



NOvA Estimate–To–Complete (ETC) Process

Bill Freeman

July 09

Director's Cost & Schedule Review



EAC/ETC Process

- NO_vA process conforms to the general EAC/ETC process described in FRA Project Management Procedure 12.PM-006, Section 4.5
- Examined during our EVMS certification review last month
- Implemented by processing approved ETC changes in the NO_vA forecast schedule (in Open Plan) and subsequent integration of that forecast schedule into the NO_vA program (in Cobra) as part of our monthly progress reporting cycle.
- Educated the NO_vA CAMS about the general guidelines for submitting proposed ETC changes. (see presentation in Nova-doc-3761)



EAC/ETC Process

Est. At Comp.

Act. Cost of Work Perf.

Est. To Comp.

- $EAC = ACWP + ETC$

- ETC is a forecast. There are multiple ways to forecast using Open Plan/Cobra Budgeted Cost of Work Remaining

- “Statistical” → $ETC = PF * (BAC - BCWP)$
- “Manual” → ETC based on re-estimate (if any) of remaining work quantities/M&S direct costs
- Until March 09 we used the default “statistical” method in Cobra, calculated at the chargeable task code (CTC) level, to determine our reported EAC. This method assumed a performance factor (PF) of 1.
- Beginning in March 09, we switched to a manual method, calculated at the work package level, based on specifying remaining quantities/costs on each lowest-level activity.



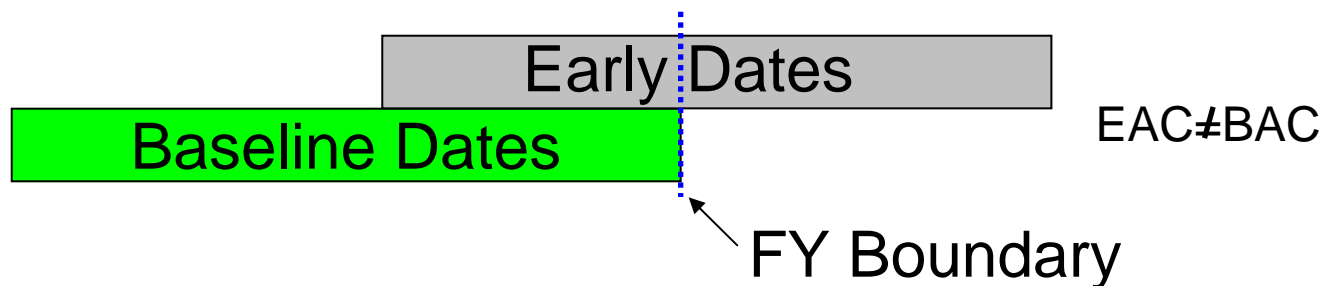
EAC/ETC Process

- The **statistical** method takes into account forecast date changes due to updated activity progress information and allows a rescaling of BCWR via a performance factor to arrive at revised ETC. (1/CPI is a common choice for PF.)
 - Discovered that the statistical method has an undesirable “feature” when applied to LOE tasks that actually began earlier than scheduled.
- The **manual** method takes into account forecast date changes due to updated activity progress information and allows for independent adjustments to resource assignments on unstarted tasks and remaining quantities of in-progress tasks.
- Note: This EAC/ETC process is **separate from a Baseline Change**. Neither forecast method involves a change to the Performance Measurement Baseline (PMB), or the Budget-At-Completion (BAC).



EAC/ETC Process

- Besides choosing the forecast method, one also must choose the dates on which to base the forecast.
 - We use “**Early Dates**” calculated at the work package level
 - **Early Dates** are re-calculated by Open Plan each month after we enter updated progress information obtained from CAMs.
 - Note: since the forecast is based on resource assignments spread over re-calculated **Early Dates** that can differ from the Performance Measurement **Baseline Dates**, the ETC may change month-to-month even if remaining quantities do not change, due to tasks moving across a fiscal year boundary.





EAC/ETC Process

- After switching in March 09 to the **manual** forecast as our default method for calculating ETC, we revisited Jan-Feb 09 CPRs as well and recalculated EAC/ETC using this method. A comparison of the two forecast methods is shown in the following table.

