

MERIT Hg System Fabrication Status

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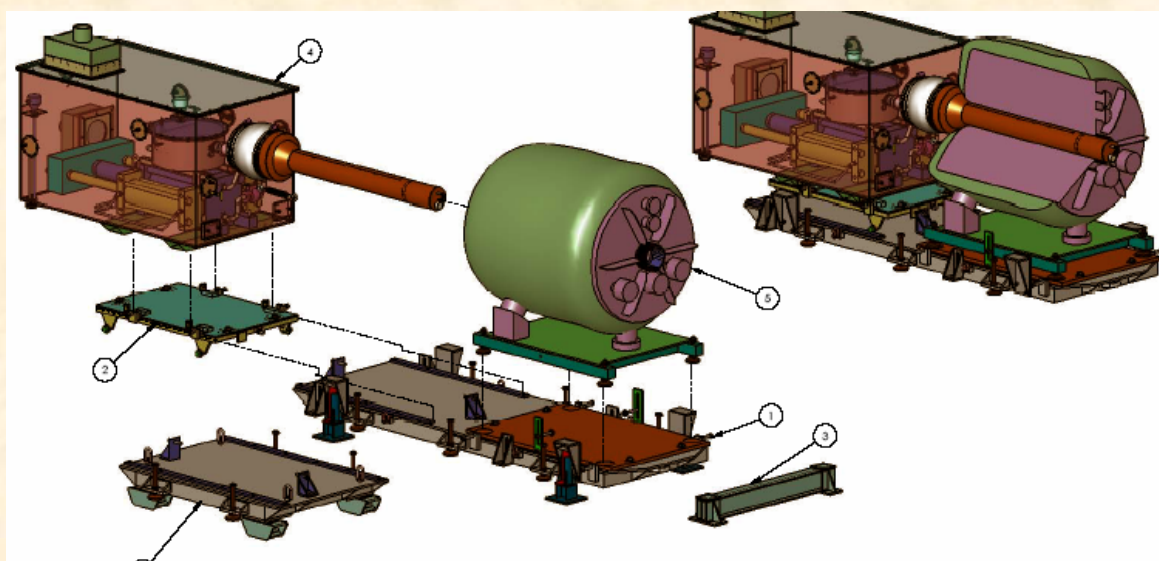
T.A. Gabriel

Muon Collaboration Friday Meeting

January 13, 2006

Fabrication Packages

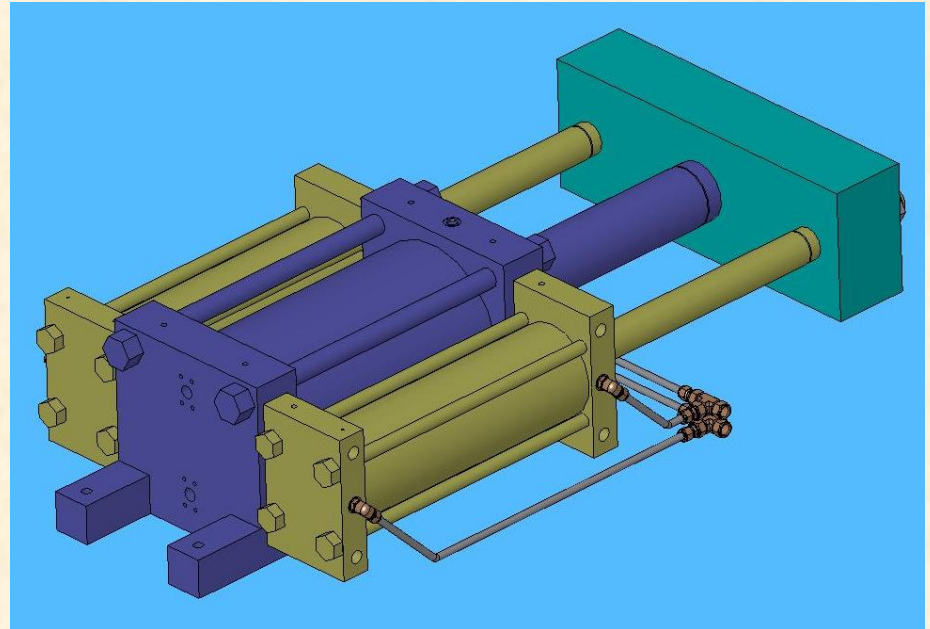
- Syringe pump (in fabrication)
- Baseplates
- Primary containment attached to cylinders (sump tank, Hg inlet/discharge piping)
- Secondary containment box
- Target module (includes primary and secondary containment components)
- Beam windows



