	sak Nama	Duration	Ctort	Finish	0/ Dradaaaaaa	01 lune				14 Autobar 164 Jacobar 144 March 194 March 194 March 194 March
	ask Name	Duration	Start	Finish	% Predecessors	01 June 29/05	03/07	111 August 07/0	8	11/09 16/10 20/11 25/12 29/01 04/03 08/04 13/05 17/06 22/07 28/08
1 F	reparation, Review and Analysis			Mon 22/08/11		;			Preparation, R	wand Analysis
2	Spectrometer Solenoid MICE Review Preliminary Comments issued from MICE Committee			Wed 27/10/10 Mon 22/11/10						
3	MICE Committee final report distributed			Mon 22/11/10 Tue 14/12/10						
5	MAP PMG Meeting			Wed 12/01/11				1		
6	Preliminary comments preparation	2 wks	Mon 22/11/10	Fri 03/12/10	100% 3					
7	Preparation of responses to MICE committee and magnet repair plan			Tue 16/11/10		1				
8	Delivery of the Vector Fields QUENCH code			Mon 13/12/10						
9	Heat leak and Cryogenic calculations			Tue 15/02/11						
10 11	Model construction and analyusis of quench protection response preparation Review and check of Quench protection work (Technical board to assign reveiwer)			Tue 22/02/11 Mon 01/08/11		e preparation	Bovi	iow and char	k of Ouenchin	action work (Technical board to assign revelwer)
12	Decision point for Quench protection			Mon 01/08/11		;			for Quench p	
13	Manufacture drilling fixture and drill holes for 5+5 (rdudancy)			Mon 22/08/11						fixture and drill holes for 5+5 (rdudancy)
	olaboration Meetings			Fri 08/07/11			Colaboration Meeting			
15	RAL Meeting			Fri 18/02/11					-	
16	Oxford Meeting			Fri 08/07/11			Oxford Meeting			
17 [esign - Magnet Modification Design new tower assembly for 5 +1 cooler arangement			Wed 10/08/11 Fri 27/05/11		Design new tower assembly			Magnet Modif	n i i i i i i i i i i i i i i i i i i i
10	Design for 5 cryo coolers in the Cold Mass / Body cut for Ressistor block access			Fri 27/05/11		Design for 5 crvo coolers in			tor block acce	
20	Design for new Radiation shield			Fri 27/05/11		Design for new Radiation st				
21	Design for new intelt / vent tubes including radiation baffle			Fri 27/05/11		Design for new intelt / vent	tubes including radiatior	n baffle	-	
22	Design work completed			Fri 27/05/11		Design work completed		1	Ξ	
23	Internal design review to asses the designs for towers, cold mass, radiation shield and inlet			Fri 03/06/11		Internal design review				hield and inlet
24	Designs for Towers, cold mass, radiation shield and inlet accepted			Fri 03/06/11		6 Designs for Towers, c				
25 26	Design and Test of Ressistor block conduction plate Wang receive purchase order for additional work			Mon 25/07/11 Wed 10/08/11			Design ar			duction plate er for additional work
	abrication and Assembly Solenoid 2			Thu 12/01/12					purchas	Flori auduutati work Forication and Assembly Solenoid 2
28	Fabrication	164 days	Fri 27/05/11	Thu 12/01/12	34%					Fabrication
29	Cold Mass for Solenoid 2	35.5 days	Wed 03/08/11	Wed 21/09/11	38%]:	🔶 🚃	<u>+</u> +		Cold Mass for Solenoid 2
30	Machine 5 holes for the cryo coolers			Fri 12/08/11					5 holes for the	
31	Cut section from coldmass cover for ressistor access			Wed 10/08/11			98			cover for resistor access
32 33	Remove ressistor and diode pack from the cold mass Manufacture new ressistor conduction plate			Mon 15/08/11 Thu 01/09/11						ode pack from the cold mass new ressistor conduction plate
33	Diss-assemble the ressistor / diode pack and re-build with new ressistor conduction plate			Tue 06/09/1						new resistor conduction plate
35	Install newly assebled ressitor / diode pack into the cold mass			Fri 09/09/11						minite interession i nonce pack and resulta minitere resistant conduction place
36	Insert Bimetal inserts into holes	1 day	Mon 15/08/11	Mon 15/08/11	0% 30				Bimetal insets	to holes
37	Weld cooler tubes and bellow			Tue 16/08/11		1:		Weld	cooler tubes a	
38	Weld new material over the ressistor / diode area			Mon 12/09/11						I new material over the ressistor / diode area
39 40	Ressistor / Diode pack with conduction plate installed Construct new large bore Fill tube with stinger tube and radiation baffle			Mon 12/09/11 Tue 13/09/11						sistor / Diode pack with conduction plate installed struct new large bore Fill tube with stinger tube and radiation baffle
40	Construct new large bore Fill tube with stinger tube and radiation baffle Construct new large bore Vent tube with He level sensor and radiation baffle			Tue 13/09/11 Tue 13/09/11						struct new large bore hill tube with stinger tube and radiation battle
42	Cut old fill / vent tubes to accept new larger bore tubes			Wed 14/09/11						t old fill / vent tubes to accept new larger bore tubes
43	Install and weld new larger bore Fill / Vent tubes - Feed Instrumentation lines through level tube	1 day N	Wed 14/09/11	Thu 15/09/11	0% 42	11				stall and weld new larger bore Fill / Vent tubes - Feed Instrumentation lines through level tube
44	Cold Mass ready for He leak checking			Thu 15/09/11			-		15/09	old Mass ready for He leak checking
45	Install heat intercept to main fill line			Fri 16/09/11			ſ			stall heat intercept to main fill line
46 47	Install 4K lead heat intercepts Attach vacuum rig and evacuate			Mon 19/09/11 Mon 19/09/11						Install 4K lead heat intercepts Attach vacuum rig and evacuate
47	Attach vacuum rig and evacuate Vacuum leak check			Wed 21/09/11						Attach vacuum ng and evacuate
49	Cold mass ready for MLI wrapping			Wed 21/09/11 Wed 21/09/11					2=/	Cold mas ready for MLWrapping
50 51	Radiation Shield for Solenoid 2 and 1			Fri 23/09/11						Radiation Shield for Solenoid 2 and 1
51	Ship out material from WANG to rolling mill	0 days	Fri 27/05/11	Fri 27/05/11	100% 20	Ship out material from WA				
52	Radiation shield work at the rolling mill			Fri 24/06/11			on shield work at the roll			
53 54	Radiation Shield 2 and 1 arrive at WANG from rolling mill Machine help in the radiation shield for one coolers and cold mass supports			Fri 24/06/11		24/06 🔶 Radiat	ion Shield 2 and 1 arrive			be the addition shield for any conjust and cold more support.
54 55	Machine hole in the radiation shield for cryo coolers and cold mass supports Machine end plates for the radiation shields			Thu 01/09/11 Tue 13/09/11					Machire	e in the radiation shield for cryo coolers and cold mass supports In e end plates for the radiation shields
55	Attached thermal intercepts for the copper tower and straps to cold mass supports and tubes			Fri 16/09/11			198 0 - 1 🗑 - 1	11		Interests for the radiation sinelines
57	Istall temperature sensors			Fri 23/09/11						Istall temperature sensors
58	Radiation Shield parts ready for MLI wrapping			Fri 23/09/11					2:	Radiation Shield parts ready for MLI wrapping
59	Cooler Tower			Fri 18/11/11				¥	;	
60	Machine new hole in the Vacuum vessel for the fifth cryo cooler			Fri 16/09/11					<u></u>	achine new hole in the Vacuum vessel for the fifth cryo cooler
61 62	Machine new hole for the Vacuum pumpout port Grind Plasma burn from new chamber cuts			Mon 19/09/11 Thu 22/09/11			ų	7		Machine new hole for the Vacuum pumpout port Grind Plasma burn from new chamber cuts
63	Machining work on Vacuum Vessel Completed			Thu 22/09/11 Thu 22/09/11		:			22	channo reasing our information cost
64	Manufacture new tower plates	1 wk	Mon 19/09/11	Mon 26/09/11	0% 24,46					Manufacture new tower plates
65	Weld top and end plates to Vacuum vessel on both towers	3 days	Mon 26/09/11	Thu 29/09/11	0% 64	1:				A Weld top and end plates to Vacuum vessel on both towers
66	Install cooler sleeves and copper plates			Wed 26/10/11						Constall cooler sleeves and copper plates
67 68	Weld cooler sleeves to cold mass / Cooler towers			Fri 28/10/11						Weld cooler sleeves to cold mass / Cooler towers
68 69	Install Copper straps between 1st stage and Copper plates Cooler sleeves and radiation shield to 1st stage completed			Tue 01/11/17 Tue 01/11/17						01/11 Copper straps between 1st stage and Copper plates
70	Install the warm leads and HV feedthroughs			Wed 02/11/11						A result warm leads and HV feedthroughs
71	Install the heat intercepts to Copper plates	2 days N	Wed 02/11/11	Fri 04/11/11	0% 70					Install the heat intercepts to Copper plates
72	Install thermal connection from 1st stage Copper plates to Shield			Tue 08/11/17] :				Substall thermal connection from 1st stage Copper plates to Shield
73	Weld plates front and back			Fri 18/11/11						Veld plates front and back
74 75	Fill and Vent Tower Install and weld lower sections of fill / vent tower to Vacuum vessel			Thu 12/01/12 Tue 03/01/12						I I and Vent Tower
