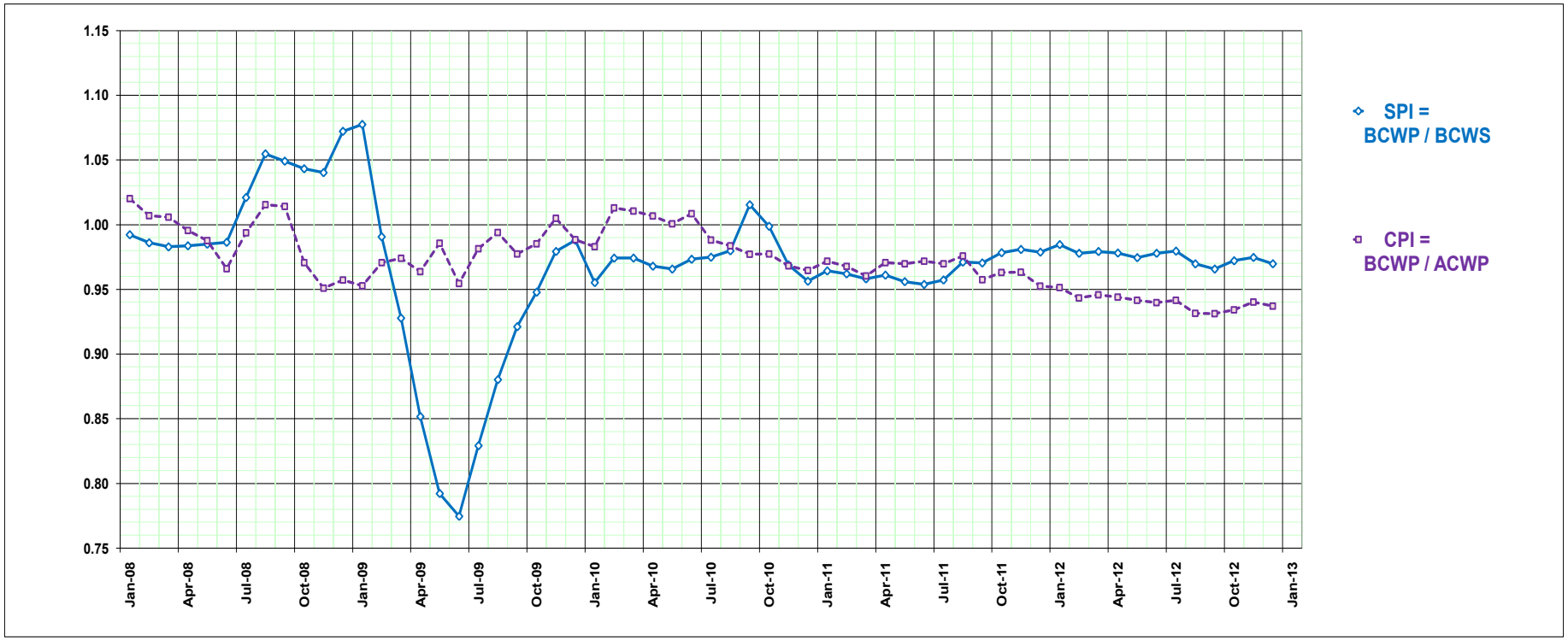
Project Financial and Schedule Status and Summary

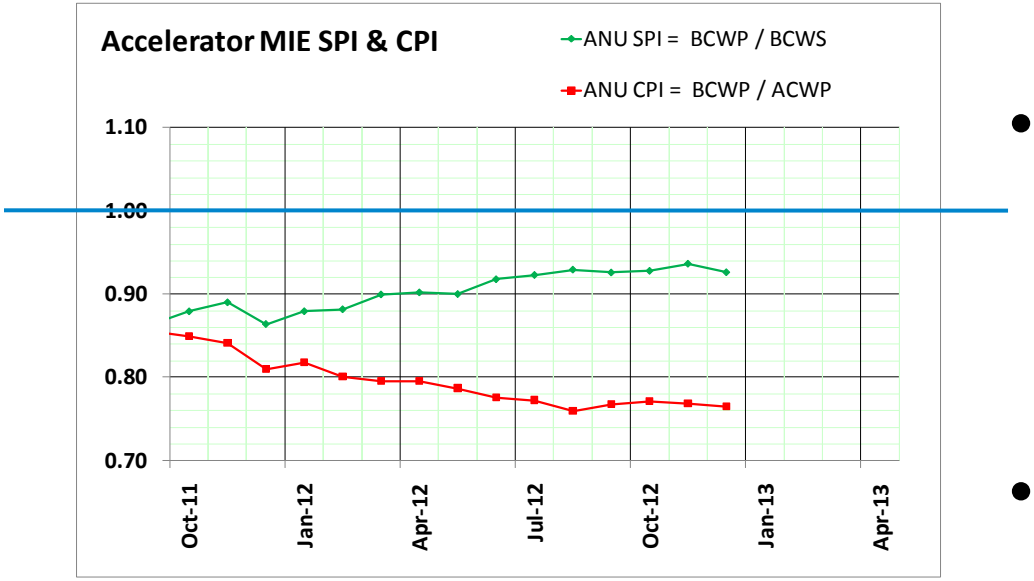
Greg Bock

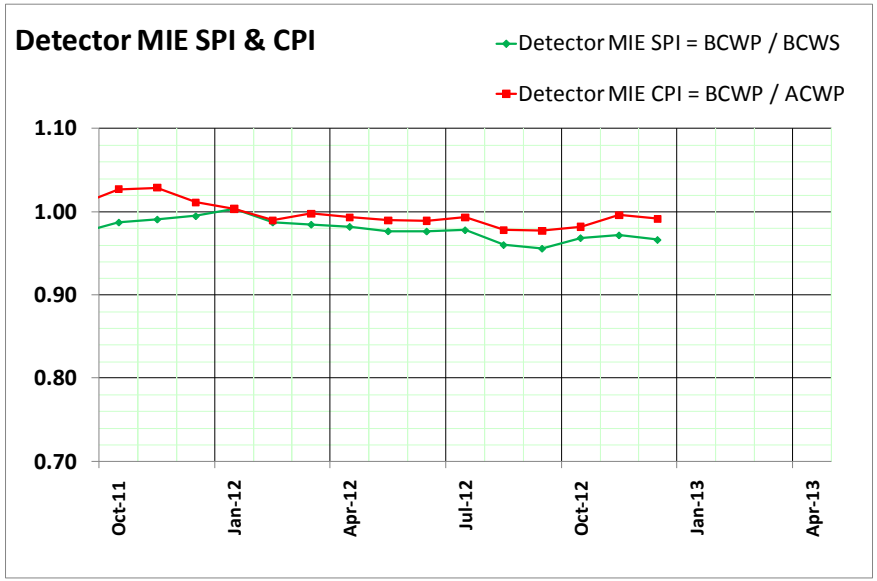
EVMS Reporting Overview

- Data now available through December 2012
  - SPI = **0.970**, compare to 0.975 in Nov, 0.972 in Oct, 0.966 in Sep
  - CPI = **0.937,** compare to 0.940 in Nov, 0.934 in Oct, 0.931 in Sep



SPI & CPI for Active Work





- ANU CPI has a long slide down to 0.76, then ~ flat in Sep – Dec
  - Installed Sept Change Request doubling the labor estimate on unstarted tasks
- Meanwhile the SPI trends up, then ~ flat in Sep – Dec around 0.93.

