



November 15, 2019

Robert Colby, Director
Chattanooga-Hamilton County Air Pollution Control
6215 Preservation Drive
Chattanooga, TN 37416-3638

Reference: Fourth Quarter 2019 TDEC /Performance Audits

Dear Mr. Colby:

This report contains the results of performance audits conducted by personnel from Tennessee's Air Quality Assurance Program on October 23rd through 25th, 2019. The audits were performed on various instruments at multiple monitoring locations throughout the Hamilton County monitoring network, including gaseous analyzers for ozone and low volume particle samplers for PM2.5. Sites audited include East Ridge, Eastside Utilities, Siskin Drive and Soddy Daisy.

During the Quality Assurance Performance Audits (QAPAs) on October 23rd through 25th, Tennessee Air Quality Assurance personnel audited the flow rate of each low volume particle sampler against a specified design flow rate and a transfer standard. QA personnel also audited each ozone analyzer with a level three standard (Teledyne 750 multi-gas calibrator) to determine the accuracy of the analyzer against a certified standard. These audits were conducted to ensure that each air monitor within the Hamilton County network was operating within accepted criteria established by federal regulations and guidance documents. Acceptable limits of these performance audits are published in 40 Code of Federal Regulations (CFR) Part 58 and QA Handbook Volume II, which establish federal standards for Quality Assurance and Quality Control practices for ambient air monitoring. These acceptable limits should be considered in conjunction with your Quality Assurance Plan.

Results from the fourth quarter, 2019 QAPAs, demonstrate that the Hamilton County air monitoring network was operating within acceptable limits of federal regulations and quality assurance guidelines. All QAPA results were noted in the instrument log books and summarized in the following pages of this report. The next TDEC QAPAs will be scheduled with Kathy Jones before April 2020.

If we can be of any further assistance or should there be questions regarding this audit, please email me at Ben.Hartsfield@tn.gov or call (615) 532-0597.

Sincerely,


Ben Hartsfield
Environmental Consultant
Quality Assurance Section

Reviewed by Michelle Oakes 

cc: A, Pratt, APC; M. Oakes, APC; K. Jones, Hamilton County.

*Air Pollution Control Division
Quality Assurance Performance Audit*

Site: Eastside Utility
Audit Quarter: 4Q 2019
AQS #: 47-065-4003
Pollutant: O3
Auditor: Ben Hartsfield

Instrument Model:	Thermo 49i	O3		<u>Audit Equipment</u>	<u>Serial #</u>
Serial Number:	1435663747			Teledyne 750U	# 153
Data Logger Model:	ESC 8872			Teledyne 751H	# 183
Data Logger Serial Number:	0642			Streamline Pro	# 150306
Audit date:	10/25/19	8872		Time	www.time.gov
<u>Ozone Set Point</u>	<u>Audit Value</u>	<u>Monitor Response</u>	<u>Difference</u>	<u>Acceptable Range</u>	<u>Audit Level</u>
	ppb	ppb			
Zero	0	0	0		Zero
85 ppb	85	86	1.2%	<± 15.1 %	5
55 ppb	65	66	1.5%	<± 15.1 %	4
35 ppb	35	35	0.0%	<± 15.1 %	3
15 ppb	15	15	0.0%	<± 15.1% or 1.5 ppb	2
Zero	0	0	0		Zero
Data logger time	10:44:32	10:44:30	-00:00:02	*<± 1 min	
Data logger temperature	24.5	24	-0.5	<± 2.1°C	

Remarks:

1. The monitor audited showed satisfactory correlation with our audit standard.
2. All measured parameters were within acceptable limits.
3. The audit results were noted in the instrument log book and listed above.
4. The data logger acceptable time range of <± one minute is a State recommendation.*
5. 8816 response- 0, 85, 65, 35, 15, 0. AVT response- 0, 86, 65, 35, 15, 0. 49i response- 0, 85, 65, 35, 15, 0.