76	Install instrumentation feedthrough			Wed 04/01/12						Install instrumentation feedbrough Install instrumentation feedbrough
77	Check all instrumentation lines for activity			Thu 05/01/12						Check all instrumentation lines for activity
78	Instrumentation lines installed and tested	0 days	Thu 05/01/12	Thu 05/01/12	0% 77					05/01 Characteristic installed and tested
79	Weld the upper portion of the tower			Mon 09/01/12						Weld the upper portion of the tower
80 81	Complete assembly of fill and vent tower and install			Thu 12/01/12						Complete assembly of fill and vent tower and install
81 82	Fill / Vent Tower completeed			Thu 12/01/12 Mon 19/12/11						12/01 Fill / Vent Tower completeed
82 83	MLI Wrap cold mass 2 with MLI			Mon 19/12/11 Mon 03/10/11						Wrap cold mass 2 with MLI
84	Sign off quality of MLI layers on cold mass 2			Mon 03/10/11						by to a start of thul layers on cold mass 2
85	Wrap radiation shield 2 with MLI	6 days	Mon 26/09/11	Tue 04/10/11	0% 107,58					Wran radiation shield 2 with MI
86	Sign off quality of MIL layers on radiation shield 2			Tue 04/10/17		1 :				0410 🕹 Sign off quality of MIL layers on radiation shield 2
87	Wrap cold mass supports with MLI			Wed 12/10/11						Wrap cold mass supports with MLI
88 89	Sign off quality of MLI wrap around supports Wrap upper and lower tower area with MLI			Wed 12/10/11 Mon 14/11/11						12/10 Sign off quality of MLI wrap around supports
90	Wrap upper and lower tower area with MLI Wrap 1st stage Copper plates to shield connections			Wed 16/11/11						Wrap upper and lower lower area with ML Wrap 1st stage Copper julies to shield connections
91	Sign off Tower MLI wrapping			Wed 16/11/11						16/11 4 Sign off Tower MLI wrapping :
92	Apply MLI to Shield and cold mass bore			Mon 28/11/11		1 :				Apply MLI to Shield and cold mass bore
93	Sign off Shield and cold mass bore wrapping			Mon 28/11/11						28/11 🎝 Sign off Shield and cold mass bore wrapping
94	Integrate cold mass MLI with bore MLI			Mon 05/12/11						Integrate cold mass MLI with bore MLI
95 96	Sign off cold mass to bore MLI conection Apply MLI to shield ends			Mon 05/12/11 Thu 08/12/11						05/12 Sign off cold mass to bore MLI conection
96	Apply MLI to snield ends Apply MLI between warm bore and shield bore			Wed 14/12/11						Apply MLI to shield ends
98	Sign off shield MLI and warm bore MLI			Wed 14/12/11 Wed 14/12/11						14/12 Sign off shield ML and warm bore ML
99	Integrate MLI between warm bore and shield ends			Mon 19/12/11						Integrate MLI between warm bore and shield ends
	Spectrometer Solenoids Ver16 Task Milestone		Rolled Up			5	External Task			Group By Summary
Date. 11	Progress Summary		Rolled Up	Milestone 🛇	Spli		Project Summ	nary 🛡		Deadline 4
										Page 1

Instrumentatic 101 Instrumentatic 102 Order / D 103 Install lev 104 Order and 105 Order and 106 Install ext 107 Install ext 108 Add temp 109 Attach the 110 Apply ther 111 Current Leads 112 Install HTS 113 Coolers 114 Purchase 115 Delivery o 116 Install HTS 117 Coolers 118 Remove C 119 Manufactu 122 Install the 123 Install the 124 Install ord 125 Recharge 126 Suspend Shied 130 Radiation shiel 131 Install cold mass alig 133 Connect due as 134 Suspend the cold 135 Cold Mass and	Deliver He Level Sensor for new Fill / Vent line level sensor cold mass 2 - new fill line / vent line and Deliver Cernox sensors and Deliver new Silicon Diode Sensors external temp sensors cold mass 2 temp sensors radiation shield 2 emp sensors to the Copper plates thermal instramentation top shield	0 days Mon 19/12/11 Mon 19/12/11 0% 99 153.5 days Fri 03/06/11 Twet 04/01/12 3% 99 4 wks Fri 03/06/11 Two 17/07/11 100% 99 4 wks Fri 03/06/11 Two 17/07/11 100% 55 4 wks Fri 03/06/11 Two 30/06/11 100% 105SS 4 wks Fri 03/06/11 Two 30/06/11 100% 105SS 4 wks Fri 03/06/11 Two 30/06/11 100% 105SS 4 wks Fri 03/06/11 Two 30/06/11 0% 58 1 day Fri 23/09/11 Mon 26/09/11 0% 58 1 day Fri 03/06/11 Mon 07/11/11 0% 112 1 day Fri 04/11/11 Mon 07/11/11 0% 71 1 day Fri 05/08/11 Fri 05/0	Remove Copper parts from old cooler tubes and clean up for re-us; Manufacture new cooler parts Manufacture new cooler thin walled tubes
102 Order / De 103 Install lew 104 Order and 105 Order and 106 Install ew 107 Install ew 108 Add temp 109 Attach the 110 Apply ther 111 Current Leads 112 Install Table 113 Coolers 114 Purchase 115 Delivery o 116 Install mar 117 Coolers 118 Remove C 119 Manufactu 120 Manufactu 121 Install Sin 122 Install Col 123 Install Col 124 Install Col 135 Cold Mass and 136 Weld the Coole 137 Align the cold r 138 Cold Mass and 139 Connect cold r 134 Suspend the cole 135 Cold Mas	/ Deliver He Level Sensor for new Fill / Vent line level sensor cold mass 2 - new fill line / vent line and Deliver Cernox sensors and Deliver new Silicon Diode Sensors external temp sensors cold mass 2 temp sensors to cold mass supports temp sensors to cold mass supports thermal instramentation top shield ads HTS leads with upper and lower voltage taps ase Water cooler tower ery of Water Cooler Tower manifold for cryo cooler compressor cooling water rs ready for use ve Copper parts facture new cooler thin walled tubes Stainless Steel cans to cooper cooler parts Single stage coolers to sleeves cro cooler towes	4 wks Fri 10/06/11 Thu 07/07/11 100% 4 wks Fri 03/06/11 Thu 07/07/11 100% 75,102 4 wks Fri 03/06/11 Thu 30/06/11 100% 105SS 4 wks Fri 03/06/11 Thu 30/06/11 100% 105SS 4 wks Fri 03/06/11 Thu 30/06/11 00% 18SS 4 wks Fri 03/06/11 Wed 21/09/11 0% 48,105 1 day Fri 14/10/11 Mon 07/11/10 % 58 1 day Fri 14/10/11 Mon 07/11/11 0% 131 4 hrs Mon 07/11/11 Mon 07/11/11 0% 143 1 day Fri 04/11/11 Mon 07/11/11 0% 71 1 day Fri 04/11/11 Mon 07/11/11 0% 71 1 day Fri 04/11/11 Mon 07/11/11 0% 71 1 day Fri 05/08/11 Thu 27/10/11 0% 114 4 wks Fri 05/08/11 Thu 27/10/11 0% 115FS-20 days 0 days	Order 4 Deliver Cernox sersors Order and Deliver Cernox sersors Order and Deliver new Silicor Diode Sensors Order and Deliver new Silicor Diode Sensors Pirceal external temp sensors cold mass 2 Install temp sensors to the Copper plates Apply thermal instramentation top shield Current Leads Install TS leads with upper and lower voltage taps Coolers Coolers cooler corpressor cooling water Coolers and clean up for re-usp Manufacture new cooler tubes and clean up for re-usp Manufacture new cooler tubes and clean up for re-usp
103 Install leve 104 Order and 105 Order and 106 Install exte 107 Install exte 108 Install exte 109 Attach the 110 Apply ther 111 Current Leads 112 Install HTS 113 Coolers 114 Purchase 115 Delivery o 116 Install mar 120 Manufactu 121 Braze Stat 122 Install the 123 Install the 124 Install the 125 Recharge 126 Assembly <start< td=""> 127 Assembly<start< td=""> 128 Assembly<start< td=""> 130 Radiation shiel 131 Install cold mas 132 Move vacuum 133 Connect hear 134 Suspend the cold 135 Cold Mass and 136</start<></start<></start<>	level sensor cold mass 2 - new fill line / vent line and Deliver cernox sensors and Deliver new Silicon Diode Sensors external temp sensors cold mass 2 temp sensors to cold mass 2 mp sensors to cold mass upports in thermal sensors to the Copper plates thermal instramentation top shield adds HTS leads with upper and lower voltage taps ase Water cooler tower ery of Water Cooler Tower manifold for cryo cooler compressor cooling water rs ready for use ve Copper parts from old cooler tubes and clean up for re-use facture new cooler parts facture new cooler thin walled tubes Stalnitess Steel cans to copper cooler parts Single stage coolers to Tower the 2 stage coolers to Sleeves coro cooler hoses	4 hrs Wed 04/01/12 Wed 04/01/12 Wed 75,102 4 wks Fr 03/06/11 Thu 30/06/11 100% 105SS 4 wks Fr 03/06/11 Thu 30/06/11 100% 105SS 4 wks Fr 03/06/11 Thu 30/06/11 00% 105SS 1 day Fri 23/09/11 Wed 21/09/11 0% 58 1 day Fri 23/09/11 Mon 26/09/11 0% 58 1 day Fri 23/09/11 Mon 07/11/11 0% 131 4 hrs Mon 05/12/11 Mon 07/11/11 0% 142 1 day Fri 04/11/11 Mon 07/11/11 0% 143 1 day Fri 04/11/11 Mon 07/11/11 0% 1 1 day Fri 05/08/11 Thu 27/10/11 0% 1 1 day Fri 05/08/11 Thu 27/10/11 0% 114 4 wks Fri 05/08/11 Thu 27/10/11 0% 115FS-20 days 0 days Thu 27/10/11 Thu 27/10/11 0% 115FS-20 days 0 days	Order and Deliver Cernox sensors Order and Deliver new Silicon Diode Sensors Unstall external tomp sensors cold mass 2 Install emp sensors to cold mass 2 Install tomp sensors to the Copper plates Add temp sensors to the Copper plates Install try and the plate to the coper plates Install try and to the plate to the coper plates Install try and to the plate to the coper plates Install try and the plate to the coper plates Install manifold for cry a coler compressor cooling water Install manifold for cry a coler compressor cool