Syringe Pump

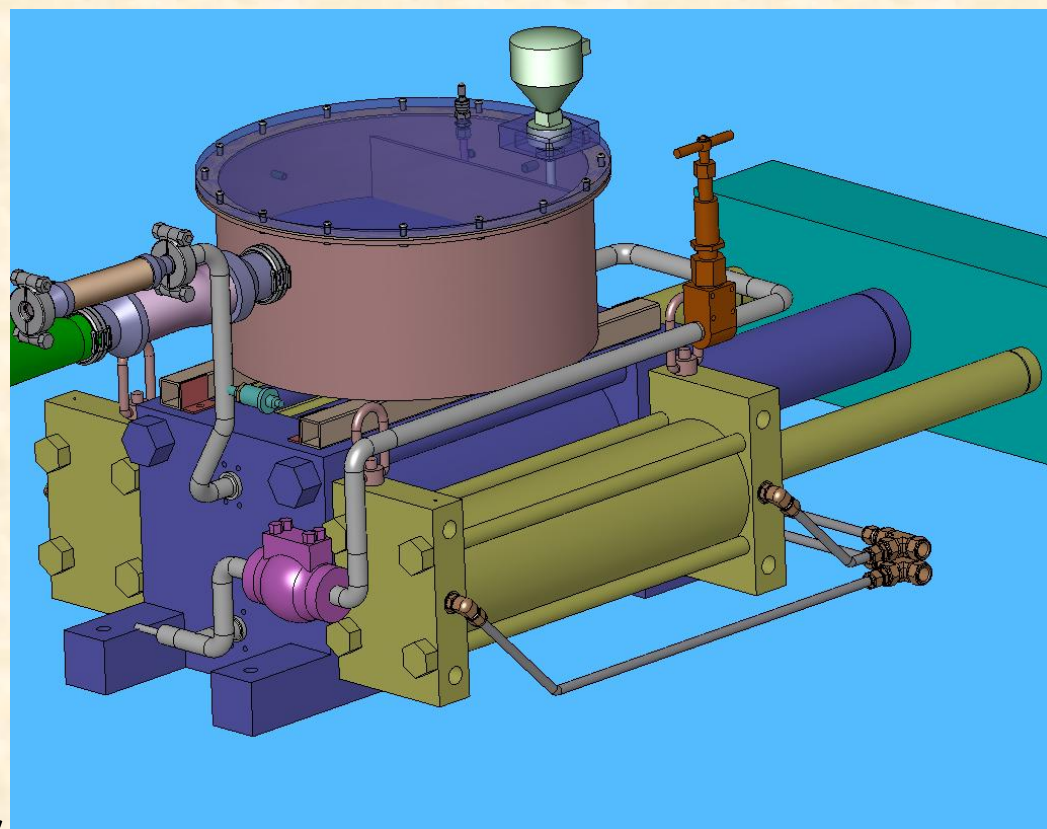


- Consists of 3 hydraulic cylinders, hydraulic pump, and manual controls
- Awarded to Airline Hydraulics Corporation (AHC), with cylinders manufactured by Hanna
- Cylinders scheduled for delivery to AHC Feb 13
- AHC to integrate & test complete syringe system



