



Project Financial and Schedule Status and Summary

Greg Bock

NOVA PMG for June 18, 2013



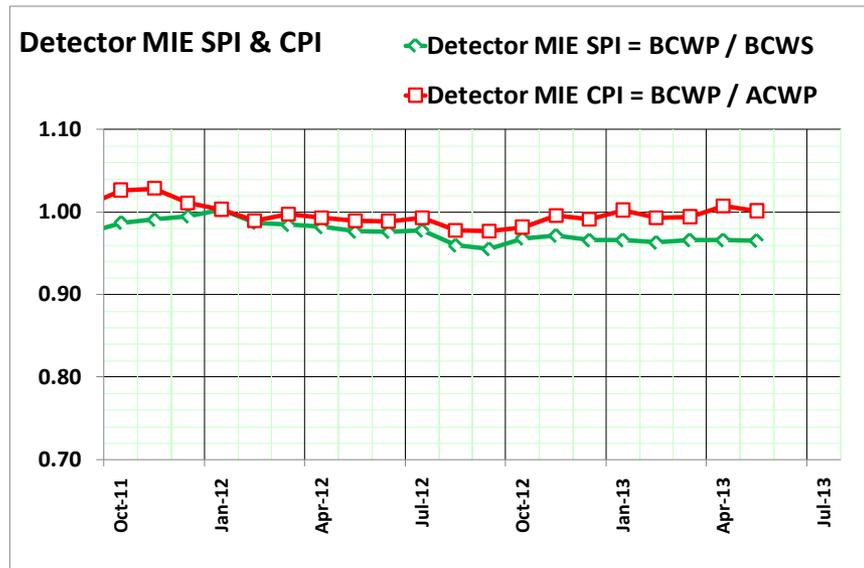
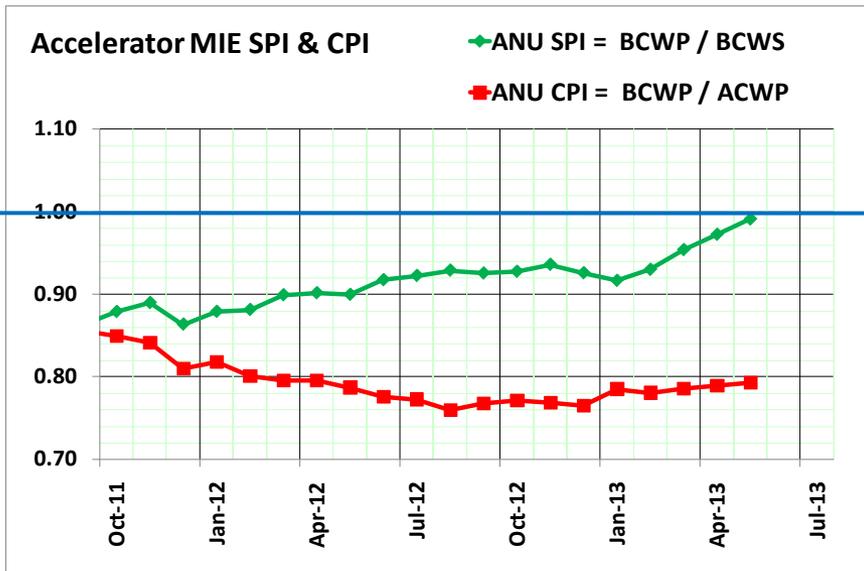
EVMS Reporting Overview

- Data now available through **May 2013**
 - SPI = **0.979**, compare to 0.977 in April, 0.974 in Mar, 0.969 in Feb
 - CPI = **0.951**, compare to 0.953 in April, 0.945 in Mar, 0.943 in Feb





SPI & CPI for Active Work



- ANU CPI had a long slide down to 0.76 last Aug, then flat at 0.78 in Jan-March after:
 - Installed Sept Change Request doubling the labor estimate on unstarted tasks
 - Moved 3rd RF cavity off-project in Jan
- Meanwhile the SPI trends up, goes flat in Aug – Jan, finally now heading to 1.0 as this part of the project closes.
- Detector still relatively constant near 1.0 for both indices
 - SPI=0.97, CPI=1.00 in April



**COST PERFORMANCE REPORT
FORMAT 1 - WORK BREAKDOWN STRUCTURE**

CPR1 May 2013

CONTRACTOR				CONTRACT				PROGF			
NAME				NAME				FROM 01-May-2013			
Fermi National Accelerator Laboratory								NOvA project			
								TO 31-May-2013			

CTC-FndSrc CTC[2] Results... ITEM (1)	CURRENT PERIOD					CUMULATIVE TO DATE					AT COMPLETION		
	BUDGETED COST		ACTUAL	VARIANCE		BUDGETED COST		ACTUAL	VARIANCE		LATEST REVISED ESTIMATE	VARIANCE	
	WORK	WORK	WORK	SCHEDULE	COST	WORK	WORK	WORK	SCHEDULE	COST			
	SCHEDULED	PERFORMED	PERFORMED	SCHEDULE	COST	SCHEDULED	PERFORMED	PERFORMED	SCHEDULE	COST	BUDGETED	ESTIMATE	VARIANCE
(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
DA DOE-ACEL MIE													
2.0 ANU Construction													
Fully burdened AY\$K	41	692	683	651	9	35,183	34,874	44,013	(309)	(9,139)	35,197	42,666	(7,469)
CTC-FndSrcTotals:	41	692	683	651	9	35,183	34,874	44,013	(309)	(9,139)	35,197	42,666	(7,469)
DC DOE-CA													
2.1 Site and Building													
Fully burdened AY\$K	0	0	0	0	0	35,060	35,060	34,872	0	188	35,060	34,872	188
CTC-FndSrcTotals:	0	0	0	0	0	35,060	35,060	34,872	0	188	35,060	34,872	188
DD DOE-ACEL R&D													
1.0 ANU R&D													
Fully burdened AY\$K	0	0	0	0	0	7,025	7,025	6,615	0	410	7,025	6,615	410
CTC-FndSrcTotals:	0	0	0	0	0	7,025	7,025	6,615	0	410	7,025	6,615	410
DE DOE-DET MIE													
2.1 Site and Building													
Fully burdened AY\$K	0	0	0	0	0	7,131	7,131	6,164	0	967	7,131	6,164	967
2.10 NOvA Project Management													
Fully burdened AY\$K	197	197	170	0	28	10,346	10,346	9,227	0	1,119	11,331	10,213	1,119
2.2 Liquid Scintillator													
Fully burdened AY\$K	751	1,054	1,387	304	(332)	13,743	13,650	13,696	(93)	(46)	21,120	21,316	(196)
2.3 WLS Fiber													
Fully burdened AY\$K	0	0	11	0	(11)	13,039	13,028	13,328	(11)	(300)	13,039	13,340	(300)
2.4 PVC Extrusions													
Fully burdened AY\$K	1,275	957	1,101	(318)	(144)	30,389	28,221	28,845	(2,168)	(624)	33,213	33,836	(623)
2.5 PVC Modules													
Fully burdened AY\$K	878	719	669	(160)	50	18,436	18,138	14,957	(298)	3,181	23,335	20,142	3,193
2.6 Electronics													
Fully burdened AY\$K	350	389	438	39	(49)	9,471	9,241	9,231	(231)	9	12,139	12,151	(12)
2.7 DAQ													
Fully burdened AY\$K	26	75	70	49	5	4,270	3,729	4,665	(541)	(936)	4,454	5,327	(873)
2.8 Near Detector Assembly													
Fully burdened AY\$K	360	397	405	37	(8)	11,881	11,531	12,435	(350)	(905)	12,314	13,286	(972)
2.9 Far Detector Assembly													
Fully burdened AY\$K	1,002	798	1,056	(204)	(258)	17,911	16,883	19,128	(1,029)	(2,245)	22,588	24,894	(2,306)
CTC-FndSrcTotals:	4,839	4,586	5,305	(253)	(719)	136,617	131,897	131,678	(4,719)	219	160,664	160,668	(3)

