



Knox County Health Department

140 Dameron Avenue, Knoxville, TN 37917

Brian Rivera, P.E.
Division Director
Air Quality
Knox County Health Department
140 Dameron Ave,
Knoxville, TN 37917-6413

June 1, 2020

Re: Second Quarter Air Monitoring Audit

Dear Mr. Rivera:

On May 22, 2020 – May 26, 2020 internal quality assurance performance audits were performed on Air Quality's monitoring network. The URG flow check failed at over 19% difference. The operator was onsite during the audit and completed a calibration to address the issue on 5/26/2020. The T640X continuous monitor was outside the 1-minute criteria for the clock. All other instruments and measures were within acceptance criteria. Audit calculations and field notes are included in the following audit report.

Each physical location was inspected. The site operators were notified of the following recommendations; growing sumac at tree line of Springhill recommend cutting so mower will continue to keep clearing, and East Knox small brush growing, recommend cutting before getting to large to hand clip.

Logbooks were reviewed. Logbooks documentation has improved since last audit.

The laboratory clean room was inspected. The filter preparation area was clean. The PM2.5 storage temperature log was reviewed. Storage temperatures exceed 4.1 °C on 4/15/20 recording. The exceedance did not affect any filters stored due to higher ambient run temperatures. The Program Manager and Operator have continued the increased defrosting and temperature checks.

If there are any questions regarding this audit, please email Rebecca.Larocque@knoxcounty.org or call 865-215-5941

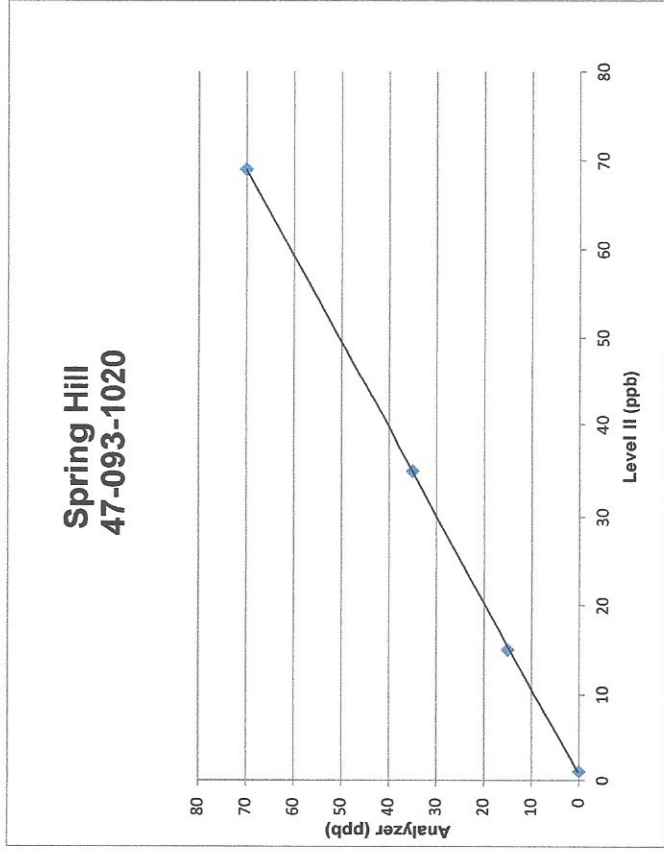
Rebecca Larocque
Environmental Specialist
Knox County Health Department

Date: 5/22/2020
 Site: Springhill

Audit SN: 179
 Analyzer SN: 4005

Collection Time	Target	Analyzer	Audit Standard	Difference	% Difference
est	ppb	ppb	ppb	ppb	%
8:00:00 AM	110	109	110	-1.0	-0.91
8:11:00 AM	70	69	70	-1.0	-1.43
8:22:00 AM	35	35	35.0	0.0	0.00
8:33:00 AM	15	15	15.0	0.0	0.00
8:45:00 AM	0	1	0.0	1.0	N/A

