Job Num Job Title	nber: 12 e: Vacuum Vessel Systems ber: 1204 : Vacuum Vessel System Procureme ager: Larry Dudek	ents	
Description			
	This WBS element includes all of the non-VV	/SA procurements.	
Schedule:	See Attached		
Approvals:			
	Job Manager	Date	
	Responsible Line Manager	Date	
	Project Manager	Date	
	Engineering Department Head	Date	

WBS Number: 12 WBS Title: Vacuum Vessel Systems Job Number: 1204 Job Title: Vacuum Vessel System Procurements Job Manager: Larry Dudek

Description:

Procure necessary parts and consubmables to support assembly and fabrication of Vacuum Vessel Segments. This job only covers M&S support - labor to procure the parts and consumables is covered under WBS 82 (where L. Dudek labor is covered). Details of requirements shown on drawings prepared under WBS 19.

No Design Work in this Job.

NCSX June 2007 ETC TABLE II - Materials and Subcontracts

WBS Number: 12							
WBS Title: Vacuum Vessel Systems	•						
	>						
Job Number: 1204							
Job Title: Vacuum Vessel System P	Procurements						
Job Manager: Larry Dudek							
Materials and Subcontracts (M&S)							Basis of Estimate
Description:							
	Unit	PPPL EMTB Suppt (Hrs)	Rate	Qty	Subtotal	TOTALS	
VV Vertical Supports		ouppt (mo)	nute	uty	Cubiolai	TOTALO	Work Completed
VV Personal Acces Port & Lateral Supports				3	19504	58,511	ORNL estimate. See worksheet below.
Insulation Boots Total						55,750	
Insulation Boots	Boots for Some Ports		250				Requisition 405021 - see Table V
	Boots for Some Ports		75	150			Requisition 405024 (150 pcs x \$25 each) - see Table V
	Miscellaneous hardware				7000		Engineering judgement of miscellaneous parts (G-11 rings, fasteners, etc.)
Pourable Insulation						80,000	Rough Order of Magnitude from Cabot - see Table V
Port Thermal Insulation					25000	25,000	Verbal estimate from Aspen Aerogel Inc. to ORNL. Based on projected production in new facility.
VV Local I&C	Thermocouples: 4 each x 83 appendages		80	337	26960	26,960	See Omega Quote - seeTable V
Heater Tapes for Port Stubs			70	220	15400	15,400	See Brisk Heat Quote - seeTable V
VV Interface Hardware							
T/C and Heater Tape Leads Port 12						28250	See G. Labik estimate detailed in Job 3101 dated 4/10/2007 (Updated 5/3/2007)
Flux Loops Junction Boxes						9620	See G. Labik estimate detailed in Job 3101 dated 4/10/2007 (Updated 5/3/2007)
VV Heating Cooling Tubing (COMPLETED)							
······································							
M&S Total						299,491	
Masiotal						299,491	
Washahaat.							
Worksheet:							
COST OF NB PORT DUCT/COVER OPTION				PL GORANS	SON 5/25/05		
Pumping will be from port 4 or 12.							
150 C bakeout operation					+		
Option uses basic geometry of the mod kit drawings and give	s credit for incorporating existing NB blankoff	flange in new	/ design. It i	uses a stainle	ss steel, 22"	, wire seal, com	mercial (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.						
Simplified Duct Duct Material/fab(1625)	Cost						Based on material cost based on Inconel at ~\$30/lb - See Table V
22 inch port flange	5009 1950						Based on material cost based on inconel at ~\$30/lb - See Table V 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 Assy fab	1800 2640						Based on set up and labor time for machining cost to bore hole in house. Based on 24 hour estimate to do fab.
Bolt kit/o-ring	255						Price out of MDC catolog.
subtotal	19504						······································
Engineering	15000		COMPLET				
Engineering	15600		COMPLET	E	+		
	1	11		1	1	1	

