

ID	WBS	Task Name	Duration	Start	Finish	Cost Center	Fixed Cost	Cost	Activi	Cost per Unit	2017					2018				2019				2020				2021								
											Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1
54	1.4.5.4.1	Procure LV,HV,etc	60 days	Tue 10/4/16	Mon 12/26/16	LDRD	\$25,000.00	\$27,160.00		\$0.00																										
55	1.4.5.4.2	Procure Racks	60 days	Thu 10/6/16	Wed 12/28/16	LDRD	\$5,000.00	\$7,160.00		\$0.00																										
56	1.4.5.4.3	Procure Chiller	60 days	Mon 10/10/16	Fri 12/30/16	LDRD	\$7,000.00	\$8,920.00		\$0.00																										
57	1.4.6	sPHENIX Readout Electronics Integration	270 days	Tue 10/4/16	Mon 10/16/17		\$0.00	\$191,400.00		\$0.00																										
58	1.4.6.1	Initial FEM Design (modify ALICE)	40 days	Tue 10/4/16	Mon 11/28/16	LDRD	\$0.00	\$44,160.00		\$0.00																										
59	1.4.6.2	Prototype FEM	60 days	Tue 11/29/16	Mon 2/20/17	LDRD	\$5,000.00	\$42,440.00		\$0.00																										
60	1.4.6.3	FEM test-I	5 days	Tue 2/21/17	Mon 2/27/17	LDRD	\$0.00	\$8,240.00		\$0.00																										
61	1.4.6.4	Revised FEM Design	20 days	Tue 2/28/17	Mon 3/27/17	LDRD	\$0.00	\$22,080.00		\$0.00																										
62	1.4.6.5	Prototype FEM-II	60 days	Tue 3/28/17	Mon 6/19/17	LDRD	\$5,000.00	\$22,280.00		\$0.00																										
63	1.4.6.6	FEM test-II	5 days	Tue 6/20/17	Mon 6/26/17	LDRD	\$0.00	\$4,360.00		\$0.00																										
64	1.4.6.7	Final FEM design (CD-1)	10 days	Mon 6/26/17	Mon 7/10/17	LDRD	\$0.00	\$12,880.00		\$0.00																										
65	1.4.6.8	Procure 4 FEMs	60 days	Tue 7/11/17	Mon 10/2/17	LDRD	\$20,000.00	\$22,160.00		\$5,000.00																										
66	1.4.6.9	Final FEM Test	10 days	Tue 10/3/17	Mon 10/16/17	LDRD	\$0.00	\$12,800.00		\$0.00																										
67	1.4.7	sPHENIX DAQ System Integration	70 days	Tue 11/29/16	Mon 3/6/17		\$0.00	\$104,880.00		\$0.00																										
68	1.4.7.1	Slow Control Design	60 days	Tue 11/29/16	Mon 2/20/17	LDRD	\$10,000.00	\$51,760.00		\$0.00																										
69	1.4.7.2	Trigger Interface Design	60 days	Tue 12/6/16	Mon 2/27/17	LDRD	\$10,000.00	\$32,080.00		\$0.00																										
70	1.4.7.3	DAQ Interface Design	60 days	Tue 12/13/16	Mon 3/6/17	LDRD	\$10,000.00	\$21,040.00		\$0.00																										
71	1.4.8	Electronics Final Design Review	12 days	Tue 7/11/17	Wed 7/26/17		\$0.00	\$15,088.00		\$0.00																										
72	1.4.8.1	Electronics Design Review	1 day	Tue 7/11/17	Tue 7/11/17	LDRD	\$0.00	\$3,680.00		\$0.00																										
73	1.4.8.2	Incorporate Review Comments	10 days	Wed 7/12/17	Tue 7/25/17	LDRD	\$0.00	\$9,200.00		\$0.00																										
74	1.4.8.3	Complete Final Electronics Design	1 day	Wed 7/26/17	Wed 7/26/17	LDRD	\$0.00	\$2,208.00		\$0.00																										
75	1.4.9	Mechanical Support and Cooling	160 days	Tue 10/4/16	Mon 5/15/17		\$0.00	\$193,720.00		\$0.00																										
76	1.4.9.1	Specifications	60 days	Tue 10/4/16	Mon 12/26/16		\$0.00	\$62,720.00		\$0.00																										
77	1.4.9.1.1	Review & Simulate Heat Load	40 days	Tue 10/4/16	Mon 11/28/16	LDRD	\$0.00	\$42,560.00		\$0.00																										
78	1.4.9.1.2	review mechanical tolerances/distortions	10 days	Tue 11/29/16	Mon 12/12/16	LDRD	\$0.00	\$11,040.00		\$0.00																										
79	1.4.9.1.3	review disassembly/repair options	10 days	Tue 12/13/16	Mon 12/26/16	LDRD	\$0.00	\$9,120.00		\$0.00																										
80	1.4.9.2	Prototype Stave Frame Design	20 days	Tue 12/27/16	Mon 1/23/17	LDRD	\$0.00	\$30,080.00		\$0.00																										
81	1.4.9.3	Safety Systems	60 days	Tue 2/21/17	Mon 5/15/17		\$0.00	\$29,680.00		\$0.00																										
