ID	ð	Task Name	Start	Finish	Risk code pre THA	Task Hazard Analysis	Risk code post THA	Atlis	HA list	Hot Work	TOSP, RWP, Lift plan
1		G2P installation	Mon 5/16/11	Fri 11/18/11	XXXXXX						
2	į	Radcon	Mon 5/16/11	Mon 5/16/11							
3	i	Alignment	Mon 5/16/11	Mon 5/16/11							
4		Engineering electronics or electrical	Mon 5/16/11	Mon 5/16/11							
5		Engineering mechanical	Mon 5/16/11	Mon 5/16/11							
6		engineering Vacuum	Mon 5/16/11	Mon 5/16/11							
7		Hall A techs or users	Mon 5/16/11	Mon 5/16/11							
8		target group	Mon 5/16/11	Mon 5/16/11							
9		Ops software	Mon 5/16/11	Mon 5/16/11							
10											
11											
12		beam line prep work	Mon 5/16/11	Mon 7/11/11	XXXXXX						
13		QA raster, calorimeter and magnet stands	Mon 5/16/11	Mon 5/16/11	SOT						
14		install power for slow raster and calorimeter	Mon 5/16/11	Mon 5/16/11	SOT						
15	į	install power in Hall for FZ magnets	Mon 5/16/11	Mon 5/16/11							
16	į	fab water manifolds for FZ magnets	Mon 5/16/11	Mon 5/16/11							
17	i	rework power connections for septum magnet	Mon 5/16/11	Mon 5/16/11							
18	į	rework water manifolds for septum magnet	Mon 5/16/11	Mon 5/16/11							
19	i	design and fab new electrical shields for septum magnet	Mon 5/16/11	Mon 5/16/11							
20	į	fab new beam pipe for septum magnet	Mon 5/16/11	Mon 5/16/11							
21		field map septum magnet	Mon 5/16/11	Mon 5/16/11							
22	į	pre survey beam dump	Mon 5/16/11	Mon 5/16/11							
23	į	pre survey target can	Mon 5/16/11	Mon 5/16/11							
24	Ť	pre survey target magnet	Mon 5/16/11	Mon 5/16/11							
25	Ť	close and unplug beam line vacuum valves	Mon 5/16/11	Mon 5/16/11	SOT			N	I		
26	Ť	turn off and valve off turbo pumps	Mon 5/16/11	Mon 5/16/11	SOT			N	I		
27	Ť	turn off diff pump station	Mon 5/16/11	Mon 5/16/11	SOT			N	I		
28	Ť	bleed up entrance beam line from diff pump to target	Mon 5/16/11	Mon 5/16/11	SOT			N	I		
29	Ť	reposition all metal beam line valve	Mon 5/16/11	Mon 5/16/11	SOT			N	I		
30	į	Platform - layout reference lines Mar 11	Mon 5/16/11	Mon 5/16/11							
31	į	Target fiduc. 1.Mag:Top March 11	Mon 5/16/11	Mon 5/16/11							
32	İ	Target fiduc. 2.Top:Can Mar 11	Mon 5/16/11	Mon 5/16/11							
33	İ	Septa fiduc.(new locations) March 11	Mon 5/16/11	Mon 5/16/11							
34	III	Platform - check target mount	Fri 6/10/11	Fri 6/10/11							
35	Ⅲ 🛉	Target top flange tube align	Fri 6/10/11	Fri 6/10/11							
36	III	Target fiduc. 2.Top:Can	Mon 7/11/11	Mon 7/11/11							
37	Ⅲ ┆	Dump / Sieve fid.	Mon 7/11/11	Mon 7/11/11							
38											
39	İ	RadCon Hold	Mon 5/16/11	Fri 5/20/11							
40	İ	post beam checklist	Mon 5/16/11	Mon 5/16/11	SOT						
41											
42		LCW work	Mon 5/23/11	Mon 6/20/11							
43	III	install new manifold to facilitate FZ power supplies	Mon 5/23/11	Mon 6/6/11	SOT			N	I		

ID

ID		Task Name	Start	Finish	Risk code pre THA	Task Hazard Analysis	Risk code post	Atlis	HA list	Hot Work	TOSP, RWP, Lift plan
	0						THA				pian
44 45	Ⅲ †	install new manifolds to facilitate FZ magnets	Tue 6/7/11	Mon 6/20/11	SOT			N			
46											
47		remove EP	Mon 5/23/11	Tue 6/7/11							
48		Radcon coverage	Mon 5/23/11	Mon 5/23/11							
49	Ⅲ •	disconnect cables	Mon 5/23/11	Tue 5/24/11	SOT			N			
50	III	remove external detectors	Wed 5/25/11	Wed 5/25/11	SOT			N			
51	Ⅲ •	disconnect vacuum system	Thu 5/26/11	Thu 5/26/11	SOT			N			
52	III	disconnect beam line	Fri 5/27/11	Fri 5/27/11	SOT			N			
53	■	remove upper detector section	Tue 5/31/11	Tue 5/31/11				N			
54		remove target section	Wed 6/1/11	Wed 6/1/11				N			
55 56	#	remove lower detector system remove EP stands	Thu 6/2/11 Fri 6/3/11	Thu 6/2/11 Fri 6/3/11				N			
57	= †	remove stand foundations	Mon 6/6/11	Mon 6/6/11	SOT						
58		move EP system to ESB	Tue 6/7/11	Tue 6/7/11	SOT			N			
59	T		. 45 6/1/11	100 0/1/11							
60		Compton maintenance	Mon 5/16/11	Fri 11/18/11							
61		Radcon hold	Tue 7/5/11	Tue 7/5/11	SOT						
62		bleed up beam line	Tue 7/5/11	Tue 7/5/11	SOT						
63		remove blank flange for detector installation	Wed 7/6/11	Wed 7/6/11	SOT						
64	i	install electron detector package	Thu 7/7/11	Thu 7/7/11							
65	ļ.	pump down vacuum system	Fri 7/8/11	Mon 7/11/11	SOT						
66	Ť	leak check	Tue 7/12/11	Tue 7/12/11	SOT						
67	<u>.</u>	bake affected areas bleed up for maintenance	Wed 7/13/11	Wed 7/13/11	SOT			N.			
68 69	•	connect electronics operational checkout of electronics	Thu 7/14/11 Tue 7/19/11	Mon 7/18/11 Fri 7/29/11	SOT SOT			N N			
70	III	open laser enclosure for work	Fri 7/8/11	Fri 7/8/11	301			N			
71	•	replace laser mirrors	Mon 7/11/11	Fri 7/15/11				N			
72	H	align detector and laser as requested (to be defined later)	Mon 7/18/11	Tue 7/19/11							
73	•	, , ,									
74		install slow raster	Mon 6/6/11	Wed 8/3/11	XXXXXX						
75	III	survey holes for stand	Mon 6/6/11	Thu 6/9/11	SOT						
76	Ⅲ ┆	Drill holes	Fri 6/10/11	Mon 6/13/11	SOT						
77		mount stand	Tue 6/14/11	Wed 6/15/11							
78	■	survey stand	Thu 6/16/11	Tue 6/21/11							
79	III	grout stand	Wed 6/22/11	Thu 6/23/11							
80	Ⅲ	grout set up time install slow raster	Fri 6/24/11	Mon 6/27/11	SOT						
81 82	=	pump down beam line	Tue 6/28/11 Thu 6/30/11	Tue 6/28/11 Fri 7/1/11	SOT						
83	===	connect beam line	Wed 6/29/11	Wed 6/29/11	SOT						
84	#	survey slow raster	Tue 7/5/11	Fri 7/8/11							
85	III	install coils	Mon 7/11/11	Mon 7/11/11	SOT			N			
86	III	install and connect raster controls and power	Tue 7/12/11	Tue 7/12/11	SOT			N			

