

Teledyne T640 Calibration Form

Office of Air Quality – Air monitoring Branch

Date: 2/27/24

Site: Plummer

Performed by: ESH/JSL

Start Time: 10:27

End Time: 11:32

Serial Number: 1647

Last Cal: 2/6/23

State Tag: 495-31073

Audit Device Information:

Flow Device SN: 357/2 Certification Date: 8/16/23

Thermometer SN: " Certification Date: "

Barometer SN: " Certification Date: "

Audit Data:

Display BP: 733.7 mmhg Reference BP: 736.0 mmhg Pass or Fail (+/- 10 mmhg)

Display Temp: 18.2 °C Reference Temp: 17.6 °C Pass or Fail (+/- 2 degrees)

Pre-Cal Flow Audit:

As Found
PWM : 36%

T640 Display: 5.03 LPM Observed Flow

Flow Device Qa: 5.00 LPM

% Difference Flow Rate: 0.6% Pass if % Difference $\pm 4\%$

% Difference from Design Flow Rate: 0% Pass if % Difference $\pm 5\%$

Formulas and Conversions:

$$Q_{act} = Q_{std} \times (760/298) \times (T_{ref}/P_{ref})$$

$$\% \text{ Difference Flow Rate} = \frac{\text{Observed Flow} - \text{True Flow}}{\text{True Flow}} \times 100$$

$$\% \text{ Difference from Design Flow Rate} = \frac{\text{True Flow} - 5.0}{5.0} \times 100$$

Calibration Device Information:

Flow Device SN: 795/2 Certification Date: 8/22/23

Thermometer SN: " Certification Date: "

Barometer SN: 1900
1907000010 Certification Date: 3/6/23

Calibration Data:

	T640	Reference	Amb Temp	in H ₂ O	Calibrated	
BP	733.5	734.2	XXXXXXXXXX		734.2	— atm
Flow: 5.00 LPM	5.00	4.92	within ±2°C	—	4.92	1.63 % diff.
Zero Air Test	PM 10	#1 0.0/0.0	PM 2.5		#1 0.0/0.0	XXXXXXXXXXXX
PMT	As Found:	1380V 11.2	As Left:		1378V 11.0	XXXXXXXXXXXX

FTS m: — b: —

Post Cal Flow= T640 5.00 REF 4.97 Percent Diff 0.60%/-0.60%

Pump Changed: No
Down Tube Cleaned: yes
Optics Chamber Cleaned: yes
DFU Filter Changed: yes
Date/Time Adjustment: time sync success
Mode on Departure: SAMPLE

Post-Install Verification in Field		
	T640	REF
AT		
BP		
Flow		

Date: _____
Percent Difference: _____
Additional Information: _____

Comments:

Data Download: No Pump PWM as Left: 36% as left

1st Stage Inlet Changed: No (current #10) Operator Log Filled Out: yes

Channel Reenabled in LEADS: yes Alerts Cleared: yes

Teledyne T640 Calibration Form

Office of Air Quality – Air monitoring Branch

Date: 7/2/24

Site: Plummer

Performed by: EJH

Start Time: 10:25

End Time: 10:57

Serial Number: 1647

Last Cal: 2/27/24

State Tag: 495-31073

Audit Device Information:

Flow Device SN: _____ Certification Date: _____

Thermometer SN: _____ Certification Date: _____

Barometer SN: _____ Certification Date: _____

Audit Data:

Display BP: _____ mmhg Reference BP: _____ mmhg Pass or Fail (+/- 10 mmhg)

Display Temp: _____ °C Reference Temp: _____ °C Pass or Fail (+/- 2 degrees)

Pre-Cal Flow Audit:

T640 Display: _____ LPM Observed Flow

Flow Device Qa: _____ LPM

% Difference Flow Rate: _____ Pass if % Difference $\pm$ 4%

% Difference from Design Flow Rate: _____ Pass if % Difference $\pm$ 5%

Formulas and Conversions:

$$Q_{act} = Q_{std} \times (760/298) \times (T_{ref}/P_{ref})$$

$$\% \text{ Difference Flow Rate} = \frac{\text{Observed Flow} - \text{True Flow}}{\text{True Flow}} \times 100$$

$$\% \text{ Difference from Design Flow Rate} = \frac{\text{True Flow} - 5.0}{5.0} \times 100$$

* See note on
back

Calibration Device Information:

Flow Device SN: 481798

Certification Date: 5/2/24

Thermometer SN: 481798

Certification Date: 5/2/24

Barometer SN: 1907000010

Certification Date: 2/28/24

Calibration Data:

	T640	Reference	Amb Temp	in H ₂ O	Calibrated	
BP	748.0	747.5	XXXXXXXXXX		747.5	— atm
Flow: 5.00 LPM	4.95	5.07	within ±2°C	—	5.07	-2.37% diff.
Zero Air Test	PM 10	#1 0.0/#2 0.0	PM 2.5		#1 0.0/#2 0.0	XXXXXXXXXXXX
PMT	As Found:	performed on 5/8/24	As Left:		—	XXXXXXXXXXXX

FTS m: — b: —

Post Cal Flow= T640 5.00 REF 5.01 Percent Diff -0.20%/0.20%

Pump Changed: Yes
Down Tube Cleaned: cleaned on 2/27/24
Optics Chamber Cleaned: cleaned on 2/27/24
DFU Filter Changed: No
Date/Time Adjustment: time sync success
Mode on Departure: SAMPLE

Post-Install Verification in Field		
	T640	REF
AT		
BP		
Flow		

Date: _____
Percent Difference: _____
Additional Information: _____

Comments:

monitor was shut off on arrival b/c of a busted pump
(PWM @ 100% on 7/1/24). Replaced pump. Cal'd successfully.
All cleaning was done on 2/27/24

Data Download: Yes Pump PWM as Left: 38%

1st Stage Inlet Changed: No (Current #10) Operator Log Filled Out: Yes

Channel Reenabled in LEADS: Yes Alerts Cleared: Yes