Current Engineering and Design Activities at Los Alamos National Laboratory Supporting Commercial U.S. Production of ^{99}Mo without the Use of HEU

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ABSTRACT

Los Alamos National Laboratory (LANL) is supporting the commercial U.S. production of ^{99}Mo as part of the National Nuclear Security Administration (NNSA) Global Threat Reduction Initiative's (GTRI) program to accelerate the establishment of a reliable domestic supply of this medical radioisotope without the use of highly enriched uranium (HEU). In partnership with several other national laboratories, we are currently providing engineering design and support to NorthStar Medical Radioisotopes and SHINE Medical Technologies as part of the GTRI program. The NorthStar technology uses an electron beam from an electron accelerator incident on enriched ^{100}Mo targets to produce ^{99}Mo through the (γ,n) photonuclear reaction. The SHINE technology uses a subcritical accelerator-driven uranium solution to produce fission product ^{99}Mo. An overview of our engineering design support activities for these two technologies will be given.