



Project Status

John Cooper
Project Manager



EVMS Reporting Overview

- Data now available through April 2012
 - SPI = **0.975**, compare to 0.978 in Apr, 0.979 in Mar, 0.978 in Feb
 - CPI = **0.942**, compare to 0.944 in Apr, 0.946 in Mar, 0.943 in Feb
 - CPI still trending down slightly



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

CPR1 May 2012

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

PERFORMANCE DATA													
CTC-FndSrc CTC[2] Results... ITEM (1)	CURRENT PERIOD					CUMULATIVE TO DATE					AT COMPLETION		
	BUDGETED COST		ACTUAL COST	VARIANCE		BUDGETED COST		ACTUAL COST	VARIANCE		BUDGETED	LATEST REVISED ESTIMATE	VARIANCE
	WORK SCHEDULED	WORK PERFORMED	WORK PERFORMED	SCHEDULE	COST	WORK SCHEDULED	WORK PERFORMED	WORK PERFORMED	SCHEDULE	COST			
	(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	1,293	1,117	1,712	(176)	(595)	24,561	22,099	28,085	(2,463)	(5,986)	34,265	38,607	(4,342)
CTC-FndSrcTotals:	1,293	1,117	1,712	(176)	(595)	24,561	22,099	28,085	(2,463)	(5,986)	34,265	38,607	(4,342)
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	6,611	0	414	7,025	6,611	414
CTC-FndSrcTotals:	0	0	0	0	(0)	7,025	7,025	6,611	0	414	7,025	6,611	414
DE DOE-DET MIE													
2.1 Site and Building													
Fully burdened AY\$k	52	57	71	5	(14)	7,043	7,040	5,997	(3)	1,043	7,061	6,018	1,043
2.10 Project Management - Nova Project - Construction													
Fully burdened AY\$k	207	207	236	0	(30)	8,013	8,013	6,902	0	1,111	11,652	10,551	1,102
2.2 Liquid Scintillator													
Fully burdened AY\$k	556	296	305	(260)	(9)	9,121	9,170	9,328	49	(158)	22,341	22,500	(159)
2.3 WLS Fiber													
Fully burdened AY\$k	407	353	395	(54)	(42)	10,090	10,832	11,198	742	(366)	12,606	12,956	(350)
2.4 PVC Extrusions													
Fully burdened AY\$k	1,137	1,016	1,141	(121)	(126)	16,192	16,870	17,138	677	(269)	30,695	30,805	(110)
2.5 PVC Modules													
Fully burdened AY\$k	578	395	435	(183)	(40)	10,882	10,460	8,960	(422)	1,500	19,997	18,527	1,469
2.6 Electronics													
Fully burdened AY\$k	184	152	190	(32)	(37)	7,225	5,575	5,130	(1,650)	445	12,299	11,920	379
2.7 DAQ													
Fully burdened AY\$k	138	76	149	(63)	(74)	3,422	2,651	3,457	(771)	(805)	4,435	5,243	(807)
2.8 Near Detector Assembly													
Fully burdened AY\$k	0	31	38	31	(7)	1,944	1,912	2,636	(31)	(724)	9,200	9,919	(720)
2.9 Far Detector Assembly													
Fully burdened AY\$k	209	344	291	134	53	8,664	8,100	10,734	(564)	(2,634)	22,236	25,048	(2,812)
CTC-FndSrcTotals:	3,469	2,927	3,251	(542)	(324)	82,596	80,623	81,479	(1,974)	(856)	152,520	153,487	(966)

Another negative cost month, 3 times last month in size

Another negative month equal to last month

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



CONTRACTOR
NAME
Fermi National Accelerator
PERFORMANCE DATA

CPR1 May 2012 continued

REPORT PERIOD
FROM 01-May-2012
TO 31-May-2012

CTC-FndSrc CTC[2] Results... ITEM	CURRENT PERIOD					CUMULATIVE TO DATE					AT COMPLETION		
	BUDGETED COST		ACTUAL COST	VARIANCE		BUDGETED COST		ACTUAL COST	VARIANCE		BUDGETED	LATEST REVISED ESTIMATE	VARIANCE
	WORK SCHEDULED	WORK PERFORMED	WORK PERFORMED	SCHEDULE	COST	WORK SCHEDULED	WORK PERFORMED	WORK PERFORMED	SCHEDULE	COST			
DO DOE-ACEL OPS													
1.0 ANU R&D													
Fully burdened AY\$K	269	256	46	(13)	210	659	666	662	7	4	1,644	1,705	(61)
CTC-FndSrcTotals:	269	256	46	(13)	210	659	666	662	7	4	1,644	1,705	(61)
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	5,031	4,300	5,009	(730)	(709)	173,769	169,339	179,857	(4,430)	(10,518)	254,381	263,430	(9,048)
Management Resrv.											23,619		
Total	5,031	4,300	5,009	(730)	(709)	173,769	169,339	179,857	(4,430)	(10,518)	278,000		

Should add this to (595) on previous page (Paul w details)

