



ENGINEERING BULLETIN

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Procedural Change: Pre-deployment in-water testing update for current meters prior to or in conjunction with 48-hour bench test

Systems Affected: Nortek and Sontek Current Meters

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MSCS Approval: Not Required

Background/History: As part of the sensor verification testing prior to shipping current meters for field deployment, CO-OPS conducts in-water tests of the instruments using containers as illustrated in figure 1. Under the existing standard operating procedures¹, contract field crews are not required to conduct similar tests prior to completing the requisite 48-hour bench test of the instrument. In working with the respective manufacturers, CO-OPS has determined that the in-water test is the best procedure for verifying proper function of the sensor's individual beams.



Figure 1. Current Sensor In-Water Testing

Action: Given the sensitivity of these instruments, potential problems incurred during shipping, and high costs of deploying these units, in-water testing shall be conducted on all instruments prior to beginning the 48-hour bench test outlined in the relevant CO-OPS operating procedures. Results of this in-water test shall be documented and reported per the updated pre-deployment checklists.² During the in-water test, the instrument need only be lowered enough to submerge the transducers and part of the body. The goal of the test is to observe and document the sensor's beam amplitudes while also observing a change in signal strength / echo amplitude as compared to that measured in air (i.e., noise level). Though values may not be comparable to what is expected when deployed, an extremely low value will indicate a bad beam. To expedite the dunk test, 1-second intervals and 1-second averaging should be used.

¹ Relevant SOPs include: SOP 4.3.1.3 (C6) Aquadopp Current Profiler User Guide; ROS 4.3.1.3 (C3) Acoustic Doppler Profiler Operation Manual; SOP 4.2.1.2 (B3) Aquadopp Current Profiler I & A Checklist; SOP 4.2.1.2 (B2) Sontek Acoustic Doppler Profiler I & A Checklist ; and SOPs 6.3.2.2.2 thru 6.3.2.2.4 (ADCP Inspection Checklists)

² Updated pre-deployment checklists will be included with each instrument and are available on the CO-OPS Field Library website at: <http://tidesandcurrents.noaa.gov/fieldlibrary>. These are linked to SOPs 6.3.2.2.2 thru 6.3.2.2.4 (ADCP Inspection Checklists)