR-122	35.89	71.78	ETR-115	9.26	18.52
ETR-102	38.00	76.00	ETR-123	36.64	73.28	ETR-116	9.22	18.44
ETR-103	35.74	71.48	ETR-124	37.27	74.54	ETR-117	8.93	17.86
ETR-104	35.67	71.34	ETR-125	35.96	71.92	ETR-118	10.94	21.88
ETR-105	36.22	72.44	ETR-126	36.06	72.12	ETR-119	8.17	16.34
ETR-106	36.52	73.04	ETR-127	33.99	67.98	ETR-120	7.87	15.74
ETR-107	36.08	72.16	ETR-129	37.15	74.30	ETR-121	8.13	16.26
ETR-108	36.15	72.30	ETR-130	35.65	71.30			
ETR-109	35.54	71.08	ETR-131	33.96	67.92			
ETR-110	35.45	70.90	ETR-132	37.66	75.32			
ETR-111	35.57	71.14	ETR-134	36.68	73.36			
ETR-112	35.61	71.22	ETR-135	36.55	73.10			
ETR-114	34.87	69.74	ETR-136	36.58	73.16			
ETR-128	36.71	73.42	ETR-137	36.26	72.52			
ETR-133	34.35	68.70	ETR-138	36.65	73.30			
ETR-113	37.36	74.72	ETR-139	33.85	67.70			
			ETR-140	36.66	73.32			
			ETR-141	37.30	74.60			
			ETR-142	36.19	72.38			
			ETR-143	37.64	75.28			
			ETR-144	36.95	73.90			
			ETR-145	41.57	83.14			
			ETR-146	37.09	74.18			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.88	LOWER VOLUME (DEG. F.)	73.26	ICE CONDENSER (DEG. F.)	16.97
UPPER VOLUME (DEG. R.)	532.58	LOWER VOLUME (DEG. R.)	532.96	ICE CONDENSER (DEG. R.)	476.67

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	17.51	34.72	0.0988
VPU-2	0.09	33.58	0.0944
LOWER:			
VPL-1	0.0	-0.01	0.0
VPL-2	18.60	36.83	0.1074
ICE:			
VPI-1	8.12	15.97	0.0415
VPI-2	-1.12	11.84	0.0338

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.0966
LOWER CONTAINMENT	(PSIA)	0.1074
ICE CONDENSER	(PSIA)	0.0377

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0200	26.8332
PU-2	26.8882	26.8870
LOWER:		
PL-1	0.0	0.0
PL-2	26.8710	26.8694
ICE:		
PI-1	26.8916	26.8907
PI-2	26.9041	26.9028
AMBIENT	14.4953	14.4888

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8601
AVERAGE LOWER PRESSURE	(PSIA)	26.8694
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.8967
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8754
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3867

RUN NUMBER 41
ELAPSED TIME 20.00

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	39.95	79.90	ETR-122	35.87	71.74	ETR-115	9.15	18.30
ETR-102	37.98	75.96	ETR-123	36.64	73.28	ETR-116	9.12	18.24
ETR-103	35.73	71.46	ETR-124	37.25	74.50	ETR-117	8.84	17.68
ETR-104	35.67	71.34	ETR-125	35.99	71.98	ETR-118	10.53	21.06
ETR-105	36.16	72.32	ETR-126	36.06	72.12	ETR-119	8.18	16.36
ETR-106	36.50	73.00	ETR-127	33.96	67.92	ETR-120	7.90	15.80
ETR-107	36.06	72.12	ETR-129	37.15	74.30	ETR-121	8.13	16.26
ETR-108	36.11	72.22	ETR-130	35.65	71.30			
ETR-109	35.54	71.08	ETR-131	33.95	67.90			
ETR-110	35.39	70.78	ETR-132	37.66	75.32			
ETR-111	35.56	71.12	ETR-134	36.67	73.34			
ETR-112	35.61	71.22	ETR-135	36.56	73.12			
ETR-114	34.85	69.70	ETR-136	36.60	73.20			
ETR-128	36.73	73.46	ETR-137	36.28	72.56			
ETR-133	34.34	68.68	ETR-138	36.62	73.24			
ETR-113	37.36	74.72	ETR-139	33.84	67.68			
			ETR-140	36.66	73.32			
			ETR-141	37.30	74.60			
			ETR-142	36.19	72.38			
			ETR-143	37.63	75.26			
			ETR-144	36.94	73.88			
			ETR-145	41.55	83.10			
			ETR-146	37.10	74.20			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.83	LOWER VOLUME (DEG. F.)	73.26	ICE CONDENSER (DEG. F.)	16.89
UPPER VOLUME (DEG. R.)	532.53	LOWER VOLUME (DEG. R.)	532.96	ICE CONDENSER (DEG. R.)	476.59

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	17.46	34.62	0.0984
VPU-2	-0.13	29.66	0.0
LOWER:			
VPL-1	0.0	-0.01	0.0
VPL-2	18.60	36.83	0.1074
ICE:			
VPI-1	8.57	16.86	0.0433
VPI-2	-1.08	12.56	0.0351

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.0984
LOWER CONTAINMENT	(PSIA)	0.1074
ICE CONDENSER	(PSIA)	0.0392

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0200	26.8332
PU-2	26.8879	26.8867
LOWER:		
PL-1	0.0	0.0
PL-2	26.8704	26.8688
ICE:		
PI-1	26.8912	26.8903
PI-2	26.9035	26.9022
AMBIENT	14.4953	14.4888

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8600
AVERAGE LOWER PRESSURE	(PSIA)	26.8688
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.8962
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8750
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3862

RUN NUMBER 42
ELAPSED TIME 20.50

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	39.96	79.92	ETR-122	35.87	71.74	ETR-115	9.32	18.64
ETR-102	37.95	75.90	ETR-123	36.65	73.30	ETR-116	9.37	18.74
ETR-103	35.73	71.46	ETR-124	37.21	74.42	ETR-117	8.86	17.72
ETR-104	35.66	71.32	ETR-125	35.99	71.98	ETR-118	10.19	20.38
ETR-105	36.20	72.40	ETR-126	36.07	72.14	ETR-119	8.18	16.36
ETR-106	36.50	73.00	ETR-127	33.95	67.90	ETR-120	7.90	15.80
ETR-107	36.05	72.10	ETR-129	37.11	74.22	ETR-121	8.19	16.38
ETR-108	36.11	72.22	ETR-130	35.64	71.28			
ETR-109	35.56	71.12	ETR-131	33.96	67.92			
ETR-110	35.42	70.84	ETR-132	37.64	75.28			
ETR-111	35.57	71.14	ETR-134	36.64	73.28			
ETR-112	35.61	71.22	ETR-135	36.49	72.98			
ETR-114	34.77	69.54	ETR-136	36.56	73.12			
ETR-128	36.73	73.46	ETR-137	36.28	72.56			
ETR-133	34.38	68.76	ETR-138	36.63	73.26			
ETR-113	37.40	74.80	ETR-139	33.85	67.70			
			ETR-140	36.65	73.30			
			ETR-141	37.31	74.62			
			ETR-142	36.19	72.38			
			ETR-143	37.64	75.28			
			ETR-144	36.95	73.90			
			ETR-145	41.56	83.12			
			ETR-146	37.07	74.14			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.83	LOWER VOLUME (DEG. F.)	73.22	ICE CONDENSER (DEG. F.)	16.93
UPPER VOLUME (DEG. R.)	532.53	LOWER VOLUME (DEG. R.)	532.92	ICE CONDENSER (DEG. R.)	476.63

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	17.46	34.62	0.0984
VPU-2	-0.04	31.28	0.0
LOWER:			
VPL-1	0.0	-0.01	0.0
VPL-2	18.61	36.85	0.1075
ICE:			
VPI-1	9.37	18.45	0.0468
VPI-2	-1.01	13.82	0.0373

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.0984
LOWER CONTAINMENT	(PSIA)	0.1075
ICE CONDENSER	(PSIA)	0.0421

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0200	26.8332
PU-2	26.8888	26.8876
LOWER:		
PL-1	0.0	0.0
PL-2	26.8711	26.8695
ICE:		
PI-1	26.8917	26.8908
PI-2	26.9045	26.9032
AMBIENT	14.4915	14.4849

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8604
AVERAGE LOWER PRESSURE	(PSIA)	26.8695
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.8970
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8756
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3907

RUN NUMBER 43
ELAPSED TIME 21.00

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	39.96	79.92	ETR-122	35.88	71.76	ETR-115	9.83	19.66
ETR-102	37.92	75.84	ETR-123	36.66	73.32	ETR-116	9.60	19.20
ETR-103	35.72	71.44	ETR-124	37.24	74.48	ETR-117	9.33	18.66
ETR-104	35.66	71.32	ETR-125	35.99	71.98	ETR-118	10.45	20.90
ETR-105	36.16	72.32	ETR-126	36.05	72.10	ETR-119	8.19	16.38
ETR-106	36.49	72.98	ETR-127	33.98	67.96	ETR-120	7.91	15.82
ETR-107	36.06	72.12	ETR-129	37.17	74.34	ETR-121	8.18	16.36
ETR-108	36.10	72.20	ETR-130	35.65	71.30			
ETR-109	35.56	71.12	ETR-131	33.96	67.92			
ETR-110	35.46	70.92	ETR-132	37.65	75.30			
ETR-111	35.56	71.12	ETR-134	36.69	73.38			
ETR-112	35.60	71.20	ETR-135	36.51	73.02			
ETR-114	34.76	69.52	ETR-136	36.56	73.12			
ETR-128	36.75	73.50	ETR-137	36.25	72.50			
ETR-133	34.36	68.72	ETR-138	36.67	73.34			
ETR-113	37.36	74.72	ETR-139	33.85	67.70			
			ETR-140	36.65	73.30			
			ETR-141	37.32	74.64			
			ETR-142	36.20	72.40			
			ETR-143	37.64	75.28			
			ETR-144	36.94	73.88			
			ETR-145	41.56	83.12			
			ETR-146	37.09	74.18			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.80	LOWER VOLUME (DEG. F.)	73.25	ICE CONDENSER (DEG. F.)	17.15
UPPER VOLUME (DEG. R.)	532.50	LOWER VOLUME (DEG. R.)	532.95	ICE CONDENSER (DEG. R.)	476.85

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	17.48	34.66	0.0986
VPU-2	0.01	32.09	0.0889
LOWER:			
VPL-1	0.0	-0.01	0.0
VPL-2	18.62	36.87	0.1076
ICE:			
VPI-1	9.97	19.62	0.0495
VPI-2	-0.95	14.90	0.0394

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.0937
LOWER CONTAINMENT	(PSIA)	0.1076
ICE CONDENSER	(PSIA)	0.0445

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0180	26.8313
PU-2	26.8862	26.8850
LOWER:		
PL-1	0.0	0.0
PL-2	26.8689	26.8673
ICE:		
PI-1	26.8892	26.8883
PI-2	26.9021	26.9008
AMBIENT	14.4915	14.4849

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8581
AVERAGE LOWER PRESSURE	(PSIA)	26.8673
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.8945
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8733
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3884

RUN NUMBER 44
ELAPSED TIME 21.50

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	39.93	79.86	ETR-122	35.90	71.80	ETR-115	9.78	19.56
ETR-102	37.91	75.82	ETR-123	36.66	73.32	ETR-116	9.64	19.28
ETR-103	35.71	71.42	ETR-124	37.23	74.46	ETR-117	9.27	18.54
ETR-104	35.66	71.32	ETR-125	35.97	71.94	ETR-118	10.46	20.92
ETR-105	36.16	72.32	ETR-126	36.06	72.12	ETR-119	8.20	16.40
ETR-106	36.47	72.94	ETR-127	34.00	68.00	ETR-120	7.96	15.92
ETR-107	36.03	72.06	ETR-129	37.15	74.30	ETR-121	8.23	16.46
ETR-108	36.07	72.14	ETR-130	35.65	71.30			
ETR-109	35.54	71.08	ETR-131	33.95	67.90			
ETR-110	35.46	70.92	ETR-132	37.66	75.32			
ETR-111	35.57	71.14	ETR-134	36.67	73.34			
ETR-112	35.59	71.18	ETR-135	36.54	73.08			
ETR-114	34.84	69.68	ETR-136	36.56	73.12			
ETR-128	36.75	73.50	ETR-137	36.28	72.56			
ETR-133	34.36	68.72	ETR-138	36.65	73.30			
ETR-113	37.33	74.66	ETR-139	33.85	67.70			
			ETR-140	36.66	73.32			
			ETR-141	37.33	74.66			
			ETR-142	36.19	72.38			
			ETR-143	37.63	75.26			
			ETR-144	36.94	73.88			
			ETR-145	41.57	83.14			
			ETR-146	37.11	74.22			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.79	LOWER VOLUME (DEG. F.)	73.26	ICE CONDENSER (DEG. F.)	17.20
UPPER VOLUME (DEG. R.)	532.49	LOWER VOLUME (DEG. R.)	532.96	ICE CONDENSER (DEG. R.)	476.90

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	17.49	34.68	0.0986
VPU-2	0.03	32.54	0.0905
LOWER:			
VPL-1	0.0	-0.01	0.0
VPL-2	18.62	36.87	0.1076
ICE:			
VPI-1	9.78	19.26	0.0487
VPI-2	-0.99	14.18	0.0380

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.0946
LOWER CONTAINMENT	(PSIA)	0.1076
ICE CONDENSER	(PSIA)	0.0433

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0220	26.8352
PU-2	26.8905	26.8893
LOWER:		
PL-1	0.0	0.0
PL-2	26.8730	26.8714
ICE:		
PI-1	26.8938	26.8929
PI-2	26.9066	26.9053
AMBIENT	14.4895	14.4830

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8622
AVERAGE LOWER PRESSURE	(PSIA)	26.8714
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.8991
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8776
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3946

RUN NUMBER 45
ELAPSED TIME 22.00

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	39.93	79.86	ETR-122	35.88	71.76	ETR-115	9.78	19.56
ETR-102	37.88	75.76	ETR-123	36.63	73.26	ETR-116	9.78	19.56
ETR-103	35.74	71.48	ETR-124	37.27	74.54	ETR-117	9.39	18.78
ETR-104	35.66	71.32	ETR-125	35.97	71.94	ETR-118	10.63	21.26
ETR-105	36.15	72.30	ETR-126	36.06	72.12	ETR-119	8.21	16.42
ETR-106	36.46	72.92	ETR-127	33.96	67.92	ETR-120	8.05	16.10
ETR-107	36.02	72.04	ETR-129	37.14	74.28	ETR-121	8.17	16.34
ETR-108	36.06	72.12	ETR-130	35.64	71.28			
ETR-109	35.49	70.98	ETR-131	33.96	67.92			
ETR-110	35.46	70.92	ETR-132	37.65	75.30			
ETR-111	35.57	71.14	ETR-134	36.62	73.24			
ETR-112	35.59	71.18	ETR-135	36.50	73.00			
ETR-114	34.83	69.66	ETR-136	36.60	73.20			
ETR-128	36.76	73.52	ETR-137	36.27	72.54			
ETR-133	34.38	68.76	ETR-138	36.65	73.30			
ETR-113	37.33	74.66	ETR-139	33.87	67.74			
			ETR-140	36.66	73.32			
			ETR-141	37.32	74.64			
			ETR-142	36.20	72.40			
			ETR-143	37.64	75.28			
			ETR-144	36.95	73.90			
			ETR-145	41.56	83.12			
			ETR-146	37.12	74.24			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.78	LOWER VOLUME (DEG. F.)	73.24	ICE CONDENSER (DEG. F.)	17.29
UPPER VOLUME (DEG. R.)	532.48	LOWER VOLUME (DEG. R.)	532.94	ICE CONDENSER (DEG. R.)	476.99

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	17.52	34.74	0.0989
VPU-2	0.05	32.85	0.0917
LOWER:			
VPL-1	0.0	-0.01	0.0
VPL-2	18.63	36.89	0.1077
ICE:			
VPI-1	10.64	20.96	0.0528
VPI-2	-1.08	12.56	0.0351

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.0953
LOWER CONTAINMENT	(PSIA)	0.1077
ICE CONDENSER	(PSIA)	0.0440

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0210	26.8342
PU-2	26.8888	26.8876
LOWER:		
PL-1	0.0	0.0
PL-2	26.8724	26.8708
ICE:		
PI-1	26.8928	26.8919
PI-2	26.9059	26.9046
AMBIENT	14.4953	14.4887

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8609
AVERAGE LOWER PRESSURE	(PSIA)	26.8708
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.8982
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8766
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3879

RUN NUMBER 46
ELAPSED TIME 22.50

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	39.86	79.72	ETR-122	35.91	71.82	ETR-115	9.85	19.70
ETR-102	37.86	75.72	ETR-123	36.61	73.22	ETR-116	9.88	19.76
ETR-103	35.69	71.38	ETR-124	37.25	74.50	ETR-117	9.63	19.26
ETR-104	35.65	71.30	ETR-125	36.01	72.02	ETR-118	11.39	22.78
ETR-105	36.14	72.28	ETR-126	36.07	72.14	ETR-119	8.22	16.44
ETR-106	36.44	72.88	ETR-127	33.97	67.94	ETR-120	8.04	16.08
ETR-107	36.02	72.04	ETR-129	37.15	74.30	ETR-121	8.25	16.50
ETR-108	36.08	72.16	ETR-130	35.65	71.30			
ETR-109	35.54	71.08	ETR-131	33.94	67.88			
ETR-110	35.44	70.88	ETR-132	37.65	75.30			
ETR-111	35.56	71.12	ETR-134	36.64	73.28			
ETR-112	35.60	71.20	ETR-135	36.54	73.08			
ETR-114	34.85	69.70	ETR-136	36.59	73.18			
ETR-128	36.77	73.54	ETR-137	36.26	72.52			
ETR-133	34.37	68.74	ETR-138	36.64	73.28			
ETR-113	37.33	74.66	ETR-139	33.88	67.76			
			ETR-140	36.67	73.34			
			ETR-141	37.34	74.68			
			ETR-142	36.20	72.40			
			ETR-143	37.64	75.28			
			ETR-144	36.95	73.90			
			ETR-145	41.57	83.14			
			ETR-146	37.10	74.20			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.76	LOWER VOLUME (DEG. F.)	73.25	ICE CONDENSER (DEG. F.)	17.49
UPPER VOLUME (DEG. R.)	532.46	LOWER VOLUME (DEG. R.)	532.95	ICE CONDENSER (DEG. R.)	477.19

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	17.60	34.90	0.0995
VPU-2	0.05	32.94	0.0920
LOWER:			
VPL-1	0.0	-0.01	0.0
VPL-2	18.64	36.91	0.1078
ICE:			
VPI-1	10.58	20.84	0.0525
VPI-2	-0.98	14.36	0.0383

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.0957
LOWER CONTAINMENT	(PSIA)	0.1078
ICE CONDENSER	(PSIA)	0.0454

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0190	26.8322
PU-2	26.8875	26.8863
LOWER:		
PL-1	0.0	0.0
PL-2	26.8702	26.8686
ICE:		
PI-1	26.8908	26.8899
PI-2	26.9037	26.9024
AMBIENT	14.5050	14.4984

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8593
AVERAGE LOWER PRESSURE	(PSIA)	26.8686
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.8961
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8747
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3763

RUN NUMBER 47
ELAPSED TIME 23.00

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	39.90	79.80	ETR-122	35.92	71.84	ETR-115	9.92	19.84
ETR-102	37.84	75.68	ETR-123	36.66	73.32	ETR-116	9.94	19.88
ETR-103	35.70	71.40	ETR-124	37.26	74.52	ETR-117	9.61	19.22
ETR-104	35.62	71.24	ETR-125	36.00	72.00	ETR-118	11.47	22.94
ETR-105	36.09	72.18	ETR-126	36.07	72.14	ETR-119	8.23	16.46
ETR-106	36.44	72.88	ETR-127	33.96	67.92	ETR-120	8.07	16.14
ETR-107	36.00	72.00	ETR-129	37.17	74.34	ETR-121	8.27	16.54
ETR-108	36.05	72.10	ETR-130	35.67	71.34			
ETR-109	35.51	71.02	ETR-131	33.95	67.90			
ETR-110	35.41	70.82	ETR-132	37.65	75.30			
ETR-111	35.57	71.14	ETR-134	36.72	73.44			
ETR-112	35.60	71.20	ETR-135	36.50	73.00			
ETR-114	34.81	69.62	ETR-136	36.56	73.12			
ETR-128	36.79	73.58	ETR-137	36.28	72.56			
ETR-133	34.37	68.74	ETR-138	36.65	73.30			
ETR-113	37.37	74.74	ETR-139	33.87	67.74			
			ETR-140	36.66	73.32			
			ETR-141	37.33	74.66			
			ETR-142	36.20	72.40			
			ETR-143	37.64	75.28			
			ETR-144	36.94	73.88			
			ETR-145	41.57	83.14			
			ETR-146	37.13	74.26			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.73	LOWER VOLUME (DEG. F.)	73.27	ICE CONDENSER (DEG. F.)	17.55
UPPER VOLUME (DEG. R.)	532.43	LOWER VOLUME (DEG. R.)	532.97	ICE CONDENSER (DEG. R.)	477.25

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	17.60	34.90	0.0995
VPU-2	0.05	32.94	0.0920
LOWER:			
VPL-1	0.0	-0.01	0.0
VPL-2	18.63	36.89	0.1077
ICE:			
VPI-1	10.50	20.68	0.0521
VPI-2	-0.97	14.54	0.0387

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.0957
LOWER CONTAINMENT	(PSIA)	0.1077
ICE CONDENSER	(PSIA)	0.0454

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0180	26.8313
PU-2	26.8861	26.8849
LOWER:		
PL-1	0.0	0.0
PL-2	26.8688	26.8672
ICE:		
PI-1	26.8890	26.8881
PI-2	26.9021	26.9008
AMBIENT	14.5108	14.5041

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8581
AVERAGE LOWER PRESSURE	(PSIA)	26.8672
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.8944
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8732
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3691

RUN NUMBER 48
ELAPSED TIME 23.50

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	39.87	79.74	ETR-122	35.90	71.80	ETR-115	9.88	19.76
ETR-102	37.83	75.66	ETR-123	36.64	73.28	ETR-116	9.97	19.94
ETR-103	35.70	71.40	ETR-124	37.27	74.54	ETR-117	9.69	19.38
ETR-104	35.60	71.20	ETR-125	35.98	71.96	ETR-118	11.15	22.30
ETR-105	36.11	72.22	ETR-126	36.07	72.14	ETR-119	8.24	16.48
ETR-106	36.43	72.86	ETR-127	33.99	67.98	ETR-120	8.07	16.14
ETR-107	35.98	71.96	ETR-129	37.20	74.40	ETR-121	8.27	16.54
ETR-108	36.02	72.04	ETR-130	35.65	71.30			
ETR-109	35.54	71.08	ETR-131	33.95	67.90			
ETR-110	35.35	70.70	ETR-132	37.66	75.32			
ETR-111	35.54	71.08	ETR-134	36.63	73.26			
ETR-112	35.59	71.18	ETR-135	36.49	72.98			
ETR-114	34.86	69.72	ETR-136	36.58	73.16			
ETR-128	36.79	73.58	ETR-137	36.29	72.58			
ETR-133	34.40	68.80	ETR-138	36.65	73.30			
ETR-113	37.36	74.72	ETR-139	33.89	67.78			
			ETR-140	36.68	73.36			
			ETR-141	37.34	74.68			
			ETR-142	36.20	72.40			
			ETR-143	37.64	75.28			
			ETR-144	36.94	73.88			
			ETR-145	41.58	83.16			
			ETR-146	37.09	74.18			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.72	LOWER VOLUME (DEG. F.)	73.26	ICE CONDENSER (DEG. F.)	17.51
UPPER VOLUME (DEG. R.)	532.42	LOWER VOLUME (DEG. R.)	532.96	ICE CONDENSER (DEG. R.)	477.21

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	17.60	34.90	0.0995
VPU-2	0.05	32.95	0.0921
LOWER:			
VPL-1	19.84	39.30	0.1184
VPL-2	18.65	36.93	0.1078
ICE:			
VPI-1	8.74	17.19	0.0440
VPI-2	-0.92	15.44	0.0404

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.0958
LOWER CONTAINMENT	(PSIA)	0.1131
ICE CONDENSER	(PSIA)	0.0422

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0210	26.8342
PU-2	26.8890	26.8878
LOWER:		
PL-1	0.0	0.0
PL-2	26.8717	26.8701
ICE:		
PI-1	26.8926	26.8917
PI-2	26.9058	26.9045
AMBIENT	14.5147	14.5080

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8610
AVERAGE LOWER PRESSURE	(PSIA)	26.8701
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.8981
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8764
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3684

RUN NUMBER 49
ELAPSED TIME 24.00

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	39.86	79.72	ETR-122	35.93	71.86	ETR-115	10.05	20.10
ETR-102	37.81	75.62	ETR-123	36.62	73.24	ETR-116	10.00	20.00
ETR-103	35.70	71.40	ETR-124	37.26	74.52	ETR-117	9.59	19.18
ETR-104	35.62	71.24	ETR-125	36.01	72.02	ETR-118	10.81	21.62
ETR-105	36.10	72.20	ETR-126	36.08	72.16	ETR-119	8.25	16.50
ETR-106	36.43	72.86	ETR-127	33.96	67.92	ETR-120	8.08	16.16
ETR-107	35.98	71.96	ETR-129	37.18	74.36	ETR-121	8.32	16.64
ETR-108	36.03	72.06	ETR-130	35.65	71.30			
ETR-109	35.60	71.20	ETR-131	33.94	67.88			
ETR-110	35.43	70.86	ETR-132	37.66	75.32			
ETR-111	35.56	71.12	ETR-134	36.60	73.20			
ETR-112	35.60	71.20	ETR-135	36.56	73.12			
ETR-114	34.84	69.68	ETR-136	36.55	73.10			
ETR-128	36.80	73.60	ETR-137	36.26	72.52			
ETR-133	34.38	68.76	ETR-138	36.64	73.28			
ETR-113	37.37	74.74	ETR-139	33.87	67.74			
			ETR-140	36.68	73.36			
			ETR-141	37.33	74.66			
			ETR-142	36.20	72.40			
			ETR-143	37.64	75.28			
			ETR-144	36.94	73.88			
			ETR-145	41.56	83.12			
			ETR-146	37.12	74.24			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.72	LOWER VOLUME (DEG. F.)	73.25	ICE CONDENSER (DEG. F.)	17.51
UPPER VOLUME (DEG. R.)	532.42	LOWER VOLUME (DEG. R.)	532.95	ICE CONDENSER (DEG. R.)	477.21

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	17.50	34.70	0.0987
VPU-2	0.05	32.81	0.0915
LOWER:			
VPL-1	19.91	39.44	0.1190
VPL-2	18.65	36.93	0.1078
ICE:			
VPI-1	9.09	17.89	0.0456
VPI-2	-0.95	14.90	0.0394

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.0951
LOWER CONTAINMENT	(PSIA)	0.1134
ICE CONDENSER	(PSIA)	0.0425

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0200	26.8332
PU-2	26.8890	26.8878
LOWER:		
PL-1	0.0	0.0
PL-2	26.8715	26.8699
ICE:		
PI-1	26.8922	26.8913
PI-2	26.9057	26.9044
AMBIENT	14.5089	14.5022

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8605
AVERAGE LOWER PRESSURE	(PSIA)	26.8699
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.8978
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8761
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3738

RUN NUMBER 50
ELAPSED TIME 24.50

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	39.85	79.70	ETR-122	35.93	71.86	ETR-115	10.22	20.44
ETR-102	37.79	75.58	ETR-123	36.63	73.26	ETR-116	9.98	19.96
ETR-103	35.70	71.40	ETR-124	37.28	74.56	ETR-117	9.72	19.44
ETR-104	35.61	71.22	ETR-125	36.02	72.04	ETR-118	10.90	21.80
ETR-105	36.08	72.16	ETR-126	36.08	72.16	ETR-119	8.26	16.52
ETR-106	36.40	72.80	ETR-127	33.96	67.92	ETR-120	8.10	16.20
ETR-107	35.99	71.98	ETR-129	37.17	74.34	ETR-121	8.36	16.72
ETR-108	36.02	72.04	ETR-130	35.65	71.30			
ETR-109	35.54	71.08	ETR-131	33.96	67.92			
ETR-110	35.45	70.90	ETR-132	37.65	75.30			
ETR-111	35.57	71.14	ETR-134	36.66	73.32			
ETR-112	35.60	71.20	ETR-135	36.59	73.18			
ETR-114	34.81	69.62	ETR-136	36.59	73.18			
ETR-128	36.79	73.58	ETR-137	36.27	72.54			
ETR-133	34.39	68.78	ETR-138	36.64	73.28			
ETR-113	37.35	74.70	ETR-139	33.87	67.74			
			ETR-140	36.67	73.34			
			ETR-141	37.35	74.70			
			ETR-142	36.21	72.42			
			ETR-143	37.64	75.28			
			ETR-144	36.95	73.90			
			ETR-145	41.58	83.16			
			ETR-146	37.12	74.24			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.69	LOWER VOLUME (DEG. F.)	73.28	ICE CONDENSER (DEG. F.)	17.60
UPPER VOLUME (DEG. R.)	532.39	LOWER VOLUME (DEG. R.)	532.98	ICE CONDENSER (DEG. R.)	477.30

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	17.54	34.78	0.0990
VPU-2	0.04	32.79	0.0915
LOWER:			
VPL-1	0.0	-0.01	0.0
VPL-2	18.65	36.93	0.1078
ICE:			
VPI-1	9.34	18.40	0.0467
VPI-2	-0.94	15.08	0.0397

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.0952
LOWER CONTAINMENT	(PSIA)	0.1078
ICE CONDENSER	(PSIA)	0.0432

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0200	26.8332
PU-2	26.8879	26.8867
LOWER:		
PL-1	0.0	0.0
PL-2	26.8706	26.8690
ICE:		
PI-1	26.8907	26.8898
PI-2	26.9047	26.9034
AMBIENT	14.5045	14.4978

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8600
AVERAGE LOWER PRESSURE	(PSIA)	26.8690
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.8966
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8752
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3774

RUN NUMBER 51
ELAPSED TIME 25.00

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	39.86	79.72	ETR-122	35.91	71.82	ETR-115	10.16	20.32
ETR-102	37.77	75.54	ETR-123	36.64	73.28	ETR-116	9.98	19.96
ETR-103	35.71	71.42	ETR-124	37.26	74.52	ETR-117	9.62	19.24
ETR-104	35.64	71.28	ETR-125	35.97	71.94	ETR-118	10.93	21.86
ETR-105	36.08	72.16	ETR-126	36.08	72.16	ETR-119	8.27	16.54
ETR-106	36.40	72.80	ETR-127	33.95	67.90	ETR-120	8.12	16.24
ETR-107	35.98	71.96	ETR-129	37.18	74.36	ETR-121	8.43	16.86
ETR-108	35.98	71.96	ETR-130	35.66	71.32			
ETR-109	35.56	71.12	ETR-131	33.96	67.92			
ETR-110	35.43	70.86	ETR-132	37.66	75.32			
ETR-111	35.56	71.12	ETR-134	36.65	73.30			
ETR-112	35.58	71.16	ETR-135	36.59	73.18			
ETR-114	34.81	69.62	ETR-136	36.62	73.24			
ETR-128	36.80	73.60	ETR-137	36.28	72.56			
ETR-133	34.39	68.78	ETR-138	36.63	73.26			
ETR-113	37.33	74.66	ETR-139	33.89	67.78			
			ETR-140	36.67	73.34			
			ETR-141	37.36	74.72			
			ETR-142	36.22	72.44			
			ETR-143	37.64	75.28			
			ETR-144	36.96	73.92			
			ETR-145	41.59	83.18			
			ETR-146	37.14	74.28			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.68	LOWER VOLUME (DEG. F.)	73.29	ICE CONDENSER (DEG. F.)	17.62
UPPER VOLUME (DEG. R.)	532.38	LOWER VOLUME (DEG. R.)	532.99	ICE CONDENSER (DEG. R.)	477.32

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	17.49	34.68	0.0986
VPU-2	0.0	32.00	0.0
LOWER:			
VPL-1	0.0	-0.01	0.0
VPL-2	18.67	36.97	0.1080
ICE:			
VPI-1	9.29	18.29	0.0465
VPI-2	-0.95	14.90	0.0394

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.0986
LOWER CONTAINMENT	(PSIA)	0.1080
ICE CONDENSER	(PSIA)	0.0429

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0180	26.8313
PU-2	26.8858	26.8846
LOWER:		
PL-1	0.0	0.0
PL-2	26.8686	26.8670
ICE:		
PI-1	26.8887	26.8878
PI-2	26.9026	26.9013
AMBIENT	14.5050	14.4984

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8579
AVERAGE LOWER PRESSURE	(PSIA)	26.8670
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.8945
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8731
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3748

RUN NUMBER 52
ELAPSED TIME 25.50

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	39.84	79.68	ETR-122	35.91	71.82	ETR-115	9.86	19.72
ETR-102	37.76	75.52	ETR-123	36.67	73.34	ETR-116	9.80	19.60
ETR-103	35.67	71.34	ETR-124	37.21	74.42	ETR-117	9.31	18.62
ETR-104	35.61	71.22	ETR-125	36.03	72.06	ETR-118	10.67	21.34
ETR-105	36.06	72.12	ETR-126	36.08	72.16	ETR-119	8.27	16.54
ETR-106	36.38	72.76	ETR-127	33.95	67.90	ETR-120	8.15	16.30
ETR-107	35.93	71.86	ETR-129	37.14	74.28	ETR-121	8.35	16.70
ETR-108	35.98	71.96	ETR-130	35.66	71.32			
ETR-109	35.60	71.20	ETR-131	33.96	67.92			
ETR-110	35.41	70.82	ETR-132	37.66	75.32			
ETR-111	35.56	71.12	ETR-134	36.65	73.30			
ETR-112	35.56	71.12	ETR-135	36.58	73.16			
ETR-114	34.79	69.58	ETR-136	36.60	73.20			
ETR-128	36.79	73.58	ETR-137	36.27	72.54			
ETR-133	34.38	68.76	ETR-138	36.64	73.28			
ETR-113	37.33	74.66	ETR-139	33.87	67.74			
			ETR-140	36.68	73.36			
			ETR-141	37.36	74.72			
			ETR-142	36.22	72.44			
			ETR-143	37.64	75.28			
			ETR-144	36.95	73.90			
			ETR-145	41.59	83.18			
			ETR-146	37.11	74.22			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.65	LOWER VOLUME (DEG. F.)	73.28	ICE CONDENSER (DEG. F.)	17.46
UPPER VOLUME (DEG. R.)	532.35	LOWER VOLUME (DEG. R.)	532.98	ICE CONDENSER (DEG. R.)	477.16

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	17.58	34.86	0.0993
VPU-2	-0.21	28.22	0.0
LOWER:			
VPL-1	0.0	-0.01	0.0
VPL-2	18.67	36.97	0.1080
ICE:			
VPI-1	9.58	18.86	0.0477
VPI-2	-0.94	15.08	0.0397

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.0993
LOWER CONTAINMENT	(PSIA)	0.1080
ICE CONDENSER	(PSIA)	0.0437

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0180	26.8313
PU-2	26.8862	26.8850
LOWER:		
PL-1	0.0	0.0
PL-2	26.8690	26.8674
ICE:		
PI-1	26.8891	26.8882
PI-2	26.9030	26.9017
AMBIENT	14.4967	14.4901

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8581
AVERAGE LOWER PRESSURE	(PSIA)	26.8674
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.8949
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8735
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3833

RUN NUMBER 53
ELAPSED TIME 26.00

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	39.83	79.66	ETR-122	35.92	71.84	ETR-115	9.54	19.08
ETR-102	37.74	75.48	ETR-123	36.69	73.38	ETR-116	9.54	19.08
ETR-103	35.67	71.34	ETR-124	37.24	74.48	ETR-117	9.19	18.38
ETR-104	35.62	71.24	ETR-125	36.00	72.00	ETR-118	11.15	22.30
ETR-105	36.07	72.14	ETR-126	36.09	72.18	ETR-119	8.28	16.56
ETR-106	36.38	72.76	ETR-127	33.95	67.90	ETR-120	8.12	16.24
ETR-107	35.98	71.96	ETR-129	37.16	74.32	ETR-121	8.41	16.82
ETR-108	35.95	71.90	ETR-130	35.65	71.30			
ETR-109	35.60	71.20	ETR-131	33.94	67.88			
ETR-110	35.45	70.90	ETR-132	37.67	75.34			
ETR-111	35.55	71.10	ETR-134	36.61	73.22			
ETR-112	35.58	71.16	ETR-135	36.54	73.08			
ETR-114	34.87	69.74	ETR-136	36.59	73.18			
ETR-128	36.83	73.66	ETR-137	36.27	72.54			
ETR-133	34.39	68.78	ETR-138	36.64	73.28			
ETR-113	37.33	74.66	ETR-139	33.90	67.80			
			ETR-140	36.69	73.38			
			ETR-141	37.35	74.70			
			ETR-142	36.22	72.44			
			ETR-143	37.64	75.28			
			ETR-144	36.95	73.90			
			ETR-145	41.58	83.16			
			ETR-146	37.14	74.28			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.67	LOWER VOLUME (DEG. F.)	73.27	ICE CONDENSER (DEG. F.)	17.43
UPPER VOLUME (DEG. R.)	532.37	LOWER VOLUME (DEG. R.)	532.97	ICE CONDENSER (DEG. R.)	477.13

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	17.53	34.76	0.0989
VPU-2	-0.20	28.40	0.0
LOWER:			
VPL-1	0.0	-0.01	0.0
VPL-2	18.65	36.93	0.1078
ICE:			
VPI-1	8.27	16.27	0.0421
VPI-2	-1.10	12.20	0.0345

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.0989
LOWER CONTAINMENT	(PSIA)	0.1078
ICE CONDENSER	(PSIA)	0.0383

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0130	26.8263
PU-2	26.8815	26.8803
LOWER:		
PL-1	0.0	0.0
PL-2	26.8639	26.8623
ICE:		
PI-1	26.8839	26.8830
PI-2	26.8984	26.8971
AMBIENT	14.4967	14.4901

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8533
AVERAGE LOWER PRESSURE	(PSIA)	26.8623
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.8900
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8685
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3784

RUN NUMBER 55
ELAPSED TIME 27.00

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	39.82	79.64	ETR-122	35.88	71.76	ETR-115	9.20	18.40
ETR-102	37.72	75.44	ETR-123	36.66	73.32	ETR-116	9.08	18.16
ETR-103	35.67	71.34	ETR-124	37.23	74.46	ETR-117	8.67	17.34
ETR-104	35.61	71.22	ETR-125	35.99	71.98	ETR-118	10.33	20.66
ETR-105	36.07	72.14	ETR-126	36.08	72.16	ETR-119	8.30	16.60
ETR-106	36.36	72.72	ETR-127	33.97	67.94	ETR-120	8.09	16.18
ETR-107	35.96	71.92	ETR-129	37.17	74.34	ETR-121	8.39	16.78
ETR-108	35.95	71.90	ETR-130	35.65	71.30			
ETR-109	35.57	71.14	ETR-131	33.96	67.92			
ETR-110	35.37	70.74	ETR-132	37.65	75.30			
ETR-111	35.54	71.08	ETR-134	36.75	73.50			
ETR-112	35.55	71.10	ETR-135	36.61	73.22			
ETR-114	34.86	69.72	ETR-136	36.59	73.18			
ETR-128	36.86	73.72	ETR-137	36.30	72.60			
ETR-133	34.38	68.76	ETR-138	36.63	73.26			
ETR-113	37.30	74.60	ETR-139	33.92	67.84			
			ETR-140	36.70	73.40			
			ETR-141	37.36	74.72			
			ETR-142	36.22	72.44			
			ETR-143	37.64	75.28			
			ETR-144	36.95	73.90			
			ETR-145	41.58	83.16			
			ETR-146	37.14	74.28			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.64	LOWER VOLUME (DEG. F.)	73.31	ICE CONDENSER (DEG. F.)	17.11
UPPER VOLUME (DEG. R.)	532.34	LOWER VOLUME (DEG. R.)	533.01	ICE CONDENSER (DEG. R.)	476.81

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	16.63	32.96	0.0921
VPU-2	-0.16	29.12	0.0
LOWER:			
VPL-1	0.0	-0.01	0.0
VPL-2	18.66	36.95	0.1079
ICE:			
VPI-1	8.68	17.09	0.0438
VPI-2	-1.07	12.74	0.0354

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.0921
LOWER CONTAINMENT	(PSIA)	0.1079
ICE CONDENSER	(PSIA)	0.0396

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0090	26.8223
PU-2	26.8777	26.8765
LOWER:		
PL-1	0.0	0.0
PL-2	26.8600	26.8584
ICE:		
PI-1	26.8799	26.8790
PI-2	26.8960	26.8947
AMBIENT	14.4890	14.4825

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8494
AVERAGE LOWER PRESSURE	(PSIA)	26.8584
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.8868
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8649
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3824

RUN NUMBER 56
ELAPSED TIME 27.50

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	39.82	79.64	ETR-122	35.90	71.80	ETR-115	9.54	19.08
ETR-102	37.71	75.42	ETR-123	36.69	73.38	ETR-116	9.23	18.46
ETR-103	35.67	71.34	ETR-124	37.25	74.50	ETR-117	8.80	17.60
ETR-104	35.62	71.24	ETR-125	36.00	72.00	ETR-118	10.01	20.02
ETR-105	36.07	72.14	ETR-126	36.08	72.16	ETR-119	8.31	16.62
ETR-106	36.36	72.72	ETR-127	33.93	67.86	ETR-120	8.12	16.24
ETR-107	35.94	71.88	ETR-129	37.19	74.38	ETR-121	8.44	16.88
ETR-108	35.91	71.82	ETR-130	35.65	71.30			
ETR-109	35.60	71.20	ETR-131	33.94	67.88			
ETR-110	35.35	70.70	ETR-132	37.66	75.32			
ETR-111	35.55	71.10	ETR-134	36.60	73.20			
ETR-112	35.57	71.14	ETR-135	36.59	73.18			
ETR-114	34.86	69.72	ETR-136	36.54	73.08			
ETR-128	36.85	73.70	ETR-137	36.26	72.52			
ETR-133	34.39	68.78	ETR-138	36.65	73.30			
ETR-113	37.31	74.62	ETR-139	33.90	67.80			
			ETR-140	36.71	73.42			
			ETR-141	37.36	74.72			
			ETR-142	36.23	72.46			
			ETR-143	37.64	75.28			
			ETR-144	36.95	73.90			
			ETR-145	41.58	83.16			
			ETR-146	37.11	74.22			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.63	LOWER VOLUME (DEG. F.)	73.26	ICE CONDENSER (DEG. F.)	17.20
UPPER VOLUME (DEG. R.)	532.33	LOWER VOLUME (DEG. R.)	532.96	ICE CONDENSER (DEG. R.)	476.90

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	16.77	33.24	0.0931
VPU-2	-0.14	29.48	0.0
LOWER:			
VPL-1	0.0	-0.01	0.0
VPL-2	18.52	36.67	0.1067
ICE:			
VPI-1	9.16	18.04	0.0459
VPI-2	-1.23	9.86	0.0307

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.0931
LOWER CONTAINMENT	(PSIA)	0.1067
ICE CONDENSER	(PSIA)	0.0383

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0130	26.8263
PU-2	26.8810	26.8798
LOWER:		
PL-1	0.0	0.0
PL-2	26.8635	26.8619
ICE:		
PI-1	26.8835	26.8826
PI-2	26.8995	26.8982
AMBIENT	14.4832	14.4767

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8530
AVERAGE LOWER PRESSURE	(PSIA)	26.8619
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.8904
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8684
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3917

RUN NUMBER 57
ELAPSED TIME 28.00

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	39.79	79.58	ETR-122	35.91	71.82	ETR-115	9.47	18.94
ETR-102	37.70	75.40	ETR-123	36.65	73.30	ETR-116	9.21	18.42
ETR-103	35.68	71.36	ETR-124	37.27	74.54	ETR-117	8.87	17.74
ETR-104	35.62	71.24	ETR-125	36.01	72.02	ETR-118	10.09	20.18
ETR-105	36.04	72.08	ETR-126	36.07	72.14	ETR-119	8.31	16.62
ETR-106	36.35	72.70	ETR-127	33.95	67.90	ETR-120	8.07	16.14
ETR-107	35.94	71.88	ETR-129	37.17	74.34	ETR-121	8.41	16.82
ETR-108	35.95	71.90	ETR-130	35.65	71.30			
ETR-109	35.53	71.06	ETR-131	33.94	67.88			
ETR-110	35.37	70.74	ETR-132	37.65	75.30			
ETR-111	35.56	71.12	ETR-134	36.61	73.22			
ETR-112	35.60	71.20	ETR-135	36.56	73.12			
ETR-114	34.83	69.66	ETR-136	36.56	73.12			
ETR-128	36.84	73.68	ETR-137	36.27	72.54			
ETR-133	34.39	68.78	ETR-138	36.64	73.28			
ETR-113	37.25	74.50	ETR-139	33.89	67.78			
			ETR-140	36.69	73.38			
			ETR-141	37.36	74.72			
			ETR-142	36.23	72.46			
			ETR-143	37.63	75.26			
			ETR-144	36.96	73.92			
			ETR-145	41.58	83.16			
			ETR-146	37.13	74.26			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.61	LOWER VOLUME (DEG. F.)	73.26	ICE CONDENSER (DEG. F.)	17.17
UPPER VOLUME (DEG. R.)	532.31	LOWER VOLUME (DEG. R.)	532.96	ICE CONDENSER (DEG. R.)	476.87

