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Harvesting isotopes at the NSCL/FRIB– 47 Ca, 62 Zn, and 76 Kr GREGORY SEVERIN, Facility for Rare Isotope Beams, Michigan State University, KATHARINA DOMNANICH, CHIRAG VYAS, PAIGE ABEL, HANNAH CLAUSE, SCOTT ESSENMACHER, SAMRIDHI SATIJA, COLTON KALMAN, WESLEY WALKER, CHLOE KLEINFELDT — The nature of rare isotope production at FRIB provides an opportunity to collect, or harvest, by- product radionuclides from FRIB cooling systems and accelerator components. We have created a beam dump for the FRIBs predecessor, NSCL, which allows us to practice harvesting ahead of FRIB commissioning. So far we have been able to extract multiple radionuclides from the beam dumps heavy-ion irradiated water with high efficiency, and then have chemically purified them to obtain radionuclidicly pure samples. Our focus-radionuclides in preliminary tests are 47 Ca, 62 Zn, and 76 Kr owing to the medical relevance of their progeny, and we have used them to generate pure samples of 47 Sc, 62 Cu, and 76 Br respectively. Many additional nuclides will become available as FRIB comes online, with applications in nuclear astrophysics, materials science, horticulture and other fields. Ideally, the harvesting process will extend the user-base of FRIB and enable new multi-user capabilities at the facility.

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