UT-BATTELLE

Hg Delivery System Fabrication Status

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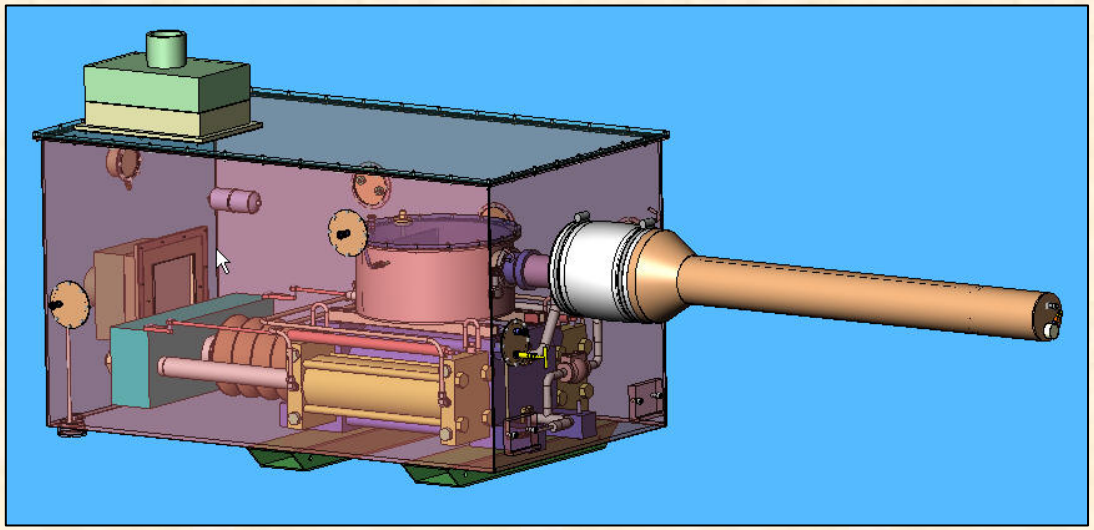
Muon Collaboration Friday Meeting