~ 65% ANU, 45% Det MIE

~55% ANU, 45% Det R&D

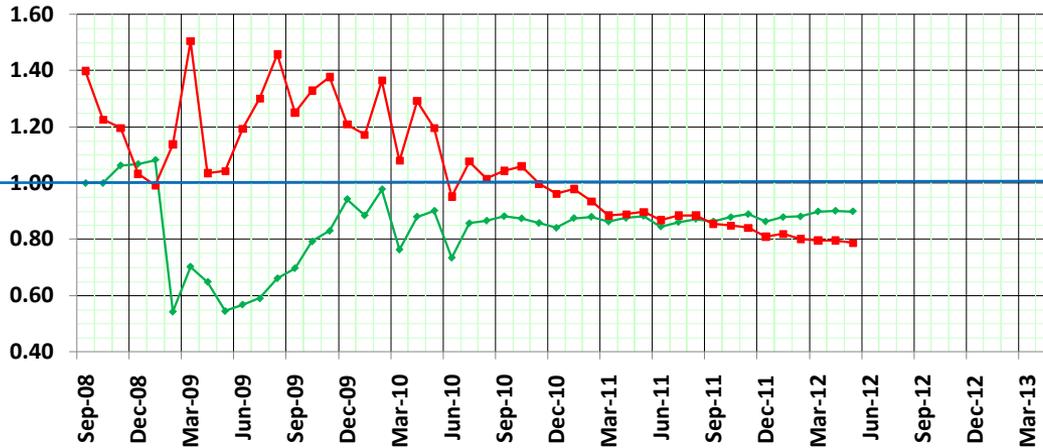


SPI & CPI for Active Work

Accelerator MIE SPI & CPI since CD-2

— ANU SPI = BCWP / BCWS

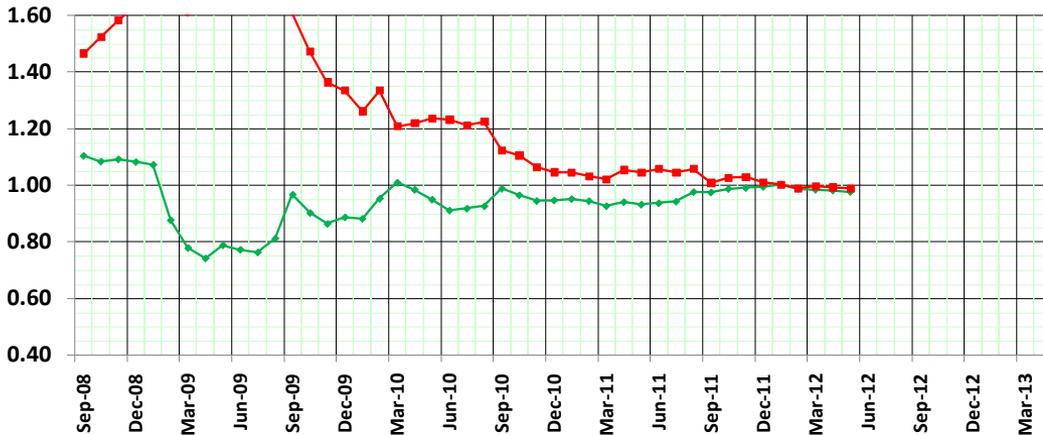
— ANU CPI = BCWP / ACWP



Detector MIE SPI & CPI since CD-2

— Detector MIE SPI = BCWP / BCWS

— Detector MIE CPI = BCWP / ACWP

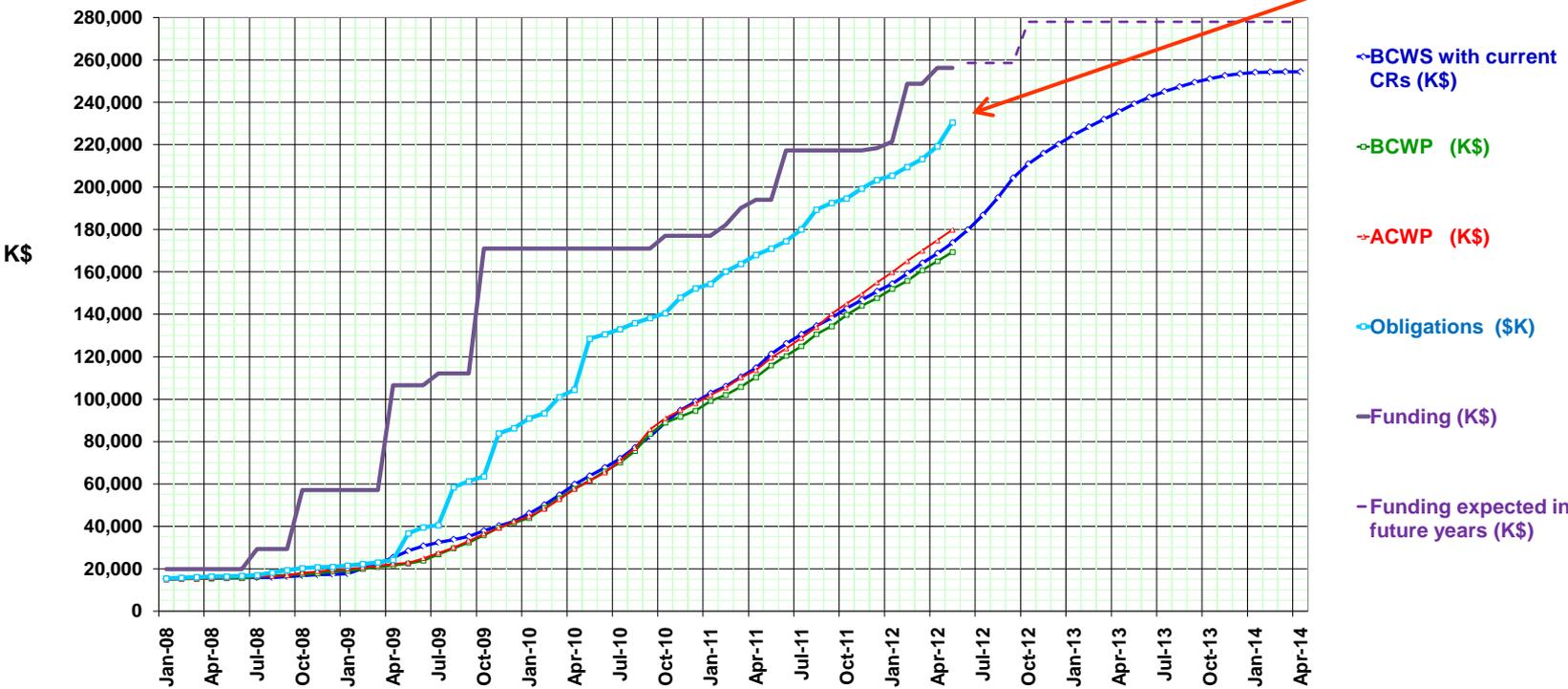


- ANU long slide down to CPI = 0.8
 - Did not stabilize in May as expected
 - Paul to discuss reasons
 - 1/3 RF
 - 1/3 overcharge on instrumentation
 - 1/3 a bunch of other shutdown tasks
- Detector still relatively constant near CPI = 1.0

EVMS Reporting Overview

- Basic data in BCWS, BCWP, ACWP, **Funding & Obligations** through May 2012
 - BCWS = Budgeted cost of work Scheduled
 - BCWP = Budgeted cost of work Performed
 - ACWP = Actual cost of work Performed
- Project is 66.6 % complete (BCWP/BAC = 169.3 M\$ / 254.4 M\$)
 - BAC = Budget at Completion (using EAC, get 64.3%)
- Project is 90.6 % obligated (Obligations/BAC = 230.5 / 254.4)
 - EAC = Estimate at Completion (using EAC, get 87.5%)

Jump for Near Cavern contract





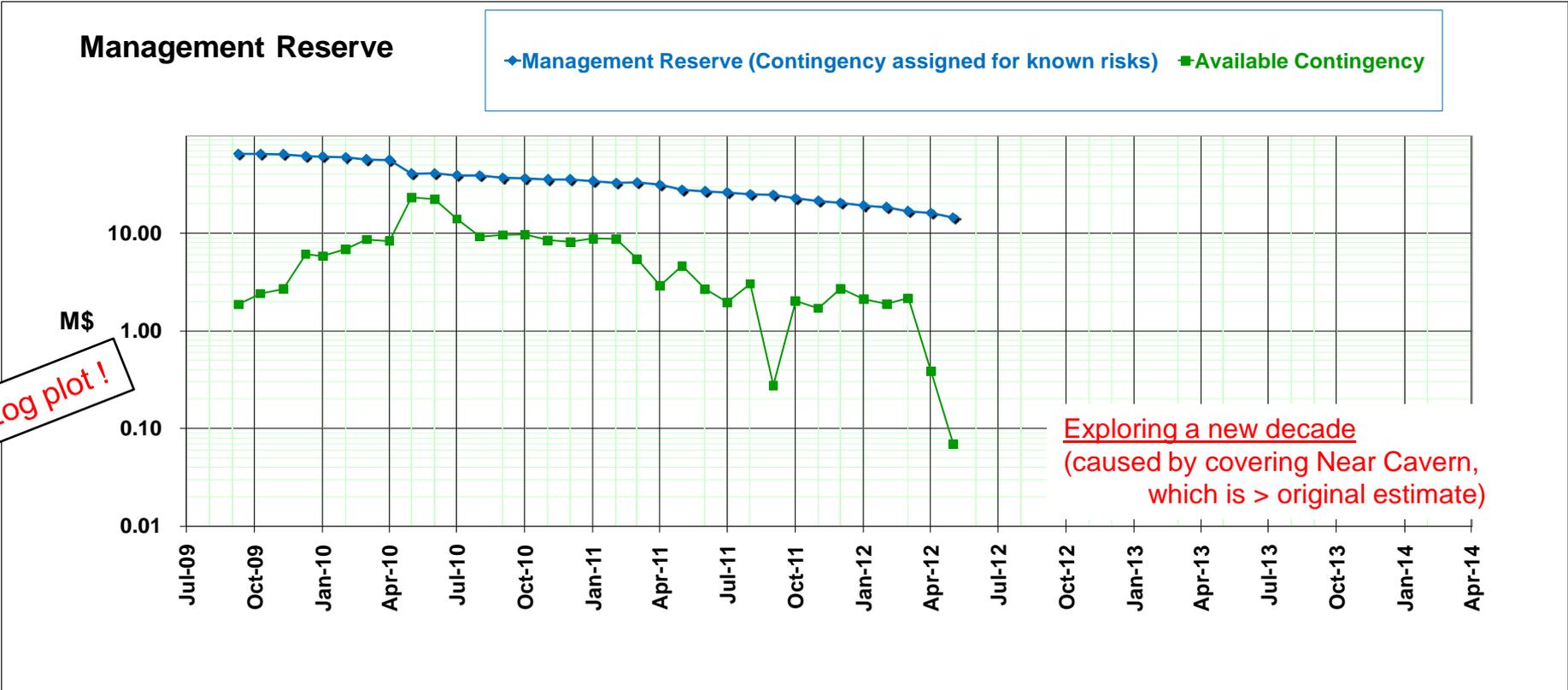
AY\$ by Level 2 with MIE/OPC split

WBS	Items	NOVA Costs to Date (\$M) as of 31-May-2012	NOVA 's Cost Estimate AY \$M (for June 1, 2012 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	
TE C	2.0 Accelerator & NuMI Upgrades	\$ 28.1	\$ 1.5	\$ 9.0	\$ 10.5	\$ 0.9	\$ 1.7	\$ 2.6	60%	19%	25%	\$ 41.2
	2.1 Far Detector Site and Building	\$ 6.0	\$ 0.0	\$ 0.0	\$ 0.0	\$ -	\$ -	\$ -	0%	0%	0%	\$ 6.0
	2.2 Liquid Scintillator	\$ 9.3	\$ 12.9	\$ 0.2	\$ 13.2	\$ 3.1	\$ 0.1	\$ 3.2	24%	42%	24%	\$ 25.7
	2.3 Wave-Length-Shifting Fiber	\$ 11.2	\$ 1.6	\$ 0.1	\$ 1.8	\$ 0.1	\$ 0.0	\$ 0.1	5%	10%	6%	\$ 13.1
	2.4 PVC Extrusions	\$ 17.1	\$ 13.1	\$ 0.5	\$ 13.7	\$ 0.8	\$ 0.1	\$ 0.9	6%	20%	6%	\$ 31.7
	2.5 PVC Modules	\$ 9.0	\$ 3.4	\$ 6.1	\$ 9.6	\$ 0.3	\$ 0.9	\$ 1.2	8%	15%	12%	\$ 19.7
	2.6 Electronics Production	\$ 5.1	\$ 5.8	\$ 1.0	\$ 6.8	\$ 0.4	\$ 0.3	\$ 0.7	7%	29%	10%	\$ 12.6
	2.7 Data Acquisition System	\$ 3.5	\$ 0.9	\$ 0.9	\$ 1.8	\$ 0.2	\$ 0.3	\$ 0.4	22%	27%	25%	\$ 5.7
	2.8 Near Detector Assembly	\$ 2.6	\$ 6.8	\$ 0.4	\$ 7.3	\$ 0.0	\$ 0.1	\$ 0.2	0%	34%	3%	\$ 10.1
	2.9 Far Detector Assembly	\$ 10.7	\$ 6.4	\$ 7.9	\$ 14.3	\$ 1.2	\$ 3.8	\$ 5.0	19%	48%	35%	\$ 30.1
	2.10 Project Management	\$ 6.9	\$ 0.1	\$ 3.5	\$ 3.6	\$ 0.0	\$ -	\$ 0.0	24%	0%	1%	\$ 10.6
	Subtotal Construction	\$ 109.6	\$ 52.7	\$ 29.8	\$ 82.5	\$ 7.0	\$ 7.3	\$ 14.3	13%	24%	17%	\$ 206.4
OP C	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	\$ 0.7	\$ 0.0	\$ 1.0	\$ 1.0	\$ 0.0	\$ 0.2	\$ 0.2	42%	16%	17%	\$ 1.9
		Total OPC:	\$ 70.3	\$ 0.0	\$ 1.0	\$ 1.0	\$ 0.0	\$ 0.2	\$ 0.2	42%	16%	17%
	Available Contingency							\$ 0.069				\$ 0.1
	TPC:	\$ 179.9	\$ 52.8	\$ 30.8	\$ 83.6	\$ 7.1	\$ 7.4	\$ 14.6	13%	24%	17%	\$ 278.000

Contingency Status, May 2012



- Total Contingency is 14.6 M\$ (Apr=16.6, Mar=19.1, Feb=20.5)
 - 17.5 % Contingency on remaining work (Estimated Cost is 83.6 M\$)
 - 44.3 % on remaining Obligations (Obligations are ~ 55 M\$ ahead of Costs)
- **Available Contingency = \$ 0.069 M\$ (Apr= 0.387, Mar=2.163, Feb=1.889)**
- Assigned Contingency (Management Reserve) is assigned according to our estimate of remaining risks