104 Order and 105 Order and 106 Install ext 107 Install ext 108 Add temp 109 Attach the 110 Apply ther 111 Current Leads 112 Install HTS 113 Coolers 114 Purchase 115 Delivery o 116 Install HTS 117 Coolers 118 Remove C 119 Manufactu 122 Install Sin 123 Install Sin 124 Install Col 125 Recharge 126 Suspend shield 130 Radiation shiel 131 Install col mass alig 132 More accum 133 Connect the su 134 Suspend the cole 135 Cold Mass and 136 Weld the Cole 137 Align the cold n 138	and Deliver Cernox sensors and Deliver new Silicon Diode Sensors external temp sensors cold mass 2 temp sensors to old mass 2 temp sensors to cold mass supports themal sensors to the Copper plates thermal instramentation top shield ads ae Water cooler tower ray of Water Cooler Tower manifold for cryo cooler compressor cooling water rs ready for use ve Copper parts from old cooler tubes and clean up for re-use facture new cooler thin walled tubes Stainless Steel cans to copper cooler parts Single stage coolers to Tower the 2 stage coolers to Tower the 2 stage coolers to sleeves cor cooler hoses	4 wks Fri 03/06/11 Thu 30/06/11 100% 105SS 4 wks Fri 03/06/11 Thu 30/06/11 100% 105SS 4 hrs Wed 21/09/11 Wed 21/01/11 Wed 21/01/11 Wed 11/08/11 Thu 27/10/11 Wed 11/08/11	Order and Deliver Cernox sensors Order and Deliver new Silicor Didde Sensors Pirstall exernal temp sensors cold mass 2 Pinstall temp sensors cold mass 2 Pinstall temp sensors to cold mass supports ratach thermal sensors to the Copper plates Add temp sensors to cold mass supports Current Leads O5/08 Purchase Water cooler tover Pelivery of Water Cooler Tower Delivery of W
106 Install exit 107 Install exit 108 Add temp 109 Attach the 110 Apply ther 111 Current Leads 112 Install HTS 113 Coolers 114 Purchase 115 Delivery of 116 Install mar 117 Coolers re 118 Remove C 119 Manufactu 120 Manufactu 121 Braze Stall 122 Install Mte 123 Install Ite 124 Install Ite 125 Recharge 126 New vacuum 130 Radiation shiel 131 Install cold mas 132 Move vacuum 133 Conder Mass and 134 Suspend the cold 135 Cold Mass and 136 Weld shield en 137 Align the cold r 138	external temp sensors cold mass 2 temp sensors to cold mass supports mp sensors to cold mass supports thermal sensors to the Copper plates thermal instramentation top shield aads HTS leads with upper and lower voltage taps ase Water cooler tower ery of Water Cooler Tower manifold for cryo cooler compressor cooling water rs ready for use ve Copper parts from old cooler tubes and clean up for re-use facture new cooler parts facture new cooler thin walled tubes Stainless Steel cans to copper cooler parts Single stage cooler to Tower the 2 stage coolers to Steeves co cooler toses	4 hrs Wed 21/09/11 Wed 21/09/11 0% 48,105 1 day Fri 43/09/11 Mon 26/09/11 0% 58 1 day Fri 43/09/11 Mon 26/09/11 0% 58 1 day Fri 44/10/11 Mon 07/11/11 0% 131 4 hrs Mon 07/11/11 Mon 07/11/11 0% 112 1 day Fri 04/11/11 Mon 07/11/11 0% 143 1 day Fri 04/11/11 Mon 07/11/11 0% 71 1 day Fri 04/11/11 Mon 07/11/11 0% 71 1 day Fri 05/08/11 Thu 27/10/11 0% 1 day Fri 05/08/11 Thu 27/10/11 0% 1 wks Fri 05/08/11 Thu 27/10/11 0% 1 wks Fri 05/08/11 Thu 27/10/11 0% 115FS-20 days 0 days Thu 27/10/11 Thu 27/10/11 0% 116 1 wk Mon 13/06/11 Fri 17/06/11 5% 118 1 wk Mon 13/06/11 Fri 17/06/11 5% 119.26 1 wk Wed 17/08/11 Tue 23/08/11 0% <t< td=""><td>Pinstall emp sensors cold mass 2 Pinstall emp sensors cold mass 2 Pinstall emp sensors cold mass supports Add remp sensors to the Copper plates Add remp sensors to the Copper plates Add remp sensors to the Copper plates Apply herrial instramentation top shield Current Leads Delivery of Water Cooler Tower Install HTS leads with upper and lower voltage taps Coolers Cool</td></t<>	Pinstall emp sensors cold mass 2 Pinstall emp sensors cold mass 2 Pinstall emp sensors cold mass supports Add remp sensors to the Copper plates Add remp sensors to the Copper plates Add remp sensors to the Copper plates Apply herrial instramentation top shield Current Leads Delivery of Water Cooler Tower Install HTS leads with upper and lower voltage taps Coolers Cool
107 Install tem 108 Add temp 109 Attach temp 109 Attach temp 110 Apply ther 111 Current Leads 112 Install HT 113 Coolers 114 Purchase 115 Delivery o 116 Install mar 117 Coolers 118 Remove C 119 Manufactu 120 Manufactu 121 Install Sin 122 Install Sin 123 Install Col 124 Install Col 132 Move vacum 133 Connect the su 134 Suspend the cole 135 Cold Mass and 136 Weld the Coole 137 Align the coid n 138 Coder mass alig 139 Connect cod n 140 Add copper shu 143 Weld shield en 143	temp sensors radiation shield 2 mp sensors to cold mass supports thermal sensors to the Copper plates thermal instramentation top shield ads ads HTS leads with upper and lower voltage taps ase Water cooler tower ry of Water Cooler Tower manifold for cryo cooler compressor cooling water rs ready for use ve Copper parts from old cooler tubes and clean up for re-use facture new cooler parts facture new cooler thin walled tubes Stainless Steel cans to copper cooler parts Single stage coolers to Sleeves cro cooler towes	1 day Fri 23/09/11 Mon 26/09/11 0% 58 1 day Fri 14/10/11 Mon 17/10/11 0% 131 4 hrs Mon 07/11/11 Mon 07/11/11 0% 131 1 day Mon 05/12/11 Mon 05/12/11 0% 143 1 day Fri 04/11/11 Mon 07/11/11 0% 143 1 day Fri 04/11/11 Mon 07/11/11 0% 71 1 day Fri 04/11/11 Mon 07/11/11 0% 71 1 day Fri 05/08/11 Tue 10/01/12 7% 76 0 days Fri 05/08/11 Tue 27/10/11 0% 114 4 wks Fri 30/09/11 Thue 27/10/11 0% 115FS-20 days 0 days Thu 27/10/11 Thu 27/10/11 0% 116 1 wk Mon 13/06/11 Fri 17/06/11 50% 118 1 wk Mon 13/06/11 Fri 17/06/11 50% 119.26 1 wk Wed 17/08/11 Tue 23/08/11 0% 120 1 wk Wed 17/08/11 Tue 23/08/11	05/08 -Purchase Water cooler toyer 05/08 -Purchase Water cooler toyer <td< td=""></td<>
108 Add temp 109 Attach the 100 Apply the 111 Current Leads 112 Install HT 113 Colors 114 Purchase 115 Delivery o 116 Install mar 117 Colors re 118 Remove O 119 Manufact 121 Braze Stal 122 Install Sin 123 Install Sin 124 Install Sin 125 Recharge 126 Suspend Shield 131 Install cold mas 132 Move vacuum ' 133 Connect the su 134 Suspend Shield 135 Cold Mass and 136 Weld the Coole 137 Align Vacuum vessel 138 Cold mass align Vacuum vessel 139 Connect cold r 141 Align Vacuum vessel 142 Install shield bc <	amp sensors to cold mass supports thermal instramentation top shield sads HTS leads with upper and lower voltage taps ase Water cooler tower ery of Water Cooler Tower manifold for cryo cooler compressor cooling water rs ready for use ve Copper parts from old cooler tubes and clean up for re-use facture new cooler thin walled tubes Stainless Steel cans to copper cooler parts Single stage coolers to Sleeves cro cooler toses	1 day Fri 14/10/11 Mon 17/10/11 0% 131 4 hrs Mon 07/11/11 Mon 07/11/11 0% 142 1 day Mon 05/12/11 Mon 05/12/11 0% 142 1 day Fri 04/11/11 Mon 07/11/11 0% 143 1 day Fri 04/11/11 Mon 07/11/11 0% 71 1 day Fri 04/11/11 Mon 07/11/11 0% 71 1 day Fri 04/11/11 Mon 07/11/11 0% 71 1 day Fri 05/08/11 Tue 10/01/12 7% 9 0 days Fri 05/08/11 The 10/12 7% 9 0 days Fri 05/08/11 Thu 27/10/11 0% 114 4 wks Fri 05/08/11 Thu 27/10/11 0% 115S-20 days 0 days Thu 27/10/11 Thu 27/10/11 0% 116 1 wk 1 wk Mon 03/06/11 Fri 10/06/11 10% 123 11 11 11 112 11 112 116 111	05/08 Purchase Water cooler tower 0
109 Attach the 110 Apply the 111 Current Leads 112 Install HTS 113 Coolers 114 Purchase 115 Delivery o 116 Install mar 117 Coolers re 118 Remove C 119 Manufactu 120 Manufactu 121 Braze Stat 122 Install Stat 123 Install Ithe 124 Install Stat 125 Recharge 126 Assembly Start 130 Radiation shiel 131 Install old mas 132 Move vacuum 133 Conder the su 134 Suspend the cold 135 Cold Mass and 136 Weid the Coold ris 137 Align Vacuum 143 Suspend the cold ris 143 Need shield en 144 Install shield be	n thermal sensors to the Copper plates thermal instramentation top shield adds HTS leads with upper and lower voltage taps ase Water cooler tower ery of Water Cooler Tower manifold for cryo cooler compressor cooling water rs ready for use we Copper parts from old cooler tubes and clean up for re-use facture new cooler parts facture new cooler thin walled tubes Stalniess Steel cans to copper cooler parts Singles stage coolers to Tower the 2 stage coolers to Sleeves or cooler hoses	4 hrs Mon 07/11/11 Mon 07/11/11 0% 112 1 day Mon 05/12/11 Mon 05/12/11 0% 143 1 day Fri 04/11/11 Mon 07/11/11 0% 7 1 day Fri 04/11/11 Mon 07/11/11 0% 71 1 for Hon 06/06/11 Tue 10/01/12 7% 0 days Fri 05/08/11 Fri 05/08/11 Fri 05/08/11 1 wks Fri 05/08/11 Thu 27/10/11 0% 114 4 wks Fri 30/09/11 Thu 27/10/11 0% 114 4 wks Fri 30/09/11 Thu 27/10/11 0% 115 0 days Thu 27/10/11 Thu 27/10/11 0% 116 1 wk Mon 03/06/11 Fri 17/06/11 50% 118 1 wk Wed 10/08/11 Fri 17/06/11 50% 119.26 1 wk Wed 17/08/11 Tue 23/08/11 0% 120 1 wk Wed 17/08/11 Wen 31/10/11 0% 67	05/08 Purchase Water cooler tower 05/08 Pu
