NCSX Project Meeting
June 4, 2008

Background: This is a report of the Project Meeting held Wednesday, June 4th.

The focus of this meeting was to review the proposed revised NCSX Project closeout activities and to discuss the overall closeout plans.

Meeting Minutes:

Safety Briefing –. Fred Dahlgren presented a Safety Minute on cryogen handling hazards. Oxygen displacement is a significant hazard when handling cryogens. Close call at the lab many years ago, with dry nitrogen. Insidious hazard because it may not be apparent until it is too late. More generally, hazard awareness, attention to JHAs.

Don Rej then provided a caution to not allow project situation distract us from putting safety first.

Project Status – Don Rej updated the Project on the current status and plans for providing an "orderly shutdown" on NCSX. He remarked the guidance he provided last week had been revised as a result of a teleconference this past Monday with OFES. He then proceeded to go through the activities authorized to proceed. The PPPL proposal is due to OFES not later than June 30th – however, we will continue to provide iterations, including this Friday to enable the final decision to be made by June 30th. The primary focus will be closeout of Project MIE, documentation and archiving design information, and securing/storing equipment.

5 Month Look Ahead – Ron Strykowsky went over a 5 month look ahead schedule that contain what items (denoted by a "x") will continue and what items (no "x") will be stopped. **Action:** All Job Managers and RLMs should review this schedule ASAP and provide comments back to Ron by close of business Thursday, June 5th.

Disposition of Equipment – Erik Perry reviewed his estimate of the effort needed to properly safe and store NCSX equipment. **Action:** Perry, Williams, Dudek, and vonHalle meet to determine the equipment/prototypes currently located in the Coil Manufacturing Facility (old TFTR Test Cell).

Document Capture and Archiving – Phil Heitzenroeder presented an overview plan for determining what information stored on engineers' computers or on other web sites should be reviewed and archived. This initial data mining effort needs to be completed not later than the end of this FY. Actual posting may take a slightly longer time. **Action:** Determine optimum plan for storing data. Transfer or store in place? Simmons, Malinowski, Carroll.

Also discussed the Final Closeout Report and content. Determine guidance to be given to job managers on documentation requirements. What is the minimum set of information we want to capture? Generate template for the closeout report for each job. **Action:** Neilson lead - Preliminary thoughts on content:

- Job description (scope and deliverables)
- Status (what was completed)

- Remaining scope (scheduled tasks not completed)
- Open issues (information of value if project were restarted)
- List of documentation (SRD, SDD, analysis reports, R&D/test reports, drawing tree, specs, procedures, review documentation, procurement docs.

Following this meeting, Hutch provided some guidance (attached) and the next day PAO weighed in with their thoughts (also attached)

NCSX Project Meeting
June 4, 2008

Attachments

- **Meeting Minutes**
- **Close Out Update – Don Rej**
- **5 Month Look Ahead – Ron Strykowsky**
- **NCSX Mothball Hardware Estimate – Erik Perry**
- **NCSX Close Out Documentation Plan – Phil Heitzenroeder**
- **Final Close Out Report**
    - **Draft Close Out Report Table of Contents – Hutch Neilson**
    - **PAO Guidance – Jeff Makiel**

NCSX Project Closeout Update: June 4, 2008

- **Attention to Safety in Times of Change**
- Feedback from DOE
- Closeout Plan
  - Updated Plan for Next 5-months — R. Strykowsky
  - New Scope
    - Materiel Disposition — E. Perry
    - Document & Data Management — P. Heitzenroeder

Revised Guidance from DOE

- On May 29, DOE HQ asked our Site Office to develop a closeout plan with PPPL and ORNL for HQ review and approval asap but no later than June 30.
- This plan is to include the following:

> - Complete fabrication of both the Modular and Toroidal Field Coils. These, and other existing components such as the vacuum vessel assembly, should be warehoused for possible future use.
> - Bring all other activities to a reasonable and documented conclusion.
> - Cease immediately any procurement activities unless approved by me.
> - Identify the impacts including loss of personnel and the associated costs with these impacts.
> - Develop a plan to document engineering lessons learned from the project so that future DOE projects may benefit from the work.
> - Provide the cost, scope, and schedule to perform the above and any other activities you believe are appropriate.

DOE Feedback on our Proposed Closeout Plan Options

- Complete fabrication of major stellarator components very close to completion
  - Modular coils **OK**
  - Toroidal field coils **OK**
  - Vacuum vessel sectors with installed services **OK**
- Complete design integration of the stellarator core
  - Cryostat & cryogen supply/distribution system design **Not in MIE; maybe future R&D**
  - Electrical leads/neutral beam transition duct design through PDR **Not in MIE; maybe future R&D**
  - Complete FDRs of conventional coil support structures **OK**
  - Complete & document magnet analyses: coil protection limits and strategy; operating scenarios and fault modes; coil cooling **Documentation OK but do not do any new design analyses as part of the MIE.**
  - Update the assembly sequence plan and assembly estimates **No. Do not do as part of MIE.**
- Prototype critical assembly operations
  - Assemble one complete field period through installation of two half-periods over a vacuum vessel sector (Station 3). **Will consider a 2nd Station-2 HPA, plus a trial fit of *one* HPA over a VVSA (trial fit & documentation only - no major rework) but Project must provide DOE a compelling justification of value, and show that it fits within remaining budget envelope**
- Document and publish contributions to fusion engineering knowledge made by the NCSX project. **OK**
- Secure equipment with supporting documentation **OK**

Updated Plan for Remainder of FY08
(Ron is presenting a 5-month look ahead at this meeting)

- Design
  - FDRs of conventional coil support structures
  - Bring all remaining design activities to a suitable break point this month, terminating further new work, and documenting work to date
- Construction
  - Complete modular coil VPIs
- Assembly
  - Bring all remaining vacuum vessel services to a suitable break point this month, terminating further new work, and documenting work to date
  - Continue Station-2 through the 2nd half period assembly only
  - Continue Station-3 through the 1st field half period fit up test only
  - Bring all remaining Station-5 & 6 planning to a suitable break point this month, terminating further new work, and documenting updates of work to date
- Procurements
  - Complete TF contract & minimum orders that support 2ns Station-2 3-pack, and Station-3 HPA trial fit
  - All new procurements greater than $50K require DOE HQ approval
  - Purchase card orders must be pre-approved by J. Chrzanowski, R. Strykowsky, or M. Viola
- New Scope
  - Documentation completion & archival (Heitzenroeder)
  - Equipment disposition (Perry)

Phil Heitzenroeder

Brooks

Job: 8204 - Systems Analysis-BROOKS

INCLUDED IN CLOSEOUT PLAN	Activity ID	Activity Description	Duration (work days	Forecast Start	Forecast Finish	% Cmplt	ETC
X	8204-FY08Z	Syst Analysis, studies & tech assurance FY08 etc	85*	02JUN08*	30SEP08	LOE	41,999.27
	8204-FY09	Systems Analysis, studies & tech assurance FY09	249*	01OCT08*	30SEP09	LOE	391,496.29

Brown

Job: 8203 - Design Integration-BROWN

	8203FY08-2	Facility models update&integration	377*	01APR08A	30SEP09	LOE	55,544.99
	8203FY08-3	Cryostat design rvw & integration update	41	05JUN08*	01AUG08		35,066.40
X	8203FY08-4	General integration activities	170*	01FEB08A	30SEP08	LOE	13,991.20
	8203FY09.2	FY09	249*	01OCT08*	30SEP09	LOE	654,581.80

Chrzanowski

Job: 1302 - PF Design -CHRZANOWSKI

X	1302-275	Resolve FDR Chits	70*	22FEB08A		90	0.00

Job: 1352 - PF Coil Procurement-CHRZANOWSKI

PF Coil Fabrication

	141-035E	DOE Approval	0		30MAY08*		0.00
X	141-038.1	PF Conductor cancellation cost	105*	21FEB08A	18JUL08	C	93,150.00
	141-035D	PPPL Receive PF conductor	0		18JUL08		0.00
	141-036	PF Coils Awarded	0		12JUN08*		0.00
	1352-121	Design/Fab Tooling	85	13JUN08*	13OCT08		565,575.10
	1352-145	Fabricate/Dlvr PF 5 & 6 Lower	84	14OCT08*	19FEB09		160,948.59
	1352-151	Fabricate/Dlvr PF 4 lower & upper	249	14OCT08*	13OCT09		92,683.76
	141-031	Title III engr WBS 132	370	02JUN08*	19NOV09	LOE	140,102.62

Cole

Job: 1353 - CS Structure Procurement-COLE

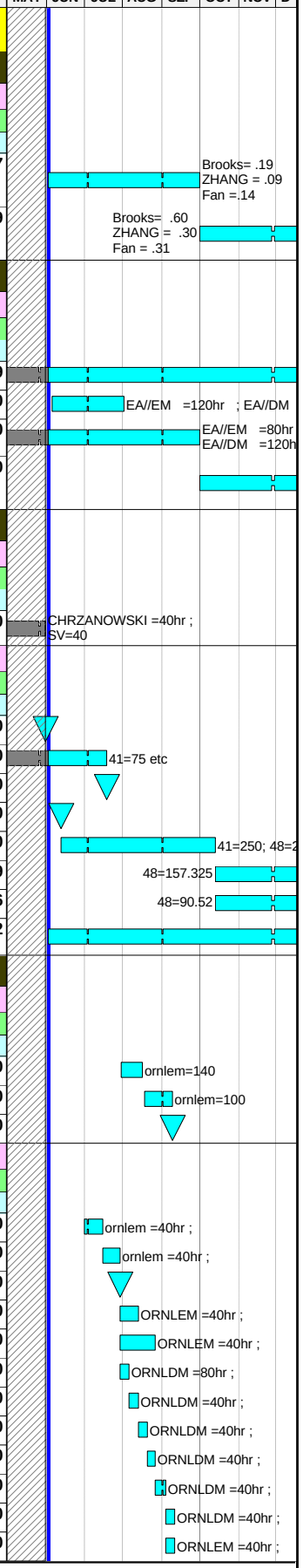
CS Support Structure

	1353-001	Design PF1a upper to lower interconnect bus	12	31JUL08*	15AUG08		21,140.00
	1353-002	Engr & analysis of bus	15	18AUG08	08SEP08		15,100.00
	1353-002A	FDR	0		08SEP08		0.00

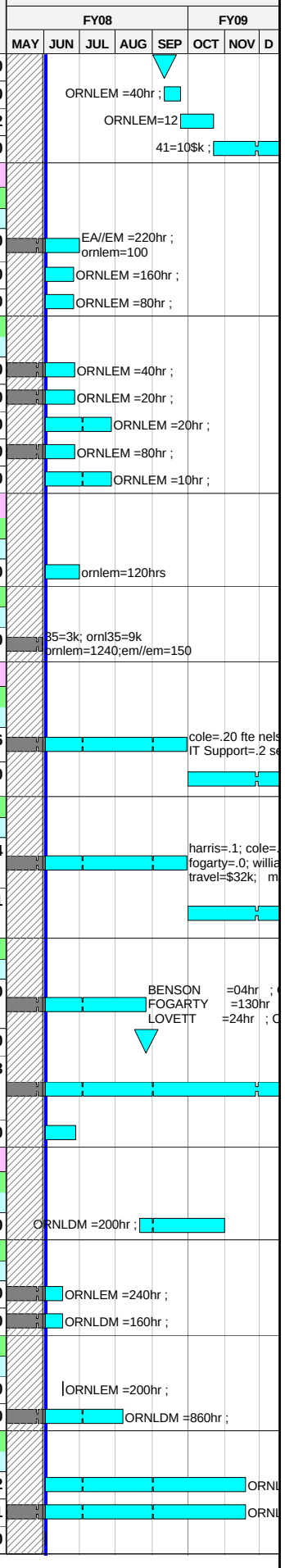
Job: 1355 - WBS 13 I&C Proc and Coil Assy-COLE

TF/PF Loacl I&C

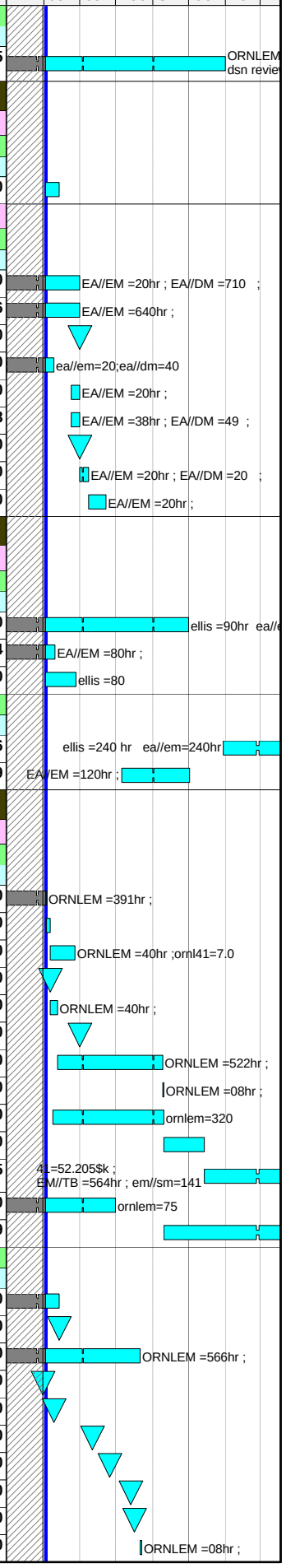
	1355-101	Peer Review	10	01JUL08*	15JUL08		6,040.00
	1355-102	PDR Prep	10	16JUL08*	29JUL08		6,040.00
	1355-102M	PDR	0		29JUL08		0.00
	1355-102C	Resolve PDR Chits	10	30JUL08	12AUG08		6,040.00
	1355-103	Prepare Installation Procedures	20	30JUL08	26AUG08		6,040.00
	1355-104.1	Prepare-Assy Dwg	5	30JUL08	05AUG08		7,920.00
	1355-104.2	Prepare-Details voltage taps	5	06AUG08	12AUG08		3,960.00
	1355-104.3	Prepare-PID schematic	5	13AUG08	19AUG08		3,960.00
	1355-104.4	Prepare-Interface inside cryostat	5	20AUG08	26AUG08		3,960.00
	1355-104.5	Prepare-Details interface thru cryostat	5	27AUG08	03SEP08		3,960.00
	1355-104.6	Prepare-Interface outside cryostat	5	04SEP08	10SEP08		3,960.00
	1355-105	TF/PF Local I&C - FDR Prep	5	04SEP08	10SEP08		6,040.00



