

# Spectrometer Solenoid Update

**MICE CM 32 @ RAL**  
**February 8, 2012**

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# Topics

- Summary of magnet progress
- Related components
- Test plan review at LBNL
- Schedule



# 1<sup>st</sup> Magnet Progress

- Cold mass modifications complete
- Cold mass MLI wrap done
- Shield assembled around cold mass
- Cold mass/shield installed and aligned in vessel
- Shield assembly complete and MLI wrapped
- Tower assembled and installed on vacuum vessel
- Instrumentation feedthroughs being wired
- Cold mass leak check now under way





# Cold Mass MLI Wrap





# Shield over Cold Mass

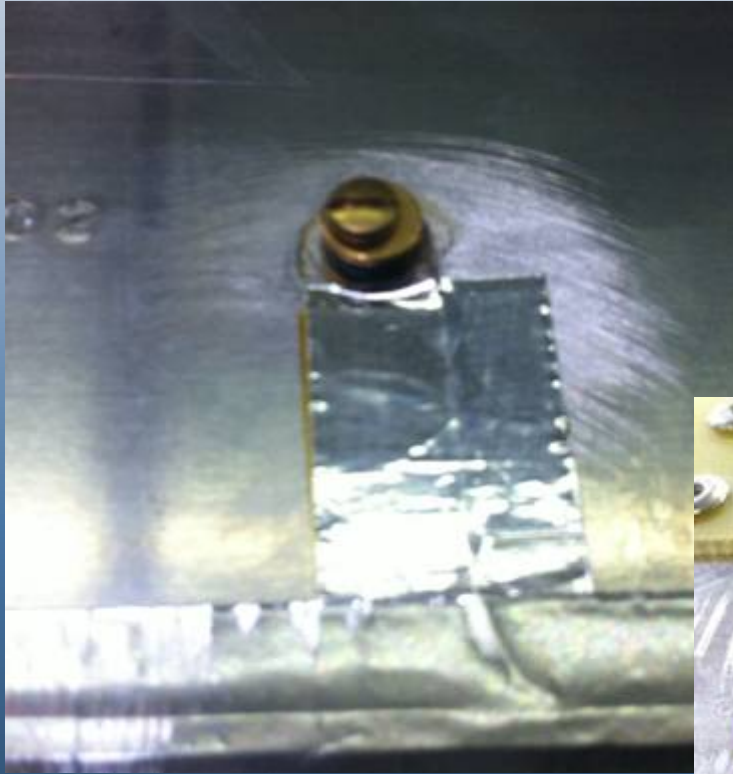


# Preliminary Shield Wrapping





# Temperature Sensors



# Shield MLI Wrap





# Assembly into Vacuum Vessel



# Cold Mass Alignment





# Cold Mass Bore Insulation



# Shield Bore Installation