- Detector still relatively constant near 1.0 for both indices
- SPI=0.96, CPI=0.991 in Dec
- But see next sheets on CPR1

CPR1 Dec 2012

COST PERFORMANCE REPORT
FORMAT 1 - WORK BREAKDOWN STRUCTURE

CONTRACTOR	CONTRACT	PROGRAM	REPORT PERIOD
NAME	NAME	NAME	FROM 01-Dec-2012
Fermi National Accelerator Laboratory		NOvA project	TO 31-Dec-2012

PERFORMANCE DATA

CTC-FndSrc	CURRENT PERIOD					CUMULATIVE TO DATE					AT COMPLETION		
CTC[2]			ACTUAL					ACTUAL					
Results...	BUDGETED COST		COST	VARIANCE		BUDGETED COST		COST	VARIANCE			LATEST	
	WORK	WORK	WORK			WORK	WORK	WORK				REVISED	
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)
DA DOE-ACEL MIE													
2.0 ANU Construction													
Fully burdened AY$k	1,109	689	1,113	(420)	(424)	34,089	31,566	41,286	(2,523)	(9,721)	35,799	43,772	(7,973)
CTC-FndSrcTotals:	1,109	689	1,113	(420)	(424)	34,089	31,566	41,286	(2,523)	(9,721)	35,799	43,772	(7,973)
DC DOE-CA													
2.1 Site and Building													
Fully burdened AY$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	6,167	0	964	7,131	6,167	964
2.10 NOvA Project Management													
Fully burdened AY$k	161	161	212	0	(51)	9,396	9,396	8,315	0	1,081	11,206	10,125	1,081
2.2 Liquid Scintillator													
Fully burdened AY$k	132	48	46	(84)	2	10,493	10,099	10,236	(394)	(136)	21,120	21,580	(460)
2.3 WLS Fiber													
Fully burdened AY$k	371	213	213	(158)	(0)	12,819	13,028	13,276	209	(248)	13,039	13,287	(248)
2.4 PVC Extrusions													
Fully burdened AY$k	1,090	748	990	(343)	(242)	24,229	22,888	23,436	(1,341)	(547)	33,146	33,698	(551)
2.5 PVC Modules													
Fully burdened AY$k	560	712	328	151	384	14,771	14,788	12,593	17	2,195	22,651	20,447	2,204
2.6 Electronics													
Fully burdened AY$k	299	278	481	(20)	(203)	7,944	6,752	6,983	(1,191)	(231)	11,767	12,032	(265)
2.7 DAQ													
Fully burdened AY$k	16	113	80	97	33	4,177	3,493	4,253	(684)	(760)	4,490	5,219	(730)
2.8 Near Detector Assembly													
Fully burdened AY$k	750	363	758	(387)	(396)	8,296	9,089	10,012	793	(923)	12,362	13,285	(922)
2.9 Far Detector Assembly													
Fully burdened AY$k	550	550	611	(0)	(61)	14,296	13,025	15,388	(1,272)	(2,363)	22,435	24,870	(2,435)
CTC-FndSrcTotals:	3,929	3,185	3,719	(744)	(534)	113,552	109,689	110,658	(3,862)	(968)	159,347	160,709	(1,362)

Still negative, see Paul Derwent talk

Accruals being checked

CPR1 Dec 2012 continued

COST PERFORMANCE REPORT
FORMAT 1 - WORK BREAKDOW

CONTRACTOR	CONTRACT
NAME	NAME
Fermi National Accelerator Laboratory	

PERFORMANCE DATA

CTC-FndSrc CTC[2] Results... ITEM	CURRENT PERIOD BUDGETED COST WORK SCHEDULED	BUDGETED COST WORK PERFORMED	ACTUAL COST WORK PERFORMED	VARIANCE SCHEDULE	VARIANCE COST	CUMULATIVE TO DATE BUDGETED COST WORK SCHEDULED	BUDGETED COST WORK PERFORMED	ACTUAL COST WORK PERFORMED	VARIANCE SCHEDULE	VARIANCE COST	AT COMPLETION BUDGETED	LATEST REVISED 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$k	18	0	15	(18)	(15)	1,818	1,692	1,363	(125)	329	1,818	1,482	336
2.7 DAQ													
Fully burdened AY$k	0	0	0	0	0	0	0	0	0	0	192	192	0
CTC-FndSrcTotals:	18	0	15	(18)	(15)	1,818	1,692	1,363	(125)	329	2,010	1,674	336
DR DOE-POST CD-1 DET R&D													
1.1 Site and Building R&D													
Fully burdened AY$k	0	0	0	0	0	3,630	3,630	3,168	0	462	3,630	3,168	462
1.2 Liquid Scintillator R&D													
Fully burdened AY$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$k	0	0	0	0	0	383	383	559	0	(176)	383	559	(176)
CTC-FndSrcTotals:	0	0	0	0	0	15,067	15,067	19,347	0	(4,281)	15,067	19,347	(4,281)
DY DOE CD-0 TO CD-1 R&D													
1.9 Project Management R&D													
Fully burdened AY$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	5,056	3,874	4,846	(1,182)	(972)	215,410	208,900	222,942	(6,510)	(14,042)	263,108	275,790	(12,682)
Management Resrv.											14,892		
Total	5,056	3,874	4,846	(1,182)	(972)	215,410	208,900	222,942	(6,510)	(14,042)	278,000		