ID		Task Name	Start	Finish	Risk code pre THA	Task Hazard Analysis	Risk code post	Atlis	HA list	Hot Work	TOSP, RWP, Lift plan
67	0		N/- 17/10/11	M- 17/10/::	007		THA				F.311
87	==	ops check slow raster	Wed 7/13/11	Wed 7/13/11	SOT			N			
88 89	==	software checkout and ops check	Mon 8/1/11	Wed 8/3/11							
90		install calorimeter	Mon 6/6/11	Fri 8/12/11	XXXXXX						
91	i	survey holes for stand	Mon 6/6/11	Tue 6/7/11							
92	=	Drill holes	Wed 6/8/11	Thu 6/9/11							
93	=	mount stand	Fri 6/10/11	Mon 6/13/11							
94	III	survey stand	Tue 6/14/11	Wed 6/15/11	SOT						
95	III	grout stand	Thu 6/16/11	Fri 6/17/11	SOT						
96	i .	set up time	Mon 6/20/11	Tue 6/21/11	SOT						
97	Ⅲ †	install calorimeter	Wed 6/22/11	Wed 6/22/11							
98		connect beam line	Thu 6/23/11	Thu 6/23/11							
99	==	pump down beam line	Fri 6/24/11	Fri 6/24/11							
100 101	-	leak check beam line	Mon 6/27/11 Tue 6/28/11	Mon 6/27/11 Tue 6/28/11	SOT						
101	Ⅲ †	connect motion and cooling lines survey calorimeter	Wed 6/29/11	Wed 6/29/11	SOT						
103	III	install controls	Tue 7/5/11	Wed 7/6/11	001						
104	==	ops check	Thu 7/7/11	Thu 7/7/11	SOT						
105	III	software checkout and ops check	Mon 8/8/11	Fri 8/12/11							
106		· ·									
107		remove dual quads & short girder	Thu 7/7/11	Wed 8/10/11	XXXXXX						
108	-	Radcon support	Thu 7/7/11	Thu 7/7/11							
109	III	disconnect water and power on dual quad assembly	Thu 7/7/11	Thu 7/7/11	SOT						
110	i .	bleed up vacuum	Fri 7/8/11	Fri 7/8/11	SOT						
111	III †	disconnect vacuum lines	Mon 7/11/11	Tue 7/12/11	SOT						
112	==	remove quad girder	Wed 7/13/11	Wed 7/13/11							
113		remove lead from 3 inch beam line	Thu 7/14/11	Thu 7/14/11							
114 115		install new 3 inch beam line install beam line and corrector support girder	Fri 7/15/11 Mon 7/18/11	Fri 7/15/11 Mon 7/18/11	SOT						
116	III	install controls and power cabling	Tue 7/19/11	Fri 7/22/11	301						
117		install BLM	Mon 7/25/11	Mon 7/25/11	SOT						
118		install controls	Tue 7/26/11	Wed 7/27/11							
119	III	connect beam line	Thu 7/28/11	Thu 7/28/11							
120	III	install vacuum pump and controls	Fri 7/29/11	Tue 8/2/11							
121		pump down and leak check girder	Wed 8/3/11	Thu 8/4/11							
122	Ⅲ 🛉	survey beam line	Fri 8/5/11	Fri 8/5/11							
123	III	reinstall lead removed for 3 inch beam pipe	Wed 8/10/11	Wed 8/10/11							
124	=	ops check	Mon 8/8/11	Tue 8/9/11	SOT						
125					100000						
126		remove girder	Tue 5/31/11	Mon 6/13/11			<u></u>				
127 128	Ⅲ Ⅲ •	Radcon support remove lead shielding	Tue 5/31/11	Tue 5/31/11							
128	== T	disconnect beam line diagnostics	Tue 5/31/11 Tue 5/31/11	Mon 6/6/11 Tue 5/31/11							
128		uisconnect beam line diagnostics	Tue 5/31/11	Tue 5/31/11							

ID		Task Name	Start	Finish	Risk code pre THA	Task Hazard Analysis	Risk code	Atlis	HA list	Hot Work	TOSP, RWP, Lift
	0						post THA				plan
130	III	disconnect vacuum equipment	Wed 6/1/11	Thu 6/2/11							
131	Ⅲ 🛉	remove water and control lines	Fri 6/3/11	Mon 6/6/11							
132	▦	remove girder	Tue 6/7/11	Tue 6/7/11							
133	■	remove girder stands	Wed 6/8/11	Thu 6/9/11							
134	Ⅲ 🛉	remove stand grout	Fri 6/10/11	Mon 6/13/11							
135					1000000						
136		install FZ magnets	Mon 5/16/11	Fri 11/4/11							
137	III	survey holes for stands Drill holes	Mon 6/6/11 Wed 6/8/11	Tue 6/7/11 Thu 6/9/11							
138	III		Fri 6/10/11	Mon 6/13/11							
139 140		mount stands	Tue 6/14/11								
141		survey stands grout stands	Thu 6/16/11	Fri 6/17/11							
142		grout stands grout set up time	Mon 6/20/11	Tue 6/21/11							
143	== T	install cable tray	Wed 8/3/11	Fri 8/5/11				N			
144	- T	run magnet power cables	Mon 8/8/11	Tue 8/9/11				N			
145	T	run instrumentation cables	Wed 8/10/11	Thu 8/11/11				14			
146		connect AC power to power supplies	Fri 8/12/11	Mon 8/15/11							
147		common to power to power supplies	111 0/12/11	1011 0/ 10/ 11	001						
148	III	install FZ magnets	Tue 8/16/11	Mon 8/29/11							
149	i	survey FZ magnets	Tue 8/30/11	Fri 9/2/11							
150	•	install and connect DC power to magnets	Tue 9/6/11	Tue 9/6/11							
151		ops check magnets	Wed 9/7/11	Tue 9/13/11							
152	III	install FZ beam line supports	Wed 9/14/11	Fri 9/16/11							
153	III	install beam lines and beam diagnostics	Mon 9/19/11	Fri 9/23/11	SOT						
154	III	install vacuum system	Mon 9/26/11	Fri 9/30/11	SOT						
155	III	reposition all metal valve	Mon 10/3/11	Mon 10/3/11	SOT						
156	III	install instrumentation	Tue 10/4/11	Fri 10/7/11	SOT						
157	III	pump down beam line	Mon 10/10/11	Tue 10/11/11	SOT						
158	III	leak check beam lines	Wed 10/12/11	Thu 10/13/11	SOT						
159	III	survey beam lines	Fri 10/14/11	Tue 10/18/11	SOT						
160	III	ops check	Wed 10/19/11	Fri 10/21/11	SOT						
161	==	software checkout and ops check	Mon 10/31/11	Fri 11/4/11							
162											
163		Hall A from here down	Mon 5/16/11	Mon 5/16/11							
164											
165		target / septa prep work	Mon 5/16/11	Mon 5/16/11	XXXXXX						
166		modify septa platform	Mon 5/16/11	Mon 5/16/11	SOT			N			
167		install 3rd coil set in septum magnet	Mon 5/16/11	Mon 5/16/11	SOT			N			
168		pre assemble align target support on septa platform	Mon 5/16/11	Mon 5/16/11	SOT			N			
169											
170		cryo work	Mon 5/16/11	Fri 9/16/11							
171	į	warm up both spectrometers	Mon 5/16/11	Fri 5/20/11				N			
172	III	pump all magnets	Tue 5/31/11	Mon 6/6/11	SOT			N			

