MPHD

Corrective Action Report

Site Name: Near Road ID#: 47-037-0040

Pollutant: CO - 42101

Date	2020 Corrective Actions	*Time*	
Monitor SN	Teledyne T300 SN# 1360		

DESCRIPTION

☐1-POINT QC EXCEEDANCE

☐MULTI-POINT CALIBRATION

☐OPERATIONAL EXCEEDANCE

☒AUDIT FAILURE

CORRECTIVE ACTION TAKEN

TDEC Quarterly Audit 5/26/2020 – Failed CO Audit Level 3

- TDEC recommended that while the CO Level 3 audit point exceeded the standard ±15.1 acceptable range, if the analyzer's zero point were closer to actual zero, it is believed that the monitor would have passed the Level 3 audit point.
- Prior to the audit a zero was run 5/19/20; following the audit a zero was run 5/28/20; no adjustments were needed.

EEMS Audit 10/19/2020 – Failed CO Audit Level 3

- EEMS has recommended implementing automatic zeros for the CO monitor to improve it's performance at lower audit points; however, the Teledyne T300 CO monitor does not have a special part that enables automatic zeroing and would have to be retrofitted.
- Prior to the audit a zero was run 10/17/20; following the audit a zero was run 10/26/20; no adjustments were needed.

TDEC Quarterly Audit 12/1/2020 – Failed CO Audit Levels 3 & 4

- It is believed that if the CO monitor read zero closer to actual zero, the monitor would have showed satisfactory correlation. TDEC recommended that we re-zero the CO monitor.
- Prior to the audit a zero was run 11/24/20; following the audit a zero was run 12/4/20; no adjustments were needed.

See attached scans below of the Near Road CO field logbook detailing the results of the zero tests run prior to and after each of the audits listed. MPHDAMP has implemented a target frequency of one zero test every 7 days, which is more stringent than the 14-day frequency requirement in the EPA QA Handbook Validation Templates, to prevent zero drift in the absence of automatic zero checks.

PROJECT NAME

NOTEBOOK NO.

5/14/20 temp check

	Historical	DAS	% diff
	26.1	27.2	1.5

5/15/20 HM visited site. all ok

internal tc	35.1	pressure	28.3
bench tc	48.0	co ref	19347
wall tc	68.0	nr ratio	1.204
flow	0.816	tc	27.2

5/18/20 HM visited site all ok

internal tc	35.2	pressure	28.4
bench tc	48.0	co ref	1956.8
wall tc	68.0	nr ratio	1.204
flow	0.815	tc	27.9

5/19/20 PC completed zero/span

internal tc	36.5	co ref	1949.0
bench temp	48.0	nr ratio	1.197
wall tc	68.0	start slope:	0.865
sample tc	46.9	start offset	-0.006
flow	0.807	end slope	
pressure	28.1	end offset	
		tc	27.7

	cal	PAS	% diff
PC	4.00	3.90	-2.5
zero	0.00	0.02	
span	20.00	20.14	0.70

5/20/20 HM visited site all ok

internal tc	35.5	pressure	28.4
bench tc	48.0	nr ratio	1.204
wall tc	68.0	co ref	1947.1
flow	0.817	tc	28.2

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DATE 20

PROJECT NAME _____ NOTEBOOK NO. _____

5/21/20 HM visited site - all ok

Internal tip	35.3	pressure	28.3
bench tip	48.0	co ref	19521
wheel tip	68.0	mr site	1.204
flow	0.816	tip	27.5

5/22/20 HM visited site - all ok

internal tip	35.2	pressure	28.4
bench tip	48.0	co ref	1965.7
wheel tip	68.0	mr site	1204
flow	0.817	tip	27.8

5/26/20 HM visited site - all ok

internal tip	35.7	pressure	283
bench tip	48.0	co ref	19240
wheel tip	68.0	mr site	1.201
flow	0.817	tip	28.2

5/26/2020 TDEC BAPA Audit Near Road CO Teledyne #T300
S/N 1360 Audit Equip Teledyne 750 #71
Tank TN02370 ZRS #183 SP 150304

Setpt	QA	QM(6832	QM(T300)
0/10L	~~0.0~~	~~-.140~~ -0.1	-0.140
30cc/10L	.603	0.5	0.491
50cc/10L	1.003	0.9	0.857
100cc/10L	1.997	1.8	1.803
190cc/10L	3.760	3.6	3.560
190cc/4L	9.146	8.1	8.154
0cc/10L	0	-0.1	-0.156

Times 12:11:00 12:10:55
Temp 28.8 29.8

5/27/20 HM visited site - all ok

Internal tip	35.5	pressure	283
bench tip	48.0	coref	1986.7
Wheel tip	68.0	mr site	1.204
flow	0.815	tip	27.9

