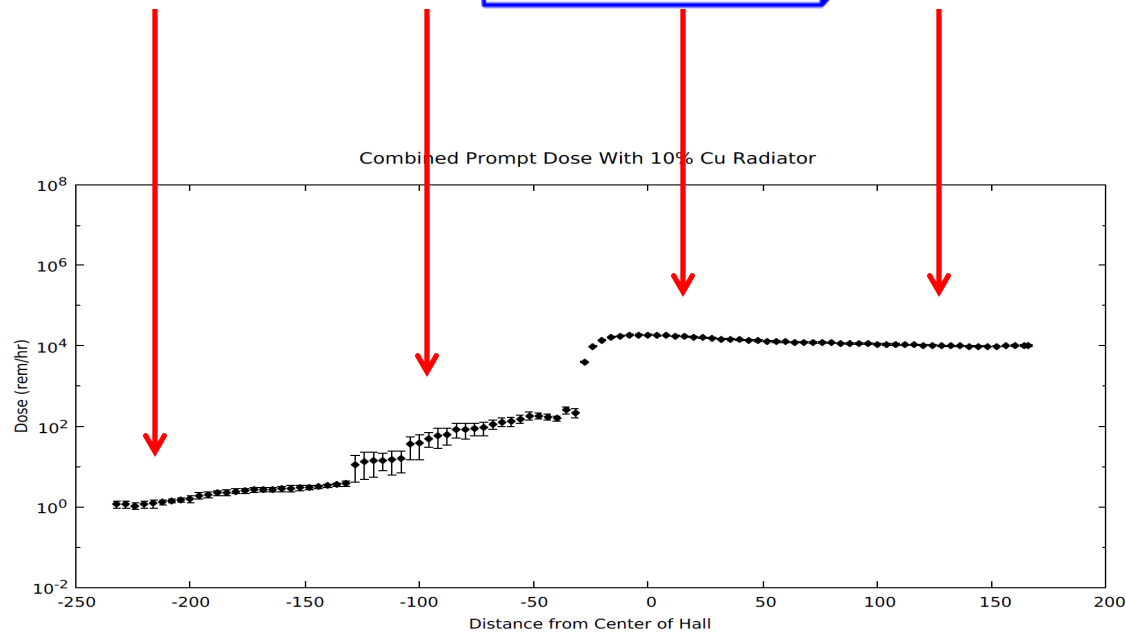
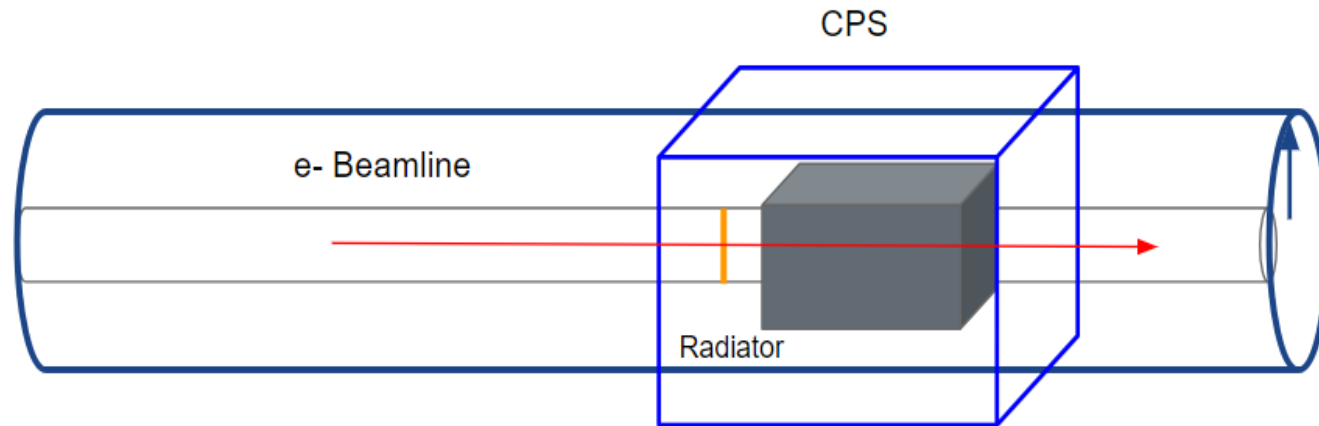
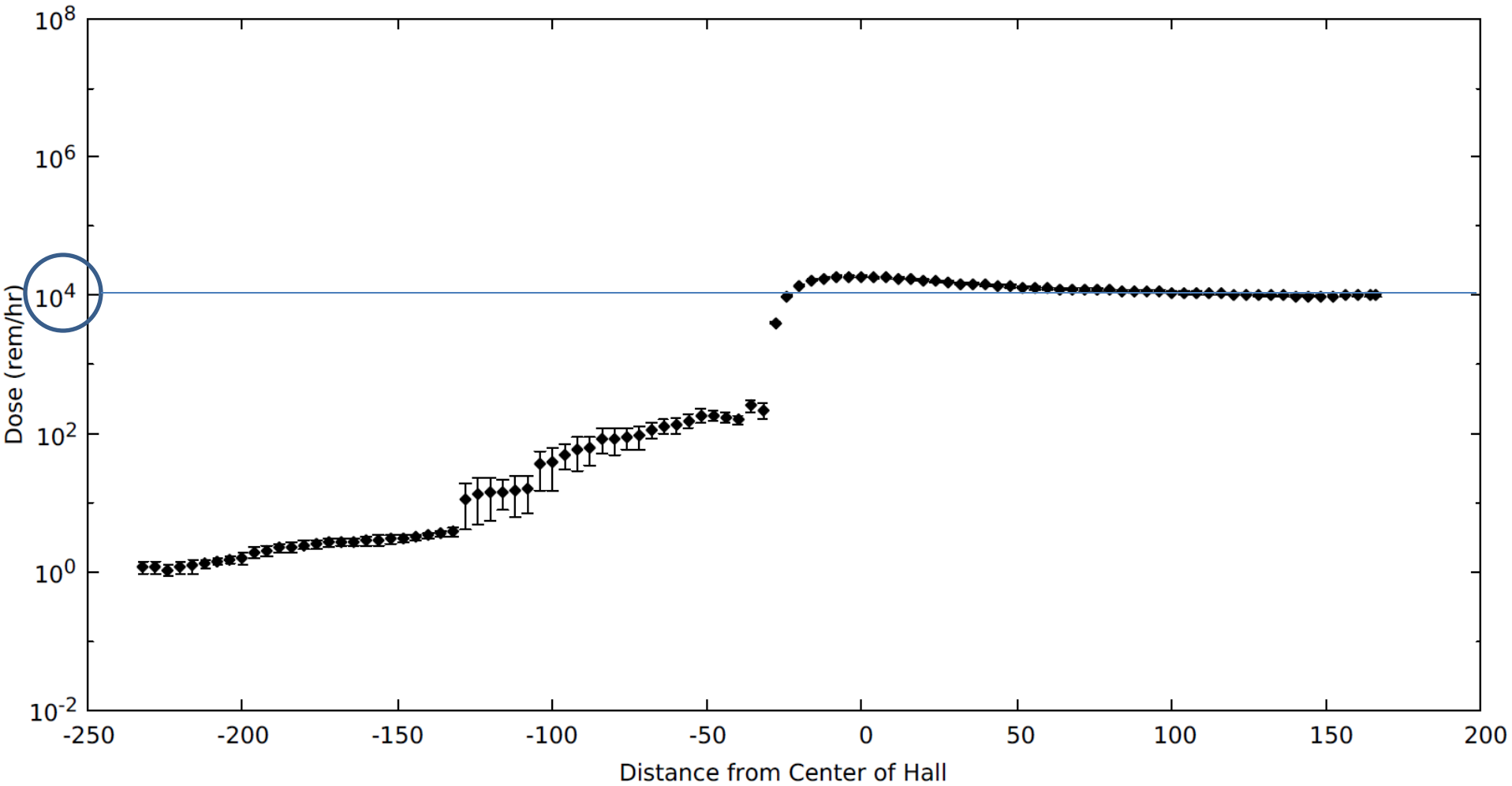


For all 2D **Prompt** dose plots, a cylindrical scoring area is used, **without** the immediate beamline. The resulting calculated dose is with Radius R: **5 cm < R < 30 cm**