May 5, 2006

OAK RIDGE NATIONAL LABORATORY
U. S. DEPARTMENT OF ENERGY

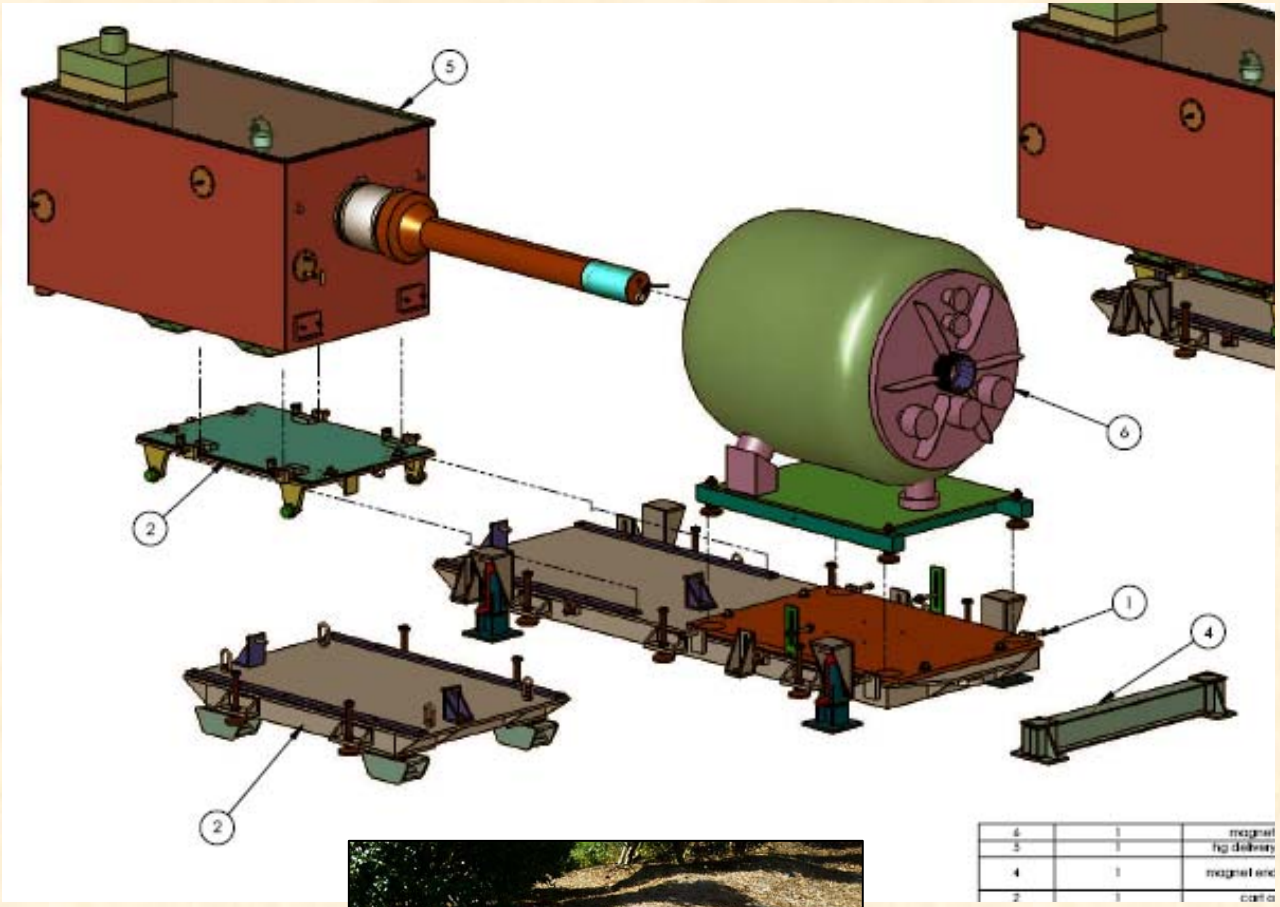
Fabrication Packages

- **All fabrication drawings completed**
- **Baseplates – UMiss**
- **Syringe pump – Airline Hydraulics**
- **Sump tank & piping – Airline Hydraulics**
- **Secondary containment box – Princeton U.**
- **Hg jet chamber & secondary containment sleeve – TBD**
- **Initial SS Hg nozzle & piping – TBD**
- **Final Ti nozzle / piping & beam windows - TBD**