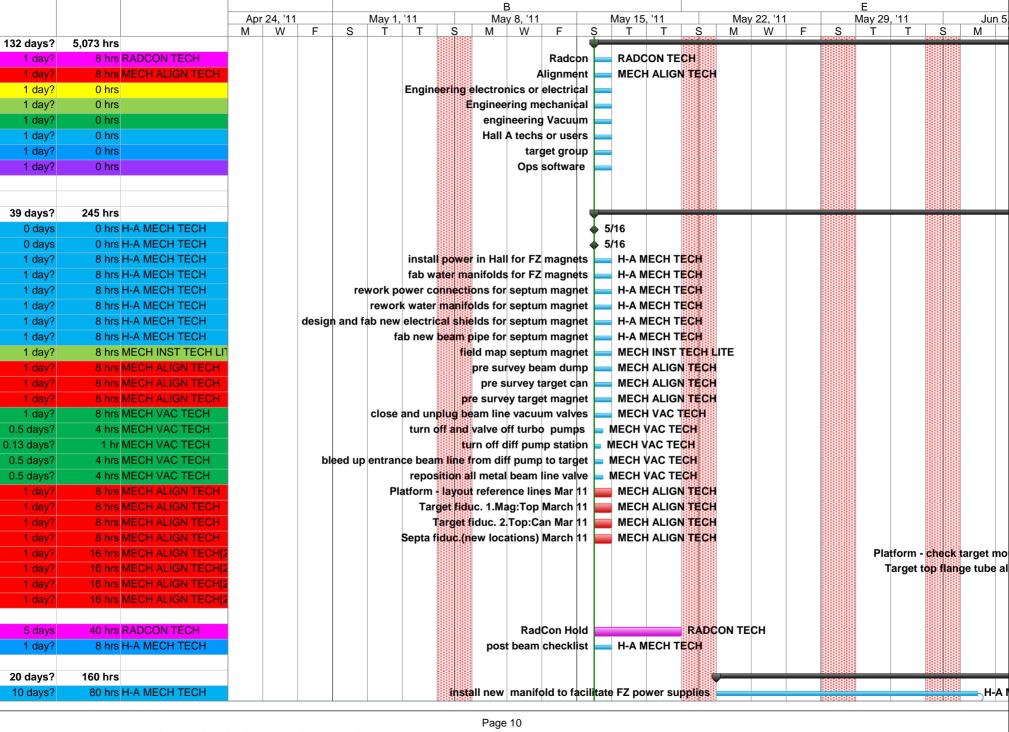
ID	_	Task Name	Start	Finish	Risk code pre THA	Task Hazard Analysis	Risk code post	Atlis	HA list	Hot Work	TOSP, RWP, Lift plan
470	0		11 0/10/11	E:0/47/44			THA				,
173	i	pump all cryo lines	Mon 6/13/11	Fri 6/17/11	007			N			
174	III	replace Q1 JT valve heads with JLab valves	Mon 6/27/11	Fri 7/1/11	SOT			N			
175	III	replace dipole LN2 probes	Tue 7/5/11	Tue 7/5/11	SOT			N			
176 177	III	replace magnet pressure gauges repair left Q1 leads	Thu 7/7/11 Thu 7/14/11	Mon 7/11/11 Wed 7/20/11	SOT			N N			
178		replace left Q1 vacuum seals	Thu 7/14/11	Tue 8/2/11	SOT			N			
179	Ⅲ † Ⅲ †	replace all Q1 110 vac plugs due to radiation damage	Thu 8/4/11	Mon 8/8/11	SOT			N			
180	== T	calibrate Ln2 II probes	Mon 8/15/11	Wed 8/17/11	001			1			
181		Calibrate weha valves	Mon 8/29/11	Fri 9/2/11							
182	<u> </u>	repair dipole He LL probe	Mon 9/12/11	Fri 9/16/11							
183											
184		Detector work	Mon 6/6/11	Fri 7/29/11	XXXXXX						
185	III	roll out left detector	Mon 6/6/11	Mon 6/6/11	SOT			N			
186	III	pull out SRC detectors	Mon 6/13/11	Tue 6/14/11				N			
187	III	install G2P detectors	Mon 6/20/11	Fri 6/24/11				N			
188	III	roll in left detector	Mon 6/27/11	Mon 6/27/11	SOT			N			
189	III	clear balcony and close doors	Wed 6/29/11	Wed 6/29/11				N			
190	_										
191	III	roll out right detector	Tue 7/5/11	Tue 7/5/11	SOT			N			
192	III	pull out SRC detectors	Mon 7/11/11	Tue 7/12/11				N			
193	III	install G2P detectors	Mon 7/18/11	Thu 7/21/11				N			
194	==	roll in left detector	Mon 7/25/11	Mon 7/25/11	SOT			N			
195	Ⅲ 🛉	clear balcony and close doors	Fri 7/29/11	Fri 7/29/11				N			
196											
197		remove target	Mon 5/16/11	Wed 7/6/11	XXXXXX						
198	Ⅲ †	Radcon support	Fri 5/20/11	Fri 5/20/11							
199		warm up target	Mon 5/16/11	Thu 5/19/11	SOT			N			
200	■ †	bleed up chamber	Fri 5/20/11	Fri 5/20/11	SOT			N			
201		de-sting cryo	Mon 5/23/11	Mon 5/23/11	007			N			
202	= -	disconnect target	Tue 5/24/11	Fri 6/3/11 Mon 6/6/11	SOT			N N			
203	■ !	remove target from chamber	Mon 6/6/11	Tue 6/7/11	SOT			N			
204 205		remove vacuum system remove beam pipes	Tue 6/7/11 Wed 6/8/11	Wed 6/8/11	SOT			N			
205	Ⅲ i Ⅲ i	remove upper chamber	Thu 6/9/11	Thu 6/9/11	301			N			
207	■ T	remove lower chamber	Fri 6/10/11	Fri 6/10/11				N			
	=	remove chamber support spool	Mon 6/13/11	Mon 6/13/11				N			
		reconfigure target lines and cables for new target	Mon 6/13/11	Wed 6/22/11	SOT			N			
210	T	. 530 miguro targot milos ana sabios for non targot	1.1.011 0/ 10/11	1100 0/22/11							
211		remove Big Bite	Mon 5/16/11	Wed 7/6/11	xxxxxx						
212	i	Radcon Support	Mon 5/16/11	Mon 5/16/11							
	i	disconnect BB detector	Mon 5/16/11	Fri 5/20/11	SOT			N			
		disconnect water	Mon 5/23/11	Mon 5/23/11				N			
	=	disconnect and move inst. Interlocks etc	Tue 5/24/11	Wed 5/25/11				N			

ID		Task Name	Start	Finish	Risk code pre THA	Task Hazard Analysis	Risk code	Atlis	HA list	Hot Work	TOSP, RWP, Lift
	0					7	post THA				plan
216	III	disconnect BB power	Thu 5/26/11	Fri 5/27/11				N			
217	III	install extension rails on BB stand	Tue 5/31/11	Tue 5/31/11				N			
218	III	reroute BB power lines for septum	Thu 6/2/11	Fri 6/3/11				N			
219	III	role back detector platform	Mon 6/6/11	Mon 6/6/11				N			
220	III	rig and move detector	Tue 6/7/11	Tue 6/7/11				N			
221	III	remove detector platform	Wed 6/8/11	Wed 6/8/11				N			
222	III	partial rollback of BB for field clamp removal	Thu 6/9/11	Thu 6/9/11							
223	III †	rig and move field clamp including collimator to storage position	Fri 6/10/11	Fri 6/10/11				N			
224	III †	rollback BB for door removal	Mon 6/13/11	Mon 6/13/11				N			
225	III	remove shielding doors to storage position	Tue 6/14/11	Wed 6/15/11				N			
226	III	remove shielding on top and around BB	Thu 6/16/11	Fri 6/17/11				N			
227	■ †	install pink stand	Mon 6/20/11	Mon 6/20/11				N			
228	III	Add supports to BB feet	Tue 6/21/11	Tue 6/21/11				N			
229	III	remove feet from BB	Wed 6/22/11	Wed 6/22/11				N			
230	III	rig and move BB magnet to storage position	Thu 6/23/11	Fri 6/24/11				N			
231	■ †	rig feet and move to storage position	Mon 6/27/11	Mon 6/27/11				N			
232	III	reposition rollers and other support equipment to storage position	Tue 6/28/11	Tue 6/28/11				N			
233	III	remove rail extensions	Wed 6/29/11	Wed 6/29/11				N			
234	Ⅲ 🛉	remove pink stand	Thu 6/30/11	Thu 6/30/11				N			
235	III	rig and move BB stand	Fri 7/1/11	Fri 7/1/11				N			
236	III	Rotate right spect. To 12.5 degrees	Tue 7/5/11	Tue 7/5/11				N			
237	III	Radcon support	Wed 7/6/11	Wed 7/6/11							
238	III	move electronics to storage	Wed 7/6/11	Wed 7/6/11				N			
239	III 🛉	move Hadron detector frame to PSB	Wed 7/6/11	Wed 7/6/11				N			
240											
241		install septum and target	Wed 7/6/11	Fri 8/26/11							
242 243	⊞ †	both spectrometers to 12.5 deg survey both spectrometers	Wed 7/6/11	Wed 7/6/11 Thu 7/7/11				N			
243	T -	install septum support stand	Thu 7/7/11 Fri 7/8/11	Mon 7/11/11				N			
244		align stand with laser	Tue 7/12/11	Tue 7/12/11							
245	i	install beam right access platform and stairs	Wed 7/13/11	Wed 7/13/11				N			
246	Ⅲ Ⅲ •	install septum platform on support stand	Thu 7/14/11	Thu 7/14/11				N N			
247	Ⅲ ¶	RadCon Hold	Mon 7/11/11	Fri 7/15/11				N			
249	 	install septum magnet on platform	Fri 7/15/11	Fri 7/15/11				N			
		install tread plated and dump support on platform	Mon 7/18/11					N			
		pre alignment of septum magnet	Tue 7/19/11	Tue 7/19/11				14			
		install beam dump between magnet and target	Wed 7/20/11	Thu 7/21/11				N			
253		install target chamber support on platform	Fri 7/22/11	Fri 7/22/11				N			
254		pre align beam dump with laser	Mon 7/25/11	Mon 7/25/11				14			
255		RadCon Hold	Tue 7/26/11	Wed 7/27/11				N			
256		install exit beam pipe in magnet	Tue 7/26/11	Tue 7/26/11				N			
257	Ⅲ Ⅲ •	install shielding between target and magnet	Wed 7/27/11	Thu 7/28/11				N			
231		motali officiality between target and magnet	VVGU 1/21/11	1110 7/20/11				IN			

