

July 31, 2017

**TO: DAVID MEEKINS
JLABS**

**FROM: GREG. HOWARD and ALLEN WHITTLE
TRITIUM SRS**



JLABS SCATTER CHAMBER CONTAINMENT HUT VENTILATION VERIFICATION

As requested, the ventilation for the JLABS scatter chamber hut has been tested and verified to meet the values required to provide the containment necessary to ensure any contamination will be contained within the enclosure preventing the spread of contamination throughout your facility that may be released from the source through a breach.

The hut was tested to determine the optimal values to provide face velocity, cubic feet per minute (CFM) and air changes. That range was 55% output on the VFD. The hut was also tested during fire mode, which is 100% output at the VFD, to ensure that during this mode those increased values would still provide some level of protection.

It is recommended that during the transition process of moving the source from the container to the chamber, that the operating range of 55% be used.

Below are the requirements and actual values for the JLAB containment hut at the 55% output.

Please see the attached data sheets for the actual test results.

Hut face velocity requirements for containment = minimum 125 fpm

Actual JLAB hut = 182 fpm

Room Dp requirements = Minimum -.05 inches wc room to atmosphere

Actual room to atmosphere = -.068 in wc room to atmosphere

Air changes per Hour "Recommended as a Guide" = 12 to 60 per hour

Actual air changes per hour = 28 per hour

This data provides certification results for the JLAB Scatter Chamber hut, ensuring it meets the specified requirements for a Tritium Containment. These requirements and recommendations are the same used for the Tritium facilities at the Savannah River Site.

Please free to contact us if you have any questions or concerns.

AIR SYSTEM BALANCING FAN DATA SHEET

SHEET ____ OF ____

PROJECT No.: N/A	TEST PKG. No.: N/A	BLDG./AREA: JLAB	AREA SERVICED: Room exhaust + Scatter chamber
EQUIP. NAME: JLAB EXHAUST		EQUIP. LOCATION: BUILDING EXTERIOR	
MANUFACTURER: unkown		OPERATING FAN: VFD CONTROLLING @ 100% OUTPUT	
MODEL NO.: unknown			

	SPECIFIED / DESIGN	MEASURED	TEST INSTRUMENT
FAN CFM	12000	12702	M16057
FAN RPM	N/A	2358	PIT
INLET STATIC PRESS. (IN. WG.)	N/A	N/A	N/A
DISCH. STATIC PRESS. (IN. WG.)	N/A	N/A	N/A
SYSTEM STATIC PRESS. (IN. WG.)	N/A	N/A	N/A
FILTER DIFFERENTIAL PRESSURE	N/A	N/A	N/A
MOTOR HP	30	* 30	
BHP	29.19	25.34	CALCULATED
PHASE	3	* 3	
VOLTAGE (E)	460	460	PIT
MOTOR AMPS (I)	38	33	PIT
MOTOR RPM	N/A	2358	PIT
MOTOR SERVICE FACTOR	1.15	* 1.15	

OPERATING MODE: SMOKE REMOVAL MODE

Total Flow Controller: _____

% Open: 100

Measured Fan cfm = 12,702 cfm

Measured At: RELIEF DAMPER + SCATTER CHAMBER

COMMENTS: PIT = PLANT INSTALLED TRANSMITTER

* NAME PLATE VALUE

REVIEWED BY: *M. J. ...*

DATE: 2/26/12

B. A. W. ...

AIR SYSTEM BALANCING FAN DATA SHEET

SHEET ____ OF ____

PROJECT No.: N/A	TEST PKG. No.: N/A	BLDG./AREA: JLAB	AREA SERVICED: Room exhaust + Scatter chamber
EQUIP. NAME: JLAB EXHAUST		EQUIP. LOCATION: BUILDING EXTERIOR	MODEL NO.: unknown
MANUFACTURER: unknown		OPERATING FAN: VFD CONTROLLING @ 55% OUTPUT	

	SPECIFIED / DESIGN	MEASURED	TEST INSTRUMENT
FAN CFM	12000	7251	M16057
FAN RPM	N/A	1302	PIT
INLET STATIC PRESS. (IN. WG.)	N/A	N/A	N/A
DISCH. STATIC PRESS. (IN. WG.)	N/A	N/A	N/A
SYSTEM STATIC PRESS. (IN. WG.)	N/A	N/A	N/A
FILTER DIFFERENTIAL PRESSURE	N/A	N/A	N/A
MOTOR HP	30	* 30	
BHP	29.19	12.59	CALCULATED
PHASE	3	* 3	
VOLTAGE (E)	460	460	PIT
MOTOR AMPS (I)	38	16.4	PIT
MOTOR RPM	N/A	1302	PIT
MOTOR SERVICE FACTOR	1.15	* 1.15	

OPERATING MODE: TRITIUM REMOVAL MODE Total Flow Controller: _____
 % Open: 55

Measured Fan cfm = 7,251 cfm Measured At: RELIEF DAMPER + SCATTER CHAMBER

COMMENTS: PIT = PLANT INSTALLED TRANSMITTER

* NAME PLATE VALUE

REVIEWED BY: *[Signature]*
 DATE: 7/26/12

AIR SYSTEM BALANCING VELOCITY PROFILE DATA SHEET

SHEET OF

PROJECT No.: N/A	BLDG./AREA: JLAB	AREA SERVICED: SCATTER CHAMBER TRITIUM REMOVAL HUT EXHAUST
TEST PKG. No.: N/A	OPERATING FAN EN/EP NO.: JLAB SCATTER CHAMBER HUT EXHAUST	TEST INSTRUMENT USED: M16057 CAL DATE 02/03/2016

ITEM TESTED SCATTER CHAMBER HUT	SIZE OPENING (FT.) $\frac{44}{6.42} \times \frac{21}{\quad}$ FT ²	MINIMUM ACCEPTABLE FACE VELOCITY <u>125 FPM</u>	MEASURED FACE VELOCITY <u>182 FPM</u>
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VELOCITY TRAVERSE (IN FEET PER MINUTE)

POINTS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	160	170	191															
2	197	170	197															
3	181	187	205															
4	170	167	188															
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		
13																		
Totals:	708	694	781															

TOTAL FPM: 2,183

AVERAGE FPM = TOTAL FPM/NO. READINGS: 2,183 / 12 = 181.9 **MEASURED CFM:** 1,168 CFM

COMMENTS:

REVIEWED BY: *[Signature]* BA W/UT 15
DATE: 7/26/17