



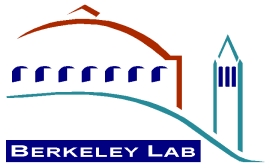
# Schedule, Budget and Manpower

Spectrometer Solenoid Review

October 25, 2010

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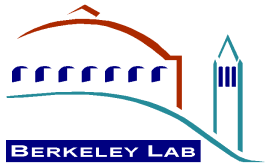
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# Introduction



- The schedule, budget and manpower required to complete the Spectrometer Solenoid Project have been estimated
- This information is preliminary and depends on approval of the magnet modification plan by MICE technical management
- An agreement with the vendor will also have to be reached regarding the scope of modifications and the associated schedule



# Schedule Notes



- The schedule shown is based on past assembly experience
- Some aspects of the schedule will depend on the final scope of modifications undertaken and the ability of the vendor to dedicate the appropriate resources
- Vendor is preparing to hire additional technical help to complete the Spectrometer Solenoids as well as other projects
- The schedule presented assumes that some aspects of the modification plan can be approved early such that the reassembly of the magnets is not delayed further



# Budget Notes



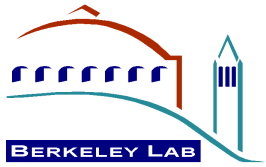
- An estimate of the remaining costs to LBNL to complete the Spectrometer Solenoids has been compiled
- Costs include LBNL manpower and hardware related items as described below:

## Manpower tasks

- system analysis
- design for modifications
- assembly oversight
- project management
- magnet commissioning
- project documentation

## Hardware, etc.

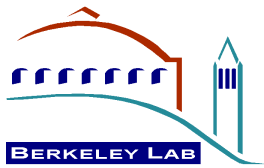
- additional cryocooler purchase
- cost of contract modifications for added scope
- utility and cryogen costs for magnet training
- shipping costs



# Manpower Notes



- The manpower required to carry out the required tasks has been identified and is available
- The total effort listed in the budget amounts to slightly more than one man-year
- The bulk of the effort will be for monitoring the assembly process and for carrying out the magnet training and commissioning



# Preliminary Schedule



Task Description	2010			2011							
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
<b>1st Completed Spectrometer Solenoid</b>											
Completion of magnet modification plan	█										
Cold mass modification		█									
Cold mass prep for assembly			█								
Thermal shield prep for assembly		█	█								
Cold mass/shield/cryostat assembly				█	█						
Tower area installation					█	█					
Magnet cool down and training							█				
Schedule float								█	█		
<b>2nd Completed Spectrometer Solenoid</b>											
Component modification and assembly				█	█	█	█	█	█	█	
Magnet cool down and training										█	
Schedule float											█



# Cost to Complete



Manpower	Hours	Type	\$/hr <sup>^</sup>	Total (k\$)
Analysis	280	Cryo Engr	160	45
Design Mods	280	Cryo Engr	160	45
Management	350	Sr Mech Engr	200	70
Fab Oversight	350	Sr Cryo Engr	140	49
Fab Oversight	420	Mech Engr	150	63
Testing/Training	140	Sr Mech Engr	200	28
Testing/Training	140	Mech Engr	150	21
Commissioning @ RAL	170	Mech Engr	150	26
Documentation	140	Sr Mech Engr	200	28
Documentation	140	Mech Engr	150	21
Fab/Procurement	Qty	Unit	\$k/ea	Total (k\$)
Cryocoolers (PT415)	1	ea	53	53
Contract Mods	2	magnets	25	50
Training Utilities	2	magnets	21	42
Training Cryogens	2	magnets	20	40
Shipping to FNAL	2	ea	5	10
Shipping to RAL	2	ea	10	20

Total cost: \$610k

Contingency: \$173k

Total w/contin.: \$783k

<sup>^</sup>manpower rates are with full LBNL burden



# Manpower



- The following individuals will be responsible for completing the specified tasks:

Steve Virostek - Sr. Mechanical Engineer

- overall project management
- some oversight of magnet assembly
- magnet training oversight
- documentation

Tapio Niinikoski - Sr. Cryogenic Engineer

- CERN retiree, currently being hired 1/2 time by LBNL
- magnet design analysis
- design modification recommendations
- some oversight of magnet assembly
- magnet training oversight

Nanyang Li - Mechanical Engineer

- continuous oversight of magnet assembly
- magnet training oversight
- documentation

Soren Prestemon - Cryogenic Engineer

- magnet design analysis
- design modification recommendations
- occasional oversight of magnet assy

Sisi Shan - Mechanical Engineering Student

- organization of magnet detail drawings
- development of magnet 3D CAD drawing

Roy Preece - Mechanical Engineer (RAL)

- oversight of magnet assembly
- magnet training oversight
- Integration and documentation