This is correct, correcting false positive variance from April

120 K\$ false negative, several sources, all verified.

There may be a 150 K\$ false negative here, not verified yet

COST PERFORMANCE
FORMAT 1 - WORK BREAKDOWN

CPR1 May 2013 continued

CONTRACTOR						CONTRACT						FROM 01-May-2013		
NAME						NAME						TO 31-May-2013		
Fermi National Accelerator Laboratory						NOvA project								
PERFORMANCE DATA														
CTC-FndSrc	CURRENT PERIOD					CUMULATIVE TO DATE					AT COMPLETION			
	BUDGETED COST		ACTUAL COST	VARIANCE		BUDGETED COST		ACTUAL COST	VARIANCE			LATEST REVISED		
Results...	WORK	WORK	WORK	SCHEDULE	COST	WORK	WORK	WORK	SCHEDULE	COST	BUDGETED	ESTIMATE	VARIANCE	
ITEM	SCHEDULED	PERFORMED	PERFORMED	SCHEDULE	COST	SCHEDULED	PERFORMED	PERFORMED	SCHEDULE	COST	BUDGETED	ESTIMATE	VARIANCE	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
DO DOE- OPS														
1.0 ANU R&D														
Fully burdened AY\$K	0	28	9	28	19	1,818	1,818	1,410	0	408	1,818	1,410	408	
2.7 DAQ														
Fully burdened AY\$K	22	22	0	0	22	107	107	3	0	104	192	88	104	
CTC-FndSrcTotals:	22	50	9	28	41	1,925	1,925	1,413	0	512	2,010	1,497	512	
DR DOE-POST CD-1 DET R&D														
1.1 Site and Building R&D														
Fully burdened AY\$K	0	0	0	0	0	2,275	2,275	1,627	0	647	2,275	1,627	647	
1.2 Liquid Scintillator R&D														
Fully burdened AY\$K	0	0	0	0	0	297	297	389	0	(92)	297	389	(92)	
1.3 WLS Fiber R&D														
Fully burdened AY\$K	0	0	0	0	0	341	341	375	0	(34)	341	375	(34)	
1.4 PVC Extrusion R&D														
Fully burdened AY\$K	0	0	0	0	0	1,369	1,369	2,083	0	(714)	1,369	2,083	(714)	
1.5 PVC Module R&D														
Fully burdened AY\$K	0	0	0	0	0	2,260	2,260	2,421	0	(160)	2,260	2,421	(160)	
1.6 Electronics R&D														
Fully burdened AY\$K	0	0	0	0	0	2,028	2,028	2,600	0	(572)	2,028	2,600	(572)	
1.7 DAQ R&D														
Fully burdened AY\$K	0	0	0	0	0	1,635	1,635	2,822	0	(1,186)	1,635	2,822	(1,186)	
1.8 Detector Assembly R&D														
Fully burdened AY\$K	0	0	0	0	0	3,123	3,123	4,931	0	(1,808)	3,123	4,931	(1,808)	
1.9 Project Management R&D														
Fully burdened AY\$K	0	0	0	0	0	383	383	559	0	(176)	383	559	(176)	
CTC-FndSrcTotals:	0	0	0	0	0	13,711	13,711	17,806	0	(4,095)	13,711	17,806	(4,095)	
DY DOE CD-0 TO CD-1 R&D														
1.9 Project Management R&D														
Fully burdened AY\$K	0	0	0	0	0	8,801	8,801	8,801	0	0	8,801	8,801	0	
CTC-FndSrcTotals:	0	0	0	0	0	8,801	8,801	8,801	0	0	8,801	8,801	0	
Undist. Budget											0	0	0	
Sub Total	4,903	5,329	5,998	426	(669)	238,321	233,292	245,197	(5,028)	(11,905)	262,467	272,925	(10,458)	
Management Resrv.											0			
Total	4,903	5,329	5,998	426	(669)	238,321	233,292	245,197	(5,028)	(11,905)	262,467			



Change Requests in May

- 2 CRs in May, total of 31 K\$

CR Number	CR Title	NOVA-doc-	Level of Change	Date Approved	Final Cost Impact	Final Schedule Impact
641	Extrusion QC and Documentation - Add Supplemental Contract Labor for QC Closeout	9219	L4 (NOVA PM)	6/3/2013	\$20,190.00	none
642	Add Task and Budget to Continue FESS Oversight of ND Hall Outfitting Work	9240	L4 (NOVA PM)	6/4/2013	\$10,958.00	none



