

Muon Accelerator Program Monthly Status Review

February 22, 2013

Outline



- Introduction
- MAP Management Update
- L2 Manager Updates
- AOB

MAP Management Update I



- Major activities:
 - Final draft of FY12 Annual Report now released
 - Updated Management Structure
 - See Slide 5
 - Preparations for upcoming reviews (MAP mini-review by DOE and MICE Lehman-style review)
 - Continued development of program schedule and budget
 - Message from Jim Siegrist
 - See Slide 4

Message from Jim Siegrist



*“We have a goal **to increase the funding** for both the LARP program and the **MAP program in FY 2014 and FY 2015**. We would like to grow each program with a goal of a **\$2 million increase per year in each year**. It has become clear to us that these programs cannot achieve their goals without higher funding. LARP is now charged to carry out R&D to reduce the technical risk of an eventual U.S. contribution to the LHC accelerator upgrade, and **MAP is charged to answer questions on the technical feasibility of building a muon collider.**”*

Updated Management Structure I



Effective Immediately

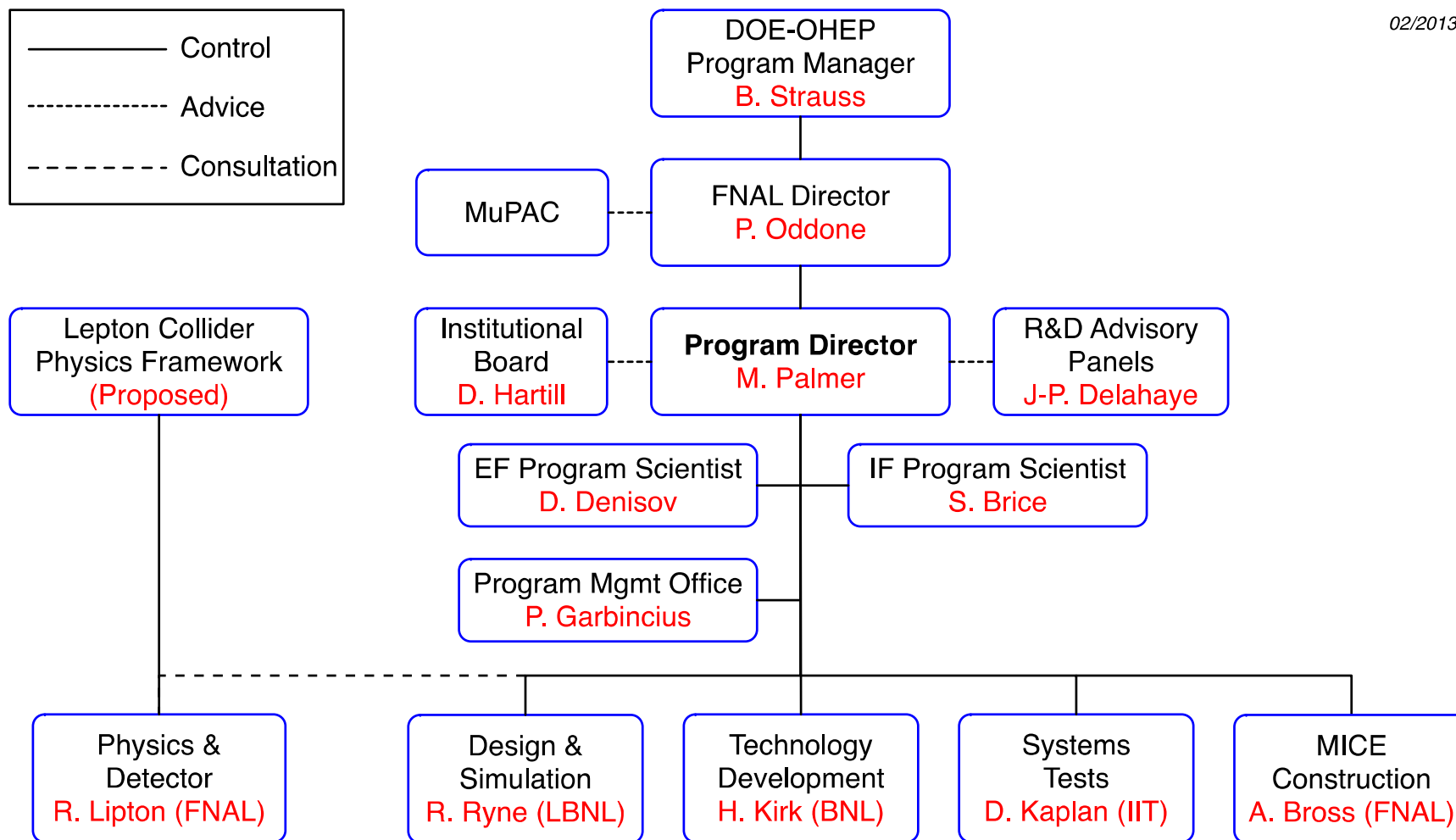
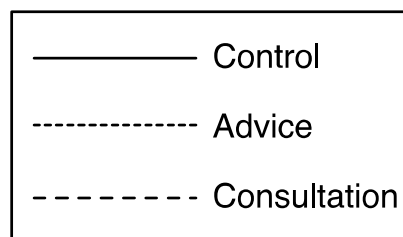
Muon Accelerator Program WBS: Feasibility Evaluation Phase I				
L1	L2	Task Description	WBS Coordinator	Description
		Muon Accelerator Program	M. Palmer	Level 0 Roll-Up for U.S. Activities
01		Program Management	M. Palmer	Overall coordination of activities associated with the Muon Accelerator Program
01	01	Program Coordination and Activities	M. Palmer	Coordination of program activities - Includes: management effort (Levels 0 and 1); and management and special program travel.
01	02	Program Management Office	P. Garbincius	Program Management Office - Includes: program planning, scheduling, web-site, EDMS, and outreach and communications support.
01	03	Collaboration Coordination	M. Palmer	Coordination of MAP collaboration with other closely allied national and international research efforts; support for workshops, conferences and reviews; support for guests and visitors hosted by the program.
01	04	R&D Advisory Committees	J-P. Delahaye	Support for program directory appointed advisory committees and working groups - includes salary support, meetings and travel.
02		Design and Simulations	R. Ryne	Coordination of design and simulation activities for the accelerator complex needed for a neutrino factory and/or a muon collider
02	01	Proton Driver	K. Gollwitzer	Design and simulation activities for the Proton Driver