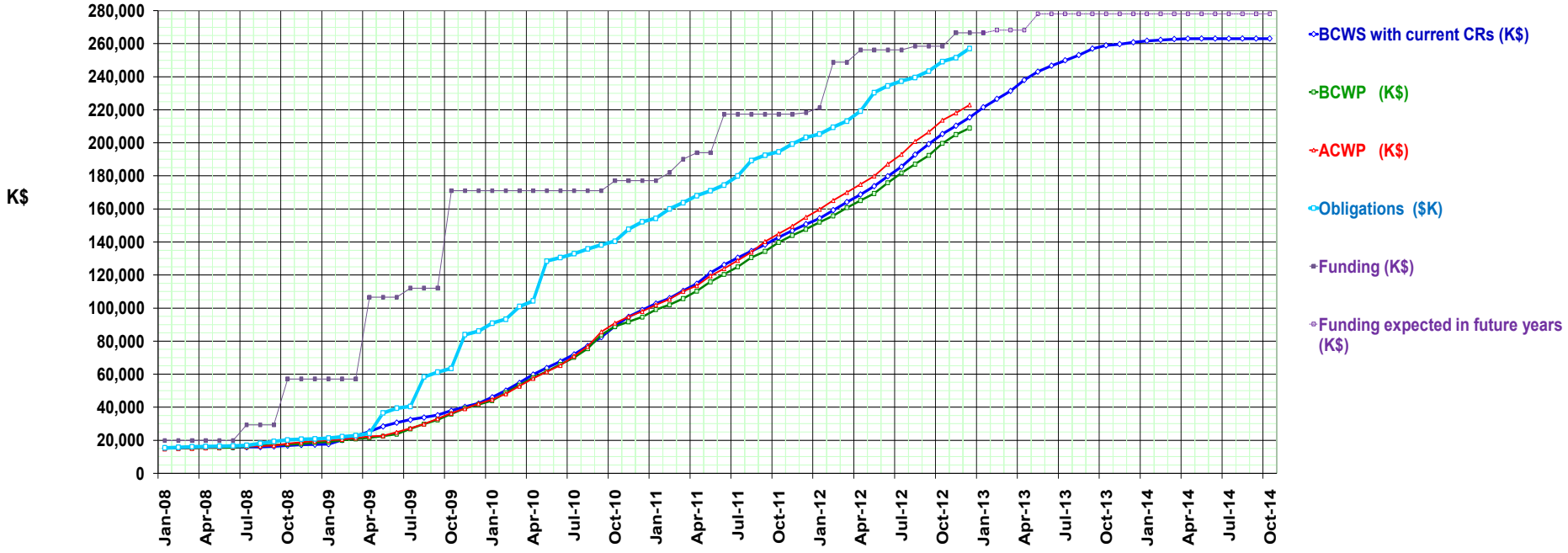
ANU OPS cost VAR ~ zero (some months >0 to offset MIE)

39% Accel, 59% Det

69% Accel, 30% Det R&D

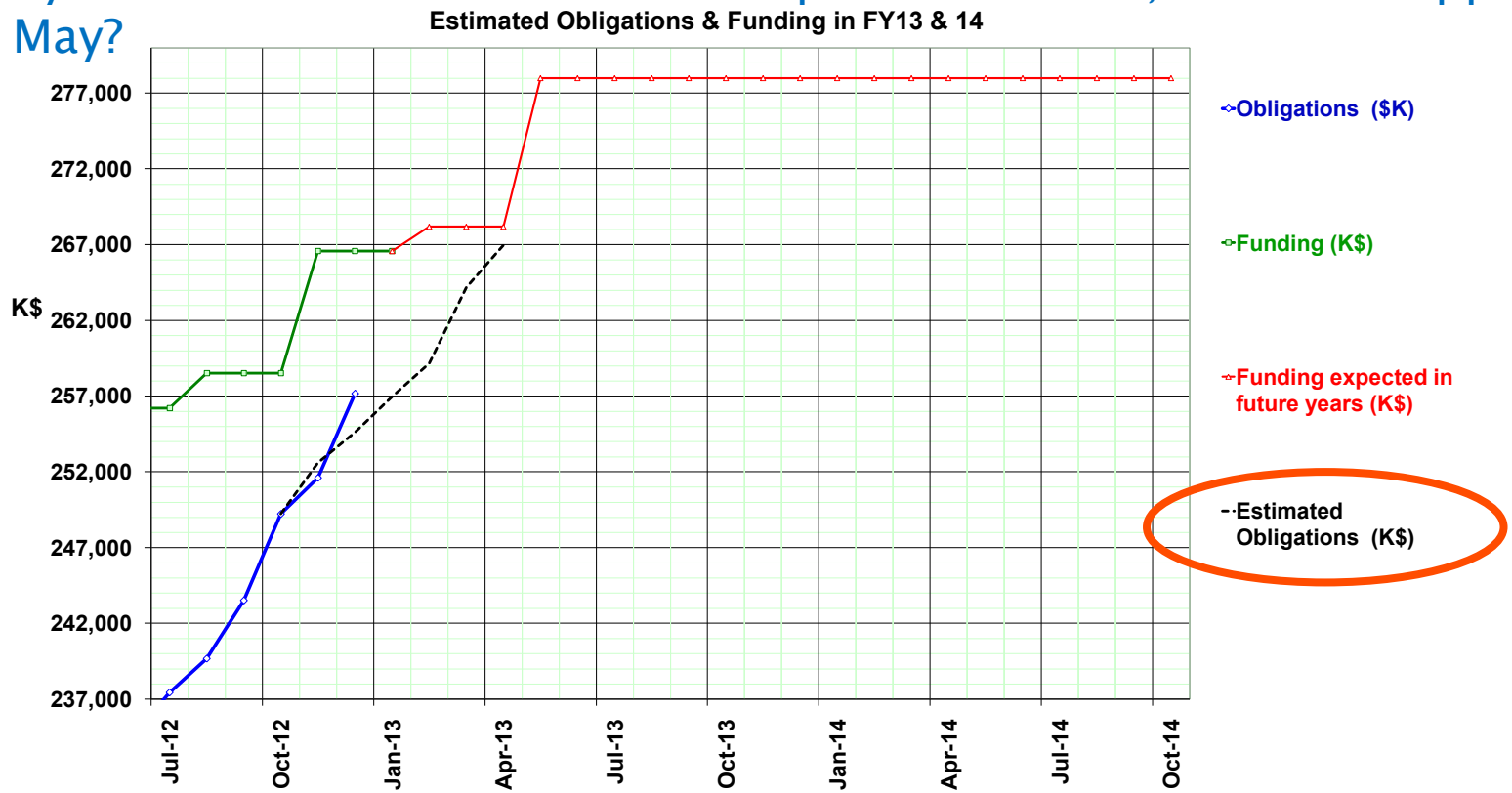
EVMS Reporting Overview

- Basic data in BCWS, BCWP, ACWP, **Funding** & **Obligations** through Dec 2012
  - BCWS = Budgeted cost of work Scheduled
  - BCWP = Budgeted cost of work Performed
  - ACWP = Actual cost of work Performed
- Project is 79.4 % complete (BCWP/BAC = 208.9 M$ / 263.1 M$)
  - BAC = Budget at Completion (using EAC, get 76%)
- Project is 97.8 % obligated, (Obligations/BAC = 257.2 / 263.1)
  - EAC = Estimate at Completion (using EAC, get 93%)



Potential Funding trouble ~ April 1

- 5/12 FY13 funding to date, 1/12 expected in Feb 2013
- Extrapolation of obligations (estimated, not exact) looks tight at April 1
- Already cutting back on Minnesota P.O.s to under 50% of FY13 need
  - Minneapolis Factory and Ash River Assembly
  - They will need "instant" infusion in April to continue, but funds appear in May?



