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Evaluation of Radiation Environment at FRIB Linac

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The Facility for Rare Isotope Beams (FRIB) at Michigan State University is a project jointly funded by the US Department of Energy and Michigan State University with the construction scheduled to start in March 2014. This accelerator facility will provide a broad range of ion beams from 18-O to U with a beam power of up to 400 kW and energy of 200 MeV/u for U in its baseline configuration. A possible facility upgrade will include increase of the beam energy up to 400 MeV/u for U and addition of new light ion beams down to 3-He for ISOL operations.

The work presented here is a review of radiation transport calculations aimed to evaluate the radiological environment at the FRIB Linac and adjacent areas. A number of calculations have address the impact on environment (activation of soil and ground water, evaluation of radionuclide releases); prompt radiation to the workers and general public due to normal beam losses and beam loss accidents; neutron skyshine; activation of services and various beam elements.

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