02	02	Front End	D. Stratakis	Design and simulation activities for the Front End
02	03	Cooling	T. Roberts	Design and simulation activities for the Cooling Channels
02	04	Acceleration	J. Scott Berg	Design and simulation activities for Acceleration Stages
02	05	Collider	Y. Alexahin	Design and simulation activities for Collider Rings
02	06	Machine-Detector Interface	N. Mokhov	Design and simulation activities for the Machine-Detector Interface
02	07	Muon Decay Ring	A. Bogacz	Design and simulation activities for a Muon Decay Ring for neutrino beam production
03		Technology Development	H. Kirk	Coordination of all activities to design, build and test the technologies deemed essential to demonstrating the feasibility of the neutrino factory and muon collider concepts
03	01	Normal Conducting RF	D. Li	Normal Conducting RF Design, Fabrication and Testing
03	02	Superconducting RF	D. Hartill	Superconducting RF Design, Fabrication and Testing
03	03	Magnets	J. Tompkins	Muon Accelerator Magnet Design, Fabrication and Testing
03	04	Targets & Absorbers	K. McDonald	Target and Absorber Design, Fabrication and Testing
03	05	MuCool Test Area	Y. Torun	Development and Operation of the MuCool Test Area
04		Systems Demonstrations	D. Kaplan	Coordination of large-scale systems demonstrations for the feasibility assessments of the Neutrino Factory and Muon Collider concepts
04	01	Muon Ionization Cooling Experiment (MICE)	L. Coney	Support for the Muon Ionization Cooling Experiment (MICE)
04	02	6D Cooling Demonstration	P. Snopok	Development of Experimental Concepts and Hardware Specifications necessary to validate the feasibility of 6D Ionization Cooling
05		MICE Construction	A. Bross	Coordination of large-scale systems demonstrations for the feasibility assessments of the Neutrino Factory and Muon Collider concepts
05	01	RF Design, Fabrication and Testing	D. Li	MICE RF Design, Fabrication and Testing
05	02	Magnet Design, Fabrication and Testing	S. Gourlay	MICE Magnet Fabrication
05	03	Magnetic Shielding	H. Witte (TBC)	Design and Fabrication (as necessary) of Partial Yoke Shielding for MICE Cooling Channel Beamline for Step IV and Step V/VI activities
05	04	Detector Design, Fabrication and Testing	A. Bross	Design, Fabrication and Testing for Detector and Experimental Hardware for MICE
05	05	US Component Integration	TBD	Integration and Commissioning of US hardware Components into MICE Beamline and Interfacing to MICE Control and Data Acquisition Systems. Also includes effort integration of the Coupling Coil Magnet and RF Cavities into the RFCC.