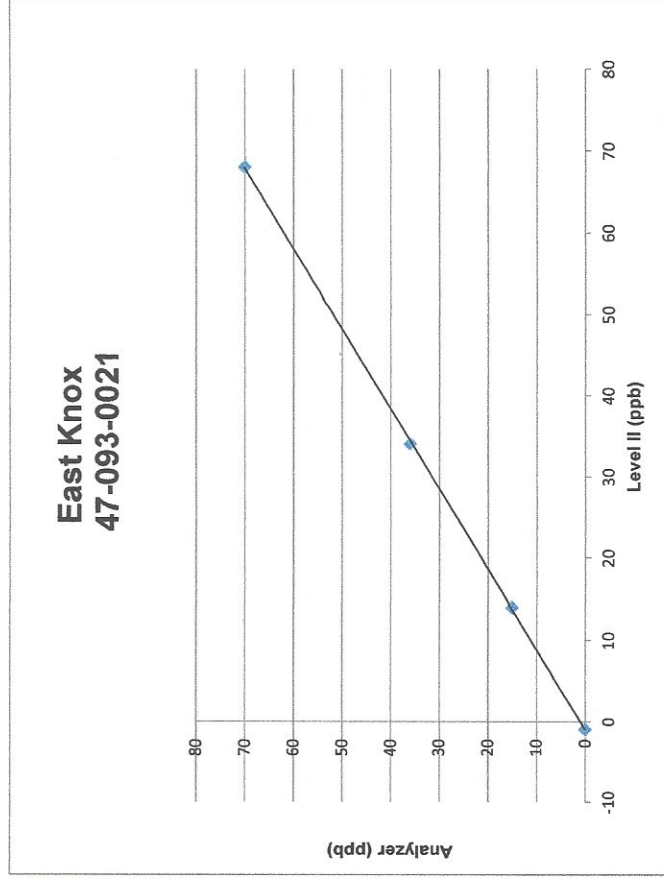
Slope 0.982973 correlation 0.999966
 Intercept 0.58 R2 0.999932



Notes: suggest trim Sumac edge of mowed area to keep them mowing.

Collection Time	Target	Analyzer	Audit Standard	Difference	% Difference
est	ppb	ppb	ppb	ppb	%
7:40:00 AM	110	108	110	-2.0	-1.82
7:50:00 AM	70	68	70	-2.0	-2.86
8:00:00 AM	35	34	36.0	-2.0	-5.56
8:10:00 AM	15	14	15.0	-1.0	-6.67
8:20:00 AM	0	-1	0.0	-1.0	NA

Slope 0.990139 correlation 0.999972
 Intercept -1.14 R2 0.999943



Notes: suggest Trim brush before to big, AV trend not instantaneous polling - new normal?

PM 2.5 Audit Calculations

Reference device used for Audit: SLP

Serial number: HL190706

Date of Certification: Jul-19

Date: 5/22/2020

Site: Springhill

Monitor Serial number: 20606

Notes: LC 5mmHg

	units	System Value	Reference Value	Difference (S-R)	%	Acceptance Criteria
Time	hh:mm:ss	8:49:24 AM	8:50:02 AM	0:00:38		+/- 1 Min.
Filter T	°C	20.2	19.5	0.7		+/- 2° C
Ambient T	°C	20.4	20.8	-0.4		+/- 2° C
Pressure	mmHg	733	735	-2		+/- 10 mmHg
Flow Rate	lpm	16.7	16.57	0.13	0.8%	+/- 4%

Date: 5/26/2020

Site: Bearden

Monitor Serial number: 40606

Notes: LC 7mmHg

	units	System Value	Reference Value	Difference (S-A)	%	Acceptance Criteria
Time	hh:mm:ss	10:02:40 AM	10:03:00 AM	0:00:20		+/- 1 Min.
Filter T	°C	28.3	29.5	-1.2		+/- 2° C
Ambient T	°C	25.8	27.3	-1.5		+/- 2° C
Pressure	mmHg	738	736	2		+/- 10 mmHg
Flow Rate	lpm	16.7	16.74	-0.04	-0.2%	+/- 4%

