Water Temperature Inspections / Approved Sensors

Inspections:

All water temperature inspections shall be taken at the same time as the logger punch (Minimum NEMS standard is 15 minute punches). Water temperature readings shall be taken as near as possible to the continuous water temperature sensor (same depth and same approximate location). Where a temperature reading is not collected close to the in river sensor, please record in the comments section of the Survey 123 form.

Standards:

Horizons procedures are intended to comply with the NEMS water temperature standard.

Approved Instrumentation for water temperature testing at Horizons:

Reference testing:
- Ebro TFX 430 Precision Thermometer (PT100 ± 0.05º)

Spot measurements:
- Center375 ("TPs") (±0.1 degrees)
- Aqua TROLL 400 (±0.1 degrees)
- EXO Sonde (±0.05 degrees)
- YSI Pro (PT1000 ±0.2% FS)

Continuous Instruments:
- CS107 (100K6AThermistor ±0.2 degrees)
- CS109 (10K3A1Thermistor ±0.2 degrees)
- [1]WTW FDO 700IQ sensor (NTC Thermistor ±0.5 degrees)
- YSI/WTW EXO High precision temperature probe (PT 100 ±0.05 degrees)
- Hobo Tidbi T v2 Water temperature data logger (Thermistor ±0.2 degrees)
- EXO Sonde (±0.05 degrees)

Notes:
[1] If the sensor has an analogue output, (0 – 20 mA or 4 – 20 mA) they require high accuracy resistors ±0.1%

Combined error / acceptable deviation:

The total error between the continuous sensor and the check instrument is 0.8 degrees (0.3 + 0.5). All Horizons checks should be within 0.8 degrees of each other (logger – spot measurement). Any deviation of greater than ±0.8 degrees will require a Non-conformance report to be generated and the source of the error identified and rectified.

Possible actions following a nonconforming check (deviation greater than ±0.8 degrees):
- Repeat the measurement on the next punch. (Was the first reading potentially compromised?)
- Was the reference reading taken beside the sensor, comment if it was not.
- Is the senor buried, damaged, or the water temperature changing rapidly. (comment on chit)
- Deploy self-logging sensor to cover possible missing record.
- Check the reference sensor, make sure it is reading correctly.
- Consider replacement continuous sensor.

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