

Alaska Scientific Crime Detection Laboratory

DataMaster Evaluation Form

Issued: 6/11/2014
Effective: 6/11/2014

Version: DMEF2014 R0
Status: Active

Instrument # 100848

Date: 6/9/15

Analyst: Colleen O'Bryant

1. Reason for instrument evaluation

Detector overflow on April VOC while in the field.

2. Troubleshooting/Repair

o I reached out to Dave Radomski (NPPAS) asking about sudden detector voltage spikes. He suggested monitoring the lamp, cooler + bias voltages after a restart of the DMT + repeating the cycle multiple times. The lamp, cooler + bias voltages were stable in the field as well as at VOC indicating an issue with the detector. See summary of voltages attached.

o Replaced detector, updated software to 3.01, updated lamp, cooler + bias voltages to bring detector voltage within +/- 0.100 volts (see attached tech screen) 6/11/15 COB

o Since detector was replaced - recalibrate.

3. VOC (attached)

4. Verify software version 3.01

Return to Factory for Repair

Ready For Calibration

Ready For Certification

O`Bryant, Colleen S (DPS)

From: Dave Radomski <dmr@npas.com>
Sent: Tuesday, June 09, 2015 4:53 PM
To: O`Bryant, Colleen S (DPS)
Subject: RE: Detector Overflow

Precisely!

----- Original message -----

From: "O`Bryant, Colleen S (DPS)" <colleen.obryant@alaska.gov>
Date: 06/09/2015 7:39 PM (GMT-05:00)
To: Dave Radomski <dmr@npas.com>
Subject: RE: Detector Overflow

I`m thinking based upon these numbers I have one of each. 100345 has a fluctuating lamp voltage meaning I should replace the controller board. 100348 has stable lamp, cooler and bias values indicating I should replace the detector.

What do you think?

Colleen O`Bryant – Forensic Scientist III

From: Dave Radomski [<mailto:dmr@npas.com>]
Sent: Tuesday, June 09, 2015 10:16 AM
To: O`Bryant, Colleen S (DPS)
Subject: Re: Detector Overflow

Record Cooler, Lamp, Bias and Detector Voltages.

Turn off and back on.

Record Cooler, Lamp, Bias and Detector Voltages.

Repeat this a few times and see if any of the settings (Cooler, Lamp, Bias) are changing.

If you have the historical values for these settings,that would also help for comparison.

If the detector voltage is changing but the Cooler, Lamp and Bias are not, the issue is either a loss of energy through the sample chamber or a failing detector.

If the Cooler, Lamp and/or Bias are changing, the digital pot(s) on the controller board are defective in that they're not recalling the proper set point at power up.

On Jun 9, 2015, at 1:19 PM, O'Bryant, Colleen S (DPS) wrote:

Dave,

I have two instruments that recently returned from the field for detector overflow.

100348 was in service in Sand Point for almost two years, it is a low use instrument, but VOCs are still done every ~60 days. Chuck attempted to do the 4/11/15 VOC remotely, so he logged into the instrument and got a detector overflow with the detector around 2.00 volts. It was returned to the lab and the volts are similar here (1.9V). The lamp (2.06) and cooler (1.82) both seem a little high, but not outrageous.

The other instrument is a similar story. 100345 in service in King Cove for almost 3 years, low use instrument. Detector voltage is spiked for the 4/11/15 VOC and 5 attempts after that. Voltage is ~2.00V. As found voltage is .415V, with lamp (1.84) and cooler (1.58) closer to ranges I'm used to seeing. Ran a VOC at the lab without issue.

Any ideas? What would cause a detector voltage to randomly spike?

Trying to figure out how to troubleshoot these two.

Thanks,
Colleen

100348		Summary of Lamp, Cooler, Bias and Detector voltages.			
Date	Lamp	Cooler	Bias	Detector	
2/26/2015	2.06V	1.82V	79V		VOC Completed Successfully - In the field
4/11/2015	2.06V	1.82V	79V		Failed VOC - Detector Overflow - In the field
4/16/2015	2.06V	1.82V	79V		Failed VOC - Detector Overflow - In the field
6/9/2015	2.06V	1.82V	79V	1.531V	Voltages from Technician Screen following reset @ SCDL
6/9/2015	2.06V	1.82V	79V	1.530V	Voltages from Technician Screen following reset @ SCDL
6/9/2015	2.06V	1.82V	79V	1.532V	Voltages from Technician Screen following reset @ SCDL
6/9/2015	2.06V	1.82V	79V	1.534V	Voltages from Technician Screen following reset @ SCDL
6/9/2015	2.06V	1.82V	79V	1.536V	Voltages from Technician Screen following reset @ SCDL