					pre THA	Analysis	code post			TOSP, RWP, Lift plan
258	0		- I - I - I - I	- 1 - 10 o 11 o			THA			pian
		install target chamber into chamber support	Fri 7/29/11	Fri 7/29/11				N		
	■ !	roll septum/target platform into position lower and position septum platform	Mon 8/1/11 Tue 8/2/11	Mon 8/1/11 Tue 8/2/11				N N		
260 a 261	⊞ †	install catwalk on right access platform	Wed 8/3/11	Wed 8/3/11				N		
262		install upper platform stairs	Thu 8/4/11	Thu 8/4/11				N		
263	T	motan appor planorm stans	1110 0/ 1/ 11	1110 0/ 1/ 11						
	Ⅲ •	install target dewar and stand	Fri 8/5/11	Fri 8/5/11				N		
265		connect dewar controls	Mon 8/8/11	Tue 8/9/11				N		
266		install dewar U tubes and return lines	Wed 8/10/11	Thu 8/11/11	ı			N		
267		install beam lines	Fri 8/12/11	Fri 8/12/11	SOT			N		
268		install Helium bags	Mon 8/15/11	Mon 8/15/11	SOT			N		
269		install target vacuum pump power	Tue 8/16/11	Wed 8/17/11				N		
270		install target vacuum pump plumbing	Thu 8/18/11	Tue 8/23/11				N		
271		install target vacuum system instr. and controls	Wed 8/24/11	Fri 8/26/11	SOT			N		
272										
273		re-assemble target assembly in Hall	Mon 8/29/11	Thu 9/15/11						
		move target parts to Hall	Mon 8/29/11	Mon 8/29/11						
275		install chamber into rotating support ring	Tue 8/30/11	Tue 8/30/11						
	III	install shield in chamber	Wed 8/31/11	Thu 9/1/11						
277	<u>.</u>	install magnet into chamber	Fri 9/2/11	Tue 9/6/11				N		
278 279	7	align magnet in chamber (check as found) install refrigerator	Wed 9/7/11 Fri 9/9/11	Thu 9/8/11 Fri 9/9/11						
	•	install target and refrig. Inst, and controls	Mon 9/12/11	Tue 9/13/11				N		
281	***	test magnet rotation system	Wed 9/14/11	Wed 9/14/11				N		
_		Ops software support	Thu 9/15/11	Thu 9/15/11						
		ops check motion mechanism	Thu 9/15/11	Thu 9/15/11						
284										
285		install target assembly on pivot	Fri 9/16/11	Fri 11/18/11	1					
286		install refrigerator pump on upper target balcony	Fri 9/16/11	Fri 9/16/11				N		
287	111	roll septum/target platform into position	Mon 9/19/11	Mon 9/19/11	l			N		
288		lower and position septum platform	Tue 9/20/11	Tue 9/20/11	l			N		
	■ •	align septum magnet	Wed 9/21/11	Thu 9/22/11						
	■ †	align target chamber	Fri 9/23/11	Mon 9/26/11						
291	į	align magnet in chamber (check as found	Tue 9/27/11	Tue 9/27/11						
292	Ť	final alignment of Dump	Wed 9/28/11	Fri 9/30/11						
293		install catwalk on right access platform	Mon 10/3/11	Mon 10/3/11				N		
294	_	install upper platform stairs	Tue 10/4/11	Tue 10/4/11				N		
	Ⅲ •	install beam lines	Wed 10/5/11	Wed 10/5/11 Thu 10/6/11				N		
296 297	T	align beam lines install Helium bags	Thu 10/6/11 Fri 10/7/11	Fri 10/7/11				N		
297		install target vacuum pump power	Mon 10/10/11					N		
299		install target vacuum pump plumbing	Thu 10/13/11	Fri 10/14/11				N		
300		install target vacuum pump prumbing install target vacuum system instr. and controls	Mon 10/17/11	Tue 10/18/11				N		
500			101110111111	140 10/10/11	331					

ID		Task Name	Start	Finish	Risk code pre THA	Task Hazard Analysis	Risk code post	Atlis	HA list	Hot Work	TOSP, RWP, Lift plan
	0			— 1			THA				Pidii
301	=	connect target vacuum system	Wed 10/19/11	Fri 10/21/11	007			N			
302	=	leak check target vacuum system	Mon 10/24/11	Tue 10/25/11	SOT			N			
303 304	==	install target chamber windows	Wed 10/26/11 Thu 10/27/11	Wed 10/26/11 Fri 10/28/11	SOT			N N			
305	Ⅲ Ⅲ •	pump down chamber leak check chamber	Mon 10/31/11					N			
306	== T	insert target refrigerator	Tue 11/1/11	Thu 11/3/11				N			
307		sting dewar to refrig and refrig to target	Fri 11/4/11	Fri 11/4/11				N			
308		pump and purge target cryo system	Mon 11/7/11	Tue 11/8/11				N			
309		fill dewar	Wed 11/9/11	Fri 11/11/11				N			
310	III	cool down target cryo system	Mon 11/14/11	Tue 11/15/11	SOT			N			
311		test target refrigerator	Tue 11/15/11	Wed 11/16/11	SOT			N			
312	Ⅲ .	ops check target system	Thu 11/17/11	Fri 11/18/11	SOT			N			
313	III	software checkout and ops check	Mon 11/14/11	Fri 11/18/11							
314											
315											
316											
317											
318		end stuff	Mon 10/31/11	Fri 11/18/11							
319	Ⅲ •	inspect beam dump as requested by RADCON final removal	Mon 10/31/11					N			
320 321	Ⅲ †	start power supplies	Mon 10/31/11 Mon 11/7/11	Fri 11/11/11 Tue 11/8/11				N N			
322	==	cleanup	Mon 10/31/11	Fri 11/11/11	SOT			N			
323		hot check out checklist	Thu 11/10/11	Thu 11/10/11	SOT			N			
324	=	restore beam	Tue 11/15/11	Tue 11/15/11	SOT			N			
325	III	final checklist	Wed 11/16/11		SOT			N			
326	III	run beam	Fri 11/18/11	Fri 11/18/11	OPS			N			
327											
328		stuff to do	Mon 5/16/11	Wed 6/29/11	XXXXXX						
329		grease bogies	Mon 6/27/11	Tue 6/28/11	SOT			N			
330		grease central bearing	Wed 6/29/11	Wed 6/29/11	SOT			N			
331		install water manifold on upper LCW	Mon 5/16/11	Mon 5/16/11				N			
332		install water manifold on PS balconies	Mon 5/16/11	Mon 5/16/11				N			
333		install new guards and heaters	Mon 5/16/11	Mon 5/16/11				N			
334 335		complete BB rigid water lines calibrate LL meters	Mon 5/16/11 Mon 5/16/11	Mon 5/16/11 Mon 5/16/11				N N			
336		warm up Q-1 magnets	Mon 5/16/11	Mon 5/16/11				N			
337		de-sting Q-1 magnets	Mon 5/16/11	Mon 5/16/11				N			
338		rework leads on left Q1	Mon 5/16/11	Mon 5/16/11				N			
339		clean out cable trays	Mon 5/16/11	Mon 5/16/11				N			
340		install manual flow meters on Q2/Q3	Mon 5/16/11	Mon 5/16/11				N			
341		grease shield house doors	Mon 5/16/11	Mon 5/16/11				N			
342		re-insulate warm return lines	Mon 5/16/11	Mon 5/16/11				N			
343		repair leaks in exit beam pipe	Mon 5/16/11	Mon 5/16/11				N			
	•										

ID		Task Name	Start	Finish	Risk code		Risk	Atlis	HA list	Hot Work	
					pre THA	Analysis	code post				RWP, Lift plan
	0						THA				piair
344		install DP gauges on LCW system	Mon 5/16/11	Mon 5/16/11				N			
345		install DP gauge on BB water system	Mon 5/16/11	Mon 5/16/11				N			
346		new lead guards on Q2/Q3	Mon 5/16/11	Mon 5/16/11	SOT			N			
347		new lead guards on Dipoles	Mon 5/16/11	Mon 5/16/11	SOT			N			
348		new lead guards on Q1s	Mon 5/16/11	Mon 5/16/11	SOT			N			
349		Lt Q1 power supply maintenance	Mon 5/16/11	Mon 5/16/11				N			
350		Lt Q2 power supply maintenance	Mon 5/16/11	Mon 5/16/11				N			
351		Lt Dipole power supply maintenance	Mon 5/16/11	Mon 5/16/11				N			
352		Rt Q1 power supply maintenance	Mon 5/16/11	Mon 5/16/11				N			
353		Rt Q2 power supply maintenance	Mon 5/16/11	Mon 5/16/11				N			
354		Rt Dipole power supply maintenance	Mon 5/16/11	Mon 5/16/11				N			
355		Rt Q3 power supply maintenance	Mon 5/16/11	Mon 5/16/11				N			
356		repair right transfer line	Mon 5/16/11	Mon 5/16/11				N			
357		replace left Q2 016 weka valve	Mon 5/16/11	Mon 5/16/11				N			
358		remove maintenance jacks from both spectrometers	Mon 5/16/11	Mon 5/16/11				N			
359		finish vacuum line extension on Rt Q3	Mon 5/16/11	Mon 5/16/11				N			
360		visual inspection of exit BP diffuser	Mon 5/16/11	Mon 5/16/11				N			
361		Upgrade/ reinforce BB support arm and extensions	Mon 5/16/11	Mon 5/16/11				N			
362		Rework PHPK cryo cans for pivot distribution	Mon 5/16/11	Mon 5/16/11				N			
363		modify and install stairs	Mon 5/16/11	Mon 5/16/11				N			



