

# **Spectrometer Solenoid Update**

**MAP CM at Fermilab**

**May 30, 2014**

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# Topics

- Shipping of SS1
- Remaining hardware to be shipped
- Additional tasks at LBNL
- SS2 in the MICE hall
- SS2 upgrade tasks



# SS1 Shipping to RAL

- SS1 left Wang NMR on April 24<sup>th</sup>
- Shipped by truck to LAX, flight to Frankfurt, truck to RAL (via Chunnel)
- Arrived at RAL on May 1<sup>st</sup>
- No apparent issues or damage
- Shock logger data not available yet
- Iron shield and brackets also sent



# SS1 Shipping Prep





# SS1 Shipping Prep



# Iron Shield





# SS1 Shipping





# SS1 Shipping



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# SS1 Shipping



# SS1 Shipping





# SS1 Shipping



# SS1 Shipping





# Empty Wang High Bay



# Next Hardware Shipment

- Additional hardware at Wang NMR is being prepared for shipment to RAL
  - Power supply rack w/controllers, cables
  - Majority of coolers, hoses, compressors
  - Control system rack with monitors
  - Vacuum pumps, valves, gauges
  - LN cooldown system
  - Spares: HTS leads, PS/controllers, MLI,...
- A series of custom crates due in soon



# Other Hardware

- Other hardware going to Fermilab for repair and/or modification
  - Quench protection system
  - LHe transfer lines
  - Portions of original LN cooldown system
- Magnetic mapping system already shipped back to RAL



# Tasks at LBNL

- Power supply testing
  - System going to LBNL for testing
  - Issue during last runs caused QPS trips
  - Likely related to charging circuits
- Cryocooler system repairs
  - 1 head, 3 hoses, 2 compressors were contaminated with air
  - New adsorbers due in for compressors
  - Hoses and head to be pump/purged





# Tasks at LBNL (cont'd)

- Cryocooler testing
  - Single cooler cryostat used for testing
  - Test contaminated head after refurb
  - Test previously underperforming head
  - Test nominal cooler performance with 1<sup>st</sup>-to-2<sup>nd</sup> stage insulation in place, compare results
  - Performance of all 9 other 2-stage heads considered to be acceptable



# SS2 in the MICE Hall

- SS2 installed in the MICE hall May 9<sup>th</sup>
- Mounted on final support structure
- Initially located in the off-axis position
- Tracker previously installed in bore, patch panel in place