Date: 5/26/2020

Site: Bearden Collocate

Monitor Serial number: 30606

Notes: LC 11 mmHg

	units	System Value	Reference Value	Difference (S-A)	%	Acceptance Criteria
Time	hh:mm:ss	9:49:45 AM	9:50:05 AM	0:00:20		+/- 1 Min.
Filter T	°C	27.7	27.9	-0.2		+/- 2° C
Ambient T	°C	27.3	26.6	0.7		+/- 2° C
Pressure	mmHg	737	736	1		+/- 10 mmHg
Flow Rate	lpm	16.6	16.39	0.21	1.3%	+/- 4%

Date: 5/26/2020

Site: Rule

Monitor Serial number: 41005

Notes: LC 3mmHg

	units	System Value	Reference Value	Difference (S-A)	%	Acceptance Criteria
Time	hh:mm:ss	10:47:00 AM	10:47:05 AM	0:00:05		+/- 1 Min.
Filter T	°C	29.1	29.1	0		+/- 2° C
Ambient T	°C	27.2	28.6	-1.4		+/- 2° C
Pressure	mmHg	732	734	-2		+/- 10 mmHg
Flow Rate	lpm	16.7	16.5	0.2	1.2%	+/- 4%

Date: 5/26/2020

Site: Air Lab

Monitor Serial number: 20606

Notes: LC 3 mmHg

	units	System Value	Reference Value	Difference (S-A)	%	Acceptance Criteria
Time	hh:mm:ss	12:23:30 PM	12:23:44 PM	0:00:14		+/- 1 Min.
Filter T	°C	28.9	27	1.9		+/- 2° C
Ambient T	°C	26.8	27.6	-0.8		+/- 2° C
Pressure	mmHg	734	737	-3		+/- 10 mmHg
Flow Rate	lpm	16.7	16.8	-0.1	-0.6%	+/- 4%

PM 2.5 Audit Calculations

Reference device used for Audit: Streamline Pro

Serial number : HL190706

Date of Certification: Jul-19

Date: 5/26/2020

Site: Air Lab

Monitor Serial number: 192

T640 X

	Units	System	Reference	Difference	%	Criteria
Time	hh:mm:ss	12:34:40 PM	12:33:39 PM	0:01:01		+/- 1 Min.
Shelter T	°C	30	31	-1		+/- 2° C
Amb T	°C	26.1	26	0.1		+/- 2° C
Pressure	mmHg	737.9	737	0.9		+/- 10mmHg
Total Flow	lpm	16.8	16.8	0	0	+/- 4 %
MainFlow	lpm	4.97	4.94	0.03	0.607287449	+/- 4 %

Notes: Leak Check passed 0.0/0.0 SN shelter thermometer 140793699

Date: _____

Site: _____

Monitor Serial number: _____

	Units	System	Reference	Difference	%	Criteria
Time	hh:mm:ss			0:00:00		+/- 1 Min.
Shelter T	°C			0		+/- 2° C
Amb T	°C			0		+/- 2° C
Pressure	mmHg			0		+/- 10mmHg
Flow Rate	lpm			0	#DIV/0!	+/- 4 %

Notes:

Date: _____

Site: _____

Monitor Serial number: _____

	Units	System	Reference	Difference	%	Criteria
Time	hh:mm:ss			0:00:00		+/- 1 Min.
Shelter T	°C			0		+/- 2° C
Amb T	°C			0		+/- 2° C
Pressure	mmHg			0		+/- 10mmHg
Flow Rate	lpm			0	#DIV/0!	+/- 4 %

Notes:

