

**NCSX June 2007 ETC  
TABLE II - Materials and Subcontracts**

<b>WBS Number: 12</b>								
<b>WBS Title: Vacuum Vessel Systems</b>								
<b>Job Number: 1204</b>								
<b>Job Title: Vacuum Vessel System Procurements</b>								
<b>Job Manager: Larry Dudek</b>								
<b>Materials and Subcontracts (M&amp;S)</b>							<b>Basis of Estimate</b>	
Description:								
	<b>Unit</b>	<b>PPPL EMTB Suppt (Hrs)</b>	<b>Rate</b>	<b>Qty</b>	<b>Subtotal</b>	<b>TOTALS</b>		
<b>VV Vertical Supports</b>							<b>Work Completed</b>	
<b>VV Personal Acces Port &amp; Lateral Supports</b>							ORNL estimate. See worksheet below.	
							<b>58,511</b>	
<b>Insulation Boots Total</b>							<b>55,750</b>	
<b>Insulation Boots</b>	Boots for Some Ports		250	150	37500		Requisition 405021 - see Table V	
	Boots for Some Ports		75	150	11250		Requisition 405024 (150 pcs x \$25 each) - see Table V	
	Miscellaneous hardware				7000		Engineering judgement of miscellaneous parts (G-11 rings, fasteners, etc.)	
<b>Pourable Insulation</b>							<b>80,000</b>	Rough Order of Magnitude from Cabot - see Table V
<b>Port Thermal Insulation</b>							<b>25,000</b>	Verbal estimate from Aspen Aerogel Inc. to ORNL. Based on projected production in new facility.
<b>VV Local I&amp;C</b>							<b>26,960</b>	See Omega Quote - seeTable V
	Thermocouples: 4 each x 83 appendages		80	337	26960			
<b>Heater Tapes for Port Stubs</b>							<b>15,400</b>	See Brisk Heat Quote - seeTable V
			70	220	15400			
<b>VV Interface Hardware</b>							<b>28250</b>	See G. Labik estimate detailed in Job 3101 dated 4/10/2007 (Updated 5/3/2007)
<b>T/C and Heater Tape Leads Port 12</b>								
<b>Flux Loops Junction Boxes</b>						<b>9620</b>	See G. Labik estimate detailed in Job 3101 dated 4/10/2007 (Updated 5/3/2007)	
<b>VV Heating Cooling Tubing (COMPLETED)</b>								
<b>M&amp;S Total</b>							<b>299,491</b>	
<b>Worksheet:</b>								
<b>COST OF NB PORT DUCT/COVER OPTION</b>								
Pumping will be from port 4 or 12.								
150 C bakeout operation								
Option uses basic geometry of the mod kit drawings and gives credit for incorporating existing NB blankoff flange in new design. It uses a stainless steel, 22" wire seal, commercial (MDC) flange with Viton o-ring.								
The interface (boot) to the cryostat is not included.								
Option 3 does not include any hardware for port 4 pumping. Supplied by WBS 22.								
<b>Simplified Duct</b>								
	<b>Cost</b>							
Duct Material/fab(l625)	5009						Based on material cost based on Inconel at -\$30/lb - See Table V	
22 inch port flange	1950						Price out of MDC catalog	
22 inch blankoff Flange	2850						Price out of MDC catalog.	
Lateral supports	5000						My estimate on labor time to machine detail parts outside.	
NB duct flg rework	1800						Based on set up and labor time for machining cost to bore hole in house.	
Assy fab	2640						Based on 24 hour estimate to do fab.	
Bolt kit/o-ring	255						Price out of MDC catalog.	
subtotal	<b>19504</b>							
Engineering	15600		<b>COMPLETE</b>					