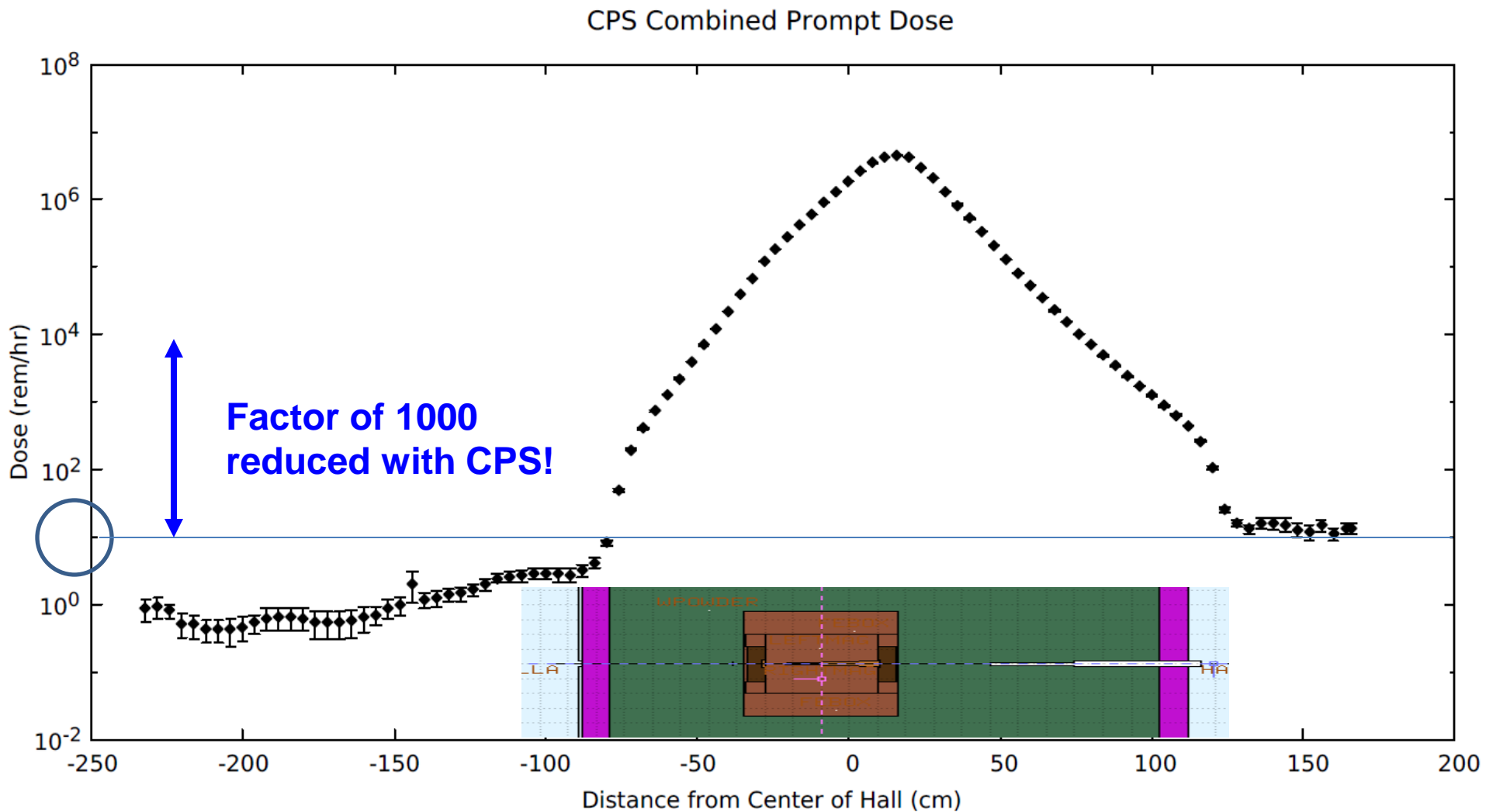


Prompt dose: 11 GeV, 2.7 μA , 10% Cu radiator

Combined Prompt Dose With 10% Cu Radiator

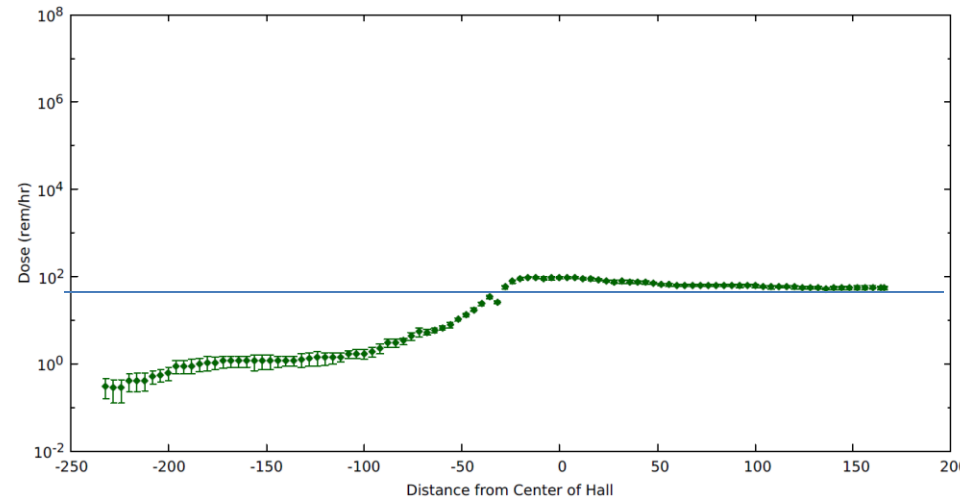


Prompt dose: 11 GeV, 2.7 μA , 10% Cu radiator **with CPS**

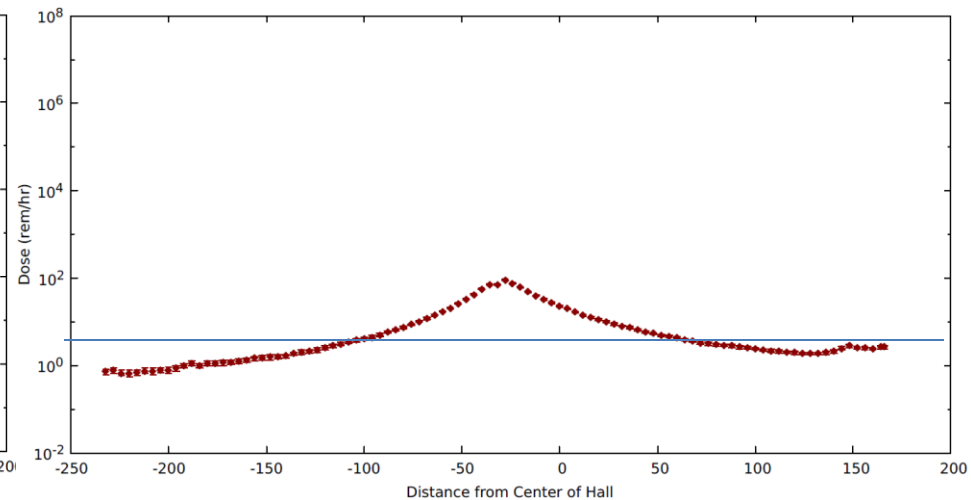


Prompt dose: 11 GeV, 2.7 μA , 10% Cu radiator

Gamma Prompt Dose With 10% Cu Radiator

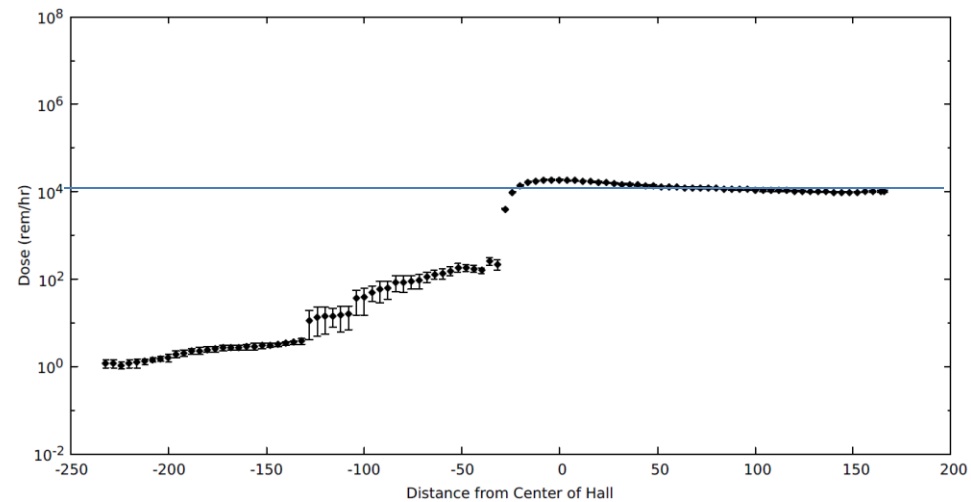


Neutron Prompt Dose With 10% Cu Radiator



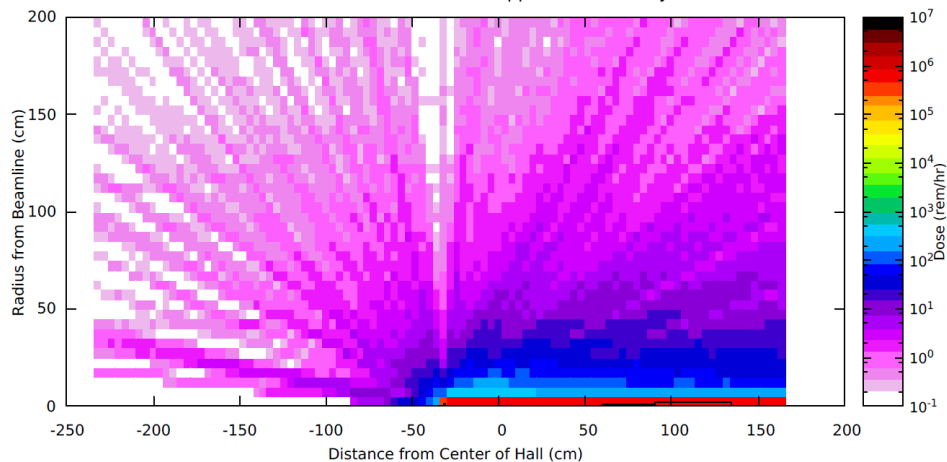
Gamma prompt dose +
Neutron prompt dose \ll
Combined Prompt dose

