UTAH DEPARTMENT of ENVIRONMENTAL QUALITY
WATER QUALITY

DWQ Multi-Parameter Probe Calibration Report

Run (Trip ID): ____________________ Analyst: ____________________

Date: ____________________ Instrument Make & Model: ____________________

Time: ____________________ Instrument ID Number: ____________________

Specific Conductance (SpC)

CALIBRATION		QA/QC			
SpC Calibration Standard Solution Value:	SpC Calibration Standard Solution Expiration Date:	SpC Reference Solution Value:	SpC Reference Solution Expiration Date:	SpC Measured Value:	Measured Value within 10% of Reference Solution Value?
					☐ Yes ☐ No[1]

pH

CALIBRATION				QA/QC			
pH Calibration Solution 1 Value[2]:	pH Calibration Solution 1 Expiration Date:	pH Calibration Solution 2 Value[2]:	pH Calibration Solution 2 Expiration Date:	pH Reference Solution Value:	pH Reference Solution Expiration Date:	pH Measured Value:	Measured Value within 5% of Reference Solution Value?
							☐ Yes ☐ No[1]

Dissolved Oxygen (DO)

CALIBRATION			QA/QC
Barometric Pressure (BP) Used to Calibrate DO?	Calibration Value (%):	Displayed Value (%):	Displayed Value within 5% of Calibration Value?
☐ Probe auto-accounts for BP	**100.0**		☐ Yes ☐ No[1]

Equipment QA/QC

Instrument Date:	Instrument Time:	Instrument Date and Time Correct?	Does Instrument Battery Have Adequate Charge?
		☐ Yes ☐ No	☐ Yes ☐ No

General Comments:

Field Calibration Checks

(perform checks if: pH <6.5 or >9; DO <6.5 mg/L; SpC > 10x or < 1/10th standard used for calibration)

MLID	Which Probe is Being Checked?	Reason for Calibration Check?	Calibration Value	Measured Value[3]	Measured Value Within Range of Calibration Value? (i.e., SpC, pH, or DO)
	☐ SpC ☐ pH ☐ DO				☐ Yes ☐ No
	☐ SpC ☐ pH ☐ DO				☐ Yes ☐ No
	☐ SpC ☐ pH ☐ DO				☐ Yes ☐ No
	☐ SpC ☐ pH ☐ DO				☐ Yes ☐ No
	☐ SpC ☐ pH ☐ DO				☐ Yes ☐ No
	☐ SpC ☐ pH ☐ DO				☐ Yes ☐ No
	☐ SpC ☐ pH ☐ DO				☐ Yes ☐ No
	☐ SpC ☐ pH ☐ DO				☐ Yes ☐ No
	☐ SpC ☐ pH ☐ DO				☐ Yes ☐ No
	☐ SpC ☐ pH ☐ DO				☐ Yes ☐ No

[1] If no, use a different probe or perform maintenance

[2] When using a Hydrolab brand probe, be sure to correct for temperature when calibrating pH (see chart on back)

[3] If measured value is not within acceptable range of calibration value, perform a recalibration using a new calibration sheet

Specific Conductance Check Buffer Acceptability Range

SC Buffer Value	Acceptable 10% Range
100 µS/cm@25°C	90 - 110
500 µS/cm@25°C	450 - 550
1413 µS/cm@25°C	1272 - 1554
3000 µS/cm@25°C	2700 - 3300
20000 µS/cm@25°C	18000 - 22000

pH Buffer Solution Temperature Correction and Check Buffer/On-site Calibration Check Acceptability Range

pH 4.00		
°C	Value	Acceptable 5% Range
15	4.00	3.80 - 4.20
20	4.00	3.80 - 4.20
25	4.00	3.80 - 4.20
30	4.01	3.81 - 4.21

pH 5.80		
°C	Value	Acceptable 5% Range
15	5.79	5.50 - 6.08
20	5.80	5.51 - 6.09
25	5.80	5.51 - 6.09
30	5.80	5.51 - 6.09

pH 7.00		
°C	Value	Acceptable 5% Range
15	7.04	6.69 - 7.39
20	7.02	6.67 - 7.37
25	7.00	6.65 - 7.35
30	6.99	6.64 - 7.34

pH 9.00		
°C	Value	Acceptable 5% Range
15	9.10	8.65 - 9.56
20	9.05	8.60 - 9.50
25	9.00	8.55 - 9.45
30	8.97	8.52 - 9.42

pH 10.00		
°C	Value	Acceptable 5% Range
15	10.11	9.60 - 10.62
20	10.05	9.55 - 10.55
25	10.00	9.50 - 10.50
30	9.95	9.45 - 10.45

pH Slope
A functioning pH probe will have a slope between **-54mV and -62mV**. If out of this range, perform maintenance or use another Sonde. The meter will often provide the slope in a calibration report. Otherwise, use the mV to calculate the slope using this equation: Slope = (pH7 mV - pH10 mV)/3.

Field Calibration Checks			
pH	<6.5 or >9?	SpC	> 10 times the standard used for calibration solution or < 1/10th the standard used for calibration?
Dissolved Oxygen	<6.5 mg/L?		
If yes, check the sensor to ensure it is still working or recalibrate as needed.			

From the Hach LDO Sensor Instruction Sheet:

Determine the barometric pressure for entry as the calibration standard. The barometric pressure needs to be in mmHg.

1 mmHg = 0.00133322 bar = 133.322 pascal = 0.019336778 pounds/square inch [absolute].

If using the local weather bureau BP, remember these numbers are corrected to sea level. To calculate the uncorrected atmospheric pressure BP', use the following equations:

$BP' = BP-2.5(A_{ft}/100)$ or $BP' = BP-2.5(A_m/30.5)$

where:

BP' = Barometric pressure at altitude

Local Barometric Pressure, BP in mmHg can be estimated using:

$BP' = 780-2.5(A_{ft}/100)$ or $BP' = 780-2.5(A_m/30.5)$

Where:

BP' = Barometric pressure at altitude

BP = Barometric pressure at sea level

A_{ft} = Altitude in feet

A_m = Altitude in meters

BP Conversion Factors:

Multiply BPmbar (hPa) by 0.75 to get BPmmHg

Multiply BPinHg by 25.4 to get BPmmHG

Hydrolab Series 5 Sondes require BP to be entered in mmHg