Updated MAP Management Structure II



MAP Top Level Organization

02/2013



MAP Management Update II



- Other updates:
 - MASS working group sub-studies underway for community planning exercise
 - Writing meeting (March 7-8) after MAP DOE Mini-Review
 - Planning for upcoming workshops
 - UCLA Higgs Factory
 - MIT Frontier Facilities Meeting
 - Next MAP Collaboration Meeting
 - Working with contacts for expanded international collaboration

Some Important Dates



- DOE (mini-)Review: March 4-5 @FNAL (*note date change*)
 - Review to focus on updated management plan
 - Follow up on issues identified during August review
- Muon Collider Higgs Factory Workshop: March 21-23 @UCLA
- Keep an eye on the CSS2013 pre-meeting calendar:
<http://www.snowmass2013.org/tiki-index.php?page=premeetings>
- PASI Workshop: April 3-5 @RAL
- IDS-NF Plenary Meeting: April 5-7 @RAL
- CSS 2013: Frontier Facilities – Lepton Colliders: April 10-11 at MIT
- Lehman-style review of MICE Construction activities targeted for April-May timescale
- IPAC `13: May 12-17, Shanghai, China
 - NOTE: My guidance is that DOE will be following the \$100K conference limit for this conference so **<30 total attendees** from the US labs is likely.
 - Thus MAP can likely only send 3-4 personnel
 - Please send Harold Kirk and myself ALL MAP-related abstracts because we will need to arrange for presenters to cover each. We need to have these no later than March 3rd.
- Coordinated MICE & MAP Collaboration Meetings:
 - MICE Meeting: June 17-18 at IIT
 - Joint Day: June 19 at Fermilab
 - MAP Meeting: June 20-22 at Fermilab

L2 MANAGER STATUS REPORTS: DESIGN & SIMULATION (WBS 2)

Monthly L2 Status Report -

WBS: 02.01 – Proton Driver

22 February 2013
Presenter: Keith Gollwitzer



<p><u>Milestone Status (Progress)</u></p> <ul style="list-style-type: none">• In progress: Project X – MAP Task Force Report• To be started: IDS-NF Proton Driver costing study	<p><u>Resource Conflicts, Plan Changes and Issues</u></p> <ul style="list-style-type: none">• Task Force team focused on other topics <p><u>Late Items</u></p> <ul style="list-style-type: none">• Task Force Report
<p><u>Summary of Previous Month</u></p> <ul style="list-style-type: none">• Observation of Project X evolution to staging and ensuring that Project X can be upgraded to be proton driver• Contribute appendix to Project X RDR for possible future enhancements to support NF/MC	<p><u>Quarterly Plans</u></p> <ul style="list-style-type: none">• Develop Accumulator and Compressor Rings• Develop Compressor Ring extraction line to target for NF• IDS-NF Proton Driver description and costing• Investigate re-use of Project X pulsed linac for muon acceleration
<p><u>Upcoming Work (Next Month)</u></p> <ul style="list-style-type: none">• 2nd iteration of Task Force Report• Initiate work on siting of proton rings with new Project X layout followed by possible target through acceleration layout(s)	

Monthly L2 Status Report -

WBS: 02.02

22 February 2013
 Presenter: Harold Kirk



<p><u>Milestone Status (Progress)</u></p> <p>Current Outstanding Activities</p> <ul style="list-style-type: none"> • Decay Channel Chicane (Rogers, Neuffer) • Capture Taper (Sayed) • Update Cooling Channel (Stratakis) • Front End Element Alignment (Prior) • Optimization Algorithms (Sayed, Ryne, Qiang) 	<p><u>Resource Conflicts, Plan Changes and Issues</u></p> <hr/> <p><u>Late Items</u></p>
<p><u>Summary of Previous Month</u></p> <ul style="list-style-type: none"> • ICOOL-MPI version established at NERSC (Berg/Ryne) • ICOOL.V331 (serial) released (Berg) • New random generator in ICOOL stress tested (Berg) • Chicane integration into Front End (Neuffer,Rogers) • Chicane coil/shielding studies (Snopok,Souchlas,Weggel) • Front End alignment study progress (Prior) 	<p><u>Quarterly Plans</u></p> <ul style="list-style-type: none"> • Decay Channel – Evaluate coil/Shielding scenario • Capture Taper – Determine optimal peak/end fields • Update cooling channel • Front End element alignment -determine alignment sensitivities • Optimization algorithms – Optimize Front End phase rotator and cooling channel parameters
<p><u>Upcoming Work (Next Month)</u></p> <ul style="list-style-type: none"> • Advance chicane coil/shielding studies (Snopok,Souchlas,Weggel) • Multi-variable optimization at NERSC (Qiang,Sayed) • Install MARS at NERSC (Mokhov) • ICOOL.v332 release (Berg) • ICOOL/G4Beamline comparison (Rogers, Stratakis) 	

