Project Status

John Cooper
Project Manager

Technical Status

(I will cover all aspects, but 5 additional speakers will have details on 4 WBS items)

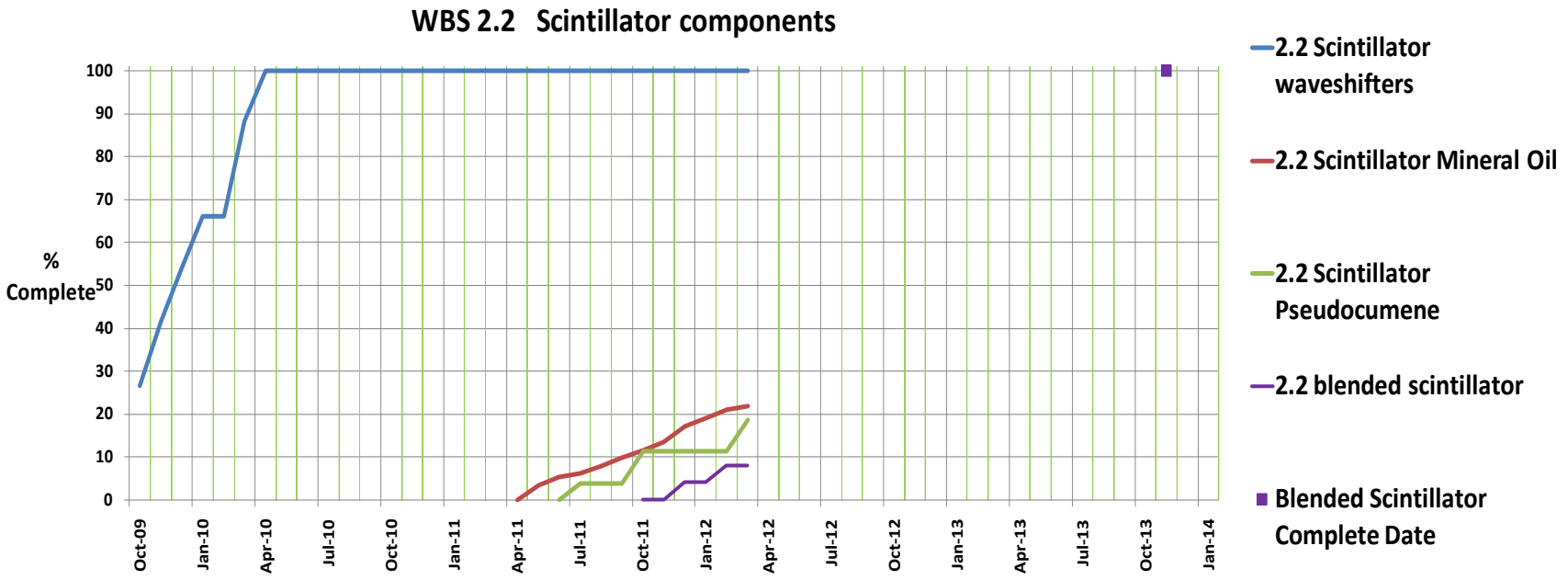
- WBS 2.0 Accelerator and NuMI Upgrades (Paul Derwent)
  - Shutdown has started and will finish in 12 months.
- WBS 2.1 Site and Buildings
  - Ash River Building is done. Dedication was on April 27, 2012.
- WBS 2.2 Scintillator
- WBS 2.3 Waveshifting Fiber
- WBS 2.4 PVC Extrusions
- WBS 2.5 PVC Modules (Ken Heller)
- WBS 2.6 Electronics & 2.7 Data Acquisition (Leon Mualem)
- WBS 2.9 Far Detector Assembly (Pat Lukens) and Oufitting (Rick Tesarek)
- WBS 2.8 Near Detector Cavern and Detector

WBS 2.2 Scintillator

- We need 2.8 M gallons of scintillator
  - 2.65 M gallons of mineral oil, delivered by railcar from Louisiana
  - 155,000 gallons of pseudocumene, delivered by ISO tankcar from China
  - Waveshifters (we own enough for the full experiment)
- We do blends of Fluor (pseudocumene + waveshifters) then mix that in a separate tank with mineral oil to make scintillator at Wolf Lake, Indiana
  - 5% Fluor Mix waveshifter powders into 300 gallons of pseudocumene to start
  - Then add into 6,000 gallon tank of pseudocumeme
  - Then add into 120,000 gallon tank of mineral oil & blend with pulsed Nitrogen
  - 5 % pseudocumene + 95% mineral oil

WBS 2.2 Scintillator

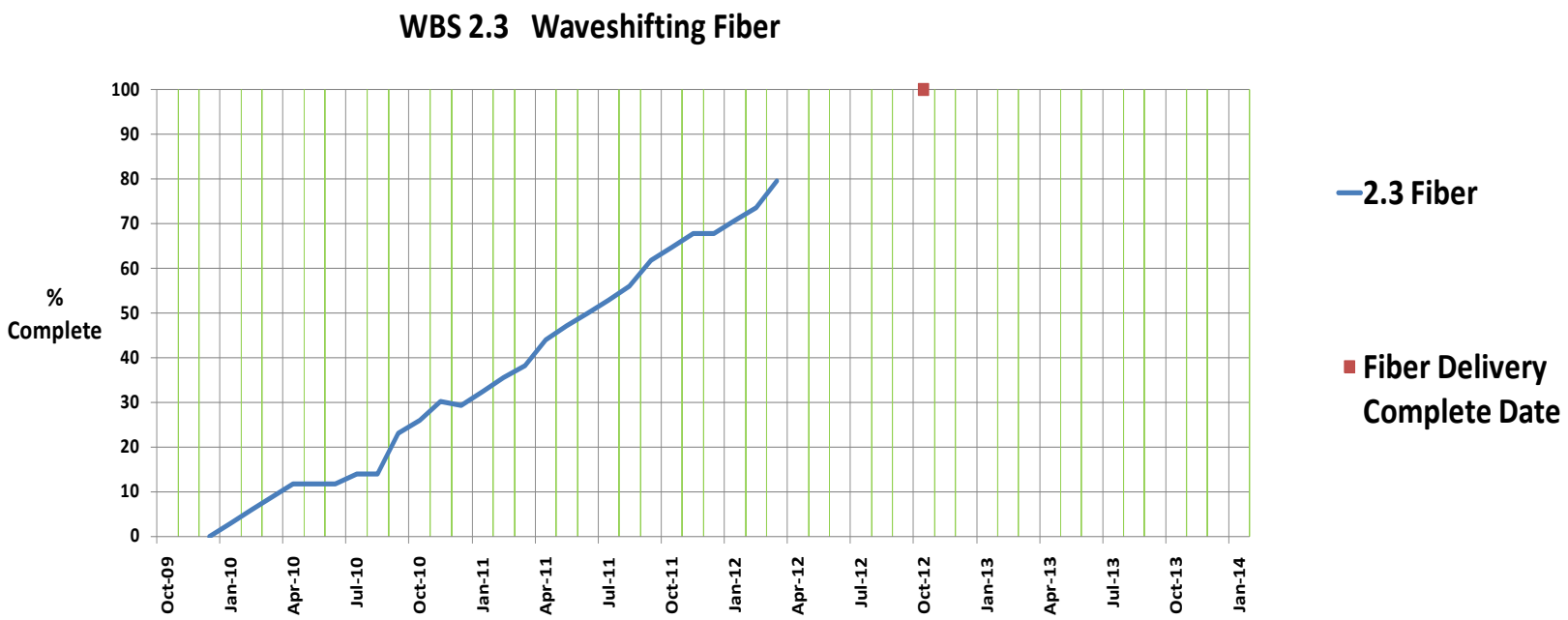
- We blended the first 115,564 gallons of scintillator in December
  - Our two scintillator storage tanks at Wolf Lake are now full
    - **Both meet the NOvA specifications for light transmission & for light output,** samples from top and bottom of 120,000 gallon tanks
  - We have 3 pseudocumene tankers set aside at Lockport, IL as a buffer
  - We have a 500,000 gallon mineral oil buffer tank in Riverdale IL, now nearly full
  - Waiting for shipments to Ash River before we can proceed



Scintillator prices

WBS 2.3 Fiber

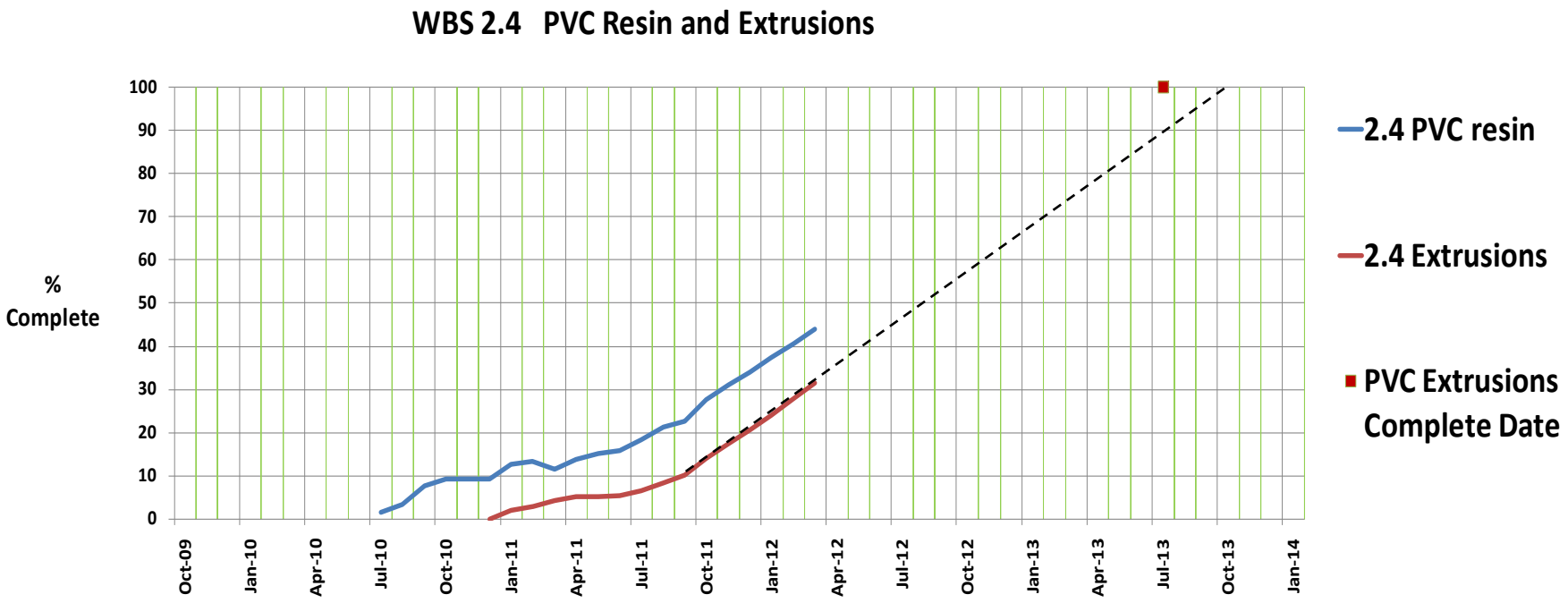
- We need 12,183 km of wavelength shifting fiber
- **We have 9,690 km of fiber or 80% of the total needed.**
  - Still on schedule to complete as planned.
- We still need to know the waste rate in the Minneapolis factory to see if we need to buy more fiber than in the current purchase order.
  - Need to exercise our option in by July 2012 (before they stop production)



Fiber Price

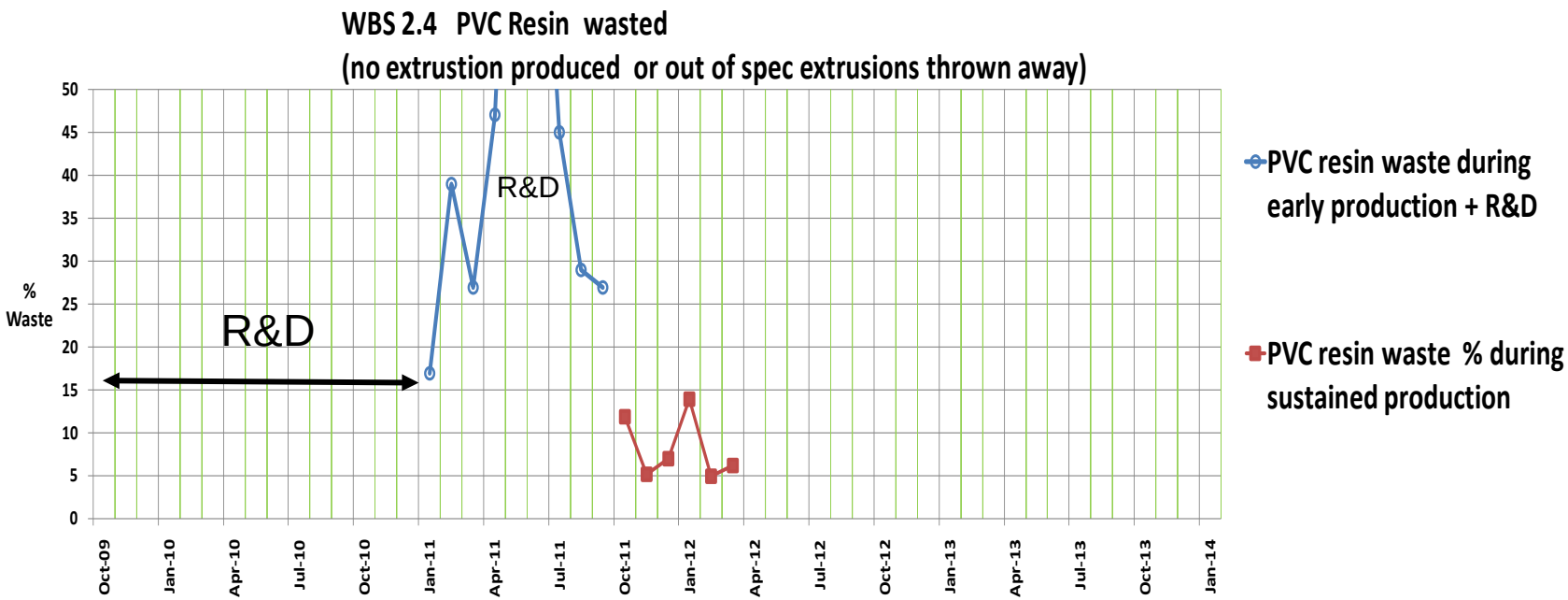
WBS 2.4 PVC Extrusions

- We have 7,119 good extrusions in hand of the 22,272 required
- **So we have 32% of the total needed.**
- 6 x 24 operations continue at the vendor
- Continuing at this rate implies may finish ~ 3-4 months later than planned
  - Still evaluating production rate, searching for work-arounds if more rate is needed.



PVC scrap rate

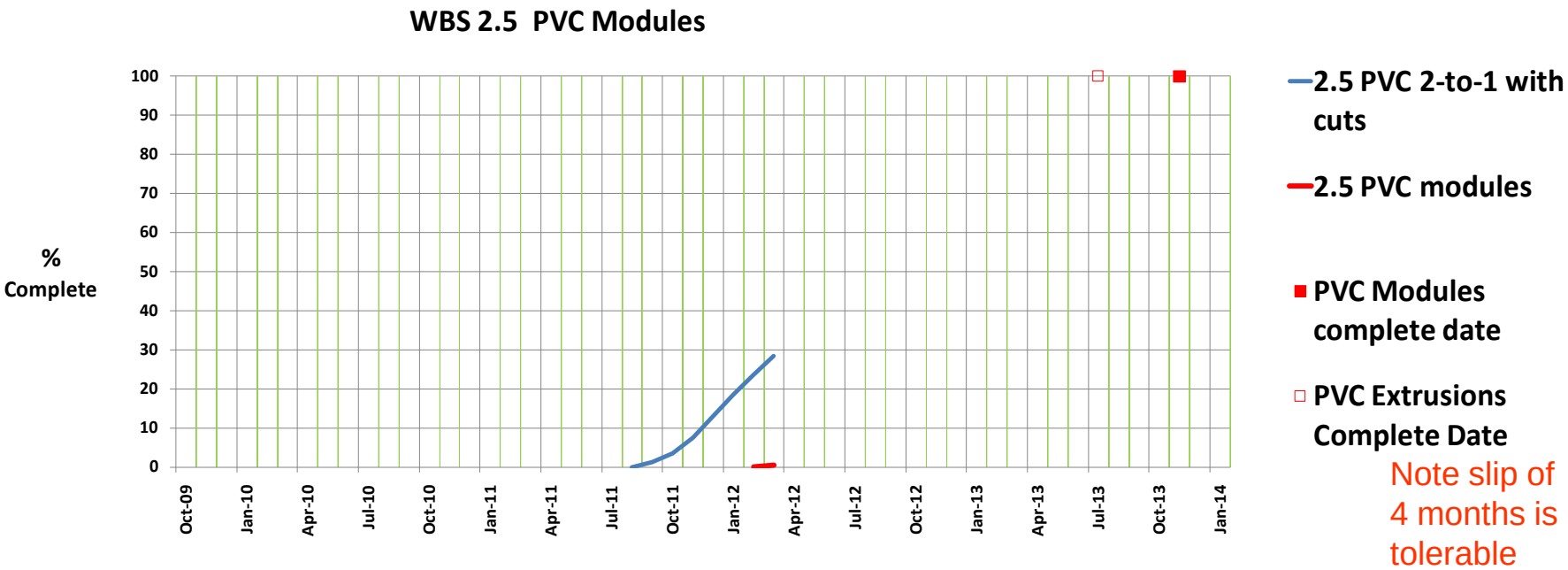
- Our schedule assumes a 6% rate & that's about what we see since production started in October 2012.
  - This does not include 2% due to 6" QA samples at end of each 51' extrusion
- Have saved about 1/8th of the 6% "waste" for the Near Detector
  - Only a couple of parameters out of spec & OK for less vertically challenged detector