110 Apply ther 111 Current Leads 112 Install HTS 113 Coolers 114 Purchase 115 Delivery o 116 Install mat 117 Coolers 118 Remove C 119 Manufactu 120 Manufactu 121 Braze Stal 122 Install Sin 123 Install Co 124 Install Co 125 Recharge 126 Suspend Shield 131 Install Cold mas 132 Move vacuum 133 Conder the su 134 Suspend the Coole 137 Align the coid n 138 Cold Mass and 136 Weid the Coole 137 Align the coid n 138 Cold Mass and 139 Connect coid n 140 Add coppers shu 143 Weid shield be 144	thermal instramentation top shield ads HTS leads with upper and lower voltage taps ase Water cooler tower y of Water Cooler Tower manifold for cryo cooler compressor cooling water rs ready for use ve Copper parts from old cooler tubes and clean up for re-use facture new cooler parts facture new cooler parts facture new cooler thin walled tubes Stianless Steel cans to copper cooler parts Single stage coolers to Sleeves cor cooler hoses	1 day Mon 05/12/11 Mon 05/12/11 0% 143 1 day Fri 04/11/11 Mon 07/11/11 0% 7 1 day Fri 04/11/11 Mon 07/11/11 0% 71 157 days Mon 06/06/11 Tue 10/01/12 7% 7% 0 days Fri 05/08/11 Fri 05/08/11 0% 143 12 wks Fri 05/08/11 Tue 10/01/12 7% 7% 0 days Fri 05/08/11 Tue 10/01/12 7% 15 12 wks Fri 05/08/11 Tue 27/10/11 0% 114 4 wks Fri 30/09/11 Thue 27/10/11 0% 115FS-20 days 0 days Thue 27/10/11 Thue 27/10/11 0% 116 1 wk Mon 13/06/11 Fri 17/06/11 50% 118 1 wk Wed 10/08/11 Fri 12/06/11 50% 119.26 1 wk Wed 17/08/11 Tue 23/08/11 0% 120 1 day Fri 28/10/11 Mon 31/10/11 0% 67	05/08 Purchase Water cooler tower Apply thermal instramentation top shield 05/08 Purchase Water cooler tower Delivery of Water Cooler Tower Install manifold for cryot evoler cooler rower Coolers Coolers Manufacture new cooler parts Apply thermal instramentation top shield Coolers
111 Current Leads 112 Install INT 113 Coolers 114 Purchase 115 Delivery o 116 Install INT 117 Coolers re 118 Remove O 119 Manufact. 120 Manufact. 121 Braze Stal 122 Install Sin 123 Install Sin 124 Install Nen 125 Recharge 126 Suspend Shiel 127 Assembly 128 Assembly Start 129 Suspend Shiel 131 Install cold mass 132 Move vacuum ' 133 Connect ne su 134 Suspend the cold 135 Cold Mass and 136 Mold mass align the cold r 137 Align the cold r 138 Cold mass align Vacuum 'sa 140 Add copper sh 141 Align Vacuum 'sa <td>HTS leads with upper and lower voltage taps ase Water cooler tower ry of Water Cooler Tower manifold for cryo cooler compressor cooling water rs ready for use ve Copper parts from old cooler tubes and clean up for re-use facture new cooler fants facture new cooler thin walled tubes Stainless Steel cans to copper cooler parts Stainless Steel cans to copper cooler parts Stainless Steel cans to sleeves roo cooler to sleeves co cooler to sleeves co cooler to sleeves</td> <td>1 day Fri 04/11/11 Mon 07/11/11 0% 1 day Fri 04/11/11 Mon 07/11/11 0% 71 1 f5r days Mon 06/06/11 Tue 10/01/12 7% 0 days Fri 05/08/11 Fri 05/08/11 0% 1 2 wks Fri 05/08/11 Thu 27/10/11 0% 4 wks Fri 05/08/11 Thu 27/10/11 0% 114 4 wks Fri 05/08/11 Thu 27/10/11 0% 114 4 wks Fri 05/08/11 Thu 27/10/11 0% 1155-20 days 0 days Thu 27/10/11 Thu 27/10/11 0% 114 1 wk Mon 06/06/11 Fri 10/06/11 0% 123 1 wk Mon 13/06/11 Fri 10/06/11 0% 19.26 1 wk Wed 10/08/11 Tue 23/08/11 0% 120 1 wk Wed 17/08/11 Tue 23/08/11 0% 120</td> <td>05/08 Purchase Water cooler tower 05/08 Purchase Water cooler tower Remove Copper parts from old cooler tubes and clean up for re-us; Manufacture new cooler parts Manufacture new cooler parts Manufacture new cooler tubes and clean up for this walled tubes</td>	HTS leads with upper and lower voltage taps ase Water cooler tower ry of Water Cooler Tower manifold for cryo cooler compressor cooling water rs ready for use ve Copper parts from old cooler tubes and clean up for re-use facture new cooler fants facture new cooler thin walled tubes Stainless Steel cans to copper cooler parts Stainless Steel cans to copper cooler parts Stainless Steel cans to sleeves roo cooler to sleeves co cooler to sleeves co cooler to sleeves	1 day Fri 04/11/11 Mon 07/11/11 0% 1 day Fri 04/11/11 Mon 07/11/11 0% 71 1 f5r days Mon 06/06/11 Tue 10/01/12 7% 0 days Fri 05/08/11 Fri 05/08/11 0% 1 2 wks Fri 05/08/11 Thu 27/10/11 0% 4 wks Fri 05/08/11 Thu 27/10/11 0% 114 4 wks Fri 05/08/11 Thu 27/10/11 0% 114 4 wks Fri 05/08/11 Thu 27/10/11 0% 1155-20 days 0 days Thu 27/10/11 Thu 27/10/11 0% 114 1 wk Mon 06/06/11 Fri 10/06/11 0% 123 1 wk Mon 13/06/11 Fri 10/06/11 0% 19.26 1 wk Wed 10/08/11 Tue 23/08/11 0% 120 1 wk Wed 17/08/11 Tue 23/08/11 0% 120	05/08 Purchase Water cooler tower 05/08 Purchase Water cooler tower Remove Copper parts from old cooler tubes and clean up for re-us; Manufacture new cooler parts Manufacture new cooler parts Manufacture new cooler tubes and clean up for this walled tubes
112 Install HTS 113 Coolers 114 Purchase 115 Delivery of 116 Install marging 117 Colers re 118 Remove C 119 Manufact. 120 Manufact. 121 Braze Stat 122 Install Mm 123 Install Stat 124 Install Stat 125 Recharge 126 Assembly Start 127 Assembly Start 130 Radiation shiel 131 Install old mas 132 Move vacum* 133 Cond Mass and 136 Weld the Coole 137 Align the codi r 138 Cold mass alig 139 Connect cold mas 141 Align vacum vessel 142 Install shield be 143 Weld shield en 144 Install shield be 145 Weld shield en	HTS leads with upper and lower voltage taps ase Water cooler tower ery of Water Cooler Tower manifold for cryo cooler compressor cooling water rs ready for use we Copper parts from old cooler tubes and clean up for re-use facture new cooler parts facture new cooler thin walled tubes Stainless Steel cans to cooper cooler parts Single stage coolers to Tower the 2 stage coolers to Sleeves or cooler hoses	1 day Fri 04/11/11 Mon 07/11/11 0% 71 157 days Mon 06/06/11 Tue 10/01/12 7% 0 days Fri 05/08/11 Fri 05/08/11 0% 12 wks Fri 05/08/11 Thu 27/10/11 0% 14 wks Fri 05/08/11 Thu 27/10/11 0% 0 days Thu 27/10/11 0% 114 4 wks Fri 30/09/11 Thu 27/10/11 0% 115FS-20 days 0 days Thu 27/10/11 Thu 27/10/11 0% 115FS-20 days 1 wk Mon 06/06/11 Fri 10/06/11 50% 118 1 wk Mon 13/06/11 Fri 17/06/11 50% 118 1 wk Wed 10/08/11 Tue 16/08/11 0% 19,26 1 wk Wed 17/08/11 Tue 23/08/11 0% 120	05/08 purchase Water cooler to ver 05/08 purchase Water cooler to ver Remove Copper parts from old cooler tubes and clean up for re-us Manufacture new cooler rate Manufacture new cooler rate Manufacture new cooler tubes and clean up for re-us Manufacture new cooler tubes and clean up for re
114 Purchase 115 Delivery of 116 Install read 117 Coolers re 118 Remove O 119 Manufact. 120 Manufact. 121 Braze Stall 122 Install Sing 123 Install Sing 124 Install Neng 125 Recharge 126 Suspend Shiel 127 Assembly Start 128 Assembly Start 129 Suspend Shiel 131 Install cold mass 132 Move vacuum* 133 Connect the su 134 Suspend the cold 135 Cold Mass and 136 Weid Mass and 137 Align the cold r 138 Cold mass align Vacuum 140 Add copper sh 141 Align Vacuum 142 Install and wacuum 143 Weid and plate 144 Install warubout	rry of Water Cooler Tower manifold for cryo cooler compressor cooling water s ready for use ve Copper parts from old cooler tubes and clean up for re-use facture new cooler thin walled tubes facture new cooler thin walled tubes Stainless Steel cans to copper cooler parts Single stage coolers to Tower the 2 stage coolers to sleeves cor cooler hoses	0 days Fri 05/08/11 Fri 05/08/11 0% 12 wks Fri 05/08/11 Thu 27/10/11 0% 114 4 wks Fri 05/08/11 Thu 27/10/11 0% 115S-20 days 0 days Thu 27/10/11 Thu 27/10/11 0% 115S-20 days 0 days Thu 27/10/11 Thu 27/10/11 0% 115S-20 days 1 wk Mon 06/06/11 Fri 10/06/11 100% 23 1 wk Mon 13/06/11 Fri 17/06/11 50% 118 1 wk Wed 10/08/11 Tue 16/08/11 0% 12,26 1 wk Wed 17/08/11 Tue 2,308/11 0% 12,02 1 day Fri 28/10/11 Mon 31/10/11 0% 67	05/08 Purchase Water cooler tower Remove Copper parts from old cooler tubes and clean up for re-us Manufacture new cooler rate Manufacture new cooler thin walled tubes
115 Delivery of 116 Install mar 117 Coolers re 118 Remove C 119 Manufactu 120 Manufactu 121 Brazs Stat 122 Install Stat 123 Install Stat 124 Install Stat 125 Recharge 126 Assembly Start 127 Assembly Start 128 Assembly Start 129 Suspend shield 130 Radiation shiel 131 Install cold mas 132 More vacuum 133 Cond Mass and 136 Weld the Coold 137 Align the cold r 138 Cold mass alig 139 Connect cold and 141 Align Vacuum 142 Install shield be 143 Weld shield en 144 Install vacuum 145 Weld shield en 146 Vacuum vessel <	rry of Water Cooler Tower manifold for cryo cooler compressor cooling water s ready for use ve Copper parts from old cooler tubes and clean up for re-use facture new cooler thin walled tubes facture new cooler thin walled tubes Stainless Steel cans to copper cooler parts Single stage coolers to Tower the 2 stage coolers to sleeves cor cooler hoses	12 wks Fri 05/08/11 Thu 27/10/11 0% 114 4 wks Fri 30/09/11 Thu 27/10/11 0% 115FS-20 days 0 days Thu 27/10/11 Thu 27/10/11 0% 115FS-20 days 1 wk Mon 06/06/11 Thu 27/10/11 0% 115FS-20 days 1 wk Mon 06/06/11 Fri 10/06/11 50% 118 1 wk Mon 13/06/11 Fri 17/06/11 50% 118 1 wk Wed 10/08/11 True 16/08/11 0% 19,26 1 wk Wed 17/08/11 Weoz 33/10/11 0% 120 1 day Fri 28/01/11 Mon 31/10/11 0% 67	Remove Copper parts from old cooler tubes and clean up for re-us Manufacture new cooler parts Manufacture new cooler parts Manufacture new cooler him walled tubes
116 Install mar 117 Coolers re 118 Remove C 119 Manufactu 120 Manufactu 121 Braze Stal 122 Install Sin 123 Install Coo 125 Recharge 126 2 127 Assembly Start 128 Assembly Start 130 Radiation shiel 131 Install col 132 Move vacuum 133 Connect the su 134 Suspend the col 135 Cold Mass and 136 Weid the Coole 137 Align the codi n 138 Cold Mass and 139 Connect codi n 140 Add copper shi 141 Align the codi n 142 Install shield bc 143 Weid shield en 144 Nacuum vessel 145 Weid and plate 146 Vacuum vestel	manifold for cryo cooler compressor cooling water rs ready for use we Copper parts from old cooler tubes and clean up for re-use facture new cooler parts facture new cooler thin walled tubes Stainless Steel cans to copper cooler parts Single stage cooler to Tower the 2 stage coolers to sieves co cooler hoses	4 wks Fri 30/09/11 Thu 27/10/11 0% 115FS-20 days 0 days Thu 27/10/11 Thu 27/10/11 0% 115FS-20 days 1 wk Mon 06/06/07/11 Fri 10/06/11 0% 16 1 wk Mon 06/06/07/11 Fri 17/06/11 50% 138 1 wk Wed 10/08/11 Tru e 16/08/11 0% 119.26 1 wk Wed 17/08/11 Tue 23/08/11 0% 120 1 day Fri 28/10/11 Mon 31/10/11 0% 67	Remove Copper parts from old cooler tubes and clean up for re-us- Manufacture new cooler parts Manufacture new cooler thin walled tubes
117 Coolers re 118 Remove C 119 Manufactu 120 Manufactu 121 Braze Stal 122 Instal Sing 123 Install Sing 124 Install Sing 125 Recharge 126 Suspend shield 131 Install cold mast 132 Move vacuum 133 Connect the su 134 Suspend shield 135 Cold Mass and 136 Weld the Coold 137 Align the cold r 138 Cold mass aligi 139 Connect tole su 140 Add copper sh 141 Align the cold r 142 Install warm bo 143 Weld shield en 144 Install warm bo 145 Weld shield en 146 Vaccum vessel 147 Install warm bo 148 Commision vac 149 Test LN2 coold <td>rs ready for use ve Copper parts from old cooler tubes and clean up for re-use facture new cooler parts facture new cooler thin walled tubes Stainless Steel cans to copper cooler parts Single stage cooler to Tower the 2 stage coolers to sleeves co cooler hoses</td> <td>0 days Thu 27/10/11 Thu 27/10/11 0% 116 1 wk Mon 06/06/11 Fri 10/06/11 100% 23 1 wk Mon 13/06/11 Fri 17/06/11 50% 118 1 wk Wed 10/08/11 Tue 16/08/11 0% 119,26 1 wk Wed 17/08/11 Tue 23/08/11 0% 120 1 day Fri 28/10/11 Mon 31/10/11 0% 67</td> <td>Remove Copper parts from old cooler tubes and clean up for re-us, Manufacture new cooler parts Manufacture new cooler thin walled tubes</td>	rs ready for use ve Copper parts from old cooler tubes and clean up for re-use facture new cooler parts facture new cooler thin walled tubes Stainless Steel cans to copper cooler parts Single stage cooler to Tower the 2 stage coolers to sleeves co cooler hoses	0 days Thu 27/10/11 Thu 27/10/11 0% 116 1 wk Mon 06/06/11 Fri 10/06/11 100% 23 1 wk Mon 13/06/11 Fri 17/06/11 50% 118 1 wk Wed 10/08/11 Tue 16/08/11 0% 119,26 1 wk Wed 17/08/11 Tue 23/08/11 0% 120 1 day Fri 28/10/11 Mon 31/10/11 0% 67	Remove Copper parts from old cooler tubes and clean up for re-us, Manufacture new cooler parts Manufacture new cooler thin walled tubes
118 Remove C 119 Manufactu 120 Manufactu 121 Braze Siai 122 Install Sim 123 Install Ithe 124 Install Sim 125 Recharge 126 Suspend Shiel 127 Assembly 128 Suspend Shiel 130 Radiation Shiel 131 Install cold mas 132 More vacuum 133 Concet the su 134 Suspend the cold 135 Cold Mass and 136 Weld the Coole 137 Align the cold r 138 Cold mass aligi 139 Connect cold r 141 Align Vacuum vacuum 142 Install shield be 143 Weld shield em 144 Install vacuum 145 Weld shield em 146 Vaccum vestel 147 Install vacuum 148 Commision vac	ve Copper parts from old cooler tubes and clean up for re-use facture new cooler parts facture new cooler thin walled tubes Stainless Steel cans to copper cooler parts Single stage cooler to Tower the 2 stage coolers to sleeves cor cooler hoses	1 wk Mon 06/06/11 Fri 10/06/11 100% 23 1 wk Mon 13/06/11 Fri 17/06/11 50% 118 1 wk Wed 10/08/11 Tue 16/08/11 50% 119,26 1 wk Wed 10/08/11 Tue 23/08/11 % 120 1 wk Wed 17/08/11 Tue 23/08/11 % 67	Manufacture new cooler parts from old cooler tubes and clean up for re-us
119 Manufactu. 120 Manufactu. 121 Braze Stal 122 Install Sing. 123 Install Sing. 124 Install Con 125 Recharge 126 Assembly Start 127 Assembly Start 128 Assembly Start 130 Radiation shiel 131 Install col 132 Move vacuum 133 Connect the su 134 Suspend the co 135 Cold Mass and 136 Weld the Coole 137 Align the cold n 138 Cold mass alig 139 Connect cold n 140 Add copper shi 141 Align the cold n 142 Install shield bc 143 Weld shield en 144 Install warm bo 145 Weld end plate 146 Vaccum vessel 157 Cold Mass for 158 Lift Cold	facture new cooler parts facture new cooler thin walled tubes Stainless Steel cans to copper cooler parts Single stage cooler to Tower the 2 stage coolers to sleeves cro cooler hoses	1 wk Mon 13/06/11 Fri 17/06/11 50% 118 1 wk Wed 10/08/11 Tue 16/08/11 0% 119.26 1 wk Wed 17/08/11 Tue 23/08/11 0% 120 1 uky Fri 28/10/11 Mon 31/10/11 20	Manufacture new cooler parts
121 Braze Stai 122 Instal Sim 123 Instal Ithe 124 Instal Ithe 125 Recharge 126 Recharge 127 Assembly 128 Suspend shiel 130 Radiation shiel 131 Install cold mas 132 More vacuum 'n 133 Cond Mass and 136 Weld the Coole 137 Aligin the cold r 138 Cold mass aliging 139 Cond mass aliging 141 Aligin Vacuum 'n 142 Install shield be 143 Weld shield en 144 Install acoum 145 Weld acoum vessel 147 Install acoum 148 Commision vacuum is 159	Stainless Steel cans to copper cooler parts Single stage cooler to Tower the 2 stage coolers to sleeves cro cooler hoses	1 wk Wed 17/08/11 Tue 23/08/11 0% 120 1 day Fri 28/10/11 Mon 31/10/11 0% 67	
122 Install Sing 123 Install Sing 124 Install the 125 Recharge 126 Suspend shiel 127 Assembly 128 Assembly 129 Suspend shiel 130 Radiation shiel 131 Install cold mas 132 Move vacuum' 133 Connect the su 134 Suspend the cold 135 Cold Mass and 136 Weid the Coole 137 Align the cold r 138 Cold mass aligi 139 Connect cold r 140 Add copper sh 141 Align Vacuum 142 Install shield bc 143 Weid shield en 144 Install warm bd 145 Weid end plate 146 Vaccum vessel 147 Install wacum 148 Commision vac 149 Test LN2 coold 150 Debtaield	Single stage cooler to Tower the 2 stage coolers to sleeves cro cooler hoses	1 day Fri 28/10/11 Mon 31/10/11 0% 67	
123 Install the 124 Install co 125 Recharge 126 Assembly 127 Assembly Start 129 Suspend shield 130 Radiation shield 131 Install cold mas 132 Move vacuum 133 Connect the su 134 Suspend shield 135 Cold Mass and 136 Weld the Coold 137 Align the cold r 138 Cold mass aligi 139 Connect the su 138 Cold mass aligi 139 Connect old mas 141 Align the cold r 142 Install warm bo 143 Weld shield en 144 Install waru wersel 147 Install waru wersel 148 Connect power 155 Fabrication 156 Fabrication 157 Cold Mass for 158 Lift Cold M 159 <t< td=""><td>the 2 stage coolers to sleeves cro cooler hoses</td><td></td><td>Braze Stainle's Steel cans to appear cooler parts</td></t<>	the 2 stage coolers to sleeves cro cooler hoses		Braze Stainle's Steel cans to appear cooler parts
124 Install cro 125 Recharge 126 Recharge 127 Assembly 128 Assembly 129 Suspend shiel 130 Radiation shiel 131 Install cold mas 132 Move vacum 133 Concet the su 134 Suspend the cold 135 Cold Mass and 136 Weld the Coold 137 Align the cold r 138 Cold mass aligi 139 Connect cold n 141 Add copper shie 142 Install shield be 143 Weld shield and 144 Install shield be 145 Weld shield and 146 Vacum vessel 147 Install acoum 148 Commision vac 149 Test LV2 coold 150 Detailed leak cl 152 Connect power 153 Connect all ins 154 Solen	cro cooler hoses	2 days Fri 06/01/12 Mon 09/01/12 0% 150,121	Sinstall Single stage cover to Tower
125 Recharge 126 Assembly 127 Assembly 128 Assembly Start 129 Suspend shiel 130 Radiation shiel 131 Install cold mas 132 Move vacuum 133 Connect the su 134 Suspend the cold 135 Cold Mass and 138 Cold mass alig 139 Connect cold mas 130 Cold mass alig 131 Install shield bc 132 Install shield bc 133 Connect cold mas 140 Add copper shi 141 Align Vacuum 142 Install shield bc 143 Weld shield em 144 Install wacum 145 Weid end plate 146 Vaccum vessel 147 Install wacum 148 Commel power 159 Fabrication 150 Fabrication 157 Cold		1 day Tue 10/01/12 Tue 10/01/12 0% 123	Install the 2 stage coolers to sleeves
126 Assembly 127 Assembly Start 129 Suspend shield 130 Radiation shield 131 Install cold mas 132 Move vacuum 133 Connect the su 134 Suspend shield 135 Cold Mass and 136 Weld the Coold 137 Align the cold r 138 Cold mass aligi 139 Connect old mas 140 Add copper sh 141 Align the cold r 142 Install shield bot 143 Weld shield en 144 Install warm bot 145 Weld shield en 146 Vaccum vessel 147 Install vacuum 148 Connect power 155 Fabrication 155 Fabrication 156 Fabrication 157 Cold Mass for 158 Lift Cold N 159 Cold mass for 159 <		1 day Tue 10/01/12 Tue 10/01/12 0% 12/	
128 Assembly Start 129 Suspend shiel 130 Radiation shiel 131 Install cold mas 132 Move vacuum' 133 Connect the su 134 Suspend the cold 135 Cold Mass and 136 Weld the Coole 137 Align the cold r 138 Cold mass alig 139 Connect cold r 140 Add copper sh 141 Align Vacuum 142 Install shield bu 143 Weld shield end 144 Install vacuum 145 Weld end plate 146 Vaccum vessel 147 Install vacuum 148 Commision vac 159 Detailed leak cl 150 Detailed leak cl 151 Leak check of 152 Connect power 153 Connect all insi 154 Solenoid ready 155 Fabrication 157<		0 days Tue 10/01/12 Tue 10/01/12 0% 124/00	
129 Suspend shield 130 Radiation shield 131 Install cold mas 132 Move vacuum 133 Connect the su 134 Suspend shield 135 Cold Mass and 136 Weld the Cold f 137 Align the cold f 138 Cold mass alig 139 Connect cold f 140 Add copper sh 141 Align the cold f 142 Install shield bo 143 Weld shield en 144 Install warm bo 145 Weld shield en 146 Vaccum vessel 147 Install warm bo 148 Connect power 155 Fabrication 155 Fabrication 156 Fabrication 157 Cold Mass for 158 Lift Cold N 159 Cold mass for 160 Open cold 161 Remover 162 Dis-a		69.5 days Tue 04/10/11 Mon 09/01/12 0%	
130 Radiation shiel 131 Install cold mass 132 More vacuum 133 Connect the su 134 Suspend the cold 135 Cold Mass and 136 Weld the Cold 137 Align the cold r 138 Cold mass align 139 Connect cold r 140 Add copper shi 141 Align Vacuum 142 Install shield be 143 Weld shield and 144 Install shield be 145 Weld end plate 146 Vaccum vessel 147 Install vacuum 148 Commision vac 149 Test IN2 coold leak ci 151 Leak check of 152 Connect power 153 Connet all insi 154 Solenoid ready 155 Fabrication and Assem 156 Fabrication and Assem 157 Coid Mass for 168 Machine h <t< td=""><td>Start on Solenoid 2</td><td>0 days Tue 04/10/11 Tue 04/10/11 0% 129SS</td><td>04/10 Assembly Start on Solenoid 2</td></t<>	Start on Solenoid 2	0 days Tue 04/10/11 Tue 04/10/11 0% 129SS	04/10 Assembly Start on Solenoid 2
131 Install cold mas 132 Move vacuum 133 Connect the su 134 Suspend the cold 135 Cold Mass and 136 Weld the Coold 137 Align the coold 138 Cold mass align 139 Connect cold n 140 Add copper sh 141 Align Vacuum 142 Install shield be 143 Weld shield en 144 Install warm bo 145 Weld end plate 146 Vaccum vessel 147 Install vacuum 148 Commision vac 159 Detailed leak cl 150 Detailed leak cl 151 Leak check of 152 152 Connect power 153 Cold Mass for 154 Solenoid ready 155 Fabrication 156 Fabrication 157 Cold Mass for 158 Lift Coid M 159	hield around the cold mass	2 days Tue 04/10/11 Thu 06/10/11 0% 86,84	
132 Move vacuum 1 133 Connect the su 134 Suspend the cold 135 Cold Mass and 136 Weld the Cold 137 Align the cold r 138 Cold mass alig 139 Connect cold r 140 Add copper sh 141 Align the cold r 142 Install shield be 143 Weld shield en 144 Install shield be 145 Weld shield en 146 Vaccum vessel 147 Install vacuum 148 Connect power 150 Detailed leak ci 151 Leak check off 152 Connect power 153 Connect all insis 154 Babrication 155 Fabrication 156 Fabrication 157 Cold Mass for 168 Lift Cold N 169 Install and 161 Remove r 162 <t< td=""><td>shield around cold mass mass supports to Vacuum vessel</td><td>0 days Thu 06/10/11 Thu 06/10/11 0% 129 2 days Wed 12/10/11 Fri 14/10/11 0% 87</td><td>06/10 💊 Radiation shield around cold mass</td></t<>	shield around cold mass mass supports to Vacuum vessel	0 days Thu 06/10/11 Thu 06/10/11 0% 129 2 days Wed 12/10/11 Fri 14/10/11 0% 87	06/10 💊 Radiation shield around cold mass
133 Connect the su 134 Suspend the coll 135 Cold Mass and 136 Weld the Coole 137 Align the coid noid 138 Cold mass align 139 Connect cold noid 130 Cold mass align 139 Connect cold noid 140 Add copper shith 141 Align Vacuum v 142 Install shield be 143 Weld shield en 144 Install vacuum vessel 145 Weld end plate 146 Vaccum vessel 147 Install vacuum 148 Commision vac 149 Test LN2 coold 150 Detailed leak ci 151 Leak check of 1 152 Connect power 153 Connect all insi 154 Solenoid ready 155 Fabrication and Assem 156 Fabrication 157 Cold Mass for 158 Lift Cold Noid Noine for <td>mass supports to Vacuum vessel num vessel over the shield / cold mass assembly</td> <td>2 days Wed 12/10/11 Fri 14/10/11 0% 87 2 days Fri 14/10/11 Tue 18/10/11 0% 131</td> <td>Comparing Contrasts supports to Vacuum vessel Comparing Contrasts and Contrasts and Contrasts assembly</td>	mass supports to Vacuum vessel num vessel over the shield / cold mass assembly	2 days Wed 12/10/11 Fri 14/10/11 0% 87 2 days Fri 14/10/11 Tue 18/10/11 0% 131	Comparing Contrasts supports to Vacuum vessel Comparing Contrasts and Contrasts and Contrasts assembly
134 Suspend the col 135 Cold Mass and 136 Weld the Coole 137 Align the cold r 138 Cold mass align 139 Connect cold r 140 Add copper sh 141 Align Vacuum 142 Install shield be 143 Weld wild shield en 144 Install warmbo 145 Weld end plate 146 Vaccum vessel 147 Install warmbo 148 Commision vac 149 Test LN2 coold 150 Detailed leak cl 151 Leak check of V 152 Connect power 153 Cold Mass for 154 Solenoid ready 155 Fabrication 156 Install and 158 Lift Cold M 159 Cold mass 160 Open cold 161 Reenset Birn 163 Install and 164 Mac	e supports to the cold mass	2 days Tue 18/10/11 Thu 20/10/11 0% 132	Connect the supports to the cold mass assembly
136 Weld the Coole 137 Align the cold n 138 Cold mass alig 139 Connect cold n 140 Add copper shi 141 Align Vacuum 1 142 Install shield be 143 Weld shield en 144 Install shield be 145 Weld end plate 146 Vaccum vessel 147 Install vacuum 148 Commision vac 149 Test LN2 coold 150 Detailed leak c 151 Leak check of 1 152 Connect power 153 Connect power 154 Solenoid ready 155 Fabrication 156 Fabrication 157 Cold Mass for 163 Install new 164 Machine h 165 Insert Bim 166 Weld cond 167 Weld new 168 Resistor / 169 Install and <td>ne cold mass / shield inside the vacuum vessel</td> <td>2 days Thu 20/10/11 Mon 24/10/11 0% 133</td> <td>Suspend the cold mass / shield inside the vacuum vessel</td>	ne cold mass / shield inside the vacuum vessel	2 days Thu 20/10/11 Mon 24/10/11 0% 133	Suspend the cold mass / shield inside the vacuum vessel
137 Align the cold r 138 Cold mass align 139 Connect cold r 140 Add copper she 141 Align Vacuum' 142 Install shield be 143 Weld shield en 144 Install shield be 145 Weld on plate 146 Vaccum vessel 147 Install shield be 148 Commision vac 149 Test LN2 coold 150 Detailed leak c 151 Leak check of 152 Connect power 153 Conder dails 154 Solenoid ready 155 Fabrication 156 Fabrication 157 Cold Mass for 158 Lift Cold N 160 Open cold 161 Remover 162 Dis-asser 163 Install new 164 Machine h 165 Insert Bim 166 Weld cold owed	and Shiled inside Vacuum Vessel	0 days Mon 24/10/11 Mon 24/10/11 0% 134	24/10 Cold Mass and Shiled inside Vacuum Vessel