MPI-ICOOL330 on NERSC (R. Ryne)

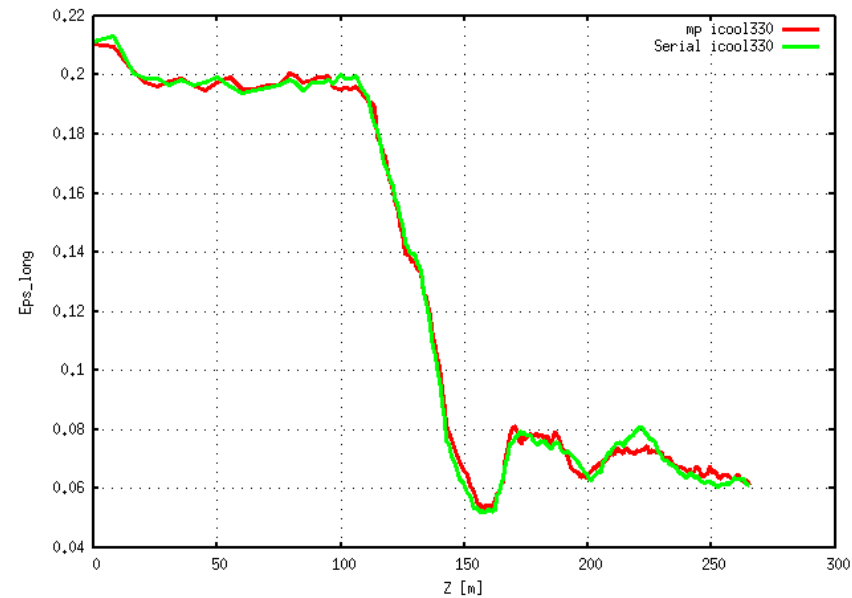
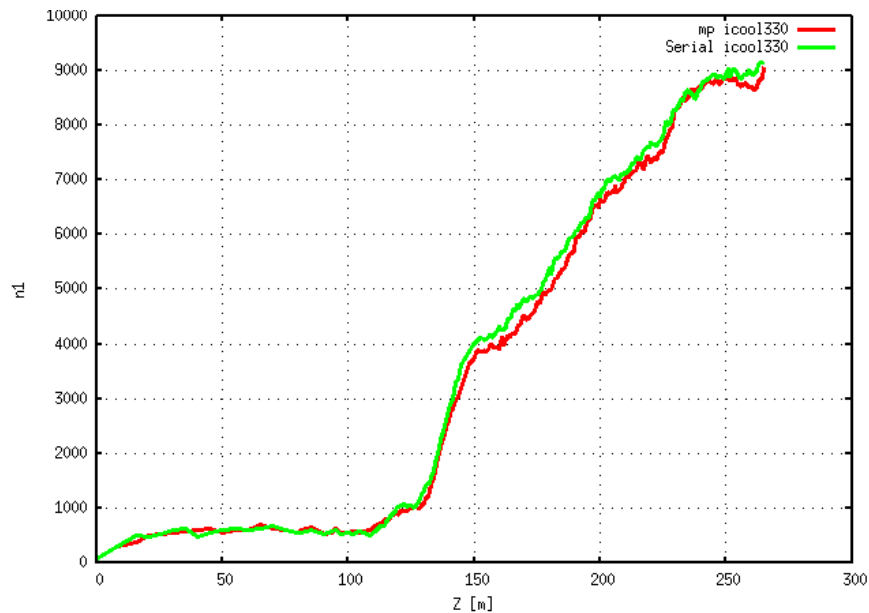


