



Summary of Changes by WBS L2

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Director's Cost & Schedule Review

14Jul09



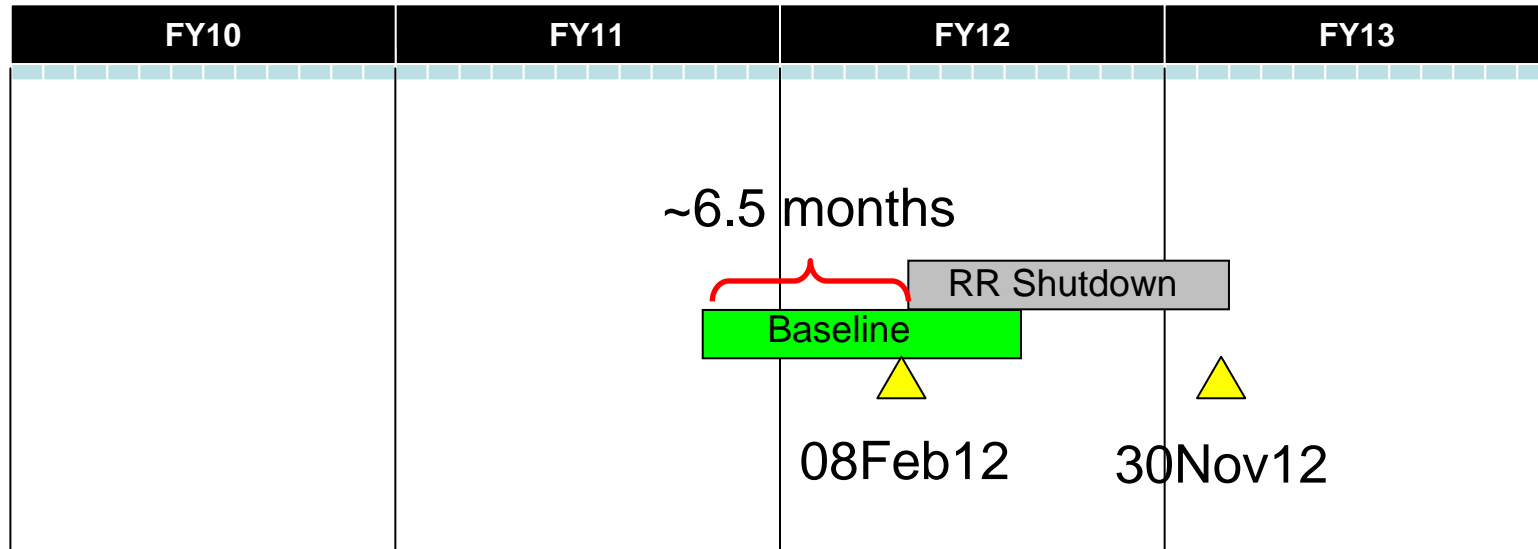
Overview

- We have a **P**erformance **M**easurement **B**aseline schedule saved in Open Plan and loaded into Cobra with dates/resources that are not changed without a deliberate baseline update. The PMB is the **baseline** schedule and, when loaded into Cobra, yields the baseline budget. (**BAC** – **B**udget **A**t **C**ompletion)
- We have a working schedule in the same Open Plan file with dates and resources that are potentially adjusted each month through the entry of progress information and/or changes to the resources assigned to unstarted tasks or the remaining parts of started tasks. The “future” part of this working schedule (which yields an **E**stimate-**T**o-**C**omplete, or **ETC**) constitutes a **forecast** which is processed in Cobra each month. When the forecast/ETC is combined with the actual costs captured in Cobra, this yields an **E**stimate-**A**t-**C**ompletion (**EAC**) that can be compared to the baseline (BAC).
- Updates to the baseline dates/resources proceed through updates to the working schedule. They are not done independent of the working schedule
- Factors that can affect the ETC/EAC are:
 - Changes to the assigned resources (levels, types, and spreads)
 - Changes to the forecast activity dates (through escalation effects)
 - Changes to the direct and/or indirect rates associated with the assigned resources
- The following L2 summary slides refer to processed ETC/EAC changes as EACnnn, baseline changes as CRnnn