# Shield End Plates



# Shield TC Lead Routing





# Warm Bore Installation



# Tower Bench-top Assembly

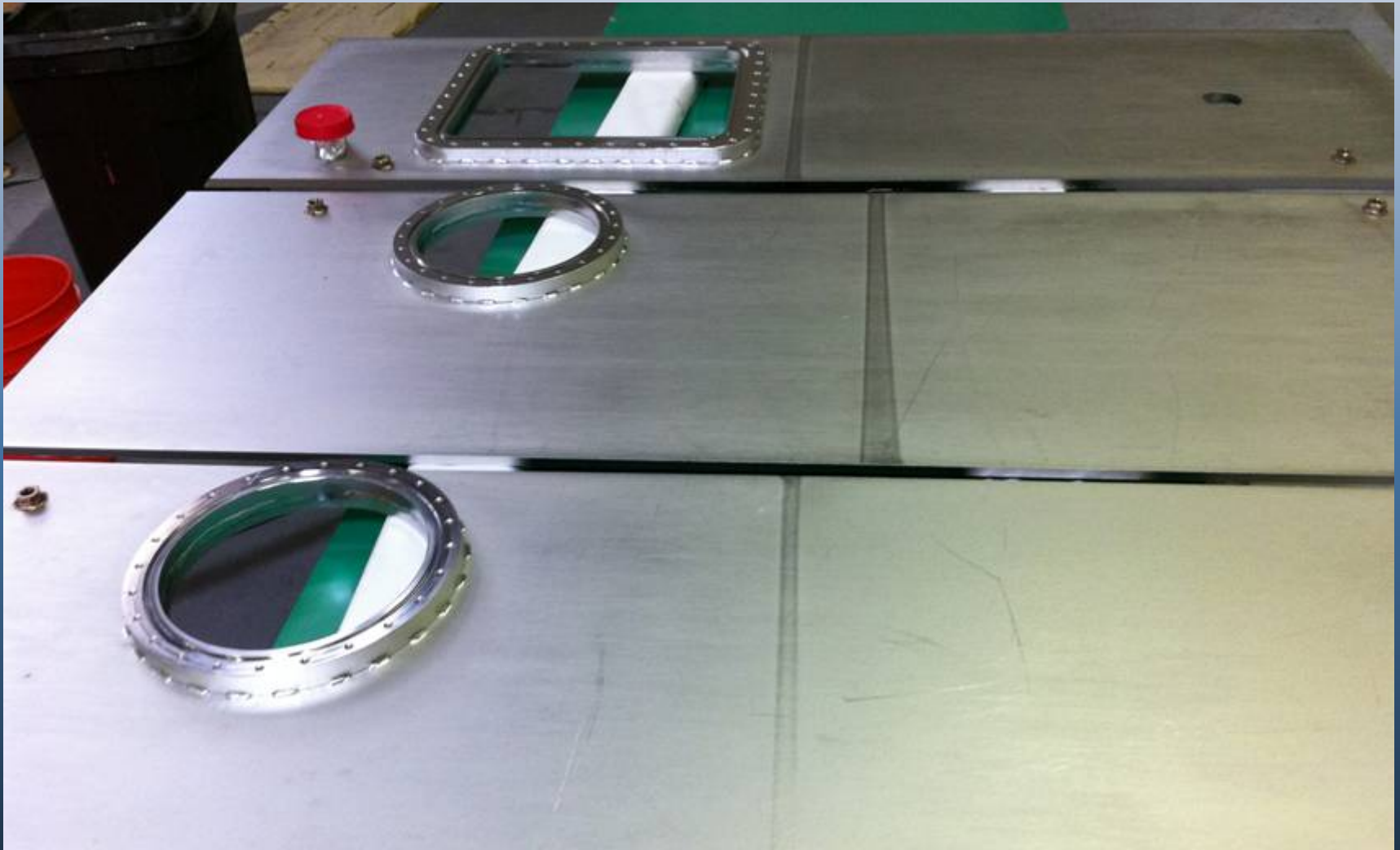




# Tower Subcomponents



# Tower Side Plates





# Cryocooler Tower



# Current Progress





# 2<sup>nd</sup> Cold Mass



# Related Components

- Power supply rack reconfiguration and rewiring nearly complete at LBNL
- One rack to go to Wang, other to RAL
- LBNL tech designing and assembling a series of manifolds for cooler compressors
- Quench resistor heat sink design to be modified after 2<sup>nd</sup> cold mass is opened



# Test Plan Review

- Review to be held at LBNL on 2/17/12
- Morning review, afternoon trip to Wang
- Topics to include:
  - Test system layout
  - Training run plans
  - Safety considerations
  - Power supply requirements
  - Instrumentation and controls
  - Magnetic measurements