Benchmark testing: H. Sayed

Neutrino Factory Front End Bench Mark

Nmu=45000

Icool330 runtime~ 30 min. - MPI-ICOOL330~ 2 min. with 480 cores



Monthly L2 Status Report -

WBS: 02.03 Cooling

22 February 2013
Presenter: Tom Roberts



<p><u>Milestone Status (Progress)</u></p> <ul style="list-style-type: none">• Draft WBS, milestones, work packages complete	<p><u>Resource Conflicts, Plan Changes and Issues</u></p> <ul style="list-style-type: none">• Need funding for HCC D&S<ul style="list-style-type: none">– Awaiting STTR Phase II grant (~ March 2013)• Need funding for Missing Physics Processes <p><u>Late Items</u></p> <ul style="list-style-type: none">• HCC D&S• Missing Physics Processes
<p><u>Summary of Previous Month</u></p> <ul style="list-style-type: none">• EPIC: Continuing...• HCC: Matching presented; start lower-E sims• Gug: Continuing...	<p><u>Quarterly Plans</u></p> <ul style="list-style-type: none">• 6D Baseline Selection<ul style="list-style-type: none">– Need some preparatory work– (Basically on hold awaiting the other 6D D&S tasks)• Guggenheim D&S• HCC D&S• FOFO Snake D&S• Auxiliary components• Final Cooling D&S• Missing Physics Processes
<p><u>Upcoming Work (Next Month)</u></p> <ul style="list-style-type: none">• Update WBS, milestones, and work packages (Roberts et al)• Prepare for MAP Review (Roberts et al)• Guggenheim D&S (Stratakis et al)• HCC D&S (Yoshikawa et al)• Rectilinear RFOFO with tilted solenoids (Balbekov)• Final Cooling D&S (Palmer)	

Monthly L2 Status Report -

WBS: 02.04 – D&S Acceleration

22 February 2013
Presenter: J. Scott Berg



<p><u>Milestone Status (Progress)</u></p> <ul style="list-style-type: none">• MAD designs for NF Linac & RLAs, transfer line Linac to RLA1• IDS-NF RDR Linac/RLA section: not begun• Just beginning Higgs factory acceleration chain	<p><u>Resource Conflicts, Plan Changes and Issues</u></p> <ul style="list-style-type: none">• Higgs FFAG work not complete this year, resource limitation.• Berg working less on acceleration
<p><u>Summary of Previous Month</u></p> <ul style="list-style-type: none">• Some updates on IDS-NF lattice files• FFAG-related calculations	<p><u>Late Items</u></p>
<p><u>Upcoming Work (Next Month)</u></p> <ul style="list-style-type: none">• Calculations to support FFAG-based acceleration chain design• Deliver lattice files for neutrino factory acceleration	<p><u>Quarterly Plans</u></p> <ul style="list-style-type: none">• Q3-4: Setting up Higgs factory FFAG calculations• Q2: Lattice files for neutrino factory acceleration available• Q3-4: IDS-NF RDR Linac/RLA section

Monthly L2 Status Report -

WBS: 02 05 Collider Ring Design

22 February 2013
Presenter: Y. Alexahin



<p><u>Milestone Status (Progress)</u></p> <ul style="list-style-type: none">• Eliana achieved some degree of correction of the effects of fringe fields in the Higgs Factory (HF) wide-aperture IR quadrupoles: ~ half of the lost dynamic aperture recovered.• Valeriy Kapin already introduced high-order multipoles just provided by magnet engineers into the body of the HF IR quadrupoles and is running his script for dynamic aperture computation with MADX PTC.	<p><u>Resource Conflicts, Plan Changes and Issues</u></p> <ul style="list-style-type: none">• There is a preliminary IR magnet design but for larger aperture• No results yet on the detector backgrounds to see if the proposed quadruplet final focus scheme works.
<p><u>Summary of Previous Month</u></p> <ul style="list-style-type: none">• Optimization of the HF collider lattice design continues.• Simulation study of the effects of fringe fields in the HF IR quadrupoles and their correction in the hard-edge approximation continues.• Beam dynamics simulations in HF with account of multipole errors in IR magnets started.	<p><u>Late Items</u></p>
<p><u>Upcoming Work (Next Month)</u></p> <ul style="list-style-type: none">• Continued optimization of the HF collider lattice design.• Continued study of the effects of fringe fields in wide-aperture IR quadrupoles of the HF and their correction.• Continued beam dynamics simulations in HF with account of multipole errors in IR magnets with the available preliminary magnet design.• Study of beam-beam effects with HF upgrade parameters.	<p><u>Quarterly Plans</u></p> <ul style="list-style-type: none">• Development of the Higgs Factory collider lattice design.• Study of the effects of field imperfections in wide-aperture IR magnets on beam dynamics in HF.