Updates to Resource-Loaded Schedule

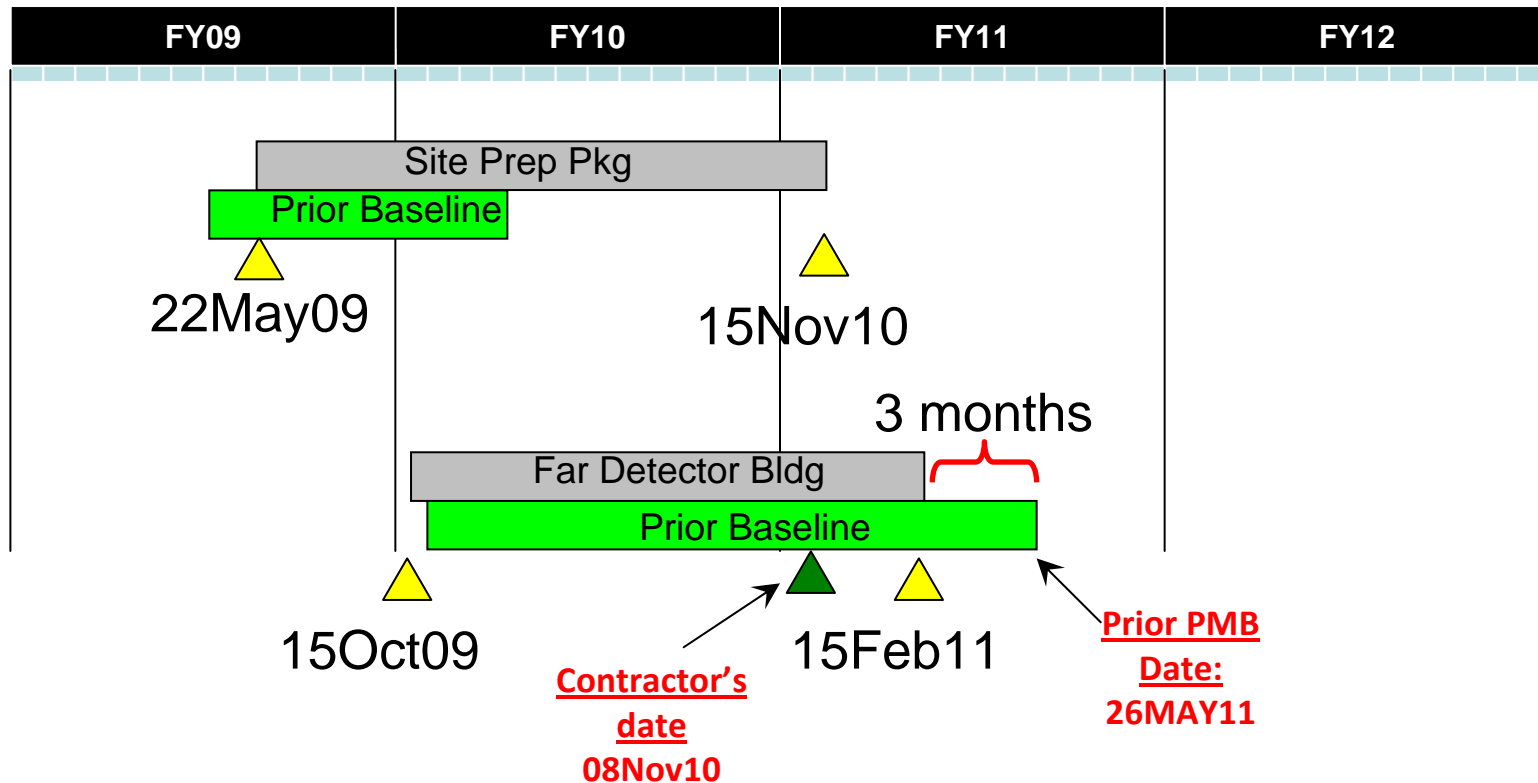
WBS x.0 - ANU



- EAC001 - reduced assigned labor hours by 30% for selected tasks in NUMI Upgrades R&D ~ \$100k reduction in EAC
- CR080 - delayed all un-started activities with current baseline dates in the “future” (as of 01Jun09) to start no earlier than 01Jan10. Updated ANU baseline for those tasks using their revised early dates
 - Delays Recycler Ring shutdown start date from 19Jul11 to 08Feb12 (~6.5 months)
 - Moved ~3.4M \$ out of Jun09 – Dec09 to after 01Jan10 in the budget
 - Net EAC/BAC increase due to delay (~393k)



