SPECIAL PROCEDURE

SPP-89-9

CONTROL ROOM BOUNDARY

INLEAKAGE TEST

TEST CHANGE RECORD

CHANGE NO.	AFFECTED STEPS	CHANGE NO.	AFFECTED STEPS

TEST CHANGE RECORD

INFORMATION ONLY

(Continuation Sheet)

CHANGE NO.	AFFECTED STEPS	CHANGE NO.	AFFECTED STEPS

2.0 INDEX

3.0 TEST OBJECTIVE

3.1 To determine infiltration into the control room envelope when the control room is manually isolated and placed in the recirculation mode.

4.0 ACCEPTANCE CRITERIA

4.1 The measured infiltration into the control room is less than or equal to 2633 cubic feet per minute (CFM). (Sections 9.1.6, 9.2.6)

5.0 REFERENCES

5.1 NUREG-1002, Braidwood Station Safety Evaluation Report (SSER) Supplement No. 3, dated May, 1987, Section 6.4, "Control Room Habitability".

5.2 April 2, 1987 S. C. Hunsader, CECo Nuclear Licensing Administrator, letter to H. R. Denton, Office of Nuclear Reactor Regulation, U.S. NRC, listing Commonwealth Edison's commitments regarding the removal of the chlorine detectors, manual isolation capability of the control room envelope, and the control room infiltration test.

5.3 U.S. NRC Regulatory Guide 1.78, "Assumptions for Evaluating the Habitability of a Nuclear Power Plant Control Room During a Postulated Hazardous Chemical Release," dated June, 1974.

5.4 U.S. NRC Regulatory Guide 1.95, Revision 1, "Protection of Nuclear Power Plant Control Room Operators Against an Accidental Chlorine Release," dated January, 1977.

5.5 Piping and Instrumentation Drawings

5.5.1 M-96, Sheet 1, Diagram of Control Room HVAC System (VC), Revision AH.

5.5.2 M-96, Sheet 2, Diagram of Control Room HVAC System (VC), Revision AH.

5.5.3 M-96, Sheet 3, Diagram of Control Room HVAC System (VC), Revision S.

5.5.4 M-96, Sheet 4, Diagram of Control Room HVAC System (VC), Revision V.

5.5.5 M-102, Sheet 1, Diagram of Laboratory HVAC System (VL), Revision U.

5.5.6 M-113, Sheet 1, Diagram of Control Room Offices HVAC System (VV), Revision F.

5.5.7 M-113, Sheet 2, Diagram of Control Room Offices HVAC System (VV), Revision M.

5.5.8 M-114, Sheet 1, Diagram of Radwaste Building Ventilation System (VW), Revision N.

5.6 Final Safety Analysis Report (FSAR), Amendment 49 Section 6.4.2.1, "Definition of Control Room Envelope".

5.7 Atomics International, "Low-Pressure Containment Buildings, Component Tests and Design Data", Document No. NAA-SR-7234, issued March 15, 1963.

6.0 PREREQUISITES

6.1 Communication

The Plant Communication System or equivalent should be operable in the areas where testing is in progress.

_____/_____

6.2 Calibration

The following is a list of installed instruments required to collect acceptance criteria data for the subsections indicated and are within an eighteen (18) month calibration interval.

Instrument No.	Cal. Date	
0PDI-VC037	_____	_____/_____
0PDI-VC037A	_____	_____/_____
0PDI-VC037C	_____	_____/_____
0PDI-VC037D	_____	_____/_____
0PDI-VC038	_____	_____/_____
0PDI-VC038A	_____	_____/_____
0PDI-VC038B	_____	_____/_____
0PDI-VC038C	_____	_____/_____
0PDI-VC038D	_____	_____/_____

6.3 Test Procedure

6.3.1 Verify that Form BwAP 1300-6T1, "Test Documentation Cover Sheet", has been signed by the Station Manager approving the test procedure.

_____/_____

6.4 System Status

6.4.1 Verify that the necessary pre-test briefings have been conducted with the participants.

_____/_____

6.4.2 For the train being tested, verify that the opposite train diesel is operable.

9.1 OA VC Train: 1B Diesel Operable

_____/_____

9.2 OB VC Train: 1A Diesel Operable

_____/_____

7.0 INITIAL CONDITIONS

7.1 Test Boundaries

7.1.1 The physical boundary of this test is the control room envelope. The control room envelope is defined, per Section 6.4.2.1 of the FSAR, as consisting of the Control Room (Units 1 and 2), the Auxiliary Electric Equipment Rooms, Upper Control Cable Spreading Rooms, HVAC Equipment Rooms, Security Control Center, Record Room, Locker Room, toilets, kitchen, Storage Rooms, and instrument shop.

7.2 System Line-Up

7.2.1 Valve Line-Up

Not applicable

7.2.2 Electrical Line-Up

Not applicable

7.2.3 Verify the following systems are operating in there proper design mode.

Auxiliary Building Vent	(VA)	_____/_____
Mis. Electrical Eq Rm Vent	(VE)	_____/_____
Lab Vent	(VL)	_____/_____
Control Rm Office Vent	(VV)	_____/_____
Radwaste Vent	(VW)	_____/_____

7.3 Special Test Equipment and Conditions

7.3.1 Special Equipment

7.3.1.1 Manometer

Q.A. No. _____

Serial No. _____

Cal. Date _____

Cal. Due Date _____

7.3.1.2 Anemometer

Q.A. No. _____

Serial No. _____

Cal. Date _____

Cal. Due Date _____

7.4 All doors at the control room boundary should be closed and their status noted below.

The list is as follows:

NOTE: FOR DOOR TYPES, S = SINGLE DOOR

D = DOUBLE DOOR

DOOR NO.	DOOR TYPE	DOOR DESCRIPTION	ELEV.	GASKETED/ UNGASKETED	OPEN/ CLOSED
D418	S	HVAC Equipment Room No. 3/Miscellaneous Electric Equipment Room No. 3	451'	_____	_____
					_____/_____
D420	D	HVAC Equipment Room No. 3/Turbine Building	451'	_____	_____
					_____/_____

D427	D	Stairway A-2/ Turbine Building	451'	_____	_____
				_____/_____	
D431	S	Unit 1 Auxiliary Equipment Room/ Cable Riser Area	451'	_____	_____
				_____/_____	
D432	D	Main Control Room/ Unit 1 Computer Room	451'	_____	_____
				_____/_____	
D440	D	Main Control Room/ Unit 2 Computer Room	451'	_____	_____
				_____/_____	
SD171	S	Main Control Room/ Shift Engineer's Office	451'	_____	_____
				_____/_____	
D443	S	Unit 2 Auxiliary Electric Equipment Room/Cable Riser Area	451'	_____	_____
				_____/_____	
SD172	D	Corridor/Stairway A-5	451'	_____	_____
				_____/_____	
D445	D	HVAC Equipment Room No. 4/Turbine Building	451'	_____	_____
				_____/_____	
D446	S	HVAC Equipment Room No. 4/Miscellaneous Electric Equipment Room No. 4	451'	_____	_____
				_____/_____	
D728	S	Stairway A-2/ Stairway A-2	439'	_____	_____
				_____/_____	

DOOR NO.	DOOR TYPE	DOOR DESCRIPTION	ELEV.	GASKETED/ UNGASKETED	OPEN/ CLOSED
SD180	S	Upper Cable Spreading Room/Auxiliary Building	463'5"	_____	_____
				_____/_____	
SD183	S	Upper Cable Spreading Room/Auxiliary Building	463'5"	_____	_____
				_____/_____	

8.0 PRECAUTIONS

8.1 Ensure testing personnel stand clear of dampers and moving equipment during operation, to prevent personnel injury.

8.2 When entering plenums during operation, be careful of access doors that could blow outward when the door catch is released. After entering the plenum be aware of fans, dampers, and turning vanes that could break loose.