AY\$ by Level 2 with MIE/OPC split

WBS	Items	NOvA Costs to Date (\$M) as of 31-May-2013	NOvA 's Cost Estimate AY \$M (for June 1, 2013 to project end)									
			Estimated Cost (with indirects)			Mgmt Reserve Estimate			Contingency %			Total Cost
			M&S	Labor ¹	Total	M&S	Labor ¹	Total	M&S	Labor ¹	Total	
2.0	Accelerator & NuMI Upgrades	\$ 44.0	\$ (1.5)	\$ 0.2	\$ (1.3)	\$ -	\$ -	\$ -	0%	0%	0%	\$ 42.7
2.1	Far Detector Site and Building	\$ 6.2	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0%	0%	0%	\$ 6.2
2.2	Liquid Scintillator	\$ 13.7	\$ 7.5	\$ 0.1	\$ 7.6	\$ -	\$ -	\$ -	0%	0%	0%	\$ 21.3
2.3	Wave-Length-Shifting Fiber	\$ 13.3	\$ 0.0	\$ 0.0	\$ 0.0	\$ -	\$ -	\$ -	0%	0%	0%	\$ 13.3
2.4	PVC Extrusions	\$ 28.8	\$ 4.8	\$ 0.2	\$ 5.0	\$ -	\$ -	\$ -	0%	0%	0%	\$ 33.8
2.5	PVC Modules	\$ 15.0	\$ 1.7	\$ 3.5	\$ 5.2	\$ -	\$ -	\$ -	0%	0%	0%	\$ 20.1
2.6	Electronics Production	\$ 9.2	\$ 2.0	\$ 0.9	\$ 2.9	\$ -	\$ -	\$ -	0%	0%	0%	\$ 12.2
2.7	Data Acquisition System	\$ 4.7	\$ 0.4	\$ 0.2	\$ 0.7	\$ -	\$ -	\$ -	0%	0%	0%	\$ 5.3
2.8	Near Detector Assembly	\$ 12.4	\$ 0.3	\$ 0.5	\$ 0.8	\$ -	\$ -	\$ -	0%	0%	0%	\$ 13.3
2.9	Far Detector Assembly	\$ 19.1	\$ 1.9	\$ 3.8	\$ 5.8	\$ -	\$ -	\$ -	0%	0%	0%	\$ 24.9
2.10	Project Management	\$ 9.2	\$ 0.1	\$ 0.9	\$ 1.0	\$ -	\$ -	\$ -	0%	0%	0%	\$ 10.2
Subtotal Construction		\$ 175.7	\$ 17.2	\$ 10.5	\$ 27.6	\$ -	\$ -	\$ -	0%	0%	0%	\$ 203.3
O P C	R&D - Accelerator	\$ 6.6	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0%	0%	0%	\$ 6.6
	R&D - Detector	\$ 26.6	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0%	0%	0%	\$ 26.6
	Cooperative Agreement	\$ 34.9	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0%	0%	0%	\$ 34.9
	Operating - Accelerator	\$ 1.4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0%	0%	0%	\$ 1.4
	Operating - Detector	\$ 0.0	\$ -	\$ 0.1	\$ 0.1	\$ -	\$ -	\$ -	0%	0%	0%	\$ 0.1
Total OPC:		\$ 69.5	\$ -	\$ 0.1	\$ 0.1	\$ -	\$ -	\$ -	0%	0%	0%	\$ 69.6
Contingency												\$ 5.1
TPC:		\$ 245.2	\$ 17.2	\$ 10.6	\$ 27.7	\$ -	\$ -	\$ 5.1	0%	0%	18%	\$ 278.000

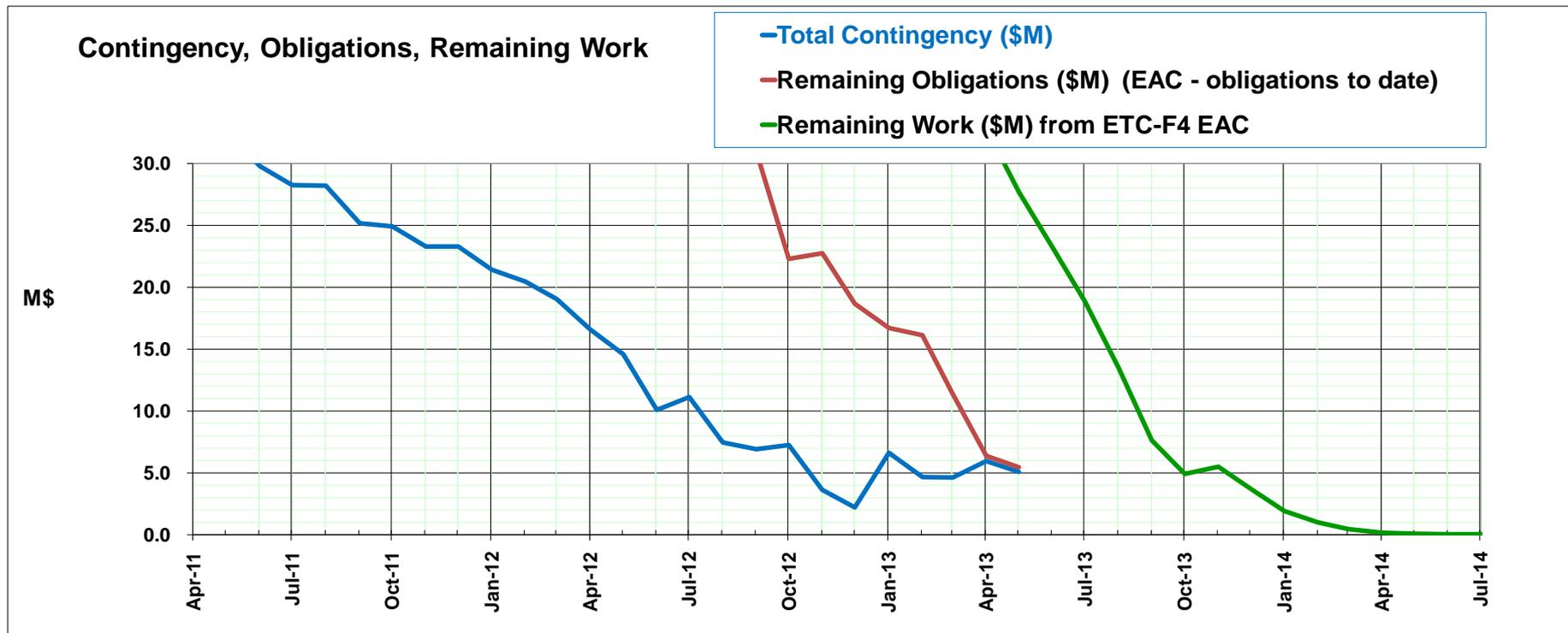
- We are claiming 5.3 M\$ Contingency**

- \$5.1 M + 0.3 M (complete re-purposing) + 0.1 M false variance - 0.2 ETC
- This is **19 %** of remaining work (5.3 / 27.7)
- This is **98%** of remaining Obligations (5.3 / 5.4)