# Milestone Tracker

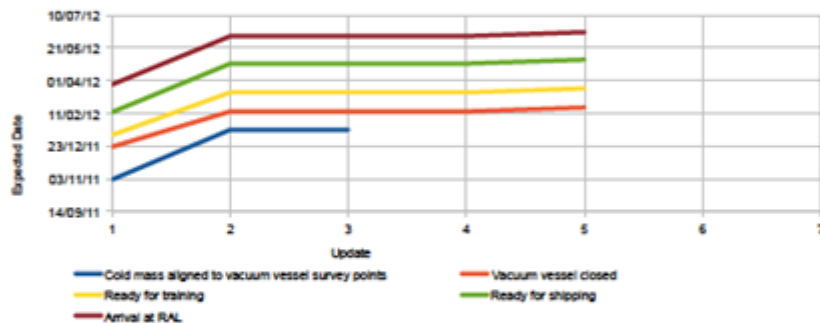
	11/10/11	11/01/12	18/01/12	25/01/12	01/02/12	08/02/12	15/02/12
<b>Upstream</b>							
Cold mass aligned to vacuum vessel survey points	02/11/11	17/01/12	17/01/12				
Vacuum vessel closed	22/12/11	14/02/12	14/02/12	14/02/12	20/02/12		
Ready for training	09/01/12	14/03/12	14/03/12	14/03/12	20/03/12		
Ready for shipping	13/02/12	27/04/12	27/04/12	27/04/12	03/05/12		
Arrival at RAL	26/03/12	08/06/12	08/06/12	08/06/12	14/06/12		
<b>Downstream</b>							
Cold Mass on support beam	02/11/11	17/01/12	17/01/12				
Assembly starts	21/12/11	28/02/12	28/02/12	28/02/12	16/03/12		
Cold mass aligned to vacuum vessel survey points	16/02/12	27/03/12	27/03/12	27/03/12	27/03/12	13/04/12	
Vacuum vessel closed	09/03/12	18/04/12	18/04/12	18/04/12	07/05/12		
Ready for training	13/04/12	18/05/12	18/05/12	18/05/12	06/06/12		
Ready for shipping	23/05/12	03/07/12	03/07/12	03/07/12	20/07/12		
Arrival at RAL	03/07/12	14/08/12	14/08/12	14/08/12	31/08/12		

Change since last update	
Reduction	Date
No Change	Date
1 - 2 week extension	Date
2 - 4 weeks extension	Date
1 - 2 month extension	Date
2+ months extension	Date

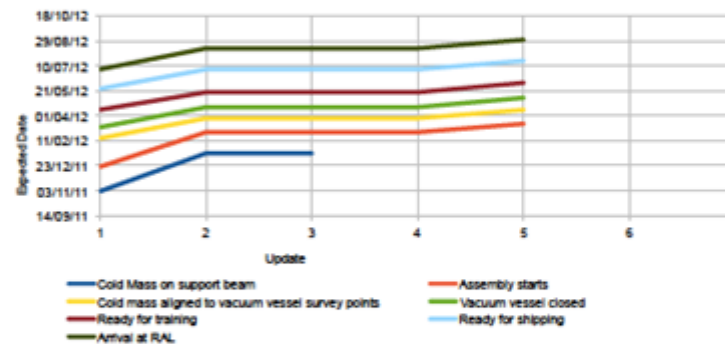
Baseline	Date
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Complete	Date
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Upstream Milestone Tracker



Downstream Milestone Tracker



**Work Completed**

Cold Mass bore covered with Aluminized Mylar to give added thermal efficiency  
 Radiation Shield bore installed, end plates of the Radiation shield fitted and welded into place  
 Cooler tower placed into position and tack welded. Cooler stub tubes welded to the main cooler inlet tubes on the cold mass  
 Instrumentation from the radiation shield, cold mass supports, cold mass wired to the feedthrough  
 All radiation shield penetration holes for the cold mass supports have been covered to prevent stray thermal radiation transfer  
 Vacuum Vessel end plates have been aligned to the cold mass bore and fixtures welded

**ToDo in next 2 week period**

Fit the end plate MU to the radiation shield  
 Fit the warm bore  
 Weld the Virostek plate bracket pads to the outside of the vacuum vessel. Pads are to be surveyed into position using the tooling ball positions on the outside of the vacuum vessel  
 Weld the Support feet into position on the outside lower section of the vacuum vessel  
 Weld the vacuum chamber end plates  
 Fit MU to the upper and lower sections of the cooler tubes, outside of the first stage copper plates  
 Weld side to the cooler towers  
 Finalise all instrumentation

Scheduled	Days	Resource
01/02/2012	2	LBNL
13/02/2012	1	WANG
08/02/2012	2	LBNL Survey / WANG Welding
10/02/2012	2	LBNL Survey / WANG Welding
16/02/2012	3	WANG Welding
07/02/2012	2	LBNL
14/02/2012	2	WANG Welding
16/02/2012	2	LBNL