Updates to Resource-Loaded Schedule WBS x.1 – Site & Building



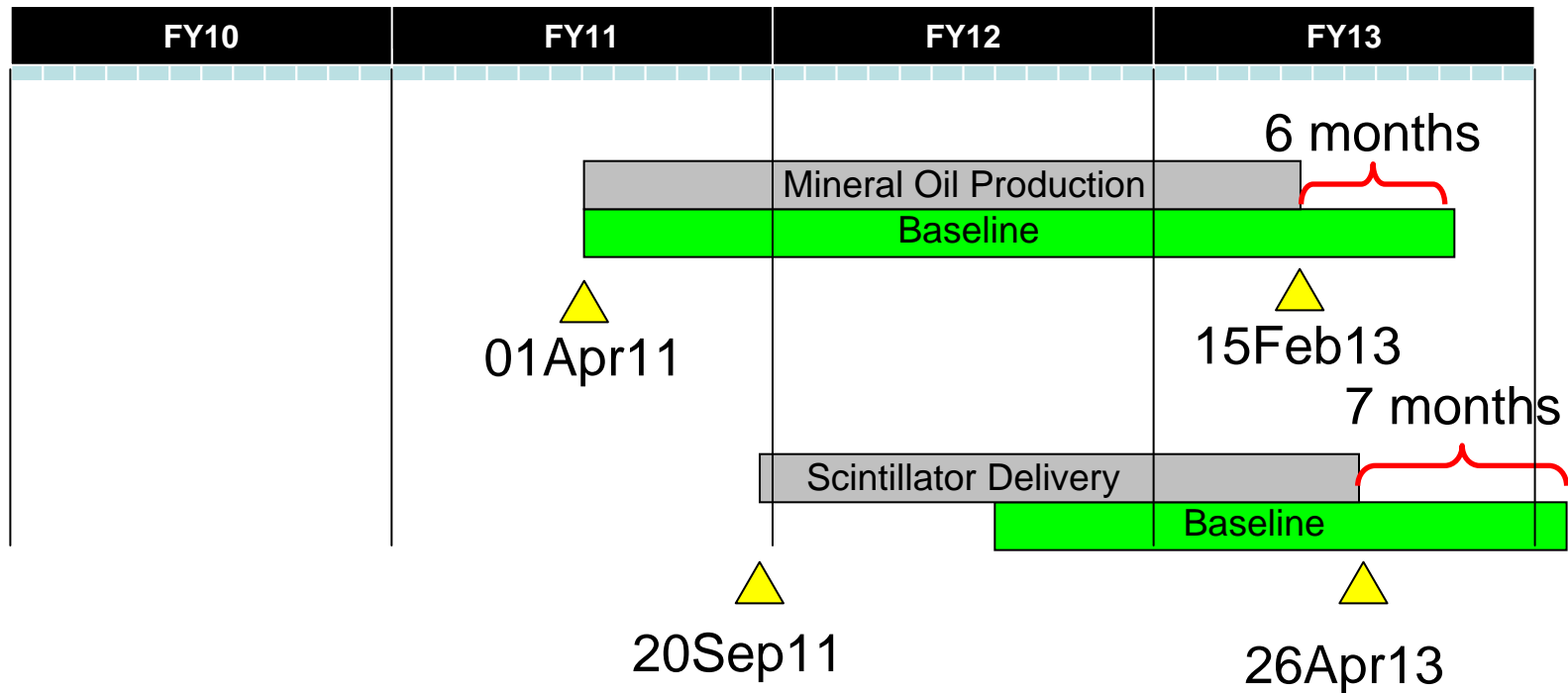
- CR073 – baseline change to incorporate contractor's planned schedule and budgets + additional 3 months added in Open Plan before updating the baseline;