- 272.925 (EAC) - 267.485 obligated = 5.440 M\$ yet to obligate



Contingency History

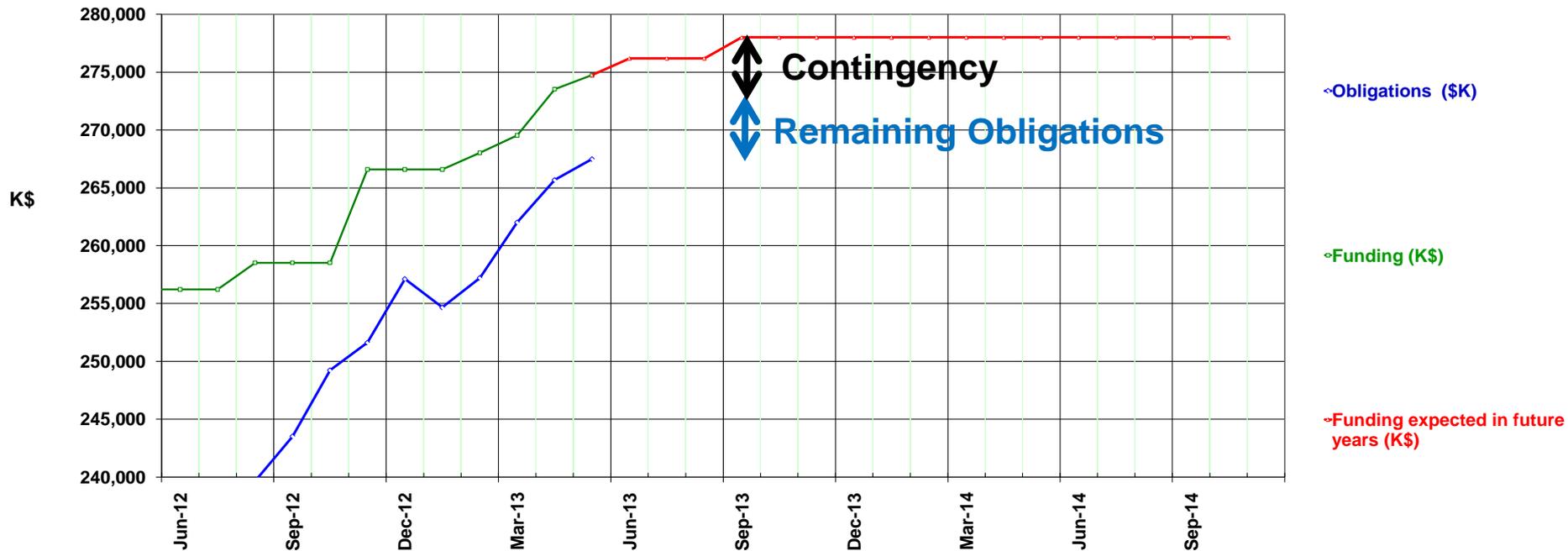


- Remaining Obligations are nearly complete (~ \$ 5 M to go)
- Remaining Work is on final approach at ~\$4 - 5M / month through September 2013
- No net contingency used since ~ November 2012



Status of FY13 Funding vs. Obligations

- 5/12 FY13 initially, then partial funding in February, March, April, May, **June (expected)**
- **still leaves 1.810 M\$ to come in FY13 (shown here as in September)**
- We have not re-estimated time-phased obligations into the future, but we only 5.4 M\$ left in the total estimate at this point.
- The remaining 5.1 M\$ to the TPC is contingency.





NOvA March 31, 2013 Budget Status

- TPC \$ 278.0 M
- ETC \$ 27.7 M

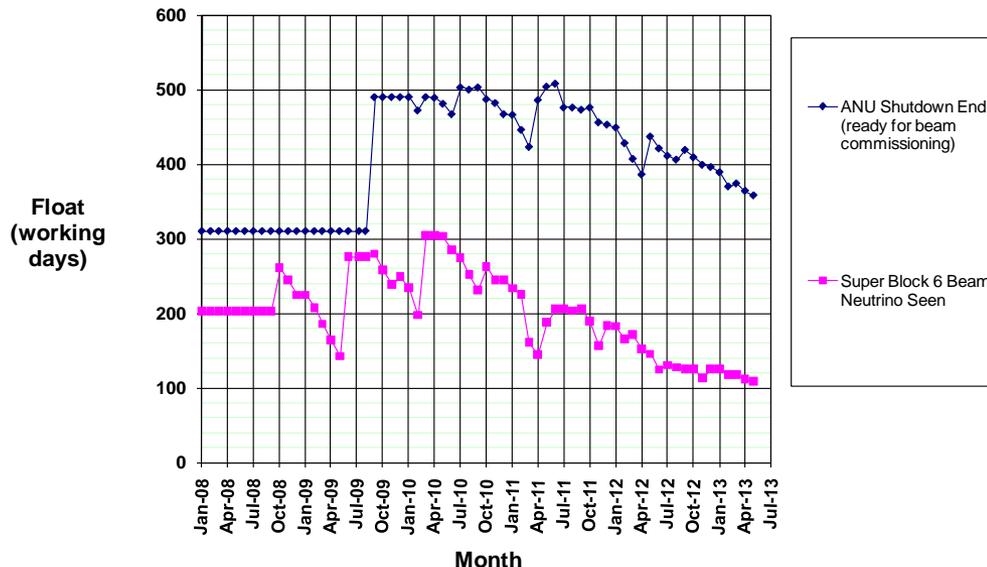
- Contingency (adjusted) \$ 5.3 M



Schedule Contingency: Float to CD-4

- **ANU lost 6 days of float in May -- Now at 358 days**
 - Final alignment, leak checks, remove temp shielding in RR are drivers
- **The Detector lost 3 days of float in May -- Now at 108 days**
 - This is driven by APD delivery & testing of APDs for the 28th block.
 - There are now 8 days of float between scintillator filling of last di-block and start of APD installation last di-block, so APDs are driving the schedule by themselves
 - As noted in J. Cooper's talk, the APD effort is ramping up the pipeline speeds into Ash River. The updated schedule now calls for 192 APDs installed per week. Most of the assembly and testing tasks are capable of sustaining 250 per week, but we still are working on establishing and then holding a rate at or above 192 per week.
 - Similarly, adding a 7th tanker for scintillator delivery may speed up filling.

Tracking Float to CD-4





Schedule Contingency Summary

- As of **May 31**, we have **108** working days float to CD-4
- As of **May 31**, we have **18** months to CD-4 = **375** working days
 - CD-4 is end of November, 2014
- Schedule Contingency is **$108 / (375 - 108)$** days = **40%**.
 - This is the same % as in March.
- Will reassess next month after APD assembly is ramped up and after the 7th tanker effect is known.