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	16.71	33.12	0.0927
VPU-2	-0.12	29.84	0.0
LOWER:			
VPL-1	0.0	-0.01	0.0
VPL-2	18.53	36.69	0.1068
ICE:			
VPI-1	8.70	17.11	0.0439
VPI-2	-1.20	10.40	0.0315

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.0927
LOWER CONTAINMENT	(PSIA)	0.1068
ICE CONDENSER	(PSIA)	0.0377

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0210	26.8342
PU-2	26.8795	26.8783
LOWER:		
PL-1	0.0	0.0
PL-2	26.8620	26.8604
ICE:		
PI-1	26.8820	26.8811
PI-2	26.8982	26.8969
AMBIENT	14.4851	14.4786

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8563
AVERAGE LOWER PRESSURE	(PSIA)	26.8604
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.8890
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8685
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3899

RUN NUMBER 58
ELAPSED TIME 28.50

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	39.81	79.62	ETR-122	35.92	71.84	ETR-115	9.34	18.68
ETR-102	37.68	75.36	ETR-123	36.66	73.32	ETR-116	9.28	18.56
ETR-103	35.64	71.28	ETR-124	37.27	74.54	ETR-117	8.87	17.74
ETR-104	35.59	71.18	ETR-125	36.03	72.06	ETR-118	10.09	20.18
ETR-105	36.01	72.02	ETR-126	36.08	72.16	ETR-119	8.31	16.62
ETR-106	36.35	72.70	ETR-127	33.96	67.92	ETR-120	8.12	16.24
ETR-107	35.90	71.80	ETR-129	37.17	74.34	ETR-121	8.46	16.92
ETR-108	35.92	71.84	ETR-130	35.65	71.30			
ETR-109	35.63	71.26	ETR-131	33.95	67.90			
ETR-110	35.42	70.84	ETR-132	37.64	75.28			
ETR-111	35.54	71.08	ETR-134	36.63	73.26			
ETR-112	35.56	71.12	ETR-135	36.56	73.12			
ETR-114	34.86	69.72	ETR-136	36.56	73.12			
ETR-128	36.87	73.74	ETR-137	36.26	72.52			
ETR-133	34.38	68.76	ETR-138	36.66	73.32			
ETR-113	37.33	74.66	ETR-139	33.89	67.78			
			ETR-140	36.70	73.40			
			ETR-141	37.37	74.74			
			ETR-142	36.23	72.46			
			ETR-143	37.63	75.26			
			ETR-144	36.96	73.92			
			ETR-145	41.58	83.16			
			ETR-146	37.15	74.30			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.60	LOWER VOLUME (DEG. F.)	73.27	ICE CONDENSER (DEG. F.)	17.21
UPPER VOLUME (DEG. R.)	532.30	LOWER VOLUME (DEG. R.)	532.97	ICE CONDENSER (DEG. R.)	476.91

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	16.77	33.24	0.0931
VPU-2	-0.10	30.20	0.0
LOWER:			
VPL-1	0.0	-0.01	0.0
VPL-2	18.54	36.71	0.1069
ICE:			
VPI-1	9.27	18.26	0.0464
VPI-2	-1.10	12.20	0.0345

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.0931
LOWER CONTAINMENT	(PSIA)	0.1069
ICE CONDENSER	(PSIA)	0.0404

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0170	26.8303
PU-2	26.8786	26.8774
LOWER:		
PL-1	0.0	0.0
PL-2	26.8611	26.8595
ICE:		
PI-1	26.8811	26.8802
PI-2	26.8976	26.8963
AMBIENT	14.4851	14.4786

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8538
AVERAGE LOWER PRESSURE	(PSIA)	26.8595
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.8882
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8672
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3886

RUN NUMBER 59
ELAPSED TIME 29.00

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	39.77	79.54	ETR-122	35.96	71.92	ETR-115	9.36	18.72
ETR-102	37.68	75.36	ETR-123	36.66	73.32	ETR-116	9.39	18.78
ETR-103	35.64	71.28	ETR-124	37.26	74.52	ETR-117	8.88	17.76
ETR-104	35.58	71.16	ETR-125	35.99	71.98	ETR-118	10.22	20.44
ETR-105	36.02	72.04	ETR-126	36.09	72.18	ETR-119	8.32	16.64
ETR-106	36.34	72.68	ETR-127	33.92	67.84	ETR-120	8.10	16.20
ETR-107	35.90	71.80	ETR-129	37.17	74.34	ETR-121	8.47	16.94
ETR-108	35.93	71.86	ETR-130	35.65	71.30			
ETR-109	35.57	71.14	ETR-131	33.95	67.90			
ETR-110	35.46	70.92	ETR-132	37.66	75.32			
ETR-111	35.54	71.08	ETR-134	36.63	73.26			
ETR-112	35.58	71.16	ETR-135	36.53	73.06			
ETR-114	34.82	69.64	ETR-136	36.59	73.18			
ETR-128	36.85	73.70	ETR-137	36.23	72.46			
ETR-133	34.38	68.76	ETR-138	36.66	73.32			
ETR-113	37.25	74.50	ETR-139	33.91	67.82			
			ETR-140	36.70	73.40			
			ETR-141	37.36	74.72			
			ETR-142	36.24	72.48			
			ETR-143	37.63	75.26			
			ETR-144	36.96	73.92			
			ETR-145	41.61	83.22			
			ETR-146	37.11	74.22			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.58	LOWER VOLUME (DEG. F.)	73.26	ICE CONDENSER (DEG. F.)	17.24
UPPER VOLUME (DEG. R.)	532.28	LOWER VOLUME (DEG. R.)	532.96	ICE CONDENSER (DEG. R.)	476.94

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	16.73	33.16	0.0928
VPU-2	-0.11	30.02	0.0
LOWER:			
VPL-1	0.0	-0.01	0.0
VPL-2	18.55	36.73	0.1070
ICE:			
VPI-1	10.39	20.47	0.0516
VPI-2	-0.97	14.54	0.0387

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.0928
LOWER CONTAINMENT	(PSIA)	0.1070
ICE CONDENSER	(PSIA)	0.0451

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0180	26.8313
PU-2	26.8790	26.8778
LOWER:		
PL-1	0.0	0.0
PL-2	26.8614	26.8598
ICE:		
PI-1	26.8820	26.8811
PI-2	26.8980	26.8967
AMBIENT	14.4832	14.4767

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8545
AVERAGE LOWER PRESSURE	(PSIA)	26.8598
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.8889
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8677
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3910

RUN NUMBER 60
ELAPSED TIME 29.50

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	39.75	79.50	ETR-122	35.93	71.86	ETR-115	9.27	18.54
ETR-102	37.67	75.34	ETR-123	36.64	73.28	ETR-116	9.26	18.52
ETR-103	35.67	71.34	ETR-124	37.28	74.56	ETR-117	8.99	17.98
ETR-104	35.59	71.18	ETR-125	36.01	72.02	ETR-118	11.24	22.48
ETR-105	36.06	72.12	ETR-126	36.08	72.16	ETR-119	8.33	16.66
ETR-106	36.33	72.66	ETR-127	33.93	67.86	ETR-120	8.07	16.14
ETR-107	35.92	71.84	ETR-129	37.17	74.34	ETR-121	8.46	16.92
ETR-108	35.88	71.76	ETR-130	35.66	71.32			
ETR-109	35.57	71.14	ETR-131	33.94	67.88			
ETR-110	35.40	70.80	ETR-132	37.65	75.30			
ETR-111	35.55	71.10	ETR-134	36.64	73.28			
ETR-112	35.56	71.12	ETR-135	36.54	73.08			
ETR-114	34.83	69.66	ETR-136	36.59	73.18			
ETR-128	36.85	73.70	ETR-137	36.25	72.50			
ETR-133	34.37	68.74	ETR-138	36.63	73.26			
ETR-113	37.33	74.66	ETR-139	33.92	67.84			
			ETR-140	36.73	73.46			
			ETR-141	37.38	74.76			
			ETR-142	36.24	72.48			
			ETR-143	37.63	75.26			
			ETR-144	36.96	73.92			
			ETR-145	41.60	83.20			
			ETR-146	37.15	74.30			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.59	LOWER VOLUME (DEG. F.)	73.27	ICE CONDENSER (DEG. F.)	17.35
UPPER VOLUME (DEG. R.)	532.29	LOWER VOLUME (DEG. R.)	532.97	ICE CONDENSER (DEG. R.)	477.05

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	16.82	33.34	0.0935
VPU-2	-0.09	30.38	0.0
LOWER:			
VPL-1	0.0	-0.01	0.0
VPL-2	18.57	36.77	0.1072
ICE:			
VPI-1	7.00	13.77	0.0372
VPI-2	-1.12	11.84	0.0338

AVERAGE VAPOR PRESSURES

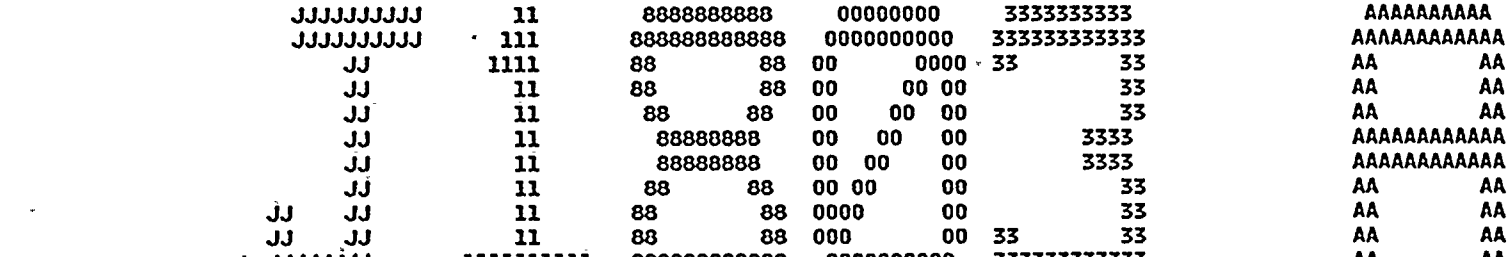
UPPER CONTAINMENT (PSIA)	0.0935
LOWER CONTAINMENT (PSIA)	0.1072
ICE CONDENSER (PSIA)	0.0355

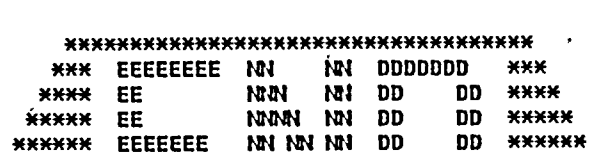
CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0150	26.8283
PU-2	26.8769	26.8757
LOWER:		
PL-1	0.0	0.0
PL-2	26.8549	26.8533
ICE:		
PI-1	26.8791	26.8782
PI-2	26.8962	26.8949
AMBIENT	14.4832	14.4767

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE (PSIA)	26.8520
AVERAGE LOWER PRESSURE (PSIA)	26.8533
AVERAGE ICE CONDENSER PRESSURE (PSIA)	26.8865
AVERAGE CONTAINMENT PRESSURE (PSIA)	26.8639
AVERAGE CONTAINMENT PRESSURE (PSIG)	12.3872





DELIVER CODE - AEP 07JP
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JOB NUMBER - 1803
PROGRAMMER - PROBST
ROOM NUMBER - 07JP
SYSOUT CLASS - A
PRINT TIME - 2.02.28 PM EST
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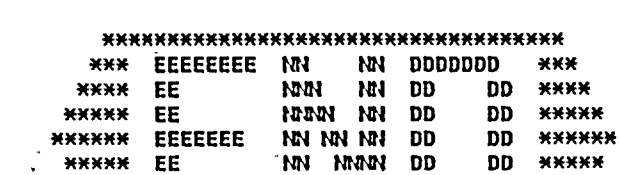

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INSTRUMENTATION AND CONTROLS SECTION

ADMINISTRATIVE INSTRUCTION AND DESIGN PROCEDURE

ENGINEERING CONTROL PROCEDURE

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DRAWING REVISION NO.	REVISION DESCRIPTION AND AUTHORIZING DOCUMENT I.D.	DIGITAL	ANALOG	LOGIC DIAGRAM	SCHEMATIC DIAGRAM	CALIBRATION DATA	CALCULATIONS		REVISION BY	APPROVED BY DATE ISSUED
0	Initial Issue - NRC requirements on ILRT Test Reports						X		SLF	ASB 10-2-84

Dept. DCR 8-B
Volume #

PLANT D.C. Cook
E.C.P. PACKAGE REVISION RECORD

DWG. 2-NS-09
SHEET 1 OF 19

A.I.D. E.C.P. 030877

I. Summary:

In order to complete the ILRT two leakage penalty values must be computed in addition to the As found and As left leakage values. This calculation is divided into three sections:

A. Type C penalty for systems which are not vented during the Type A test.

B. The As found minus As left penalty for repaired type B & C components.

C. The overall Type B and C leakage, both As found and As Left.

The type C penalty for unvented systems is generated by applying AEPSC generated guidelines to the "Type C Penalty Form" from Plant Procedure 12 THP 4030 STP.202. This penalty is based on the As left condition of the valves listed on the above form.

The As found minus As Left Type B & C penalty is generated by applying AEPSC generated guidelines to Type B & C Components which were repaired during performance of Plant Procedure 2 THP 4030 STP.203.

The total type B & C As found and As left leakages are generated by applying AEPSC generated guidelines to all type B & C component leakages measured during performance of Plant Procedure 12 THP 4030 STP.203.

II. Results:

A. Calculated Values (uncorrected)

Type C Penalty for unvented systems	850.0 sccm
Type B & C As found-As left penalty	34256.7 sccm
Total type B & C Leakage (As found)	37130.1 sccm
Total type B & C Leakage (As left)	3676.8 sccm

B. Corrected Values

The flow meters used for performing the type B & C test are small ball float meters calibrated at 12 psig and 70°F. Due to variations in instrument sizes and nonlinear viscous correction factors, a uniform correction factor is not available. Calculations (ECP 12-NO-07) were performed to show that at 60°F (lowest recorded test temperature) and 12.5 psig (highest recorded test pressure) the correction factor is less than 2% of the indicated reading; therefore, conservative corrected values are 102% of the calculated values:

Type C Penalty for unvented systems	867.0 sccm
Type B & C As found-As left penalty	34941.8 sccm
Total type B and C Leakage (As found)	37872.7 sccm
Total type B and C Leakage (As left)	3750.3 sccm

	Penalty (sccm)
13. Test Step 117 Valve R-157 Note: For this calculation this valve is taken to be in series with valve VCR-20 (Test Step 58) For two series isolation valves tested separately use the lower leakage rate. Use lower of 8000.0 or 0.0	0.0
14. Test Step 120,121 Valve ECR-416,417 Valves ECR-416 and ECR-417 are in series. The penalty is computed by using the lower As found minus the lower As left. Penalty=250.0-0.0 = 250 sccm	250.0
15. Test Step 4 (type 3) Zone 4 Penetrations Bellows The Zone 4 Penetrations Bellows are not part of the containment pressure boundary;therefore, this leakage is not included in the penalty.	0.0
Total As found - As left Penalty (sccm)	34256.7

C. Total type B & C As found and As left leakages.

This calculation applies AEPSC generated guidelines to each Test Step to establish leak rates for both the As found and As left conditions.

	As found	As left
1. Test Steps 1-6 No indicated leakage	0.0	0.0
2. Test Steps 7,8 Valves WCR-932,933,934,935 No Repairs;therefore, As found=As left Use guideline C.1 (Attachment 1) Use smaller of 280.0 or 0.0	0.0	0.0
3. Test Steps 9-12 No indicated leakage	0.0	0.0
4. Test Steps 13,14 Valves WCR-904,905,906,907 No repairs;therefore, As found=As left Use guideline C.1 (Attachment 1) Use smaller of 60.0 or 80.0	60.0	60.0
5. Test Steps 15,16 Valves WCR-908,909,910,911 No repairs;therefore, As found=As left Use guideline C.1 (Attachment 1) Use smaller of 40.0 or 100.0	40.0	40.0

	As found	As left
6. Test Steps 17,18 Valves WGR-924,925,926,927 No repairs;therefore, As found=As left Use guideline C.1 (Attachment 1) Use smaller of 0.0 or 300.0	0.0	0.0
7. Test Steps 19-28 No indicated leakage	0.0	0.0
8. Test Step 29 Valve VCR-101,201 No repairs;therefore, As found=As left Use guideline B (Attachment 1) Leakage =1/3 As found =1/3 (225.0) =75 sccm	75.0	75.0
9. Test Step 30 Valves VCR-102,202 No repairs;therefore, As found=As left Use guideline B (Attachment 1) Leakage =1/3 As found = 1/3 (360.0)=120.0sccm	120.0	120.0
10. Test Step 31 Valves VCR-103,203 No repairs;therefore, As found=As left Use guideline B (Attachment 1) Leakage=1/3 as found =1/3 (1300) = 433.3 sccm	433.3	433.3
11. Test Step 32 No indicated leakage	0.0	0.0
12. Test Step 33 Valves VCR-105,205 Valves Repaired Use guideline B As found=1/3 (20000)=6666.7 sccm As left=1/3 (80) = 26.7 sccm	6666.7	26.7
13. Test Step 34 No indicated leakage	0.0	0.0
14. Test Step 35 Valves VCR-107,207 No repairs;therefore, As found=As left Use guideline B (Attachment 1) Use 1/3 As found = 1/3 (60) = 20 sccm	20.0	20.0
15. Test Steps 36-49 No indicated leakage	0.0	0.0
16. Test Step 50 Valve SI-189 No repair;therefore, As found=As left Single Valve measured leakage =30.0 sccm	30.0	30.0
17. Test Step 51 and 124 Valves SM-1,ECR-36 Valves SM-1 and ECR-36 are in series and tested individually. Use guideline E (Attachment 1) ECR-36 had no indicated leakage.	0.0	0.0

		As found	As left
18.	Test Step 52,86 No indicated leakage for either test step.	0.0	0.0
19.	Test Step 53,85 Valves N-159,GCR-301 Valves N-159 and GCR-301 are in series and tested individually. Use guideline E (Attachment 1) GCR-301 had no indicated leakage.	0.0	0.0
20.	Test Step 54,88 Valves PW-275, NCR-252 Valves PW-275 and NRC-252 are in series and tested individually. Use guideline E (Attachment 1). NCR-252 had no indicated leakage.	0.0	0.0
21.	Test Step 55 Valve CS-321 This is a single isolation valve which required repair. As found = 24000.0 sccm As left = 750.0 sccm	24000.0	750.0
22.	Test Steps 56-58 No indicated leakage	0.0	0.0
23.	Test Step 59,60 Valves DCR-201,203,207,N-160 This configuration represents two sets of two series valves on the same penetration. Valves DCR-207 and N-160 are in series and were both repaired. Assume DCR-201 and DCR-203 were tight;therefore, all leakage was through valves DCR-207 and N-160. Use guideline E (Attachment 1) As found is the smaller of 300.0 or 1650. As left is the smaller of 20.0 or 260.0	300.0	20.0
24.	Test Step 61 Valves DCR-610,611 No repair;therefore, As found=As left Use guideline B (Attachment 1) Leakage=1/3 As found=1/3 (140.0) =46.7 sccm	46.7	46.7
25.	Test Steps 63,64 No indicated leakage	0.0	0.0
26.	Test Steps 65,66 Valves QCR-300,301 Valves QCR-300 and QCR-301 are in series and tested individually. Use guideline E (Attachment 1) Valve QCR-300 had no indicated leakage.	0.0	0.0
27.	Test Steps 67 No indicated leakage	0.0	0.0

		As found	As left
28.	Test Steps 68 Valve ICM-305 This valve was repaired Use guideline D (Attachment 1) As found = 1/3 (6000.0) sccm As left = 1/3 (0) sccm	2000.0	0.0
29.	Test Step 69 Valve ICM-306 No repairs;therefore, As found=As left Use guideline D (Attachment 1) Leakage=1/3(750.0)=250.0 sccm	250.0	250.0
30.	Test Steps 70-78 No indicated leakage	0.0	0.0
31.	Test Step 79 Valves ECR-33,35 These valves were repaired Use guideline B (Attachment 1) As found=1/3 (2500.0) As left=1/3 (1900.0)	833.3	633.3
32.	Test Steps 80,81 No indicated leakage	0.0	0.0
33.	Test Step 82 Valves ECR-31,32 These valves were repaired Use guideline B (Attachment 1) As found=1/3 (1300.0) As left=1/3 (1250.0)	433.3	416.7
34.	Test Step 83 No indicated leakage	0.0	0.0
35.	Test Step 84 XCR-102,103 No repairs;therefore, As found=As left Use guideline B (Attachment 1) Leakage=1/3 (540.0) = 180.0 sccm	180.0	180.0
36.	Test Steps 85,86 Refer to items 18 and 19 above		
37.	Test Steps 87-91 No indicated leakage	0.0	0.0
38.	Test Steps 92,93 Valves CCR-455,456,457,CCW-135 The piping associated with these valves forms a safety related closed loop inside containment. Use guideline C.2 (Attachment 1) Leakage = 0.0	0.0	0.0
39.	Test Steps 94-100 No indicated leakage	0.0	0.0

		As found	As left
40.	Test Step 101 Valve ICM-251 This valve was repaired Use guideline D (Attachment 1) As found=1/3 (700.0) = 233.3 sccm As left=1/3 (40.0) = 13.3 sccm	233.3	13.3
41.	Test Step 102 Valve ICM-250 This valve was repaired Use guideline D (Attachment 1) As found = 1/3 (1850.0) = 616.7 sccm As left =1/3 (50.0) = 16.7 sccm	616.7	16.7
42.	Test Step 103-105 No indicated leakage	0.0	0.0
43.	Test Step 106-115 The valves and piping associated with these test steps form a safety related closed loop inside containment. Use guideline C.1 (Attachment 1)	0.0	0.0
44.	Test Step 116 No indicated leakage	0.0	0.0
45.	Test Step 117 Valve R-157 For this calculation R-157 is considered to be in series with VCR-20. From Test Step 58, VCR-20 showed no indicated leakage. Use guideline E (Attachment 1) Leakage = 0.0	0.0	0.0
46.	Test Steps 118,119 No indicated leakage	0.0	0.0
47.	Test Steps 120,121 Valves ECR-416,417 Both of these valves were repaired. They are in series and tested separately; therefore, use guideline E (Attachment 1) Use the lower leak rate. As found = 250.0 sccm As left = 0.0 sccm	250.0	0.0
48.	Test Steps 122,123 Valves ECR-535,536 No repairs;therefore, As found=As left These two valves are in series and tested separately. Use guideline E (Attachment 1). Both Valves indicated 20 sccm leakage.	20.0	20.0

	As found	As left
49. Test Step 124 Refer to item 17 above		
50. Test Steps 125,126 Valves PCR-40,PA-342 No repairs;therefore, As found=As left These valves are in series and tested separately. Use guideline E (Attachment 1). Use lower leak rate. (0.0 sccm)	0.0	0.0
Type B Tests		
51. Test Steps 1 Personnel Airlock No repairs;therefore, As found=As left Use guideline F (Attachment 1) Use 35.0 sccm	35.0	35.0
52. Test Steps 2,3 No indicated leakage	0.0	0.0
53. Test Step 4 Zone 4 Penetrations The initial Zone 4 leakage was attributed to Bellows leakage on outside of containment. This leakage was not associated with the containment boundary. After isolation of the identified leakage, the measured leakage was 800 sccm. Using guideline B (Attachment 1). The measured leakage = 1/3 (800) = 266.7 sccm This is to be used for both As found and As left leakage.	266.7	266.7
54. Test Step 5 Fuel Transfer Tube Flanges No indicated leakage	0.0	0.0
55. Test Step 6 Plant Air Penetration As found and As left show no indicated leakage	0.0	0.0
56. Test Step 7 Ice Loading Penetration CPN-57 Use guideline B (Attachment 1) As found = 1/3 (50.0) =16.7 sccm As left = 1/3 (80.0) = 26.7 sccm	16.7	26.7
57. Test Step 8 Ice Loading Penetration CPN-80 Use guideline B (Attachment 1) As found = 1/3 (50) = 16.7 sccm As left = 1/3 (30) = 10.0 sccm	16.7	10.0
58. Test Step 9 Flux Thimble Penetration CPN-76 No repair;therefore, As found=As left Use guideline B (Attachment 1) Leakage = 1/3 (200)=66.7 sccm	66.7	66.7

		As found	As left
59.	Test Steps 10,11 No indicated leakage	0.0	0.0
60.	Test Step 12 Personnel Lock Cover Flange Use indicated leakage As found=120 sccm As left=120 sccm	120.0	120.0
	Total As found Type B & C Leakage	37130.1	
	Total As left Type B & C Leakage		3676.8

Attachment 1
2-NO-09

AMERICAN ELECTRIC POWER SERVICE CORPORATION

AMERICAN ELECTRIC AEP POWER SYSTEM

DATE: June 6, 1984

SUBJECT: NRC Appendix J Compliance Audit

FROM: S. K. Farlow

TO:
1. ~~J. C. Jeffrey~~ 6/8/84
2. S. H. Steinhart/R. F. Hering
3. J. G. Feinstein/M. P. Alexich
4. W. G. Smith, Jr.

This memo is in response to the May 31, 1984 W. G. Smith,Jr. memo to M. P. Alexich. The following constitutes the AEPSC response to the two items raised by Mr. Steve Hair of the NRC during his May 31, 1984 Appendix J. Compliance Audit Exit Interview.

1) AEPSC feels that incorporation of the "As Found" minus "As Left" leakage from the type B and C leak rate test constitutes an extension of the requirements of 10 CFR 50 Appendix J and the licensing basis of the plant. Further more since the inclusion of this leakage is strictly an arithmetic exercise that will do no more than create the potential for failing otherwise acceptable type A tests; there is no possible benefit to the health and safety of the public.

   AEPSC does concur with the Plant assessment that the NRC is likely to require incorporation of the "As Found" minus "As Left" type B and C leakage into the test results. Attachment 1 has been developed to offer guidance as to how the leak rate penalty is to be calculated.

2) AEPSC concurs that it is possible for a change in the level of the Containment sumps could affect the measured leak rate of a type A test. This will occur only if the water accumulated in the sumps is introduced to the Containment from an outside source during the conduct of the type A test. The potential exists to mask nearly 75% of the allowable leakage (0.75 La) if the sumps went from empty to full over the test duration. Although accumulation of this large quantity of water is highly improbable, it is still recommended that the Integrated Leak Rate Test Procedure be revised to require measurement of all containment sump levels before and after the test. It is further recommended that all sumps be pumped down prior to the initial measurement of level.

The leakage rate for the Type A Test should continue to be calculated as done for prior tests except for any changes which are attributable to sump level changes. If required, a separate leakage rate including the "As Found" minus "As Left" containment isolation valve penalty can be calculated based on the guidelines in Attachment 1.

S. K. Farlow
Instrumentation & Control Section
Mechanical Engineering Division

cc. W. G. Smith
S. H. Steinhardt
R. L. Shoberg
J. A. Kobyra
K. S. Chapman
File: ILRT

SKF:tr (D-1)

APPENDIX F

SUPPLEMENTAL TEST FLOW CORRECTION

UNIT 2 - 1984

A.E.P.S.C. - M.E.D.

INSTRUMENTATION AND CONTROLS SECTION

ADMINISTRATIVE INSTRUCTION AND DESIGN PROCEDURE

ENGINEERING CONTROL PROCEDURE

CONTROLLED DISTRIBUTION FOR E.C.P. PACKAGE.

(✓) Technical Department
Copies going to:
(✓) Technical Department/Engineering Superintendent (2)
( ) Control and Instrumentation (5)
( ) Plant Operations (1)
( ) Mechanical Construction Chief (1)
( ) Electrical Construction Chief (1)
( ) Piping & Valves Sect. Manager
( ) Steam Generation Sect. Manager
( ) Fire Protection Sect. Manager
( ) Heaters & Pumps Section Manager
( ) Chemical Sect. Lead Engineer
( ) Turbine Sect. Manager
( ) Electrical Generation Sect. Lead Engineer
( ) Electrical Design Sect. Manager
( ) Mechanical Design Sect. Manager
(✓) I & C Section Manager/File (2)
( ) NED Asst. Division Manager
( ) Nuclear Operations
( ) Technical Education Sect. Manager
✓ A S Grimes

I = INITIAL ISSUE
✓ = REVISED THIS ISSUE

DRAWING REVISION NO.	REVISION DESCRIPTION AND AUTHORIZING DOCUMENT I.D.	LOGIC DIAGRAM: DIGITAL	LOGIC DIAGRAM: ANALOG	SCHEMATIC DIAGRAM	CALIBRATION DATA	CALCULATIONS		REVISION BY	APPROVED BY DATE ISSUED
0	Initial Issue, ILRT Questions					I		SCF 10/2/84	AS 10/2/84

Dept. DCR 8.3
Volume # 8-B

PLANT D.C. Cook
E.C.P. PACKAGE REVISION RECORD

Calculations for ILRT, Supplemental Test

DWG. 2-NO-08
SHEET 1 OF 814

A.I.D. E.C.P. I 030877

A.E.P.S.C. CALCULATION

D.C. Cook Plant

MECHANICAL ENGINEERING DIVISION

INSTRUMENTATION AND CONTROLS SECTION

E.C.P. CALCULATION No. 02-ND-93

TYPE PRELIMINARY OR FINAL

SUBJECT 1984 SUPPLEMENTAL TEST LEAK RATE IN SCFM AT 70°F AND 14.7 psia

SUPERSEDES CALCULATION NO.

FILE LOCATION

SHEET 1 OF 7

PLANT D.C. Cook UNIT 2

COMPANY I&M

CALCULATED BY DKurtz 9/22/84

CHECKED BY SKTurbini 9/28/84 4.3.2

APPROVED BY R.L. Slobig

AND DATE 10-2-84

PROBLEM DESCRIPTION:

CALCULATE ACTUAL MASS FLOW FOR 1984 ILRT IMPOSED LEAK BASED ON RAW READINGS, TEMPERATURE & PRESSURE TO CONFIRM REPORTED LO OF 4.07 SCFM

DESIGN BASIS AND REFERENCES

① FLUID METERS THEIR THEORY AND APPLICATION. SIXTH EDITION 1971 WITH 1974 ERRATA (ASME).

② TELECOPY D.C. COOK PLANT TO D.D. KURTZ 9/19/84 WHICH CONTAINS:
   a) Raw Data
   b) Cal. sheet for meter used to measure imposed LEA

E.C.P. REVISION NO.	DATE	CHANGE	NO CALCULATION CHANGE — CALCULATION BY/DATE	CHECKED BY/DATE	APPROVED BY/DATE
		RECORDED ON E.C.P. PACKAGE REVISION RECORD			

SUPERSEDED BY E.C.P. CALCULATION NO. REASON

SUPERSEDED BY/DATE

A.I.D. E.C.P. 4 030877

7222(9-83)
FORM GE-8(C)

ENGINEERING DEPT.
AMERICAN ELECTRIC POWER SERVICE CORP.
1 RIVERSIDE PLAZA
COLUMBUS, OHIO

SHEET 2 OF 7
DATE 9/28/84 BY D.K. CK EEF
COMPANY I&M G.O.
PLANT COOK U2

SUBJECT

Calculation Summary

Based on chapter I-6 of REF #1. AND THE RAW DATA AND CALIBRATION SHEET CONTAINED IN REF #2:

(1) $R_s \cong R_a \sqrt{\frac{P_a T_s}{P_s T_a}}$,

where R_s is the Flowmeter Reading at P_s and T_s (The calibrated Pressure and Temperature).

and R_a is The Flowmeter Reading at P_a and T_a (Pressure and Temperature at which R_a was obtained)

(2) The IMPOSED LEAK FOR THE 1984 SUPPLEMENTAL ILRT WAS

4.07 SCFM (70°F and 14.7 psia)

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COLUMBUS, OHIO

SUBJECT

Per Ref. 1. chapter I-6

Actual rate of Flow for Taper tube and float area meter is (Compressible fluid assumed as perfect gas)

$$m = K(\alpha^2-1)\alpha\sqrt{\frac{\pi}{2}}\,Df\sqrt{g_c F \rho_1}\times Y$$

K is a flow coefficient

$\alpha^2 = \frac{D^2}{Df^2}$ WHERE D is Tube Diameter (at float Position in Tube).

Df is Float Diameter

g_c = Force-mass relation for units system used

$F = g\,Mf\,\frac{(\rho_f-\rho)}{g_c\,\rho_f}$: Mf = mass of float

ρ is density of the fluid

Y = compressibility factor defined by Ref 1

$$Y = \frac{1}{(\alpha^2-1)}\left\{\frac{1}{\left(\frac{\alpha^2}{(\alpha^2-1)r^{1/\gamma}}-1\right)\left[\left(\frac{\alpha^2}{(\alpha^2-1)r^{1/\gamma}}+1\right)\left(\frac{\gamma-1}{\gamma}\right)\left(\frac{1-r}{1-r^{(\gamma-1)/\gamma}}\right)-2\right]}\right\}^{1/2}$$

where $r^{1/\gamma} \equiv \rho_2/\rho_1$ (ρ_2 and ρ_1 are densities on either side of float)

and $\gamma = c_p/c_v$ (Specific heat ratio).

By assuming a homogeneous density i.e. $\rho_1=\rho_2=\rho$

$r^{1/\gamma}=1$ and $\therefore r=1$

$$Y = \frac{1}{\alpha^2-1}\left\{\frac{1}{\left(\frac{\alpha^2}{(\alpha^2-1)}-1\right)\left[\left(\frac{\alpha^2}{(\alpha^2-1)}+1\right)\left(\frac{\gamma-1}{\gamma}\right)\left(\frac{1-r}{1-r^{\frac{(\gamma-1)}{\gamma}}}\right)-2\right]}\right\}^{1/2}$$

7222(9-83)
FORM GE-6(C)

ENGINEERING DEPT.
AMERICAN ELECTRIC POWER SERVICE CORP.
1 RIVERSIDE PLAZA
COLUMBUS, OHIO

SHEET 4 OF 7
DATE 9/28/84 BY D.K. CK. SEF
COMPANY I&M G.O.
PLANT COOK UNIT 2

SUBJECT

Examine the Term:

$$\left(\frac{1-r}{1-r^{\frac{n+1}{n}}}\right)$$

If r is set at 1 it becomes indetermined.
∴ let $r \to 1$ and take a limit.

$$\lim_{r\to 1}\left(\frac{1-r}{1-r^n}\right) = \text{by L'Hopital's rule} = \lim_{r\to 1}\frac{-1}{-n\,r^{n-1}}$$

$$\therefore \lim_{r\to 1}\left(\frac{1-r}{1-r^n}\right) = \frac{1}{n} = \frac{y}{y-1}$$

and Y becomes $= \left(\frac{1}{\alpha^2-1}\right)\sqrt{\frac{1}{\left(\frac{\alpha^2}{(\alpha^2-1)}-1\right)\left[\left(\frac{\alpha^2}{(\alpha^2-1)}+1\right)\left(\frac{\frac{n}{n}-1}{\frac{n}{n}}\right)\left(\frac{y}{y-1}\right)-2\right]}}$

$$Y = \frac{1}{(\alpha^2-1)}\sqrt{\frac{1}{\frac{\alpha^2-(\alpha^2-1)}{(\alpha^2-1)}\times\left[\frac{\alpha^2+(\alpha^2-1)-2(\alpha^2-1)}{(\alpha^2-1)}\right]}}$$

$$Y = \frac{1}{(\alpha^2-1)}\sqrt{\frac{(\alpha^2-1)^2}{1\left[\alpha^2+\alpha^2-2\alpha^2+1\right]}}$$

$$Y = \frac{1}{(\alpha^2-1)}\sqrt{(\alpha^2-1)^2} = 1$$

What is significant is that for an assumed homogeneous density, The expansion factor Y is a constant

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COLUMBUS, OHIO

SUBJECT

∴ given homogeneous density ρ for a given set of conditions:

$$M = (KY)(\alpha^2-1)\alpha\sqrt{\pi/2}\, D_f^2 \sqrt{g_c F \rho}$$

K = Constant Y = constant $\sqrt{\pi/2}$ = constant D_f = Constant

if a = subscript for measured conditions
and S = subscript for standard conditions

$$\frac{M_a = KY\sqrt{\pi/2}\,(\alpha_a^2-1)\alpha_a D_f^2 \sqrt{g_c F_a \rho_a}}{M_s = KY\sqrt{\pi/2}\,(\alpha_s^2-1)\alpha_s D_f^2 \sqrt{g_c F_s \rho_s}}$$

$$\frac{m_a}{m_s} = \frac{\alpha_a(\alpha_a^2-1)}{\alpha_s(\alpha_s^2-1)}\sqrt{\frac{F_a \rho_a}{F_s \rho_s}}$$

where $F = g\,\frac{M_f(\rho_f-\rho)}{g_c \rho_f}$

$$\therefore \frac{F_a}{F_s} = \frac{g M_f(\rho_f-\rho_a) g_c \rho_f}{g M_f(\rho_f-\rho_s) g_c \rho_f} = \frac{\rho_f-\rho_a}{\rho_f-\rho_f} = \frac{\rho_f(1-\rho_a/\rho_f)}{\rho_f(1-\rho_s/\rho_f)}$$

if a further simplification is made which assumes $\rho_f >> \rho_a, \rho_s$ Then $\frac{F_a}{F_s} \approx 1$

and

$$\frac{M_a}{M_s} = \frac{\alpha_a(\alpha_a^2-1)}{\alpha_s(\alpha_s^2-1)}\sqrt{\frac{\rho_a}{\rho_s}}$$

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COLUMBUS, OHIO

SUBJECT

Recall $\alpha^2 \equiv \frac{D^2}{Df^2} =$ if we examine $\alpha(\alpha^2-1) = \frac{D}{Df}\left(\frac{D^2}{Df^2}-1\right)$

We see that for the float at the bottom rest
$D = Df$ and $\alpha(\alpha^2-1) = 0$.

IT is Assumed. THAT $\alpha(\alpha^2-1)$ is directly proportional to the reading one obtains at ρ

The equation therefore becomes:

$$\frac{Ma}{Ms} = \frac{\text{Reading a}}{\text{Reading s}} \frac{\sqrt{\rho a}}{\sqrt{\rho s}}$$

Since Perfect Gas Behaviour is also assumed
$P = \rho RT$
$\therefore \rho = P/RT$

and $$\frac{Ma}{Ms} = \frac{\text{Read a}}{\text{Read s}} \sqrt{\frac{Pa/RTa}{Ps/RTs}} = \frac{\text{Read a}}{\text{Read s}} \sqrt{\frac{Pa\,Ts}{Ps\,Ta}}$$

This relation is then used to answer the question if the mass flowrate gives Reading a at Pa and Ta what Reading would be obtained (reading s) for this mass flow rate at Ps and Ts.
This means if Ma = Ms. Then

$$\text{Read s} = \text{Read a} \sqrt{\frac{Pa \times Ts}{Ps \times Ta}}$$

where P must be absolute pressure
and T must be absolute Temperature

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SUBJECT

From Ref. #2 -

Reading a = 60

$$P_a = 6.86 \text{ psig} + \frac{749 \text{ mm Hg}}{760 \frac{\text{mm Hg}}{\text{atm}}} \times \frac{14.696 \text{ Psia}}{\text{atm}} = 21.34 \text{ Psia}$$

$T_a = 532.97$

THE FLOWMETER USED WAS CALIBRATED AT 70°F and 14.7 Psia

$\therefore P_s = 14.7$ psia
$T_s = 70 + 459.7 = 529.7$

$$\text{Reading}_{Vs} = 60 \times \sqrt{\frac{21.34 \times 529.7}{14.70 \times 533.0}} = 72.067 = 72.07$$

$\therefore$ if the imposed leak gave a reading of 60 at 21.3 Psia and 530°R. This same leak would have given a reading of 72.07 at 14.7 psia and 530°R

The Cal. Sheet from Ref #2 indicates that

Reading	SCFM at 14.7 and 70°F
70.9	4.0
79.9	4.5

INTERPOLATING:

$$\frac{(72.07 - 70.9)}{(79.9 - 70.9)} \times (4.5 - 4.0) + 4.0 = 4.065 = \underline{4.07 \text{ SCFM}}$$

REF #2
ECPCALL 02-

INDIANA & MICHIGAN ELECTRIC COMPANY
DONALD C. COOK NUCLEAR PLANT

TELECOPIER COVER LETTER

SENDER: Please complete the first section. DATE: 9-18-84

Please deliver the following page(s) to:

NAME: D Kurtz TELEPHONE: _____

VERIFICATION NUMBER: _____

FROM: D.C. Cook Bridgman TELEPHONE: _____

DEPARTMENT/COMPANY _____

TOTAL NUMBER OF PAGES _____, including cover letter.

PURPOSE: ☐ Outage ☐ NRC ☐ Other

TIME NEEDED: ☐ 15 min. ☐ 1 hour ☐ Today ☐ Tomorrow

TO BE COMPLETED BY OPERATOR

We are transmitting on the following speed: ____ 4 ____ 6 minutes

Please pick up the telephone receiver: ____ After the last page.

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IF YOU DO NOT RECEIVE ALL THE PAGES, OR IF ANY OF THE PAGES ARE NOT READABLE, PLEASE CALL BACK. PHONE: (616) 465-5901

The D. C. Cook Plant transmits from a Pitney Bowes Model 8400 automatic.

Sent by: _____ Time: _____

REMARKS: _____

ROTAMETER CALIBRATION DATA

BROOKS INSTRUMENT DIVISION
EMERSON ELECTRIC CO.
HATFIELD, PENNSYLVANIA 19440

1 of 2

To: D. Kurtz

CUSTOMER	CUSTOMER ORDER NUMBER	BROOKS SERIAL NUMBER
Indiana & Michigan Elec.		8312H07069

MAX. FLOW	MIN. FLOW	UNITS	METERED FLUID	DATE
5.0	0.2			10 JAN 1984

MAX. PRESS. DROP
MODEL NUMBER R1A
TUBE NUMBER R-2SA-25-4
FLOAT NUMBER S-25-B
FLOAT MATERIAL
STD. CONDITIONS
PERF. CURVE NO.

ATMOS. PRESSURE
METERING TEMPERATURE
METERING PRESSURE
METERING DENSITY
FLOAT DENSITY
DENSITY AT STD. COND.
METERING VISCOSITY

SCFM AIR at 70°F & 14.7 PSIA

SCALE READING	FLOW	SCALE READING	FLOW	SECTION SCALE READING	FLOW	SCALE READING	FLOW	SCALE READING	FLOW
39.1	5.0	26.1							
37.4	5.5	24.3	1.5						
95.7		22.5							
94.0		20.6							
92.3		18.9							
90.5		17.1							
88.8	5.0	15.3	1.0						
87.0		13.6							
85.3		11.8							
83.5		10.1							
81.7		8.4							
79.9	4.5	6.7	0.5						
78.1		5.0							
76.3		3.3							
74.5		1.6	0.2						
72.7									
70.9	4.0								
69.0									
67.2									
65.3									
63.5									
61.8	3.5								
59.8									
57.9									
56.0									
54.2									
52.3	3.0 CW								
50.4									
48.5									
46.6									
44.8									
42.9	2.5								
41.0									
39.1									
37.2									
35.4									
33.5	2.0								
31.6									
29.8									
27.9									

Sheet 10 of 14
2-NO-08

SUPPLEMENTAL FLOW

UNIT 2 ILRT
JUNE 1984

INDICATED FLOWMETER READING = 60.

FROM CALIBRATION TABLES, INTERPOLATE FLOW AT 14.7 psia and 70°F:

$$\frac{61.6 - 52.3}{61.6 - 60} = \frac{3.5 \text{ scfm} - 3.0 \text{ scfm}}{3.5 \text{ scfm} - W_{ind}}$$

$$3.414 \text{ scfm} = W_{ind}$$

$$W_{corr} = W_{ind}\sqrt{\left(\frac{14.7 \text{ psia}}{P_t + P_{atm}}\right)\left(\frac{T + 460 R}{530}\right)}$$

Where:

$W_{ind} = 3.414$ scfm

$T = 532.97$ °R (from last Type A run)

$P_t = 6.86$ psig

$P_{atm} = 749 \text{ mm Hg} \times \frac{0.0193 \text{ psi}}{1 \text{ mm Hg}} = 14.4557$ psia

Therefore:

$$W_{corr} = 3.414 \text{ scfm}\sqrt{\left(\frac{14.7 \text{ psia}}{(6.86 \text{ psig} + 14.4557 \text{ psia})}\right)\left(\frac{532.97 R}{530 R}\right)}$$

$$W_{corr} = 3.414 \text{ scfm}\sqrt{(0.68866)(1.0056)} = 2.841 \text{ scfm}$$

4.10 → 0.25693% dry

Sheet 11 of 14 (Z-NO-88)

7222(9-83)
FORM GE-8(C)

ENGINEERING DEPT.
AMERICAN ELECTRIC POWER SERVICE CORP.
1 RIVERSIDE PLAZA
COLUMBUS, OHIO

SHEET 2 OF 4
DATE 9/26/84 BY SKF CK
COMPANY MED/ITC G.O.
PLANT D C Cook

SUBJECT ILRT Rotameter Correction Factors

Reviewers Alternate Calculation per MEDS Para 4.3.2

Purpose: The purpose of this calculation is to first Derive the formula required for correcting rotameter readings from calibrated to test conditions; and second to calculate the actual leakage rate imposed during the supplemental portion of the June 1984 Unit 2 ILRT.