Combined Prompt Dose With 10% Cu Radiator

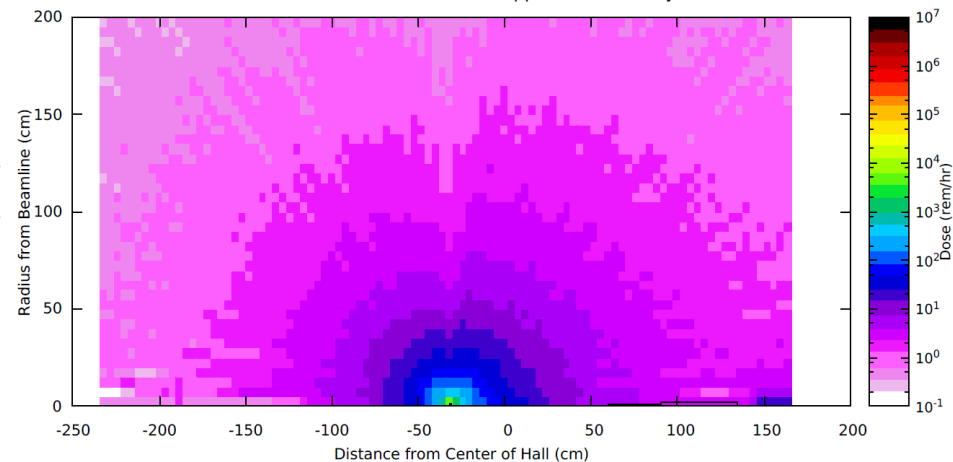


Prompt dose: 11 GeV, 2.7 μA , 10% Cu radiator

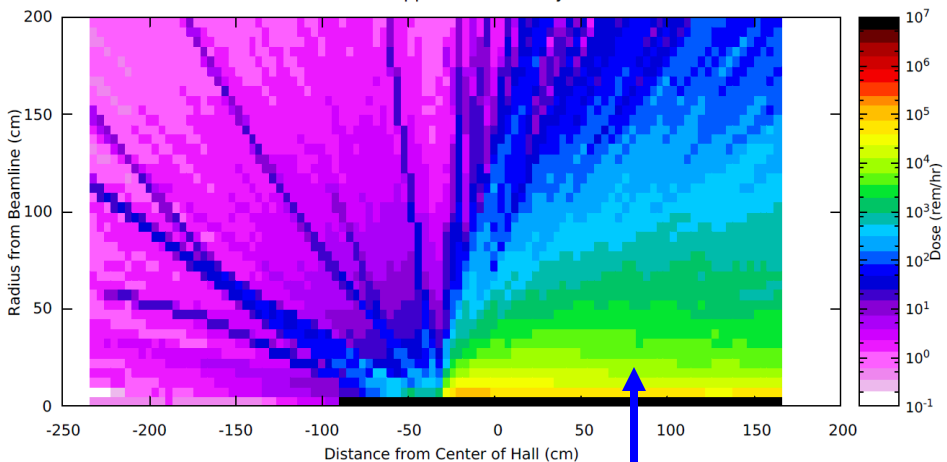
Gamma Contribution - 10% Copper Radiator only



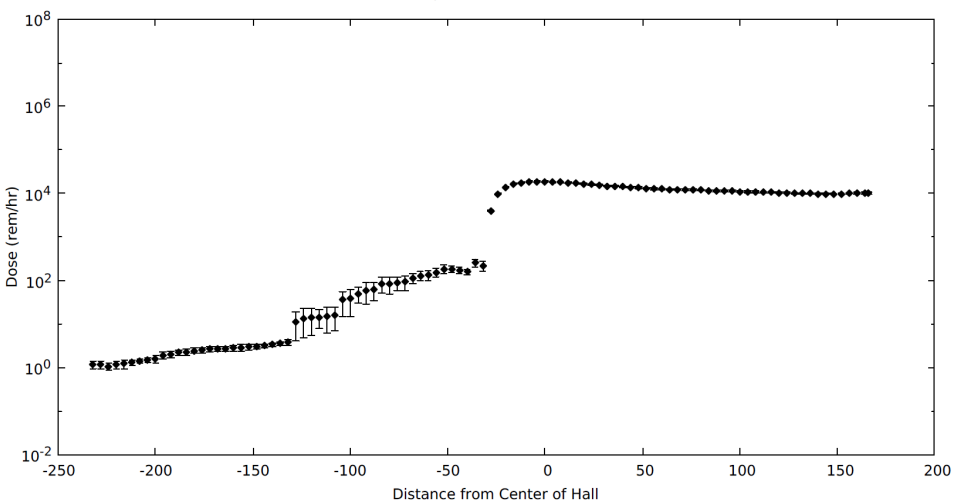
Neutron Contribution - 10% Copper Radiator only



10% Copper Radiator only



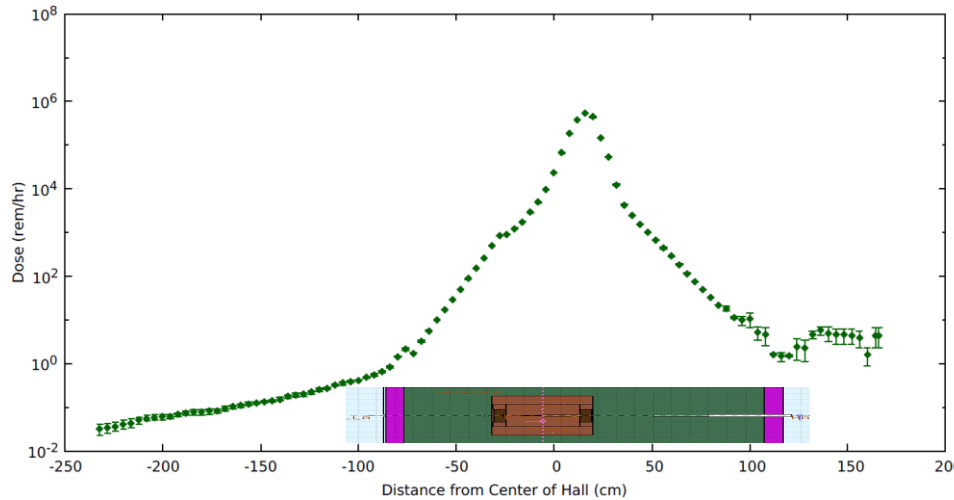
Combined Prompt Dose With 10% Cu Radiator