Month	Statistical EAC (\$K)	Manual EAC (\$K)	Change in EAC (\$K) (Manual-Statistical)
Jan-09	209,691	209,303	(388)
Feb-09	209,493	208,844	(649)
Mar-09	210,447	209,504	(942)

- Major source of the difference in the forecasts arises from LOE tasks that actually began early and hence acquired ACWP but no BCWP, leading to a larger forecast EAC.

(LOE → BCWP=BCWS, no matter what. If not yet at baseline start date, then BCWS=BCWP=0 so EAC=ACWP + BAC.)



EAC/ETC Process Summary

- EAC/ETC changes are not changes to the Baseline. They are changes to the Forecast.
- Straightforward guidelines have been defined for submitting and approving changes to resource assignments that impact the EAC/ETC (see Nova-Doc 3758 and backup slides 9-10)
- CAMs evaluate estimates-to-complete on a regular basis and discuss them with the Project Manager and others, as needed.
- When substantive changes to the ETC appear on the horizon, and after discussions with the PM, CAMs submit the necessary ETC changes to the PM for approval and for incorporation into Open Plan and Cobra by Project Office personnel.
- In addition to changes in resource assignments that affect the ETC, we use this change process to incorporate and document
 - Major schedule changes outside the usual ones that occur monthly thru progress reporting
 - Significant labor rate or indirect rate adjustments
 - Changes to bottoms-up contingency estimate percentages*
- We log the ETC changes (see Nova-Doc 3759 and backup slide 11)*
- We update Basis-of-Estimate documentation related to the changes.

* We need to catch up on collecting and updating the docdb with recent changes



Additional Slides and an Example



General Guidelines

In Nova Doc 3758

- If the **CAM believes** that the current ETC for their control account is not realistic, they will **discuss this with the Project Manager**, either in person, by phone, or via email.
- If the Project Manager believes the case for a revised ETC is sufficiently real, he will ask the **CAM to document the ETC by email to the Project Manager**, giving all the information necessary to make the changes in the schedule.
- The **Project Manager will forward the email to the Project Scheduler**, indicating approval to update the ETC for this part of the project.
- The Project Manager will **retain the pertinent information** for each approved ETC update **in an Excel spreadsheet log (Nova-doc 3759)**.
- The Project Scheduler will follow the already established Open Plan process for **inputting this information into the project schedule**, and subsequent **transfer to Cobra** for processing and ultimately updating of the EAC.



Candidates for ETC Changes

- Substantial changes in anticipated labor hours for future work, based on past performance of similar work (e.g. EAC001)
- Improved knowledge of future M&S costs that differ substantially from budgeted costs
- Substantive future rate changes (direct and/or indirect/overhead).
- For simplicity, our preference is to adjust ETC on unstarted tasks/work packages, not in-progress ones; so please be proactive on identifying candidates.
- Some ETC changes may eventually lead to/be incorporated as baseline changes.
- Not generally applied to scope changes. Those require baseline changes.
- Changes to bottoms-up contingency percentage estimates, while not affecting the EAC/ETC directly, can impact the project thru the year-by-year comparison to the funding profile, so we would like to track such changes through this EAC/ETC process as well. (e.g. EAC002)



ETC Log Snapshot

DocDB 3759

NOVA Log of Estimate to Complete Changes					27-Apr-09	
ETC#	Item	WBS items	CAM	estimated amount	approved?	date of email approval
1	Labor reductions on 1.0.3	1.0.3.2, 1.0.3.3	Martens	< \$100K decrease in base estimate	yes	15-Apr-09
2	Near Cavern updated estimate following Conceptual design by Harza, checked by Wightman	2.8.1.4.5, 2.8.1.4.6	Lukens	only \$20K increase in base estimate, but a change in contingency estimate from 100% to 50%	yes	15-Apr-09



DocDB Repository

NOVA Document 3763-v1

[\[NOVA DocDB Home\]](#)

ETC 001 change to WBS 1.0.3.2 and 1.0.3.3

Abstract:

need reference to initial BOE

Files in Document:

- [pdf ETC request by CAM](#) (ETC 001 WBS 1.0.3. details from martens.pdf, 21.8 kB)
- [pdf approval by Project Manager](#) (ETC 001 approval.pdf, 53.8 kB)
- [pdf final number from Bill Freeman](#) (Freeman final numbers on ETC 001.pdf, 25.6 kB)
- [pdf from Freeman, after](#) (EAC 001 - After.pdf, 30.0 kB)
- [pdf from Freeman, before](#) (EAC 001 - Before.pdf, 40.5 kB)

Get all files as [tar.gz](#), [zip](#).