Date: _____

Site: _____

Monitor Serial number: _____

	Units	System	Reference	Difference	%	Criteria
Time	hh:mm:ss			0:00:00		+/- 1 Min.
Shelter T	°C			0		+/- 2° C
Amb T	°C			0		+/- 2° C
Pressure	mmHg			0		+/- 10mmHg
Flow Rate	lpm			0	#DIV/0!	+/- 4 %

Notes:

Date: _____

Site: _____

Monitor Serial number: _____

	Units	System	Reference	Difference	%	Criteria
Time	hh:mm:ss			0:00:00		+/- 1 Min.
Shelter T	°C			0		+/- 2° C
Amb T	°C			0		+/- 2° C
Pressure	mmHg			0		+/- 10mmHg
Flow Rate	lpm			0	#DIV/0!	+/- 4 %

Notes:

Lead Audit Calculations

Reference device used for Audit: Hi Vol Cal

Serial number : 96
Date of Certification: 4/7/2020

Date: 5/26/2020 Bar Press 737 mmHg
Monitor ID: P-2875 Temp 28.7 °C
Site: burnside Off

Qa CFM

	Stag Press: <u>22.2</u> inH2O
40.12	Pa: <u>41.4696</u> mmHg
40.11	Po/Pa: <u>0.943732</u> unitless
40.2	Flow <u>1.148</u> (from table)
40.3	%D: <u>0.70%</u> {Flow- Qa/Qa}x 100
40.28	% D Design <u>0.88%</u> {Qa - 1.13/1.13}
40.34	
40.28	
40.39	
40.42	

40.27 CFM
1.140 m³/min

Date: 5/26/2020 Bar Press 737 mmHg
Monitor ID: P-4302 Temp 28.8 °C
Site: Burnside Collo

Qa CFM

	Stag Press: <u>22.3</u> inH2O
40.35	Pa: <u>41.6564</u> mmHg
40.37	Po/Pa: <u>0.943478</u> unitless
40.57	Flow <u>1.151</u> (from table)
40.58	%D: <u>0.28%</u> {Flow- Qa/Qa}x 100
40.61	% D Design <u>1.57%</u> {Qa - 1.13/1.13}
40.57	
40.58	
40.57	
40.59	
40.54	

40.53 CFM
1.148 m³/min

Date: 5/26/2020 Bar Press 736.5 mmHg
Monitor ID: P-4304 Temp 30.2 °C
Site: Ameristeel

Qa CFM

	Stag Press: <u>21.9</u> inH2O
39.7	Pa: <u>40.9092</u> mmHg
39.63	Po/Pa: <u>0.944455</u> unitless
39.66	Flow <u>1.165</u> (from table)
39.71	%D: <u>3.79%</u> {Flow- Qa/Qa}x 100
39.65	% D Design <u>-0.67%</u> {Qa - 1.13/1.13}
39.67	
39.65	
39.58	
39.58	
39.56	

39.64 CFM
1.122 m³/min

Notes:

Speciation Audit Calculations

Reference device used for Audit: **SLP**

Serial number : HI190706

Date of Certification: Jul-19

Leak Test		
	Pass	Fail
URG 3000	215	
SASS Channel 1	0	
SASS Channel 2	0	

Pressure {Ambient}			
	System	Reference	Difference
URG 3000N	735.1	734.5	0.60
SASS	734	735	-1.00

Flow Rate

	System	Reference	% Difference
URG 3000N	20.76	25.78	-19.47%
SASS channel 1	6.7	6.6	1.52%
SASS Channel 2	6.7	6.7	0.00%

Temperature

	System	Reference	Difference
URG 3000N Ambient	19.2	18.3	0.90
SASS ambient	17.5	17.9	-0.40
SASS filter channel 1	18.7	19.8	-1.10
SASSfilter Channel 2	18.8	19.4	-0.60