NCSX June 2007 ETC TABLE III - Fabrication/Assembly Installation

In-house Fabrication and	l Assem	bly and	l Installa	ation				
Description: N/A								

NCSX June 2007 ETC TABLE III - Fabrication/Assembly Installation

WE	BS Number: 12	2														
WE	BS Title: Vacu	um Vessel S	Systems	5												
Joł	b Number: 120	4														
Joł	b Title: Vacuu	m Vessel Sy	stem P	rocuremen	ts											
Joł	b Manager: La	arry Dudek														
Unc	ertainty of the Esti	mate			1		1			1						
0.110				Uncertainty												
		High Medium	Low	Range (%)						Comments	/Other Con	sideration	<u>s</u>			
	Design Maturity	Х			Design co	mpleted										
			~	-5%/+10%	o											
	Design Complexity		X		Standardi	zed compo	onents									
Noto	: High/Medium/Low ur	cortainty accore	ont from Iol	h Managor, Lincor	tainty rang	la basad ai		commondo	d practico	19 D-07 ac	amondod f	or NCSY				
Note				b Manager. Oncer			ACLITE	Johnnende	u practice	1011-57 45	amenueu i					
	1 1 1		1	1		1	1			1	1			1	1	1
Resid	dual Impacts															
											Cost	mpact	Schedule	Impact		
				Likelihood of												
				Likelihood of												
Job	Risk	k Description		Occurring	м	itigation Pl	lan	Bas	is of estin	nate	Low	High	Low	High		
		k Description			м	itigation Pl	lan	Bas	is of estin	nate	Low	High	Low	High		
Job NON		k Description			M	itigation Pl	lan	Bas	is of estin	nate	Low	High	Low	High		
		k Description			M	itigation Pl	lan	Bas	is of estin	nate	Low	High	Low	High		
		k Description				itigation Pl	lan	Bas	is of estin	nate	Low	High	Low	High		
NON	E 			Occurring					is of estin		Low	High	Low	High		
NON	E S: Low cost and schedu	le impacts are cons		Occurring ninimum (0-perce	entile) impa	icts should	I the event	occur.	is of estin		Low	High	Low	High		
NON Note: [1]	E S: Low cost and schedu High cost and schedu	le impacts are consi	sidered the	Occurring ninimum (0-perce maximum (100-pe	entile) impa ercentile) ir	icts should	I the event	occur. ent occur	is of estin		Low	High	Low	High		
NON Note	E S: Low cost and schedu High cost and schedu Cost impacts should I	le impacts are cons le impacts are cons be entered as man-	sidered the hours (by de	Occurring ninimum (0-perce maximum (100-pe emographic) and	entile) impa ercentile) ir M&S direct	cts should npacts sho t cost unde	I the event build the eve er basis of	occur. ent occur estimate.			Low	High	Low	High		
NON Note: [1]	E s: Low cost and schedu High cost and schedu Cost impacts should I Cost impacts should I	le impacts are cons le impacts are cons be entered as man- NOT include stand	sidered the hours (by de ng army cos	Occurring ninimum (0-perce maximum (100-pe emographic) and sts which are sep	entile) impa ercentile) ir M&S direct arately calo	icts should npacts should t cost unde culated fro	I the event build the event er basis of m the sche	occur. ent occur estimate. dule impac	t		Low	High	Low	High		
NON Note [1]	E s: Low cost and schedu High cost and schedu Cost impacts should I Cost impacts should I Project control is repo	le impacts are consider in the impacts are considered as many be entered as many NOT include stand	sidered the hours (by do ng army cos ing the low	Occurring ninimum (0-perce maximum (100-per emographic) and sts which are sep and high cost imp	entile) impa ercentile) in M&S direct arately calo pacts base	icts should npacts sho t cost unde culated fro d on the la	I the event build the event er basis of m the sche	occur. ent occur estimate. dule impac	t		Low	High	Low	High		
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NON [1] [2]	E S: Low cost and schedu High cost and schedu Cost impacts should I Cost impacts should I Project control is repo The schedule impacts If there is no critical p Likelihood of occurre	le impacts are con ile impacts are con be entered as man NOT include stand onsible for quantify s should be entered ath impact then th nce should be enter	sidered the hours (by de ng army cos ring the low l as the min e schedule e red consiste	Occurring minimum (0-perce maximum (100-per emographic) and sts which are sep and high cost imp and max impacts entries should be ent with our risk c	entile) impa ercentile) ir M&S direci arately cald oacts base on the crit zero. classificatio	cts should npacts shou t cost unde culated fro d on the la ical path.	I the event bould the event or basis of m the sche bor hours a bor hours a bor hours a	occur. ent occur estimate. dule impac and M&S id	t entified		Low	High	Low	High		

WBS Number: 12 WBS Title: Vacuum Vessel Systems Job Number: 1204 Job Title: Vacuum Vessel System Procurements Job Manager: Larry Dudek

M&S Backup

Heater Tape

Brisk-leat,

onf	ide	ntial Quotatio	n Form		C III F	055 9/b/band Are slumbus, OH 43201 hisse: 800-846-7673 ac 814-294-2072 p://www.briddle.d.com/
Custon Addres	s:	Princeton Plasma Physics La Head, FOM Division PO Box 451	b D	uotation No.: ate: repared By:	581402 5/9/2007 Susan Bla	nik
		PO Box 451 Princeton, NJ 08543 PO Box 451	D	ayment Terms: elivery: uote Valid:	Terms Net See Below Sixty (60) [01000000
Contac Phone:	2 1	P.E. Lawrence E. Dudek 609-243-2185	E. Fi	0.8.: reight Charge	Columbus, Collect	Ohio
Fax: Email: Referen		609-243-3248 Idudek@ppl.gov		lease advise carr otal Pages	ier and acco 2	untnumber
Item	Qtv	Produc	t Description	1	Init Price	Net Price
1	200	Custom DH1 Style Heath Heavy Insulated Heating T To be constructed with all 22% Ni with a balance of (24* Leads Same End. Wit	ape, 520 Total Watts oy 180. This alloy co Cu and it is non-magn	k, nsists of	\$60.25	\$13,650.00
2	48	Custom BH Style Heatin Heavy Insulated Heating T To be constructed with all 22% Ni with a balance of i 24" Leads Same End, Wit	Tape, 310 Total Watts by 180. This alloy co Cu and it is non-magn	nsists of	\$44.25	\$2,124.00
				TAL:		\$15,774.00
pricé. Lead- The le lead-t confin	Price time s ead-tin ime is m lead	ided a 25% quantity discou quoted does not include sl ince the tape will be custon he begins upon receipt of c subject to change based o time when placing the ord the assigned quote number	hipping cost. n-made is 3 to 5 we omplete informatior n order volume and er.	eks at the most to resign and availability of c	t. manufactur	e. The
		ot hesitate to call with any	/			
Since	rely.					
Susa	n Bla		P			
	Heat®	presentative Products (BH Thermal) I-848-7673 ext 156	Assumed ~ NCSX estim		•	on current

Backup on Pourable Insulation

From: Geoffrey J. Gettelfinger Sent: Wednesday, May 09, 2007 4:56 PM To: Faul Goranon; Laurence E. Dudek; Wayne T. Reierzen; Ronald L. Strykowsky; Mike Cole; Eradley E. Nelson Cor Jerry D. Lewine; William V. Slavin Subject: MBS 12 - Inmulation

Fellows:

Allow me to share the origin of the cost estimate for Paul Goranson's aerogel vacuum vessel insulation.

A very rough volume calculation yielded a volume of about 2.5 $\rm m^{*+3}$ to fill the annulus between the vessel and the modular coils. I assumed that we abould order twice this volume as this is a custom product.

Recall that the stock aerogel from Cabot Corporation has a water dispersant coating that becomes mobile at vessel bake temperatures and was judged an MSM concern earlier in the design process.

Ms. Jodi Bates, a technical person with Cabot, SWAGed that the "calcining" (baking) of the 5 m**3 of aerogel would cost about \$801-\$901k. Allow me to re-emphasize the rough order of magnitude estimate basis.

When polled about whether NCSX should move ahead with this off-normal product request, the NCSX community felt the best logic was to hold off and to mee if this becomes a stock product instead of a "special".