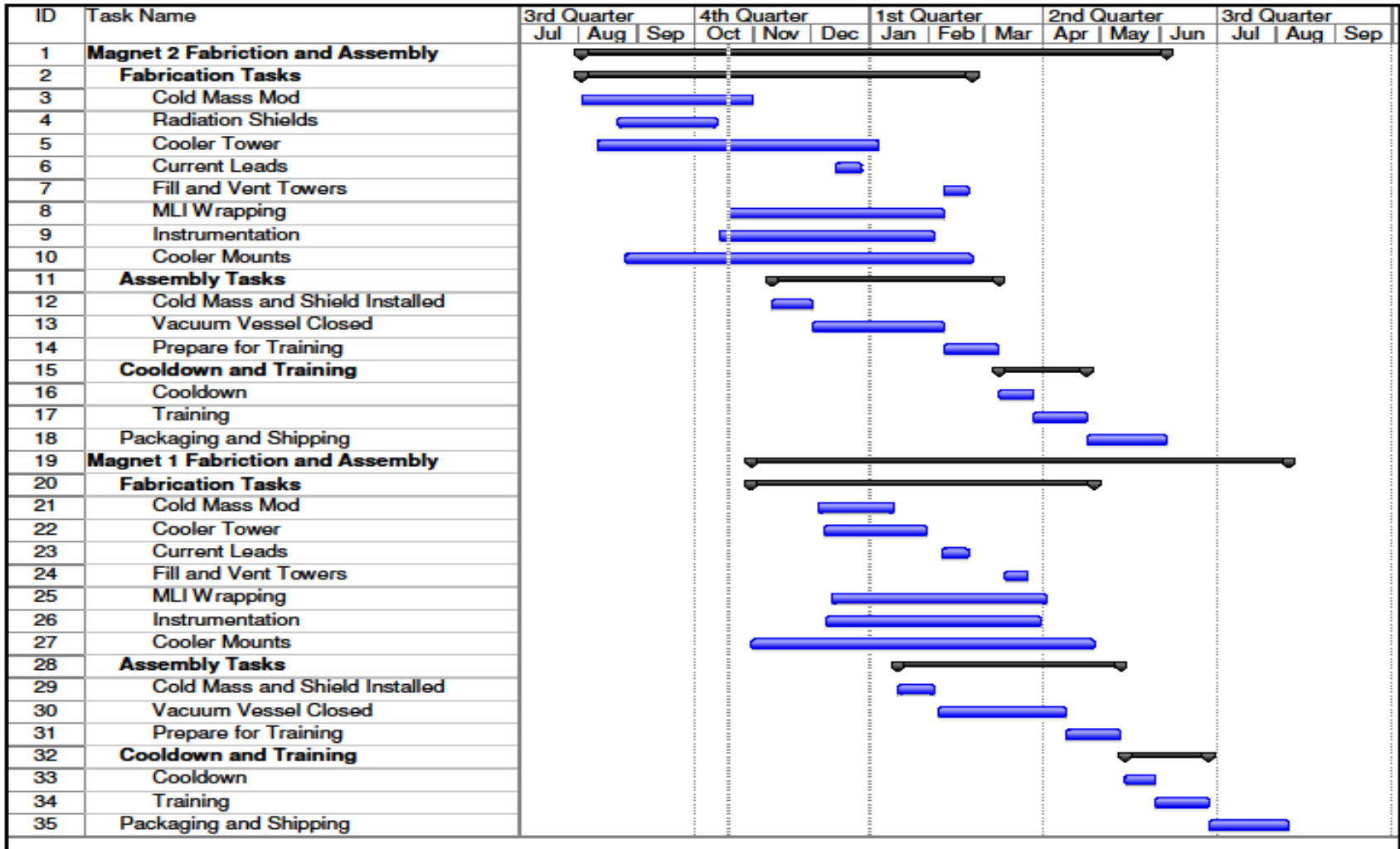


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 8 February 2012

Spectrometer Solenoid Update ♦ Steve Virostek ♦ LBNL



# Schedule



# Summary

- First magnet in final assembly, expected to be ready for leak check in ~2 weeks
- Training to be complete by end of April
- Second magnet is now on assembly stand
- Current schedule shows first magnet arriving at RAL in mid-June and the second unit at the end of August