NCSX Work Approval Form (WAF)

Job Numb Job Titles Job Titles	ber: 186 : Tooling Design & Fabrication ers: 1803 & 1805 : FPA Tooling & Constructibility (180 : FPA Hardware & Fixture Procureme ger: Tom Brown (1803) and Larry Duc	ent (1805)	
Description:	: This WBS element includes all of the non-VVS	A procurements.	
Schedule:	See Attached		
Approvals:			
	Job Manager	Date	
	Job Manager	Date	
	Responsible Line Manager	Date	
	Project Manager	Date	
	Engineering Department Head	Date	

NCSX June 2007 ETC TABLE I - DESIGN LABOR

WE	3S Number: 61																					
WE	3S Title: Water Cooling S	vste	ms													<u> </u>						
	b Number: 6101																					
	b Title: Water Cooling Sy	cton	20																			
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Jol	b Manager: Larry Dudek																					
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26310	Final Design (Field Run)	†					 		20	 			 	80	 				Based on	engineering judg	ement from ex	perience on NSTX

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Droce	rurement & Fabrication/Installation						ļ			ļ			ļ	ļ	ļ							
FIOCI	Procurement lead time and award						ļ		20				ļ	ļ	ļ							
																						
	3/4" Cu Pipe x 50 ft	\$250	ı									8							Based on			
	Solder Joints (25)									ļ		16							Based on			
	Valves	\$100 \$10					ļ	-		ļ		8			ļ				Based on			
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	New Instrumentation	\$1,500						<u> </u>	20	!		80		ļ					Based on			
	Backflow preventer	\$500							8			16	₹						Based on			
	Heat Exchanger	\$500							8			16	4		ļ				Based on	Means		
	Pump	\$100							8	ļ		8										
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NCSX June 2007 ETC TABLE II - Materials and Subcontracts

WBS Number: 61				
WBS Title: Water Cooling Systems				
Job Number: 6101				
Job Title: Water Cooling Systems				
Job Manager: Larry Dudek				
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Materials and Subcontracts (M&S)				Basis of Estimate
Materials and Subcontracts (M&S)				Basis of Estimate
Materials and Subcontracts (M&S)				Basis of Estimate
Materials and Subcontracts (M&S) M&S in Table I				Basis of Estimate
				Basis of Estimate
				Basis of Estimate
				Basis of Estimate

NCSX June 2007 ETC TABLE III - Fabrication/Assembly Installation

In-house Fabrication and Assembly and Installation										
Fabrication & Installation in Table	I									

NCSX June 2007 ETC TABLE IV - Uncertainty of Estimate and Residual Risk Assessment

WBS Number: 61

WBS Title: Water Cooling Systems

Job Number: 6101

Job Title: Water Cooling Systems

Job Manager: Larry Dudek

Uncertainty of the Estimate

Uncertainty

Range (%) Medium Low

Comments/Other Considerations

Design Maturity Х Design not complicated, but still in a conceptual stage. -10%/15%

Standard piping -- off-the-shelf components **Design Complexity** Х

Note: High/Medium/Low uncertainty assessment from Job Manager. Uncertainty range based on AACEI recommended practice 18R-97 as amended for NCSX.

Residual Impacts

	<u></u>		Cost Impact	Schedule Impact					
		Likelihood of							
Job	Risk Description	Occurring	Mitigation Plan	Basis of estimate	Low High	Low	High		

NONE

- Low cost and schedule impacts are considered the minimum (0-percentile) impacts should the event occur. High cost and schedule impacts are considered the maximum (100-percentile) impacts should the event occur
- Cost impacts should be entered as man-hours (by demographic) and M&S direct cost under basis of estimate. Cost impacts should NOT include standing army costs which are separately calculated from the schedule impact Project control is reponsible for quantifying the low and high cost impacts based on the labor hours and M&S identified
- The schedule impacts should be entered as the min and max impacts on the critical path. If there is no critical path impact then the schedule entries should be zero.
- Likelihood of occurrence should be entered consistent with our risk classification methodology, i.e.
- VL= Very Likely (P>80%), L=Likely (80%>P>40%), U=Unlikley (40%>P>10%), VU=Very Unlikely (P<10%), NC=Non-credible (P<1%)