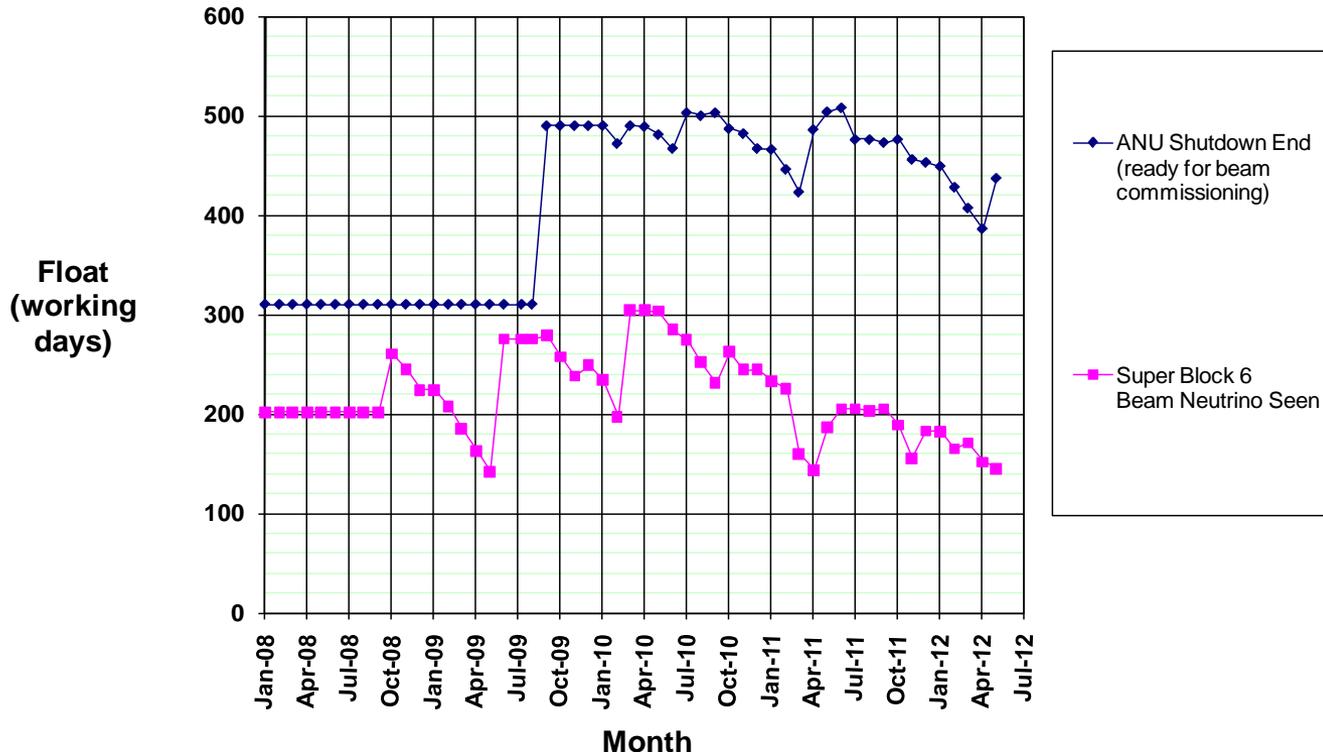




Milestones: What about CD-4 ?

- **ANU gained 51 days of float in May** -- **Now at 437 days**
 - Rework of schedule gained float. Kicker and RF schedules still drive this float.
- **The Detector lost 7 days of float in May** -- **Now at 145 days**
 - This is due to delay in start of Ash River assembly.

Tracking Float to CD-4

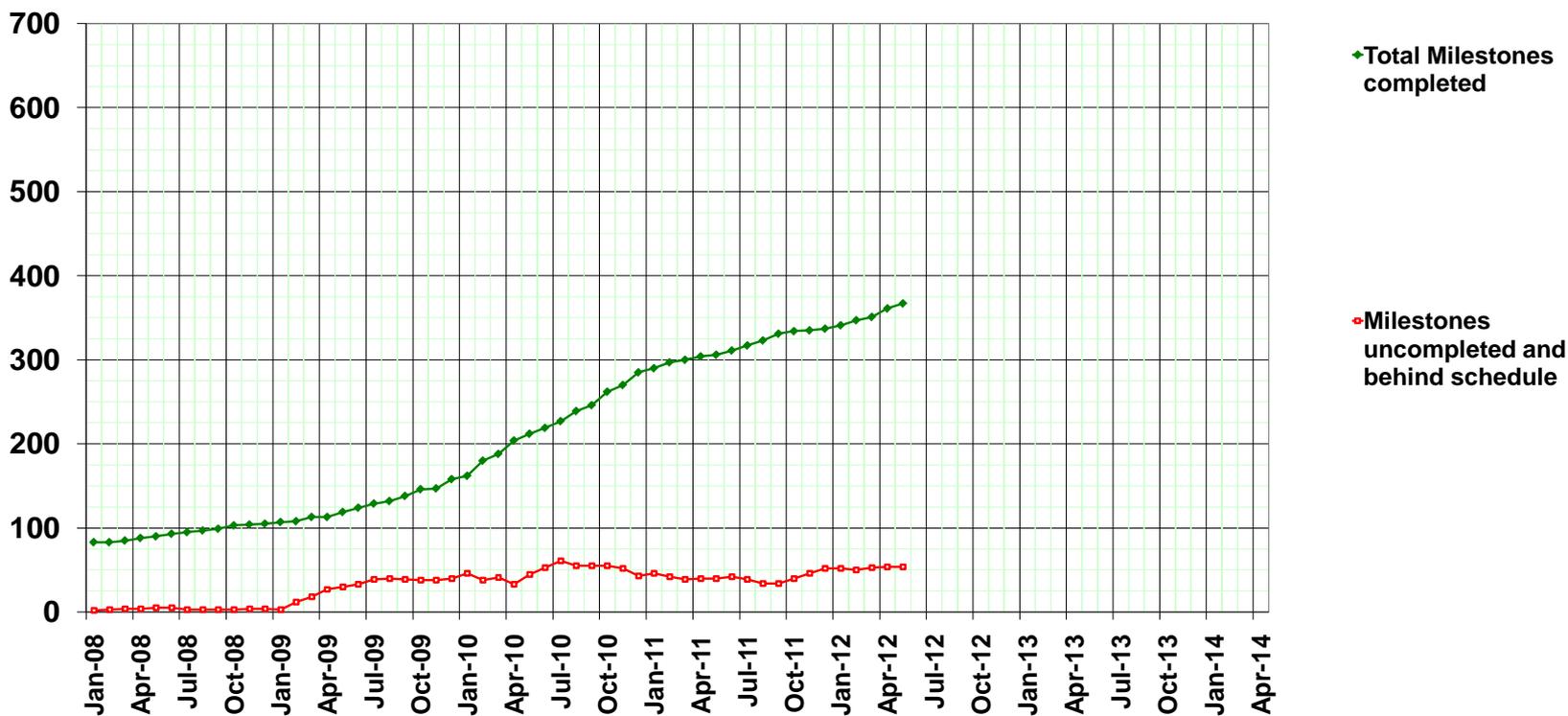




Analysis of all milestones

- **367 of 696 now complete**
 - 10 completed in April
- **Behind on 54**

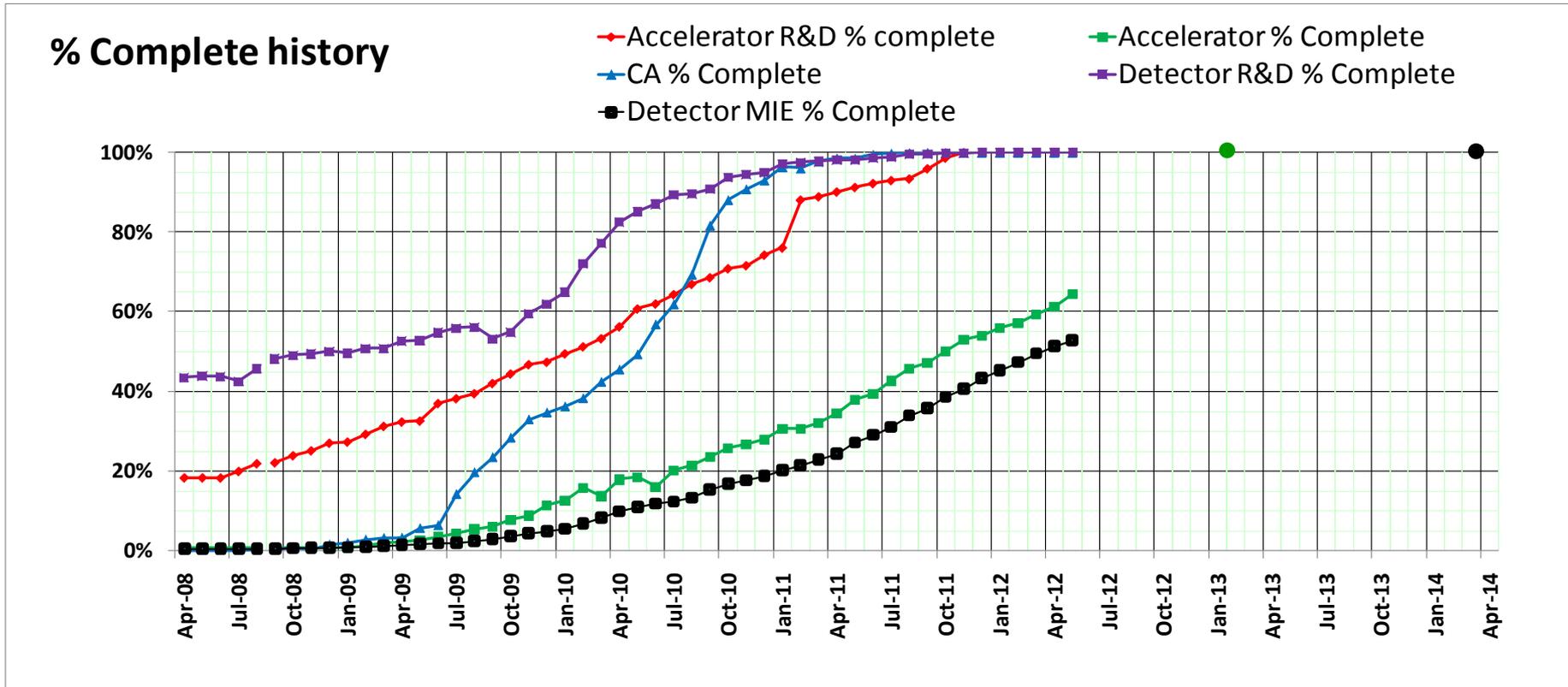
Milestones since Jan 2008





% Complete history

for the 5 Main parts of the Project



- Building & Detector R&D & ANU R&D are all done
- ANU at 65%, to be complete by ~ Feb 2013
- Detector at 53%, to be complete by ~ April 2014