BAC before: \$46,239M, BAC after: \$30,456M; decrease of 15.8M\$; also included is contingency reduction (22% → 8%);



Updates to Resource-Loaded Schedule

WBS x.2 – Liquid Scintillator

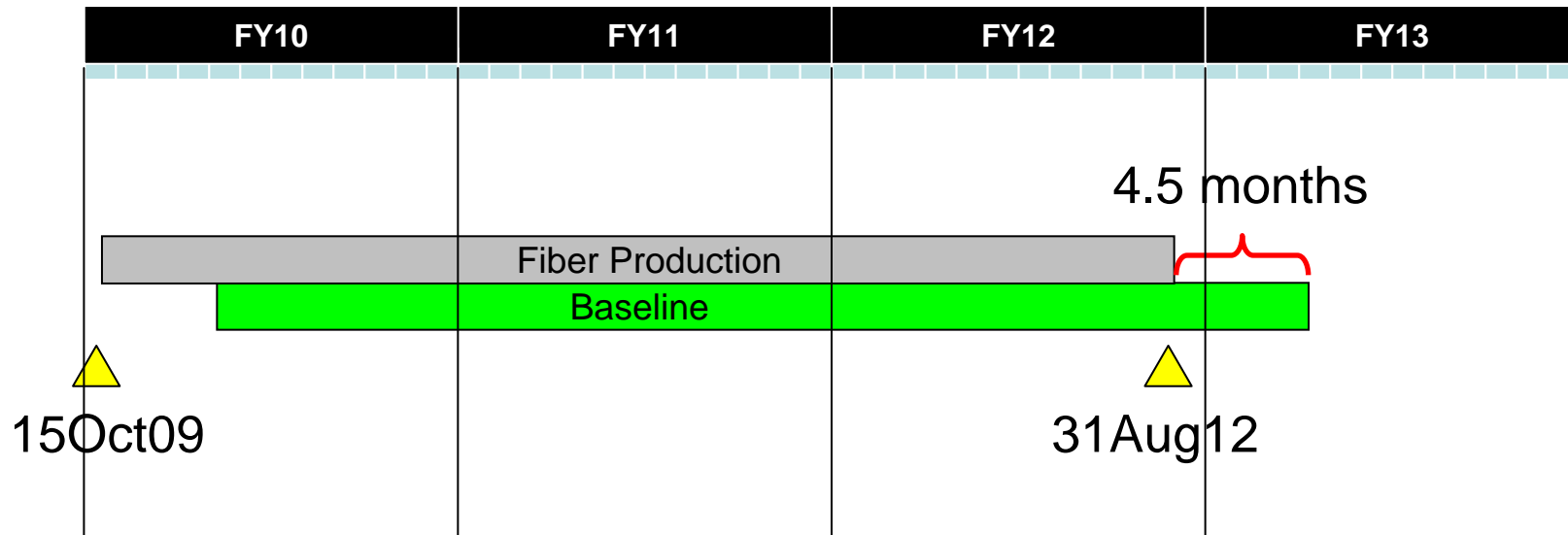


- EAC007 – increased base cost (\$3.36 → \$3.73 per gal., FY07\$) + contingency (28% → 45%); for mineral oil; changed purchased quantities of oil and pseudocumene per FY to accommodate filling schedule; advanced elements of scintillator blending and shipping schedule by 7 months to accommodate advanced far detector filling schedule; net EAC increase ~ \$1070k