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			M	r 24, '1 W	F	S	May 1,	, ' ' T	S	M	y 8, '11 W	F	S	May 15, '11 T T	S	May 22, '11 M W	F	S	May 29,			М	un 5
10 days?	80 hrs	H-A MECH TECH	171		'				Ŭ	101		•	ΙĬ		Ĭ	install ne			to facilit	ate FZ	magn		
11 days?	96 hrs																						
1 day?	8 hrs	RADCON TECH												Radcon cove	rage	RADCON	TECH						
2 days?	16 hrs	H-A MECH TECH												disconnect ca	ibles	H-A M	ECH T	ECH					
1 day?	8 hrs	H-A MECH TECH												remove extern	al det	ectors — H-	A MEC	H TEC	H				
1 day?	8 hrs	H-A MECH TECH														m system 📥							
1 day?	8 hrs	H-A MECH TECH												dis	conn	ect beam line	<u> </u>	A ME	H TECH	ı			
1 day?	8 hrs	H-A MECH TECH													ren	ove upper dete							
1 day?	8 hrs	H-A MECH TECH																	ion 📥				
1 day?		H-A MECH TECH														remove low							
1 day?		MECH INST TECH LIT																	EP stand			•	
1 day?		MECH INST TECH LIT																	e stand			•	
1 day?	8 hrs	H-A MECH TECH																	move EP	systen	n to E	SB 퐅	<u> </u>
132 days?	4,556 hrs																						
1 day?		RADCON TECH																					
1 day?		MECH VAC TECH																					
1 day?		MECH VAC TECH																					
1 day?		MECH VAC TECH,ME																					
2 days?		MECH VAC TECH																					
1 day?		MECH VAC TECH																					
1 day?		MECH VAC TECH																					
3 days? 9 days?		Experimenters Experimenters																					
1 day?		Experimenters																					
5 days?		Experimenters																					
2 days?		MECH ALIGN TECH[2																					
2 days.	02 1110	MESTI ALIGIT TESTILE																					
42 days?	336 hrs																						\bot
4 days?		MECH ALIGN TECH[2																sı	rvey hol	les for	stand		\perp
2 days?		MECH INST TECH LIT																				Dri	II ho
2 days?	16 hrs	MECH INST TECH LIT																					
4 days?	64 hrs	MECH ALIGN TECH[2																					
2 days?	16 hrs	MECH INST TECH LIT																					
2 days?	16 hrs	MECH INST TECH LIT																					
1 day?	8 hrs	MECH INST TECH LIT																					
2 days?	16 hrs	MECH VAC TECH																					
1 day?		MECH VAC TECH																					
4 days?		MECH ALIGN TECH[2																					
1 day?		Physics electronics gro																					
1 day?	8 hrs	Physics electronics gro	1																				
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Duration

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Duration	Work	Resource Names									D									E				
			Ap	r 24, '11			May 1,	'11			B ay 8, '11			May 1	5. '11		May 22, '1	1			/ 29, '11			Jun 5
			M	W	F	S	T	Т	S	М	W	F	Ş	T	T	S	M W	F	S	7	ГТ		3	М
1 day?		Physics electronics gro	(
3 days?	24 hrs	OPS SOFTWARE																						
49 days?	248 hrs																							
2 days?		MECH ALIGN TECH[2																	c	urvev	/ holes f	or sta		
2 days?		MECH INST TECH LIT																						les
2 days?		MECH INST TECH LIT																					401010	ount sta
2 days?	32 hrs	MECH ALIGN TECH[2																						
2 days?	16 hrs	MECH INST TECH LIT																						
2 days?	16 hrs	MECH INST TECH LIT	1																					
1 day?	8 hrs	MECH INST TECH LIT	1																					
1 day?	8 hrs	MECH VAC TECH																						
1 day?	8 hrs	MECH VAC TECH																						
1 day?		MECH VAC TECH																						
1 day?		MECH INST TECH LIT																						
1 day?		MECH ALIGN TECH[2																						
2 days?		ICD ELEC TECH																						
1 day?		ICD ELEC TECH																						
5 days?	40 hrs	OPS SOFTWARE																						
25 days?	216 hrs																							
1 day?	0 hrs																							
1 day?		MECH INST TECH LIT																						
1 day?		MECH VAC TECH																						
2 days?		MECH VAC TECH																						
1 day?	8 hrs	MECH INST TECH LIT																						
1 day?		MECH INST TECH LIT																						
1 day?	8 hrs	MECH VAC TECH																						
1 day?	8 hrs	MECH INST TECH LIT	1																					
4 days?	32 hrs	ICD ELEC TECH																						
1 day?	8 hrs	ICD ELEC TECH																						
2 days?	16 hrs	ICD ELEC TECH																						
1 day?		MECH VAC TECH																						
3 days?		MECH VAC TECH																						
2 days		MECH VAC TECH																						
1 day?		MECH ALIGN TECH[2																						
1 day?		MECH INST TECH LIT																						
1.5 days?	24 hrs	MECH VAC TECH,ICE																						
10 days?	128 hrs																			<u>_</u>				
1 day?		RADCON TECH															Ra	dcon sı	ippor		RADC	ON TE	СН	
5 days?		MECH INST TECH LIT															remove I				32 31			MEC
1 day?		ICD ELEC TECH														discon	nect beam lin				ICD EL	EC TE	СН	
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Duration	Work	Resource Names								В					E	
			An	r 24, '1	1		May 1,	'11		в Мау 8, '11			May 15,	'11	May 22, '11 May 29, '11	Jun 5.
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2 days?	16 hrs	MECH VAC TECH										Ī			disconnect vacuum equipment MECH VA	C TECH
2 days?	16 hrs	MECH INST TECH LIT													remove water and control lines	MEC
1 day?	8 hrs	MECH INST TECH LIT													remove gird	er 📥 M
2 days?	16 hrs	MECH INST TECH LIT													remove girder s	
2 days?	16 hrs	MECH INST TECH LIT													50-58-5-5-51 1-5-5-5-5-5-5-5 1-5-5-5-5-5-5	stand gr
122 days?	704 hrs															
2 days?		MECH ALIGN TECH[2										Ĭ			survey holes for stands	N
2 days?		MECH INST TECH LIT													*C*C*C*C*C*C*	holes 💺
2 days?		MECH INST TECH LIT													EDECEDED	ount star
2 days?		MECH ALIGN TECH[2														
2 days?		MECH INST TECH LIT														
2 days?		MECH INST TECH LIT														
3 days?		H-A MECH TECH														
2 days?		H-A MECH TECH														
2 days?		ICD ELEC TECH														
2 days?		ELECTRICIAN (TECH														
Z days:	10 1113	LLLOTRIOIAIV (TLOTT														
10 days?	90 hrs	MECH INST TECH LIT														
4 days?		MECH ALIGN TECH[2														
1 day?		ICD ELEC TECH														
5 days?		ICD ELEC TECH														
3 days?		MECH INST TECH LIT														
5 days? 5 days?		MECH VAC TECH MECH VAC TECH														
1 day?		MECH VAC TECH														
4 days?		ICD ELEC TECH														
2 days?		MECH VAC TECH														
		MECH VAC TECH														
2 days?		MECH ALIGN TECH[2														
3 days		The state of the s														
3 days?		MECH VAC TECH,ICI														
5 days?	40 nrs	OPS SOFTWARE														
0.40	0.1												5/40			
0 days?	0 hrs											7	5/16			
0 days	0 hrs											•	5/16			
0 days	0 hrs											•	5/16			
0 days	0 hrs											•	5/16			
0 days	0 hrs											•	5/16			
86.5 days?	556 hrs											•				
5 days?		H-A MECH TECH, Fan						Ý	varm	up both spec	tromete	rs			H-A MECH TECH,Fansler	
5 days?	80 hrs	Fansler,H-A MECH TE													pump all magnets	Fans
										Dans 40						·
										Page 13						