PVC prices

WBS 2.5 PVC Modules

- Module assembly at Minnesota has been divided into two parts:
  - 2–to–1 assembly of 2 extrusions into one module + cut to length
  - Final assembly with fiber, endcap, manifold, & all seals + pressure test
    - Not all these parts were available until recently, so our work-around was to have 2 steps
- **3170 2-to-1s are done out of 11,136 needed. We have 29%.**
- 44 good final assembly modules are done out of 11,136 needed. (0.4%)

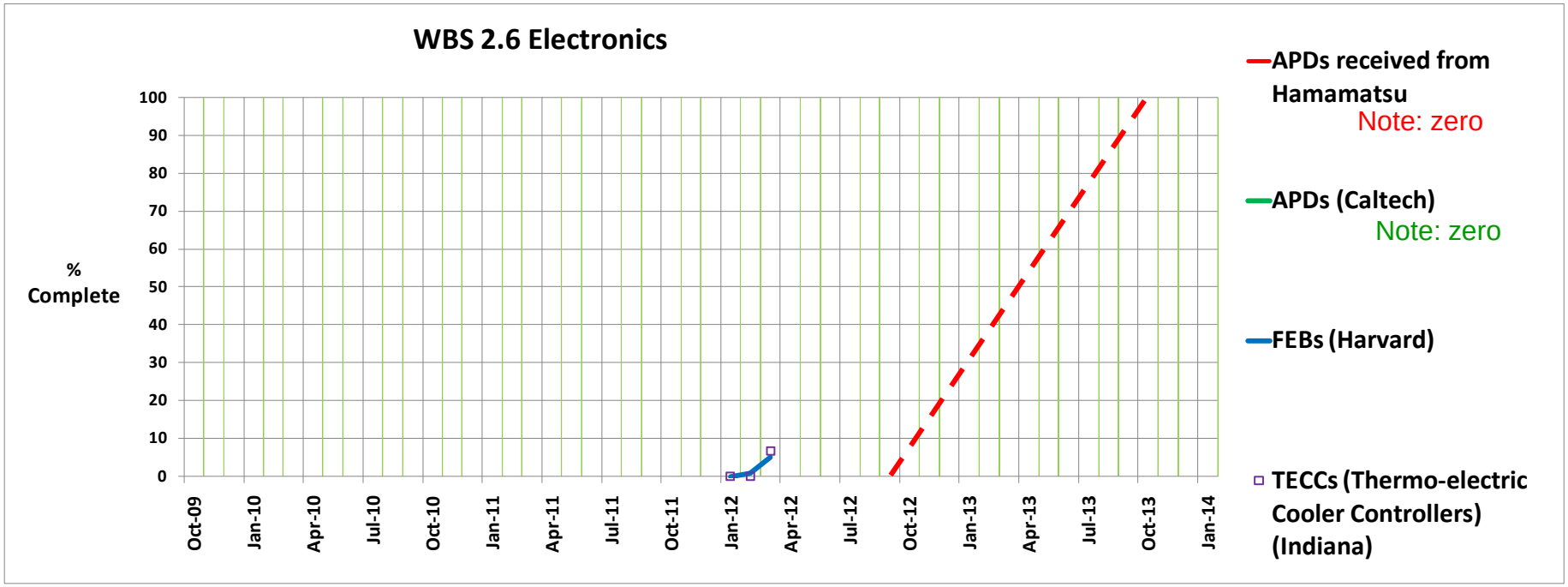


WBS 2.6 Electronics

- APD status for Near Detector
  - Air leaks into -15 ^{o}C area next to APD,…, condensation & ice = Dead APDs
- Solution: Fix leaks & coat APDs so they don't die (belt & suspenders)
  - Reviewed by an outside Expert Committee last October (Leon will have responses)
- After 3 tries on fixing leaks Nov, Dec, Jan, went to our back-up plan:
  - A new Flow–through dry air system is in place on the prototype Near Detector
  - Design has 31 in series (32 at Ash River), with a flow meter at the end to limit the flow in the 0.1 – 1.0 SCFH range.
  - We also have a humidity monitor at the end of every 31 (32).
- **Full APD delivery (12,000) on hold until we demonstrate successful cold operation on the prototype Near Detector**
  - Plan: Operate on Near Detector for 2 months with ~200 Silicone and ~240 Parylene coated devices
    - Leon will have details of the first cooling tests of new coated APDs
  - Evaluate performance of Silicone and of Parylene, then choose one coating
  - Following choice (July), tell Hamamatsu to proceed, they start deliveries in ~2 months, finish in ~ 12 months.

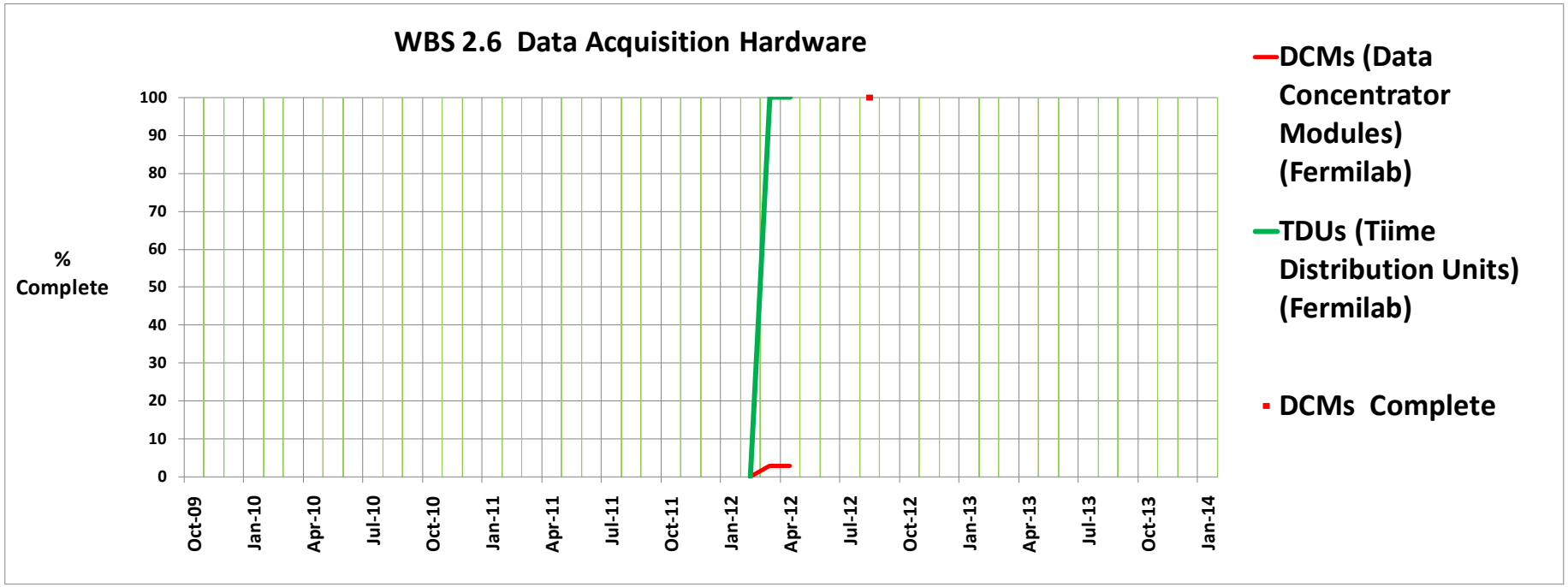
Electronics

- Front End Boards (FEBs) (Harvard)
  - **1st 100 stuffed boards were tested in February,** 86 OK
  - Held a Production Readiness Review in early March, then authorized to start building and testing all boards.
- Thermo-electric Cooler Controllers (Indiana).
  - Now testing the first 750



WBS 2.7 Data Acquisition

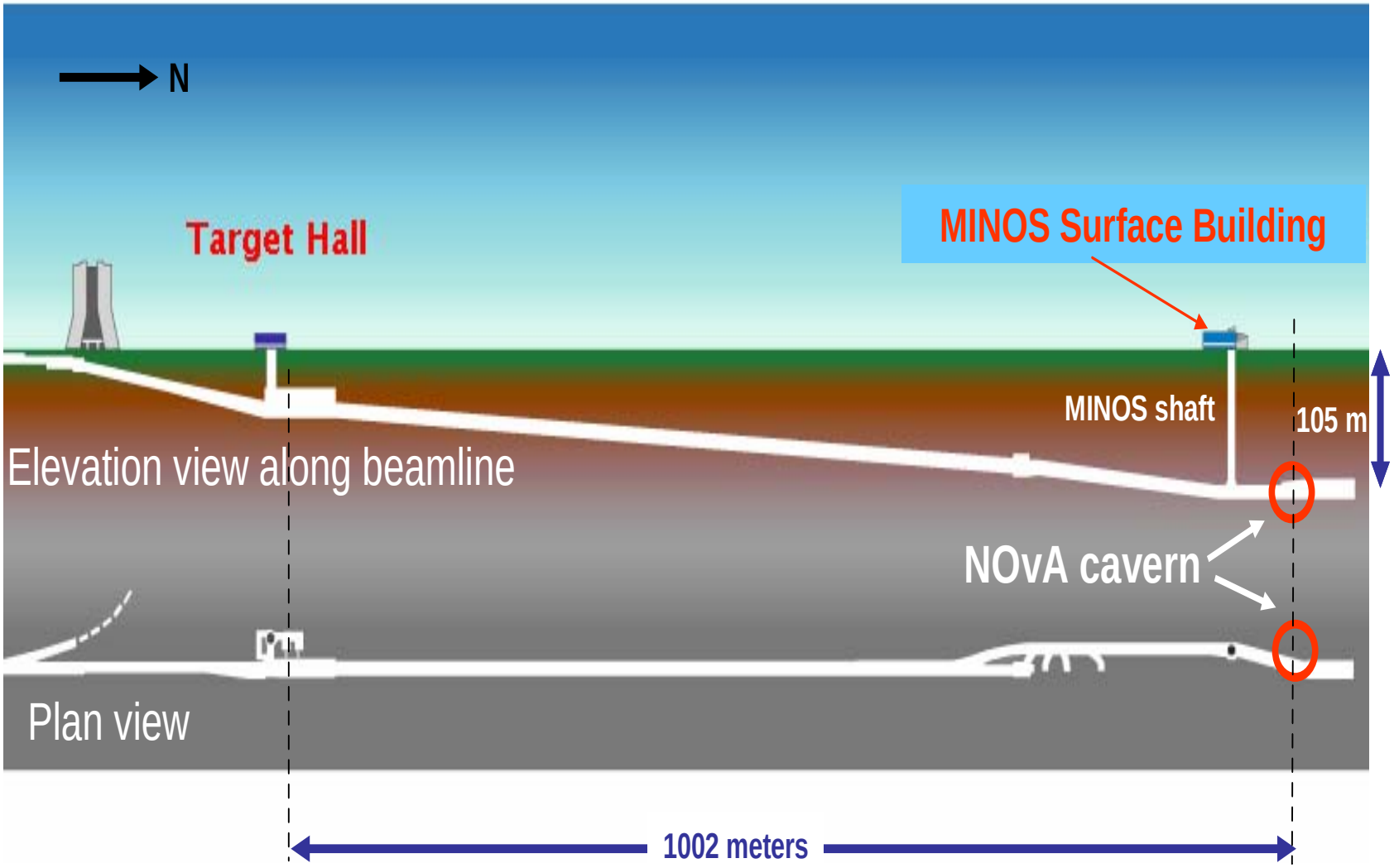
- Data Concentrator Modules (DCMs)
  - 5 Pre-Production DCMs tested at FCC test stand, a few patches added.
  - Now have 5 final boards completely tested
- Timing Distribution Units (TDUs)
  - 2 Types, Master (2 required at Ash River) & Slave (30 required at Ash River)
  - Have them all, all tested
  - 2 Masters operating at Ash River for about a month now



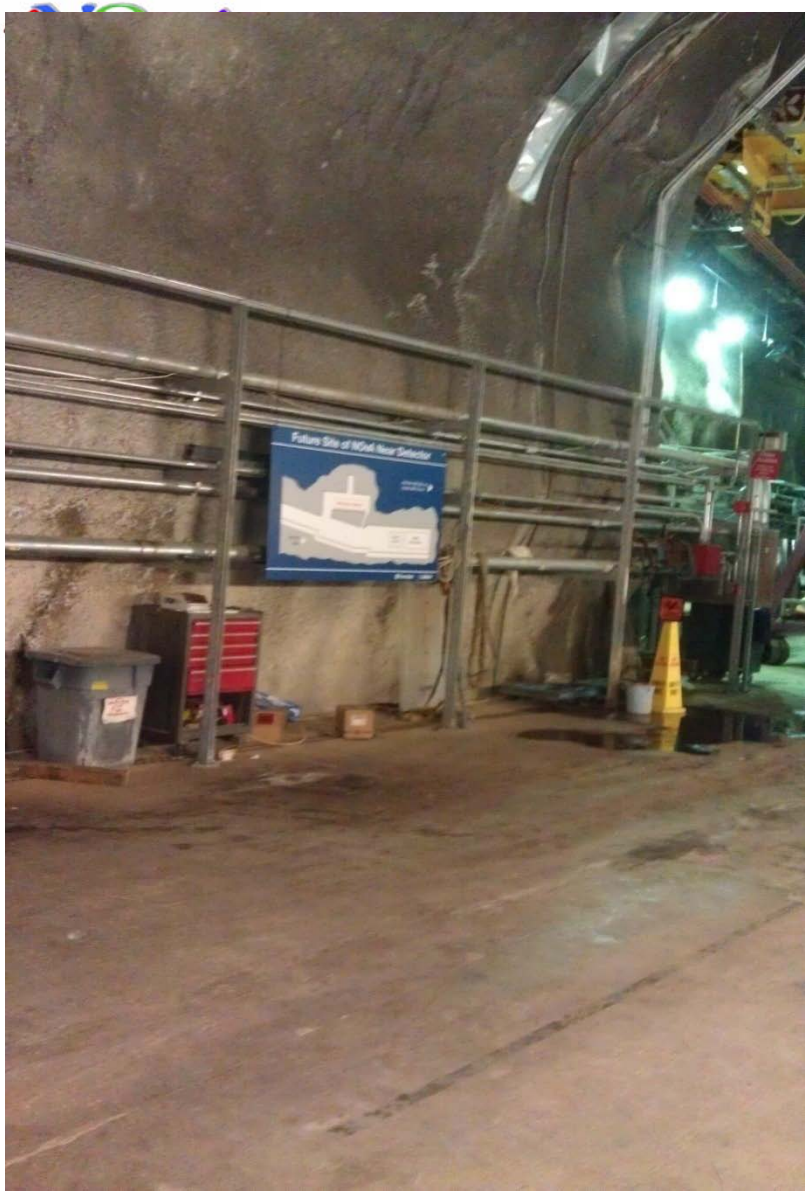
WBS 2.9 Assembly at Ash River & Detector Outfitting

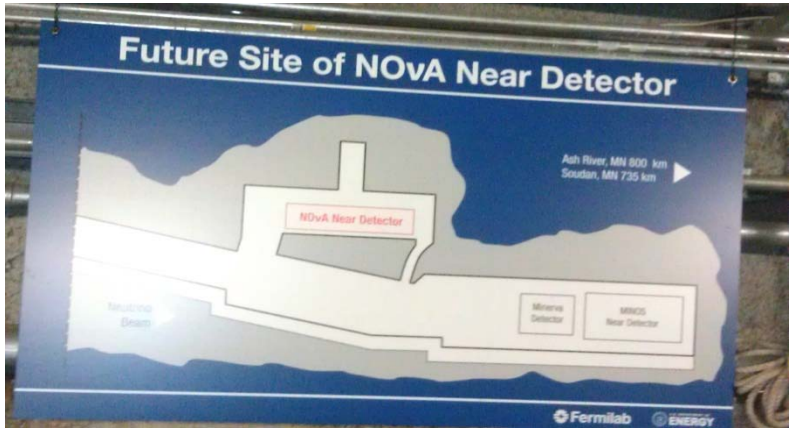
- The tools for assembly are in place and being reviewed for full operation by our ES&H Review Committee (see Lukens talk)
  - QA testers for fibers and PVC module pressure seals
  - Vacuum Lifting fixtures & Adhesive Machine
  - Block Pivoter
  - Real PVC Modules are at Ash River for first assembly trials
  - No graph yet, but we are close to starting this final step
- Outfitting (Divided this task so Tesarek runs this part, seeTesarek talk)
  - Scintillator distribution system & filling of the detector with Scintillator
  - Cable and Power Supply installation
  - Electronics installation (APDs, Front End Electronics, Data Concentrator Modules, Timing Distribution Units)
  - Cooling system and Dry Air system installation (APD cooling)
  - Installation of Data Acquisition computing
  - An APD clean room
  - A Control Room with links to a Fermilab Control Room to be manned by Collaborators