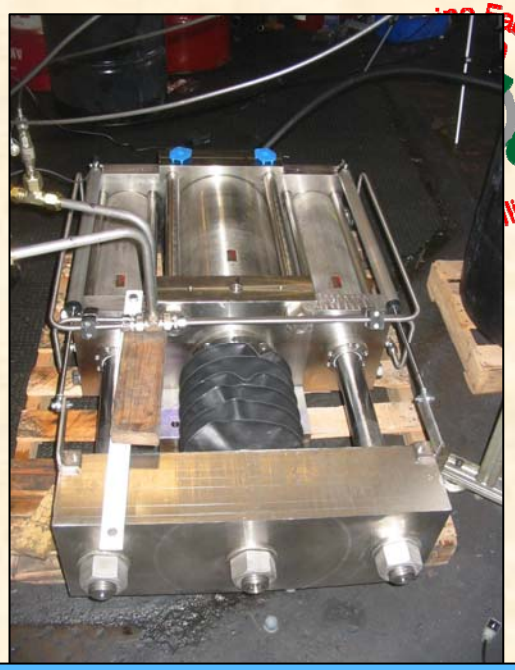
Baseplates

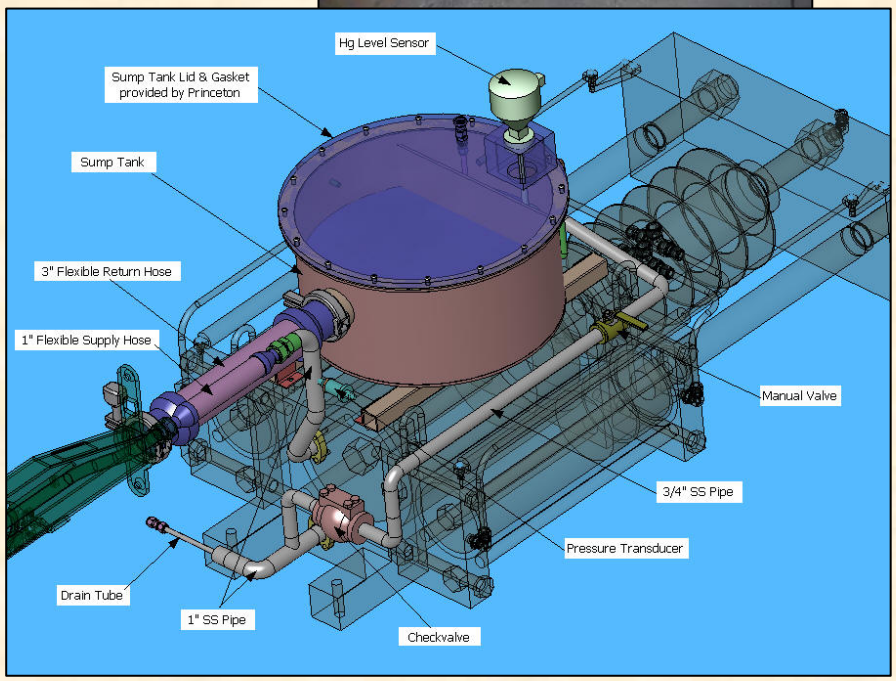
- **Primarily fabricated from Al 6061-T6**
- **All procured items received**
- **Fabricated items cut to size, in queue for welding**



Syringe Pump & Sump Tank Piping

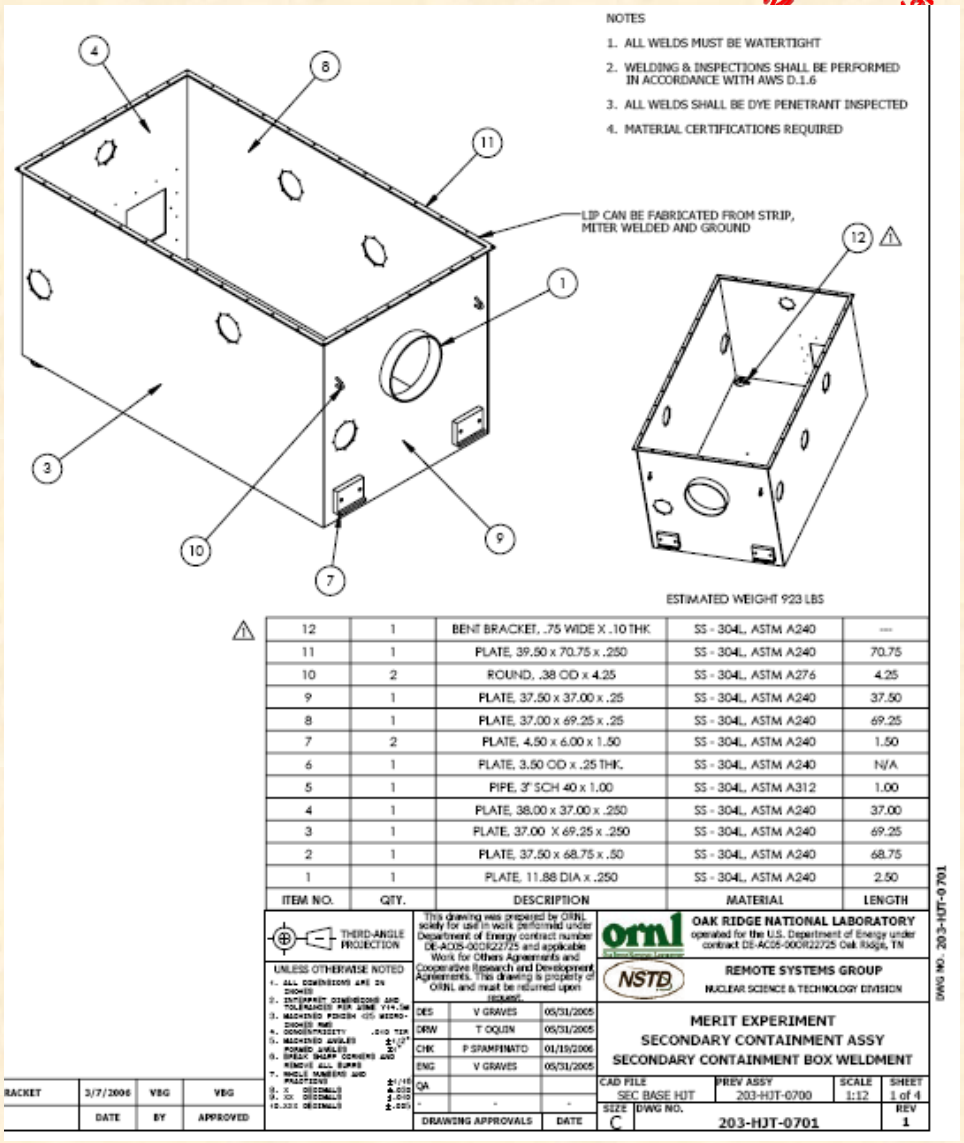
- **Pump operational & tested**
  - **Final modifications in progress**
  - **Non-magnetic tie rods in transit to AHC**
- **Added sump tank / piping to original work scope**
- **AHC expects system ready to ship by May 19**