Work

Duration	Work	Resource Names														1						_				
			Δηι	r 24, '1′	1		May 1,	'11			3 y 8, '11			May 1	5 '11			May 22	'11			E May 29	'11	$\overline{}$		Jun 5
			M	W	F	S	T	Т	S	M	W .	F	S	T	J, 11	s				F	S	T T	, '' T	S	M	
5 days?	80 hrs	Fansler,H-A MECH TE						•				·	ΙĬ							•						pump
5 days?	80 hrs	Fansler,H-A MECH TE																								
1 day?	16 hrs	Fansler,H-A MECH TE																								
2.5 days?	40 hrs	Fansler,H-A MECH TE																								
5 days?	80 hrs	Fansler,H-A MECH TE																								
3.75 days?	60 hrs	Fansler,H-A MECH TE																								
2.5 days?		Fansler,H-A MECH TE																								
2.5 days?	0 hrs																									
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4.5 days?	0 hrs																									
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39 days?	304 hrs	•																								
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5 days?		Segal,H-A MECH TEC																								
1 day?		Segal,H-A MECH TEC																								
1 day?		Segal,H-A MECH TEC																								
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1 day?	16 hrs	Segal,H-A MECH TEC																								
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4 days?		Segal,H-A MECH TEC																								
1 day?		Segal,H-A MECH TEC																								
1 day?		Segal,H-A MECH TEC																								
•																										
36 days?	600 hrs												-													
1 day?	8 hrs	RADCON TECH											Rado	on sup	port	RA	DCON	TECH								
4 days?	32 hrs	TARGET GROUP TEC									warm	up targ				ARGI	T GR	OUP TE	СН							
1 day?	8 hrs	H-A MECH TECH										b	leed ι	ıp chan	ıber 📥	14./	MEC	1 TEC	1							
1 day?	8 hrs	TARGET GROUP TEC													de-stin	g cry	0	TARG	ET G	ROU	TEC					
8 days?	64 hrs	TARGET GROUP TEC													disconn	ect t	arget	•						TAF	GET (GROU
1 day?	16 hrs	H-A MECH TECH,TAF																		re	move	target fr	om cha	ambe		H-A I
1 day?	8 hrs	H-A MECH TECH																				remove	vacuui	m sys	tem i	H
1 day?	8 hrs	H-A MECH TECH																					remove	e bea	n pipe	es 📥
1 day?	8 hrs	H-A MECH TECH																					remove	upp	ar cha	mber
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1 day?	8 hrs	H-A MECH TECH																							e char	
7.5 days?	120 hrs	TARGET GROUP TEC																			reco	figure 1	arget li	ines i	ind ca	bles f
36 days?	304 hrs												🕶													
1 day?		RADCON TECH									Radcor		_	RAD	CON TE											
5 days?		H-A MECH TECH							C	lisconr	nect BB	detec	tor ⊨					1 TEC								
1 day?		H-A MECH TECH													connect											
2 days?	16 hrs	H-A MECH TECH									disc	onnec	t and	move i	nst. Inte	rlock	s etc		H-A	MEC	H TEC	Ħ				
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				r 24, '11			May 1,				y 8, '11		_	May 15,	'11 T		May 22, '			May 29				un 5
2 days?	16 hrs	H-A MECH TECH	M	W	F	S	Т	T	S	M	W	F	S	Т	disco	S nect B	M W B power	F	S LÄME?	H TFC	T H	S	M	+
1 day?		H-A MECH TECH															tension rai					H TFC	н	
2 days?		H-A MECH TECH															oute BB p		*********	25			MECH	TEC
1 day?		H-A MECH TECH															1			ck dete			• 1	
1 day?		H-A MECH TECH																		••	d move			
1 day?		H-A MECH TECH																		•:	ve dete		I+	
1 day?		H-A MECH TECH																partial	rollbac	k of BB			: •	
1 day?	8 hrs	H-A MECH TECH														rig aı	nd move fie	eld clam	p inclu	ding co	limato	to sto	rage p	osit
1 day?	8 hrs	H-A MECH TECH																				rollb	ck BB	for
2 days?	16 hrs	H-A MECH TECH																		rer	nove s	nieldir	g dooi	's to
2 days?	16 hrs	H-A MECH TECH																				remo	e shie	ldin
1 day?	8 hrs	H-A MECH TECH																						
1 day?		H-A MECH TECH																						
1 day?		H-A MECH TECH																						
2 days?		H-A MECH TECH																						
1 day?		H-A MECH TECH																						
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1 day?	8 hrs	H-A MECH TECH																						
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1 day?	8 hrs	H-A MECH TECH																						
1 day?	8 hrs	H-A MECH TECH																						
1 day?	8 hrs	RADCON TECH																						
1 day?		H-A MECH TECH																						
1 day?	8 hrs	H-A MECH TECH																						
38 days?	432 hrs																							
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2 days?	16 hrs	H-A MECH TECH																						
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2 days?		RADCON TECH																						
1 day?		H-A MECH TECH																						
2 days?	32 hrs	H-A MECH TECH,TAF																						\perp
										Page	e 15													

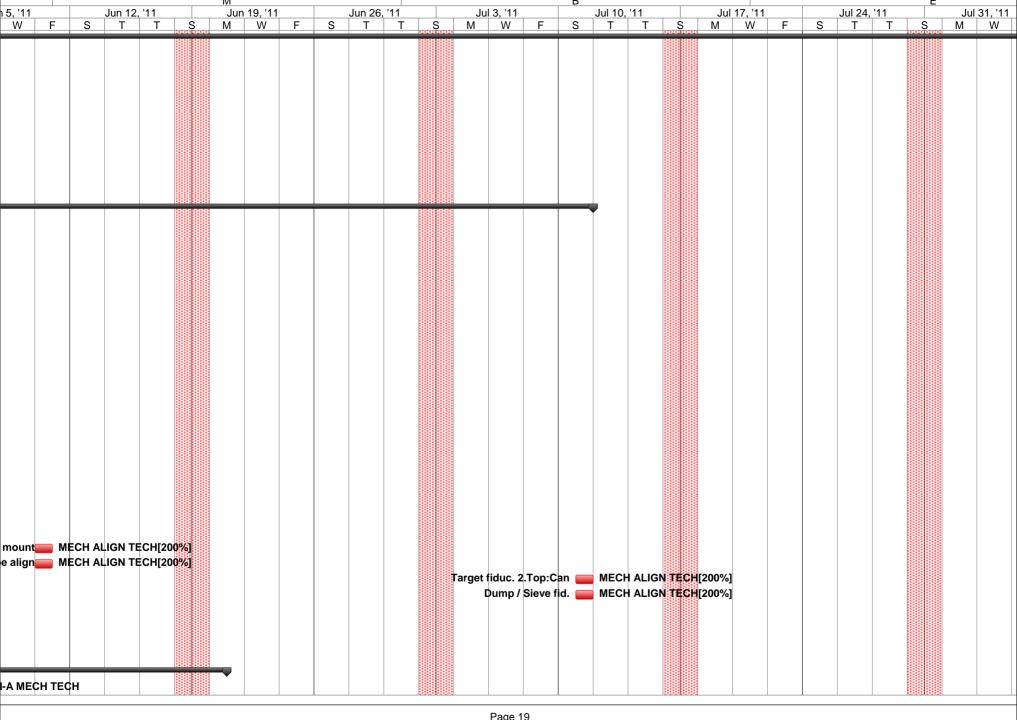
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			Apr	24, '11			May 1,	'11			8, '11			May 15	. '11		May	22, '11		T	E May 29). '11	$\overline{}$	J.	un 5.
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1 day?	16 hrs	S H-A MECH TECH,TAF																							
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2 days?		TARGET GROUP TEC																							
1 day?		H-A MECH TECH																							
1 day?		H-A MECH TECH																							
2 days?	16 hrs	ELECTRICIAN (TECH																							
4 days?	64 hrs	TARGET GROUP TEC																							
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2 days?		TARGET GROUP TEC																							
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1 day?	0 hrs																								
ı day.	0 10																								
46 days?	512 hrs	3																							
1 day?	8 hrs	TARGET GROUP TEC																							
1 day?		H-A MECH TECH																							
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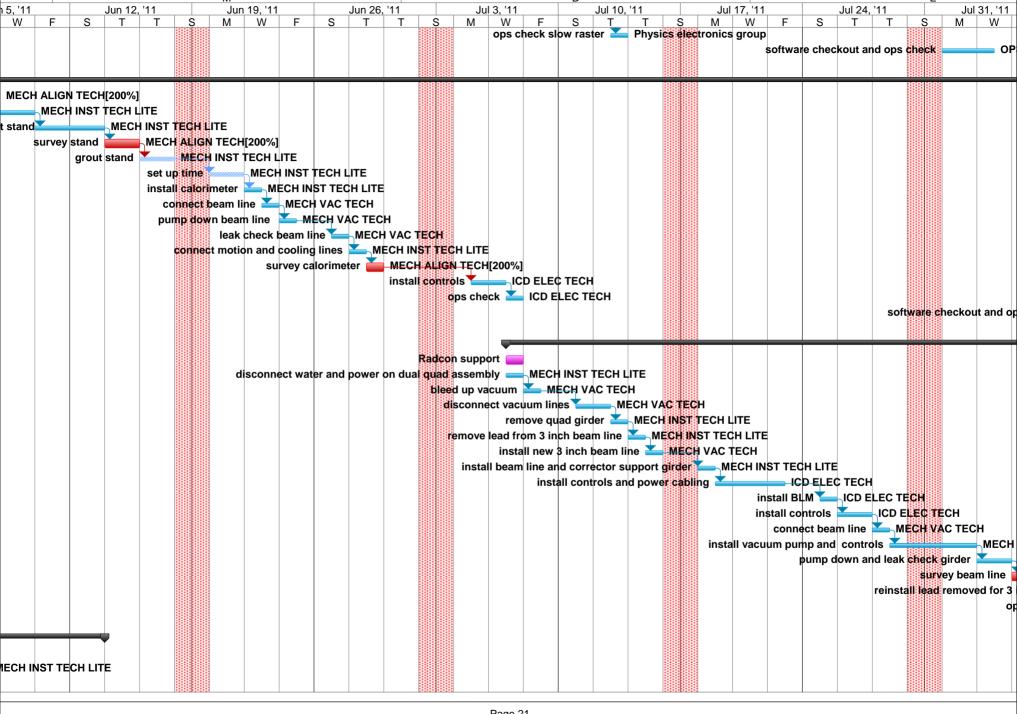
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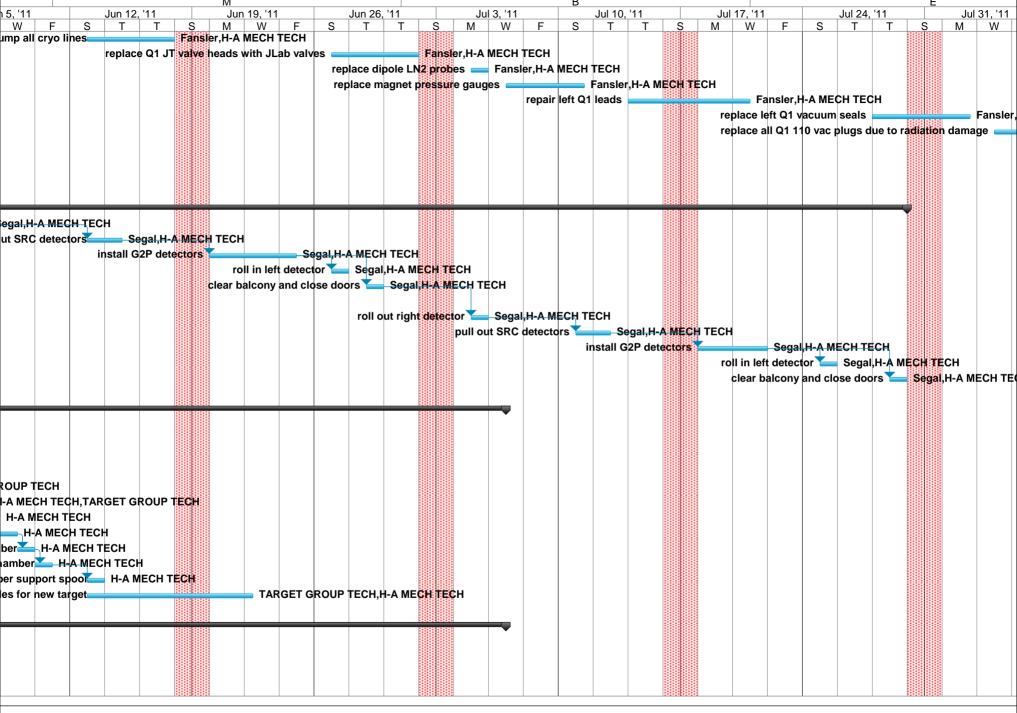


