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Experimental system to search for induced depletion of ^{166m}Ho BEN DETWILER, SHANE DOWNING, NATHAN CALDWELL, JAMES CARROLL, Youngstown State University, NINO PEREIRA, Ecopulse, Inc., MARC LITZ, GEORGE MERKEL, Army Research Lab, JOE SCHUMER, Naval Research Lab — Known nuclear data indicate that incoming photons below 300 keV might cause an induced depletion of the 1200 year isomer of ¹⁶⁶Ho. This process would be identified by an excess of ground state activity after irradiation with bremsstrahlung or by excess activity in any excited state that was part of the depletion cascade. A unique sign of depletion in ¹⁶⁶Ho would be radiation emitted near 136 keV from a level above the isomer, but part of the expected depletion cascade. A detection system has been developed using a gated fast inorganic scintillator to observe gamma rays after pulsed irradiation of an isomeric sample containing ¹⁶⁶Ho using an electron linac.

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