Derivation:

From the ASME fluid meters book (Sixth Edition)

Chapter I-6 pg 89 $\frac{m_2}{m_1} = \sqrt{\frac{\rho_2}{\rho_1}}$

Chapter I-5 pg 47 $\frac{P}{\rho} = RT$

where

m_1 & m_2 are mass flow rates (lb/sec)

ρ_1 & ρ_2 are densities (lb/ft^3)

P is pressure (Psia)

R is the Universal Gas Constant

T is Temperature (°R)

7222(9-83)
FORM GE-8(C)

ENGINEERING DEPT.
AMERICAN ELECTRIC POWER SERVICE CORP.
1 RIVERSIDE PLAZA
COLUMBUS, OHIO

SHEET 2 OF 3
DATE 9/26/84 BY SKF CK
COMPANY MED/IEC G.O.
PLANT DC Cook

SUBJECT ILRT Rotameter Correction Factors

Reviewers Alternate Calculation per MEOB Para 4.3.2

Start with $\frac{m_2}{m_1} = \sqrt{\frac{\rho_2}{\rho_1}} \Rightarrow m_2 = m_1 \sqrt{\frac{\rho_2}{\rho_1}}$

Then $\frac{P}{\rho} = RT \Rightarrow \frac{1}{\rho} = \frac{RT}{P} \Rightarrow \rho = \frac{P}{RT}$

Therefore $m_2 = m_1 \sqrt{\frac{P_2}{RT_2} \times \frac{RT_1}{P_1}}$

reducing $m_2 = m_1 \sqrt{\frac{P_2 T_1}{P_1 T_2}}$

converting symbols...

$m_2 = W_{corr}$

$m_1 = W_{ind}$

$P_2 = P_{gage} + P_{atm}$

$P_1 = 14.7$ psia = Calibration Pressure

$T_2 = 460 + T_{ETR-133}$ = Meter inlet Temperature

$T_1 = 530\ ^\circ R$ = Calibration Temperature

Therefore

$$W_{corr} = W_{ind} \sqrt{\frac{P_{gage} + P_{atm}}{14.7} \times \frac{530^\circ R}{460 + T_{ETR-133}}}$$

This agrees with equations used in Past ILRT Test Reports...

7222(9-83)
FORM GE-8(C)

ENGINEERING DEPT.
AMERICAN ELECTRIC POWER SERVICE CORP.
1 RIVERSIDE PLAZA
COLUMBUS, OHIO

SHEET 3 OF 4
DATE 9/26/84 BY SKF CK:
COMPANY MEO/I&C G.O.
PLANT D C Cook

SUBJECT ILRT Rotameter Correction Factors

Reviewers Alternate Calculation per MEOS para 4.3.2

Calculation:

Based on 9/18/84 Telex

$W_{ind} = 60.0$

$P_{gage} = 6.86$ psig

$P_{atm} = 749$ mm $Hg = \frac{749}{760} \times 14.696 = 14.48$ psia

$T_{ETE-133} = 72.97$ °F.

Therefore

$$W_{corr} = 60.0 \sqrt{\frac{6.86 + 14.48}{14.7}} \times \frac{530}{460 + 72.97} = 72.09 \approx 72.1$$

From Brook Calibration Data

70.9 = 4.0 scfm

79.9 = 4.5 scfm

Interpolating

$$\left(\frac{72.1 - 70.9}{79.9 - 70.9}\right) \times (4.5 - 4.0) = 4.067 \approx 4.07 \text{ scfm}$$

Use imposed Leakrate of 4.07 scfm

APPENDIX G

SUMMMARY OF TYPE B AND C TESTS

PERFORMED SINCE LAST TYPE A TEST

D. C. COOK PLANT - UNIT TWO

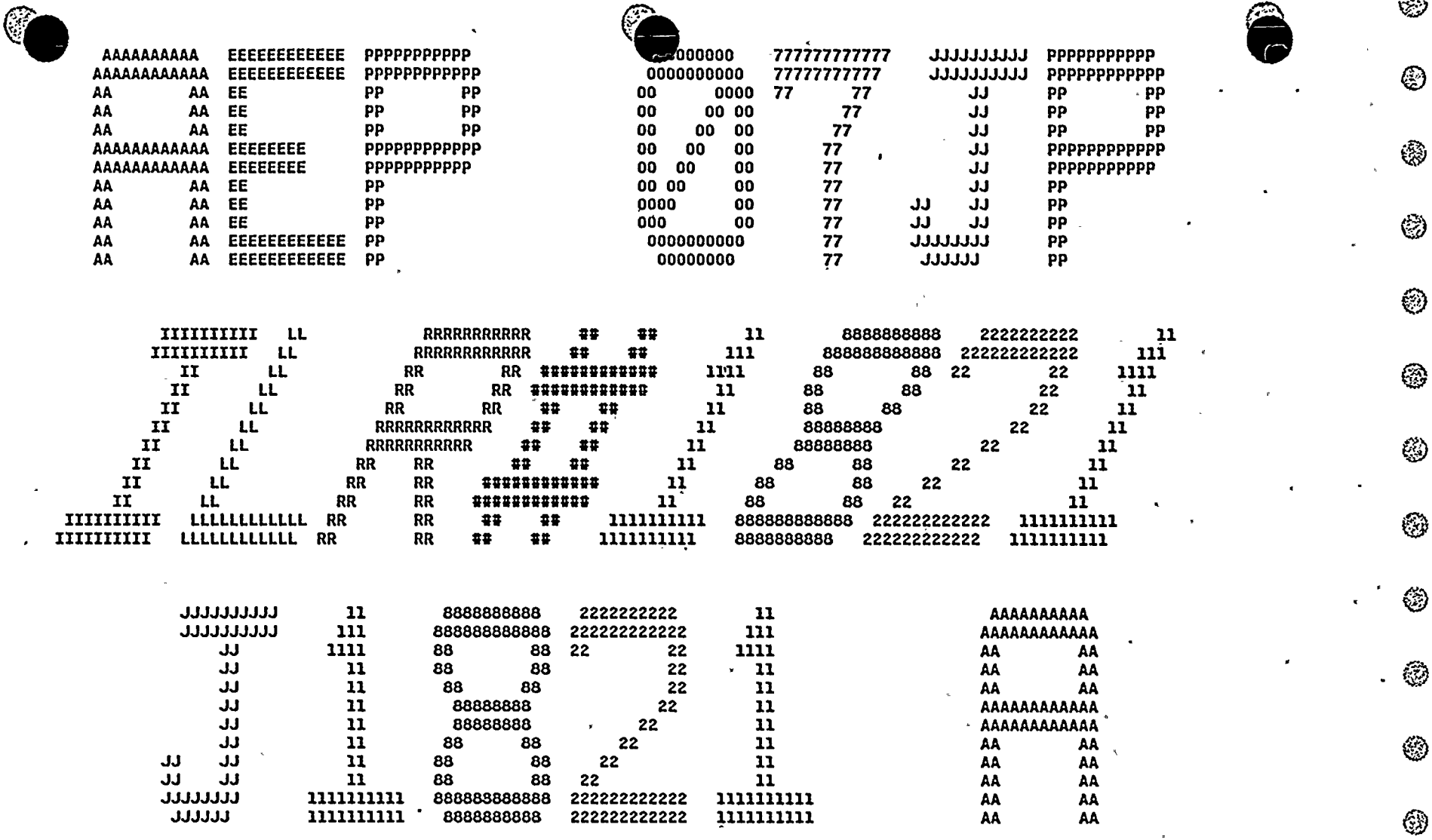
OUTAGE OF 1982-1983

OUTAGE OF 1984

APPENDIX F

SUPPLEMENTAL TEST SUMMARY

UNIT 2 - 1984


AAAAAAAAAA EEEEEEEEEEEE PPPPPPPPPPP
AAAAAAAAAAAA EEEEEEEEEEEE PPPPPPPPPPPP
AA AA EE PP PP
AA AA EE PP PP
AA AA EE PP PP
AAAAAAAAAAAA EEEEEEEE PPPPPPPPPPPP
AAAAAAAAAAAA EEEEEEEE PPPPPPPPPPP
AA AA EE PP
AA AA EE PP
AA AA EE PP
AA AA EEEEEEEEEEEE PP
AA AA EEEEEEEEEEEE PP
0000000 777777777777 JJJJJJJJJJ PPPPPPPPPPP
0000000000 77777777777 JJJJJJJJJJ PPPPPPPPPPPP
00 0000 77 77 JJ PP PP
00 00 00 77 JJ PP PP
00 00 00 77 JJ PP PP
00 00 00 77 JJ PPPPPPPPPPPP
00 00 00 77 JJ PPPPPPPPPPP
00 00 00 77 JJ PP
0000 00 77 JJ JJ PP
000 00 77 JJ JJ PP
0000000000 77 JJJJJJJJ PP
00000000 77 JJJJJJ PP
IIIIIIIIII LL RRRRRRRRRR ## ## 11 8888888888 2222222222 11
IIIIIIIIII LL RRRRRRRRRRR ## ## 111 888888888888 222222222222 111
II LL RR RR ############ 1111 88 88 22 22 1111
II LL RR RR ############ 11 88 88 22 11
II LL RR RR ## ## 11 88 88 22 11
II LL RRRRRRRRRRR ## ## 11 88888888 22 11
II LL RRRRRRRRRR ## ## 11 88888888 22 11
II LL RR RR ## ## 11 88 88 22 11
II LL RR RR ############ 11 88 88 22 11
II LL RR RR ############ 11 88 88 22 11
IIIIIIIIII LLLLLLLLLLL RR RR ## ## 1111111111 888888888888 222222222222 1111111111
IIIIIIIIII LLLLLLLLLLL RR RR ## ## 1111111111 8888888888 222222222222 1111111111
JJJJJJJJJJ 11 8888888888 2222222222 11 AAAAAAAAAA
JJJJJJJJJJ 111 888888888888 222222222222 111 AAAAAAAAAAAA
JJ 1111 88 88 22 22 1111 AA AA
JJ 11 88 88 22 11 AA AA
JJ 11 88 88 22 11 AA AA
JJ 11 88888888 22 11 AAAAAAAAAAAA
JJ 11 88888888 22 11 AAAAAAAAAAAA
JJ 11 88 88 22 11 AA AA
JJ JJ 11 88 88 22 11 AA AA
JJ JJ 11 88 88 22 11 AA AA
JJJJJJJ 1111111111 888888888888 222222222222 1111111111 AA AA
JJJJJ 1111111111 8888888888 222222222222 1111111111 AA AA
********** GENERAL INFORMATION **********
DELIVER CODE - AEP 07JP
JOB NAME - ILR#1821
JOB NUMBER - 1821
PROGRAMMER - PROBST
ROOM NUMBER - 07JP
SYSOUT CLASS - A
AMERICAN ELECTRIC POWER
SERVICE CORPORATION
COLUMBUS
OPERATIONS
COMPLEX
********** JOB TRANSMITTAL SUMMARY **********
INPUT FROM CANTON.CCC2.INTRDR
ON 01 OCT 84 AT 1.41.14 PM EST
EXECUTION BEGAN ON CANTON.CCC2
ON 01 OCT 84 AT 1.41.17 PM EST IN CLASS C .
PRINTED ON COLUMBUS.COCB.PRINTR3
ON 01 OCT 84 AT 2.01.55 PM EST

```
13.41.15 JOB 1821  $HASP901 ILR#1821 JOB 1821 CLASS=C CPU TIME=     1
13.41.17 JOB 1821  $HASP373 ILR#1821 STARTED - INIT  7 - CLASS C - SYS CCC2
13.41.17 JOB 1821  IEF403I ILR#1821 - STARTED
13.41.19 JOB 1821  $HASP375 ILR#1821 ESTIMATED LINES EXCEEDED
13.41.20 JOB 1821  IEF404I ILR#1821 - ENDED
13.41.20 JOB 1821  $HASP395 ILR#1821 ENDED

------ JES2 JOB STATISTICS ------

 01 OCT 84 JOB EXECUTION DATE

       260 CARDS READ

     1,860 SYSOUT PRINT RECORDS

         0 SYSOUT PUNCH RECORDS

      0.06 MINUTES EXECUTION TIME
```

```
1     //ILR#1821  JOB (4989,52,07JP,1,1,0,,1,,),'PROBST',MSGLEV=(1,1),      JOB 1821
      //        REGION=128K,MSGCLASS=H,CLASS=C
      ***ROUTE PRINT N08R000                                          S02OR502
      ***ROUTE PUNCH N08R000                                          S02OR502
      ***DELIVER $AEP07JP
      ***ROUTE PRINT LOCAL
      ***JOBPARM COPIES=2
      ***DELIVER $AEP07JP
 2    // EXEC PILR,C='*'
 3    XXPILR  PROC  PROG=ILRTEST,REG=128K,C=A                          80169001
 4    XXGO  EXEC  PGM=&PROG,REGION=&REG                                80169002
 5    XXSTEPLIB  DD  DSN=LIB.PEP,DISP=SHR                              80169003
 6    XXFT05F001  DD  DDNAME=DATA                                      80169004
 7    XXFT10F001  DD  SYSOUT=&C,DCB=(RECFM=FBA,LRECL=133,BLKSIZE=931)  80169005
 8    XXFT09F001  DD  SYSOUT=&C,DCB=(RECFM=FBA,LRECL=133,BLKSIZE=931)  80169006
 9    XXFT06F001  DD  SYSOUT=&C,DCB=(RECFM=FBA,LRECL=133,BLKSIZE=931)  80169007
10    //GO.DATA   DD *
```

```
STMT NO. MESSAGE
-
    4     IEF653I SUBSTITUTION JCL - PGM=ILRTEST,REGION=128K
    7     IEF653I SUBSTITUTION JCL - SYSOUT=*,DCB=(RECFM=FBA,LRECL=133,BLKSIZE=931)
    8     IEF653I SUBSTITUTION JCL - SYSOUT=*,DCB=(RECFM=FBA,LRECL=133,BLKSIZE=931)
    9     IEF653I SUBSTITUTION JCL - SYSOUT=*,DCB=(RECFM=FBA,LRECL=133,BLKSIZE=931)
IEF236I ALLOC. FOR ILR#1821 GO
IEF237I A60  ALLOCATED TO STEPLIB
IEF237I 961  ALLOCATED TO SYS00116
IEF237I JES2 ALLOCATED TO FT05F001
IEF237I JES2 ALLOCATED TO FT10F001
IEF237I JES2 ALLOCATED TO FT09F001
IEF237I JES2 ALLOCATED TO FT06F001
IEF142I ILR#1821 GO - STEP WAS EXECUTED - COND CODE 0000
IEF285I   LIB.PEP                                    KEPT
IEF285I   VOL SER NOS= CD0183.
IEF285I   SYSCTLG.VCDB001                            KEPT
IEF285I   VOL SER NOS= CDB001.
IEF285I   JES2.JOB01821.SI0101                       SYSIN
IEF285I   JES2.JOB01821.SO0102                       SYSOUT
IEF285I   JES2.JOB01821.SO0103                       SYSOUT
IEF285I   JES2.JOB01821.SO0104                       SYSOUT
IEF373I STEP /GO      / START 84275.1341
IEF374I STEP /GO      / STOP  84275.1341 CPU    0MIN 00.65SEC SRB    0MIN 00.02SEC VIRT    72K SYS   252K
IEF375I  JOB /ILR#1821/ START 84275.1341
IEF376I  JOB /ILR#1821/ STOP  84275.1341 CPU    0MIN 00.65SEC SRB    0MIN 00.02SEC
```

```
***MANOMETER READING    0.0    NOT IN CALIBRATION RANGE  - RUN #  1, ENTRY NUMBER   3
***MANOMETER READING    0.0    NOT IN CALIBRATION RANGE  - RUN #  2, ENTRY NUMBER   3
***MANOMETER READING    0.0    NOT IN CALIBRATION RANGE  - RUN #  3, ENTRY NUMBER   3
***MANOMETER READING    0.0    NOT IN CALIBRATION RANGE  - RUN #  4, ENTRY NUMBER   3
***MANOMETER READING    0.0    NOT IN CALIBRATION RANGE  - RUN #  5, ENTRY NUMBER   3
***MANOMETER READING    0.0    NOT IN CALIBRATION RANGE  - RUN #  6, ENTRY NUMBER   3
***MANOMETER READING    0.0    NOT IN CALIBRATION RANGE  - RUN #  7, ENTRY NUMBER   3
***MANOMETER READING    0.0    NOT IN CALIBRATION RANGE  - RUN #  8, ENTRY NUMBER   3
***MANOMETER READING    0.0    NOT IN CALIBRATION RANGE  - RUN #  9, ENTRY NUMBER   3
***MANOMETER READING    0.0    NOT IN CALIBRATION RANGE  - RUN # 10, ENTRY NUMBER   3
***MANOMETER READING    0.0    NOT IN CALIBRATION RANGE  - RUN # 11, ENTRY NUMBER   3
***MANOMETER READING    0.0    NOT IN CALIBRATION RANGE  - RUN # 12, ENTRY NUMBER   3
***MANOMETER READING    0.0    NOT IN CALIBRATION RANGE  - RUN # 13, ENTRY NUMBER   3
***MANOMETER READING    0.0    NOT IN CALIBRATION RANGE  - RUN # 14, ENTRY NUMBER   3
***MANOMETER READING    0.0    NOT IN CALIBRATION RANGE  - RUN # 15, ENTRY NUMBER   3
***MANOMETER READING    0.0    NOT IN CALIBRATION RANGE  - RUN # 16, ENTRY NUMBER   3
***MANOMETER READING    0.0    NOT IN CALIBRATION RANGE  - RUN # 17, ENTRY NUMBER   3
***MANOMETER READING    0.0    NOT IN CALIBRATION RANGE  - RUN # 18, ENTRY NUMBER   3
***MANOMETER READING    0.0    NOT IN CALIBRATION RANGE  - RUN # 19, ENTRY NUMBER   3
***MANOMETER READING    0.0    NOT IN CALIBRATION RANGE  - RUN # 20, ENTRY NUMBER   3
***MANOMETER READING    0.0    NOT IN CALIBRATION RANGE  - RUN # 21, ENTRY NUMBER   3
***MANOMETER READING    0.0    NOT IN CALIBRATION RANGE  - RUN # 22, ENTRY NUMBER   3
CONVERTED DEW POINT  28.04 RUN NUMBER  23 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
CONVERTED DEW POINT  -0.00 RUN NUMBER  23 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
***MANOMETER READING    0.0    NOT IN CALIBRATION RANGE  - RUN # 23, ENTRY NUMBER   3
CONVERTED DEW POINT  28.40 RUN NUMBER  24 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
CONVERTED DEW POINT   0.02 RUN NUMBER  24 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
***MANOMETER READING    0.0    NOT IN CALIBRATION RANGE  - RUN # 24, ENTRY NUMBER   3
CONVERTED DEW POINT  28.40 RUN NUMBER  25 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
***MANOMETER READING    0.0    NOT IN CALIBRATION RANGE  - RUN # 25, ENTRY NUMBER   3
CONVERTED DEW POINT  28.04 RUN NUMBER  26 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
***MANOMETER READING    0.0    NOT IN CALIBRATION RANGE  - RUN # 26, ENTRY NUMBER   3
CONVERTED DEW POINT  28.22 RUN NUMBER  27 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
***MANOMETER READING    0.0    NOT IN CALIBRATION RANGE  - RUN # 27, ENTRY NUMBER   3
CONVERTED DEW POINT  28.40 RUN NUMBER  28 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
***MANOMETER READING    0.0    NOT IN CALIBRATION RANGE  - RUN # 28, ENTRY NUMBER   3
CONVERTED DEW POINT  28.94 RUN NUMBER  29 IS OUT OF RANGE FOR VAPOR PRESSURE CALCULATION AND HAS BEEN IGNORED
***MANOMETER READING    0.0    NOT IN CALIBRATION RANGE  - RUN # 29, ENTRY NUMBER   3
```

*** ILR PROGRAM RESULTS ***

SUMMARY OF AVERAGES

RUN #	ELAPSED TIME	AVG TEMP UPPER	AVG PRESS UPPER	AVG V PRESS UPPER	AVG TEMP LOWER	AVG PRESS LOWER	AVG V PRESS LOWER	AVG TEMP ICE	AVG PRESS ICE	AVG V PRESS ICE
1	0.0	72.5562	26.8504	0.0934	73.2920	26.8565	0.1102	17.2338	26.8857	0.0401
2	0.50	72.5655	26.8481	0.0934	73.3156	26.8545	0.1106	17.1156	26.8834	0.0368
3	1.00	72.5362	26.8476	0.0935	73.2979	26.8529	0.1110	17.1285	26.8806	0.0403
4	1.50	72.5377	26.8458	0.0933	73.3473	26.8513	0.1114	17.2876	26.8792	0.0415
5	2.00	72.5116	26.8438	0.0939	73.3336	26.8494	0.1117	17.2258	26.8772	0.0352
6	2.50	72.5125	26.8430	0.0934	73.3669	26.8487	0.1120	17.1175	26.8767	0.0383
7	3.00	72.5179	26.8418	0.0937	73.4222	26.8474	0.1124	17.0781	26.8754	0.0388
8	3.50	72.5250	26.8385	0.0937	73.3532	26.8445	0.1128	17.1814	26.8728	0.0406
9	4.00	72.5308	26.8369	0.0942	73.3942	26.8428	0.1131	17.0658	26.8708	0.0381
10	4.50	72.5374	26.8360	0.0936	73.3829	26.8420	0.1135	17.0197	26.8699	0.0384
11	5.00	72.5240	26.8332	0.0940	73.3882	26.8389	0.1139	17.2124	26.8667	0.0365
12	5.50	72.5343	26.8298	0.0941	73.4099	26.8358	0.1141	17.0518	26.8637	0.0365
13	6.00	72.4963	26.8284	0.0939	73.3997	26.8343	0.1145	17.0036	26.8627	0.0376
14	6.50	72.4759	26.8273	0.0943	73.4022	26.8332	0.1149	16.9422	26.8619	0.0370
15	7.00	72.4839	26.8248	0.0942	73.4053	26.8305	0.1152	16.9664	26.8584	0.0368
16	8.00	72.4543	26.8220	0.0899	73.4409	26.8277	0.1160	17.0081	26.8554	0.0386
17	8.50	72.4478	26.8189	0.0906	73.4265	26.8246	0.1158	17.1162	26.8524	0.0349
18	9.00	72.4320	26.8161	0.0903	73.4106	26.8401	0.1162	16.9393	26.8509	0.0356
19	9.50	72.3954	26.8133	0.0906	73.4252	26.8193	0.1166	16.8170	26.8474	0.0370
20	10.00	72.3799	26.8128	0.0902	73.4332	26.8179	0.1171	16.8789	26.8472	0.0369
21	10.50	72.4088	26.8102	0.0904	73.4139	26.8163	0.1178	16.8021	26.8443	0.0318
22	11.00	72.4039	26.8072	0.0908	73.4308	26.8137	0.1180	16.7648	26.8413	0.0345
23	11.50	72.3472	26.8024	0.0908	73.4274	26.8094	0.1067	16.8224	26.8374	0.0363
24	12.00	72.3651	26.8018	0.0910	73.4541	26.8083	0.1065	16.9424	26.8363	0.0341
25	12.50	72.3449	26.8003	0.0910	73.4318	26.8074	0.1072	16.7956	26.8354	0.0355
26	13.00	72.3481	26.7983	0.0915	73.4388	26.8059	0.1079	16.7118	26.8334	0.0358
27	13.50	72.3339	26.7945	0.0914	73.4314	26.8025	0.1085	16.8125	26.8300	0.0348
28	14.00	72.3256	26.7950	0.0908	73.4231	26.8027	0.1089	16.7143	26.8203	0.0337
29	14.50	72.3153	26.7933	0.0913	73.4357	26.8013	0.1092	16.7260	26.8295	0.0373

RESULTS OF THE LINEAR REGRESSION ANALYSIS

RUN #	M EXPERIMENTAL	LEAKAGE RATE UPPER LIMIT	LEAKAGE RATE	M UPPER CONTAINMENT	M LOWER CONTAINMENT	M ICE CONDENSER
3	0.99991	-0.57764	-0.21530	0.99993	0.99982	1.00002
4	0.99977	-0.55713	-0.33766	0.99987	0.99966	0.99959
5	0.99976	-0.41656	-0.30551	0.99982	0.99960	0.99988
6	0.99974	-0.34858	-0.26846	0.99981	0.99950	0.99998
7	0.99965	-0.32499	-0.27134	0.99974	0.99933	0.99999
8	0.99953	-0.34903	-0.29932	0.99960	0.99934	0.99961
9	0.99946	-0.35394	-0.31336	0.99951	0.99919	0.99987
10	0.99945	-0.33964	-0.30719	0.99949	0.99917	0.99993
11	0.99930	-0.35387	-0.32291	0.99939	0.99903	0.99947
12	0.99919	-0.37085	-0.33983	0.99924	0.99886	0.99970
13	0.99919	-0.36438	-0.33835	0.99927	0.99881	0.99972
14	0.99918	-0.35342	-0.32951	0.99925	0.99875	0.99984
15	0.99906	-0.34983	-0.32925	0.99915	0.99863	0.99967
16	0.99903	-0.33755	-0.31672	0.99926	0.99843	0.99940
17	0.99891	-0.33247	-0.31430	0.99913	0.99835	0.99920
18	0.99908	-0.31874	-0.29276	0.99907	0.99894	0.99949
19	0.99882	-0.31566	-0.29263	0.99902	0.99812	0.99956
20	0.99880	-0.31092	-0.29021	0.99905	0.99804	0.99943
21	0.99872	-0.30824	-0.28958	0.99889	0.99799	0.99967
22	0.99860	-0.30969	-0.29253	0.99877	0.99785	0.99954
23	0.99859	-0.30781	-0.29218	0.99869	0.99812	0.99920
24	0.99850	-0.30735	-0.29302	0.99863	0.99804	0.99899
25	0.99851	-0.30399	-0.29060	0.99862	0.99802	0.99922
26	0.99844	-0.30171	-0.28929	0.99852	0.99792	0.99930
27	0.99830	-0.30282	-0.29117	0.99840	0.99779	0.99901
28	0.99832	-0.30085	-0.28997	0.99846	0.99779	0.99889
29	0.99828	-0.29861	-0.28835	0.99840	0.99771	0.99907

FINAL LEAKAGE RATE (% PER DAY) = -0.28835 INTERCEPT= 0.99997

UPPER CONFIDENCE LIMIT FOR THE RATE IS -0.29861

SUPPLEMENTAL TEST COMPLETION CRITERIA MESSAGES

TYPE A LEAK RATE = -0.03404 (%WT/DAY) IMPOSED LEAK RATE = -4.0700 (SCFM) = -0.2614 (%WT/DAY)

TEST DURATION HAS EXCEEDED THE 6 HOUR MINIMUM

THE MEASURED COMPOSITE LEAKAGE MEETS RANGE REQUIREMENTS - SUPPLEMENTARY TESTING COMPLETED!

********** FIXED INPUT DATA **********

TEST START = RUN # 0 TEST END = RUN # 0

RTD MILLI-VOLT TO FAHRENHEIT CONVERSION COEFFICIENTS

UPPER		LOWER		ICE	
2.00	0.0	2.00	0.0	2.00	0.0

HYGROMETER MILLI-VOLT TO FAHRENHEIT CONVERSION COEFFICIENTS

	UPPER-1			LOWER-1			ICE-1	
0.00053	1.97638	-0.05018	0.00061	1.96939	-0.01108	0.00069	1.96622	-0.03787
	UPPER-2			LOWER-2			ICE-2	
0.0	18.00000	32.00000	0.00063	1.96888	-0.00869	0.0	18.00000	32.00000

MANOMETER PRESSURE CORRECTION COEFFICIENTS

W1	R1	W2	R2	W3	R3	W4	R4	W5	R5
				PU-1					
34.9568	35.2180	29.9629	30.1800	24.9693	25.1380	19.9754	20.0950	14.9815	15.0680
				PU-2					
29.9632	29.9634	28.4652	28.4663	26.9671	26.9684	25.4689	25.4688	0.0	0.0
				PL-1					
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
				PL-2					
29.9632	29.9648	28.4652	28.6466	26.9671	26.9688	25.4689	25.4694	0.0	0.0
				PI-1					
29.9632	29.9609	28.4652	28.4640	26.9671	26.9681	25.4689	25.4688	0.0	0.0
				PI-2					
29.9632	29.9618	28.4652	28.4656	26.9671	26.9685	25.4689	25.4689	0.0	0.0
				P-ATM					
14.7020	14.7100	13.5010	13.5010	11.5010	11.4960	9.5020	9.5020	7.5020	7.5000

RTD WEIGHTING FACTORS

UPPER

.0628 .1161 .0831 .0831 .0960 .0960 .0960 .0960 .0296 .0296
.0296 .0296 .0740 .0105 .0167 .0513

LOWER

.0415 .0415 .0415 .0415 .0102 .0284 .0586 .0086 .0266 .0586 .1037
.1037 .1037 .1037 .0500 .0092 .0244 .0145 .0170 .0249 .0219 .0240 .0423 .0

ICE

.0735 .0735 .0711 .0711 .2231 .2789 .2089

VOLUME WEIGHTING FACTORS

UPPER	LOWER	ICE
2.0144	1.0000	0.3713

TYPE C LEAKAGE PENALTY= -867.00(SCCM); TYPE A MEASURED LEAK RATE = -0.03404 (%WT/DAY); IMPOSED LEAK RATE = -4.070 (SCFM)

RUN NUMBER 1
ELAPSED TIME 30.50

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG, F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	39.74	79.48	ETR-122	35.93	71.86	ETR-115	9.62	19.24
ETR-102	37.64	75.28	ETR-123	36.65	73.30	ETR-116	9.20	18.40
ETR-103	35.66	71.32	ETR-124	37.27	74.54	ETR-117	8.93	17.86
ETR-104	35.61	71.22	ETR-125	36.01	72.02	ETR-118	10.00	20.00
ETR-105	35.99	71.98	ETR-126	36.08	72.16	ETR-119	8.34	16.68
ETR-106	36.31	72.62	ETR-127	33.90	67.80	ETR-120	8.05	16.10
ETR-107	35.87	71.74	ETR-129	37.19	74.38	ETR-121	8.53	17.06
ETR-108	35.89	71.78	ETR-130	35.65	71.30			
ETR-109	35.56	71.12	ETR-131	33.93	67.86			
ETR-110	35.42	70.84	ETR-132	37.65	75.30			
ETR-111	35.54	71.08	ETR-134	36.67	73.34			
ETR-112	35.59	71.18	ETR-135	36.60	73.20			
ETR-114	34.83	69.66	ETR-136	36.57	73.14			
ETR-128	36.88	73.76	ETR-137	36.28	72.56			
ETR-133	34.37	68.74	ETR-138	36.63	73.26			
ETR-113	37.33	74.66	ETR-139	33.93	67.86			
			ETR-140	36.74	73.48			
			ETR-141	37.38	74.76			
			ETR-142	36.25	72.50			
			ETR-143	37.63	75.26			
			ETR-144	36.96	73.92			
			ETR-145	41.60	83.20			
			ETR-146	37.15	74.30			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.56	LOWER VOLUME (DEG. F.)	73.29	ICE CONDENSER (DEG. F.)	17.23
UPPER VOLUME (DEG. R.)	532.26	LOWER VOLUME (DEG. R.)	532.99	ICE CONDENSER (DEG. R.)	476.93

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	16.81	33.32	0.0934
VPU-2	0.0	32.00	0.0
LOWER:			
VPL-1	19.28	38.19	0.1133
VPL-2	18.57	36.77	0.1072
ICE:			
VPI-1	8.61	16.95	0.0435
VPI-2	-1.03	13.46	0.0367

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.0934
LOWER CONTAINMENT	(PSIA)	0.1102
ICE CONDENSER	(PSIA)	0.0401

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0130	26.8263
PU-2	26.8757	26.8745
LOWER:		
PL-1	0.0	0.0
PL-2	26.8581	26.8565
ICE:		
PI-1	26.8778	26.8769
PI-2	26.8958	26.8945
AMBIENT	14.4900	14.4835

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8504
AVERAGE LOWER PRESSURE	(PSIA)	26.8565
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.8857
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8642
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3807

RUN NUMBER 2
ELAPSED TIME 31.00

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	39.73	79.46	ETR-122	35.94	71.88	ETR-115	9.34	18.68
ETR-102	37.63	75.26	ETR-123	36.66	73.32	ETR-116	9.02	18.04
ETR-103	35.66	71.32	ETR-124	37.25	74.50	ETR-117	8.70	17.40
ETR-104	35.60	71.20	ETR-125	35.99	71.98	ETR-118	9.97	19.94
ETR-105	36.02	72.04	ETR-126	36.08	72.16	ETR-119	8.35	16.70
ETR-106	36.30	72.60	ETR-127	33.94	67.88	ETR-120	8.07	16.14
ETR-107	35.90	71.80	ETR-129	37.17	74.34	ETR-121	8.46	16.92
ETR-108	35.89	71.78	ETR-130	35.65	71.30			
ETR-109	35.61	71.22	ETR-131	33.93	67.86			
ETR-110	35.39	70.78	ETR-132	37.66	75.32			
ETR-111	35.54	71.08	ETR-134	36.76	73.52			
ETR-112	35.55	71.10	ETR-135	36.59	73.18			
ETR-114	34.86	69.72	ETR-136	36.59	73.18			
ETR-128	36.88	73.76	ETR-137	36.28	72.56			
ETR-133	34.36	68.72	ETR-138	36.67	73.34			
ETR-113	37.35	74.70	ETR-139	33.93	67.86			
			ETR-140	36.75	73.50			
			ETR-141	37.38	74.76			
			ETR-142	36.25	72.50			
			ETR-143	37.63	75.26			
			ETR-144	36.97	73.94			
			ETR-145	41.57	83.14			
			ETR-146	37.15	74.30			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.57	LOWER VOLUME (DEG. F.)	73.32	ICE CONDENSER (DEG. F.)	17.12
UPPER VOLUME (DEG. R.)	532.27	LOWER VOLUME (DEG. R.)	533.02	ICE CONDENSER (DEG. R.)	476.82

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	16.81	33.32	0.0934
VPU-2	0.0	32.00	0.0
LOWER:			
VPL-1	19.35	38.33	0.1139
VPL-2	18.59	36.81	0.1073
ICE:			
VPI-1	7.81	15.36	0.0403
VPI-2	-1.14	11.48	0.0332

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT (PSIA)	0.0934
LOWER CONTAINMENT (PSIA)	0.1106
ICE CONDENSER (PSIA)	0.0368

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0101	26.8234
PU-2	26.8739	26.8727
LOWER:		
PL-1	0.0	0.0
PL-2	26.8561	26.8545
ICE:		
PI-1	26.8759	26.8750
PI-2	26.8932	26.8919
AMBIENT	14.4800	14.4735

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE (PSIA)	26.8481
AVERAGE LOWER PRESSURE (PSIA)	26.8545
AVERAGE ICE CONDENSER PRESSURE (PSIA)	26.8834
AVERAGE CONTAINMENT PRESSURE (PSIA)	26.8620
AVERAGE CONTAINMENT PRESSURE (PSIG)	12.3885

RUN NUMBER 3
ELAPSED TIME 31.50

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	39.72	79.44	ETR-122	35.91	71.82	ETR-115	9.16	18.32
ETR-102	37.62	75.24	ETR-123	36.67	73.34	ETR-116	9.04	18.08
ETR-103	35.64	71.28	ETR-124	37.25	74.50	ETR-117	8.68	17.36
ETR-104	35.57	71.14	ETR-125	36.04	72.08	ETR-118	9.95	19.90
ETR-105	36.00	72.00	ETR-126	36.10	72.20	ETR-119	8.36	16.72
ETR-106	36.29	72.58	ETR-127	33.97	67.94	ETR-120	8.10	16.20
ETR-107	35.87	71.74	ETR-129	37.16	74.32	ETR-121	8.51	17.02
ETR-108	35.87	71.74	ETR-130	35.65	71.30			
ETR-109	35.61	71.22	ETR-131	33.94	67.88			
ETR-110	35.43	70.86	ETR-132	37.66	75.32			
ETR-111	35.55	71.10	ETR-134	36.65	73.30			
ETR-112	35.58	71.16	ETR-135	36.55	73.10			
ETR-114	34.84	69.68	ETR-136	36.63	73.26			
ETR-128	36.89	73.78	ETR-137	36.27	72.54			
ETR-133	34.36	68.72	ETR-138	36.68	73.36			
ETR-113	37.31	74.62	ETR-139	33.95	67.90			
			ETR-140	36.75	73.50			
			ETR-141	37.38	74.76			
			ETR-142	36.26	72.52			
			ETR-143	37.64	75.28			
			ETR-144	36.97	73.94			
			ETR-145	41.59	83.18			
			ETR-146	37.15	74.30			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.54	LOWER VOLUME (DEG. F.)	73.30	ICE CONDENSER (DEG. F.)	17.13
UPPER VOLUME (DEG. R.)	532.24	LOWER VOLUME (DEG. R.)	533.00	ICE CONDENSER (DEG. R.)	476.83

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	16.82	33.34	0.0935
VPU-2	0.0	32.00	0.0
LOWER:			
VPL-1	19.42	38.47	0.1146
VPL-2	18.61	36.85	0.1075
ICE:			
VPI-1	8.80	17.31	0.0443
VPI-2	-1.04	13.28	0.0364

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.0935
LOWER CONTAINMENT	(PSIA)	0.1110
ICE CONDENSER	(PSIA)	0.0403

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0090	26.8223
PU-2	26.8740	26.8728
LOWER:		
PL-1	0.0	0.0
PL-2	26.8545	26.8529
ICE:		
PI-1	26.8741	26.8732
PI-2	26.8894	26.8881
AMBIENT	14.4900	14.4835

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8476
AVERAGE LOWER PRESSURE	(PSIA)	26.8529
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.8806
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8604
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3769

RUN NUMBER 4
ELAPSED TIME 32.00

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	39.70	79.40	ETR-122	35.95	71.90	ETR-115	9.23	18.46
ETR-102	37.61	75.22	ETR-123	36.66	73.32	ETR-116	9.20	18.40
ETR-103	35.65	71.30	ETR-124	37.31	74.62	ETR-117	8.92	17.84
ETR-104	35.60	71.20	ETR-125	36.01	72.02	ETR-118	10.65	21.30
ETR-105	35.99	71.98	ETR-126	36.10	72.20	ETR-119	8.36	16.72
ETR-106	36.29	72.58	ETR-127	33.91	67.82	ETR-120	8.10	16.20
ETR-107	35.88	71.76	ETR-129	37.17	74.34	ETR-121	8.49	16.98
ETR-108	35.83	71.66	ETR-130	35.66	71.32			
ETR-109	35.56	71.12	ETR-131	33.94	67.88			
ETR-110	35.48	70.96	ETR-132	37.68	75.36			
ETR-111	35.56	71.12	ETR-134	36.76	73.52			
ETR-112	35.60	71.20	ETR-135	36.59	73.18			
ETR-114	34.85	69.70	ETR-136	36.66	73.32			
ETR-128	36.91	73.82	ETR-137	36.28	72.56			
ETR-133	34.38	68.76	ETR-138	36.72	73.44			
ETR-113	37.34	74.68	ETR-139	33.94	67.88			
			ETR-140	36.75	73.50			
			ETR-141	37.39	74.78			
			ETR-142	36.28	72.56			
			ETR-143	37.66	75.32			
			ETR-144	36.98	73.96			
			ETR-145	41.56	83.12			
			ETR-146	37.15	74.30			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.54	LOWER VOLUME (DEG. F.)	73.35	ICE CONDENSER (DEG. F.)	17.29
UPPER VOLUME (DEG. R.)	532.24	LOWER VOLUME (DEG. R.)	533.05	ICE CONDENSER (DEG. R.)	476.99

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	16.79	33.28	0.0933
VPU-2	0.0	32.00	0.0
LOWER:			
VPL-1	19.50	38.63	0.1153
VPL-2	18.61	36.85	0.1075
ICE:			
VPI-1	9.18	18.07	0.0460
VPI-2	-1.02	13.64	0.0370

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.0933
LOWER CONTAINMENT	(PSIA)	0.1114
ICE CONDENSER	(PSIA)	0.0415

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0080	26.8214
PU-2	26.8714	26.8702
LOWER:		
PL-1	0.0	0.0
PL-2	26.8529	26.8513
ICE:		
PI-1	26.8726	26.8717
PI-2	26.8880	26.8867
AMBIENT	14.4900	14.4835

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8458
AVERAGE LOWER PRESSURE	(PSIA)	26.8513
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.8792
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8588
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3753

RUN NUMBER 5
ELAPSED TIME 32.50

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	39.69	79.38	ETR-122	35.92	71.84	ETR-115	9.15	18.30
ETR-102	37.60	75.20	ETR-123	36.66	73.32	ETR-116	9.07	18.14
ETR-103	35.62	71.24	ETR-124	37.29	74.58	ETR-117	8.75	17.50
ETR-104	35.58	71.16	ETR-125	36.04	72.08	ETR-118	10.84	21.68
ETR-105	35.96	71.92	ETR-126	36.12	72.24	ETR-119	8.35	16.70
ETR-106	36.28	72.56	ETR-127	33.93	67.86	ETR-120	8.07	16.14
ETR-107	35.86	71.72	ETR-129	37.17	74.34	ETR-121	8.46	16.92
ETR-108	35.84	71.68	ETR-130	35.64	71.28			
ETR-109	35.64	71.28	ETR-131	33.91	67.82			
ETR-110	35.46	70.92	ETR-132	37.69	75.38			
ETR-111	35.57	71.14	ETR-134	36.67	73.34			
ETR-112	35.56	71.12	ETR-135	36.57	73.14			
ETR-114	34.85	69.70	ETR-136	36.69	73.38			
ETR-128	36.88	73.76	ETR-137	36.27	72.54			
ETR-133	34.36	68.72	ETR-138	36.73	73.46			
ETR-113	37.29	74.58	ETR-139	33.95	67.90			
			ETR-140	36.76	73.52			
			ETR-141	37.41	74.82			
			ETR-142	36.29	72.58			
			ETR-143	37.66	75.32			
			ETR-144	36.99	73.98			
			ETR-145	41.60	83.20			
			ETR-146	37.16	74.32			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.51	LOWER VOLUME (DEG. F.)	73.33	ICE CONDENSER (DEG. F.)	17.23
UPPER VOLUME (DEG. R.)	532.21	LOWER VOLUME (DEG. R.)	533.03	ICE CONDENSER (DEG. R.)	476.93

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	16.88	33.46	0.0939
VPU-2	0.0	32.00	0.0
LOWER:			
VPL-1	19.58	38.78	0.1160
VPL-2	18.60	36.83	0.1074
ICE:			
VPI-1	8.30	16.32	0.0422
VPI-2	-1.32	8.24	0.0283

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT (PSIA)	0.0939
LOWER CONTAINMENT (PSIA)	0.1117
ICE CONDENSER (PSIA)	0.0352

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0060	26.8194
PU-2	26.8694	26.8682
LOWER:		
PL-1	0.0	0.0
PL-2	26.8510	26.8494
ICE:		
PI-1	26.8706	26.8697
PI-2	26.8860	26.8847
AMBIENT	14.4900	14.4835

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE (PSIA)	26.8438
AVERAGE LOWER PRESSURE (PSIA)	26.8494
AVERAGE ICE CONDENSER PRESSURE (PSIA)	26.8772
AVERAGE CONTAINMENT PRESSURE (PSIA)	26.8568
AVERAGE CONTAINMENT PRESSURE (PSIG)	12.3733

RUN NUMBER 6
ELAPSED TIME 33.00

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	39.71	79.42	ETR-122	35.94	71.88	ETR-115	9.02	18.04
ETR-102	37.59	75.18	ETR-123	36.68	73.36	ETR-116	9.07	18.14
ETR-103	35.63	71.26	ETR-124	37.32	74.64	ETR-117	8.73	17.46
ETR-104	35.57	71.14	ETR-125	36.02	72.04	ETR-118	10.24	20.48
ETR-105	35.98	71.96	ETR-126	36.12	72.24	ETR-119	8.36	16.72
ETR-106	36.27	72.54	ETR-127	33.90	67.80	ETR-120	8.09	16.18
ETR-107	35.84	71.68	ETR-129	37.21	74.42	ETR-121	8.42	16.84
ETR-108	35.84	71.68	ETR-130	35.65	71.30			
ETR-109	35.54	71.08	ETR-131	33.91	67.82			
ETR-110	35.51	71.02	ETR-132	37.70	75.40			
ETR-111	35.56	71.12	ETR-134	36.73	73.46			
ETR-112	35.59	71.18	ETR-135	36.62	73.24			
ETR-114	34.87	69.74	ETR-136	36.67	73.34			
ETR-128	36.90	73.80	ETR-137	36.29	72.58			
ETR-133	34.36	68.72	ETR-138	36.74	73.48			
ETR-113	37.30	74.60	ETR-139	33.95	67.90			
			ETR-140	36.77	73.54			
			ETR-141	37.41	74.82			
			ETR-142	36.28	72.56			
			ETR-143	37.67	75.34			
			ETR-144	36.98	73.96			
			ETR-145	41.60	83.20			
			ETR-146	37.17	74.34			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.51	LOWER VOLUME (DEG. F.)	73.37	ICE CONDENSER (DEG. F.)	17.12
UPPER VOLUME (DEG. R.)	532.21	LOWER VOLUME (DEG. R.)	533.07	ICE CONDENSER (DEG. R.)	476.82