AY$ by Level 2 with MIE/OPC split

	WBS	Items	NOvA Costs to Date ($M) as of 31-Dec-2012	NOvA 's Cost Estimate AY $M (for January 1, 2013 to project end)									
				Estimated Cost (with indirects)			Mgmt Reserve Estimate			Contingency %			Total
				M&S	Labor[1]	Total	M&S	Labor[1]	Total	M&S	Labor[1]	Total	Cost
TEC	2.0	Accelerator & NuMI Upgrades	$ 41.3	$ (1.2)	$ 3.6	$ 2.5	$ -	$ -	$ -	0%	0%	0%	$ 43.8
	2.1	Far Detector Site and Building	$ 6.2	$ -	$ -	$ -	$ -	$ -	$ -	0%	0%	0%	$ 6.2
	2.2	Liquid Scintillator	$ 10.2	$ 11.1	$ 0.2	$ 11.3	$ -	$ -	$ -	0%	0%	0%	$ 21.6
	2.3	Wave-Length-Shifting Fiber	$ 13.3	$ 0.0	$ 0.0	$ 0.0	$ -	$ -	$ -	0%	0%	0%	$ 13.3
	2.4	PVC Extrusions	$ 23.4	$ 9.8	$ 0.4	$ 10.3	$ -	$ -	$ -	0%	0%	0%	$ 33.7
	2.5	PVC Modules	$ 12.6	$ 2.8	$ 5.0	$ 7.9	$ -	$ -	$ -	0%	0%	0%	$ 20.4
	2.6	Electronics Production	$ 7.0	$ 4.0	$ 1.1	$ 5.0	$ -	$ -	$ -	0%	0%	0%	$ 12.0
	2.7	Data Acquisition System	$ 4.3	$ 0.6	$ 0.4	$ 1.0	$ -	$ -	$ -	0%	0%	0%	$ 5.2
	2.8	Near Detector Assembly	$ 10.0	$ 2.4	$ 0.8	$ 3.3	$ -	$ -	$ -	0%	0%	0%	$ 13.3
	2.9	Far Detector Assembly	$ 15.4	$ 4.1	$ 5.4	$ 9.5	$ -	$ -	$ -	0%	0%	0%	$ 24.9
	2.10	Project Management	$ 8.3	$ 0.1	$ 1.7	$ 1.8	$ -	$ -	$ -	0%	0%	0%	$ 10.1
		Subtotal Construction	**$ 151.9**	**$ 33.8**	**$ 18.7**	**$ 52.5**	**$ -**	**$ -**	**$ -**	**0%**	**0%**	**0%**	**$ 204.5**
OPC		**R&D - Accelerator**	$ 6.6	$ -	$ -	$ -	$ -	$ -	$ -	0%	0%	0%	$ 6.6
		R&D - Detector	$ 28.1	$ -	$ -	$ -	$ -	$ -	$ -	0%	0%	0%	$ 28.1
		Cooperative Agreement	$ 34.9	$ -	$ -	$ -	$ -	$ -	$ -	0%	0%	0%	$ 34.9
		Operating - Accelerator	$ 1.4	$ 0.0	$ 0.1	$ 0.1	$ -	$ -	$ -	0%	0%	0%	$ 1.5
		Operating - Detector	$ -	$ -	$ 0.2	$ 0.2	$ -	$ -	$ -	0%	0%	0%	$ 0.2
		Total OPC:	**$ 71.0**	**$ 0.0**	**$ 0.3**	**$ 0.3**	**$ -**	**$ -**	**$ -**	**0%**	**0%**	**0%**	**$ 71.3**
		Contingency											**$ 2.2**
		TPC:	**$ 222.9**	**$ 33.8**	**$ 19.0**	**$ 52.8**	**$ -**	**$ -**	**$ 2.210**	**0%**	**0%**	**4%**	**$ 278.000**

- **2.210 M$ Contingency**
  - Almost all recommended cost estimate changes have been inserted into Open Plan and Cobra, more on this coming later in the talk
- **2.210 M$ is 4.2% of remaining work** (2.210 / 52.8)
- **2.210 M$ is 11.9% of remaining Obligations**
  - 275.790 (EAC) – 257.176 obligated = 18.614 M$ yet to obligate

Contingency Draws in Oct – Dec 2012

- See also next page

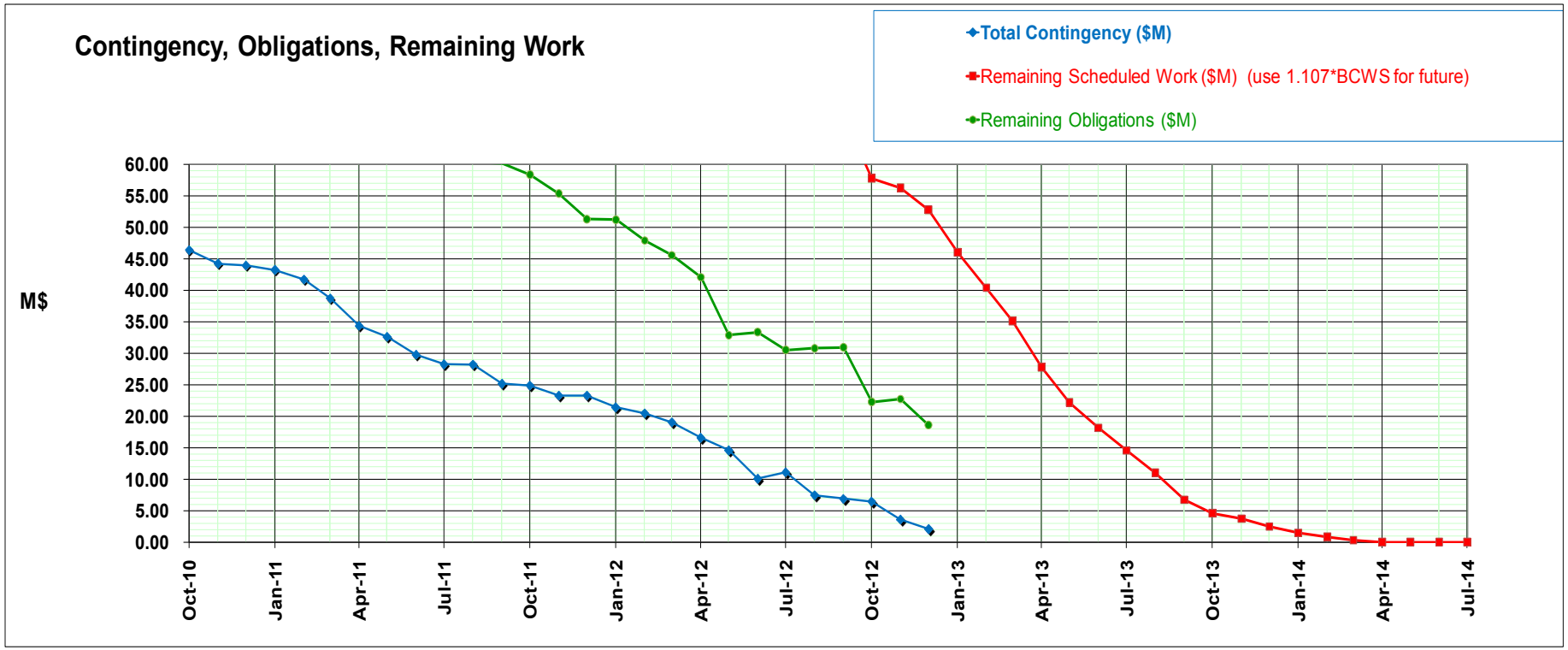
Identified Contingency Draws incorporated into the Project				
	since September 30 status reported at the 20Nov2012 Mini-Review			
	(follows the table in Appendix B of the McCluskey -Directorate Review)			
	(items in red were in the McCluskey table)			
	(items in **BOLD red** were in J. Cooper's talk at the 20Nov IPR			
WBS		**Cost (K$)**	**Change Request or ETC**	**When Completed?**
2.0 ANU		-	-	-
2.1 Far Site & Building		-	-	-
2.2 Liquid Scintillator	Increase cost based on Oct 31 price of index Lubrication Oil	**326.6**	**ETC**	**Oct-12**
2.3 WLS Fiber	Purchase 387 km additional fiber & QA	**228.6**	**CR-584**	**Oct-12**
2.4 PVC Extrusions	**PVC resin purchase to complete 28 blocks**	**3,008.1**	**CR-577**	**Nov-12**
2.5 PVC Modules	Extend rental space at Minneapolis factory	**33.0**	**CR-583**	**Nov-12**
	Purchase gantry cranes for sanding operation	**35.7**	**CR-587**	**Nov-12**
	Additional hardware for QA system	**40.2**	**CR-588**	**Nov-12**
	Module sanding (labor) at Minneapolis	**381.2**	**CR-589**	**Nov-12**
	Train students beyond Oct 2013			**Jan-13**
	Add to QA/QC tracking & testing after Aug 2013			**Jan-13**
	Add Near Detector module construction & shipping tasks	**427.8**	**CR-600**	**Dec-12**
	Add production tooling for Near Detector construction task	**15.7**	**CR-598**	**Dec-12**
	Add management costs after Aug 2013			**Jan-13**

