OWQ WaQI Note

April 20, 2015

Office of Water Quality Water-Quality Information Note 2015.08

Subject: Field Equipment – EXO Conductance/Temperature (C/T) Sensors High Bias In-Air

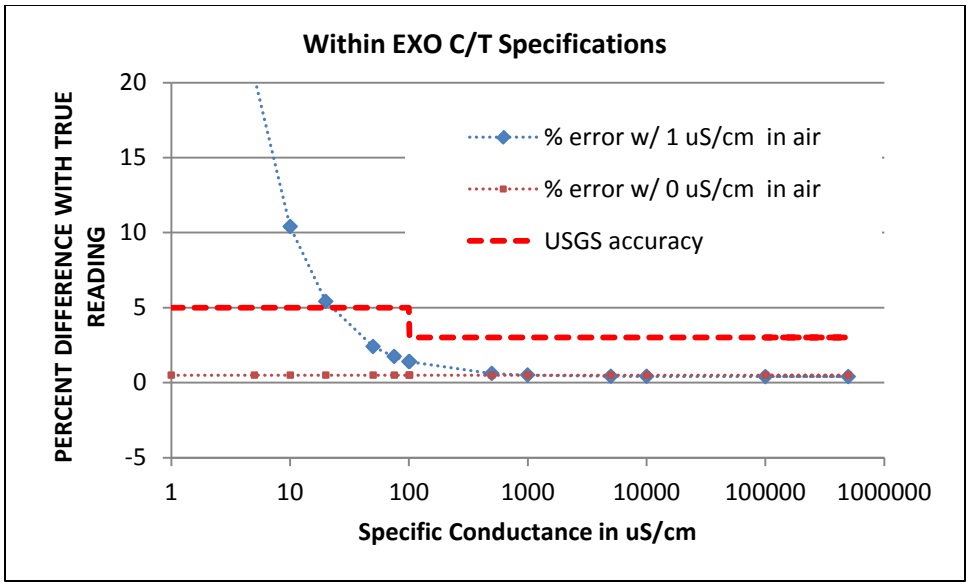
The purpose of this WaQI-Note is to alert all water-quality field staff that some EXO (YSI) brand specific conductance and temperature sensors measurements exceed the allowable limit in-air.

History/Background:

- Hydrologic Instrumentation Facility (HIF) acceptance testing has documented that a substantial fraction of EXO C/T sensors measure >1uS/cm in ambient air, which exceeds manufacturing specifications. Xylem (YSI) has confirmed these findings. Theoretically, conductivity sensors should measure zero in air.
- Xylem (YSI) is in the process of fine-tuning a solution for this issue that will be offered to customers in the near future.

Action

- Review calibration records and discrete or continuous data for YSI EXO sondes, and determine the specific conductance range for the site.
- Check the specific conductance in air. The sensor should be dry and the sonde port should be free of dirt and debris; A dirty sonde port can bias the in air measurement.
- Replace the EXO sonde with an alternate instrument if the specific conductance of the site is normally <20 µS/cm.
- If specific conductance for the site is normally 20-50 µS/cm; and the in-air measurement is > 1µS/cm; determine if the associated error exceeds the NFM limit (± 5% for SC≤100 µS/cm). See Figure 1 for further explanation. If the error exceeds 5 percent use an alternate sensor, contact YSI for a replacement sensor, or if obtained from the HIF, contact them for a replacement.
- Field staff may find it helpful to register with the WMA Technical Support Forum and participate in the OWQ Water Quality Data Collection Forum and periodically check the HIF webpage for updates and further guidance. Note: registration with the WMA Technical Support Forum is usually approved with a day of the request. For issues regarding registration contact Mike Rehmel.



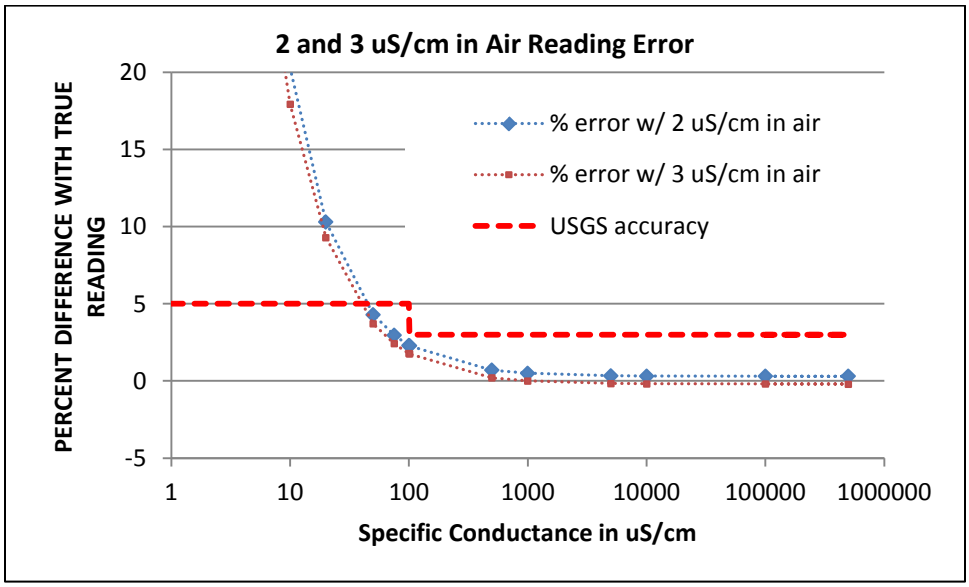


Figure 1. Effect of elevated In-air readings on low specific conductance.

Please send questions and comments regarding this WaQI note to Teri Snazelle at tsnazelle@usgs.gov.

WaQI Notes are archived on the Office of Water Quality web site, http://water.usgs.gov/usgs/owq/WaQI/index.html

Signed,

The Office of Water Quality 4/20/15

This WaQI note does not supersede any previous guidance.

Distribution: All WMA Employees