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	16.81	33.32	0.0934
VPU-2	0.0	32.00	0.0
LOWER:			
VPL-1	19.65	38.92	0.1166
VPL-2	18.59	36.81	0.1073
ICE:			
VPI-1	8.99	17.69	0.0451
VPI-2	-1.20	10.40	0.0315

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT (PSIA)	0.0934
LOWER CONTAINMENT (PSIA)	0.1120
ICE CONDENSER (PSIA)	0.0383

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0050	26.8184
PU-2	26.8689	26.8677
LOWER:		
PL-1	0.0	0.0
PL-2	26.8503	26.8487
ICE:		
PI-1	26.8700	26.8691
PI-2	26.8857	26.8844
AMBIENT	14.5000	14.4934

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE (PSIA)	26.8430
AVERAGE LOWER PRESSURE (PSIA)	26.8487
AVERAGE ICE CONDENSER PRESSURE (PSIA)	26.8767
AVERAGE CONTAINMENT PRESSURE (PSIA)	26.8562
AVERAGE CONTAINMENT PRESSURE (PSIG)	12.3628

RUN NUMBER 7
ELAPSED TIME 33.50

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	39.67	79.34	ETR-122	35.93	71.86	ETR-115	9.23	18.46
ETR-102	37.58	75.16	ETR-123	36.73	73.46	ETR-116	9.01	18.02
ETR-103	35.63	71.26	ETR-124	37.31	74.62	ETR-117	8.62	17.24
ETR-104	35.57	71.14	ETR-125	36.05	72.10	ETR-118	9.92	19.84
ETR-105	35.99	71.98	ETR-126	36.13	72.26	ETR-119	8.35	16.70
ETR-106	36.26	72.52	ETR-127	33.89	67.78	ETR-120	8.06	16.12
ETR-107	35.84	71.68	ETR-129	37.21	74.42	ETR-121	8.47	16.94
ETR-108	35.83	71.66	ETR-130	35.66	71.32			
ETR-109	35.56	71.12	ETR-131	33.92	67.84			
ETR-110	35.53	71.06	ETR-132	37.71	75.42			
ETR-111	35.56	71.12	ETR-134	36.82	73.64			
ETR-112	35.55	71.10	ETR-135	36.67	73.34			
ETR-114	34.83	69.66	ETR-136	36.68	73.36			
ETR-128	36.92	73.84	ETR-137	36.37	72.74			
ETR-133	34.38	68.76	ETR-138	36.74	73.48			
ETR-113	37.49	74.98	ETR-139	33.96	67.92			
			ETR-140	36.77	73.54			
			ETR-141	37.41	74.82			
			ETR-142	36.29	72.58			
			ETR-143	37.68	75.36			
			ETR-144	37.00	74.00			
			ETR-145	41.60	83.20			
			ETR-146	37.16	74.32			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.52	LOWER VOLUME (DEG. F.)	73.42	ICE CONDENSER (DEG. F.)	17.08
UPPER VOLUME (DEG. R.)	532.22	LOWER VOLUME (DEG. R.)	533.12	ICE CONDENSER (DEG. R.)	476.78

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	16.85	33.40	0.0937
VPU-2	0.0	32.00	0.0
LOWER:			
VPL-1	19.73	39.08	0.1174
VPL-2	18.61	36.85	0.1075
ICE:			
VPI-1	8.94	17.59	0.0449
VPI-2	-1.16	11.12	0.0326

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.0937
LOWER CONTAINMENT	(PSIA)	0.1124
ICE CONDENSER	(PSIA)	0.0388

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0040	26.8174
PU-2	26.8674	26.8662
LOWER:		
PL-1	0.0	0.0
PL-2	26.8490	26.8474
ICE:		
PI-1	26.8683	26.8674
PI-2	26.8847	26.8834
AMBIENT	14.4900	14.4835

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8418
AVERAGE LOWER PRESSURE	(PSIA)	26.8474
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.8754
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8549
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3714

RUN NUMBER 8
ELAPSED TIME 34.00

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	39.64	79.28	ETR-122	35.95	71.90	ETR-115	9.47	18.94
ETR-102	37.56	75.12	ETR-123	36.69	73.38	ETR-116	9.07	18.14
ETR-103	35.66	71.32	ETR-124	37.33	74.66	ETR-117	8.89	17.78
ETR-104	35.57	71.14	ETR-125	36.03	72.06	ETR-118	10.00	20.00
ETR-105	36.00	72.00	ETR-126	36.13	72.26	ETR-119	8.34	16.68
ETR-106	36.26	72.52	ETR-127	33.87	67.74	ETR-120	8.07	16.14
ETR-107	35.84	71.68	ETR-129	37.22	74.44	ETR-121	8.49	16.98
ETR-108	35.85	71.70	ETR-130	35.65	71.30			
ETR-109	35.62	71.24	ETR-131	33.92	67.84			
ETR-110	35.39	70.78	ETR-132	37.71	75.42			
ETR-111	35.56	71.12	ETR-134	36.68	73.36			
ETR-112	35.60	71.20	ETR-135	36.65	73.30			
ETR-114	34.87	69.74	ETR-136	36.70	73.40			
ETR-128	36.90	73.80	ETR-137	36.38	72.76			
ETR-133	34.38	68.76	ETR-138	36.75	73.50			
ETR-113	37.50	75.00	ETR-139	33.97	67.94			
			ETR-140	36.77	73.54			
			ETR-141	37.43	74.86			
			ETR-142	36.29	72.58			
			ETR-143	37.69	75.38			
			ETR-144	36.00	72.00			
			ETR-145	41.61	83.22			
			ETR-146	37.17	74.34			

SUMMARY OF HEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.52	LOWER VOLUME (DEG. F.)	73.35	ICE CONDENSER (DEG. F.)	17.18
UPPER VOLUME (DEG. R.)	532.22	LOWER VOLUME (DEG. R.)	533.05	ICE CONDENSER (DEG. R.)	476.68

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	16.85	33.40	0.0937
VPU-2	0.0	32.00	0.0
LOWER:			
VPL-1	19.80	39.22	0.1180
VPL-2	18.61	36.85	0.1075
ICE:			
VPI-1	9.36	18.42	0.0467
VPI-2	-1.10	12.20	0.0345

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.0937
LOWER CONTAINMENT	(PSIA)	0.1128
ICE CONDENSER	(PSIA)	0.0406

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	27.0000	26.8134
PU-2	26.8648	26.8636
LOWER:		
PL-1	0.0	0.0
PL-2	26.8461	26.8445
ICE:		
PI-1	26.8660	26.8651
PI-2	26.8818	26.8805
AMBIENT	14.4800	14.4735

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8385
AVERAGE LOWER PRESSURE	(PSIA)	26.8445
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.8728
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8519
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3784

RUN NUMBER 9
ELAPSED TIME 34.50

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	39.60	79.20	ETR-122	35.94	71.88	ETR-115	9.23	18.46
ETR-102	37.55	75.10	ETR-123	36.71	73.42	ETR-116	8.92	17.84
ETR-103	35.67	71.34	ETR-124	37.31	74.62	ETR-117	8.54	17.08
ETR-104	35.65	71.30	ETR-125	36.04	72.08	ETR-118	9.86	19.72
ETR-105	36.00	72.00	ETR-126	36.12	72.24	ETR-119	8.35	16.70
ETR-106	36.27	72.54	ETR-127	33.88	67.76	ETR-120	8.09	16.18
ETR-107	35.86	71.72	ETR-129	37.21	74.42	ETR-121	8.48	16.96
ETR-108	35.85	71.70	ETR-130	35.65	71.30			
ETR-109	35.55	71.10	ETR-131	33.92	67.84			
ETR-110	35.47	70.94	ETR-132	37.71	75.42			
ETR-111	35.58	71.16	ETR-134	36.72	73.44			
ETR-112	35.58	71.16	ETR-135	36.62	73.24			
ETR-114	34.83	69.66	ETR-136	36.67	73.34			
ETR-128	36.91	73.82	ETR-137	36.39	72.78			
ETR-133	34.37	68.74	ETR-138	36.75	73.50			
ETR-113	37.48	74.96	ETR-139	33.98	67.96			
			ETR-140	36.79	73.58			
			ETR-141	37.43	74.86			
			ETR-142	36.30	72.60			
			ETR-143	37.68	75.36			
			ETR-144	37.01	74.02			
			ETR-145	41.60	83.20			
			ETR-146	37.16	74.32			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.53	LOWER VOLUME (DEG. F.)	73.39	ICE CONDENSER (DEG. F.)	17.07
UPPER VOLUME (DEG. R.)	532.23	LOWER VOLUME (DEG. R.)	533.09	ICE CONDENSER (DEG. R.)	476.77

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	16.92	33.54	0.0942
VPU-2	0.0	32.00	0.0
LOWER:			
VPL-1	19.87	39.36	0.1187
VPL-2	18.61	36.85	0.1075
ICE:			
VPI-1	8.68	17.07	0.0438
VPI-2	-1.17	10.94	0.0324

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.0942
LOWER CONTAINMENT	(PSIA)	0.1131
ICE CONDENSER	(PSIA)	0.0381

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	26.9990	26.8124
PU-2	26.8626	26.8614
LOWER:		
PL-1	0.0	0.0
PL-2	26.8444	26.8428
ICE:		
PI-1	26.8640	26.8631
PI-2	26.8799	26.8786
AMBIENT	14.4800	14.4735

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8369
AVERAGE LOWER PRESSURE	(PSIA)	26.8428
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.8708
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8502
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3767

RUN NUMBER 10
ELAPSED TIME 35.00

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	39.59	79.18	ETR-122	35.92	71.84	ETR-115	9.03	18.06
ETR-102	37.54	75.08	ETR-123	36.72	73.44	ETR-116	8.92	17.84
ETR-103	35.67	71.34	ETR-124	37.31	74.62	ETR-117	8.55	17.10
ETR-104	35.61	71.22	ETR-125	36.04	72.08	ETR-118	9.85	19.70
ETR-105	35.99	71.98	ETR-126	36.13	72.26	ETR-119	8.35	16.70
ETR-106	36.27	72.54	ETR-127	33.89	67.78	ETR-120	8.09	16.18
ETR-107	35.88	71.76	ETR-129	37.20	74.40	ETR-121	8.44	16.88
ETR-108	35.85	71.70	ETR-130	35.65	71.30			
ETR-109	35.67	71.34	ETR-131	33.92	67.84			
ETR-110	35.49	70.98	ETR-132	37.71	75.42			
ETR-111	35.58	71.16	ETR-134	36.75	73.50			
ETR-112	35.57	71.14	ETR-135	36.60	73.20			
ETR-114	34.87	69.74	ETR-136	36.65	73.30			
ETR-128	36.92	73.84	ETR-137	36.35	72.70			
ETR-133	34.37	68.74	ETR-138	36.75	73.50			
ETR-113	37.49	74.98	ETR-139	33.96	67.92			
			ETR-140	36.79	73.58			
			ETR-141	37.42	74.84			
			ETR-142	36.30	72.60			
			ETR-143	37.68	75.36			
			ETR-144	37.00	74.00			
			ETR-145	41.61	83.22			
			ETR-146	37.17	74.34			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.54	LOWER VOLUME (DEG. F.)	73.38	ICE CONDENSER (DEG. F.)	17.02
UPPER VOLUME (DEG. R.)	532.24	LOWER VOLUME (DEG. R.)	533.08	ICE CONDENSER (DEG. R.)	476.72

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	16.84	33.38	0.0936
VPU-2	0.0	32.00	0.0
LOWER:			
VPL-1	19.94	39.50	0.1193
VPL-2	18.63	36.89	0.1077
ICE:			
VPI-1	7.77	15.28	0.0401
VPI-2	-1.03	13.46	0.0367

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.0936
LOWER CONTAINMENT	(PSIA)	0.1135
ICE CONDENSER	(PSIA)	0.0384

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	26.9980	26.8114
PU-2	26.8618	26.8606
LOWER:		
PL-1	0.0	0.0
PL-2	26.8436	26.8420
ICE:		
PI-1	26.8632	26.8623
PI-2	26.8789	26.8776
AMBIENT	14.4800	14.4735

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8360
AVERAGE LOWER PRESSURE	(PSIA)	26.8420
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.8699
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8493
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3758

RUN NUMBER 11
ELAPSED TIME 35.50

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	39.59	79.18	ETR-122	35.97	71.94	ETR-115	9.11	18.22
ETR-102	37.54	75.08	ETR-123	36.73	73.46	ETR-116	9.04	18.08
ETR-103	35.69	71.38	ETR-124	37.27	74.54	ETR-117	8.80	17.60
ETR-104	35.60	71.20	ETR-125	36.04	72.08	ETR-118	10.84	21.68
ETR-105	36.00	72.00	ETR-126	36.12	72.24	ETR-119	8.38	16.76
ETR-106	36.26	72.52	ETR-127	33.88	67.76	ETR-120	8.08	16.16
ETR-107	35.86	71.72	ETR-129	37.20	74.40	ETR-121	8.39	16.78
ETR-108	35.82	71.64	ETR-130	35.65	71.30			
ETR-109	35.55	71.10	ETR-131	33.91	67.82			
ETR-110	35.60	71.20	ETR-132	37.71	75.42			
ETR-111	35.58	71.16	ETR-134	36.77	73.54			
ETR-112	35.57	71.14	ETR-135	36.62	73.24			
ETR-114	34.86	69.72	ETR-136	36.63	73.26			
ETR-128	36.94	73.88	ETR-137	36.34	72.68			
ETR-133	34.38	68.76	ETR-138	36.76	73.52			
ETR-113	37.45	74.90	ETR-139	33.96	67.92			
			ETR-140	36.79	73.58			
			ETR-141	37.44	74.88			
			ETR-142	36.30	72.60			
			ETR-143	37.68	75.36			
			ETR-144	37.01	74.02			
			ETR-145	41.61	83.22			
			ETR-146	37.18	74.36			

SUMMARY OF HEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.52	LOWER VOLUME (DEG. F.)	73.39	ICE CONDENSER (DEG. F.)	17.21
UPPER VOLUME (DEG. R.)	532.22	LOWER VOLUME (DEG. R.)	533.09	ICE CONDENSER (DEG. R.)	476.91

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	16.89	33.48	0.0940
VPU-2	0.0	32.00	0.0
LOWER:			
VPL-1	20.02	39.66	0.1201
VPL-2	18.63	36.89	0.1077
ICE:			
VPI-1	7.52	14.79	0.0392
VPI-2	-1.12	11.84	0.0338

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.0940
LOWER CONTAINMENT	(PSIA)	0.1139
ICE CONDENSER	(PSIA)	0.0365

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	26.9950	26.8085
PU-2	26.8591	26.8579
LOWER:		
PL-1	0.0	0.0
PL-2	26.8405	26.8389
ICE:		
PI-1	26.8600	26.8591
PI-2	26.8756	26.8743
AMBIENT	14.4800	14.4735

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8332
AVERAGE LOWER PRESSURE	(PSIA)	26.8389
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.8667
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8463
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3727

RUN NUMBER 12
ELAPSED TIME 36.00

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	39.59	79.18	ETR-122	35.98	71.96	ETR-115	8.97	17.94
ETR-102	37.52	75.04	ETR-123	36.69	73.38	ETR-116	8.92	17.84
ETR-103	35.68	71.36	ETR-124	37.31	74.62	ETR-117	8.57	17.14
ETR-104	35.60	71.20	ETR-125	36.02	72.04	ETR-118	10.18	20.36
ETR-105	35.99	71.98	ETR-126	36.12	72.24	ETR-119	8.38	16.76
ETR-106	36.26	72.52	ETR-127	33.91	67.82	ETR-120	8.08	16.16
ETR-107	35.87	71.74	ETR-129	37.23	74.46	ETR-121	8.40	16.80
ETR-108	35.82	71.64	ETR-130	35.67	71.34			
ETR-109	35.63	71.26	ETR-131	33.91	67.82			
ETR-110	35.60	71.20	ETR-132	37.71	75.42			
ETR-111	35.57	71.14	ETR-134	36.73	73.46			
ETR-112	35.62	71.24	ETR-135	36.67	73.34			
ETR-114	34.90	69.80	ETR-136	36.67	73.34			
ETR-128	36.93	73.86	ETR-137	36.37	72.74			
ETR-133	34.37	68.74	ETR-138	36.76	73.52			
ETR-113	37.49	74.98	ETR-139	33.98	67.96			
			ETR-140	36.79	73.58			
			ETR-141	37.43	74.86			
			ETR-142	36.31	72.62			
			ETR-143	37.68	75.36			
			ETR-144	37.01	74.02			
			ETR-145	41.61	83.22			
			ETR-146	37.18	74.36			

SUMMARY OF HEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.53	LOWER VOLUME (DEG. F.)	73.41	ICE CONDENSER (DEG. F.)	17.05
UPPER VOLUME (DEG. R.)	532.23	LOWER VOLUME (DEG. R.)	533.11	ICE CONDENSER (DEG. R.)	476.75

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	16.90	33.50	0.0941
VPU-2	0.0	32.00	0.0
LOWER:			
VPL-1	20.09	39.80	0.1207
VPL-2	18.62	36.87	0.1076
ICE:			
VPI-1	7.61	14.96	0.0395
VPI-2	-1.13	11.66	0.0335

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT (PSIA)	0.0941
LOWER CONTAINMENT (PSIA)	0.1141
ICE CONDENSER (PSIA)	0.0365

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	26.9910	26.8045
PU-2	26.8562	26.8550
LOWER:		
PL-1	0.0	0.0
PL-2	26.8374	26.8358
ICE:		
PI-1	26.8573	26.8564
PI-2	26.8723	26.8710
AMBIENT	14.4800	14.4735

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE (PSIA)	26.8298
AVERAGE LOWER PRESSURE (PSIA)	26.8358
AVERAGE ICE CONDENSER PRESSURE (PSIA)	26.8637
AVERAGE CONTAINMENT PRESSURE (PSIA)	26.8431
AVERAGE CONTAINMENT PRESSURE (PSIG)	12.3696

RUN NUMBER 13
ELAPSED TIME 36.50

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	39.54	79.08	ETR-122	35.94	71.88	ETR-115	8.89	17.78
ETR-102	37.50	75.00	ETR-123	36.71	73.42	ETR-116	8.85	17.70
ETR-103	35.67	71.34	ETR-124	37.31	74.62	ETR-117	8.48	16.96
ETR-104	35.59	71.18	ETR-125	36.05	72.10	ETR-118	10.09	20.18
ETR-105	35.98	71.96	ETR-126	36.12	72.24	ETR-119	8.36	16.72
ETR-106	36.25	72.50	ETR-127	33.92	67.84	ETR-120	8.08	16.16
ETR-107	35.84	71.68	ETR-129	37.20	74.40	ETR-121	8.42	16.84
ETR-108	35.83	71.66	ETR-130	35.66	71.32			
ETR-109	35.60	71.20	ETR-131	33.92	67.84			
ETR-110	35.48	70.96	ETR-132	37.71	75.42			
ETR-111	35.57	71.14	ETR-134	36.69	73.38			
ETR-112	35.60	71.20	ETR-135	36.66	73.32			
ETR-114	34.88	69.76	ETR-136	36.67	73.34			
ETR-128	36.95	73.90	ETR-137	36.39	72.78			
ETR-133	34.36	68.72	ETR-138	36.75	73.50			
ETR-113	37.46	74.92	ETR-139	33.98	67.96			
			ETR-140	36.79	73.58			
			ETR-141	37.43	74.86			
			ETR-142	36.31	72.62			
			ETR-143	37.68	75.36			
			ETR-144	36.99	73.98			
			ETR-145	41.62	83.24			
			ETR-146	37.17	74.34			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.50	LOWER VOLUME (DEG. F.)	73.40	ICE CONDENSER (DEG. F.)	17.00
UPPER VOLUME (DEG. R.)	532.20	LOWER VOLUME (DEG. R.)	533.10	ICE CONDENSER (DEG. R.)	476.70

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	16.88	33.46	0.0939
VPU-2	0.0	32.00	0.0
LOWER:			
VPL-1	20.17	39.96	0.1215
VPL-2	18.61	36.85	0.1075
ICE:			
VPI-1	7.94	15.62	0.0408
VPI-2	-1.10	12.20	0.0345

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.0939
LOWER CONTAINMENT	(PSIA)	0.1145
ICE CONDENSER	(PSIA)	0.0376

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	26.9900	26.8035
PU-2	26.8544	26.8532
LOWER:		
PL-1	0.0	0.0
PL-2	26.8359	26.8343
ICE:		
PI-1	26.8559	26.8550
PI-2	26.8718	26.8705
AMBIENT	14.4800	14.4735

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8284
AVERAGE LOWER PRESSURE	(PSIA)	26.8343
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.8627
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8418
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3683

RUN NUMBER 14
ELAPSED TIME = 37.00

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	39.55	79.10	ETR-122	35.94	71.88	ETR-115	9.16	18.32
ETR-102	37.49	74.98	ETR-123	36.70	73.40	ETR-116	8.75	17.50
ETR-103	35.65	71.30	ETR-124	37.32	74.64	ETR-117	8.39	16.78
ETR-104	35.60	71.20	ETR-125	36.03	72.06	ETR-118	9.61	19.22
ETR-105	35.96	71.92	ETR-126	36.12	72.24	ETR-119	8.37	16.74
ETR-106	36.24	72.48	ETR-127	33.91	67.82	ETR-120	8.07	16.14
ETR-107	35.83	71.66	ETR-129	37.22	74.44	ETR-121	8.41	16.82
ETR-108	35.83	71.66	ETR-130	35.67	71.34			
ETR-109	35.56	71.12	ETR-131	33.91	67.82			
ETR-110	35.47	70.94	ETR-132	37.71	75.42			
ETR-111	35.56	71.12	ETR-134	36.75	73.50			
ETR-112	35.60	71.20	ETR-135	36.59	73.18			
ETR-114	34.84	69.68	ETR-136	36.68	73.36			
ETR-128	36.97	73.94	ETR-137	36.39	72.78			
ETR-133	34.36	68.72	ETR-138	36.75	73.50			
ETR-113	37.45	74.90	ETR-139	33.99	67.98			
			ETR-140	36.80	73.60			
			ETR-141	37.44	74.88			
			ETR-142	36.31	72.62			
			ETR-143	37.69	75.38			
			ETR-144	37.00	74.00			
			ETR-145	41.62	83.24			
			ETR-146	37.18	74.36			

SUMMARY OF HEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.48	LOWER VOLUME (DEG. F.)	73.40	ICE CONDENSER (DEG. F.)	16.94
UPPER VOLUME (DEG. R.)	532.18	LOWER VOLUME (DEG. R.)	533.10	ICE CONDENSER (DEG. R.)	476.64

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	16.93	33.56	0.0943
VPU-2	0.0	32.00	0.0
LOWER:			
VPL-1	20.23	40.08	0.1220
VPL-2	18.64	36.91	0.1078
ICE:			
VPI-1	7.85	15.43	0.0404
VPI-2	-1.13	11.66	0.0335

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT (PSIA)	0.0943
LOWER CONTAINMENT (PSIA)	0.1149
ICE CONDENSER (PSIA)	0.0370

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	26.9890	26.8025
PU-2	26.8532	26.8520
LOWER:		
PL-1	0.0	0.0
PL-2	26.8348	26.8332
ICE:		
PI-1	26.8546	26.8537
PI-2	26.8714	26.8701
AMBIENT	14.4800	14.4735

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE (PSIA)	26.8273
AVERAGE LOWER PRESSURE (PSIA)	26.8332
AVERAGE ICE CONDENSER PRESSURE (PSIA)	26.8619
AVERAGE CONTAINMENT PRESSURE (PSIA)	26.8408
AVERAGE CONTAINMENT PRESSURE (PSIG)	12.3673

RUN NUMBER 15
ELAPSED TIME 37.50

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	39.50	79.00	ETR-122	35.98	71.96	ETR-115	9.16	18.32
ETR-102	37.48	74.96	ETR-123	36.72	73.44	ETR-116	8.77	17.54
ETR-103	35.67	71.34	ETR-124	37.31	74.62	ETR-117	8.50	17.00
ETR-104	35.59	71.18	ETR-125	36.07	72.14	ETR-118	9.71	19.42
ETR-105	35.98	71.96	ETR-126	36.13	72.26	ETR-119	8.36	16.72
ETR-106	36.24	72.48	ETR-127	33.87	67.74	ETR-120	8.07	16.14
ETR-107	35.86	71.72	ETR-129	37.24	74.48	ETR-121	8.40	16.80
ETR-108	35.83	71.66	ETR-130	35.66	71.32			
ETR-109	35.58	71.16	ETR-131	33.90	67.80			
ETR-110	35.49	70.98	ETR-132	37.71	75.42			
ETR-111	35.57	71.14	ETR-134	36.69	73.38			
ETR-112	35.59	71.18	ETR-135	36.63	73.26			
ETR-114	34.84	69.68	ETR-136	36.69	73.38			
ETR-128	36.95	73.90	ETR-137	36.38	72.76			
ETR-133	34.37	68.74	ETR-138	36.74	73.48			
ETR-113	37.48	74.96	ETR-139	33.98	67.96			
			ETR-140	36.81	73.62			
			ETR-141	37.44	74.88			
			ETR-142	36.31	72.62			
			ETR-143	37.69	75.38			
			ETR-144	37.01	74.02			
			ETR-145	41.63	83.26			
			ETR-146	37.18	74.36			

SUMMARY OF HEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.48	LOWER VOLUME (DEG. F.)	73.41	ICE CONDENSER (DEG. F.)	16.97
UPPER VOLUME (DEG. R.)	532.18	LOWER VOLUME (DEG. R.)	533.11	ICE CONDENSER (DEG. R.)	476.67

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	16.91	33.52	0.0942
VPU-2	0.0	32.00	0.0
LOWER:			
VPL-1	20.31	40.24	0.1228
VPL-2	18.62	36.87	0.1076
ICE:			
VPI-1	7.83	15.41	0.0404
VPI-2	-1.14	11.48	0.0332

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.0942
LOWER CONTAINMENT	(PSIA)	0.1152
ICE CONDENSER	(PSIA)	0.0368

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	26.9870	26.8006
PU-2	26.8503	26.8491
LOWER:		
PL-1	0.0	0.0
PL-2	26.8321	26.8305
ICE:		
PI-1	26.8522	26.8513
PI-2	26.8669	26.8656
AMBIENT	14.4700	14.4636

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8248
AVERAGE LOWER PRESSURE	(PSIA)	26.8305
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.8584
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8379
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3743

RUN NUMBER 16
ELAPSED TIME 38.50

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	39.52	79.04	ETR-122	35.97	71.94	ETR-115	9.04	18.08
ETR-102	37.45	74.90	ETR-123	36.71	73.42	ETR-116	8.96	17.92
ETR-103	35.67	71.34	ETR-124	37.31	74.62	ETR-117	8.45	16.90
ETR-104	35.60	71.20	ETR-125	36.07	72.14	ETR-118	9.83	19.66
ETR-105	35.96	71.92	ETR-126	36.12	72.24	ETR-119	8.38	16.76
ETR-106	36.22	72.44	ETR-127	33.87	67.74	ETR-120	8.10	16.20
ETR-107	35.85	71.70	ETR-129	37.23	74.46	ETR-121	8.39	16.78
ETR-108	35.79	71.58	ETR-130	35.65	71.30			
ETR-109	35.57	71.14	ETR-131	33.92	67.84			
ETR-110	35.50	71.00	ETR-132	37.72	75.44			
ETR-111	35.57	71.14	ETR-134	36.86	73.72			
ETR-112	35.61	71.22	ETR-135	36.65	73.30			
ETR-114	34.81	69.62	ETR-136	36.66	73.32			
ETR-128	36.98	73.96	ETR-137	36.38	72.76			
ETR-133	34.38	68.76	ETR-138	36.75	73.50			
ETR-113	37.41	74.82	ETR-139	34.01	68.02			
			ETR-140	36.81	73.62			
			ETR-141	37.45	74.90			
			ETR-142	36.32	72.64			
			ETR-143	37.69	75.38			
			ETR-144	37.00	74.00			
			ETR-145	41.63	83.26			
			ETR-146	37.20	74.40			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.45	LOWER VOLUME (DEG. F.)	73.44	ICE CONDENSER (DEG. F.)	17.01
UPPER VOLUME (DEG. R.)	532.15	LOWER VOLUME (DEG. R.)	533.14	ICE CONDENSER (DEG. R.)	476.71

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	16.33	32.36	0.0899
VPU-2	0.0	32.00	0.0
LOWER:			
VPL-1	20.47	40.56	0.1243
VPL-2	18.64	36.91	0.1078
ICE:			
VPI-1	9.25	18.21	0.0463
VPI-2	-1.22	10.04	0.0309

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT (PSIA)	0.0899
LOWER CONTAINMENT (PSIA)	0.1160
ICE CONDENSER (PSIA)	0.0386

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	26.9840	26.7976
PU-2	26.8475	26.8463
LOWER:		
PL-1	0.0	0.0
PL-2	26.8293	26.8277
ICE:		
PI-1	26.8493	26.8484
PI-2	26.8636	26.8623
AMBIENT	14.4600	14.4537

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE (PSIA)	26.8220
AVERAGE LOWER PRESSURE (PSIA)	26.8277
AVERAGE ICE CONDENSER PRESSURE (PSIA)	26.8554
AVERAGE CONTAINMENT PRESSURE (PSIA)	26.8350
AVERAGE CONTAINMENT PRESSURE (PSIG)	12.3814

RUN NUMBER 17
ELAPSED TIME 39.00

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	39.46	78.92	ETR-122	35.96	71.92	ETR-115	8.98	17.96
ETR-102	37.44	74.88	ETR-123	36.70	73.40	ETR-116	8.91	17.82
ETR-103	35.66	71.32	ETR-124	37.34	74.68	ETR-117	8.62	17.24
ETR-104	35.59	71.18	ETR-125	36.09	72.18	ETR-118	10.73	21.46
ETR-105	35.96	71.92	ETR-126	36.13	72.26	ETR-119	8.38	16.76
ETR-106	36.23	72.46	ETR-127	33.90	67.80	ETR-120	8.08	16.16
ETR-107	35.85	71.70	ETR-129	37.25	74.50	ETR-121	8.35	16.70
ETR-108	35.81	71.62	ETR-130	35.66	71.32			
ETR-109	35.56	71.12	ETR-131	33.91	67.82			
ETR-110	35.42	70.84	ETR-132	37.72	75.44			
ETR-111	35.56	71.12	ETR-134	36.71	73.42			
ETR-112	35.54	71.08	ETR-135	36.65	73.30			
ETR-114	34.87	69.74	ETR-136	36.70	73.40			
ETR-128	36.95	73.90	ETR-137	36.40	72.80			
ETR-133	34.37	68.74	ETR-138	36.74	73.48			
ETR-113	37.44	74.88	ETR-139	34.00	68.00			
			ETR-140	36.80	73.60			
			ETR-141	37.46	74.92			
			ETR-142	36.32	72.64			
			ETR-143	37.69	75.38			
			ETR-144	37.01	74.02			
			ETR-145	41.64	83.28			
			ETR-146	37.18	74.36			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.45	LOWER VOLUME (DEG. F.)	73.43	ICE CONDENSER (DEG. F.)	17.12
UPPER VOLUME (DEG. R.)	532.15	LOWER VOLUME (DEG. R.)	533.13	ICE CONDENSER (DEG. R.)	476.82

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	16.43	32.56	0.0906
VPU-2	0.0	32.00	0.0
LOWER:			
VPL-1	20.59	40.80	0.1255
VPL-2	18.44	36.51	0.1061
ICE:			
VPI-1	8.18	16.08	0.0417
VPI-2	-1.33	8.06	0.0280

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT (PSIA)	0.0906
LOWER CONTAINMENT (PSIA)	0.1158
ICE CONDENSER (PSIA)	0.0349

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	26.9810	26.7946
PU-2	26.8444	26.8432
LOWER:		
PL-1	0.0	0.0
PL-2	26.8262	26.8246
ICE:		
PI-1	26.8460	26.8451
PI-2	26.8610	26.8597
AMBIENT	14.4700	14.4636

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE (PSIA)	26.8189
AVERAGE LOWER PRESSURE (PSIA)	26.8246
AVERAGE ICE CONDENSER PRESSURE (PSIA)	26.8524
AVERAGE CONTAINMENT PRESSURE (PSIA)	26.8320
AVERAGE CONTAINMENT PRESSURE (PSIG)	12.3684

RUN NUMBER 18
ELAPSED TIME 39.50

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME RTD	MILLI-VOLTS	DEG. F.	LOWER VOLUME RTD	MILLI-VOLTS	DEG. F.	ICE CONDENSER RTD	MILLI-VOLTS	DEG. F.
ETR-101	39.45	78.90	ETR-122	35.97	71.94	ETR-115	8.86	17.72
ETR-102	37.42	74.84	ETR-123	36.74	73.48	ETR-116	8.83	17.66
ETR-103	35.62	71.24	ETR-124	37.29	74.58	ETR-117	8.43	16.86
ETR-104	35.59	71.18	ETR-125	36.09	72.18	ETR-118	10.00	20.00
ETR-105	35.93	71.86	ETR-126	36.13	72.26	ETR-119	8.38	16.76
ETR-106	36.21	72.42	ETR-127	33.91	67.82	ETR-120	8.05	16.10
ETR-107	35.82	71.64	ETR-129	37.26	74.52	ETR-121	8.35	16.70
ETR-108	35.81	71.62	ETR-130	35.65	71.30			
ETR-109	35.62	71.24	ETR-131	33.89	67.78			
ETR-110	35.49	70.98	ETR-132	37.73	75.46			
ETR-111	35.56	71.12	ETR-134	36.69	73.38			
ETR-112	35.59	71.18	ETR-135	36.65	73.30			
ETR-114	34.88	69.76	ETR-136	36.66	73.32			
ETR-128	36.98	73.96	ETR-137	36.38	72.76			
ETR-133	34.38	68.76	ETR-138	36.74	73.48			
ETR-113	37.43	74.86	ETR-139	33.99	67.98			
			ETR-140	36.81	73.62			
			ETR-141	37.45	74.90			
			ETR-142	36.32	72.64			
			ETR-143	37.69	75.38			
			ETR-144	37.01	74.02			
			ETR-145	41.62	83.24			
			ETR-146	37.18	74.36			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.43	LOWER VOLUME (DEG. F.)	73.41	ICE CONDENSER (DEG. F.)	16.94
UPPER VOLUME (DEG. R.)	532.13	LOWER VOLUME (DEG. R.)	533.11	ICE CONDENSER (DEG. R.)	476.64

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	16.38	32.46	0.0903
VPU-2	0.0	32.00	0.0
LOWER:			
VPL-1	20.64	40.90	0.1260
VPL-2	18.49	36.61	0.1065
ICE:			
VPI-1	8.40	16.53	0.0427
VPI-2	-1.31	8.42	0.0285

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.0903
LOWER CONTAINMENT	(PSIA)	0.1162
ICE CONDENSER	(PSIA)	0.0356

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	26.9780	26.7916
PU-2	26.8418	26.8406
LOWER:		
PL-1	0.0	0.0
PL-2	26.8417	26.8401
ICE:		
PI-1	26.8438	26.8429
PI-2	26.8601	26.8588
AMBIENT	14.4700	14.4636

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8161
AVERAGE LOWER PRESSURE	(PSIA)	26.8401
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.8509
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8357
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3721

RUN NUMBER 19
ELAPSED TIME 40.00

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	39.41	78.82	ETR-122	35.98	71.96	ETR-115	8.84	17.68
ETR-102	37.40	74.80	ETR-123	36.72	73.44	ETR-116	8.60	17.20
ETR-103	35.61	71.22	ETR-124	37.35	74.70	ETR-117	8.22	16.44
ETR-104	35.58	71.16	ETR-125	36.07	72.14	ETR-118	9.54	19.08
ETR-105	35.91	71.82	ETR-126	36.15	72.30	ETR-119	8.38	16.76
ETR-106	36.20	72.40	ETR-127	33.89	67.78	ETR-120	8.06	16.12
ETR-107	35.80	71.60	ETR-129	37.26	74.52	ETR-121	8.36	16.72
ETR-108	35.77	71.54	ETR-130	35.66	71.32			
ETR-109	35.56	71.12	ETR-131	33.90	67.80			
ETR-110	35.44	70.88	ETR-132	37.72	75.44			
ETR-111	35.56	71.12	ETR-134	36.77	73.54			
ETR-112	35.54	71.08	ETR-135	36.60	73.20			
ETR-114	34.87	69.74	ETR-136	36.68	73.36			
ETR-128	36.97	73.94	ETR-137	36.36	72.72			
ETR-133	34.37	68.74	ETR-138	36.77	73.54			
ETR-113	37.48	74.96	ETR-139	34.01	68.02			
			ETR-140	36.81	73.62			
			ETR-141	37.45	74.90			
			ETR-142	36.32	72.64			
			ETR-143	37.70	75.40			
			ETR-144	37.00	74.00			
			ETR-145	41.66	83.32			
			ETR-146	37.20	74.40			

SUMMARY OF HEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.40	LOWER VOLUME (DEG. F.)	73.43	ICE CONDENSER (DEG. F.)	16.82
UPPER VOLUME (DEG. R.)	532.10	LOWER VOLUME (DEG. R.)	533.13	ICE CONDENSER (DEG. R.)	476.52

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	16.43	32.56	0.0906
VPU-2	0.0	32.00	0.0
LOWER:			
VPL-1	20.70	41.02	0.1265
VPL-2	18.51	36.65	0.1067
ICE:			
VPI-1	8.83	17.38	0.0445
VPI-2	-1.27	9.14	0.0296

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.0906
LOWER CONTAINMENT	(PSIA)	0.1166
ICE CONDENSER	(PSIA)	0.0370

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	26.9750	26.7887
PU-2	26.8391	26.8379
LOWER:		
PL-1	0.0	0.0
PL-2	26.8209	26.8193
ICE:		
PI-1	26.8409	26.8400
PI-2	26.8561	26.8548
AMBIENT	14.4500	14.4437

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8133
AVERAGE LOWER PRESSURE	(PSIA)	26.8193
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.8474
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8267
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3830

RUN NUMBER 20
ELAPSED TIME 40.50

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	39.39	78.78	ETR-122	35.98	71.96	ETR-115	9.19	18.38
ETR-102	37.39	74.78	ETR-123	36.72	73.44	ETR-116	8.67	17.34
ETR-103	35.61	71.22	ETR-124	37.33	74.66	ETR-117	8.32	16.64
ETR-104	35.56	71.12	ETR-125	36.09	72.18	ETR-118	9.51	19.02
ETR-105	35.88	71.76	ETR-126	36.15	72.30	ETR-119	8.38	16.76
ETR-106	36.20	72.40	ETR-127	33.89	67.78	ETR-120	8.05	16.10
ETR-107	35.79	71.58	ETR-129	37.24	74.48	ETR-121	8.35	16.70
ETR-108	35.78	71.56	ETR-130	35.64	71.28			
ETR-109	35.65	71.30	ETR-131	33.90	67.80			
ETR-110	35.47	70.94	ETR-132	37.73	75.46			
ETR-111	35.59	71.18	ETR-134	36.79	73.58			
ETR-112	35.52	71.04	ETR-135	36.61	73.22			
ETR-114	34.83	69.66	ETR-136	36.68	73.36			
ETR-128	36.99	73.98	ETR-137	36.37	72.74			
ETR-133	34.38	68.76	ETR-138	36.77	73.54			
ETR-113	37.44	74.88	ETR-139	34.02	68.04			
			ETR-140	36.81	73.62			
			ETR-141	37.46	74.92			
			ETR-142	36.33	72.66			
			ETR-143	37.70	75.40			
			ETR-144	37.01	74.02			
			ETR-145	41.66	83.32			
			ETR-146	37.20	74.40			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.38	LOWER VOLUME (DEG. F.)	73.43	ICE CONDENSER (DEG. F.)	16.88
UPPER VOLUME (DEG. R.)	532.08	LOWER VOLUME (DEG. R.)	533.13	ICE CONDENSER (DEG. R.)	476.58

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	16.37	32.44	0.0902
VPU-2	0.0	32.00	0.0
LOWER:			
VPL-1	20.79	41.20	0.1274
VPL-2	18.52	36.67	0.1067
ICE:			
VPI-1	8.79	17.30	0.0443
VPI-2	-1.27	9.14	0.0296

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.0902
LOWER CONTAINMENT	(PSIA)	0.1171
ICE CONDENSER	(PSIA)	0.0369

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	26.9750	26.7887
PU-2	26.8381	26.8369
LOWER:		
PL-1	0.0	0.0
PL-2	26.8195	26.8179
ICE:		
PI-1	26.8403	26.8394
PI-2	26.8562	26.8549
AMBIENT	14.4431	14.4369

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8128
AVERAGE LOWER PRESSURE	(PSIA)	26.8179
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.8472
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8260
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3891

RUN NUMBER 21
ELAPSED TIME 41.00

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME RTD	MILLI-VOLTS	DEG. F.	LOWER VOLUME RTD	MILLI-VOLTS	DEG. F.	ICE CONDENSER RTD	MILLI-VOLTS	DEG. F.
ETR-101	39.39	78.78	ETR-122	35.97	71.94	ETR-115	8.96	17.92
ETR-102	37.37	74.74	ETR-123	36.68	73.36	ETR-116	8.60	17.20
ETR-103	35.66	71.32	ETR-124	37.36	74.72	ETR-117	8.23	16.46
ETR-104	35.59	71.18	ETR-125	36.09	72.18	ETR-118	9.47	18.94
ETR-105	35.94	71.88	ETR-126	36.14	72.28	ETR-119	8.37	16.74
ETR-106	36.20	72.40	ETR-127	33.92	67.84	ETR-120	8.04	16.08
ETR-107	35.82	71.64	ETR-129	37.26	74.52	ETR-121	8.34	16.68
ETR-108	35.79	71.58	ETR-130	35.65	71.30			
ETR-109	35.58	71.16	ETR-131	33.90	67.80			
ETR-110	35.42	70.84	ETR-132	37.73	75.46			
ETR-111	35.56	71.12	ETR-134	36.68	73.36			
ETR-112	35.54	71.08	ETR-135	36.67	73.34			
ETR-114	34.87	69.74	ETR-136	36.67	73.34			
ETR-128	36.98	73.96	ETR-137	36.34	72.68			
ETR-133	34.38	68.76	ETR-138	36.74	73.48			
ETR-113	37.47	74.94	ETR-139	34.02	68.04			
			ETR-140	36.81	73.62			
			ETR-141	37.46	74.92			
			ETR-142	36.33	72.66			
			ETR-143	37.70	75.40			
			ETR-144	37.01	74.02			
			ETR-145	41.66	83.32			
			ETR-146	37.20	74.40			

SUMMARY OF HEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.41	LOWER VOLUME (DEG. F.)	73.41	ICE CONDENSER (DEG. F.)	16.80
UPPER VOLUME (DEG. R.)	532.11	LOWER VOLUME (DEG. R.)	533.11	ICE CONDENSER (DEG. R.)	476.50

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	16.40	32.50	0.0904
VPU-2	0.0	32.00	0.0
LOWER:			
VPL-1	20.94	41.50	0.1289
VPL-2	18.51	36.65	0.1067
ICE:			
VPI-1	6.32	12.42	0.0348
VPI-2	-1.30	8.60	0.0288

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT (PSIA)	0.0904
LOWER CONTAINMENT (PSIA)	0.1178
ICE CONDENSER (PSIA)	0.0318

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	26.9720	26.7857
PU-2	26.8358	26.8346
LOWER:		
PL-1	0.0	0.0
PL-2	26.8179	26.8163
ICE:		
PI-1	26.8380	26.8371
PI-2	26.8527	26.8514
AMBIENT	14.4296	14.4235

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE (PSIA)	26.8102
AVERAGE LOWER PRESSURE (PSIA)	26.8163
AVERAGE ICE CONDENSER PRESSURE (PSIA)	26.8443
AVERAGE CONTAINMENT PRESSURE (PSIA)	26.8236
AVERAGE CONTAINMENT PRESSURE (PSIG)	12.4001