Contingency Draws in Oct – Dec 2012

- Second page with summary

WBS		Cost (K$)	Change Request or ETC	When Completed?
2.6 Electronics	Assemble dry gas system parts at Fermilab	42.7	CR-592	Nov-12
	Install dry gas system at Ash River	31.3	CR-591	Nov-12
	Add additional heat sink assembly & testing	31.5	CR-576	Dec-12
	Update the APD cost to vendor final cost	included above	CR-576	Dec-12
2.7 DAQ				
2.8 Near Assembly	Include cost of technician oversight of Collaboration labor			Jan-13
2.9 Far Assembly	Add rental heater for Scintillator trailers	8.1	CR-590	Nov-12
	Far Detector installation labor underestimated by 10%			
	Detector structure monitoring equipment	132.4		
	Database inventory system installation			
	Increased cost for conversion of Block Pivoter to North Bookend	52.8	CR-601	Dec-12
2.10 Proj Management	Add additional FY14 resources to the Project Office			Jan-13
	Set Fermilab SWF rates for FY13 assuming no TSCS overhead charge	36.6	CR-594	Oct-12
	Above list ignores CRs with value under 2K$			
	Sum =	4,832.4		
	Estimated amount to come in January =	801.0		

Contingency History



- This illustrates the difference between Remaining Obligations and Remaining Work.
- We are still generating additional contingency by removing unneeded scope, buyback of capital facilities, etc see next two slides

Contingency Generating Actions Oct – Jan

WBS		Cost (K$)	Change Request or ETC	When Completed?
2.0 ANU	Moved Pump Vault 9 work (general infrastructure task) off the project schedule before September 30, **but we will see the move of the actual costs in Jan 2013**	(233.2)	CR-586	Oct-12
	Stopped work charged to NOvA for RF Cavity #3 (spare one still intended for installation in current shutdown, so not on our Special Process Spares list) on Jan 7, 2013	(253.0)		Jan-13
2.1 Far Site & Building				
2.2 Liquid Scintillator	Index price of Lubrication Oil dropped in January. This means costs to NOvA drop from our current assumption of $4.12/gallon to $3.80/gallon. Integrated over the remaining 1.8 M gallons to purchase, this is an estimated cost savings of 576 K$	(576.0)	ETC	Jan-13
2.3 WLS Fiber				
2.4 PVC Extrusions				
2.5 PVC Modules				
2.6 Electronics				
2.7 DAQ				
2.8 Near Assembly	Collaboration provides labor to outfit Near Detector	(102.0)		Jan-13
	PPD will provide technician oversight of Near Detector outfitting by the Collaboration. This will provide the training of PPD's underground detector maintenance team for NOvA.	(73.0)		Jan-13
	As part of decomissioning the prototype Near Detector in the PPD building, PPD will remove the prototype muon catcher steel and provide it free to NOvA for use in the final Near Detector	(49.0)		ongoing
2.9 Far Assembly	Decrease for elimination of expansion tanks for scintillator filling for tasks in the past	(78.4)	ETC	Nov-12
	Decrease for elimination of expansion tanks for scintillator filling for tasks in the future	(22.4)	CR-595	Nov-12
	Eliminate disassembly of FHEP (PPD takes this task as a clean-up of their space)	(118.7)	CR-596	Nov-12
2.10 Proj Management	TSCS rebate for FY12	not allowed		Jan-13
	TSCS removed in NOvA rates for FY13 and beyond, but rebate on costs in FY13 (Oct-Jan) incl G&A still to come	(179.5)		Jan-2013 ?
	SUM:	**(1,685.3)**		
	Amount coming in January:	(1,465.7)		

