

A	B	C	D	E	F	G	H	I	K	L	M	N	O	P	Q	R	S	T	U	
1	NSTX Upgrade Project Risk& Opportunity Registry, rev 22 9/11/2013								R21 Revisions shown in blue.		VL= 90%				L= 60%		U= 25%		U= 5%	
2									R22 Revisions shown in pink.		86									Project Managers
3	Updated	Number	Affected Job	Job Title	Risk Description	Mitigation Plan	Corrective Action if Risk Occurs (task id if appl)	Deadline to Retire Risk or Absorb Impact	Owner	Current Status	Likelihood of Occurrence	Consequences	Risk Ranking	Basis of Estimate	Cost Impact (\$K)	Critical Path Schedule Impact (weeks)	Cost and Schedule Impact Calculation Basis	Cost considered	Weighted Cost included in contingency	
4																		Retired=	\$ 2,343	
5																		Open=	\$ 3,793	\$ 954
6	2010	12/08/09	1000a	1000	Centerstack Analytical Support	Analysis indicates a significant component needs upgrade that previously hasn't been identified	Maintain upgrades of the model and keep ahead of the scenario changes	Jun-2014 Titus	Titus	open	VU	Negligible	vu	manager's experience	10 to 40		manager's estimate	\$ 40	\$ 2	
7	2010	12/08/09	1000b	1000	Centerstack Analytical Support	Analysis indicates a minor component needs upgrade that previously hasn't been identified - weld details, details that are inconsistent with the Pro-E model	Identify these areas early with site surveys and as-builts	Jun-2014 Titus	Titus	open	VU	Negligible	Low	manager's experience	10 to 40		manager's estimate	\$ 40	\$ 2	
8		06/15/10	1001c	1001	Centerstack Plasma Facing Components	Tiles require unforeseen machining	If schedule critical, and in-house machining will not suffice, seek external machining sources. Additional machining time added to WAF	1302-1500	Jun-2014 Tresemer	Tresemer	open	L	Negligible	Low	prior experience on NSTX	15 to 60	1 to 4	3 machinists for 1 to 4 weeks	\$ 60	\$ 36
9		12/08/09	1001a	1001	Centerstack Plasma Facing Components	Tiles not delivered on time	If schedule critical, install tiles in vessel.	1001-0066	Jun-2014 Tresemer	Tresemer	open	U			prior experience on NSTX	0			\$ -	\$ -
10		12/08/09	1001b	1001	Centerstack Plasma Facing Components	Special diagnostics for tiles not received on time	If schedule critical, install tiles in vessel.	4100-0056	Jun-2014 Tresemer	Tresemer	open	U			prior experience on NSTX	0			\$ -	\$ -
11		12/08/09	1302a	1302	Centerstack Assembly	Components do not arrive when required	If schedule is critical, OT or second shift would be required to regain schedule	1302-1500	Jun-2014 Chrzanowski	Chrzanowski	open	U	Negligible	Low		0			\$ -	\$ -
12		06/15/10	1305f	1305		OH bundle - poor VPI impregnation	Engineering of the fill locations and vents will be performed as part of developing the fabrication procedure.	Evaluate condition of coil - Local dry areas could be repaired, but larger failure would require cutting OH coil from TF and rebuilding OH 1305-8800	Apr-2014 Chrzanowski	Chrzanowski	open	U	Significant	Moderate		700	5 month schedule impact		\$ 700	\$ 175
13		06/15/10	1305g	1305		OH coil fails electrical tests	Include tests (meggar, hydro and hi-pot) at several points in the fabrication process so non-conformances can be identified and corrected as they occur.	If fault can not be repaired, Coil must be cut off and rebuilt 1305-8800	Apr-2014 Chrzanowski	Chrzanowski	open	U	Significant	Moderate		700	5 month schedule impact		\$ 700	\$ 175
14		06/15/10	1305d	1305		TF full bundle - poor VPI impregnation	Engineering of the fill locations and vents will be performed as part of developing the fabrication procedure.	Evaluate condition of coil - Local dry areas could be repaired, but larger failure would require separating quadrants and re-assy and VPI of bundle 1304-5400	Sep-2014 Chrzanowski	Chrzanowski	open	U	Marginal	Low		250			\$ 250	\$ 63
15		06/15/10	1305e	1305		TF full bundle fails electrical tests	Include tests (meggar, hydro and hi-pot) at several points in the fabrication process so non-conformances can be identified and corrected as they occur.	Repair electrical short 1304-5400	Sep-2014 Chrzanowski	Chrzanowski	open	U	Negligible	Low		75			\$ 75	\$ 19
16		06/15/10	1305h	1305		Unable to completely remove temporary spacer between OH and TF after completion of fabrication	Administrative controls during operation requiring OH and TF to be powered together	1305-8700	Mar-2014 Chrzanowski	Chrzanowski	open	U	Marginal	Low		0			\$ -	\$ -
17		06/15/10	1306a	1306	Inner PF Coils Design and Fabrication	Poor impregnation	Engineering of the fill locations and vents will be performed as part of developing the fabrication procedure.	Local dry areas can be repaired. Extensive areas of poor VPI may require rewinding new coil. 1306-5050	Jan-2014 Chrzanowski	Chrzanowski	open	U	Negligible	Low	manager's estimate	10 to 50	0	repeat fabrication tasks	\$ 50	\$ 13
18		06/15/10	1306b	1306	Inner PF Coils Design and Fabrication	Coil fails final acceptance tests.	Include tests (meggar, hydro and hi-pot) at several points in the fabrication process so non-conformances can be identified and corrected as they occur.	If coil cannot be repaired, a new coil will need to be wound. 1306-5050	Jan-2014 Chrzanowski	Chrzanowski	open	U	Negligible	Low	manager's estimate	50	0	repeat fabrication tasks	\$ 50	\$ 13
19		12/08/09	1307a	1307	Centerstack Casing Assembly Design and Fabrication	Components arrive late	OT required to recover schedule	1307-2030	Apr-2014 Chrzanowski	Chrzanowski	open	U	Negligible	Low		0	0		\$ -	\$ -
20	2011	06/15/10	2490a	2490	Relocations to Support NB2 Installation	SPRED re-design and re-installation may require more effort than estimated due to the physical constraints in the area of bay L	Start design work immediately so potential schedule impact can be accommodated if necessary.		Apr-2014 Perry	Perry	open	U	Marginal	Low	manager's estimate	98 to 147		Past experience designing and installing this diagnostic on NSTX	\$ 147	\$ 37
21	2011	06/15/10	2490b	2490		LOWEUS re-design and re-installation may require more effort than estimated due to the physical constraints in the area of bay L	Start design work immediately so potential schedule impact can be accommodated if necessary.		Apr-2014 Perry	Perry	open	U	Marginal	Low	manager's estimate	98 to 147		Past experience designing and installing this diagnostic on NSTX	\$ 147	\$ 37

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22		12/08/09	3400a	3400	Gas Delivery system mods for Centerstack upgrade	Fueling lines do not adequately deliver gas because of occlusions or leaks	Replace gas delivery line	3400-0052	Sep-2014 Blanchard	open	VU	Negligible	Low	Project manager's estimate	10		Similar installation on NSTX	\$ 10	\$ 1		
23		07/25/10	6100e	6100	Additional work scope	NSTX operations does not fund work scope as listed in WBS6100 PDR	Continued diligence to assure the program office funds req'd infrastructure improvements. Additional work scope for upgrade		Sep-2014 Sichta	open	U	Marginal	Low	Estimated impact is < 1 months on the critical path. Impact on cost due to additional workscope.	50 to 300	0 to 4		\$ 300	\$ 75		
24		07/25/10	6100d	6100	Loss of key personnel	Loss of key personnel	Assure project schedule has free float to absorb potential schedule impact. hire replacement and assess schedule impact		Sep-2014 Sichta	open	U	Marginal	Low	Estimated impact is < 1 months on the critical path. Impact on cost because untrained personnel will be less effective.	10 to 50	0 to 4		\$ 50	\$ 13		
25	2011	12/08/09	6100c	6100	Data Acquisition rate	Data acquisition takes too long	Upgrade additional data acq systems and/or networks, revise software		Sep-2014 Sichta	open	VU	Marginal	Low	Manager's estimate	5 to 25	0 to 2		\$ 25	\$ 1		
26				7100		Generic late vendor delivery	Award contracts early ASAP, followup vendor calls, timely receipt inspection		Apr-2014 strykowsky	open							\$250/k/mo.	\$ 250			
27		02/17/12	7100	7100	injury prompted stand down	serious injury causes 2-4 week shutdown	continued focus and diligence on safety at the daily WCC mtg, 8:30 meetings, staff meeting etc.	CD-4	strykowsky	open	u	Significant	Moderate					\$ 188	\$ 47		
28		02/17/12	7100	7100	core competencies- critical staff	critical skills lost (due to illness,VSP,retirement etc)	Cross train and develop backup staff	reduced likely hood	CD-4	strykowsky	open	u	Significant	Moderate	schedule impact of 1-2 months on critical path			\$ 88	\$ 22		
29		12/08/09	7100b	7100		PPPL overhead rates	Continue to ensure that outyear rates are conservative		Apr-2014 Strykowsky	open	L			Project Manager's estimate	682 (+/-)		Current EAC shows rates are \$700k conservative HOWEVER the outyear budget deficit would like increase existing rates close to the baseline rates. Unknown	\$ -	\$ -		
30		12/08/09	7700a	7700	HP Allocations	Volatility of overhead rates	Increase as required		Apr-2014 Strykowsky	open	L	Negligible	Low	Project Manager's estimate	65		3% variation	\$ 65	\$ 39		
31		12/08/09	7700b	7700		Volatility of base estimates for the allocated cost centers	Increase as required		Apr-2014 Strykowsky	open	L	Negligible	Low	Project Manager's estimate	65		3% variation	\$ 65	\$ 39		
32		12/08/09	7710a	7710	Direct Allocations	Volatility of head rates	Increase as required		Apr-2014 Strykowsky	open	L	Negligible	Low	Project Manager's estimate	65		100%	\$ 43	\$ 26		
33		12/08/09	7710b	7710		Volatility of base estimates for the allocated cost centers	Increase as required		Apr-2014 Strykowsky	open	L	Negligible	Low	Project Manager's estimate	65		100%	\$ 43	\$ 26		
34		07/16/10	8200d	8200		Realign Coils - This is in case the coils spring or change shape after releasing them from their existing clamps. This could affect the alignment of all any coil mounted to the vessel wall/ribs.	Metrology - new clamps		Sep-2013 Viola	open	U	Negligible	Low	Manager's estimate	40			\$ 40	\$ 10		
35		07/16/10	8200c	8200		Realign vacuum vessel - This is in case the vessel springs or changes shape after cutting the new port opening. This could affect the alignment of all the vessel internals mounted to the vessel wall.	Metrology	2480-0083	Viola	open	L	Negligible	Low	Manager's estimate	40			\$ 40	\$ 24		
36		07/16/10	8200b	8200		Damage to coil insulation during removal - This is in case we accidentally nick or gouge the outer insulation.	repair coil	8250-129	Apr-2014 Viola	open	VU	Negligible	Low	Coil engineer (Chrzanowski) estimate	40			\$ 40	\$ 2		
37		12/08/09	8250b	8250		Flex bus require more than two fit-ups / reworks prior to final installation	Repeat "remove, rework, re-install"		Sep-2014 Viola	open	U	Marginal	Low	Construction Manager's estimate	63 to 189	2 to 6	Same work previous done on NSTX	\$ 189	\$ 47		

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		12/08/09	8250a	8250	Centerstack Removal and Re-installation / Pumpdown / Bakeout	Vacuum seals don't pass leakcheck	Lift centerstack out, rework seals, re-install centerstack		Sep-2014 Viola	open	VU	Negligible	Low	Construction Manager's estimate	28 to 56	1 to 2	Same work previous done on NSTX	\$ 56	\$ 3		
		12/08/09	8250c	8250		Umbrella lids require more than two fit-ups / reworks prior to final installation	Repeat "remove, rework, re-install"		Sep-2014 Viola	open	U	Negligible	Low	Construction Manager's estimate	14 to 42	1 to 2	Same work previous done on NSTX	\$ 42	\$ 11		
2011	03/17/10	7100a	7100	Project Management and Integration	EVMS implementation requires more project controls, support for training, etc than expected	Assign experienced engineers as CAMs. Minimize the number of CAMs. New PM office.	current usage included in BAC and EAC	Dec-2011 Strykowski	Retired	L	Marginal	likely	Project Manager's estimate	150		additional 1 fte for two years	\$ 500	\$ 500			
		06/15/10	1305b	1305		TF quadrant - poor VPI impregnation	Engineering of the fill locations and vents will be performed as part of developing the fabrication procedure.	Evaluate condition of coil Local dry areas could be repaired, but larger failure would require rebuilding TF quadrant 1304-1870	Mar-2013 Chrzanowski	Retired	U	Marginal	Low	manager's estimate	200	0	repeat fabrication tasks	\$ 200	\$ 100		
		06/15/10	1305c	1305		TF quadrant fails electrical tests	Include tests (meggar, hydro and hi-pot) at several points in the fabrication process so non-conformances can be identified and corrected as they occur.	If unable to repair short, rebuild quadrant 1304-1890	Mar-2013 Chrzanowski	Retired	U	Marginal	Low	manager's estimate	200	0	cost to cut off coil and repeat fabrication tasks	\$ 200	\$ 100		
		12/08/09	7200a	7200	Centerstack Management	Additional reviews	Increase scope as required	currently underrunning. No unexpected reviews remain	Sep-2013 Dudek	Retired	U	Marginal	Low	Manager's estimate	107		additional review every other year	\$ 107	\$ 27		
2010	03/17/10	2300a	2300	Miscellaneous small appendage reinforcements on vessel	Upgrade may increase EM loads to small items on vessel that may need reinforcement, e.g. shutters, ECH, brackets, diagnostic supports.	Design reinforcements as problem areas are identified.	Reinforcements underway for passive plates and RF feed throughs	Sep-2011 Titus	Retired	VU	Marginal	Low	project manager's estimate	100			\$ 100	\$ 5			
		06/15/10	1301a	1301	Outer TF Coil Repairs	After press mold operation, numerous dry areas are found	Engineering of the fill locations and vents will be performed as part of developing the fabrication procedure.	Attempt local repair; if unsuccessful, rebuild coil 1301-0060	May-2013 Chrzanowski	Retired	U	Negligible	Low	manager's estimate	50	0	repeat existing tasks	\$ 50	\$ 13		
		06/15/10	1301b	1301		Coil does not pass final acceptance tests	Include tests (meggar, hydro and hi-pot) at several points in the fabrication process so non-conformances can be identified and corrected as they occur.	Attempt local repair; if unsuccessful, rebuild coil 1301-0060	May-2013 Chrzanowski	Retired	U	Negligible	Low	manager's estimate	50	0	repeat existing tasks	\$ 50	\$ 13		
2010	06/15/10	1002a	1002	Passive Plate Analysis	Halo and New/other disruption loads are beyond the capacity of the present hardware	Size modifications based on calculations and implement	Reinforcements underway for passive plates and RF feed throughs	Sep-2011 Titus	Retired	VU	Negligible	Low	Project Manager's estimate	5 to 20	0	1 to 4 weeks of designer	\$ 20	\$ 1			
		08/02/11	7100rs	7100	Project Schedule	Opportunity to accelerate the schedule by employing 2 shift operation in the CS fab and by applying cost underruns to accelerate scope	Jim chrzanowski to consider two shift ops Strykowski to identifying schedule accel tasks	none	Sep-2013 Chrzanowski/Strykowski	opportunity	L	Significant	Based on schedule analysis of critical path and at least 3 months savings x standing army cost (strykowski)	-750	-3 mo.		\$ (750)	\$ (450)			
		06/15/10	1200b	1200		Engineering total man-hours >1 engineer	obtain requested resources		Sep-2011 Mangra	Retired	VL	Negligible	Low		0			\$ -	\$ -		
		06/15/10	1200c	1200		Schedule is front end loaded	obtain requested resources		Sep-2011 Mangra	Retired	VL	Negligible	Low		0			\$ -	\$ -		
		10/01/11		2420		Ion sources Use existing 6 sources	factored into baseline via ecp-004		strykowski	Retired								\$ (1,000)			
2011	08/02/11	1304c	1304		Copper extrusion vendor has difficulty making full length conductors			5/1/2011 Chrzanowski	Retired	U	Marginal	Low	manager's estimate	100				100	25		
		12/08/09	1304a	1304	Inner TF Bundle Design and Fabrication	Poor VPI of TF bundle ****x duplicate of 1305b****	Engineering of the fill locations and vents will be performed as part of developing the fabrication procedure.	If repairs cannot be made, rebuild coil 1304-1870	n/a	Chrzanowski	Retired	U	Marginal	Low	manager's estimate	165	0	repeat fabrication tasks	\$ 165	\$ -	
		12/08/09	1304b	1304		TF coil fails electrical tests ****x duplicate of 1305c****	Include tests (meggar, hydro and hi-pot) at several points in the fabrication process so non-conformances can be identified and corrected as they occur.	If fault area cannot be repaired, rebuild coil 1304-1890	n/a	Chrzanowski	Retired	U	Marginal	Low	manager's estimate	165	0	repeat fabrication tasks	\$ 165	\$ -	
		08/02/11	8200rs	8200	Construction	Opportunity to factor in efficiencies into the construction plan	Erik to do bottom-s up estimate factoring in input from viola, raftopolous, and jos winston	none	Oct-2011 Perry/Strykowski	retired	L	Significant	Based on at least 10% savings (strykowski)	0				\$ -	\$ -		

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56		12/08/09 1305a	1305	OH Coil Design and Fabrication	No vendor bids for OH/TF fabrication	Fabricate coil in-house [Suggest having bid process include both domestic and international]	PPPL to fab		OH coil fabrication	Chrzanowski	Retired	U									0	0
57		02/16/10 2440a	2440	Beamline Refurbishment	Further inspections may require additional parts and labor	Inspect all parts promptly so damaged ones can be identified early - all parts and labor now in job estimate			2/2/2011	Denault	Retired	U			project manager's estimate	50				0	0	
58		02/17/10 2450b	2450		Heat load may be too high	Remake He lines - not a concern			2/2/2011	Denault	Retired	U			project manager's estimate	50	0			0	0	
59		02/17/10 2440b	2440		Existing copper parts may be reusable (except for the dump)	Negative risk - reduce scope of job - job estimate now includes reduced scope			FY10 PDR	Denault	Retired	L			project manager's estimate	-234				0	0	
60		03/24/10 7200b	7200		Availability of key personnel: Chrzanowski, Mangra, Titus	Titus by Brooks and Heitzenroeder - back-up persons identified for key personnel			FY10 PDR	Dudek	Retired				project manager's estimate					0	0	
61		12/08/09 CD0-a			Uncertain of ability to find a cost effective TF joint that works at higher fields	Perform extensive analysis (all operating scenarios) for new joint designs				Dudek	Retired											
62		12/08/09 CD0-b			Little room to re-enforce outer TF legs and umbrella structure to handle higher loads	Perform detailed design				Dudek	Retired											
63		12/08/09 CD0-c			The vacuum vessel may need to be reinforced to accommodate higher loads					Dudek	Retired											
64		06/15/10 2490c	2490		MPTS Beam Dump Window re-design and re-installation may require more effort than estimated due to the physical constraints in the area of bay L	Preliminary design work started to layout MPTS and included VV modifications and interfaces.- Job 4500 estimate included to provide larger Bay L port and MPTS interfaces.			FY11 FDR	Jones	Retired	U			Engineering estimate	included in NSTXU cost		Past experience designing and installing this diagnostic on NSTX		0	0	
65	2010	12/02/10 1303a	1303	TF Joint Test Stand and Testing	Significant change in TF design concept	Perform additional work			2/1/2011	Kozub	Retired	U	Negligible	Low	manager's estimate	10 to 50		past experience	50	12.5		
66	2010	12/02/10 1303b	1303		Increased number of redesign/retest cycles	Perform additional work			2/1/2011	Kozub	Retired	U	Negligible	Low	manager's estimate	10 to 50		past experience	50	12.5		
67	2010	12/02/10 1303c	1303		Unexpected technical challenges in implementing testing apparatus and procedures	Perform additional work			2/1/2011	Kozub	Retired	VU	Negligible	Low	manager's estimate	0 to 30		past experience	30	1.5		
68		12/08/09 1200a	1200	Centerstack Structural Supports	All interferences with existing equipment have not been identified	Field audit of interferences is included in estimate, audit included in base estimate			2/2/2011	Mangra	Retired	U			manager's experience	60	0	6 weeks of engineer and designer	60	15		
69		12/08/09 2460a	2460	NB Armor	CFC tiles needed for thermal/structural reasons	Add requirement for redundant plasma control to eliminate need for CFC tiles - Now in job			FY10 PDR	Priniski	Retired	L								0	0	
70		03/17/10 2480a	2480	NB2 Duct and VV Mods	Beam too close to bellows/duct	Include molybdenum shielding in estimate - Bay K port plug provides larger free aperture than BL. Some Moly shield for bellows included in job.			FY10 PDR	Priniski	Retired	L			project manager's estimate	30 to 60	0	Past experience on NSTX	0	0		
71		03/17/10 2480d	2480		Previous fabricators of rectangular bellows not available	Locate alternate vendors - RFQ with multiple vendors to access vendor and cost for PDR.			Issue requisition for bellows fabrication	Priniski	Retired	U			Project Manager's estimate	10 to 100			0	0		
72		03/17/10 2480b	2480		Difficulty machining vessel	Double estimate for this portion of the job - several methods exist for cutting and job estimate was increased for least efficient process.			Vessel machining	Priniski	Retired	L			project manager's estimate	10 to 70	1 to 8	Past experience on NSTX	0	0		
73		12/08/09 2480c	2480		J-K cap may not be able to be installed in one piece	Include removal of one TF outer leg (to facilitate access) in the baseline estimate - now in job				Priniski	Retired	U								0	0	
74		02/17/10 2470b	2470		Old 100 micron fiber cables that are proposed to be used may not be in good condition	Test a prototype with a 62.5 micron cable fused to 100 micron cable - sufficient 100 micron cable located on-site			FY11 FDR	Ramakrishnan	Retired	U			project manager's estimate	50		Past experience in installing the NB1 line up for NSTX	0	0		
75		12/08/09 2470a	2470	NB Power System	Old RCA tubes are being used and may need a tune-up	Use the 8 additional tubes from TFTR - replacements available				Ramakrishnan	Retired	U						Budgetary quotes received for Tiax and other cables and used in estimates	0	0		

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76	12/08/09	6100a	6100	Central Instrumentation and Control	Volume of data from diagnostic camera systems exceed capability of network, storage, and backup systems	Install 10 Gb networks and enhance storage and backup systems		FY10 PDR	Sichta	Retired	U	Marginal	Low	Engineering estimate	30 to 200		Similar work at PPPL	0	0		
77	12/08/09	6100b	6100		EPICS data acquisition takes too long	Include in the base job the upgrade of some data acquisition systems (CAMAC)		FY10 PDR	Sichta	Retired	VL	Marginal	Moderate	Engineering estimate	10 to 100		Similar work at PPPL	0	0		
78	03/17/10	7300a	7300	NB2 Management	Additional reviews	Increase scope as required		2/2/2011	Stevenson	Retired	U	Negligible	Low	Manager's estimate	75		additional review every other year	75	18.75		
79	03/17/10	7400a	7400	Health Physics Support	Unplanned overtime	Increase scope as required included in job		2/2/2011	Stevenson	Retired	L			Project Manager's estimate	35		additional 10%	35	21		
80	03/17/10	CD0-d			Uncertain of level of effort required to decontaminate TFTR NB				Stevenson	Retired											
81	12/08/09	CD0-e			Uncertain of the commercial availability of high voltage switch-tubes				Stevenson	Retired											
82	12/08/09	CD0-f			Uncertain of the commercial availability of cabling and terminations for the 100kV accelerator system				Stevenson	Retired											
83	2011	12/02/10	2300b	2300	Diagnostic/waveguide hqas a present weakness that hasn't been seen in operation	Reinforce		2/2/2011	Titus	Retired		Negligible	Low		0			0	0		
84	2011	12/02/10	2300c	2300	Diagnostic/waveguide requires more analysis to qualify	Expand analysis models beyond those used in the scoping study		2/2/2011	Titus	Retired		Negligible	Low		25			25	22.5		
85	2011	08/02/11	1001d	1001	Centerstack Plasma Facing Components	Passive Plate Tiles/hardware need upgrading: Possibly ~2050 tiles	Design and fab 2D CFC	6/22/2011	Tresemmer	Retired	U	Significant	Moderate		436			436	109		
86	2011	08/02/11	1001e	1001	Centerstack Plasma Facing Components	May be able to use ATJ on CS VS instead of 2D CFC. Depends on fastening needs		6/22/2011	Tresemmer	Retired	U			Possible outcome of thermal analysis. Is unlikely.	-75			-75	-18.75		
87	2011	08/02/11	8200e	8200	Passive Plate Tiles/hardware need upgrading: Possibly ~3500 tiles, 70000 in^3, replacing with 2D CFC	Finalize disruption and thermal load analysis by FDR.	Should replacement be necessary option to defer until later in ops by limiting machine parameters (no cost/schedule impact but tech perf impact) or replace all affected PP and tiles during the planned outage (sign cost impact little schedule impact)	8/1/2011	Tresemmer	Retired	U	Significant	Moderate		1000		field removal of PP upgrade attachments and re-installPP	1000	750		
88	08/02/11	1001d	1001	Centerstack Plasma Facing Components	Outboard Divertor tile and hardware replacement may be required for extreme operating scenarios	Should replacement be necessary, defer until later in ops by limiting machine parameters (no cost/schedule impact)		8/2/2011	Tresemmer	Retired	VU			Retired. Existing OBD tiles will be used in place of the LLD.							
89	12/08/09	8200a	8200	Centerstack and Coil Structure Installation	Longer time to remove diagnostics for access	- incorporated into base plan			Viola	Retired	L							0	0		
90	07/16/10	8200c	8200		remove LLD and replace with existing OD tiles	Perform disruption analysis on LLD or program decision on limiting operation.INCLUDE IN BASELINE			Viola	Retired	L		Manager's estimate	0				0	0		
91	12/08/09	2450a	2450	NB2 Services	Availability of V. Garzotto	Desandro / Denault could do this work- replacements available				Retired								0	0		