Monthly L2 Status Report -

WBS: 02.06 - Machine-Detector Interface

22 February 2013
Presenter: Nikolai Mokhov



<p><u>Milestone Status (Progress)</u></p> <ul style="list-style-type: none">• Developments of physics and geometry modules of MARS15 for adequate modeling of heat loads in SC magnets and backgrounds in HF and MC detectors• New installations and update to the newest MARS15 version on all the MARS sites.• Building MARS model of HF IR lattice.• Building MARS model of HF IR magnets.• Migrating to the lcsim detector description for HF.	<p><u>Resource Conflicts, Plan Changes and Issues</u></p> <ul style="list-style-type: none">• A strawman lcsim-based HF detector description is desperately needed.
<p><u>Summary of Previous Month</u></p> <ul style="list-style-type: none">• ROOT-based MAD-MARS Beamline Builder finished.• Hybrid EMS module and updated Coulomb scattering and energy loss fluctuation module developments and tests finished.• Implementation to MARS of HF IR lattice continued.• Hit timing studies for a 1.5-TeV MC continued with ILCRoot along with the first try of the lcsim description.• Lattice/magnet/MDI description iterations.	<p><u>Late Items</u></p>
<p><u>Upcoming Work (Next Month)</u></p> <ul style="list-style-type: none">• Build a consistent IR/MDI MARS model with IR magnet design now available for a preliminary consideration.• Perform first MARS runs to estimate background rates in HF detector and work out the ways to reduce these.	<p><u>Quarterly Plans</u></p> <ul style="list-style-type: none">• Q2: Build a complete consistent MARS model of the HF IR, magnets, detector and preliminary MDI and magnet protection system. Perform first runs to address IR magnet performance and background loads on sub-detectors. Prepare timing and double-layer rejection techniques for the HF lcsim detector model.• Q3: Optimization of HF magnet protection system and MDI. Production MARS runs to feed the detector studies. With this source, launch full detector simulations.

L2 MANAGER STATUS REPORTS: TECHNOLOGY DEVELOPMENT (WBS 3)

Monthly L2 Status Report -

WBS: 3.2 – Superconducting RF

25 January 2013
Presenter: Don Hartill



<p><u>Milestone Status (Progress)</u></p>	<p><u>Resource Conflicts, Plan Changes and Issues</u></p> <ul style="list-style-type: none">• .
<p><u>Summary of Previous Month</u></p> <ul style="list-style-type: none">• Completed plan for e-beam welding of cavity with reduced thickness of Nb on one end• RI has now started adding beam tubes to two 500 MHz cavities	<p><u>Late Items</u></p>
<p><u>Upcoming Work (Next Month)</u></p> <ul style="list-style-type: none">• RI cavity preparations• Planning for 3 GHz electroformed cavity	<p><u>Quarterly Plans</u></p> <ul style="list-style-type: none">• RI shipment of 500 MHz cavities expected in ~6 weeks• Testing of 500 MHz explosion-bonded cavities expected in late spring and early summer. Testing to be completed by mid-summer• Preparation of 3GHz electroformed cavity by summer

Monthly L2 Status Report -

WBS: 03.04 Targets and Absorbers

22 February 2013
 Presenter: Kirk McDonald



<p><u>Milestone Status (Progress)</u></p>	<p><u>Resource Conflicts, Plan Changes and Issues</u></p>
<p><u>Summary of Previous Month</u></p> <ul style="list-style-type: none"> • Souchlas: MARS simulation of revised W shielding • Ding: MARS simulation of shifting proton focal point • Sayed: ICOOL simulation of relation between proton beam time and rapidity of magnet taper • Graves: He-W shield cooling calculations • Zhan: (now back from maternity leave) Ongoing FLUENT simulation of Hg flow in welded pipe • Weggel: Conceptual design of 5-T copper insert in region 	<p><u>Late Items</u></p>
<p><u>Upcoming Work (Next Month)</u></p> <ul style="list-style-type: none"> • Snopok: Use of MARS capability to import geometry from ROOT (G4beamline) for first look at energy deposition in the chicane. <ul style="list-style-type: none"> • Continuation of all projects of previous month 	<p><u>Quarterly Plans</u></p> <ul style="list-style-type: none"> • The basic target system concept is well-defined. • Clarify whether we can drop the capture solenoid field from 20 T to 15 T. • Optimize target & decay magnetic configuration for best performance of beam delivered to accelerator (a step towards a global optimization of the entire MC/NF). • Extend target system conceptual design up to start of buncher (including chicane in decay/drift region). • Begin technical design of magnet cryostats, shielding modules, and mercury handling system.