Cost Reduction Opportunities, Jan-Feb

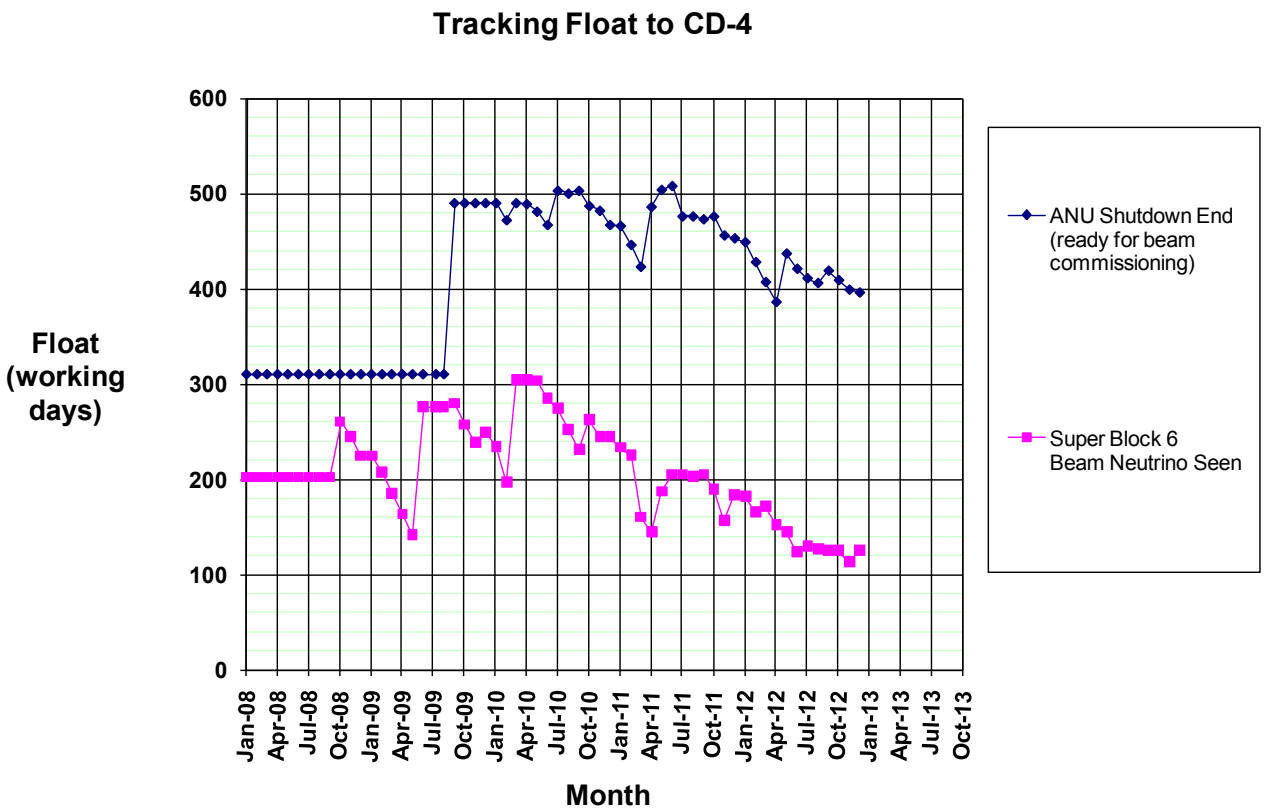
Cost Reduction Opportunities under consideration				
WBS		**Cost (K$)**	**Change Request or ETC**	**When Completed?**
2.0 ANU	Move charges off-project for all work charged to NOvA for RF Cavity #3 prior to Jan 7, 2013	**(1289.1)**		**Jan -13 ?**
	Buy the 4th RF cavity inner shell damaged at NWA from NOvA	**(80.0)**		**?**
	Move cost for Material Handling of DI Bottle Shield assemblies (steel caskets), this is an operating concern and not NOvA-specific	**(67.0)**		**?**
2.1 Far Site & Building	Move the NOvA prototype Near Detector building on the surface costs off-project to GPP, building to have a wider use for the Particle Physics Division	**(1541.0)**		**Jan -13 ?**
2.2 Liquid Scintillator				
2.3 WLS Fiber				
2.4 PVC Extrusions				
2.5 PVC Modules				
2.6 Electronics				
2.7 DAQ				
2.8 Near Assembly				
2.9 Far Assembly	Spare hydraulic equipment from the FHEP could be moved into Special Process Spares (D.Pushka email 1/16/13)	**(309.6)**		**Nov-13 ?**
2.10 Proj Management				
	SUM:	**(3286.7)**		

NOvA December 2012 Budget Status

• TPC	$ 278.0 M
• ETC	$ 52.8 M
• Remaining Budget	$ 55.1 M
• Contingency	$ 2.2 M
• Anticipated additions	$ 3.3 M

Schedule Contingency: Float to CD-4

- **ANU lost 3 days of float in December -- Now at 396 days**
  - Kicker and RF schedules are still the real drivers for the end of the shutdown
  - Now forecasting the NOvA shutdown work to extend until May 1, 2013
- **The Detector gained 12 days of float in December -- Now at 125 days**
  - This is driven by APD delivery & testing of APDs for the 28th block.
    - 3 days of float between filling last di-block and start of APD installation last di-block.
    - Now assuming 175 APDs/ month delivered



Schedule Contingency Summary

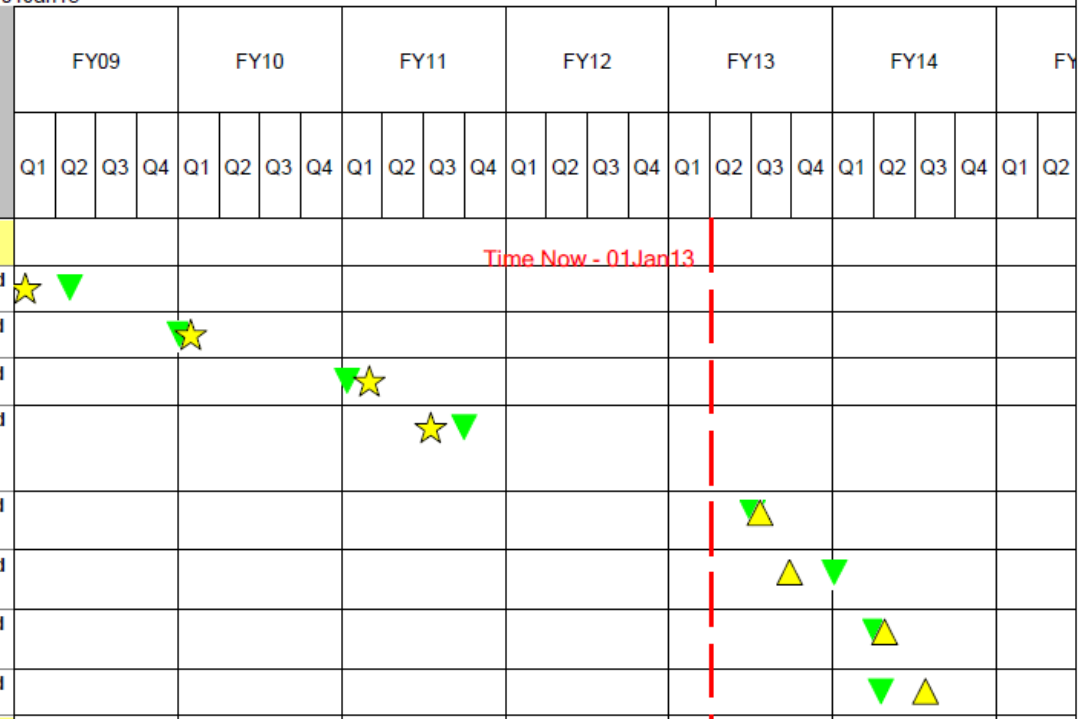
- As of Dec 30, we have 125 working days float to CD-4
- As of Dec 30, we have 23 months to CD-4 = 479 working days
  - CD-4 is end of November, 2014
- Schedule Contingency is 125 / (479 - 125) days = 35%.
  - Up from 29% in November

Milestones held by DOE – OHEP

Nova_Project
Milestone Gantt Chart
Nova_Milestones_L1_L2 = [BOOL.T] and ESDATE >= {10/1/08}
December 2012 Status
TimeNow: 01Jan13

Baseline Date ▼
Completed Milestone ☆
Current Forecast Date △

Activity Desc.	Baseline Date	Forecast / Actual Date	Baseline Variance
L.1 -- DOE - OHEP Associate Director Milestone			
CD-3a	02Feb09	24Oct08	63d
CD-3b	01Oct09	29Oct09	-21d
IPND ready to take data	11Oct10	30Nov10	-35d
Beneficial occupancy (Substantial completion) - far detector building construction	30Jun11	13Apr11	54d
Beneficial occupancy of near detector cavern	01Apr13	17Apr13	-13d
NuMI neutrino event observed in Superblock 1	01Oct13	26Jun13	66d
Near detector completed and ready to operate	02Jan14	22Jan14	-14d
14 kt installation completed	16Jan14	22Apr14	-67d



In a long two year gap with no L1 milestones, next is April 2013

Current forecast for Near Cavern Beneficial Occupancy is May 2013.