Geoff

WBS Number: 12 WBS Title: Vacuum Vessel Systems Job Number: 1204 Job Title: Vacuum Vessel System Procurements Job Manager: Larry Dudek

Thermocouples

 From: Omega Engineering - SCHAALE <EASYLINK@N.VM>

 Date: January 12, 2007 4:01:58 PM EST

 To: Idudek@pppl.gov

 Subject: Sales order # 701979458 PPPL

 6092432080

 Idudek@pppl.gov

 Reply-To: INFO@OMEGA.COM

Hello Mr Dudek, Following is a copy of the quote we have been working on, Your Ref# NCSX-PRL-12-003-00. Please forward a copy of the tag format detail to me at your convenience. If you have any other questions please do not hesitate to call me. Best regards, Bob Schaale 800-359-1660 ex 7646 bschaale@omega.com 203-968-7364 fx

QUOTATION <<<<<<

___OMEGA ENGINEERING,

http://www.ome	(3)359-1660 FAX (203)359-7990 ega.com E-Mail: temp@omega.com O 9001 CERTIFIED (Stamford, CT USA)
PPPL	Date 01/12/07
ххх	Quote No. Q701979458 Your No. RDS01005
FAX To ARLE FAX No. (609)2	NE WHITE

Item Qty Part Number Price Discount Net Unit Total No. Description Est. Ship Date A.R.O. Price Amount

1) 105 El1106107/XCIB-E-4-2-3-SHX-M 69.25 69.25EA 7,271.25

XCIB T/C ASSY/UNGROUNDED 4 - 5 Wks

2) 105 EI1106107/XCIB-E-4-2-10-SHX-M 83.25 83.25EA 8,741.25 XCIB T/C ASSY/UNGROUNDED 4 - 5 Wks

3) 210 OSK/TAGGING PROC/ITEM#1 & 2 5.00 5.00EA 1,050.00 PROD ID/SEE CASE FOR FORMAT 4 - 5 Wks

4) 1 SET UP CHARGE 50.00 50.00EA 50.00 FOR MFG OF CUSTOM ITEM 4 - 5 Wks

THIS QUOTATION IS VALID FOR 30 DAYS TOTAL AMT 17,112.50

Please refer to the QUOTE# Q701979458 AWHITE@PPPL.GOV when placing this on order. FAX From CS#622408 TERMS & CONDITIONS Omega Engineering, Inc. (the Company) offers this quotation subject

Omega Engineering, Inc. (the Company) offers this quotation subject to its terms and conditions, as stated in the Company published Handbook and related literature. The Company does not agree to any additional or different terms imposed by individual customers, which are deemed to be material alterations, unless signed by the Company prior to shipment of this order. All quoted delivery dates are subject to product availability, for exact delivery dates, please consult our sales department at time of order.

Assumed ~\$80 unit rate based on the above x 337 (count off drawing) = \$26, 960

WBS Number: 12 WBS Title: Vacuum Vessel Systems Job Number: 1204 Job Title: Vacuum Vessel System Procurements Job Manager: Larry Dudek

