CEE HydroSystems™

CASE HISTORY

Icy Test for CEE-USV™ in Midwestern Wastewater Lagoon

Minnesota based construction and engineering firm Midwest Planning LLC were in action early in the year with their CEE-USV™. With wind gusts of 45mph and sub-zero temperatures, the exposed location provided little shelter from the elements. Running survey lines parallel to the direction of the wind for maximum controllability, the manually controlled USV was up to the job.

Wastewater lagoons make an ideal application for a USV; the ponds are usually in the ideal size range for unmanned operation. Conversely, surveying with a manned boat can be a big headache; it is hard to launch and recover a large heavy boat in the lagoons where the slopes may be steep and rocky. Shallow water means the manned boat may not be able to even access much of the survey area.

CEE-USV™ antenna wing after two hours surveying.

Operating from inside the warm truck parked at the lagoon edge, this survey in late April demonstrated the real-world value of a rugged professional-grade unmanned system. Setting the CEE-LINK™

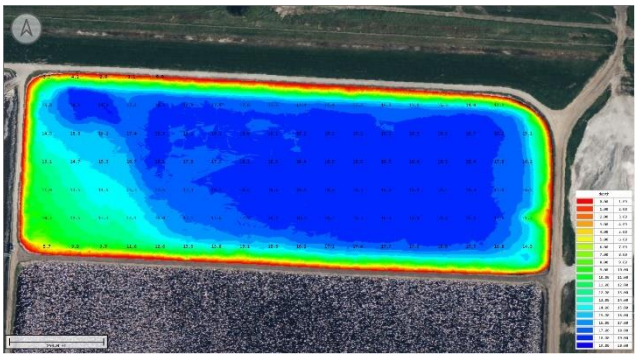
outside, the surveyor was able to use the real time Hydromagic navigation display to navigate along the planned route. Owing to the extreme wind gusts, plenty of correction was needed, although with enough power in reserve the CEE-USV™ survey speed is unaffected.

Surveying in relative comfort.

As the survey progressed, data drop-outs started happening at the far end of the pond, curiously only when the USV was traveling towards the operator on shore.

Ice buildup only on the front side of antenna.

With under 1500ft (460m) to the boat, this was unusual. The cause was immediately obvious when the USV was recovered; the antennae were coated with thick ice – only on the front side! The 5.8GHz data signal was being strongly attenuated. While the real time shore data were adequate even with a few drop-outs, the CEESCOPE LITE™ echo sounder on board was simultaneously logging all the data. If needed, the USV dataset could be imported directly into Hydromagic – filling in the data gaps.



Final survey product for the wastewater pond.

The CEE-USV™ saves time and improves safety, data accuracy and consistency for wastewater surveys, with a vast increase in productivity possible over surveying from a manned boat. The industrial quality components, hull materials, design, and survey payload mean the CEE-USV™ will be still ready to survey even in sub-optimum conditions.

To see the conditions, watch the video of the survey HERE.