

### **Notes on D&D of the NuMI hadron absorber**

The NuMI hadron absorber is composed of an aluminum core, surrounded by iron shielding, which in turn is surrounded by concrete. The aluminum, iron and concrete are in the form of modular blocks. The absorber is constructed by stacking these blocks and securing them together [here can refer to Ernie's construction procedure]. The gaps in the outside layers are grouted to reduce the ambient beam-on and beam-off dose rates. This is a standard design, and many absorbers of this kind, have been built since the start of the Fermilab.

- No hazardous materials have been used in the construction of this absorber. Therefore, no mixed waste or potential contaminant of the ground water will be produced in this absorber.
- The major radioactive isotopes produced in the absorber will have 2.6 and 5.3 years half lives (very similar to that produced in the beam-line components).
- There are sump pumps that remove the water that flows into the NuMI tunnel. This will continue after the conclusion of the experiment. Accidental flooding of the tunnel in the future will not have any detrimental effects on the ground water. All the materials used in the construction of the absorber are naturally occurring in the surrounding soil.

The absorber will be dismantled by following the reversed assembly procedures. Cracking of the grouting will be done by following the standard demolition routinely used at the accelerator tunnels at the laboratory.

The guidelines of the FESHM 8070 will be used for the D&D of this absorber.