Boots - Requistition 405021

	001						9450 1*** 1204 9450 1*** 1204	2007 - \$1800.00 2007 - \$1800.00	2008 - \$0.00 2008 - \$0.00	R. Strykowsky R. Strykowsky	
PRINC	D D L			d on 03-12-2007 for		Line item 7: Material: NOM	Assembly Dwg. No. se1 MEX	22-368-r0.pdf, Detail	Dwg. No. se122-371	-r0.pdf Port 11 Winding Form Boot Assy	
PHYSI	IS LABORATORY	NCSX Winding	g Form Boot	Assembly		0	2ty: 6 ea @ \$300.00		Total Price: \$1800	0.00 (Pct tolerance 10%)	
							9450 1*** 1204	2007 - \$1800.00	2008 - \$0.00	R. Strykowsky	
Requisitio	ner: Thomas Meighan	Buyer	Assigned	Suggested Sources			9450 1*** 1204	2007 - \$1800.00	2008 - \$0.00	R. Strykowsky	
Deliver to:				Temp Shield Laura Sweeny, Bar Harbor(9696	967-	Line item 8: Material: NOI		22-372-r0.pdf, Detail	dwg. No. se122-375	r0.pdf Port 15 Winding Form Boot Assy.	
	MS41 C-Site B313			Others		0	2ty: 6 ea @ \$300.00		Total Price: \$1800	0.00 (Pct tolerance 10%)	
							9450 1*** 1204	2007 - \$1800.00	2008 - \$0.00	R. Strykowsky	
Phone:	(609) 243-3053						9450 1*** 1204	2007 - \$1800.00	2008 - \$0.00	R. Strykowsky	
	CC/WPkgJOB/Exp Cis	FY1 - Amount	FY2 - Amount	Signature Authority	1	Line item 9: Material: NON		22-376-r0.pdf, Detail	Dwg No. se122-379	-r0.pdf Port 17 Winding Form Boot Assy.	
Line item 1	I: Assembly Dwg. No. s	e122-340-r0.pdf Detail 0	Wg No. se122-343-	-r0.pdf Port 2 Winding Form Boot Assy N	al:	c	2ty: 6 ea @ \$300.00		Total Price: \$1800	0.00 (Pct tolerance 10%)	
NOMEX							9450 1*** 1204	2007 - \$1800.00	2008 - \$0.00	R. Strykowsky	
	Oty: 6 ea@ \$300.00			0.00 (Pct tolerance 10%)			9450 1*** 1204	2007 - \$1800.00	2008 - \$0.00	R. Strykowsky	
	9450 1*** 1204 9450 1*** 1204	2007 - \$1800.00 2007 - \$1800.00	2008 - \$0.00 2008 - \$0.00	R. Strykowsky R. Strykowsky		Line item 10: Material: NOI		122-380-r0.pdf, Detai	Dwg. No. se122-38	3-r0.pdf Port 18 Winding Form Boot Assy	r.
				7-r0.pdf Port 5 Winding Form Boot Assy			2ty: 6 ea @ \$300.00		Total Price \$180	0.00 (Pct tolerance 10%)	
NOMEX	: Assembly Dwg. No. s	e122-344-ru pdr, Detail	Dwg. No. se122-34	7-ru pat Port 5 Winding Form Boot Assy	nat		9450 1*** 1204	2007 - \$1800.00	2008 - \$0.00	R. Strykowsky	
	Qty: 6 ea @ \$300.00		Total Price: \$180	0.00 (Pct tolerance 10%)			9450 1*** 1204	2007 - \$1800.00	2008 - \$0.00	R. Strykowsky	
	9450 1*** 1204	2007 - \$1800.00	2008 - \$0.00	R. Strykowsky							
	9450 1*** 1204	2007 - \$1800.00	2008 - \$0.00	R. Strykowsky		Line item 11: Material: NOI		122-384-r0.pdf, Detai	I dwg. No. se122-38	7-r0.pdf Port 8 Winding Form Boot Assy.	
Line item 3	: Assembly Dwg. No. s	e122-348-r0.pdf. Detail	Dwg. No. se122-35	1-r0.pdf Port 6 Winding Form Boot Assy	rial	c	2ty: 6 ea @ \$300.00		Total Price: \$1800	0.00 (Pct tolerance 10%)	
NOMEX							9450 1*** 1204	2007 - \$1800.00	2008 - \$0.00	R. Strykowsky	
	Oty: 6 ea @ \$300.00		Total Price: \$180	0.00 (Pct tolerance 10%)			9450 1*** 1204	2007 - \$1800.00	2008 - \$0.00	R. Strykowsky	
	9450 1*** 1204 9450 1*** 1204	2007 - \$1800.00 2007 - \$1800.00	2008 - \$0.00 2008 - \$0.00	R. Strykowsky R. Strykowsky		Line item 12: Material: NOM	: Assembly Dwg. No se MEX	122-388-r0.pdf, Detail	dwg. no. se122-391	-r0.pdf Spacer Port Winding Form Boot A	lssy
I free brown i	A description of the second			-r0.pdf Port 7 Winding Form Boot Assy f	(a)	0	2ty: 3 ea @ \$200.00		Total Price: \$600.	00 (Pct tolerance 10%)	
NOMEX	C Assembly owg. No. 5	122-352-10.pdf, Detail 1	owg. No. 98122-300	-tu pai Port 7 winding Parmiboot Pesy r	tat.		9450 1*** 1204	2007 - \$600.00	2008 - \$0.00	R. Strykowsky	
	Oty: 6 ea @ \$300.00		Total Price: \$190	0.00 (Pct tolerance 10%)			9450 1*** 1204	2007 - \$600.00	2008 - \$0.00	R. Strykowsky	
	9450 1*** 1204 9450 1*** 1204	2007 - \$1800.00 2007 - \$1800.00	2008 - \$0.00 2008 - \$0.00	R. Strykowsky R. Strykowsky		Line item 13: NOMEX	: Assembly Dwg. No.se	122-392-r0.pdf, Detail	dwg. No. se122-39	3-r0.pdf Neutral Beam Port Seal Boot 3 M	laterial:
							2ty: 1 ea @ \$300.00		Total Price: \$300	00 (Pct tolerance 10%)	
Line item : Material N		e122-360-r0.pdf, Detail	Dwg. No. se122-36	3-r0.pdf Port 9 Winding Form Boot Assy			9450 1*** 1204	2007 - \$300.00	2008 - \$0.00	R. Strykowsky	
internet. Pe	Oty 6 ea @ \$300.00		Total Price: \$180	0.00 (Pct tolerance 10%)			9450 1*** 1204	2007 - \$300.00	2008 - \$0.00	R. Strykowsky	
	9450 1*** 1204	2007 - \$1800.00	2008 - \$0.00	R. Strykowsky		-		2002.0000112.0002			
	9450 1*** 1204	2007 - \$1800.00	2008 - \$0.00	R. Strykowsky		Line item 14: NOMEX	: Assembly Dwg. No. se	122-401-r0.pdf, Detai	Dwg. No. se122-40	5-r0 pdf Port 12 Seal Boot Assy Material	
I have been a	Assembly Dava Marco	100.004 (0 - # (0 - + -)	Due No. until Co	7-r0.pdf Port 10 Winding Form Boot Ass		c	Dty: 6 ea @ \$300.00		Total Price: \$1800	0.00 (Pct tolerance 10%)	
Material: N	OMEC No. 5	e 122-304-ru.pdr, Detail	uwrg, 140, se122-36	r no.por Fort 10 winding Form Boot Ass			9450 1*** 1204	2007 - \$1800.00	2008 - \$0.00	R. Strykowsky	
	Qty: 6 ea @ \$300.00		Total Price: \$180	0.00 (Pct tolerance 10%)			9450 1*** 1204	2007 - \$1800.00	2008 - \$0.00	R. Strykowsky	

WBS Number: 12 WBS Title: Vacuum Vessel Systems Job Number: 1204 Job Title: Vacuum Vessel System Procurements Job Manager: Larry Dudek