RUN NUMBER 22
ELAPSED TIME 41.50

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	39.38	78.76	ETR-122	35.97	71.94	ETR-115	8.74	17.48
ETR-102	37.35	74.70	ETR-123	36.75	73.50	ETR-116	8.63	17.26
ETR-103	35.65	71.30	ETR-124	37.25	74.50	ETR-117	8.11	16.22
ETR-104	35.59	71.18	ETR-125	36.10	72.20	ETR-118	9.43	18.86
ETR-105	35.90	71.80	ETR-126	36.16	72.32	ETR-119	8.40	16.80
ETR-106	36.19	72.38	ETR-127	33.89	67.78	ETR-120	8.04	16.08
ETR-107	35.84	71.68	ETR-129	37.27	74.54	ETR-121	8.34	16.68
ETR-108	35.80	71.60	ETR-130	35.65	71.30			
ETR-109	35.60	71.20	ETR-131	33.90	67.80			
ETR-110	35.47	70.94	ETR-132	37.74	75.48			
ETR-111	35.56	71.12	ETR-134	36.72	73.44			
ETR-112	35.55	71.10	ETR-135	36.64	73.28			
ETR-114	34.90	69.80	ETR-136	36.72	73.44			
ETR-128	36.98	73.96	ETR-137	36.37	72.74			
ETR-133	34.36	68.72	ETR-138	36.73	73.46			
ETR-113	37.45	74.90	ETR-139	34.03	68.06			
			ETR-140	36.82	73.64			
			ETR-141	37.46	74.92			
			ETR-142	36.33	72.66			
			ETR-143	37.70	75.40			
			ETR-144	37.01	74.02			
			ETR-145	41.66	83.32			
			ETR-146	37.20	74.40			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.40	LOWER VOLUME (DEG. F.)	73.43	ICE CONDENSER (DEG. F.)	16.76
UPPER VOLUME (DEG. R.)	532.10	LOWER VOLUME (DEG. R.)	533.13	ICE CONDENSER (DEG. R.)	476.46

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	16.45	32.60	0.0908
VPU-2	0.0	32.00	0.0
LOWER:			
VPL-1	21.00	41.62	0.1295
VPL-2	18.49	36.61	0.1065
ICE:			
VPI-1	7.29	14.32	0.0383
VPI-2	-1.23	9.86	0.0307

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.0908
LOWER CONTAINMENT	(PSIA)	0.1180
ICE CONDENSER	(PSIA)	0.0345

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	26.9690	26.7827
PU-2	26.8328	26.8316
LOWER:		
PL-1	0.0	0.0
PL-2	26.8153	26.8137
ICE:		
PI-1	26.8352	26.8343
PI-2	26.8496	26.8483
AMBIENT	14.4373	14.4311

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8072
AVERAGE LOWER PRESSURE	(PSIA)	26.8137
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.8413
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8207
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3896

RUN NUMBER 23
ELAPSED TIME 42.00

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	39.36	78.72	ETR-122	35.97	71.94	ETR-115	8.69	17.38
ETR-102	37.33	74.66	ETR-123	36.70	73.40	ETR-116	8.61	17.22
ETR-103	35.62	71.24	ETR-124	37.33	74.66	ETR-117	8.24	16.48
ETR-104	35.55	71.10	ETR-125	36.02	72.04	ETR-118	9.95	19.90
ETR-105	35.88	71.76	ETR-126	36.16	72.32	ETR-119	8.37	16.74
ETR-106	36.17	72.34	ETR-127	33.89	67.78	ETR-120	8.02	16.04
ETR-107	35.76	71.52	ETR-129	37.24	74.48	ETR-121	8.34	16.68
ETR-108	35.74	71.48	ETR-130	35.65	71.30			
ETR-109	35.64	71.28	ETR-131	33.89	67.78			
ETR-110	35.50	71.00	ETR-132	37.74	75.48			
ETR-111	35.56	71.12	ETR-134	36.78	73.56			
ETR-112	35.58	71.16	ETR-135	36.62	73.24			
ETR-114	34.83	69.66	ETR-136	36.70	73.40			
ETR-128	36.97	73.94	ETR-137	36.36	72.72			
ETR-133	34.37	68.74	ETR-138	36.76	73.52			
ETR-113	37.46	74.92	ETR-139	34.02	68.04			
			ETR-140	36.81	73.62			
			ETR-141	37.49	74.98			
			ETR-142	36.34	72.68			
			ETR-143	37.70	75.40			
			ETR-144	37.01	74.02			
			ETR-145	41.66	83.32			
			ETR-146	37.19	74.38			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.35	LOWER VOLUME (DEG. F.)	73.43	ICE CONDENSER (DEG. F.)	16.82
UPPER VOLUME (DEG. R.)	532.05	LOWER VOLUME (DEG. R.)	533.13	ICE CONDENSER (DEG. R.)	476.52

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	16.46	32.62	0.0908
VPU-2	-0.22	28.04	0.0
LOWER:			
VPL-1	0.00	-0.00	0.0
VPL-2	18.52	36.67	0.1067
ICE:			
VPI-1	7.89	15.52	0.0406
VPI-2	-1.18	10.76	0.0321

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT (PSIA)	0.0908
LOWER CONTAINMENT (PSIA)	0.1067
ICE CONDENSER (PSIA)	0.0363

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	26.9640	26.7778
PU-2	26.8281	26.8269
LOWER:		
PL-1	0.0	0.0
PL-2	26.8110	26.8094
ICE:		
PI-1	26.8310	26.8301
PI-2	26.8459	26.8446
AMBIENT	14.4276	14.4215

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE (PSIA)	26.8024
AVERAGE LOWER PRESSURE (PSIA)	26.8094
AVERAGE ICE CONDENSER PRESSURE (PSIA)	26.8374
AVERAGE CONTAINMENT PRESSURE (PSIA)	26.8164
AVERAGE CONTAINMENT PRESSURE (PSIG)	12.3949

RUN NUMBER 24
ELAPSED TIME 42.50

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	39.34	78.68	ETR-122	35.97	71.94	ETR-115	8.73	17.46
ETR-102	37.32	74.64	ETR-123	36.73	73.46	ETR-116	8.67	17.34
ETR-103	35.63	71.26	ETR-124	37.35	74.70	ETR-117	8.33	16.66
ETR-104	35.57	71.14	ETR-125	36.07	72.14	ETR-118	10.53	21.06
ETR-105	35.92	71.84	ETR-126	36.15	72.30	ETR-119	8.38	16.76
ETR-106	36.17	72.34	ETR-127	33.85	67.70	ETR-120	8.03	16.06
ETR-107	35.79	71.58	ETR-129	37.29	74.58	ETR-121	8.34	16.68
ETR-108	35.74	71.48	ETR-130	35.65	71.30			
ETR-109	35.51	71.02	ETR-131	33.89	67.78			
ETR-110	35.55	71.10	ETR-132	37.74	75.48			
ETR-111	35.56	71.12	ETR-134	36.78	73.56			
ETR-112	35.59	71.18	ETR-135	36.67	73.34			
ETR-114	34.86	69.72	ETR-136	36.69	73.38			
ETR-128	36.98	73.96	ETR-137	36.40	72.80			
ETR-133	34.36	68.72	ETR-138	36.74	73.48			
ETR-113	37.50	75.00	ETR-139	34.03	68.06			
			ETR-140	36.82	73.64			
			ETR-141	37.48	74.96			
			ETR-142	36.33	72.66			
			ETR-143	37.70	75.40			
			ETR-144	37.01	74.02			
			ETR-145	41.65	83.30			
			ETR-146	37.20	74.40			

SUMMARY OF HEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.37	LOWER VOLUME (DEG. F.)	73.45	ICE CONDENSER (DEG. F.)	16.94
UPPER VOLUME (DEG. R.)	532.07	LOWER VOLUME (DEG. R.)	533.15	ICE CONDENSER (DEG. R.)	476.64

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	16.48	32.66	0.0910
VPU-2	-0.20	28.40	0.0
LOWER:			
VPL-1	0.02	0.02	0.0
VPL-2	18.49	36.61	0.1065
ICE:			
VPI-1	7.26	14.27	0.0382
VPI-2	-1.25	9.50	0.0301

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.0910
LOWER CONTAINMENT	(PSIA)	0.1065
ICE CONDENSER	(PSIA)	0.0341

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	26.9640	26.7778
PU-2	26.8269	26.8257
LOWER:		
PL-1	0.0	0.0
PL-2	26.8099	26.8083
ICE:		
PI-1	26.8300	26.8291
PI-2	26.8447	26.8434
AMBIENT	14.4238	14.4177

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8018
AVERAGE LOWER PRESSURE	(PSIA)	26.8083
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.8363
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8155
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3978

RUN NUMBER 25
ELAPSED TIME 43.00

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	39.32	78.64	ETR-122	36.01	72.02	ETR-115	8.66	17.32
ETR-102	37.30	74.60	ETR-123	36.71	73.42	ETR-116	8.66	17.32
ETR-103	35.63	71.26	ETR-124	37.36	74.72	ETR-117	8.21	16.42
ETR-104	35.57	71.14	ETR-125	36.10	72.20	ETR-118	9.79	19.58
ETR-105	35.88	71.76	ETR-126	36.16	72.32	ETR-119	8.37	16.74
ETR-106	36.17	72.34	ETR-127	33.86	67.72	ETR-120	8.03	16.06
ETR-107	35.75	71.50	ETR-129	37.27	74.54	ETR-121	8.32	16.64
ETR-108	35.75	71.50	ETR-130	35.65	71.30			
ETR-109	35.63	71.26	ETR-131	33.89	67.78			
ETR-110	35.50	71.00	ETR-132	37.75	75.50			
ETR-111	35.57	71.14	ETR-134	36.77	73.54			
ETR-112	35.60	71.20	ETR-135	36.59	73.18			
ETR-114	34.85	69.70	ETR-136	36.66	73.32			
ETR-128	37.01	74.02	ETR-137	36.38	72.76			
ETR-133	34.39	68.78	ETR-138	36.75	73.50			
ETR-113	37.45	74.90	ETR-139	34.03	68.06			
			ETR-140	36.82	73.64			
			ETR-141	37.47	74.94			
			ETR-142	36.33	72.66			
			ETR-143	37.71	75.42			
			ETR-144	37.01	74.02			
			ETR-145	41.67	83.34			
			ETR-146	37.20	74.40			

SUMMARY OF HEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.34	LOWER VOLUME (DEG. F.)	73.43	ICE CONDENSER (DEG. F.)	16.80
UPPER VOLUME (DEG. R.)	532.04	LOWER VOLUME (DEG. R.)	533.13	ICE CONDENSER (DEG. R.)	476.50

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	16.48	32.66	0.0910
VPU-2	-0.20	28.40	0.0
LOWER:			
VPL-1	18.64	36.91	0.1078
VPL-2	18.50	36.63	0.1066
ICE:			
VPI-1	7.68	15.10	0.0398
VPI-2	-1.21	10.22	0.0312

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.0910
LOWER CONTAINMENT	(PSIA)	0.1072
ICE CONDENSER	(PSIA)	0.0355

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	26.9620	26.7758
PU-2	26.8260	26.8248
LOWER:		
PL-1	0.0	0.0
PL-2	26.8090	26.8074
ICE:		
PI-1	26.8289	26.8280
PI-2	26.8440	26.8427
AMBIENT	14.4257	14.4196

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.8003
AVERAGE LOWER PRESSURE	(PSIA)	26.8074
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.8354
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8144
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3948

RUN NUMBER 26
ELAPSED TIME 43.50

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	39.34	78.68	ETR-122	35.99	71.98	ETR-115	8.81	17.62
ETR-102	37.28	74.56	ETR-123	36.73	73.46	ETR-116	8.50	17.00
ETR-103	35.62	71.24	ETR-124	37.31	74.62	ETR-117	8.06	16.12
ETR-104	35.59	71.18	ETR-125	36.11	72.22	ETR-118	9.43	18.86
ETR-105	35.89	71.78	ETR-126	36.16	72.32	ETR-119	8.37	16.74
ETR-106	36.16	72.32	ETR-127	33.87	67.74	ETR-120	8.02	16.04
ETR-107	35.79	71.58	ETR-129	37.25	74.50	ETR-121	8.31	16.62
ETR-108	35.75	71.50	ETR-130	35.65	71.30			
ETR-109	35.65	71.30	ETR-131	33.91	67.82			
ETR-110	35.49	70.98	ETR-132	37.75	75.50			
ETR-111	35.56	71.12	ETR-134	36.72	73.44			
ETR-112	35.60	71.20	ETR-135	36.64	73.28			
ETR-114	34.86	69.72	ETR-136	36.70	73.40			
ETR-128	37.01	74.02	ETR-137	36.38	72.76			
ETR-133	34.38	68.76	ETR-138	36.76	73.52			
ETR-113	37.40	74.80	ETR-139	34.05	68.10			
			ETR-140	36.82	73.64			
			ETR-141	37.48	74.96			
			ETR-142	36.34	72.68			
			ETR-143	37.71	75.42			
			ETR-144	37.02	74.04			
			ETR-145	41.66	83.32			
			ETR-146	37.21	74.42			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.35	LOWER VOLUME (DEG. F.)	73.44	ICE CONDENSER (DEG. F.)	16.71
UPPER VOLUME (DEG. R.)	532.05	LOWER VOLUME (DEG. R.)	533.14	ICE CONDENSER (DEG. R.)	476.41

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	16.55	32.80	0.0915
VPU-2	-0.22	28.04	0.0
LOWER:			
VPL-1	18.80	37.23	0.1091
VPL-2	18.51	36.65	0.1067
ICE:			
VPI-1	7.79	15.32	0.0402
VPI-2	-1.20	10.40	0.0315

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.0915
LOWER CONTAINMENT	(PSIA)	0.1079
ICE CONDENSER	(PSIA)	0.0358

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	26.9600	26.7738
PU-2	26.8240	26.8228
LOWER:		
PL-1	0.0	0.0
PL-2	26.8075	26.8059
ICE:		
PI-1	26.8270	26.8261
PI-2	26.8419	26.8406
AMBIENT	14.5920	14.5848

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.7983
AVERAGE LOWER PRESSURE	(PSIA)	26.8059
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.8334
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8125
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.2277

RU[illegible]ER 27
EL[illegible]SED TIME 44.00

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	39.29	78.58	ETR-122	35.99	71,98	ETR-115	9.01	18.02
ETR-102	37.27	74.54	ETR-123	36.72	73.44	ETR-116	8.59	17.18
ETR-103	35.65	71.30	ETR-124	37.34	74.68	ETR-117	8.31	16.62
ETR-104	35.58	71.16	ETR-125	36.08	72.16	ETR-118	9.49	18.98
ETR-105	35.90	71.80	ETR-126	36.14	72.28	ETR-119	8.37	16.74
ETR-106	36.15	72.30	ETR-127	33.86	67.72	ETR-120	8.03	16.06
ETR-107	35.80	71.60	ETR-129	37.27	74.54	ETR-121	8.33	16.66
ETR-108	35.75	71.50	ETR-130	35.63	71.26			
ETR-109	35.51	71.02	ETR-131	33.89	67.78			
ETR-110	35.55	71.10	ETR-132	37.75	75.50			
ETR-111	35.55	71.10	ETR-134	36.70	73.40			
ETR-112	35.57	71.14	ETR-135	36.66	73.32			
ETR-114	34.85	69.70	ETR-136	36.65	73.30			
ETR-128	37.00	74.00	ETR-137	36.39	72.78			
ETR-133	34.38	68.76	ETR-138	36.77	73.54			
ETR-113	37.38	74.76	ETR-139	34.06	68.12			
			ETR-140	36.83	73.66			
			ETR-141	37.48	74.96			
			ETR-142	36.34	72.68			
			ETR-143	37.71	75.42			
			ETR-144	37.01	74.02			
			ETR-145	41.67	83.34			
			ETR-146	37.21	74.42			

SUMMARY OF HEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.33	LOWER VOLUME (DEG. F.)	73.43	ICE CONDENSER (DEG. F.)	16.81
UPPER VOLUME (DEG. R.)	532.03	LOWER VOLUME (DEG. R.)	533.13	ICE CONDENSER (DEG. R.)	476.51

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	16.54	32.78	0.0914
VPU-2	-0.21	28.22	0.0
LOWER:			
VPL-1	18.92	37.47	0.1102
VPL-2	18.53	36.69	0.1068
ICE:			
VPI-1	8.08	15.90	0.0413
VPI-2	-1.32	8.24	0.0283

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT	(PSIA)	0.0914
LOWER CONTAINMENT	(PSIA)	0.1085
ICE CONDENSER	(PSIA)	0.0348

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	26.9560	26.7698
PU-2	26.8203	26.8191
LOWER:		
PL-1	0.0	0.0
PL-2	26.8041	26.8025
ICE:		
PI-1	26.8234	26.8225
PI-2	26.8388	26.8375
AMBIENT	14.4180	14.4119

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE	(PSIA)	26.7945
AVERAGE LOWER PRESSURE	(PSIA)	26.8025
AVERAGE ICE CONDENSER PRESSURE	(PSIA)	26.8300
AVERAGE CONTAINMENT PRESSURE	(PSIA)	26.8090
AVERAGE CONTAINMENT PRESSURE	(PSIG)	12.3971

RUN NUMBER 28
ELAPSED TIME 44.50

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	39.30	78.60	ETR-122	35.97	71.94	ETR-115	8.78	17.56
ETR-102	37.25	74.50	ETR-123	36.74	73.48	ETR-116	8.50	17.00
ETR-103	35.63	71.26	ETR-124	37.30	74.60	ETR-117	8.11	16.22
ETR-104	35.59	71.18	ETR-125	36.10	72.20	ETR-118	9.36	18.72
ETR-105	35.89	71.78	ETR-126	36.15	72.30	ETR-119	8.37	16.74
ETR-106	36.14	72.28	ETR-127	33.85	67.70	ETR-120	8.03	16.06
ETR-107	35.77	71.54	ETR-129	37.28	74.56	ETR-121	8.32	16.64
ETR-108	35.75	71.50	ETR-130	35.64	71.28			
ETR-109	35.60	71.20	ETR-131	33.89	67.78			
ETR-110	35.47	70.94	ETR-132	37.75	75.50			
ETR-111	35.57	71.14	ETR-134	36.71	73.42			
ETR-112	35.57	71.14	ETR-135	36.63	73.26			
ETR-114	34.84	69.68	ETR-136	36.68	73.36			
ETR-128	37.01	74.02	ETR-137	36.35	72.70			
ETR-133	34.37	68.74	ETR-138	36.75	73.50			
ETR-113	37.44	74.88	ETR-139	34.06	68.12			
			ETR-140	36.82	73.64			
			ETR-141	37.48	74.96			
			ETR-142	36.33	72.66			
			ETR-143	37.71	75.42			
			ETR-144	37.01	74.02			
			ETR-145	41.70	83.40			
			ETR-146	37.21	74.42			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.33	LOWER VOLUME (DEG. F.)	73.42	ICE CONDENSER (DEG. F.)	16.71
UPPER VOLUME (DEG. R.)	532.03	LOWER VOLUME (DEG. R.)	533.12	ICE CONDENSER (DEG. R.)	476.41

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	16.46	32.62	0.0908
VPU-2	-0.20	28.40	0.0
LOWER:			
VPL-1	19.02	37.67	0.1110
VPL-2	18.53	36.69	0.1068
ICE:			
VPI-1	7.71	15.16	0.0399
VPI-2	-1.35	7.70	0.0275

AVERAGE VAPOR PRESSURES

UPPER CONTAINMENT (PSIA)	0.0908
LOWER CONTAINMENT (PSIA)	0.1089
ICE CONDENSER (PSIA)	0.0337

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	26.9570	26.7708
PU-2	26.8203	26.8191
LOWER:		
PL-1	0.0	0.0
PL-2	26.8043	26.8027
ICE:		
PI-1	26.8043	26.8034
PI-2	26.8385	26.8372
AMBIENT	14.4199	14.4138

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE (PSIA)	26.7950
AVERAGE LOWER PRESSURE (PSIA)	26.8027
AVERAGE ICE CONDENSER PRESSURE (PSIA)	26.8203
AVERAGE CONTAINMENT PRESSURE (PSIA)	26.8060
AVERAGE CONTAINMENT PRESSURE (PSIG)	12.3922

RUN NUMBER 29
ELAPSED TIME 45.00

CONTAINMENT TEMPERATURES DATA CHECK

UPPER VOLUME			LOWER VOLUME			ICE CONDENSER		
RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.	RTD	MILLI-VOLTS	DEG. F.
ETR-101	39.27	78.54	ETR-122	35.97	71.94	ETR-115	8.69	17.38
ETR-102	37.24	74.48	ETR-123	36.75	73.50	ETR-116	8.54	17.08
ETR-103	35.62	71.24	ETR-124	37.34	74.68	ETR-117	8.09	16.18
ETR-104	35.58	71.16	ETR-125	36.10	72.20	ETR-118	9.42	18.84
ETR-105	35.87	71.74	ETR-126	36.16	72.32	ETR-119	8.40	16.80
ETR-106	36.13	72.26	ETR-127	33.85	67.70	ETR-120	8.03	16.06
ETR-107	35.78	71.56	ETR-129	37.29	74.58	ETR-121	8.32	16.64
ETR-108	35.75	71.50	ETR-130	35.66	71.32			
ETR-109	35.60	71.20	ETR-131	33.89	67.78			
ETR-110	35.50	71.00	ETR-132	37.75	75.50			
ETR-111	35.55	71.10	ETR-134	36.66	73.32			
ETR-112	35.57	71.14	ETR-135	36.64	73.28			
ETR-114	34.82	69.64	ETR-136	36.69	73.38			
ETR-128	37.02	74.04	ETR-137	36.40	72.80			
ETR-133	34.37	68.74	ETR-138	36.75	73.50			
ETR-113	37.49	74.98	ETR-139	34.08	68.16			
			ETR-140	36.84	73.68			
			ETR-141	37.49	74.98			
			ETR-142	36.36	72.72			
			ETR-143	37.71	75.42			
			ETR-144	37.02	74.04			
			ETR-145	41.69	83.38			
			ETR-146	37.21	74.42			

SUMMARY OF WEIGHTED AVERAGE TEMPERATURES

UPPER VOLUME (DEG. F.)	72.32	LOWER VOLUME (DEG. F.)	73.44	ICE CONDENSER (DEG. F.)	16.73
UPPER VOLUME (DEG. R.)	532.02	LOWER VOLUME (DEG. R.)	533.14	ICE CONDENSER (DEG. R.)	476.43

CONTAINMENT VAPOR PRESSURE DATA CHECK

HYGROMETER	MILLI-VOLTS	DEW POINT (DEG. F.)	VAPOR PRESSURE (PSIA)
UPPER:			
VPU-1	16.52	32.74	0.0913
VPU-2	-0.17	28.94	0.0
LOWER:			
VPL-1	19.10	37.83	0.1117
VPL-2	18.51	36.65	0.1067
ICE:			
VPI-1	8.73	17.19	0.0440
VPI-2	-1.23	9.86	0.0307

AVERAGE VAPOR PRESSURES

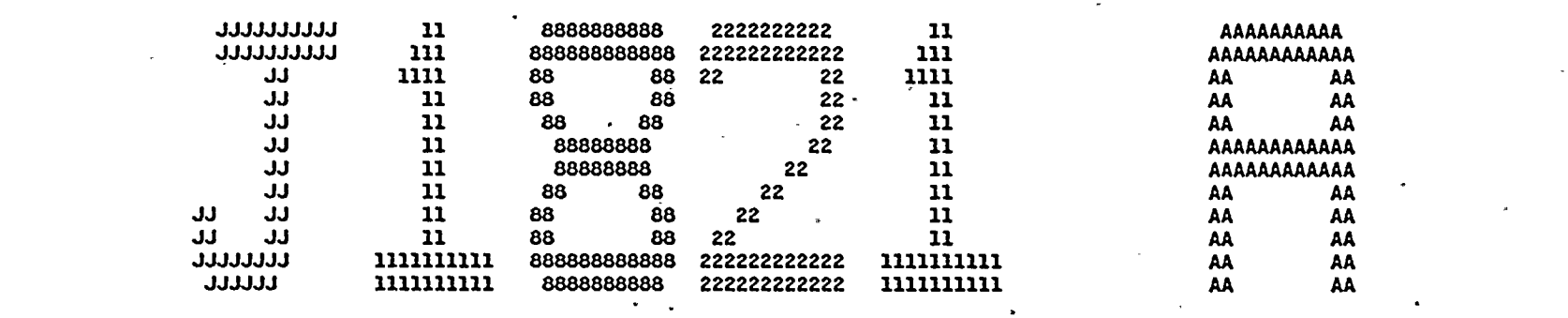
UPPER CONTAINMENT (PSIA)	0.0913
LOWER CONTAINMENT (PSIA)	0.1092
ICE CONDENSER (PSIA)	0.0373

CONTAINMENT PRESSURES DATA CHECK

MANOMETER	UNCORRECTED READING (PSIA)	CORRECTED READING (PSIA)
UPPER:		
PU-1	26.9550	26.7689
PU-2	26.8188	26.8176
LOWER:		
PL-1	0.0	0.0
PL-2	26.8029	26.8013
ICE:		
PI-1	26.8219	26.8210
PI-2	26.8392	26.8379
AMBIENT	14.4083	14.4023

SUMMARY OF CORRECTED AVERAGE PRESSURES

AVERAGE UPPER PRESSURE (PSIA)	26.7933
AVERAGE LOWER PRESSURE (PSIA)	26.8013
AVERAGE ICE CONDENSER PRESSURE (PSIA)	26.8295
AVERAGE CONTAINMENT PRESSURE (PSIA)	26.8080
AVERAGE CONTAINMENT PRESSURE (PSIG)	12.4057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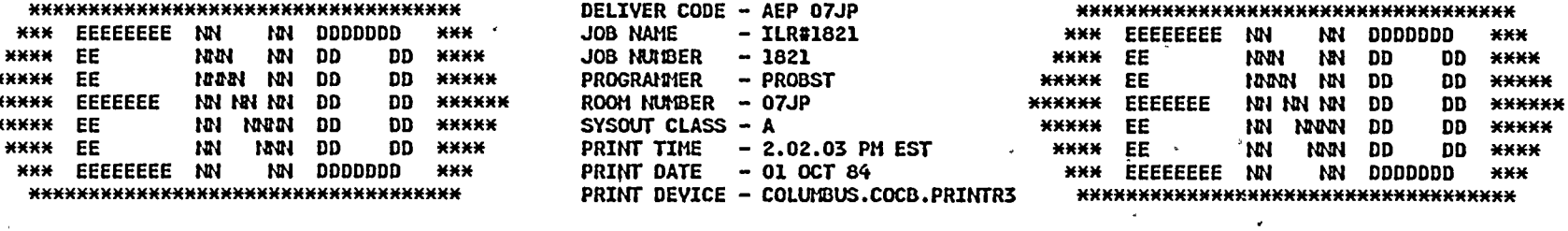
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SUMMARY OF TYPE OF TYPES B&C TEST RESULTS

D. C. COOK PLANT

UNIT 2 - 1984

SUMMARY OF TYPE B CONTAINMENT AIRLOCK LEAK TESTING*

D. C. COOK - UNIT 2

TEST COMPLETION DATE	OVERALL UPPER AIRLOCK LEAKAGE (SCCM)	OVERALL LOWER AIRLOCK LEAKAGE (SCCM)	ACCEPTANCE CRITERIA
September 2, 1981	45	75	<5511 SCCM
January 16, 1984	900	500	
March 5, 1982	520	190	
September 4, 1982	650	490	
March 3, 1983	1400	100	
September 8, 1983	<50	<50	
February 15, 1984	0	35	
June 11, 1984	0	0	

* For period from 1981 ILRT (Type A test) to 1984 ILRT

APPENDIX G

TYPE B & C TESTING

AUGUST 1984

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING MAR 1984 OUTAGE.

TYPE "C" DATA INFORMATION

RUN OF 8-17-84

FIXED POINT DATA:

(1) LEAK RATE MONITOR TEMPERATURE CALIBRATION -

	TEMPERATURE					
	POINT 1		POINT 2		POINT 3	
LRM	TRUE	INDICATED	TRUE	INDICATED	TRUE	INDICATED
165	35.	28.	75.	68.	100.	91.
193	32.	32.	77.	77.	120.	120.
194	32.	32.	77.	77.	120.	120.

(2) JOB ORDER NUMBER - 33138

(3) NUMBER OF TYPE "B" TEST STEPS - 12

(4) NUMBER OF TYPE "C" TEST STEPS - 126

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING MAR 1984 OUTAGE

TYPE "C" DATA INFORMATION

TEST STEP	DESCRIPTION	INPUT DATA (UNCORRECTED) TEMP(F)	PRESS(PSIG)	LRM	IND. LEAK.	INPUT CODE
1	CLV #1 WCR-900 & WCR-902	64.0	12.4	165	0.0	1
2	CLV #1 WCR-901 & WCR-903	64.0	12.5	165	0.0	1
5	CUV #1 WCR-920 & WCR-922	59.0	12.4	165	0.0	1
6	CUV #1 WCR-921 & WCR-923	56.0	12.0	165	0.0	1
19	CUV #3 WCR-928 & WCR-930	57.0	12.0	165	0.0	1
20	CUV #3 WCR-929 & WCR-931	57.0	12.0	165	0.0	1
27	INST. RM. WEST WCR-964 & WCR-966	64.0	12.5	194	0.0	1
28	INST. RM. WEST WCR-965 & WCR-967	64.0	12.0	194	0.0	1
32	LOWER VENT. EXH. VCR-104 & VCR-204	72.0	12.0	194	0.0	1
34	UPPER VENT. EXH. VCR-106 & VCR-206	72.0	12.0	194	0.0	1
35	PRESS. EQUALIZATION VCR-107 & VCR-207	70.0	12.0	194	60.0	1
36	HYDROGEN RETURN LINE ECR-10 & ECR-20	64.0	12.3	194	0.0	1
37	ESR-1 ECR-11 & ECR 21	66.0	12.3	194	0.0	1
38	ESR-2 ECR-12 & ECR 22	64.0	12.3	194	0.0	1
39	ESR-3 ECR-13 & ECR 23	64.0	12.3	194	0.0	1
40	ESR-4 ECR-14 & ECR 24	64.0	12.2	194	0.0	1
41	ESR-5 ECR-15 & ECR 25	64.0	12.3	194	0.0	1
42	ESR-6 ECR-16 & ECR 26	64.0	12.2	194	0.0	1
43	ESR-7 ECR-17 & ECR 27	64.0	12.3	194	0.0	1
44	ESR-8 ECR-18 & ECR 28	64.0	12.3	194	0.0	1
45	ESR-9 ECR-19 & ECR 29	63.0	12.3	194	0.0	1
57	GLYCOL SUPPLY VCR-10 & VCR-11	63.0	12.0	194	0.0	1
58	GLYCOL RETURN VCR-20 & VCR-21	63.0	12.0	194	0.0	1
31	LOWER VENT. SUPPLY VCR-103 & VCR-203	73.0	12.0	193	1300.0	1
33	UPPER VENT. SUPPLY VCR-105 & VCR-205	71.0	12.0	194	20000.0	1
79	LOWER CONT. MON. ECR-33 & ECR-35	70.0	12.1	165	2500.0	1
82	AIR PART. RAD GAS MON. ECR-31 & ECR-32	70.0	12.0	165	1300.0	1
116	GLYCOL SUPPLY EXPANSION R-156 & R-159	63.0	12.1	194	0.0	1
117	GLYCOL RETURN EXPANSION R-157 & R-158	63.0	12.0	194	8000.0	1
118	POST ACC. SAMPLE RET. NS-357	72.0	12.2	165	0.0	1
119	POST ACC. SAMPLE RET. ECR-496 & ECR-497	70.0	12.5	165	0.0	1
120	POST ACC. SAMPLE SUPPLY ECR-416	70.0	12.0	165	250.0	1
122	CONTAINMENT SAMPLING ECR-535	68.0	12.5	194	20.0	1
123	CONTAINMENT SAMPLING ECR-536	68.0	12.4	194	20.0	1
124	LOWER RMS RETURN ECR-36	70.0	12.5	165	0.0	1
64	CONT. SUMP TO HUT DCR-600 & DCR-601	72.0	12.5	193	0.0	1
71	REFUEL. WATER TO RX CAV. SF-152 & SF-154	72.0	12.5	193	0.0	1
72	REFUEL CAV. DRAIN SF-159 & SF-160	72.0	12.5	193	0.0	1
78	ACCUM. SAMPLE ICR-5 & ICR-6	72.0	12.5	193	0.0	1
29	INST. RM. VENT. SUPPLY VCR-101 & VCR-201	66.0	12.0	194	225.0	1
30	INST. RM. VENT. SUPPLY VCR-102 & VCR-202	66.0	12.0	194	360.0	1
70	PW FOR RX CAV. SCRUB QCR-919 & QCR-920	72.0	12.0	194	0.0	1

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING MAR 1984 OUTAGE

TYPE "C" DATA INFORMATION

TEST STEP	DESCRIPTION	INPUT DATA (UNCORRECTED) TEMP(F)	PRESS(PSIG)	LRM	IND. LEAK.	INPUT CODE
86	NITROGEN TO ACCUM. GCR-314	71.0	12.5	193	0.0	1
61	ICE COND. AHU DRAIN HDR. DCR-610 & 611	73.0	12.3	193	140.0	1
65	LETDOWN QCR-300	73.0	12.1	193	0.0	1
66	LETDOWN QCR-301	73.0	12.0	193	30.0	1
9	RCP #1 WCR-941 & WCR-945	54.0	12.2	194	0.0	1
10	RCP #1 WCR-951 & WCR-955	54.0	12.2	194	0.0	1
21	RCP #2 WCR-942 & WCR-946	66.0	12.2	194	0.0	1
22	RCP #2 WCR-952 & WCR-956	66.0	12.1	194	0.0	1
23	RCP #3 WCR-943 & WCR-947	66.0	12.5	194	0.0	1
24	RCP #3 WCR-953 & WCR-957	66.0	12.3	194	0.0	1
113	CCW TO CEQ-2 CCM-432	68.0	12.2	194	0.0	1
114	CCW TO CEQ-2 CCM-433	68.0	12.3	194	0.0	1
11	RCP #4 WCR-944 & WCR-948	68.0	12.3	193	0.0	1
12	RCP #4 WCR-954 & WCR-958	68.0	12.5	193	0.0	1
94	GRAB SAMPLE SM-4 & SM-6	70.0	12.5	193	0.0	1
109	CPN COILS 3&4 CCW CCW-244-72	78.0	12.3	165	270.0	1
110	CCW TO CEQ-1 CCM-430	68.0	12.5	193	20.0	1
111	CCW FROM CEQ-1 CCM-431	68.0	12.1	193	40.0	1
115	CPN COILS 3&4 CCW CCR-441	56.0	12.3	194	0.0	1
7	CUV #4 WCR-932 & WCR-934	68.0	12.3	193	0.0	1
8	CUV #4 WCR-933 & WCR-935	68.0	12.0	193	280.0	1
25	INST. RM. EAST WCR-960 & WCR-962	65.0	12.5	194	0.0	1
26	INST. RM. EAST WCR-961 & WCR-963	65.0	12.5	194	0.0	1
105	GRAB SAMPLE SM-8 & SM-10	72.0	12.1	194	0.0	1
46	RCP #1 SEAL WATER CS-442-1	65.0	12.3	165	0.0	1
47	RCP #4 SEAL WATER CS-442-4	65.0	12.0	165	0.0	1
48	RCP #2 SEAL WATER CS-442-2	65.0	12.1	165	0.0	1
49	RCP #3 SEAL WATER CS-442-3	65.0	12.3	165	0.0	1
73	HOT LEG SAMPLES NCR-105 & NCR-106	66.0	12.4	194	0.0	1
74	PRESS. LIQ. SAMPLES NCR-107 & NCR-108	66.0	12.2	194	0.0	1
75	STEAM SAMPLE NCR-109 & NCR-110	66.0	12.5	194	0.0	1
62	CLV AND CUV DRAIN HDR. DCR-620 & DCR-621	73.0	12.0	193	2400.0	1
108	CPN COILS 3&4 CCW CCW-243-72	63.0	12.0	165	3250.0	1
3	CLV #4 WCR-912 & WCR-914	63.0	12.5	194	0.0	1
4	CLV #4 WCR-913 & WCR-915	63.0	12.4	194	0.0	1
15	CLV #3 WCR-908 & WCR-910	63.0	12.4	194	40.0	1
16	CLV #3 WCR-909 & WCR-911	63.0	12.2	194	100.0	1
52	NITROGEN TO ACCUMULATORS N-102	60.0	12.1	165	0.0	1
53	NITROGEN TO PRT N-159	60.0	12.0	165	570.0	1
56	DEAD WEIGHT CALIBRATOR NPX-151-V1	53.0	12.4	165	0.0	1
101	BORON INJECTION ICM-251	74.0	12.0	193	700.0	1
102	BORON INJECTION ICM-250	74.0	12.1	193	1850.0	1

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING MAR 1984 OUTAGE

TYPE "C" DATA INFORMATION

TEST STEP	DESCRIPTION	INPUT DATA (UNCORRECTED) TEMP(F)	PRESS(PSIG)	LRM	IND. LEAK.	INPUT CODE
63	RCDT DRAIN HDR. DCR-205 & DCR-206	73.0	12.4	193	0.0	1
121	POST ACC. SAMPLE SUPPLY ECR-417	70.0	12.1	165	300.0	1
99	CONT. PRESS. ALARM PPA-310 & PPA-311	74.0	12.5	193	0.0	1
100	CONT. PRESS. ALARM PPA-312 & PPA-313	74.0	12.4	193	0.0	1
92	RX SUPPORTS CCW CCR-457 & CCW-135	70.0	12.2	193	60.0	1
93	RX SUPPORTS CCW CCR-455 & CCR-456	70.0	12.5	193	40.0	1
80	NORTH SI DISCH. ICM-260	71.0	12.6	193	0.0	1
81	SOUTH SI DISCH. ICM-265	75.0	12.5	193	0.0	1
87	SAFETY INJ. TEST LINE SI-171,172,194	73.0	12.1	193	0.0	1
88	PW TO PRT NCR-252	57.0	12.5	193	0.0	1
103	WELD CHANNEL PRESS. CA-181S	78.0	12.5	193	0.0	1
104	WELD CHANNEL PRESS. CA-181N	76.0	12.5	193	0.0	1
17	CUV #2 WCR-924 & WCR-926	68.0	12.5	194	0.0	1
18	CUV #2 WCR-925 & WCR-927	68.0	12.5	194	300.0	1
59	RCDT VENT HEADER DCR-203 & DCR-207	70.0	12.5	194	300.0	1
91	EXCESS LETDOWN HX CCW CCR-460 & CCR-462	67.0	12.2	193	0.0	1
76	RCDT SAMPLE RCR-100 & RCR-101	69.0	12.2	193	0.0	1
77	PRT SAMPLE DCR-202 & DCR-204	69.0	12.2	193	0.0	1
54	PRIMARY WATER TO PRT PW-275	68.0	12.5	165	70.0	1
67	RCP SEAL WATER RETURN QCM-250 & QCM-350	69.0	12.5	193	0.0	1
106	CPN COILS 2&5 CCW CCW-243-25	63.0	12.2	165	110.0	1
112	CPN COILS 2&5 CCW CCR-440	66.0	12.3	194	190.0	1
107	CPN COILS 2&5 CCW CCW-244-25	63.0	12.2	165	20.0	1
85	NITROGEN TO PRT GCR-301	69.0	12.5	193	0.0	1
95	CONT. PRESS. ALARM PPP-300	72.0	12.2	194	0.0	1
96	CONT. PRESS. ALARM PPP-301	72.0	12.1	194	0.0	1
97	CONT. PRESS. ALARM PPP-302	72.0	12.0	194	0.0	1
98	CONT. PRESS. ALARM PPP-303	72.0	12.2	194	0.0	1
55	CHARGING TO REGEN. HX. CS-321	62.0	12.0	165	24000.0	1
83	CONTROL AIR TO CONT. XCR-100 & XCR-101	70.0	12.4	193	0.0	1
84	CONTROL AIR TO CONT. XCR-102 & XCR-103	62.0	12.4	194	540.0	1
121	POST ACC. SAMPLE SUPPLY ECR-417	64.0	12.5	194	0.0	2
120	POST ACC. SAMPLE SUPPLY ECR-416	64.0	12.4	194	0.0	2
13	CLV #2 WCR-904 & WCR-906	62.0	12.5	193	60.0	1
14	CLV #2 WCR-905 & WCR-907	62.0	12.5	193	80.0	1
60	RCDT VENT HEADER N-160 & DCR-201	73.0	12.5	194	1650.0	1
53	NITROGEN TO PRT N-159	66.0	12.1	165	700.0	2
33	UPPER VENT. SUPPLY VCR-105 & VCR-205	70.0	12.2	193	80.0	2
108	CPN COILS 3&4 CCW CCW-243-72	66.0	12.1	165	2500.0	2
51	AIR PART. RAD GAS MONITOR SM-1	66.0	12.0	165	625.0	1
68	RHR RECIRC. 'E' ICM-305	62.0	12.4	194	6000.0	1
69	RHR RECIRC. 'W' ICM-306	62.0	12.2	194	750.0	1

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING MAR 1984 OUTAGE

TYPE "C" DATA INFORMATION

INPUT DATA (UNCORRECTED)

TEST STEP	DESCRIPTION	TEMP(F)	PRESS(PSIG)	LRM	IND. LEAK.	INPUT CODE
79	LOWER CONT. MON. ECR-33 & ECR-35	62.0	12.0	194	1750.0	2
82	AIR PART. RAD GAS MON. ECR-31 & ECR-32	62.0	12.5	194	3600.0	2
117	GLYCOL RETURN EXPANSION R-157 & R-158	60.0	12.0	194	0.0	2
50	RELIEF VALVE HEADER TO PRT	66.0	12.5	165	30.0	1
53	NITROGEN TO PRT N-159	62.0	12.0	165	2000.0	3
60	RCDT VENT HEADER N-160 & DCR-201	62.0	12.0	194	260.0	2
108	CPN COILS 3&4 CCW CCW-243-72	60.0	12.4	165	27000.0	3
53	NITROGEN TO PRT N-159	62.0	12.2	165	40.0	4
55	CHARGING TO REGEN. HX. CS-321	62.0	12.0	165	750.0	2
90	RCP OIL CLRS. CCW CCM-451,453,459	69.0	12.2	193	0.0	1
89	RCP OIL CLRS. CCW CCM-452,454,458	69.0	12.2	193	0.0	1
62	CLV AND CUV DRAIN HDR. DCR-620 & DCR-621	62.0	12.0	193	0.0	2
59	RCDT VENT HEADER DCR-203 & DCR-207	62.0	12.0	193	20.0	2
101	BORON INJECTION ICM-251	76.0	12.0	194	40.0	2
51	AIR PART. RAD GAS MONITOR SM-1	65.0	12.2	165	23000.0	2
108	CPN COILS 3&4 CCW CCW-243-72	66.0	12.0	165	2500.0	4
51	AIR PART. RAD GAS MONITOR SM-1	66.0	12.0	165	5000.0	3
68	RHR RECIRC. 'E' ICM-305	74.0	12.1	193	0.0	2
51	AIR PART. RAD GAS MONITOR SM-1	66.0	12.2	165	110.0	4
82	AIR PART. RAD GAS MON. ECR-31 & ECR-32	73.0	12.2	193	7000.0	3
79	LOWER CONT. MON. ECR-33 & ECR-35	73.0	12.0	193	2650.0	3
101	BORON INJECTION ICM-251	81.0	12.0	193	40.0	3
102	BORON INJECTION ICM-250	80.0	12.2	193	1200.0	2
102	BORON INJECTION ICM-250	81.0	12.0	193	50.0	3
108	CPN COILS 3&4 CCW CCW-243-72	70.0	12.0	165	26000.0	5
108	CPN COILS 3&4 CCW CCW-243-72	70.0	12.0	165	2900.0	6
108	CPN COILS 3&4 CCW CCW-243-72	70.0	12.0	165	120.0	7
82	AIR PART. RAD GAS MON. ECR-31 & ECR-32	79.0	12.2	194	1300.0	4
82	AIR PART. RAD GAS MON. ECR-31 & ECR-32	72.0	12.4	193	1250.0	5
79	LOWER CONT. MON. ECR-33 & ECR-35	74.0	12.0	193	1900.0	4
125	PLANT AIR TO CONTAINMENT PCR-40	73.0	12.3	194	0.0	1
126	PLANT AIR TO CONT. CHECK VLV.PA342	73.0	12.5	194	4000.0	1

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING MAR 1984 OUTAGE

TYPE "C" DATA INFORMATION

CORRECTED RESULTS OF VALVE TESTING

TEST STEP		DESCRIPTION	GUIDLINE LEAKAGE	INDICATED LEAKAGE	CORRECTED LEAKAGE	TEMPERATURE	PRESSURE	LRM
1	CLV #1	WCR-900 & WCR-902	720.0	0.0	0.0	71.0	12.4	165
2	CLV #1	WCR-901 & WCR-903	720.0	0.0	0.0	71.0	12.5	165
3	CLV #4	WCR-912 & WCR-914	720.0	0.0	0.0	63.0	12.5	194
4	CLV #4	WCR-913 & WCR-915	720.0	0.0	0.0	63.0	12.4	194
5	CUV #1	WCR-920 & WCR-922	480.0	0.0	0.0	66.0	12.4	165
6	CUV #1	WCR-921 & WCR-923	480.0	0.0	0.0	63.0	12.0	165
7	CUV #4	WCR-932 & WCR-934	480.0	0.0	0.0	68.0	12.3	193
8	CUV #4	WCR-933 & WCR-935	480.0	280.0	279.5	68.0	12.0	193
9	RCP #1	WCR-941 & WCR-945	360.0	0.0	0.0	54.0	12.2	194
10	RCP #1	WCR-951 & WCR-955	360.0	0.0	0.0	54.0	12.2	194
11	RCP #4	WCR-944 & WCR-948	360.0	0.0	0.0	68.0	12.3	193
12	RCP #4	WCR-954 & WCR-958	360.0	0.0	0.0	68.0	12.5	193

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING MAR 1984 OUTAGE

TYPE "C" DATA INFORMATION

CORRECTED RESULTS OF VALVE TESTING

TEST STEP	DESCRIPTION		GUIDLINE LEAKAGE	INDICATED LEAKAGE	CORRECTED LEAKAGE	TEMPERATURE	PRESSURE	LRM
13	CLV #2	WCR-904 & WCR-906	720.0	60.0	59.0	62.0	12.5	193
14	CLV #2	WCR-905 & WCR-907	720.0	80.0	78.7	62.0	12.5	193
15	CLV #3	WCR-908 & WCR-910	720.0	40.0	39.4	63.0	12.4	194
16	CLV #3	WCR-909 & WCR-911	720.0	100.0	99.0	63.0	12.2	194
17	CUV #2	WCR-924 & WCR-926	480.0	0.0	0.0	68.0	12.5	194
18	CUV #2	WCR-925 & WCR-927	480.0	300.0	296.7	68.0	12.5	194
19	CUV #3	WCR-928 & WCR-930	480.0	0.0	0.0	64.0	12.0	165
20	CUV #3	WCR-929 & WCR-931	480.0	0.0	0.0	64.0	12.0	165
21	RCP #2	WCR-942 & WCR-946	360.0	0.0	0.0	66.0	12.2	194
22	RCP #2	WCR-952 & WCR-956	360.0	0.0	0.0	66.0	12.1	194
23	RCP #3	WCR-943 & WCR-947	360.0	0.0	0.0	66.0	12.5	194
24	RCP #3	WCR-953 & WCR-957	360.0	0.0	0.0	66.0	12.3	194

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING MAR 1984 OUTAGE

TYPE "C" DATA INFORMATION

CORRECTED RESULTS OF VALVE TESTING

TEST STEP	DESCRIPTION		GUIDLINE LEAKAGE	INDICATED LEAKAGE	CORRECTED LEAKAGE	TEMPERATURE	PRESSURE	LRM
25	INST. RM. EAST	WCR-960 & WCR-962	240.0	0.0	0.0	65.0	12.5	194
26	INST. RM. EAST	WCR-961 & WCR-963	240.0	0.0	0.0	65.0	12.5	194
27	INST. RM. WEST	WCR-964 & WCR-966	240.0	0.0	0.0	64.0	12.5	194
28	INST. RM. WEST	WCR-965 & WCR-967	240.0	0.0	0.0	64.0	12.0	194
29	INST. RM. VENT. SUPPLY	VCR-101 & VCR-201	1680.0	225.0	224.1	66.0	12.0	194
30	INST. RM. VENT. SUPPLY	VCR-102 & VCR-202	1680.0	360.0	358.6	66.0	12.0	194
31	LOWER VENT. SUPPLY	VCR-103 & VCR-203	2880.0	1300.0	1303.7	73.0	12.0	193
32	LOWER VENT. EXH.	VCR-104 & VCR-204	3600.0	0.0	0.0	72.0	12.0	194
33	UPPER VENT. SUPPLY	VCR-105 & VCR-205	3600.0	20000.0 80.0	20018.9 79.7	71.0 70.0	12.0 12.2	194 193
34	UPPER VENT. EXH.	VCR-106 & VCR-206	2880.0	0.0	0.0	72.0	12.0	194
35	PRESS. EQUALIZATION	VCR-107 & VCR-207	1440.0	60.0	60.0	70.0	12.0	194
36	HYDROGEN RETURN LINE	ECR-10 & ECR-20	60.0	0.0	0.0	64.0	12.3	194

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********
TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING MAR 1984 OUTAGE

TYPE "C" DATA INFORMATION

CORRECTED RESULTS OF VALVE TESTING

TEST STEP	DESCRIPTION		GUIDLINE LEAKAGE	INDICATED LEAKAGE	CORRECTED LEAKAGE	TEMPERATURE	PRESSURE	LRM
37	ESR-1	ECR-11 & ECR 21	60.0	0.0	0.0	66.0	12.3	194
38	ESR-2	ECR-12 & ECR 22	60.0	0.0	0.0	64.0	12.3	194
39	ESR-3	ECR-13 & ECR 23	60.0	0.0	0.0	64.0	12.3	194
40	ESR-4	ECR-14 & ECR 24	60.0	0.0	0.0	64.0	12.2	194
41	ESR-5	ECR-15 & ECR 25	60.0	0.0	0.0	64.0	12.3	194
42	ESR-6	ECR-16 & ECR 26	60.0	0.0	0.0	64.0	12.2	194
43	ESR-7	ECR-17 & ECR 27	60.0	0.0	0.0	64.0	12.3	194
44	ESR-8	ECR-18 & ECR 28	60.0	0.0	0.0	64.0	12.3	194
45	ESR-9	ECR-19 & ECR 29	60.0	0.0	0.0	63.0	12.3	194
46	RCP #1 SEAL WATER	CS-442-1	120.0	0.0	0.0	72.0	12.3	165
47	RCP #4 SEAL WATER	CS-442-4	120.0	0.0	0.0	72.0	12.0	165
48	RCP #2 SEAL WATER	CS-442-2	120.0	0.0	0.0	72.0	12.1	165

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING MAR 1984 OUTAGE.