Topics:

- [Project Management:BOEs ETC FY09:ETC FY09 WBS X.0.3 \(NuMI\)](#)

Authors:

- [John W. Cooper](#)
- [Bill Freeman](#)
- [Mike Martens](#)

Notes and Changes:

This is a change to tasks under WBS 1.0.3.2 and WBS 1.0.3.3. (This affects the chargeable task codes 1.0.3.1 and 1.0.3.2)

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- [ANU watch list](#)
- [BOEs](#)
 - [BOEs WBS X.0.2 \(MI\)](#)
 - [BOEs WBS X.0.4 \(BP\)](#)
 - [BOEs WBS 1.9 & 2.10](#)
 - [BOEs WBS X.0.1 \(RR\)](#)
 - [BOEs WBS X.0.3 \(NuMI\)](#)
 - [BOEs WBS X.1](#)
 - [BOEs WBS X.2](#)
 - [BOEs WBS X.3](#)
 - [BOEs WBS X.4](#)
 - [BOEs WBS X.5](#)
 - [BOEs WBS X.6](#)
 - [BOEs WBS X.7](#)
 - [BOEs WBS X.8 & 2.9](#)
- [BOEs ETC FY09](#)
 - [ETC FY09 WBS X.0.3 \(NuMI\)](#)
 - [ETC FY09 WBS X.1](#)
 - [ETC FY09 WBS X.8 & 2.9](#)
 - [ETC FY09 WBS 1.9 & 2.10](#)
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 - [ETC FY09 WBS X.0.2 \(MI\)](#)
 - [ETC FY09 WBS X.0.4 \(BP\)](#)
 - [ETC FY09 WBS X.2](#)
 - [ETC FY09 WBS X.3](#)
 - [ETC FY09 WBS X.4](#)
 - [ETC FY09 WBS X.5](#)
 - [ETC FY09 WBS X.6](#)
 - [ETC FY09 WBS X.7](#)
- [Budgets](#)

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Document List by Topic

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These documents on [ETC FY09 WBS X.0.3 \(NuMI\)](#) (subtopic of [BOEs ETC FY09](#)) are available:

NOVA-doc-#	Title	Author(s)	Topic(s)	Last Updated
3763-v1	ETC 001 change to WBS 1.0.3.2 and 1.0.3.3	John W. Cooper et al.	ETC FY09 WBS X.0.3 (NuMI)	03 May 2009



Approval - project manager

From: John Cooper [mailto:jcooper@fnal.gov]
Sent: Wednesday, April 15, 2009 2:04 PM
To: Mike Martens
Cc: Freeman, Bill; Suzanne Saxer; Cooper, John
Subject: FW: Updated resources for 1.0.3 ETC estimate

Mike,
My understanding is that the work under 1.0.3.1 and 1.0.3.4 were estimated by different people than the two WBSs you propose to re-estimate.

When I did a quick addition of hours in the changes, I get about 650 hours – so this might amount to \$100K at most. See my attached update of your spreadsheet. That puts it on the edge of things we might do for ETC in the future, but I believe it is worth it just to get the experience with Open Plan and Cobra. Yours is an example of an SWF change.

So I am officially approving this ETC and handing it off to Bill and Suzanne to implement for the March 2009 reports.

Thanks,
John



“Before EAC001” snapshot

Assign EAC001 number and enter on appropriate tasks

Filter on tasks with desired EAC number and rollup their totals



Nova Project
WBS 1.0.3
Subsection by Control Account and Chargeable Task Code
EAC Change [EAC001]
Before EAC Update

Note 4/27/2009 5:29:26 PM
wfree Options
Units in this column are FY07\$ (by mistake, did not update this column to AY\$ before making the view.) Note this does not affect other columns.)

