VERMONT FORENSIC LABORATORY

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DATAMASTER TECHNICAL SUPPORT INQUIRY

Agency/Site: Orange CSO **DataMaster Serial #:** 102906

Date: 10/17/2013 Requestor: R. Driscoll

Instrument Supervisor: Michael Welch Phone #: _____

Taken By: R. Driscoll

Problem: Calibration check errors while performing APM protocol

Laboratory Response: R. Driscoll to re-calibrate instrument at the VFL

Work Performed: Attempted to perform the APM protocol. First attempt failed due to the simulator solution being out of range. Opted to complete the RPC and re-run the APM. After successfully completing the RPC, the APM was attempted for a second time. The APM failed due to a calibration check error during the diagnostic portion of the protocol. The sample chamber was purged and a third APM attempt failed due to a calibration check error during the simulator vapor test. Printed a Status Record History and noted a "calibration check error" on June 28, 2013. The DMT was removed from service for re-calibration at the VFL. While at the lab, an adjustable flow rate valve was installed and the volume set to 1.5L. The instrument was then calibrated, certified and is ready for installation at the agency.

☐ On Site ☒ In-house Attachments: 18 pages

Performed By: Robert Driscoll RCD Date: 10/22/13

Final Review: TLGA Date: 10/23/2013

ANNUAL PREVENTATIVE MAINTENANCE

DataMaster DMT: 102906
Location: Orange SO
Calibration Date: 10/20/2011
Certification Date: 10/20/2011
Installation Date: 02/20/2013
APM Date: 10/17/2013
Performed by: ROBERT DRISCOLL

Diagnostic Results

```
VERSIONS
DMT: 1.01
PIC: 2.06
Modem: 2.4
Questions: 2.1

TEMPERATURES

Sample Chamber = 49.1°C
Breath Tube    = 46.5°C
Digital Sim    = 34.0°C

SETTINGS
Lamp Voltage   = 1.63 V
Cooler Voltage = 1.97 V
Bias Voltage   = 120 V
Chopper Freq   = 540 Hz

PUMP INFO
Flow Rate = 4.531 L/M

DETECTOR INFO
PUMP     ON          OFF
MAX(V)    0.0941      0.0959
MIN(V)    0.0925      0.0943

FILTER INFO
Filter 1   0.095  Zero = true
Filter 2   0.442  Zero = true
Filter 3   1.547  Zero = true

CALIBRATION CHECK
Xq  = 0.136  3.26%
```

Simulator Vapor Test

Concentration = 0.101 g/210L
Lot # = 12-84-100
Range = 0.096 - 0.106
Simulator Vapor = 0.093 g/210L
Simulator out of range

RCD 10/17/13

APM FAILED

Simulator Solution out of range. Will perform October RPC and rerun APM protocol. RCD 10/17/13

Performed by RCD **Date** 10/17/2013

Reviewed by _____ **Date** _____

ROUTINE PERFORMANCE CHECK REPORT

DataMaster DMT: 102906
Location: Orange SO
Calibration Date: 10/20/2011
Certification Date: 10/20/2011
Installation Date: 02/20/2013
RPC Date: 10/17/2013
Supervisor Name: ROBERT DRISCOLL

Diagnostic Results

```
VERSIONS
DMT: 1.01
PIC: 2.06
Modem: 2.4
Questions: 2.1

TEMPERATURES

Sample Chamber = 48.9°C
Breath Tube    = 47.7°C
Digital Sim    = 33.8°C

SETTINGS
Lamp Voltage   = 1.63 V
Cooler Voltage = 1.97 V
Bias Voltage   = 120 V
Chopper Freq   = 541 Hz

PUMP INFO
Flow Rate = 4.492 L/M

DETECTOR INFO
PUMP     ON          OFF
MAX(V)    0.0957      0.0988
MIN(V)    0.0939      0.0967

FILTER INFO
Filter 1   0.097  Zero = true
Filter 2   0.445  Zero = true
Filter 3   1.550  Zero = true

CALIBRATION CHECK
Xq  = 0.136  3.53%
```

Routine Performance Check Passed

Accuracy and Precision Check

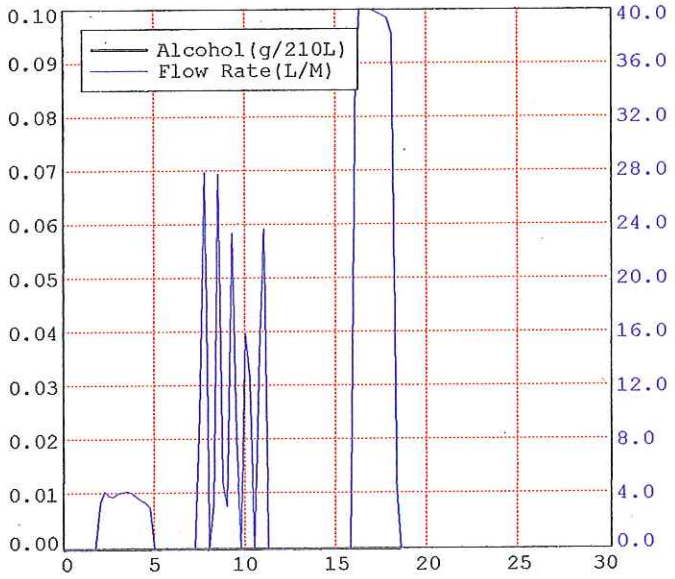
Concentration	= 0.098 g/210L
Lot #	= 12-88-100
Range	= 0.093 - 0.103
Average	= 0.098 g/210L
Std Dev	= 0.0000

RF Detection Test

Passed

Sample Acceptance Test

Passed



Performed by RCO Date 10/17/2013

Reviewed by _____ Date _____

ANNUAL PREVENTATIVE MAINTENANCE

DataMaster DMT: 102906
Location: Orange SO
Calibration Date: 10/20/2011
Certification Date: 10/20/2011
Installation Date: 02/20/2013
APM Date: 10/17/2013
Performed by: ROBERT DRISCOLL