TYPE "C" DATA INFORMATION

CORRECTED RESULTS OF VALVE TESTING

TEST STEP	DESCRIPTION	GUIDLINE LEAKAGE	INDICATED LEAKAGE	CORRECTED LEAKAGE	TEMPERATURE	PRESSURE	LRM
49	RCP #3 SEAL WATER CS-442-3	120.0	0.0	0.0	72.0	12.3	165
50	RELIEF VALVE HEADER TO PRT	120.0	30.0	29.8	73.0	12.5	165
51	AIR PART. RAD GAS MONITOR SM-1	60.0	625.0	626.8	73.0	12.0	165
			23000.0	22957.5	72.0	12.2	165
			5000.0	5014.1	73.0	12.0	165
			110.0	109.9	73.0	12.2	165
52	NITROGEN TO ACCUMULATORS N-102	60.0	0.0	0.0	67.0	12.1	165
53	NITROGEN TO PRT N-159	45.0	570.0	568.4	67.0	12.0	165
			700.0	700.7	73.0	12.1	165
			2000.0	1998.1	69.0	12.0	165
			40.0	39.8	69.0	12.2	165
54	PRIMARY WATER TO PRT PW-275	180.0	70.0	69.7	75.0	12.5	165
55	CHARGING TO REGEN. HX. CS-321	180.0	24000.0	23977.3	69.0	12.0	165
			750.0	749.3	69.0	12.0	165
56	DEAD WEIGHT CALIBRATOR NPX-151-V1	30.0	0.0	0.0	60.0	12.4	165
57	GLYCOL SUPPLY VCR-10 & VCR-11	480.0	0.0	0.0	63.0	12.0	194
58	GLYCOL RETURN VCR-20 & VCR-21	480.0	0.0	0.0	63.0	12.0	194
59	RCDT VENT HEADER DCR-203 & DCR-207	120.0	300.0	297.2	70.0	12.5	194
			20.0	19.8	62.0	12.0	193

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********
TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING MAR 1984 OUTAGE

TYPE "C" DATA INFORMATION

CORRECTED RESULTS OF VALVE TESTING

TEST STEP	DESCRIPTION	GUIDLINE LEAKAGE	INDICATED LEAKAGE	CORRECTED LEAKAGE	TEMPERATURE	PRESSURE	LRM
60	RCDT VENT HEADER N-160 & DCR-201	120.0	1650.0	1639.4	73.0	12.5	194
			260.0	258.0	62.0	12.0	194
61	ICE COND. AHU DRAIN HDR. DCR-610 & 611	300.0	140.0	139.6	73.0	12.3	193
62	CLV AND CUV DRAIN HDR. DCR-620 & DCR-621	120.0	2400.0	2406.8	73.0	12.0	193
			0.0	0.0	62.0	12.0	193
63	RCDT DRAIN HDR. DCR-205 & DCR-206	480.0	0.0	0.0	73.0	12.4	193
64	CONT. SUMP TO HUT DCR-600 & DCR-601	360.0	0.0	0.0	72.0	12.5	193
65	LETDOWN QCR-300	120.0	0.0	0.0	73.0	12.1	193
66	LETDOWN QCR-301	120.0	30.0	30.1	73.0	12.0	193
67	RCP SEAL WATER RETURN QCM-250 & QCM-350	480.0	0.0	0.0	69.0	12.5	193
68	RHR RECIRC. 'E' ICM-305	1080.0	6000.0	5910.4	62.0	12.4	194
			0.0	0.0	74.0	12.1	193
69	RHR RECIRC. 'W' ICM-306	1080.0	750.0	741.5	62.0	12.2	194
70	PW FOR RX CAV. SCRUB QCR-919 & QCR-920	120.0	0.0	0.0	72.0	12.0	194
71	REFUEL. WATER TO RX CAV. SF-152 & SF-154	300.0	0.0	0.0	72.0	12.5	193

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING MAR 1984 OUTAGE

TYPE "C" DATA INFORMATION

CORRECTED RESULTS OF VALVE TESTING

TEST STEP	DESCRIPTION	GUIDLINE LEAKAGE	INDICATED LEAKAGE	CORRECTED LEAKAGE	TEMPERATURE	PRESSURE	LRM
72	REFUEL CAV. DRAIN SF-159 & SF-160	360.0	0.0	0.0	72.0	12.5	193
73	HOT LEG SAMPLES NCR-105 & NCR-106	60.0	0.0	0.0	66.0	12.4	194
74	PRESS. LIQ. SAMPLES NCR-107 & NCR-108	60.0	0.0	0.0	66.0	12.2	194
75	STEAM SAMPLE NCR-109 & NCR-110	60.0	0.0	0.0	66.0	12.5	194
76	RCDT SAMPLE RCR-100 & RCR-101	60.0	0.0	0.0	69.0	12.2	193
77	PRT SAMPLE DCR-202 & DCR-204	60.0	0.0	0.0	69.0	12.2	193
78	ACCUM. SAMPLE ICR-5 & ICR-6	60.0	0.0	0.0	72.0	12.5	193
79	LOWER CONT. MON. ECR-33 & ECR-35	60.0	2500.0	2512.2	77.2	12.1	165
			1750.0	1736.7	62.0	12.0	194
			2650.0	2657.5	73.0	12.0	193
			1900.0	1907.2	74.0	12.0	193
80	NORTH SI DISCH. ICM-260	240.0	0.0	0.0	71.0	12.6	193
81	SOUTH SI DISCH. ICM-265	240.0	0.0	0.0	75.0	12.5	193
82	AIR PART. RAD GAS MON. ECR-31 & ECR-32	120.0	1300.0	1308.8	77.2	12.0	165
			3600.0	3539.7	62.0	12.5	194
			7000.0	6993.6	73.0	12.2	193
			1300.0	1306.1	79.0	12.2	194
			1250.0	1243.1	72.0	12.4	193

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING MAR 1984 OUTAGE

TYPE "C" DATA INFORMATION

CORRECTED RESULTS OF VALVE TESTING

TEST STEP	DESCRIPTION	GUIDLINE LEAKAGE	INDICATED LEAKAGE	CORRECTED LEAKAGE	TEMPERATURE	PRESSURE	LRM
83	CONTROL AIR TO CONT. XCR-100 & XCR-101	120.0	0.0	0.0	70.0	12.4	193
84	CONTROL AIR TO CONT. XCR-102 & XCR-103	120.0	540.0	531.9	62.0	12.4	194
85	NITROGEN TO PRT GCR-301	45.0	0.0	0.0	69.0	12.5	193
86	NITROGEN TO ACCUM. GCR-314	60.0	0.0	0.0	71.0	12.5	193
87	SAFETY INJ. TEST LINE SI-171,172,194	270.0	0.0	0.0	73.0	12.1	193
88	PW TO PRT NCR-252	180.0	0.0	0.0	57.0	12.5	193
89	RCP OIL CLRS. CCW CCM-452,454,458	1200.0	0.0	0.0	69.0	12.2	193
90	RCP OIL CLRS. CCW CCM-451,453,459	1200.0	0.0	0.0	69.0	12.2	193
91	EXCESS LETDOWN HX CCW CCR-460 & CCR-462	360.0	0.0	0.0	67.0	12.2	193
92	RX SUPPORTS CCW CCR-457 & CCW-135	240.0	60.0	59.8	70.0	12.2	193
93	RX SUPPORTS CCW CCR-455 & CCR-456	240.0	40.0	39.6	70.0	12.5	193
94	GRAB SAMPLE SM-4 & SM-6	60.0	0.0	0.0	70.0	12.5	193

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********
TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING MAR 1984 OUTAGE

TYPE "C" DATA INFORMATION

CORRECTED RESULTS OF VALVE TESTING

TEST STEP	DESCRIPTION	GUIDLINE LEAKAGE	INDICATED LEAKAGE	CORRECTED LEAKAGE	TEMPERATURE	PRESSURE	LRM
95	CONT. PRESS. ALARM PPP-300	0.0	0.0	0.0	72.0	12.2	194
96	CONT. PRESS. ALARM PPP-301	0.0	0.0	0.0	72.0	12.1	194
97	CONT. PRESS. ALARM PPP-302	0.0	0.0	0.0	72.0	12.0	194
98	CONT. PRESS. ALARM PPP-303	0.0	0.0	0.0	72.0	12.2	194
99	CONT. PRESS. ALARM PPA-310 & PPA-311	0.0	0.0	0.0	74.0	12.5	193
100	CONT. PRESS. ALARM PPA-312 & PPA-313	0.0	0.0	0.0	74.0	12.4	193
101	BORON INJECTION ICM-251	240.0	700.0	702.6	74.0	12.0	193
			40.0	40.2	76.0	12.0	194
			40.0	40.4	81.0	12.0	193
102	BORON INJECTION ICM-250	240.0	1850.0	1853.5	74.0	12.1	193
			1200.0	1206.8	80.0	12.2	193
			50.0	50.5	81.0	12.0	193
103	WELD CHANNEL PRESS. CA-181S	30.0	0.0	0.0	78.0	12.5	193
104	WELD CHANNEL PRESS. CA-181N	30.0	0.0	0.0	76.0	12.5	193
105	GRAB SAMPLE SM-8 & SM-10	60.0	0.0	0.0	72.0	12.1	194

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING MAR 1984 OUTAGE

TYPE "C" DATA INFORMATION

CORRECTED RESULTS OF VALVE TESTING

TEST STEP	DESCRIPTION		GUIDLINE LEAKAGE	INDICATED LEAKAGE	CORRECTED LEAKAGE	TEMPERATURE	PRESSURE	LRM
106	CPN COILS 2&5 CCW	CCW-243-25	60.0	110.0	109.6	70.0	12.2	165
107	CPN COILS 2&5 CCW	CCW-244-25	60.0	20.0	19.9	70.0	12.2	165
108	CPN COILS 3&4 CCW	CCW-243-72	60.0	3250.0	3250.0	70.0	12.0	165
				2500.0	2502.4	73.0	12.1	165
				27000.0	26724.0	67.0	12.4	165
				2500.0	2507.1	73.0	12.0	165
				26000.0	26175.4	77.2	12.0	165
				2900.0	2919.6	77.2	12.0	165
				120.0	120.8	77.2	12.0	165
109	CPN COILS 3&4 CCW	CCW-244-72	60.0	270.0	272.5	85.9	12.3	165
110	CCW TO CEQ=1	CCM=430	90.0	20.0	19.8	68.0	12.5	193
111	CCW FROM CEQ=1	CCM=431	90.0	40.0	39.8	68.0	12.1	193
112	CPN COILS 2&5 CCW	CCR=440	60.0	190.0	188.2	66.0	12.3	194
113	CCW TO CEQ=2	CCM=432	90.0	0.0	0.0	68.0	12.2	194
114	CCW TO CEQ=2	CCM=433	90.0	0.0	0.0	68.0	12.3	194
115	CPN COILS 3&4 CCW	CCR=441	60.0	0.0	0.0	56.0	12.3	194
116	GLYCOL SUPPLY EXPANSION	R=156 & R=159	60.0	0.0	0.0	63.0	12.1	194

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********
TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING MAR 1984 OUTAGE

TYPE "C" DATA INFORMATION

CORRECTED RESULTS OF VALVE TESTING

TEST STEP	DESCRIPTION	GUIDLINE LEAKAGE	INDICATED LEAKAGE	CORRECTED LEAKAGE	TEMPERATURE	PRESSURE	LRM
117	GLYCOL RETURN EXPANSION R-157 & R-158	60.0	8000.0	7947.0	63.0	12.0	194
			0.0	0.0	60.0	12.0	194
118	POST ACC. SAMPLE RET. NS-357	15.0	0.0	0.0	79.3	12.2	165
119	POST ACC. SAMPLE RET. ECR-496 & ECR-497	15.0	0.0	0.0	77.2	12.5	165
120	POST ACC. SAMPLE SUPPLY ECR-416	15.0	250.0	251.7	77.2	12.0	165
			0.0	0.0	64.0	12.4	194
121	POST ACC. SAMPLE SUPPLY ECR-417	15.0	300.0	301.5	77.2	12.1	165
			0.0	0.0	64.0	12.5	194
122	CONTAINMENT SAMPLING ECR-535	30.0	20.0	19.8	68.0	12.5	194
123	CONTAINMENT SAMPLING ECR-536	30.0	20.0	19.8	68.0	12.4	194
124	LOWER RMS RETURN ECR-36	120.0	0.0	0.0	77.2	12.5	165
125	PLANT AIR TO CONTAINMENT PCR-40	120.0	0.0	0.0	73.0	12.3	194
126	PLANT AIR TO CONT. CHECK VLV.PA342	120.0	4000.0	3974.3	73.0	12.5	194

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING MAR 1984 OUTAGE

TYPE "C" DATA INFORMATION

VOLUMES WHERE GUIDLINE LEAKAGE HAS BEEN EXCEEDED

TEST STEP	DESCRIPTION	GUIDLINE LEAKAGE	CORRECTED LEAKAGE	
51	AIR PART. RAD GAS MONITOR SM-1	60.0	109.9	COMPLETE****
55	CHARGING TO REGEN. HX. CS-321	180.0	749.3	COMPLETE****
60	RCDT VENT HEADER N-160 & DCR-201	120.0	258.0	COMPLETE****
79	LOWER CONT. MON. ECR-33 & ECR-35	60.0	1907.2	COMPLETE****
82	AIR PART. RAD GAS MON. ECR-31 & ECR-32	120.0	1243.1	
84	CONTROL AIR TO CONT. XCR-102 & XCR-103	120.0	531.9	COMPLETE****
106	CPN COILS 2&5 CCW CCW-243-25	60.0	109.6	COMPLETE****
108	CPN COILS 3&4 CCW CCW-243-72	60.0	120.8	COMPLETE****
109	CPN COILS 3&4 CCW CCW-244-72	60.0	272.5	COMPLETE****
112	CPN COILS 2&5 CCW CCR-440	60.0	188.2	COMPLETE****
126	PLANT AIR TO CONT. CHECK VLV.PA342	120.0	3974.3	COMPLETE****

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING MAR 1984 OUTAGE

TYPE "C" DATA INFORMATION

TEST VOLUMES THAT HAVE NOT BEEN INITIALLY TESTED

TEST STEP	DESCRIPTION

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING MAR 1984 OUTAGE

TYPE "C" DATA INFORMATION

COMPLETED TEST VOLUMES

TEST VOLUME	DESCRIPTION		GUIDELINE LEAKAGE	CORRECTED LEAKAGE	TRIAL NO WHEN VOLUME PASSED
1	CLV #1	WCR-900 & WCR-902	720.0	0.0	1
2	CLV #1	WCR-901 & WCR-903	720.0	0.0	1
3	CLV #4	WCR-912 & WCR-914	720.0	0.0	1
4	CLV #4	WCR-913 & WCR-915	720.0	0.0	1
5	CUV #1	WCR-920 & WCR-922	480.0	0.0	1
6	CUV #1	WCR-921 & WCR-923	480.0	0.0	1
7	CUV #4	WCR-932 & WCR-934	480.0	0.0	1
8	CUV #4	WCR-933 & WCR-935	480.0	279.5	1
9	RCP #1	WCR-941 & WCR-945	360.0	0.0	1
10	RCP #1	WCR-951 & WCR-955	360.0	0.0	1
11	RCP #4	WCR-944 & WCR-948	360.0	0.0	1
12	RCP #4	WCR-954 & WCR-958	360.0	0.0	1
13	CLV #2	WCR-904 & WCR-906	720.0	59.0	1
14	CLV #2	WCR-905 & WCR-907	720.0	78.7	1
15	CLV #3	WCR-908 & WCR-910	720.0	39.4	1
16	CLV #3	WCR-909 & WCR-911	720.0	99.0	1
17	CUV #2	WCR-924 & WCR-926	480.0	0.0	1
18	CUV #2	WCR-925 & WCR-927	480.0	296.7	1
19	CUV #3	WCR-928 & WCR-930	480.0	0.0	1
20	CUV #3	WCR-929 & WCR-931	480.0	0.0	1
21	RCP #2	WCR-942 & WCR-946	360.0	0.0	1
22	RCP #2	WCR-952 & WCR-956	360.0	0.0	1
23	RCP #3	WCR-943 & WCR-947	360.0	0.0	1
24	RCP #3	WCR-953 & WCR-957	360.0	0.0	1
25	INST. RM. EAST	WCR-960 & WCR-962	240.0	0.0	1
26	INST. RM. EAST	WCR-961 & WCR-963	240.0	0.0	1
27	INST. RM. WEST	WCR-964 & WCR-966	240.0	0.0	1
28	INST. RM. WEST	WCR-965 & WCR-967	240.0	0.0	1
29	INST. RM. VENT. SUPPLY	VCR-101 & VCR-201	1680.0	224.1	1
30	INST. RM. VENT. SUPPLY	VCR-102 & VCR-202	1680.0	358.6	1
31	LOWER VENT. SUPPLY	VCR-103 & VCR-203	2880.0	1303.7	1
32	LOWER VENT. EXH.	VCR-104 & VCR-204	3600.0	0.0	1
33	UPPER VENT. SUPPLY	VCR-105 & VCR-205	3600.0	79.7	2
34	UPPER VENT. EXH.	VCR-106 & VCR-206	2880.0	0.0	1
35	PRESS. EQUALIZATION	VCR-107 & VCR-207	1440.0	60.0	1
36	HYDROGEN RETURN LINE	ECR-10 & ECR-20	60.0	0.0	1
37	ESR-1	ECR-11 & ECR 21	60.0	0.0	1
38	ESR-2	ECR-12 & ECR 22	60.0	0.0	1
39	ESR-3	ECR-13 & ECR 23	60.0	0.0	1
40	ESR-4	ECR-14 & ECR 24	60.0	0.0	1
41	ESR-5	ECR-15 & ECR 25	60.0	0.0	1
42	ESR-6	ECR-16 & ECR 26	60.0	0.0	1
43	ESR-7	ECR-17 & ECR 27	60.0	0.0	1

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING MAR 1984 OUTAGE

TYPE "C" DATA INFORMATION

COMPLETED TEST VOLUMES

TEST VOLUME	DESCRIPTION	GUIDELINE LEAKAGE	CORRECTED LEAKAGE	TRIAL NO WHEN VOLUME PASSED
44	ESR-8 ECR-18 & ECR 28	60.0	0.0	1
45	ESR-9 ECR-19 & ECR 29	60.0	0.0	1
46	RCP #1 SEAL WATER CS-442-1	120.0	0.0	1
47	RCP #4 SEAL WATER CS-442-4	120.0	0.0	1
48	RCP #2 SEAL WATER CS-442-2	120.0	0.0	1
49	RCP #3 SEAL WATER CS-442-3	120.0	0.0	1
50	RELIEF VALVE HEADER TO PRT	120.0	29.8	1
51	AIR PART. RAD GAS MONITOR SA-1	60.0	109.9	4
52	NITROGEN TO ACCUMULATORS N-102	60.0	0.0	1
53	NITROGEN TO PRT N-159	45.0	39.8	4
54	PRIMARY WATER TO PRT PW-275	180.0	69.7	1
55	CHARGING TO REGEN. HX. CS-321	180.0	749.3	2
56	DEAD WEIGHT CALIBRATOR NPX-151-V1	30.0	0.0	1
57	GLYCOL SUPPLY VCR-10 & VCR-11	480.0	0.0	1
58	GLYCOL RETURN VCR-20 & VCR-21	480.0	0.0	1
59	RCDT VENT HEADER DCR-203 & DCR-207	120.0	19.8	2
60	RCDT VENT HEADER N-160 & DCR-201	120.0	258.0	2
61	ICE COND. AHU DRAIN HDR. DCR-610 & 611	300.0	139.6	1
62	CLV AND CUV DRAIN HDR. DCR-620 & DCR-621	120.0	0.0	2
63	RCDT DRAIN HDR. DCR-205 & DCR-206	480.0	0.0	1
64	CONT. SUMP TO HUT DCR-600 & DCR-601	360.0	0.0	1
65	LETDOWN QCR-300	120.0	0.0	1
66	LETDOWN QCR-301	120.0	30.1	1
67	RCP SEAL WATER RETURN QCM-250 & QCM-350	480.0	0.0	1
68	RHR RECIRC. "E" ICM-305	1080.0	0.0	2
69	RHR RECIRC. "W" ICM-306	1080.0	741.5	1
70	PW FOR RX CAV. SCRUB QCR-919 & QCR-920	120.0	0.0	1
71	REFUEL. WATER TO RX CAV. SF-152 & SF-154	300.0	0.0	1
72	REFUEL CAV. DRAIN SF-159 & SF-160	360.0	0.0	1
73	HOT LEG SAMPLES NCR-105 & NCR-106	60.0	0.0	1
74	PRESS. LIQ. SAMPLES NCR-107 & NCR-108	60.0	0.0	1
75	STEAM SAMPLE NCR-109 & NCR-110	60.0	0.0	1
76	RCDT SAMPLE RCR-100 & RCR-101	60.0	0.0	1
77	PRT SAMPLE DCR-202 & DCR-204	60.0	0.0	1
78	ACCUM. SAMPLE ICR-5 & ICR-6	60.0	0.0	1
79	LOWER CONT. MON. ECR-33 & ECR-35	60.0	1907.2	4
80	NORTH SI DISCH. ICM-260	240.0	0.0	1
81	SOUTH SI DISCH. ICM-265	240.0	0.0	1
83	CONTROL AIR TO CONT. XCR-100 & XCR-101	120.0	0.0	1
84	CONTROL AIR TO CONT. XCR-102 & XCR-103	120.0	531.9	1
85	NITROGEN TO PRT GCR-301	45.0	0.0	1
86	NITROGEN TO ACCUM. GCR-314	60.0	0.0	1
87	SAFETY INJ. TEST LINE SI-171,172,194	270.0	0.0	1

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING MAR 1984 OUTAGE

TYPE "C" DATA INFORMATION

COMPLETED TEST VOLUMES

TEST VOLUME	DESCRIPTION	GUIDELINE LEAKAGE	CORRECTED LEAKAGE	TRIAL NO WHEN VOLUME PASSED
88	PW TO PRT NCR-252	180.0	0.0	1
89	RCP OIL CLRS. CCW CCM-452,454,458	1200.0	0.0	1
90	RCP OIL CLRS. CCW CCM-451,453,459	1200.0	0.0	1
91	EXCESS LETDOWN HX CCW CCR-460 & CCR-462	360.0	0.0	1
92	RX SUPPORTS CCW CCR-457 & CCW-135	240.0	59.8	1
93	RX SUPPORTS CCW CCR-455 & CCR-456	240.0	39.6	1
94	GRAB SAMPLE SM-4 & SM-6	60.0	0.0	1
95	CONT. PRESS. ALARM PPP-300	0.0	0.0	1
96	CONT. PRESS. ALARM PPP-301	0.0	0.0	1
97	CONT. PRESS. ALARM PPP-302	0.0	0.0	1
98	CONT. PRESS. ALARM PPP-303	0.0	0.0	1
99	CONT. PRESS. ALARM PPA-310 & PPA-311	0.0	0.0	1
100	CONT. PRESS. ALARM PPA-312 & PPA-313	0.0	0.0	1
101	BORON INJECTION ICM-251	240.0	40.4	3
102	BORON INJECTION ICM-250	240.0	50.5	3
103	WELD CHANNEL PRESS. CA-181S	30.0	0.0	1
104	WELD CHANNEL PRESS. CA-181N	30.0	0.0	1
105	GRAB SAMPLE SM-8 & SM-10	60.0	0.0	1
106	CPN COILS 2&5 CCW CCW-243-25	60.0	109.6	1
107	CPN COILS 2&5 CCW CCW-244-25	60.0	19.9	1
108	CPN COILS 3&4 CCW CCW-243-72	60.0	120.8	7
109	CPN COILS 3&4 CCW CCW-244-72	60.0	272.5	1
110	CCW TO CEQ-1 CCM-430	90.0	19.8	1
111	CCW FROM CEQ-1 CCM-431	90.0	39.8	1
112	CPN COILS 2&5 CCW CCR-440	60.0	188.2	1
113	CCW TO CEQ-2 CCM-432	90.0	0.0	1
114	CCW TO CEQ-2 CCM-433	90.0	0.0	1
115	CPN COILS 3&4 CCW CCR-441	60.0	0.0	1
116	GLYCOL SUPPLY EXPANSION R-156 & R-159	60.0	0.0	1
117	GLYCOL RETURN EXPANSION R-157 & R-158	60.0	0.0	2
118	POST ACC. SAMPLE RET. NS-357	15.0	0.0	1
119	POST ACC. SAMPLE RET. ECR-496 & ECR-497	15.0	0.0	1
120	POST ACC. SAMPLE SUPPLY ECR-416	15.0	0.0	2
121	POST ACC. SAMPLE SUPPLY ECR-417	15.0	0.0	2
122	CONTAINMENT SAMPLING ECR-535	30.0	19.8	1
123	CONTAINMENT SAMPLING ECR-536	30.0	19.8	1
124	LOWER RMS RETURN ECR-36	120.0	0.0	1
125	PLANT AIR TO CONTAINMENT PCR-40	120.0	0.0	1
126	PLANT AIR TO CONT. CHECK VLV.PA342	120.0	3974.3	1

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING MAR 1984 OUTAGE

TYPE "C" DATA INFORMATION

JOB ORDER STATUS REPORT-ORIGINAL J.O. 33138

TEST STEP	DESCRIPTION	GUIDELINE LEAKAGE		VALVE	CORRECTED LEAKAGE	SUPPLEMENTAL J.O. NO/DATE
33	UPPER VENT. SUPPLY VCR-105 & VCR-205	3600.0	TRIAL 1	VCR-105.	20018.9	- 9/14- 3
	TWO ISOLATION VALVES NEED REPAIR ON THIS VOLUME			VCR-205.		- 10/14- 3
51	AIR PART. RAD GAS MONITOR SM-1	60.0	TRIAL 1	SM-1....	626.8	- 24/30- 4
			TRIAL 2	SM-1....	22957.5	- 33/ 5- 6
			TRIAL 3	SM-1....	5014.1	- 36/ 6- 6
53	NITROGEN TO PRT N-159	45.0	TRIAL 1	N-285...	568.4	- 18/19- 3
			TRIAL 2	N-159...	700.7	- 23/26- 4
55	CHARGING TO REGEN. HX. CS-321	180.0	TRIAL 1	CS-321..	23977.3	- 21/31- 3
59	RCDT VENT HEADER DCR-203 & DCR-207	120.0	TRIAL 1	DCR-207.	297.2	- 19/27- 3
60	RCDT VENT HEADER N-160 & DCR-201	120.0	TRIAL 1	N-169...	1639.4	- 13/14- 3
62	CLV AND CUV DRAIN HDR. DCR-620 & DCR-621	120.0	TRIAL 1	DCR-620.	2406.8	- 15/19- 3
	TWO ISOLATION VALVES NEED REPAIR ON THIS VOLUME			DCR-621.		- 15/19- 3
68	RHR RECIRC. 'B' ICM-305	1080.0	TRIAL 1	ICM-305.	5910.4	- 26/ 1- 5
79	LOWER CONT. MON., ECR-33 & ECR-35	60.0	TRIAL 1	ECR-33..	2512.2	- 8/14- 3
			TRIAL 2	ECR-35..	1736.7	- 27/ 1- 5
			TRIAL 3	ECR33.35	2657.5	- 34/ 6- 6
82	AIR PART. RAD GAS MON. ECR-31 & ECR-32	120.0	TRIAL 1	ECR-31..	1308.8	- 7/14- 3
101	BORON INJECTION ICM-251	240.0	TRIAL 1	ICM-251.	702.6	- 17/19- 3
102	BORON INJECTION ICM-250	240.0	TRIAL 1	ICM-250.	1853.5	- 17/19- 3
			TRIAL 2	ICM-250.	1206.8	- 42/ 8- 6
108	CPN COILS 3&4 CCW CCW-243-72	60.0	TRIAL 1	CCW24372	3250.0	- 16/19- 3

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING MAR 1984 OUTAGE

TYPE "C" DATA INFORMATION

JOB ORDER STATUS REPORT-ORIGINAL J.O. 33138

TEST STEP	DESCRIPTION	GUIDELINE LEAKAGE	VALVE	CORRECTED LEAKAGE	SUPPLEMENTAL J.O, NO/DATE
117	GLYCOL RETURN EXPANSION R-157 & R-158	60.0	TRIAL 1 R-157...	7947.0	- 6/14- 3
120	POST ACC. SAMPLE SUPPLY ECR-416	15.0	TRIAL 1 ECR-416,	251.7	- 11/14- 3
121	POST ACC. SAMPLE SUPPLY ECR-417	15.0	TRIAL 1 ECR-417,	301.5	- 12/14- 3

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING MAR 1984 OUTAGE

TYPE "B" DATA INFORMATION

TEST STEP	DESCRIPTION	INPUT DATA (UNCORRECTED) TEMP(F)	PRESS(PSIG)	LRM	IND. LEAK.	INPUT CODE
6	PLANT AIR BLIND FLANGE CPN-29	72.0	12.5	165	0.0	1
7	ICE LOADING BLIND FLANGE CPN-57	72.0	12.5	165	50.0	1
10	SPARE PENETRATION CPN-67	72.0	12.5	193	0.0	1
9	FLUX THIMBLE HANDLING CPN-76	70.0	12.5	193	200.0	1
1	ELEVATION 612 AIR LOCK	70.0	12.3	165	35.0	1
2	ELEVATION 650 AIR LOCK	80.0	12.5	165	0.0	1
3	ZONE 3 PENETRATIONS	63.0	12.0	193	0.0	1
5	FUEL TRANSFER BLIND FLANGE CPN-1	68.0	12.1	194	0.0	1
5	FUEL TRANSFER BLIND FLANGE CPN-1	66.0	12.0	193	0.0	2
8	ICE LOADING BLIND FLANGE CPN-80	72.0	12.4	165	50.0	1
8	ICE LOADING BLIND FLANGE CPN-80	72.0	12.3	193	30.0	2
11	EQUIPMENT HATCH FLANGE	72.0	12.2	165	0.0	1
11	EQUIPMENT HATCH FLANGE	79.0	12.3	194	0.0	2
12	PERSONNEL AIRLOCK COVER FLANGE	72.0	12.1	165	120.0	1
12	PERSONNEL AIRLOCK COVER FLANGE	79.0	12.4	194	240.0	2
6	PLANT AIR BLIND FLANGE CPN-29	77.0	12.3	194	10.0	2
12	PERSONNEL AIRLOCK COVER FLANGE	80.0	12.2	193	120.0	3
12	PERSONNEL AIRLOCK COVER FLANGE	83.0	12.2	193	120.0	4
4	ZONE 4 PENETRATIONS	72.0	12.5	194	20000.0	1
7	ICE LOADING BLIND FLANGE CPN-57	75.0	12.4	194	80.0	2
4	ZONE 4 PENETRATIONS	74.0	12.0	194	38000.0	2
4	ZONE 4 PENETRATIONS	74.0	12.1	194	800.0	3
6	PLANT AIR BLIND FLANGE CPN-29	74.0	12.2	194	0.0	3

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING MAR 1984 OUTAGE

TYPE "C" DATA INFORMATION

THE TOTAL TYPE "C" LEAK RATE IS 13723.0 SCCM.

THE TOTAL LEAK RATE, IN "LA", IS 0.1245 LA.

NOTE: THE TOTAL DOES NOT INCLUDE TYPE "B" LEAK RATES

COMPLETION STATUS

TOTAL TESTED INITIALLY-	126	TOTAL RETESTED-	16
FAILED-	16	FAILED-	1
PASSED-	110	PASSED-	15

TOTAL VOLUMES OUT OF 126 LEFT TO TEST- 1

COMPLETION RATE IS 99.21 %

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING MAR 1984 OUTAGE

TYPE "B" DATA INFORMATION

CORRECTED RESULTS OF VALVE TESTING

TEST STEP	DESCRIPTION	GUIDLINE LEAKAGE	INDICATED LEAKAGE	CORRECTED LEAKAGE	TEMPERATURE	PRESSURE	LRM
1	ELEVATION 612 AIR LOCK	5511.0	35.0	34.8	70.0	12.3	165
2	ELEVATION 650 AIR LOCK	5511.0	0.0	0.0	80.0	12.5	165
3	ZONE 3 PENETRATIONS	1173.0	0.0	0.0	63.0	12.0	193
4	ZONE 4 PENETRATIONS	1173.0	20000.0	19852.7	72.0	12.5	194
			38000.0	38143.1	74.0	12.0	194
			800.0	801.5	74.0	12.1	194
5	FUEL TRANSFER BLIND FLANGE CPN-1	1200.0	0.0	0.0	68.0	12.1	194
			0.0	0.0	66.0	12.0	193
6	PLANT AIR BLIND FLANGE CPN-29	1200.0	0.0	0.0	79.3	12.5	165
			10.0	10.0	77.0	12.3	194
			0.0	0.0	74.0	12.2	194
7	ICE LOADING BLIND FLANGE CPN-57	480.0	50.0	50.0	79.3	12.5	165
			80.0	79.8	75.0	12.4	194
8	ICE LOADING BLIND FLANGE CPN-80	720.0	50.0	50.1	79.3	12.4	165
			30.0	29.9	72.0	12.3	193
9	FLUX THIMBLE HANDLING CPN-76	960.0	200.0	198.2	70.0	12.5	193
10	SPARE PENETRATION CPN-67	240.0	0.0	0.0	72.0	12.5	193
11	EQUIPMENT HATCH FLANGE	55.0	0.0	0.0	79.3	12.2	165
			0.0	0.0	79.0	12.3	194

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING MAR 1984 OUTAGE

TYPE "B" DATA INFORMATION

CORRECTED RESULTS OF VALVE TESTING

TEST STEP	DESCRIPTION	GUIDLINE LEAKAGE	INDICATED LEAKAGE	CORRECTED LEAKAGE	TEMPERATURE	PRESSURE	LRM
12	PERSONNEL AIRLOCK COVER FLANGE	>5.0	120.0	120.8	79.3	12.1	165
			240.0	240.2	79.0	12.4	194
			120.0	120.7	80.0	12.2	193
			120.0	121.0	83.0	12.2	193

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING MAR 1984 OUTAGE

TYPE "B" DATA INFORMATION

VOLUMES WHERE GUIDLINE LEAKAGE HAS BEEN EXCEEDED

TEST STEP	DESCRIPTION	GUIDLINE LEAKAGE	CORRECTED LEAKAGE
12	PERSONNEL AIRLOCK COVER FLANGE	55.0	121.0 COMPLETE****

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING MAR 1984 OUTAGE

TYPE "B" DATA INFORMATION

TEST VOLUMES THAT HAVE NOT BEEN INITIALLY TESTED

TEST STEP	DESCRIPTION

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING MAR 1984 OUTAGE

TYPE "B" DATA INFORMATION

COMPLETED TEST VOLUMES

TEST VOLUME	DESCRIPTION	GUIDELINE LEAKAGE	CORRECTED LEAKAGE	TRIAL NO WHEN VOLUME PASSED
1	ELEVATION 612 AIR LOCK	5511.0	34.8	1
2	ELEVATION 650 AIR LOCK	5511.0	0.0	1
3	ZONE 3 PENETRATIONS	1173.0	0.0	1
4	ZONE 4 PENETRATIONS	1173.0	801.5	3
5	FUEL TRANSFER BLIND FLANGE CPN-1	1200.0	0.0	2
6	PLANT AIR BLIND FLANGE CPN-29	1200.0	0.0	3
7	ICE LOADING BLIND FLANGE CPN-57	480.0	79.8	2
8	ICE LOADING BLIND FLANGE CPN-80	720.0	29.9	2
9	FLUX THIMBLE HANDLING CPN-76	960.0	198.2	1
10	SPARE PENETRATION CPN-67	240.0	0.0	1
11	EQUIPMENT HATCH FLANGE	55.0	0.0	2
12	PERSONNEL AIRLOCK COVER FLANGE	55.0	121.0	4

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING MAR 1984 OUTAGE

TYPE "B" DATA INFORMATION

JOB ORDER STATUS REPORT-ORIGINAL J.O. 33138

TEST STEP	DESCRIPTION	GUIDELINE LEAKAGE	VALVE	CORRECTED LEAKAGE	SUPPLEMENTAL J.O. NO/DATE

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING MAR 1984 OUTAGE

TYPE "B" DATA INFORMATION

THE TOTAL TYPE "B" LEAK RATE IS 1265.2 SCCM.

THE TOTAL LEAK RATE, IN "LA", IS 0.0115 LA.

NOTE: THE TOTAL DOES NOT INCLUDE TYPE "C" LEAK RATES

COMPLETION STATUS

TOTAL TESTED INITIALLY-	12	TOTAL RETESTED-	7
FAILED-	12	FAILED-	0
PASSED-	10	PASSED-	7

TOTAL VOLUMES OUT OF 12 LEFT TO TEST- -5

COMPLETION RATE IS 141.67 %

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING MAR 1984 OUTAGE

TYPE "B" DATA INFORMATION

LEAK RATE SUMMARY

	SCCM	LA
TYPE "B"	1265.15	0.0115
TYPE "C"	13722.98	0.1245
TOTAL	14988.12	0.1360

COMPLETION RATE SUMMARY

TOTAL TESTED INITIALLY-	138	TOTAL RETESTED-	23
FAILED-	18	FAILED-	1
PASSED-	120	PASSED-	22

OUT OF 138 VOLOMES TO TEST; -4 STILL HAVE TO BE TESTED

OVERALL COMPLETION RATE IS 102.90%

APPENDIX G

TYPE B & C

1982 - 1983

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING NOV. 1982 OUTAGE

TYPE "C" DATA INFORMATION

RUN OF 1-2-83

FIXED POINT DATA

(1) LEAK RATE MONITOR TEMPERATURE CALIBRATION -

LRM	TEMPERATURE POINT 1 TRUE	TEMPERATURE POINT 1 INDICATED	TEMPERATURE POINT 2 TRUE	TEMPERATURE POINT 2 INDICATED	TEMPERATURE POINT 3 TRUE	TEMPERATURE POINT 3 INDICATED
165	32.	32.	77.	78.	120.	120.
193	32.	32.	77.	78.	120.	120.
194	32.	32.	77.	78.	120.	120.