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# SS2 in the MICE Hall





# SS2 in the MICE Hall

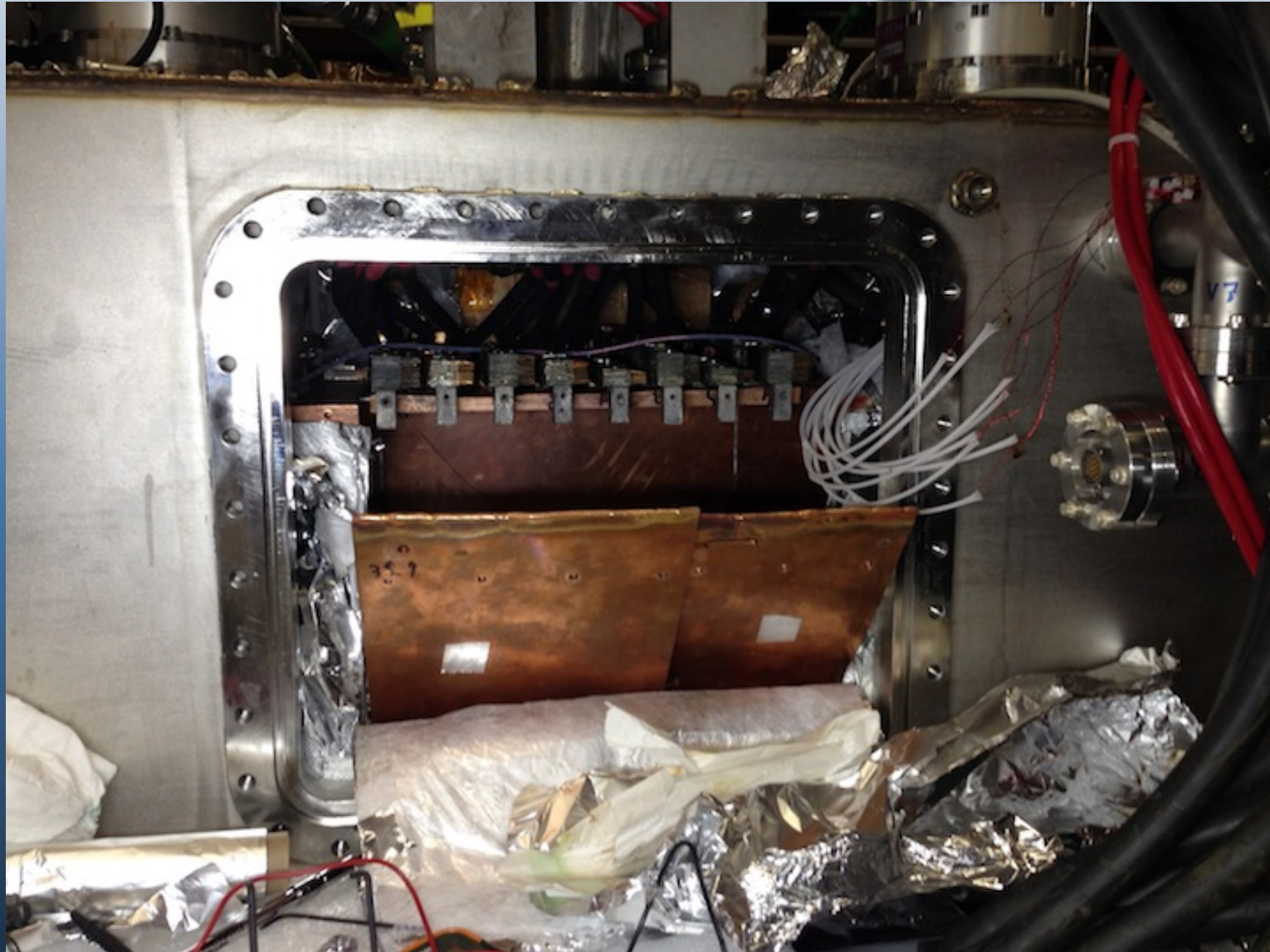


# SS2 Upgrade Tasks

- Upgrade tasks to be carried out by LBNL techs at RAL in early FY15
- Vacuum: detailed leak check (cryostat, cold mass, power lead feedthrus), warm N2 pump/purge
- HTS leads: thermal intercepts, lead solder connections, voltage taps
- Temperature sensor checkout/repair



