CO-OPS Engineering Bulletin 17-005

Engineering Change: Standardize MWWL Sensor Configuration Parameters
Systems Affected: All systems implementing MWWL sensors
Originating Team: Chesapeake Instrument Lab
MSCS Approval Date: 05JUL17

Background: As CO-OPS continues to gain additional experience with microwave water level (MWWL) sensors, several changes to the configuration parameters have been determined to be appropriate. During the initial MWWL installations, sensors were set with Empty and Full Calibration values of 10m and a blocking distance of 0.216m (the length of the horn). Based on manufacturer's specifications and CO-OPS testing it has been determined that there is no change in millimeter accuracy when the Empty and Full calibrations are doubled to 20m. During testing it was also found that increasing the blocking distance to 0.5m eliminates occasional internal multi-path reflections experienced by sensors employing a protective horn cap. These changes should improve our data quality and also reduce the need for field crews to adjust the settings on-site during MWWL installations. Additionally, it was found that by entering the sensor serial number into the Tag Number field the information is then embedded in the downloaded sensor configuration file and/or envelope curve to provide a confidence check on which sensor the data pertain to.

Action Required: CIL and/or SIL shall enter the following parameters into all new and returned MWWL sensors during sensor configuration:

Group Name	Parameter Name	Value
Basic Setup	Tag Number	Sensor Serial Number
Basic Setup	Media Type	Liquid
Basic Setup	Tank Shape	Dome Ceiling
Basic Setup	Medium Property	DC: >10
Basic Setup	Process Condition	Fast Change
Basic Setup	Empty Calibration	20m
Basic Setup	Full Calibration	20m
Extended Calibration	Offset	0m
Extended Calibration	Output Damping	0s
Extended Calibration	Blocking Distance	0.5m
Extended Calibration	Antenna Extension	0m

While these settings comprise the recommended standard sensor configuration which should accommodate most situations, it is recognized that there will be the occasional need to deviate due to station specific environmental conditions, obstructions, or limited mounting options.

Estimated Time To Complete: 10 Minutes per MWWL sensor

References:

1. Heitsenrether, Krug, Hensley, "Field Installation Procedures for Design Analysis WaterLog® H3611i Microwave Radar Water Level Sensor Using the Sutron Data Collection Platform," Version 1, January 2013. http://tidesandcurrents.noaa.gov/publications/WaterLogField_Installation_Guide_V_1.0_01_30_13.pdf