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Shielding considerations for ESS LoKI

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As an in kind contribution ISIS is building LoKI instrument to ESS (European Spallation Source) Lund, Sweden. ESS LoKI is Small Angle Neutron Scattering (SANS) instrument one of the first three instruments going to be built at ESS therefore LoKI is part of the early science programme starting from 2023. First part of the major review milestones so called TG3.1 (Toll Gate) process is scheduled to the summer 2019. TG3.1 includes various sections of the instrument like: heavy shutter, collimator section and detector tank section. Highlights from the results of the neutronics calculations based on H1 and H2 events (the most frequent classes of possible events) is presented in this work. For H1 and H2 events different dose rate and dose requirements are defined according to the radiological zoning of the buildings which were the basis of the shielding design. Shielding calculations were done with MCNP, the geometry was developed with SuperMC a CAD to MCNP converter interface code. Activation calculations were done with FISPACT-II.

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