ENV SERVICES, INC.
4758 RESEARCH DRIVE
SAN ANTONIO, TX 78240
800-690-3368 / 210-690-3646 FAX

SERVICE WORK ORDER

WORK ORDER NO:315-229163
CUST PO#: TRANSACTION COMPLETE 07/15/

FRI - 31 JUL @ MORNING

AARON 116

Bill To: WA0151

WASHINGTON STATE UNIVERSITY
P.O. BOX 641025
email all invoices to the pers
PULLMAN, WA 99164-1025
ACCOUNTS PAYABLE

Service Location: WA0151-001

WSU - DEPT OF PLANT PATHOLOGY
316 JOHNSON AVE
VOGEL (PBS1)
PULLMAN, WA, 99163 701-303-0630
SUDHA G C UPADHAYA
SUDHA.GCUPADHAYA@WSU.EDU

SERVICE SCHEDULE DATE: 31-Jul-20
WO OPEN DATE: 15-Jul-2020
SCHEDULE ADMIN: 315 TECH: 116
WORKGROUP:

CUSTOMER NOTES / INSTRUCTIONS:

17JUL2020 - FOR ALL REPAIRS PERFORMED AT PULLMAN CAMPUS, SHIP PARTS TO THE FOLLOWING ADDRESS. - LC
WSU-CENTRAL RECEIVING
100 DAIRY RD PMB 7520
ATTN: POC NAME & PHONE NUMBER
(INCLUDE BLDG & RM IF ABLE)
PULLMAN, WA 99164

SERVICE REQUESTED: CERTIFICATION
BILLING TYPE:

DETAIL OF SERVICES

Item #	Asset #	Description of Services	Location
1	597199	ONSITE CERTIFICATION NUAIRE / 425-600 - BIOLOGICAL SAFETY CABINET - S/N 93984191394 **SERIAL NUMBER IS ACTUALLY 93984101304**	VOGEL RM 107A
2	597200	ONSITE CERTIFICATION NUAIRE / 301-530 - LAMINAR AIR FLOW WORK STATION - S/N 63635	VOGEL RM 117A

CUSTOMER SIGNATURE REQUIRED

CUSTOMER SIGNATURE :
DATE :
TECH SIGNATURE:
DATE :

dba ENV Services Testing & Certification, Inc.
4758 Research Drive
San Antonio, TX 78240
(800)345-6094

Test Report Number
WA0151:200730:093540

BIOLOGICAL SAFETY CABINET TEST REPORT

Customer	WSU	**ENV Services Technician**	Aaron Pritchard
Address	Vogel Hall	**Test Date**	07/30/2020
		Test Frequency	Certification - Annual
		Equipment Manufacturer	Nuaire
	Pullman, WA 99164	**Model**	425-600
		Serial Number	93984101304
Contact	Sudha G C Upadhaya	**Type**	Class II, Type A2 BSC
Telephone	701/303-0630	**Location**	Vogel Rm 107
Extension			

Testing and Certification: The purpose of field testing this equipment is to assess whether it is functioning as designed in compliance with the specifications, outlined in the appropriate version of NSF/ANSI-49. We perform all test procedures in accordance with these standards and specifications as detailed in ENV Services Procedures, applicable copies of which are available on request. Our testing and certification apply only to to the equipment above, and do not signify approval of the use of any hazardous agents or operational procedures.

SERVICE SUMMARY

	PASS	FAIL	N/A
OVERALL CERTIFICATION	X		

Field Certified in accordance with NSF/ANSI 49

Containment tests performed:			
HEPA Filter Leak Test	X		
Airflow Smoke Patterns	X		
Downflow Velocity Profile Test	X		
Inflow Velocity Test	X		
Site Installation Assessment Tests	X		
Cabinet Leak Test			X

Worker comfort and safety tests performed:

Corrected noise level meets NSF criteria for Class II BSCs.
Light intensity meets NSF criteria for Class II BSCs.
Electrical results: 118 VAC Polarity was correct
0.000 ohms

Repairs performed:

- [X] **None**
- [ ] **Filter Leaks Repaired**
- [ ] **Structural Repairs Made**
- [ ] **Filters Replaced**
- [ ] **Airflow Adjusted**
- [ ] **Pressure Gauge Adusted**
- [ ] **Warning Alarm System**
- [ ] **Electrical System Repaired**
- [ ] **Other:** _____

EQUIPMENT UTILIZATION SURVEY

Use Research
Biological Agent Used
Biosafety Classification Level 2
Tissue/Cell Cultures HUMAN:ANIMAL:

Chemicals Non-Carcinogens
Isotopes NO
Surface Decontamination Performed Yes **Using** 70% EtOH
Formaldehyde Gas Decontamination Performed No
Decontamination Report # N/A

COMMENTS AND RECOMMENDATIONS

SITE INSTALLATION

Exhaust Alarm or Interlock Functional N/A
Sash Alarm Function PASS
Cabinet Exhaust Vented to Room
Exhaust Connection Pressurization N/A

Customer: _____ *Signature*

_____ *Please print name*

Service Technician: _____ *Signature* *Date*

ENV SERVICES

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BIOLOGICAL SAFETY CABINET TEST REPORT

Test Report Number
WA0151:200730:093540

For: WSU
Model: 425-600
S/N: 93984101304

HEPA FILTER LEAK TEST

Supply Filter Quantity/Size: (1) 21x68x6 Hepex
Leaks Detected Media: 0 **Gasket:** 0 **Structural:** 0
Leakage Repaired with N/A
Approximate Filter Obstruction Caused by Repairs 0.0 %

Exhaust Filter Quantity/Size: (1) 24x30x12 Midpack
Leaks Detected Media: 0 **Gasket:** 0 **Structural:** 0
Aerosol Challenge Concentration: >= 10 MicroGms/Liter PAO
Filter Scanning Rate: 2 inches per second

Overall Test Result: PASS

AIRFLOW SMOKE PATTERNS

Smooth downward flow with no dead spots or reflux	PASS	**No outside smoke penetrates onto the work surface**	PASS
No Smoke escapes from the cabinet	PASS	**No upward refluxing toward the sash wiper seal**	PASS
No outside smoke billows over the work surface	PASS	**No escape of smoke through the sash wiper seal**	PASS
		No external turbulence at front access opening	PASS

Cause of external turbulence, if any _____ **Overall Test Result:** PASS

SECONDARY TESTS AND TEST EQUIPMENT

			Criteria	
NOISE	**Total** 67 dbA **Ambient** 54dbA **Corrected**	67dbA	<= 70 dbA Corrected	Meets
LIGHTING	**Average** 86 FC **Background**	9 FC	Avg. 45 FC > Bkgd, Bkgd <= 15 FC	Meets
ELECTRICAL	**Line Voltage**	118 VAC	N/A	N/A
	Ground Resistance	0.000 ohms	<= 0.15 ohms or meter min. sensitivity	Meets
	Polarity PASS		Must be correct	Meets
	Ground Fault Interrupter N/A		Trips when tested	N/A
UV LIGHT	**At the work level**	Microwatts/square centimeter	None	N/A

Velometer Model: 9535 **S/N:** 101930 **Cal. Date:** 03/30/2020 **Photometer:** PH-5 **S/N:** 102510 **Cal. Date:** 02/25/2020

DOWNFLOW VELOCITY PROFILE TEST AND INFLOW VELOCITY TEST

Inflow Method RA

	Avg. Vel.	Specification	Uniformity		Area	Volume
Inflow	107 fpm	100 - 110	N/A	**Inflow**	4.89 ft^2	521 cfm
RA Average	345 fpm			**RA Corr. Factor**	1.5100	
Downflow	75 fpm	65 - 75 fpm	15%			

Pressure/Flow Gauge Reading 0.55
Gauge Zeroed YES
Fan Speed Adjustment Made No Change
Final Fan Speed 50%
Specification Used U599R

Dens. Corr. 1.087 2350 elevation

All downflow readings must be within the greater of 25% or 16 fpm of the average.

Overall Downflow Velocity Profile Test Result: PASS
Overall Inflow Velocity Test Result: PASS

AIR VELOCITY PROFILES:

NOTE: Inflow was determined using the Restricted Access method, the "Exhaust" measurements are actually restricted access velocity measurements..