Monthly L2 Status Report -

WBS: Magnets – 03-03

February 22 2013
 Presenter: J. Tompkins



<p><u>Milestone Status (Progress)</u></p> <ul style="list-style-type: none"> • HTS (2212) Program - Expmnts confirmed that the processing max temp window of 2212 can be widened from 2-4 °C to >8 °C; sim work cont on HT control protocol for coils. • ReBCO – 100mm 24 coil sol is being integ w/ test stand; HTS leads dev; voltage tap wiring underway; advanced QPS hardware and software being developed. • General Magnet Design - The x-sects of 320 mm and 500 mm IR quads and 2D field maps have been generated and provided to N. Mokhov for MARS model and radiation analysis in HF IR. • Rapid Cycling Magnets - HTS - Cryo piping and spacers for sub-cables fab & installed; support for mag. probe fab. & installed in cable space • Rapid Cycling Magnets - Conv - Winding pankake coils which will slide into the gap of a 400 Hz, 1.8T magnet underway 	<p><u>Resource Conflicts, Plan Changes and Issues</u></p> <ul style="list-style-type: none"> • <i>[Not enough room on this slide...!]</i>
<p><u>Summary of Previous Month</u></p> <ul style="list-style-type: none"> • HTS (2212) Program - Fermilab/Oxford Supercond. has reduced carbon and hydrogen impurities by more than 50% in a recent 360m test sample • General Magnet Design - "Preliminary Design of a Higgs Factory mu+mu- Storage Ring" was prepared and submitted to IPAC2013. • Rapid Cycling Magnets - HTS Engineering - Assembly of magnet coil 80% complete; Parts for leads warm-end fabricated; Engineering design of cryostats for magnet & leads 80% complete • Rapid Cycling Magnets - Conv – Preparation for next prototype w/ modifications to design. 	<p><u>Late Items</u></p>
<p><u>Upcoming Work (Next Month)</u></p> <ul style="list-style-type: none"> • HTS (2212) – A small-size solenoid is being wound: it will be reacted and instrumented; testing will follow (subsequent month); Further simulation work is under way on heat treatment control protocol for coils • ReBCO – Test preparation continues : voltage tap wiring for quench det/prot ; protection sys. integrated with PS. The test of midsert is targeted for March 2013. • General Magnet Design – Optimization of the geometrical field harmonics and provide them to Yu. Alexahin for beam dynamics analysis; they are expected be ready by the last week in February • Rapid Cycling Magnets - HTS – Complete magnet coil assembly; Design & fabricate coil support; install coil; complete design of magnet & leads cryostats; procure materials • Rapid Cycling Magnets – Conv – Assemble coils in the magnet gap; preparation for test/measurement 	<p><u>Quarterly Plans</u></p> <ul style="list-style-type: none"> • 2212 Conductor – Continue work industry to reduce the levels of gas impurities in the state of art conductor; develop tooling and Rutherford cable from the improved conductor; wind, react, and test coil using 1.2 mm single strand using overpressure processing. • ReBCO Solenoid - The test of midsert is targeted for March 2013 • IR-Magnets – continued development of IR magnet cross-sections and iteration with AD on requirements, heat loads, etc. • Rapid Cycling Magnets – HTS As reported previously • Rapid Cycling Magnets – Conv complete preparation for test/measurement; test/measure magnet up to 400Hz

Monthly L2 Status Report -

WBS: 3.5 – MuCool Test Area

14 December 2012

Presenter: Yağmur Torun



<p><u>Milestone Status (Progress)</u></p> <ul style="list-style-type: none"> • 805-MHz vacuum RF: all-season cavity (almost) ready for B≠0 • 201-MHz vacuum RF: Single-Cavity Module transport stand and insertion fixture design (A. DeMello, R. Schultz); installation/commissioning plan • Infrastructure – on track: beamline upgrade, circulator/switch re-commissioning, station-2 vacuum system • Data analysis: HPRF beam test (on track), vacuum RF (slipped) 	<p><u>Resource Conflicts, Plan Changes and Issues</u></p> <ul style="list-style-type: none"> • Access to FNAL/AD tech resources – delays in mechanical installation, controls/interlocks work, • FNAL machine shop – sending parts out for fabrication
<p><u>Summary of Previous Month</u></p> <ul style="list-style-type: none"> • Operations: all-season cavity at station 1, HPRF cavity at St. 2 • RF power: 805-MHz circulator reinserted and commissioned to 2MW (A. Moretti, R. Pasquinelli, D. Peterson) • RF control: LabView control/conditioning program for 805-MHz system streamlined/rewritten (D. Peterson); upgrade plan for 201-MHz station worked out (R. Pasquinelli) • Cryo plant: Kautzky valves installed in vent line (J. Makara) • Solenoid: quench training plan in place (J. Volk) 	<p><u>Late Items</u></p> <ul style="list-style-type: none"> • Single-Cavity Module assembly slipping due to fabrication delays
<p><u>Upcoming Work (Next Month)</u></p> <ul style="list-style-type: none"> • 805-MHz all-season cavity operation in magnetic field • Finalize modular cavity design • Build fixture for button microscopy, complete analysis • Continue 805-MHz RF control program development • Build parts for 201-MHz Single-Cavity Module • Install instrumentation for solenoid training • Finalize plan for crane coverage in the hall 	<p><u>Quarterly Plans</u></p> <ul style="list-style-type: none"> • Data analysis/publication <ul style="list-style-type: none"> – magnetic insulation – Be-Cu buttons – HPRF beam test • Current program <ul style="list-style-type: none"> – All-season cavity in magnetic field <ul style="list-style-type: none"> • Operation at 3T and inspection • Higher B field • Next on the list <ul style="list-style-type: none"> – Grid windows on pillbox cavity – 201-MHz Single-Cavity Module – Dielectric-loaded HPRF – New 805-MHz modular cavity • Other <ul style="list-style-type: none"> – Beamline commissioning