WBS 2.8 Near Detector & Cavern



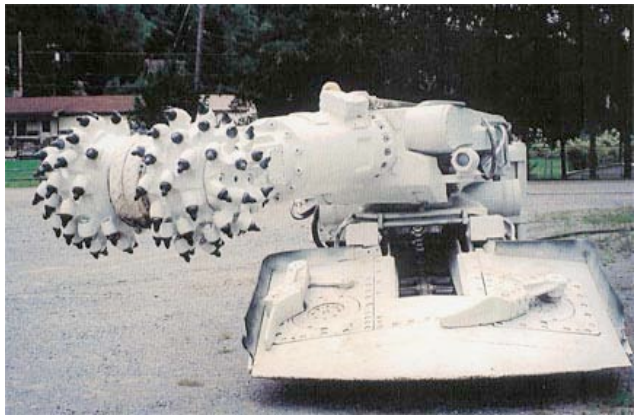
NOvA Cavern in MINOS Access Tunnel





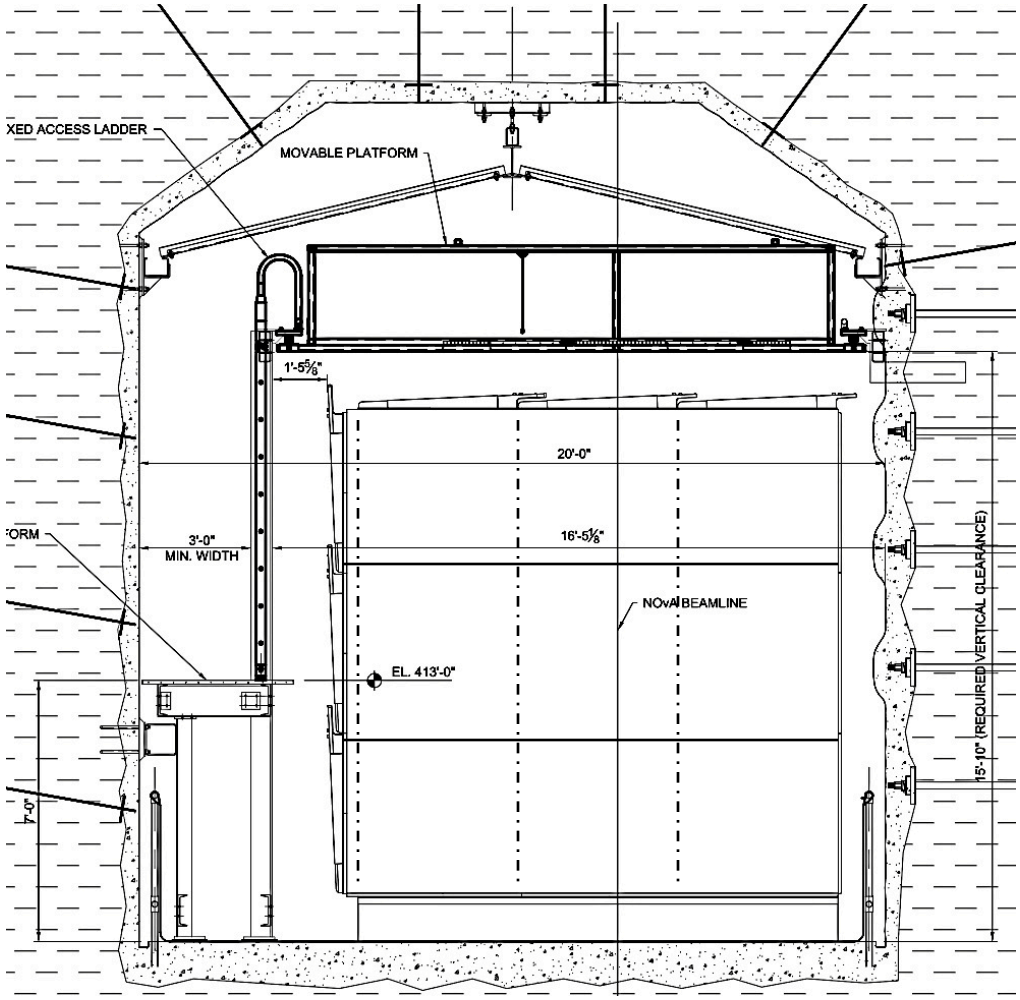
Cavern and Hall Schedule

- Request for Proposal out Dec 1 2011 to 13 potential bidders
- 2 bids received Feb 29 2012
  - Kiewit Infrastructure Company selected
  - $ 7.8 M, more than our estimate
  - Roadheader construction method, no blasting
- Pre-construction meeting held April 19



- Schedule estimate (Detailed schedule submission from Kiewit in weeks)
  - Notice to proceed to start site preparation, May 2012
  - Equipment mobilization, June 2012
  - Tunnel excavation, July 2012 – Oct 2012
  - Hall outfitting, Nov 2012 - Apr 2013
  - Finish equipment demobilization, Apr 2013
- Fermilab Facilities & Engineering Services Section, Fermilab ES&H Section to oversee construction
  - Experience with NuMI is NOT forgotten

New plan: 3x3 Block in the Cavern

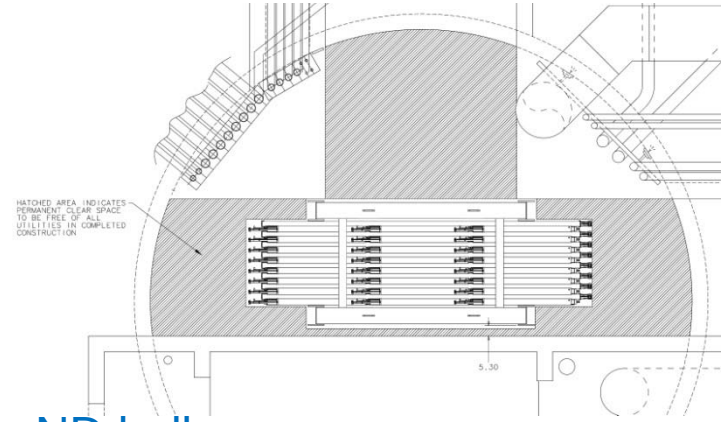


- Collaboration requested 3x3 vs original plan of 2x3
  - Better event containment and better ability to evaluate systematics of neutrino production in NuMI beam.
- Project managed to fit 3x3 in existing cavern designed for 2x3
  - Hinged on ES&H approval of a 36” wide catwalk on the west side

Complication: transport of 3x3 block over highways from ANL

- Risk to structure
- Plan to build on site in CDF east bay,
  move ANL prototype adhesive machine to Fermilab

Near Detector Design Tasks



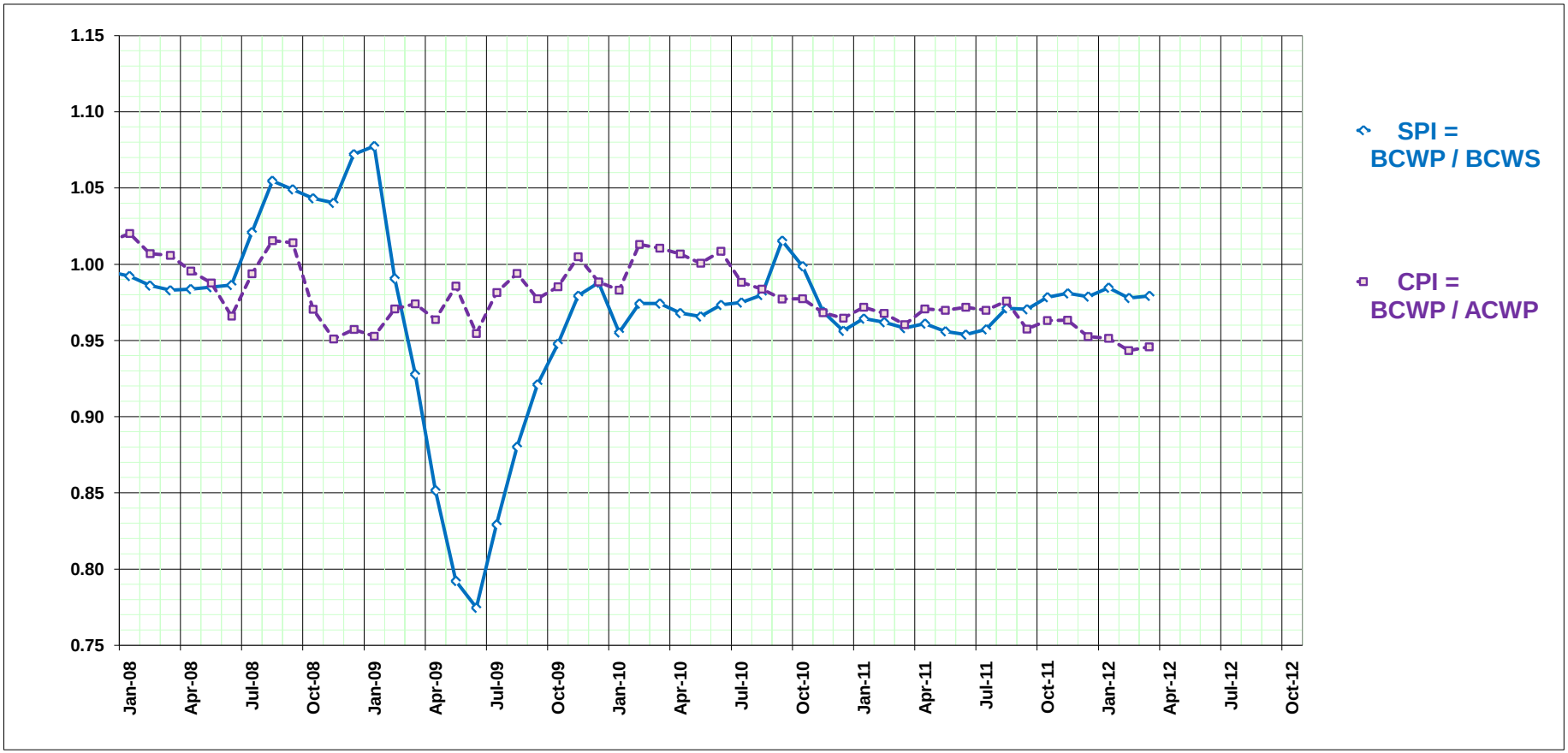
- This is still a Planning Package
  - Plan 16 plane blocks so they can get down the MINOS shaft
  - Engineering procedure of block transfer through MINOS access tunnel
  - Engineering procedure of positioning block in ND hall
    - South bookend
    - Rail tracks on top of spill containment lining for easy sliding
    - Tie-down/lockup for mechanical stability of thinner block
  - Wider block base frame (pallet), with removable wheels
  - Wider assembly table and new block transportation cradle
  - New muon-catcher support frame and installation procedure
  - New alignment posts (Far Detector-like) for tighter module position control
  - Scintillator filling equipment
    - Double wall Pipe down shaft, spill containment on shaft base

Planning Package: Who?

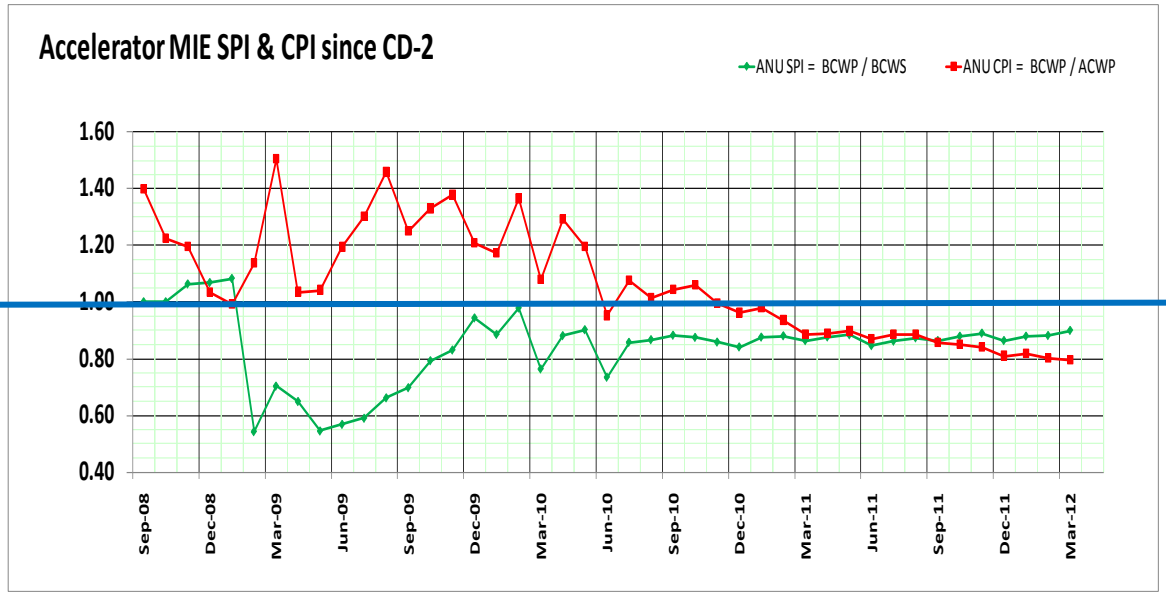
- New Level 2 Manager (Ting Miao, Fermilab)
- PPD mechanical engineering NOvA team to continue on ND structure, assembly and installation designs
  - Start as soon as Far Detector blocks are in production
- PPD technicians expected for block assembly and installation
  - Small team of ~ 4-5, similar to the team used at ANL for prototype
- NOvA Collaboration help expected in many areas
  - Module leak test and optical fiber connectivity
  - Block assembly QA/QC, alignment/survey, coordination etc.
- Cavern excavation and hall outfitting drive the schedule
  - We have about a year before the Near Detector installation can begin
  - Experience with prototype Near Detector indicates we can fit all this in during the remaining 1+ year to CD-4 in November 2014
    - Still, exploring interleaving of tasks with Kiewit construction

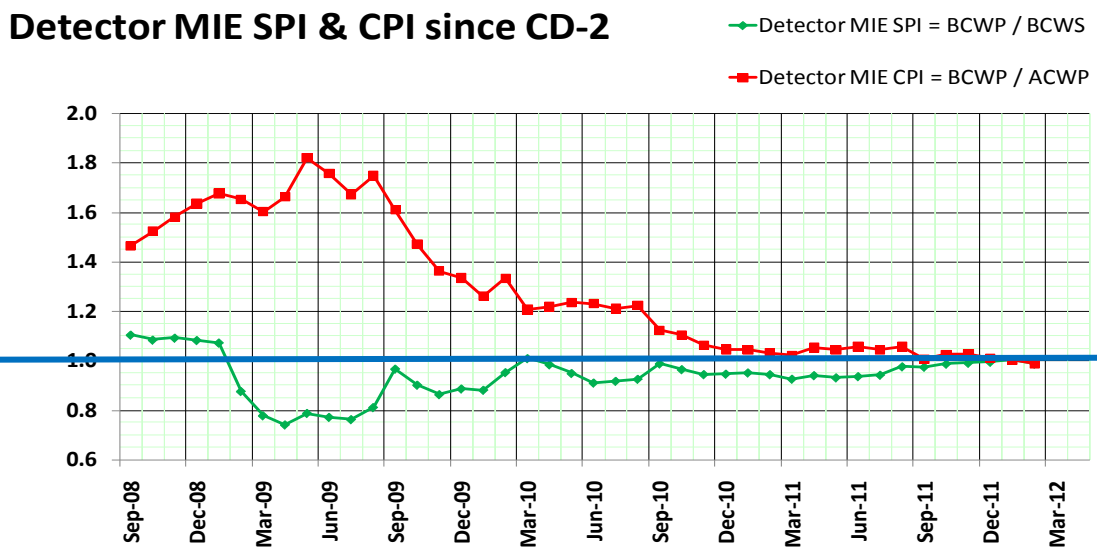
EVMS Reporting Overview

- Data now available through March 2012
  - SPI = **0.979**, compare to 0.978 in Feb, 0.985 in Jan, 0.979 in Dec, 0.981
  - CPI = **0.946,** compare to 0.943 in Feb, 0.951 in Jan, 0.952 in Dec, 0.963



SPI & CPI for Active Work

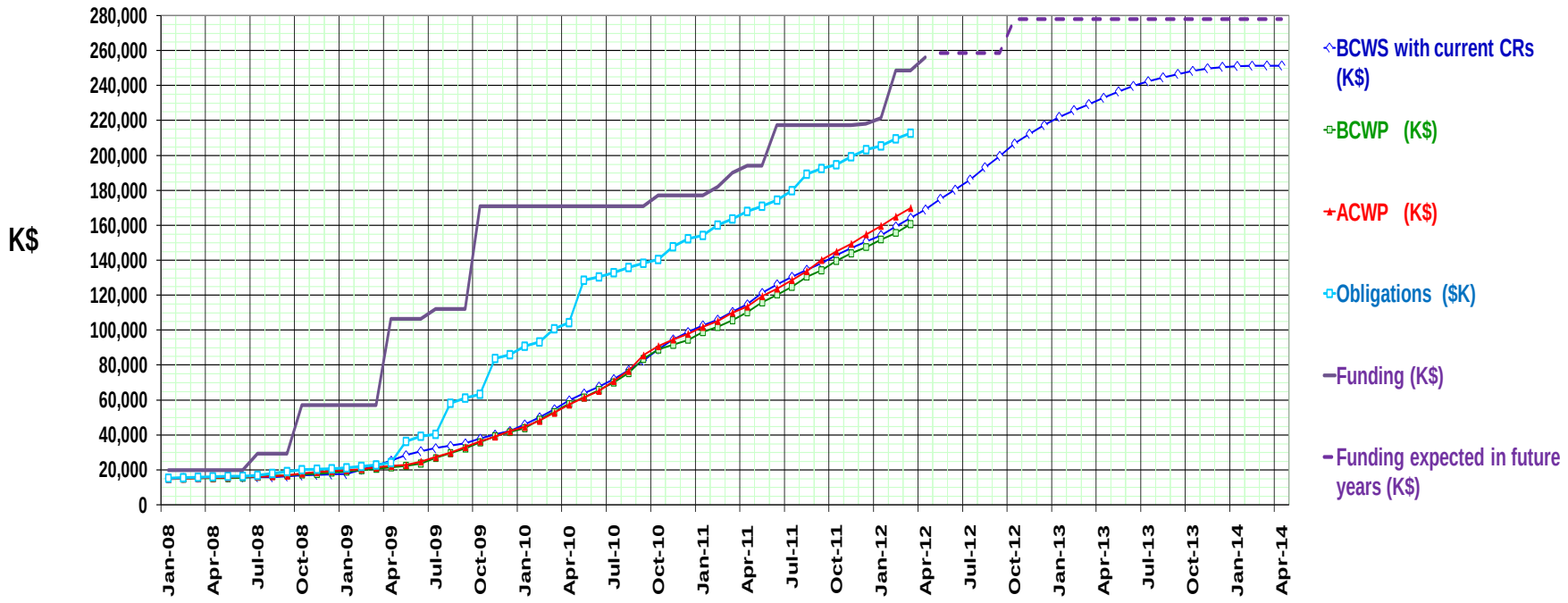




- Accelerator work shows long slide down to CPI = 0.8
  - Addressed labor overrun in CR487
  - For 1st 4 months of shutdown, added ~20% to base, reducing Management Reserve based on experience to date
- Detector relatively constant near CPI = 1.0 = SPI