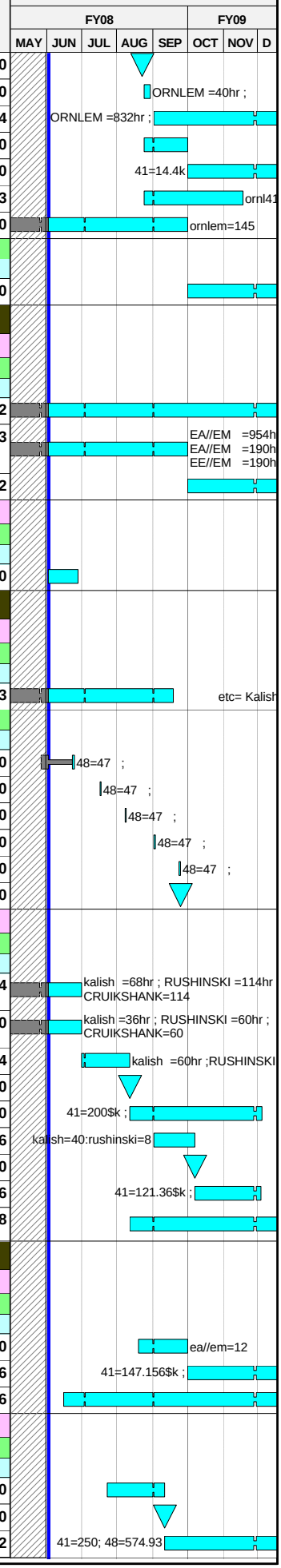
INCLUDED IN CLOSEOUT PLAN	Activity ID	Activity Description	Duration (work days	Forecast Start	Forecast Finish	% Cmplt	ETC
	1355-106	TF/PF Local I&C - FDR	0		10SEP08		0.00
	1355-105C	Resolve FDR Chits	10	11SEP08	24SEP08		6,040.00
	1355-107	Prep req,bid,award T/C and wire	20	25SEP08	22OCT08		1,878.72
	1355-109	Deliver of T/C and wire	40	23OCT08	19DEC08		13,060.00
Job: 1416 - Mod Coil Type AB Fnl Dsn-COLE							
Analysis and closeout documentation							
X	1416-601	Prepare EM and structural analysis of leads	107*	31JAN08A	30JUN08	70	15,279.00
X	1416-650	Prepare cooling analysis of lead area	18	02JUN08*	25JUN08		24,160.00
X	1416-651	Prepare cooling analysis coefficient for cryosta	18	02JUN08*	25JUN08		12,080.00
ECN Modifications							
X	1416-801	ECN Mods-Resize vertical port boot	40*	01MAY08A	26JUN08	40	3,624.00
X	1416-802	ECN Mods-Revise Type B cooling lines	40*	01MAY08A	26JUN08	40	1,812.00
X	1416-803	ECN Mods-Issue DXF shim files for fab	40	02JUN08*	28JUL08		3,020.00
X	1416-805	ECN Mods-Add TC's at bottom of 101,102,103 dwgs	40*	01MAY08A	26JUN08	80	2,416.00
X	1416-806	ECN Mods-Revise dwg 123-151	40	02JUN08*	28JUL08		1,510.00
Job: 1421 - Mod Coil Interface Design-COLE							
Inboard Interface-CC							
X	1421-3155	Resolve C-C shim FDR comments	21	02JUN08*	30JUN08		18,120.00
X	INTRF-100	Misc travel, meetings,reporting,job 1416&1421	271*	01MAY07A		LOE	0.00
Job: 1901 - Stellarator Core Mngtt&Integr-COLE							
191 - Stellarator Core Management & Oversight							
X	1901-08	WBS 191 FY08	249*	01OCT07A	29SEP08	LOE	61,023.96
X	1901-09	WBS 191 FY09	121*	01OCT08*	31MAR09	LOE	46,385.40
192 - Stellarator Core Integr & Global Analysis							
X	1902-08	WBS 192 FY08	249*	01OCT07A	29SEP08	LOE	50,185.84
	1902-09	WBS 192 FY09	247*	01OCT08*	28SEP09	LOE	713,092.71
193 - Risk Mitigation Tasks							
	RISK-43	Bolt preload could relax with time.	61	03MAR08A	26AUG08	10	34,443.00
	RISKMIT	Field Period Assy Risk Mitigation Tasks Complete	0		26AUG08		0.00
	RISK-696	consider a bringing all 3 120 degree field perio	227	03MAR08A	29APR09	20	153,221.03
	ADD-01	Nomex batt insulaltion	20	02JUN08	27JUN08		0.00
Job: 1806 - FP Assembly specs and drawings-COLE							
1.00-VV Prep Station							
	1803-609	Detail dwgs-spool piece	50	22AUG08	31OCT08		20,218.60
Station 3-Modular Coil to VVSA Assembly							
X	1803-301	Station 3 Assembly Specification	239*	02JUL07A	16JUN08	90	3,624.00
X	1803-305	Station 3 Assembly Drawings	239*	02JUL07A	16JUN08	90	1,584.00
Station 5-Final Field Period Assembly							
	1803-501	Station 5 Assembly Specification	0*	17JUN08*	16JUN08		0.00
	1803-509	Field period Assy Dwgs prelim only	132*	01FEB08A	06AUG08	60	34,056.00
6.00-Final Machine Assembly							
	1803-601	Station 6 Assembly Specification	120	02JUN08*	18NOV08		67,331.92
	1803-605	Station 6 Assembly Drawings prelim only	141*	01MAY08A	18NOV08	30	46,351.11
	1803-613	Detail dwgs-man access port (deleted)	0	02JUN08	30MAY08		0.00



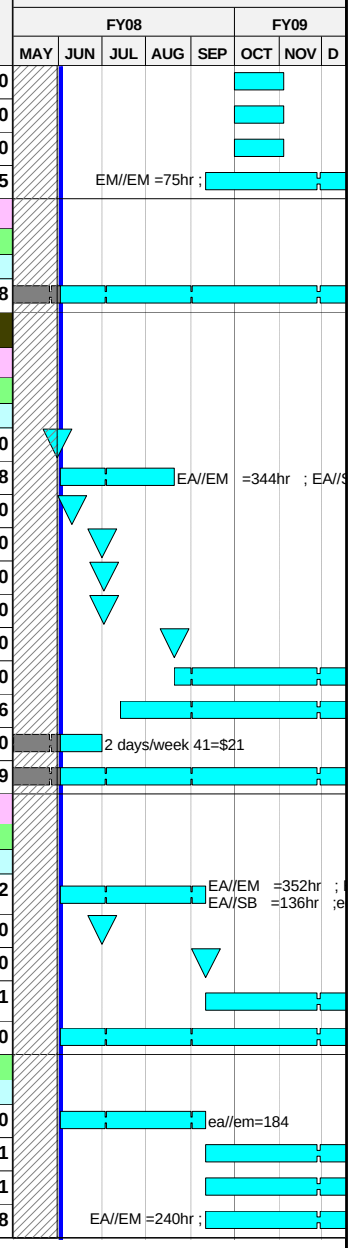
INCLUDED IN CLOSEOUT PLAN	Activity ID	Activity Description	Duration (work days	Forecast Start	Forecast Finish	% Cmplt	ETC
	1803-010	meetings,reporting,/presentations assy models	194*	31JAN08A	31OCT08	LOE	114,603.75
Dahlgren							
Job: 1702 - Base Support Struct Design-DAHLGREN							
X	1702-530	FDR labor cost (accounting lag)	10	02JUN08	13JUN08		11,688.80
Job: 1501 - Coil Structures Design-DAHLGREN							
X	1501-533	Detail CAD Drawings,BOM	270*	01JUN07A	30JUN08	75	21,319.30
X	1501-533F	Integrated Stress Analysis	186*	01OCT07A	30JUN08	75	27,202.56
X	1501-536	Issue dwgs for review	0		30JUN08*		0.00
X	1501-549	Update C.S.Support Attacgment Design	27*	01MAY08A	09JUN08	75	2,036.70
X	1501-562	Prepare Specs for Coil Structure & CSS h/w	5	24JUN08	30JUN08		3,542.00
X	1501-537	FDR Prep	5	24JUN08	30JUN08		12,370.68
X	1501-541	Coil Support Structures - FDR	0		30JUN08		0.00
	1501-545	Resolve Chits	5	01JUL08	08JUL08		5,844.40
	1501-558	Prepare requisition for Coil Structure & CSS h/w	10	09JUL08	22JUL08		3,542.00
Ellis							
Job: 8205 - Dimensional Control Coordin-ELLIS							
Station 3-Modular Coil to VVSA Assembly							
X	METFY08R	Support FPA Station 2	170*	01FEB08A	30SEP08	LOE	15,939.00
X	METDCP-3	Dimensional control plans for station 3	92*	01FEB08A	10JUN08	67	4,675.44
X	STAT3 PREP	Station 3 preparations	20	02JUN08	27JUN08		14,168.00
	METFY08RX	Support FPA Station 3	341	30OCT08*	22MAR10	LOE	90,836.46
	METDCP-5	Dimensional control plans for station 5	40	06AUG08	01OCT08		21,282.99
Goranson							
Job: 1601 - Coil Services Design-GORANSON							
161 - LN2 Distribution							
	191-001	Title I design WBS 161 LN2 manifolds&piping	86*	01FEB08A	02JUN08		585.00
X	191-002	Coil Serv-LN2 manifolds&piping-PDR prep etc	3*	03JUN08	05JUN08		14,496.00
	162-011A	R&D pressure drop simulation	15	06JUN08	26JUN08		13,040.00
X	162-217	PDR	0		05JUN08		0.00
	161-003	Resolve PDR comments	5	06JUN08	12JUN08		6,040.00
	161-004	Update cost estimate for Coil Services	0		30JUN08*		0.00
	191-011	Title II design WBS 161 LN2 manifolds&piping	60	13JUN08	08SEP08		71,500.00
	191-012	Coil Services-LN2 manifolds&piping - FDR	1	09SEP08	09SEP08		1,208.00
	161-110	Fabrication specifications	65	09JUN08	09SEP08		48,320.00
	191-037	Prep Req,Bid,Award-manifolds,hoses,valves etc	25	10SEP08*	14OCT08		0.00
	191-038	Fab and deliver-manifold assy,hoses,valves etc	90	15OCT08*	02MAR09		134,774.55
	161-100	meetings/reporting/presentations	128*	01FEB08A	31JUL08	LOE	3,805.20
	191-031	Title III engr WBS 161	118	10SEP08	05MAR09	LOE	34,424.59
162 - Electrical Leads							
	1416-503C	Complete drawings of MC power cable connections	95*	01FEB08A	13JUN08	50	0.00
	161-209	Route MC leads	0		13JUN08*	50	0.00
	132-001	Title I design WBS 162 Coil leads	143*	01FEB08A	21AUG08		28,725.00
	161-205	Determine lead gauges	0		30MAY08*	90	0.00
	161-207	Locate Thermal Transition Boxes (TTB)	0		09JUN08*		0.00
	161-211	Route PF, TF leads	0		11JUL08*		0.00
	161-213	Layout of TF, PF terminations	0		25JUL08*		0.00
	161-215	Layout of TTB	0		12AUG08*	25	0.00
	161-217	Develop SRD	0		15AUG08*		0.00
	132-002	Coil Services-Electr Coil leads - PDR (incl SRD)	1	22AUG08	22AUG08		1,208.00



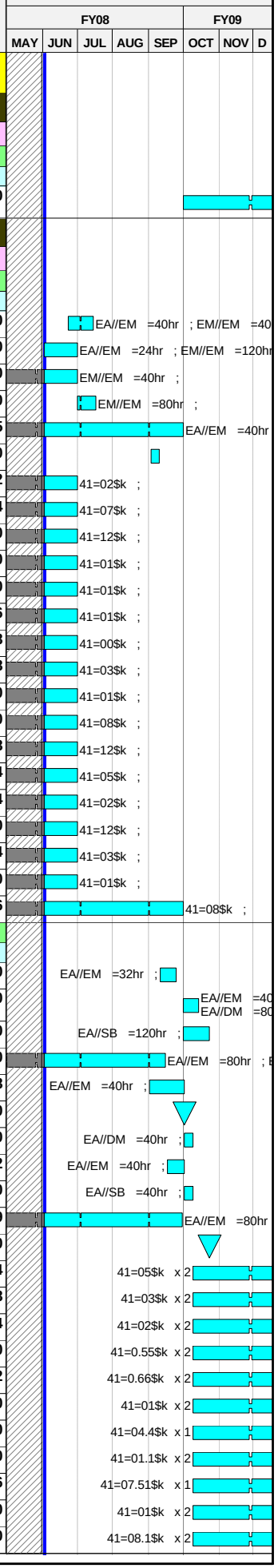
INCLUDED IN CLOSEOUT PLAN	Activity ID	Activity Description	Duration (work days	Forecast Start	Forecast Finish	% Cmplt	ETC
	161-219	**PDR**	**0**		22AUG08		**0.00**
	162-003	**Resolve PDR comments**	**5**	25AUG08	29AUG08		**6,040.00**
	132-011	**Title II design WBS 162 Coil leads**	**139**	02SEP08	26MAR09		**108,061.24**
	162-013	**Release final drawings for MC lead stubs**	**26**	25AUG08	30SEP08		**0.00**
	162-013.1	**Procure MC lead stubs**	**65**	01OCT08	12JAN09		**18,806.40**
	161-011A	**R&D build mounts & lead terminations**	**60**	25AUG08	17NOV08		**24,432.13**
	162-100	**meetings/reporting/presentations**	**170***	01FEB08A	30SEP08	**LOE**	**10,947.50**
163 - Coil Protection System							
	163.001	**interface design electric leads inside cryostat**	**64**	01OCT08*	09JAN09		**31,576.20**
Heitzenroder							
Job: 8202 - Engr Mgmt & Sys Eng Sprt-HEITZENROED							
X	**8205DC**	**document control & admin support**	**291***	01FEB08A	31MAR09	**LOE**	**23,630.52**
X	**8205FY08.2**	**Engr mgt & systems engr FY08**	**170***	01FEB08A	30SEP08	**LOE**	**249,616.43**
X	**8205FY09**	**Engr mgt & systems engr FY09**	**121***	01OCT08*	31MAR09	**LOE**	**205,071.82**
Job: 8221 -Documentation Closeout-HEITZENROEDER							
Safe and store NCSX hardware assets							
X	**8221-100**	**Documentation**	**20**	02JUN08	27JUN08		**0.00**
Kalish							
Job: 1361 - TF Fabrication-KALISH							
TF Title III and Fabrication Oversight							
X	**131-033C**	**Title III engr,inspection, support**	**184***	02JAN08A	18SEP08	**LOE**	**45,603.23**
TF Fabrication Contract							
X	**1361C-114**	**Fab, Test & Deliver Coil #14**	**21***	27MAY08A	24JUN08	**61**	**18,550.00**
X	**1361C-115**	**Fab, Test & Deliver Coil #15**	**1**	17JUL08*	17JUL08		**47,220.00**
X	**1361C-116**	**Fab, Test & Deliver Coil #16**	**1**	08AUG08*	08AUG08		**47,220.00**
X	**1361C-117**	**Fab, Test & Deliver Coil #17**	**1**	02SEP08*	02SEP08		**47,220.00**
X	**1361C-118**	**Fab, Test & Deliver Coil #18**	**1**	24SEP08*	24SEP08		**47,220.00**
X	**1351-195X**	**ALL TF COILS DELIVERED**	**0**		24SEP08		**0.00**
Job: 1354 - Trim Coil Design &Procurement-KALISH							
Trim Coil **Updated estimate**							
X	**TRIM-170**	**Complete Trim Coil Detailed Drawings**	**69***	25MAR08A	30JUN08	**80**	**7,658.04**
X	**TRIM-200**	**Assy drawings & parts list**	**64***	01APR08A	30JUN08	**90**	**2,019.00**
	TRIM-240	**Trim Coil Procurement time**	**29**	01JUL08*	11AUG08		**12,007.44**
	TRIM-250	**AWARD TRIM COIL PROCUREMENT**	**0**		11AUG08*		**0.00**
	TRIM-260	**Vendor Design and Fixture Fabrication**	**80**	12AUG08	04DEC08		**255,600.00**
	TRIM-274	**Trim Coil Bracket Procurement time**	**25**	02SEP08*	06OCT08		**8,079.66**
	TRIM-274M	**Award Trim Coil Brackets**	**0**		06OCT08		**0.00**
	TRIM-300	**Fabricate Brackets for 1st FPA**	**40**	07OCT08	03DEC08		**158,496.16**
	TRIM-399	**Title III support & oversight**	**231**	12AUG08	16JUL09	**LOE**	**136,305.28**
Perry							
Job: 1752 - Base Support Proc-PERRY							
172 - Base Support Structure							
	161-036.8	**Bid and award base support materials**	**30**	19AUG08*	30SEP08		**2,125.20**
	161-036.9	**Deliver base support materials**	**130**	01OCT08	13APR09		**192,190.96**
	161-038	**Title III**	**306**	16JUN08*	03SEP09	**LOE**	**7,064.26**
Job: 1550 - Coil Struct. Procurement -PERRY							
	1501-245	**Solicit Bids, and Evaluate Bids**	**35**	23JUL08	10SEP08		**0.00**
	162-036.9	**Award Coil Support Structure**	**0**		10SEP08*		**0.00**
	162-037	**Fabricate structure components**	**100**	11SEP08	10FEB09		**910,562.12**



