Study2a Target Dose Calculations

Muon Collaboration

Phone Meeting

April 23, 2004
N. Mokhov Calculation

- 1 MW 24 GeV proton beam
- $2 \times 10^7$ s / year
- Peak energy deposition in SC is $\sim 8$ MGy/yr
- Lifetime for SC is 100 MGy/yr i.e. 12 years for this case
Study2a MARS Dose Calculations

New Superconducting Layout
Tungsten-Carbide Absorber 0-6 m
Total Energy Deposition

MARS energy deposition in GeV/g/proton

Note: For 1 MW 24 GeV proton beam and 1 x 10⁷s we find that 10⁻⁸ GeV/g/proton is 4 MGy/yr

Peak energy deposition is at the beginning of the SC taper at ~ 5 MGy/yr

Harold G. Kirk
Extend W-C shield to 15m
Dose with extended W-C shield
Latest SC coil configuration
Dose for latest SC configuration

Peak energy deposition in SC coils now is ~ 1 MGy/yr
The SC lifetime is ~ 100 years