Updates to Resource-Loaded Schedule

WBS x.3 – WLS Fiber

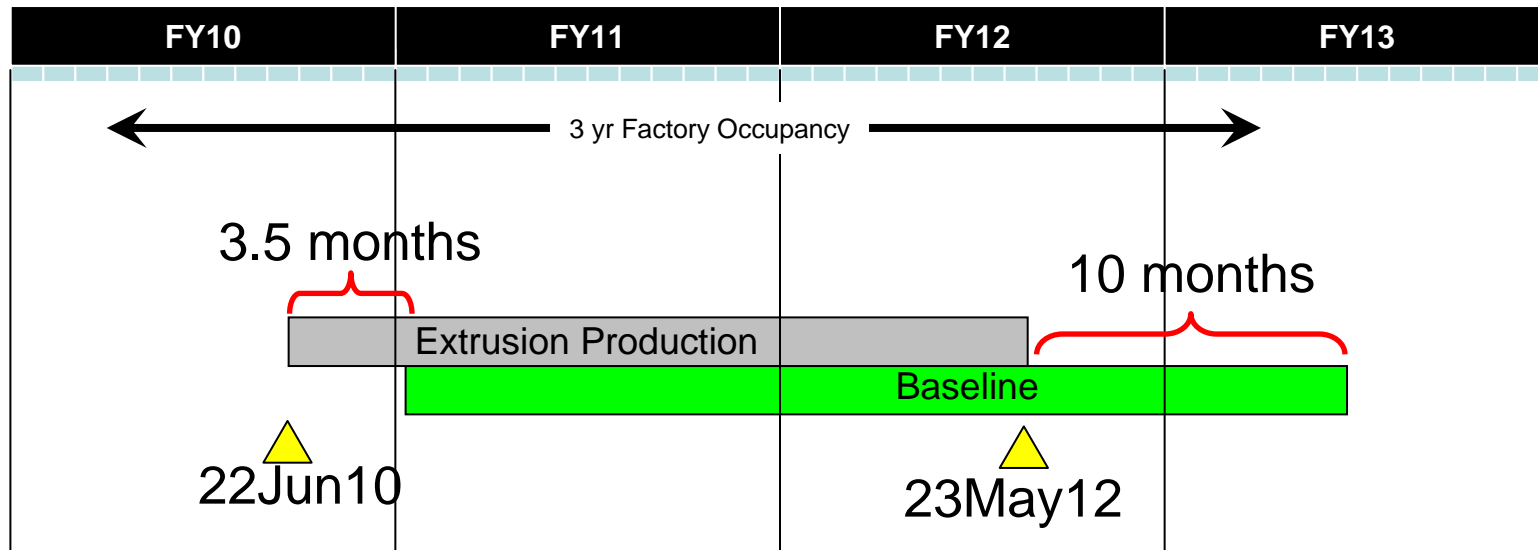


- EAC003 – increased base cost (\$0.765 per meter FY07\$, duty free) and decreased contingency (28% → 20%) for fiber production; advanced fiber delivery schedule ~4.5 months; EAC increase of \$949k