DOE – Fed Project Director

December 2012 Status
TimeNow: 01Jan13

Baseline Date ▼
Completed Milestone ☆
Current Forecast Date △

Activity Desc.	Baseline Date	Forecast / Actual Date	Baseline Variance
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	12Sep13	-148d
Far Detector extrusions for 14kt completed	14May13	16Sep13	-86d
MI Ring Modifications Ready for Beam Transport	01Jul13	16Apr13	52d
RR Modifications Ready for Beam Transport	01Jul13	01May13	41d
Ready to Commission Upgrades with Medium Energy Neutrino Beam	01Jul13	01May13	41d
Decision point for buying additional APDs	29Jul13	02Aug13	-4d

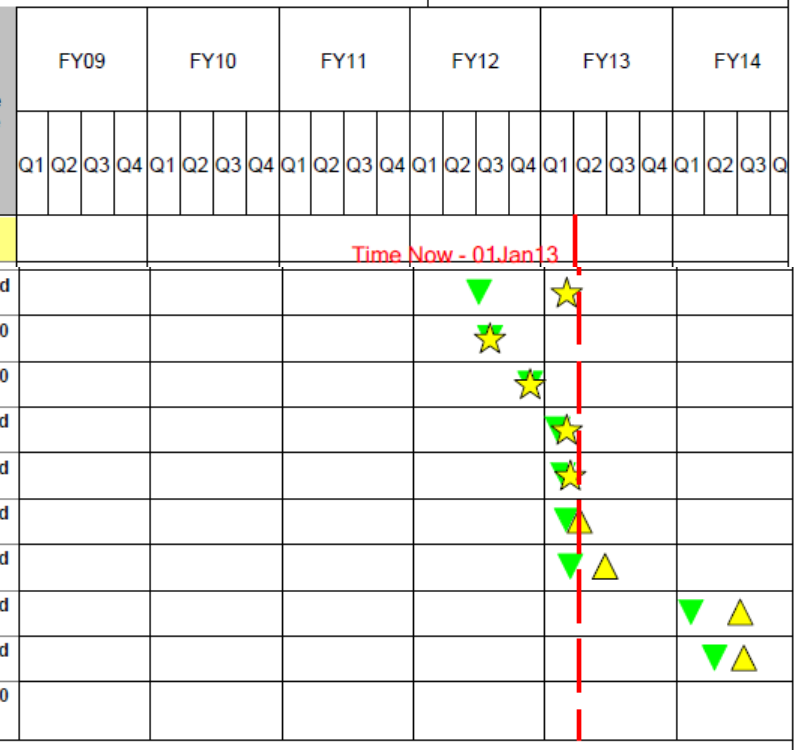
Not planning to buy "additional" except possibly Scint.

Milestones held by Directorate

Nova_Project
Milestone Gantt Chart
Milestone_L3_L4 = [BOOL.T] and (ESDATE >= {10/01/08} or BSDATE >= {10/01/08}) and BFDATE NOT_EMPTY
December 2012 Status
TimeNow: 01Jan13

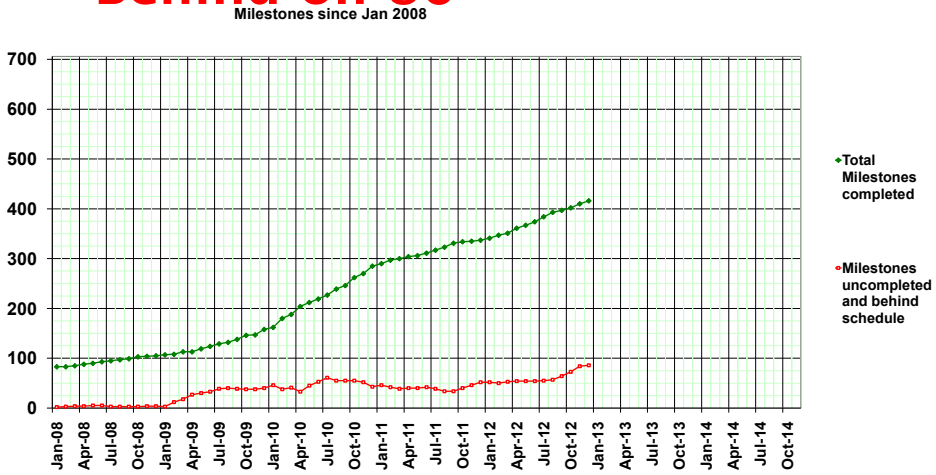
Baseline Date ▼
Completed Milestone ☆
Current Forecast Date △

Activity ID	Activity Desc.	Baseline Date	Forecast or Actual Date	Baseline Variance
L.3 -- Fermilab Associate Director Milestone				
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	02Jan13	-19d
2.0.1.2.8.5	RR All Kicker Systems Ready for Beam	10Dec12	12Mar13	-61d
2.2.4.3.80	Scintillator production for 14 kt completed	08Nov13	26Mar14	-91d
2.9.4.5.37	Superblock 6 outfitting completed	14Jan14	02Apr14	-55d
2.10.9.27	FNAL/Nova Internal Operational Readiness Review and CD-4 Readiness Review Assessment Completed	02Sep14	02Sep14	0



Analysis of all milestones

- **416 of 706 now complete**
  - **6 completed in December**
- **Behind on 86**



Cumulative Tally as of 01Jan13
For Milestone Dates >= 12Apr07

Count of Milestone Description		
Computed Status	Milestone Level	Total
Complete	L.0	2
	L.1	7
	L.2	25
	L.3	23
	L.4	45
	L.5	314
Complete Total		416
Planned	L.0	1
	L.1	4
	L.2	9
	L.3	5
	L.4	37
	L.5	234
Planned Total		290
Grand Total		706