Diagnostic Results

```
VERSIONS
DMT: 1.01
PIC: 2.06
Modem: 2.4
Questions: 2.1

TEMPERATURES

Sample Chamber = 48.8°C
Breath Tube    = 46.2°C
Digital Sim    = 33.9°C

SETTINGS
Lamp Voltage   = 1.63 V
Cooler Voltage = 1.97 V
Bias Voltage   = 120 V
Chopper Freq   = 540 Hz

PUMP INFO
Flow Rate = 4.506 L/M

DETECTOR INFO
PUMP     ON          OFF
MAX(V)    0.1000      0.1018
MIN(V)    0.0970      0.0998

FILTER INFO
Filter 1   0.100  Zero = true
Filter 2   0.447  Zero = true
Filter 3   1.554  Zero = true

CALIBRATION CHECK
Xq  = 0.137  4.01%
```

RCD 10/17/13

APM FAILED

Cal check failed by 0.01%. Purging sample chamber, will rerun APM RCD 10/17/13

Performed by RCD **Date** 10/17/2013

Reviewed by _____ **Date** _____

H.C. 10 RCD

ANNUAL PREVENTATIVE MAINTENANCE

DataMaster DMT: 102906
Location: Orange SO
Calibration Date: 10/20/2011
Certification Date: 10/20/2011
Installation Date: 02/20/2013
APM Date: 10/17/2013
Performed by: ROBERT DRISCOLL

Diagnostic Results

```
VERSIONS
DMT: 1.01
PIC: 2.06
Modem: 2.4
Questions: 2.1

TEMPERATURES

Sample Chamber = 48.7°C
Breath Tube    = 46.8°C
Digital Sim    = 34.0°C

SETTINGS
Lamp Voltage   = 1.63 V
Cooler Voltage = 1.97 V
Bias Voltage   = 120 V
Chopper Freq   = 540 Hz

PUMP INFO
Flow Rate = 4.605 L/M

DETECTOR INFO
PUMP     ON          OFF
MAX(V)    0.1033      0.1049
MIN(V)    0.1012      0.1030

FILTER INFO
Filter 1   0.102  Zero = true
Filter 2   0.452  Zero = true
Filter 3   1.560  Zero = true

CALIBRATION CHECK
Xq  = 0.136  3.53%
```

Simulator Vapor Test

Concentration =
Lot # =
Range =
Simulator Vapor =

APM FAILED

Cal check error during Simulator Vapor test RCD 10/17/13

Performed by RCD **Date** 10/17/2013

Reviewed by _____ **Date** _____

DIAGNOSTIC RESULT

DataMaster DMT: 102906
Location: Orange SO
Calibration Date: 10/20/2011
Certification Date: 10/20/2011
Installation Date: 02/20/2013
Test Date: 10/17/2013
Test Time: 11:58:50

```
VERSIONS
DMT: 1.01
PIC: 2.06
Modem: 2.4
Questions: 2.1

TEMPERATURES

Sample Chamber = 48.9°C
Breath Tube    = 45.2°C
Digital Sim    = 33.9°C

SETTINGS
Lamp Voltage   = 1.63 V
Cooler Voltage = 1.97 V
Bias Voltage   = 120 V
Chopper Freq   = 540 Hz

PUMP INFO
Flow Rate = 4.600 L/M

DETECTOR INFO
PUMP     ON         OFF
MAX(V)    0.1478     0.1496
MIN(V)    0.1463     0.1478

FILTER INFO
Filter 1   0.149  Zero = true
Filter 2   0.491  Zero = true
Filter 3   1.591  Zero = true

CALIBRATION CHECK
Xq  = 0.136  3.39%
```

Status Record History

Status Date	Status Time	Test Type	Status Message
10/20/2011	08:12:58	Calibration Record	Adjustment Error
12/31/2011	02:02:40	DUI Subject Record	Simulator Out of Range
02/29/2012	16:57:43	RPC Record	RF NOT DETECTED
03/31/2012	02:06:31	DUI Subject Record	RESPONSE TIMEOUT
10/19/2012	10:48:55	APM Record	SAMPLE ACCEPTANCE TEST FAILED
02/20/2013	13:14:44	Installation Record	ACCURACY AND PRECISION CHECK FAILED
06/28/2013	16:38:03	DUI Subject Record	CALIBRATION CHECK ERROR
07/16/2013	21:44:37	DUI Subject Record	RESPONSE TIMEOUT
08/16/2013	21:07:03	DUI Subject Record	Pump Error
10/17/2013	10:47:37	APM Record	ACCURACY AND PRECISION CHECK FAILED
10/17/2013	11:37:17	APM Record	Diagnostic Check Failed
10/17/2013	11:49:20	APM Record	ACCURACY AND PRECISION CHECK FAILED

CALIBRATION REPORT

DataMaster DMT: 102906
Calibration Date: 10/21/2013
Calibrated by: ROBERT DRISCOLL
Lot: 13-02-100

Ca = 0.098			
CAL = 0.963456	0.800	<= CAL <	1.200
b1 = 0.000	0.000	<= b1 <	0.004
b2 = 0.007	0.002	<= b2 <	0.010
b3 = 0.000	0.000	<= b3 <	0.004
Xq = 0.136	0.050	<= Xq <	0.200
a21 = 1.190521	1.050	<= a21 <	1.300
a31 = 0.415646	0.300	<= a31 <	0.800

