**Lessons Learned at AG-1 MRS remedial action at Camp blanding, Clay County, Fl**

*Josh DeFrates, HydroGeoLogic, Inc., Golden, CO, USA*

*Chad M. Wood, CEHNC, Huntsville, AL, USA*

Challenging site conditions and new restrictions from the landowner (Post-QAPP) greatly impacted the Remedial Action (RA) at the 53-acre AG-1 Anti-Tank Rocket and Rifle Grenade Range MRS. Nearly half the site was determined to be “potential” wetlands where mechanical vegetation removal was not permitted, and average remaining tree density averaged 140 trees per acre across the entire site. Anomaly density was also four times higher than estimated from the Remedial Investigation performed in 2013 using an EM61. The RA geophysical surveys were performed using Simultaneous Location and Mapping (SLAM) positioning system. Dynamic AGC data was collected with the UltraTEM Screener and cued data was collected with the MM2x2 and the Acorn SI MPV (UX-Acquire). This project was the first time the Screener and MPV were integrated with Kaarta’s Stencil 2 SLAM positioning system on a production site.

 Challenges integrating the Stencil data with the Screener data resulted in low library matches and incorrect size estimates of IVS seed items. Several root causes will be discussed, including noise in the attitude data provided by the Stencil and a time shift between the Screener and Stencil time bases that affected the accurate recovery of polarizabilities. Inconsistent latency values between Screener survey events were an ongoing challenge and resulted in a missed QC seed in a highly cluttered area of the site. Additional challenges were encountered with the accuracy of some of the SLAM point cloud maps used at the site. Keyposes were collected every 60m based on manufacturer guidance at the time, which led to offsets to known control points of around 0.15m and discrepancies between adjacent point clouds. Updated guidance recommends keyposes at 30m spacing. Additionally, accuracy issues were encountered with a point cloud where a forest met an open field, which resulted in a 0.04m biased shift in the positional data. During high-wind events, this bias led to offset failures. Recommendations for overcoming these challenges on a future project include the use of data processing seeds to evaluate sensor latency and pointcloud accuracies, among others, will be presented.