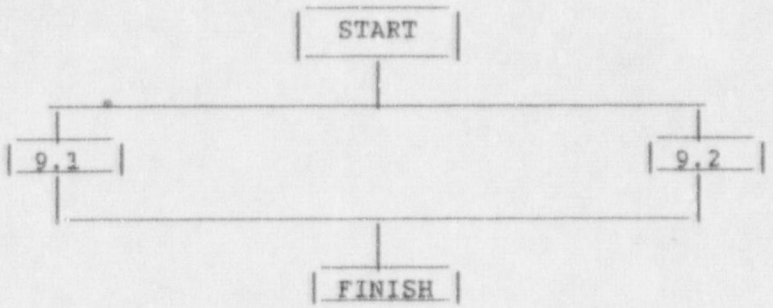
8.3 Before energizing any electrical loads, testing personnel should verify that its operation will not affect plant operation.

9.0 TEST PROCEDURE

9.0.1 Perform Sections 9.1 and 9.2 as indicated below.

9.0.2 If any abnormal conditions arise, go to Section 10.0.

9.0.3 Perform Test Sections 9.1 and 9.2 as indicated below.



9.1 CONTROL ROOM VENTILATION SYSTEM (VC), TRAIN A, INFILTRATION TEST

****

* NOTE *

* Train A of the Control Room ventilation system *

* will now be placed in the recirculation mode. *

* Train B of the VC system will not be operating. *

****

9.1.1 Verify/Stop Control Room Return Fan 0VC02CB.

_____/_____

9.1.2 Verify/Stop Control Room Supply Fan 0VC01CB.

_____/_____

9.1.3 Verify/Start Control Room Supply Fan 0VC01CA.

_____/_____

9.1.4 Verify/Start Control Room Return Fan 0VC02CA.

_____/_____

9.1.5 Run the Control Room Ventilation System, Train A, in the Recirculation Mode by placing handswitch 0HS-VC063 at Panel 0VC01JA to ISOLATE.

_____/_____

9.1.6 Complete Data Sheet 11.1.6.

_____/_____

9.1.7 Place handswitch 0HS-VC063 at Panel 0VC01JA to NORMAL.

_____/_____

9.2 CONTROL ROOM VENTILATION SYSTEM (VC), TRAIN B, INFILTRATION TEST

****

* NOTE *

* Train B of the Control Room ventilation system *

* will now be placed in the recirculation mode. *

* Train A of the VC system will not be operating. *

****

9.2.1 Verify/Stop Control Room Return Fan 0VC02CA.

_____/_____

9.2.2 Verify/Stop Control Room Supply Fan 0VC01CA.

_____/_____

9.2.3 Verify/Start Control Room Supply Fan 0VC01CB.

_____/_____

9.2.4 Verify/Start Control Room Return Fan 0VC02CB.

_____/_____

9.2.5 Run the Control Room Ventilation System, Train B, in the Recirculation Mode by placing handswitch 0HS-VC064 at Panel 0VC01JB to ISOLATE.

_____/_____

9.2.6 Complete Data Sheet 11.2.6.

_____/_____

9.2.7 Place handswitch 0HS-VC064 at Panel 0VC01JB to NORMAL.

_____/_____

10.0 SYSTEM EXIT AND RESTORATION

10.1 Exiting and Reentry Procedure

10.1.1 If Sections 9.1 and 9.2 have been completed, proceed to Section 10.2.

10.1.2 If any abnormal condition arises, stop the components of the section presently being tested, and notify proper personnel of the abnormal conditions.

10.1.3 If the abnormal condition had not cleared and does not prevent the remaining sections from being tested, another section may be started provided its prerequisites, precautions, and initial conditions are met.

10.1.4 If the abnormal condition has cleared, the section may be re-entered after verifying that the prerequisites, precautions, initial conditions and previous steps have been met. Previous steps which are required to be reperformed must be initialed and dated again (each time the step is performed) or documented as performed in the SEL.

10.2 System Restoration

10.2.1 Inform the Shift Engineer that the Control Room Inleakage Test has been completed.

_____/_____

10.2.2 Align the systems per the direction of the Shift Supervisor.

_____/_____

11.0 DATA SHEETS

VC TRAIN A INFILTRATION TEST
DATA SHEET 11.1.6

NOTE: See "Leakage Data Sheet 11.3 for computing Door Leakage

DIFFERENTIAL PRESSURE READING (IN H_2O)		DOOR NO	DOOR TYPE	PRESSURE TYPE	CFM
OPDI-VC037	_____	D728	S	OPEN	
		SD180	S	OPEN	
		SD183	S	OPEN	
				SUBTOTAL	_____
OPDI-VC037A	_____	D420	D	CLOSE	
		D427	D	CLOSE	
		SD171	S	CLOSE	
		D445	D	CLOSE	
		SD172	D	CLOSE	
				SUBTOTAL	_____
OPDI-VC037C	_____	D432	D	OPEN	
				SUBTOTAL	_____
OPDI-VC037D	_____	D418	S	OPEN	
				SUBTOTAL	_____
OPDI-VC038	_____	D420	D	N/A	
		D427	D	N/A	
		SD171	S	N/A	
		D445	D	N/A	
		SD172	D	N/A	
				SUBTOTAL	_____
OPDI-VC038A	_____	D440	D	OPEN	
				SUBTOTAL	_____
OPDI-VC038B	_____	D443	S	CLOSED	
		D431	S	CLOSED	
				SUBTOTAL	_____
OPDI-VC038C	_____	NONE		N/A	
				SUBTOTAL	_____
OPDI-VC038D	_____	D446	S	OPEN	
				SUBTOTAL	_____

VC TRAIN A INFILTRATION TEST
DATA SHEET 11.1.6

RETATING VANE ANEMOMETER
MEASURED READING (VELOCITY, FPM)
(1 MINUTE READING)

DAMPER 0VC18Y = _____FT/MIN

CORRECTED READING FROM DAVIS CHART = _____FT/MIN

CFM = _____FT/MIN X ($\pi(0.5X54)^2/144$) = _____CFM

DAMPER 0VC20Y = _____FT/MIN _____/_____

CORRECTED READING FROM DAVIS CHART = _____FT/MIN

CFM = _____FT/MIN X ($\pi(0.5X54)^2/144$) = _____CFM

_____/_____

VC TRAIN A INFILTRATION TEST
DATA SHEET 11.1.6

2.1. Manometer ID # _____ Cal. Date:_____ Cal. Due Date: _____ ____/____

2.2. Absolute Pressure Gauge ID #_____ Cal. Date:_____ Cal. Due Date: _____ ____/____

2.3. Supply Fan:_____ and Exhaust Fan:_____ started: ____/____

Damper Number :OVC281Y Pitot Location :451' N.5+10.9 Loc. Absol. Press.(Pb): _____(psia)
Duct Diameter : 22 (in) Wet Bulb Temp. {WB : _____(°F)
Duct Area {A : 2.64 (ft2) Duct C.L. Static {Psd :_____(IWG) Dry Bulb Temp. {DB : _____(°F)