L2 MANAGER STATUS REPORTS: SYSTEMS TESTS (WBS 4)

Monthly L2 Status Report -

WBS: 04 01 – MICE

22 February 2013

Presenter: L. Coney



<p><u>Milestone Status (Progress)</u></p> <ul style="list-style-type: none"> • First MICE-US resource-loaded schedule which has been matched with the planned activities by the MICE-UK effort • Operational support plan for Step IV – in progress • Incorporate magnetic field mitigation into schedule – in progress • 	<p><u>Resource Conflicts, Plan Changes and Issues</u></p> <ul style="list-style-type: none"> • SS training encountering issues – shorts, noise on line causes trips initiated by QD system, controls debugging • Delayed changes in PPS → beam only to DSA this ISIS cycle • RF power testing problems → delays and reconfiguration
<p><u>Summary of Previous Month</u></p> <ul style="list-style-type: none"> • FC1 under power test – 104A in solenoid mode, switched to flip mode – up to 145A (goal 225A)– damage done to QD system board • Magnetic Field mitigation – CM35 decision – we are GO for compressors to West wall, new rack room, and expanded MLCR • SS2 cooled down - SS2 system testing and training runs in the last 3 weeks • CM35 at RAL thru Saturday – comments welcome from those who attended • 16 hour activation run – Feb 13 – went smoothly – results increase pending • Changes in MICE Computing leadership 	<p><u>Late Items</u></p> <ul style="list-style-type: none"> • Operational support plan not yet finished • SS2 testing slower than (I) anticipated
<p><u>Upcoming Work (Next Month)</u></p> <ul style="list-style-type: none"> • Complete SS2 training • Magnetic field measurements of SS2 at Wang • DOE review • Complete operational support plan for Step IV running • Complete FC1 power testing – measure magnetic field • Shifter training weekend run • PID paper to collaboration for pre-publish review 	<p><u>Quarterly Plans</u></p> <ul style="list-style-type: none"> • Complete testing SS1 • Review of full engineering plan for local shielding of cooling channel magnetic field in MICE Hall (H. Witte) • FC controls review • Hall – implement start of magnetic field mitigation plan • Hall – install FC1 • Hall – fix major AC refrigerant leak • Fix Decay Solenoid compressor (oil leak) – remove/reinstall • Complete testing FC1 • Finish PID analysis paper – submit for publication • Finish Step I emittance measurement paper – submit for pub • FC1 to MICE Hall • EMR installation • Review (STFC/DOE) at RAL

Monthly L2 Status Report -

WBS: 04 02 - 6D Cooling Demonstration

22 February 2013
Presenter: Pavel Snopok



<p><u>Milestone Status (Progress)</u></p> <ul style="list-style-type: none">• -	<p><u>Resource Conflicts, Plan Changes and Issues</u></p> <ul style="list-style-type: none">• -
<p><u>Summary of Previous Month</u></p> <ul style="list-style-type: none">• 6D cooling @ NuStorm: $\sim 10^{10}$ muons/pulse, large sample test confirms transmissions both for 201 and 805 MHz cells.• Longitudinal behavior + cooling efficiency studies are underway• Preliminary discussions about HCC bench test and intensity test with Katsuya and Cary• Discussion with Vladimir Shiltsev about ASTA proton source (very low energy, 2.5 MeV, 10^{13} protons)	<p><u>Late Items</u></p> <ul style="list-style-type: none">• Milestones
<p><u>Upcoming Work (Next Month)</u></p> <ul style="list-style-type: none">• Bench test requirements for HCC and Guggenheim• Finish longitudinal dynamics + cooling study for Guggenheim channel at NuStorm• Discussion of HCC @ NuStorm	<p><u>Quarterly Plans</u></p> <ul style="list-style-type: none">• Detail muon source + intensity test source options/parameters• Seek potential synergies with NuStorm

AOB



- Are there any other issues for today's discussion
- Questions?
- Comments?