Performed by RCD Date 10/21/2013

X M 19 RCD

ACCURACY & PRECISION REPORT

STATE OF VERMONT

DataMater DMT: 102906

Date: 10/21/2013
Time: 11:01:17

SUPERVISOR NAME:
ROBERT DRISCOLL

SOLUTION LOT #: OHIO 12220
SOLUTION CONCENTRATION: 0.101

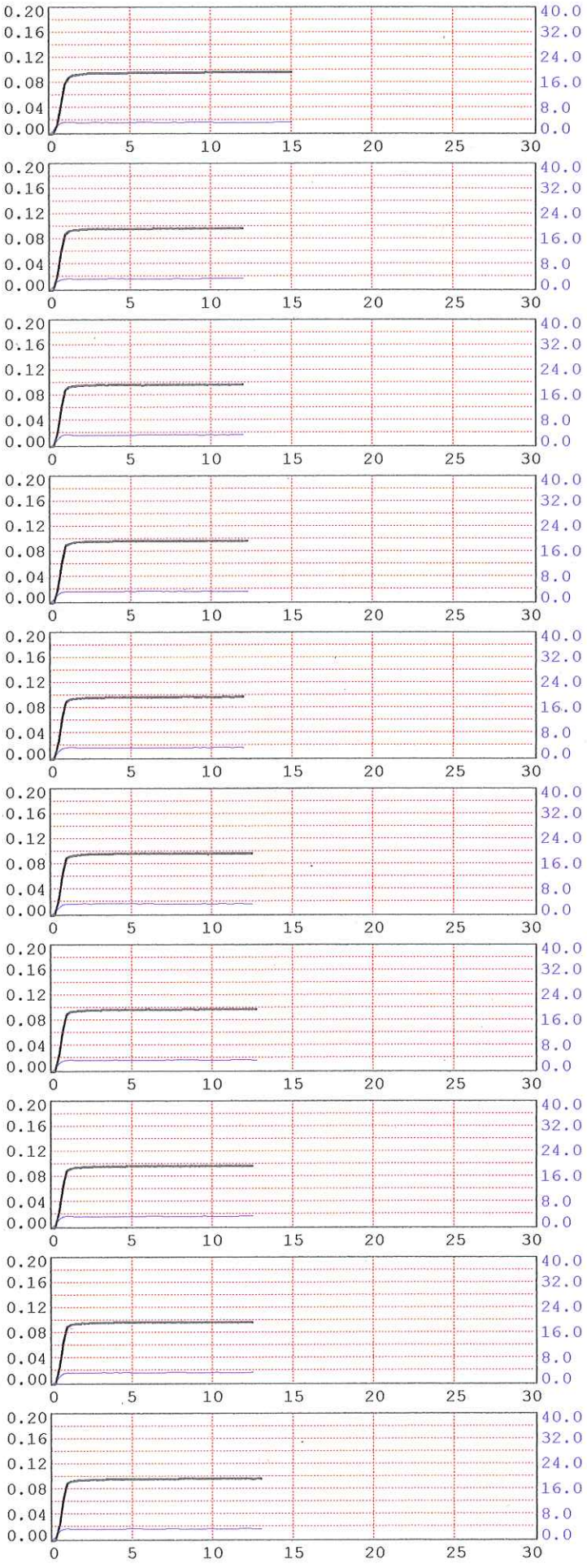
BLANK TEST	0.000	11:02
CALIBRATION CHECK	PASSED	11:02
SIMULATOR VAPOR 33.9°C	0.097	11:02
SIMULATOR VAPOR 33.9°C	0.097	11:03
SIMULATOR VAPOR 33.8°C	0.097	11:04
SIMULATOR VAPOR 33.9°C	0.097	11:05
SIMULATOR VAPOR 33.9°C	0.097	11:06
SIMULATOR VAPOR 33.9°C	0.097	11:07
SIMULATOR VAPOR 33.9°C	0.098	11:08
SIMULATOR VAPOR 33.9°C	0.097	11:10
SIMULATOR VAPOR 33.9°C	0.097	11:11
SIMULATOR VAPOR 33.9°C	0.097	11:12
BLANK TEST	0.000	11:13

Average = 0.097
Std Dev = 0.000

CAL CHECK

Avg. is outside of 3% tolerance. Replaced second source solution with Guth 13100 and will rerun.

RCO 10/21/13



ACCURACY & PRECISION REPORT

STATE OF VERMONT

DataMater DMT: 102906

Date: 10/21/2013
Time: 12:54:52

SUPERVISOR NAME:
ROBERT DRISCOLL

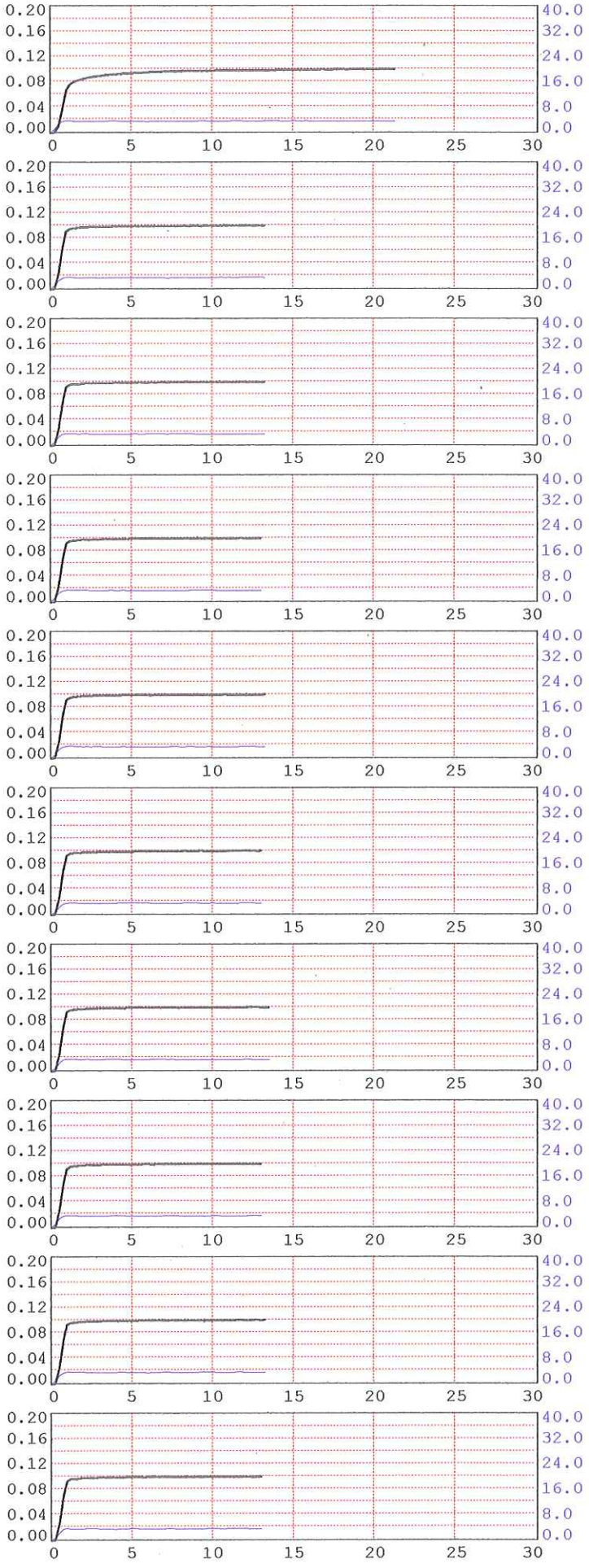
SOLUTION LOT #: GUTH 13100
SOLUTION CONCENTRATION: 0.100