ion Print Format					05/10/2007 09:07 AM	Regulation Print Format	05/10/2007 09:07 AM
Line item 1	5: Assembly Dwa No. SE	122-004. Detail dwn	no. se122-409-r0.pdf Port 4	Winding Form Boot Assy	Vaterial:	se122-409-r0.pdf (Line item 15)	
NOMEX	City: 6 ea @ \$300.00		Total Price: \$1800.00 (Pct				
	9450 1*** 1204	2007 - \$1800.00		Strykowsky			
	9450 1*** 1204			Strykowsky			
			Requisition Total: \$24,3	300.00			
Excess Inve	entory: Not Listed	Reviews:	Chemical - No	Safety - No			
Stockroom	Inventory: Not Stocked		Desktop IT - No	Non-Desktop IT - No			
Receipt Ins	pection Required: Yes		AC Power - No	Labor Resources - No			
Sole Source	e: No		Telecomm - No	Radiological - No			
BOA: Not A	pplicable		PAAA - No	Printing - No			
Attachment	ts:		Quality Assurance - Yes	Lift Manager - No			
NCSX-P	RL-12-001-00-Signed.pdf		Machining Resource - No				
se122-34	40-r0.pdf (Line item 1)						
se122-34	43-r0.pdf (Line item 1)						
se122-34	44-r0.pdf (Line item 2)						
se122-34	47-r0.pdf (Line item 2)						
se122-34	48-r0.pdf (Line item 3)						
se122-38	51-r0.pdf (Line item 3)						
se122-3	52-r0.pdf (Line item 4)						
se122-35	55-r0.pdf (Line item 4)						
se122-36	80-r0.pdf (Line item 5)						
se122-36	63-r0.pdf (Line item 5)						
se122-36	84-r0.pdf (Line item 6)						
se122-36	87-r0.pdf (Line item 6)						
se122-36	68-r0.pdf (Line item 7)						
se122-37	71-r0.pdf (Line item 7)						
se122-37	72-r0.pdf (Line item 8)						
se122-37	75-r0.pdf (Line item 8)						
se122-37	76-r0.pdf (Line item 9)						
se122-37	79-r0.pdf (Line item 9)						
se122-38	30-r0.pdf (Line item 10)						
se122-38	83-r0.pdf (Line item 10)						
se122-3	84-r0.pdf (Line item 11)						
se122-38	87-r0.pdf (Line item 11)						
se122-38	38-r0.pdf (Line item 12)						
se122-36	91-r0.pdf (Line item 12)						
se122-36	92-r0.pdf (Line item 13)						
se122-3	96-r0.pdf (Line item 13)						
se122-40	01-r0.pdf (Line item 14)						
se122-40	05-r0.pdf (Line item 14)						
se122-00	04-r0.pdf (Line item 15)					https://bones.pppl.gov/printreq/7req=405021	Page 4 of 4

WBS Number: 12 WBS Title: Vacuum Vessel Systems Job Number: 1204 Job Title: Vacuum Vessel System Procurements Job Manager: Larry Dudek

Boots - Requistition 405024

						0	9450 1*** 1204	2007 - \$0.00	2008 - \$0.00	R. Strykowsky	
≥ P	PPL	Demulation 4		d on 03-12-2007 fo	-		eitem 8: Assembly Dwg. No. se terial: G-11CR	122-352-r0.pdf, Deta	il Dwg. No. se122-354	I-r0.pdf Port 7 Winding For	n Seal Inner Pla
PRINCE	ron PLASMA				r		City: 6 ea @ \$0.00		Total Price: \$0.00	(Pct tolerance 10%)	
PHYSICS	LABORATORY	NCSX Windin	g Form Seal	Plates			9450 1*** 1204	2007 - \$0.00	2008 - \$0.00	R. Strykowsky	
	er: Thomas Meighan	Buyer	Assigned	Suggested Sources		Lin	eitem 9: Assembly Dwg. No. SE terial: G-11CR	122-004, Detail Dwg	. No. se122-358-r0 pc	ff Neutral Beam Port Seal F	ill Plate Assy.
Deliver to:	Thomas Meighan						Qty: 6 ea @ \$0.00		Total Price: \$0.00	(Pct tolerance 10%)	
	MS41 C-Site B313						9450 1*** 1204	2007 - \$0.00	2008 - \$0.00	R. Strykowsky	
Phone:	(609) 243-3053						e item 10: Assembly Dwg. No. s terial: G-11CR	e122-360-r0 pdf, Def	ail Dwg. No. se122-36	31-r0.pdf Port 9 Winding Fo	rm Seal Outer P
							Qty: 6 ea @ \$0.00		Total Price: \$0.00	(Pct tolerance 10%)	
c	CANPEGUOB/Exp Cls	FY1 - Amount	FY2 - Amount	Signature Authority	1		9450 1*** 1204	2007 - \$0.00	2008 - \$0.00	R. Strykowsky	
Line item 1: Material: G-1	Assembly Dwg. No. se 1CR	122-340-r0.pdf, Detai	Dwg. No. se122-34	1-r0.pdf Port 2 Winding Form 5	Seal Outer Plate		e item 11: Assembly Dwg. No. s terial: G-11CR	e122-360-r0.pdf, Def	ail Dwg. No. se122-36	2-r0.pdf Port 9 Winding Fo	rm Seal Inner Pi
	Oty: 5 ea @ \$0.00		Total Price: \$0.0	0 (Pct tolerance 10%)			City: 6 ea @ \$0.00		Total Price: \$0.00	(Pct tolerance 10%)	
	9450 1-1204	2007 - \$0.00	2008 - \$0.00	R. Strykowsky			9450 1*** 1204	2007 - \$0.00	2008 - \$0.00	R. Strykowsky	
Line item 2: Material: G-1	Assembly Drwg: No. s 1CR	e122-340-r0.pdf Detai	Dwg. No. se122-34	2-r0.pdf Port 2 Winding Form 5	Seal Inner Plate		eitem 12: Assembly Dwg. No. s te. Material: G-11CR	e122-364-r0.pdf, Def	ail Dwg. No. se122-36	5-r0.pdf Port 10 Winding F	orm Seal Outer
	Oty 5 es @ \$0.00		Total Price: \$0.0	3 (Pct tolerance 10%)			Cty: 6 ea @ \$0.00		Total Price: \$0.00	(Pct tolerance 10%)	
	9450 1*** 1204	2007 - \$0.00	2008 - \$0.00	R. Strykowsky			9450 1*** 1204	2007 - \$0.00	2008 - \$0.00	R. Strykowsky	
Line item 3: Material: G-1	Assembly Dwg. No. se 1CR	122-344-r0.pdf, Detai	I Dwg. No. se122-34	5-r0.pdf Port 5 Winding Form 5	Seal Outer Plate		eitem 13: Assembly Dwg. se12: terial: G-11CR	2-364-r0.pdf, Detail E	Wg. No. se122-366-rd	pdf Port 10 Winding Form	Seal Inner Plate
	City: 6 ea @ \$0.00		Total Price: \$3.0	3 (Pct tolerance 10%)			Cty: 6 ea @ \$0.00		Total Price: \$0.00	(Pct tolerance 10%)	
	9450 1*** 1204	2007 - \$0.00	2008 - \$0.00	R. Strykowsky			9450 1*** 1204	2007 - \$0.00	2008 - \$0.00	R. Strykowsky	
Line item 4: Material: G-1		122-344-r0.pdf, Detai	Dwg. No. se122-34	6-r0.pdf Port 5 Winding Form S	Seal Inner Plate.		eitem 14: Assembly Dwg. No. s te. Material: G-11CR	e122-368-r0 pdf, Def	ail Dwg. No. se122-36	9-r0 pdf Port 11 Winding F	orm Seal Outer
	Oty 5 ea @ \$0.00		Total Price: \$0.0	0 (Pct tolerance 10%)			Qty: 6 ea @ \$0.00		Total Price: \$0.00	(Pct tolerance 10%)	
	9450 1*** 1204	2007 - \$0.00	2008 - \$0.00	R. Strykowsky			9450 1*** 1204	2007 - \$0.00	2008 - \$0.00	R. Strykowsky	
Line item 5: Material: G-1		122-348-r0.pdf Detail	Dwg. No. se122-349	-10.pdf Port 6 Winding Form S	eal Outer Plate	Lin Ma	eitem 15: Assembly Dwg. No. s terial: G-11CR	e122-368-r0.pdf, Def			orm Seal Inner F
	Cty: 6 ea @ \$0.00		Total Price: \$0.0	0 (Pct tolerance 10%)			Qty: 6 ea @ \$0.00		Total Price: \$0.00	(Pct tolerance 10%)	
	9450 1*** 1204	2007 - \$0.00	2008 - \$0.00	R. Strykowsky			9450 1*** 1204	2007 - \$0.00	2008 - \$0.00	R. Strykowsky	
Line item 6: Material: G-1	Assembly Dwg. No. si 1CR	122-348-r0.pdf, Detai	Dwg. No. se122-35	0-r0.pdf. Port 6 Winding Form	Seal Inner Plate		e item 16: Assembly Dwg. No. s te. Material: G-11CR	e122-372-r0 pdf, Def			orm Seal Outer
	Oty: 6 ea @ \$0.00		Total Price: \$0.0	0 (Pct tolerance 10%)			Qty: 6 ea @ \$0.00			(Pct tolerance 10%)	
	9450 1*** 1204	2007 - \$0.00	2008 - \$0.00	R. Strykowsky			9450 1*** 1204	2007 - \$0.00	2008 - \$0.00	R. Strykowsky	
Line item 7: Material: G-1		122-352-r0.pdf, Detai	Dwg. No. se122-35	3-r0.pdf. Port 7 Winding Form	Seal Outer Plate.	Lin Ma	eitem 17: Assembly Dwg. No. s terial: G-11CR	e122-372-r0.pdf, Del			orm Seal Inner P
	Cty: 6 ea @ \$0.00		Total Price: \$0.0	0 (Pct tolerance 10%)			Qty: 6 ea @ \$0.00		Total Price: \$0.00	(Pct tolerance 10%)	

