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ECO CDOM Fluorometer Characterization Sheet

Date: 12/23/2015 S/N: FLCDRTD-1991

CDOM (Quinine Dihydrate Equivalent) concentration expressed in ppb can be derived using the equation:

CDOM (QSDE) = Scale Factor * (Output - Dark Counts)

	Analog Range 1	Analog Range 2	Analog Range 4 (default)		Digital	
Dark Counts	0.065	0.039	0.025	V	42	counts
Scale Factor (SF)	19	38	76	ppb/V	0.0229	ppb/count
Maximum Output	4.98	4.98	4.98	V	16390	counts
Resolution	1.9	1.9	1.9	mV	2.3	counts

Ambient temperature during characterization 22.3 °C

Analog Range: 1 (most sensitive, 0–4,000 counts), 2 (midrange, 0–8,000 counts), 4 (entire range, 0–16,000 counts).

Dark Counts: Signal output of the meter in clean water with black tape over detector.

SF: Determined using the following equation: SF = x ÷ (output - dark counts), where x is the concentration of the solution used during instrument characterization. SF is used to derive instrument output concentration from the raw signal output of the fluorometer.

Maximum Output: Maximum signal output the fluorometer is capable of.

Resolution: Standard deviation of 1 minute of collected data.

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ECO Calibration and Repairs

Date 12/23/2015 Customer U of Alaska Fairbanks

S/N# FLCDRTD-1991 Technician KM

Diagnosis

Rubber damage on pin 2 of bulkhead, needs to be replaced.

Repairs

Replaced the host bulkhead. Polished the instrument face. Completed standard service & testing. Did not retune the instrument. New characterization sheet, device file, and other information included on cd.

ECO Standard Service Definition

The bulkhead connector, pressure housing and window on the instrument are first inspected for possible damage.
The instrument then is powered on and the current data is checked to determine if the instrument is working properly.
The instrument pre-service characterization is perfromed
The head is next inspected for cracks in the LED, the detector and the motor bores.
The digital and analog operations are checked.
The instruments scaling is checked with dye or scatter proxy as determined by the instrument type.
The firmware version on the instrument is updated as necessary.
The case seals, desiccant, shaft seal, faceplate, and shaft are replaced as the instrument is reassembled.
The instrument is rescaled if needed after reassembly.
Standard testing is performed on the instrument and characterized before being returned to the customer.

ECO Standard Testing Definition

- Performed noise test: 1 sample/sec for 60 sec
- Performed stability test: 1 sample/sec for 12 hrs as needed
- Performed thermistor calibration if installed
- Performed live 6hr pressure test: 5 samples every 4 minutes as needed
- Pressure-tested unit
- Completed instrument characterization
- Updated unit's characterization sheet and included on CD
- Updated unit's device file and included on CD