Activity ID	Activity Description	Change Request Numbers	Computed Status	Orig. Dur.	Early Dates	Baseline Dates	Resp. Inst.	PMT Type	Fund Source	Units To Do	BAC Material	BAC Labor	BACcum	M&S Cont. %	M&S Cont. \$	Labor Cont. %	Labor Cont. \$	Resinfo	
1.0.3 -- NUMI Upgrades																			
1.0.3.1 -- ANU NUMI Upgrades R&D																			
1.0.3.2.1.1.3	Assess IHEP ME Target Design Study 2	[CR035].[EAC001]	Planned	48d	01Apr09 08Jun09	06Oct09 14Dec09	FNAL	C DD		0	\$0	\$12,326	\$12,326	0%	\$0	35%	\$3,748	\$11,762	\$564 L.FNAL.AD.SCI.PHY.138.00.;L.FNAL.AD.ENG.ME.SR.10.00.;L.FNAL.AD.ENG.ME.86.00.
1.0.3.2.1.1.5	Integrate mechanical drawings from IHEP	[CR035].[EAC001]	Planned	22d	04Jan10 03Feb10	09Jul10 09Aug10	FNAL	C DD		0	\$0	\$30,870	\$30,870	0%	\$0	35%	\$9,387	\$30,870	\$0 L.FNAL.AD.ENG.DES.176.00.;L.FNAL.AD.ENG.ME.SR.9.00.;L.FNAL.AD.ENG.ME.79.00.
1.0.3.2.1.2.1	Analysis of Carrier for 700kW Beam Power	[CR035].[EAC001]	Planned	48d	01Apr09 08Jun09	30Mar09 04Jun09	FNAL	C DD		0	\$0	\$64,229	\$64,229	0%	\$0	100%	\$68,480	\$64,229	\$0 L.FNAL.AD.ENG.ME.173.00.;L.FNAL.AD.ENG.DES.384.00.;L.FNAL.AD.ENG.ME.SR.19.00.
1.0.3.2.1.2.2	Design of new carrier	[CR035].[EAC001]	Planned	60d	16Jun09 09Sep09	22Dec09 22Mar10	FNAL	C DD		0	\$0	\$84,157	\$84,157	0%	\$0	100%	\$73,114	\$80,301	\$3,856 L.FNAL.AD.ENG.DES.480.00.;L.FNAL.AD.ENG.ME.SR.24.00.;L.FNAL.AD.ENG.ME.216.00.
1.0.3.2.2.1	Analyze Current Hadron Monitor Design for Higher Beam Power.	[CR035].[EAC001]	Planned	53d	01Apr09 15Jun09	02Feb09 27Feb09	FNAL	C DD		0	\$0	\$28,055	\$28,055	0%	\$0	40%	\$10,218	\$28,055	\$0 L.FNAL.AD.ENG.ME.144.00.;L.FNAL.AD.ENG.ME.SR.16.00.;L.FNAL.AD.SCI.PHY.160.00.;L.FNAL.AD.ENG.DES.80.00.
1.0.3.2.3	Design Hadron Monitor Beam Abort	[CR035].[EAC001]	Planned	15d	01Nov10 19Nov10	01Nov10 19Nov10	FNAL	C DD		0	\$0	\$32,512	\$32,512	0%	\$0	40%	\$10,781	\$32,512	\$0 L.FNAL.AD.SCI.PHY.30.00.;L.FNAL.AD.ENG.EE.SR.12.00.;L.FNAL.AD.ENG.EE.108.00.;L.FNAL.AD.CP.90.100.00.