WBS Number: 12 WBS Title: Vacuum Vessel Systems Job Number: 1204 Job Title: Vacuum Vessel System Procurements Job Manager: Larry Dudek

n Print Format				05/10/2007 09:08 AM	Excess Inventory: Not Listed	Baudanum	Chemical - No	Safety - No	
9450 1*** 120	2007 - \$0.00	2008 - \$0.00	R. Strykowsky		Stockroom Inventory: Not Stocked	Reviews.	Desktop IT - No	Non-Desktop IT - No	
					Receipt Inspection Required: Yes		AC Power - No	Labor Resources - No	
Line item 18: Assembly Dwg. N Plate Material: G-11CR	o. se122-376-r0.pdf, De	tail Dwg. No. se122-3	77-r0.pdf, Port 17 Winding	Form Seal Outer	Sole Source: No		Telecomm - No	Radiological - No	
Qty: 6 ea @ \$0.0	5	Total Price: \$0.00	0 (Pct tolerance 10%)		BOA:		PAAA - No	Printing - No	
9450 1*** 120	2007 - \$0.00	2008 - \$0.00	R. Strykowsky		Attachments:		Quality Assurance - Yes	Lift Manager - No	
Line item 19: Assembly Dwg. N Material: G-11CR	o. se122-376-r0.pdf Det	tail Dwg. No. se122-37	8-r0.pdf Port 17 Winding F	form Seal Inner Plate	None		Machining Resource - No		
Qty: 6 ea @ \$0.00	0	Total Price: \$0.00	0 (Pct tolerance 10%)						
9450 1*** 120	2007 - \$0.00	2008 - \$0.00	R. Strykowsky						
Line item 20: Assembly Dwg. N Plate Material: G-11CR	o. se122-380-r0.pdf Ass	sembly Dwg. No. se12	2-381-r0.pdf Port 18 Windir	ng Form Seal Outer					
City: 6 ea @ \$0.00)	Total Price: \$0.00	0 (Pct tolerance 10%)						
9450 1*** 120	2007 - \$0,00	2008 - \$0.00	R. Strykowsky						
Line item 21: Assembly Dwg. N Material: G-11CR	o. se122-380-r0.pdf Det	tail Dwg. No. se122-38	32-r0.pdf Port 18 Winding F	orm Seal Inner Plate					
Qty: 6 ea @ \$0.00)	Total Price: \$0.00	0 (Pct tolerance 10%)						
9450 1*** 120	2007 - \$0.00	2008 - \$0.00	R. Strykowsky						
Line item 22: Assembly Dwg. N Material: G-11CR City: 6 ea @ \$0.00		0.50	85-r0.pdf Port 8 Winding Fo	rm Seal Outer Plate					
9450 1*** 120-		2008 - \$0.00	R. Strykowsky						
8450 1 120	2007-30.00	2000 - 30.00	к. заукомъку						
Line item 23: Assembly Dwg. N Material: G-11CR		0,000. 7 76.00,000.000		rm Seal Inner Plate					
Qty: 6 ea @ \$0.00			0 (Pct tolerance 10%)						
9450 1*** 120	2007 - \$0.00	2008 - \$0.00	R. Strykowsky						
Line item 24: Assembly Dwg. s 3 Material: G-11CR		0276/2010.2010.254522		Form Seal Outer Plate					
Qty: 3 ea @ \$0.00			0 (Pct tolerance 10%)						
9450 1*** 120	2007 - \$0.00	2008 - \$0.00	R. Strykowsky						
Line item 25: Assembly Dwg. N Plate Material: G-11CR		000007000000000000000000000000000000000		ing Form Seal Inner					
City: 3 ea @ \$0.00			0 (Pct tolerance 10%)						
9450 1*** 120	2007 - \$0.00	2008 - \$0.00	R. Strykowsky						
Line item 26: Assembly Dwg. N Fill Plate Material: G-11CR				t Winding Form Seal					
Qty: 6 ea @ \$0.00			0 (Pct tolerance 10%)						
9450 1*** 120	2007 - \$0.00	2008 - \$0.00	R. Strykowsky						
		Requisition Tota	al: \$0.00						