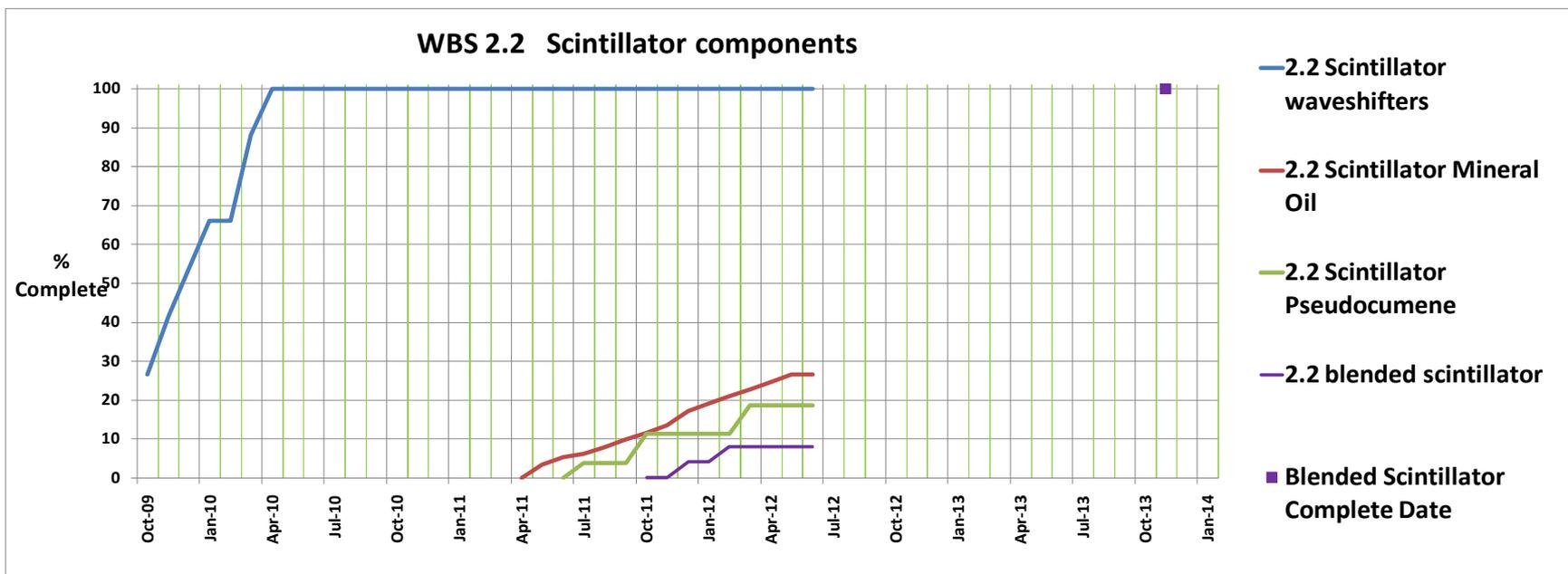


ANU status

- Paul will cover this.

WBS 2.2 Scintillator

- We blended the first 115,564 gallons of scintillator in December
 - Production Readiness Review, Dec 22, 2011
 - Our two scintillator storage tanks at Wolf Lake are now full
 - **Both meet the NOvA specifications for light transmission & for light output**, with samples from top and bottom of each 120,000 gallon tank
 - 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 ~ full
 - Waiting for shipments to Ash River before we can proceed



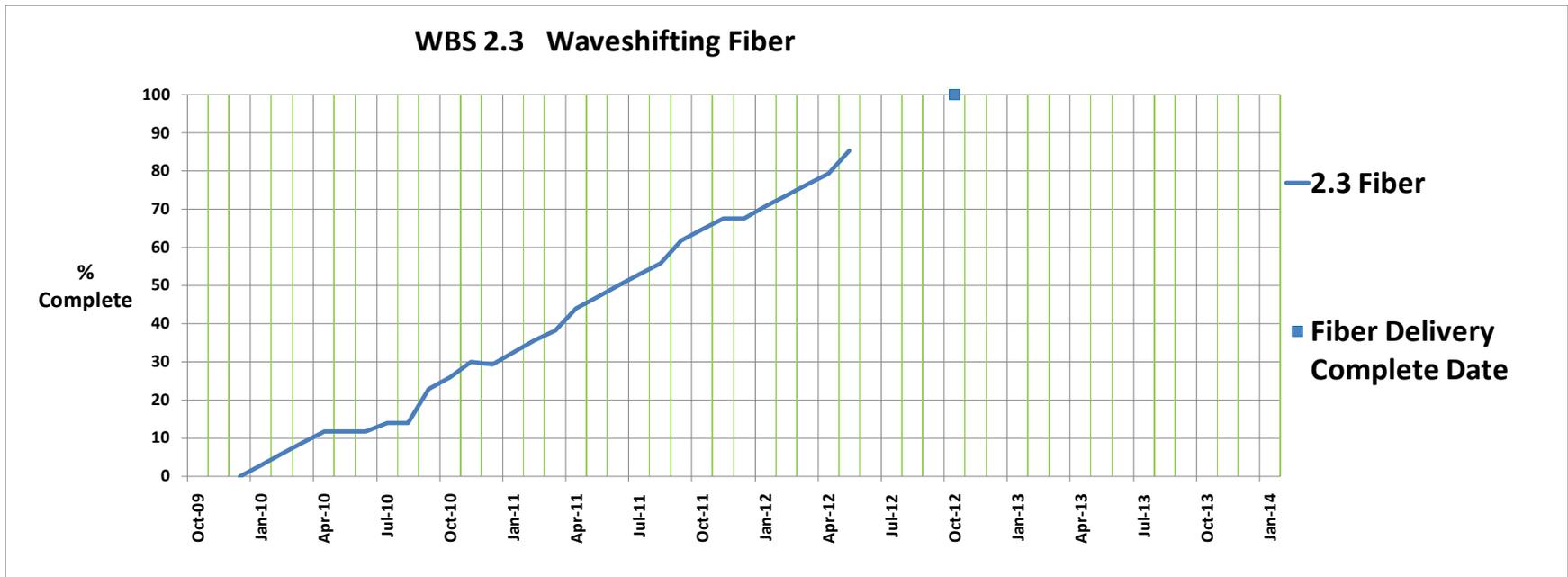


More on Scintillator

- The RFP went out on June 19 for transporting scintillator from Wolf Lake, IN to Ash River, MN
 - ~ 450 tanker loads
 - Bids due back on July 17
- RFP should go out this week for transporting Mineral Oil from Riverdale, IL to Wolf Lake, IN
- Price of our index Lubrication Oil did fall on June 13 by \$0.23 per gallon
 - Lube Oil still at 151% of value at bid date
 - WTI now at 99% of value at bid date
 - Brent now at 118% of value at bid date
 - Lube Oil Price should still fall more, all 3 used to track closely...

WBS 2.3 Fiber

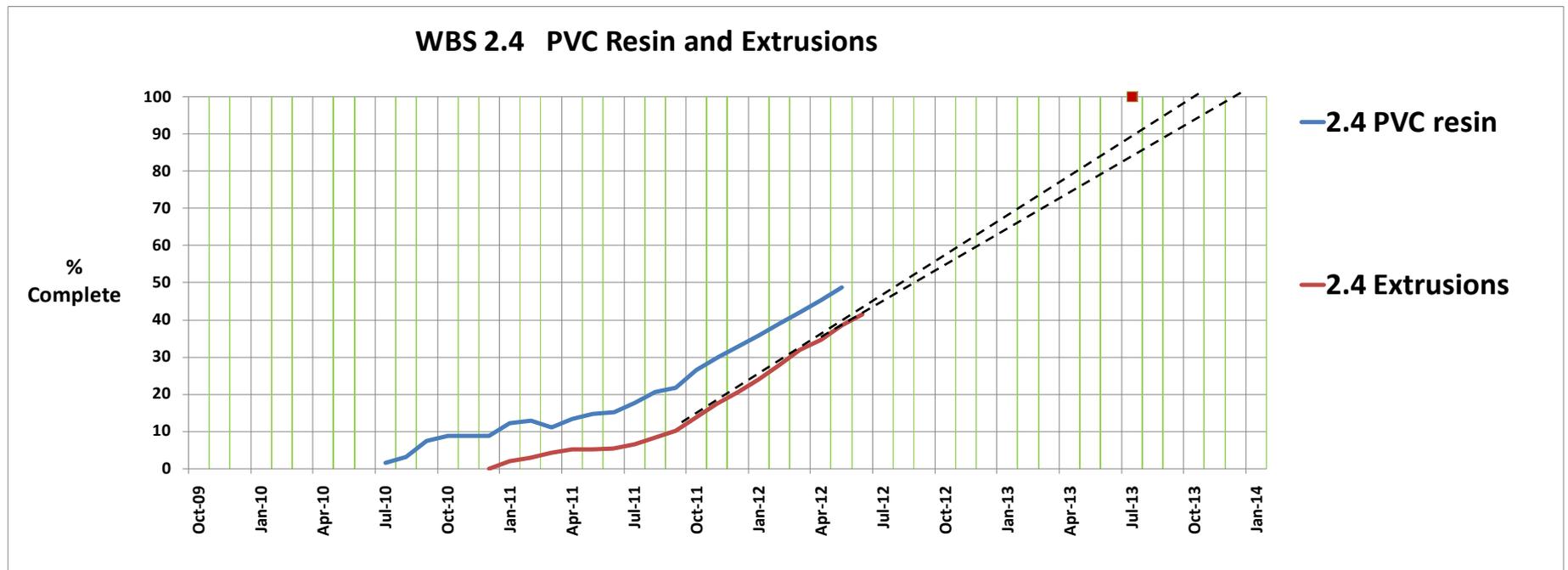
- We need 12,183 km of wavelength shifting fiber
- **We have 10,410 km of fiber or 85% of the total needed.**
 - Still on schedule to complete as planned.
- Price is variable since we pay in Yen and the \$/Yen ratio has not been in our favor since the 12 M\$ Kuraray P.O. was put in place.
 - Was \$ 0.98 per meter when 95 Y/\$, recently 83 Yen/\$ means \$1.12 per meter
- We are looking at the waste rate in the Minneapolis module factory to see if we need to buy more fiber than in the current purchase order.
 - **YES, but HOW MUCH? Need to exercise our option in ~July 2012 (before they stop production)**