EVMS Reporting Overview

- Basic data in BCWS, BCWP, ACWP, **Funding** & **Obligations** through Mar 2012
  - BCWS = Budgeted cost of work Scheduled
  - BCWP = Budgeted cost of work Performed
  - ACWP = Actual cost of work Performed
- Project is 64.0 % complete (BCWP/BAC = 160.8 M$ / 251.4 M$)
  - BAC = Budget at Completion (using EAC, get 62.1 %)
- Project is 84.6 % obligated (Obligations/BAC = 212.7 / 251.4)
  - EAC = Estimate at Completion (using EAC, get 82.2 %)



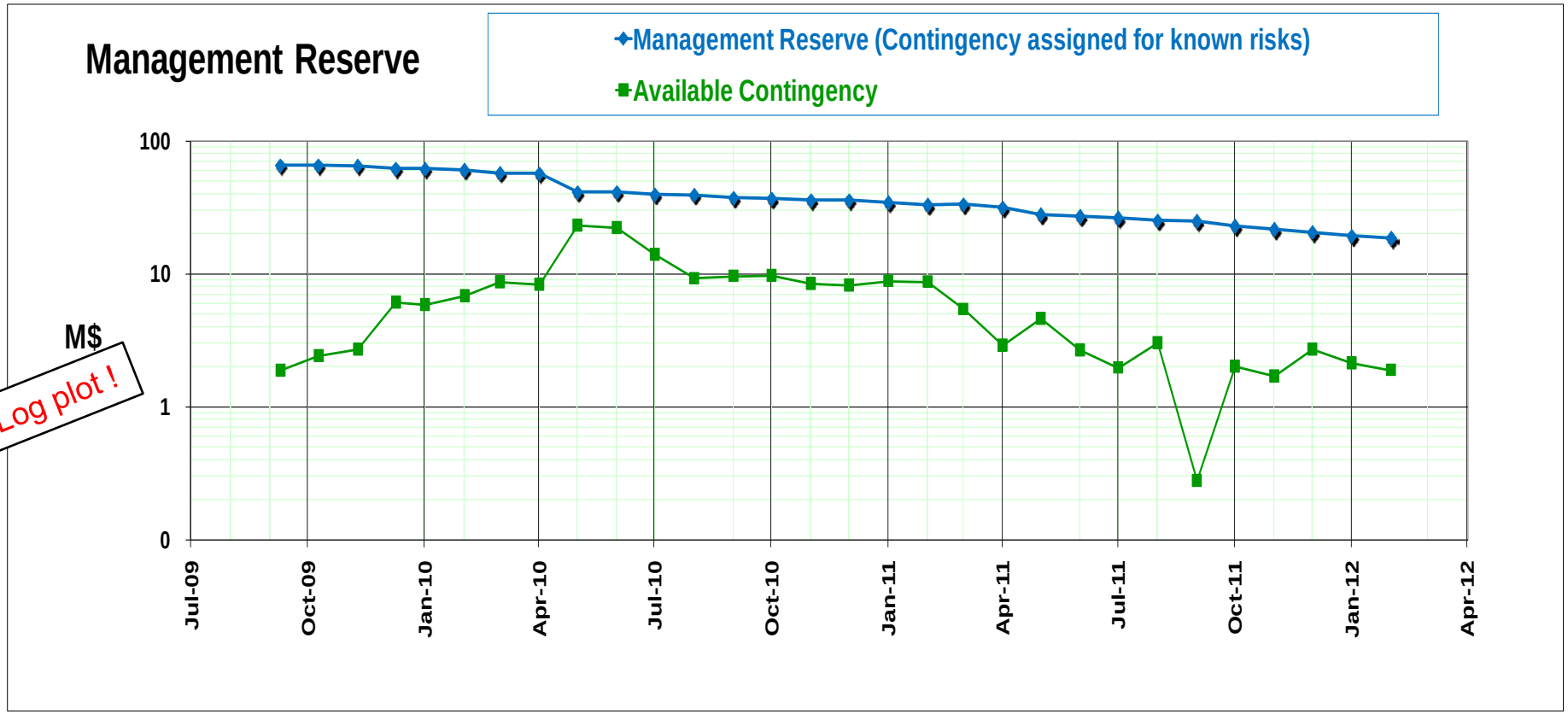
AY$ by Level 2 with MIE/OPC split

	WBS	Items	NOvA Costs to Date ($M) as of 31-Mar-2012	NOvA 's Cost Estimate AY $M (for April 1, 2012 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	$ 25.3	$ 2.1	$ 10.2	$ 12.3	$ 1.2	$ 2.1	$ 3.3	57%	20%	26%	$ 40.9
	2.1	Far Detector Site and Building	$ 5.8	$ 0.1	$ 0.0	$ 0.1	$ 0.0	$ 0.0	$ 0.0	3%	19%	5%	$ 5.9
	2.2	Liquid Scintillator	$ 8.7	$ 13.4	$ 0.2	$ 13.7	$ 3.3	$ 0.1	$ 3.4	24%	42%	25%	$ 25.7
	2.3	Wave-Length-Shifting Fiber	$ 10.4	$ 2.3	$ 0.2	$ 2.5	$ 0.1	$ 0.0	$ 0.1	5%	11%	5%	$ 13.1
	2.4	PVC Extrusions	$ 15.0	$ 14.9	$ 0.6	$ 15.5	$ 0.9	$ 0.1	$ 1.0	6%	21%	7%	$ 31.5
	2.5	PVC Modules	$ 8.1	$ 3.9	$ 6.5	$ 10.4	$ 0.3	$ 1.0	$ 1.3	9%	15%	13%	$ 19.9
	2.6	Electronics Production	$ 4.6	$ 6.1	$ 1.1	$ 7.2	$ 0.4	$ 0.3	$ 0.8	7%	28%	11%	$ 12.5
	2.7	Data Acquisition System	$ 3.1	$ 0.9	$ 0.6	$ 1.6	$ 0.2	$ 0.2	$ 0.4	22%	33%	26%	$ 5.1
	2.8	Near Detector Assembly	$ 2.5	$ 4.8	$ 0.4	$ 5.2	$ 1.0	$ 0.1	$ 1.1	20%	38%	22%	$ 8.8
	2.9	Far Detector Assembly	$ 9.7	$ 7.0	$ 8.2	$ 15.2	$ 1.4	$ 3.9	$ 5.3	20%	48%	35%	$ 30.3
	2.10	Project Management	$ 6.5	$ 0.2	$ 3.9	$ 4.0	$ 0.0	$ -	$ 0.0	25%	0%	1%	$ 10.5
		Subtotal Construction	**$ 99.8**	**$ 55.6**	**$ 32.0**	**$ 87.7**	**$ 8.9**	**$ 7.9**	**$ 16.8**	**16%**	**25%**	**19%**	**$ 204.2**
OPC		**R&D - Accelerator**	$ 6.6	$ -	$ 0.0	$ 0.0	$ -	$ 0.0	$ 0.0	0%	20%	20%	$ 6.6
		R&D - Detector	$ 28.1	$ -	$ -	$ -	$ -	$ -	$ -	0%	0%	0%	$ 28.1
		Cooperative Agreement	$ 34.9	$ -	$ -	$ -	$ -	$ -	$ -	0%	0%	0%	$ 34.9
		Operating	$ 0.6	$ 0.0	$ 1.2	$ 1.2	$ 0.0	$ 0.2	$ 0.2	42%	15%	16%	$ 2.0
		Total OPC:	**$ 70.2**	**$ 0.0**	**$ 1.2**	**$ 1.2**	**$ 0.0**	**$ 0.2**	**$ 0.2**	**42%**	**15%**	**16%**	**$ 71.7**
		Available Contingency							**$ 2.163**				**$ 2.2**
		TPC:	**$ 170.0**	**$ 55.7**	**$ 33.2**	**$ 88.9**	**$ 8.9**	**$ 8.1**	**$ 19.1**	**16%**	**24%**	**22%**	**$ 278.000**

Notes: [1] Labor costs presented here include all project labor from Fermilab, other DOE facilities and Universities.

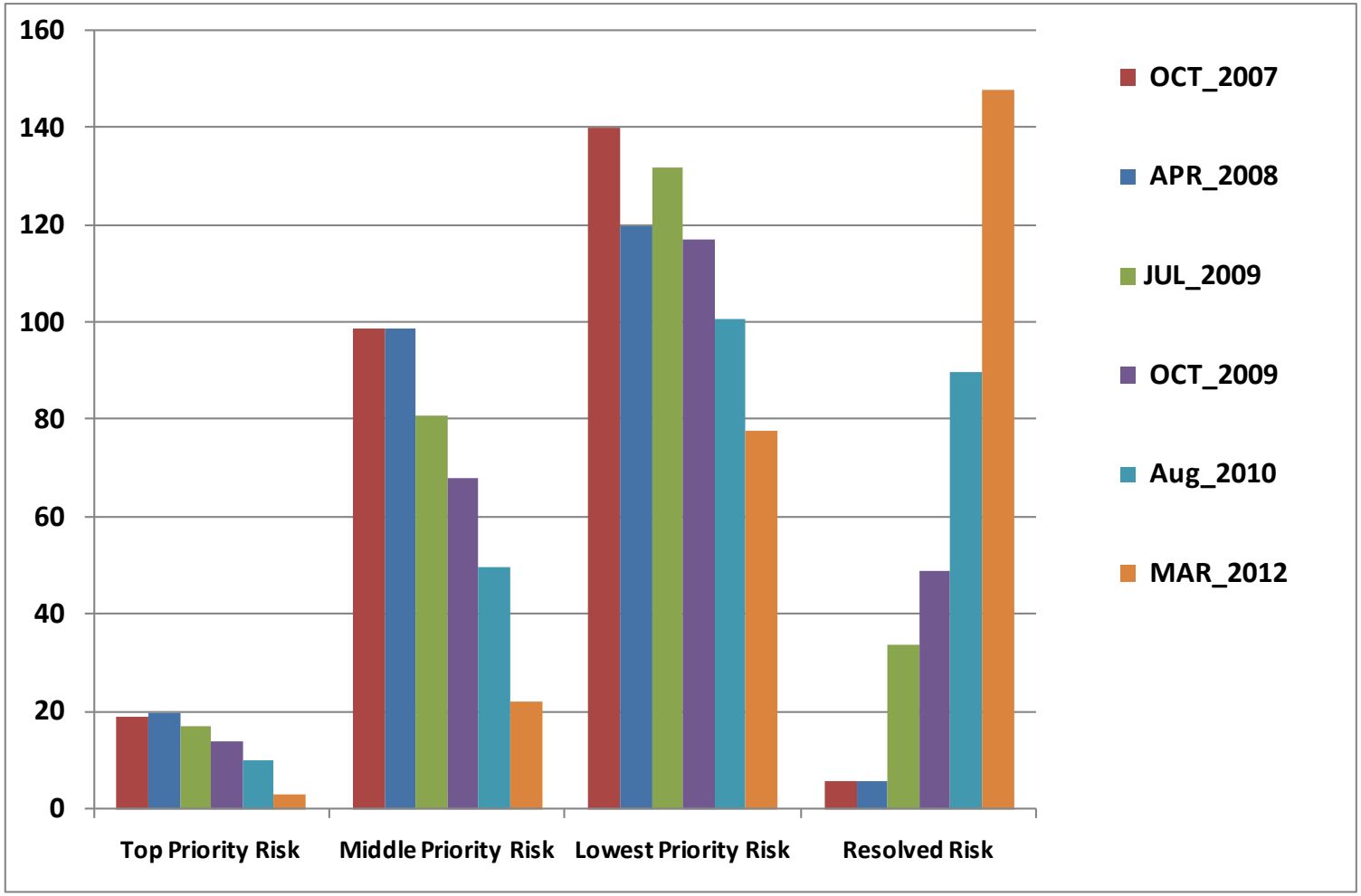
Contingency Status, Mar 2012

- **Total Contingency is 19.1 M$** (Feb= 20.5, Jan= 21.4, Dec= 23.3)
  - 22.2 % Contingency on remaining work (Estimated Cost is 88.9 M$)
  - 42.7 % on remaining Obligations (EAC-Obligations to date).
    - Obligations are ~ 43 M$ ahead of Costs
- **Available Contingency = $ 2.163 M$** (Feb= 1.889, Jan= 2.124, Dec= 2.71)
  - Management Reserve or Assigned Contingency is assigned according to estimate of remaining risks



Status of Risks

- Here is a graph of Risks vs. time
  - This is a series of snapshots from our Access database of Risks.



Top ten risks

Activity	Risk #	Score	Tolerance	Event	Owner
2.9.4 - Block Assembly and Installation	185	0.66	Top Priority	Adhesive failure causes structural failure	Lukens, Patrick (Pat)
2.0.3 - NuMI Upgrades	39	0.35	Top Priority	Insufficient manpower, takes longer	Derwent, Paul
2.0 - ANU Construction	92	0.28	Middle Priority	Work can not be accomplished as planned	Derwent, Paul
2.2.1.5 - Mineral Oil Production and Delivery	506	0.27	Middle Priority	Mineral oil cost more than base cost	Mufson, Stuart
2.2.5.3 - Far Detector Scintillator Transport	170	0.25	Middle Priority	scintillator deliveries must be halted	Mufson, Stuart
2.9.1.4.11 - Test block pivoter	126	0.23	Middle Priority	unanticipated problems encountered in pivoter test	Lukens, Patrick (Pat)
2.9.4.3 - Block Assembly and Alignment	130	0.21	Middle Priority	block assembly takes longer than planned	Lukens, Patrick (Pat)
2.0.1.1.1.14 - Installation	8	0.20	Middle Priority	Takes longer than expected	Derwent, Paul
2.0 - ANU Construction	99	0.20	Middle Priority	Installation takes longer than expected	Derwent, Paul
2.6.1.2 - APD Arrays	193	0.20	Middle Priority	Delivery lags schedule	Mualem, Leon

Risk and Contingency

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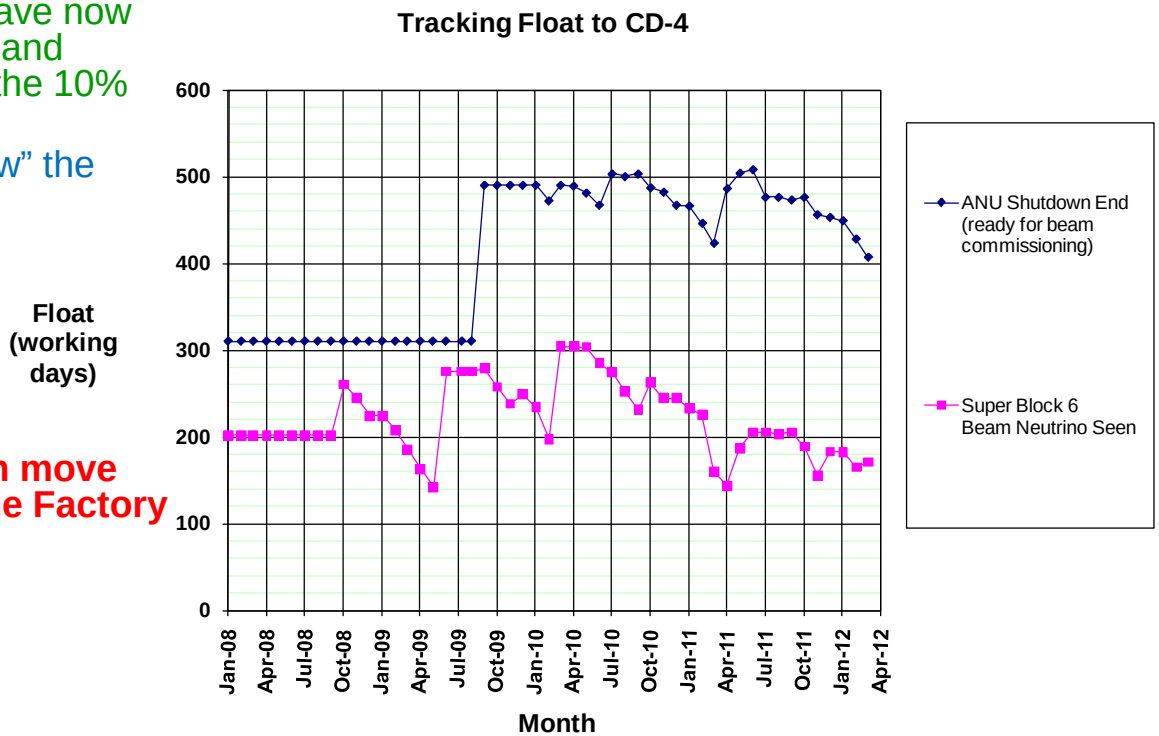
		Subtotal Construction	**$ 99.8**	**$ 55.6**	**$ 32.0**	**$ 87.7**	**$ 8.9**	**$ 7.9**	**$ 16.8**	**16%**	**25%**	**19%**	**$ 204.2**
OPC		**R&D - Accelerator**	$ 6.6	$ -	$ 0.0	$ 0.0	$ -	$ 0.0	$ 0.0	0%	20%	20%	$ 6.6
		R&D - Detector	$ 28.1	$ -	$ -	$ -	$ -	$ -	$ -	0%	0%	0%	$ 28.1
		Cooperative Agreement	$ 34.9	$ -	$ -	$ -	$ -	$ -	$ -	0%	0%	0%	$ 34.9
		Operating	$ 0.6	$ 0.0	$ 1.2	$ 1.2	$ 0.0	$ 0.2	$ 0.2	42%	15%	16%	$ 2.0
		Total OPC:	**$ 70.2**	**$ 0.0**	**$ 1.2**	**$ 1.2**	**$ 0.0**	**$ 0.2**	**$ 0.2**	**42%**	**15%**	**16%**	**$ 71.7**
		Available Contingency							**$ 2.163**				**$ 2.2**
		TPC:	**$ 170.0**	**$ 55.7**	**$ 33.2**	**$ 88.9**	**$ 8.9**	**$ 8.1**	**$ 19.1**	**16%**	**24%**	**22%**	**$ 278.000**

Notes: [1] Labor costs presented here include all project labor from Fermilab, other DOE facilities and Universities.

