

Cost Update for Integration

Status update for HFT TC meeting on
October 14, 2010 at BNL

Methodology

- Technical manpower for Integration and Pixel Mechanics are shared at LBNL
- The Schedule will be used to determine the technical manpower profile required to meet milestones
- Engineering and Physicist labor (for Mechanics) will be what was estimated for CD1
 - Eng/Phys labor is pulled out, and added as a separate task
- The Project File will now be the tool used to capture all costs and efforts—excel spreadsheets from CD1 will only be used for comparison

Change of Basis

- Project file is based on extract of many of the spreadsheets developed for CD1 costing
 - Essentially copy paste of line items—captured cost well, but overly detailed for schedule
- Schedule based costing requires concatenation of many of the lines into a Task to reduce granularity, allow for load leveling of technical manpower
- Engineering and/or Physicist effort pulled out of tasks, slathered on top (easier to level)
- Aim of first go-thru is to arrive at a scrubbed task list that sums comparatively to costs from CD1

Niceties of Project

- Tasks distribute cost over duration
 - Big Purchases need to be separate tasks, short duration, to place money requirement decisively in a FY
 - Lead times handled with lags in project links, not task duration
 - Effort associated with receipt of orders necessarily fall in separate tasks
- Contributed labor seems to be a problem
 - If e.g. LBL and BNL/STAR contributed manpower work on the same task, contributed labor is costed
 - Flag for ‘contributed’ applies to all labor in a task
 - This becomes rather difficult for ‘Integration’ during the installation phase for technical manpower...

Suggestions (call for comment)

- Integration in particular is rife with mixed labor types e.g. project versus contributed
- For work done uniquely at an institute, effort is clear
- Tasks that require institute labor at BNL we may need to handle in an other than task based way
- We chose to handle engineer and physicist effort at LBNL on a %FTE basis to address this at LBL
- Suggest that we do similar for technical manpower required at BNL for assembly installation—to address the same problem (mixture of costed versus ‘free’ labor)

Hybrid Method

- Estimates for Engineering effort were done via the previous excel spreadsheets and propagated to the project file
- Likely need to do similar for Technical Manpower from various institutes for assembly/integration at BNL
- In particular for LBNL manpower, travel will be required, and 'scheduling' said travel is non-trivial
- Suggest not distinctly scheduling this in project, rather committing X%FTE during the opening
 - Needs discussion

Integration Cost

WBS	Task Name	Duration	Start	Finish	Cost	Calculated Contingency %	Calculated Contingency \$	Base Cost + Contingency Cost
1.5	[-] Integration and Global Supports	1172 days?	Thu 10/1/09	Fri 5/16/14	\$1,592,924.95	22.11	\$265,050.17	\$1,857,975.12
1.5.1	[-] Mechanics	34 days?	Thu 10/1/09	Tue 11/17/09	\$733,882.94	25.38	\$208,092.16	\$941,975.10
1.5.1.1	[+] Inner Detector Support (IDS)	34 days?	Thu 10/1/09	Tue 11/17/09	\$342,307.64	23.49	\$93,156.25	\$435,463.89
1.5.1.2	[+] Middle Support Cylinder (MSC)	22.5 days	Thu 10/1/09	Mon 11/2/09	\$239,170.27	26.07	\$66,976.78	\$306,147.05
1.5.1.3	[+] Beam Pipe Mechanics	30 days	Thu 10/1/09	Wed 11/11/09	\$152,405.03	28.64	\$47,959.14	\$200,364.17
1.5.2	[+] Electronics	1 day?	Thu 10/1/09	Thu 10/1/09	\$0.00	0	\$0.00	\$0.00
1.5.3	[-] Assembly	50 days	Thu 10/1/09	Wed 12/9/09	\$143,792.44	22.59	\$56,958.01	\$200,750.45
1.5.3.1	[+] MSC Assembly	25 days	Fri 10/30/09	Thu 12/3/09	\$33,660.34	14.4	\$9,504.72	\$43,165.06
1.5.3.2	[+] IDS Assembly	50 days	Thu 10/1/09	Wed 12/9/09	\$110,132.10	26	\$47,453.29	\$157,585.39
1.5.4	[+] Integration Infrastructure	22 days?	Thu 10/1/09	Fri 10/30/09	\$93,699.81	0	\$0.00	\$93,699.81
1.5.5	[-] Installation	22.5 days	Thu 10/1/09	Mon 11/2/09	\$62,198.52	0	\$0.00	\$62,198.52
1.5.5.1	[+] Insertion into STAR of IDS	22.5 days	Thu 10/1/09	Mon 11/2/09	\$62,198.52	0	\$0.00	\$62,198.52
1.5.7	Integration Engineering Support (PED)	143 days	Tue 8/31/10	Fri 3/25/11	\$81,952.80	0	\$0.00	\$81,952.80
1.5.8	Integration Engineering Support (Construction)	791 days	Mon 3/28/11	Fri 5/16/14	\$477,398.45	0	\$0.00	\$477,398.45

- Above is the non-escalated cost now in the project file
- It is comparable to the previous estimate of \$1.8M
- The comparison is difficult as the contingency model is very different from before
- ‘Realistic’ contingency has been applied, via the macros included in the Project file
- Discrete additional work is still included, but most has been removed

Next Steps

- Next couple months are dominated by soon to be placed PO's
- Manpower needs to be in place to handle onset of IDS production (in concert with WSC production)
- Aim to have resource loaded and leveled schedule within a month
- Need this to justify ramp of manpower
- Ability to ramp manpower is largest project risk at this point