WBS 2.4 PVC Extrusions

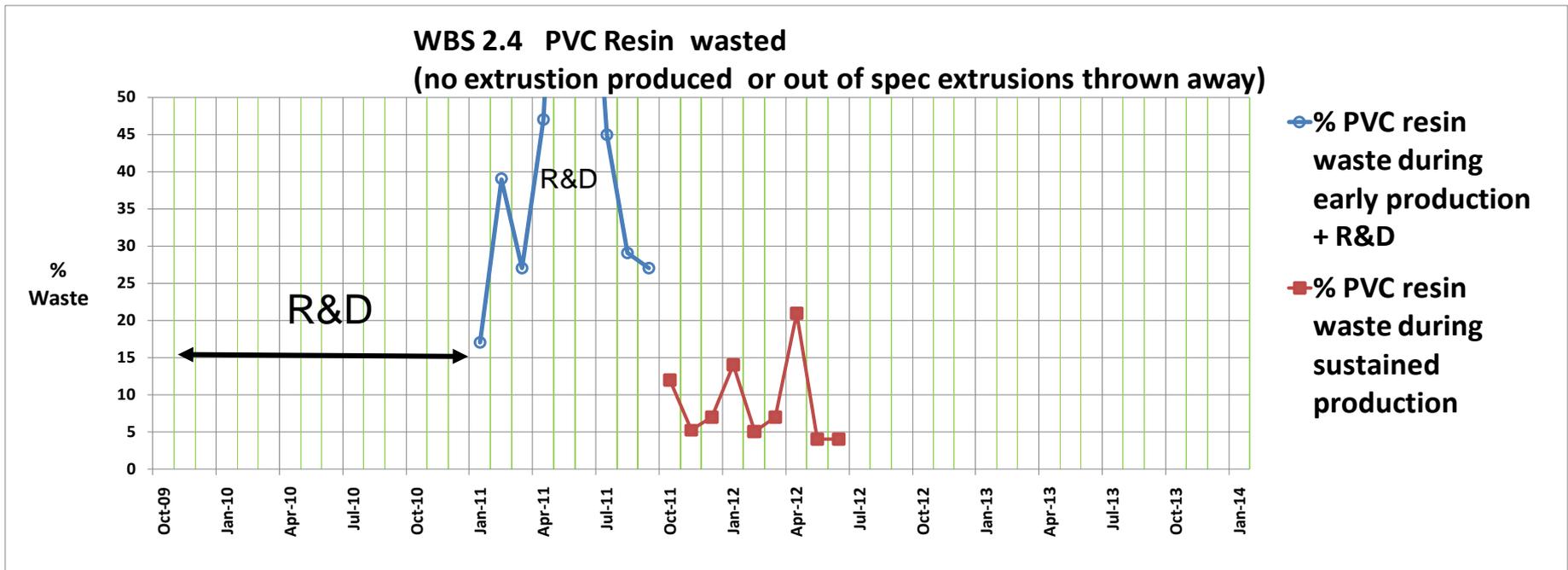
- We have 9,251 good extrusions in hand of the 22,272 required
- **So we have 42% of the total needed.**
- Ran out of space to store extrusions in Minneapolis
 - Extrutech will store in Manitowoc until Minneapolis can ship to Ash River
 - Also contracted from 6 x 24 operations to 5 x 24 operations at Extrutech
- Continuing at this rate implies may finish ~ 4-5 months later than planned





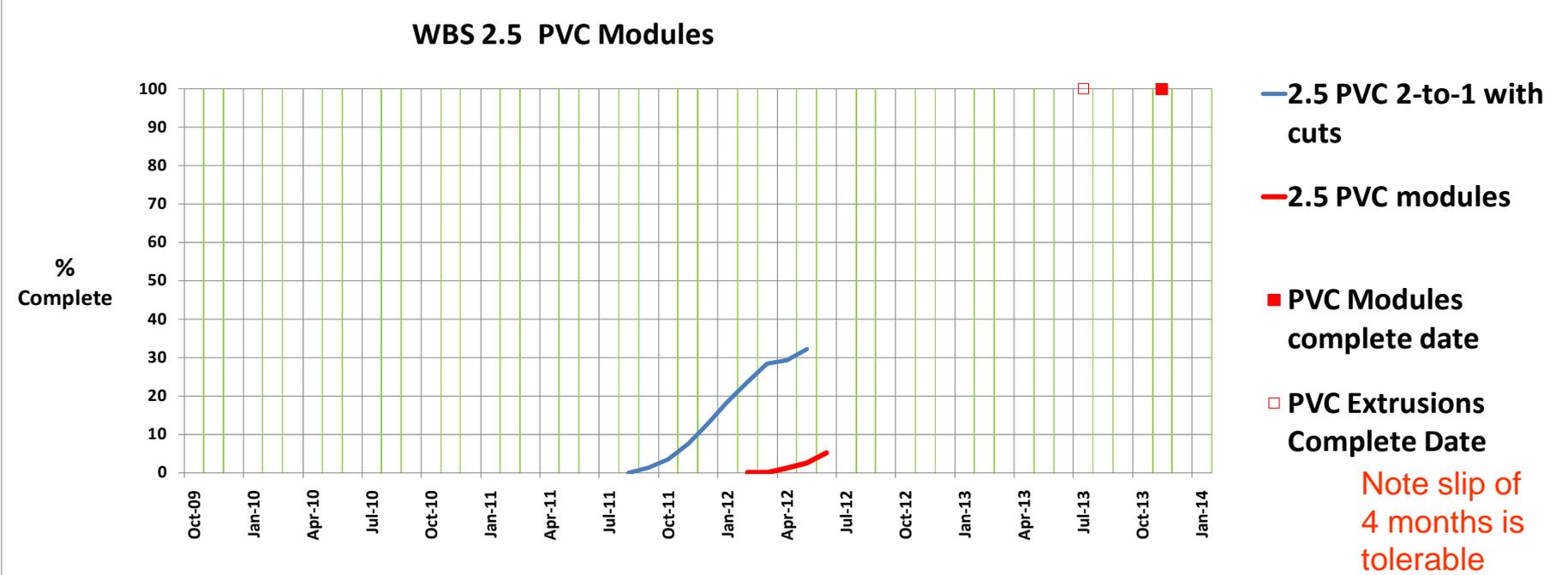
PVC scrap rate

- Our schedule assumes 6% scrap & that's about what we have seen since production started in October 2011.
 - This does not include 2% due to 6" QA samples at end of each 51' extrusion
 - 1 bad week in April, but in May and so far in June we look good
- Have saved about 1/8th of the 6% "waste" for the Near Detector
 - A couple of parameters out of spec & OK for less vertically challenged detector
 - Moved 70 from "save for Near Detector" to "OK for Far Detector", relaxed spec