(2) JOB ORDER NUMBER - 28067

(3) NUMBER OF TYPE "B" TEST STEPS - 18

(4) NUMBER OF TYPE "C" TEST STEPS - 124

INFORMATION ONLY

********** D. C. COOK NUCLEAR PL[illegible] UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING NOV. 1982 OUTAGE

TYPE "C" DATA INFORMATION

TEST STEP	DESCRIPTION	INPUT DATA (UNCORRECTED) TEMP(F)	PRESS(PSIG)	LRM	IND LEAK	INPUT CODE
10	RCP #1 WCR-951 & WCR-955	70.0	12.0	193	0.0	1
11	RCP #4 WCR-944 & WCR-948	74.0	12.0	193	0.0	1
12	RCP #4 WCR-954 & WCR-958	73.0	12.0	193	0.0	1
13	CLV #2 WCR-904 & WCR-906	70.0	12.0	193	0.0	1
15	CLV #3 WCR-908 & WCR-910	74.0	12.0	193	0.0	1
16	CLV #3 WCR-909 & WCR-911	74.0	12.0	193	0.0	1
17	CUV #2 WCR-924 & WCR-926	72.0	12.0	193	0.0	1
18	CUV #2 WCR-925 & WCR-927	72.0	12.0	193	0.0	1
19	CUV #3 WCR-928 & WCR-930	72.0	12.0	193	0.0	1
20	CUV #3 WCR-929 & WCR-931	72.0	12.0	193	0.0	1
21	RCP #2 WCR-942 & WCR-946	72.0	12.0	193	0.0	1
22	RCP #2 WCR-952 & WCR-956	68.0	12.0	193	0.0	1
23	RCP #3 WCR-943 & WCR-947	62.0	12.2	193	0.0	1
25	INST. RM. EAST WCR-960 & WCR-962	76.0	12.5	193	0.0	1
26	INST. RM. EAST WCR-961 & WCR-963	76.0	12.5	193	0.0	1
27	INST. RM. WEST WCR-964 & WCR-966	76.0	12.5	193	105.0	1
28	INST. RM. WEST WCR-965 & WCR-967	76.0	12.5	193	0.0	1
29	INST. RM. VENT. SUPPLY WCR-101 & WCR-201	72.0	12.0	193	0.0	1
30	INST. RM. VENT. SUPPLY WCR-102 & WCR-202	71.0	12.0	193	60.0	1
31	LOWER VENT. SUPPLY WCR-103 & WCR-203	80.0	12.0	193	1100.0	1
33	UPPER VENT. SUPPLY WCR-105 & WCR-205	78.0	12.3	193	650.0	1
34	UPPER VENT. EXH. WCR-106 & WCR-206	78.0	12.0	193	1500.0	1
36	HYDROGEN RETURN LINE ECR-10 & ECR-20	74.0	12.0	165	0.0	1
37	ESR-1 ECR-11 & ECR 21	74.0	12.0	165	0.0	1
38	ESR-2 ECR-12 & ECR 22	74.0	12.0	165	0.0	1
39	ESR-3 ECR-13 & ECR 23	74.0	12.0	165	0.0	1
40	ESR-4 ECR-14 & ECR 24	74.0	12.0	165	0.0	1
41	ESR-5 ECR-1 & ECR 25	74.0	12.0	165	0.0	1
42	ESR-6 ECR-16 & ECR 26	74.0	12.0	165	0.0	1
43	ESR-7 ECR-17 & ECR 27	73.0	12.0	165	0.0	1
44	ESR-8 ECR-18 & ECR 28	73.0	12.0	165	0.0	1
45	ESR-9 ECR-19 & ECR 29	74.0	12.0	165	0.0	1
46	RCP #1 SEAL WATER CS-442-1	76.0	12.3	165	0.0	1
47	RCP #4 SEAL WATER CS-442-4	76.0	12.0	165	0.0	1
49	RCP #3 SEAL WATER CS-442-3	71.0	12.1	165	0.0	1
50	RELIEF VALVE HEADER TO PRT	66.0	12.4	165	90.0	1
52	NITROGEN TO ACCUMULATORS N-102	75.0	12.5	165	50.0	1
53	NITROGEN TO PRT N-159	71.0	12.1	165	600.0	1
54	PRIMARY WATER TO PRT RM-275	62.0	12.3	165	70.0	1
61	ICE COND. AHU DRAIN HDR. DCR-611	77.0	12.0	194	2200.0	1
61	ICE COND. AHU DRAIN HDR. DCR-611	66.0	12.1	194	50.0	2
62	CLV AND CUV DRAIN HDR. DCR-620 & DCR-621	77.0	12.2	194	0.0	1

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT [illegible]OLATION VALVES DURING NOV, 1982 OUTAGE

TYPE "B" AND "C" DATA INFORMATION

TEST	STEP	DESCRIPTION	INPUT DATA (UNCORRECTED) TEMP(F)	PRESS(PSIG)	LRM	TOT LEAK	INPUT CODE
	63	RCDT DRAIN HDR, DCR-205 & DCR-206	75,0	12,3	193	0,0	
	65	LETDOWN DCR-300	68,0	12,1	194	130,0	
	66	LETDOWN DCR-301	68,0	12,3	194	60,0	
	67	RCP SEAL WATER RETURN DCR-350 & DCR-351	71,0	12,2	194	250,0	
	70	PW FOR RX CAV, SCRUB DCR-919 & DCR-920	69,0	12,1	194	0,0	
	71	REFUEL, WATER TO RX CAV, SF-152 & SF-154	74,0	12,3	194	0,0	
	72	REFUEL CAV, DRAIN SF-159 & SF-160	77,0	12,0	194	40,0	
	73	HOT LEG SAMPLES NCR-106 & NCR-108	74,0	12,0	194	0,0	
	74	PRESS, LIQ, SAMPLES NCR-107 & NCR-108	74,0	12,0	194	20,0	
	75	STEAM SAMPLE NCR-109 & NCR-110	74,0	12,0	194	0,0	
	76	RCDT SAMPLE RCR-100 & RCR-101	72,0	12,0	194	0,0	
	77	PRT SAMPLE DCR-202 & DCR-204	72,0	12,0	194	0,0	
	78	ACCUM, SAMPLE ICR-5 & ICR-6	75,0	12,0	194	30,0	
	80	NORTH SI DISCH, ICM-865	74,0	12,0	193	0,0	
	81	SOUTH SI DISCH, ICM-866	69,0	12,0	193	0,0	
	82	AIR PART, RAD GAS MON, ECR-31 & ECR-32	76,0	12,0	194	2300,0	
	85	NITROGEN TO PRT GCR-301	69,0	12,0	194	60,0	
	86	NITROGEN TO ACCUM, GCR-314	73,0	12,1	194	0,0	
	87	SAFETY INJ, TEST LINE SI-171,172,194	73,0	12,2	194	50,0	
	89	RCP OIL CLRS, CCW CCM-452,453,454	75,0	12,0	194	50,0	
	90	RCP OIL CLRS, CCW CCM-451,453,454	72,0	12,0	194	130,0	
	91	EXCESS LETDOWN HX CCW CCR-460 & CCR-468	70,0	12,1	193	0,0	
	94	GRAB SAMPLE SM-4 & SM-6	76,0	12,3	193	0,0	
	95	CONT, PRESS, ALARM PPP-300	74,0	12,0	165	0,0	
	96	CONT, PRESS, ALARM PPP-301	74,0	12,0	165	0,0	
	97	CONT, PRESS, ALARM PPP-302	74,0	12,0	165	0,0	
	98	CONT, PRESS, ALARM PPP-303	74,0	12,0	165	0,0	
	99	CONT, PRESS, ALARM PPA-310 & PPA-311	74,0	12,0	165	0,0	
	100	CONT, PRESS, ALARM PPA-312 & PPA-313	74,0	12,0	165	0,0	
	103	WELD CHANNEL PRESS, CA-181S	85,0	12,1	193	60,0	
	104	WELD CHANNEL PRESS, CA-181N	85,0	12,3	193	100,0	
	105	GRAB SAMPLE SM-8 & SM-10	80,0	12,2	193	60,0	
	106	CRN COILS 2&5 CCW CCW-243-25	76,0	12,0	165	0,0	
	107	CRN COILS 2&5 CCW CCW-244-26	76,0	12,2	165	0,0	
	110	CCW TO CEQ-1 CCM-430	56,0	12,0	193	50,0	
	111	CCW FROM CEQ-1 CCM-431	57,0	12,0	193	0,0	
	112	CRN COILS 2&5 CCW CCR-440	56,0	12,0	193	21000,0	
	118	POST ACC, SAMPLE RET, NS-357	76,0	12,0	165	0,0	
	119	POST ACC, SAMPLE RET, ECR-496 & ECR-497	72,0	12,0	194	0,0	
	120	POST ACC, SAMPLE SUPPLY ECR-416	73,0	12,0	194	0,0	
	121	POST ACC, SAMPLE SUPPLY ECR-417	74,0	12,1	194	0,0	
	123	CONTAINMENT SAMPLING ECR-536	73,0	12,3	194	50,0	

********** D. C. COOK NUCLEAR [illegible]T, UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING NOV. 1982 OUTAGE

TYPE "C" DATA INFORMATION

TEST STEP	DESCRIPTION	INPUT DATA (UNCORRECTED) TEMP(F)	PRESS(PSIG)	LRM	IND. LEAK	INPUT CODE
1	CLV #1 WCR-900 & WCR-902	66,0	12,1	193	50,0	1
2	CLV #1 WCR-901 & WCR-903	68,0	12,2	193	0,0	1
5	CUV #1 WCR-920 & WCR-922	68,0	12,5	193	0,0	1
6	CUV #1 WCR-921 & WCR-923	68,0	12,5	193	0,0	1
7	CUV #4 WCR-932 & WCR-934	64,0	12,4	193	0,0	1
8	CUV #4 WCR-933 & WCR-935	65,0	12,5	193	0,0	1
9	RCP #1 WCR-941 & WCR-945	70,0	12,0	193	0,0	1
14	CLV #2 WCR-905 & WCR-907	72,0	12,0	193	0,0	1
24	RCP #3 WCR-950 & WCR-957	68,0	12,1	193	0,0	1
60	RCDT VENT HEADER N-160 & VCR-201	74,0	12,2	194	1650,0	1
60	RCDT VENT HEADER N-160 & DCR-201	71,0	12,3	194	3000,0	2
60	RCDT VENT HEADER N-160 & DCR-201	70,0	12,2	194	1900,0	3
122	CONTAINMENT SAMPLING ECR-535	73,0	12,4	194	0,0	1
57	GLYCOL SUPPLY VCR-10 & VCR-11	82,0	12,0	194	0,0	1
58	GLYCOL RETURN VCR-20 & VCR-21	82,0	12,2	194	0,0	1
116	GLYCOL SUPPLY EXPANSION R-163 & R-164	82,0	12,0	194	0,0	1
117	GLYCOL RETURN EXPANSION R-157 & R-158	82,0	12,0	194	0,0	1
113	CCW TO CEO-2 CCM-432	70,0	12,2	194	0,0	1
114	CCW TO CEO-2 CCM-433	73,0	12,5	194	0,0	1
48	RCP #2 SEAL WATER CS-448-2	74,0	12,0	194	820,0	1
102	BORON INJECTION ICM-250	80,0	12,1	193	0,0	1
83	CONTROL AIR TO CONT. XCR-100 & XCR-101	70,0	12,5	193	0,0	1
93	RX SUPPORTS CCW CCR-455 & CCR-459	70,0	12,3	193	0,0	1
101	BORON INJECTION ICM-251	80,0	12,3	193	7000,0	1
101	BORON INJECTION ICM-251	78,0	12,2	193	900,0	2
59	RCDT VENT HEADER DCR-203 & DCR-207	72,0	12,5	194	60,0	1
64	CONT. SUMP TO HUT DCR-600 & DCR-601	75,0	12,3	194	660,0	1
88	PW TO PRT NCR-252	70,0	12,3	194	0,0	1
92	RX SUPPORTS CCW CCR-457 & CCW-135	70,0	12,1	193	21000,0	1
56	DEAD WEIGHT CALIBRATOR NPX-151-V1	76,0	12,0	165	0,0	1
64	CONT. SUMP TO HUT DCR-600 & DCR-601	71,0	12,0	165	330,0	2
68	RHR RECIRC. TEST ICM-305	72,0	12,1	165	5500,0	1
69	RHR RECIRC. TEST ICM-306	71,0	12,0	165	1760,0	1
112	CPN COILS 2&5 CCW CCR-440	70,0	12,5	193	0,0	2
84	CONTROL AIR TO CONT. XCR-102 & XCR-103	72,0	12,0	165	420,0	1
108	CPN COILS 3&4 CCW CCW-243-72	77.0	12,5	165	17500,0	1
109	CPN COILS 3&4 CCW CCW-244-72	77.0	12,5	165	17000,0	1
115	CPN COILS 3&4 CCW CCR-441	72,0	12,4	194	60,0	1
92	RX SUPPORTS CCW CCR-457 & CCW-135	70,0	12,4	194	0,0	2
108	CPN COILS 3&4 CCW CCW-243-72	80,0	12,3	165	3300,0	2
109	CPN COILS 3&4 CCW CCW-244-72	80,0	12,1	165	5000,0	2
124	LOWER RHS RETURN ECR-36	68,0	12,1	194	250,0	1

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING NOV. 1982 OUTAGE

TYPE JIFF DATA INFORMATION

TEST STEP	DESCRIPTION	INHOT DATA (INCORRECTED) TEMP(F)	PRESS(PSIG)	L(A)	IND(LEAK)	INVALV CODE
82	AIR PART, RAD GAS MON, ECR-31 & ECR-32	68.0	12.1	194	1010.0	2
51	AIR PART, RAD GAS MONITOR, SMSI	80.0	12.5	165	710.0	1
4	CLV #4 WCR-913 & WCR-915	70.0	12.5	193	0.0	1
3	CLV #3 WCR-912 & WCR-914	70.2	12.5	193	0.0	1
108	CPN COILS 3&4 CCW CCW-243-72	80.0	12.5	165	0.0	3
109	CPN COILS 3&4 CCW CCW-244-72	80.0	12.5	165	0.0	3
79	LOWER CONT, MON, ECR-33 & ECR-35	69.0	12.0	194	420.0	1
35	PRESS. EQUALIZATION VCR-107 & VCR-207	68.0	12.2	193	0.0	1
55	CHARGING TO REGEN HX, CS-32	76.0	12.2	193	17000.0	1
55	CHARGING TO REGEN HX, CS-32	81.0	12.4	193	300.0	2
32	LOWER VENT, EXH, VCR-104 & VCR-204	68.0	12.2	193	20000.0	1
32	LOWER VENT, EXH, VCR-104 & VCR-204	76.0	12.1	165	580.0	2

********** D. C. COOK NUCLEAR [illegible], UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT [illegible]OLATION VALVES DURING NOV. 1982 OUTAGE

TYPE "C" DATA INFORMATION

CORRECTED RESULTS OF VALVE TESTING

TEST STEP	DESCRIPTION	UNDOCINE LEAKAGE	INDICATED LEAKAGE	CORRECTED LEAKAGE	TEMPERATURE	PRESSURE	LRM
1	CLV #1 WCR-900 & WCR-902	[illegible]	0.0	0.0	69.0	[illegible]	193
2	CLV #1 WCR-901 & WCR-903	720.0	0.0	0.0	69.1	14.5	193
3	CLV #4 WCR-912 & WCR-914	[illegible]	0.0	0.0	69.0	14.5	193
4	CLV #4 WCR-913 & WCR-915	720.0	0.0	0.0	69.0	14.5	193
5	CUV #1 WCR-920 & WCR-922	480.0	0.0	0.0	68.8	14.5	193
6	CUV #1 WCR-921 & WCR-923	480.0	0.0	0.0	68.8	14.5	193
7	CUV #4 WCR-932 & WCR-934	480.0	0.0	0.0	68.8	14.5	193
8	CUV #4 WCR-933 & WCR-935	480.0	0.0	0.0	69.0	14.5	193
9	RCP #1 WCR-941 & WCR-945	360.0	0.0	0.0	69.0	14.5	193
10	RCP #1 WCR-951 & WCR-955	360.0	0.0	0.0	69.0	14.5	193
11	RCP #4 WCR-944 & WCR-948	360.0	0.0	0.0	71.1	14.5	193
12	RCP #4 WCR-954 & WCR-958	360.0	0.0	0.0	71.1	14.5	193

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING NOV. 1982 OUTAGE

TYPE "C" DATA INFORMATION

CORRECTED RESULTS OF VALVE TESTING

TEST STEP	DESCRIPTION/SIZE	GUIDLINE LEAKAGE	INDICATED LEAKAGE	CORRECTED LEAKAGE	TEMPERATURE	PRESSURE	% LAM
13	CLV #2 WCR-904 & WCR-906	120.0	0.0	0.0	60.0	16.0	193
14	CLV #2 WCR-905 & WCR-907	120.0	0.0	0.0	71.1	16.0	193
15	CLV #3 WCR-908 & WCR-910	120.0	0.0	0.0	60.4	16.0	193
16	CLV #3 WCR-909 & WCR-911	120.0	0.0	0.0	73.9	16.0	193
17	CUV #2 WCR-924 & WCR-926	480.0	0.0	0.0	71.1	16.0	193
18	CUV #2 WCR-925 & WCR-927	480.0	0.0	0.0	71.1	16.0	193
19	CUV #3 WCR-928 & WCR-930	480.0	0.0	0.0	71.1	16.0	193
20	CUV #3 WCR-929 & WCR-931	480.0	0.0	0.0	71.1	16.0	193
21	RCP #2 WCR-948 & WCR-950	360.0	0.0	0.0	71.1	16.0	193
22	RCP #2 WCR-952 & WCR-956	360.0	0.0	0.0	60.0	16.0	193
23	RCP #3 WCR-949 & WCR-947	360.0	0.0	0.0	60.0	16.0	193
24	RCP #3 WCR-953 & WCR-957	360.0	0.0	0.0	60.4	16.1	193

********** D. C. COOK NUCLEAR [illegible], UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT [illegible]OLATION VALVES DURING NOV. 1982 OUTAGE

TYPE II(C) DATA INFORMATION

CORRECTED RESULTS OF VALVE TESTING

TEST STEP	DESCRIPTION	GUIDELINE LEAKAGE	INDICATED LEAKAGE	CORRECTED LEAKAGE	TEMPERATURE	PRESSURE	ATMN
25	INST; RM; EAST WCR-960 & WCR-960	240,0	0,0	0,0	73,4	12,5	193
26	INST; RM; EAST WCR-961 & WCR-961	240,0	0,0	0,0	73,4	12,5	193
27	INST; RM; WEST WCR-968 & WCR-968	240,0	108,0	108,8	73,4	12,5	193
28	INST; RM; WEST WCR-969 & WCR-969	240,0	0,0	0,0	73,4	12,5	193
29	INST; RM; VENT; SUPPLY WCR-101 & WCR-201	1680,0	0,0	0,0	71,1	12,0	193
30	INST; RM; VENT; SUPPLY WCR-102 & WCR-202	1680,0	60,0	60,0	70,0	12,0	193
31	LOWER VENT; SUPPLY WCR-103 & WCR-203	2880,0	1100,0	1084,2	78,8	12,0	193
32	LOWER VENT; EXH. WCR-104 & WCR-204	3600,0	20000,0 580,0	20135,2 578,1	66,8 75,5	12,2 12,1	193 165
33	UPPER VENT; SUPPLY WCR-105 & WCR-205	3600,0	650,0	648,2	77,5	12,3	193
34	UPPER VENT; EXH WCR-106 & WCR-206	2880,0	1500,0	1489,5	77,5	12,0	193
35	PRESS; EQUALIZATION WCR-107 & WCR-207	1440,0	0,0	0,0	77,6	12,2	193
36	HYDROGEN RETURN LINE ECR-10 & ECR-20	60,0	0,0	0,0	73,5	12,0	165

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT [illegible]OLATION VALVES DURING NOV, 1982 OUTAGE

TYPE "C" DATA INFORMATION

CORRECTED RESULTS OF VALVE TESTING

TEST STEP	DESCRIPTION	GUIDELINE LEAKAGE	INDICATED LEAKAGE	CORRECTED LEAKAGE	TEMPERATURE	PRESSURE	FLRM
37	ESR=1 ECR=11 & ECR 21	60.0	0.0	0.0	73.5	12.0	165
38	ESR=2 ECR=12 & ECR 22	60.0	0.0	0.0	73.5	12.0	165
39	ESR=3 ECR=13 & ECR 23	60.0	0.0	0.0	73.5	12.0	165
40	ESR=4 ECR=14 & ECR 24	60.0	0.0	0.0	73.5	12.0	165
41	ESR=5 ECR=15 & ECR 25	60.0	0.0	0.0	73.5	12.0	165
42	ESR=6 ECR=16 & ECR 26	60.0	0.0	0.0	73.5	12.0	165
43	ESR=7 ECR=17 & ECR 27	60.0	0.0	0.0	73.5	12.0	165
44	ESR=8 ECR=18 & ECR 28	60.0	0.0	0.0	73.5	12.0	165
45	ESR=9 ECR=19 & ECR 29	60.0	0.0	0.0	73.5	12.0	165
46	RCP #1 SEAL WATER CS-442-1	120.0	0.0	0.0	73.5	12.0	165
47	RCP #4 SEAL WATER CS-442-4	120.0	0.0	0.0	73.5	12.0	165
48	RCP #2 SEAL WATER CS-442-2	120.0	520.0	518.8	73.4	12.0	194

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING NOV. 1982 OUTAGE

TYPE "C" DATA INFORMATION

CORRECTED RESULTS OF VALVE TESTING

TEST STEP	DESCRIPTION	GUIDLINE LEAKAGE	INDICATED LEAKAGE	CORRECTED LEAKAGE	TEMPERATURE	PRESSURE	LRM
49	RCP #3 SEAL WATER - CS-942-3	120.0	0.0	0.0	70.6	12.1	165
50	RELIEF VALVE HEADER TO PRT	120.0	90.0	91.0	65.6	12.4	165
51	AIR PART. RAD GAS MONITOR - SM-1	60.0	12000.0	11976.0	79.5	12.3	165
52	NITROGEN TO ACCUMULATORS - N-102	60.0	50.0	50.3	74.5	12.5	165
53	NITROGEN TO PRT - N-159	180.0	500.0	500.7	70.6	12.1	165
54	PRIMARY WATER TO PRT - PW-219	180.0	0.0	0.0	61.7	12.3	165
55	CHARGING TO REGEN HDR - CS-321	180.0	17000.0	16977.4	75.4	12.2	193
			1000.0	004.8	59.3	12.3	193
56	DEAD WEIGHT CALIBRATOR - NPX-151-V1	30.0	0.0	0.0	75.5	12.0	165
57	GLYCOL SUPPLY - VCR-10 & VCR-11	480.0	0.0	0.0	80.4	12.0	194
58	GLYCOL RETURN - VCR-20 & VCR-21	480.0	0.0	0.0	80.4	12.2	194
59	RCDT VENT HEADER - DCR-203 & DCR-207	180.0	50.0	50.4	70.4	12.5	194
60	RCDT VENT HEADER - N-160 & DCR-201	120.0	1550.0	1552.2	72.4	12.2	194
			3000.0	3018.5	69.4	12.3	194
			1800.0	1910.0	68.4	12.2	194

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING NOV. 1982 OUTAGE

TYPE "C" DATA INFORMATION

CORRECTED RESULTS OF VALVE TESTING

TEST STEP	DESCRIPTION	GUIDLINE LEAKAGE	INDICATED LEAKAGE	CORRECTED LEAKAGE	TEMPERATURE	PRESSURE	LRM
61	ICE COND. AHU DRAIN HDR. DCR-611	300.0	2200.0	2188.7	79.5	12.0	194
			50.0	50.4	64.4	12.1	194
62	CLV AND CUV DRAIN HDR. DCR-620 & DCR-621	120.0	0.0	0.0	75.5	12.2	194
63	RCDT DRAIN HDR. DCR-605 & DCR-606	480.0	0.0	0.0	74.3	12.3	193
64	CONT. SUMP TO HUT DCR-600 & DCR-601	360.0	550.0	550.3	73.5	12.2	194
			330.0	329.8	70.6	12.0	165
65	LETDOWN QCR-300	120.0	130.0	130.7	66.4	12.1	194
66	LETDOWN QCR-301	120.0	60.0	60.5	66.4	12.3	194
67	RCP SEAL WATER RETURN QCR-250 & QCR-350	480.0	880.0	851.1	69.4	12.2	194
68	RHR RECIRC. (E) ICM-305	1080.0	5500.0	5502.2	71.6	12.1	165
69	RHR RECIRC. (W) ICM-306	1080.0	1750.0	1749.1	70.6	12.0	165
70	PW FOR RX CAV. SCRUB QCR-919 & QCR-920	120.0	0.0	0.0	67.4	12.1	194
71	REFUEL WATER TO RX CAV. SF-158 & SF-159	300.0	0.0	0.0	72.4	12.3	194
72	REFUEL CAV. DRAIN SF-159 & SF-160	360.0	40.0	39.8	75.5	12.0	194

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING NOV. 1982 OUTAGE

TYPE "C" DATA INFORMATION

CORRECTED RESULTS OF VALVE TESTING

TEST STEP	DESCRIPTION		GUIDELINE LEAKAGE	INDICATED LEAKAGE	CORRECTED LEAKAGE	TEMPERATURE	PRESSURE	LRM
73	HOT LEG SAMPLES	NCR-106 & NCR-106	60.0	0.0	0.0	72.4	12.0	194
74	PRESS. LIQ. SAMPLES	NCR-107 & NCR-108	60.0	0.0	0.0	72.4	12.0	194
75	STEAM SAMPLES	NCR-109 & NCR-110	60.0	30.0	0.0	72.9	12.0	194
76	RCDT SAMPLE	NCR-100 & NCR-101	60.0	0.0	0.0	70.4	12.2	194
77	PRT SAMPLE	DCR-202 & DCR-203	60.0	0.0	0.0	70.4	12.0	194
78	ACCUM. SAMPLE	ICR-5 & ICR-6	60.0	30.0	29.9	73.5	12.0	194
79	CLONER CONTAINMENT	ECR-33 & ECR-35	180.0	420.0	421.0	67.9	12.0	194
80	NORTH SI DISCH.	ICM-260	240.0	0.0	0.0	61.5	12.2	193
81	SOUTH SI DISCH.	ICM-269	240.0	0.0	0.0	62.5	12.3	193
82	AIR PART. RAD GAS MON.	ECR-31 & ECR-32	120.0	2300.0 1010.0	2290.4 1015.4	74.5 66.4	12.0 12.1	194 194
83	CONTROL AIR TO CONT.	XCR-100 & XCR-101	120.0	60.0	0.0	69.0	12.5	193
84	CONTROL AIR TO CONT.	XCR-102 & XCR-103	120.0	420.0	419.4	71.6	12.0	165

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING NOV. 1982 OUTAGE

TYPE "C" DATA INFORMATION

CORRECTED RESULTS OF VALVE TESTING

TEST STEP	DESCRIPTION	GUIDELINE LEAKAGE	INDICATED LEAKAGE	CORRECTED LEAKAGE	TEMPERATURE	PRESSURE	LRM
85	NITROGEN TO PRT GCR-301	60.0	60.0	60.1	67.4	12.0	194
86	NITROGEN TO ACCUM. GCR-314	60.0	0.0	0.0	71.4	12.1	194
87	SAFETY INJ. TEST LINE SIP-1,11,12,13,14	270.0	60.0	60.1	71.5	12.2	194
88	PW TO PRT NCR-252	180.0	0.0	0.0	68.4	12.3	194
89	RCP OIL CLRS. CCW CCW-448,455,460	1200.0	90.0	89.8	72.9	12.0	194
90	RCP OIL CLRS. CCW CCW-451,453,459	1200.0	430.0	429.7	70.8	12.0	194
91	EXCESS LETDOWN HX CCW CCR-460 & CCR-462	360.0	0.0	0.0	69.0	12.1	193
92	RX SUPPORTS CCW CCR-457 & CCW-135	240.0	21000.0	21059.9	69.0	12.1	193
			0.0	0.0	68.4	12.4	194
93	RX SUPPORTS CCW CCR-455 & CCR-456	240.0	0.0	0.0	69.0	12.3	193
94	GRAB SAMPLE SM-4 & SM-6	60.0	0.0	0.0	75.4	12.3	193
95	CONT. PRESS. ALARM PPP-300	0.0	0.0	0.0	73.5	12.0	165
96	CONT. PRESS. ALARM PPP-301	0.0	0.0	0.0	73.5	12.0	165

********** D. C. COOK NUCLEAR P[illegible], UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING NOV. 1982 OUTAGE

TYPE "C" DATA INFORMATION

CORRECTED RESULTS OF VALVE TESTING

TEST STEP	DESCRIPTION	GUIDELINE LEAKAGE	INDICATED LEAKAGE	CORRECTED LEAKAGE	TEMPERATURE	PRESSURE	DEW PT	AVG
97	CONT. PRESS. ALARM PPA=302	0.0	0.0	0.0	[illegible]	[illegible]	[illegible]	[illegible]
98	CONT. PRESS. ALARM PPP=304	0.0	0.0	0.0	[illegible]	[illegible]	[illegible]	[illegible]
99	CONT. PRESS. ALARM PPA=310 & PPA=311	0.0	0.0	0.0	[illegible]	[illegible]	[illegible]	[illegible]
100	CONT. PRESS. ALARM PPA=312 & PPA=313	0.0	0.0	0.0	[illegible]	[illegible]	[illegible]	[illegible]
101	BORON INJECTION ICM=231	240.0	17000.0 3300.0	[illegible] [illegible]	[illegible] [illegible]	[illegible] [illegible]	[illegible] [illegible]	[illegible] [illegible]
102	BORON INJECTION ICM=250	240.0	0.0	0.0	79.5	12.3	193	
103	WELD CHANNEL PRESS. CA=181B	30.0	100.0	99.2	84.6	12.3	193	
104	WELD CHANNEL PRESS. CA=181N	30.0	100.0	99.2	84.6	12.3	193	
105	GRAB SAMPLE SM=8 & SM=101	60.0	20.0	19.8	85.0	12.2	193	
106	CPN COILS 265 CCW CCW-243-25	60.0	0.0	0.0	75.5	12.0	165	
107	CPN COILS 265 CCW CCW-244-25	60.0	0.0	0.0	78.6	12.2	165	
108	CPN COILS 364 CCW CCW-243-72	60.0	17500.0 3300.0 0.0	17555.7 3289.1 0.0	76.5 79.5 79.5	12.5 12.3 12.5	165 165 165	

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT [illegible]ATION VALVES DURING NOV, 1982 OUTAGE

TYPE II(C) DATA INFORMATION

CORRECTED RESULTS OF VALVE TESTING

TEST STEP	DESCRIPTION	GUIDELINE LEAKAGE	INDICATED LEAKAGE	CORRECTED LEAKAGE	TEMPERATURE	PRESSURE	LRM	
109	CPN COILS 364 CCW CCN-294A/B	60.0	17000.0	17058.1	76.5	12.0	180	
			6000.0	4964.8	79.5	12.1	165	A
			0.0	0.0	79.5	12.6	165	
110	CCW TO CEQ-1 CCN-430	60.0	50.0	50.8	54.0	12.0	193	
111	CCW FROM CEQ-1 CCN-431	60.0	0.0	0.0	55.0	12.0	193	
112	CPN COILS 265 CCW CCR-440	60.0	21000.0	21325.1	54.0	12.0	193	
			0.0	0.0	69.4	12.6	194	
113	CCW TO CEQ-2 CCN-432	60.0	0.0	0.0	58.4	12.6	194	
114	CCW TO CEQ-2 CCN-433	60.0	0.0	0.0	61.4	12.5	194	
115	CPN COILS 364 CCW CCR-441	60.0	60.0	60.4	70.4	12.4	194	
116	GLYCOL SUPPLY EXPANSION R-156 & R-158	60.0	0.0	0.0	80.4	12.0	194	
117	GLYCOL RETURN EXPANSION R-157 & R-159	60.0	0.0	0.0	80.4	12.0	194	
118	POST ACC. SAMPLE RET. NS-157	15.0	240.0	219.1	79.5	12.0	180	
119	POST ACC. SAMPLE RET. ECR-496 & ECR-497	15.0	0.0	0.0	70.4	12.0	194	
120	POST ACC. SAMPLE SUPPLY ECR-418	15.0	0.0	0.0	71.4	12.0	194	

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING NOV. 1982 OUTAGE

TYPE "B" DATA INFORMATION

CORRECTED RESULTS OF VALVE TESTING

TEST STEP	DESCRIPTION	GUIDELINE LEAKAGE	INDICATED LEAKAGE	CORRECTED LEAKAGE	TEMPERATURE	PRESSURE	LRH
121	POST ACC. SAMPLE SUPPLY ECR-410	150.0	0.0	0.0	72.4	12.1	194
122	CONTAINMENT SAMPLING ECR-535	30.0	0.0	0.0	71.4	12.4	194
123	CONTAINMENT SAMPLING ECR-536	30.0	0.0	0.0	71.4	12.3	194
124	LOWER RMS RETURN ECR-36	120.0	250.0	251.3	66.4	12.1	194

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING NOV. 1982 OUTAGE

TYPE "C" DATA INFORMATION

VOLUMES WHERE GUIDELINE LEAKAGE HAS BEEN EXCEEDED

TEST STEP	DESCRIPTION	GUIDLINE LEAKAGE	CORRECTED LEAKAGE	
48	RCP #2 SEAL WATER CS-142-2	120.0	518.8	COMPLETE****
51	AIR PART. RAD GAS MONITOR RM-1	60.0	119.6	COMPLETE****
53	NITROGEN TO PRT N-159	45.0	500.7	COMPLETE****
55	CHARGING TO REGEN. HX. CS-321	180.0	304.8	COMPLETE****
60	RCDT VENT HEADER N-160 & DCR-201	120.0	1910.0	COMPLETE****
65	LETDOWN DCR-300	120.0	130.7	COMPLETE****
68	RHR RECIRC. (E) ICM-305	1080.0	5902.2	COMPLETE****
69	RHR RECIRC. (W) ICM-306	1080.0	1749.1	COMPLETE****
79	LOWER CONT. MON. ECR-33 & ECR-35	180.0	421.0	COMPLETE****
82	AIR PART. RAD GAS MON. ECR-31 & ECR-32	120.0	1015.4	COMPLETE****
84	CONTROL AIR TO CONT. XCR-102 & XCR-103	120.0	419.4	COMPLETE****
85	NITROGEN TO PRT DCR-301	45.0	60.1	COMPLETE****
101	BORON INJECTION ICM-281	240.0	897.0	COMPLETE****
103	WELD CHANNEL PRESS. CA-181B	30.0	59.3	COMPLETE****
104	WELD CHANNEL PRESS. CA-181N	30.0	99.2	COMPLETE****
115	CPN COILS 3&4 CCW DCR-441	60.0	60.4	COMPLETE****
118	POST ACC. SAMPLE RET. NS-357	15.0	219.3	COMPLETE****
123	CONTAINMENT SAMPLING ECR-838	90.0	50.2	COMPLETE****
126	LOWER RMS RETURN ECR-36	120.0	251.3	COMPLETE****

********** D. C. COOK NUCLEAR [illegible]T, UNIT NO, 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMEN[illegible]SOLATION VALVES DURING NOV, 1982 OUTAGE

TYPE "C" DATA INFORMATION

TEST VOLUMES THAT HAVE NOT BEEN INITIALLY TESTED

TEST STEP	DESCRIPTION

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING NOV. 1982 OUTAGE

TYPE "C" DATA INFORMATION

TEST VOLUME	DESCRIPTION		CORRECTED TEST VOLUMES GUIDELINE LEAKAGE	CORRECTED LEAKAGE	TRIAL NO WHEN VOLUME PASSED
1	CLV #1	WCR-900 & WCR-902	720.0	60.3	
2	CLV #1	WCR-901 & WCR-903	720.0	0.0	
3	CLV #4	WCR-912 & WCR-914	720.0	0.0	
4	CLV #4	WCR-913 & WCR-915	720.0	0.0	
5	CUV #1	WCR-920 & WCR-922	480.0	0.0	
6	CUV #1	WCR-921 & WCR-923	480.0	0.0	
7	CUV #4	WCR-932 & WCR-934	480.0	0.0	
8	CUV #4	WCR-933 & WCR-935	480.0	0.0	
9	RCP #1	WCR-941 & WCR-945	360.0	0.0	
10	RCP #1	WCR-951 & WCR-955	360.0	0.0	
11	RCP #4	WCR-944 & WCR-948	360.0	0.0	
12	RCP #4	WCR-954 & WCR-958	360.0	0.0	
13	CLV #2	WCR-904 & WCR-906	720.0	0.0	
14	CLV #2	WCR-906 & WCR-907	720.0	0.0	
15	CLV #3	WCR-908 & WCR-910	720.0	0.0	
16	CLV #3	WCR-909 & WCR-911	720.0	0.0	
17	CUV #2	WCR-924 & WCR-926	480.0	0.0	
18	CUV #2	WCR-925 & WCR-927	480.0	0.0	
19	CUV #3	WCR-928 & WCR-930	480.0	0.0	
20	CUV #3	WCR-929 & WCR-931	480.0	0.0	
21	RCP #2	WCR-942 & WCR-946	360.0	0.0	
22	RCP #2	WCR-952 & WCR-956	360.0	0.0	
23	RCP #3	WCR-943 & WCR-947	360.0	0.0	
24	RCP #3	WCR-953 & WCR-957	360.0	0.0	
25	INST. RM. EAST	WCR-960 & WCR-962	240.0	0.0	
26	INST. RM. EAST	WCR-961 & WCR-963	240.0	0.0	
27	INST. RM. WEST	WCR-964 & WCR-966	240.0	105.2	
28	INST. RM. WEST	WCR-965 & WCR-967	240.0	0.0	
29	INST. RM. VENT. SUPPLY	VCR-101 & VCR-201	1680.0	0.0	
30	INST. RM. VENT. SUPPLY	VCR-102 & VCR-202	1680.0	60.0	
31	LOWER VENT. SUPPLY	VCR-103 & VCR-203	2880.0	1684.9	
32	LOWER VENT. EXH.	VCR-104 & VCR-204	3600.0	678.1	2
33	UPPER VENT. SUPPLY	VCR-105 & VCR-205	3600.0	549.2	
34	UPPER VENT. EXH.	VCR-106 & VCR-206	2880.0	1489.5	
35	PRESS. EQUALIZATION	VCR-107 & VCR-207	1440.0	0.0	
36	HYDROGEN RETURN LINE	ECR-10 & ECR-20	60.0	0.0	
37	ESR-1	ECR-11 & ECR 21	60.0	0.0	
38	ESR-2	ECR-12 & ECR 22	60.0	0.0	
39	ESR-3	ECR-13 & ECR 23	60.0	0.0	
40	ESR-4	ECR-14 & ECR 24	60.0	0.0	
41	ESR-5	ECR-15 & ECR 25	60.0	0.0	
42	ESR-6	ECR-16 & ECR 26	60.0	0.0	
43	ESR-7	ECR-17 & ECR 27	60.0	0.0	

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING NOV. 1982 OUTAGE

TYPE "C" DATA INFORMATION

COMPLETED TEST VOLUMES

TEST VOLUME	DESCRIPTION	GUIDELINE LEAKAGE	CORRECTED LEAKAGE	TRIAL NO WHEN VOLUME PASSED
44	ESR-8 (ECR-18 & ECR-28	60.0	0.0	1
45	ESR-9 (ECR-19 & ECR-29	60.0	0.0	1
46	RCP #1 SEAL WATER CS-442-1	120.0	0.0	1
47	RCP #4 SEAL WATER CS-442-4	120.0	0.0	1
48	RCP #2 SEAL WATER CS-442-2	120.0	518.8	1
49	RCP #3 SEAL WATER CS-442-3	120.0	0.0	1
50	RELIEF VALVE HEADER TO PRT	120.0	91.0	1
51	AIR PART. RAD GAS MONITOR (RM-1)	60.0	119.6	1
52	NITROGEN TO ACCUMULATORS N-102	60.0	50.3	1
53	NITROGEN TO PRT N-159	45.0	500.7	1
54	PRIMARY WATER TO PRT PW-275	180.0	0.0	1
55	CHARGING TO REGEN HX CS-321	180.0	304.8	2
56	DEAD WEIGHT CALIBRATOR (PX-416-V)	30.0	0.0	1
57	GLYCOL SUPPLY VCR-10 & VCR-11	480.0	0.0	1
58	GLYCOL RETURN VCR-20 & VCR-21	480.0	0.0	1
59	RCDT VENT HEADER DCR-203 & DCR-207	120.0	50.4	1
60	RCDT VENT HEADER N-160 & DCR-201	120.0	1910.0	3
61	ICE COND. AHU DRAIN HDR. DCR-611	300.0	50.6	2
62	CLV AND CUV DRAIN HDR. DCR-600 & DCR-601	120.0	0.0	1
63	RCDT DRAIN HDR. DCR-205 & DCR-206	480.0	0.0	1
64	CONT. SUMP TO RHT DCR-600 & DCR-601	360.0	329.8	2
65	LETDOWN QCR-300	120.0	130.7	1
66	LETDOWN QCR-301	120.0	60.5	1
67	RCP SEAL WATER RETURN QCM-280 & QCM-350	480.0	251.1	1
68	RHR RECIRC. (EI) ICM-308	1080.0	5502.2	1
69	RHR RECIRC. (NI) ICM-306	1080.0	1749.1	1
70	PR TO RX CAV. SCRUB QCR-919 & QCR-920	120.0	0.0	1
71	REFUEL. WATER TO RX CAV. SF-152 & SF-154	300.0	0.0	1
72	REFUEL. CAV. DRAIN SF-159 & SF-160	360.0	39.8	1
73	HOT LIQ. SAMPLES NCR-105 & NCR-106	60.0	0.0	1
74	PRESS. LIQ. SAMPLES (NCR-107 & NCR-108	60.0	0.0	1
75	STEAM SAMPLE NCR-109 & NCR-110	60.0	0.0	1
76	RCDT SAMPLE RCR-100 & RCR-101	60.0	0.0	1
77	PRT SAMPLE DCR-202 & DCR-204	60.0	0.0	1
78	ACCUM. SAMPLE ICR-5 & ICR-6	60.0	29.9	1
79	LOWER CONT. MON. ECR-33 & ECR-35	180.0	921.0	1
80	NORTH SI DISCH. ICM-260	240.0	0.0	1
81	SOUTH SI DISCH. ICM-265	240.0	0.0	1
82	AIR PART. RAD GAS MON. ECR-31 & ECR-32	120.0	1015.4	2
83	CONTROL AIR TO CONT. XCR-100 & XCR-101	120.0	0.0	1
84	CONTROL AIR TO CONT. XCR-102 & XCR-103	120.0	419.4	1
85	NITROGEN TO PRT GCR-301	45.0	60.1	1
86	NITROGEN TO ACCUM. GCR-314	60.0	0.0	1

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING NOV. 1982 OUTAGE

TYPE "C" DATA INFORMATION

TEST VOLUME	DESCRIPTION	COMPLETED TEST VOLUMES GUIDELINE LEAKAGE	CORRECTED LEAKAGE	TRIAL NO. WHEN VOLUME PASSED
87	SAFETY INJ. TEST LINE - FCV-720,721,724	270.0	50.1	
88	PM TO PRT - NCR-252	180.0	0.0	
89	RCP OIL CLRS. CCW - CCM-452,454,458	1200.0	49.9	1
90	RCP OIL CLRS. CCW - CCM-451,453,459	1200.0	429.7	1
91	EXCESS LETDOWN HX CCW - CCR-460 & CCR-462	360.0	0.0	1
92	RX SUPPORTS CCW - CCR-457 & CCR-463	240.0	0.0	1
93	RX SUPPORTS CCW - CCR-455 & CCR-461	240.0	0.0	1
94	GRAB SAMPLE - SM-4 & SM-6	60.0	0.0	1
95	CONT. PRESS. ALARM PPP-300	0.0	0.0	1
96	CONT. PRESS. ALARM PPP-301	0.0	0.0	1
97	CONT. PRESS. ALARM PPP-302	0.0	0.0	1
98	CONT. PRESS. ALARM PPP-303	0.0	0.0	1
99	CONT. PRESS. ALARM PPA-310 & PPA-311	0.0	0.0	1
100	CONT. PRESS. ALARM PPA-312 & PPA-313	0.0	0.0	1
101	BORON INJECTION - ICM-251	240.0	897.0	2
102	BORON INJECTION - ICM-250	240.0	0.0	1
103	WELD CHANNEL PRESS. - CA-181S	30.0	59.3	1
104	WELD CHANNEL PRESS. - CA-181N	30.0	99.2	1
105	GRAB SAMPLE - SM-8 & SM-10	60.0	119.8	1
106	CPN COILS 2&5 CCW - CCM-243-25	60.0	0.0	1
107	CPN COILS 2&5 CCW - CCM-244-25	60.0	0.0	1
108	CPN COILS 3&4 CCW - CCM-243-72	60.0	0.0	3
109	CPN COILS 3&4 CCW - CCM-244-72	60.0	0.0	3
110	CCW TO CEQ-1 - CCM-430	90.0	50.8	1
111	CCW FROM CEQ-1 - CCM-481	90.0	0.0	1
112	CPN COILS 2&5 CCW - CCM-440	60.0	0.0	2
113	CCW TO CEQ-2 - CCM-432	90.0	0.0	1
114	CCW TO CEQ-2 - CCM-433	90.0	0.0	1
115	CPN COILS 3&4 CCW - CCR-441	60.0	60.4	1
116	GLYCOL SUPPLY EXPANSION - FE-160 & FE-161	60.0	0.0	1
117	GLYCOL RETURN EXPANSION - FE-187 & FE-188	60.0	10.0	1
118	POST ACC. SAMPLE RET. - NG-387	15.0	219.3	1
119	POST ACC. SAMPLE RET. - ECR-496 & ECR-497	15.0	0.0	1
120	POST ACC. SAMPLE SUPPLY - ECR-416	15.0	0.0	1
121	POST ACC. SAMPLE SUPPLY - ECR-417	15.0	0.0	1
122	CONTAINMENT SAMPLING - ECR-335	30.0	0.0	1
123	CONTAINMENT SAMPLING - ECR-336	30.0	50.2	1
124	LOWER RMS RETURN ECR-36	120.0	251.0	1

********** D. C. COOK NUCLEAR PLANT; UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING NOV. 1982 OUTAGE

TYPE 'C' DATA INFORMATION

JOB ORDER STATUS REPORT ORIGINAL JIOI 2806/

TEST STEP	DESCRIPTION	GUIDELINE LEAKAGE	VALVE	CORRECTED LEAKAGE	SUPPLEMENTAL J.O. NO/DATE
59	CHARGING TO REGEN. HDR. CS-321	180.0	TRIAL 1 CS-321	1697.4	- 19/ 1-11
59	RCDT VENT HEADER DCR-203 & DCR-207	120.0	TRIAL 1 DCR-207*	50.4	- 5/11-26
60	RCDT VENT HEADER N-160 & DCR-201	120.0	TRIAL 1 N-160***	1552.2	- 6/11-26
61	ICE COND. AHU DRAIN COR. DCR-611 TWO ISOLATION VALVES NEED REPAIR ON THIS VOLUME	360.0	TRIAL 1 DCR-611V DCR-611H	2188.7	- 2/11-24 - 2/11-24
64	CONT. SUMP TO HUT DCR-600 & DCR-601	360.0	TRIAL 1 DCR-601H	550.3	- 4/11-26
82	AIR PART. RAD. GAS MON. ECR-31 & ECR-32 TWO ISOLATION VALVES NEED REPAIR ON THIS VOLUME	120.0	TRIAL 1 *ECR-32*	2290.4	- 3/11-24 - 8/11-30
92	RX SUPPORTS CCW CCR-457 & CCR-135	240.0	TRIAL 1 CCW-135	21059.9	- 15/ 1-8
108	CPN COILS 3&4 CCW CCW-243-72	60.0	TRIAL 1 CCW-243 TRIAL 2 CCW-243	17555.7 3289.1	- 16/ 1-10 - 16/ 1-10
109	CPN COILS 3&4 CCW CCW-244-72	60.0	TRIAL 1 CCW-244 TRIAL 2 CCW-244	17054.1 4961.9	- 17/ 1-10 - 17/ 1-10
112	CPN COILS 2&5 CCW CCR-440	60.0	TRIAL 1 CCR-440	21325.1	- 7/11-30

********** D. C. COOK NUCLEAR PLANT; UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING NOV. 1982 OUTAGE

TYPE "C" DATA INFORMATION

THE TOTAL TYPE "C" LEAK RATE IS 20359.1 SCCM

THE TOTAL LEAK RATE, IN "LA", IS 0.1847 LA.