Site Name: Springhill

Date: 5-22-20

Generate Time est	Read Time est	Target ppb	Analyzer ppb	Audit STD ppb	Stability ppb
7:50	8:00	110	109	110	0.2
8:00	8:11	70	69	70	0.2
8:11	8:22	35	35	35	0.4
8:22	8:33	15	15	15	0.2
8:33	8:45	0	1	0	0.4

Audit std Serial #: 179

Analyzer Serial #: 4605

TEST PARAMETER	CALIBRAT OR VALUE	ACCEPTABLE RANGE
Output Flow (lpm)	4.9	3.0 to 5.5
Reg. Press. (psig)	13.1	10 to 17 psig
Box Temp (°C)	30.5	20 to 35
O3 Gen. Ref. (mV)	6.0	-25 to 5000
O3 Gen. Drive (mV)	—	-25 to 5000
O3 Lamp Temp (°C)	48.0	47 to 49
Photo. Meas. (mV)	4544.9	2500 to 4700
Photo. Ref. (mV)	4548.8	2500 to 4700
Photo. Flow (lpm)	1.7980	0.720 to 0.880
Photo. Lamp Temp. (°C)	58.0	57 to 59
Photo. Smp. Prs. (inHg-A)	27.9	≈ Amb. -1 inHg
Photo. Samp. Temp. (°C)	40.7	25 to 48
Slope (unitless)	0.977	0.850 to 1.150
Offset (ppb)	0.8	-10.0 to +10.0

TEST PARAMETER	ANALYZE R VALUE	ACCEPTABLE RANGE
Stability (ppb)		< 1 ppb @ zero
O3 Meas. (mV)	3634.4	2500 to 4800
O3 Ref. (mV)	3634.4	2500 to 4800
Pressure (inHg-A)	29.0	≈ Amb. -2 inHg
Sample Flow (cc/min)	850	720 to 880
Sample Temp. (°C)	40.8	10 to 50
Photo. Lamp Temp. (°C)	58.0	57 to 59
Box Temp (°C)	30.8	10 to 50
Slope (unitless)	1.075	0.85 to 1.15
Offset (ppb)	-2.7	-10.0 to +10.0

Excess Flow @ Trans. Std. Vent: 4.2 lpm

External ZAS Pressure: 26 PSI

	System	Reference	Difference
Logger Time	9:02:36	9:07:37	-1:51
Analyzer	8:35:00	8:34:55	+5:05

	Serial #	Actual (°C)	Ref (°C)	Diff (°C)
Shelter Temp Sensor Display		68.9	20.5	24.8
Data Logger Display			24.2	24.8
Shelter Thermometer (back up)	140552941		25	24.9
Shelter Thermostat	74		23.3	24.8

rounded

Disable logger @ 7:29 est
 pump warm up 500 @ 7:39 est
 enable 9:02 est

stickly back wards
 audit / Analyzer

Site Name: East Knox

Date: 5-26-20

Generate Time est	Read Time est	Target ppb	Analyzer ppb	Audit STD ppb	Stability ppb
7:30	7:40	110	108	110	0.2
7:40	7:50	70	68	70	0.3
7:50	8:00	35	34	36	0.3
8:00	8:10	15	14	15	0.3
8:10	8:20	0	-1	0	0.2

Audit std Serial #: 179

Analyzer Serial #: 4004

TEST PARAMETER	CALIBRATOR VALUE	ACCEPTABLE RANGE
Output Flow (lpm)	4.9	3.0 to 5.5
Reg. Press. (psig)	13.1	10 to 17 psig
Box Temp (°C)	30.6	20 to 35
O3 Gen. Ref. (mV)	—	-25 to 5000
O3 Gen. Drive (mV)	0.0	-25 to 5000
O3 Lamp Temp (°C)	48.0	47 to 49
Photo. Meas. (mV)	4407.6	2500 to 4700
Photo. Ref. (mV)	4407.5	2500 to 4700
Photo. Flow (lpm)	0.7990	0.720 to 0.880
Photo. Lamp Temp. (°C)	58.0	57 to 59
Photo. Smp. Prs. (inHg-A)	28.0	≈ Amb. -1 inHg
Photo. Smp. Temp. (°C)	41.0	25 to 48
Slope (unitless)	0.977	0.850 to 1.150
Offset (ppb)	0.8	-10.0 to +10.0