138 Cold mass alig 139 Connect cold m 140 Add copper sh 141 Align Vacuum v 142 Install shield b 143 Weld shield en 144 Install shield b 145 Weld shield en 146 Vaccum vessel 147 Install vacuum 148 Commision vac 149 Test LN2 coold 150 Detailed leak cl 151 Leak check of / 152 Connect all ins 153 Connect all ins 154 Fabrication 155 Fabrication 156 Fabrication 157 Cold Mass for 168 Install and 169 Install and 161 Remove r 162 Dia-asser 163 Install and 164 Machine h 165 Insert Bim 166 Weld cold new 177 Cold mass <	Cooler sleeves to the cold mass stub tubes	2 days Mon 24/10/11 Wed 26/10/11 0% 121,135	Weld the Cooler sleeves to the cold mass stub tubes
139 Connect cold n 140 Add copper shu 141 Align Vacuum v 142 Install shield b 143 Weld shield en 144 Install shield b 145 Weld end plate 146 Vaccum vessel 147 Install vacuum 148 Commision vac 149 Test LN2 coold 150 Detailed leak cl 151 Leak check of 1 152 Connect power 153 Connect all insi 154 Solenoid ready 155 Fabrication 156 Fabrication 157 Cold Mass for 160 Open cold 161 Remove n 162 Dis-asser 163 Install and 164 Machine h 165 Insetl Sizer / 166 Weld cool 177 Cold mass 178 Machine h 179 Install and	old mass to the vacuum vessel	1 wk Wed 26/10/11 Wed 02/11/11 0% 136	Align the cold mass to the vacuum vessel 02/11 Cold mass alighned to the Vacuum Vessel
140 Add copper she 141 Align Vacuum 1 142 Install shield be 143 Weld shield en 144 Install shield be 145 Weld end plate 146 Vaccum vessel 147 Install shield be 148 Commision vac 149 Test LN2 coold 150 Detailed leak co 151 Leak check of 152 Connect power 153 Solenoid ready 154 Solenoid ready 155 Fabrication 157 Cold Mass for 168 Lift Cold M 159 Cold mass for 160 Open cold 161 Remover 162 Dis-asser 163 Install new 164 Machine h 165 Inset Bin 166 Weld cold 167 Weld new 168 Resistor / 171 Cold mass <tr< td=""><td>alighned to the Vacuum Vessel old mass support intercepts to the shield</td><td>0 days Wed 02/11/11 Wed 02/11/11 0% 137 1 day Wed 02/11/11 Thu 03/11/11 0% 138</td><td>02/11 Cold mass alighned to the Vacuum Vessel</td></tr<>	alighned to the Vacuum Vessel old mass support intercepts to the shield	0 days Wed 02/11/11 Wed 02/11/11 0% 137 1 day Wed 02/11/11 Thu 03/11/11 0% 138	02/11 Cold mass alighned to the Vacuum Vessel
141 Align Vacuum V 142 Install shield be 143 Weld shield en 144 Install wird bo 145 Weld shield en 146 Vaccum vessel 147 Install vacuum 148 Commision vac 149 Test LN2 coold 150 Detailed leak cl 151 Leak check off 152 Connect all insi 154 Solenoid ready 155 Fabrication 156 Fabrication 157 Cold Mass for 168 Resistor / 162 Die-asser 163 Install and 164 Machine h 165 Insert Bim 166 Weld cold new 167 Weld Rew 168 Resistor / 169 Install and 170 Drill holes 171 Cold mass 172 Install and 173 Install 4K <tr< td=""><td>r sheet to the holes in the shield</td><td>1 day Thu 03/11/11 Fri 04/11/11 0% 139</td><td>A connect color mass support injercepts to the shield</td></tr<>	r sheet to the holes in the shield	1 day Thu 03/11/11 Fri 04/11/11 0% 139	A connect color mass support injercepts to the shield
143 Weld shield en 144 Install warm bot 145 Weld end plate 146 Vaccum vessel 147 Install vacuum 148 Commision vac 149 Test LN2 coold 150 Detailed leak commision vac 151 Leak check of 152 Connect power 153 Connect power 154 Solenoid ready 155 Fabrication 157 Cold Mass for 158 Lift Cold N 160 Open cold 161 Removern 162 Dia-assem 163 Install new 164 Machine h 165 Inset Bim 166 Weld cond 170 Drill holes 171 Cold mass 172 Install and 173 Install had 174 Attach vac 175 Vaccum les 176 Cold mass	um vessel end plate to the cold mass bore	2 days Tue 29/11/11 Wed 30/11/11 0% 93	Align Vacuum vessel and plate to the cold mass bore
144 Install warm bo 145 Weld end plate 146 Vaccum vessel 147 Install vacuum 148 Commision vac 149 Test LN2 coold 150 Detailed leak ci 151 Leak check of 1 152 Connect all insi 153 Connect all insi 154 Solenoid ready 155 Fabrication 156 Fabrication 157 Cold Mass for 168 Lift Cold M 169 Cold mass 160 Open cold 161 Remove r 162 Dia-asser 163 Install and 164 Machine h 165 Insert Bim 166 Weld cold news 170 Drill holes 171 Cold mass 172 Install and 173 Install AK 174 Attach vac 175 Vacuum le	ld bore tube	1 day Thu 01/12/11 Thu 01/12/11 0% 141	Alphatall shield bore tube
145 Weld end plate 146 Vaccum vessel 147 Install vacuum 148 Commision vac 149 Test IN2 could 150 Detailed leak cl 151 Leak check of 152 Connect jower 153 Connect all ins 154 Solenoid ready 155 Fabrication and Assem 156 Fabrication 157 Cold Mass for 158 Lift Cold Mass for 159 Cold mass 160 Open cold 161 Remove m 162 Dis-asser 163 Install and 164 Machine h 165 Insert Bim 166 Weld cow 167 Weld new 168 Resistor / 170 Diril holes 171 Cold mass 172 Install and 173 Install AK 174 Attach vac <		1 day Fri 02/12/11 Fri 02/12/11 0% 142	A contract of the plates
146 Vacum vessel 147 Install vacuum 148 Commision vac 149 Test LN2 coold 150 Detailed leak of 151 Leak check of 152 Connect power 153 Connect power 154 Solenoid ready 155 Fabrication 156 Fabrication 157 Cold Mass for 158 Lift Cold M 160 Open cold 161 Remove rn 162 Dis-assen 163 Install new 164 Machine h 165 Insert Bim 166 Weld onew 168 Resistor / 170 Drill holes 171 Cold mass 172 Install had 173 Install had 174 Attach vac 175 Vacuum le 176 Cold mass 177 Cooler Tower 178		1 day Thu 15/12/11 Thu 15/12/11 0% 98	Anatu warm bdre
147 Install vacuum 148 Commision vacuum 149 Test LN2 coold 150 Detailed leak ci 151 Leak check of 1 152 Connect power 153 Connect all ins 154 Solenoid ready 155 Fabrication 156 Fabrication 157 Cold Mass for 158 Lift Cold M 160 Open cold 161 Remove re 162 Dia-asser 163 Install and 164 Machine h 165 Insert Bim 166 Weld cold mass 167 Weld Rew 168 Resistor / 169 Install and 170 Drill holes 171 Cold mass 172 Install and 173 Install and 174 Attach vac 175 Vacuum lie 176 Cold mass 177 <td>plates to the Vacuum vessel</td> <td>3 days Tue 20/12/11 Thu 22/12/11 0% 100 0 days Thu 22/12/11 Thu 22/12/11 0% 145</td> <td>Weld end plates to the Vacuum vessel 22/12 Vacuum vessel closed</td>	plates to the Vacuum vessel	3 days Tue 20/12/11 Thu 22/12/11 0% 100 0 days Thu 22/12/11 Thu 22/12/11 0% 145	Weld end plates to the Vacuum vessel 22/12 Vacuum vessel closed
148 Commision vac 149 Test LN2 coold 150 Detailed leak cl 151 Leak check of M 152 Connect power 153 Connect power 154 Solenoid ready 155 Fabrication 156 Fabrication 157 Cold Mass for 158 Lift Cold M 160 Open cold 161 Remove for 162 Dis-asser 163 Install awa 164 Machine h 165 Insert Bim 166 Weld cow 167 Weld new 168 Resistor / 170 Drill holes 171 Cold mass 172 Install ak/ 173 Install 4K 174 Attach vac 175 Cold mass 176 Cold mass 177 Cooler Tower 178 Machine n 179 Ma	um system to solenoid	0 days 1hu 22/12/11 1hu 22/12/11 0% 145 1 day Fri 23/12/11 Fri 23/12/11 0% 146	2Z/12 © Vaccum vessel posed
149 Test LN2 coold 150 Detailed leak cit 151 Leak check of 152 Connect power 153 Connect power 154 Solenoid ready 155 Fabrication 156 Fabrication 157 Cold Mass for 158 Lift Cold M 159 Cold Mass for 160 Open cold 161 Remove rn 162 Dis-assen 163 Install new 164 Machine h 165 Insert Bin 166 Weld cow 167 Weid new 168 Resistor / 170 Drill holes 171 Cold mass 172 Install hak 174 Attach vac 175 Vacuum le 176 Cold mass 177 Cooler Tower 178 Machine n 179 Manufactt 180 Machi	a vacuum systems and initial pump down	3 days Fri 23/12/11 Wed 28/12/11 0% 147	Commission vacuum aystem o solenou Commission vacuum systems and initial pump down
151 Leak check of V 152 Connect power 153 Connect power 154 Solenoid ready 155 Fabrication 156 Fabrication 157 Cold Mass for 158 Lift Cold M 159 Cold mass 160 Open cold 161 Remove ration 162 Dis-asser 163 Install rew 164 Machine H 165 Insert Bim 166 Weld cow 167 Cold mass 168 Resistor / 169 Install and 170 Drill holes 171 Cold mass 172 Install 4K 173 Install 4K 174 Attach vac 175 Cold mass 176 Cold mass 177 Cooler Tower 178 Machiner 179 Manufact 180 Machiner	ooldown system	1 day Thu 29/12/11 Thu 29/12/11 0% 148	Test LN2 cooldown system
152 Connect power 153 Connect all lins 154 Solenoid ready 155 Fabrication 156 Fabrication 157 Cold Mass for 158 Lift Cold M 159 Cold Mass for 160 Open cold 161 Remove rn 162 Dis-assen 163 Install new 164 Machine h 165 Insert Bim 166 Weld onew 168 Resistor / 170 Drill holes 171 Cold mass 172 Install and 173 Install and 174 Attach vac 175 Vaccum le 176 Cold mass 177 Cooler Tower 178 Machine n 179 Manufact 180 Machine n 181 Weld topa	ak checking of the Vacuum vessel and cold mass	3 days Tue 03/01/12 Thu 05/01/12 0% 148	Detailed leak checking of the Vacuum vessel and cold mass
