Neutrino Factory Target Vessel Concept

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Target Studies EVO

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Target Vessel Requirements

- Accurate jet placement
- Jet/beam dump pool
- Double containment of mercury
- Beam entrance port(s)
- Chamber ventilation
- Provisions for cooling
- Provisions for draining
- Additional SC coil shielding
Starting Point: Integrated with Resistive Magnets

- Goal: develop concept with no resistive magnets
- Method: start with solid cylinder of SS and remove material as required
Jet/Beam Chamber
Nozzle
Beam Pipe
Mercury Pool Trough
Draains
Vents

Vent Entrance

Vent Exit
Downstream End Cap
Double Wall
Beam Window

- Could add flow channels to interstitial space for water or helium cooling
- Beam window becomes integral part of assembly
- Be/SS interface TBD
Cooling Channels
Comments

• These images were created to aid in discussion. No specific fabrication details were included.

• A machined billet will be more precise, rigid, and more accurately place the nozzle than a welded shell filled with tungsten beads.

• This concept still has numerous issues to be worked out. For instance, all fluid passages must be self-draining.

• Space on the upstream end is still a major concern. The small beam/jet angles cause significant mechanical issues.