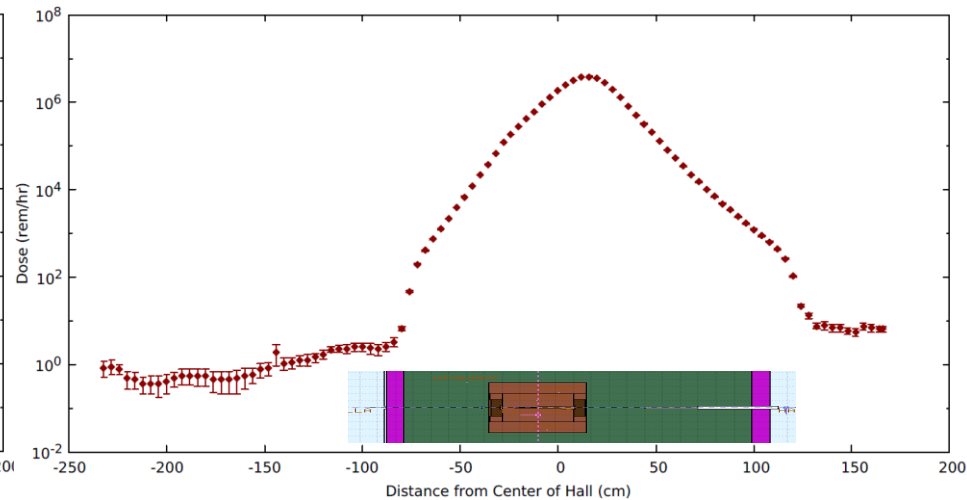
Contribution by e^{\pm}

Prompt dose: 11 GeV, 2.7 μA , 10% Cu radiator **with CPS**

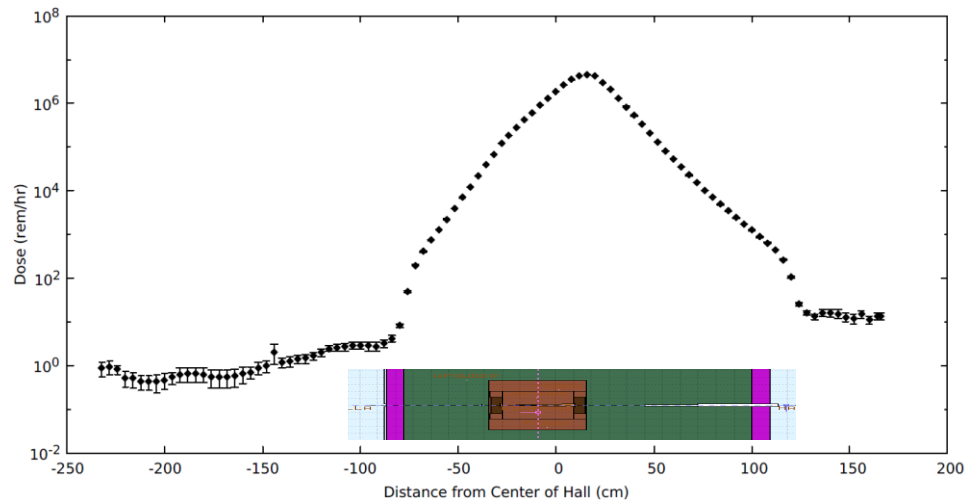
CPS Gamma Prompt Dose



CPS Neutron Prompt Dose



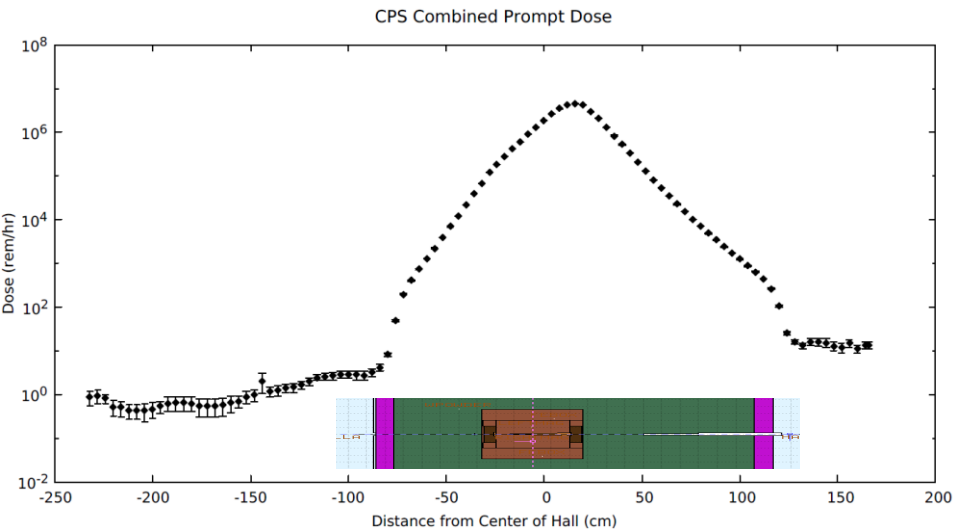
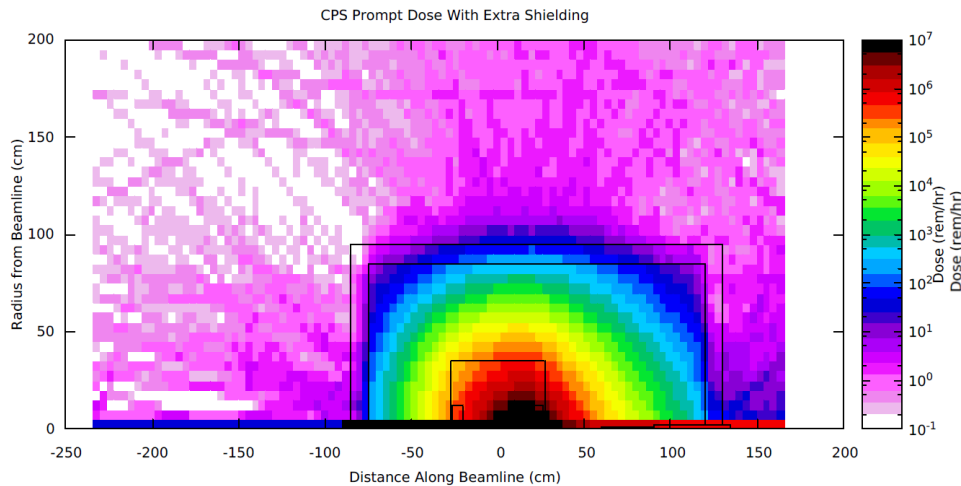
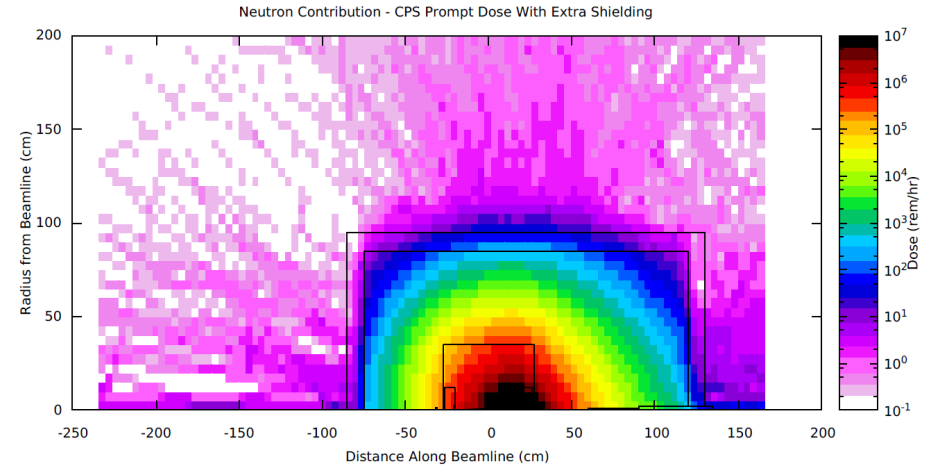
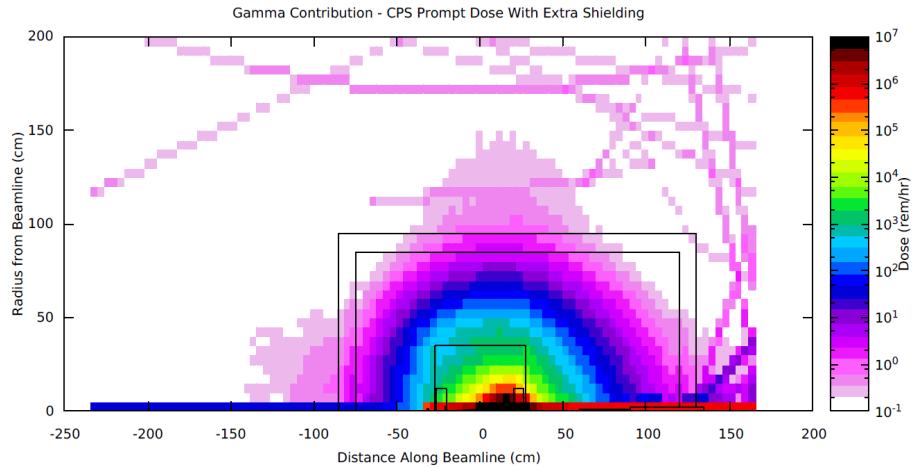
CPS Combined Prompt Dose