Updates to Resource-Loaded Schedule

WBS x.4 – PVC Extrusions

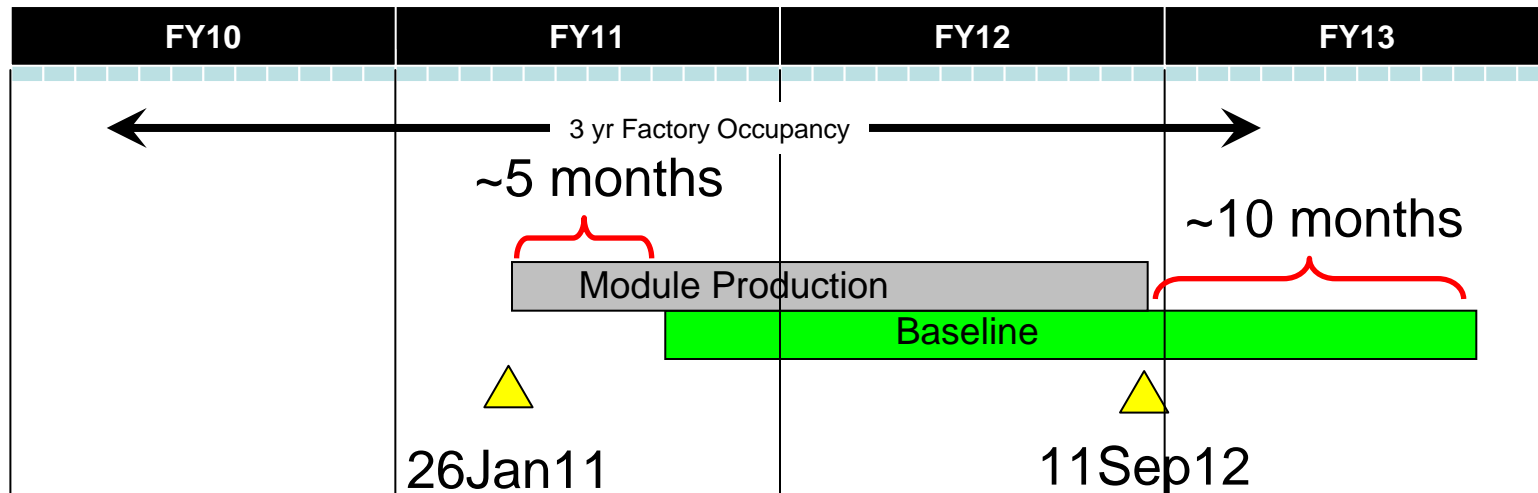


- EAC004 – advanced far detector extrusion production start by 3.5 months (to 22Jun10) and finish by ~10 months (to 23May12); removed slower ramp up; requires extrusion storage buffer size increase at module factory
- EAC010 – advanced near detector extrusion schedule for blocks 5 and 6 to align with IPND schedule (processed Jul09)
- \$408k combined reduction in EAC



Updates to Resource-Loaded Schedule

WBS x.5 – PVC Modules



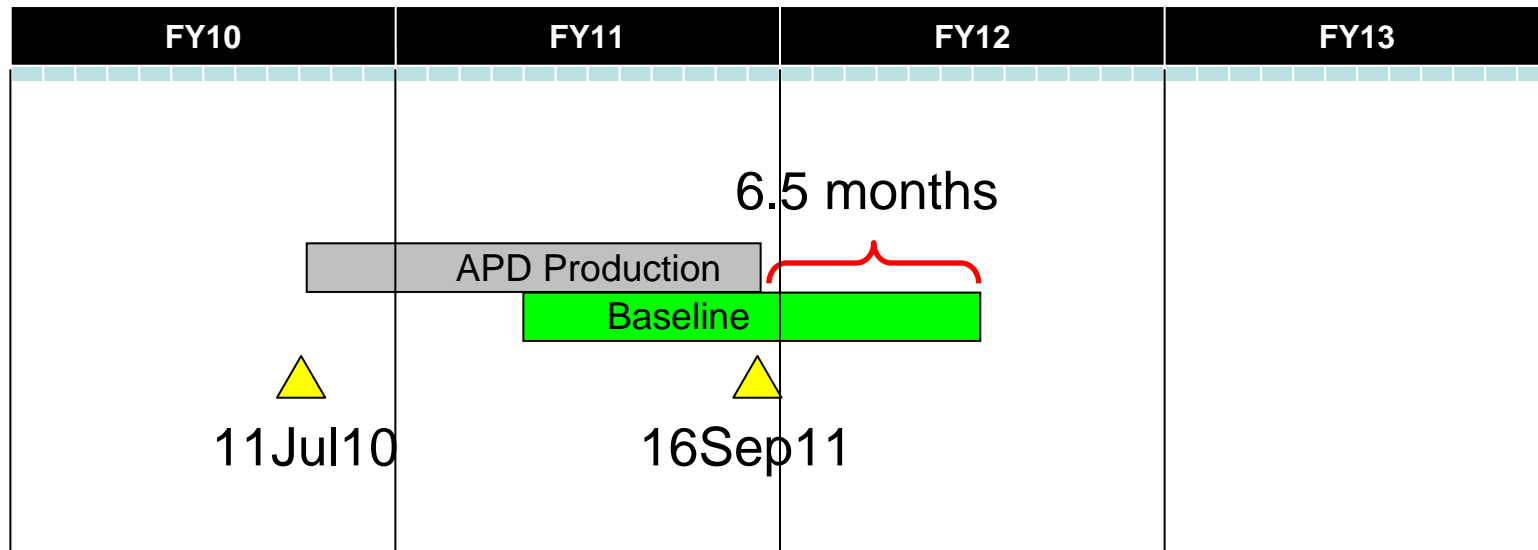
- EAC006 – advanced far detector module production start by 5 months and removed slower ramp-up to advance finish by ~10 months; increase in module (and extrusion) storage buffer size and changes in production schedule requires expansion of module factory; labor adjustments; net EAC increase of ~2.5M \$\$
 - Increase in factory leasing and operating costs (~1,380k increase)
 - Factory infrastructure adjustments (~ 15k decrease)
 - Tooling and fixturing adjustments (~403K increase)
 - Adjustments to block-by-block module assembly tasks (~1000k increase) (processed Jul09)