82	1.4.9.3.1	review sensors & interlocks	20 days	Tue 2/21/17	Mon 3/20/17	LDRD	\$0.00	\$4,320.00		\$0.00																										
83	1.4.9.3.2	electrical interlock design	20 days	Tue 3/21/17	Mon 4/17/17	LDRD	\$5,000.00	\$9,320.00		\$0.00																										
84	1.4.9.3.3	cooling interlocks design	20 days	Tue 4/18/17	Mon 5/15/17	LDRD	\$5,000.00	\$16,040.00		\$0.00																										
85	1.4.9.4	Cooling System	20 days	Tue 1/24/17	Mon 2/20/17		\$0.00	\$30,080.00		\$0.00																										
86	1.4.9.4.1	Prototype Design (modify ALICE)	10 days	Tue 1/24/17	Mon 2/6/17	LDRD	\$0.00	\$9,200.00		\$0.00																										
87	1.4.9.4.2	Mock up Testing	10 days	Tue 2/7/17	Mon 2/20/17	LDRD	\$10,000.00	\$20,880.00		\$0.00																										
88	1.4.9.5	Stave Assembly Tooling	60 days	Tue 2/7/17	Mon 5/1/17		\$0.00	\$41,160.00		\$0.00																										
89	1.4.9.5.1	Jig Design (modify ALICE)	10 days	Tue 2/7/17	Mon 2/20/17	LDRD	\$0.00	\$7,360.00		\$0.00																										

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											Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1
158	..5.5.2.10	Procure Cylindrical Structural Shells	100 days	Mon 8/6/18	Fri 12/21/18		\$11,000.00	\$12,280.00		\$0.00																						
159	..5.5.2.11	Procure Detector Half Barrels	100 days	Tue 8/7/18	Mon 12/24/18		\$13,000.00	\$14,280.00		\$0.00																						
160	..5.5.2.12	Procure Service Half Barrels	100 days	Wed 8/8/18	Tue 12/25/18		\$120,000.00	\$121,280.00		\$0.00																						
161	..5.5.2.13	Procure Detector and Service Half Barrels	100 days	Thu 8/9/18	Wed 12/26/18		\$21,000.00	\$22,280.00		\$0.00																						
162	..5.5.2.14	Procure Two Half Support Structures	100 days	Fri 8/10/18	Thu 12/27/18		\$50,000.00	\$51,280.00		\$0.00																						
163	1.5.5.3	Assembly and Testing at BNL	400 days	Wed 12/19/18	Tue 6/30/20		\$0.00	\$167,040.00		\$0.00																						
164	1.5.5.3.1	Test Production FEMS, e-Links, CRU, LV, optical links	60 days	Tue 12/25/18	Mon 3/18/19		\$0.00	\$11,520.00		\$0.00																						
165	1.5.5.3.2	Test Cooling System	20 days	Wed 12/19/18	Tue 1/15/19		\$0.00	\$6,400.00		\$0.00																						
166	1.5.5.3.3	Stave Reciept Inspection	10 days	Wed 4/10/19	Tue 4/23/19		\$0.00	\$1,280.00		\$0.00																						
167	1.5.5.3.4	Individual Stave Readout Test	70 days	Wed 4/24/19	Tue 7/30/19		\$0.00	\$8,960.00		\$0.00																						
168	1.5.5.3.5	Metrology on Stave Assemblies	70 days	Wed 7/31/19	Tue 11/5/19		\$0.00	\$33,600.00		\$0.00																						
169	1.5.5.3.6	Assemble full Ladders into Half support	100 days	Wed 11/6/19	Tue 3/24/20		\$0.00	\$20,480.00		\$0.00																						
170	1.5.5.3.7	Metrology on Final Assembly	10 days	Wed 3/25/20	Tue 4/7/20		\$0.00	\$8,000.00		\$0.00																						
171	1.5.5.3.8	Half detector Assembly Readout and Cooling Test	60 days	Wed 4/8/20	Tue 6/30/20		\$0.00	\$76,800.00		\$0.00																						
172	1.5.6	Installation	131 days	Wed 7/1/20	Wed 12/30/20		\$0.00	\$206,400.00		\$0.00																						
173	1.5.6.1	Installation Prep	10 days	Wed 7/1/20	Tue 7/14/20		\$0.00	\$12,800.00		\$0.00																						
174	1.5.6.2	Installation Review	1 day	Wed 7/15/20	Wed 7/15/20		\$0.00	\$1,600.00		\$0.00																						
175	1.5.6.3	Installation	60 days	Thu 7/16/20	Wed 10/7/20		\$0.00	\$153,600.00		\$0.00																						
176	1.5.6.4	Commissioning	60 days	Thu 10/8/20	Wed 12/30/20		\$0.00	\$38,400.00		\$0.00																						
177	1.5.7	Ready for beam	0 days	Wed 12/30/20	Wed 12/30/20		\$0.00	\$0.00		\$0.00																						