



Muon Campus AIP Change Request Form

CR#: Cryo021

1) DATE: 11/29/16

2) WBS: Cryo10

3) Originator: Ken Domann / *KD*

4) WBS Description of Primary Affected Tasks: Muon Campus Cryogenics - AIP

5) Technical Description & Primary Motivation for Change: Working with the Cryo Distribution Box (CDB) vendor during the design phase, we identified several areas where the design needed improvement. These changes are new scope that will correct problems inherent in the original specification or will significantly improve the CDB performance. The net effect is to increase the budget by \$71,150 with a corresponding decrease in contingency.

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

7) Assessment of Schedule Impact (Use attachments if needed): See attached. No impact to any milestones.

8) Secondary Impact & Other Comments: N/A

9) Approvals:

AIP Project Manager:

Murphy / T

Date: *Nov 29, 2016*

AIP Project Coordinator:

Margi

Date: *12/1/16*

AD Div Director:

Date: _____

Directorate:

Date: _____

Cryo CR021 Material Delta

UID	WBS	Name	New M&S	Old M&S	Delta	Comment
1	Cryo1	Muon Campus Cryogenics - AIP	\$3,560,776	\$3,507,065	\$53,711	
2937	Cryo1.10	Cryo Distribution Box (CDB)	\$1,170,453	\$1,116,742	\$53,711	
2962	Cryo1.10.03	Procurement and Fabrication of CDB	\$880,411	\$826,700	\$53,711	
3011	Cryo1.10.03.09	Design Improvements/Upgrades	\$53,711	\$0	\$53,711	New activity

Cryo CR021 Pre CR CAP

Control Account,WBS (4)	Resource,TYPE	Results	FY12	FY13	FY14	FY15	FY16	FY17	Cumulative
Cryo1.02.01.01 Cryo AIP General Project Oversight - FY13	Scheduled	0.00	51,346.42	0.00	0.00	0.00	0.00	0.00	51,346.42
Cryo1.02.01.02 Cryo AIP General Project Oversight - FY14	Scheduled	0.00	3,594.06	129,557.05	0.00	0.00	0.00	0.00	133,151.10
Cryo1.02.01.03 Cryo AIP General Project Oversight - FY15	Scheduled	0.00	0.00	2,134.07	30,214.73	0.00	0.00	0.00	32,348.80
Cryo1.02.01.04 Cryo AIP General Project Oversight - FY16	Scheduled	0.00	0.00	0.00	3,820.92	170,506.37	0.00	0.00	174,327.29
Cryo1.02.01.05 Cryo AIP General Project Oversight - FY17	Scheduled	0.00	0.00	0.00	0.00	5,329.44	162,348.00	167,677.44	
Cryo1.02.01.07 Cryo AIP Gen Proj OS - FY15 Supp	Scheduled	0.00	0.00	0.00	0.00	0.00	0.00	0.00	74,049.03
Cryo1.03 Cryo Basic Engineering	Scheduled	0.00	33,093.96	236,082.70	0.00	0.00	0.00	0.00	269,176.66
Cryo1.04.01 LN2 system	Scheduled	0.00	4,514.95	409,013.92	0.00	0.00	0.00	0.00	413,528.87
Cryo1.04.02 Gas management system	Scheduled	0.00	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	0.00	49,757.63	0.00	0.00	0.00	0.00	49,757.63
Cryo1.04.04 Cryo Refrigerator system	Scheduled	0.00	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	0.00	59,453.27	367,138.94	0.00	0.00	0.00	0.00	426,592.21
Cryo1.04.06 Cryo Interconnect Piping	Scheduled	0.00	225,594.62	512,339.28	0.00	0.00	0.00	0.00	737,933.91
Cryo1.04.07 Cryo Interconnect Electrical & Controls	Scheduled	0.00	46,627.36	119,526.30	0.00	0.00	0.00	0.00	166,153.66
Cryo1.04.08 Cryogenic Fluids	Scheduled	0.00	0.00	0.00	261,857.93	0.00	0.00	0.00	261,857.93
Cryo1.05.01 Muze Interface Connection	Scheduled	0.00	0.00	70,813.93	320,085.24	704,422.87	94,691.54	1,190,013.59	
Cryo1.05.02 g-2 interface connection	Scheduled	0.00	27,198.92	0.00	0.00	0.00	0.00	0.00	27,198.92
Cryo1.06 Cryo Safety Documents	Scheduled	0.00	0.00	155,311.42	0.00	0.00	0.00	0.00	155,311.42
Cryo1.07 Testing/Checkout	Scheduled	0.00	0.00	65,416.12	0.00	0.00	0.00	0.00	67,810.80
Cryo1.08 Cryo g-2 Acceptance Tests	Scheduled	0.00	0.00	11,968.50	102,502.33	0.00	0.00	0.00	114,470.83
Cryo1.09 Cryo Muze Acceptance Tests	Scheduled	0.00	0.00	0.00	0.00	0.00	0.00	0.00	94,731.00
Cryo1.10 Cryo Distribution Box (CDB)	Scheduled	0.00	0.00	0.00	322,703.66	1,105,006.77	586,026.42	2,013,736.85	
Cryo1.14 MC-1 Refrigerator Upgrades	Scheduled	0.00	0.00	0.00	0.00	0.00	155,882.14	133,317.14	289,199.28
Grand Total	Scheduled	0.00	658,342.28	3,375,923.74	1,333,174.17	2,141,147.60	1,138,924.90	8,647,512.69	