BLANK TEST	0.000	12:55
CALIBRATION CHECK	PASSED	12:55
SIMULATOR VAPOR 33.9°C	0.099	12:56
SIMULATOR VAPOR 33.9°C	0.099	12:57
SIMULATOR VAPOR 33.9°C	0.099	12:58
SIMULATOR VAPOR 33.8°C	0.100	12:59
SIMULATOR VAPOR 33.9°C	0.099	13:00
SIMULATOR VAPOR 33.9°C	0.100	13:01
SIMULATOR VAPOR 33.9°C	0.100	13:02
SIMULATOR VAPOR 33.9°C	0.099	13:03
SIMULATOR VAPOR 33.9°C	0.100	13:04
SIMULATOR VAPOR 33.9°C	0.100	13:05
BLANK TEST	0.000	13:06

Average = 0.099
Std Dev = 0.000

CAL CHECK
RCD 10/21/13

Subsequent certification failed to detect interference.
RCD 10/21/13



CALIBRATION REPORT

DataMaster DMT: 102906
Calibration Date: 10/21/2013
Calibrated by: ROBERT DRISCOLL
Lot: 13-02-100

Ca = 0.098			
CAL = 0.959079	0.800	<= CAL <	1.200
b1 = 0.000	0.000	<= b1 <	0.004
b2 = 0.007	0.002	<= b2 <	0.010
b3 = 0.000	0.000	<= b3 <	0.004
Xq = 0.136	0.050	<= Xq <	0.200
a21 = 1.191387	1.050	<= a21 <	1.300
a31 = 0.405069	0.300	<= a31 <	0.800

Performed by RCD Date 10/21/2013

11 of 19 RCD

ACCURACY & PRECISION REPORT

STATE OF VERMONT

DataMater DMT: 102906

Date: 10/21/2013
Time: 15:18:00

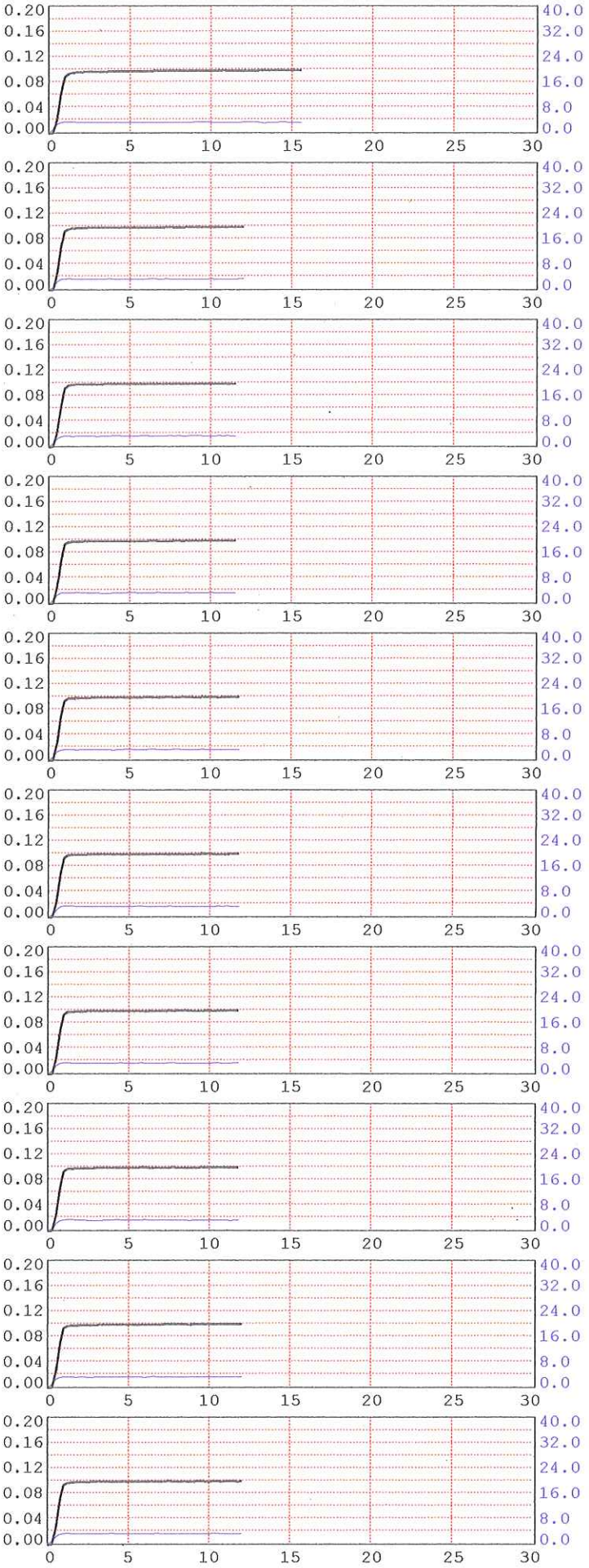
SUPERVISOR NAME:
RCD CAL CHECK

SOLUTION LOT #: GUTH 13100
SOLUTION CONCENTRATION: 0.100

BLANK TEST	0.000	15:18
CALIBRATION CHECK	PASSED	15:19
SIMULATOR VAPOR 33.8°C	0.098	15:19
SIMULATOR VAPOR 33.9°C	0.098	15:20
SIMULATOR VAPOR 33.8°C	0.099	15:21
SIMULATOR VAPOR 33.9°C	0.098	15:22
SIMULATOR VAPOR 33.8°C	0.099	15:23
SIMULATOR VAPOR 33.9°C	0.099	15:24
SIMULATOR VAPOR 33.8°C	0.099	15:25
SIMULATOR VAPOR 33.8°C	0.099	15:26
SIMULATOR VAPOR 33.8°C	0.099	15:27
SIMULATOR VAPOR 33.8°C	0.099	15:28
BLANK TEST	0.000	15:29

Average = 0.098
Std Dev = 0.000

Subsequent Certification failed to detect interference. Will replace interference solution. RCD 10/21/13