1.0.3.2.4.1	Target, Baffle & Carrier Initial Design Review	[CR035].[EAC001]	Planned	5d	09Jun09 15Jun09	15Dec09 21Dec09	FNAL	F DD		0	\$0	\$6,238	\$6,238	0%	\$0	20%	\$1,084	\$5,952	\$286 L.FNAL.AD.ENG.ME.36.00.;L.FNAL.AD.SCI.PHY.40.00.;L.FNAL.AD.ENG.DES.10.00.;L.FNAL.AD.ENG.ME.SR.4.00.
1.0.3.2.4.2	Target, Baffle & Carrier Design Review	[CR035].[EAC001]	Planned	15d	01Apr10 21Apr10	06Oct10 26Oct10	FNAL	F DD		0	\$0	\$19,612	\$19,612	0%	\$0	20%	\$3,252	\$18,714	\$898 L.FNAL.AD.ENG.ME.108.00.;L.FNAL.AD.SCI.PHY.120.00.;L.FNAL.AD.ENG.DES.30.00.;L.FNAL.AD.ENG.ME.SR.12.00.
1.0.3.3.2.3	Design Forced Air Cooling for Horn 1 Chase Stripline	[CR035].[EAC001]	Planned	45d	25Jun09 27Aug09	17Feb10 20Apr10	FNAL	C DD		0	\$0	\$43,091	\$43,091	0%	\$0	100%	\$37,437	\$41,117	\$1,974 L.FNAL.AD.ENG.DES.180.00.;L.FNAL.AD.ENG.ME.SR.19.00.;L.FNAL.AD.SCI.PHY.36.00.;L.FNAL.AD.ENG.ME.162.00.
1.0.3.3.4.4	Target Hall Chase Cooling Initial Design Review	[CR035].[EAC001]	Planned	10d	11Jun09 24Jun09	03Feb10 16Feb10	FNAL	F DD		0	\$0	\$12,476	\$12,476	0%	\$0	20%	\$2,168	\$11,904	\$571 L.FNAL.AD.SCI.PHY.80.00.;L.FNAL.AD.ENG.ME.SR.9.00.;L.FNAL.AD.ENG.DES.20.00.;L.FNAL.AD.ENG.ME.72.00.
1.0.3.3.4.5	Final Target Hall Chase Cooling Design Review	[CR035].[EAC001]	Planned	15d	26Nov09 13Nov09	17Jun10 08Jul10	FNAL	F DD		0	\$0	\$18,714	\$18,714	0%	\$0	20%	\$3,252	\$18,714	\$0 L.FNAL.AD.ENG.DES.30.00.;L.FNAL.AD.ENG.ME.SR.12.00.;L.FNAL.AD.ENG.ME.108.00.;L.FNAL.AD.SCI.PHY.120.00.
1.0.3.3.4.6	Target Hall Space Planning & Horn 2 Reconfiguration & Equip Design Rev	[CR035].[EAC001]	Planned	15d	04Oct10 22Oct10	09Jul10 29Jul10	FNAL	F DD		0	\$0	\$18,714	\$18,714	0%	\$0	20%	\$3,252	\$19,612	(\$898) L.FNAL.AD.SCI.PHY.120.00.;L.FNAL.AD.ENG.ME.SR.12.00.;L.FNAL.AD.ENG.ME.108.00.;L.FNAL.AD.ENG.DES.30.00.
1.0.3.2 -- ANU NUMI Upgrades Op																			
1.0.3.3.4	NUMI - Review & Revise Shielding Assessment	[CR035].[EAC001]	Planned	105d	02Nov09 06Apr10	02Nov09 06Apr10	FNAL	C DD		0	\$0	\$0	\$0	0%	\$0	40%	\$3	\$0	\$0 L.FNAL.AD.MNG.ESH.294.00.;L.FNAL.AD.SCI.PHY.420.00.
											\$0	\$370,994	\$370,994	0%	\$0	500%	\$216,175	\$383,742	\$7,252