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PROJECT NAME

6/24/20 HM completed P/zero/span (filter changed)

internal temp	34.8	corcf	1954.2
bench temp	48.0	mr ratio	1.205
wheel temp	68.0	start slope	0.865
sample temp	46.6	start offset	-0.006
flow	0.816	end slope	—
pressure	28.3	end offset	—
		temp	27.8

	cal	DAQ	q.diff
PC	4.00	3.90	2.5
zero	0.00	0.00	
span	20.00	20.10	0.35

5/29/20 HM visited site all ok

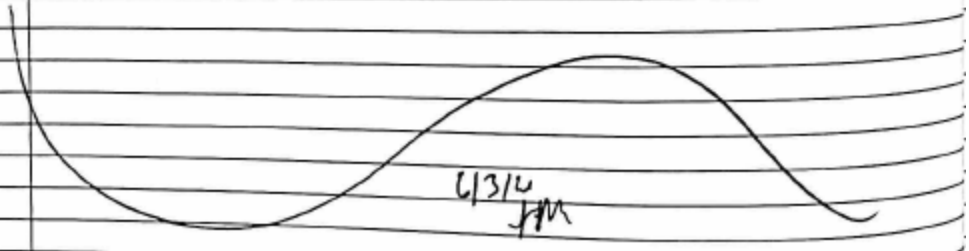
internal temp	34.9	pressure	28.3
bench temp	48.0	corcf	1985.6
wheel temp	68.0	mr ratio	1.204
flow	0.917	temp	28.2

6/1/20 HM visited site- all ok

internal temp	35.9	pressure	28.6
bench temp	49.0	corcf	1949.0
wheel temp	68.0	mr ratio	1.204
flow	0.822	temp	28.2

6/2/20 HM visited site - all ok

internal temp	34.8	pressure	28.4
bench temp	48.0	mr ratio	1.204
wheel temp	68.0	temp	26.8
flow	0.821	corcf	1938.6



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DATE 20

PROJECT NAME _____ NOTEBOOK NO. _____

10/17/20 HM completed PC/zero/span #av filter change
internal temp 35.1 co ref 1710.5
bench temp 42.2 mr ctrl 1.205
pressure 22.7 temp 27.6
flow 0.771 slope: 0.984
wheel temp 620 offset: -0.006
scrpk temp 469

	cal	dev	%diff
PC	4.00	3.92	-0.5
co	0.00	0.00	
span	20.00	19.95	-0.25

10/19/2020
Eric Hebert Audition Network
GWL onsite. HM out

10/20/20 HM visited site- all ok
internal temp 35.8 wheel temp 680
bench temp 480 Co ref 1697.5
pressure 28.5 mr ctrl 1.204
flow ~~21~~ 0.781 temp 28.9

10/22/20 HM visited site- all ok
internal temp 35.8 wheel temp 680
bench temp 480 Co ref 1696.5
pressure 28.5 mr ctrl 1.204
flow 0.778 temp 27.9

10/23/20 HM visited site- all ok
internal temp 35.7 wheel temp 680
bench temp 480 co ref 1699.6
pressure 28.6 mr ctrl 1.204
flow 0.779 temp 27.9

SIGNATURE _____ DATE _____ 20 _____
READ AND UNDERSTOOD _____ DATE _____ 20 _____

Date: 10/26/20		
Operator	HM	
Monitor	Teledyne T300	S/N 080
Calibrator	Thermo 146i	S/N 1207152907
Zero Air	Thermo 111	S/N [illegible]
Start Slope	N/A	0.764
Start Offset	N/A	-0.006
End Slope	N/A	
End Offset	N/A	
Gas Cylinder	607440	exp 7/14/28
Gas Conc.		485
Through probe	Yes ☑	No ☐
Chg Inlet filter	Yes ☑	No ☐

	Acceptable Range	
Internal temp	5-48°C	36.0
Bench temp	46-50°C	47.0
Pressure	10-35 inHg	28.5
Flow	0.5 - 1.0 lpm	0.776
Wheel Temp	66-70°C	68.0
Sample Temp	10-100 °C	76.9
CO Ref	1250-4950	1709.2
M/R ratio		1.197
Shelter Temp	20-30°C	28.1
Presicion/zero/span	Yes ☑	No ☐
Calibration	Yes ☐	No ☑

	Cal	OBS	% diff
PC	400	391	-2.3
Zero	0.00	-0.004	
Span	20.00	20.00	-0.2

10/28/20 HM visited site - all ok

internal tp	36.0	pressure	28.4
bench tp	47.0	CO ref	1711.2
wheel tp	68.0	M/R ratio	1.205
flow	0.775	temp	28.5

10/29/20 HM visited site - all ok

internal tp	35.6	pressure	28.0
bench tp	47.0	CO ref	1711.9
wheel tp	68.0	M/R ratio	1.205
flow	0.769	tp	27.8

10/30/20 HM visited site - all ok

internal tp	35.7	pressure	28.7
bench tp	47.0	CO ref	1711.2
wheel temp	68.0	M/R ratio	1.205
flow	0.781	temp	27.9

11/19/20 HM visited site all ok

internal temp	36.6	pressure	28.8
bench temp	47.0	coref	17125
wheel temp	68.0	mrratio	1.205
flow	0.784	temp	28.9

