

WBS 62 Cryogenics System Cost Backup Details

	EMEM	EMTB Mec	EMTB Elec	EMSM	EADS	EADM	# units	\$/ M&S	uni M&S	
WBS 62 Engineering Design and Oversight	800									
WBS-631 LN2-LHe Supply										
O2 controller							1	2000	2000	Grainger GAScheck 4controller w/4 heads
O2 monitors, ps, conduits							4	900	3600	
O2 conduit M&S							1	1000	1000	
O2 install		24			8		8		0	
									0	
WBS-621 LN2 - LHe Supply									0	
UN Traced line									0	estimate, 100 ft @ 1500/ft installed
120 mat's, 17h TB, 3h SM	500			100	40		100	120	12000	
pneu vac jacket LN2 valve							1	3300	3300	
man vac jacket LN2 valve							1	3100	3100	
									0	
option b: Dewars for beam qual									0	
fab helium spears	30			30					0	
rental dewars for 1wk qual							4	5000	20000	
relief valves							4	100	400	
									0	
WBS-622 LN2 Coil Cooling Supply System									0	
pump(s)	60	20	20	20			2	26,000	52000	
expansion tank	40			10			1	5000	5000	
relief valves	10						10	100	1000	
pump starters& disconnect		120				40	2	4000	8000	
pitot assembly	5						2	500	1000	
heat ex primary	80		20	10			1	10000	10000	ACD 200 gpm, 200 psi ceramic/carbon seal, AC-30 50 H
pipng	700		30	40			1	4000	4000	
isolation valves							8	600	4800	
									0	
WBS-623 GN2 Cryostat Cooling System									0	
duct & stack, 10ft / connector							14	225	3150	
duct ells							14	200	2800	
duct board200 sf/10 ft							2800	10	28000	
blowers multi grainger choices, no flow resist info							2	2,000	4000	
blower starter/controls		120				40	2	4000	8000	
duct heater							1	10000	10000	mcmaster 3HT9716kw@\$1400ea
stack heater							1	10000	10000	
									0	16" pvc mcmaster2051k186 10' straight \$192
heater starter/controls		120				40	2	4000	8000	16" connector\$25, 45-\$102, 90-\$200
divertor dampers							4	500	2000	
controllers							4	500	2000	
									0	
Duct & Insul Labor, 1.5 md/10ft	1680								0	
heat ex secondary	80						1	2000	2000	
									0	
	800	3185	404	200	128	128		sum=(w/o i	209150	
	136.78	58.4	58.4	88.59	67.94	88			1.25	
	109424	186004	23593.6	17718	8696.32	11264			261437.5	618137.4

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1P 2x4x12.5, 3500