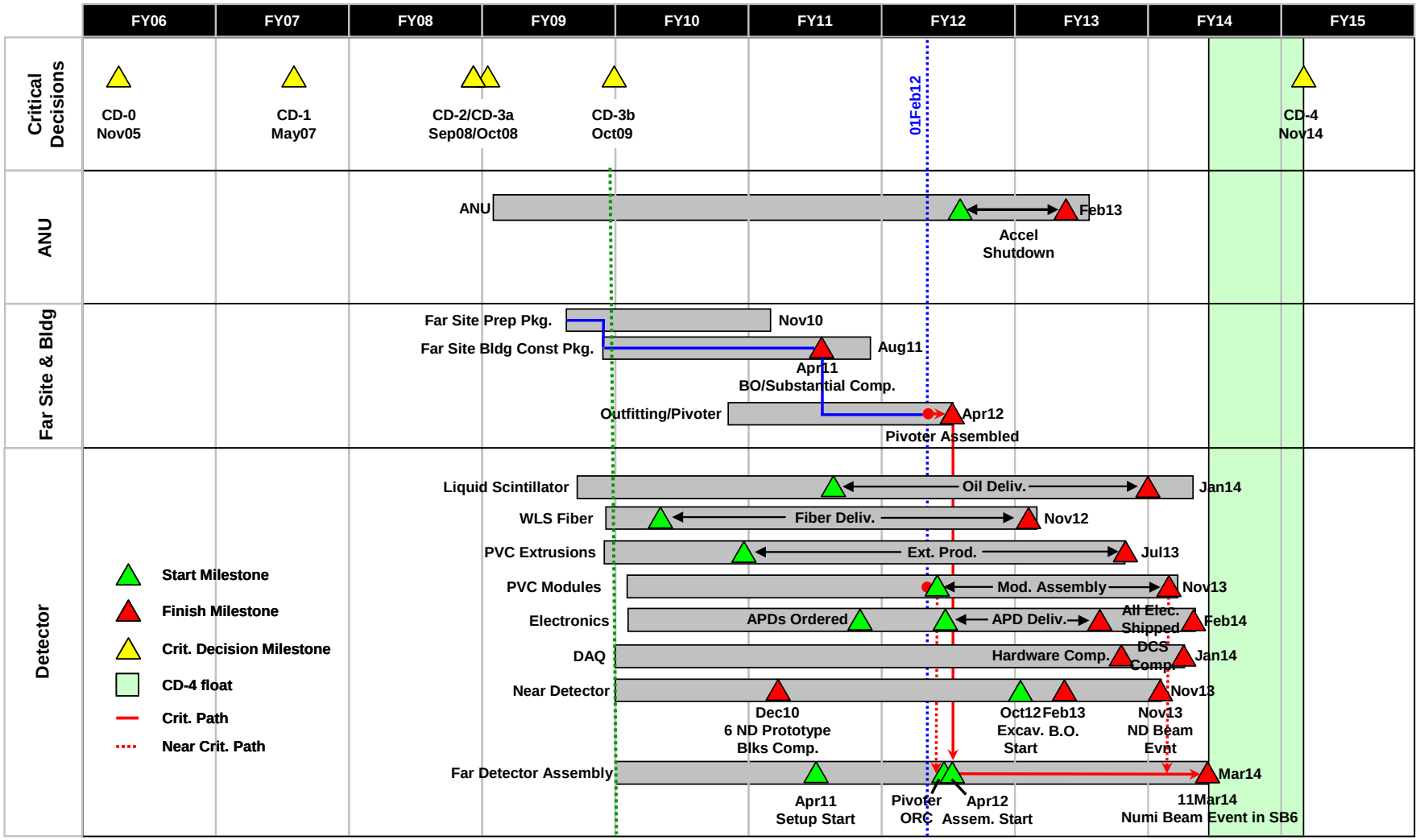
Milestones: What about CD-4 ?

- **ANU lost 21 days of float in Feb -- Now at 401 days**
  - Kicker and RF schedules drive this float, lost 2 weeks on front for cool-down
- **The Detector gained 6 days of float in Feb -- Now at 171 days**
  - We tried to compensate for 17 days lost in February by adding a 5th workday every week for Ash River assembly of more blocks in March (blocks 4 through 11 already done in Feb) but ran into a new problem of too few PVC modules available from the Minnesota Factory to do the faster rate
    - Our assigned contingency was always set by the cost of perhaps adding overtime or a 3rd shift. We have now put overtime in the schedule and reduced the contingency by the 10% extra cost
    - This does not mean we "know" the assembly schedule better, but shows that we can compensate using our plan.
    - We won't know the required labor at Minnesota or at Ash River until we get to steady production.
    - **Clearly the critical path can move quickly between the Factory and Ash River**



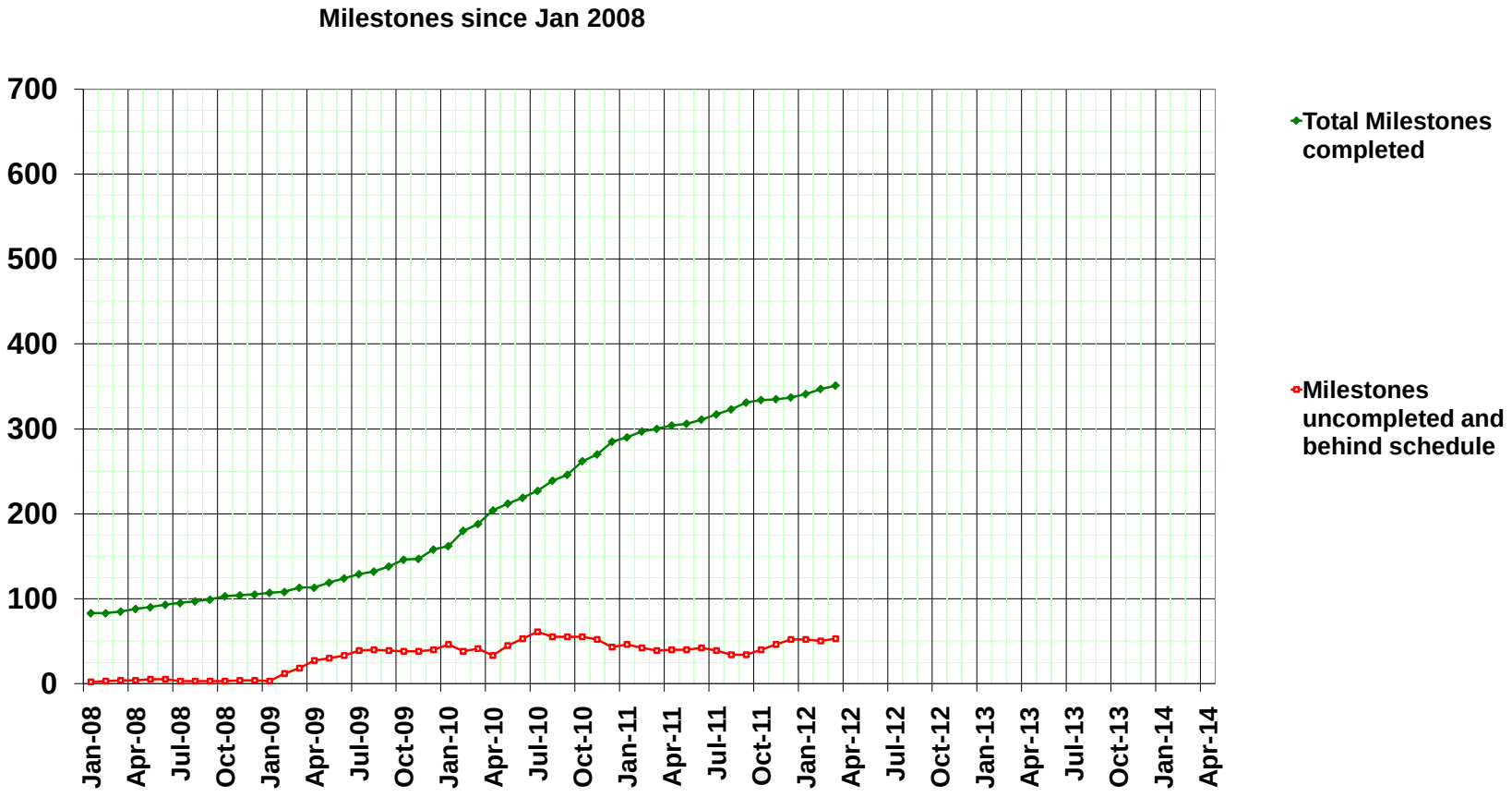
Schedule Critical Path

- Here is the "schedule on a page"
  - The Detector portion has many parts moving in parallel, has "buffers" between parts



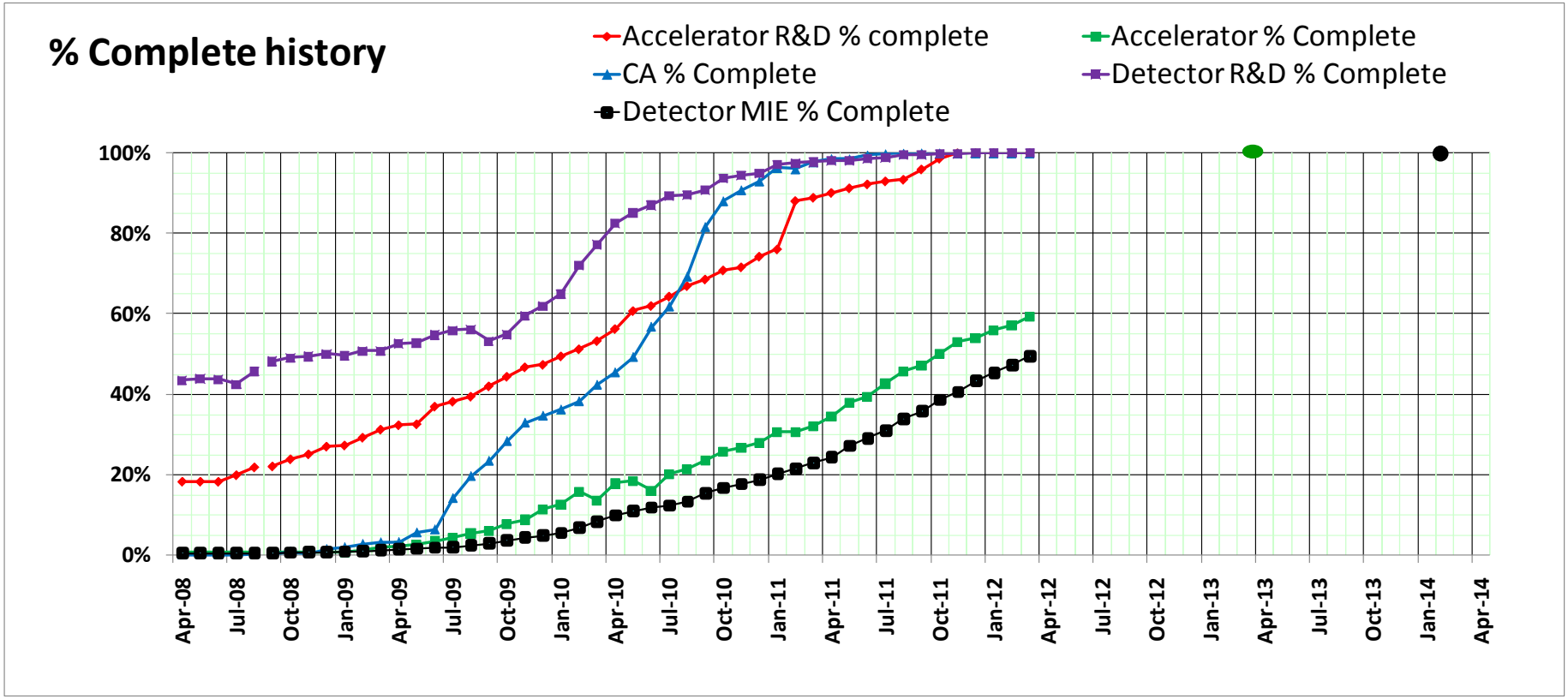
Analysis of all milestones

- **351 of 694 now complete**
  - 4 completed in March
  - Total of 500 milestones at last IPR, since added 194 for outfitting at Ash River)
- **Behind on 53,** ~ steady state ~ 50, but different milestones each month



% Complete history

for the **5** Main parts of the Project



- Building & Detector R&D & ANU R&D are all done
- ANU at 59.4%, to be complete by ~ April 2013
- Detector at 49.5%, to be complete by ~ Feb 2014

BACKUP SLIDES

Review Website

NOvA (E929)

NuMI Off-Axis ν_e Appearance Experiment

FRA EVMS Self Surveillance Review, March. 12, 13, 14, 2012

NOvA Documents
- *Document Database*
- *TDR*
- *CDR*
- *Proposal*

Reference
- *P5 report*
- *NuSAG report*
- *CD-0*
- *CD-1*
- *CD-2*
- *CD-3a*
- *CD-3a Mod 1*
- *CD-3a Mod 2*
- *CD-3b*
- *OPMO web page*

Project Documents
- Project Execution Plan (PEP)
- Project Management Plan (PMP)
- Project Organization Chart
  - from PMP
- Responsibility Assignment Matrix with Dollars – January Excel Format
- Responsibility Assignment Matrix with Dollars – December Excel Format
- Risk Management Plan
  - Risk Registry
  - Risk Registry Contingency Analysis
- WBS Dictionary
- Cost Baseline– Cost Plan by Fiscal Year
- Work Authorization Documents
- Basis of Estimate 2012 Documents
- Charge Code Mapping to WBS
- Link to Project Home Page (and CAM Notebooks, Work Authorizations)

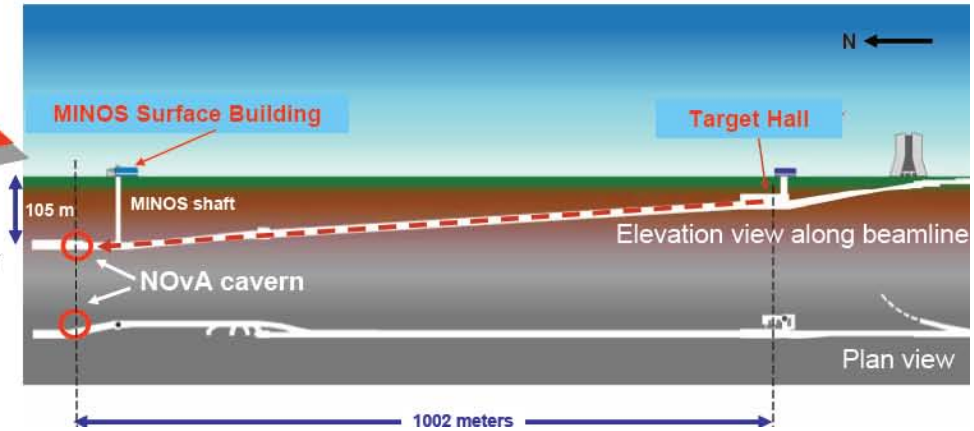
link goes to next page

Open Plan Extracts (under construction)
- Zip file of WBS L2 Gantt Charts
- pdf – milestone Gannt chart – Performance Measurement Baseline
- OP Predecessor/Successor Constraints Sheet
- Critcal Path Gantt Chart
- OP Counts Info for EVMS--All Activity Types
- OP Counts Info for EVMS--ASAP ALAP Only
- "No Pegpoints" Tasks

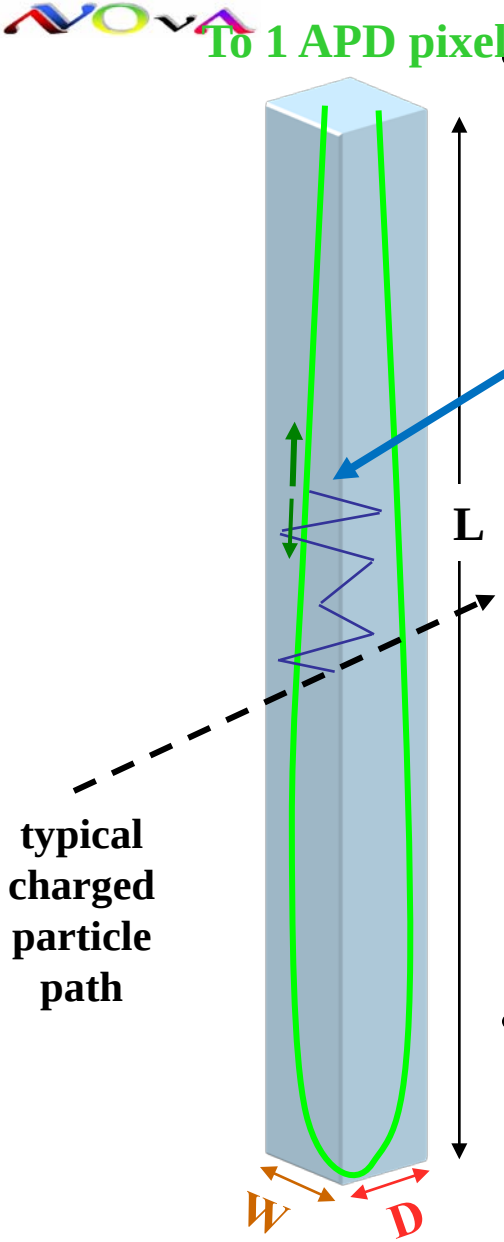
EVMS
- Earned Value Management System
  - NOvA Project Implemetation of FRA EVMS
  - Certification of FRA EVMS by DOE-OECM
- Monthly Reports, Cost Performance Reports, Basline Change Control Logs, Contingency Analyses & CPR by CTC
- Control Account Page
  - Variance Thresholds
  - Variance Reports (Jan, Dec, Nov, Oct) (NEW)
- Corrective Action Log