ACCURACY & PRECISION REPORT

STATE OF VERMONT

DataMater DMT: 102906

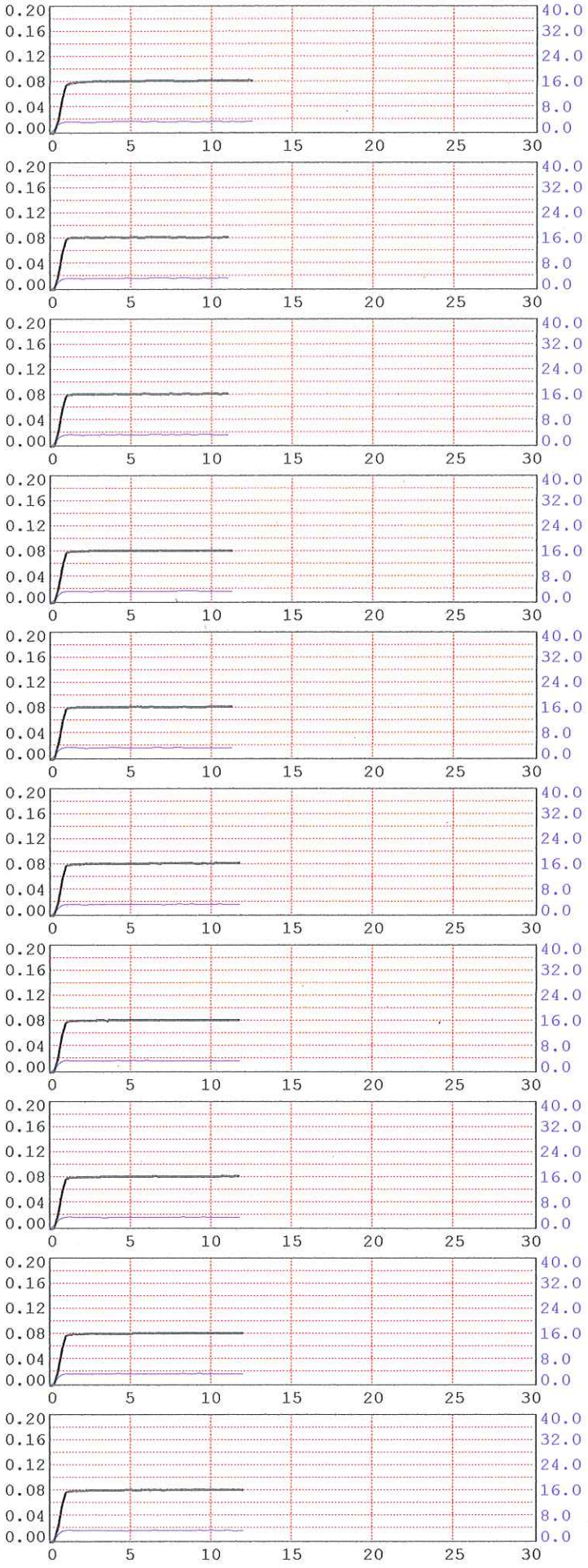
Date: 10/22/2013
Time: 08:35:36

SUPERVISOR NAME:
ROBERT DRISCOLL

SOLUTION LOT #: 12-85-08A1
SOLUTION CONCENTRATION: 0.081

BLANK TEST	0.000	08:36
CALIBRATION CHECK	PASSED	08:36
Xq = 0.136 (0.20%)		
SIMULATOR VAPOR 33.8°C	0.082	08:36
X[1] = 0.0825 (-0.0042) (0.0008)		
SIMULATOR VAPOR 33.9°C	0.082	08:37
X[1] = 0.0823 (-0.0044) (0.0005)		
SIMULATOR VAPOR 33.7°C	0.082	08:38
X[1] = 0.0820 (-0.0045) (0.0005)		
SIMULATOR VAPOR 33.8°C	0.081	08:40
X[1] = 0.0819 (-0.0049) (0.0008)		
SIMULATOR VAPOR 33.9°C	0.082	08:41
X[1] = 0.0823 (-0.0046) (0.0003)		
SIMULATOR VAPOR 33.9°C	0.082	08:42
X[1] = 0.0827 (-0.0045) (0.0008)		
SIMULATOR VAPOR 33.8°CINTERFERENCE		08:43
X[1] = 0.0818 (-0.0055) (0.0002)		
SIMULATOR VAPOR 33.8°C	0.082	08:44
X[1] = 0.0820 (-0.0046) (0.0008)		
SIMULATOR VAPOR 33.8°CINTERFERENCE		08:45
X[1] = 0.0819 (-0.0051) (0.0007)		
SIMULATOR VAPOR 33.8°CINTERFERENCE		08:46
X[1] = 0.0819 (-0.0051) (0.0008)		
BLANK TEST	0.000	08:47

A+P test of new bottle of interference solution. Still failing to identify Acetone. Will re-calibrate instrument RCD 10/22/13



CALIBRATION REPORT

DataMaster DMT: 102906
Calibration Date: 10/22/2013
Calibrated by: ROBERT DRISCOLL
Lot: 13-02-100

Ca	=	0.098				
CAL	=	0.955759	0.800	<=	CAL	< 1.200
b1	=	0.000	0.000	<=	b1	< 0.004
b2	=	0.006	0.002	<=	b2	< 0.010
b3	=	0.000	0.000	<=	b3	< 0.004
Xq	=	0.137	0.050	<=	Xq	< 0.200
a21	=	1.198704	1.050	<=	a21	< 1.300
a31	=	0.401017	0.300	<=	a31	< 0.800