Nova_Project

Milestone Gantt Chart

Nova_Milestones_L1_L2 = [BOOL.T] and ESDATE >= {10/1/08}

May 2013 Status

TimeNow: 01Jun13

Baseline Date

Completed Milestone

Current Forecast Date

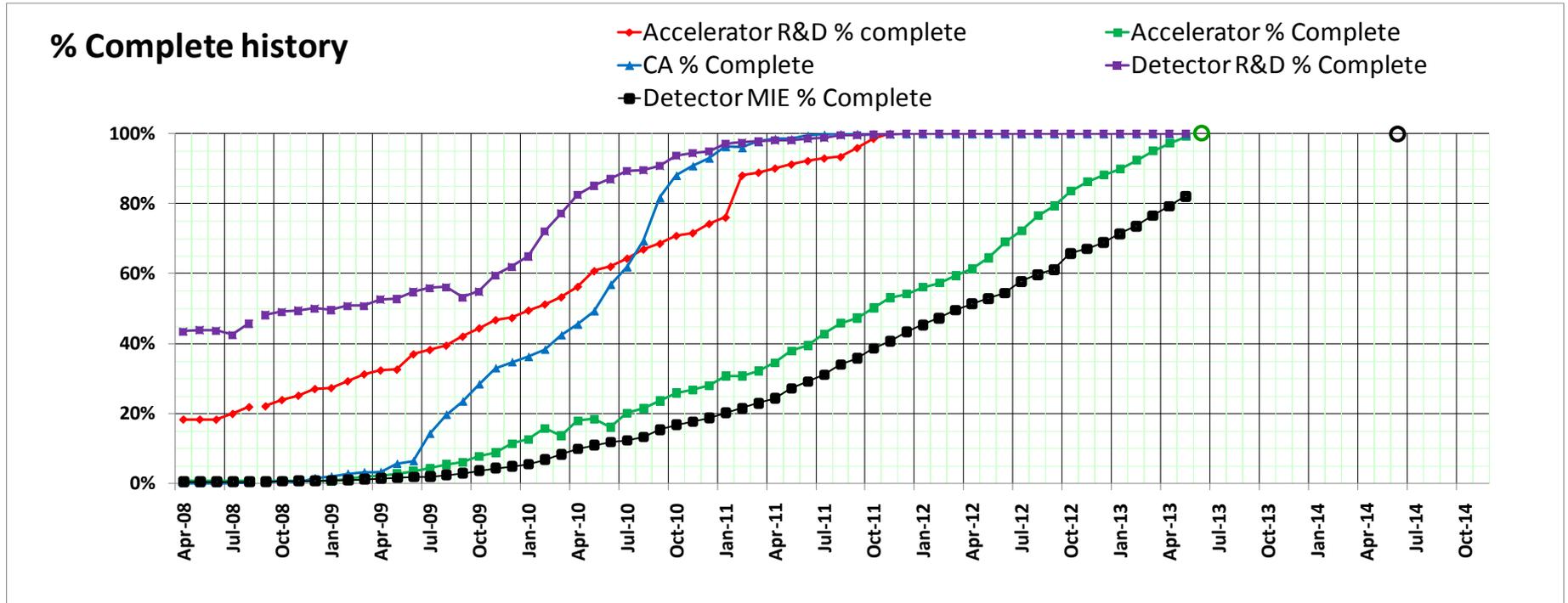
Activity Desc.	Baseline Date	Forecast / Actual Date	Baseline Variance	FY09				FY10				FY11				FY12				FY13				FY14								
				Q1	Q2	Q3	Q4																									
L.2 -- DOE- NOVA Project Director Milestone																																
DOE OECM - FRA EVMS Readiness Assessment	01Oct08	09Jan09	-67d																													
DOE OECM - FRA EVMS Certification Review	01Dec08	15May09	-114d																													
DOE OHEP CD-3a Mini-review	15Jan09	24Oct08	52d																													
Site preparation purchase order released	06Apr09	22May09	-34d																													
Waveshifter PO issued	22May09	08Jun09	-10d																													
DOE OECM - FRA EVMS Certified	01Jun09	28Jan10	-164d																													
DOE OHEP CD-3b Review	01Jun09	23Jul09	-37d																													
Extrusion PO issued	01Oct09	11Dec09	-49d																													
WLS fiber PO issued	02Nov09	01Sep09	42d																													
Decision point for buying additional waveshifter powders	11May10	01Dec09	109d																													
IPND blocks (4 of 6) completed	12Jul10	09Jul10	0																													
Mineral oil PO issued	01Oct10	07May10	101d																													
APDs PO issued	18Jul11	15Aug11	-21d																													
Block pivoter completed	30Apr12	30Apr12	-1d																													
Decision point for buying additional WLS fiber	03Jul12	03Jul12	-1d																													
Decision point for buying additional extrusions, modules, mineral oil, pseudocumene	13Feb13	31Jan13	8d																													
MI Ring Modifications Ready for Beam Transport	01Jul13	25Jun13	3d																													
RR Modifications Ready for Beam Transport	01Jul13	25Jun13	3d																													
Ready to Commission Upgrades with Medium Energy Neutrino Beam	01Jul13	25Jun13	3d																													
Decision point for buying additional APDs	29Jul13	31Jan13	124d																													
Far detector modules for 14 kt shipped	27Sep13	13Feb14	-92d																													
Far Detector extrusions for 14kt completed	30Dec13	08Oct13	54d																													
DOE Independent Project Review for CD-4 Completed (Lehman Review)	02Oct14	02Oct14	0																													
CD-4 ESAAB Meeting Completed	03Nov14	03Nov14	0																													

DOE – Fed Project Director milestones



% Complete history

for the 5 Main parts of the Project



- **ANU at 99%, to be complete in June 2013**
- **Detector at 82%, to be complete by ~ June 2014**
- **Building & Detector R&D & ANU R&D are all done**