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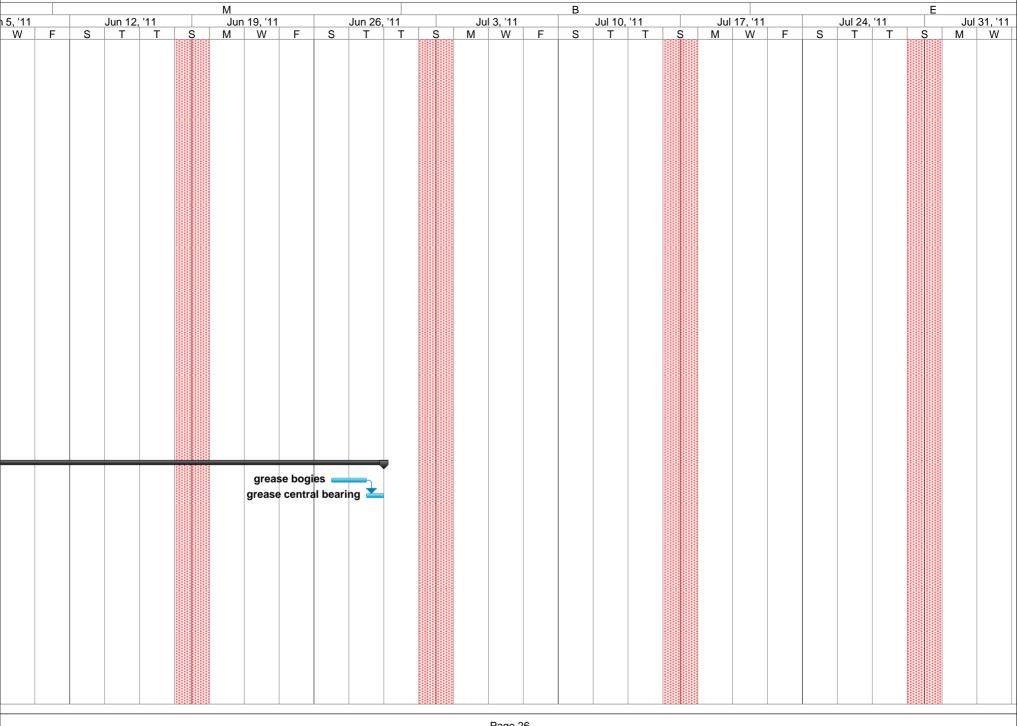


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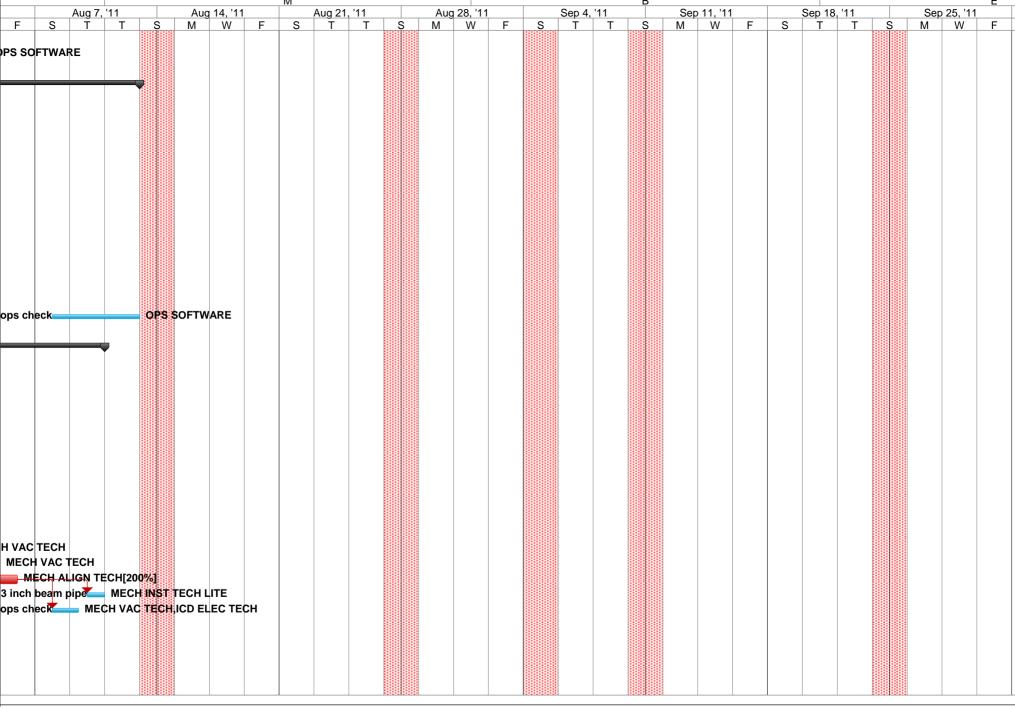
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LA MECH TECH H-A MECH TECH Wal — H-A MECH TECH ostrong position — H-A MECH TECH for door removal — H-A MECH TECH ding on top and around BB — H-A MECH TECH winstall pink stand — H-A MECH TECH install pink stand — H-A MECH TECH remove feet from BB — H-A MECH TECH remove feet from BB — H-A MECH TECH remove leet from BB — H-A MECH TECH remove rail extensions — H-A MECH TECH remove rail extensions — H-A MECH TECH remove pink stand — H-A MECH TECH remove pink stand — H-A MECH TECH Radoon support Radocon TECH move electronics to storage M-A MECH TECH H-A MECH TECH
install septum platform on support stand RadCon Hold RADCON TECH install septum magnet on platform H-A MECH TECH install tread plated and dump support on platform H-A MECH TECH pre alignment of septum magnet install beam dump between magnet and target install target chamber support on platform H-A MECH TECH install target chamber support on platform H-A MECH TECH install target chamber support on platform H-A MECH TECH pre align beam dump with laser RadCon Hold RADCON TECH install exit beam pipe in magnet H-A MECH TECH install shielding between target and magnet H-A MECH TECH install shielding between target and magnet H-A MECH TECH install shielding between target and magnet H-A MECH TECH