Cryo CR021 Post CR CAP

Control Account/WBS (4)	Resource,TYPE	Results	FY12	FY13	FY14	FY15	FY16	FY17	Cumulative
Cry01.02.01.01 Cryo AIP General Project Oversight - FY13	Scheduled	0.00	51,346.42	0.00	0.00	0.00	0.00	0.00	51,346.42
Cry01.02.01.02 Cryo AIP General Project Oversight - FY14	Scheduled	0.00	3,594.06	129,557.05	0.00	0.00	0.00	0.00	133,151.10
Cry01.02.01.03 Cryo AIP General Project Oversight - FY15	Scheduled	0.00	0.00	2,134.07	30,214.73	0.00	0.00	0.00	32,348.80
Cry01.02.01.04 Cryo AIP General Project Oversight - FY16	Scheduled	0.00	0.00	0.00	3,820.92	170,506.37	0.00	0.00	174,327.29
Cry01.02.01.05 Cryo AIP General Project Oversight - FY17	Scheduled	0.00	0.00	0.00	0.00	5,329.44	162,348.00	167,677.44	
Cry01.02.01.07 Cryo AIP Gen Proj OS - FY15 Supp	Scheduled	0.00	0.00	0.00	74,049.03	0.00	0.00	0.00	74,049.03
Cry01.03 Cryo Basic Engineering	Scheduled	0.00	33,093.96	236,082.70	0.00	0.00	0.00	0.00	269,176.66
Cry01.04.01 LN2 system	Scheduled	0.00	4,514.95	409,013.92	0.00	0.00	0.00	0.00	413,528.87
Cry01.04.02 Gas management system	Scheduled	0.00	57,841.53	178,224.26	0.00	0.00	0.00	0.00	236,065.78
Cry01.04.03 ODH system	Scheduled	0.00	49,757.63	0.00	0.00	0.00	0.00	0.00	49,757.63
Cry01.04.04 Cryo Refrigerator system	Scheduled	0.00	149,077.19	1,134,055.74	152,524.20	0.00	0.00	0.00	1,435,657.13
Cry01.04.05 Cryo Compressor System	Scheduled	0.00	59,453.27	367,138.94	0.00	0.00	0.00	0.00	426,592.21
Cry01.04.06 Cryo Interconnect Piping	Scheduled	0.00	225,594.62	512,339.28	0.00	0.00	0.00	0.00	737,933.91
Cry01.04.07 Cryo Interconnect Electrical & Controls	Scheduled	0.00	46,627.36	119,526.30	0.00	0.00	0.00	0.00	166,153.66
Cry01.04.08 Cryogenic Fluids	Scheduled	0.00	0.00	0.00	261,857.93	0.00	0.00	0.00	261,857.93
Cry01.05.01 Muze Interface Connection	Scheduled	0.00	0.00	70,813.93	320,085.24	704,422.87	94,691.54	1,190,013.59	
Cry01.05.02 g-2 Interface connection	Scheduled	0.00	27,198.92	0.00	0.00	0.00	0.00	0.00	27,198.92
Cry01.06 Cryo Safety Documents	Scheduled	0.00	0.00	155,311.42	0.00	0.00	0.00	0.00	155,311.42
Cry01.07 Testing/Checkout	Scheduled	0.00	0.00	0.00	65,416.12	0.00	0.00	67,810.80	133,226.92
Cry01.08 Cryo g-2 Acceptance Tests	Scheduled	0.00	0.00	11,968.50	102,502.33	0.00	0.00	0.00	114,470.83
Cry01.09 Cryo Muze Acceptance Tests	Scheduled	0.00	0.00	0.00	0.00	0.00	94,731.00	94,731.00	
Cry01.10 Cryo Distribution Box (CDB)	Scheduled	0.00	0.00	0.00	322,703.66	1,105,006.77	657,176.60	2,084,887.04	
Cry01.14 MC-1 Refrigerator Upgrades	Scheduled	0.00	0.00	0.00	0.00	0.00	155,882.14	133,317.14	289,199.28
Grand Total	Scheduled	0.00	658,342.28	3,375,923.74	1,333,174.17	2,141,147.60	1,210,075.08	8,718,662.88	