- EAC010 – advanced near detector module fabrication schedule for blocks 5 and 6 to align with IPND schedule ~ \$166k reduction in EAC (combination of schedule change and obsolete tasks)



Updates to Resource-Loaded Schedule

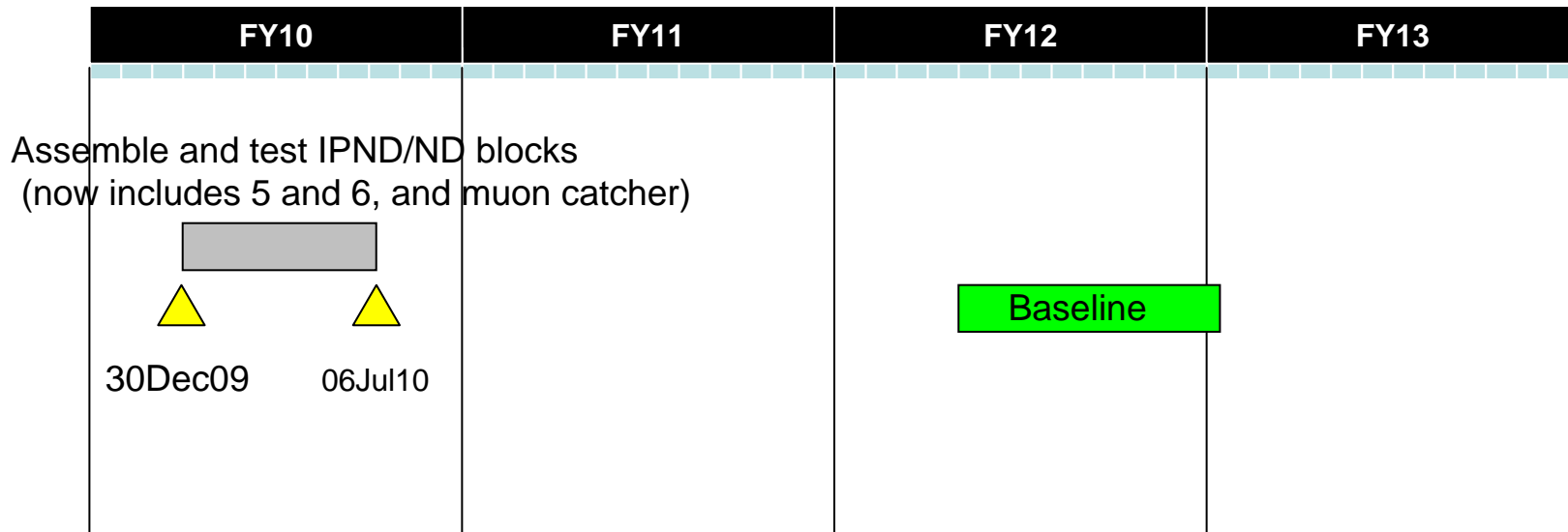
WBS x.6, x.7 – Electronics/DAQ



- EAC005 – advanced APD procurement schedule ~6.5 months (awaits receipt and evaluation of first 320 parts currently on order); will process as baseline change once final vendor schedule and firm unit price is known; EAC reduction of ~62k due to de-escalation
- No changes to DAQ other than that due to progress reporting each month.