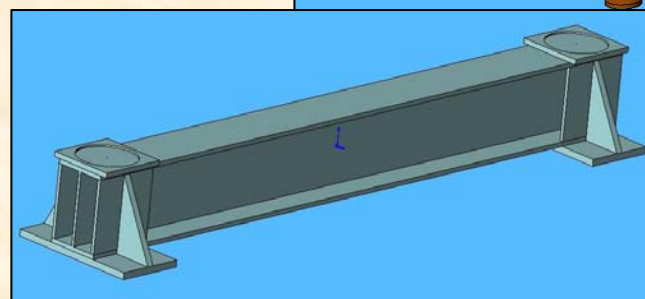
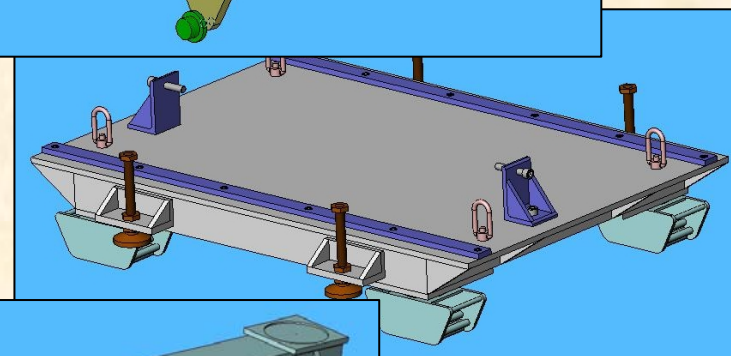
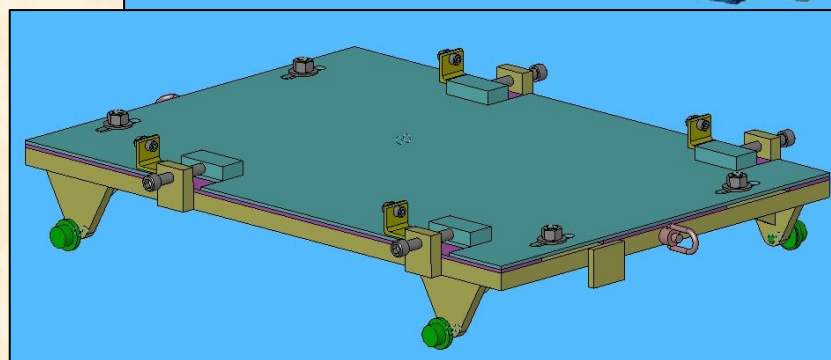
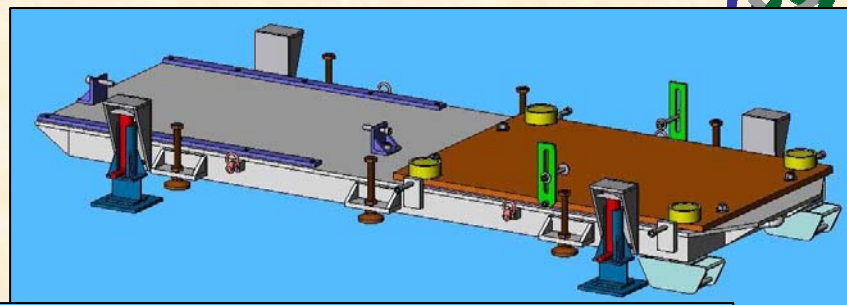
Primary Containment

- This package only includes Hg-wetted hardware inside secondary box
- Primarily a field-fit fabrication, advantageous for syringe vendor to complete
- Drawing package being finalized
- Will forward to AHC for quote
- Probably delay syringe delivery to ORNL, but still faster than involving another fabricator



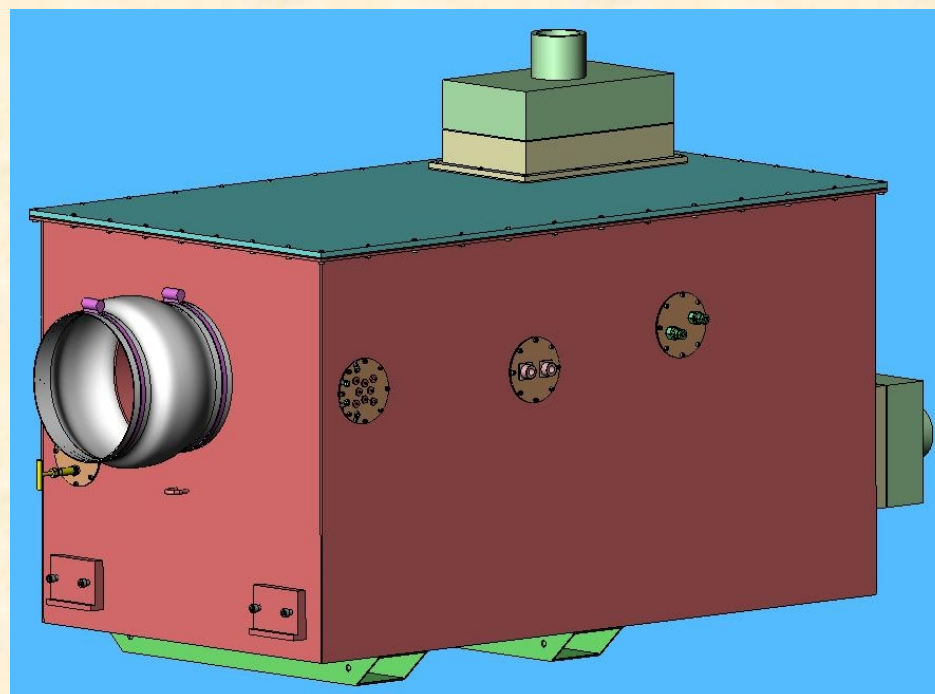
Baseplates

- Majority of components AL 6061-T6
- Provides mobility, alignment, and assembly functions of magnet and Hg system
- Multiple components
 - Common baseplate
 - Target transporter
 - Hg system cart
 - Magnet elevation beam
- Bids currently being obtained from Oak Ridge & Princeton area shops as well as University of Mississippi