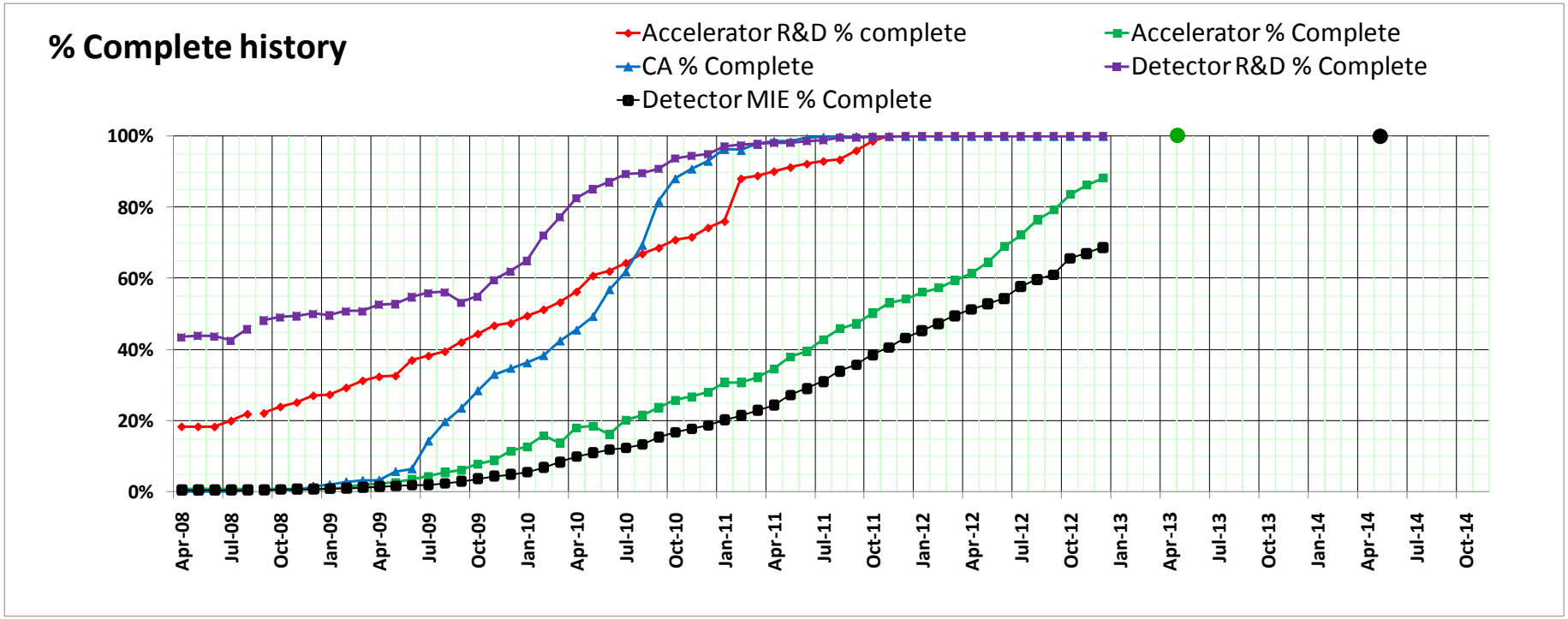
Slipping/Missed Milestones as of 01Jan13

Count of Milestone Description		
Computed Status	Milestone Level	Total
Planned	L.3	2
	L.4	11
	L.5	73
Planned Total		86

Milestones Completed in December 2012

Count of Milestone Description		
Computed Status	Milestone Level	Total
Complete	L.3	1
	L.4	2
	L.5	3
Complete Total		6

% Complete history for the 5 Main parts of the Project



- ANU at 88%, to be complete by ~ May 2013
- Detector at 69%, to be complete by ~ May 2014
- Building & Detector R&D & ANU R&D are all done

Nova – ETC committee

(P. Mantsch, T.J. Sarlina, H. Brown)

Objectives:

- Update the BOEs and ETC for each of the level 2 tasks.
- Examine remaining risks with L2 managers and update the risk register as needed.
- A monthly updated ETC
- Follow up findings and recommendations of the Internal Nova Assessment Committee of DEC 2012.

Status:

- Meetings with nine key L2 and L3 managers – first round of meetings to be completed within a week.
- BOE's being updated.
- Risks being reevaluated.
- Written reports to John Cooper and Greg Bock.

Status of Recommendations from McCluskey Report

Recommendation (drawn from December Report)	Planned Action	Status	Responsibility	Estimated Completion
Perform a bottoms-up re-estimate of all work to go. This should be complete by January for use in conjunction with December monthly reporting.	L2 Managers will review and update as needed the BOE's for work to go.	In progress, expect completion by Feb 15	Cooper/Mantsch/Brown/ Sarlina	15-Feb-13
The project incorporate the 'identified contingency draws' that come out of the re-estimate into the base budget.	Following above re-estimates incorporate into the base EAC	Planned for completion in February	Cooper	15-Feb-13
The project should maintain the ETC with a transparent assessment each month by L2 managers of any work that is not in their budget and to communicate this to the Project Office for inclusion in the monthly reports. This should start with December monthly report, expected out in January.	Discuss with each L2 Manager monthly any needs in the ETC beyond the budget, and prepare the documentation for review and approval.	In progress,	Cooper/Mantsch	15-Feb-13
Discontinue managing contingency activity by activity on a percentage basis. Confirm with managers that they need to manage to their base budget.	This change has been implemented and is being remphasized to the staff.	**Complete**. Done verbally and by email to all L2s.	Cooper	**16-Jan-13**
The project, with stakeholders as appropriate, validate the list of risks and their cost values identified in this review, update as necessary. Maintain this list by reviewing it monthly with the project team. Use it to manage contingency to go on the project.	Project management staff together with an outside senior manager from the Laboratory will interview L2 managers monthly	In progress, 4 L2s done as of 16 Jan 2013.	Mantsch	Reviews started January and continue monthly
The project and Fermilab management assess the list of opportunities to see If work should be recategorized, scope reduced, or performed by the NOvA science collaboration.	Assess the feasability of items in the list and include time triggers for all items that might be implemented.	In progress, see worksheet	Cooper/Lindgren/Bock	28-Jan-13
The project work with the Federal Project Director, OPA, and Fermilab PSS to see how variance thresholds can be utilized to be more reflective of current performance and not driven by past performance either for a short term or for the rest of the project duration.	Work with the project controls staff, the Fermilab Office of Project Management, and DOE to see whether changes in the reporting process could improve information flow.	Discussions have been initiated	Hoffer/Carolan/Webster	15-Feb-13
Fermilab management consider providing outside senior management support to the Project Manager to review the monthly ETC and risk updating prior to inclusion in the monthly report.	Provide outside oversight to work with project team to review ETC and risks on a monthly basis. A second senior manager will continue to asess technical risks.	**Complete:** Added Mantsch and Bock	Mantsch/Lindgren	**9-Jan-13**
Fermilab management assess in February (after January monthly reporting) if these actions are improving timely communication of cost status as well as understanding of contingency on remaining work.	Provide an assessment of the effectiveness of these corrective actions and the state of the project.	Planned for February	Bock	25-Feb-13

Status of Recommendations from 20 Nov 2012 Mini-Review

- Present the results of the internal review committee concerning contingency
  - **COMPLETED December 14, 2012.**

- Present a plan "to get to CD-4" to HEP by December 14,2012.
  - **COMPLETED December 14, 2012.**

- Schedule a mini-review in February, 2013.
  - Discussions in progress.

Summary comments

- Project is in very good technical shape (Cosmic rays in March and Fermilab neutrinos in June, risks retiring), but poor financial shape
- On the financial front:
  - Since the November reviews, concentrated on getting the EAC right
  - ANU work nearing end and has a recent (January) ETC review
  - APD's are arriving, module and assembly work continues on schedule. Filling and outfitting underway and approaching scheduled rate .
  - Since review reporting date, more than $20M of work accomplished.
  - Added management and ETC reviews
  - Recommendations from reviews are completed or underway
  - Expect improved numbers in February, along with an overall assessment
  - Risks that are uppermost in our minds now:
    - Someone gets hurt or something gets broken
    - Our tracking of costs is misleading, i.e.late or missing accruals, etc
    - Our ETC does not stay current
    - Funding arrives too late
    - We do not manage an efficient project closeout as we complete tasks