NOTE: THE TOTAL DOES NOT INCLUDE TYPE "B" LEAK RATES

TYPE "C" COMPLETION STATUS

TOTAL TESTED INITIALLY= 124 TOTAL RETESTED= 11

FAILED= 11 FAILED= 0

PASSED= 113 PASSED= 11

TOTAL VOLUMES OUT OF 124 LEFT TO TEST = 0

COMPLETION RATE IS 100.00 %

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING NOV. 1982 OUTAGE

TYPE "B" DATA INFORMATION

TEST STEP	DESCRIPTION	INPUT DATA (UNCORRECTED) TEMP(F)	PRESS(PSIG)	LRM	IND. LEAK	INPUT CODE
12	PERSONNEL AIRLOCK COVER FLANGE	81.0	12.1	193	50.0	1
11	EQUIPMENT HATCH FLANGE	81.0	12.1	193	0.0	
9	FLUX THIMBLE HANDLING CPN-76	77.0	12.1	193	50.0	
10	SPARE PENETRATION CNP-67	72.0	12.5	194	60.0	1
5	FUEL TRANSFER BLIND FLANGE CPN-1	79.0	12.4	165	50.0	1
3	ZONE 3 PENETRATIONS	70.0	12.5	194	0.0	1
4	ZONE 4 PENETRATIONS	70.0	12.2	165	0.0	1
7	ICE LOADING FLANGE CPN-57	76.0	12.5	194	50.0	
8	ICE LOADING BLIND FLANGE CPN-60	76.0	12.5	194	60.0	
6	PLANT AIR BLIND FLANGE	76.0	12.1	194	50.0	
1	ELEVATION 612 AIR LOCK	68.0	12.0	193	75.0	
2	ELEVATION 650 AIRLOCK	68.0	12.0	193	45.0	1

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING NOV. 1982 OUTAGE

TYPE "B" DATA INFORMATION

CORRECTED RESULTS OF VALVE TESTING

TEST STEP	DESCRIPTION	GUIDELINE LEAKAGE	INDICATED LEAKAGE	CORRECTED LEAKAGE	TEMPERATURE	PRESSURE	LRH
1	ELEVATION 612 AIR LOCK	55170	75.0	75.1	68.0	12.0	193
2	ELEVATION 650 AIRLOCK	5511.0	45.0	45.1	68.0	12.0	193
3	ZONE 3 PENETRATIONS	1173.0	0.0	0.0	68.4	12.5	194
4	ZONE 4 PENETRATIONS	1173.0	0.0	0.0	69.6	12.2	165
5	FUEL TRANSFER BLIND FLANGE CPN=1	1200.0	50.0	50.0	78.5	12.4	165
6	PLANT AIR BLIND FLANGE	1200.0	50.0	49.9	74.5	12.1	194
7	ICE LOADING FLANGE CPN=81	1440.0	60.0	60.1	74.5	12.5	194
8	ICE LOADING BLIND FLANGE CPN=80	720.0	60.0	60.3	74.5	12.5	194
9	FLUX THIMBLE HANDLING CPN=78	9A0.0	90.0	80.0	76.8	12.3	193
10	SPARE PENETRATION CNP=67	240.0	60.0	60.5	70.4	12.5	194
11	EQUIPMENT HATCH FLANGE	55.0	10.0	0.0	80.6	12.1	193
12	PERSONNEL AIRLOCK COVER FLANGE	55.0	50.0	49.6	80.6	12.1	193

********** D. C. COOK NUCLEAR P[illegible], UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT [illegible]OLATION VALVES DURING NOV. 1982 OUTAGE

TYPE "B" DATA INFORMATION

CORRECTED RESULTS OF VALVE TESTING

TEST STEP	DESCRIPTION	L a	GUIDELINE LEAKAGE	INDICATED LEAKAGE	CORRECTED LEAKAGE	TEMPERATURE	PRESSURE	LAM
---------	----------	--------	*********	*********	*********	**********	********	***

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING NOV. 1982 OUTAGE

TYPE "B" DATA INFORMATION

VOLUMES WHERE GUIDELINE LEAKAGE HAS BEEN EXCEEDED

TEST STEP	DESCRIPTION	GUIDELINE LEAKAGE	CORRECTED LEAKAGE

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING NOV. 1982 OUTAGE

TYPE "B" DATA INFORMATION

TEST VOLUMES THAT HAVE NOT BEEN INITIALLY TESTED

TEST STEP	DESCRIPTION

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING NOV. 1982 OUTAGE

TYPE "B" DATA INFORMATION

COMPLETED TEST VOLUMES

TEST VOLUME	DESCRIPTION	GUIDELINE LEAKAGE	CORRECTED LEAKAGE	TRIAL NO WHEN VOLUME PASSED
1	ELEVATION 612 AIR LOCK	561.0	75.1	1
2	ELEVATION 650 AIRLOCK	561.0	45.1	1
3	ZONE 3 PENETRATIONS	1173.0	0.0	1
4	ZONE 4 PENETRATIONS	1173.0	0.0	1
5	FUEL TRANSFER BLIND FLANGE CPN-1	1200.0	50.0	1
6	PLANT AIR BLIND FLANGE	1200.0	49.9	1
7	ICE LOADING FLANGE CPN-57	1080.0	50.3	1
8	ICE LOADING BLIND FLANGE CPN-58	720.0	50.3	1
9	FLUX THIMBLE HANDLING CPN-78	960.0	50.0	1
10	SPARE PENETRATION CNP-67	240.0	60.5	1
11	EQUIPMENT HATCH FLANGE	55.0	0.0	1
12	PERSONNEL AIRLOCK COVER FLANGE	53.0	49.8	1

********** D. C. COOK NUCLEAR P[illegible], UNIT NO. 2 **********

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING NOV. 1982 OUTAGE

TYPE "B" DATA INFORMATION

NOR ORDER STATUS REPORT(ORIGINAL) 11/01 28467

TEST STEP	DESCRIPTION	GUIDELINE LEAKAGE	VALVE #	CORRECTED LEAKAGE	SUPPLEMENTAL T.S.R. NO/DATE
---	---	---	---	---	---

********** D. C. COOK NUCLEAR PLANT, UNIT NO. 2 **********
TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT [illegible]ATION VALVES DURING NOV. 1982 OUTAGE.

TYPE "B" DATA INFORMATION

THE TOTAL TYPE "B" LEAK RATE IS 490.8 SCCM.

THE TOTAL LEAK RATE, IN "LA", IS 0.0043 La.

NOTE: THE TOTAL DOES NOT INCLUDE TYPE "C" LEAK RATES

COMPLETION STATUS

TOTAL TESTED INITIALLY= 12 TOTAL RETESTED= 0
FAILED= 0 FAILED= 0
PASSED= 12 PASSED= 0

TOTAL VOLUMES OUT OF 12 EFF TO TEST= 10
COMPLETION RATE IS 100.00 %

D. C. COOK NUCLEAR PLANT UNIT NO. 2

TYPE "B" AND "C" LEAK RATE TEST OF CONTAINMENT ISOLATION VALVES DURING NOV. 1982 OUTAGE

TYPES "B" & "C" DATA INFORMATION

	TOTAL LEAK RATE (SCCM OR LA)	
TYPE "B"	490.76	0.2006
TYPE "C"	2359.13	0.1847
TOTAL	2849.89	0.1892

TOTAL TESTED INITIALLY = 138	TOTAL RETESTED = 12
FAILED = 11	FAILED = 1
PASSED = 125	PASSED = 11

OUT OF 136 VOLUMES TO TEST, 0 STILL HAVE TO BE TESTED

OVERALL COMPLETION RATE IS 100.00%

APPENDIX H

SUMP LEVEL CHANGE CALCULATION

A.E.P.S.C. - M.E.D.

INSTRUMENTATION AND CONTROLS SECTION

ADMINISTRATIVE INSTRUCTION AND DESIGN PROCEDURE

ENGINEERING CONTROL PROCEDURE

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DRAWING REVISION NO.	REVISION DESCRIPTION AND AUTHORIZING DOCUMENT I.D.	LOGIC DIAGRAM: DIGITAL	LOGIC DIAGRAM: ANALOG	SCHEMATIC DIAGRAM	CALIBRATION DATA	CALCULATIONS		REVISION BY	APPROVED BY / DATE ISSUED
0	Initial Issue in response to ILRT					I		WMH 6/19/84	AB 6/19/84
1	Added Calculation for determining Volumetric Change per inch of sump level for Various sumps. FOR IMPLEMENTATION					✓		WMH 7/24/84	AB 7/24/84

PLANT D.C. Cook
E.C.P. PACKAGE REVISION RECORD

Calculations for ILRT Leakages and Volumes

DWG. 12-NO-05
SHEET 1 OF 7

E.C.P. I.D. 30877

A.E.P.S.C. CALCULATION
MECHANICAL ENGINEERING DIVISION
INSTRUMENTATION AND CONTROLS SECTION

E.C.P. CALCULATION No. 12-NO-05

TYPE PRELIMINARY OR FINAL Final

SUBJECT Containment Sump Volumes for ILRT. Valve Leakage for ILRT

SUPERSEDES CALCULATION NO. _____

FILE LOCATION _____

SHEET 1 OF 3

PLANT D.C. Cook UNIT 1&2

COMPANY I&M

CALCULATED BY W.M. Hendricks

CHECKED BY S. K. Grimes 4.3.1

APPROVED BY R.F. Shoberg

AND DATE 6-6-84

PROBLEM DESCRIPTION: What effect would a full versus an empty sump have on Integrated Leak Rate Test measured leakage?

What is an allowable/acceptable value for the effects of leakage of two valves in series when being applied to a "Type A" ILRT?

DESIGN BASIS AND REFERENCES ①FSAR, ②Tech Specs.,

③Flow of Fluids; Crane Technical Paper Number 410, 1978. Table for Weight + Density of Air Page A-40

④Attached Calculations by A.S. Grimes dated 5-20-80

⑤1978 ILRT Test Report for Unit 1 (May 27-29, 1978

⑥1977 ILRT Pre-Op Test Report Unit 2 (1977)

E.C.P. REVISION NO.	DATE	CHANGE	NO CALCULATION CHANGE CALCULATION BY/DATE	CHECKED BY/DATE	APPROVED BY/DATE
1	7/26/84	RECORDED ON E.C.P. PACKAGE REVISION RECORD	W.M. Hendricks 7-26-84	S.K. Grimes 7/26/84	R.F. Shoberg 7/26/84

E.C.P. 4
030877

SUPERSEDED BY E.C.P. CALCULATION NO. _____ REASON _____

7223(9-83)
FORM GE-8(C)

ENGINEERING DEPT.
AMERICAN ELECTRIC POWER SERVICE CORP.
1 RIVERSIDE PLAZA
COLUMBUS, OHIO

SHEET 2 OF 33
DATE 6-1-84 BY WMH CK SKE
COMPANY I+M G.O.
PLANT D.C. Cook U-1 + U-2

SUBJECT Containment Sump Volumes and Allowable ILRT Leakage

Reactor Coolant Drain Tank Pit Voume Calculations

From 1-2178-B Sections N/6 and 1-5468-10 / 2-5468-7 Pit Dimensions

	Volume
12'0" x 6'3" x 5'5 3/8"	408.59 ft³
Less Tank Volume of 350 Gal x 1/7.481 Gal/ft³	46.79 ft³

Net Reactor Coolant Drain Tank Pit Volume = 361.80 ft³

Dimensions Taken from 1-5124-21 / 2-5124-19 to obtain the following Volumes

Sump	Dimensions	Volume
Lower Containment Sump	2'4" x 4'10" x 9'9 3/8"	110.31 ft³
Recirculation Sump	10'6" x 18'0" x 6'0"	1134.00 ft³
Reactor Cavity Sump	2'6" x 4'6" x 2'0"	22.50
Pipe Tunnel Sump	2'6" x 4'6" x 7'6 3/8"	84.73
Net Reactor Coolant Drain Tank Volume		361.80
Total of Containment Sump Volumes		1713.34

The Instrument Room Sump was not included because it gravity feeds into the pipe tunnel sump. The bottom elevation of the Instrument Room Sump is 610'6" and Top Elevation of Pipe Tunnel Sump is at 598'7 3/8". The instrument room sump volume could be disregarded as well as it is 11 ft³ in Volume. Ref. Drwgs 1-5124-21, 2-5124-19, 1-5123A-9, + 2-5123A-9

12-NO-05

7223(9-83)
FORM GE-8(C)

ENGINEERING DEPT.
AMERICAN ELECTRIC POWER SERVICE CORP.
1 RIVERSIDE PLAZA
COLUMBUS, OHIO

SHEET 3 OF 33
DATE 6-1-84 BY WMH CK SKE
COMPANY I&M G.O.
PLANT D.C. Cook U-1 & U-2

SUBJECT Containment Sump Volumes and Allowable ILRT Leakage

Containment Volume 1,264,156 ft^3 { Ref. Table 6.1.1 page 18 Unit 1 ILRT Dated 1978
Average Containment Air Temperature 70°F { Ref. Table 6.1.1 Page 27 ILRT did 197
Containment Pressure 12 PSIG (26.7 PSIA)
Air Density @ 70°F and 12PSIG 0.1362 { Ref (3) front page reference

Test Leakage must be less than .1875%/day Containment Air mass

Test leakage max = $.001875/day \times (1,264,156\ ft^3) \times (0.1362\ LB/ft^3)$

Test leakage max = 322.83 LB/day of dry air

Air mass of Sump Volume = $.1362\ LB/ft^3 \times 1713.34\ ft^3$

Airmass of Sump Volume = 233.36 LB of dry Air

Checked by
LK Ennis
6-4-84

Conclusion: 72% of the allowable Test Leakage could be masked by full versus empty sumps from the beginning to end of the test.

12-NO-05

BASIS FOR TEST LEAKAGE

1. Test valves with 12 psig pressure between each pair of valves. It is intended to demonstrate total leakage is 2 SCFM or less.
2. When valves are tested as above, both valves see a 12 psi pressure differential across any leakage path. As isolation valves, the two leak paths are in series. The resulting leakage is one-third or less of the test leakage depending on the relative sizes of the two leak paths.
3. This acceptance criteria will demonstrate the integrity of the valves.

AS Grimes

5-20-80

Note: This will give a leakage of about .17% L_A per pair of valves. For 2 pairs this is about 1/2 what we are allowed for all valves - my original premise. SG.

Checked by:
D. Olson
5/21/80

6

$$M = 1890.07 \, K \, Y \, F_a \, d^2 \sqrt{\Delta P}$$

[illegible] solving for weight of [illegible]

$$144 \times 10.7 \times 1 = w \, 53.3 \times 50$$

$$w = .0764 \text{ lb/ft}^3$$

$$M = 2 \times 60 \times .0764 = 9.165 \text{ lb/sec.}$$

$$Y = 1 - \left(0.41 + .35\beta^4\right)\frac{x}{\gamma}$$

since for a small limit, β^4 is extremely small

$$Y = 1 - 0.41\frac{x}{\gamma} = 1 - 0.41\,\frac{\frac{12}{20.7}}{1.41} = 0.87$$

$F_a = 1$, use 0.6 for K, assume 100% that temperature assume both values limit equally

$$\rho_1 = 0.1288 \text{ lb/ft}^3$$

$$\frac{9.165}{2} = 1890.07 \times .6 \times .87 \, d^2 \sqrt{.1288 \times 12}$$

$$4.5825 = 986.62 \, d^2 \sqrt{1.5456}$$

$$d^2 = .00374 \text{ in}^2$$

with units cancelling in square, have

$$\dot{m} = 986.62 \times .00374 \sqrt{.1288(26.7 - p_2)}$$ 1st value

and

$$\dot{m} = 986.62 \times .00374 \sqrt{\rho_2 (p_2 - 14.7)}$$

$$\sqrt{.1288(26.7 - p_2)} = \sqrt{\rho_2 (p_2 - 14.7)}$$

square both sides

$$.1288(26.7 - p_2) = \rho_2 (p_2 - 14.7)$$

$$\rho_2 = \frac{p_2}{p_1} \rho_1$$ ignoring change in temperature

$$.1288(26.7 - p_2) = .1288 \frac{p_2}{p_1} (p_2 - 14.7)$$

$$26.7 - p_2 = \frac{p_2^2}{26.7} - 14.7 \frac{p_2}{26.7}$$

$$.0374 p_2^2 + .4494 p_2 - 26.7 = 0$$

$$p_2 = 21.38 \text{ psia}$$

$$\dot{m} = 986.62 \times .00374 \sqrt{.1288(26.7 - 21.38)}$$

$$= 3.054 \text{ lb/sec}$$

Check 2nd value

$$M = 986.62 \times .00374 \sqrt{\frac{21.38}{26.7}} \cdot .1288(21.38 - 14.7)$$

$$= 3.063 \quad \text{OK.}$$

This is $\frac{3.06}{9.165} \times 100 = 33.4\%$ of test reading.

Suppose inner valve leaks 80% and outer 20% during test:

$$.8 \times 9.165 = 986.62\, d_1^2 \sqrt{1.5456}$$

$$d_1^2 = .00598 \text{ in}^2$$

and

$$d_2^2 = .00149 \text{ in}^2$$

with values in series

$$M = 986.62 \times .00598 \sqrt{.1288(26.7 - P_2)}$$

and $M = 986.62 \times .00149 \sqrt{P_2(P_2 - 14.7)}$

$$4.0134 \sqrt{.1288(26.7 - P_2)} = \sqrt{\frac{P_2}{P_1} .1288 (P_2 - 14.7)}$$

Squaring

$$16.1074 \left(.1288 (26.7 - P_2)\right) = \frac{P_2}{26.7} \times .1288 (P_2 - 14.7)$$

$$-2.0746 P_2 + 55.3927 = .00482 P^2 - .0709 P$$

$$.00482 P^2 + 2.0037 P_2 - 55.3927 = 0$$

$$P_2 = 26.02 \text{ psia}$$

$$M = 986.62 \times .00598 \sqrt{.1288 (26.7 - 26.02)}$$

$$= 1.746 \text{ lb/hr.}$$

$$\frac{1.746}{9.165} \times 100 = 19.05\%$$

Reverse sequence of values.

$$M = 986.62 \times .00149 \sqrt{.1288 (26.7 - P_2)}$$

and

$$M = 986.62 \times .00598 \sqrt{\frac{P_2}{26.7} \times .1288 (P_2 - 14.7)}$$

$$.00149 \sqrt{.1288 (26.7 - P_2)} = .00598 \sqrt{\frac{.1288}{26.7} P_2 (P_2 - 14.7)}$$

$$.2492 \sqrt{.1288 (26.7 - P_2)} = \sqrt{.00482 P_2^2 - .0709 P}$$

squaring

$$.06210 (.1288 (26.7 - P_2)) = .00482 P_2^2 - .0709 P$$

$$.00482 P_2^2 - .0629 P_2 - .2136 = 0$$

$$P_2 = 15.84 \text{ psia}$$

$M = 986.62 \times .00149 \sqrt{.1255(26.7 - 14.7)}$

$= 1.739$ lb/hr

L_A for test is equivalent to 3.89 SCFH based on original test conditions

If allow 2 SCFH leakage when testing between 2 valves and no more than 1/2 of this leakage during accident then

$\frac{2}{3} = .667$ SCFH

$\frac{.667}{3.89} \times 100 = 17\% L_A$.

If test at 47 psig

$M = 986.62 \times .00379 \sqrt{\frac{14.7}{26.7} .1255(18.7 - 14.7)}$

$= 2.216$ vs 4.5825 @ 12 psig.

Checked by
C.D. Olson
4/21/20

FORM GE-8 (C)

ENGINEERING DEPT.
AMERICAN ELECTRIC POWER SERVICE CORP.
180 EAST BROAD STREET
COLUMBUS, OHIO

SHEET 1 OF 21
DATE 7-26-84 BY WWH CK JRF
COMPANY I&M G.O.
PLANT D.C. Cook

SUBJECT ILRT - Revision 1

What is the volumetric Change in cubic feet for a 1 inch change in Sump Level for the Lower Containment Sump, Recirculation Sump, Reactor Cavity Sump, and Pipe Tunnel Sump

1) Lower Containment Sump
from elevation 589' to 591'

Dimensions from Sheet 2 of this ECP
2.33' by 4.83'

$\frac{2.33 \times 4.83}{12} = \Delta V / \Delta$ in depth $= .9378 \text{ ft}^3/\text{in}$

2) Recirculation Sump and Lower Containment Sump Combined
from elevation 591'1" to 589'9"

10.5' by 18' $\frac{(10.5 \times 18) + (2.33 \times 4.83)}{12} = \Delta V / \Delta \text{depth} = 16.6878 \text{ ft}^3/\text{in}$

Reactor Cavity Sump
from Elevation 564'11¾" to 566'11¾"

2.5' by 4.5' $\frac{2.5 \times 4.5}{12} = .9375 \text{ ft}^3/\text{in} = \Delta V / \Delta \text{depth}$

Pipe Tunnel Sump
from Elevation 591'1" to 593'2"

2.5' by 4.5' $\frac{2.5 \times 4.5}{12} = .9375 \text{ ft}^3/\text{in} = \Delta V / \Delta \text{depth}$

12-NO-05 Rev 1

FIGURE I

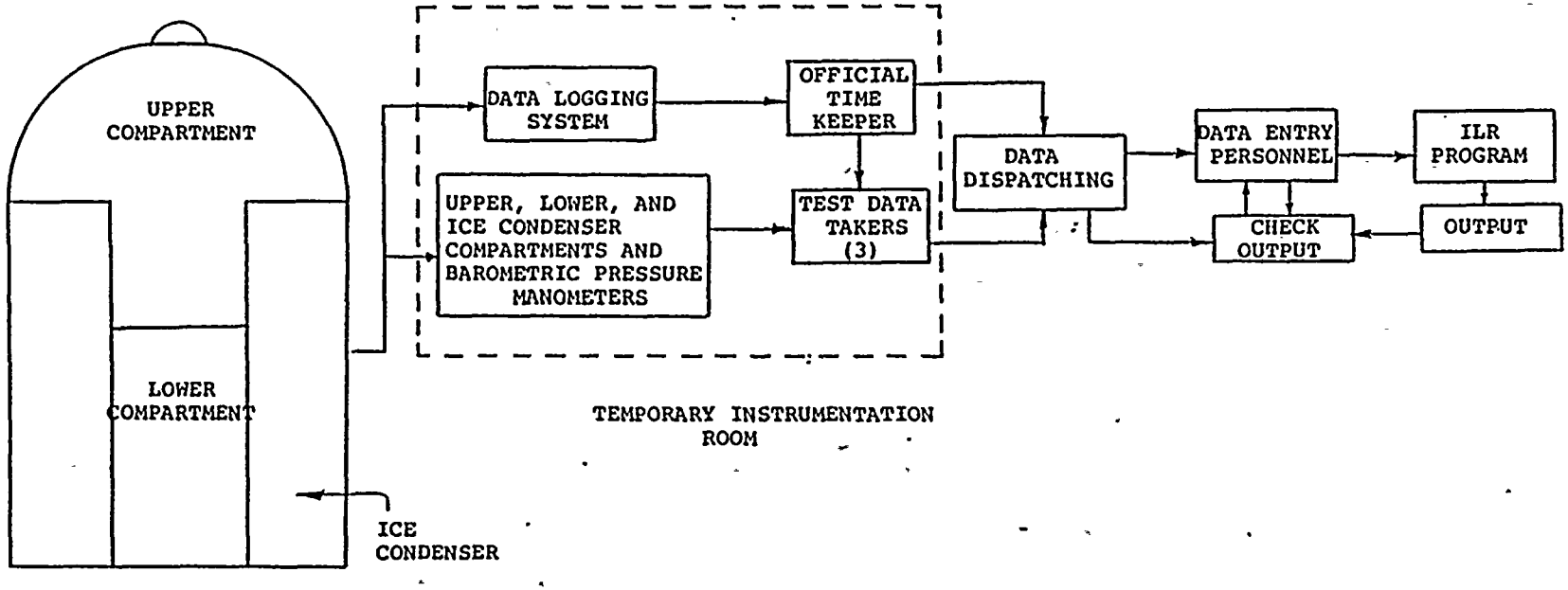
CONTAINMENT INTEGRATED LEAK RATE TEST EQUIPMENT

PARAMETER	INSTRUMENT TYPE	OUTPUT RANGE	INSTRUMENT ACCURACY (% FULL SCALE)
Pressure-Upper Containment	Volumetrics Quartz Manometer	0-100 psi	0.002
Pressure-Lower Containment and Ice Condenser	Mensor Quartz Manometers	0-30 psi	0.015
Pressure-Atmospheric	Penwalt Mercury Manometer	0-800 psi	0.05
Temperature	Hy-Cal Engineering Resistance Thermal Devices	0-120°F	0.08
Dewpoint Temperature	EG&G Hygrometers-Model 992	0-50 mV	0.03
	EG&G Hygrometers-Model 660	-5 to 10V	0.01
Supplemental Test Pressure	Heise Bourdon Tube Gage	0-30 psig	0.07
Supplemental Test Flow	Brooks Rotameter	0-5.6 scfm	1.0
Data Recording/ Acquisition	Fluke Model 2280A Data Logger	0 $\pm$ 64 v and 0 $\pm$ 512 mV	0.009 0.01

FIGURE II

SCHEMATIC ARRANGEMENT OF LEAKAGE RATE

MEASUREMENT SYSTEM

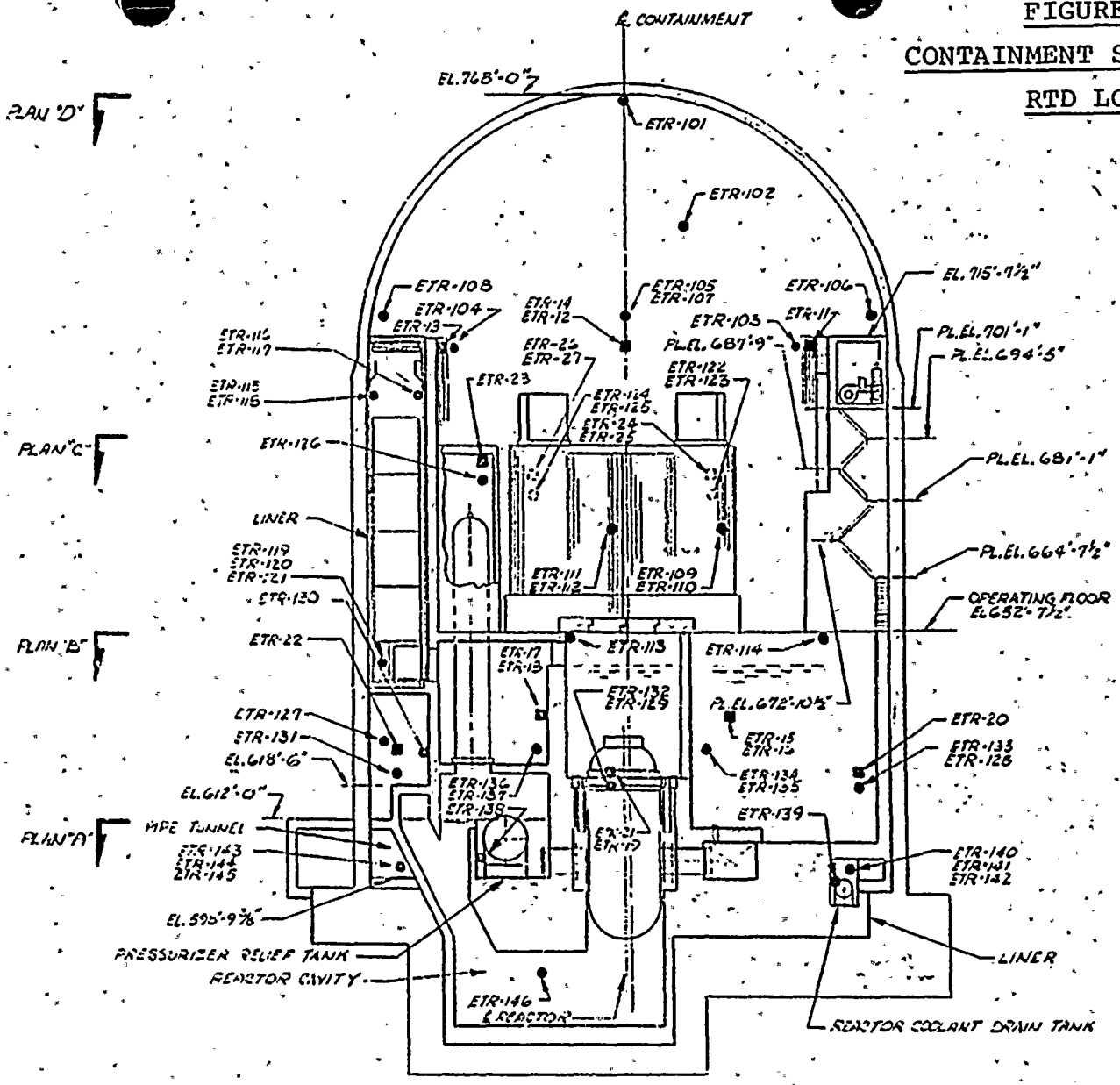


D. C. COOK UNIT 2

REACTOR CONTAINMENT BUILDING

FIGURE III

CONTAINMENT STRUCTURE AND RTD LOCATION



ELEVATION OF CONTAINMENT

SCALE: 1" = 20'-0"

NOTE:
THIS ELEVATION IS SHOWN STRICTLY FOR SHOWING ELEVATIONS OF (ETR'S). FOR EXACT LOCATION SEE PLAN VIEW'S.

INFORMATION COPY ONLY

DATE	No	DESCRIPTION	APPD.
3-25-75	4	RELOCATED ETR-18 AS PER RFC-DC 12-1221 4/15	
5-22-74	3	AS PER ENGR REQUEST ADDED ETR-115 THRU ETR-121 & 8/16 5/22/74 TM.	
11-21-74	2	AS PER FIELD REQUEST NEW ADD'L ELEV. OF ETR AS SHOWN ON PLAN AS PER ENGR REQUEST ADDED ETR-11 THRU ETR-27 REVISED ONE TYPE TO AVOID CONFUSION. 11/21/74 TM	
7-8-73	1	AS PER ENGR REQUEST REVISED DETAIL "E-7"	

REVISIONS

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INDIANA & MICHIGAN ELECTRIC CO.

DONALD C. COOK NUCLEAR PLANT

BRIDGMAN MICHIGAN

RTD LOCATION FOR INTEGRATED LEAKAGE RATE TEST AND CONTAINMENT TEMP RECORDER

DR. No. 1-2-5611-4

ARCH.		ELEC.	92	MECH.	16	STR.	
SCALE AS NOTED	APPROVED BY	ENGINEERING DIV.					
DR. APPROVED							
CH. APPROVED							
SQ. LDR CHK		DESIGN DIV.					
DATE 6-5-73							

AMERICAN ELECTRIC POWER SERVICE CORP.

2 BROADWAY NEW YORK

FIGURE IV

LEAKAGE RATE TEST PERSONNEL SCHEMATIC

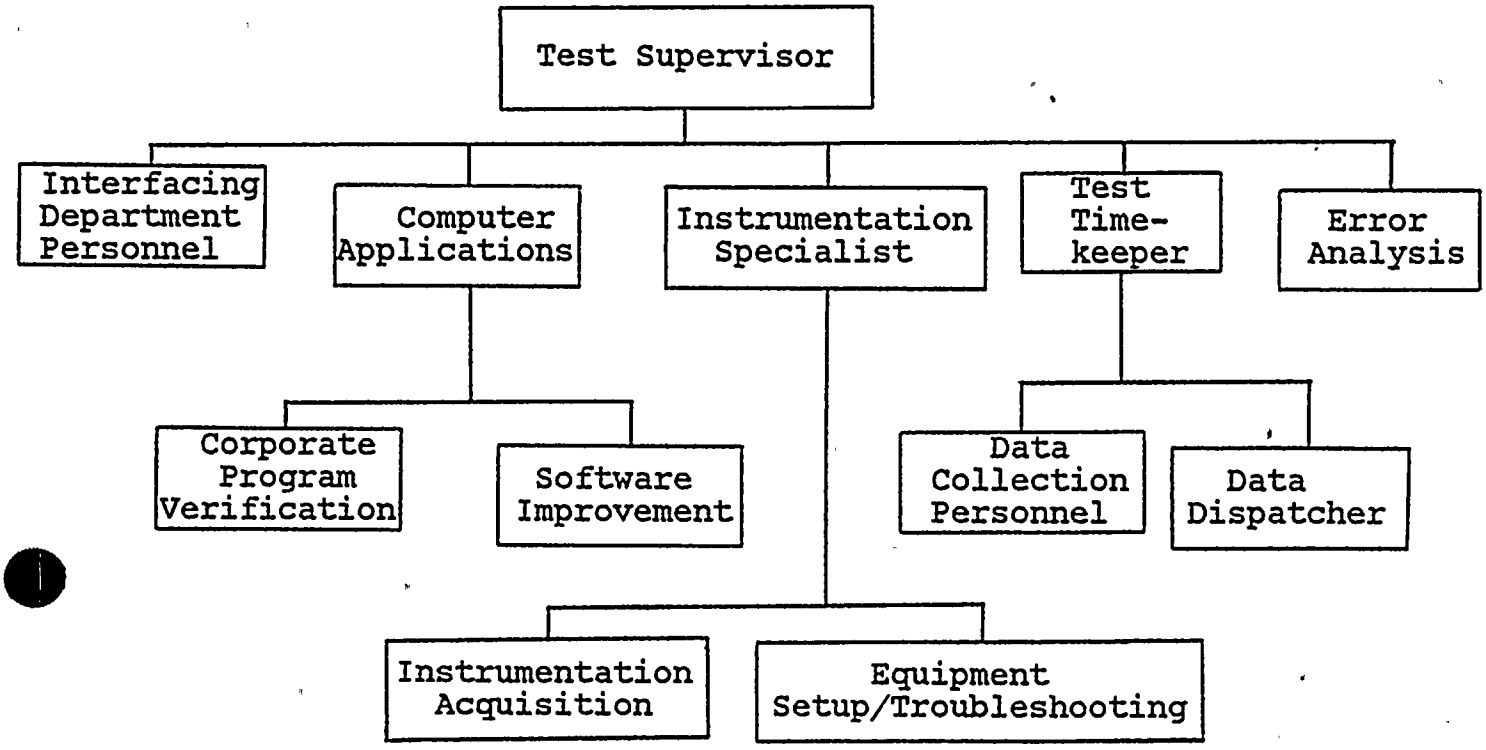

FIGURE V

CONTAINMENT AIRLOCK DOOR SEALING MECHANISM

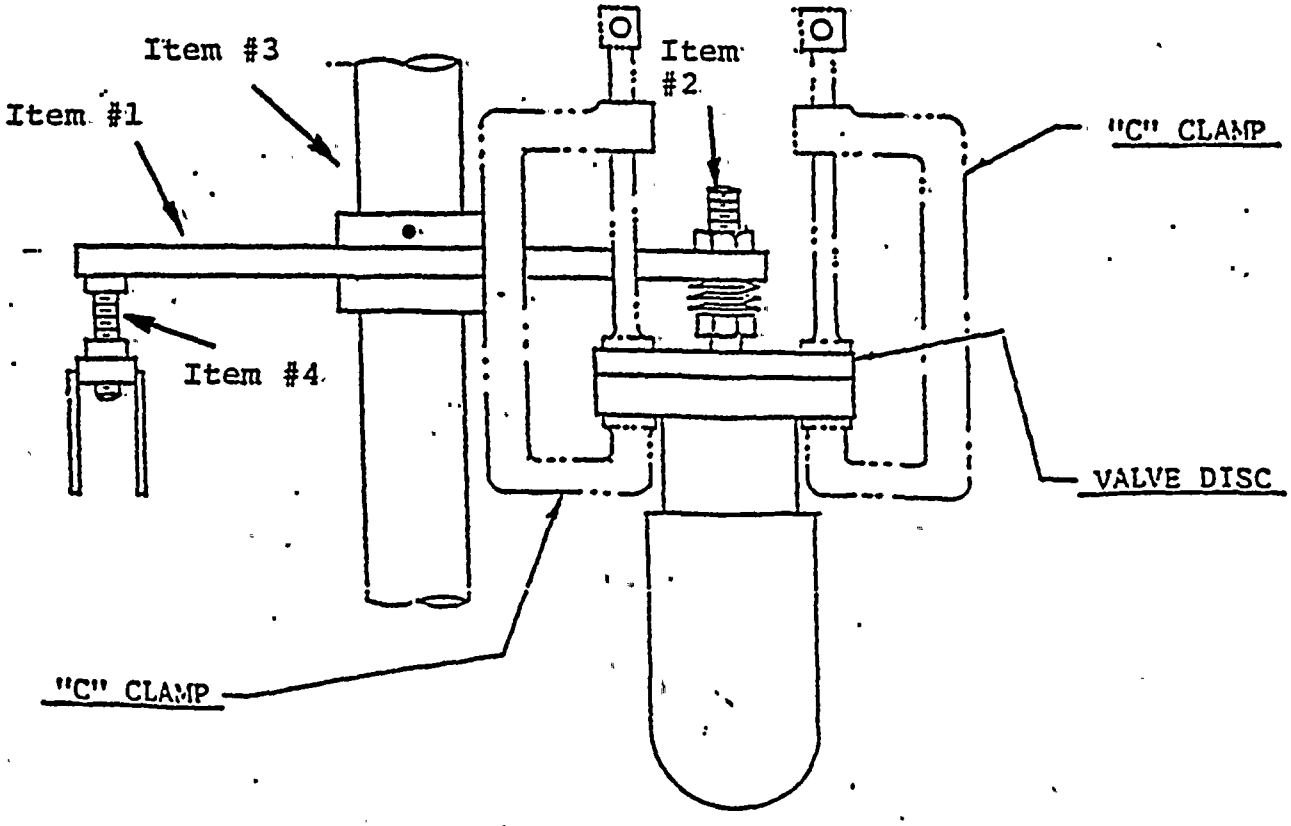

FIGURE VI

SUPPLEMENTAL TEST INSTRUMENTATION INSTALLATION

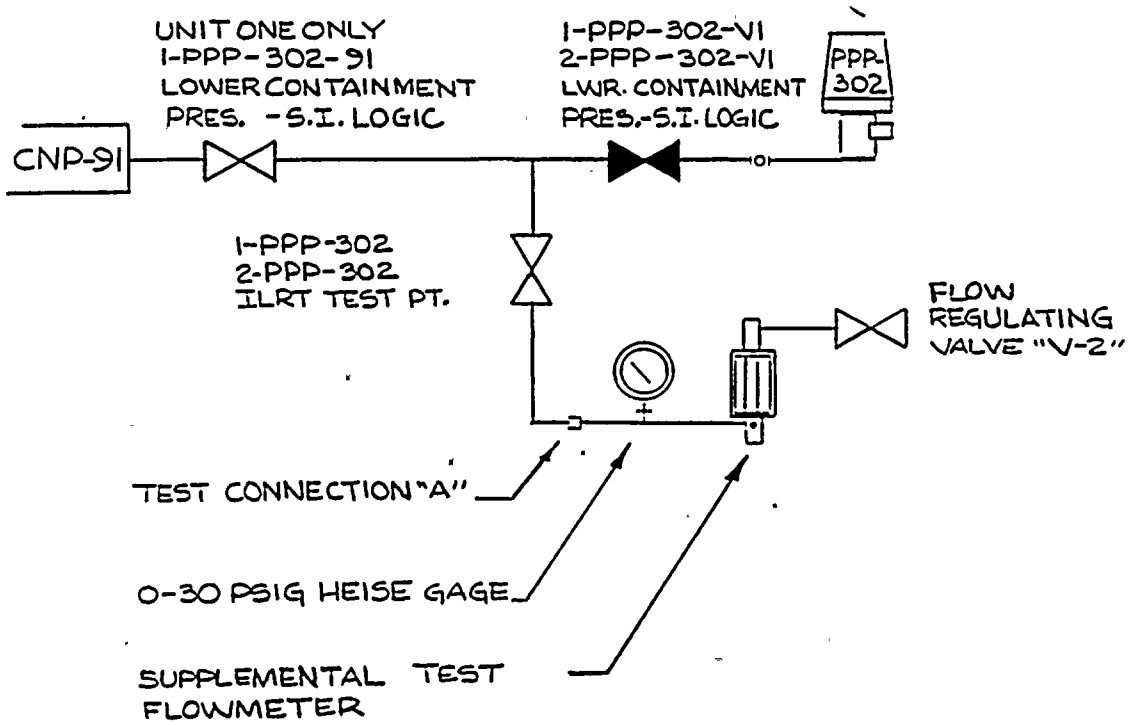

FIGURE VII

TABULATION OF TEST RESULTS

Test Section	Test Parameter	Parameter Value	Acceptance Criteria
Pressurization	Containment Pressure	12.415 psig	12.0 psig(+0.5, -0.0 psig)
Stabilization	Period Length	4.5 hours	> 4 hours
	Containment Press.		
	a) last hour of period	12.4098	12.0 psig (+0.5,-0.0 psig)
	b) 2 nd last hour of period	12.4049	12.0 psig (+0.5,-0.0 psig)
	Weighted average ΔT's -last four hours of stabilization period		
	a) Upper Containment		
	Hour 1 ΔT	-0.0516 °F/hr.	<0.1°F/hr.
	Hour 2 ΔT	-0.0514 °F/hr.	
	Hour 3 ΔT	-0.0310 °F/hr.	
	Hour 4 ΔT	-0.0637 °F/hr.	
	b) Lower Containment		
	Hour 1 ΔT	+0.0258°F/hr.	<0.1°F/hr.
	Hour 2 ΔT	+0.0629°F/hr.	
	Hour 3 ΔT	+0.0285°F/hr.	
	Hour 4 ΔT	+0.0281°F/hr.	

TABULATION OF TEST RESULTS

Test Section	Test Parameter	Parameter Value	Acceptance Criteria
Stabilization	C) Ice Condenser*		
	Hour 1 ΔT 2 ΔT 3 ΔT 4 ΔT	+0.1521°F/hr. +0.1983°F/hr. +0.0018°F/hr. +0.2237°F/hr.	<0.1°F/hr.
	Highest containment ΔT in last hour of stabilization period		
	1) Upper containment	+0.20°F/hr.	<0.5°F/hr.
	2) Lower containment	-0.14°F/hr.	
	3) Ice condenser*	-1.94°F/hr.	
Type A Test	Period Length	29.5 hours	>24 hrs.
	Data Convergence (Lam/95-Lam)	0.00470 wt%/day	$\leq$ 0.1875 wt%/day
	Measured overall leak rate	-0.1362 La	>-0.7421 La^1 >-0.4251 La^2 >-0.137 La^3
Supplemental	Measured Leak Rate (Lc) during supplemental	-0.28835 wt%/day	-0.3579 wt%/day <Lc <-0.2329 %wt/day

FIGURE VII

* Due to cyclic defrost operation and subsequent temperature fluctuations in the ice condenser, this acceptance criteria was waived per **12 THP 4030 STP.202.

FOOTNOTES TO TABULATION OF TEST RESULTS

1 See Section 4.1 A

2 See Section 4.1 B

3 See Section 4.2