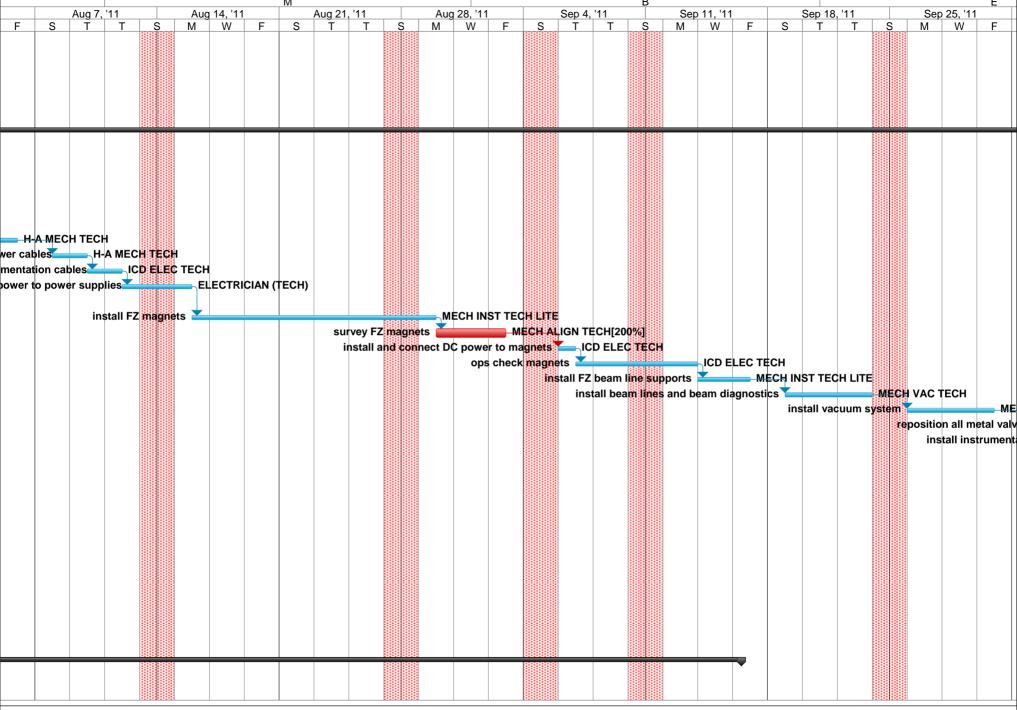
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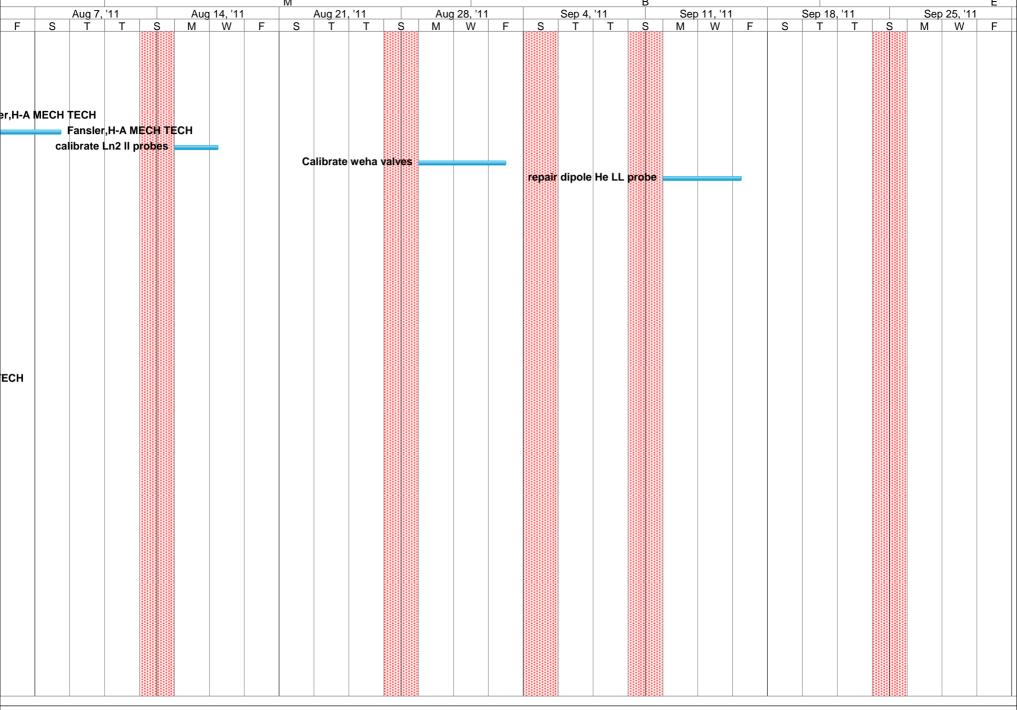


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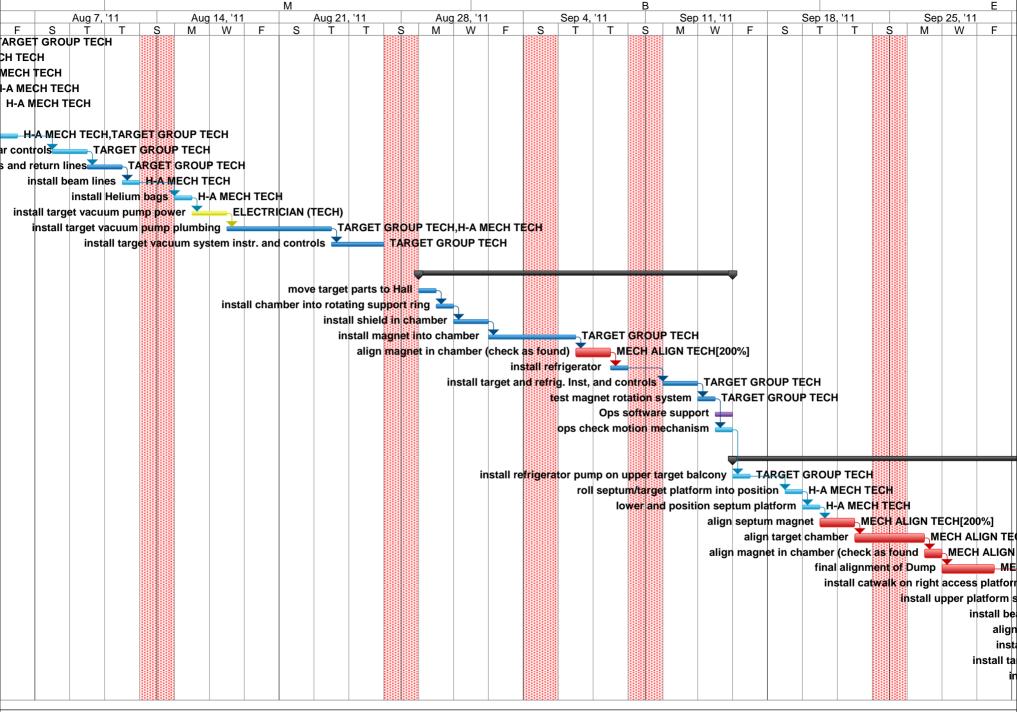
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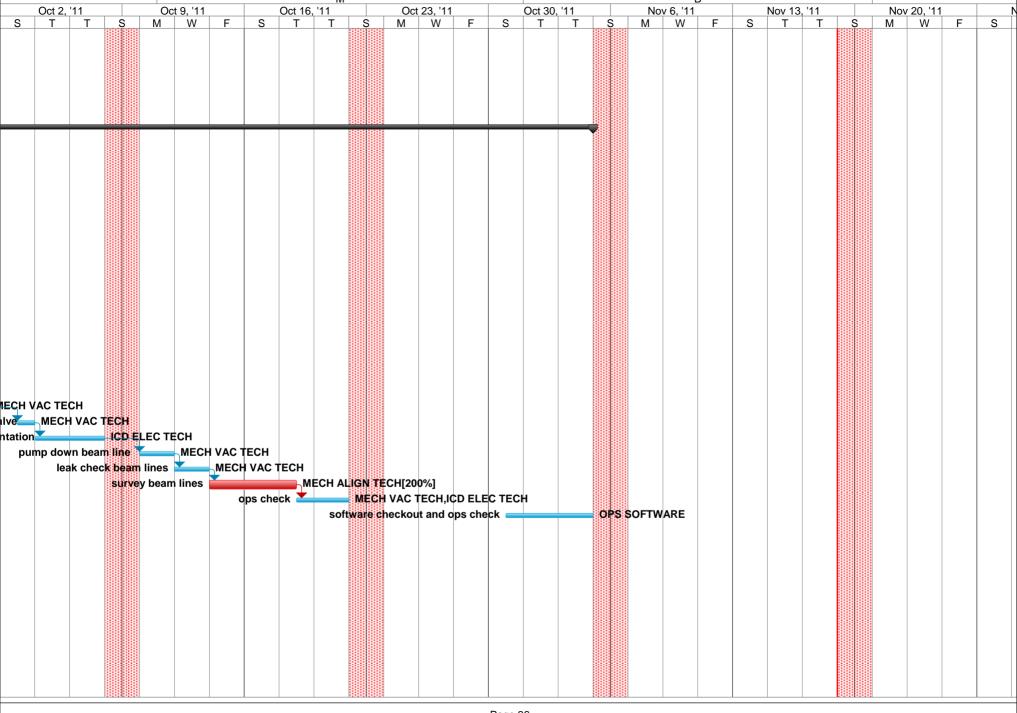


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