TEST PARAMETER	ANALYZER VALUE	ACCEPTABLE RANGE
Stability (ppb)	± 1.0	< 1 ppb @ zero
O3 Meas. (mV)	4237.5	2500 to 4800
O3 Ref. (mV)	4237.6	2500 to 4800
Pressure (inHg-A)	27.0	≈ Amb. -2 inHg
Sample Flow (cc/min)	828	720 to 880
Sample Temp. (°C)	46.1	10 to 50
Photo. Lamp Temp. (°C)	58.0	57 to 59
Box Temp (°C)	30.0	10 to 50
Slope (unitless)	0.998	0.85 to 1.15
Offset (ppb)	-1.7	-10.0 to +10.0

Excess Flow @ Trans. Std. Vent: 4.56 lpm

External ZAS Pressure: 26 psi

	System	Reference	Difference
Logger Time	7:22:50	7:22:51	-1 sec
Analyzer	7:24:00	7:23:08	+52 sec

	Serial #	Actual (°C)	Ref (°C)	Diff (°C)
Shelter Temp Sensor Display	71.2	22.3	25.1	-2.8
Data Logger Display		25.4	25.1	0.3°C
Shelter Thermometer (back up)	14055 8788	24	25.1	-1.1°C
Shelter Thermostat	75	23.9	25.1	-1.2

read

Log done 7:10 est eng 8:30 est
 jump over 7:15 est

Ref Device: SLP
Serial Number: HL 190706

Calibration Date: July 2019

Site Name: Spizhell Date: 5-22-20 8:26 est

Sampler ID: <u>20606</u>	System	Reference	Difference	Acceptance Criteria
Time (in EST)	<u>8:49:24</u>	<u>8:50:02</u>	<u>-38sec</u>	+/- 1 Min.
Filter Temperature	<u>20.2</u>	<u>19.5</u>	<u>0.7°C</u>	+/- 2° C
Ambient Temperature	<u>20.4</u>	<u>20.5</u>	<u>-0.1°C</u>	+/- 2° C
Barometric Pressure	<u>733</u>	<u>734.7</u>	<u>2mmHg</u>	+/- 10 mmHg
Sample Flow	<u>16.70</u>	<u>16.57</u>	<u>0.78%</u>	+/- 4%

Leak Check
5 <25mmHG

- rounded

Site Name: Bearden Date: 5-26-20

Sampler ID: <u>40606</u>	System	Reference	Difference	Acceptance Criteria
Time (in EST)	<u>10:02:40</u>	<u>10:05:00</u>	<u>-20sec</u>	+/- 1 Min.
Filter Temperature	<u>28.3</u>	<u>29.5</u>	<u>-1.2°C</u>	+/- 2° C
Ambient Temperature	<u>25.8</u>	<u>27.3</u>	<u>-1.5°C</u>	+/- 2° C
Barometric Pressure	<u>738</u>	<u>736.2</u>	<u>2mmHg</u>	+/- 10 mmHg
Sample Flow	<u>16.70</u>	<u>16.74</u>	<u>-0.2%</u>	+/- 4%

Leak Check
7 <25mmHG

Site Name: Bearden Collo Date: 5-26-20

Sampler ID: <u>30604</u>	System	Reference	Difference	Acceptance Criteria
Time (in EST)	<u>9:49:45</u>	<u>9:50:05</u>	<u>-20sec</u>	+/- 1 Min.
Filter Temperature	<u>27.7</u>	<u>27.9</u>	<u>-0.2</u>	+/- 2° C
Ambient Temperature	<u>27.3</u>	<u>26.6</u>	<u>0.7</u>	+/- 2° C
Barometric Pressure	<u>737</u>	<u>736</u>	<u>1-14</u>	+/- 10 mmHg
Sample Flow	<u>16.60</u>	<u>16.39</u>	<u>1.3%</u>	+/- 4%

