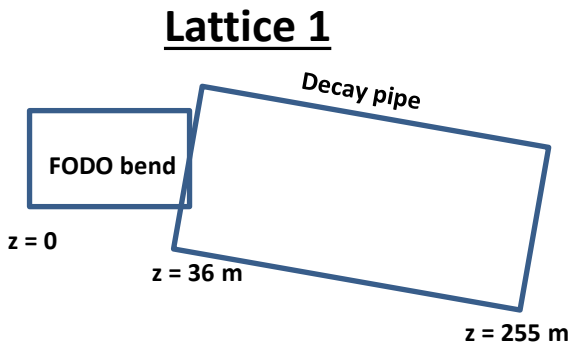
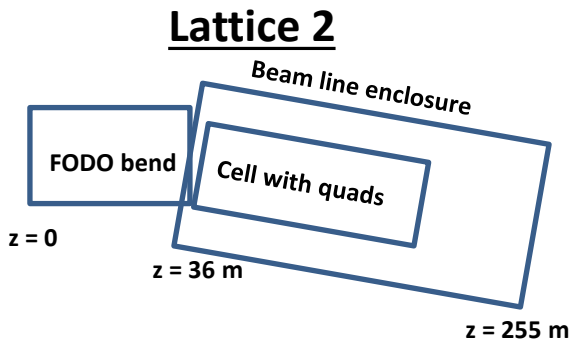
Energy Depositions For Lattices 1 and 2

- Two scenarios
  - Lattice 1 loss file
  - Lattice 2 loss file





  - Both files correspond to 3 x 10^6 p.o.t.
  - For my analysis with Excel, I used 1/10^{th} of the file and scaled results up by 10.

- Specifics
  - Assume 1 MW corresponds to 1.47 x 10^{21} p.o.t./year
  - Scale up to 2.4 MW
  - Determine power dissipation by
    - Particle type (π^+, π^-, μ^+, μ^-, e^+, e^-)
    - z location (35.695 m < z < 242.489 m after bend and before end, z = 242.489 m at end)

Lattice 1 Loss File Power Depositions Scaled Up to 2.4 MW (nuPIL_lattice2_loss_noCell_5e6)

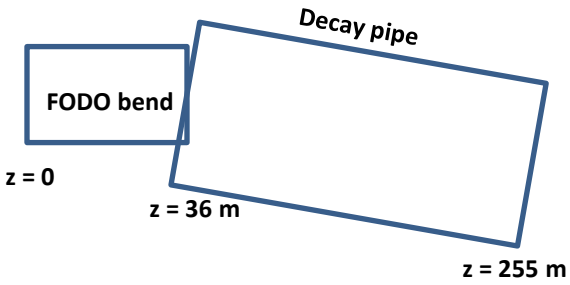
Particle type and location	Power Deposition (kW)
π^+ into decay pipe after FODO bend	8.43
π^+ into end	16.39
π^- into decay pipe after FODO bend	0.000579
π^- into end	0
μ^+ into decay pipe after FODO bend	2.59
μ^+ into end	10.97
μ^- into decay pipe after FODO bend	0.000189
μ^- into end	0
e^+ into decay pipe after FODO bend	0.00760
e^+ into end	0.00820
e^- into decay pipe after FODO bend	0
e^- into end	0

- Into wall after bend

(35.966 m < z < 255.955 m)

- Into end

(z = 255.955 m)



Check π^+ that decay with z > 35.966 m: 13.95 kW

Lattice 2 Loss File Power Depositions Scaled Up to 2.4 MW (nuPIL_lattice2_loss_5e6)

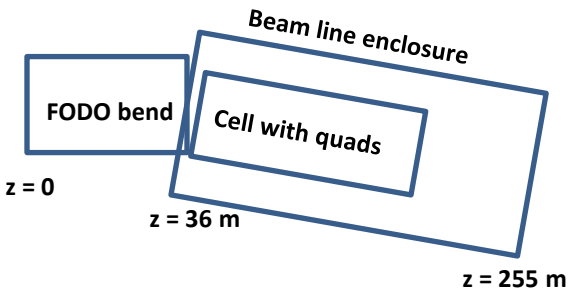
Particle type and location	Power Deposition (kW)
π^+ into beam line after FODO bend	13.57
π^+ into end	14.06
π^- into beam line after FODO bend	0.000579
π^- into end	0
μ^+ into beam line after FODO bend	3.09
μ^+ into end	8.26
μ^- into beam line after FODO bend	0.000192
μ^- into end	0
e^+ into beam line after FODO bend	0.00380
e^+ into end	0.00517
e^- beam line after FODO bend	0
e^- into end	0

- **Into vacuum pipe after bend**

(35.965 m < z < 242.489 m)

- **Into end**

(z > 242.489 m)



Check π^+ that decay with z > 35.965 m: 11.12 kW

Checks With All π^+ After Bend at z = 35.966 m

- After bend at z = 35.966 m, consider
  - Decaying π^+
  - Stable π^+ into decay pipe or beam line enclosure
  - Stable π^+ into end
- Total number of these π^+ about 972,000 for both files
- Total power deposited of these π^+ about 38.8 kW for both files.