2.6 **VELOCITY PRESSURE DATA:**

VEL. [VPn]	0.50 [1]	1.75 [2]	3.25 [3]	5.0 [4]	7.5 [5]	XXXXXXXXX	14.5 [6]	17.0 [7]	18.75 [8]	20.25 [9]	21.5 [10]
0.50 [VP]	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	_____	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX
1.75 [VP]	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	_____	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX
3.25 [VP]	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	_____	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX
5.0 [VP]	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	_____	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX
7.5 [VP]	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	_____	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX
XXXXXXXXXXXX						XXXXXXXXX					
14.5 [VP]	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	_____	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX
17.0 [VP]	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	_____	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX
18.75 [VP]	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	_____	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX
20.25 [VP]	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	_____	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX
21.5 [VP]	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	_____	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX

2.7 Total Velocity {V : _____fpm ____/____

2.8 Average Velocity {Vavg = $\frac{V}{\text{No. of Readings}}$ = _____ = _____ fpm
20

2.9 Absolute Pressure {Pba :

Pba = Pa x $\frac{(29.921)}{(14.696)}$ Pba = _____ x $\frac{(29.921)}{(14.696)}$ Pba = _____ in Hg

2.10 Air Density { ρ_{at} :

Wet-Bulb Depression = DB - WB _____-_____=_____°F
Using Chart 1 (i.e. Psychrometric Density Chart) ρ_{at} = _____lb/ft3

2.11 Actual Flow {ACFM :

ACFM = A x Vavg x $\sqrt{\frac{0.075}{\rho at}}$ ACFM = _____x_____x$\sqrt{\frac{0.075}{(\quad)}}$

ACFM = _____CFM

____/____

VC TRAIN A INFILTRATION TEST
DATA SHEET 11.1.6

2.1. Manometer ID # _____ Cal. Date:_____ Cal. Due Date: _____ ____/____

2.2. Absolute Pressure Gauge ID #_____ Cal. Date:_____ Cal. Due Date: _____ ____/____

2.3. Supply Fan:_____ and Exhaust Fan:_____ started: ____/____

Damper Number :OVC312Y/25Y Duct Width :22 (in) Loc. Absol. Press.(Pb): _____(psia)
Pitot Number/LOC. : L.5&11.1 Duct Height :22 (in) Wet Bulb Temp. {WB : _____(°F)
Duct Area {A :3.36 (ft_2) Duct C.L. Static {Psd :_____(IWG) Dry Bulb Temp. {DB : _____(°F)

2.6 **VELOCITY PRESSURE DATA:**

VEL. [VPn]	2.75 [1]	8.25 [2]	13.75 [3]	19.25 [4]	_____[5]	_____[6]	_____[7]	_____[8]
2.75 [VP]								
8.25 [VP]								
13.75 [VP]								
19.25 [VP]								
_____[VP]								
_____[VP]								
_____[VP]								
_____[VP]								

2.7 Total Velocity {V : _____fpm ____/____

2.8 Average Velocity {Vavg = $\frac{V}{\text{No. of Readings}}$ = $\frac{\_\_\_\_}{16}$ = _____ fpm

2.9 Absolute Pressure {Pba :

Pba = Pa x $\frac{(29.921)}{(14.696)}$ Pba = _____ x $\frac{(29.921)}{(14.696)}$ Pba = _____ in Hg

2.10 Air Density { ρ_{at} :

Wet-Bulb Depression = DB - WB _____-_____=_____°F
Using Chart 1 (i.e. Psychrometric Density Chart) ρ_{at} = _____lb/ft3

2.11 Actual Flow {ACFM :

ACFM = A x Vavg x $\sqrt{\frac{0.075}{\rho at}}$ ACFM = _____x_____x$\sqrt{\frac{0.075}{(\quad)}}$

ACFM = _____CFM

____/____

VC TRAIN A INFILTRATION TEST
DATA SHEET 11.1.6
PAGE 5 OF 13

2.1. Manometer ID # _____ Cal. Date:_____ Cal. Due Date: _____ ____/____

2.2. Absolute Pressure Gauge ID #_____ Cal. Date:_____ Cal. Due Date: _____ ____/____

2.3. Supply Fan:_____ and Exhaust Fan:_____ started: ____/____

Damper Number :VV Comp RM #2 Duct Width : 36 (in) Loc. Absol. Press.(Pb): _____(psia)
Pitot Number/LOC. :451 K.8 & 20.5 Duct Height : 14 (in) Wet Bulb Temp. {WB : _____(°F)
Duct Area {A : 3.35 (ft_2) Duct C.L. Static {Psd :_____(IWG) Dry Bulb Temp. {DB : _____(°F)

2.6 **VELOCITY PRESSURE DATA:**

VEL. [VPn]	2.25 [1]	7.0 [2]	11.75 [3]	[4]	[5]	[6]	3 [7]	[8]
3.0 [VP]								
9.0 [VP]								
15.0 [VP]								
21.0 [VP]								
27.0 [VP]								
33.0 [VP]								
[VP]								
[VP]								

2.7 Total Velocity {V : _____fpm ____/____

2.8 Average Velocity {Vavg = $\frac{V}{\text{No. of Readings}} = \frac{\quad}{18} =$ _____ fpm

2.9 Absolute Pressure {Pba :

Pba = Pa x $\frac{(29.921)}{(14.696)}$ Pba = _____ x $\frac{(29.921)}{(14.696)}$ Pba = _____ in Hg

2.10 Air Density { ρat :

Wet-Bulb Depression = DB - WB _____-_____=_____°F
Using Chart 1 (i.e. Psychrometric Density Chart) ρ_{at} = _____lb/ft3

2.11 Actual Flow {ACFM :

ACFM = A x Vavg x $\sqrt{\frac{0.075}{\rho at}}$ ACFM = _____x_____x$\sqrt{\frac{0.075}{(\quad)}}$

ACFM = _____CFM

____/____

VC TRAIN A INFILTRATION TEST
DATA SHEET 11.1.6
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2.1. Manometer ID # _____ Cal. Date:_____ Cal. Due Date: _____ ____/____

2.2. Absolute Pressure Gauge ID #_____ Cal. Date:_____ Cal. Due Date: _____ ____/____

2.3. Supply Fan:_____ and Exhaust Fan:_____ started: ____/____

Damper Number :VV Comp RM #1 Duct Width :36 (in) Loc. Absol. Press.(Pb): _____(psia)
Pitot Number/LOC. :451 K.5 & 16.5 Duct Height :14 (in) Wet Bulb Temp. {WB : _____(°F)
Duct Area {A :3.5 (ft_2) Duct C.L. Static {Psd :_____(IWG) Dry Bulb Temp. {DB : _____(°F)

2.6 **VELOCITY PRESSURE DATA:**

VEL. [VPn]	3.0 [1]	9.0 [2]	15.0 [3]	21.0 [4]	27.0 [5]	33.0 [6]	_____[7]	_____[8]
2.25 [VP]								
7.0 [VP]								
11.75 [VP]								
_____[VP]								
_____[VP]								
_____[VP]								
_____[VP]								
_____[VP]								

2.7 Total Velocity {V : _____fpm ____/____

2.8 Average Velocity {Vavg = $\frac{V}{\text{No. of Readings}}$ = $\frac{\_\_\_\_\_}{18}$ = _____ fpm

2.9 Absolute Pressure {Pba :

Pba = Pa x $\frac{(29.921)}{(14.696)}$ Pba = _____ x $\frac{(29.921)}{(14.696)}$ Pba = _____ in Hg