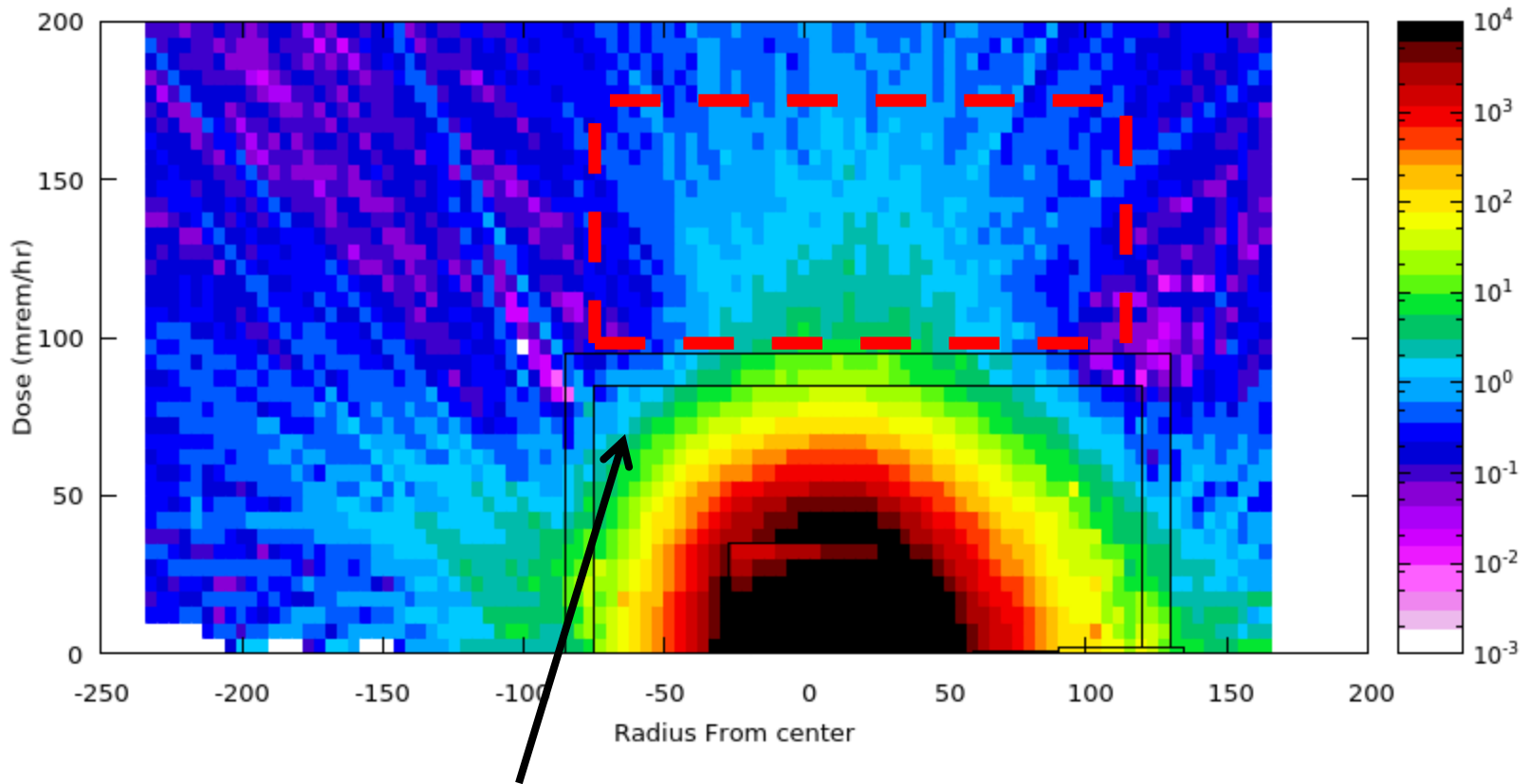
With CPS:
Neutron prompt dose ~
Combined Prompt dose
(i.e., gamma prompt dose
reduced and no $e^{+/-}$)

