



Muon Campus AIP
Change Request Form

CR#: Cryo024

1) DATE: 9/28/17	2) WBS: Cryo1.10	3) Originator: Ken Domann <i>KWR</i>
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4) WBS Description of Primary Affected Tasks: Cryo Distribution Box (CDB)

5) Technical Description & Primary Motivation for Change: In consultation with the CDB vendor, it was determined that several features need to be added to the CDB in order for it to perform properly. The changes were related to the need for hose liners for certain braided flexible hoses; additional thermal straps to isolate cooldown piping from steady state piping; additional VCR fittings needed for CERNOX wires. All of these items are new scope that are needed for the efficient operation of the CDB. The total value for this change is \$46,803 with a corresponding reduction in contingency.

6) Assessment of Cost Impact (Use attachments if needed): See attached.

7) Assessment of Schedule Impact (Use attachments if needed): N/A

8) Secondary Impact & Other Comments: N/A

9) Approvals:		
AIP Project Manager:	<i>Michael / Lam</i>	Date: <u>September 28, 2017</u>
AIP Project Coordinator:	<i>May E</i>	Date: <u>10/2/17</u>
AD Div Director:	_____	Date: _____
Directorate:	_____	Date: _____

Cryo CR024 Material Delta

UID	WBS	Name	New M&S	Old M&S	Delta	Comment
1	Cryo1	Muon Campus Cryogenics - AIP	\$3,637,261	\$3,602,476	\$34,785	
2937	Cryo1.10	Cryo Distribution Box (CDB)	\$1,210,238	\$1,175,453	\$34,785	
2970	Cryo1.10.03	Procurement and Fabrication of CDB	\$915,196	\$880,411	\$34,785	
3021	Cryo1.10.03.12	New thermal intercepts, thermal hose liners and additional VCR fittings	\$34,785	\$0	\$34,785	New task

Cryo CR024 Pre CR CAP

Control Account/WBS (4)	Resource.Type	Results	FY13	FY14	FY15	FY16	FY17	FY18	Cumulative
Cryo1.02.01.01 Cryo AIP General Project Oversight - FY13			Scheduled	51,346.42	0.00	0.00	0.00	0.00	51,346.42
Cryo1.02.01.02 Cryo AIP General Project Oversight - FY14			Scheduled	3,594.06	129,557.05	0.00	0.00	0.00	133,151.10
Cryo1.02.01.03 Cryo AIP General Project Oversight - FY15			Scheduled	0.00	2,134.07	30,214.73	0.00	0.00	32,348.80
Cryo1.02.01.04 Cryo AIP General Project Oversight - FY16			Scheduled	0.00	0.00	3,820.92	170,506.37	0.00	174,327.29
Cryo1.02.01.05 Cryo AIP General Project Oversight - FY17			Scheduled	0.00	0.00	0.00	5,329.44	164,828.19	170,157.64
Cryo1.02.01.07 Cryo AIP Gen Proj OS - FY15 Supp			Scheduled	0.00	0.00	74,049.03	0.00	0.00	74,049.03
Cryo1.02.01.09 Cryo AIP General Project OS - FY18			Scheduled	0.00	0.00	0.00	0.00	0.00	26,722.06
Cryo1.02.01.10 Cryo Final Safety Documents			Scheduled	0.00	0.00	0.00	0.00	44,593.61	45,861.87
Cryo1.03 Cryo Basic Engineering			Scheduled	33,093.96	236,082.70	0.00	0.00	0.00	269,176.66
Cryo1.04.01 LN2 system			Scheduled	4,514.95	409,013.92	0.00	0.00	0.00	413,528.87
Cryo1.04.02 Gas management system			Scheduled	57,841.53	178,224.26	0.00	0.00	0.00	236,065.78
Cryo1.04.03 ODH system			Scheduled	0.00	49,757.63	0.00	0.00	0.00	49,757.63
Cryo1.04.04 Cryo Refrigerator system			Scheduled	149,077.19	1,134,055.74	152,524.20	0.00	0.00	1,435,657.13
Cryo1.04.05 Cryo Compressor System			Scheduled	59,453.27	367,138.94	0.00	0.00	0.00	426,592.21
Cryo1.04.06 Cryo Interconnect Piping			Scheduled	225,594.62	512,339.28	0.00	0.00	0.00	737,933.91
Cryo1.04.07 Cryo Interconnect Electrical & Controls			Scheduled	46,627.36	119,526.30	0.00	0.00	0.00	166,153.66
Cryo1.04.08 Cryogenic Fluids			Scheduled	0.00	0.00	261,857.93	0.00	0.00	261,857.93
Cryo1.05.01 Mu2e Interface Connection			Scheduled	0.00	70,813.93	320,085.24	704,422.87	127,069.01	1,238,006.67
Cryo1.05.02 g-2 interface connection			Scheduled	27,198.92	0.00	0.00	0.00	0.00	27,198.92
Cryo1.06 Cryo Safety Documents			Scheduled	0.00	155,311.42	0.00	0.00	0.00	155,311.42
Cryo1.07 Testing/Checkout			Scheduled	0.00	0.00	65,416.12	0.00	38,254.64	134,742.36
Cryo1.08 Cryo g-2 Acceptance Tests			Scheduled	0.00	11,968.50	102,502.33	0.00	0.00	114,470.83
Cryo1.09 Cryo Mu2e Acceptance Tests			Scheduled	0.00	0.00	0.00	0.00	0.00	97,400.62
Cryo1.10 Cryo Distribution Box (CDB)			Scheduled	0.00	0.00	322,703.66	1,105,006.77	494,326.28	2,134,113.62
Cryo1.14 MC-1 Refrigerator Upgrades			Scheduled	0.00	0.00	0.00	155,882.14	135,227.01	291,109.15
Grand Total			Scheduled	658,342.28	3,375,923.74	1,333,174.17	2,141,147.60	1,004,298.74	8,897,041.60