2.10 Air Density { ρat :

Wet-Bulb Depression = DB - WB _____-_____=_____°F
Using Chart 1 (i.e. Psychrometric Density Chart) ρ_{at} = _____lb/ft3

2.11 Actual Flow {ACFM :

ACFM = A x Vavg x $\sqrt{\frac{0.075}{\rho at}}$ ACFM = _____x_____x$\sqrt{\frac{0.075}{(\quad)}}$

ACFM = _____CFM

____/____

VC TRAIN A INFILTRATION TEST
DATA SHEET 11.1.6
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2.1. Manometer ID # _____ Cal. Date:_____ Cal. Due Date: _____ ____/____

2.2. Absolute Pressure Gauge ID #_____ Cal. Date:_____ Cal. Due Date: _____ ____/____

2.3. Supply Fan:_____ and Exhaust Fan:_____ started: ____/____

Damper Number :VW Leaving UCSR Duct Width : 30 (in) Loc. Absol. Press.(Pb): _____(psia)
Pitot Number/LOC. :471 P.9 & 18.9 Duct Height : 20 (in) Wet Bulb Temp. {WB : _____(°F)
Duct Area {A : 4.17 (ft_2) Duct C.L. Static {Psd :_____(IWG) Dry Bulb Temp. {DB : _____(°F)

2.6 **VELOCITY PRESSURE DATA:**

VEL. [VPn]	3.0" [1]	9.0" [2]	15.0" [3]	21.0" [4]	27.0" [5]	_____[6]	_____[7]	_____[8]
2.5" [VP]								
7.5" [VP]								
12.5" [VP]								
17.5" [VP]								
_____[VP]								
_____[VP]								
_____[VP]								
_____[VP]								

2.7 Total Velocity {V : _____fpm ____/____

2.8 Average Velocity {Vavg = $\frac{V}{\text{No. of Readings}}$ = $\frac{\_\_\_\_\_}{20}$ = _____ fpm

2.9 Absolute Pressure {Pba :

Pba = Pa x $\frac{(29.921)}{(14.696)}$ Pba = _____ x $\frac{(29.921)}{(14.696)}$ Pba = _____ in Hg

2.10 Air Density { ρ_{at} :

Wet-Bulb Depression = DB - WB _____-_____=_____°F
Using Chart 1 (i.e. Psychrometric Density Chart) ρ_{at} = _____lb/ft3

2.11 Actual Flow {ACFM :

ACFM = A x Vavg x $\sqrt{\frac{0.075}{\rho at}}$ ACFM = _____x_____x $\sqrt{\frac{0.075}{(\quad)}}$

ACFM = _____CFM

____/____

VC TRAIN A INFILTRATION TEST
DATA SHEET 11.1.6
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2.1. Manometer ID # _____ Cal. Date:_____ Cal. Due Date: _____ ____/____

2.2. Absolute Pressure Gauge ID #_____ Cal. Date:_____ Cal. Due Date: _____ ____/____

2.3. Supply Fan:_____ and Exhaust Fan:_____ started: ____/____

Damper Number :VW Entering UCSR Duct Width : 30 (in) Loc. Absol. Press.(Pb): ___ __(psia)
Pitot Number/LOC. :465P.9 & 18.3 Duct Height : 20 (in) Wet Bulb Temp. {WB : _____(°F)
Duct Area {A : 4.17 (ft_2) Duct C.L. Static {Psd :_____(IWG) Dry Bulb Temp. {DB : _____(°F)

2.6 **VELOCITY PRESSURE DATA:**

VEL. [VPn]	3.0" [1]	9.0" [2]	15.0" [3]	21.0" [4]	27.0" [5]	[6]	[7]	[8]
2.5" [VP]								
7.5" [VP]								
12.5" [VP]								
17.5" [VP]								
[VP]								
[VP]								
[VP]								
[VP]								

2.7 Total Velocity {V : _____fpm ____/____

2.8 Average Velocity {Vavg = $\frac{V}{\text{No. of Readings}}$ = $\frac{\quad}{20}$ = _____ fpm

2.9 Absolute Pressure {Pba :

Pba = Pa x $\frac{(29.921)}{(14.696)}$ Pba = _____ x $\frac{(29.921)}{(14.696)}$ Pba = _____ in Hg

2.10 Air Density { ρ_{at} :

Wet-Bulb Depression = DB - WB _____-_____=_____°F
Using Chart 1 (i.e. Psychrometric Density Chart) ρ_{at} = _____lb/ft3

2.11 Actual Flow {ACFM :

ACFM = A x Vavg x $\sqrt{\frac{0.075}{\rho_{at}}}$ ACFM = _____x_____x$\sqrt{\frac{0.075}{(\quad)}}$

ACFM = _____CFM

____/____

VC TRAIN A INFILTRATION TEST
DATA SHEET 11.1.6
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2.1. Manometer ID # _____ Cal. Date:_____ Cal. Due Date: _____ ____/____

2.2. Absolute Pressure Gauge ID #_____ Cal. Date:_____ Cal. Due Date: _____ ____/____

2.3. Supply Fan:_____ and Exhaust Fan:_____ started: ____/____

Damper Number :VL Fume Hood Duct Width : 46 (in) Loc. Absol. Press.(Pb): _____(psia)
Pitot Number/LOC. :439 L.2 & 11.2 Duct Height : 16 (in) Wet Bulb Temp. {WB : _____(°F)
Duct Area {A : 5.11 (ft_2) Duct C.L. Static {Psd :_____(IWG) Dry Bulb Temp. {DB : _____(°F)

2.6 **VELOCITY PRESSURE DATA:**

VEL. [VPn]	3.0" [1]	8.75" [2]	14.5" [3]	20.25"[4]	26.0" [5]	31.75"[6]	37.5" [7]	43.25 [8]
2.75" [VP]								
8.0" [VP]								
13.25" [VP]								
[VP]								
[VP]								
[VP]								
[VP]								
[VP]								

2.7 Total Velocity {V : _____fpm ____/____

2.8 Average Velocity {Vavg = $\frac{V}{\text{No. of Readings}}$ = $\frac{\quad}{24}$ = _____ fpm

2.9 Absolute Pressure {Pba :

Pba = Pa x $\frac{(29.921)}{(14.696)}$ Pba = _____ x $\frac{(29.921)}{(14.696)}$ Pba = _____ in Hg

2.10 Air Density { ρat :

Wet-Bulb Depression = DB - WB _____-_____=_____°F
Using Chart 1 (i.e. Psychrometric Density Chart) ρ_{at} = _____lb/ft3

2.11 Actual Flow {ACFM :

ACFM = A x Vavg x $\sqrt{\frac{0.075}{\rho at}}$ ACFM = _____x_____x$\sqrt{\frac{0.075}{(\quad)}}$

ACFM = _____CFM

____/____

VC TRAIN A INFILTRATION TEST
DATA SHEET 11.1.6
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2.1. Manometer ID # _____ Cal. Date:_____ Cal. Due Date: _____ ____/____

2.2. Absolute Pressure Gauge ID #_____ Cal. Date:_____ Cal. Due Date: _____ ____/____

2.3. Supply Fan:_____ and Exhaust Fan:_____ started: ____/____

Damper Number :VL Laundry Rm Duct Width : 24 (in) Loc. Absol. Press.(Pb): _____(psia)
Pitot Number/LOC. :439 L.3 & 11.1 Duct Height : 14 (in) Wet Bulb Temp. {WB : _____(°F)
Duct Area {A : 2.33 (ft_2) Duct C.L. Static {Psd :_____(IWG) Dry Bulb Temp. {DB : _____(°F)