WBS 2.5 PVC Modules

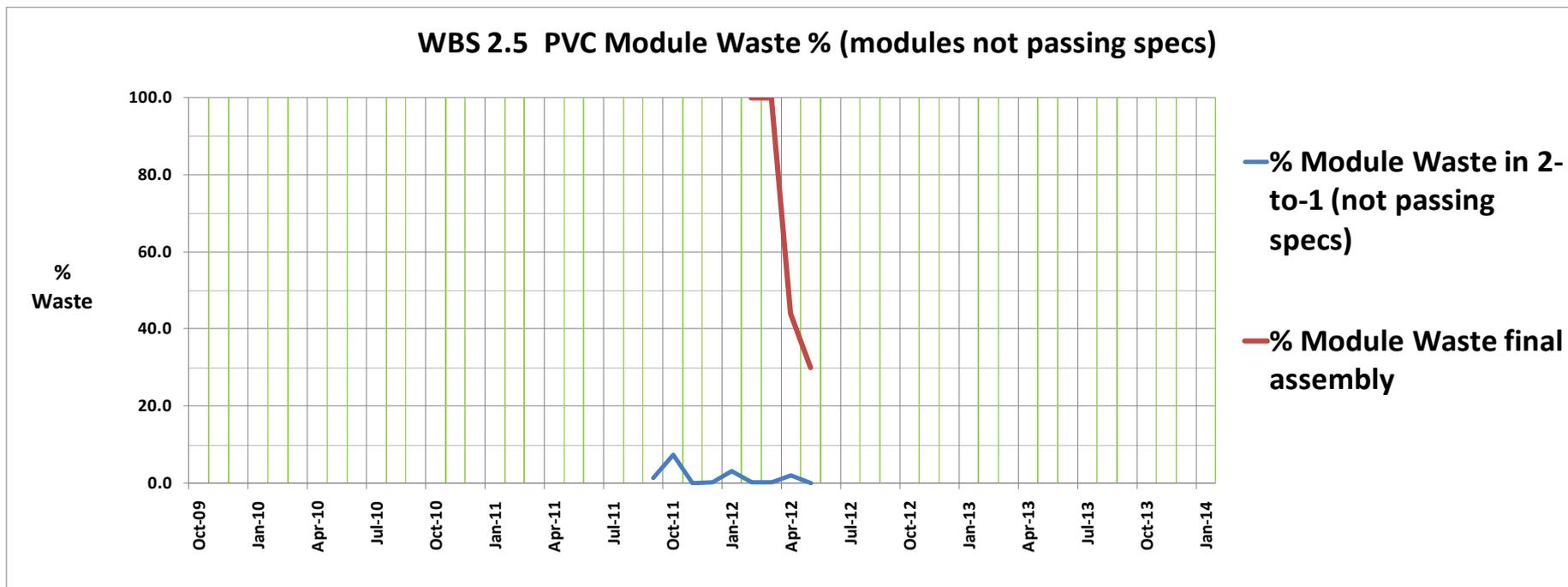
- Module assembly at Minnesota has been divided into two parts:
 - 2-to-1 assembly of 2 extrusions into one module + cut to length
 - Final assembly with fiber, endcap, manifold, & all seals + pressure test
- **3,581 2-to-1s are done out of 11,136 needed. We have 32%.**
 - Moved effort to final assembly in April, so slope of curve changed.
- **583 good final assembly modules are done out of 11,136 needed (5.2%)**
 - 3 weeks so far in June approach required rate





PVC Module scrap rate

- Our schedule assumes 2% scrap from all sources and we still have a long ways to go.
 - More information on causes (and on fiber damage coming)
- As with PVC extrusions, we save scrap as raw PVC material for the Near Detector
 - Can't salvage any other parts....





Module Factory Waste rates

(note by week here)

Ken Heller Reports of totals to date				
Summary Date	4-Jun	11-Jun	18-Jun	25-Jun
Failed visual fiber test	82	202	187	190
Failed MSU fiber test	2	13	13	13
Failed flycut test	2	2	2	2
Failed Optical connector Leak test	24	22	22	22
Failed inner seal leak test	1	5	20	19
Failed outer seal leak test	1	4	6	3
Failed final QA	1	7	6	6
Total Failures	113	255	256	255
Total Good Modules	247	355	464	583
% Failures	31%	42%	36%	30%
Good Modules completed by week	36	144	124	119

John Cooper calculation & interpretation after talking with Ken Heller				
Delta from Previous Week	4-Jun	11-Jun	18-Jun	25-Jun
Failed visual fiber test	22	120	(15)	3
Failed MSU fiber test	2	11	-	-
Failed flycut test	2	-	-	-
Failed Optical connector Leak test	24	(2)	-	-
Failed inner seal leak test	1	4	15	(1)
Failed outer seal leak test	1	3	2	(3)
Failed final QA	1	6	(1)	-
Total Failures	53	142	1	-1
Total Good Modules	31	108	109	119
% Failures	63%	57%	1%	-1%
Good Modules completed by week	36	144	124	119

Fiber damage {

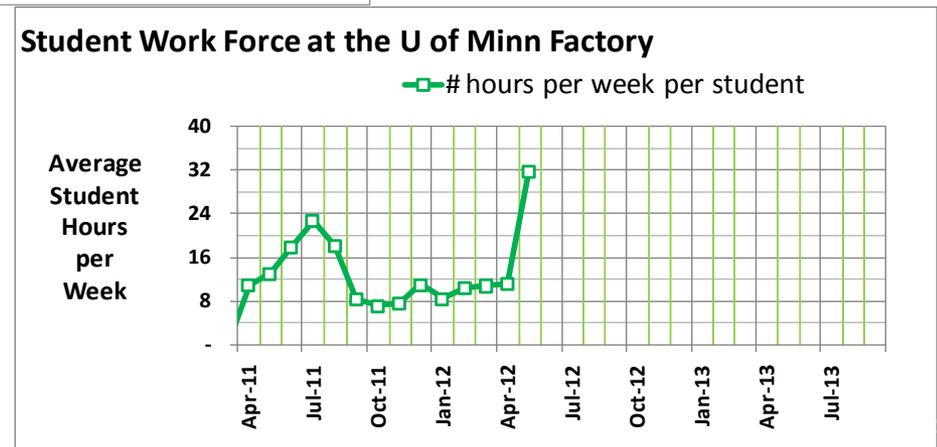
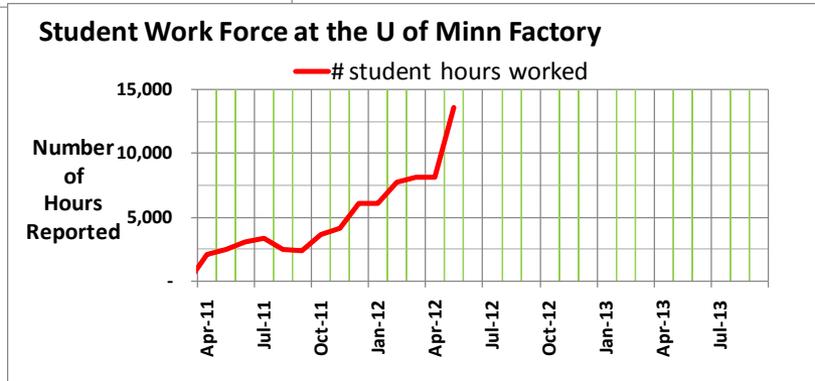
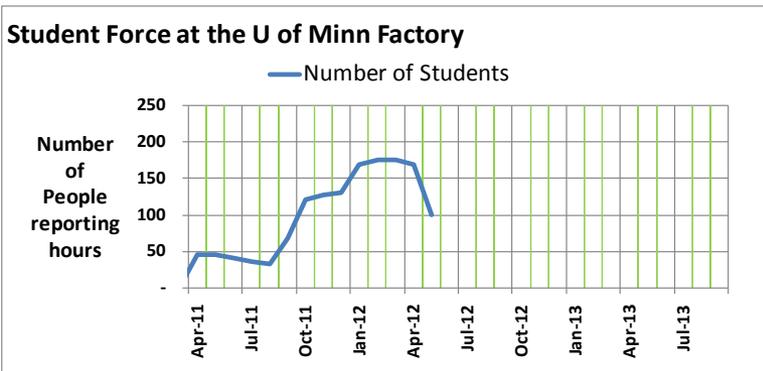
Progress, but is it stable?