WBS Number: 12 WBS Title: Vacuum Vessel Systems Job Number: 1204 Job Title: Vacuum Vessel System Procurements Job Manager: Larry Dudek

3475 Symmes Road Hamilton, OH 45015	Ferguson Metals		
Phone: 1-800-347-2376	Perguson Metals		
Fax: 513-874-6857	anterSpecialist in Speciality Distalisment		
FACSIMI	LE		
10:	FROM:	12	
Fred	Frank Mefford fmefford@fergusonmetals.com	Sur	charge
COMPANY: Princeton University	4/20/2007	Grades	Feb
FAX NUMBER: 609-243-3030	TOTAL NO. OF PAGES INCLUDING COVER: 1		2/2
RE:	QUOTE VALID FOR:	15-5	0.6
RFQ	15 Days	15-7	1.6
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Description A		185R	0.1
625 .500 36x120 55 625 .750 36x120 55	18.00VSur	201	0.8
625 .750 36x120 55	99 36 120 6 6,090# 16.00+sur	301 7.0%	1.2
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Quoted + su	rcharge at the time of shipment 16.6	304-8.5%	1.4
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** Subject to prior sale.		317L 321	2.0
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Thanks for the opportunity.		409/409 Mod	0.0
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Frank Mefford		440A	0.0
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	ainless Steels & Alloys		



3475 Symmes Road Hamilton, OH 45015

Surcharge Totals for February 2007 – June 2007

February	March	April	May	June
2/1/07 - 2/28/07	3/1/07 - 3/31/07	4/1/07 - 4/30/07	5/1/07 - 5/31/07	6/1/07 - 6/30/07
0.6606	0.7188	0.8284	0.9719	1.0645
1.6736	1.7734	1.9641	2.2500	2.4095
0.5820	0.6346	0.7327	0.8630	0.9468
1.2753	1.3793	1.5773	1.8250	2.0024
0.1254	0.1318	0.1555	0.2028	0.2246
0.8050	0.8784	1.0079	1.1733	1.2887
1.2545	1.3462	1.5370	1.7785	1.9520
1.4215	1.5257	1.7421	2.0128	2.2098
1.4924	1.6127	1.8419	2.1263	2.3341
2.0182	2.1772	2.4821	2.8553	3.1332
2.0786	2.2427	2.5561	2.9401	3.2309
3.2314	3.4810	3.9604	4.5393	4.9847
2.2533	2.3962	2.6703	3.0543	3.2930
2.6845	2.8430	3.1467	3.5894	3.8544
1.5916	1.7166	1.9552	2.2522	2.4679
1.5710	1.6970	1.9374	2.2351	2.4519
0.0940	0.1079	0.1319	0.1758	0.1861
0.0793	0.0942	0.1201	0.1651	0.1777
0.0941	0.1105	0.1382	0.1865	0.2074
0.2898	0.3082	0.3398	0.4103	0.4320
0.1248	0.1404	0.1660	0.2140	0.2353
0.0941	0.1105	0.1382	0.1865	0.2074
4.1030	4.0020	4.0740	4.5000	5 2099
10.9488	10.7978	11.5031	12.1638	13.6292
0.4400	0.3170	0.3000	9.5060	10.7534
9.2413	9.1268	9.7192	10.2307	11.4262
	22307 0.6606 1.6736 0.5620 1.2753 0.1254 0.8050 1.2545 1.4215 1.4224 2.0182 2.0786 3.2314 2.2533 2.2745 3.2314 2.26845 1.5710 0.0940 0.0793 0.0941 0.2899 0.0241 1.2648	222807 33107 0.6606 0.7188 1.6736 1.7734 0.5820 0.6346 1.2753 1.3793 0.1254 0.1318 0.8050 0.8764 1.2545 1.3452 1.4215 1.5257 1.4924 1.6127 2.0182 2.1772 2.0786 2.2427 3.2314 3.4810 2.2533 2.3952 2.6845 2.8430 1.5916 1.7166 1.5710 1.6970 0.0940 0.1079 0.0793 0.0942 0.0941 0.1105 0.2899 0.3082 0.1248 0.1404 0.0941 0.1105 1.6203 1.6203 1.63488 10.7978	22807 33107 46007 0.6606 0.7188 0.8284 1.6736 1.7734 1.9641 0.5820 0.6346 0.7327 1.2753 1.3733 1.5773 0.1254 0.1318 0.1555 0.8060 0.8764 1.0079 1.2545 1.3462 1.5370 1.4524 1.5171 1.44215 1.5257 1.7421 1.4215 1.4924 1.6127 1.8419 2.0162 2.1772 2.4621 2.0766 2.2427 2.5561 3.2314 3.4810 3.9604 2.6452 2.6703 2.8645 2.6452 2.833 2.3962 1.5710 1.6970 1.9374 0.0941 0.1105 0.1382 0.2898 0.3082 0.3326 0.2894 0.3082 0.3382 0.9441 0.1105 0.1382 0.9440 0.16860 0.3942 0.9441 <td< td=""><td>22807 33107 46007 58107 0.6606 0.7188 0.8284 0.9719 1.6736 1.7734 1.9641 2.2500 0.5820 0.6346 0.7327 0.8630 1.2753 1.3733 1.5773 1.8250 0.1254 0.1318 0.1555 0.2028 0.8050 0.8784 1.0079 1.1733 1.2543 1.3462 1.5370 1.7765 1.4215 1.5257 1.7421 2.0128 1.4924 1.6127 1.8419 2.1263 2.0162 2.1772 2.4821 2.8553 2.0766 2.2427 2.5561 2.9401 3.2314 3.4810 3.9604 4.5333 2.6452 2.6433 3.1467 3.5834 1.5916 1.7166 1.9552 2.2522 1.5710 1.6970 1.9374 2.2351 0.0940 0.1079 0.31380 0.1865 0.2898 0.3082 0.3386 <td< td=""></td<></td></td<>	22807 33107 46007 58107 0.6606 0.7188 0.8284 0.9719 1.6736 1.7734 1.9641 2.2500 0.5820 0.6346 0.7327 0.8630 1.2753 1.3733 1.5773 1.8250 0.1254 0.1318 0.1555 0.2028 0.8050 0.8784 1.0079 1.1733 1.2543 1.3462 1.5370 1.7765 1.4215 1.5257 1.7421 2.0128 1.4924 1.6127 1.8419 2.1263 2.0162 2.1772 2.4821 2.8553 2.0766 2.2427 2.5561 2.9401 3.2314 3.4810 3.9604 4.5333 2.6452 2.6433 3.1467 3.5834 1.5916 1.7166 1.9552 2.2522 1.5710 1.6970 1.9374 2.2351 0.0940 0.1079 0.31380 0.1865 0.2898 0.3082 0.3386 <td< td=""></td<>