Leak Check
11 <25mmHG

Site Name: Lab Date: 5-26-20

Sampler ID: <u>41005</u>	System	Reference	Difference	Acceptance Criteria
Time (in EST)	<u>10:47:00</u>	<u>10:47:05</u>	<u>-5sec</u>	+/- 1 Min.
Filter Temperature	<u>27.1</u>	<u>29.0</u>	<u>0°C</u>	+/- 2° C
Ambient Temperature	<u>27.2</u>	<u>28.6</u>	<u>-1.4</u>	+/- 2° C
Barometric Pressure	<u>732</u>	<u>734</u>	<u>-2mmHg</u>	+/- 10 mmHg
Sample Flow	<u>16.70</u>	<u>16.50</u>	<u>1.2%</u>	+/- 4%

Leak Check
3 <25mmHG

Site Name: Av Lab Date: 5-26-20

Sampler ID:	System	Reference	Difference	Acceptance Criteria
Time (in EST)	<u>12:23:30</u>	<u>12:23:44</u>	<u>-14sec</u>	+/- 1 Min.
Filter Temperature	<u>28.9</u>	<u>29.0</u>	<u>-0.1°C</u>	+/- 2° C
Ambient Temperature	<u>26.8</u>	<u>27.6</u>	<u>-0.8°C</u>	+/- 2° C
Barometric Pressure	<u>734</u>	<u>737</u>	<u>-3mmHg</u>	+/- 10 mmHg
Sample Flow	<u>16.70</u>	<u>16.80</u>	<u>-0.6%</u>	+/- 4%

Leak Check
3 <25mmHG

TSP/Pb	Please circle Reference device used for Audit		
HiVol Cal	DeltaCal	Trical	TetraCal

Serial Number: 96 Calibration Date: 4-7-2020

Date: 5-20-20 Timer: 11:31:15 Cell Time: 17:33:25 Date: 5-26-20 Timer: 11:29:27 Cell Time: 11:32:17

Site: Burnside Official Orifice: P02875 *warm up 11:12* Site: Burnside Collocated Orifice: P04302

QaCFM	<u>40.12</u>	Amb Pres:	<u>737</u>
For TSP	<u>40.11</u>	Temp:	<u>28.7</u>
	<u>40.20</u>	Stag Pres:	<u>22.2</u>
	<u>40.50</u>		
	<u>40.28</u>		
	<u>40.30</u>		
	<u>40.34</u>		
	<u>40.28</u>		
	<u>40.39</u>		
	<u>40.42</u>		

QaCFM	<u>40.35</u>	Amb Pres:	<u>737</u>
For TSP	<u>40.37</u>	Temp:	<u>28.8</u>
	<u>40.57</u>	Stag Pres:	<u>22.3</u>
	<u>40.58</u>		
	<u>40.61</u>		
	<u>40.57</u>		
	<u>40.58</u>		
	<u>40.57</u>		
	<u>40.59</u>		
	<u>40.54</u>		

Leak Check: 18.2 {Between 17-24 inH2O} Leak Check: 18.1 {Between 17-24 inH2O}

Date: 5-26-20 Timer: 11:44:11 Cell Time: 11:42:17 Date: _____ Timer: _____ Cell Time: _____

Site: Ameristeel Orifice: P04304 Site: _____ Orifice: _____

QaCFM	<u>39.70</u>	Amb Pres:	<u>736.5</u>
For TSP	<u>39.63</u>	Temp:	<u>30.2</u>
	<u>39.66</u>	Stag Pres:	<u>21.9</u>
	<u>39.71</u>		
	<u>39.65</u>		
	<u>39.67</u>		
	<u>39.65</u>		
	<u>39.58</u>		
	<u>39.58</u>		
	<u>39.56</u>		

