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Developing an Independent Helium Gas Purification System.[1] CARTER HUGHES, Univ of Wisconsin, LaCrosse, WANPENG TAN, ANI APRAHAMIAN, University of Notre Dame, SHELLY LESHER, Univ of Wisconsin, LaCrosse — The Institute for Structure and Nuclear Astrophysics depends on 3He for the study of Nuclear reactions. A 3He recovery system is necessary for the Helium Ion Source at the FN tandem accelerator, due to the prohibitive price of 3He. An offline 3He recovery and purification system was built based on the previous online recovery system. The previous online system purified helium gas at a very slow rate and required the Helium Ion Source to operate. The offline system is operated separate of the Helium Ion Source allowing for fast purification cycles. A re-circulation system was added to the offline system to improve the final purity of 3He. Different He gas flow rates were used in the offline purification system. The effects of flow rates were evaluated on their performance in the Helium Ion Source. Gas samples from different flow rates were then analyzed for contaminants in a Gas Chromatograph. Preliminary results and further improvements will be discussed.

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