“After EAC001” snapshot



Nova Project
WBS 1.0.3
 Subsection by Control Account and Chargeable Task Code
 EAC Change [EAC001]
 After EAC Update

AY Dollars
 Baseline:Nova_PMB

Activity ID	Activity Description	Change Request Numbers	Computed Status	Orig. Dur.	Early Dates	Baseline Dates	Resp. Inst.	PMT Type	Fund Source	Units To Do	BAC Material	BAC Labor	BACcum	M&S Cont. %	M&S Cont. \$	Labor Cont. %	Labor Cont. \$	EAC	VAC	Resinfo		
1.0.3 – NUMI Upgrades											0	\$0	\$370,994	\$370,994	0%	\$0	500%	\$245,973	\$270,157	\$100,838		
1.0.3.1 – ANU NUMI Upgrades R&D																						
1.0.3.2.1.1.3	Assess IHEP ME Target Design Study 2	[CR035][EAC001]	Planned	45d	01Apr09 08Jun09	06Oct09 14Dec09	FNAL	C	DD	0	\$0	\$12,326	\$12,326	0%	\$0	35%	\$4,314	\$7,392	\$4,934	L.FNAL.AD.SCI.PHY.150.00.L.FNAL.AD.ENG.ME.SR.5.00.L.FNAL.AD.ENG.ME.S6.00.		
1.0.3.2.1.1.5	Integrate mechanical drawings from IHEP	[CR035][EAC001]	Planned	22d	04Jan10 03Feb10	05Jul10 05Aug10	FNAL	C	DD	0	\$0	\$30,870	\$30,870	0%	\$0	35%	\$10,805	\$22,458	\$6,412	L.FNAL.AD.ENG.DES.130.00.L.FNAL.AD.ENG.ME.SR.7.00.L.FNAL.AD.ENG.ME.S5.00.		
1.0.3.2.1.2.1	Analysis of Carrier for 700KW Beam Power	[CR035][EAC001]	Planned	48d	01Apr09 05Jun09	30Mar09 04Jun09	FNAL	C	DD	0	\$0	\$64,229	\$64,229	0%	\$0	100%	\$64,229	\$60,241	\$13,988	L.FNAL.AD.ENG.ME.140.00.L.FNAL.AD.ENG.DES.300.00.L.FNAL.AD.ENG.ME.SR.12.00.		
1.0.3.2.1.2.2	Design of new carrier	[CR035][EAC001]	Planned	60d	16Jun09 09Sep09	22Dec09 22Mar10	FNAL	C	DD	0	\$0	\$84,157	\$84,157	0%	\$0	100%	\$84,157	\$56,505	\$27,652	L.FNAL.AD.ENG.DES.360.00.L.FNAL.AD.ENG.ME.SR.18.00.L.FNAL.AD.ENG.ME.130.00.		
1.0.3.2.2.1	Analyze Current Hadron Monitor Design for Higher Beam Power.	[CR035][EAC001]	Planned	53d	01Apr09 15Jun09	02Feb09 27Feb09	FNAL	C	DD	0	\$0	\$28,055	\$28,055	0%	\$0	40%	\$11,222	\$19,759	\$8,296	L.FNAL.AD.ENG.ME.100.00.L.FNAL.AD.ENG.ME.SR.10.00.L.FNAL.AD.SCI.PHY.100.00.L.FNAL.AD.ENG.DES.60.00.		
1.0.3.2.3	Design Hadron Monitor Beam Abort	[CR035][EAC001]	Planned	15d	01Nov10 13Nov10	01Nov10 13Nov10	FNAL	C	DD	0	\$0	\$32,512	\$32,512	0%	\$0	40%	\$13,005	\$24,450	\$8,062	L.FNAL.AD.SCI.PHY.30.00.L.FNAL.AD.ENG.EE.SR.10.00.L.FNAL.AD.ENG.EE.80.00.L.FNAL.AD.CP.SD.30.00.		