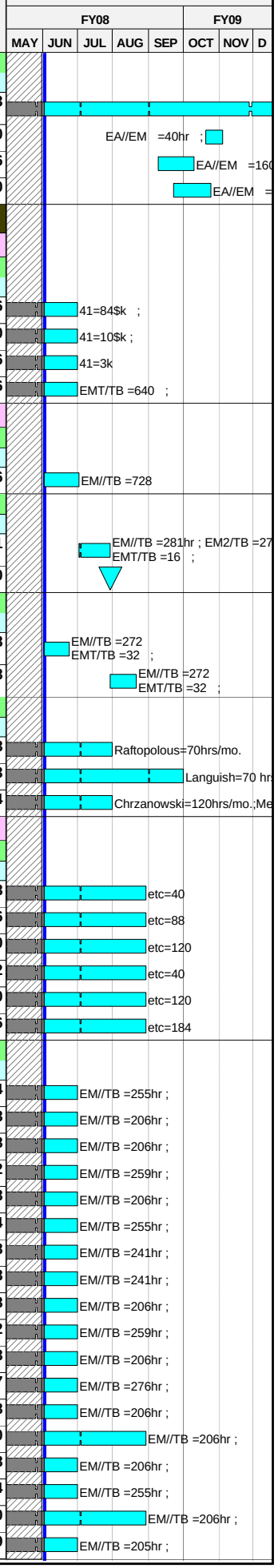
INCLUDED IN CLOSEOUT PLAN	Activity ID	Activity Description	Duration (work days	Forecast Start	Forecast Finish	% Cmplt	ETC
	162-050	Prep req, bid and award G11/Teflon parts	25	01OCT08*	04NOV08		0.00
	162-052	Prep req, bid and award Inconnel hardware	25	01OCT08*	04NOV08		0.00
	162-055	Prep req, bid and award Belleville Washers	25	01OCT08*	04NOV08		0.00
	162-031	Title III engr WBS 151	117	11SEP08*	05MAR09	LOE	12,125.75
Job: 8215 Plant Design							
FY07 Rebaseline Exercise							
	8210-08	Plant Design	746*	01FEB08A	31JAN11	LOE	114,963.38
Raftopolous							
Job: 1701 - Cryostat Design							
	1701-090	Cryostat Configuration Peer Review	0		30MAY08*		0.00
	1701-100	Cryostat- Conceptual Design	56	02JUN08*	19AUG08		91,314.08
	62122-306	Review of current baseline cryo system dsn	0		10JUN08*		0.00
	62122-307	Review of alternate cryo system design	0		30JUN08*		0.00
	1701-095	Decide on Cryostat Concept	0		02JUL08*		0.00
	1701-091	Update cost estimate for Cryostat & cryo systems	0		02JUL08		0.00
	1701-100M	INTEGRATED CRYO SYSTEMS CDR (wbs 16,17,62)	0		19AUG08		0.00
	1701-101	Cryostat- Preliminary Design	91	20AUG08	07JAN09		142,229.40
	1701-103	Cryostat-R&D/prototype	118	14JUL08	07JAN09		137,606.86
	1751-169	Cryogenic consultant (Garzotto)	42*	01MAY08A	30JUN08	LOE	420.00
	1751-170	Cryostat & Cryogenic systems oversight&reporting	226*	01FEB08A	19DEC08	LOE	8,480.29
Job: 6201 - Cryogenic Syst							
621 - LN2 Supply & LN2 coil cooling supply							
	62122-300	Conceptual Design	71	02JUN08*	10SEP08		97,809.92
	62122-308	Update cost estimate for Cryogenic systems	0		30JUN08*		0.00
	62122-310	LN2 Supply & LN2 Coil Cooling CDR (wbs 16,17,62)	0		10SEP08		0.00
	62122-320	Preliminary Design	91	11SEP08	28JAN09		126,785.31
	6201-169	Cryogenic consultant (Vic Garzotto)	493	02JUN08*	25MAY10	LOE	0.00
623 - GN2 Cryostat Cooling System							
	623-099	GN2 Cryostat Cooling Sys Conceptual design	71	02JUN08*	10SEP08		32,586.40
	623-101	GN2 Cryostat Cooling Sys-Preliminary Design	91	11SEP08	28JAN09		158,850.41
	623-102	GN2 Cryostat Cooling Sys-Fab & test prototype	91	11SEP08	28JAN09		102,879.71
	623-121	GN2 Cryostat Cooling Sys-Cooldown& thermal anlys	91	11SEP08	28JAN09		44,601.78



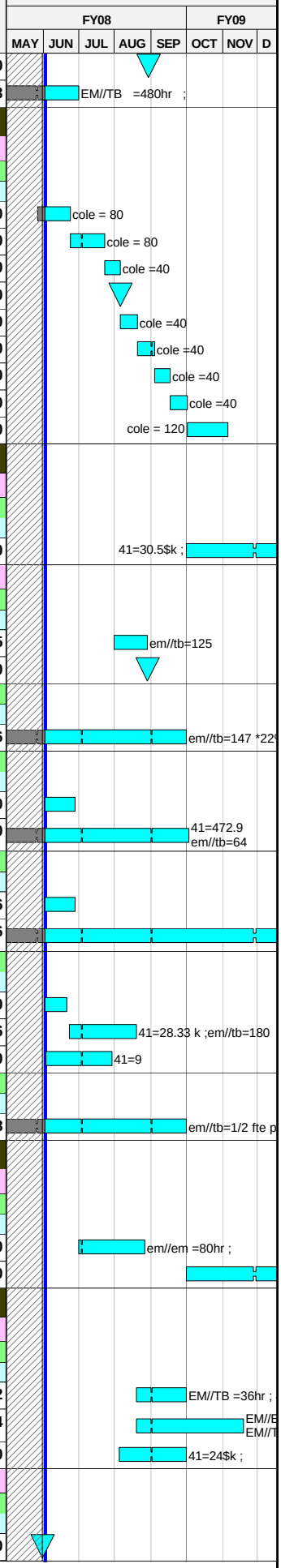
INCLUDED IN CLOSEOUT PLAN	Activity ID	Activity Description	Duration (work days	Forecast Start	Forecast Finish	% Cmplt	ETC
Larry Dudek							
Blanchard							
Job: 2201 - Vacuum Pumping Systems-BLANCHARD							
	220-101	Preliminary Design	83	01OCT08*	05FEB09		126,871.80
Brown							
Job: 1803/1805- FPA Tooling/Constr-BROWN							
Station 3-Modular Coil to VVSA Assembly							
X	1803S3-4	Generate laser screen trace drawings (1/2 period	15	23JUN08	14JUL08		13,235.20
X	1803S3-6	Station 3 simulation detail model	21	02JUN08*	30JUN08		22,704.00
X	1803S3-7	VV/MC clearance study (for VVSA1)	64*	01APR08A	30JUN08	75	1,537.80
X	1803S3-7B	VV/MC clearance study (for VVSA 2 and 3)	11	01JUL08*	16JUL08		12,302.40
X	1803S3-9	Oversite, cost and schedules, reviews	171*	31JAN08A	30SEP08	LOE	3,520.75
	1803S3-2A	Updated Stat 3 seq plan after MCHP/VV trial assy	5	03SEP08*	09SEP08		0.00
X	1805S3-2	Left side base grout plates	70*	24MAR08A	30JUN08	99*	2,620.62
X	1805S3-3	MCHP lift fixture frame weldment	70*	24MAR08A	30JUN08	99*	9,091.44
X	1805S3-4	Lift fixture mounting bracket weldments	70*	24MAR08A	30JUN08	99*	14,717.70
X	1805S3-5	Reworked laser frame structure	70*	24MAR08A	30JUN08	99*	1,117.80
X	1805S3-6	Right inboard laser frame structure	70*	24MAR08A	30JUN08	99*	1,055.70
X	1805S3-7	Left inboard laser frame structure	70*	24MAR08A	30JUN08	99*	844.56
X	1805S3-8	Laser screen lexan sheet (1/8 x 48" x 96")	70*	24MAR08A	30JUN08	99*	546.48
X	1805S3-9	Estimate for Station 2 type alignment system	70*	24MAR08A	30JUN08	99*	4,024.08
X	1805S3-100	Hardware & Misc items	70*	24MAR08A	30JUN08	99*	1,242.00
X	1805S3-110	Misc assembly Cost	70*	24MAR08A	30JUN08	99*	10,060.20
X	1805S3-201	MC base support system (left / rt side)	70*	24MAR08A	30JUN08	99*	15,512.58
X	1805S3-202	Hilman roller - 8-0T plus R & U guides	70*	24MAR08A	30JUN08	99*	2,943.54
X	1805S3-203	AirLoc Wedgmount Precision Levelers	70*	24MAR08A	30JUN08	99*	707.94
X	1805S3-204	Lift fixture mounting bracket weldments	70*	24MAR08A	30JUN08	99*	4,409.10
X	1805S3-205	Estimate for Station 2 type alignment system	70*	24MAR08A	30JUN08	99*	1,204.74
X	1805S3-206	Hardware & Misc items	70*	24MAR08A	30JUN08	99*	372.60
X	1805S3-207	Misc assembly Cost	171*	31JAN08A	30SEP08		5,005.26
Station 5-Final Field Period Assembly							
	1803S5.2	Updated Station 5 seq. plan (afterCryo CDR)	10	11SEP08*	24SEP08		5,667.20
	1803S5-4	Station 5 (and 3) lift fixture structures and li	10	01OCT08*	14OCT08		23,753.60
	1803S5-7	VV work platforms	17	01OCT08*	23OCT08		14,404.80
	1803S5-8	Station 5 support structural analysis	95*	01MAY08A	15SEP08	50	14,168.00
	1803S5-10	Station 5 FDR - Base support	22	02SEP08*	01OCT08		7,102.78
	1803-5.6	Station 5 Tooling/Assy FDR	0		01OCT08		0.00
	1803S5-11	Base support release for fabrication	5	02OCT08	08OCT08		4,873.20
	1803S5-12	Station 5 FDR - Lift fixtures, port tooling and	10	18SEP08*	01OCT08		7,125.32
	1803S5-13	Complete dwgs package & release for fabrication	5	02OCT08	08OCT08		4,801.60
	1803S5-14	Oversite, cost and schedules, reviews	170*	31JAN08A	29SEP08	LOE	6,998.99
	1803S5-15	Complete station 5 design	0		23OCT08*		0.00
	1805S5-1	FPA base support system	105	09OCT08	17MAR09		13,373.44
	1805S5-2	Type-C side support structure	105	09OCT08	17MAR09		7,548.68
	1805S5-3	NB side stabalizing support structure	105	09OCT08	17MAR09		4,884.44
	1805S5-4	TF local temporary supports	105	09OCT08	17MAR09		1,436.60
	1805S5-5	20 ton screw jacks	105	09OCT08	17MAR09		1,723.92
	1805S5-6	AirLoc Wedgmount Precision Levelers	105	09OCT08	17MAR09		2,612.00
	1805S5-7	Port 4 handling structure	105	09OCT08	17MAR09		5,746.40
	1805S5-8	Small port handling structure	105	09OCT08	17MAR09		2,873.20
	1805S5-9	Station 5 (and 3) lift fixture structures	105	09OCT08	17MAR09		9,808.06
	1805S5-102	Hardware & Misc. items	105	09OCT08	17MAR09		2,612.00
	1805S5-103	Misc. assembly Cost	105	09OCT08	17MAR09		10,578.60



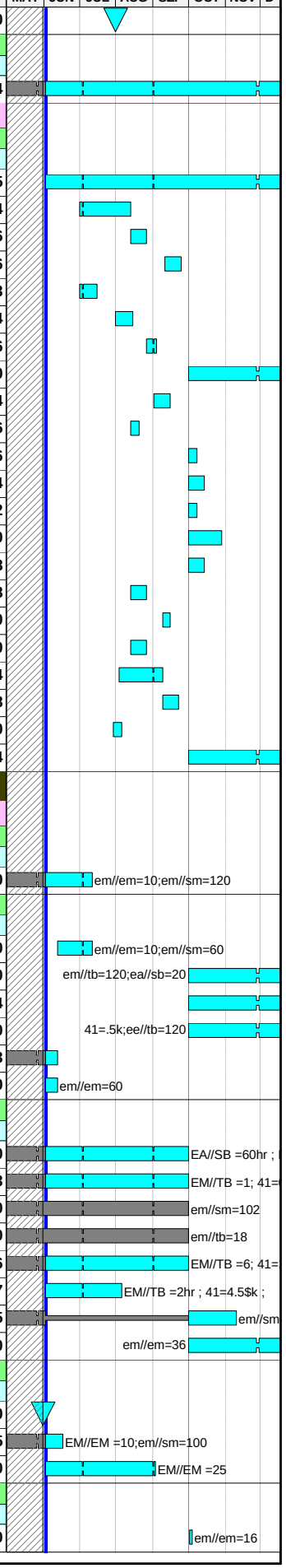
INCLUDED IN CLOSEOUT PLAN	Activity ID	Activity Description	Duration (work days	Forecast Start	Forecast Finish	% Cmplt	ETC
6.00-Final Machine Assembly							
	1803S6-1	Stage 6 FP support and roller system	187*	01APR08A	02JAN09	25	53,544.73
	1803S6-3	Update Station 6 seq. plan (after cryo CDR)	10	21OCT08*	03NOV08		7,497.20
	1803S6-6	Station 6 stress and deflection FEA study	24	09SEP08*	10OCT08		57,773.86
	1803S6-7	Station 6 simulation model and clearance study	24	23SEP08*	24OCT08		27,628.40
Chrzanowski							
Job: 1408 - MC Winding Supplies-CHRZANOWSKI							
X	1408-3	Misc and safety supplies ($7k/mo.)	276*	23MAY07A	30JUN08	LOE	7,923.96
X	1408-6	VPI clean manifold contract	276*	23MAY07A	30JUN08	80	2,484.00
X	1408-8	Cutting hardware for flange bolts	276*	23MAY07A	30JUN08	LOE	285.66
X	1408-7	Misc tech shop support	276*	23MAY07A	30JUN08	80	10,108.16
Job: 1451 - Mod Coil Winding-CHRZANOWSKI							
Station 3-Casting Prep & Winding							
X	P1-170	Instl Chill Plates,Tubing,Bag A6	22*	02JUN08	01JUL08		57,490.16
Station 5-VPI							
X	P1-171V	VPI (Station 5) A6	19	02JUL08	29JUL08		47,514.31
X	P3-171VM	COMPLETE VPI OF 18th MOD COIL	0		29JUL08		0.00
Station 1 Post VPI							
X	P2-171C	Final Clamps & Warm Test (Station1) B6	16	02JUN08	23JUN08		24,006.88
X	P1-171C	Final Clamps & Warm Test (Station1) A6	16	30JUL08	20AUG08		24,006.88
LOE Oversight & Supervision							
X	145XSPRV-2	Winding Engineering oversight and supervision	314*	01MAY07A	31JUL08	LOE	24,990.58
X	145XSPRV-3	Winding Engineering oversight and supervision	356*	01MAY07A	30SEP08	LOE	42,266.43
X	145XSPRV-A	Winding Engineering oversight and supervision	185*	01NOV07A	31JUL08	LOE	63,168.64
Job: 1459 - Mod Coil Fabr.Punch List-CHRZANOWSKI							
Punchlist Tech shop/RESA							
X	PLTS-C5	Grinding & Drill Holes -C5	85*	01MAY08A	29AUG08	83	3,221.98
X	PLTS-A5	Grinding -A5	85*	01MAY08A	29AUG08	0	6,949.36
X	PLTS-B5	Grinding -B5	85*	01MAY08A	29AUG08	0	9,476.40
X	PLTS-A6	Grinding -A6	85*	01MAY08A	29AUG08	20	3,095.62
X	PLTS-B6	Grinding -B6	85*	01MAY08A	29AUG08	0	9,476.40
X	PLTS-C6	Grinding & Drill Holes -C6	85*	01MAY08A	29AUG08	23	14,593.66
Punchlist- Coil Technicians							
	PLCT-A1	Insul,measure,TC, other punch list-A1	228*	01AUG07A	30JUN08	90	2,013.74
	PLCT-A2	Insul,measure,TC, other punch list-A2	228*	01AUG07A	30JUN08	90	1,626.78
	PLCT-B1	Insul,measure,TC, other punch list-B1	228*	01AUG07A	30JUN08	90	1,626.78
	PLCT-C1	Insul,measure,TC, other punch list-C1	228*	01AUG07A	30JUN08	90	2,045.32
	PLCT-B2	Insul,measure,TC other punch list-B2	205*	04SEP07A	30JUN08	90	1,626.78
	PLCT-C2	Insul,measure,TC, other punch list-C2	248*	03JUL07A	30JUN08	90	2,013.74
	PLCT-A3	Insul,measure,TC, other punch list-A3	247*	05JUL07A	30JUN08	90	1,903.18
	PLCT-A4	Insul,measure,TC, other punch list-A4	246*	06JUL07A	30JUN08	90	1,903.18
	PLCT-B3	Insul,measure,TC, other punch list-B3	186*	01OCT07A	30JUN08	90	1,626.78
	PLCT-C3	Insul,measure,TC, other punch list-C3	186*	01OCT07A	30JUN08	90	2,045.32
	PLCT-B4	Insul,measure,TC, other punch list-B4	186*	01OCT07A	30JUN08	90	1,626.78
	PLCT-C4	Insul,measure,TC, other punch list-C4	233*	25JUL07A	30JUN08	90	2,179.57
	PLCT-A5	Insul,measure,TC, other punch list-A5	230*	30JUL07A	30JUN08	90	1,626.78
X	PLCT-A6	Insul,measure,TC,SG other punch list-A6	229*	01OCT07A	29AUG08	36	10,411.40
	PLCT-B5	Insul,measure,TC, other punch list-B5	186*	01OCT07A	30JUN08	90	1,626.78
	PLCT-C5	Insul,measure,TC, other punch list-C5	186*	01OCT07A	30JUN08	90	2,013.74
X	PLCT-B6	Insul,measure,TC,SG other punch list-B6	229*	01OCT07A	29AUG08	36	10,411.40
	PLCT-C6	Insul,measure,TC,SG other punch list-C6	186*	01OCT07A	30JUN08	90	1,618.89