(n) means fixed



Student workforce status

- Fewer students, more hours per student during the summer





WBS 2.6 Electronics

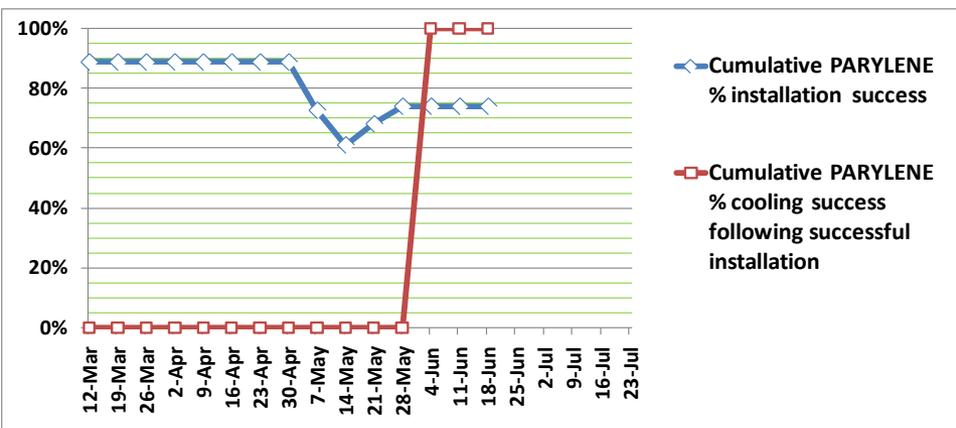
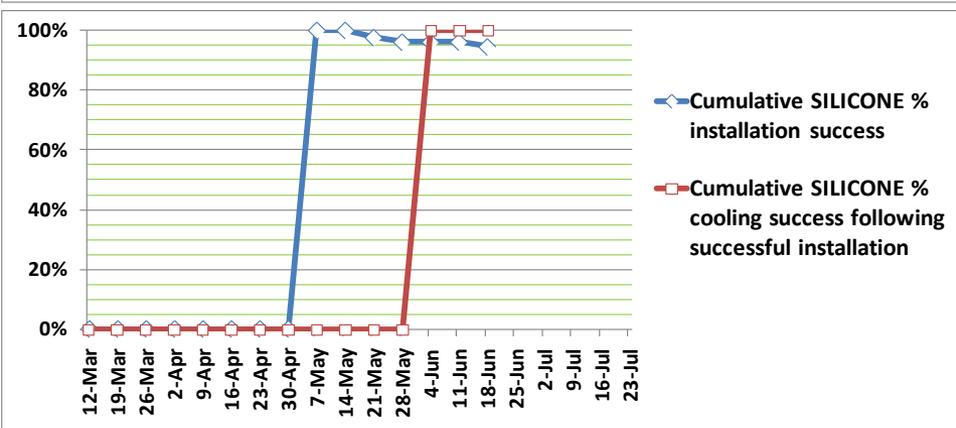
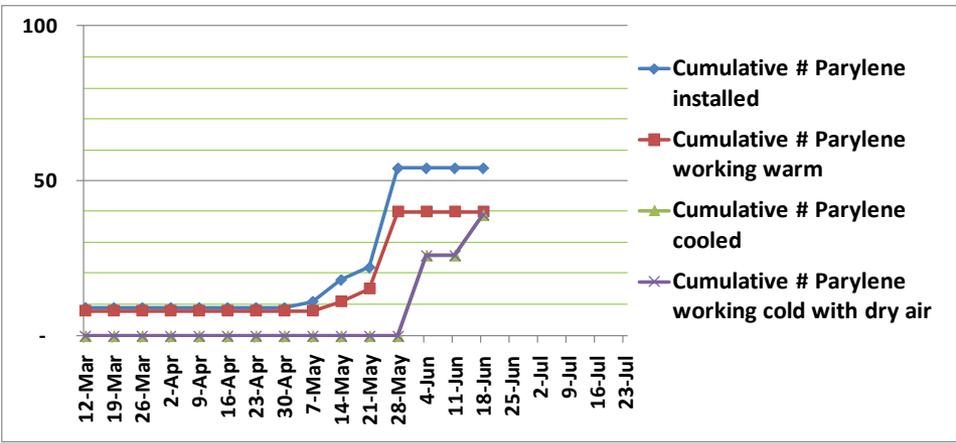
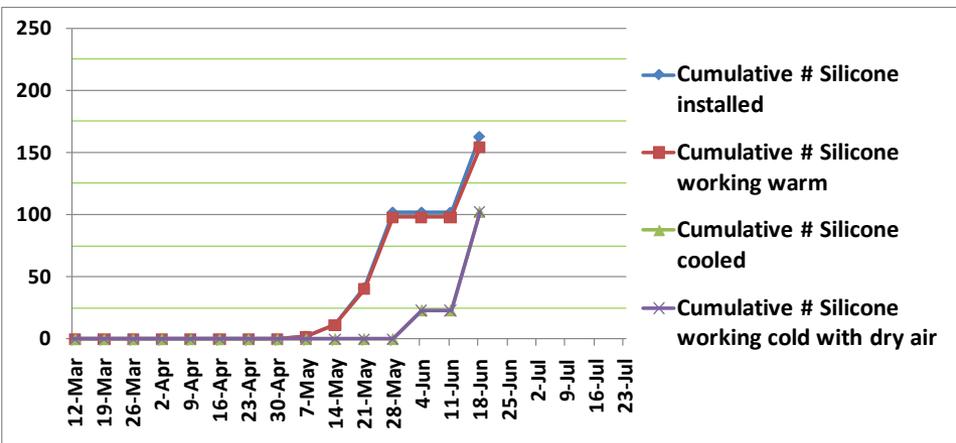
- APD status for Near Detector
 - Air leaks into -15 °C area next to APD,..., condensation & ice = **Dead APDs**
- Solution: Fix leaks & coat APDs so they don't die (belt & suspenders)
 - Reviewed by an outside Expert Committee last October
- After 3 tries on fixing leaks in Nov, Dec, Jan, went to our back-up plan:
 - A new Flow-through dry air system is in place on the prototype Near Detector
 - Design has 32 in series, with a flow meter at the end to adjust / limit the flow in the 0.1 – 1.0 SCFH range & a humidity monitor at the end.
- **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
 - Evaluate performance of Silicone and of Parylene, then choose one coating
 - Following choice (July), tell Hamamatsu to proceed
 - Hamamatsu has started processing, can deliver in late August



Status of prototype Near Detector

Installations of new and recovered APDs

- 163 Silicone coated installations & 54 new (& recovered) Parylene installations



- Install and work warm: 94% Silicone, 74% of Parylene
 - Reasons for Parylene failures unknown, concentrating effort on installations
- **Once installed, ALL APDs work cold with dry gas**
 - Only 62 % initially, but resealing the obvious dry gas leaks fixed the rest



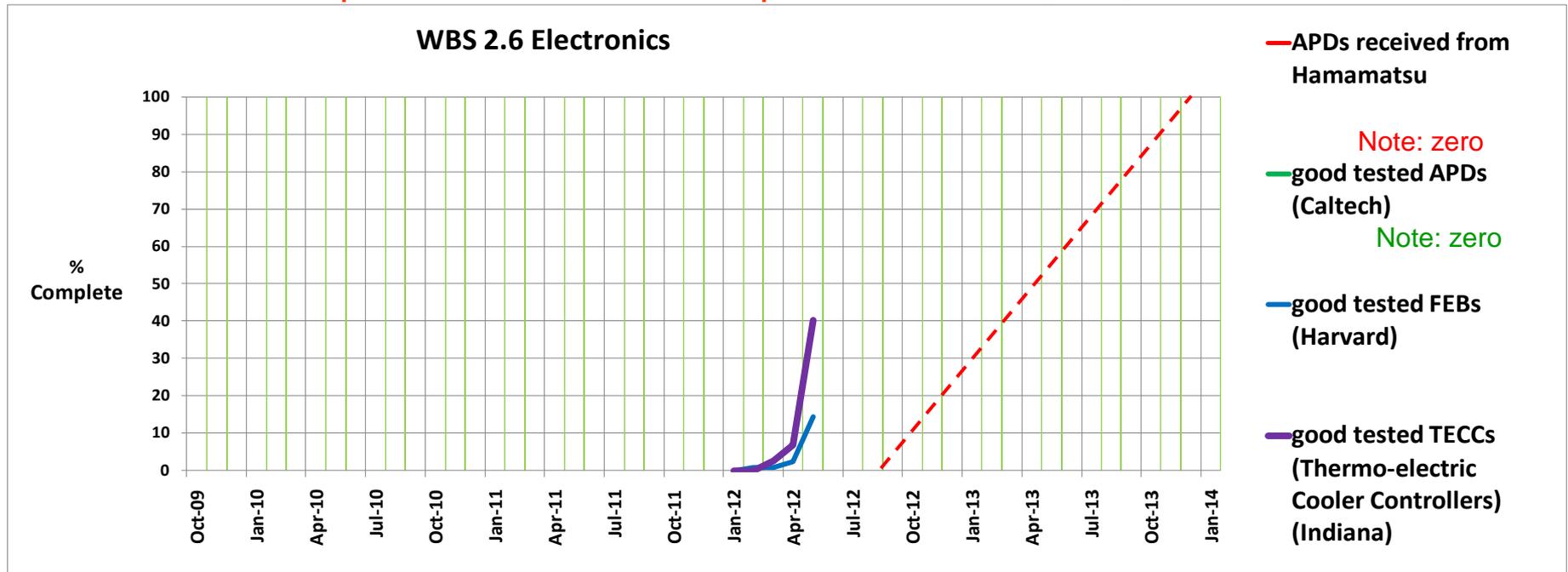
APD summary with all changes

- Our response to the problems has been to have a belt, some suspenders, and a rope at hand if all else fails.
 - Simpler installation done by trained personnel
 - Coated APD
 - Dry air purge in cold volume with monitoring and a knob to turn up
- The last hurdle is to run the APDs at -15 °C with the dry air purge
 - 11 installed in April 2012 have been run cold
 - **ALL 11 have worked cold since April 23.**
 - 9 weeks experience so far = **99 APD*Weeks to date**
 - Another 130 installed Week of June 18 have now been cooled
 - **All 130 work cold**
 - Almost 5 days experience so far = **93 APDs*Weeks to date**
 - Plan: Turn on cooling this week to remaining successful installs
Install another 50-60 recovered Parylene after July 4
 - Plan: **We still need to test both coatings for aging** that could change the quantum efficiency (transmission of coating) with time.
 - Continuous high temperature + dry at Caltech



WBS 2.6 Electronics

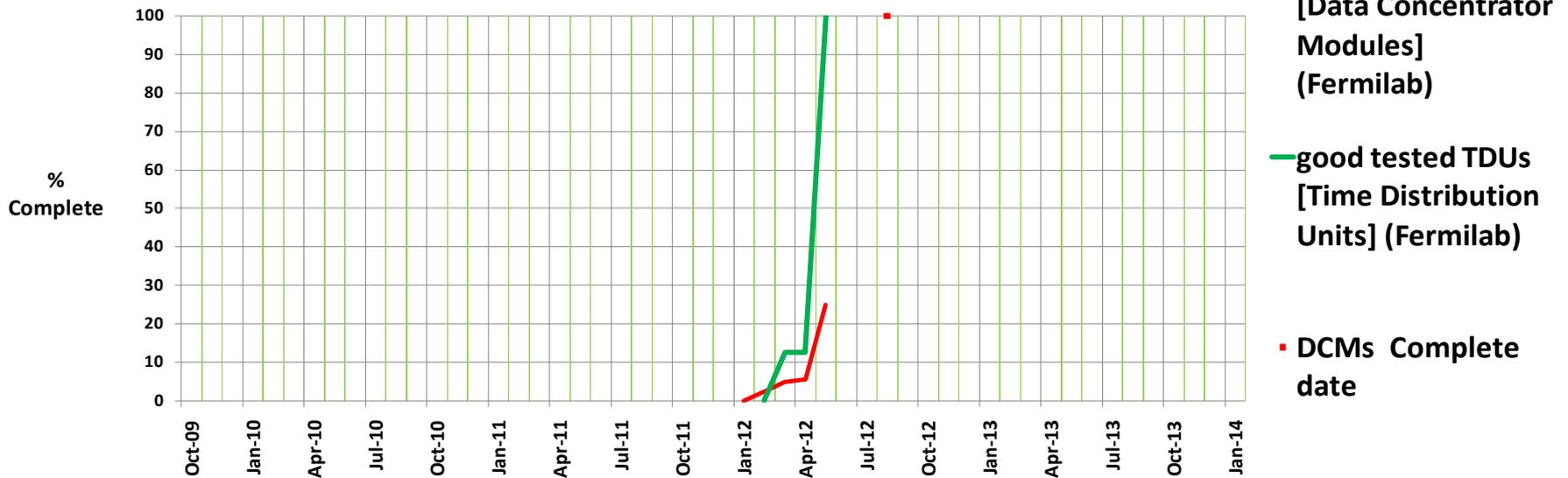
- Front End Boards (FEBs) (Harvard) , need 11,136
 - 2290 delivered, 1597 pass all tests to date (14% of total required)
- Thermo-electric Cooler Controllers (Indiana), need 11,136
 - 4561 delivered, 4474 pass all tests to date (40%)
- APDs waiting for coating decision,
but Hamamatsu is processing for delivery in late August
 - Rate now promised at 150 – 200 per week for 12,000, ~ 16 months