5/7/2007 1:08:00 PM

Activity ID	MILE- Activity stones Description	Duration (work	Baseline Start	Baseline Finish	Shifts	Total Float	% cmplt	Proposed Budgeted	FY07 FY08 FY09 FY10 FY11 FY12								
	(level 2 & 3)	days						-	ΠĪ	Ш						ΤΠΠ	TITI
c 9450	- NCSX Fabrication (MIE)																
	um Vessel Systems																
	VV Sys Procurements (nonVVSA)-DUDEK																
V Vertical Su	· · · · · · · · · · · · · · · · · · ·																
124-037	PPPL Fab VV Vert. Sprts (log # M1091) (complet	197	01MAY07A	01MAY07A				0.00									
	I Access Port & Lateral sprts																
124-110		25	01OCT09*	04NOV09	1	04		0.00									
	Issue req,Bid & Award VV NB port cover	25	0100109	04NOV09*		81							-	7			
124-120	Award VV NB port cover		05NOV09	13JAN10		81 81		0.00						/ 1991 a.a. e.a			
124-130	VV NB port cover Fabrication	40	0510009	IJJANIU		01		83,786.32						41=58	3.51\$K ;		
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1204-101	Drawings Signed -Local I&C	0		01MAY07*		360		0.00									
1204-105	Issue req,Bid & Award -Local I&C	25	02MAY07	06JUN07		360		0.00	1								
1204-109	Award -Local I&C	0		06JUN07		360		0.00									
1204-113	Deliver -Local I&C	40	07JUN07	02AUG07		360		34,400.96	1 41	=27\$k	;						
Thermal Insul	lation																
123-040	Issue reg,Bid & Award insul boots	25	26FEB08	31MAR08		76		0.00			1						
123-045	Award Insulation Boots	0		31MAR08*		76		0.00			7						
123-050	Fabricate& Deliver Insul Boots	130	01APR08	02OCT08		76		72,997.33			Ť 👘	41=56\$k	:;				
122-035	Issue req,Bid & Award Port Thermal Insulation	25	27FEB08	01APR08		115		0.00]		Ĩ.				
122-041	Award Port Thermal Insulation	0		01APR08*		115		0.00			7						
122-051	Deliver Port Thermal Insulation	40	02APR08	28MAY08		115		32,700.00			v 1 41=	25\$k ;					
122-030	Issue req,Bid & Award Pourable Insulation	25	27AUG09	01OCT09		176		0.00					a				
122-036.9	Award Pourable Insulation	0		01OCT09*		176		0.00						7			
122-037	Deliver Pourable Insulation	40	02OCT09	30NOV09		176		114,560.00						41=80\$	ik;		
Heater Tape f	or Port Stub																
1204-121	Drawings Signed Heater Tape for port stubs	0		04SEP07*		140		0.00		7							
1204-121	Issue req,Bid & Award -Heater Tape for port stubs	25	05SEP07	090CT07		140		0.00									
1204-129	Award Heater Tape for port stubs	0		09OCT07		140		0.00		7							
1204-130	Deliver Heater Tape for port stubs	40	10OCT07	06DEC07		140		20,143.20		/ 241=	15\$k ·						
	er Tape Leads										τοφις ,						
			1		1												
1204-145	Issue req,Bid & Award-T/C and Heater Tape Leads	25	29AUG07	03OCT07		136		0.00									
1204-149	Award T/C and Heater Tape Leads	0		03OCT07		136		0.00									
1204-153	Deliver T/C and Heater Tape Leads	40	04OCT07	28NOV07		136		36,951.00		41=	28.25\$	<;					
In Date	18JUL07 07:31	ETCZ		CSX Project		Sheet ?	1 of 99										
	vera Systems, Inc.		Resourc	e Loaded Sche EAC	edule												

	MILE- stones (level 2 & 3) ion boxes and spacer t	Activity Description emplates	Duration (work days	Baseline Start	Baseline Finish	Shifts	Total Float	% cmplt	Proposed Budgeted	FY07 FY08 FY09 FY10 FY11 FY12
1204-173M	Material Delivery	(desifn/fab in job 3101)	35	20JUN07	08AUG07		187		12 275 12	41=9.62
Subtotal	Material Delivery		0	20301407	13JAN10		152		407,813.93	
			ETCZ		CEV Drainat		Shoot	2 of 99		
Run Date © Primave	18JUL07 07:31 ra Systems, Inc.			Resourc	CSX Project e Loaded Sche EAC	dule	Sheet	2 01 33		