2.6 **VELOCITY PRESSURE DATA:**

VEL. [VPn]	3.0 [1]	9.0 [2]	15.0 [3]	21.0 [4]	[5]	[6]	[7]	[8]
2.25" [VP]								
7.0" [VP]								
11.75" [VP]								
[VP]								
[VP]								
[VP]								
[VP]								
[VP]								
[VP]								

2.7 Total Velocity {V : _____fpm ____/____

2.8 Average Velocity {Vavg = $\frac{V}{\text{No. of Readings}}$ = $\frac{\quad}{12}$ = _____ fpm

2.9 Absolute Pressure {Pba :

Pba = Pa x $\frac{(29.921)}{(14.696)}$ Pba = _____ x $\frac{(29.921)}{(14.696)}$ Pba = _____ in Hg

2.10 Air Density { ρ_{at} :

Wet-Bulb Depression = DB - WB _____-_____=_____°F
Using Chart 1 (i.e. Psychrometric Density Chart) ρ_{at} = _____lb/ft3

2.11 Actual Flow {ACFM :

ACFM = A x Vavg x $\sqrt{\frac{0.075}{\rho_{at}}}$ ACFM = _____x_____x$\sqrt{\frac{0.075}{(\quad)}}$

ACFM = _____CFM

____/____

VC TRAIN A INFILTRATION TEST
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2.1. Manometer ID # _____ Cal. Date:_____ Cal. Due Date: _____ ____/____

2.2. Absolute Pressure Gauge ID #_____ Cal. Date:_____ Cal. Due Date: _____ ____/____

2.3. Supply Fan:_____ and Exhaust Fan:_____ started: ____/____

Damper Number :VL Exhaust Duct Width : 30 (in) Loc. Absol. Press.(Pb): _____(psia)
Pitot Number/LOC. :477 P.9 & 17.1 Duct Height : 30 (in) Wet Bulb Temp. {WB : _____(°F)
Duct Area {A : 6.25 (ft_2) Duct C.L. Static {Psd :_____(IWG) Dry Bulb Temp. {DB : ____(°F)

2.6 **VELOCITY PRESSURE DATA:**

VEL. [VPn]	3.0" [1]	9.0" [2]	15.0" [3]	21.0 "[4]	27.0" [5]	_____[6]	_____[7]	_____[8]
3.0" [VP]								
9.0" [VP]								
15.0" [VP]								
21.0" [VP]								
27.0" [VP]								
_____[VP]								
_____[VP]								
_____[VP]								

2.7 Total Velocity {V : _____fpm ____/____

2.8 Average Velocity {Vavg = $\frac{V}{\text{No. of Readings}}$ = $\frac{\_\_\_\_\_}{25}$ = _____ fpm

2.9 Absolute Pressure {Pba :

Pba = Pa x $\frac{(29.921)}{(14.696)}$ Pba = _____ x $\frac{(29.921)}{(14.696)}$ Pba = _____ in Hg

2.10 Air Density { ρ_{at} :

Wet-Bulb Depression = DB - WB _____-_____=_____°F
Using Chart 1 (i.e. Psychrometric Density Chart) ρ_{at} = _____lb/ft3

2.11 Actual Flow {ACFM :

ACFM = A x Vavg x $\sqrt{\frac{0.075}{\rho at}}$ ACFM = _____x_____x$\sqrt{\frac{0.075}{(\quad)}}$

ACFM = _____CFM

____/____

VC TRAIN A INFILTRATION TEST
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DAMPER LEAKAGE (VC)	(CFM)	(CFM)
Damper 0VC20Y (54" OA intake, anemometer)	_____	
Damper 0VC281Y (20" OA intake, pitot)	_____	
Damper 0VC312Y/25Y (20" TB intake, pitot)	_____	
Damper 0VC18Y (54" exhaust, anemometer)	_____	
Subtotal		_____

DUCT LEAKAGE (VV)		
Supply to Unit 1 Computer Room (pitot)	_____	
Supply to Unit 2 Computer Room (pitot)	_____	
Subtotal		_____

DUCT LEAKAGE (VL)		
Fume hood exhaust air entering UCSR (pitot)	_____	
Laundry exhaust air entering UCSR (pitot)	_____	
TOTAL	_____	
Laboratory air exiting Aux Building (pitot)	_____	
Laboratory leakage (total entering-exiting)		_____

DUCT LEAKAGE (VW)		
Radwaste exhaust entering UCSR (pitot)	_____	
Radwaste exhaust exiting Aux Building (pitot)	_____	
Radwaste leakage (total entering-exiting)		_____

TOTAL	
Total of VC, VV, VL, and VW leakages	_____

VC TRAIN A INFILTRATION TEST
DATA SHEET 11.1.6
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DIFFERENTIAL PRESSURES

	(in. H_2O)	(CFM)
0PDI-VC037	_____	_____
0PDI-VC037A	_____	_____
0PDI-VC037C	_____	_____
0PDI-VC037D	_____	_____
0PDI-VC038	_____	_____
0PDI-VC038A	_____	_____
0PDI-VC038B	_____	_____
0PDI-VC038C	_____	_____
0PDI-VC038D	_____	_____

TOTAL (CFM)

Total of Door Leakage _____

Total of Damper and Duct Leakage, from preceding page _____

Total of Control Room Infiltration, Train A in _____ ¢

Recirculation Expected ≤ 2633

VC TRAIN B INFILTRATION TEST
DATA SHEET 11.1.6

NOTE: See "Leakage Data Sheet 11.3 for computing Door Leakage

DIFFRENTIAL PRESSURE READING (IN H_2O)		DOOR NO	DOOR TYPE	PRESSURE TPE	CFM
OPDI-VC037	_____	D728	S	OPEN	
		SD180	S	OPEN	
		SD183	S	OPEN	
				SUBTOTAL	_____
OPDI-VC037A	_____	D420	D	CLOSE	
		D427	D	CLOSE	
		SD171	S	CLOSE	
		D445	D	CLOSE	
		SD172	D	CLOSE	
				SUBTOTAL	_____
OPDI-VC037C	_____	D432	D	OPEN	
				SUBTOTAL	_____
OPDI-VC037D	_____	D418	S	OPEN	
				SUBTOTAL	_____
OPDI-VC038	_____	D420	D	N/A	
		D427	D	N/A	
		SD171	S	N/A	
		D445	D	N/A	
		SD172	D	N/A	
				SUBTOTAL	_____
OPDI-VC038A	_____	D440	D	OPEN	
				SUBTOTAL	_____
OPDI-VC038B	_____	D443	S	CLOSE	
		D431	S	CLOSE	
				SUBTOTAL	_____
OPDI-VC038C	_____	NONE		N/A	
				SUBTOTAL	_____
OPDI-VC038D	_____	D446	S	OPEN	
				SUBTOTAL	_____

VC TRAIN A INFILTRATION TEST
DATA SHEET 11.2.6

ROTATING VANE ANEMOMETER
MEASURED READING (VELOCITY, FPM)
(1 MINUTE READING)