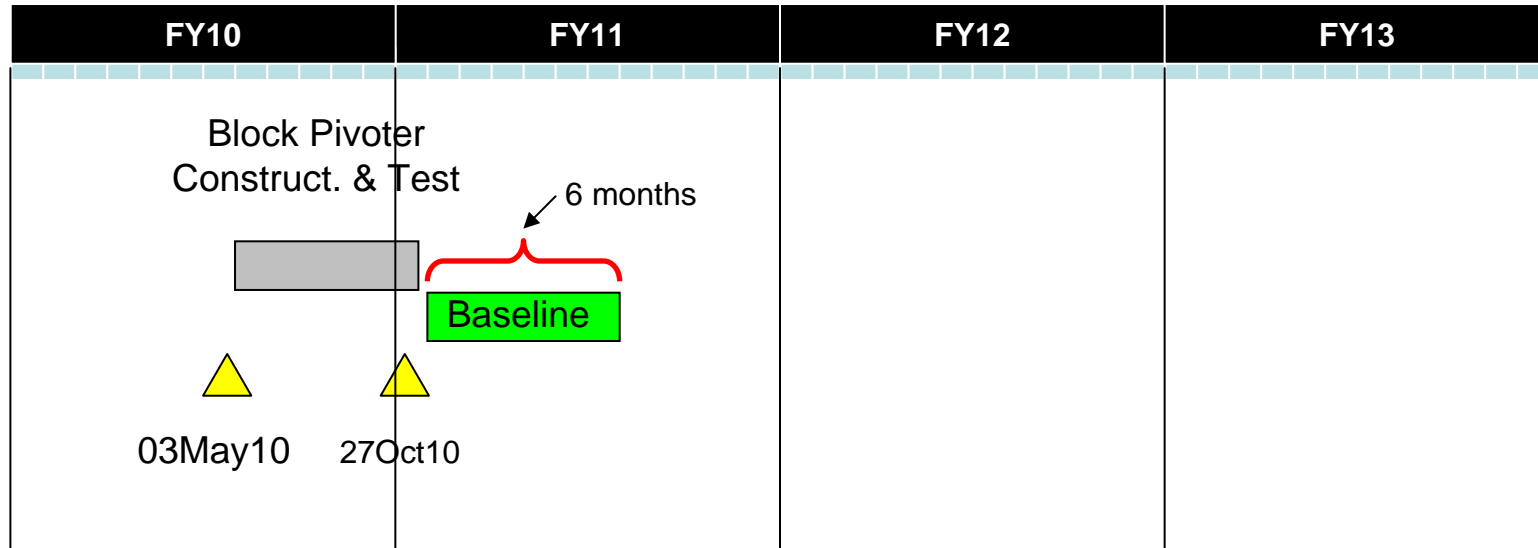
Updates to Resource-Loaded Schedule WBS 2.8–IPND/Near Detector Assembly



- EAC002 - reduced contingency on near detector cavern (100% → 50%)
- EAC010 - Advanced schedule for Near Detector blocks 5 and 6 and muon catcher (formerly coupled to time frame of block 10 far detector modules) to merge with IPND schedule ~\$166k reduction in EAC (combination of schedule change and obsolete tasks)



Updates to Resource-Loaded Schedule WBS 2.9– Far Detector Assembly



- EAC011 – specified ~6-month earlier target start date of 01May10 for start of block pivoter construction; driven by advancement of building schedule; leaves ~2 months float wrt bldg available for shipment of components, assuming the three months we added to substantial completion date ; ~ \$18k EAC reduction due to de-escalation



Updates to Resource-Loaded Schedule

WBS 2.10– Project Management

FY10	FY11	FY12	FY13
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- CR075 – labor rate adjustments in Cobra;

➔ \$3.94M increase in BAC

- adjustment to FNAL indirect rates
- adjustment to UMINN overhead rates (20% increase on several resource types)

- Impacts across all L2s that use these resources

FNAL overhead rates			
	FY07 rate	FY09 rate	difference
OPTO - monthly	0.0650	0.0625	(0.0025)
OPTO - weekly	0.0950	0.0925	(0.0025)
Fringe	0.3530	0.3350	(0.0180)
CSS	0.2100	0.2850	0.0750
PS - AD	0.3000	0.3400	0.0400
PS - CD	0.3000	0.2500	(0.0500)
PS - PPD	0.1600	0.1350	(0.0250)
PS - TD	0.3200	0.3900	0.0700
GANDA	0.1000	0.1050	0.0050

FESS CHARGEBACK RATES			
	FY07 rate	FY09 rate*	difference
OPTO - monthly	95.0000	115.0000	20.0000
*the FY09 rate de-escalated to base year FY07\$ = \$105/hour			