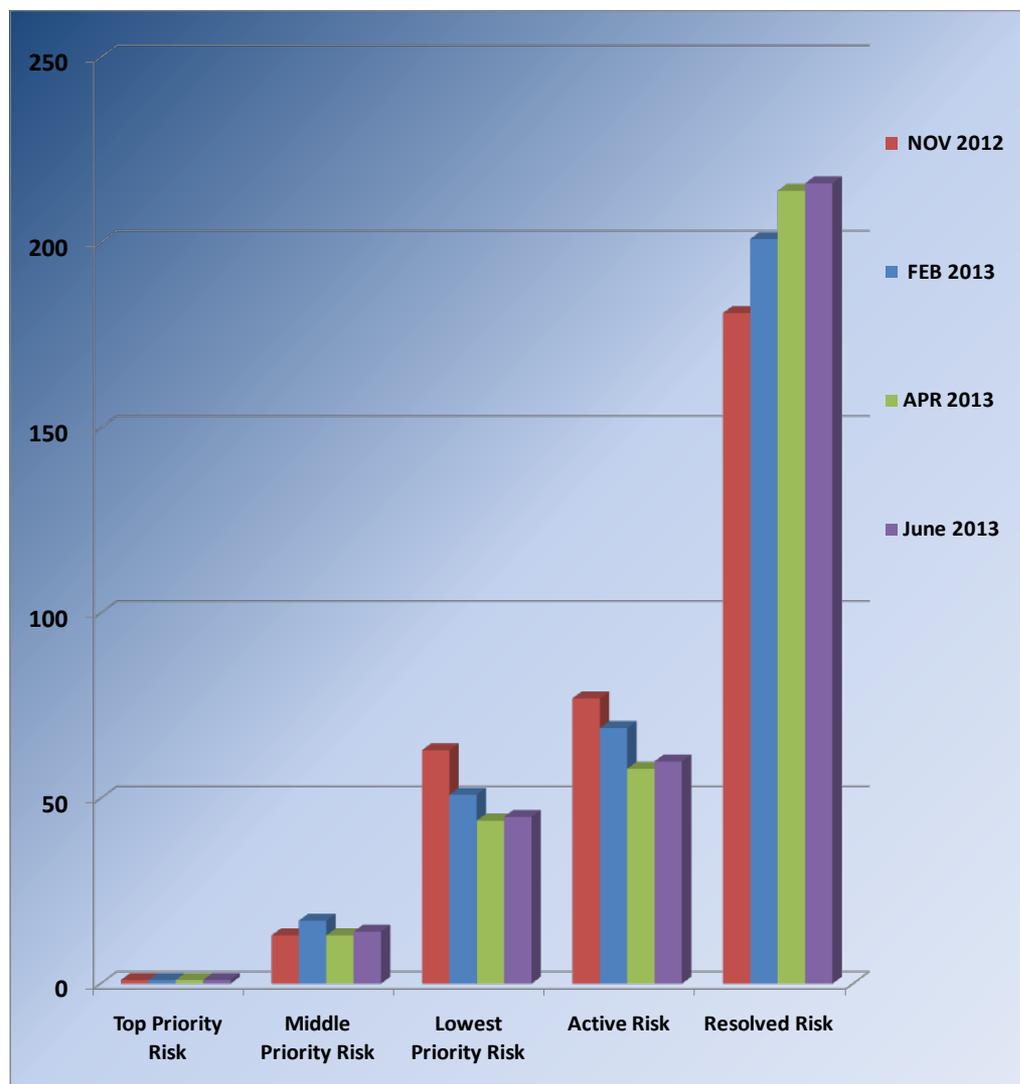
Summary comments

- Project is in very good technical shape; contingency is holding (and growing as a percentage of cost to complete) and project is on a trajectory to finish on schedule and budget
- Another month (or two) of steady progress will give us confidence to initiate the change process needed to restore 1KT of oil in the far detector



List of NOvA risks since Nov 2012 review

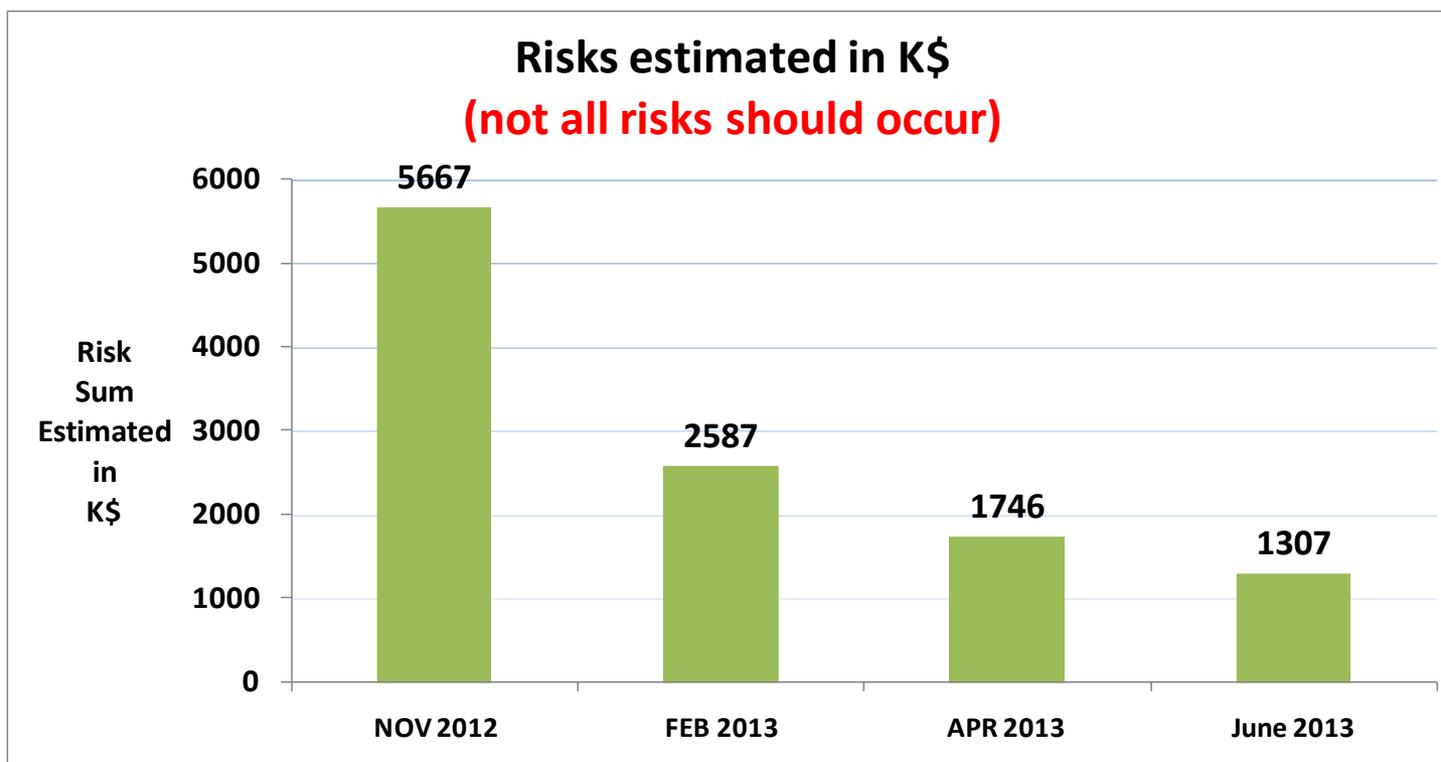
NOvA Risk		
Risk Level	Nov-12	June-13
Top Priority	1	1
Middle Priority	13	14
Low Priority	63	45
Active Risk (sum of top, middle, low)	77	60
Resolve / Retired	181	216
Total	258	276