Prompt dose: 11 GeV, 2.7 μA , 10% Cu radiator **with CPS**

With CPS: Gamma prompt radiation confined

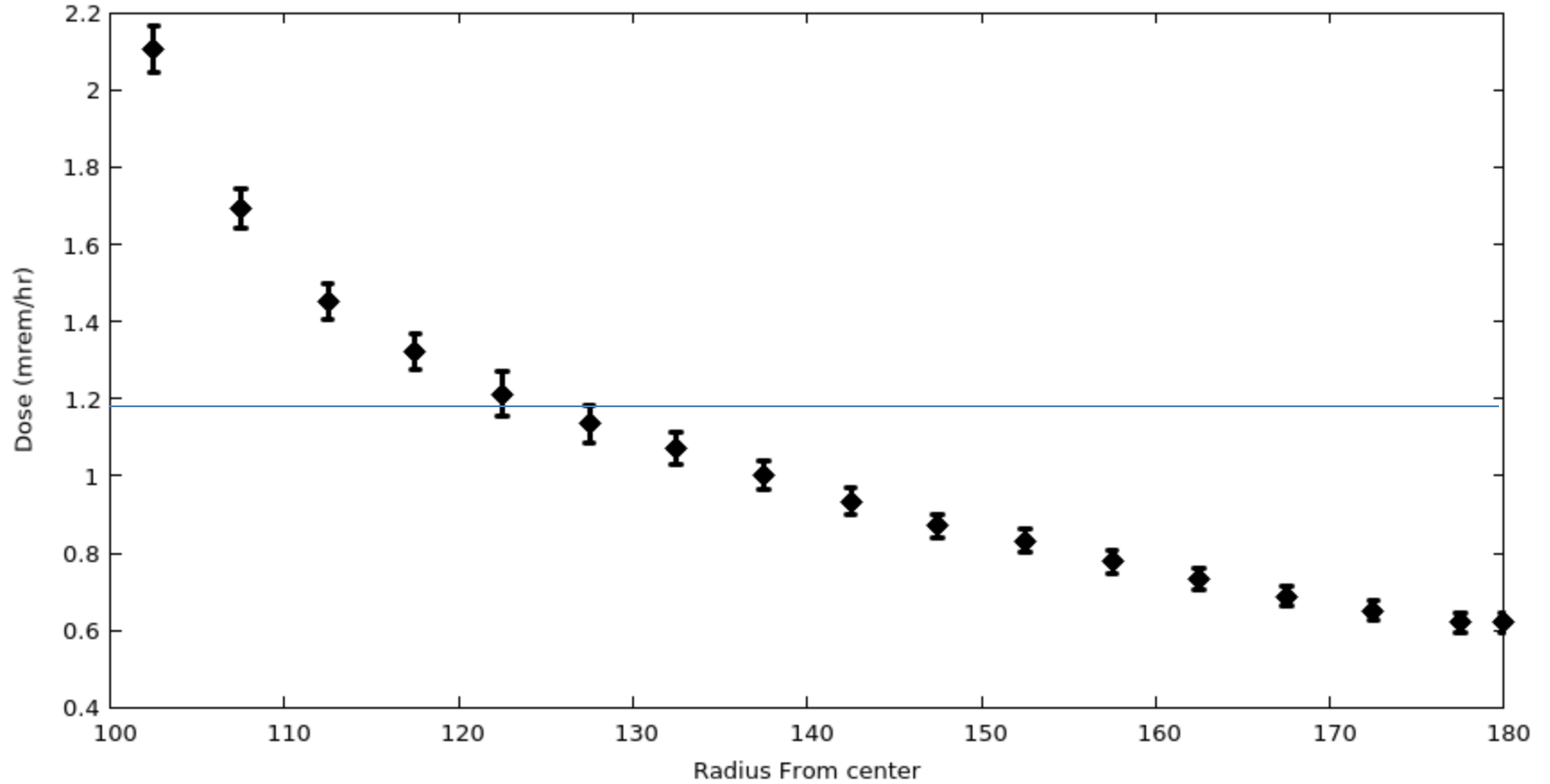


1 Hr activated dose (mrem/hr) - 1000 hour run



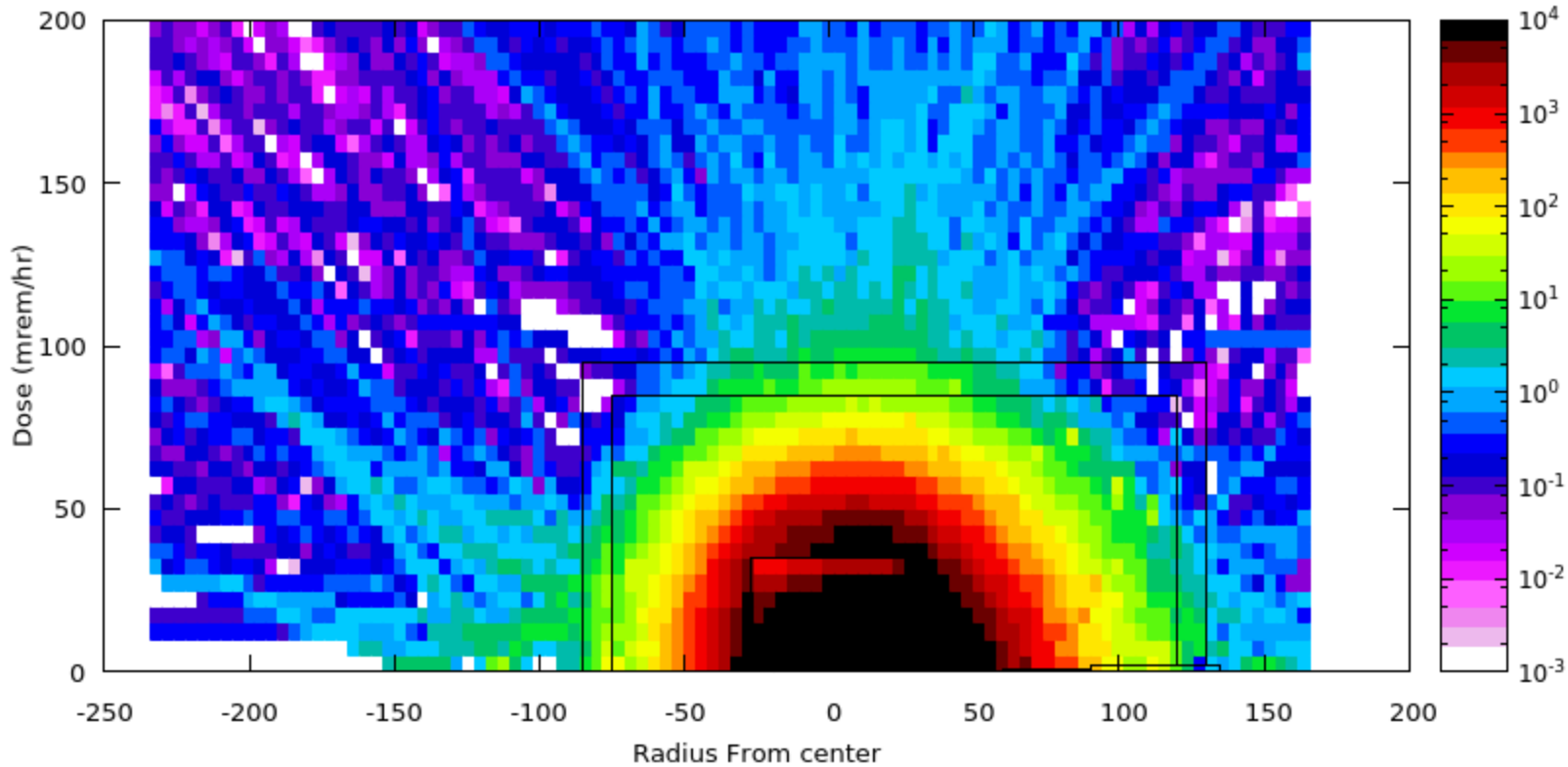
Dose averaged for different radii outside **CPS**.
Outside **CPS** is **~95 cm** from beamline.
Benchmark Region **~125 cm** from beamline

1 Hr activated dose (mrem/hr) - 1000 hour run

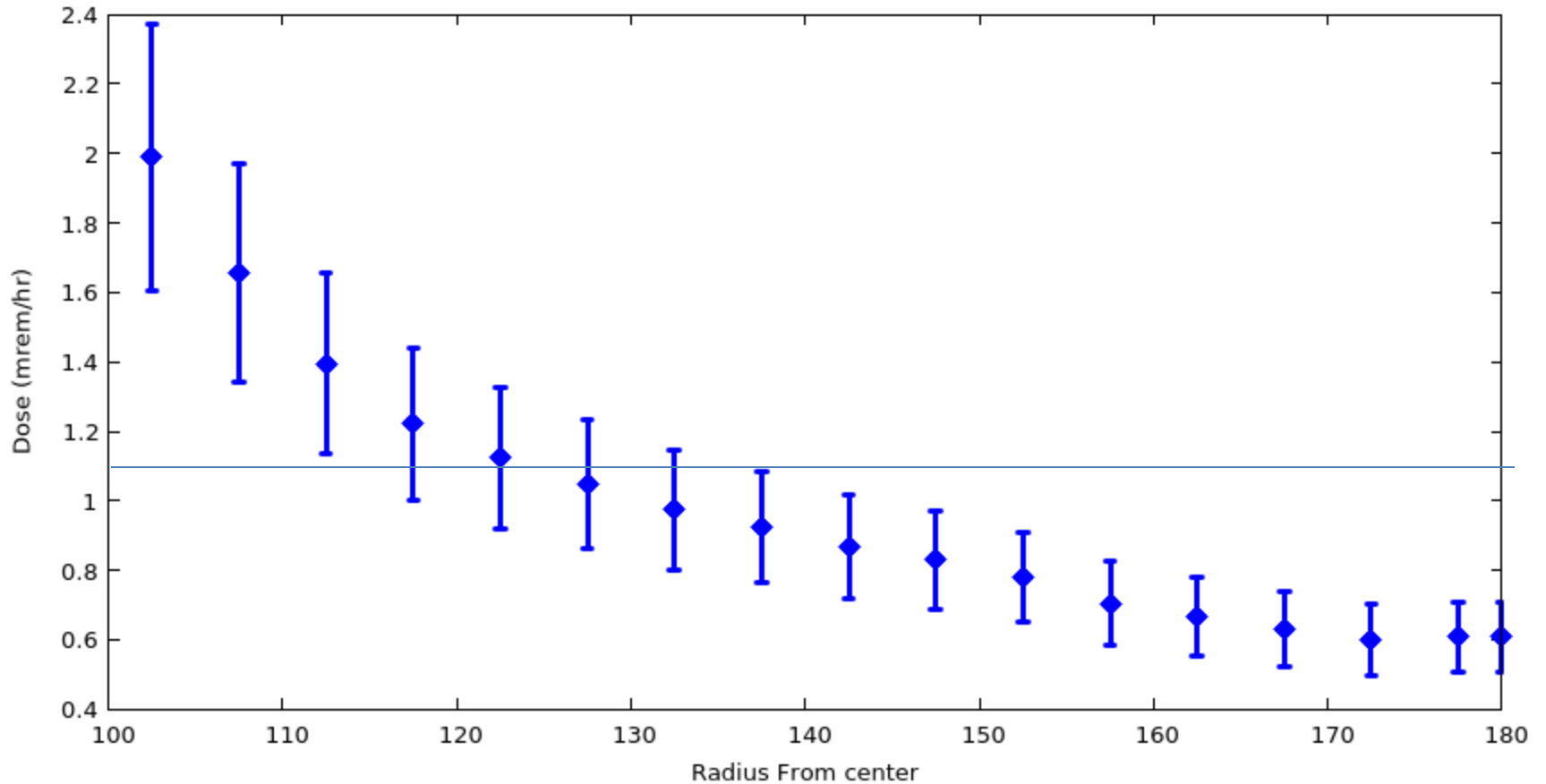


Dose outside CPS 1 hour after a 1000 hour run is < 1.2 mr/hr

1 Hr activated dose (mrem/hr) - 100 hour run



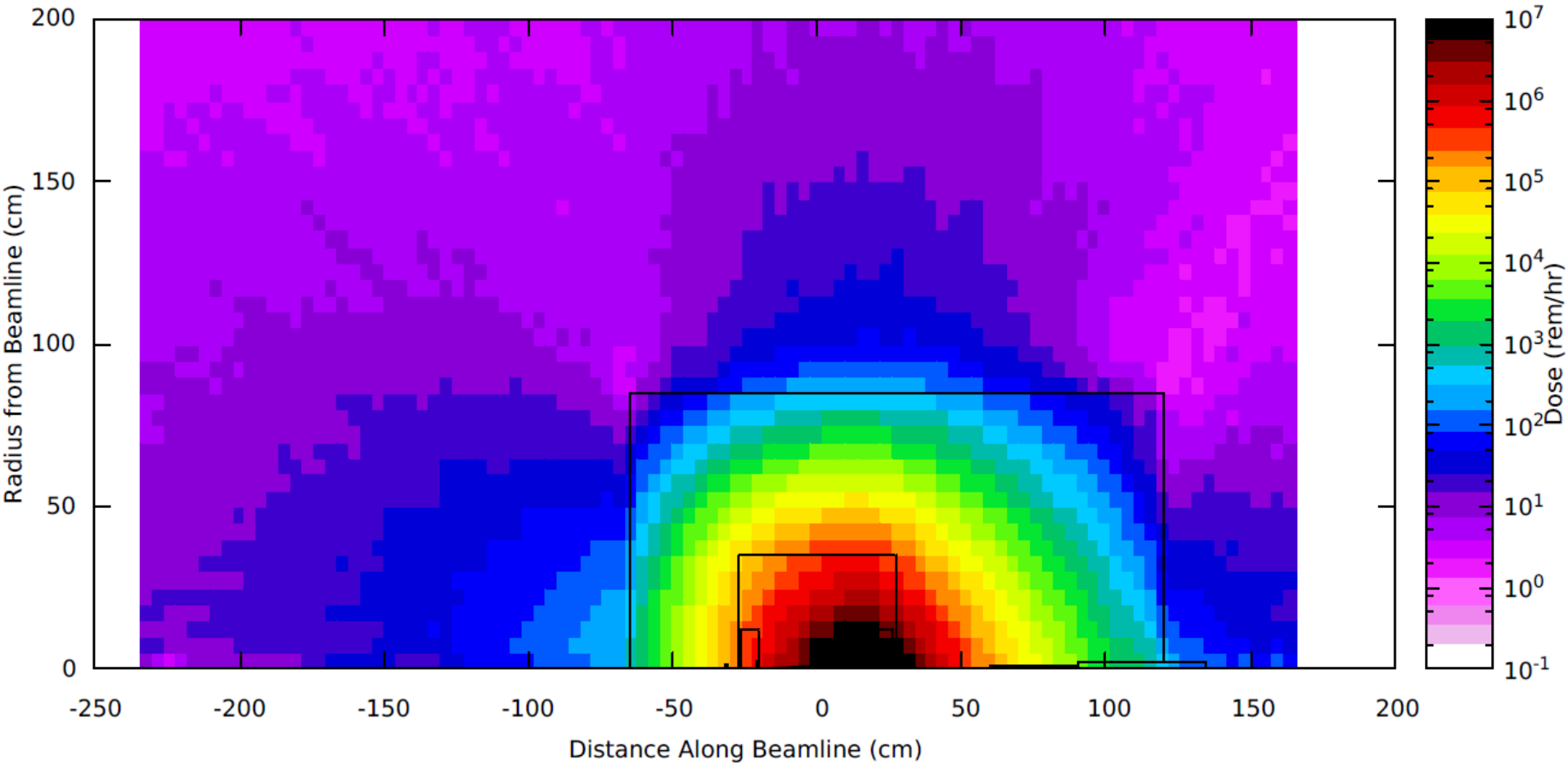
1 Hr activated dose (mrem/hr) - 100 hour run