DAMPER 0VC02Y = _____FT/MIN

CORRECTED READING FROM DAVIS CHART = _____FT/MIN

CFM = _____FT/MIN X (π(0.5X54)^2/144) = _____CFM

DAMPER 0VC04Y = _____FT/MIN _____/_____

CORRECTED READING FROM DAVIS CHART = _____FT/MIN

CFM = _____FT/MIN X (π(0.5X54)^2/144) = _____CFM

_____/_____

VC TRAIN B INFILTRATION TEST
DATA SHEET 11.2.6

2.1. Manometer ID # _____ Cal. Date:_____ Cal. Due Date: _____ ____/____

2.2. Absolute Pressure Gauge ID #_____ Cal. Date:_____ Cal. Due Date: _____ ____/____

2.3. Supply Fan:_____ and Exhaust Fan:_____ started: ____/____

Damper Number :0VC16Y Pitot Location :451' N.5+25.2 Loc. Absol. Press.(Pb): _____(psia)
Duct Diameter : 22 (in) Wet Bulb Temp. {WB : _____(°F)
Duct Area {A : 2.64 (ft2) Duct C.L. Static {Psd :_____(IWG) Dry Bulb Temp. {DB : ___ (°F)

2.6 **VELOCITY PRESSURE DATA:**

VEL. [VPn]	0.50 [1]	1.75 [2]	3.25 [3]	5.0 [4]	7.5 [5]	XXXXXXXXX	14.5 [6]	17.0 [7]	18.75 [8]	20.25 [9]	21.5 [10]
0.50 [VP]	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	_____	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX
1.75 [VP]	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	_____	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX
3.25 [VP]	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	_____	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX
5.0 [VP]	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	_____	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX
7.5 [VP]	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	_____	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX
XXXXXXXXXXXX						XXXXXXXXX					
14.5 [VP]	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	_____	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX
17.0 [VP]	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	_____	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX
18.75 [VP]	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	_____	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX
20.25 [VP]	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	_____	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX
21.5 [VP]	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	_____	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX	XXXXXXXXX

2.7 Total Velocity {V : _____fpm ____/____

2.8 Average Velocity {Vavg = $\frac{V}{\text{No. of Readings}}$ = _____ = _____ fpm

2.9 Absolute Pressure {Pba :

Pba = Pa x $\frac{(29.921)}{(14.696)}$ Pba = _____ x $\frac{(29.921)}{(14.696)}$ Pba = _____ in Hg

2.10 Air Density { ρ_{at} :

Wet-Bulb Depression = DB - WB _____ - _____ = _____ °F
Using Chart 1 (i.e. Psychrometric Density Chart) ρ_{at} = _____lb/ft3

2.11 Actual Flow {ACFM :

ACFM = A x Vavg x $\sqrt{\frac{0.075}{\rho at}}$ ACFM = _____ x _____ x $\sqrt{\frac{0.075}{(\quad)}}$

ACFM = _____CFM

VC TRAIN B INFILTRATION TEST
DATA SHEET 11.2.6
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2.1. Manometer ID # _____ Cal. Date:_____ Cal. Due Date: _____ ____/____

2.2. Absolute Pressure Gauge ID #_____ Cal. Date:_____ Cal. Due Date: _____ ____/____

2.3. Supply Fan:_____ and Exhaust Fan:_____ started: ____/____

Damper Number :OVC313Y/9Y Duct Width : 22 (in) Loc. Absol. Press.(Pb): _____(psia)
Pitot Number/LOC. : L.5&11.1 Duct Height : 22 (in) Wet Bulb Temp. {WB : _____(°F)
Duct Area {A : 3.36 (ft_2) Duct C.L. Static {Psd : _____(IWG) Dry Bulb Temp. {DB : _____(°F)

2.6 **VELOCITY PRESSURE DATA:**

VEL. [VPn]	2.75 [1]	8.25 [2]	13.75 [3]	19.25 [4]	[5]	[6]	[7]	[8]
2.75 [VP]								
8.25 [VP]								
13.75 [VP]								
19.25 [VP]								
[VP]								
[VP]								
[VP]								
[VP]								

2.7 Total Velocity {V : _____fpm ____/____

2.8 Average Velocity {Vavg = $\frac{V}{\text{No. of Readings}}$ = $\frac{\quad}{16}$ = _____ fpm

2.9 Absolute Pressure {Pba :

Pba = Pa x $\frac{(29.921)}{(14.696)}$ Pba = _____ x $\frac{(29.921)}{(14.696)}$ Pba = _____ in Hg

2.10 Air Density { ρ_{at} :

Wet-Bulb Depression = DB - WB _____-_____=_____°F
Using Chart 1 (i.e. Psychrometric Density Chart) ρ_{at} = _____lb/ft3

2.11 Actual Flow {ACFM :

ACFM = A x Vavg x $\sqrt{\frac{0.075}{\rho_{at}}}$ ACFM = _____x_____x $\sqrt{\frac{0.075}{(\quad)}}$

ACFM = _____CFM

____/____

VC TRAIN B INFILTRATION TEST
DATA SHEET 11.2.6
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2.1. Manometer ID # _____ Cal. Date:_____ Cal. Due Date: _____ ____/____

2.2. Absolute Pressure Gauge ID #_____ Cal. Date:_____ Cal. Due Date: _____ ____/____

2.3. Supply Fan:_____ and Exhaust Fan:_____ started: ____/____

Damper Number :VV Comp RM #2 Duct Width : 36 (in) Loc. Absol. Press.(Pb): _____(osia)
Pitot Number/LOC. :451 K.8 &20.5 Duct Height : 14 (in) Wet Bulb Temp. {WB : _____(°F)
Duct Area {A : 3.5 (ft_2) Duct C.L. Static {Psd :_____(IWG) Dry Bulb Temp. {DB : _____(°F)

2.6 **VELOCITY PRESSURE DATA:**

VEL. [VPn]	2.25 [1]	7.0 [2]	11.75 [3]	[4]	[5]	[6]	3 [7]	[8]
3.0 [VP]								
9.0 [VP]								
15.0 [VP]								
21.0 [VP]								
27.0 [VP]								
33.0 [VP]								
[VP]								
[VP]								

2.7 Total Velocity {V : _____fpm ____/____

2.8 Average Velocity {Vavg = $\frac{V}{\text{No. of Readings}}$ = $\frac{\quad}{18}$ = _____ fpm

2.9 Absolute Pressure {Pba :

Pba = Pa x $\frac{(29.921)}{(14.696)}$ Pba = _____ x $\frac{(29.921)}{(14.696)}$ Pba = _____ in Hg

2.10 Air Density { ρat :

Wet-Bulb Depression = DB - WB _____-_____=_____°F
Using Chart 1 (i.e. Psychrometric Density Chart) ρ_{at} = _____lb/ft3

2.11 Actual Flow {ACFM :

ACFM = A x Vavg x $\sqrt{\frac{0.075}{\rho at}}$ ACFM = _____x_____x $\sqrt{\frac{0.075}{(\quad)}}$

ACFM = _____CFM

____/____

VC TRAIN B INFILTRATION TEST
DATA SHEET 11.2.6
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2.1. Manometer ID # _____ Cal. Date:_____ Cal. Due Date: _____ ____/____

2.2. Absolute Pressure Gauge ID #_____ Cal. Date:_____ Cal. Due Date: _____ ____/____

2.3. Supply Fan:_____ and Exhaust Fan:_____ started: ____/____

Damper Number :VV Comp RM #1 Duct Width : 36 (in) Loc. Absol. Press.(Pb): _____(psia)
Pitot Number/LOC. :451 K.5 & 16.5 Duct Height : 14 (in) Wet Bulb Temp. {WB : _____(°F)
Duct Area {A : 3.5 (ft_2) Duct C.L. Static {Psd :_____(IWG) Dry Bulb Temp. {DB : _____(°F)

