

A Video Diary Field Trip: Working with a Multi-Parameter Sonde



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Three Components of Real-Time Water Quality Monitoring Program

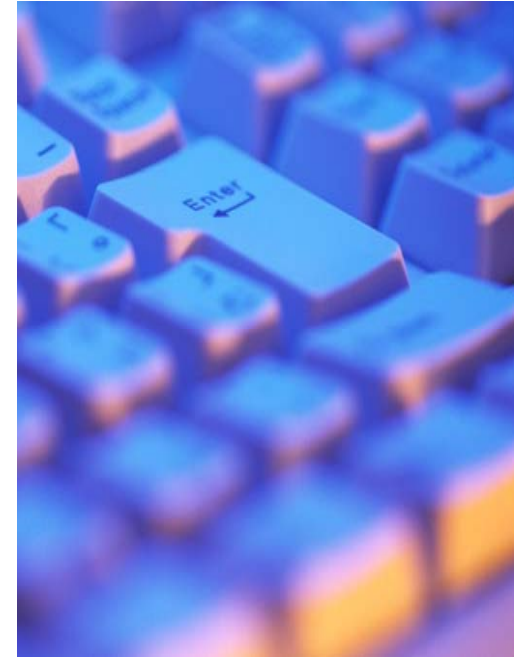
FIELD



LAB



OFFICE



Plan Ahead!!!





Field Procedures - Installation

Step #1:

Place field sonde into deployment structure in river (log data internally)

Place QA sonde into river alongside the field sonde

Step #2:

Record field sonde reading (1st choice in field; 2nd choice in office)

Record QA sonde reading using hand-held display or field laptop

1st

2nd

If field laptop/hand-held display available:
connect to field sonde in hut; record field sonde readings

If field laptop/hand-held display unavailable:
return to the office and download field sonde readings



Step #3:

Compare field sonde readings to the QA sonde readings using the Comparison Table (should be done in the field if possible)



Step #4:

Readings from field sonde and QA sonde are ranked from Poor to Excellent



Step #5:

If rankings fall within the **Poor** or **Marginal** range for either pH or Dissolved Oxygen the field sonde must be removed and recalibrated before reinstallation**

If rankings fall within the Fair, Good or Excellent range for either pH or Dissolved Oxygen the field sonde can remain in the water



Step #6:

Collect grab sample to send to laboratory for analysis

** Judgment must be used in determining if it is logistical to remove/recalibrate instrument

Quality Assurance/Quality Control Is Essential!!!

Ensures the integrity of
the real-time program
and the resulting data



Comparison Table

Parameters	Excellent	Good	Fair	Marginal	Poor
Temperature (°C)	≤±0.2	≥±0.2 to 0.5	≥±0.5 to 0.8	≥±0.8 to 1.0	≥±1.0
pH (unit)	≤±0.2	≥±0.2 to 0.5	≥±0.5 to 0.8	≥±0.8 to 1.0	≥±1.0
Dissolved Oxygen (mg/L)	≤±0.3	≥±0.3 to 0.5	≥±0.5 to 0.8	≥±0.8 to 1.0	≥±1.0
Conductance <35µS/cm (µS/cm) >35µS/cm (%)	≤±3 ≤±3	≥±3 to 10 ≥±3 to 10	≥±10 to 15 ≥±10 to 15	≥15 to 20 ≥15 to 20	≥±20 ≥±20
Turbidity <40 NTU (NTU) >40 NTU (%)	≤±2 ≤±5	≥±2 to 5 ≥±5 to 10	≥±5 to 8 ≥±10 to 15	≥8 to 10 ≥15 to 20	≥±10 ≥±20

Anything listed in red are new rankings due to low concentrations of particular parameters that were originally based on percentage alone. This caused problems because the percentages for particular stations were below the accuracy of the sensor.

Field Procedures - Removal

Step #1:

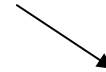
Place QA sonde into river
alongside the field sonde



Step #2:

Record field sonde
reading (1st choice in
field; 2nd choice in office)

Record QA sonde
reading using hand-held
display or field laptop



If field laptop/hand-held
display available:
connect to field sonde in
hut; record field sonde
readings

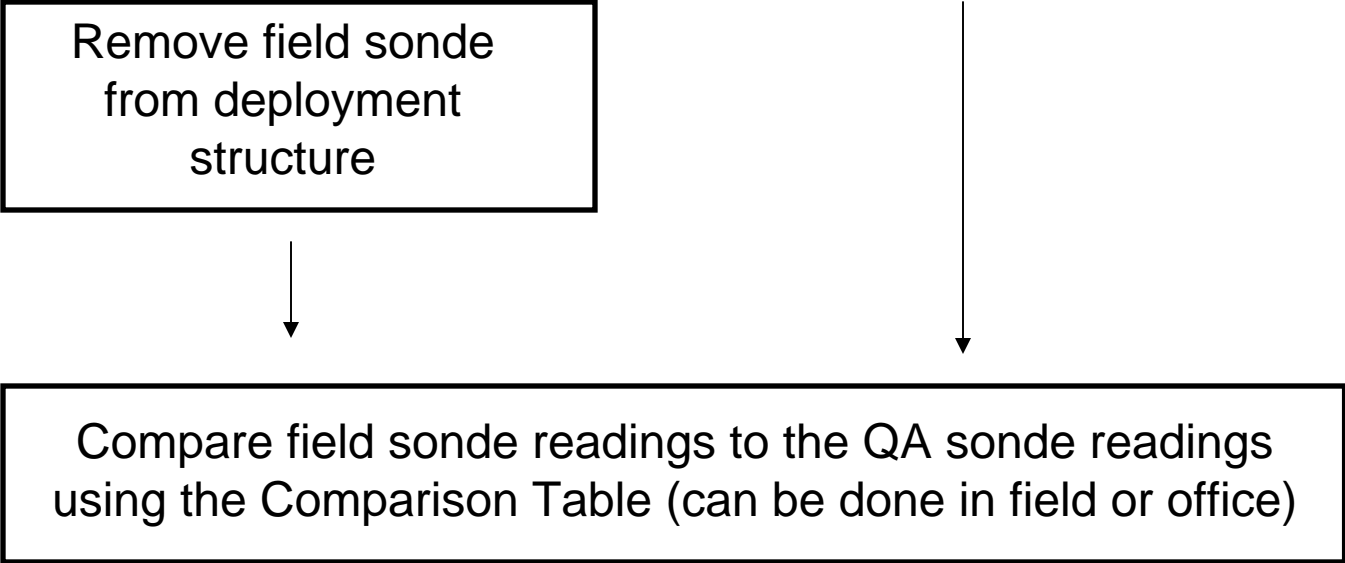


If field laptop/hand-held
display unavailable:
return to the office and
download field sonde
readings



Step #3:

Remove field sonde
from deployment
structure



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graph TD; A[Remove field sonde from deployment structure] --> B[Compare field sonde readings to the QA sonde readings using the Comparison Table (can be done in field or office)];
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Step #4:

Compare field sonde readings to the QA sonde readings
using the Comparison Table (can be done in field or office)

**Document....
Document....
Document!!**





Thank You