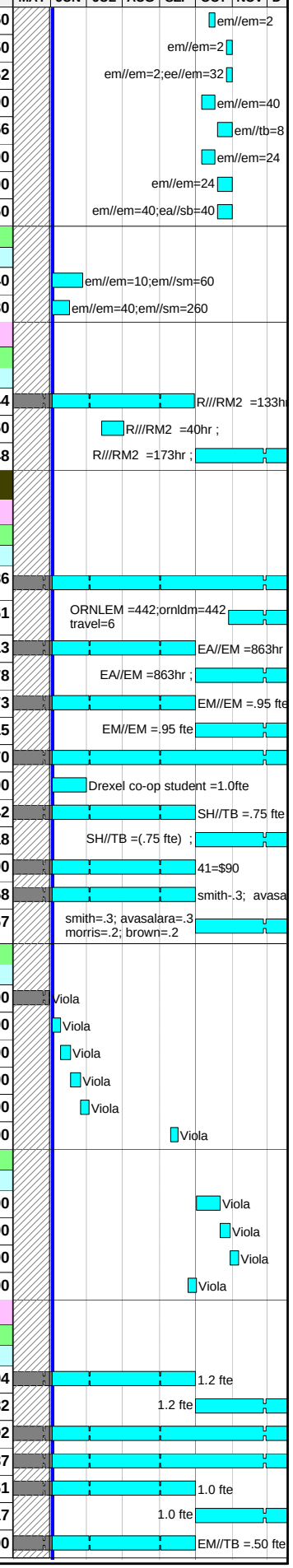
	INCLUDED IN CLOSEOUT PLAN	Activity ID	Activity Description	Duration (work days	Forecast Start	Forecast Finish	% Cmplt	ETC
		PLCT-C6M	COMPLETE MODULAR COIL FABRICATION	0		29AUG08		0.00
		PLCT-CRANE	Crane support	143*	01DEC07A	30JUN08	LOE	3,830.83
Cole								
Job: 1260 NB Transition Ducts- COLE								
		1260-191	Peer Review to Establish Requirements	20*	27MAY08A	23JUN08	10	10,872.00
		1260-192	Review and Update Assbly Dwgs	20	24JUN08	22JUL08		12,080.00
		1260-90	Prepare for PDR Neutral Beam Transition Duct	10	23JUL08	05AUG08		6,040.00
		1260-95	NB Transition Ducts PDR	0		05AUG08		0.00
		1260-195	Resolve PDR Chits	10	06AUG08	19AUG08		6,040.00
		1260-196	Review and Update Port Mod Dwg	10	20AUG08	03SEP08		6,040.00
		1260-197	Review and Update Large Rect Port Dwg	10	04SEP08	17SEP08		6,040.00
		1260-198	Review and Small Large Rect Port Dwg	10	18SEP08	01OCT08		6,067.80
		1260-199	Review and Update Weldment Dwgs	25	02OCT08	05NOV08		18,954.00
Dudek								
Job: 1204 - VV Sys Procurements (nonVVSA)-DUDEK								
Thermal Insulation								
		123-052	Fabricate&Deliver boot sheet metal parts r405209	65	01OCT08*	12JAN09		39,833.00
Job: 1431 - Mod. Coil Interface Hardware-DUDEK								
Bushings								
		1421-3115	PPPL Machine bushings Bushings FPA 3	20	01AUG08*	28AUG08		9,871.25
		1421-3109	All Bushings Fabricated	0		28AUG08		0.00
Pucks								
		1429-3110	PPPL cut and grind to thickness	169*	04FEB08A	30SEP08	11	1,620.46
Shims-Outboard								
	X	1431-100	Complete PE007965 & 8090 with zenex	20	02JUN08	27JUN08		84,331.80
		1429-3066	Outboard Shims	135	03MAR08A	02OCT08	27	371,326.70
Shims-Inboard								
	X	1431-110	Complete PE007677 with white engr	20	02JUN08	27JUN08		12,705.66
		1429-3062X	Inboard Shims	208*	03MAR08A	02JAN09	17	100,023.96
Studs,Washers,Nuts								
		1421-3070	Order studs & washers for c-c joint	15	02JUN08*	20JUN08		0.00
		1421-3072	Deliver studs & washers for c-c joint	40	23JUN08	18AUG08		50,021.46
		1421-3073	Deliver supernuts for c-c joint	40	03JUN08*	29JUL08		11,178.00
Misc Tech Shop Support								
		1421-4000	Misc Tech Shop support through sta 2 (1/2 mm/mo.	250*	01OCT07A	30SEP08	LOE	23,225.08
Goranson								
Job: 6401 - Bakeout System GORANSON								
		6401-000	Bakeout Sys- Requirements Definition	40	01JUL08*	26AUG08		12,302.40
		6401-001	Bakeout Sys-Preliminary Design	248	01OCT08*	29SEP09		42,752.40
Perry								
Job: 7301 - Platform Design & Fab-PERRY								
		711A.040	Platform nut plates	30	19AUG08*	30SEP08		2,967.12
		712.020	Platform Parts	65	19AUG08*	18NOV08		102,285.94
		712.030	Miscs Hardware/Material	40	05AUG08*	30SEP08		29,808.00
Job: 7401 - TC Prep & Mach Assy Planning-PERRY								
GPP Projects Required for NCSX (non-MIE cost)								
		GPP-01	CS Crane	0		30MAY08*		0.00



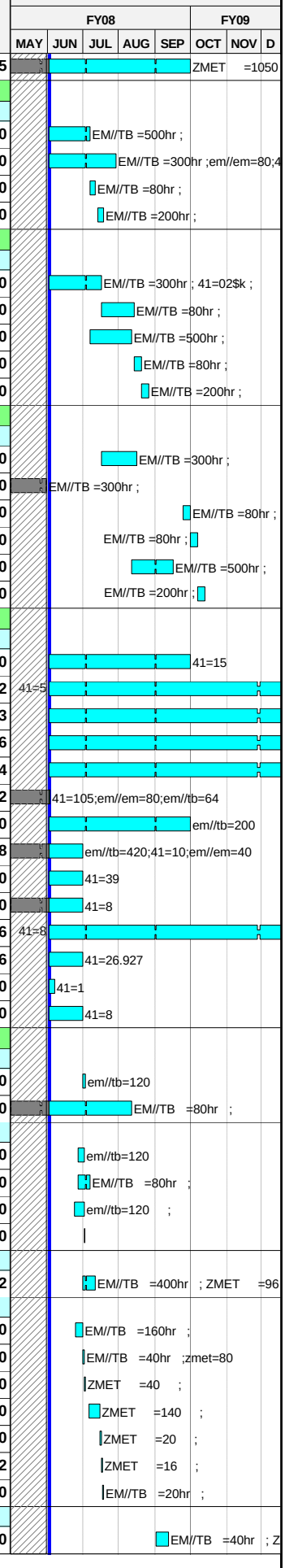
INCLUDED IN CLOSEOUT PLAN	Activity ID	Activity Description	Duration (work days)	Forecast Start	Forecast Finish	% Cmplt	ETC
	GPP-02	CS Interior Wall Replacement	0		31JUL08*		0.00
	714.020	LOE Prior to assy starting as req'd	583*	01OCT07A	25JAN10	LOE	278,458.74
Job: 8220 - Equipt Save & Facility Restora-PERRY							
Safe and store NCSX hardware assets							
X	8220-201	Coordination and oversight	143	02JUN08	23DEC08		38,567.45
X	8220-205	NCTC floor penetrations & PLT water htr removal	30	01JUL08*	12AUG08		56,248.54
X	8220-209	Secure platform parts from CAS Bldg to NCTC	10	13AUG08	26AUG08		4,163.16
X	8220-215	Secure TF Coils from Dsite MG to NCTC	10	11SEP08	24SEP08		3,000.86
X	8220-219	Electr trays & hw from D-site yard to dsite pad	10	01JUL08*	15JUL08		6,194.13
X	8220-223	Items f/TFTR bsmnt (incl spare MC cond) to NCTCB	10	01AUG08*	14AUG08		13,831.24
X	8220-227	Portable AC units to Csite crib	5	27AUG08	03SEP08		631.76
X	8220-231	Drawing closeouts and field follow-up	58	01OCT08*	23DEC08		27,614.00
X	8220-235	Large and Small shield block to Dsite pad	10	02SEP08*	15SEP08		2,527.04
X	8220-239	Machine mock-up to NCTC	5	13AUG08	19AUG08		631.76
X	8220-243	Welding machines to RESA	5	01OCT08*	07OCT08		668.56
X	8220-247	Tools to Csite crib	10	01OCT08*	14OCT08		2,674.24
X	8220-251	Measuring Equipment to S-109	5	01OCT08*	07OCT08		1,337.12
X	8220-255	Inventory parts,material, tools to new location	20	01OCT08*	28OCT08		6,685.60
X	8220-409	Crates,cabinets,parts shelves f/TFTRTC to NCTCB	10	01OCT08*	14OCT08		10,362.68
X	8220-415	Coil winding station to NCTC	10	13AUG08	26AUG08		5,054.08
X	8220-419	MC bolts (incl crate) to NCTCB	5	09SEP08	15SEP08		2,076.20
X	8220-423	VVSA's (incl port extension crates) to NCTC	10	13AUG08	26AUG08		7,808.00
X	8220-427	Assemble 4 remaining MC 3 packs	25	04AUG08	08SEP08		15,162.24
X	8220-431	Transport MC 3 packs (6) to NCTC	10	09SEP08	22SEP08		5,302.48
X	8220-501	Autocalve- Safe all AC power	5	30JUL08	05AUG08		3,762.80
?	8220-505	Autoclave-Removal and store Dsite pad & NCTCB	58	01OCT08*	23DEC08		154,843.44
Stratton							
Job: 3101 - Magnetic Diagnostics-STRATTON							
Vacuum Vessel Saddle Loops							
	3101-230	Check elect characteristics of T/C	50*	01MAY08A	11JUL08	50	8,596.50
Rogowski Coils							
	3101-370	Check elect characteristics of cables	20	13JUN08*	11JUL08		9,365.40
	3101-355	Temp cable trays	65	01OCT08*	12JAN09		12,429.20
	3101-356	Dsn,purchase,install rack	65	01OCT08*	12JAN09		24,813.24
	3101-358	Prep chassis & timing module	65	01OCT08*	12JAN09		10,031.00
X	3101-359	Install Rogowski coils support (in job 1815)	51*	02APR08A	12JUN08	30	45,456.03
X	3101-360	Title III support	9*	02JUN08*	12JUN08	LOE	9,226.80
TF and PF Co-wound Loops							
	3101-425	Design Protective boxes for PF	227*	01NOV07A	30SEP08	85	0.00
	3101-426	Purchase SS Sheet	220*	12NOV07A	30SEP08	80	226.93
	3101-452	Form Protective boxes	220*	12NOV07A		80	0.00
	3101-454	Weld end plates of PF protective boxes	221*	09NOV07A		80	0.00
	3101-427	Purchase Heat Shrink tubing	220*	12NOV07A	30SEP08	80	591.56
	3101-428	Purchase add'l CoAxial cable	46	02JUN08*	05AUG08	50	2,873.47
	3101-458	Fab PF & solenoid co-wound loops	186	02JUL07A	10NOV08	50	8,974.55
	3101-456	Title III	90	01OCT08	16FEB09	LOE	5,859.00
T/C and Heater Tape Leads							
	1204-141	Drawings Signed T/C and Heater Tape Leads	0		30MAY08*		0.00
	1204-144	Check elect characteristics T/C & heater port 12	32*	01MAY08A	16JUN08	75	3,645.95
	1204-147	Field/Fab support (title III) T/C&Heater Tape	65	02JUN08	02SEP08		3,844.50
Spacer Flux Loops & Boxes							
	3101-900	Peer review	2	02OCT08	03OCT08		2,604.00



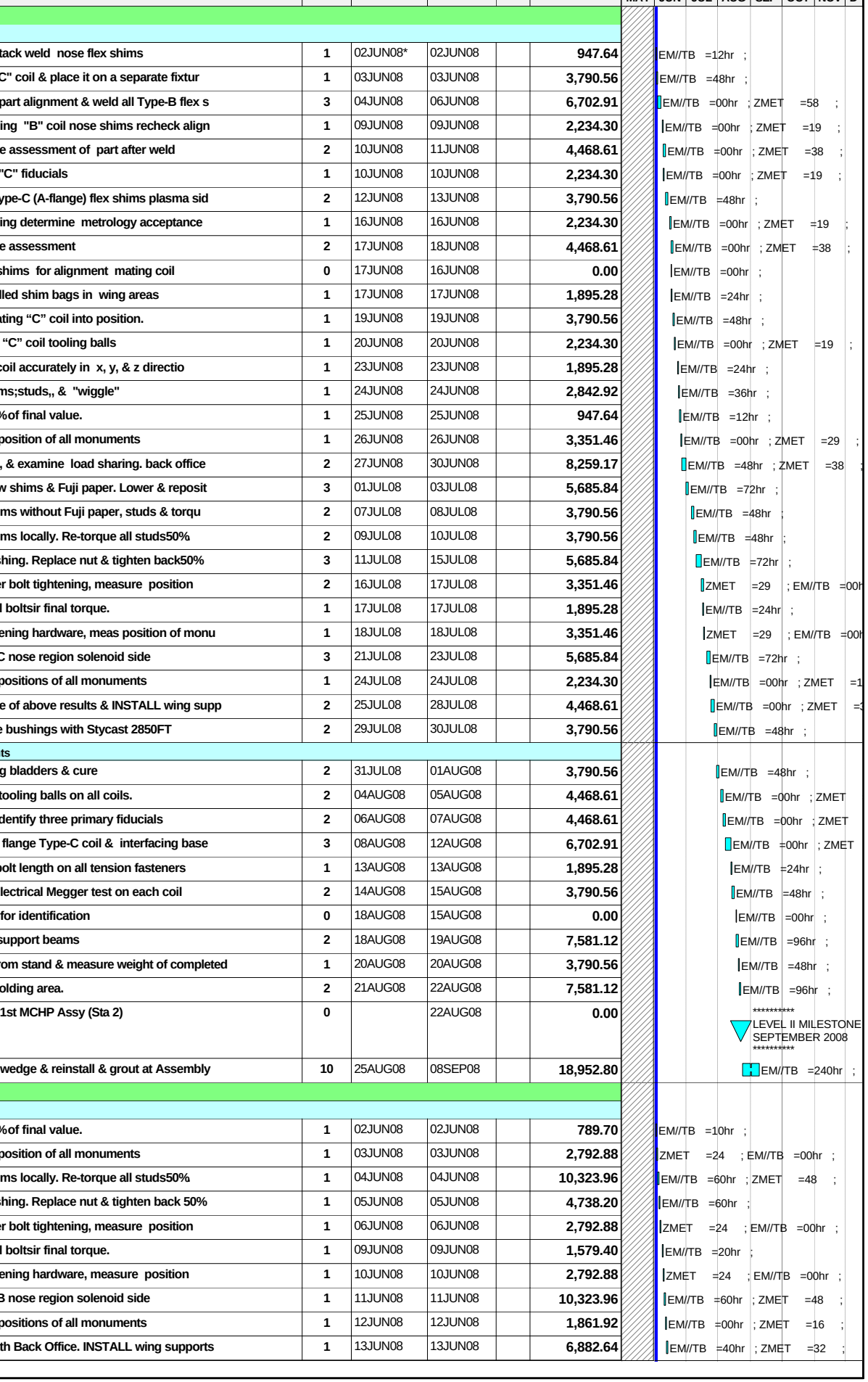
INCLUDED IN CLOSEOUT PLAN	Activity ID	Activity Description	Duration (work days	Forecast Start	Forecast Finish	% Cmplt	ETC
	3101-901	Purchase Copper	5	13OCT08	17OCT08		325.50
	3101-902	Purchase CoAx Cable-2000ft .059 ss	5	27OCT08	31OCT08		325.50
	3101-903	Purchase flex ss protective tube	5	27OCT08	31OCT08		5,714.62
	3101-904	Design Templates	10	06OCT08	17OCT08		6,510.00
	3101-905	Machine Cu Templates	10	20OCT08	31OCT08		668.56
	3101-908	Design protective box	10	06OCT08	17OCT08		3,906.00
	3101-909	Fab protective boxes	10	20OCT08	31OCT08		3,906.00
	3101-910	Prep dwgs of spacer loops	10	20OCT08	31OCT08		11,311.60
Voltage Loops & Protective Boxes							
	3101-806	Check elect characteristics of coax	20	02JUN08*	27JUN08		9,365.40
	3101-807	Check elect characteristics ex-vessel flux loops	11*	02JUN08	16JUN08		40,070.80
Job: 3901 - Diagnostics sys Integration-STRATTON							
	390-04	LOE Support FY08	249*	01OCT07A	29SEP08	LOE	13,765.44
	390-05M	Diagnostics Systems SRD	15	14JUL08*	01AUG08		6,491.60
	390-05	LOE Support FY09	247*	01OCT08*	28SEP09	LOE	29,714.48
Viola							
Job: 1802 - FP Assy Oversight&Support-VIOLA							
Oversight and Supervision							
	1802ORNL02	ORNL Title III field period assy station 2	441*	04FEB08A	02NOV09	LOE	100,326.86
	1802ORNL03	ORNL Title III field period assy station 3	343*	29OCT08	23MAR10	LOE	122,719.61
X	R1802-003	Metrology Engr Super FY08	250*	01OCT07A	30SEP08	LOE	45,122.13
	R1802-004	Metrology Engr Super FY09 & FY10	445*	01OCT08*	19JUL10	LOE	254,547.78
X	R1802-007	FPA Management FY08	250*	01OCT07A	30SEP08	LOE	85,747.73
	R1802-008	FPA Management FY09 & FY10	445*	01OCT08*	19JUL10	LOE	482,687.15
	R1802-009	PU Title III support	630*	04FEB08A	10AUG10	LOE	351,407.70
X	R1802-010	Drexel co-op student support	21*	02JUN08	30JUN08	LOE	2,520.00
X	R1802-015	HP Coverage in the TFTR TC LOE FY08	250*	01OCT07A	30SEP08	LOE	53,157.42
X	R1802-016	HP Coverage in the TFTR TC LOE FY09	121*	01OCT08*	31MAR09	LOE	75,680.18
X	1802MISC	Misc materials,tools, GSA vehicle,rigging	170*	01FEB08A	30SEP08	LOE	55,890.00
	8203FY08.2	Title III Design support FY08 PPPL	170*	01FEB08A	30SEP08	LOE	58,499.58
	8203FY09.1	Title III Design support FY09 PPPL	249*	01OCT08*	30SEP09	LOE	287,783.67
Station 3 procedures,JHA,ACC,Training,Prep							
X	R1802-307	Procedures written & approved	34*	14APR08A			0.00
X	R1802-309	JHA completed	6	02JUN08	09JUN08		0.00
X	R1802-311	Training needs identified & released	6	10JUN08	17JUN08		0.00
X	R1802-313	ACC review completed	6	18JUN08	25JUN08		0.00
X	R1802-315	Pre-job brief completed	6	26JUN08	03JUL08		0.00
X	R1802-320	Update FPA cost estimate for FPA station 2&3	5	10SEP08	16SEP08		0.00
Station 5 procedures,JHA,ACC,Training,Prep							
	R1802-507	Procedures written & approved	14	02OCT08	21OCT08		0.00
	R1802-509	JHA completed	6	22OCT08	29OCT08		0.00
	R1802-519	Fixtures installed	6	30OCT08	06NOV08		0.00
	R1802-520	Update FPA cost estimate for FPA station 5	5	25SEP08	01OCT08		0.00
Job: 1810 - Field Period AssyStation 1,2,3 VIOLA							
General Assy Support							
X	R1810-003	LOE Crane support, fixture setupfor FY08	250*	01OCT07A	30SEP08	LOE	55,605.94
	R1810-004	LOE Crane support, fixture setupfor FY09/10	445*	01OCT08*	19JUL10	LOE	306,231.82
X	R1810-025	Crane & Rigging inspections	625*	01FEB08A	02AUG10	LOE	26,057.92
	R1810-035	Welding qualifications	625*	31JAN08A	30JUL10	LOE	17,330.87
X	R1810-007	LOE Field Supervision for FY08	250*	01OCT07A	30SEP08	LOE	79,035.61
	R1810-008	LOE Field Supervision for FY09/10	445*	01OCT08*	19JUL10	LOE	445,205.17
X	R1810-2001	Misc Hardware and hardware rework (1/2 fte loe)	170*	01FEB08A	30SEP08	LOE	23,691.00



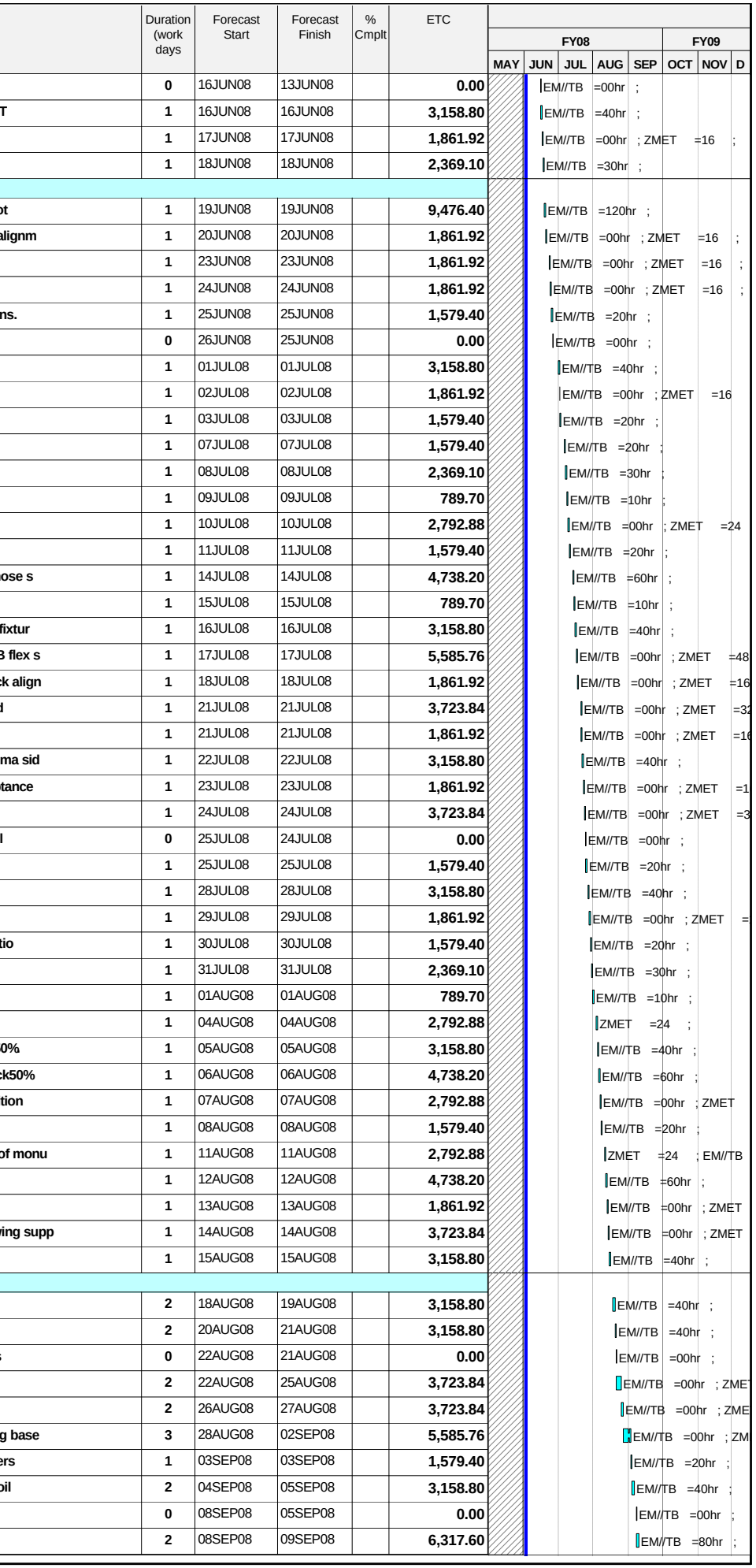
INCLUDED IN CLOSEOUT PLAN	Activity ID	Activity Description	Duration (work days	Forecast Start	Forecast Finish	% Cmplt	ETC
X	S21-4.02	Perform routine metrology set-up and checks (loe	170*	01FEB08A	30SEP08	LOE	61,094.25
Station 1-VV Prep (hard surface components) FP#1							
	R1810-1114	Install heater tape on all removable ports	25	02JUN08	07JUL08		41,969.00
	R1810-1100	Design & Build heater& thermo termination box	41	02JUN08*	29JUL08		35,993.40
	R1810-1111	Final Scan	4	08JUL08	11JUL08		6,317.60
	R1810-1113	Prepare &transfer completed VV to holding area	5	14JUL08	18JUL08		15,794.00
Station 1- VV Prep (hrd surf cmpntsFP#2							
	R1810-1208	Perform final acceptance testing (H/C flow test)	32	02JUN08	16JUL08		23,691.00
	R1810-1216	Install Final Internal&Ext monuments & meas	20	17JUL08	13AUG08		6,317.60
	R1810-1214	Install heater tape on all removable ports	25	08JUL08	11AUG08		41,969.00
	R1810-1217	Final Scan	4	14AUG08	19AUG08		6,317.60
	R1810-1219	Prepare& transfer completed VV to holding area	5	20AUG08	26AUG08		15,794.00
Station 1- VV Prep (hrd surf cmpntsFP#3							
	R1810-1308	Perform final acceptance testing (H/C flow test)	22	17JUL08*	15AUG08		23,691.00
	R1810-1310	Heater and thermo termination & verification	22*	30APR08A		50	0.00
	R1810-1328	Install Final Internal&Ext monuments & meas	4	25SEP08*	30SEP08		6,317.60
	R1810-1329	Final Scan of VVSA #3 Station 1 complete	4	01OCT08	06OCT08		6,685.60
	R1810-1314	Install heater tape on all removable ports	25	12AUG08*	16SEP08		41,969.00
	R1810-1331	Prepare & transfer completed VV to holding area	5	07OCT08	13OCT08		16,714.00
Setup							
X	R1810-2034	Misc Tool and Hardware	85*	02JUN08	30SEP08	LOE	18,630.00
	R1810-2036	Fuji Paper	433*	02JUN08	02MAR10	LOE	6,502.62
	R1810-2081	Removable photogrammetry targets	334*	02JUN08*	30SEP09	LOE	14,846.03
	R1810-2082	Fixed photogrammetry targets	334*	02JUN08*	30SEP09	LOE	62,121.46
	R1810-2083	Replacement photogrammetry targets	334*	02JUN08*	30SEP09	LOE	16,135.74
	R1810-2084	Design and purchase 3 additional wedge supports	44*	01APR08A	02JUN08	60	29,634.12
	R1810-2024	Rework wedges f/combined assemblies& coil handli	85*	02JUN08	30SEP08		15,794.00
	R1810-2026	Setup up satellite shop in Mock-up area	64*	01APR08A	30JUN08	70	15,521.58
	R1810-2087	Coordinate measuring machine	21	02JUN08*	30JUN08		48,438.00
	R1810-2088	HEPA machine tool exhaust system	21	01MAY08A	30JUN08	50	9,936.00
	R1810-2089	Tools, cabinets & storage shelving	558*	02JUN08*	26AUG10	LOE	10,469.56
	R1810-2002	Purchase grinding machine pe8106	21	02JUN08	30JUN08		33,447.06
	R1810-2090	Consulting services nose welding (England)	5*	02JUN08*	06JUN08	LOE	1,242.00
	S20-4.02	Perform metrology set-up;purchase 6 pillars	21	02JUN08*	30JUN08		9,936.00
Pre-Measuring and fitup checks							
Pre measurement of MCHP A2,B2,C2 flanges							
X	2-2-2.99	Drill Stycast fill holes C2	3	01JUL08*	03JUL08		9,476.40
X	S22-3.02	Compress shims sort by thickness	71*	01MAY08A	11AUG08	50	3,158.80
Pre measurement of MCHP A3,B3,C3 flanges							
	2-3-2.99	Drill Stycast fill holes	3	27JUN08	01JUL08		9,476.40
	S23-3.02	Compress shims sort by thickness	6	27JUN08	07JUL08		6,317.60
	S23-4.01	Install MCHP fixtures & metrology equipt	6	24JUN08*	01JUL08		9,476.40
	S23-4.03	Ready For Preassembly A3B3C3	0	02JUL08	01JUL08		0.00
Pre measurement of MCHP A4,B4,C4 flanges							
	S24-2.08	Measure C4 "A" flange	8	01JUL08*	11JUL08		23,806.72
Pre measurement of MCHP A5,B5,C5 flanges							
	S25-1.01	Verify mating MC's of MCHP will come together	4	25JUN08	30JUN08		12,635.20
	S25-2.01	Set the B5 coil on fixture, & measure	1	01JUL08	01JUL08		12,468.40
	S25-2.02	Align to the conical seats locking into min of 8	2	02JUL08	03JUL08		4,654.80
	S25-2.03	Measure monuments on fixture and walls.	7	07JUL08	15JUL08		16,291.80
	S25-2.04	Measure tooling ball monuments	1	16JUL08	16JUL08		2,327.40
	S25-2.05	Scan the B flange of B5	1	17JUL08	17JUL08		1,861.92
	S25-2.07	Remove B5 move to holding area.	1	18JUL08	18JUL08		1,579.40
Pre measurement of MCHP A6,B6,C6 flanges							
	S26-2.14	Measure Type A6"A" flange	8	02SEP08	11SEP08		12,468.40



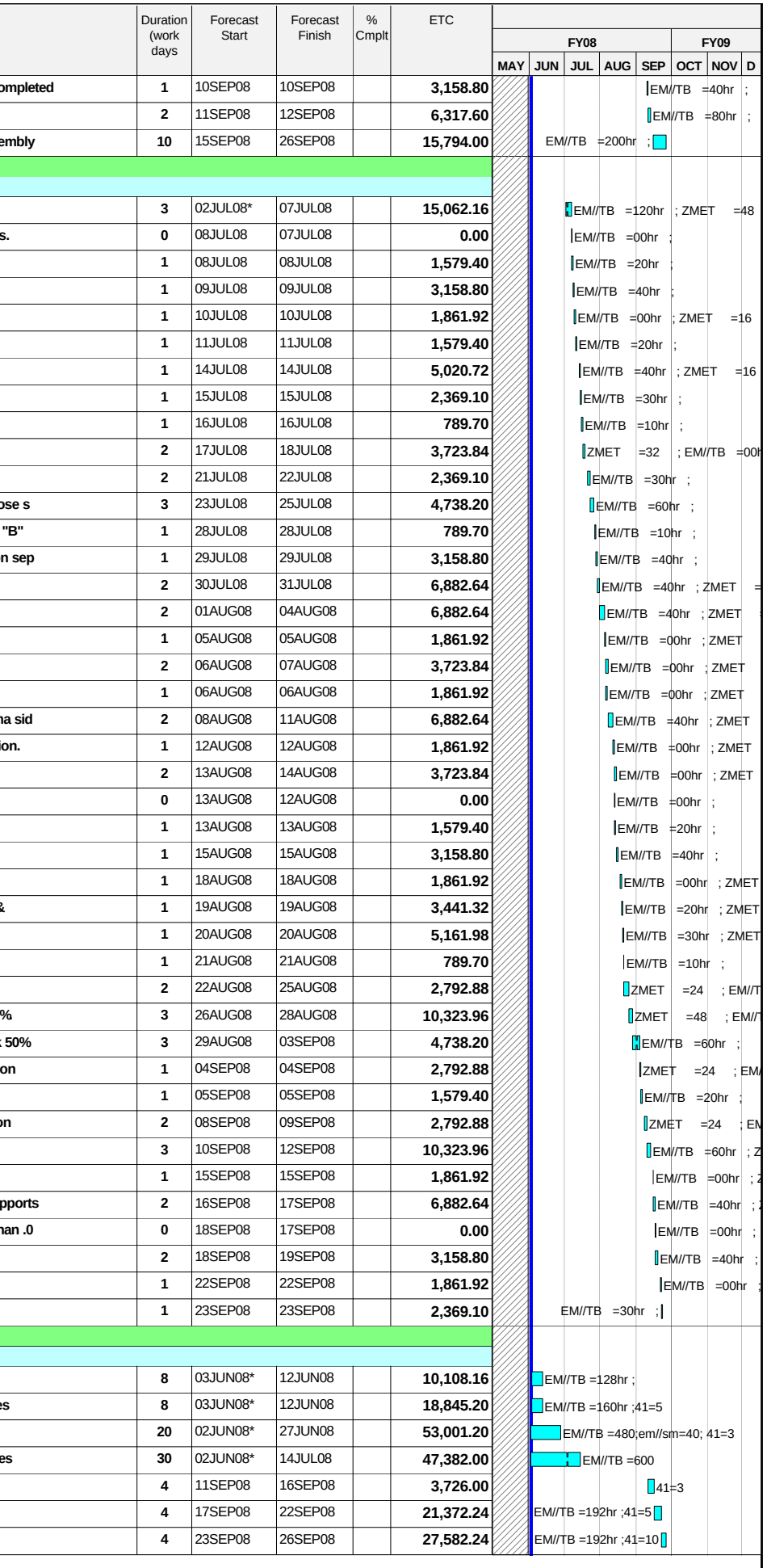
INCLUDED IN CLOSEOUT PLAN	Activity ID	Activity Description	Duration (work days	Forecast Start	Forecast Finish	% Cmplt	ETC
Station 2 MC subassy A1B1C1							
AB-C MC Assembly							
X	2-1-7.16	"Lightly" tack weld nose flex shims	1	02JUN08*	02JUN08		947.64
X	2-1-7.17	remove "C" coil & place it on a separate fixtur	1	03JUN08	03JUN08		3,790.56
X	2-1-7.18	Recheck part alignment & weld all Type-B flex s	3	04JUN08	06JUN08		6,702.91
X	2-1-7.19	After welding "B" coil nose shims recheck align	1	09JUN08	09JUN08		2,234.30
X	2-1-7.20	Back office assessment of part after weld	2	10JUN08	11JUN08		4,468.61
X	2-1-7.21	Measure "C" fiducials	1	10JUN08	10JUN08		2,234.30
X	2-1-7.22	Weld all Type-C (A-flange) flex shims plasma sid	2	12JUN08	13JUN08		3,790.56
X	2-1-7.23	After welding determine metrology acceptance	1	16JUN08	16JUN08		2,234.30
X	2-1-7.24	Back office assessment	2	17JUN08	18JUN08		4,468.61
X	2-1-7.25	Remove shims for alignment mating coil	0	17JUN08	16JUN08		0.00
X	2-1-7.07	Place unfilled shim bags in wing areas	1	17JUN08	17JUN08		1,895.28
X	2-1-7.26	Lower mating “C” coil into position.	1	19JUN08	19JUN08		3,790.56
X	2-1-7.261	alignment “C” coil tooling balls	1	20JUN08	20JUN08		2,234.30
X	2-1-7.27	position coil accurately in x, y, & z directio	1	23JUN08	23JUN08		1,895.28
X	2-1-7.28	Install shims;studs,, & "wiggle"	1	24JUN08	24JUN08		2,842.92
X	2-1-7.29	Torque50%of final value.	1	25JUN08	25JUN08		947.64
X	2-1-7.30	Measure position of all monuments	1	26JUN08	26JUN08		3,351.46
X	2-1-7.301	Fuji paper, & examine load sharing. back office	2	27JUN08	30JUN08		8,259.17
X	2-1-7.302	Install new shims & Fuji paper. Lower & reposit	3	01JUL08	03JUL08		5,685.84
X	2-1-7.303	Install shims without Fuji paper, studs & torqu	2	07JUL08	08JUL08		3,790.56
X	2-1-7.31	Adjust shims locally. Re-torque all studs50%	2	09JUL08	10JUL08		3,790.56
X	2-1-7.32	Install bushing. Replace nut & tighten back50%	3	11JUL08	15JUL08		5,685.84
X	2-1-7.33	After super bolt tightening, measure position	2	16JUL08	17JUL08		3,351.46
X	2-1-7.34	Tighten all boltsir final torque.	1	17JUL08	17JUL08		1,895.28
X	2-1-7.35	After tightening hardware, meas position of monu	1	18JUL08	18JUL08		3,351.46
X	2-1-7.36	Weld B / C nose region solenoid side	3	21JUL08	23JUL08		5,685.84
X	2-1-7.37	Measure positions of all monuments	1	24JUL08	24JUL08		2,234.30
X	2-1-7.38	Back office of above results & INSTALL wing supp	2	25JUL08	28JUL08		4,468.61
X	2-1-7.39	Fill all lose bushings with Stycast 2850FT	2	29JUL08	30JUL08		3,790.56
Stycast shim bags & final measurements							
X	2-1-8.01	Fill all wing bladders & cure	2	31JUL08	01AUG08		3,790.56
X	2-1-11.01	Measure tooling balls on all coils.	2	04AUG08	05AUG08		4,468.61
X	2-1-11.02	Install or identify three primary fiducials	2	06AUG08	07AUG08		4,468.61
X	2-1-11.03	Scan “B” flange Type-C coil & interfacing base	3	08AUG08	12AUG08		6,702.91
X	2-1-11.04	Measure bolt length on all tension fasteners	1	13AUG08	13AUG08		1,895.28
X	2-1-11.05	Perform Electrical Megger test on each coil	2	14AUG08	15AUG08		3,790.56
X	2-1-11.06	Mark part for identification	0	18AUG08	15AUG08		0.00
X	2-1-11.07	Install lift support beams	2	18AUG08	19AUG08		7,581.12
X	2-1-11.08	Remove from stand & measure weight of completed	1	20AUG08	20AUG08		3,790.56
X	2-1-11.09	Move to holding area.	2	21AUG08	22AUG08		7,581.12
X	S21-11.07M	Complete 1st MCHP Assy (Sta 2)	0		22AUG08		0.00
X	2-1-11.10	Lift upper wedge & reinstall & grout at Assembly	10	25AUG08	08SEP08		18,952.80
Station 2 MC subassy A2B2C2							
A-B MC Assembly							
X	2-2-6.26	Torque50%of final value.	1	02JUN08	02JUN08		789.70
X	2-2-6.27	Measure position of all monuments	1	03JUN08	03JUN08		2,792.88
X	2-2-6.28	Adjust shims locally. Re-torque all studs50%	1	04JUN08	04JUN08		10,323.96
X	2-2-6.29	Install bushing. Replace nut & tighten back 50%	1	05JUN08	05JUN08		4,738.20
X	2-2-6.30	After super bolt tightening, measure position	1	06JUN08	06JUN08		2,792.88
X	2-2-6.31	Tighten all boltsir final torque.	1	09JUN08	09JUN08		1,579.40
X	2-2-6.32	After tightening hardware, measure position	1	10JUN08	10JUN08		2,792.88
X	2-2-6.33	Weld A / B nose region solenoid side	1	11JUN08	11JUN08		10,323.96
X	2-2-6.34	Measure positions of all monuments	1	12JUN08	12JUN08		1,861.92
X	2-2-6.35	Review with Back Office. INSTALL wing supports	1	13JUN08	13JUN08		6,882.64



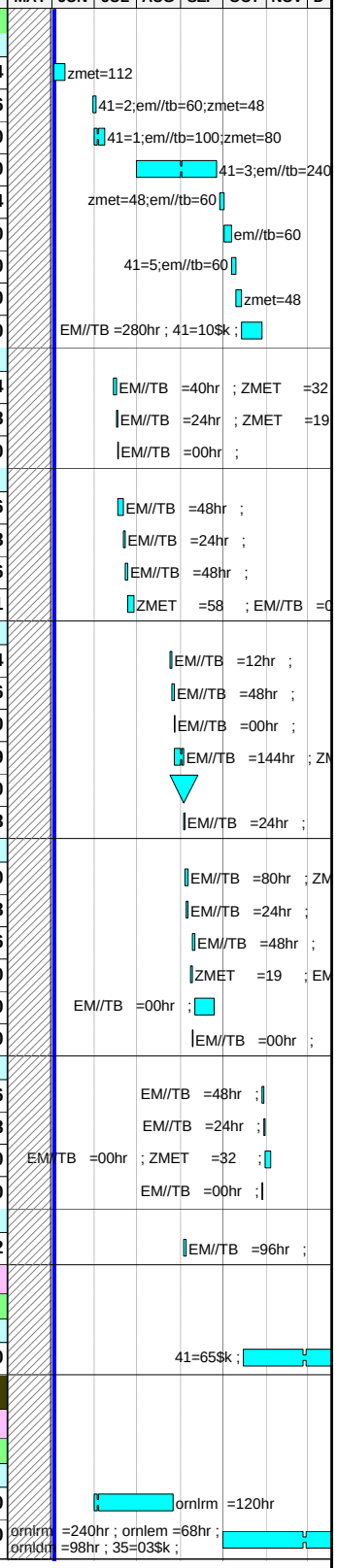
INCLUDED IN CLOSEOUT PLAN	Activity ID	Activity Description	Duration (work days	Forecast Start	Forecast Finish	% Cmplt	ETC
X	2-2-6.36	Identify, a set of monuments moved	0	16JUN08	13JUN08		0.00
X	2-2-6.37	Fill all loose bushings with Stycast 2850FT	1	16JUN08	16JUN08		3,158.80
X	2-2-6.38	Scan "B" flange (datum "E") of "B" coil,	1	17JUN08	17JUN08		1,861.92
X	2-2-6.39	define all B/C flange shim thickness.	1	18JUN08	18JUN08		2,369.10
AB-C MC Assembly							
X	2-2-7.01	lift (A-B) coil, along with fixture, onto anot	1	19JUN08	19JUN08		9,476.40
X	2-2-7.02	Select a subset of monuments for initial alignm	1	20JUN08	20JUN08		1,861.92
X	2-2-7.03	Align set of monuments selected in 7.02.	1	23JUN08	23JUN08		1,861.92
X	2-2-7.04	Establish a set of global monuments	1	24JUN08	24JUN08		1,861.92
X	2-2-7.05	Mark nose shim locations & puck locations.	1	25JUN08	25JUN08		1,579.40
X	2-2-7.06	Place initial set shims (4-8) on Type-B	0	26JUN08	25JUN08		0.00
X	2-2-7.08	Lower mating "C" coil into position.	1	01JUL08	01JUL08		3,158.80
X	2-2-7.081	Perform alignment "C" coil tooling balls	1	02JUL08	02JUL08		1,861.92
X	2-2-7.09	Install jack screws & dial indicators	1	03JUL08	03JUL08		1,579.40
X	2-2-7.10	Position coil within ±.002"	1	07JUL08	07JUL08		1,579.40
X	2-2-7.11	Install shims studs, & "wiggle"	1	08JUL08	08JUL08		2,369.10
X	2-2-7.12	Torque50%of final value.	1	09JUL08	09JUL08		789.70
X	2-2-7.13	Measure position of all monuments	1	10JUL08	10JUL08		2,792.88
X	2-2-7.14	Measure shim puck height	1	11JUL08	11JUL08		1,579.40
X	2-2-7.15	remove puck locating rings & install all nose s	1	14JUL08	14JUL08		4,738.20
X	2-2-7.16	"Lightly" tack weld nose flex shims	1	15JUL08	15JUL08		789.70
X	2-2-7.17	remove "C" coil & place it on a separate fixtur	1	16JUL08	16JUL08		3,158.80
X	2-2-7.18	Recheck part alignment & weld all Type-B flex s	1	17JUL08	17JUL08		5,585.76
X	2-2-7.19	After welding "B" coil nose shims recheck align	1	18JUL08	18JUL08		1,861.92
X	2-2-7.20	Back office assessment of part after weld	1	21JUL08	21JUL08		3,723.84
X	2-2-7.21	Measure "C" fiducials	1	21JUL08	21JUL08		1,861.92
X	2-2-7.22	Weld all Type-C (A-flange) flex shims plasma sid	1	22JUL08	22JUL08		3,158.80
X	2-2-7.23	After welding determine metrology acceptance	1	23JUL08	23JUL08		1,861.92
X	2-2-7.24	Back office assessment	1	24JUL08	24JUL08		3,723.84
X	2-2-7.25	Remove shims for alignment mating coil	0	25JUL08	24JUL08		0.00
X	2-2-7.07	Place unfilled shim bags in wing areas	1	25JUL08	25JUL08		1,579.40
X	2-2-7.26	Lower mating "C" coil into position.	1	28JUL08	28JUL08		3,158.80
X	2-2-7.261	alignment "C" coil tooling balls	1	29JUL08	29JUL08		1,861.92
X	2-2-7.27	position coil accurately in x, y, & z directio	1	30JUL08	30JUL08		1,579.40
X	2-2-7.28	Install shims;studs,, & "wiggle"	1	31JUL08	31JUL08		2,369.10
X	2-2-7.29	Torque50%of final value.	1	01AUG08	01AUG08		789.70
X	2-2-7.30	Measure position of all monuments	1	04AUG08	04AUG08		2,792.88
X	2-2-7.31	Adjust shims locally. Re-torque all studs50%	1	05AUG08	05AUG08		3,158.80
X	2-2-7.32	Install bushing. Replace nut & tighten back50%	1	06AUG08	06AUG08		4,738.20
X	2-2-7.33	After super bolt tightening, measure position	1	07AUG08	07AUG08		2,792.88
X	2-2-7.34	Tighten all bolts to final torque.	1	08AUG08	08AUG08		1,579.40
X	2-2-7.35	After tightening hardware, meas position of monu	1	11AUG08	11AUG08		2,792.88
X	2-2-7.36	Weld B / C nose region solenoid side	1	12AUG08	12AUG08		4,738.20
X	2-2-7.37	Measure positions of all monuments	1	13AUG08	13AUG08		1,861.92
X	2-2-7.38	Back office of above results & INSTALL wing supp	1	14AUG08	14AUG08		3,723.84
X	2-2-7.39	Fill all lose bushings with Stycast 2850FT	1	15AUG08	15AUG08		3,158.80
Stycast shim bags & final measurements							
X	2-2-8.01	Fill all wing bladders & cure	2	18AUG08	19AUG08		3,158.80
X	2-2-8.02	Inject stycast in all shim spaces	2	20AUG08	21AUG08		3,158.80
X	2-2-10.0	Complete local service & interface details	0	22AUG08	21AUG08		0.00
X	2-2-11.01	Measure tooling balls on all coils.	2	22AUG08	25AUG08		3,723.84
X	2-2-11.02	Install or identify three primary fiducials	2	26AUG08	27AUG08		3,723.84
X	2-2-11.03	Scan "B" flange Type-C coil & interfacing base	3	28AUG08	02SEP08		5,585.76
X	2-2-11.04	Measure bolt length on all tension fasteners	1	03SEP08	03SEP08		1,579.40
X	2-2-11.05	Perform Electrical Megger test on each coil	2	04SEP08	05SEP08		3,158.80
X	2-2-11.06	Mark part for identification	0	08SEP08	05SEP08		0.00
X	2-2-11.07	Install lift support beams	2	08SEP08	09SEP08		6,317.60



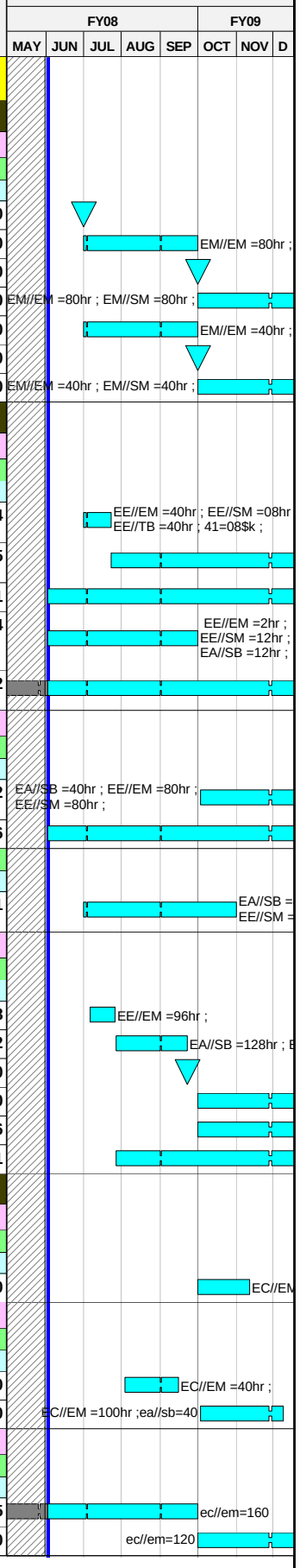
INCLUDED IN CLOSEOUT PLAN	Activity ID	Activity Description	Duration (work days	Forecast Start	Forecast Finish	% Cmplt	ETC
X	2-2-11.08	Remove from stand & measure weight of completed	1	10SEP08	10SEP08		3,158.80
X	2-2-11.09	Move to holding area.	2	11SEP08	12SEP08		6,317.60
	2-2-11.10	Lift upper wedge & reinstall & grout at Assembly	10	15SEP08	26SEP08		15,794.00
Station 2 MC subassy A3B3C3							
A-B MC Assembly							
	2-3-6.01	Lower Type-A modular coil onto jacks	3	02JUL08*	07JUL08		15,062.16
	2-3-6.02	Mark nose shim locations & puck locations.	0	08JUL08	07JUL08		0.00
	2-3-6.03	Place initial set of shims (4-8) on Type	1	08JUL08	08JUL08		1,579.40
	2-3-6.05	Lower mating “B” coil into position.	1	09JUL08	09JUL08		3,158.80
	2-3-6.051	Perform alignment “B” coil tooling balls	1	10JUL08	10JUL08		1,861.92
	2-3-6.06	Install jack screws & dial indicators	1	11JUL08	11JUL08		1,579.40
	2-3-6.07	Position coil within ±.002" normal plane	1	14JUL08	14JUL08		5,020.72
	2-3-6.08	Install remaining shims; studs,s	1	15JUL08	15JUL08		2,369.10
	2-3-6.09	torque50%of final value & recheck.	1	16JUL08	16JUL08		789.70
	2-3-6.10	Measure position of all monuments	2	17JUL08	18JUL08		3,723.84
	2-3-6.11	Measure shim puck height	2	21JUL08	22JUL08		2,369.10
	2-3-6.12	Remove puck locating rings & install all nose s	3	23JUL08	25JUL08		4,738.20
	2-3-6.13	"Lightly" tack weld nose flex shims "A" & "B"	1	28JUL08	28JUL08		789.70
	2-3-6.14	Unfasten bolts & remove "B" coil place it on sep	1	29JUL08	29JUL08		3,158.80
	2-3-6.15	Recheck part alignment of "A" coil	2	30JUL08	31JUL08		6,882.64
	2-3-6.151	Weld all Type-A flex shims plasma side	2	01AUG08	04AUG08		6,882.64
	2-3-6.16	recheck alignment	1	05AUG08	05AUG08		1,861.92
	2-3-6.17	Back office assessment of part after weld	2	06AUG08	07AUG08		3,723.84
	2-3-6.18	Measure "B" fiducials estab coord sys	1	06AUG08	06AUG08		1,861.92
	2-3-6.19	Weld all Type-B (A-flange) flex shims plasma sid	2	08AUG08	11AUG08		6,882.64
	2-3-6.20	Recheck part metrology acceptance criterion.	1	12AUG08	12AUG08		1,861.92
	2-3-6.21	Back office assessment of part after weld	2	13AUG08	14AUG08		3,723.84
	2-3-6.22	Remove shims as necessary	0	13AUG08	12AUG08		0.00
	2-3-6.04	Place unfilled shim bags in wing areas	1	13AUG08	13AUG08		1,579.40
	2-3-6.23	Lower mating “B” coil into position.	1	15AUG08	15AUG08		3,158.80
	2-3-6.231	Perform alignment “B” coil tooling balls	1	18AUG08	18AUG08		1,861.92
	2-3-6.24	“B” coil, position coil accurately in x, y, &	1	19AUG08	19AUG08		3,441.32
	2-3-6.25	Install shims;studs,supernuts, wiggle t	1	20AUG08	20AUG08		5,161.98
	2-3-6.26	Torque50%of final value.	1	21AUG08	21AUG08		789.70
	2-3-6.27	Measure position of all monuments	2	22AUG08	25AUG08		2,792.88
	2-3-6.28	Adjust shims locally. Re-torque all studs50%	3	26AUG08	28AUG08		10,323.96
	2-3-6.29	Install bushing. Replace nut & tighten back 50%	3	29AUG08	03SEP08		4,738.20
	2-3-6.30	After super bolt tightening, measure position	1	04SEP08	04SEP08		2,792.88
	2-3-6.31	Tighten all boltsir final torque.	1	05SEP08	05SEP08		1,579.40
	2-3-6.32	After tightening hardware, measure position	2	08SEP08	09SEP08		2,792.88
	2-3-6.33	Weld A / B nose region solenoid side	3	10SEP08	12SEP08		10,323.96
	2-3-6.34	Measure positions of all monuments	1	15SEP08	15SEP08		1,861.92
	2-3-6.35	Review with Back Office. INSTALL wing supports	2	16SEP08	17SEP08		6,882.64
	2-3-6.36	Identify, a set of monuments moved less than .0	0	18SEP08	17SEP08		0.00
	2-3-6.37	Fill all loose bushings with Stycast 2850FT	2	18SEP08	19SEP08		3,158.80
	2-3-6.38	Scan "B" flange (datum “E”) of “B” coil,	1	22SEP08	22SEP08		1,861.92
	2-3-6.39	define all B/C flange shim thickness.	1	23SEP08	23SEP08		2,369.10
Station 3 Setup/Preparations/General							
Misc Prep activities							
X	R1810-3112	Load Test 3 legged actuator lift fixtur	8	03JUN08*	12JUN08		10,108.16
X	R1810-3113	Procure wire rope slings & 6 17ton shackles	8	03JUN08*	12JUN08		18,845.20
X	R1810-3109	Remove winding stations & enclosures	20	02JUN08*	27JUN08		53,001.20
X	R1810-3107	Test out station 3 equipment and procedures	30	02JUN08*	14JUL08		47,382.00
X	R1810-3150	10 Portable platforms	4	11SEP08	16SEP08		3,726.00
X	R1810-3151	Fab new platform legs	4	17SEP08	22SEP08		21,372.24
X	R1810-3153	Fab new platform safety rails	4	23SEP08	26SEP08		27,582.24



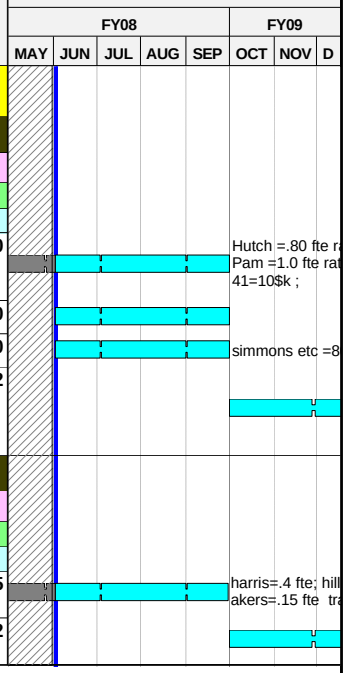
INCLUDED IN CLOSEOUT PLAN	Activity ID	Activity Description	Duration (work days	Forecast Start	Forecast Finish	% Cmplt	ETC
Station 3-Assemble Mod Coils and VVSA-FP#1							
Set-up and Prep							
X	3-1-1.01	transfer CAD models	7	02JUN08*	10JUN08		13,033.44
X	3-1-1.02	Install Station 3 site monuments	3	30JUN08	02JUL08		12,807.96
X	3-1-1.03	Install floor mounted tracks and the VV base sup	5	01JUL08	08JUL08		18,448.60
X	3-1-1.021	Design, fabricate and calibrate photogrammetry	40	01AUG08*	26SEP08		50,607.60
X	3-1-1.04	Install MCHP left support stand. Position to .0	3	29SEP08	01OCT08		10,525.24
X	3-1-1.05	Install the MCHP right support stand;	3	02OCT08	06OCT08		5,014.20
X	3-1-1.06	Install alignment brackets, jack screws dial ind	3	07OCT08	09OCT08		11,544.20
X	3-1-1.07	Reconfirm Leica position	3	10OCT08	14OCT08		5,913.60
X	3-0-PLAT.1	Install station 3 platforms FP#1(8 required)	10	15OCT08	28OCT08		23,399.60
Install Laser Screen							
X	3-1-6.02	Place all laser screens	2	15JUL08	16JUL08		6,882.64
X	3-1-6.03	Turn each lasers on & measure each laser source	1	17JUL08	17JUL08		4,129.58
X	3-1-6.04	Print path on milar paper	0	18JUL08	17JUL08		0.00
Install Vacuum Vessel							
X	3-1-7.02	Install VV NBI port support stand.	2	18JUL08	21JUL08		3,790.56
X	3-1-7.03	Install VVSA to base support and make connection	1	22JUL08	22JUL08		1,895.28
X	3-1-7.04	take tooling ball readings and secure VVSA	2	23JUL08	24JUL08		3,790.56
X	3-1-7.05	Scan VV surface and compare data	3	25JUL08	29JUL08		6,702.91
Trial fit MCHP over VV							
X	3-1-8.01	Install any bumper protection components on the	1	25AUG08	25AUG08		947.64
X	3-1-8.03	Install MCHP lift fixture, disengage leveler	2	26AUG08	27AUG08		3,790.56
X	3-1-8.04	Re-install the right adjustor bar.	0	28AUG08	27AUG08		0.00
X	3-1-8.05	Move right MCHP over the VV	3	28AUG08	02SEP08		18,074.59
X	3-1-8.05M	MCHP test fit over VVSA Complete	0		02SEP08		0.00
X	3-1-6.05	Disengage the right MCHP & move to far right	1	03SEP08	03SEP08		1,895.28
Install RIGHT MCHP over VV							
	3-1-6.06	Remove the left MCHP test laser path	2	04SEP08	05SEP08		20,282.00
	3-1-8.07	Bring AirLoc Wedgemount leveler up to take load	1	05SEP08	05SEP08		1,895.28
	2-1-8.02	Inject stycast in all shim spaces	2	09SEP08	10SEP08		3,790.56
	3-1-8.08	Measure the target monuments on right MCHP with	1	08SEP08	08SEP08		2,234.30
	2-1-10.0	Complete local service & interface details	10	11SEP08	24SEP08		0.00
	3-1-8.09	move MCHP to right 1/2"	0	09SEP08	08SEP08		0.00
Pre-assemble LEFT MCHP							
	3-1-2.01	Position left MCHP over left support	1	29OCT08	29OCT08		4,011.36
	3-1-2.02	Secure left MCHP to vertical support posts	1	30OCT08	30OCT08		2,005.68
	3-1-2.03	Measure all chosen monuments	2	31OCT08	03NOV08		3,942.40
	3-1-6.07	Place left MCHP in temp location	0	29OCT08	28OCT08		0.00
Re-install RIGHT MCHP over VV							
	3-1-8.06	Position right MCHP over right support	2	03SEP08	04SEP08		7,581.12
Job: 1815 - Field Period Assy -Station 5-VIOLA							
Setup/Preparations/General							
	R1810-5101	MTM NCR hardware re-purchase	100	16OCT08*	17MAR09		84,890.00
Fogarty							
Job: 3801 - Electron Beam Mapping-ORNL							
	380-0-09	E-beam mapping- Conceptual Design	40	01JUL08*	26AUG08		18,120.00
	380-010	E-beam mapping- Prelim Design	98	01OCT08*	26FEB09		62,441.50



INCLUDED IN CLOSEOUT PLAN	Activity ID	Activity Description	Duration (work days	Forecast Start	Forecast Finish	% Cmplt	ETC
Al vonHalle							
Gentile							
Job: 8501 - Integrated Systems Testing-GENTILE							
Startup Documentation							
Y							
	8501-000	Health/Safety Directive HSD 5008 Classification	0		30JUN08		0.00
	8501-101	SAD NCSX Safety Assessment Document (SAD) DRAFT	64	01JUL08*	30SEP08		22,739.20
	8501-101M	Issue Draft Safety Assessment doc. (SAD)	0		30SEP08		0.00
	8501-101X	SAD NCSX Safety Assessment Document (SAD) FINAL	247	01OCT08*	25SEP09		24,065.60
	8501-201	ISTP-NCSX-01 Coil EnergizationTests DRAFT	64	01JUL08*	30SEP08		11,369.60
	8501-202	Issue Draft ISTP-NCSX-01 Coil EnergizationTests	0		30SEP08		0.00
	8501-203	ISTP-NCSX-01 Coil EnergizationTests FINAL	249	01OCT08	30SEP09		12,032.80
Ramakrishnan							
Job: 4301 - DC Systems-RAMAKRISHNAN							
431 - C-Site DC Systems							
	431-225	Reactivate DF & PEI units	15	01JUL08*	22JUL08		20,332.24
	431-230	Duumy Load test of DF & PEI units	105	23JUL08	19DEC08		10,683.15
	431-261	Redo power loop design	355	02JUN08*	29OCT09		49,788.91
	431-275A	Power cabling & Installation FY08	85*	02JUN08*	30SEP08		4,407.34
	431-276	Maint of C-site rectifiers	997*	01OCT07A	30SEP11	LOE	18,475.22
Job: 4401 - Control & Protection-RAMAKRISHNAN							
441 - Electrical Interlocks							
	441-095	Design Interlock sys	310	03OCT08*	11JAN10		29,853.12
	441-100	PLC Specification	160	02JUN08*	26JAN09		11,671.66
445 - Coil Protection Systems							
	445-1-2	Ground Fault Protection-Dsn	87	01JUL08*	31OCT08		32,648.51
Job: 4501 - Power Sys Dsn & Integr-RAMAKRISHNAN							
451 - System Design & Interfaces							
	451-0-2	Develop Power Systems SRD	15	07JUL08*	25JUL08		15,276.48
	451-2-2	PDR Prep Power system -Dsn	40	28JUL08	22SEP08		29,795.52
	451-2-3	Power system - PDR	0		22SEP08		0.00
	451-6-2	Final design C-Site -Cabling	149	01OCT08*	08MAY09		27,877.60
	451-2-2.1	Final Design C-Site	268	01OCT08*	27OCT09		27,935.36
	451-1-2	Calculations-Dsn	149	28JUL08*	05MAR09		16,836.31
Sichta							
Job: 5101 - Network and Fiber Infrastruct-SICHTA							
	R51-10	Preliminary Design	30	01OCT08*	11NOV08		8,722.10
Job: 5601 - Central Safety &Interlock Sys-SICHTA							
	R56-10	Requirements, Codes&Standards	30	04AUG08*	15SEP08		5,283.20
	R56-20	Preliminary Design	45	03OCT08*	08DEC08		18,779.60
Job: 5801 - Central I&C Integr& Oversight-SICHTA							
	R58-20	WBS58 -FY08 Management & Integration LOE	250*	01OCT07A	30SEP08	LOE	7,185.15
	R58-30	WBS58 -FY09 Management & Integration LOE	249	01OCT08*	30SEP09	LOE	16,773.60



	INCLUDED IN CLOSEOUT PLAN	Activity ID	Activity Description	Duration (work days	Forecast Start	Forecast Finish	% Cmplt	ETC
Don Rej								
Don Rej								
Job: 8101 - Project Management &Control-REJ								
	X	810.900	**Project Management Office PPPL FY08 (LOE)**	**250***	01OCT07A	30SEP08	**LOE**	**216,292.20**
	X	810.9005A	**Project Management Office PPPL fy08 etc**	**85***	02JUN08	30SEP08	**LOE**	**125,600.00**
	X	810.9007	**Project controls support (simmons(**	**85***	02JUN08*	30SEP08	**LOE**	**14,168.00**
	X	810.901	**Project Management Office PPPL FY09 (SA LOE)**	**121***	01OCT08*	31MAR09	**LOE**	**399,185.02**
Harris								
Job: 8102 - NCSX MIE Management ORNL-HARRIS								
	X	810.105XX	**Project Management Office ORNL FY08 (LOE)**	**169***	01FEB08A	29SEP08	**LOE**	**106,399.85**
	X	810.105Z	**Project Management Office ORNL FY09 (LOE)**	**121***	01OCT08*	31MAR09	**LOE**	**51,786.52**



Mothball NCSX Hardware										
.										
Item	**Qty**	**Size**	**Storage**	**Perry**	**Viola**	**Langella**	**TB**	**HP**	**M&S**	
			Location	**MH**	**MH**	**MH**	**MH**	**MH**	**$K**	
					(Lift Mgr)					
Items from TFTR Test Cell										
Modular Coils	18									
3 pack on wedge	4	8.5' x 9.5'	NCTC		8		32	4		
3 pack on pallet	2	8' x 9.5'	NCTC		4		16	2		
fab pallet for 3 pack	2						16		0.2	
Vacuum vessel segments	3	11' x 15'	NCTC		12		72	3	1.2	
Port extension crates	6	4' x 10'	NCTC				8	6		
MC Bolts	2	4' x 4'	NCTCB				4	2		
Fab crate for MC bolts	2						16		0.4	
Coil winding Station	1	10' x 16'	NCTC				64	8		
Parts shelves with parts	12	3' x 7'	NCTCB				48	12		
Cabinets	24		NCTCB				48	24		
Crates	10	2' x 4'	NCTCB				20	10		
Crates	4	3' x 4'	NCTCB				8	4		
Remove Autoclave										
Safe all AC Power to autoclave						24	8			
Electrical removals						400	616	77		
Remove handrails and walkways			NCTCB				96	2		
Blower heater duct			NCTCB				48	2		
Ladder and stairways			NCTCB				16	2		
Remove tanks on platform	3		NCTCB				8	1		
Remove air lines			NCTCB				8	1		
Remove insulation			NCTCB				96	4		
Remove vent systems			NCTCB				80	2		
Remove autoclave pumps			NCTCB				16	2		
Remove pump line to pumps			NCTCB				16	2		
Remove injection platforms	3		NCTCB				96	2		
Remove N2 tanks / stands			NCTCB				16	2		
Move Autoclave to D-site Pad			D-site pad		16		80	16		load on low boy; re-survey; unload with mobile crane
Portable AC units	3		C-site crib				8	3		

Mothball NCSX Hardware										
.										
Item	**Qty**	**Size**	**Storage**	**Perry**	**Viola**	**Langella**	**TB**	**HP**	**M&S**	
			Location	**MH**	**MH**	**MH**	**MH**	**MH**	**$K**	
					(Lift Mgr)					
Drawing closeouts and field follow-up						200				
Small shield block	4		D-site pad				16	4		
Large shield block	4		D-site pad				16	4		
Machine mock-up			NCTC				8	1		
Welding machines	4		RESA				8	4		
Tools			C-site crib				32	16		
Measuring Equipment			S-109				16	4		
Inventory parts, material and tools as to their new location							80			
Items from TFTR Basement										
Shelves	1		NCTCB				4			
Cabinets	8		NCTCB				32			
Pallets	25		NCTCB				100			
Fab two 10' pallets	2	4' x 10'	NCTCB				16		0.2	
Spare coil conductor pallet	5	4' x 4'	NCTCB				20			
Items from D-site yard										
Cable tray stack	10	4' x 15'	D-site pad				10			
Pallet of tray covers	6	4' x 15'	D-site pad				6			
Fab pallets for tray covers	6						48		0.6	
Pallet of brackets	3	4' x 4'	D-site pad				3			
Pallet of gnd jumpers/hardware	2	4' x 4'	D-site pad				2			
Items from NCTC/D-site MG										

Mothball NCSX Hardware

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Item	Qty	Size	Storage Location	Perry MH	Viola MH (Lift Mgr)	Langella MH	TB MH	HP MH	M&S $K	
TF coil crates	18	9'6" x 11'3"	NCTC				36			stack 6 high
Sta 3 (?) fixture crates	2	7' x 7'	NCTC				2			combine crates
Items from CAS Bldg										
Aluminum I-beams for platform		6' x 4' x 24'	NCTC				4			
Aluminum tubes for platform		2' x 3' x 24'	NCTC				2			
Finished beams and columns		4' x 4' x 12'	NCTC				2			
Fab pallet for beams/colmns	1	4' x 12'	NCTC				8		0.1	
Pallet of connector boxes							8			
Fab crate for connector boxe	1	4' x 4'	NCTC				8		0.1	
Column end plates							8			
Fab crate for end plates	1	4' x 4'	NCTC				8		0.1	
In NCTC										
Remove PLT water headers from CS High Bay Area							24			
Replace 50% of floor penetration covers in CS high bay	14						358		21	Must complete before moving items into NCTC
Coordination and oversight				245						
TOTAL				245	40	624	2445	226	23.9	
EDP 6/4/08										

NCSX Close-Out Documentation Plan Proposal

June 3, 2008

Background

- DOE has directed that the NCSX Project be cancelled.
- As part of the orderly closeout of the Project, a major task will be compile and store all design and manufacturing documentation, including specifications, procedures, shop travelers, etc
- This effort includes both ORNL and PPPL.
- ***Time scale: complete by the end of this FY.***

The NCSX Web is the proposed focal point for this documentation

- The NCSX Engineering Web already contains the majority of information that has been “approved”.
- What is not included on the NCSX Engineering Web are:
  - Information only stored in “hard” copy in the Ops Center
  - Information that may or may not be complete that is stored on individual engineers’ computers (e.g., FEA, design requirements documentation not yet approved such as draft SRDs, draft calculations, etc.)
  - Completed and in-process models and drawings contatined in Inralink
  - Pertinent design memos, photographs, and other records that could provide in valuable information on the NCSX design process.
  - Other records called out in the NCSX Document Records Plan (NCSX-PLAN-DOC-04 =>http://ncsx.pppl.gov/SystemsEngineering/Plans_Procedures/NCSX_Mgmt_Plans/DOC/NCSX-PLAN-DOC-04-Signed.pdf

Documents we must archive

Records defined in the NCSX Document Records Plan include :

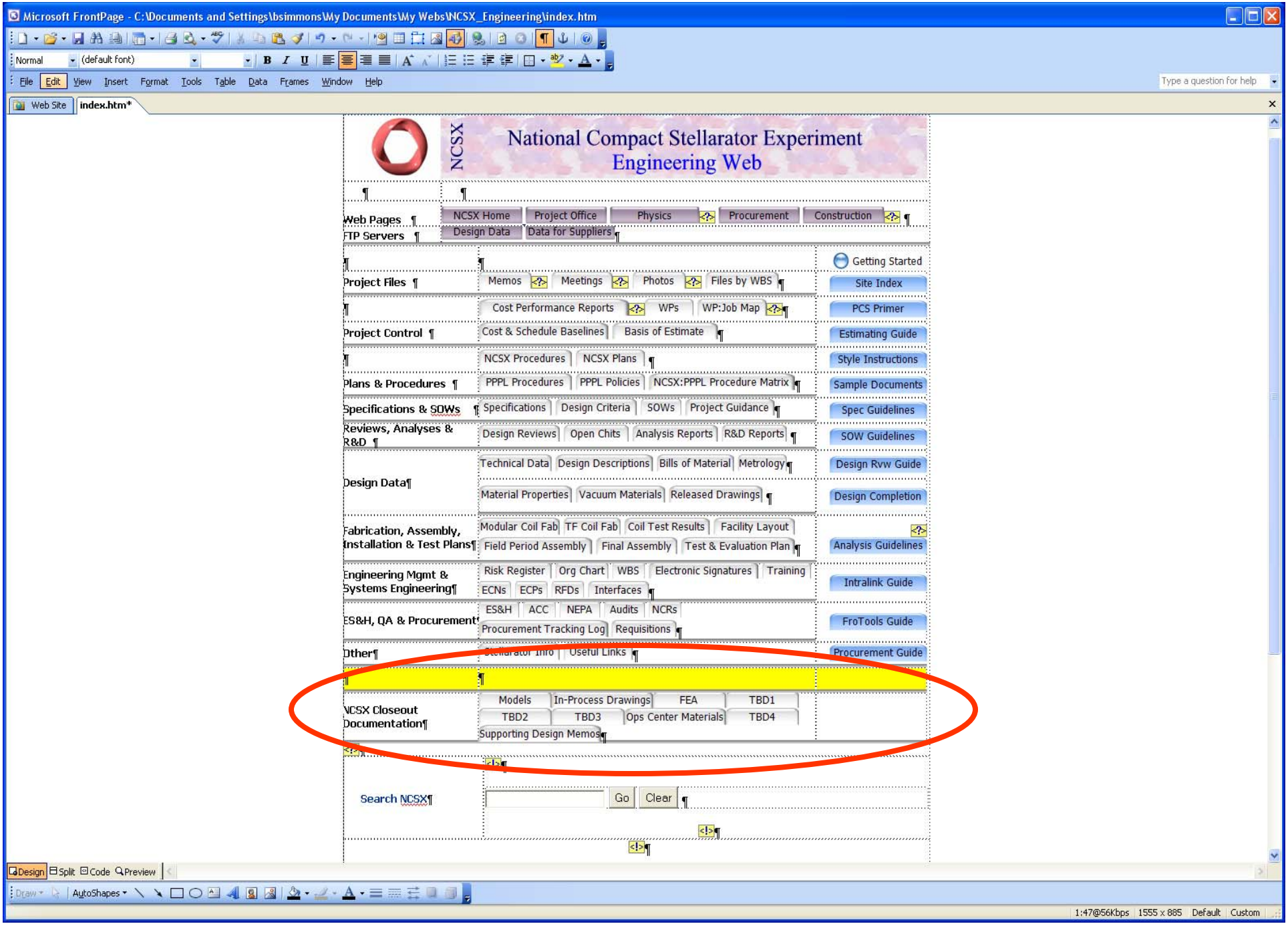
Record Type	Definition
Document	Recorded information that describes, specifies, reports, certifies, requires, or provides information, data or results. A document is not a record until it meets the definition of record.
Calculations	Results obtained from mathematical processes used in design, operation, etc.
Guides	A document that provides additional information to NCSX project staff. Examples might be users' guides or documents that describe possible techniques for analysis.
Criteria	A document that defines the design criteria to be used on NCSX.
Procedure	A document that provides an orderly, detailed method of accomplishing tasks within the applicable Laboratory and NCSX guidelines and with established responsibilities and actions.
Record	A completed document or other media that provides objective evidence of an item, service, or process.
Standard	A document that defines the minimum quality and performance outcome of a process.

Also to be archived

- Conference publications & posters (in electronic format)
- CAD drawings & models
- FEA analyses and models (most stored on FTF site or p-drive; need to archive the URLs and model descriptions).
- “Back office” support data & metrology data (already archived on the p-drive– need pointer on web).
- Inventory lists for hardware; roadmap between hardware and documentation.
- PRIMAVERA models (pdf models already exist on the web)
- WBS notes, presentations, and any files that now reside on personal PCs relevent to the WBS activities.
- Field travelers
- QC documentation
- Photos
- Deliverables from subcontracts such as EWI, prototyping activities, etc.
- Presentations that would be useful to re-start (examples: interference studies; metrology presentations, etc.)

Approach

- Utilize the NCSX Engineering Web to provide electronic links and/or instructions on where to access to all documentation (e.g., for hard copy stored in Ops Center, the page would contain an inventory list organized by WBS and type of document; for completed drawings provide a link to the PPPL CADD web; for models and in-process drawings provide instructions on how to access Intralink, etc.).
- The Engineering Web page will be modified to include a new category entitled: “NCSX Closeout Documentation”
- Add Google Search function to the Web.


Microsoft FrontPage - C:\Documents and Settings\bsimmons\My Documents\My Webs\NCSX_Engineering\index.htm
File Edit View Insert Format Tools Table Data Frames Window Help
Web Site
index.htm*
NCSX
National Compact Stellarator Experiment
Engineering Web
Web Pages
FTP Servers
NCSX Home
Project Office
Physics
Procurement
Construction
Design Data
Data for Suppliers
Getting Started
Project Files
Memos
Meetings
Photos
Files by WBS
Site Index
Cost Performance Reports
WPs
WP:Job Map
PCS Primer
Project Control
Cost & Schedule Baselines
Basis of Estimate
Estimating Guide
NCSX Procedures
NCSX Plans
Style Instructions
Plans & Procedures
PPPL Procedures
PPPL Policies
NCSX:PPPL Procedure Matrix
Sample Documents
Specifications & SOWs
Specifications
Design Criteria
SOWs
Project Guidance
Spec Guidelines
Reviews, Analyses & R&D
Design Reviews
Open Chits
Analysis Reports
R&D Reports
SOW Guidelines
Technical Data
Design Descriptions
Bills of Material
Metrology
Design Rvw Guide
Design Data
Material Properties
Vacuum Materials
Released Drawings
Design Completion
Fabrication, Assembly, Installation & Test Plans
Modular Coil Fab
TF Coil Fab
Coil Test Results
Facility Layout
Field Period Assembly
Final Assembly
Test & Evaluation Plan
Analysis Guidelines
Engineering Mgmt & Systems Engineering
Risk Register
Org Chart
WBS
Electronic Signatures
Training
ECNs
ECPs
RFDs
Interfaces
Intralink Guide
ES&H, QA & Procurement
ES&H
ACC
NEPA
Audits
NCRs
Procurement Tracking Log
Requisitions
FroTools Guide
Other
Useful Links
Procurement Guide
NCSX Closeout Documentation
Models
In-Process Drawings
FEA
TBD1
TBD2
TBD3
Ops Center Materials
TBD4
Supporting Design Memos
Search NCSX
Go
Clear
Design
Split
Code
Preview
Draw
AutoShapes
1:47@56Kbps
1555 x 885
Default
Custom

Proposed storage requirements

- All electronic documentation to be stored, backed up, and accessible for a minimum of 10 years.
  - Software needed to access the information is to be kept available for at least 10 years.
    - Need to provide a Dell server with software installed and “frozen” in place.
      - Cost: $3K, plus licenses for software.
      - Issue: maintenance costs for the 10 year period.
    - We need to define issues or limitations associated with FEA, PRIMAVERA, and CAD. These may be limited to 3 years without extraordinary efforts to preserve the “old” versions.
      - NOTE: All CAD released drawings are already stored in PDF.
- As the final step, an audit of the Web to assure that the data is all there, and in a usable form, with the data organized based on an appropriate “graded approach” considering cost vs. potential usage and benefit.

Next Steps

- Bob, Phil& Ron – develop resources loaded schedule based on these discussions by tomorrow.
  - Propose to include time for people to “data mine” their computers & write summary notes. (~200-300 hrs/person for ~30 people)
    - Resources for organizing and posting and final audit (6 p-m + computer support)
      - Bob, Frank & Judy would sit down with each person to discuss their files and how their efforts should be spent.
    - For the server, software and setup ~$40K.
    - Create data files for each modular coil, TF coils, & VV to store in Ops Center for each coil (Marianne & Cheryl) (~4p-m + 5K for fireproof cabinets). (run copies, vendor info,
      - Data sheet pasted with each coil indicating its ID and where info is available.
      - Need original and back-up stored in a separate location.
    - Need cabinets for X-ray films from MCs ($5K)
  - Include time (4 p-m) for analysts to close-out key analyses. Goal: to preserve the ability to pick these up and re-run them for several years into the future. (Ron Strykowsky – please include in your budget).
- Transmit requirements to ALL NCSX staff members at both PPPL and ORNL.

NCSX Closeout Report
(Technical Sections)

1. **Stellarator Core**
   12. Vacuum Vessel (Goranson)
   13. Conventional Coils (Kalish)
   14. Modular Coils (Williamson)
   15. Conventional Coil Structures (Dahlgren)
   16. Coil Services (Goranson)
   17. Cryostat (Raftopoulos)
   17. Base Structure (Dahlgren)
   18. Field Period Assembly Design, Constructability, & Tooling (Brown)
   18. Field Period Assembly Operations (Viola)
   19. Stellarator Core Mgt. & Int. (Cole)
2. **Auxiliary Systems (Blanchard)**
3. **Diagnostics (Stratton)**
4. **Electrical Power Systems (Ramakrishnan)**
5. **Central I&C/Data Aq. (Sichta)**
6. **Facility Systems (Dudek)**
7. **Test Cell Prep & Machine Assy. (Perry)**
8. **Project Mgt. & Integration**
   81. Project management (Rej)
   82. Project Engineering (Heitzenroeder)
   82. System Engineering (Simmons)
   82. Design Integration (Brown)
   82. System analysis / Technical Assurance (Brooks)
   82. Dimensional Control Coordination (Ellis)
   82. Plant Design (Perry)
   85. Integrated System Testing (Gentile)

Resource loaded schedule for remaining work (Use May 1 plan)
Cost estimate for remaining work (May 1 plan, less work accomplished thereafter)
Risk Register at Project Close

Contents of Each WBS Section

- Scope, deliverables (what was to be produced? Refer to WBS dictionary) ~1/2 page
- Status (what was completed?) ~1/2 page
- Graphics (photo or CAD drawing) up to 2
- Remaining scope (scheduled tasks not completed) ~1/2 page
- Open issues or other information of value if project were restarted. ~1/2 page
- List of documentation (SRD, SDD, analysis reports, R&D/test reports, drawing tree, specs, procedures, review documentation, etc.)

Don,

There appears to be three distinct activities required for normal project impletion/closeout. The SNS Closeout Report is a good template but has more content than needed for NCSX cancellation. Here are the basics...

Prepare a lesson learned report:

* Inventions or patents created during the project

* New business process other projects should leverage

* Problems other projects can avoid

Prepare a closeout report:

* Technical, scope, cost and schedule baseline accomplishments

* Final cost report, including claims and claims settlement strategy

* Deactivation, decontamination and decommissioning planning

* Closeout approvals

* Permits, licenses and/or environmental documentation

* Contract closeout status

* Adjustments to obligations and costs

* Photographic documentation

* Baseline change control log

Contract Closeout:

* Contracting Officer certifies closeout

Jeffrey Makiel