1.0.3.2.4.1	Target, Baffle & Carrier Initial Design Review	[CR035][EAC001]	Planned	5d	09Jun09 15Jun09	15Dec09 21Dec09	FNAL	F	DD	0	\$0	\$6,238	\$6,238	0%	\$0	20%	\$1,248	\$4,062	\$2,176	L.FNAL.AD.ENG.ME.24.00.L.FNAL.AD.SCI.PHY.30.00.L.FNAL.AD.ENG.DES.7.00.L.FNAL.AD.ENG.ME.SR.3.00.		
1.0.3.2.4.2	Target, Baffle & Carrier Design Review	[CR035][EAC001]	Planned	15d	01Apr10 21Apr10	06Oct10 26Oct10	FNAL	F	DD	0	\$0	\$19,612	\$19,612	0%	\$0	20%	\$3,922	\$14,812	\$4,801	L.FNAL.AD.ENG.ME.86.00.L.FNAL.AD.SCI.PHY.90.00.L.FNAL.AD.ENG.DES.24.00.L.FNAL.AD.ENG.ME.SR.9.00.		
1.0.3.3.3.3	Design Forced Air Cooling for Horn 1 Chase Ductline	[CR035][EAC001]	Planned	45d	25Jun09 27Aug09	17Feb10 20Apr10	FNAL	C	DD	0	\$0	\$43,091	\$43,091	0%	\$0	100%	\$43,091	\$31,132	\$11,959	L.FNAL.AD.ENG.DES.120.00.L.FNAL.AD.ENG.ME.SR.12.00.L.FNAL.AD.SCI.PHY.36.00.L.FNAL.AD.ENG.ME.140.00.		
1.0.3.3.4.4	Target Hall Chase Cooling Initial Design Review	[CR035][EAC001]	Planned	10d	11Jun09 24Jun09	03Feb10 16Feb10	FNAL	F	DD	0	\$0	\$12,476	\$12,476	0%	\$0	20%	\$2,495	\$9,732	\$2,744	L.FNAL.AD.SCI.PHY.60.00.L.FNAL.AD.ENG.ME.SR.6.00.L.FNAL.AD.ENG.DES.16.00.L.FNAL.AD.ENG.ME.60.00.		
1.0.3.3.4.5	Final Target Hall Chase Cooling Design Review	[CR035][EAC001]	Planned	15d	26Oct09 13Nov09	17Jun10 08Jul10	FNAL	F	DD	0	\$0	\$18,714	\$18,714	0%	\$0	20%	\$3,743	\$13,858	\$4,856	L.FNAL.AD.ENG.DES.22.00.L.FNAL.AD.ENG.ME.SR.3.00.L.FNAL.AD.ENG.ME.80.00.L.FNAL.AD.SCI.PHY.100.00.		
1.0.3.3.4.6	Target Hall Space Planning & Horn 2 Reconfiguration & Equip Design Rev	[CR035][EAC001]	Planned	15d	04Oct10 22Oct10	09Jul10 29Jul10	FNAL	F	DD	0	\$0	\$18,714	\$18,714	0%	\$0	20%	\$3,743	\$15,756	\$2,958	L.FNAL.AD.SCI.PHY.100.00.L.FNAL.AD.ENG.ME.SR.3.00.L.FNAL.AD.ENG.ME.86.00.L.FNAL.AD.ENG.DES.26.00.		
1.0.3.2 – ANU NUMI Upgrades Op																						
1.0.3.3.3.4	NuMI - Review & Revise Shielding Assessment	[CR035][EAC001]	Planned	105d	02Nov09 06Apr10	02Nov09 06Apr10	FNAL	C	DD	0	\$0	\$0	\$0	0%	\$0	40%	\$0	\$0	\$0	\$0	L.FNAL.AD.MNG.ESH.220.00.L.FNAL.AD.SCI.PHY.360.00.	
											0	\$0	\$370,994	\$370,994	0%	\$0	590%	\$245,973	\$270,157	\$100,838		



