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Measurement of cosmogenic radioisotope production on water at the Kimballton Underground Research Facility MORGAN ASKINS, University of California Davis, WATCHMAN COLLABORATION — The next generation of large water detectors, such as the kiloton-scale Water Cherenkov Monitor for Antineutrinos (WATCHMAN) and the megaton-scale Japanese Hyper-K project, aim to pursue a diverse physics program including low energy antineutrino physics. Muogenic backgrounds in water have been measured by the Superkamiokande collaboration, but for reactor and other low energy antineutrinos these backgrounds are only weakly constrained and may prove important for large water-based reactor-antineutrino detectors. The WATCHMAN collaboration has deployed a water Cherenkov detector to measure the rate of long-lived β-n radioisotopes - ^{8}He, ^{9}Li, ^{11}Li - produced by cosmic ray interactions in water. Our emphasis is on measuring those β-n decay isotopes which mimic the positron-neutron signal from inverse beta decay of antineutrinos on protons. Our detector is a 2 ton cylindrical target of pure water doped with gadolinium for neutron identification, surrounded by a 1.4-meter thick pure water muon veto and neutron/gamma shield. Presented here are the preliminary results of data taken beginning July 2013 at the KURF mine in Virginia at a depth of approximately 300 meters water equivalent with intermittent periods of detector off time.

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