WBS 2.7 Data Acquisition

- Data Concentrator Modules (DCMs), need ~ 200
 - Now have 50 final boards completely tested
- Timing Distribution Units (TDUs), need ~32
 - Now have 14 final Master boards completely tested
 - Now have 46 final Slave boards completely tested

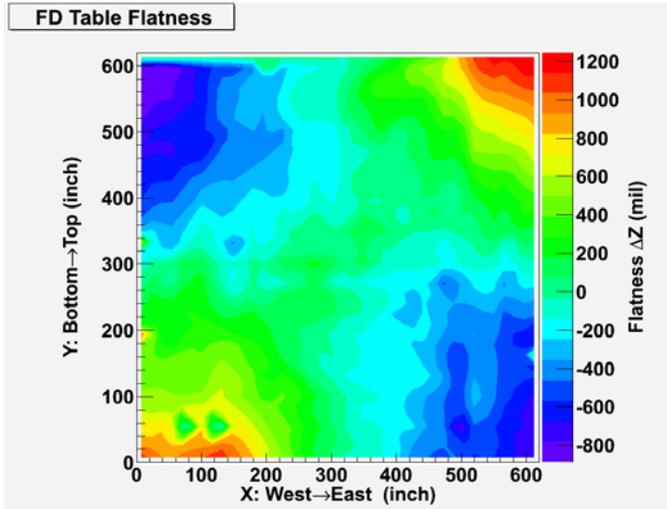
WBS 2.6 Data Acquisition Hardware





Ash River Assembly Status

- The Pivoter table has been leveled
 - Saddle shape with ± 1 inch excursions, spec is ± 1 cm
 - Used plywood shims on a grid, then a deck of plywood painted with fire retardant paint





Ash River Assembly Status

- A “Mock Block” was constructed on the table, unistrut outline of a block
 - Moved down the Hall to the south end, looked for clearance issues, rotated and placed the block against the south bookend.





More Mock Block

- Note plywood fake
PVC snouts at corners
- Note clearance to catwalks



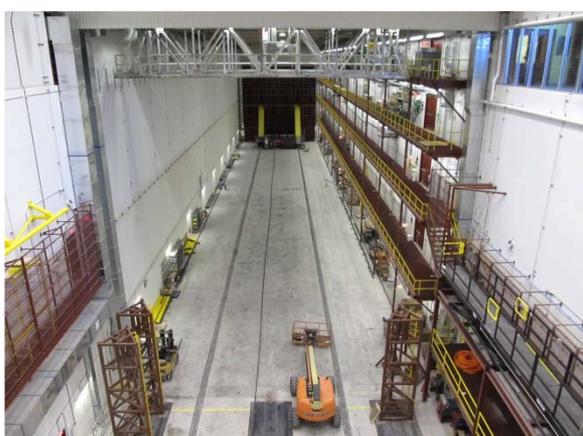
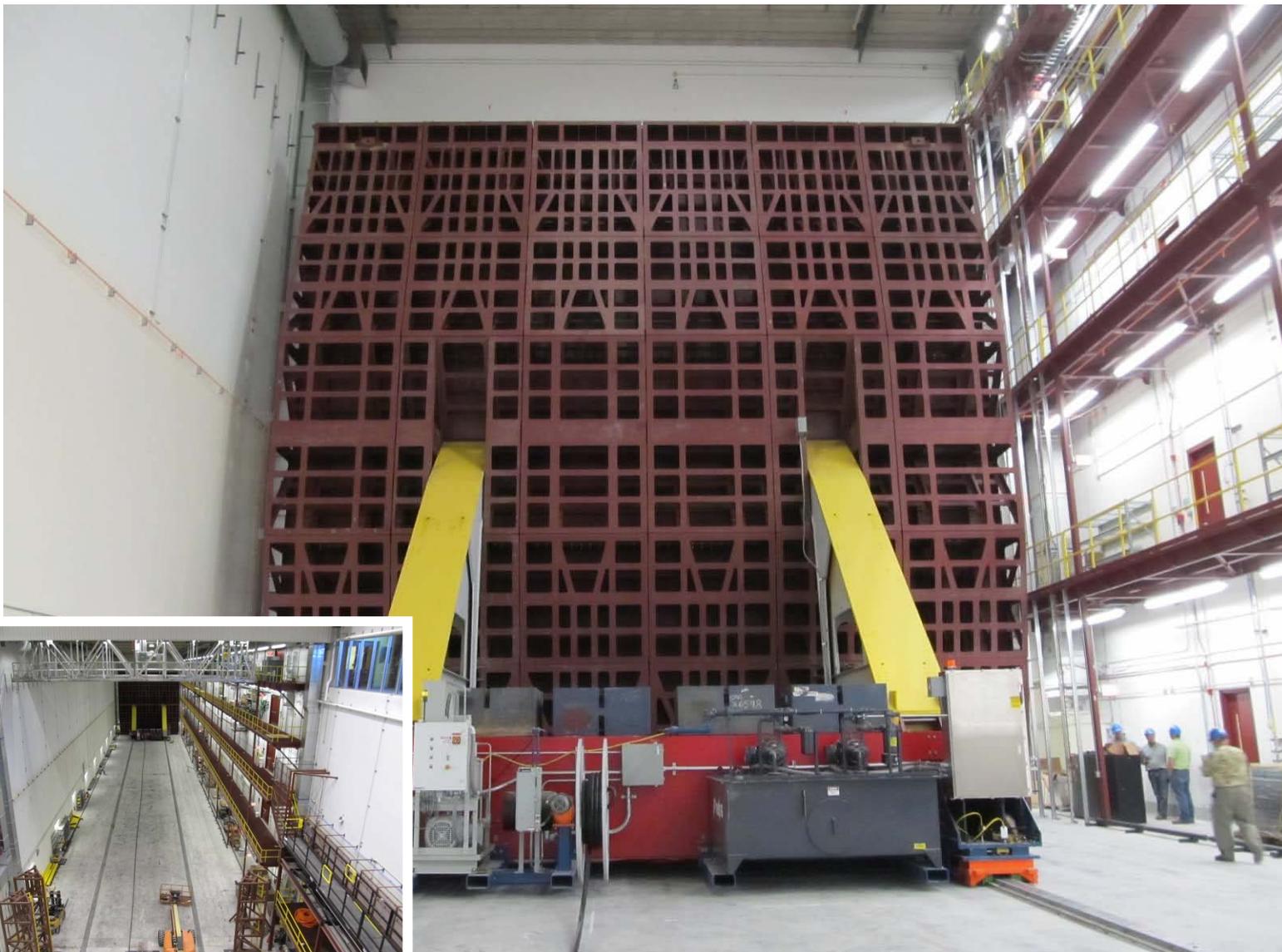


More Mock Block (same position from back)





Mock Block at the south bookend



PMG June 26, 2012

J. Cooper

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More Assembly updates

- Another dry stack exercise is in progress
 - 4 layers
 - Train all crews
- Meanwhile an issue has come to light with our adhesive
 - Our specification is an adhesive with 500 psi shear strength and 20 pot life
 - Finding it is weaker than when we tested it long ago (some data next slide)
 - Working with the vendor on other formulations
 - We have had a work-around plan from the beginning:
 - The structure is more stable when the north bookend is in place
 - FEA tells us we could fill all the horizontals as we go
 - FEA tells us we could fill the verticals part way as we go
 - But then we would have to finish filling after the north bookend (Pivoter vertical) was in place



Adhesive test summary

- Our specification is an adhesive with 500 psi shear strength and 20 pot life
- Devcon-60 is our baseline
 - Devcon has formulated 2 new types “52-2” and “52-6”
 - All are MMA, all have same MSDS
- Results may depend on PVC extrusion date, but errors are large
 - Formulation has not changed
 - Extensive extruder processing changes in 2011
- Investigating surface preparations: ISO, roughing

All for no surface preparation

Extrusion date	Adhesive type	For 20 min Open Time		For zero min Open Time	
		Stress (psi)	error (5 samples) psi	Stress (psi)	error (5 samples) psi
Mar-12	fresh Devcon-60	134	39	376	118
Mar-12	older Ash River sample Devcon-60			301	68
Jul-09	new 52-6	865	45	394	81
Jul-09	new 52-6	572	144		
Jun-12	new 52-6	357	54		
Jul-09	new 52-2	660	92	251	61
Jul-09	new 52-2	524	51		
Jun-12	new 52-2	379	92		



Next Assembly steps

- Still need Safety clearance to operate the fixtures for real assembly
- Projecting that the first block assembly with adhesive will start July 9 or July 16
 - Rick will have an update on the Safety process
- Will start with existing Devcon-60 if
 - Our understanding of the adhesives is still muddled on July 9-16
 - Or New Devcon is clearly better, but mixtures cannot be obtained by July 9-16
 - More important to build a block than to wait for resolution of the adhesive issue which could take months
 - We need to see if there are other problems in assembly
 - Means we may not fill all of this block at the start.



WBS 2.8 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 of \$ 6.4 M which included contingency
 - Roadheader construction method, no blasting
- Schedule estimate
 - Notice to proceed to start site preparation, **sent to Kiewit May 7, 2012.**
 - Equipment mobilization, June 2012, **in progress, \$250K bill to date**
 - 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
 - High expectations with Kiewit – **everyone is impressed so far**





Lehman mini-Review by video

- Scheduled for Tuesday August 14,
1PM Central, Black Hole