Work Approval Form (WAF)

Cost Center: 9417 ** 1001**
Job Number:
Job Title: NSTX CS Upgrade PFCs (PF1C Protective Measures)
Job Manager: Kelsey Tresemer

Description:

The Row 1 IBD and OBD tiles will be thickened and their CHI gap radii increased to mirror the distance between the PF1C canister and the outboard flange. This will narrow the gap, offering more protection to the PF1C can. Thermocouples will also be installed to monitor this area for excess heat deposition. Since the IBD tiles are increasing in overall thickness and the OBD tiles must now be re-machined, more raw material will be needed and higher machining costs will be encurred. There is also disposition for the increase in designer time and the inevitable field fitting of the tiles, as the geometry in that area is not consistent. There will also be an impact to Diagnostics, as the OBD tiles do have a few sensors that will need to be replaced. Those sensors are already in house, so impact will be nominal other than installation time.

Schedule:

See Tab B or attached

Approvals:

Kelsey Tresemer
Digitally signed by Kelsey Tresemer
DN: cn=Kelsey Tresemer, o=PPPL, ou=Mechanical Engineering, email=ktreseme@pppl.gov, c=US
Date: 2012.07.17 11:20:00 -04'00'

Job Manager

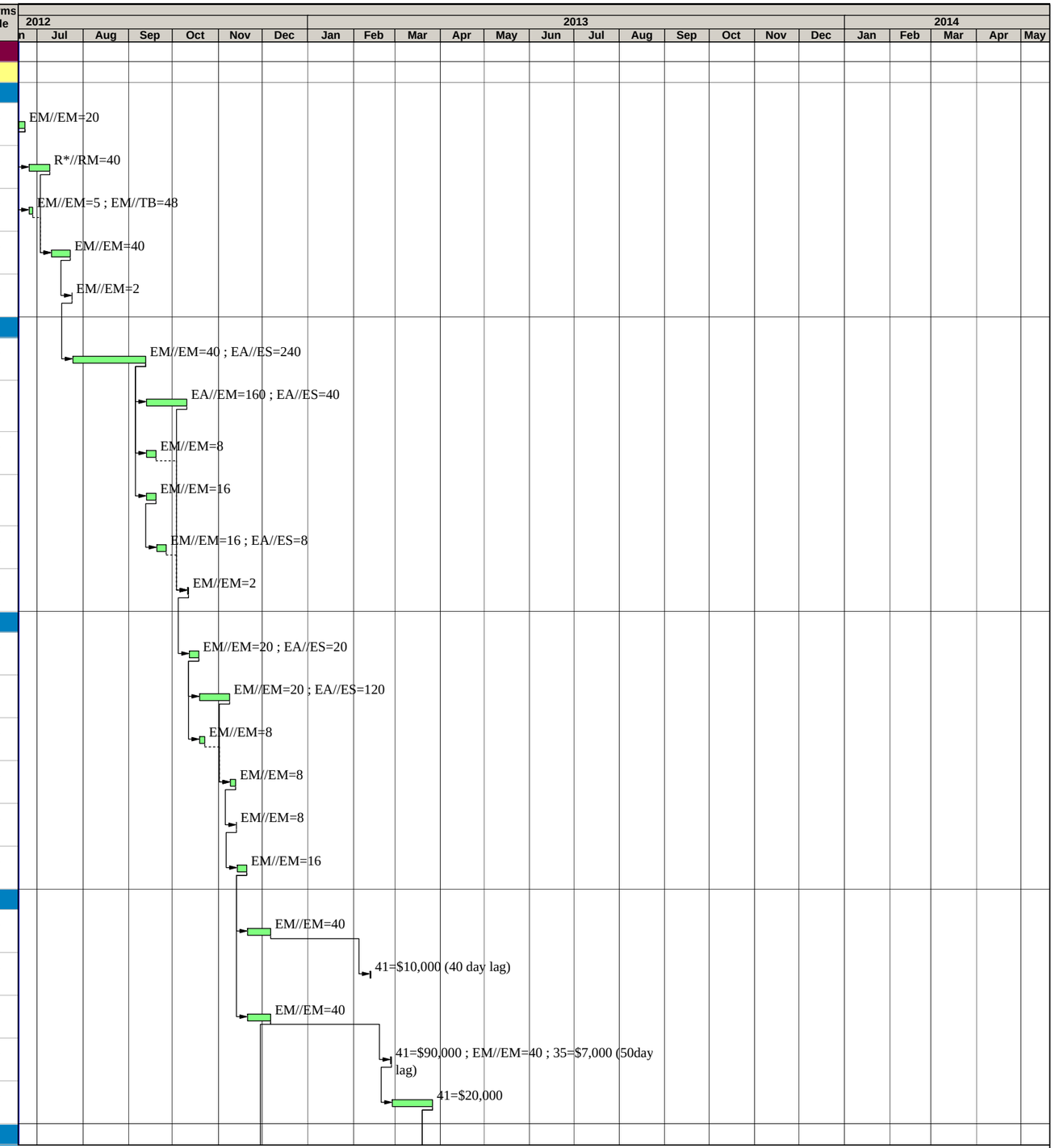
Ron Strykowsky
Digitally signed by Ron Strykowsky
DN: cn=Ron Strykowsky, o, ou=PPPL, email=rstrykow@pppl.gov, c=US
Date: 2012.07.19 09:00:04 -04'00'

Project Manager

Mike Williams
Digitally signed by Mike Williams
DN: cn=Mike Williams, o=PPPL, ou=Engineering and Infrastructure, email=williams@pppl.gov, c=US
Date: 2012.07.19 08:30:40 -05'00'

Engineering Department Head

Activity ID	Activity Name	Original Duration	Activity % Complete	Start	Finish	Budgeted Total Cost	evms rule
Job: 1001 - CS Plasma Facing Components-TRESEMER		286		18-Jun-12	09-Aug-13	$470,583.57	
PF1C Protective Measure		286		18-Jun-12	09-Aug-13	$470,583.57	
Conceptual Design		26		18-Jun-12	24-Jul-12	$24,029.67	
1001-0093A	Prepare Work Planning Form	5	0%	18-Jun-12*	22-Jun-12	$3,469.80	E
1001-0093B	System Description/Operating Requirements	10	0%	25-Jun-12	09-Jul-12	$7,506.00	E
1001-0093C	CHI gap measurement, metrology, photography	3	0%	25-Jun-12	27-Jun-12	$5,767.29	E
1001-0093D	Conceptual sketches, workable plan	10	0%	10-Jul-12	23-Jul-12	$6,939.60	E
1001-0093E	Conceptual Design Review (CDR)	1	0%	24-Jul-12	24-Jul-12	$346.98	E
Preliminary Design		56		25-Jul-12	11-Oct-12	$75,412.74	
1001-0094A	Preliminary Drawings	35	0%	25-Jul-12	12-Sep-12	$29,756.40	E
1001-0094B	Thermal/Mag Analysis	20	0%	13-Sep-12	10-Oct-12	$37,609.20	E
1001-0094C	Prepare NEPA Form	5	0%	13-Sep-12	19-Sep-12	$1,387.92	E
1001-0094D	Update Cost & Schedule Estimate	5	0%	13-Sep-12	19-Sep-12	$2,775.84	E
1001-0094E	Preliminary Design Review (PDR) Preparation	5	0%	20-Sep-12	26-Sep-12	$3,536.40	E
1001-0094F	Conduct PDR	1	0%	11-Oct-12	11-Oct-12	$346.98	E
Final Design		28		12-Oct-12	20-Nov-12	$28,679.12	
1001-0095A	Disposition of PDR Chits	5	0%	12-Oct-12	18-Oct-12	$5,371.20	E
1001-0095B	Finalize Drawings	15	0%	19-Oct-12	08-Nov-12	$14,922.00	E
1001-0095C	Update Cost & Schedule Estimate	2	0%	19-Oct-12	22-Oct-12	$1,387.92	E
1001-0095D	Final Design Review (FDR) Preparation	2	0%	09-Nov-12	12-Nov-12	$2,834.24	E
1001-0095E	Conduct FDR	1	0%	13-Nov-12	13-Nov-12	$1,387.92	E
1001-0095F	Disposition of FDR Chits	5	0%	14-Nov-12	20-Nov-12	$2,775.84	E
Procurement		81		21-Nov-12	26-Mar-13	$188,966.80	
1001-0096A	Prepare Req & Procurement Package for Additional Graphite (new spare)	10	0%	21-Nov-12	06-Dec-12	$7,085.60	E
1001-0096B	Graphite Procurement	1	0%	12-Feb-13	12-Feb-13	$13,200.00	E
1001-0096C	Prepare Req & Procurement Package for tile machining	10	0%	21-Nov-12	06-Dec-12	$7,085.60	E
1001-0096D	Tile machining Procurement	1	0%	26-Feb-13	26-Feb-13	$135,195.60	E
1001-0096E	Bakeout	20	0%	27-Feb-13	26-Mar-13	$26,400.00	E
Assembly		241		18-Jun-12	05-Jun-13	$86,329.24	