Accelerator & NuMI Upgrades

- **NOvA adds items to an extensive existing accelerator infrastructure**
  - Fermilab is the lead institution here
- **Existing Main Injector & Recycler**
  - Dotted yellow circle in picture
  - Previous ~ $250 M project completed in 1999 for the Tevatron Collider (the other circle in the picture)
  - NOvA:
    - Cycle time reduced by using the Recycler as proton storage ring and by using more RF stations in the Main Injector
    - Faster cycling gives more protons/second
- **Existing NuMI Beamline**
  - Dotted red arrow in picture
  - Previous ~ $175 M project completed in 2004
    - This includes an underground tunnel at Fermilab with space for Near Detectors 300 feet below the surface
  - NOvA:
    - New target, move focusing horn, …
- **NOvA Result:**
  - Increase beam power from 400 to 700 kW
  - More protons to make more neutrinos

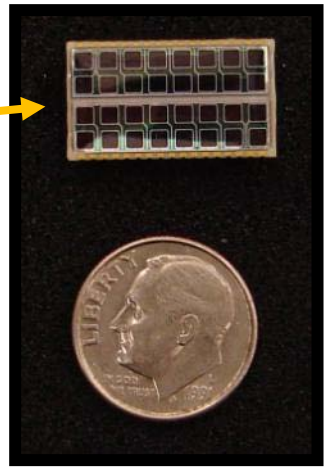


Reminder: NOvA Basic Detector Element



- Liquid scintillator in a highly reflective PVC plastic cell
  - Passage of charged particle through scintillator creates light
  - Light bounces off reflective PVC walls until captured in a thin wavelength-shifting fiber
    - Typically light hits fiber within 50 cm of particle path, ~ 8 reflections
  - The fiber is U-shaped and both ends terminate in one pixel of a 32-pixel avalanche photodiode (APD)
- Simple construction, just repeat 357,120 times
  - Cells are 15 m long, so they just fit in a 53 ft semi-trailer truck

Prototype Near Detector with ~ 16,000 cells is operating at Fermilab



NOvA building

- Building at Ash River, Minnesota for a 18 kt Far Detector
- This is complete.

CPR1 Mar 2012

COST PERFORMANCE REPORT
FORMAT 1 - WORK BREAKDOWN STRUCTURE

CONTRACTOR	CONTRACT	PROGRAM	REPORT PERIOD
NAME	NAME	NAME	FROM 01-Mar-2012
Fermi National Accelerator Laboratory		NOvA project	TO 31-Mar-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$k	759	1,069	1,509	309	(440)	22,423	20,164	25,349	(2,259)	(5,185)	33,953	37,646	(3,693)
CTC-FndSrcTotals:	759	1,069	1,509	309	(440)	22,423	20,164	25,349	(2,259)	(5,185)	33,953	37,646	(3,693)
DC DOE-CA													
2.1 Site and Building													
Fully burdened AY$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$k	0	0	1	0	(1)	7,025	7,022	6,611	(2)	412	7,025	6,613	412
CTC-FndSrcTotals:	0	0	1	0	(1)	7,025	7,022	6,611	(2)	412	7,025	6,613	412
DE DOE-DET MIE													
2.1 Site and Building													
Fully burdened AY$k	0	73	107	73	(34)	6,928	6,919	5,783	(8)	1,136	6,992	5,857	1,135
2.10 Project Management - Nova Project - Construction													
Fully burdened AY$k	207	207	183	0	24	7,609	7,609	6,458	0	1,152	11,652	10,501	1,152
2.2 Liquid Scintillator													
Fully burdened AY$k	463	301	149	(161)	152	7,899	8,564	8,704	665	(140)	22,246	22,380	(134)
2.3 WLS Fiber													
Fully burdened AY$k	404	791	387	387	404	9,280	10,075	10,443	795	(368)	12,606	12,958	(352)
2.4 PVC Extrusions													
Fully burdened AY$k	1,204	1,003	1,025	(201)	(22)	13,878	15,007	14,960	1,130	48	30,695	30,465	230
2.5 PVC Modules													
Fully burdened AY$k	244	210	138	(34)	72	9,840	9,563	8,115	(278)	1,448	19,974	18,531	1,443
2.6 Electronics													
Fully burdened AY$k	739	250	330	(489)	(80)	6,654	5,178	4,583	(1,475)	595	12,299	11,744	555
2.7 DAQ													
Fully burdened AY$k	264	98	249	(166)	(151)	3,123	2,355	3,126	(768)	(771)	3,962	4,718	(757)
2.8 Near Detector Assembly													
Fully burdened AY$k	278	521	145	243	376	1,944	1,847	2,534	(97)	(687)	7,234	7,686	(452)
2.9 Far Detector Assembly													
Fully burdened AY$k	336	434	632	98	(198)	8,247	7,116	9,709	(1,130)	(2,593)	22,206	24,935	(2,729)
CTC-FndSrcTotals:	4,138	3,888	3,345	(250)	543	75,401	74,234	74,415	(1,167)	(181)	149,865	149,775	89

CPR1 Mar 2012 continued

COST PERFORMANCE REPORT
FORMAT 1 - WORK BREAKDOWN STRUCTURE

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

PERFORMANCE DATA

CTC-FndSrc	CURRENT PERIOD					CUMULATIVE TO DATE					AT COMPLETION		
CTC[2] Results...	BUDGETED COST		ACTUAL COST	VARIANCE		BUDGETED COST		ACTUAL COST	VARIANCE			LATEST REVISED	
ITEM	WORK SCHEDULED	WORK PERFORMED	WORK PERFORMED	SCHEDULE	COST	WORK SCHEDULED	WORK PERFORMED	WORK PERFORMED	SCHEDULE	COST	BUDGETED	ESTIMATE	VARIANCE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
DO DOE-ACEL OPS													
1.0 ANU R&D													
Fully burdened AY$k	0	60	31	60	29	390	410	599	20	(189)	1,642	1,827	(184)
CTC-FndSrcTotals:	0	60	31	60	29	390	410	599	20	(189)	1,642	1,827	(184)
DR DOE-POST CD-1 DET R&D													
1.1 Site and Building R&D													
Fully burdened AY$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$k	0	0	0	0	0	1,369	1,369	2,084	0	(715)	1,369	2,084	(715)
1.5 PVC Module R&D													
Fully burdened AY$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$k	0	0	0	0	0	3,123	3,123	4,929	0	(1,806)	3,123	4,929	(1,806)
1.9 Project Management R&D													
Fully burdened AY$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	(4,280)	15,067	19,347	(4,280)
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	4,898	5,016	4,887	118	129	164,166	160,757	169,993	(3,409)	(9,236)	251,412	258,881	(7,469)
Management Resrv.											26,588		
Total	4,898	5,016	4,887	118	129	164,166	160,757	169,993	(3,409)	(9,236)	278,000		

~ 67% ANU, 33% Det MIE

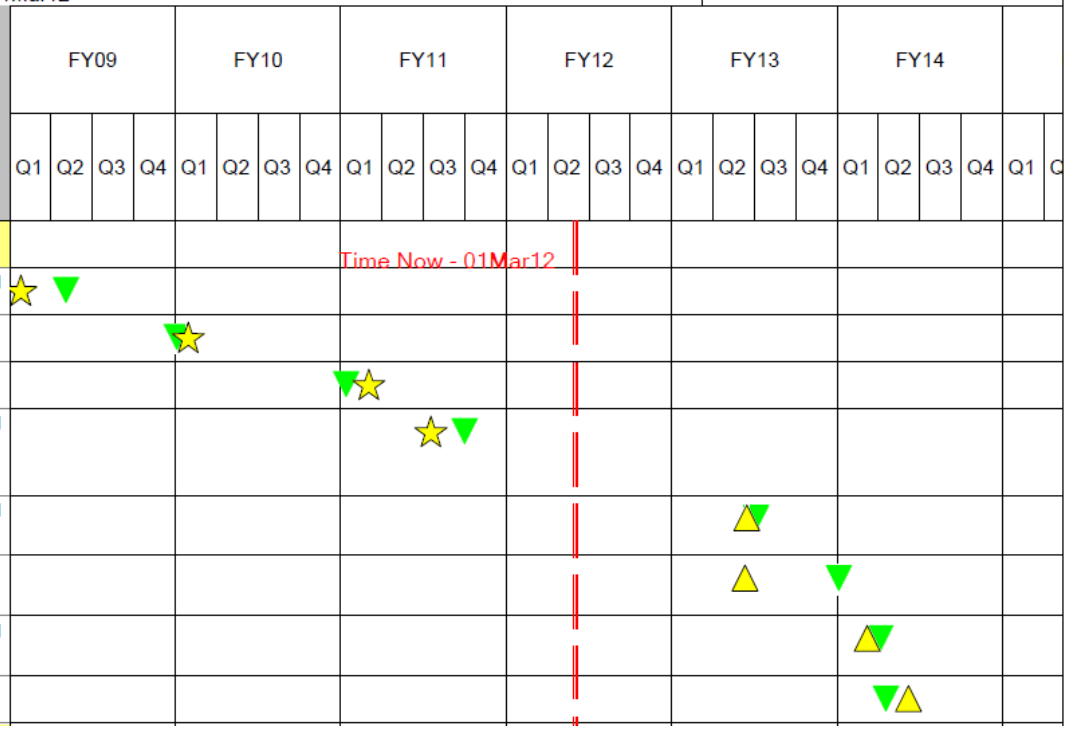
~50% ANU, 50% Det R&D

Milestones held by DOE - OHEP

Nova_Project
Milestone Gantt Chart
Nova_Milestones_L1_L2 = [BOOL.T] and ESDATE >= {10/1/08}
February 2012 Status
TimeNow: 01Mar12

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	13Mar13	12d
NuMI neutrino event observed in Superblock 1	01Oct13	07Mar13	144d
Near detector completed and ready to operate	02Jan14	04Dec13	16d
14 kt installation completed	16Jan14	03Mar14	-31d



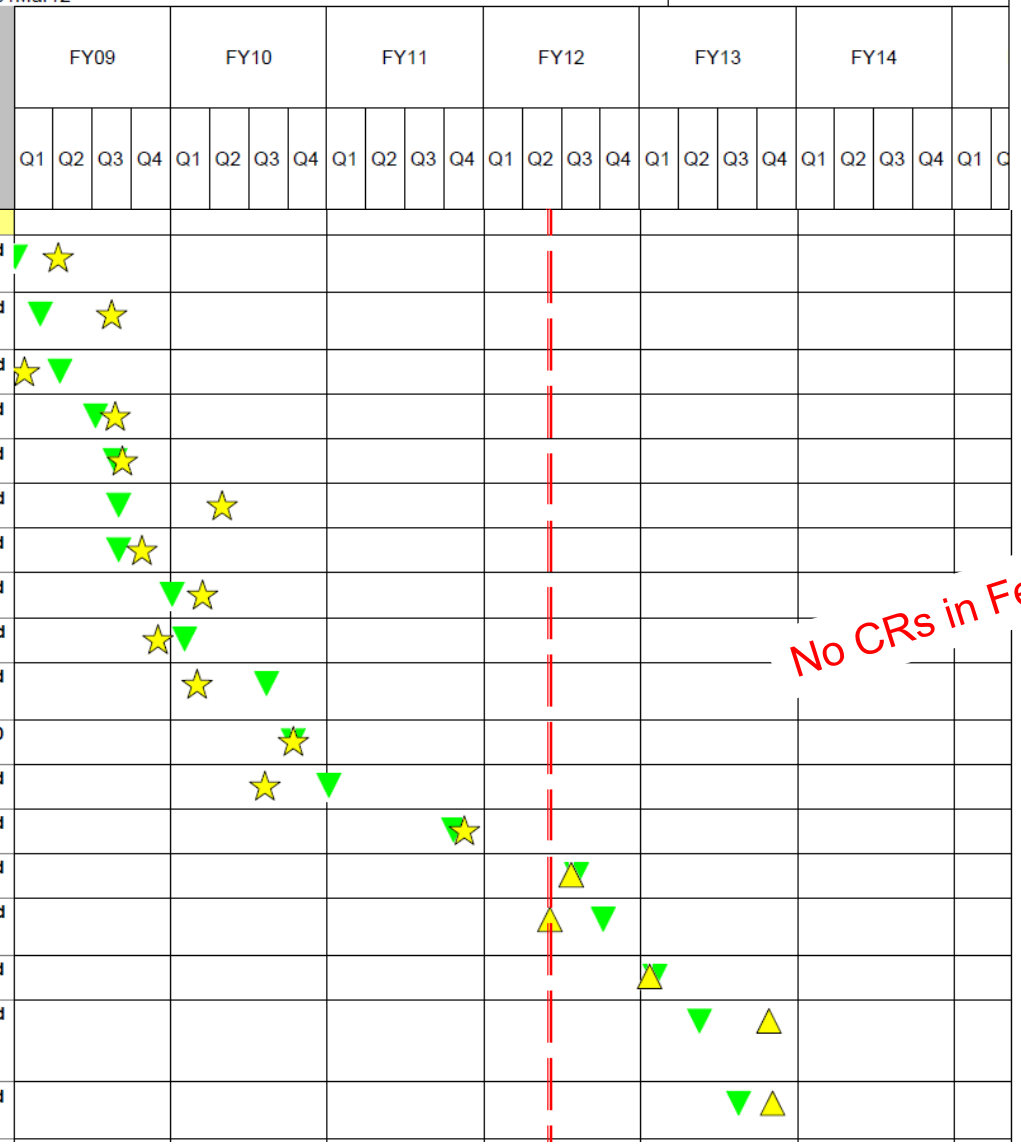
No CRs in February

DOE Milestones – Fed Project Director

Nova_Project
Milestone Gantt Chart
Nova_Milestones_L1_L2 = [BOOL.T] and ESDATE >= {10/1/08}
February 2012 Status
TimeNow: 01Mar12

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	20Apr12	5d
Decision point for buying additional WLS fiber	03Jul12	01Mar12	87d
Decision point for buying additional APDs	01Nov12	19Oct12	9d
Decision point for buying additional extrusions, modules, mineral oil, pseudocumene	13Feb13	25Jul13	-114d
Far Detector extrusions for 14kt completed	14May13	31Jul13	-54d