Risk \$ estimate vs. time

- Risks continue to decline
 - About ½ of the amount estimated in February 2013
 - About ¼ of the amount estimated in November 2012
 - Current estimated value is 1307 K\$ with 90% assigned to the cost of mineral oil.
 - Mineral Oil risk is being retired at about 180 K\$ per month





Milestones held by Directorate

 Nova_Project Milestone Gantt Chart va_Milestone_L3_L4 = [BOOL.T] and (ESDATE >= {10/01/08} or BSDATE >= {10/01/08}) and BFDATE NOT_EMPTY May 2013 Status TimeNow: 01Jun13					Baseline Date				Completed Milestone				Current Forecast Date																			
Activity ID	Activity Desc.	Baseline Date	Forecast or Actual Date	Baseline Variance	FY09				FY10				FY11				FY12				FY13				FY14							
					Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				
L.3 -- Fermilab Associate Director Milestone					Time Now - 01Jun13																											
2.5.3.3.2.45.44	Far detector module assembly started	16Mar12	29Feb12	11d																												
2.7.2.1.2.8	Production data concentrators received	30Mar12	28Nov12	-169d																												
2.10.10.5	Accelerator Shutdown Begun	30Apr12	30Apr12	0																												
2.0.3.2.4.3	NuMI ME Target/Carrier/Baffle Assembly Complete	20Aug12	20Aug12	0																												
2.10.9.11	FY13 Funds Available	01Nov12	29Nov12	-19d																												
2.0.2.2.5.4	MI RF Cavities (2) Installation & Testing Complete	16Nov12	06Dec12	-13d																												
2.0.4.3.13	ANU Shielding Assessment Updates Complete	30Nov12	12Mar13	-68d																												
2.0.1.2.8.5	RR All Kicker Systems Ready for Beam	10Dec12	07Jun13	-122d																												
2.2.4.3.80	Scintillator production for 14 kt completed	08Nov13	18Apr14	-108d																												
2.9.4.5.37	Superblock 6 outfitting completed	14Jan14	25Mar14	-49d																												
2.10.9.27	FNAL/Nova Internal Operational Readiness Review and CD-4 Readiness Review Assessment Completed	02Sep14	02Sep14	0																												



Analysis of all milestones

Status and Count of Milestones for Nova Project
As of 01Jun13

- **494 of 708 now complete**
 - **19 completed in May**
 - **Behind on 81**

Cumulative Tally as of 01Jun13
For Milestone Dates >= 12Apr07

Count of Milestone Description		
Computed Status	Milestone Level	Total
Complete	L.0	2
	L.1	8
	L.2	27
	L.3	24
	L.4	55
	L.5	378
Complete Total		494
Planned	L.0	1
	L.1	3
	L.2	7
	L.3	4
	L.4	27
	L.5	172
Planned Total		214
Grand Total		708

Level	Held By
L.0	DOE Acquisition Executive
L.1	DOE OHEP Associate Director
L.2	DOE Federal Project Director (Carolan)
L.3	Fermilab Associate Director for Research (Bock)
L.4	Nova Project Manager (Cooper)
L.5	Other

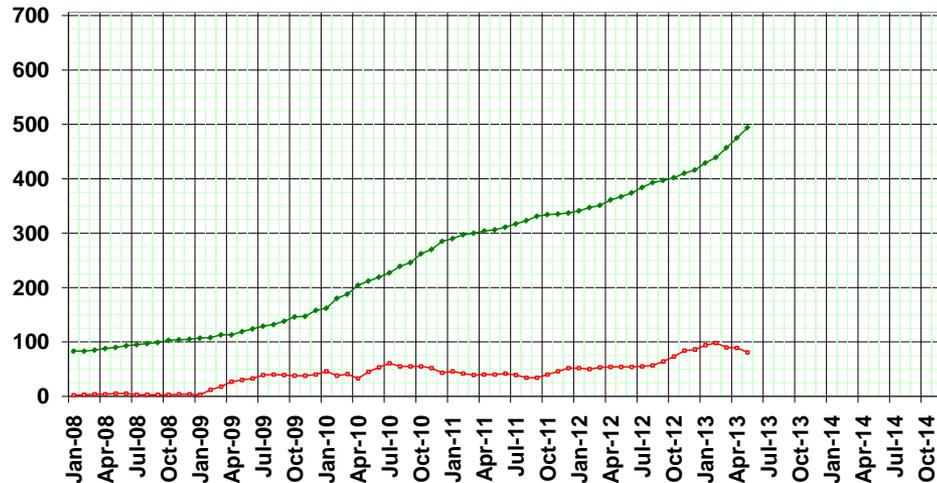
Slipping/Missed Milestones as of 01Jun13

Count of Milestone Description		
Computed Status	Milestone Level	Total
Planned	L.3	1
	L.4	9
	L.5	71
Planned Total		81

Milestones Completed in May 2013

Count of Milestone Description		
Computed Status	Milestone Level	Total
Complete	L.1	1
	L.4	1
	L.5	17
Complete Total		19