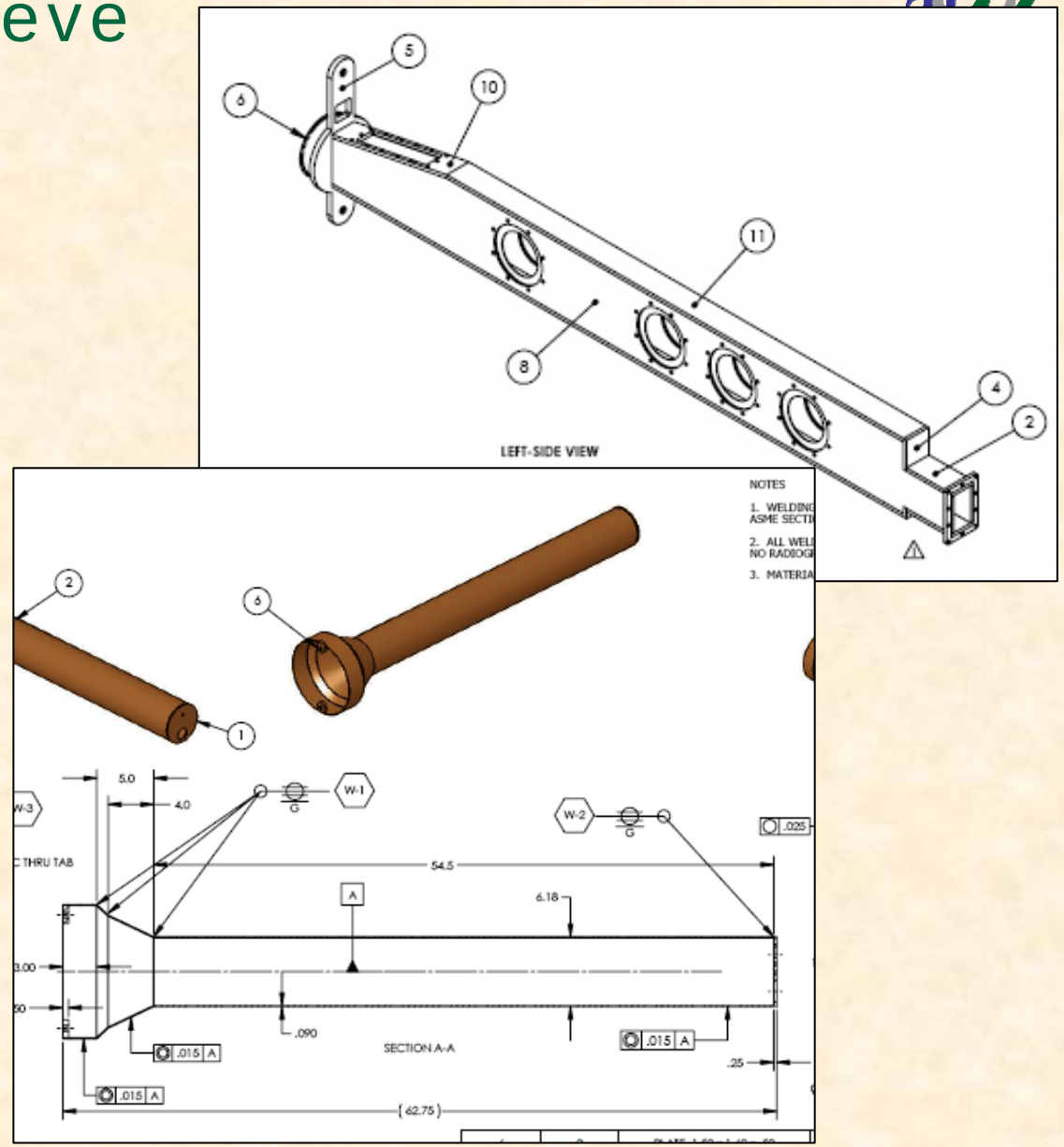
Secondary Containment Box

- **Machining completed, preparations for welding underway**
- **Work scope also includes various gaskets, lexan cover plates, port covers, optical diagnostic mounting hardware, & Hg vapor filter housings**



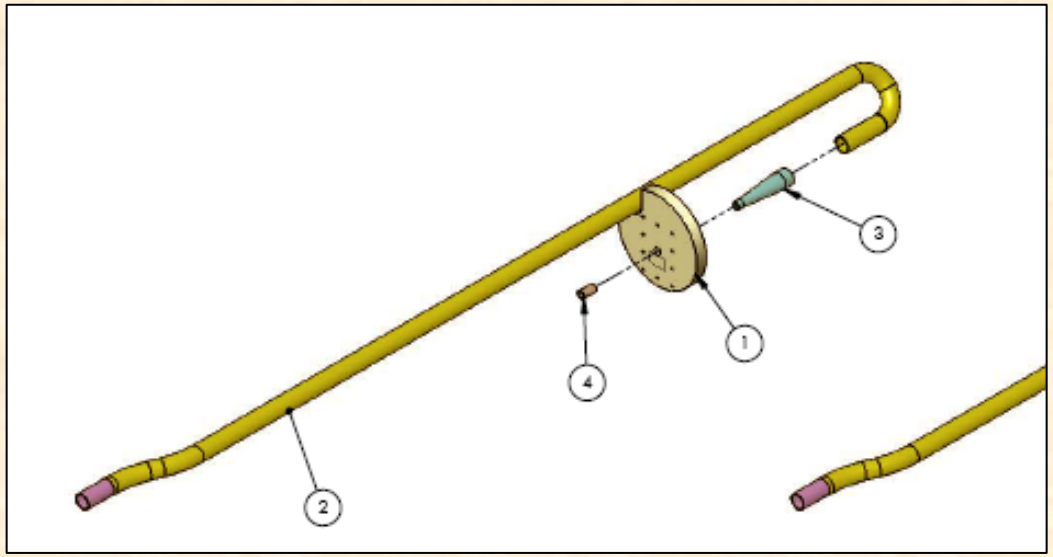
Hg Jet Chamber & Secondary Containment Sleeve

- **Both components SS316L**
- **Bids have been received & are being evaluated**
  - **Single procurement**



SS Nozzle & Piping

- **Initial testing will incorporate SS components rather than Ti for cost & schedule benefits**
- **Two configurations being fabricated**
  - **Reducer before 180° bend**
  - **Reducer after 180° bend**
- **Test both at ORNL, hopefully eliminate changes at MIT**
- **Vendor TBD, possibly Princeton U.**



Ti Nozzle/Piping & Beam Windows

- **In-beam nozzle flange & beam windows must be fabricated from Ti6Al4V**
- **Prefer that entire Hg supply assembly be fabricated from Ti to eliminate dissimilar metals issues**
- **Bids requested based on current design of Ti components**
  - **Possible long delivery times**
  - **Ti material has been procured by Princeton**
  - **May require two fabricators, one for machining & one for welding**

Conclusions

- **Most Hg delivery system components either in fabrication or close to being awarded**
- **Titanium fabricator search continuing, awaiting bids from several vendors**
- **Expect working syringe system at ORNL by end of May**
- **Control system development will continue upon receipt of syringe hardware**