No CRs in Feb

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

February 2012 Status

TimeNow: 01Mar12

Baseline Date ▼

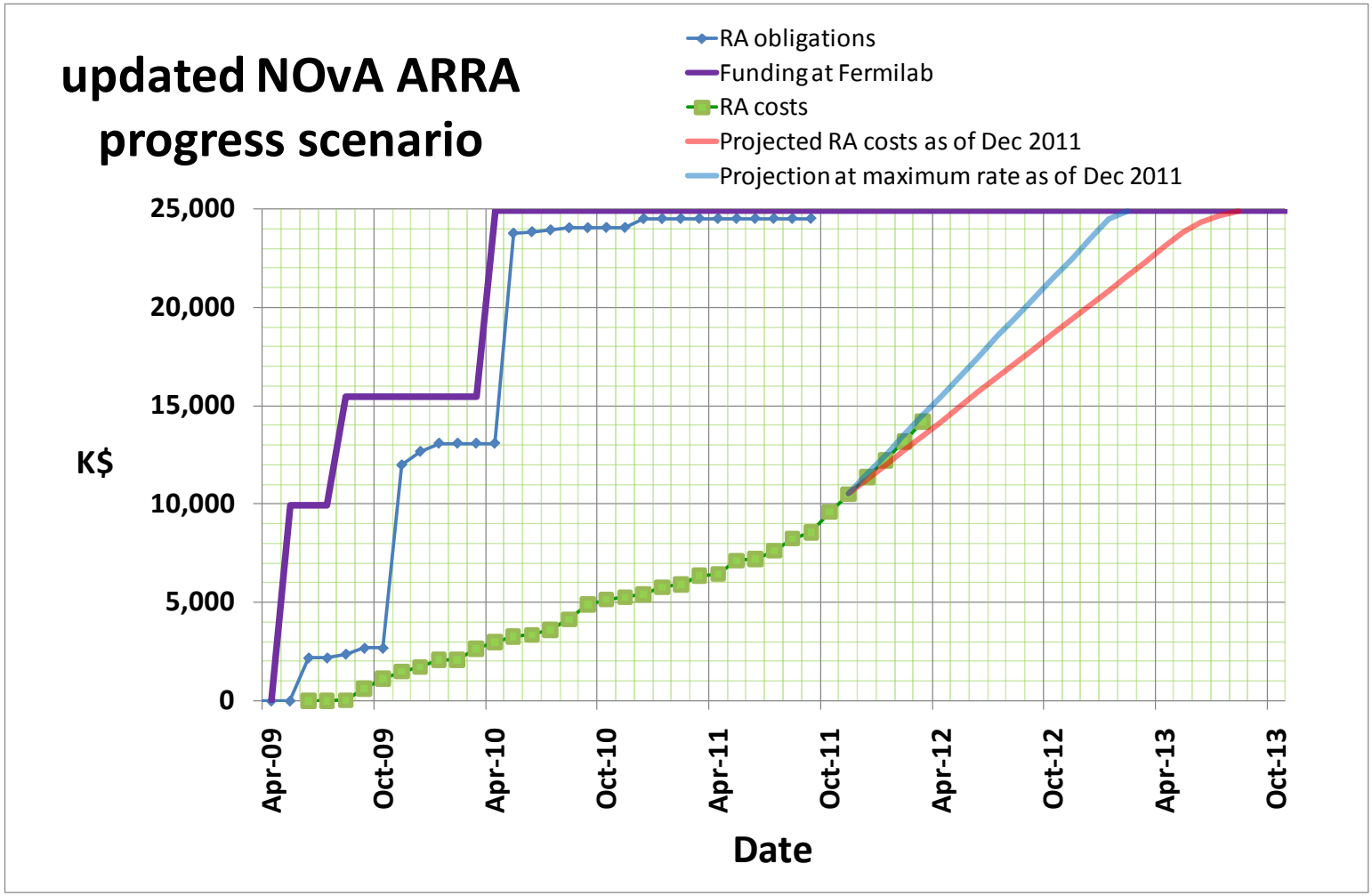
Completed Milestone ☆

Current Forecast Date △

Activity ID	Activity Desc.	Baseline Date	Forecast or Actual Date	Baseline Variance
L.3 -- Fermilab Associate Director Milestone				
2.10.9.5	CD-3a Funds Available	02Feb09	24Oct08	63d
2.10.9.7	FY09 Funds Available	02Feb09	14Oct08	71d
2.10.10.3	2009 Shutdown Begun	06Apr09	15Jun09	-50d
2.10.9.24	Director's CD-3b Review	01May09	18Jun09	-34d
2.0.1.2.8.1	Gap Clearing/RR Inj Kicker Magnet Design Complete	01Sep09	01Dec09	-63d
2.10.9.6	CD-3b Funds Available	01Oct09	29Oct09	-21d
2.10.9.8	FY10 Funds Available	02Nov09	01Oct09	21d
2.3.2.1.6	WLS fiber production begins	09Feb10	12Jan10	18d
1.5.7.3.9	IPND block 4 module production completed	04Jun10	17May10	12d
2.10.9.9	FY11 Funds Available	01Nov10	03Jan11	-41d
2.1.2.5.23	Final acceptance/project completion - far detector building construction	10Oct11	10Oct11	-1d
2.10.9.10	FY12 Funds Available	01Nov11	03Jan12	-40d
2.0.3.3.4.1	NuMI Shielding Blocks & Carriage Complete	28Nov11	28Sep11	40d
2.0.3.3.4.3	NuMI Stripline Assembly Complete	28Nov11	19Oct11	25d
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	02Apr12	-2d
2.10.10.5	Accelerator Shutdown Begun	30Apr12	30Apr12	0
2.0.4.3.13	ANU Shielding Assessment Updates Complete	31May12	01Mar12	64d
2.0.3.2.4.3	NuMI ME Target/Carrier/Baffle Assembly Complete	20Aug12	02Aug12	12d

ARRA Status

- On track to use all funds by Sept 30, 2013.



Variance thresholds & January 2012 status

- At the Cost Account level where CAMs write VARs
  - 57 of 72 accounts active, 28 require VARs

Report Period: Jan-12																			
	Current Period									Cumulative									
Control Account	BCWS (AY$)	BCWP (AY$)	ACWP (AY$)	SV (AY$)	SV (%)	CV (AY$)	CV (%)	SPI	CPI	BCWS (AY$)	BCWP (AY$)	ACWP (AY$)	SV (AY$)	SV (%)	CV (AY$)	CV (%)	SPI	CPI	BAC (AY$)
R&D																			
1.0.0 ANU CDR COSTS	0	0	0	0	0%	0	0%	1.00	1.00	0	0	18,630	0	0%	(18,630)	-100%	1.00	0.00	0
1.0.1 RR Upgrades	0	0	6,168	0	0%	(6,168)	-100%	1.00	0.00	4,349,904	4,273,056	4,403,712	(76,848)	-2%	(130,656)	-3%	0.98	0.97	5,257,774
1.0.2 MI Upgrades	0	0	5,295	0	0%	(5,295)	-100%	1.00	0.00	589,742	589,742	680,889	(0)	-0%	(91,147)	-15%	1.00	0.87	679,441
1.0.3 NuMI Upgrades	0	34,499	902	34,499	100%	33,597	97%	N/A	38.25	2,047,460	2,081,960	1,775,938	34,499	2%	306,022	15%	1.02	1.17	2,147,409
1.0.4 ANU Beam Physics	0	0	0	0	0%	0	0%	1.00	1.00	83,191	83,191	11,155	(0)	-0%	72,037	87%	1.00	7.46	83,191
1.0.5 ANU Project Management	0	0	0	0	0%	0	0%	1.00	1.00	344,698	344,698	258,691	0	0%	86,007	25%	1.00	1.33	344,698
1.1 Site and Building R&D	0	0	0	0	0%	0	0%	1.00	1.00	3,630,248	3,630,248	3,168,480	0	0%	461,768	13%	1.00	1.15	3,630,248
1.2 Liquid Scintillator R&D	0	0	0	0	0%	0	0%	1.00	1.00	297,031	297,031	389,205	0	0%	(92,174)	-31%	1.00	0.76	297,031
1.3 WLS Fiber R&D	0	0	0	0	0%	0	0%	1.00	1.00	340,909	340,909	374,822	0	0%	(33,913)	-10%	1.00	0.91	340,909
1.4 PVC Extrusion R&D	0	0	270	0	0%	(270)	-100%	1.00	0.00	1,368,848	1,368,848	2,084,600	0	0%	(715,752)	-52%	1.00	0.66	1,368,848
1.5 PVC Module R&D	0	0	0	0	0%	0	0%	1.00	1.00	2,260,343	2,260,343	2,420,701	(0)	-0%	(160,358)	-7%	1.00	0.93	2,260,343
1.6 Electronics R&D	0	0	0	0	0%	0	0%	1.00	1.00	2,027,555	2,027,555	2,599,633	0	0%	(572,079)	-28%	1.00	0.78	2,027,555
1.7 DAQ R&D	0	0	0	0	0%	0	0%	1.00	1.00	1,635,495	1,635,495	2,821,845	0	0%	(1,186,350)	-73%	1.00	0.58	1,635,495
1.8 Detector Assembly R&D	0	0	0	0	0%	0	0%	1.00	1.00	3,122,854	3,122,854	4,928,970	0	0%	(1,806,117)	-58%	1.00	0.63	3,122,854
1.9 Project Management R&D	0	0	0	0	0%	0	0%	1.00	1.00	9,184,127	9,184,127	9,359,785	0	0%	(175,658)	-2%	1.00	0.98	9,184,127
Construction																			
2.0.1.1 Recycler Ring Modifications	159,590	325,203	257,931	165,612	104%	67,271	21%	2.04	1.26	5,787,127	3,967,808	5,508,658	(1,819,319)	-31%	(1,540,850)	-39%	0.69	0.72	10,441,924
2.0.1.2 Recycler Kicker System	108,965	241,846	309,031	132,881	122%	(67,184)	-28%	2.22	0.78	7,042,694	6,716,036	7,867,296	(326,658)	-5%	(1,151,260)	-17%	0.95	0.85	9,275,416
2.0.1.3 Recycler Instrumentation	78,389	140,528	54,058	62,138	79%	86,470	62%	1.79	2.60	1,113,650	996,014	1,811,162	(117,636)	-11%	(815,148)	-82%	0.89	0.55	1,400,403
2.0.2.1 MI Modifications	8,764	0	287	(8,764)	-100%	(287)	-100%	0.00	0.00	237,362	234,374	560,016	(2,988)	-1%	(325,642)	-139%	0.99	0.42	843,363
2.0.2.2 MI RF Cavities	36,587	6,223	10,106	(30,363)	-83%	(3,882)	-62%	0.17	0.62	1,245,946	1,169,499	1,577,465	(76,447)	-6%	(407,966)	-35%	0.94	0.74	1,466,575
2.0.3.1 NuMI Primary Proton Beam	102,810	6,052	29,038	(96,758)	-94%	(22,986)	-380%	0.06	0.21	1,082,818	971,169	1,262,400	(111,649)	-10%	(291,231)	-30%	0.90	0.77	1,583,594
2.0.3.2 NuMI Target Hall Technical Components	17,773	39,482	44,063	21,709	122%	(4,582)	-12%	2.22	0.90	653,608	639,456	1,090,128	(14,151)	-2%	(450,672)	-70%	0.98	0.59	1,734,009
2.0.3.3 NuMI Target Hall Infrastructure	0	1,621	22,591	1,621	100%	(20,970)	-1,294%	N/A	0.07	1,004,417	1,040,661	989,744	36,244	4%	50,917	5%	1.04	1.05	1,658,550
2.0.3.4 NuMI Decay Pipe-Hadron Absorber-Utilities	26,897	23,513	35,954	(3,384)	-13%	(12,441)	-53%	0.87	1.65	347,023	227,484	679,889	(119,539)	-34%	(452,405)	-199%	0.66	0.33	1,328,386
2.0.4 Project Management - ANU - Construction	42,712	42,712	29,668	0	0%	13,044	31%	1.00	1.44	2,587,651	2,587,651	1,340,700	0	0%	1,246,951	48%	1.00	1.93	3,275,632
2.1.1 Site Preparation Package	0	0	449	0	0%	(449)	-100%	1.00	0.00	14,255,512	14,255,512	13,446,392	0	0%	809,121	6%	1.00	1.06	14,255,512
2.1.2 Far Detector Building	0	0	2,809	0	0%	(2,809)	-100%	1.00	0.00	22,875,787	22,875,787	22,449,220	0	0%	426,567	2%	1.00	1.02	22,875,787
2.1.4 Management - Site and Building - Construction	0	0	0	0	0%	0	0%	1.00	1.00	556,370	556,370	534,210	0	0%	22,160	4%	1.00	1.04	556,370
2.1.5 Far Detector Building Outfitting	39,078	3,782	468,076	(35,295)	-90%	(464,293)	-12,276%	0.10	0.01	3,838,796	3,801,942	3,730,963	(36,854)	-1%	70,979	2%	0.99	1.02	3,864,587
2.1.6 Transition Support Tasks	0	0	2,905	0	0%	(2,905)	-100%	1.00	0.00	192,234	192,234	199,464	0	0%	(7,230)	-4%	1.00	0.96	192,234
2.1.7 Block Pivoter Assembly	16,864	65,675	27,372	48,812	289%	38,304	58%	3.89	2.40	268,746	203,070	138,971	(65,675)	-24%	64,099	32%	0.76	1.46	268,746
2.10 Project Management - Nova Project - Construction	187,854	187,854	146,493	0	0%	41,362	22%	1.00	1.28	7,205,237	7,205,237	5,985,462	0	0%	1,219,774	17%	1.00	1.20	11,652,274
2.2.1 Mineral Oil	443,591	309,858	40,367	(133,733)	-30%	269,491	67%	0.70	7.68	2,122,657	2,973,625	2,993,536	850,968	40%	(19,910)	-1%	1.40	0.99	12,709,669
2.2.2 Pseudocumene	8,389	8,389	4,590	0	0%	3,799	45%	1.00	1.83	274,809	268,502	327,428	(6,306)	-2%	(58,926)	-22%	0.98	0.82	1,597,862
2.2.3 Waveshifters and Stadis 425	0	0	0	0	0%	0	0%	1.00	1.00	3,426,938	3,426,679	3,437,991	(259)	-0%	(11,312)	-0%	1.00	1.00	3,426,938
2.2.4 Blending	9,630	10,698	52,064	1,068	11%	(41,366)	-387%	1.11	0.21	984,120	1,003,895	1,106,505	19,775	2%	(102,609)	-10%	1.02	0.91	2,976,262
2.2.5 Transport - Liquid Scintillator	0	0	0	0	0%	0	0%	1.00	1.00	30,151	30,151	69,573	0	0%	(39,422)	-131%	1.00	0.43	1,409,994
2.2.6 Management - Liquid Scintillator - Construction	2,612	2,612	5,735	0	0%	(3,123)	-120%	1.00	0.46	72,579	72,579	43,312	0	0%	29,267	40%	1.00	1.68	125,217
2.3.1 Procurement - WLS Fiber	0	0	0	0	0%	0	0%	1.00	1.00	84,374	84,374	83,367	0	0%	1,008	1%	1.00	1.01	84,374
2.3.2 Production - WLS Fiber	350,327	351,481	410,193	1,154	0%	(58,712)	-17%	1.00	0.86	8,309,658	8,674,317	9,107,814	364,659	4%	(433,497)	-5%	1.04	0.95	12,185,180
2.3.3 Management - WLS Fiber - Construction	840	840	2,000	0	0%	(1,160)	-138%	1.00	0.42	30,507	30,507	24,498	0	0%	6,009	20%	1.00	1.25	37,646
2.3.4 Additional WLS Fiber-related Tasks	0	1,603	0	1,603	100%	1,603	100%	N/A	N/A	95,643	90,834	96,555	(4,809)	-5%	(5,721)	-6%	0.95	0.94	95,643
2.4.1 Procurement - PVC Extrusions	0	0	0	0	0%	0	0%	1.00	1.00	178,037	178,037	383,182	0	0%	(205,145)	-115%	1.00	0.46	178,037
2.4.2 Extrusion Pre-Production	0	0	0	0	0%	0	0%	1.00	1.00	1,342,931	1,342,931	1,340,162	0	0%	2,770	0%	1.00	1.00	1,342,931
2.4.3 Extrusion Production	530,147	881,364	856,008	351,218	66%	25,357	3%	1.66	1.03	7,695,951	9,276,686	9,232,638	1,580,734	21%	44,048	0%	1.21	1.00	26,124,548
2.4.4 Production Quality Assurance and Extrusion Evaluation	22,350	22,350	36,701	0	0%	(14,351)	-64%	1.00	0.61	741,610	741,610	752,395	0	0%	(10,785)	-1%	1.00	0.99	1,089,687
2.4.5 Shipping & Handling - PVC Extrusions	33,404	9,706	7,422	(23,698)	-71%	2,284	24%	0.29	1.31	971,300	1,039,032	675,386	67,732	7%	363,646	35%	1.07	1.54	1,171,826
2.4.6 Management - PVC Extrusions - Construction	20,017	20,017	5,765	0	0%	14,252	71%	1.00	3.47	448,425	448,425	372,130	0	0%	76,295	17%	1.00	1.21	787,480
2.5.1 End Seals	0	24,663	203,178	24,663	100%	(178,515)	-724%	N/A	0.12	970,920	900,626	927,103	(70,294)	-7%	(26,478)	-3%	0.93	0.97	2,142,686
2.5.2 Optical Connector Production	2,535	22,448	762	19,913	785%	21,686	97%	8.85	29.45	122,882	96,978	8,142	(25,905)	-21%	88,835	92%	0.79	11.91	123,516
2.5.3 Module Production	209,146	188,026	179,273	(21,120)	-10%	8,753	5%	0.90	1.05	7,202,463	6,811,971	5,771,666	(390,491)	-5%	1,040,306	15%	0.95	1.18	15,666,836
2.5.4 Management - PVC Modules - Construction	31,184	31,184	49,439	0	0%	(18,255)	-59%	1.00	0.63	1,069,937	1,069,937	841,361	0	0%	228,575	21%	1.00	1.27	1,557,952
2.6.1 APD Module Production	125,929	38,993	23,295	(86,936)	-69%	15,697	40%	0.31	1.67	1,687,294	1,241,806	1,067,174	(445,488)	-26%	174,631	14%	0.74	1.16	7,085,452
2.6.2 Readout - FEB	23,646	103,852	90,307	80,206	339%	13,545	13%	4.39	1.15	2,032,181	1,890,771	1,570,022	(141,410)	-7%	320,749	17%	0.93	1.20	2,808,130
2.6.3 Readout Infrastructure	52,385	126,595	125,726	74,210	142%	869	1%	2.42	1.01	1,670,513	1,638,901	1,395,140	(31,613)	-2%	243,761	15%	0.98	1.17	2,327,875
2.6.4 Management - Electronics - Construction	3,510	3,510	29	0	0%	3,481	99%	1.00	####	46,893	46,893	27,619	0	0%	19,274	41%	1.00	1.70	69,927
2.7.1 DAQ Software	1,812	4,084	19,583	2,272	125%	(15,499)	-379%	2.25	0.21	736,946	577,780	644,410	(159,166)	-22%	(66,631)	-12%	0.78	0.90	775,001
2.7.2 DAQ Hardware	170,653	220,101	191,173	49,448	29%	28,928	13%	1.29	1.15	1,317,540	1,399,501	1,443,519	81,961	6%	(44,018)	-3%	1.06	0.97	2,457,064
2.7.3 Integration - DAQ	12,168	3,426	16,518	(8,743)	-72%	(13,093)	-382%	0.28	0.21	214,811	207,722	389,702	(7,089)	-3%	(181,980)	-88%	0.97	0.53	430,339
2.7.4 Detector Control System	0	34,962	29,459	34,962	100%	5,503	16%	N/A	1.19	117,883	34,962	157,218	(82,921)	-70%	(122,256)	-350%	0.30	0.22	214,351
2.7.5 Management - DAQ - Construction	691	691	0	0	0%	691	100%	1.00	N/A	21,219	21,219	9,958	0	0%	11,261	53%	1.00	2.13	27,093
2.8.1 Near Detector Site Preparation	252,595	402,314	105,591	149,719	59%	296,723	74%	1.59	3.81	757,333	799,301	1,544,448	41,968	6%	(745,147)	-93%	1.06	0.52	5,708,306
2.8.2 Mechanical Construction and Installation - Near Detecto	0	0	76	0	0%	(76)	-100%	1.00	0.00	386,488	386,488	807,704	0	0%	(421,216)	-109%	1.00	0.48	491,799
2.8.3 Liquid Scintillator Filling Equipment - Near Detector Ass	0	0	0	0	0%	0	0%	1.00	1.00	0	0	0	0	0%	0	0%	1.00	1.00	55,743
2.8.4 Installation Coordination - Near Detector Assembly	0	0	0	0	0%	0	0%	1.00	1.00	0	0	0	0	0%	0	0%	1.00	1.00	31,228
2.8.5 Management - Near Detector Assembly - Construction	0	0	0	0	0%	0	0%	1.00	1.00	100,768	100,768	82	0	0%	100,686	100%	1.00	0.00	112,285
2.9.1 Mechanical Systems - Far Detector Assembly	148,043	232,429	551,203	84,387	57%	(318,774)	-137%	1.57	0.42	3,786,511	3,239,948	6,117,074	(546,562)	-14%	(2,877,126)	-89%	0.86	0.53	4,340,482
2.9.2 Detector Infrastructure - Far Detector Assembly	23,114	53,934	154,071	30,819	133%	(100,137)	-186%	2.33	0.35	443,390	281,691	398,968	(161,699)	-36%	(117,277)	-42%	0.64	0.71	852,291
2.9.3 Scintillator Filling Equipment - Far Detector Assembly	21,048	0	30,472	(21,048)	-100%	(30,472)	-100%	0.00	0.00	562,937	248,310	331,305	(314,627)	-56%	(82,994)	-33%	0.44	0.75	579,107
2.9.4 Block Assembly and Installation - Far Detector Assemb	136,415	45,622	54,634	(90,793)	-67%	(9,012)	-20%	0.33	0.84	1,273,193	992,566	591,965	(280,627)	-22%	400,601	40%	0.78	1.68	13,303,139
2.9.5 Management - Far Detector Assembly - Construction	47,451	46,525	62,652	(926)	-2%	(16,126)	-35%	0.98	0.74	1,166,860	1,167,412	928,341	552	0%	239,071	20%	1.00	1.26	2,193,744
2.9.6 Other University of Minnesota Far Detector Assembly-A	22,699	38,157	20,020	15,459	68%	18,137	48%	1.68	1.91	281,287	262,650	283,033	(18,637)	-7%	(20,383)	-8%	0.93	0.93	773,826
R&D SubTotal (WBS 1.0-1.9)	0	34,499	12,636	34,499	0%	21,864	63%	0.00	2.73	31,282,406	31,240,057	35,297,058	(42,349)	-0%	(4,057,001)	-13%	1.00	0.89	32,379,923
Const. SubTotal (WBS 2.0-2.10)	3,532,613	4,324,927	4,769,136	792,314	22%	(444,208)	-10%	1.22	0.91	123,074,914	120,740,690	124,474,566	(2,334,224)	-2%	(3,733,876)	-3%	0.98	0.97	216,147,822
Project Total	3,532,613	4,359,427	4,781,771	826,814	23%	(422,345)	-10%	1.23	0.91	154,357,320	151,980,747	159,771,624	(2,376,573)	-2%	(7,790,877)	-5%	0.98	0.95	248,527,745