QaCFM		Amb Pres:	_____
For TSP		Temp:	_____
		Stag Pres:	_____

Leak Check: 18.1 {Between 17-24 inH2O} Leak Check: _____ {Between 17

Ref Device: SUP
Serial Number: HC190706

Calibration Date: July 2015

Site Name: Air Lab

Date: 5.26-20

T640x	SN:	System	Reference	Difference	Acceptance Criteria
Time (in EST)		12:34:40	12:33:39	1m 1s	+/- ↓ Min.
Shelter Temperature	140793699	30	31	70C	+/- 2° C
Ambient Temperature		26.1	26.0	0.1°C	+/- 2° C
Barometric Pressure		737.9	737.0	0.9 mmHg	+/- 10mmHg
Total Flow (16.67 l/min)[(Sys-Ref) / ref] * 100		16.8	16.8	0	+/- 4%
Main Flow		4.97	4.94	0.16°C	+/- 4%

Leak Check

SN: 140793699

Site Name: _____

Date: _____

T640	SN:	System	Reference	Difference	Acceptance Criteria
Time (in EST)					+/- 5 Min.
Shelter Temperature					+/- 2° C
Ambient Temperature					+/- 2° C
Barometric Pressure					+/- 10mmHg
Flow					+/- 4%

Leak Check

SN: _____

Site Name: _____

Date: _____

T640	SN:	System	Reference	Difference	Acceptance Criteria
Time (in EST)					+/- 5 Min.
Shelter Temperature					+/- 2° C
Ambient Temperature					+/- 2° C
Barometric Pressure					+/- 10mmHg
Flow					+/- 4%

Leak Check

SN: _____

Site Name: _____

Date: _____

T640	SN:	System	Reference	Difference	Acceptance Criteria
Time (in EST)					+/- 5 Min.
Shelter Temperature					+/- 2° C
Ambient Temperature					+/- 2° C
Barometric Pressure					+/- 10mmHg
Flow					+/- 4%

Leak Check

SN: _____

Please circle Reference device used for Audit

Streamline Pro	TetraCal
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Serial Number: HL 190706 Calibration Date: 7-13-19

Site Name: Springhill Date: 5-22-20

CONFIDENCE SN URG SN: 3NB0409	System	Reference	Difference	Acceptance Criteria
Time (in EST)	8:06:00	8:07:12	1m12	+/- 5 Min.
Ambient Temperature	19.2	18.3	0.9°C	+/- 2° C
Barometric Pressure	735.1	734.5	0.6	+/- 10 mmHg
Sample Flow (16.67 l/min) [(Sys- Ref) / Ref] * 100	20.70	25.78	-19.5	+/- 10 %

Leak Check

Pass / 415-

Pass/Fail

Site Name: Springhill Date: 5-22-20

SASS SN: 69184	System	Reference	Difference	Acceptance Criteria
Time (in EST)	8:10:41	8:13:09	2m 28s	+/- 5 Min.
Ambient Temperature	17.5	17.9	0.4	+/- 2° C
Barometric Pressure	734	734.5	1 mmHg	+/- 10 mmHg
Filter Temp 1	18.7	19.8	-1.1	+/- 2° C
Filter Temp 2	18.8	19.4	-0.6	+/- 2° C
Sample Flow 1 (sys-ref/ref)*100	6.7	6.62	1.5%	+/- 10 %
Sample Flow 2[(Sys-ref) / ref] * 100	6.7	6.65	0.1%	+/- 10 %

Leak Check

Pass

Pass/Fail

long

round to 6.6
 long to 6.7

Comments:
 URG operator on site to aid in leak check
 - flow failed
 - operator calibrate 5-26-20