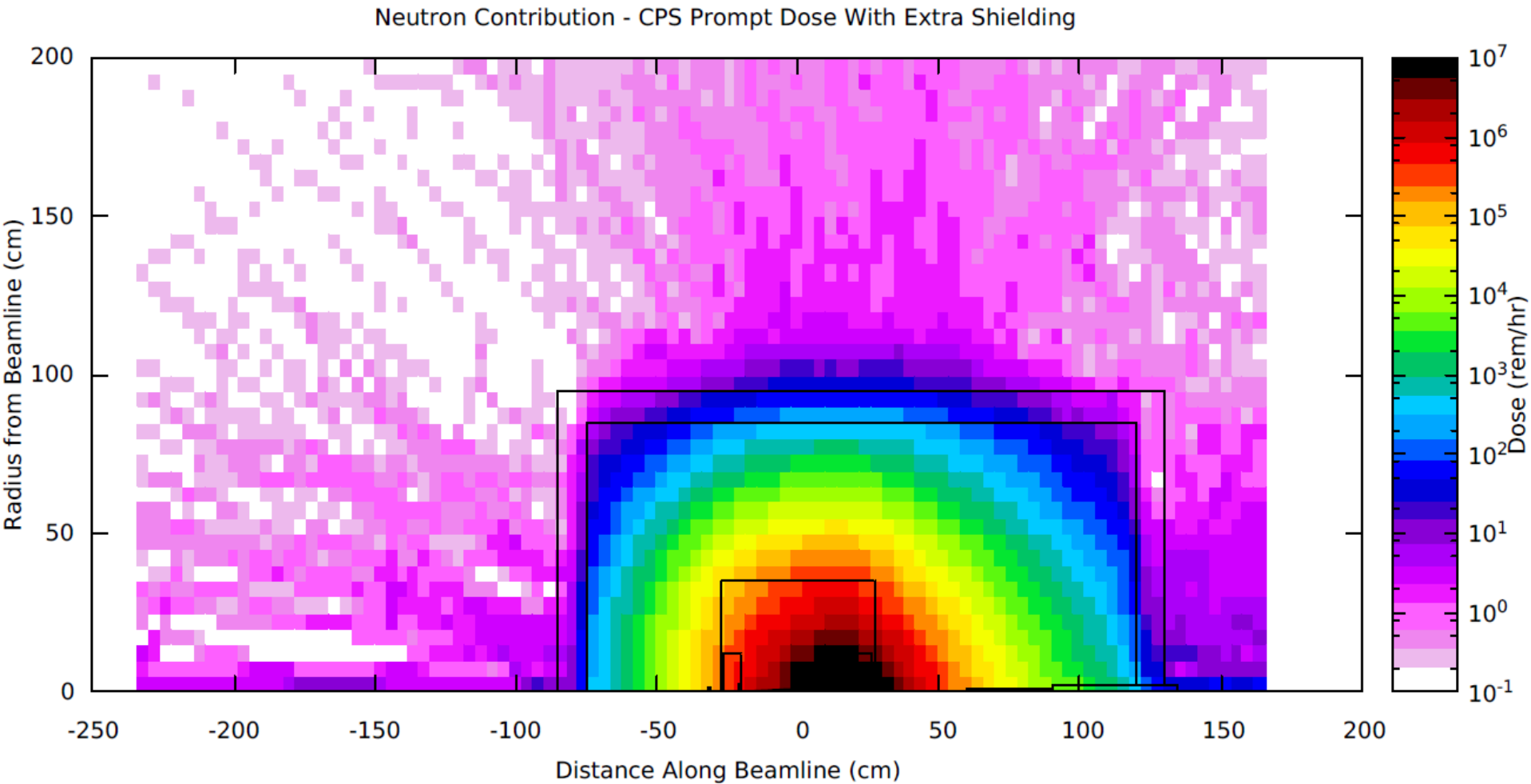
Dose outside CPS 1 hour after a 1000 hour run is also < 1.2 mr/hr

Neutron prompt dose with CPS without extra 10 cm W and 5% borated plastic

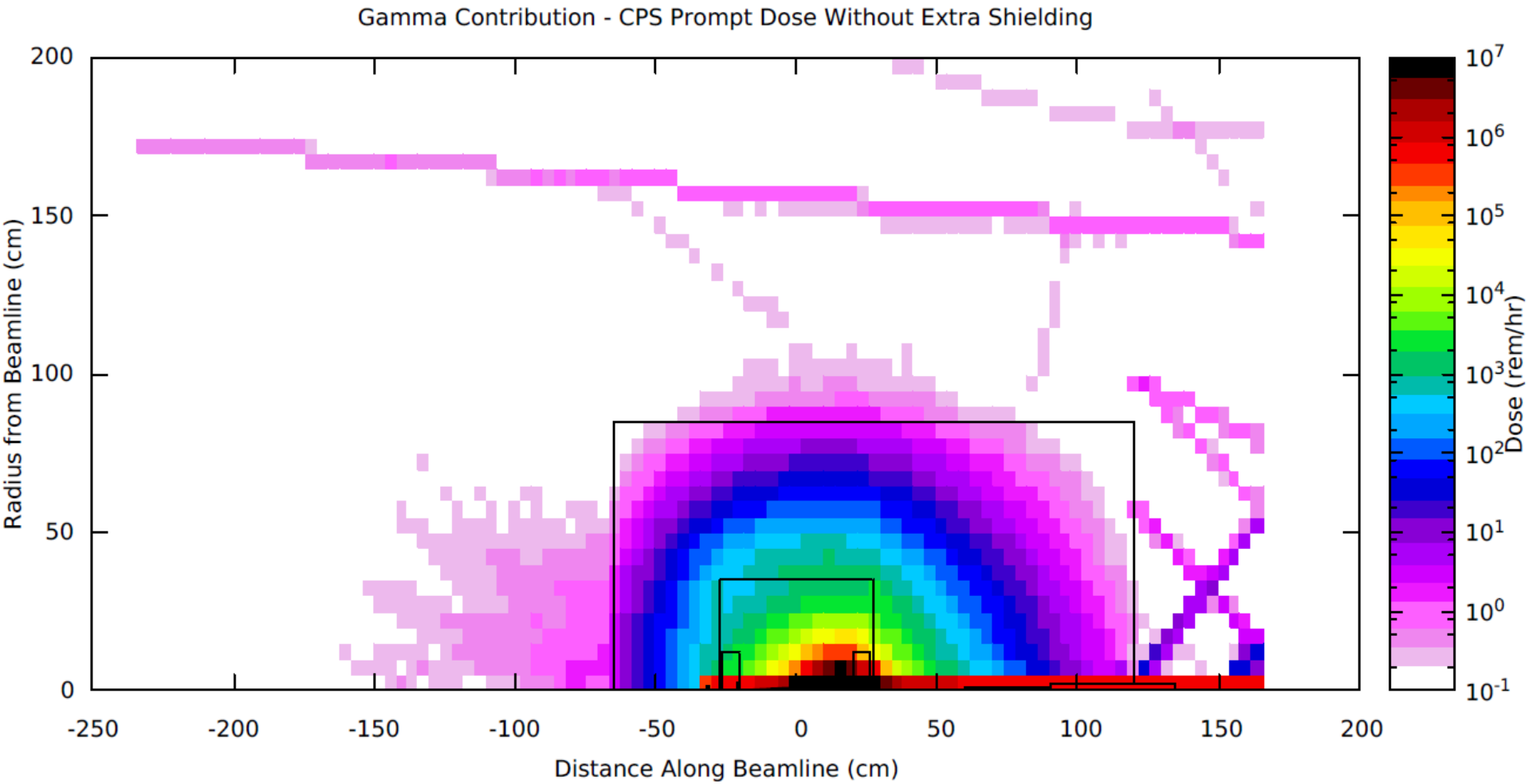
Neutron Contribution - CPS Prompt Dose Without Extra Shielding