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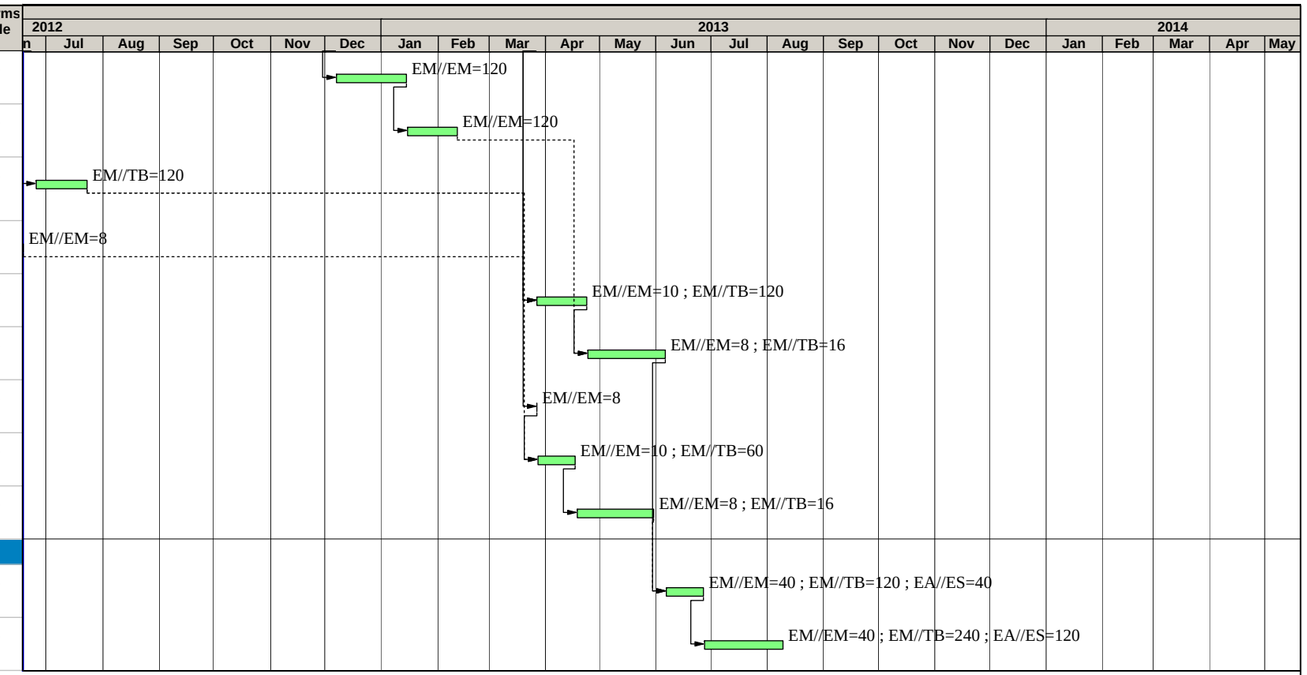
Activity ID	Activity Name	Original Duration	Activity % Complete	Start	Finish	Budgeted Total Cost	evms rule
1001-0097A	Tile Pe-assembly Procedures	20	0%	07-Dec-12	14-Jan-13	$21,256.80	E
1001-0097B	Tile installation procedure	20	0%	15-Jan-13	11-Feb-13	$21,256.80	E
1001-0097C	Hardware to VPL for cleaning	20	0%	25-Jun-12	23-Jul-12	$12,507.60	E
1001-0097D	1st batch of tiles to Diagnostics for diag. assembly	1	0%	18-Jun-12	18-Jun-12	$1,417.12	E
1001-0097E	1st batch of tile pre-Assly with hardware (bagged and numbered)	20	0%	27-Mar-13	23-Apr-13	$14,279.00	E
1001-0097F	1st batch of tile to CS Installation	30	0%	24-Apr-13	05-Jun-13	$3,084.80	E
1001-0097G	2nd batch of tiles to diagnostics for assembly	1	0%	27-Mar-13	27-Mar-13	$1,417.12	E
1001-0097H	2nd batch of tile pre-Assly with hardware (bagged and numbered)	15	0%	28-Mar-13	17-Apr-13	$8,025.20	E
1001-0097I	2nd batch of tiles to CS Installation	30	0%	18-Apr-13	30-May-13	$3,084.80	E
Installation		45		06-Jun-13	09-Aug-13	$67,166.00	
1001-0098A	Troubleshoot	15	0%	06-Jun-13	26-Jun-13	$23,461.20	E
1001-0098B	Tile refit, as needed, additional machining	30	0%	27-Jun-13	09-Aug-13	$43,704.80	E



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Job Number: 1001
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Job Manager: Kelsey Tresemer

Materials and Subcontracts (M&S)

Description:		Basis of Estimate
1001-0096B Graphite Procurement	$ 10,000	4
1001-0096D Tile Machining	$ 90,000	4
1001-0096E Bakeout	$ 20,000	4

CATEGORIZATION CODES:			
1 - National Standards	1	$ -	0%
2 - Engineering Judgement/Experience	2	$ -	0%
3 - Estimates/Data from External Sources (e.g., W7X, ATF, etc.)	3	$ -	0%
4 - Previous PPPL/ORNL Experieince (e.g., TFTR, NSTX, PLT, etc.)	4	$ 120,000	100%
5 - Prototype Data/Test Results	5	$ -	0%
6 - Catelogue Price/Vendor Quote	6		0%
7 - Placed Contracts	7	$ -	0%
8 - Actual experience for NCSX Work	8	$ -	0%
9 - Other	9	$ -	0%
TOTALS		$ 120,000	100%