Performed by RCD Date 10/22/2013

ACCURACY & PRECISION REPORT

STATE OF VERMONT

DataMater DMT: 102906

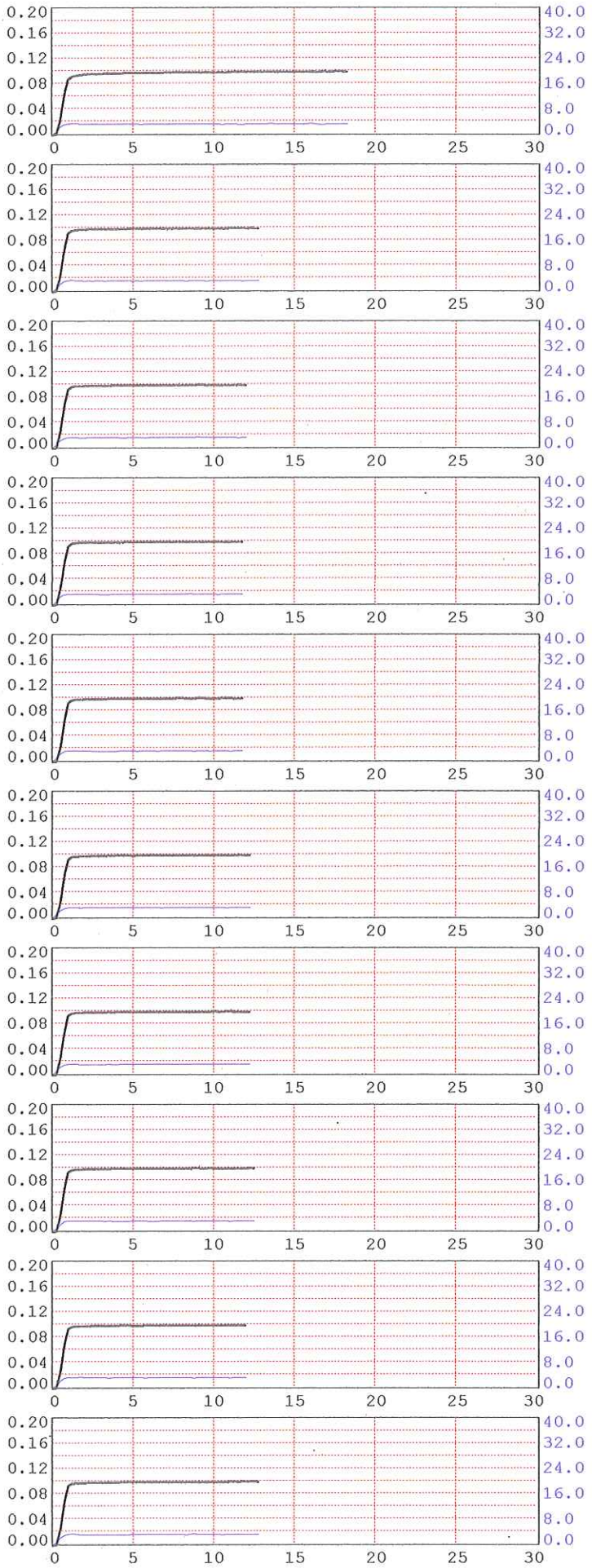
Date: 10/22/2013
Time: 09:04:47

SUPERVISOR NAME:
RCD CAL CHECK

SOLUTION LOT #: GUTH 13100
SOLUTION CONCENTRATION: 0.100

BLANK TEST	0.000	09:05
CALIBRATION CHECK	PASSED	09:05
SIMULATOR VAPOR 33.9°C	0.099	09:06
SIMULATOR VAPOR 33.8°C	0.099	09:07
SIMULATOR VAPOR 33.9°C	0.099	09:08
SIMULATOR VAPOR 33.9°C	0.099	09:09
SIMULATOR VAPOR 33.7°C	0.099	09:10
SIMULATOR VAPOR 33.8°C	0.099	09:11
SIMULATOR VAPOR 33.8°C	0.099	09:12
SIMULATOR VAPOR 33.8°C	0.099	09:13
SIMULATOR VAPOR 33.9°C	0.098	09:14
SIMULATOR VAPOR 33.8°C	0.099	09:15
BLANK TEST	0.000	09:16