Done

Blue means Closed.

Variance thresholds & January 2012 status

- At the Chargeable Cost level for non-costed scientist HOURS
  - 46 of 61 are active, 8 requiring reports

Report Period: Jan-12	Current Period - SCI Hrs									Cumulative - Since 01Oct09								
Control Account	BCWS (Hrs)	BCWP (Hrs)	ACWP (Hrs)	SV (Hrs)	SV (%)	CV (Hrs)	CV (%)	SPI	CPI	BCWS (Hrs)	BCWP (Hrs)	ACWP (Hrs)	SV (Hrs)	SV (%)	CV (Hrs)	CV (%)	SPI	CPI
R&D																		
1.0.1 RR Upgrades	0	109	27	109	100%	82	75%	N/A	4.03	367	927	2,175	560	153%	(1,248)	-135%	2.53	0.43
1.0.2 MI Upgrades	0	0	0	0	0%	0	0%	1.00	1.00	333	412	271	79	24%	142	34%	1.24	1.52
1.0.3 NuMI Upgrades	0	0	59	0	0%	(59)	-100%	1.00	0.00	1,192	1,553	2,352	361	30%	(799)	-51%	1.30	0.66
1.0.4 ANU Beam Physics	0	0	0	0	0%	0	0%	1.00	1.00	2,428	1,955	263	(473)	-19%	1,692	87%	0.81	7.43
1.0.5 ANU Project Management	0	0	0	0	0%	0	0%	1.00	1.00	0	0	0	0	0%	0	0%	1.00	1.00
1.2 Liquid Scintillator R&D	0	0	0	0	0%	0	0%	1.00	1.00	0	0	0	0	0%	0	0%	1.00	1.00
1.3 WLS Fiber R&D	0	0	0	0	0%	0	0%	1.00	1.00	0	29	60	29	100%	(31)	-107%	N/A	0.48
1.4 PVC Extrusion R&D	0	0	0	0	0%	0	0%	1.00	1.00	0	179	132	179	100%	47	26%	N/A	1.36
1.5 PVC Module R&D	0	0	0	0	0%	0	0%	1.00	1.00	1,224	1,638	3,155	414	34%	(1,517)	-93%	1.34	0.52
1.6 Electronics R&D	0	0	0	0	0%	0	0%	1.00	1.00	224	322	5,766	98	44%	(5,444)	-1,691%	1.44	0.06
1.7 DAQ R&D	0	0	0	0	0%	0	0%	1.00	1.00	3,668	4,979	1,711	1,311	36%	3,268	66%	1.36	2.91
1.8 Detector Assembly R&D	0	0	0	0	0%	0	0%	1.00	1.00	944	1,594	724	650	69%	870	55%	1.69	2.20
1.9 Project Management R&D	0	0	0	0	0%	0	0%	1.00	1.00	0	0	0	0	0%	0	0%	1.00	1.00
Construction																		
2.0.1.1 Recycler Ring Modifications	8	12	208	3	39%	(196)	-1,683%	1.39	0.06	711	737	3,374	26	4%	(2,637)	-358%	1.04	0.22
2.0.1.2 Recycler Kicker System	3	3	92	0	0%	(89)	-2,804%	1.00	0.03	113	137	1,780	24	21%	(1,643)	-1,199%	1.21	0.08
2.0.1.3 Recycler Instrumentation	0	0	0	0	0%	0	0%	1.00	1.00	27	13	5	(14)	-52%	8	62%	0.48	2.60
2.0.2.2 MI RF Cavities	0	0	0	0	0%	0	0%	1.00	1.00	120	120	0	0	0%	120	100%	1.00	N/A
2.0.3.1 NuMI Primary Proton Beam	20	7	0	(14)	-67%	7	100%	0.33	N/A	390	461	59	71	18%	403	87%	1.18	7.88
2.0.3.2 NuMI Target Hall Technical Components	0	41	2	41	100%	39	95%	N/A	20.55	277	215	389	(62)	-22%	(174)	-81%	0.78	0.55
2.0.3.3 NuMI Target Hall Infrastructure	0	0	0	0	0%	0	0%	1.00	1.00	16	16	0	0	0%	16	100%	1.00	N/A
2.0.3.4 NuMI Decay Pipe/Hadron Absorber/Utilities	0	0	0	0	0%	0	0%	1.00	1.00	120	120	0	0	0%	120	100%	1.00	N/A
2.0.4 Project Management - ANU - Construction	120	120	126	0	0%	(6)	-5%	1.00	0.95	6,617	6,617	2,933	0	0%	3,684	56%	1.00	2.26
2.10 Project Management - Nova Project - Construction	0	0	31	0	0%	(31)	-100%	1.00	0.00	0	0	3,867	0	0%	(3,867)	-100%	1.00	0.00
2.2.1 Mineral Oil	0	0	18	0	0%	(18)	-100%	1.00	0.00	128	128	209	0	0%	(81)	-63%	1.00	0.61
2.2.2 Pseudocumene	0	0	0	0	0%	0	0%	1.00	1.00	80	80	16	0	0%	64	80%	1.00	5.00
2.2.3 Waveshifters and Stadis 425	0	0	0	0	0%	0	0%	1.00	1.00	0	0	0	0	0%	0	0%	1.00	1.00
2.2.4 Blending	0	0	0	0	0%	0	0%	1.00	1.00	80	80	98	0	0%	(18)	-23%	1.00	0.82
2.2.5 Transport - Liquid Scintillator	0	0	0	0	0%	0	0%	1.00	1.00	0	0	8	0	0%	(8)	-100%	1.00	0.00
2.2.6 Management - Liquid Scintillator - Construction	0	0	58	0	0%	(58)	-100%	1.00	0.00	1,386	1,386	2,237	0	0%	(851)	-61%	1.00	0.62
2.3.1 Procurement - WLS Fiber	0	0	0	0	0%	0	0%	1.00	1.00	28	0	0	(28)	-100%	0	0%	0.00	1.00
2.3.2 Production - WLS Fiber	16	17	20	1	5%	(3)	-18%	1.05	0.85	380	408	472	28	7%	(64)	-16%	1.07	0.86
2.3.3 Management - WLS Fiber - Construction	6	6	0	0	0%	6	100%	1.00	N/A	186	186	185	0	0%	1	1%	1.00	1.01
2.4.1 Procurement - PVC Extrusions	0	0	0	0	0%	0	0%	1.00	1.00	19	88	64	69	363%	24	27%	4.63	1.38
2.4.2 Extrusion Pre-Production	0	0	0	0	0%	0	0%	1.00	1.00	800	800	156	0	0%	644	81%	1.00	5.13
2.4.3 Extrusion Production	0	0	0	0	0%	0	0%	1.00	1.00	0	0	42	0	0%	(42)	-100%	1.00	0.00
2.4.4 Production Quality Assurance and Extrusion Evaluation	0	0	0	0	0%	0	0%	1.00	1.00	0	0	120	0	0%	(120)	-100%	1.00	0.00
2.4.5 Shipping & Handling - PVC Extrusions	0	0	0	0	0%	0	0%	1.00	1.00	0	0	24	0	0%	(24)	-100%	1.00	0.00
2.4.6 Management - PVC Extrusions - Construction	48	48	84	0	0%	(36)	-75%	1.00	0.57	1,392	1,392	1,192	0	0%	200	14%	1.00	1.17
2.5.1 End Seals	0	0	0	0	0%	0	0%	1.00	1.00	472	432	956	(40)	-8%	(524)	-121%	0.92	0.45
2.5.2 Optical Connector Production	13	24	0	11	88%	24	100%	1.88	N/A	81	68	0	(13)	-16%	68	100%	0.84	N/A
2.5.3 Module Production	401	335	168	(66)	-16%	167	50%	0.84	2.00	5,951	5,297	6,458	(654)	-11%	(1,161)	-22%	0.89	0.82
2.5.4 Management - PVC Modules - Construction	3	3	79	0	0%	(76)	-2,369%	1.00	0.04	463	463	1,729	0	0%	(1,266)	-273%	1.00	0.27
2.6.1 APD Module Production	125	0	0	(125)	-100%	0	0%	0.00	1.00	478	378	215	(100)	-21%	163	43%	0.79	1.76
2.6.2 Readout - FEB	40	0	0	(40)	-100%	0	0%	0.00	1.00	40	0	127	(40)	-100%	(127)	-100%	0.00	0.00
2.6.3 Readout Infrastructure	4	4	152	(0)	-5%	(148)	-3,700%	0.95	0.03	13	12	3,349	(1)	-8%	(3,337)	-27,808%	0.92	0.00
2.6.4 Management - Electronics - Construction	40	40	77	0	0%	(37)	-93%	1.00	0.52	1,360	1,360	969	0	0%	391	29%	1.00	1.40
2.7.1 DAQ Software	280	0	127	(280)	-100%	(127)	-100%	0.00	0.00	6,732	3,052	2,614	(3,680)	-55%	438	14%	0.45	1.17
2.7.2 DAQ Hardware	0	0	10	0	0%	(10)	-100%	1.00	0.00	0	0	233	0	0%	(233)	-100%	1.00	0.00
2.7.3 Integration - DAQ	0	0	40	0	0%	(40)	-100%	1.00	0.00	0	0	810	0	0%	(810)	-100%	1.00	0.00
2.7.4 Detector Control System	0	0	85	0	0%	(85)	-100%	1.00	0.00	0	0	1,175	0	0%	(1,175)	-100%	1.00	0.00
2.7.5 Management - DAQ - Construction	72	72	79	0	0%	(7)	-9%	1.00	0.92	2,288	2,288	2,201	0	0%	87	4%	1.00	1.04
2.8.1 Near Detector Site Preparation	0	0	0	0	0%	0	0%	1.00	1.00	100	20	0	(80)	-80%	20	100%	0.20	N/A
2.8.2 Mechanical Construction and Installation - Near Detecto	0	0	53	0	0%	(53)	-100%	1.00	0.00	48	48	828	0	0%	(780)	-1,624%	1.00	0.06
2.8.3 Liquid Scintillator Filling Equipment - Near Detector Ass	0	0	0	0	0%	0	0%	1.00	1.00	0	0	0	0	0%	0	0%	1.00	1.00
2.8.4 Installation Coordination - Near Detector Assembly	0	0	0	0	0%	0	0%	1.00	1.00	0	0	480	0	0%	(480)	-100%	1.00	0.00
2.8.5 Management - Near Detector Assembly - Construction	0	0	0	0	0%	0	0%	1.00	1.00	320	320	0	0	0%	320	100%	1.00	N/A
2.9.1 Mechanical Systems - Far Detector Assembly	114	120	78	6	6%	42	35%	1.06	1.54	570	452	214	(118)	-21%	238	53%	0.79	2.11
2.9.2 Detector Infrastructure - Far Detector Assembly	0	0	0	0	0%	0	0%	1.00	1.00	40	16	2,889	(24)	-60%	(2,873)	-17,956%	0.40	0.01
2.9.3 Scintillator Filling Equipment - Far Detector Assembly	0	0	5	0	0%	(5)	-100%	1.00	0.00	32	19	5	(13)	-41%	14	74%	0.59	3.80
2.9.4 Block Assembly and Installation - Far Detector Assemb	874	849	40	(25)	-3%	809	95%	0.97	21.22	8,074	7,977	80	(97)	-1%	7,897	99%	0.99	99.71
2.9.5 Management - Far Detector Assembly - Construction	0	0	40	0	0%	(40)	-100%	1.00	0.00	0	0	470	0	0%	(470)	-100%	1.00	0.00
R&D SubTotal (WBS 1.0-1.9)	0	109	86	109	0%	23	21%	0.00	1.27	10,380	13,588	16,608	3,208	31%	(3,020)	-22%	1.31	0.82
Const. SubTotal (WBS 2.0-2.10)	2,188	1,701	1,671	(487)	-22%	30	2%	0.78	1.02	39,932	35,186	43,030	(4,746)	-12%	(7,844)	-22%	0.88	0.82
Project Total	2,188	1,810	1,757	(379)	-17%	53	3%	0.83	1.03	50,312	48,774	59,639	(1,538)	-3%	(10,865)	-22%	0.97	0.82

Done

Blue means Closed.

Variance Analyses

- NOTE: signatures are electronic
  - See CAM notebooks

NOVA Document 3443-v55

[NOvA DocDB Home]

CAM Notebook for 2.10

(Document Status: Approved)

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Update Document
Update DB Info
Add Files
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Abstract:
This document contains files or links to other files in NOVA-docdb that pertain to this control account.

Files in Document:

- January Variance Analysis Report
  (VAR-Jan11_for_2.10_Project_Management_-_Nova_Project_-...xls, 35.0 kB)
- January Variance HR Analysis Report
  (VAR-HRs_Jan11_for_2.10_Project_Management_-_Nova_Proje...xls, 34.0 kB)

Get all files as tar.gz, zip.

Topics:

- Project Management

Authors:

- John W. Cooper

Keywords:
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Related Documents:

- NOVA-doc-5052: CR185 - Nova Project Management Effort and Budget Adjustments for FY11-FY14
- NOVA-doc-4329: CR109 - Update Cobra Rates to FY10 Fermilab and FESS Chargeback Rates
- NOVA-doc-4240: CR100 - ANU Replan
- NOVA-doc-4234: CR097 - Factory Machines Engineering Review
- NOVA-doc-4171: CR087 - Add L1 & L2 Scientists to Project Budgets
- NOVA-doc-3956: CR075 - Update to FNAL OH Rates, FESS Chargeback Rates, UMN Rates
- NOVA-doc-3644: CR062 - HU Engineering Labor Subsidy Change
- NOVA-doc-3075: CR027 - Move FY08 Management Labor from R&D to MIE
- NOVA-doc-3030: CR024 - FY08 Subproject Management Tasks Changes
- NOVA-doc-2984: CR014 - OP Errata - WBS 2.10 - Add Admin Asst
- NOVA-doc-253: NOvA WBS Dictionary
- NOVA-doc-2573: WBS Level 3 Managers
  (Approved - 24 Jun 2009)
- NOVA-doc-3447: NOvA Dollarized RAM
- NOVA-doc-2638: Nova WBS Level 2 Milestone Gantt Charts By Control Account - Mar09
- NOVA-doc-2844: Monthly Schedule Snapshots with Progress Information - January 2011
- NOVA-doc-3372: Monthly Contract Performance Reports
  (Approved - 22 Feb 2011)
- NOVA-doc-2823: Work Authorization Document for Control Account 2.10
  (Approved - 25 Jan 2011)

Signoffs:

- John W. Cooper 356693 (signature complete)

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