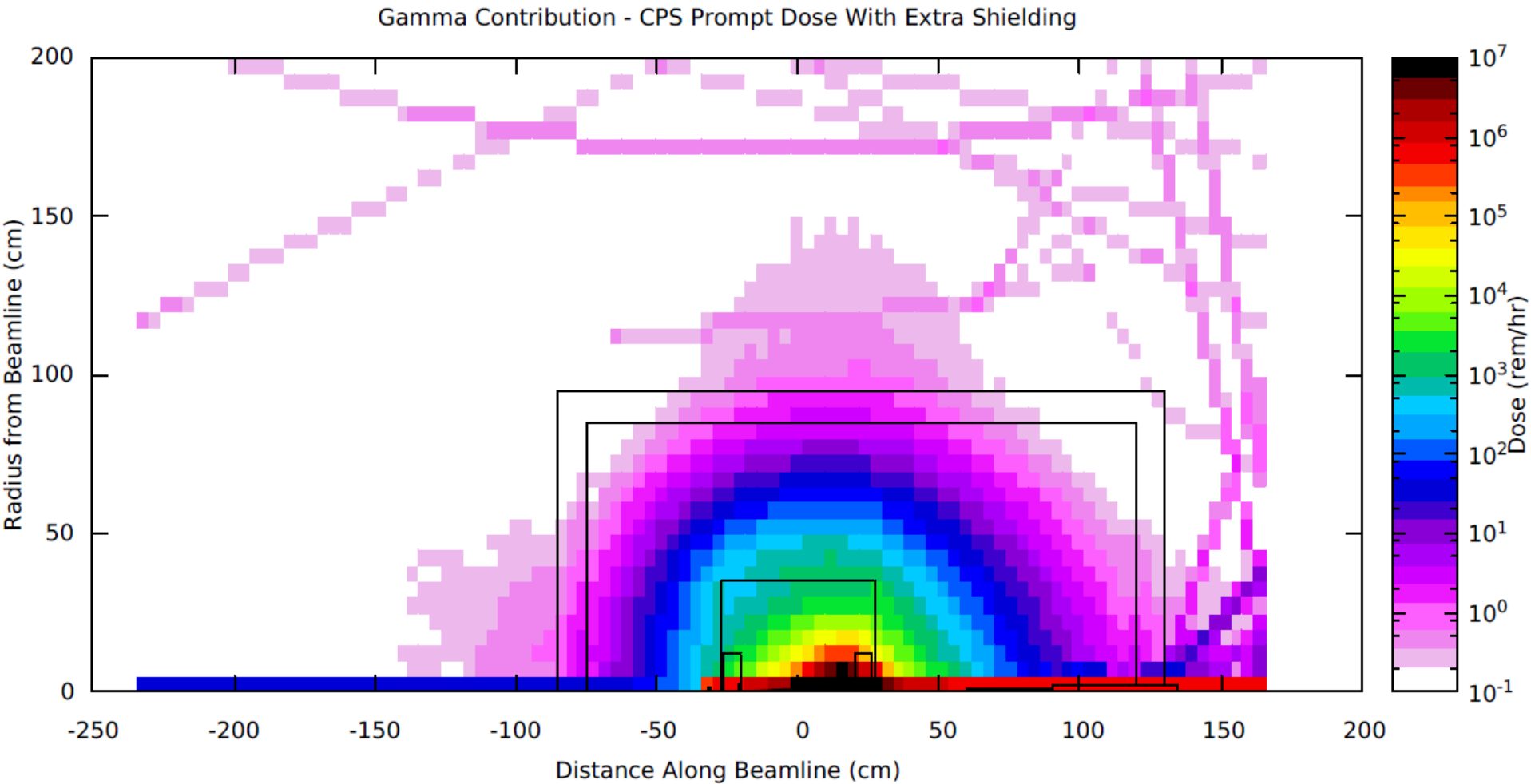
Neutron prompt dose with CPS **with** extra 10 cm W and 5% borated plastic



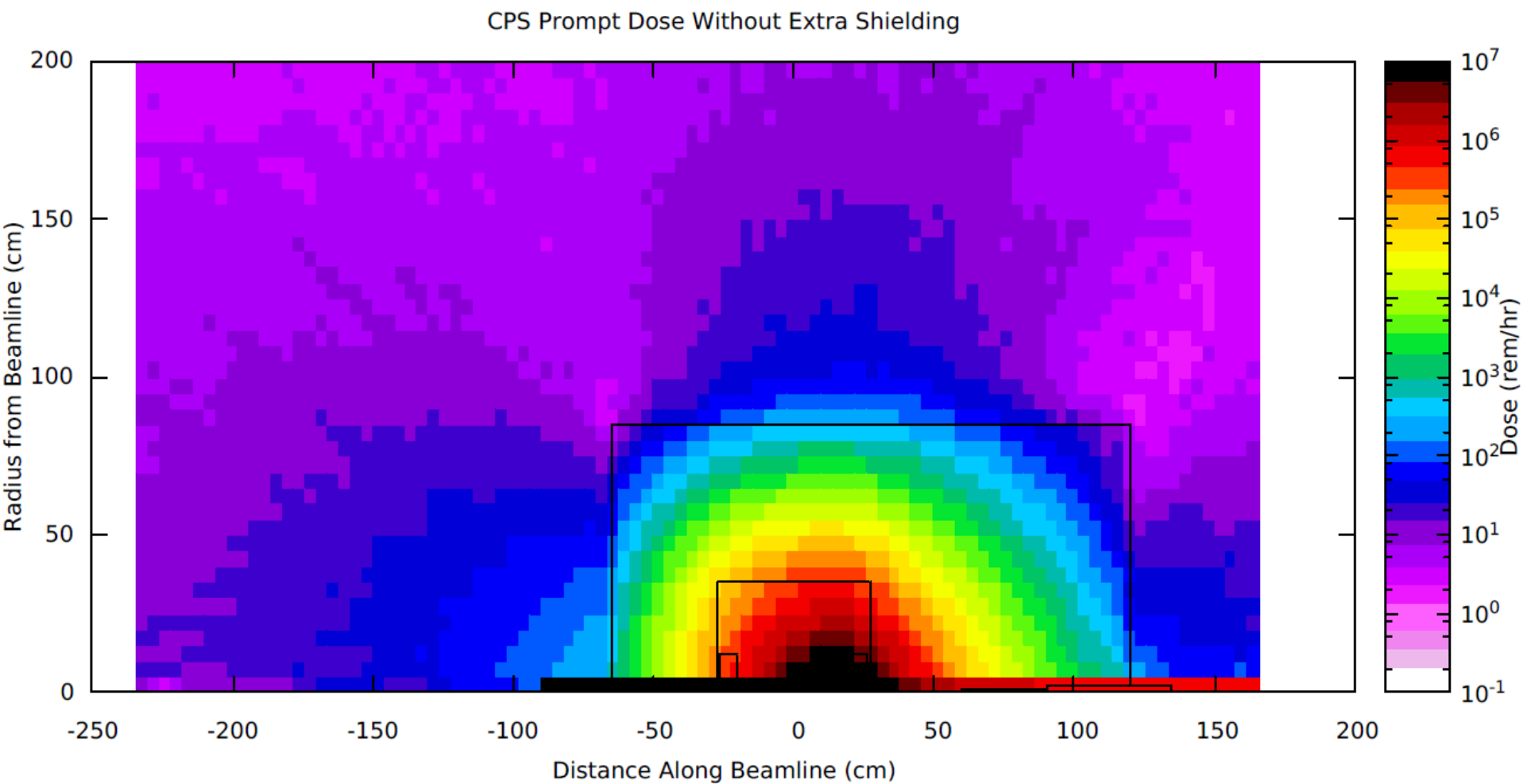
Gamma prompt dose with CPS without extra 10 cm W and 5% borated plastic



Gamma prompt dose with CPS **with** extra 10 cm W and 5% borated plastic



Combined prompt dose with CPS without extra 10 cm W and 5% borated plastic



Combined prompt dose with CPS **with** extra 10 cm W and 5% borated plastic