Average = 0.098
Std Dev = 0.000



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ACCURACY & PRECISION REPORT

STATE OF VERMONT

DataMater DMT: 102906

Date: 10/22/2013
Time: 09:19:14

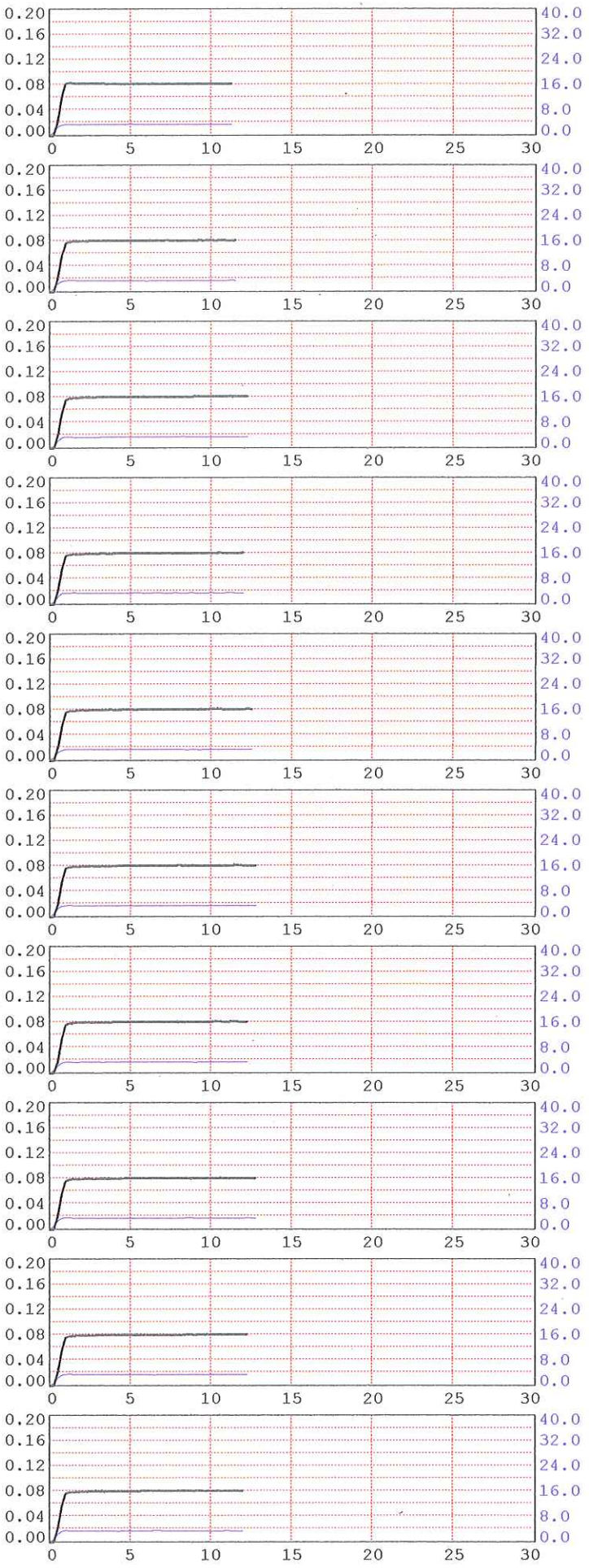
SUPERVISOR NAME:
ROBERT DRISCOLL

SOLUTION LOT #: 12-85-08A1
SOLUTION CONCENTRATION: 0.081

BLANK TEST	0.000	09:20
CALIBRATION CHECK	PASSED	09:20
SIMULATOR VAPOR 33.9°C	0.081	09:20
SIMULATOR VAPOR 33.9°C	0.081	09:21
SIMULATOR VAPOR 33.9°C	0.081	09:22
SIMULATOR VAPOR 33.9°C	0.081	09:23
SIMULATOR VAPOR 33.9°C	0.081	09:24
SIMULATOR VAPOR 33.9°C	0.081	09:25
SIMULATOR VAPOR 33.9°C	0.081	09:26
SIMULATOR VAPOR 33.9°C	0.081	09:27
SIMULATOR VAPOR 33.9°C	0.080	09:29
SIMULATOR VAPOR 33.9°C	0.081	09:30
BLANK TEST	0.000	09:30

Average = 0.080
Std Dev = 0.000

Failed to detect "Interference". Replaced Interference solution. RD 10/22/13



ACCURACY & PRECISION REPORT

STATE OF VERMONT

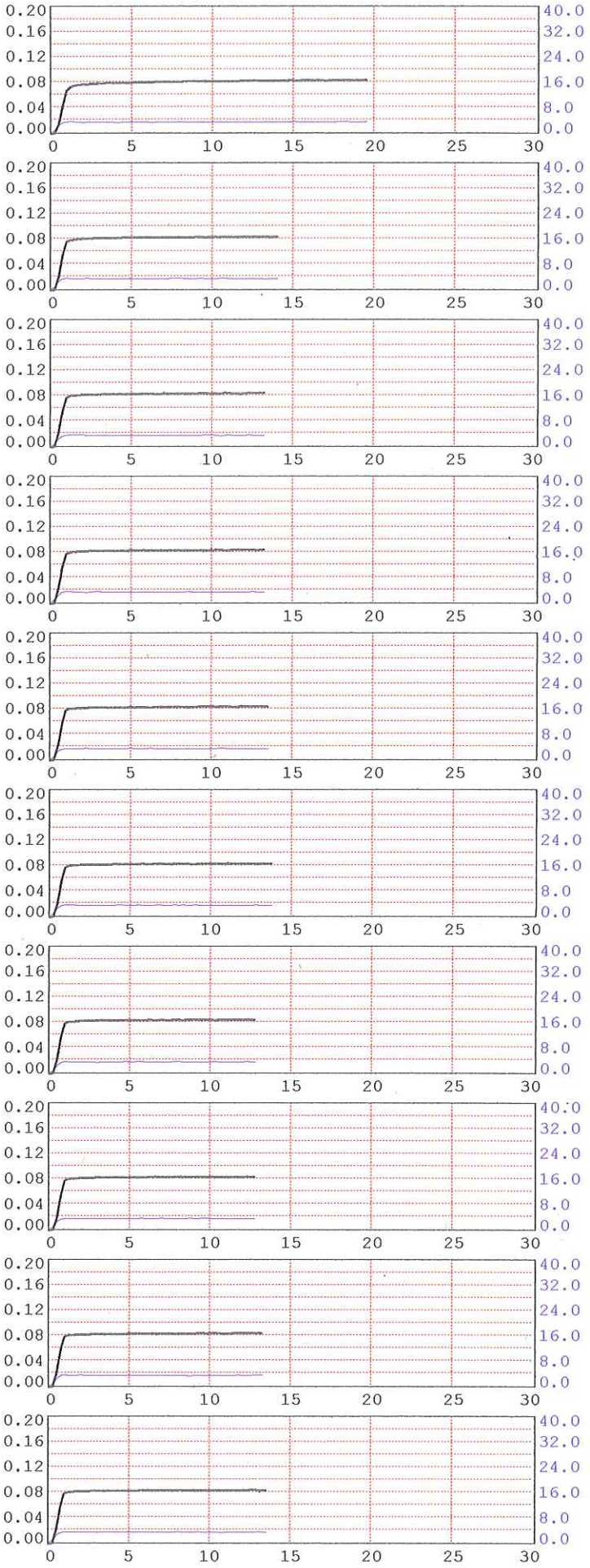
DataMater DMT: 102906

Date: 10/22/2013
Time: 10:53:13

SUPERVISOR NAME:
ROBERT DRISCOLL

SOLUTION LOT #: 13-05-08A1
SOLUTION CONCENTRATION: 0.080

BLANK TEST	0.000	10:54
CALIBRATION CHECK	PASSED	10:54
SIMULATOR VAPOR 33.9°CINTERFERENCE		10:54
SIMULATOR VAPOR 33.9°CINTERFERENCE		10:55
SIMULATOR VAPOR 33.8°CINTERFERENCE		10:56
SIMULATOR VAPOR 33.9°CINTERFERENCE		10:57
SIMULATOR VAPOR 33.8°CINTERFERENCE		10:58
SIMULATOR VAPOR 33.8°CINTERFERENCE		11:00
SIMULATOR VAPOR 33.8°CINTERFERENCE		11:01
SIMULATOR VAPOR 33.9°CINTERFERENCE		11:02
SIMULATOR VAPOR 33.9°CINTERFERENCE		11:03
SIMULATOR VAPOR 33.9°CINTERFERENCE		11:04
BLANK TEST	0.000	11:05



CERTIFICATION REPORT

DataMaster DMT: 102906
Calibration Date: 10/22/2013
Certification Date: 10/22/2013
Certified by: ROBERT DRISCOLL