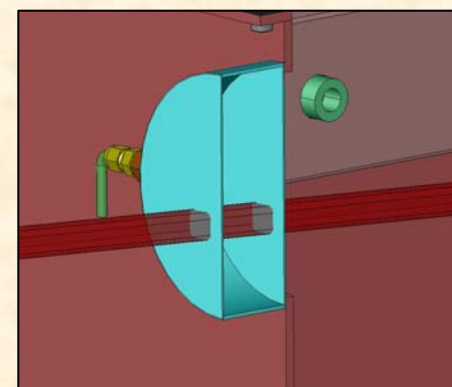
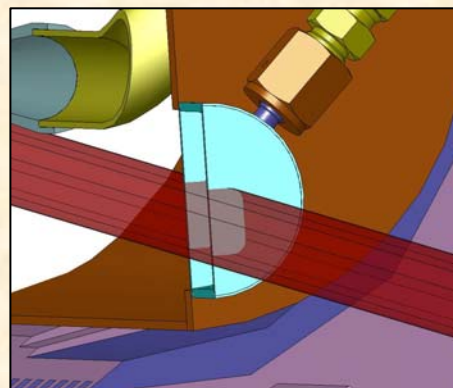
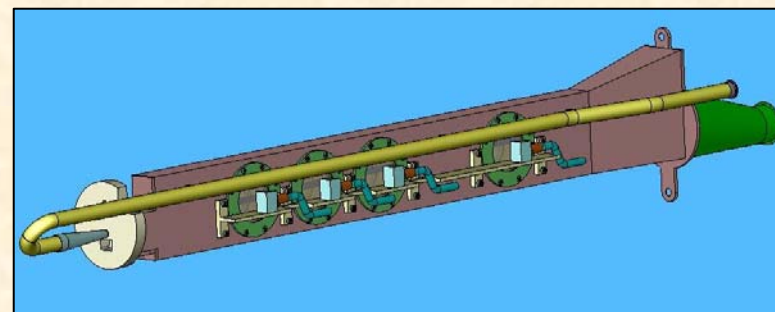
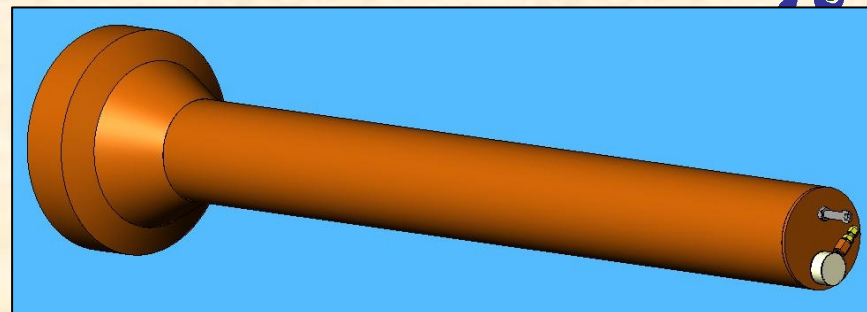
Secondary Containment Box

- **Approx 58" x 38" x 39" overall**
- **SS plates for bottom & sides, lexan cover**
- **Hg vapor filter assembly by Airfiltronix**
- **Current plan includes fabrication by Princeton University**



Target Module & Windows

- **Box-like primary fabricated from 1/4" plate**
- **Circular sheet metal secondary tube**
- **Original design was SS316, but fabrication issues (welding SS to Ti6Al4V) leading towards all titanium fabrication**
- **Discussions underway with Ti fabricator regarding design details**
- **Fab package will include beam windows**



Summary



- **Syringe pump in fabrication**
- **Detailed design drawings for other hardware being completed and checked**
- **Estimates being obtained for baseplates**
- **Secondary containment box may be fabricated by Princeton**
- **Converting target module to an all-titanium configuration**
- **Current schedule requires all hardware to be delivered to ORNL by end of April**