Downflow Grid:

79	76	72	69	65	66	66	64	65	64	65
73	77	76	74	73	72	71	68	69	67	66
65	69	70	71	70	65	64	65	62	63	62

Exhaust Grid:

331	325	320	315	317	312	316	315	317	316	313	319	313	313	306	334

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Test Report Number
WA0151:200730:100204

LAMINAR FLOW TEST REPORT

Customer	0	**ENV Services Technician**	Aaron Pritchard
Address	Vogel Bldg	**Test Date**	07/30/2020
		Test Frequency	Certification - Annual
		Equipment Manufacturer	Nuaire
	Pullman, WA 99164	**Model**	301-530
		Serial Number	63635
Contact	David Wheeler	**Type**	Clean Bench
Telephone	215/880-3024	**Location**	Vogel Rm 117
Extension			

Testing and Certification: The purpose of field testing this equipment is to assess whether it is functioning as designed in compliance with manufacturer specifications, Federal Std. 209B, IES-RP-CC-002, or other specifications which may apply. We perform all test procedures in accordance with these standards and specifications as detailed in ENV Services Protocols, applicable copies of which are available upon request. Our testing and certification apply only to the equipment identified above, and do not signify approval of the use of any hazardous agents or operational procedures.

SERVICE SUMMARY

	PASS	FAIL	N/A
OVERALL CERTIFICATION	[X]	[ ]	[ ]
Per manufacturer's velocity specifications			

Containment tests performed:

HEPA Filter Leak Test	[X]	[ ]	[ ]
Airflow Smoke Patterns	[X]	[ ]	[ ]
Airflow Velocity Test	[X]	[ ]	[ ]

Work environment tests performed:
Corrected noise level meets RP-2 criteria
Light intensity does not meet RP-2 criteria
Electrical results: 123 VAC Polarity was correct
0.000 ohms GFI is functional

Repairs performed:

- [X] **None**
- [ ] **Filter Leaks Repaired**
- [ ] **Structural Repairs Made**
- [ ] **Filters Replaced**
- [ ] **Airflow Adjusted**
- [ ] **Pressure Gauge Adusted**
- [ ] **Electrical System Repaired**
- [ ] **Other:** _____

COMMENTS AND RECOMMENDATIONS

PREFILTERS AND MISCELLANEOUS

Prefilters Quantity & Size	(1) 24X30X1	**Condition of Unit Plenum**	ok
Type of Prefilters	Wh	**Condition of Electrical and Mechanical Components**	ok
Condition of Prefilters	ok		

Customer: _____ *Signature*

_____ *Please print name*

Service Technician: _____ *Signature* *Date*

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LAMINAR FLOW TEST REPORT

Test Report Number
WA0151:200730:100204

For: 0
Model: 301-530
S/N: 63635

HEPA FILTER LEAK TEST

Supply Filter Quantity/Size: (1) 30X60X6 Hepex
Leaks Detected Media: 0 **Gasket:** 0 **Structural:** 0
Leakage Repaired with N/A
Approximate Filter Obstruction Caused by Repairs 0 %
Aerosol Challenge Concentration: >= 10 MicroGms/Liter PAO
Filter Scanning Rate: 2 inches per second

L **R**

O = leakage
X = repair

LEAK MAP

Overall Test Result: PASS

AIRFLOW SMOKE PATTERNS

No Induction at Air Exit Opening: PASS
Uniform Air Flow Pattern: PASS
No Refluxing or Backstreaming: PASS
No Intrusion via Construction Seams into Enclosure: PASS
No External Turbulence at Front Access Opening: PASS
Cause of external turbulence, if any

Overall Test Result: PASS

SECONDARY TESTS AND TEST EQUIPMENT

	Test Results	Criteria	
NOISE	**Total** 66 dbA **Ambient** 59 dbA **Corrected** 65 dbA	<= 67 dbA Corrected	Meets
LIGHTING	**Average** 13 FC **Minimum** 10 FC	Avg. >= 75 FC, minimum >= 70% of Avg.	
ELECTRICAL	**Line Voltage** 123 VAC	N/A	N/A
	Ground Resistance 0.000 ohms	N/A	N/A
	Polarity PASS	Must be correct	Meets
	Ground Fault Interrupter PASS	Trips when tested	Meets

Velometer Model: 9535 **S/N:** 101930 **Cal. Date:** 03/30/2020 **Photometer:** PH-5 **S/N:** 102510 **Cal. Date:** 02/25/2020

AIRFLOW VELOCITY TEST

Avg. Vel.	Specification	Uniformity	Area	Volume
100 fpm	80 - 100 fpm	9%	11.58 ft^2	1,157 cfm

Pressure/Flow Gauge Reading 0.65 **Gauge Zeroed** YES
Fan Speed Adjustment Made No **Fan Speed** 50%
Specification Used S1469
Dens. Corr. 1.087 2350 elevation

Overall Test Result: PASS

AIR VELOCITY PROFILES:

Supply Grid:

99	98	97	99	97	98
91	93	95	101	102	103
105	98	103	105	106	108