2.6 **VELOCITY PRESSURE DATA:**

VEL. [VPn]	3.0 [1]	9.0 [2]	15.0 [3]	21.0 [4]	27.0 [5]	33.0 [6]	3 [7]	[8]
2.25 [VP]								
7.0 [VP]								
11.75 [VP]								
[VP]								
[VP]								
[VP]								
[VP]								
[VP]								
[VP]								

2.7 Total Velocity {V : _____fpm ____/____

2.8 Average Velocity {Vavg = $\frac{V}{\text{No. of Readings}}$ = $\frac{\quad}{18}$ = _____ fpm

2.9 Absolute Pressure {Pba :

Pba = Pa x $\frac{(29.921)}{(14.696)}$ Pba = _____ x $\frac{(29.921)}{(14.696)}$ Pba = _____ in Hg

2.10 Air Density { ρ_{at} :

Wet-Bulb Depression = DB - WB _____-_____=_____°F
Using Chart 1 (i.e. Psychrometric Density Chart) ρ_{at} = _____lb/ft3

2.11 Actual Flow {ACFM :

ACFM = A x Vavg x $\sqrt{\frac{0.075}{\rho at}}$ ACFM = _____x_____x$\sqrt{\frac{0.075}{(\quad)}}$

ACFM = _____CFM

____/____

VC TRAIN B INFILTRATION TEST
DATA SHEET 11.2.6
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2.1. Manometer ID # _____ Cal. Date:_____ Cal. Due Date: _____ ____/____

2.2. Absolute Pressure Gauge ID #_____ Cal. Date:_____ Cal. Due Date: _____ ____/____

2.3. Supply Fan:_____ and Exhaust Fan:_____ started: ____/____

Damper Number :VW Leaving UCSR Duct Width : 30 (in) Loc. Absol. Press.(Pb): _____(psia)
Pitot Number/LOC. :471 P.9 & 18.9 Duct Height : 20 (in) Wet Bulb Temp. {WB : _____(°F)
Duct Area {A : 4.17 (ft_2) Duct C.L. Static {Psd :_____(IWG) Dry Bulb Temp. {DB : _____(°F)

2.6 **VELOCITY PRESSURE DATA:**

VEL. [VPn]	3.0" [1]	9.0" [2]	15.0" [3]	21.0" [4]	27.0" [5]	_____[6]	_____[7]	_____[8]
2.5" [VP]								
7.5" [VP]								
12.5" [VP]								
17.5" [VP]								
_____[VP]								
_____[VP]								
_____[VP]								
_____[VP]								

2.7 Total Velocity {V : _____fpm ____/____

2.8 Average Velocity {Vavg = $\frac{V}{\text{No. of Readings}}$ = $\frac{\_\_\_\_\_}{20}$ = _____ fpm

2.9 Absolute Pressure {Pba :

Pba = Pa x $\frac{(29.921)}{(14.696)}$ Pba = _____ x $\frac{(29.921)}{(14.696)}$ Pba = _____ in Hg

2.10 Air Density { ρat :

Wet-Bulb Depression = DB - WB _____-_____=_____°F
Using Chart 1 (i.e. Psychrometric Density Chart) ρ_{at} = _____lb/ft3

2.11 Actual Flow {ACFM :

ACFM = A x Vavg x $\sqrt{\frac{0.075}{\rho at}}$ ACFM = _____x_____x $\sqrt{\frac{0.075}{(\quad)}}$

ACFM = _____CFM

____/____

VC TRAIN B INFILTRATION TEST
DATA SHEET 11.2.6

2.1. Manometer ID # _____ Cal. Date:_____ Cal. Due Date: _____ ____/____

2.2. Absolute Pressure Gauge ID #_____ Cal. Date:_____ Cal. Due Date: _____ ____/____

2.3. Supply Fan:_____ and Exhaust Fan:_____ started: ____/____

Damper Number :VW Enterng UCSR Duct Width : 30 (in) Loc. Absol. Press.(Pb): _____(psia)
Pitot Number/LOC. :465 P.9 & 18.3 Duct Height : 20 (in) Wet Bulb Temp. {WB : _____(°F)
Duct Area {A : 4.17 (ft_2) Duct C.L. Static {Psd :_____(IWG) Dry Bulb Temp. {DB : _____(°F)

2.6 **VELOCITY PRESSURE DATA:**

VEL. [VPn]	3.0" [1]	9.0" [2]	15.0" [3]	21.0" [4]	27.0" [5]	[6]	[7]	[8]
2.5" [VP]								
7.5" [VP]								
12.5" [VP]								
17.5" [VP]								
[VP]								
[VP]								
[VP]								
[VP]								

2.7 Total Velocity {V : _____fpm ____/____

2.8 Average Velocity {Vavg = $\frac{V}{\text{No. of Readings}}$ = $\frac{\quad}{20}$ = _____ fpm

2.9 Absolute Pressure {Pba :

Pba = Pa x $\frac{(29.921)}{(14.696)}$ Pba = _____ x $\frac{(29.921)}{(14.696)}$ Pba = _____ in Hg

2.10 Air Density { ρat :

Wet-Bulb Depression = DB - WB _____-_____=_____°F
Using Chart 1 (i.e. Psychrometric Density Chart) ρ_{at} = _____lb/ft^3

2.11 Actual Flow {ACFM :

ACFM = A x Vavg x $\sqrt{\frac{0.075}{\rho at}}$ ACFM = _____x_____x$\sqrt{\frac{0.075}{(\quad)}}$

ACFM = _____CFM

____/____

VC TRAIN B INFILTRATION TEST
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2.1. Manometer ID # _____ Cal. Date:_____ Cal. Due Date: _____ ____/____

2.2. Absolute Pressure Gauge ID #_____ Cal. Date:_____ Cal. Due Date: _____ ____/____

2.3. Supply Fan:_____ and Exhaust Fan:_____ started: ____/____

Damper Number :VL Fume Hood Duct Width : 46 (in) Loc. Absol. Press.(Pb): _____(psia)
Pitot Number/LOC. :439 L.2 & 11.2 Duct Height : 16 (in) Wet Bulb Temp. {WB : _____(°F)
Duct Area {A : 5.11 (ft2) Duct C.L. Static {Psd :_____(IWG) Dry Bulb Temp. {DB : _____(°F)

2.6 **VELOCITY PRESSURE DATA:**

VEL. [VPn]	3.0" [1]	8.75" [2]	14.5" [3]	20.25"[4]	26.0" [5]	31.75"[6]	37.5" [7]	43.25 [8]
2.75" [VP]								
8.0" [VP]								
13.25" [VP]								
[VP]								
[VP]								
[VP]								
[VP]								
[VP]								
[VP]								

2.7 Total Velocity {V : _____fpm ____/____

2.8 Average Velocity {Vavg = $\frac{V}{\text{No. of Readings}}$ = $\frac{\quad}{24}$ = _____ fpm

2.9 Absolute Pressure {Pba :

Pba = Pa x $\frac{(29.921)}{(14.696)}$ Pba = _____ x $\frac{(29.921)}{(14.696)}$ Pba = _____ in Hg

2.10 Air Density { ρat :

Wet-Bulb Depression = DB - WB _____-_____=_____°F
Using Chart 1 (i.e. Psychrometric Density Chart) ρ_{at} = _____lb/ft3

2.11 Actual Flow {ACFM :

ACFM = A x Vavg x $\sqrt{\frac{0.075}{\rho at}}$ ACFM = _____x_____x$\sqrt{\frac{0.075}{(\quad)}}$