COB 6/24/15

Technician Screen

DATAMASTER dmt: 100348

Date: 06/11/2015
Time: 2:53 PM

Temperatures (°C)
Sample Cell: 48.7°C
Breath Tube: 43.3°C

Current Barometer 29.5 in
Volume (Ltr) 0.00

Settings
Lamp: 1.76 V
Bias: 80 V
Cooler: 1.69 V
Chopper: 529 Hz

Voltages (V)
Flow: 1.03 V
Detector: 0.054 V

*Following detector replacement
and lamp + cooler adjustments.
COB 6/11/15*

VERIFICATION OF CALIBRATION REPORT

of DataMaster dmt Breath Test Instrument

State of Alaska

Serial #: 100348

Scientific Crime Detection Laboratory - Statewide Breath Alcohol Program

Date: 06/11/2015

External Standard Test Values

EXTERNAL STANDARD INFORMATION

NOMINAL: 0.080
 TARGET AT 29.52: 0.079
 LOT #: 09214080A2
 EXPIRATION: 05/01/2016
 TANK PRESSURE: 588 psi

BLANK TEST	0.000	15:05
INTERNAL STANDARD	VERIFIED	15:05
Xq = 0.090 (3.95%)		
EXTERNAL STANDARD	0.079	15:05
X[1] = 0.0792 (-0.0004) (-0.0005)		
BLANK TEST	0.000	15:06
EXTERNAL STANDARD	0.079	15:06
X[1] = 0.0792 (-0.0011) (-0.0010)		
BLANK TEST	0.000	15:07
EXTERNAL STANDARD	0.079	15:07
X[1] = 0.0793 (-0.0011) (-0.0009)		
BLANK TEST	0.000	15:08
EXTERNAL STANDARD	0.079	15:08
X[1] = 0.0790 (-0.0014) (-0.0013)		
BLANK TEST	0.000	15:09
EXTERNAL STANDARD	0.079	15:09
X[1] = 0.0791 (-0.0010) (-0.0008)		
BLANK TEST	0.000	15:10

Average = 0.0790
 Std Dev = 0.0000

Diagnostic Check

VERSIONS

DMT: 3.01
~~FIC: 3.02~~
 Modem: 2.6
 Questions: 2.2

TEMPERATURES

Sample Chamber = 48.8°C	PASSED
(44.0°C - 52.0°C)	
Breath Tube = 44.8°C	PASSED
(38.0°C - 50.0°C)	

SETTINGS

Lamp Voltage = 1.76 V	PASSED
(1.25 V - 2.93 V)	
Cooler Voltage = 1.66 V	PASSED
(1.01 V - 2.37 V)	
Bias Voltage = 80 V	PASSED
(47 V - 109 V)	
Chopper Freq = 531 Hz	PASSED
(475 Hz - 575 Hz)	
Barometer = 29.5 in	

PUMP INFO

Flow Rate = 4.445 L/M	PASSED
(3.500 L/M - 6.500 L/M)	

DETECTOR INFO

PUMP ON	PASSED
(0.002 V <= 0.010 V)	
PUMP OFF	PASSED
(0.001 V <= 0.010 V)	

FILTER INFO

Filter 1	PASSED
Filter 2	PASSED
Filter 3	PASSED

INTERNAL STANDARD

Xq = 0.089	3.74%	(0.00% - 4.00%)	PASSED
------------	-------	-----------------	--------

I, Nita J. Bolz, after being first duly sworn, depose and state as follows:

(1) I am a Forensic Scientist IV at the State of Alaska Scientific Crime Detection Laboratory.

(2) The Alaska Scientific Crime Detection Laboratory is an entity within the Department of Public Safety.

(3) I am the Scientific Director of the State Breath Alcohol Program.

(4) In that capacity, I am responsible for overseeing the Breath Alcohol Program, which includes assuring that instruments are calibrated and maintaining program records.

(5) The above is a true and accurate verification of calibration, which is performed by the instrument's software, as specified by the State Breath Alcohol Program. Verification of calibration is a regularly conducted and regularly recorded activity of the State Breath Alcohol Program.

(6) The referenced instrument is certified for evidentiary use in the State of Alaska.

Internal Standard elevated. Detector replaced. Calibration recommended. 06/11/15

 Nita J. Bolz
 Scientific Director
 State Breath Alcohol Program

Subscribed and sworn before me this _____ day of _____, 20 _____