Recommendations:

1. None.

Any questions concerning the audits or any comments made in connection with the audits may be addressed to me at (615) 532-0597 or Ben.Hartsfield@tn.gov.

Sincerely,


 Ben Hartsfield
 Environmental Consultant
 Quality Assurance Section

Reviewed by Michelle Oakes 
 Report Date: 11/15/19

To: R. Colby, Hamilton Co.
 cc: K. Jones, Hamilton Co.; A. Pratt, APC; M. Oakes, APC.

*Air Pollution Control Division
Quality Assurance Performance Audit*

Site: Soddy Daisy
Audit Quarter: 4Q 2019
AQS #: 47-065-1011
Pollutant: O3
Auditor: Ben Hartsfield

Instrument Model:	Thermo 49i	O3		<u>Audit Equip:</u>	<u>Serial #</u>
Serial Number:	1435663748			Teledyne 750U	#153
Data Logger Model:	ESC 8872			Teledyne 751H	#183
Data Logger Serial Number:	799			Streamline Pro	#150306
Audit date:	10/24/19	8872		Time	www.time.gov
<u>Ozone Set Point</u>	<u>Audit Value</u>	<u>Monitor Response</u>	<u>Difference</u>	<u>Acceptable Range</u>	<u>Audit Level</u>
	ppb	ppb			
Zero	0	0	0		Zero
85 ppb	85	87	2.4%	<± 15.1 %	5
65 ppb	65	66	1.5%	<± 15.1 %	4
35 ppb	35	35	0.0%	<± 15.1 %	3
15 ppb	15	15	0.0%	<± 15.1% or 1.5 ppb	2
Zero	0	0	0		Zero
Data logger time	10:36:02	10:36:00	-00:00:02	*<±1 min	
Data logger temperature	25	24.5	-0.5	<± 2.1°C	

Remarks:

1. The monitor audited showed satisfactory correlation with our audit standard.
2. All measured parameters were within acceptable limits.
3. The audit results were also noted in the instrument log books.
4. The data logger acceptable time range of <± one minute is a State recommendation.*
5. 8816 response - 0, 87, 66, 35, 15, 0. AVT response - 0, 87, 66, 35, 15, 0. 49i response - 0, 87, 66, 35, 15, 0.

Recommendations:

1. None.

Any questions concerning the audits or any comments made in connection with the audits may be addressed to me at (615) 532-0597 or Ben.Hartsfield@tn.gov

Sincerely,

 Ben Hartsfield
 Environmental Consultant
 Quality Assurance Section

Report Date: 11/15/19
 Reviewed by Michelle Oakes



To: R. Colby, Hamilton Co.
 cc: K. Jones, Hamilton Co.; A. Pratt, APC; M. Oakes, APC.

*Air Pollution Control Division
Quality Assurance Performance Audit*

Site: Siskin
Audit Quarter: 4Q 2019
AQS #: 47-065-4002
Pollutant: PM 2.5
Auditor: Ben Hartsfield

Instrument Model:	Thermo 2025i	PM 2.5	<u>Audit Equipment</u>	<u>Serial #</u>
Serial Number:	21084/ POC #1		Streamline Pro	#150306
Audit Date:	10/23/19		Time	www.time.gov
<u>Measured Parameter</u>	<u>Audit Value</u>	<u>Monitor Response</u>	<u>Difference</u>	<u>Acceptable Range</u>
Transfer Standard Flow:	16.77	16.68	-0.5%	< ± 4.1%
Design Flow:	16.67	16.67	0.0%	< ±5.1%
Barometric Pressure:	746.2	746	-0.2	< ± 10.1mm
Ambient Temperature:	21.0	19.6	-1.4	< ± 2.1°C
Filter Temperature:	22.2	21.5	-0.7	< ± 2.1°C
External Leak Check	AF-13mmHG	AL-13mmHg	Pass	≤ 25 mmHg/min.
Clock Time:	12:41:48	12:42:00	-00:00:12	< ± 00:01:00 minute