Cryo CR024 Post CR CAP

Control Account/WBS (4)	Resource.Type	Results	FY13	FY14	FY15	FY16	FY17	FY18	Cumulative
Cryo1.02.01.01 Cryo AIP General Project Oversight - FY13	Scheduled		51,346.42	0.00	0.00	0.00	0.00	0.00	51,346.42
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Cryo1.02.01.07 Cryo AIP Gen Proj OS - FY15 Supp	Scheduled		0.00	0.00	74,049.03	0.00	0.00	0.00	74,049.03
Cryo1.02.01.09 Cryo AIP General Project OS - FY18	Scheduled		0.00	0.00	0.00	0.00	0.00	26,722.06	26,722.06
Cryo1.02.01.10 Cryo Final Safety Documents	Scheduled		0.00	0.00	0.00	0.00	44,593.61	1,268.26	45,861.87
Cryo1.03 Cryo Basic Engineering	Scheduled		33,093.96	236,082.70	0.00	0.00	0.00	0.00	269,176.66
Cryo1.04.01 LN2 system	Scheduled		4,514.95	409,013.92	0.00	0.00	0.00	0.00	413,528.87
Cryo1.04.02 Gas management system	Scheduled		57,841.53	178,224.26	0.00	0.00	0.00	0.00	236,065.78
Cryo1.04.03 ODH system	Scheduled		0.00	49,757.63	0.00	0.00	0.00	0.00	49,757.63
Cryo1.04.04 Cryo Refrigerator system	Scheduled		149,077.19	1,134,055.74	152,524.20	0.00	0.00	0.00	1,435,657.13
Cryo1.04.05 Cryo Compressor System	Scheduled		59,453.27	367,138.94	0.00	0.00	0.00	0.00	426,592.21
Cryo1.04.06 Cryo Interconnect Piping	Scheduled		225,594.62	512,339.28	0.00	0.00	0.00	0.00	737,933.91
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Cryo1.04.08 Cryogenic Fluids	Scheduled		0.00	0.00	261,857.93	0.00	0.00	0.00	261,857.93
Cryo1.05.01 Mu2e Interface Connection	Scheduled		0.00	70,813.93	320,085.24	704,422.87	127,069.01	15,615.62	1,238,006.67
Cryo1.05.02 g-2 interface connection	Scheduled		27,198.92	0.00	0.00	0.00	0.00	0.00	27,198.92
Cryo1.06 Cryo Safety Documents	Scheduled		0.00	155,311.42	0.00	0.00	0.00	0.00	155,311.42
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Cryo1.09 Cryo Mu2e Acceptance Tests	Scheduled		0.00	0.00	0.00	0.00	0.00	97,400.62	97,400.62
Cryo1.10 Cryo Distribution Box (CDB)	Scheduled		0.00	0.00	322,703.66	1,105,006.77	512,956.62	240,249.74	2,180,916.80
Cryo1.14 MC-1 Refrigerator Upgrades	Scheduled		0.00	0.00	0.00	155,882.14	135,227.01	0.00	291,109.15
Grand Total	Scheduled		658,342.28	3,375,923.74	1,333,174.17	2,141,147.60	1,022,929.08	412,327.90	8,943,844.78