Diagnostic Results

```
VERSIONS
DMT: 1.01
PIC: 2.06
Modem: 2.4
Questions: 2.1

TEMPERATURES

Sample Chamber = 48.8°C
Breath Tube    = 47.5°C
Digital Sim    = 33.9°C

SETTINGS
Lamp Voltage   = 1.71 V
Cooler Voltage = 1.82 V
Bias Voltage   = 120 V
Chopper Freq   = 539 Hz

PUMP INFO
Flow Rate = 3.885 L/M

DETECTOR INFO
PUMP     ON         OFF
MAX(V)    0.0199     0.0222
MIN(V)    0.0185     0.0205

FILTER INFO
Filter 1   0.021  Zero = true
Filter 2   0.362  Zero = true
Filter 3   1.510  Zero = true

CALIBRATION CHECK
Xq  = 0.137  0.00%
```

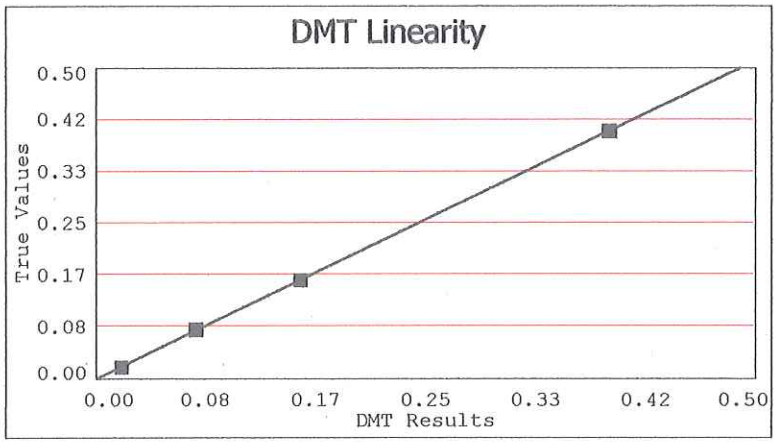
Options

```
OPTIONS
Units
   Alcohol.................. g/210L
Simulator
   Tolerance Check.......... yes
   Standard Type............ wet
   Nominal.................. 0.100
   Digital Simulator........ Guth34CNP
Subject
   Ask Questions............ yes
   Number of Tests.......... 2
   Alcohol Display.......... yes
   Volume Display........... yes
   Query Refusal............ yes
   Copies................... 3
   Simulator Before......... yes
   Simulator Between........ yes
   Simulator After.......... no
   Observation Time......... 0
Supervisor
   Number of Tests.......... 10
Calibration
   Standard Type............ wet
   Nominal.................. 0.100
   Nominal(Dry Gas)......... 0.100
   Number of Tests.......... 1
Printer
   Printer On............... yes
Software Configuration
   Data Collection.......... yes
```

Linearity Check Results

True Value	Reported Average	Std Dev
0.020 g/210L Lot # 13-07-020	0.019 g/210L	0.0000
0.080 g/210L Lot # 13-05-080	0.076 g/210L	0.0000
0.160 g/210L Lot # 13-11-160	0.155 g/210L	0.0000
0.399 g/210L Lot # 13-14-400	0.389 g/210L	0.0000

$R^2 = 1$



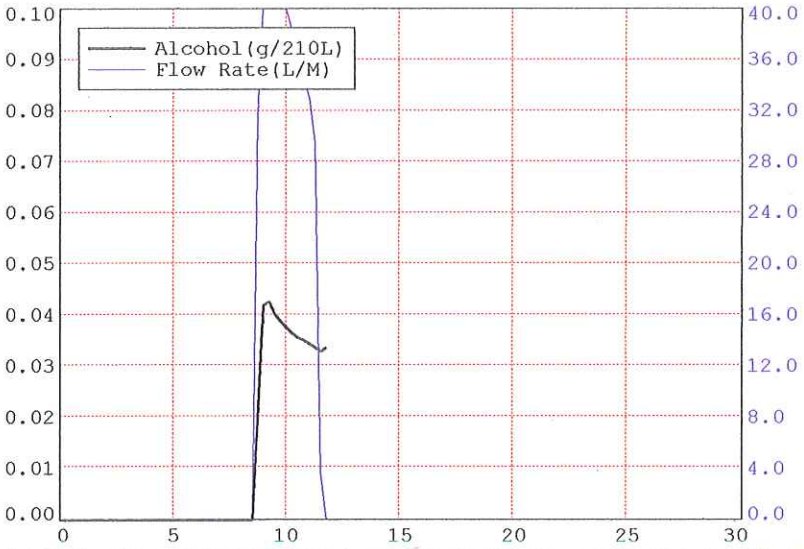
Acetone Interference Test

Lot # 13-05-08A1

Interference Detected

Mouth Alcohol Test

Mouth Alcohol Detected

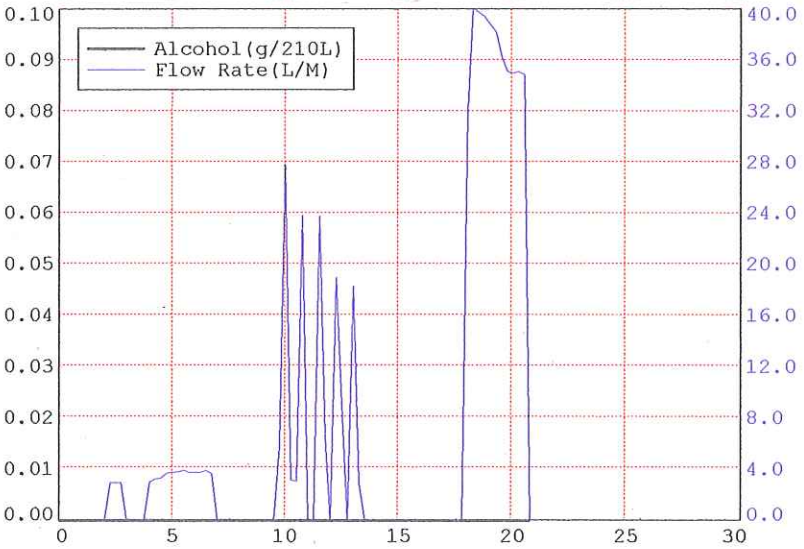


RF Detection Test

Passed

Sample Acceptance Test

Passed



CERTIFICATION PASSED

Performed by RCD Date 10/22/2013

Reviewed by Date 10/22/2013