“After EAC001” snapshot

Entered revised resource levels (hrs) and recalculate costs to get estimate.

$$VAC = BAC - EAC$$

Resource changes are automatically incorporated into subsequent forecasts and reflected in the “official” EACs from COBRA

date	BAC Labor	BACcum	M&S Cont. %	M&S Cont. \$	Labor Cont. %	Labor Cont. \$	EAC	VAC	ResInfo
\$0	\$370,994	\$370,994	0%	\$0	590%	\$245,973	\$270,157	\$100,838	
\$0	\$12,326	\$12,326	0%	\$0	35%	\$4,314	\$7,392	\$4,934	L.FNAL.AD.SCI.PHY,130.00.;L.FNAL.AD.ENG.ME_SR,5.00.;L.FNAL.AD.ENG.ME,56.00.
\$0	\$30,870	\$30,870	0%	\$0	35%	\$10,805	\$22,458	\$8,412	L.FNAL.AD.ENG.DES,130.00.;L.FNAL.AD.ENG.ME_SR,7.00.;L.FNAL.AD.ENG.ME,55.00.
\$0	\$64,229	\$64,229	0%	\$0	100%	\$64,229	\$50,241	\$13,988	L.FNAL.AD.ENG.ME,140.00.;L.FNAL.AD.ENG.DES,300.00.;L.FNAL.AD.ENG.ME_SR,12.00.
\$0	\$84,157	\$84,157	0%	\$0	100%	\$84,157	\$56,505	\$27,652	L.FNAL.AD.ENG.DES,360.00.;L.FNAL.AD.ENG.ME_SR,18.00.;L.FNAL.AD.ENG.ME,130.00.
\$0	\$28,055	\$28,055	0%	\$0	40%	\$11,222	\$19,759	\$8,296	L.FNAL.AD.ENG.ME,100.00.;L.FNAL.AD.ENG.ME_SR,10.00.;L.FNAL.AD.SCI.PHY,100.00.;L.FNAL.AD.ENG.DES,60.00.
\$0	\$32,512	\$32,512	0%	\$0	40%	\$13,005	\$24,450	\$8,062	L.FNAL.AD.SCI.PHY,20.00.;L.FNAL.AD.ENG.EE_SR,10.00.;L.FNAL.AD.ENG.EE,80.00.;L.FNAL.AD.CP.SD,90.00.
\$0	\$6,238	\$6,238	0%	\$0	20%	\$1,248	\$4,062	\$2,176	L.FNAL.AD.ENG.ME,24.00.;L.FNAL.AD.SCI.PHY,30.00.;L.FNAL.AD.ENG.DES,7.00.;L.FNAL.AD.ENG.ME_SR,3.00.
\$0	\$19,612	\$19,612	0%	\$0	20%	\$3,922	\$14,812	\$4,801	L.FNAL.AD.ENG.ME,86.00.;L.FNAL.AD.SCI.PHY,90.00.;L.FNAL.AD.ENG.DES,24.00.;L.FNAL.AD.ENG.ME_SR,9.00.
\$0	\$43,091	\$43,091	0%	\$0	100%	\$43,091	\$31,132	\$11,959	L.FNAL.AD.ENG.DES,120.00.;L.FNAL.AD.ENG.ME_SR,12.00.;L.FNAL.AD.SCI.PHY,36.00.;L.FNAL.AD.ENG.ME,140.00.
\$0	\$12,476	\$12,476	0%	\$0	20%	\$2,495	\$9,732	\$2,744	L.FNAL.AD.SCI.PHY,60.00.;L.FNAL.AD.ENG.ME_SR,6.00.;L.FNAL.AD.ENG.DES,16.00.;L.FNAL.AD.ENG.ME,60.00.
\$0	\$18,714	\$18,714	0%	\$0	20%	\$3,743	\$13,858	\$4,856	L.FNAL.AD.ENG.DES,22.00.;L.FNAL.AD.ENG.ME_SR,9.00.;L.FNAL.AD.ENG.ME,80.00.;L.FNAL.AD.SCI.PHY,100.00.
\$0	\$18,714	\$18,714	0%	\$0	20%	\$3,743	\$15,756	\$2,958	L.FNAL.AD.SCI.PHY,100.00.;L.FNAL.AD.ENG.ME_SR,9.00.;L.FNAL.AD.ENG.ME,86.00.;L.FNAL.AD.ENG.DES,26.00.
\$0	\$0	\$0	0%	\$0	40%	\$0	\$0	\$0	L.FNAL.AD.MNG.ESH,220.00.;L.FNAL.AD.SCI.PHY,360.00.
\$0	\$370,994	\$370,994	0%	\$0	590%	\$245,973	\$270,157	\$100,838	

$$\Delta EAC = 100,838 - 7,252 = 93,586$$



E-mail confirming changes

From: Bill Freeman [mailto:wfree@fnal.gov]
Sent: Monday, April 27, 2009 5:43 PM
To: 'John Cooper'; 'Mike Martens'
Cc: Suzanne Saxer; Harry Ferguson; Elaine McCluskey
Subject: RE: Updated resources for 1.0.3 ETC estimate

FYI -

I have made the EAC/ETC changes in Open Plan, discussed below. The forecast reduction (in AY\$) arising from these changes in assigned hours in Open Plan is \$93,586, based on the current early dates. Note that there was already a small (~7.2k reduction) being forecast as a result of advances in the early dates for some of the tasks involved. That reduction was due only to escalation effects, not to any lowering of the assigned resource hours.

Before vs After PDF snapshots of the tasks involved in the change are attached.

Bill Freeman