ACFM = _____CFM

____/____

VC TRAIN B INFILTRATION TEST
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2.1. Manometer ID # _____ Cal. Date:_____ Cal. Due Date: _____ ____/____

2.2. Absolute Pressure Gauge ID #_____ Cal. Date:_____ Cal. Due Date: _____ ____/____

2.3. Supply Fan:_____ and Exhaust Fan:_____ started: ____/____

Damper Number :VL Laundry Rm Duct Width : 24 (in) Loc. Absol. Press.(Pb): _____(psia)
Pitot Number/LOC. :439 L.3 & 11.1 Duct Height : 14 (in) Wet Bulb Temp. {WB : _____(°F)
Duct Area {A : 2.33 (ft_2) Duct C.L. Static {Psd :_____(IWG) Dry Bulb Temp. {DB : _____(°F)

2.6 **VELOCITY PRESSURE DATA:**

VEL. [VPn]	3.0 [1]	9.0 [2]	15.0 [3]	21.0 [4]	[5]	[6]	[7]	[8]
2.25" [VP]								
7.0" [VP]								
11.75" [VP]								
[VP]								
[VP]								
[VP]								
[VP]								
[VP]								
[VP]								

2.7 Total Velocity {V : _____fpm ____/____

2.8 Average Velocity {Vavg = $\frac{V}{\text{No. of Readings}}$ = $\frac{\quad}{12}$ = _____ fpm

2.9 Absolute Pressure {Pba :

Pba = Pa x $\frac{(29.921)}{(14.696)}$ Pba = _____ x $\frac{(29.921)}{(14.696)}$ Pba = _____ in Hg

2.10 Air Density { ρat :

Wet-Bulb Depression = DB - WB _____-_____=_____°F
Using Chart 1 (i.e. Psychrometric Density Chart) ρ_{at} = _____lb/ft^3

2.11 Actual Flow {ACFM :

ACFM = A x Vavg x $\sqrt{\frac{0.075}{\rho at}}$ ACFM = _____x_____x$\sqrt{\frac{0.075}{(\quad)}}$

ACFM = _____CFM

____/____

VC TRAIN B INFILTRATION TEST
DATA SHEET 11.2.6
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2.1. Manometer ID # _____ Cal. Date:_____ Cal. Due Date: _____ ____/____

2.2. Absolute Pressure Gauge ID #_____ Cal. Date:_____ Cal. Due Date: _____ ____/____

2.3. Supply Fan:_____ and Exhaust Fan:_____ started: ____/____

Damper Number :VL Exhaust Duct Width : 30 (in) Loc. Absol. Press.(Pb): _____(psia)
Pitot Number/LOC. :477 P.9 & 17.1 Duct Height : 30 (in) Wet Bulb Temp. {WB : _____(°F)
Duct Area {A : 6.25 (ft^2) Duct C.L. Static {Psd :_____(IWG) Dry Bulb Temp. {DB : _____(°F)

2.6 **VELOCITY PRESSURE DATA:**

VEL. [VPn]	3.0" [1]	9.0" [2]	15.0" [3]	21.0 "[4]	27.0" [5]	_____[6]	_____[7]	_____[8]
3.0" [VP]								
9.0" [VP]								
15.0" [VP]								
21.0" [VP]								
27.0" [VP]								
_____[VP]								
_____[VP]								
_____[VP]								

2.7 Total Velocity {V : _____fpm ____/____

2.8 Average Velocity {Vavg = $\frac{V}{\text{No. of Readings}}$ = $\frac{\_\_\_\_\_}{25}$ = _____ fpm

2.9 Absolute Pressure {Pba :

Pba = Pa x $\frac{(29.921)}{(14.696)}$ Pba = _____ x $\frac{(29.921)}{(14.696)}$ Pba = _____ in Hg

2.10 Air Density { ρat :

Wet-Bulb Depression = DB - WB _____-_____=_____°F
Using Chart 1 (i.e. Psychrometric Density Chart) ρ_{at} = _____lb/ft^3

2.11 Actual Flow {ACFM :

ACFM = A x Vavg x $\sqrt{\frac{0.075}{\rho at}}$ ACFM = _____x_____x $\sqrt{\frac{0.075}{(\quad)}}$

ACFM = _____CFM

____/____

VC TRAIN B INFILTRATION TEST
DATA SHEET 11.2.6

DAMPER LEAKAGE (VC)	(CFM)	(CFM)
Damper 0VC04Y (54" OA intake, anemometer	_____	
Damper 0VC16Y (20" OA intake, pitot)	_____	
Damper 0VC313Y/9Y (20" TB intake, pitot)	_____	
Damper 0VC02Y (54" exhaust, anemometer)	_____	
Subtotal		_____

DUCT LEAKAGE (VV)		
Supply to Unit 1 Computer Room (pitot)	_____	
Supply to Unit 2 Computer room (pitot)	_____	
Subtotal		_____

DUCT LEAKAGE (VL)		
Fume hood exhaust air entering UCSR (pitot)	_____	
Laundry exhaust air entering UCSR (pitot)	_____	
TOTAL	_____	
Laboratory air exiting Aux. Building (pitot)	_____	
Laboratory leakage (total entering-exiting)		_____

DUCT LEAKAGE (VW)		
Radwaste exhaust entering UCSR (pitot)	_____	
Radwaste exhaust exiting Aux Building (pitot)	_____	
Radwaste leakage (total entering-exiting)		_____

TOTAL		
Total of VC, VV, VL, and VW leakages		_____

VC TRAIN B INFILTRATION TEST
DATA SHEET 11.2.6

DIFFERENTIAL PRESSURES

	(in. H_2O)	(CFM)
0PDI-VC037	_____	_____
0PDI-VC037A	_____	_____
0PDI-VC037C	_____	_____
0PDI-VC037D	_____	_____
0PDI-VC038	_____	_____
0PDI-VC038A	_____	_____
0PDI-VC038B	_____	_____
0PDI-VC038C	_____	_____
0PDI-VC038D	_____	_____

TOTAL (CFM)

Total of Door Leakage _____

Total of Damper and Duct Leakage, from preceding page _____

Total of Control Room Infiltration, Train B in _____ ¢

Recirculation Expected ≤ 263

VC INFILTRATION TEST
DOOR LEAKAGE READING
DATA SHEET 11.3

The following Doors open out of the Control Room Boundary

		DOOR NO
OPDI-VC037	_____	D728 SD180 SD183
OPDI-VC037A	_____	D420 D427 SD171 D445 SD172
OPDI-VC037C	_____	D432
OPDI-VC038A	_____	D440
OPDI-VC038	_____	D420 D427 SD171 D445 SD172

Therefore the following conditions exist when calculating door leakage

1. Positive pressure forces the door open. Therefore the over pressure to open line on graph A-4(1)d is applicable.

2. Negative pressure forces the door close. Therefore the over pressure to close line on graph A-4(1)d is applicable.

The following Doors open into the Control Room Boundary.

OPDI-VC037D	_____	D432
OPDI-VC038B	_____	D443
		D431
OPDI-VC038D	_____	D446

Therefore the following condition exist when calculating door leakage.

1. Positive pressure forces the door close. Therefore the over pressure to close line on graph A-4(1)d is applicable.

2. Negative pressure forces the door open. Therefore the over pressure to open line on graph A-4(1)d is applicable.

VC INFILTRATION TEST
DATA SHEET 11.3
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12.0 TEST EVALUATION

13.0 APPENDICES

Appendix A - Significant Events Log

Appendix B - Miscellaneous Information

14.0 ATTACHMENTS

14.0 ATTACHMENTS