

ANALYST:		VPDES NO.	
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Parameter: Dissolved Oxygen  
Method: Luminescence-based Sensor Procedure  
11/2014

METHOD OF ANALYSIS:

	ASTM D 888-09 (C)
	HACH LDO – 10360
	In-Situ - 1002-8-2009
	YSI – ASTM D 888-09 (C)

		Y	N
1)	Has Initial Demonstration of Laboratory Capability been performed by each analyst? [ASTM 29.5 and ASTM 31.3]		
	a. Prepare air-saturated water by bubbling air for at least 30 min. through 1500mL water that is at room temperature ( $\pm 2^{\circ}\text{C}$ ). <b>NOTE:</b> An in-line air filter must be used with the aeration tubing (i.e., cotton, glass wool, other suitable material).		
	b. Allow air-saturated water to equilibrate for 45 – 60 minutes.		
	c. Transfer aerated water to four clean BOD bottles, beakers or other suitable containers until overflowing, then sealed.		
	d. Analyze samples.		
	e. Use a D.O. table to calculate theoretical D.O. based on sample temperature and barometric pressure (or altitude correction factor applied). Results must be between 97-104% of calculated value.		
2	Are calibration results (mg/L) within $\pm 4\%$ of the barometric (or altitude) corrected oxygen saturated water value? [SM 21 B.2 or SM 22 1020 B.2.]		
3)	If samples are collected, is collection carried out with a minimum of turbulence and air bubble formation? [ASTM 6.2]		
4)	If samples are collected, is the sample bottle allowed to overflow several times its volume? [ASTM 6.4]		
5)	Is meter calibrated before use or at least daily? <b>NOTE:</b> If using water saturated air the instrument must be in 'O <sub>2</sub> Calibration' mode and sensor cap must be above surface of liquid. [ASTM 29.2, 29.4 & 29.5]		
6)	Is calibration verification within 97% to 104% of the theoretical D.O.? [ASTM 29.7.1] Temperature must be recorded. [ASTM 29.5.6]		
7)	Is calibration procedure performed according to manufacturer's instructions? [Mfr.]		
8)	Does the lot code on the meter display match the lot code printed on the sensor cap? <b>NOTE:</b> Code begins with a number between '3' and '9'. <b>NOTE:</b> This requirement may not be applicable for sensors from other manufacturers. [Mfr.]		
9)	Is sensor cap replaced after one year? <b>NOTE:</b> "Cap Expired icon" will display in results window and data exported will be flagged with an asterisk. This requirement may not be applicable for sensors from other manufacturers. [Mfr.]		
10)	Are air bubbles trapped on probe tip dislodged before taking a reading? [Mfr.]		
11)	Is black surface of the sensor cap clean and unscratched? This requirement may not be applicable for sensors from other manufacturers. [Mfr.]		
12)	When taking reading is probe deep enough in sample to cover the thermistor on side of probe? <b>NOTE:</b> Care should be taken to not touch the thermistor because it will cause an incorrect temperature reading. [Mfr.]		

- 13) Is there adequate flow/stirring during calibration and sample analysis? [ASTM 29.6 and Mfr.]
- 14) Is meter stabilized before reading D.O.? [Mfr.]
- 15) Is temperature recorded at time of analysis? [Permit, ASTM 29.5.6]
- 16) Is accuracy of thermistor checked annually? [Permit]
- 17) Is 'Dry Storage' used for probes immersed less than 6 hrs per day and 'Wet Storage' for tips immersed more than 6 hrs per day? This requirement may not be applicable for sensors from other manufacturers. [Mfr.]


PROBLEMS: