Program Management: Preliminary Budget and Schedule

PID Upgrade Meeting

8.28.15

Cost and Contingency

WBS	Name	Base Cost ($K)	Cont. (%)	Cont. Cost ($K)	JLab Direct Cost ($K)	Group	Comments
1	Project Management	33			33	JLab	
2	MaPMTs	600	20	120	720	JLab	Depends on USD/JPY exchange rate
3	Electronics (Material)	260.3	20	52.1	312.4	JLab	Quotes for all components
	Electronics (Labor)	150.6	20	30.1	180.7	JLab	From Fernando
4	Expansion Volume	115	30	34.5	149.5	MIT	Quartz window and water circ.?
5	Mechanics	50	30	15	65	Indiana	????
6	Transport	30	30	9	39	Indiana	????
7	Slow Controls	10	20	2	12	JLab	
	Total	**1248.9**	**21.0**	**262.7**	**1511.6**		
	JLab Direct Cost includes procurement and labor						
	JLab Burdened Cost includes G&A applied to Base Cost?						

- Contingency:
  - 10%: “Off the shelf” items, eg. HV module, etc.
  - 20%: Common items with RICH, eg. ASIC+FPGA boards
  - 30%: Placeholder: need more info on cost
- Assume nominal $2.5K/MaPMT for RICH
  - Contingency of 20% to accommodate exchange rate

MaPMTs: Exchange rate

http://www.xe.com/currencycharts/?from=USD&to=JPY&view=1D

	Date	Exchange Rate (JPY/USD)	USD price	JPY approx. price
RICH contract	9/30/13?	97.87	**2500**	244675
GlueX quote	5/13/15	119.13	**1910**	227538
Today	8/28/15	120.87	**1900**	

Quotes from Hamamatsu

Approximate cost today

Cost and Contingency

WBS	Name	Base Cost ($K)	Cont. (%)	Cont. Cost ($K)	JLab Direct Cost ($K)	Group	Comments
1	Project Management	33			33	JLab	
2	MaPMTs	456	20	91.2	547.2	JLab	Depends on USD/JPY exchange rate
3	Electronics (Material)	260.3	20	52.1	312.4	JLab	Quotes for all components
	Electronics (Labor)	150.6	20	30.1	180.7	JLab	From Fernando
4	Expansion Volume	115	30	34.5	149.5	MIT	Quartz window and water circ.?
5	Mechanics	50	30	15	65	Indiana	????
6	Transport	30	30	9	39	Indiana	????
7	Slow Controls	10	20	2	12	JLab	
	Total	**1104.9**	**21.2**	**233.9**	**1338.8**		
	JLab Direct Cost includes procurement and labor						
	JLab Burdened Cost includes G&A applied to Base Cost?						

- Same contingencies as before
- Using $1.9K/MaPMT from Hamamatsu quote
  - 11% reduction in TPC compared to RICH $2.5K/MAPMT
- Still need to include “burdened” cost, similar to RICH budget (see backup)

Planned Budget: 3 Year Profile

		FY2016				FY2017				FY2018				Project Total
WBS	**Name**	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	
1	Project Management	11				11				11				**33**
2	MaPMTs	80				126				250				**456**
3	Electronics (Material)	48.8	56.0	25.5		65.0				65.0				**260.3**
	Electronics (Labor)	26.2	51.5			36.5				36.5				**150.6**
4	Expansion Volume	57.5				57.5								**115**
5	Mechanics	20				20				10				**50**
6	Transport	15				15								**30**
7	Slow Controls					10								**10**
		Q1	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	
	Proposed Quarterly Total	**258.5**	**107.5**	**25.5**	**0**	**340.95**	**0**	**0**	**0**	**372.45**	**0**	**0**	**0**	
		FY2016				**FY2017**				**FY2018**				
	Proposed Yearly Total	**391.5**				**341.0**				**372.5**				**1104.9**
	Budget Plan (Eugene)	350				450				380				1180
	Budget - Proposed	-41.5				109.1				7.6				75.1

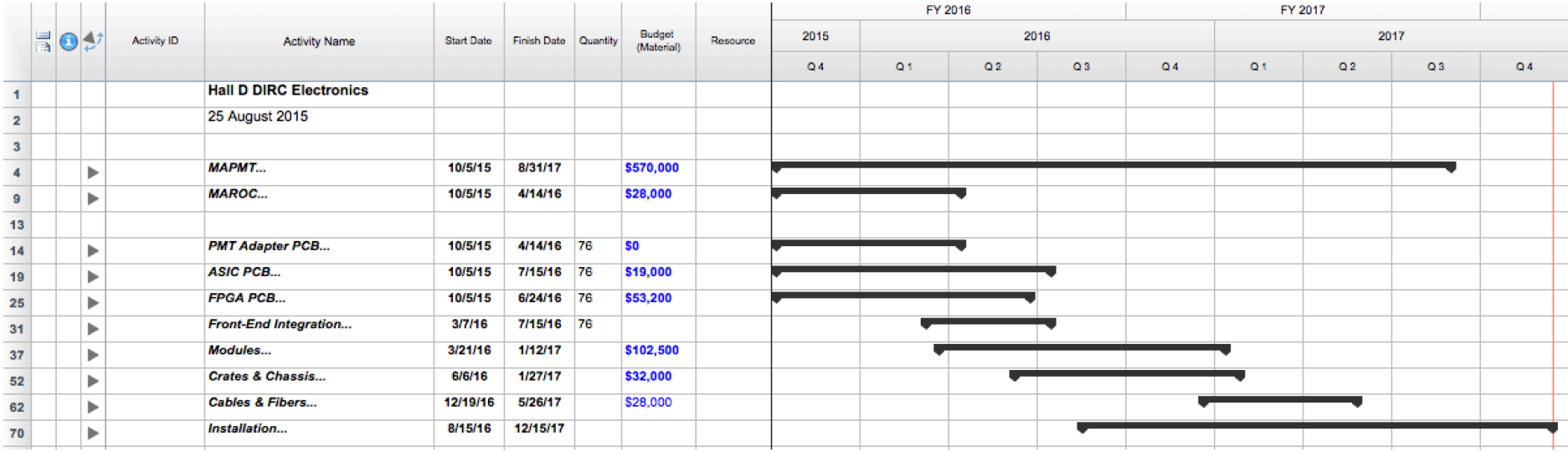
- Only base costs in quarterly breakout
- Using $1.9K/MaPMT from Hamamatsu quote
- FY16:
  - All electronics boards, procurement & assembly
  - Half of expansion volume, support structure, and transport
- FY17-18:
  - Installation in hall (crates, fiber, cables, etc) and remainder of MaPMTs
  - Phased installation of 2 separate expansion volumes?

Aggressive Budget: 2 Year Profile

		FY2016				FY2017				FY2018				Project Total
WBS	**Name**	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	
1	Project Management	11				11								**22**
2	MaPMTs	100				356								**456**
3	Electronics (Material)	48.8	56.0	25.5	65.0		65.0							**260.3**
	Electronics (Labor)	26.2	51.5		36.5		36.5							**150.6**
4	Expansion Volume	57.5				57.5								**115**
5	Mechanics	20				30								**50**
6	Transport	15				15								**30**
7	Slow Controls					10								**10**
		Q1	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**Q3**	**Q4**	
	Proposed Quarterly Total	**278.5**	**107.5**	**25.5**	**101.45**	**479.5**	**101.45**	**0**	**0**	**0**	**0**	**0**	**0**	
		FY2016				**FY2017**				**FY2018**				
	Proposed Yearly Total	**513.0**				**581.0**				**0.0**				**1093.9**
	Budget Plan (Eugene)	350				450				380				1180
	Budget - Proposed	-163.0				-131.0				380.0				86.1

- Only base costs in quarterly breakout
- Using $1.9K/MaPMT from Hamamatsu quote
- FY16:
  - All electronics boards, procurement & assembly
  - Half of focusing box, engineering and crates, fiber, cables, etc.
- FY17: **(No FY18 in schedule)**
  - Installation in hall and remainder of MaPMTs
  - Phased installation of 2 separate expansion volumes?

Aggressive FastTrack Schedule

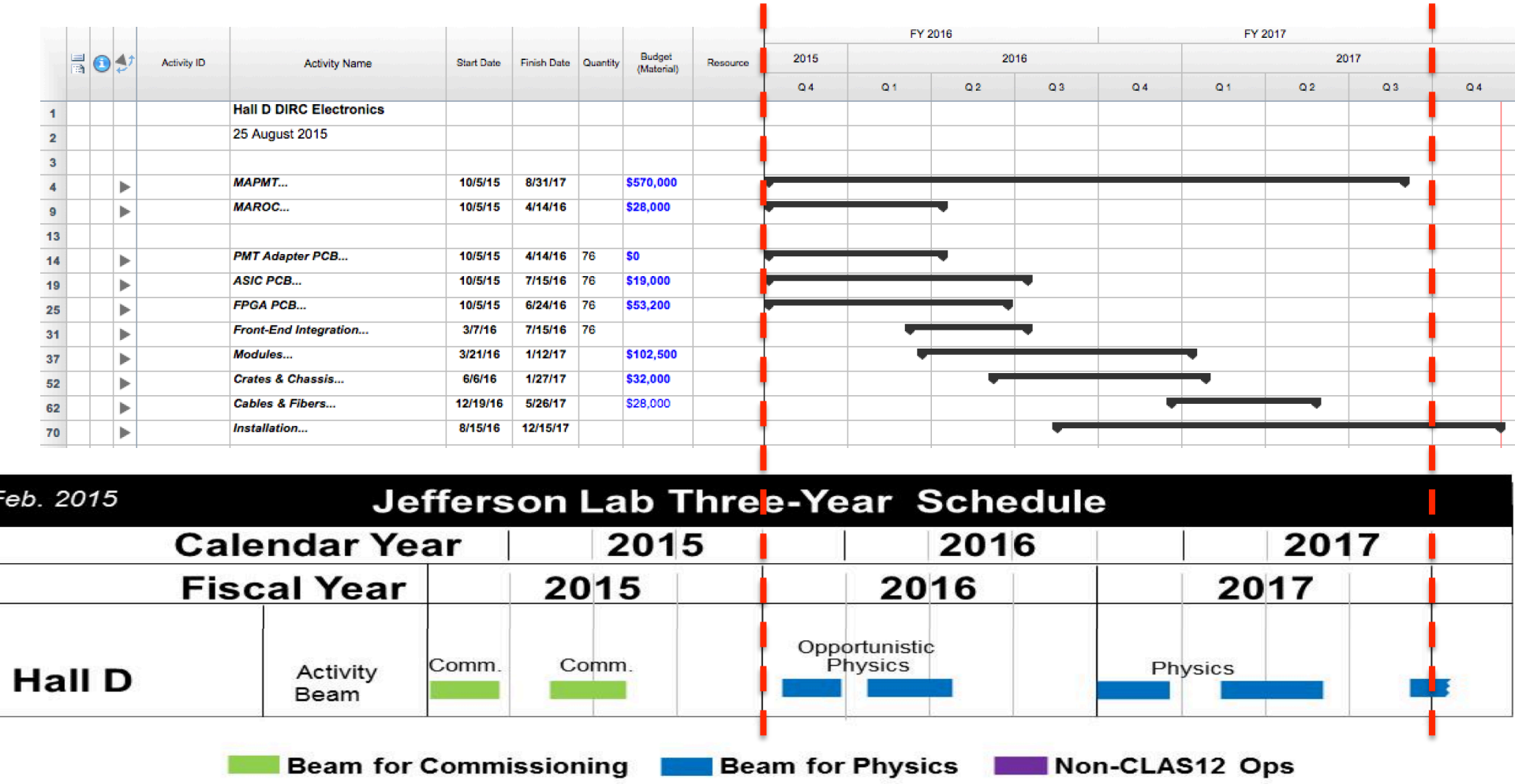


	Activity ID	Activity Name	Start Date	Finish Date	Quantity	Budget (Material)	Resource
1		**Hall D DIRC Electronics**					
2		25 August 2015					
3							
4		***MAPMT...***	10/5/15	8/31/17		$570,000	
9		***MAROC...***	10/5/15	4/14/16		$28,000	
13							
14		***PMT Adapter PCB...***	10/5/15	4/14/16	76	$0	
19		***ASIC PCB...***	10/5/15	7/15/16	76	$19,000	
25		***FPGA PCB...***	10/5/15	6/24/16	76	$53,200	
31		***Front-End Integration...***	3/7/16	7/15/16	76		
37		***Modules...***	3/21/16	1/12/17		$102,500	
52		***Crates & Chassis...***	6/6/16	1/27/17		$32,000	
62		***Cables & Fibers...***	12/19/16	5/26/17		$28,000	
70		***Installation...***	8/15/16	12/15/17			

- Readout dependencies: **Before installation**
  - MaPMT+ASIC+PCB boards assembled + integration tested
  - All modules, crates, cables, fibers procured and tested
- Expansion volume timeline + dependencies?
- Support structure timeline + dependencies?
- Transport timeline + dependencies?

Approximate run plan

	Activity ID	Activity Name	Start Date	Finish Date	Quantity	Budget (Material)	Resource
1		**Hall D DIRC Electronics**					
2		25 August 2015					
3							
4		***MAPMT...***	10/5/15	8/31/17		$570,000	
9		***MAROC...***	10/5/15	4/14/16		$28,000	
13							
14		***PMT Adapter PCB...***	10/5/15	4/14/16	76	$0	
19		***ASIC PCB...***	10/5/15	7/15/16	76	$19,000	
25		***FPGA PCB...***	10/5/15	6/24/16	76	$53,200	