11/20/20 HM visited site- all ok

internal temp	36.6	pressure	28.8
bench temp	47.0	coref	17081
wheel temp	68.0	mrratio	1.204
flow	0.782	temp	28.9

Date:	11/24/20		
Operator	HM		
Monitor	Teledyne T300	S/N 040	
Calibrator	Thermo 146i	S/N 0175967	
Zero Air	Thermo 111	S/N 0105780	
Start Slope	N/A	0.864	
Start Offset	N/A	-0.096	
End Slope	N/A		
End Offset	N/A		
Gas Cylinder	0744	Exp 7/9/28	
Gas Conc.		995	

Through probe	Yes	☑	No	☐
Chg inlet filter	Yes	☑	No	☐

Acceptable Range		
Internal temp	5-48°C	35.7
Bench temp	46-50°C	48.0
Pressure	10-35 inHg	28.5
Flow	0.5 - 1.0 lpm	0.780
Wheel Temp	66-70°C	68.0
Sample Temp	10-100 °C	46.7
CO Ref	1250-4950	1708.5
M/R ratio		1.202
Shelter Temp	20-30°C	28.7

Presicion/zero/span	Yes	☑	No	☐
Calibration	Yes	☐	No	☑

	CO	pp)	%diff
PC	4.00	4.00	0.0
zero	0.00	0.06	
Span	20.00	19.92	.70

11/25/20 HM visited site- all ok

internal temp	36.8	pressure	28.6
bench temp	48.0	coref	17129
wheel temp	68.0	mrratio	1.204
flow	0.781	temp	29.4

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11/30/20 Hm visited site all ok

internal temp	35.7	pressure	287
bench temp	470	co ref	17174.1
wheel temp	680	mr ratio	1.203
flow	0.772	temp	272

TDEC QAPP 4Q Audit Near Road Teledyne T300 S/N #1360
Audit Equip Teledyne T250 #71 285#183 Tank FA0237D
SLP# 150306 time gap

Set	QA	QM	Analyzer	%D/%D Rng
0/10L	0	-0.3	-0.280	
30/10L	0.603	0.4	0.363	39.8% 33.3%
90/10L	1.799	1.5	1.521	16.6%/15.4%
180/10L	3.566	3.3	3.328	8.3%/6.7%
0/10L	0	-0.3	-0.260	
Time	11:20:05	11:20:00		
Temp	26.3	27.1		

12/2/20 Hm visited, site all ok

internal temp	35.2	pressure	278
bench temp	480	co ref	17165
wheel temp	680	mr ratio	1.205
flow	0.780	temp	272

12/3/20 Hm visited site all ok

internal temp	35.3	pressure	286
bench temp	480	co ref	17174
wheel temp	680	mr ratio	1.205
flow	0.779	temp	273

12/3/20 Hm completed temp check

Hydracal	DMM	diff
25.7	27.1	1.4

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Date:	12/4/20	
Operator	HM	
Monitor	Teledyne T300	S/N 1083
Calibrator	Thermo 146i	S/N 0375967
Zero Air	Thermo 111	S/N 0305783
Start Slope	N/A	0.964
Start Offset	N/A	-0.006
End Slope	N/A	
End Offset	N/A	
Gas Cylinder	CC307496	exp 7/5/23
Gas Conc.		495

Through probe	Yes ☑	No ☐
Chg inlet filter	Yes ☐	No ☑

Acceptable Range		
Internal temp	5-45°C	35.6
Bench temp	46-50°C	48.0
Pressure	10-35 inHg	28.3
Flow	0.5 - 1.0 lpm	0.774
Wheel Temp	66-70°C	68.0
Sample Temp	10-100°C	46.7
CO Ref	1250-4950	1695.2
M/R ratio		1.174
Shelter Temp	20-30°C	27.8

Presicion/zero/span	Yes ☑	No ☐
Calibration	Yes ☐	No ☑

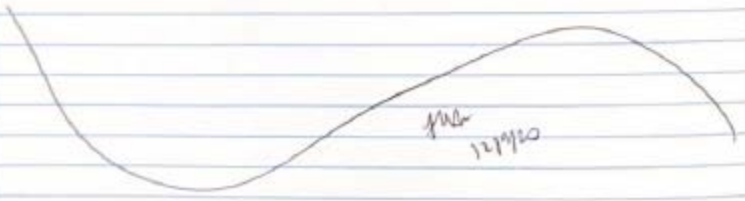
	CAL	MAS	%diff
PC	400	400	0.0
ZERO	000	000	
SPAN	2000	20.03	0.15

12/7/20 HM visited site- all OK

internal temp	35.7	pressure	28.4
bench temp	48.0	CO ref	1753
wheel temp	68.0	MR ratio	1.205
flow	0.773	temp	27.6

12/8/20 HM visited site- all ok

internal temp	35.5	preture	28.5
bench temp	48.0	coref	1749
wheel temp	68.0	MRratio	1.205
flow	0.775	temp	27.4



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