Milestones since Jan 2008

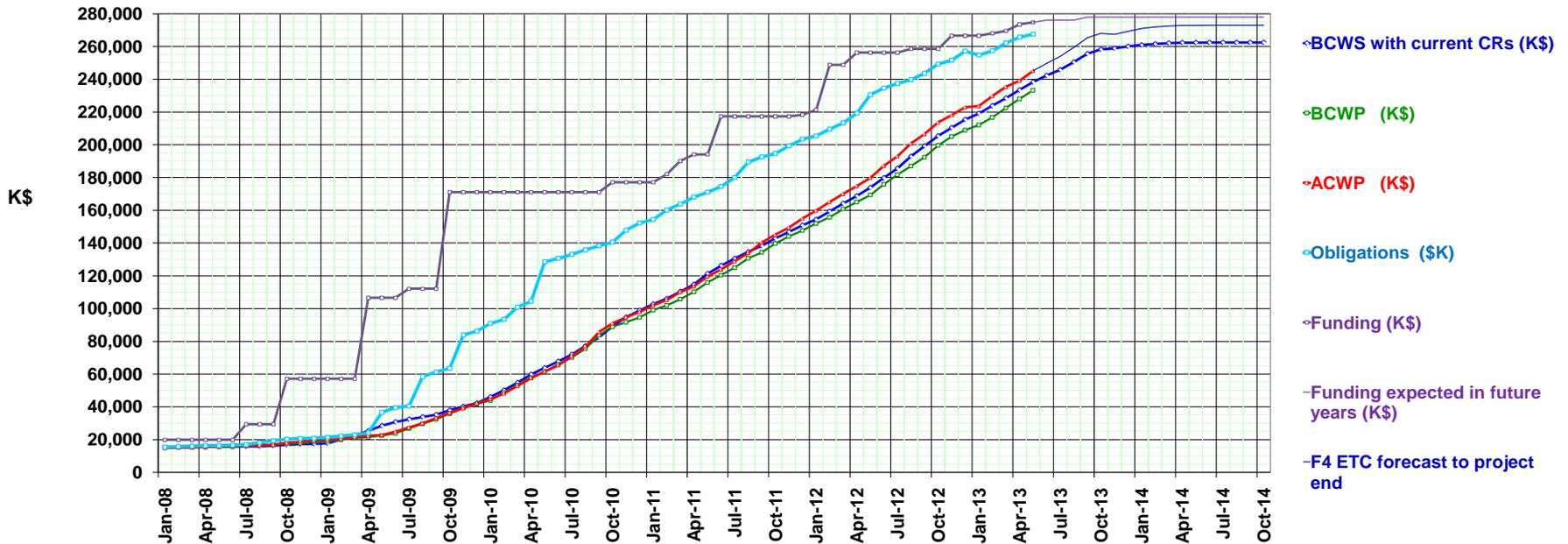


◆ Total Milestones completed

◆ Milestones uncompleted and behind schedule

EVMS Reporting Overview

- Basic data in BCWS, BCWP, ACWP, **Funding & Obligations** through **May 2013**
 - BCWS = Budgeted cost of work Scheduled
 - BCWP = Budgeted cost of work Performed
 - ACWP = Actual cost of work Performed
- Project is 88.9 % complete ($BCWP/BAC = 233.3 \text{ M\$} / 262.5 \text{ M\$}$)
 - BAC = Budget at Completion (using $EAC = 272.9$, get 85%)
- Project is 98.0 % obligated, ($Obligations/BAC = 267.5 / 272.9 \text{ EAC}$)
 - EAC = Estimate at Completion





ETC actions

- There were NO ETC changes in May
- Possible ETCs found, being watched, not enough info yet for a CR
 - Total is 182 K\$

WBS	Unincorporated Findings	Corrective Action	Estimated Cost (AY\$)	Comments
2.2	Tank lease at Riverdale needs to be extended from 1 Oct 2013 through February 2014 (5 months).	Extend contract	\$103,000	Riverdale storage tank contract funding ends in FY 2013 @ \$34.2K/month. This depends on the fill rate at Ash River: work-around in progress to increase fill rate by 20% and save 2 months rental.
2.2	ISO Tanker contract needs to be extended from 1 Aug 2013 through February 2014 (7 months).	Extend contract	\$38,500	Triple-G ISO pseudocumene tank contract ends in July 2013 @ \$7.7K/month. This depends on the fill rate at Ash River: work-around in progress to increase fill rate by 20% and save 2 months rental.
2.2	IU Chemistry technician contract needs to be extended from 1 Oct 2013 through Feb 2014 (5 months).	Extend contract	\$30,000	SOW with IU only covers through FY 2013. This is the QC person that verifies the tank blends at Wolf Lake. This depends on the fill rate at Ash River: work-around in progress to increase fill rate by 20% and save 2 months rental.
2.4	We may need more resin to produce the 21,504 extrusions needed for a complete Far Detector	The project is now investigating how much is needed and the cost.	\$0	Dependent on the final number of extrusions plus spares required. Factory's good modules, Extrutech's good extrusions, & WBS 2.9 definition of "good" all contribute. Zero \$ is possible with a top end being \$200,000. Risk # 532 captures this. Best estimate as of June 1 is ZERO.
2.5	Increase warehouse lease for storage of modules and components. This would replace the additional storage currently rented in Manitowoc.	Waiting for more detailed information from Ken	\$12,000	Additional space may be needed beyond the current July 2013 end date. Estimate 1 more month at \$12K/month, submitting a 60 days notice this month.
2.6	Additional money needed for LV power supply, rack protection system, DCS (slow controls) and labor	Waiting for more information from Leon	\$8,000	CR640 did have some of the changes, but they will probably be somewhat different, it included buying racks, but not the rack protection. We are using reclaimed racks instead, which will nearly offset the rack protection costs. It seems like the environmental and rack monitoring was not in the CR, so that is <8k\$.
2.7	Need to get an estimate on how much the DCM cabling for the Near Detector Underground will cost.	Waiting for more information from Leon	?	We need to hold off on this CR until we have more information. As of right now its difficult to decipher from NDOS documentation how much it would cost us.
2.8	Need to get a contract for transporting oil from Wolf Lake to Near Detector	Need a change request, but we don't yet know when we will need this transport	\$7,000	\$5/mi for a Bulk Transport certified driver and power unit. This would cover multiple trips between Wolf Lake and Fermilab. Reduced from \$13,000 because we will not transport from Fermilab to Ash River.
2.8	Install door frame for NDUG cavern	Kiewit	\$18,000	This includes the materials for the frame and the subcontractor labor to install it. CR will be produced in June and this will possibly have no cost for us due to left over funds.
2.8	Install door for NDUG cavern	FESS	\$15,000	This includes the materials for the fire door and the subcontractor labor to install it. CR will be produced in June and this will possibly have no cost for us due to left over funds.
2.8	Purchase materials for electronics infrastructure (i.e. unistrut, etc.) and labor	Decide how much we will need to purchase	\$20,000	Initial, rough estimate for miscellaneous support materials and welding labor.
2.8	Install Near Detector Scintillator Plumbing	Decide how much labor we will need	\$5,000	Initial, rough estimate for labor.
2.9	The material and labor for the north bookend at the Far Detector	Waiting for more information	\$50,000	We now have a better estimate and a very rough conceptual design. The engineer estimates \$50-60k. We've added \$20k to that rough estimate. However, the project owns excess box beam steel for pallets not made (blocks 29,30) and may be able to use that steel, estimate possible savings of 30K\$.
2.10	Project Controls staff being partially on	None	(\$125,000)	Since this is a LOE task we can't create a change request to add this to the contingency. Larger savings than estimated in April since two people have already migrated to other projects / jobs.
		Total Unincorporated Costs	\$181,500	