Instrument Model:	Thermo 2025i	PM 2.5	<u>Audit Equipment</u>	<u>Serial #</u>
Serial Number:	21131/ POC #2		Streamline Pro	#150306
Audit Date:	10/23/19		Time	www.time.gov
<u>Measured Parameter</u>	<u>Audit Value</u>	<u>Monitor Response</u>	<u>Difference</u>	<u>Acceptable Range</u>
Transfer Standard Flow:	16.65	16.67	0.1%	< ± 4.1%
Design Flow:	16.67	16.67	0.0%	< ±5.1%
Barometric Pressure:	746.5	747	0.5	< ± 10.1mm
Ambient Temperature:	19.0	19.3	0.3	< ± 2.1°C
Filter Temperature:	20.7	21.1	0.4	< ± 2.1°C
External Leak Check	AF-5mmHg	AL-5mmHG	Pass	≤ 25 mmHg/min.
Clock Time:	12:29:03	12:29:00	-00:00:03	< ± 00:01:00 minute

Instrument Model:	Teledyne T640	PM 2.5	<u>Audit Equip:</u>	<u>Serial #</u>
Serial Number:	83		BGI TriCal	162
Audit Date:	10/23/19		Time	www.time.gov
<u>Measured Parameter</u>	<u>Audit Value</u>	<u>Monitor Response</u>	<u>Difference</u>	<u>Acceptable Range</u>
Transfer Standard Flow:	5.09	5.05	-0.8%	< ± 5.1%
Design Flow:	5.00	5.00	0.0%	< ± 0.15 LPM
Barometric Pressure:	745.5	745.1	-0.4	< ± 5.0%
Ambient Temperature:	18.1	17.9	-0.2	< ± 2.1°C
Leak Check		0.0 lpm	Pass	< ± 0.25LPM
Data logger 8832 #A0994K	12:03:00	12:03:01	00:00:01	* < ± 00:01:00 minute

Remarks:

1. The instruments audited showed satisfactory correlation with our audit standards.
2. The PM 10 inlets and PM 2.5 cyclones were clean.
3. The audit results were noted in the instrument log books.
4. The data logger acceptable time range of < ± one minute is a State recommendation.*
5. Peak Channel test was performed. Set point 11.1. Monitor registered 11.0. This is within standard

Recommendations:

1. None.

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*Air Pollution Control Division
Quality Assurance Performance Audit*

Site: East Ridge
AQS #: 47-065-0031
Audit Quarter: 4Q 2019
Pollutant: PM 2.5
Auditor: Ben Hartsfield

Instrument Model:	Thermo 2025	PM 2.5	Audit Equipment	Serial #
Serial Number:	22109		Streamline Pro	#150306
Audit Date:	10/23/19		Time	www.time.gov
<u>Measured Parameter</u>	<u>Audit Value</u>	<u>Monitor Response</u>	<u>Difference</u>	<u>Acceptable Range</u>
Transfer Standard Flow:	16.67	16.70	0.2%	< ± 4.1%
Design Flow:	16.67	16.70	0.2%	< ± 5.1%
Barometric Pressure:	746	746	0.0	< ± 10.1mm
Ambient Temperature:	22.4	21.3	-1.1	< ± 2.1°C
Filter Temperature:	22.1	21.9	-0.2	< ± 2.1°C
Compartment Temperature:	21.8	21.0	-0.8	< ± 2.1°C
External Leak Check		4 mmHg/min.	Pass	≤ 25 mmHg/min.
Clock Time:	13:25:03	13:25:00	-00:00:03	< ± 00:01:00 minute

Remarks:

1. The monitor audited showed satisfactory correlation with our audit standard.
2. PM 10 inlet and PM 2.5 cyclone were clean.
3. The results were noted in the instrument log book.


Recommendations:

1. None.

Any questions concerning the audits or any comments made in connection with the audits may be addressed to me at (615) 532-0597 or Ben.Hartsfield@tn.gov.

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