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A Retrieval System for Radioactive Target Materials at the NIF¹ K. SHIBATA, M. KRIEGER, J. FALLICA, R. HENCHEN, E. POGOZELSKI, S. PADALINO, T. C. SANGSTER, SUNY GENESEO COLLABORATION, LABORATORY FOR LASER ENERGETICS AT UNIVERSITY OF ROCHESTER COLLABORATION — Currently, solid radioactive material collection from the NIF target chamber is performed via the DIM. The retrieval process takes several hours to complete. To decrease this time for short lived radioisotopes, the Target Materials Retrieval System (TMRS) is being designed to move a radioactive sample from the target chamber to the counting station in less than 50 seconds, using a closed-loop helium filled RaPToRS system. The TMRS consists of three components: the retrieval apparatus, RaPToRS and the counting station. Starting at 0.5 meters from TCC, the sample will move from the vacuum chamber, travel through 60 meters of 10 centimeter diameter RaPToRS tubes, reaching speeds of 10 m/s. The sample will then arrive at the counting station, where it be robotically placed in front of a gamma ray detector. The use of helium will decrease background gamma radiation produced by activated N₂ normally found in a pressurized air system.

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