

NCSX June 2007 ETC
 TABLE III - Fabrication and Assembly

WBS Number: 62																			
WBS Title: Cryogenic Systems																			
Job Number: 6201																			
Job Title: Cryogenic Systems																			
Job Manager: Geoff Gettlefinger																			
Fabrication and Assembly																			
		M&S			Labor														
		# units	\$/M&S unit	M&S (\$)		EMTB	Assumptions	Basis of Estimate											
<u>WBS-621 LN2-LHe Supply</u>																			
O2 controller		8	\$1,500	\$12,000				See Table V											
O2 conduit M&S		1	\$1,000	\$1,000				Based on Job 1409 experience											
O2 install						80		Based on Job 1409 experience											
1 5/8, 50' roll copper		4	\$412	\$1,648		160	estimate, 200 ft 1 5/8 annealed with 2" urethane foam insul.	See Table V - Labor based on Job 1409 experience.											
2" , 3' insul		70	\$21	\$1,456				See Table V											
Misc Hdwe		1	\$5,000	\$5,000				Based on Job 1409 experience.											
pneu vac jacket LN2 valve		1	\$4,191	\$4,191				See Table V											
man vac jacket LN2 valve		1	\$2,838	\$2,838				See Table V											
Install LN2 Line						160													
<u>WBS-622 LN2 Coil Cooling Supply System</u>																			
relief valves		50	\$38	\$1,918				See Table V, valve and adapter.											
2 each 460vac lo-amp branch circuits		1	\$1,000	\$1,000				Based on Job 1409 experience.											
2" , 3' insul		70	\$21	\$1,456			estimate, 200 ft 1 5/8 annealed with 2" urethane foam insul.	See Table V											
pipng		4	\$412	\$1,648				See Table V											
isolation valves		20	\$242	\$4,831				See Table V											
Misc Hdwe		1	\$5,000	\$5,000				Based on Job 1409 experience.											
Relocate pump skid to NCSX machine area						240		Labor based on Job 1409 experience.											

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WBS-623 GN2 Cryostat Cooling System										
duct board	150	\$19	\$2,850		480SF/10 linear foot X 100 f	\$19 per sheet, Local Pricing				
cryo/pneumatic valves	40	\$933	\$37,320			Swagelok Valves & Std Bellows, Table V, 183+300+350=933				
distribution tubing	500	\$1	\$540			See Table V				
Circulating Fans	20	\$600	\$12,000	160		Based on conceptual concept only.				
Evaporator Trays	18	\$300	\$5,400			Needs Design, Based on conceptual design only.				
Evaporator Drops	18	\$500	\$9,000			Needs Design, Based on conceptual design only.				
Thermax Vaporizer	1	\$16,420	\$16,420			See Table V - Based on Job 1409 experience.				
Thermax starter/controls	1	\$591	\$591	80		See Table V - Based on Job 1409 experience.				
duct heater	2	\$1,551	\$3,102	80		See Table V - Based on Job 1409 experience.				
duct heater starter/controls	2	\$591	\$1,182	80		See Table V - Based on Job 1409 experience.				
controllers/TCs	20	\$169	\$3,380			See Table V				
Misc Hdwe	1	\$10,000	\$10,000			Based on Job 1409 experience.				
GN2, Duct, & Insul Labor				1680		Based on Job 1409 experience.				
Engineering Analysis						Based on Job 1409 experience.				
Totals			\$145,770	2720						