# HTS Lead Mounting Location

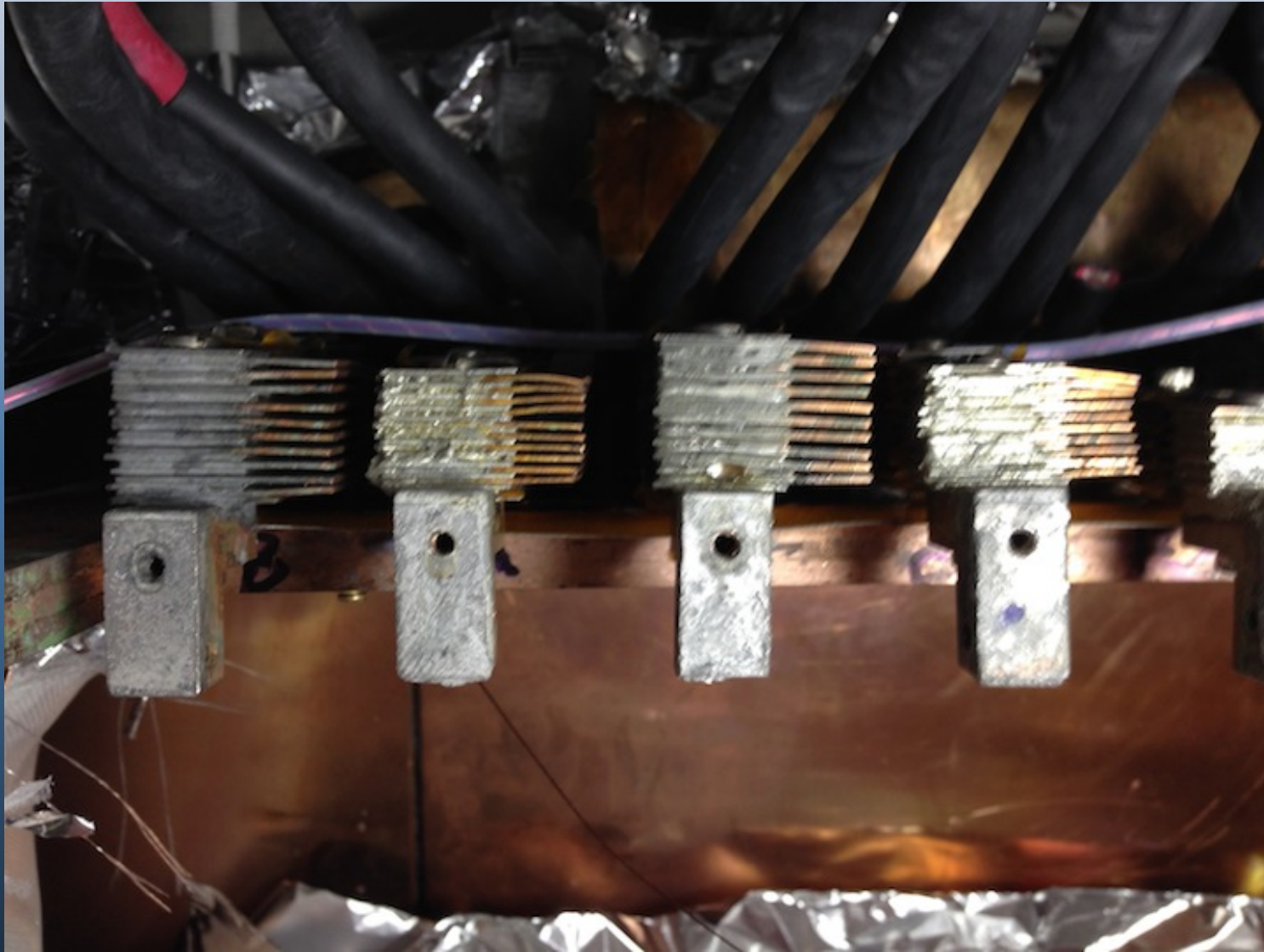


# Mounted HTS Leads

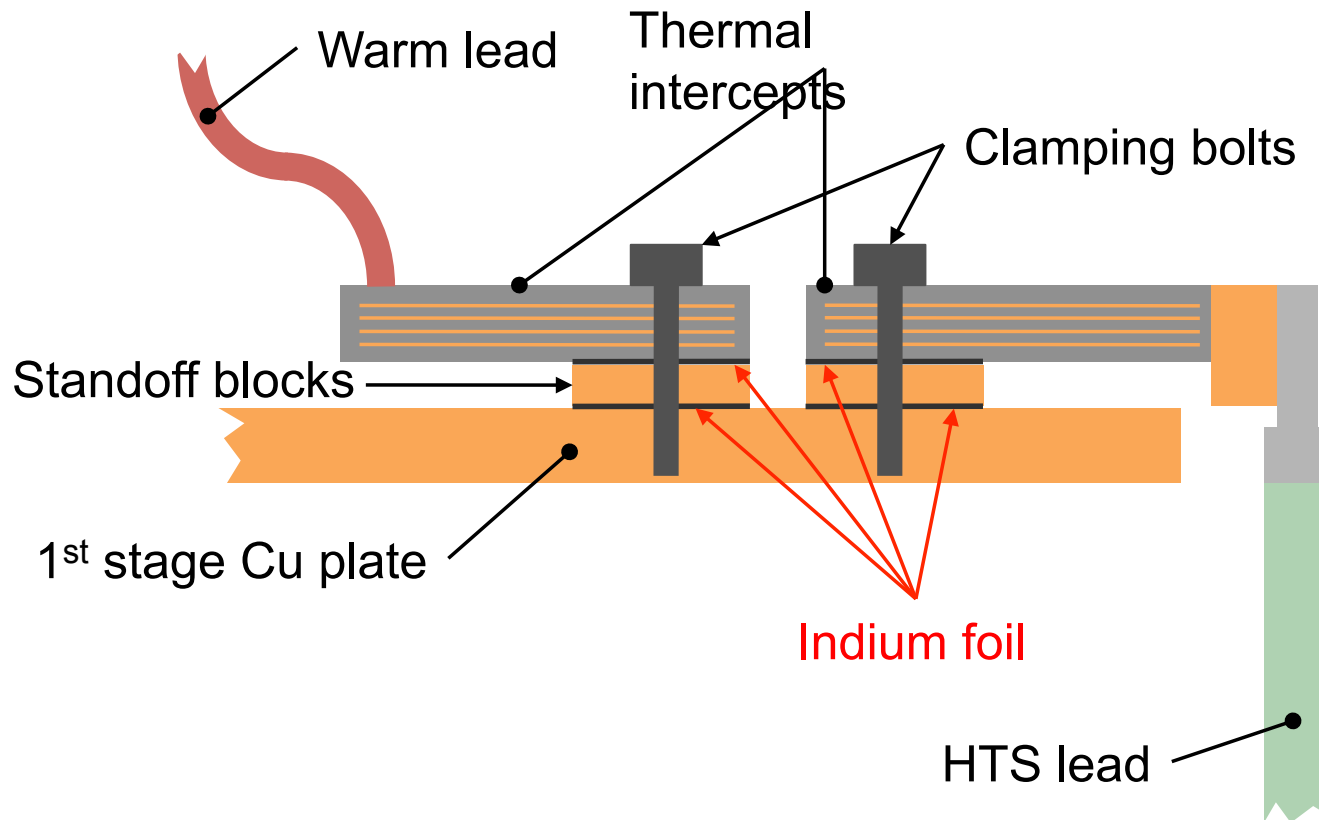




# Lead Thermal Intercepts



# Intercept Modification





# Rough Schedule

- New crates due in next week & week after
- LBNL techs becoming available in ~2 weeks
- Shipment to FNAL now ready to go
- Hope to have next large shipment ready near the end of June, including PS rack
- Repair and testing of cooler systems likely to run at least through July
- Anticipate LBNL techs going to RAL in the October/November timeframe