31		***Front-End Integration...***	3/7/16	7/15/16	76		
37		***Modules...***	3/21/16	1/12/17		$102,500	
52		***Crates & Chassis...***	6/6/16	1/27/17		$32,000	
62		***Cables & Fibers...***	12/19/16	5/26/17		$28,000	
70		***Installation...***	8/15/16	12/15/17			



Beam for Commissioning Beam for Physics Non-CLAS12 Ops

Timeline for other experiments:
PrimeX Eta (FY18?)
Charged Pion Polarizability?

Phase I/II:
Commissioning +
First 10^7 running

Phase III:
Baseline
Detector

Phase IV?:
Aggressive
FDIRC?

Backup

RICH Budget

WBS		Base Cost (K$)	Con (%)	Cost Con. (K$)	TOTAL Cost (K$)	JLab Direct Cost	JLab Burdened Cost	INFN	CHILE
7.1	Project Management	34,1			34,1	34,1	68,3		
7.2	MA-PMTs	950	20	190	1140	1140	1217,4		
7.3	Aerogel	550,8	30	165,2	716	253	304,5	463	
7.4	Front End Electronics	180,1	25	45	225,1			225,1	
7.5	Mechanics	55,5	10	5,6	61,1	13,75	20,75	47,3	
7.6	Mirrors	436,5	30	131	567,5			267,5	300
7.7	Gas System	20	30	6	26	26	39		
7.8	Slow Control	10	30	3	13	13	20		
7.9	Shipment	20	30	6	26			26	
	TOTAL	**2257**	25	**551,8**	**2808,8**	**1479,85 ***	**1669,95****	**1028,9 ****	**300*****

* The JLab Direct Cost includes procurement & labor

** The JLab Burdened Cost includes G&A applied to the base cost

** The INFN TOTAL includes ONLY procurement;
Labor: An average for each fiscal year of 10FTE physicists + 4.5FTE technicians & engineers

*** The CHILE TOTAL includes ONLY procurement.