153 Connect all insi 154 Solenoid ready 155 Fabrication and Assem 156 Fabrication 157 Cold Mass for 158 Lift Cold M 159 Cold Mass for 159 Cold Mass 160 Open cold 161 Remove r 162 Dis-asser 163 Install rew 164 Machine h 165 Insert Bim 166 Weld cow 167 Weld new 168 Resistor / 170 Drill holes 171 Cold mass 172 Install afK 173 Install AK 174 Attach vac 175 Vacuum It 176 Cold mass 177 Cooler Tower 178 Machine n 179 Marufact 180 Machine n 181 Wel top	k of Vacuum vessel and cold mass completed	0 days Thu 05/01/12 Thu 05/01/12 0% 150	05/01 Cleak check of Vacuum vessel and cold mass completed
154 Solenoid ready 155 Fabrication and Assem 156 Fabrication 157 Cold Mass for 158 Lift Cold M 160 Open cold 161 Remove n 162 Dis-assem 163 Install new 164 Machine h 165 Install new 166 Weld cool 167 Weld new 168 Resistor / 169 Install and 170 Drill holes 171 Cold mass 172 Install AK 173 Install AK 174 Attach vacuum le 175 Vacuum le 176 Cold mass 177 Coler Tower 178 Machine n 179 Manufactu 180 Machine n 181 Weld topi		1 day Fri 06/01/12 Fri 06/01/12 0% 151 1 day Mon 09/01/12 Mon 09/01/12 0% 152	Connect power leads
155 Fabrication and Assem 156 Fabrication 157 Cold Mass for 158 Lift Cold M 159 Cold mass for 160 Open cold 161 Remove r 162 Dis-asser 163 Install new 164 Machine h 165 Inset Bim 166 Weld Weld cold 167 Weld new 168 Resistor / 170 Drill holes 171 Cold mass 172 Install ad 173 Install Ak 174 Attach vac 175 Vacuum le 176 Cold mass 177 Cooler Tower 178 Machine n 180 Machine n 181 Weld top 182 Install coo	I instrumentation cables eady for cool down and training	1 day Mon 09/01/12 Mon 09/01/12 0% 152 0 days Mon 09/01/12 Mon 09/01/12 0% 153	09/01 Solenoid ready for cool down and training
156 Fabrication 157 Cold Mass for 158 Lift Cold M 159 Cold mass 160 Open cold 161 Remove rr 162 Dis-asser 163 Install rew 164 Machine h 165 Insert Bim 166 Weld cold 167 Weld new 168 Resistor / 170 Drill holes 171 Cold mass 172 Install and 173 Install AK 174 Attach vac 175 Vacuum le 176 Cold mass 177 Cooler Tower 178 Machine n 179 Manufact 180 Machine n 181 Wel topi		146.5 days Thu 22/09/11 Fri 13/04/12 0%	Fabrication and Assembly Solenoid 1
158 Lift Cold M 159 Cold mass 160 Open cold 161 Remove m 162 Dia-assem 163 Install new 164 Machine h 165 Install new 166 Weld cool 167 Weld new 168 Resistor / 169 Install and 170 Drill holes 171 Cold mass 172 Install hea 173 Install had 174 Attach vac 175 Vaccum le 176 Cold mass 177 Cooler Tower 178 Machine n 179 Manufact 180 Machine n 181 Weld topa		139.5 days Thu 22/09/11 Wed 04/04/12 0%	Fabrication
159 Cold mass 160 Open cold 161 Remove n 162 Dis-assen 163 Install new 164 Machine h 165 Inset linew 166 Weld cold 167 Weld new 168 Resistor / 170 Drill holes 171 Cold mass 172 Install and 173 Install and 174 Attach vac 175 Vacuum le 176 Cold mass 177 Cooler Tower 178 Machine n 179 Manufact 180 Machine n 181 Weld top a		28.5 days Mon 31/10/11 Thu 08/12/11 0%	Cold Mass for Solenoid 1
160 Open cold 161 Remove r 162 Dis-esser 163 Install new 164 Machine h 165 Insert Bin 166 Weld cool 167 Weld new 168 Resistor / 169 Install and 170 Drill holes 171 Cold mass 172 Install hea 173 Install At 174 Attach vac 175 Vacuum le 176 Cold mass 177 Coler Tower 178 Machine n 179 Manufactu 180 Machine n 181 Weld tope	old Mass 1 and place onto support beam	2 days Mon 31/10/11 Wed 02/11/11 0% 134FS+5 days	
161 Remove re 162 Dis-asser 163 Install nev 164 Machine h 165 Install nev 166 Weld cold 167 Weld new 168 Resistor / 170 Drill holes 171 Cold mass 172 Install hea 173 Install AK 174 Attach vac 175 Vaccum le 176 Cold mass 177 Cooler Tower 178 Machine n 179 Manufactu 180 Machine n 181 Weld topa	mass 1 on support frame	0 days Wed 02/11/11 Wed 02/11/11 0% 158	02/11 Cold mass 1 on support frame
162 Dis-asser 163 Install new 164 Machine h 165 Insert Bim 166 Weld cool 167 Weld rew 168 Resistor / 169 Install and 170 Drill holes 171 Cold mass 172 Install and 173 Install and 174 Attach vac 175 Vacuum le 176 Cold mass 177 Cooler Tower 178 Machine n 179 Manufact 180 Machine n 181 Weld topia	cold mass and stabalise leads ve ressistor / Diode pack from Cold Mass	2 days Wed 02/11/11 Fri 04/11/11 0% 159 2 days Fri 04/11/11 Tue 08/11/11 0% 160	Copen cold mass and stabalise leads
163 Install new 164 Machine h 165 Insert Bim 166 Weld cool 167 Weld new 168 Resistor / 169 Install and 170 Drill holes 171 Cold mass 172 Install hea 173 Install Attach vac 174 Attach vac 175 Cold mass 176 Cold mass 177 Coler Tower 178 Machine n 179 Manufactu 180 Machine n 181 Weld topa 182 Install Cold	ssemble the ressistor / Diode pack and re-build with new ressirto conduction block		A Remove respirator / Diode pack from Cold Mass
165 Insert Bim 166 Weld cool 167 Weld new 168 Resistor / 169 Install and 170 Drill holes 171 Cold mass 172 Install and 173 Install and 174 Attach vac 175 Vacuum le 176 Cold mass 177 Cooler Tower 178 Machine n 179 Manufact 180 Machine n 181 Weld top 2 182 Install cool	active the reasistor / prove pack and re-pulle with new ressince conduction block		Remove ressistor / Diode pack from Cold Mass
166 Weld cool 167 Weld new 168 Resistor / 169 Install and 170 Drill holes 171 Cold mass 172 Install Ad 173 Install Ad 174 Attach vac 175 Cold mass 176 Cold rose 177 Coler Tower 178 Machine n 179 Manufactu 180 Machine n 181 Weld top 2 182 Install co	newly assembled ressistor / blode pack and re-build with new ressirto conduction block	2 days Tue 08/11/11 Thu 10/11/11 0% 161 2 days Thu 10/11/11 Mon 14/11/11 0% 162	Dis-assemble the ressistor / Diode pack and re-build with new ressirto conduction block
167 Weld new 168 Resistor / 169 Install and 170 Drill holes 171 Cold mass 172 Install hea 173 Install AG 174 Attach vac 175 Vacuum le 176 Cold mass 177 Cooler Tower 178 Machine n 179 Manufactu 180 Machine n 181 Weld topa 182 Install Cool	newly assembled ressistor / diode pack into the Cold Mass ine hole for the fifth cryocooler	2 days Tue 08/11/11 Thu 10/11/11 0% 161 2 days Thu 10/11/11 Mon 14/11/11 0% 162 1 day Mon 14/11/11 Tue 15/11/11 0% 163	Dis-assemble the ressistor / Diode pack and re-build with new ressirto conduction block Install newly assembled ressistor / diode pack into the Cold Mass Machine hole for the fifth cryocooler
168 Resistor / 169 Install and 170 Drill holes 171 Cold mass 172 Install AK 173 Install AK 174 Attach vac 175 Vacuum le 176 Cold mass 177 Cooler Tower 178 Machine n 179 Manufact 180 Machine n 181 Weld top 2 182 Install cool	i newly assembled ressistor / diode pack into the Cold Mass ine hole for the fifth cryocooler Bimetal insert into hole	2 days Tue 08/11/11 Thu 10/11/11 0% 161 2 days Thu 10/11/11 Mon 14/11/11 0% 162 1 day Mon 14/11/11 Tue 15/11/11 % 163 1 day Tue 15/11/11 Wed 16/11/11 % 164	Dis-assemble the ressistor / Diode pack and re-build with new ressirto conduction block Constall newly assembled ressistor / diode pack into the Cold Mass Machine hole for the fifth cryoscoler Consert Bimetal insert into hole
169 Install and 170 Drill holes 171 Cold mass 172 Install hea 173 Install AK 174 Attach vac 175 Cold mass 176 Cold mass 177 Coler Tower 178 Machine n 179 Manufactu 180 Machine n 181 Weld top a	newly assembled resistor / diode pack into the Cold Mass ne hole for the fifth crycocoler Bimetal insert into hole cooler tubes and bellow	2 days Tue 08/11/11 Thu 10/11/11 0% 161 2 days Thu 10/11/11 Mon 14/11/11 0% 162 1 day Mon 14/11/11 Tue 15/11/11 0% 163 1 day Tue 15/11/11 Wed 16/11/11 164 1 day Wed 16/11/11 Thu 17/11/11 0% 164	Dis-assemble the ressistor / Diode pack and re-build with new ressirto conduction block
170 Drill holes 171 Cold mass 172 Install hea 173 Install AG 174 Attach vac 175 Vacuum le 176 Cold mass 177 Cooler Tower 178 Machine n 179 Manufactu 180 Machine n 181 Weld top 2 182 Install cool	newly assembled ressistor / diode pack into the Cold Mass ine hole for the fifth cryoscoler Bimetal insert into hole cooler tubes and bellow new material over ressistor / diode pack area	2 days Tue 08/11/11 Thu 10/11/11 0% 161 2 days Thu 10/11/11 Mon 14/11/11 0% 162 1 day Mon 14/11/11 Mon 14/11/11 0% 163 1 day Tue 15/11/11 Wel 16/11/11 Wel 16/11/11 No 164 1 day Wed 16/11/11 Thu 17/11/11 0% 165 1 day Thu 17/11/11 Fri 18/11/11 0% 166	Obs-assemble the ressistor / Diode pack and re-build with new ressirto conduction block Install newly assembled ressistor / diode pack into the Cold Mass Machine hole for the fifth cryocooler Machine hole for the fifth cryocooler Machine hore ressistor / diode pack area
171 Cold mass 172 Install Heat 173 Install 4K1 174 Attach vac 175 Vacuum le 176 Cold mass 177 Cooler Tower 178 Machine n 179 Manufact 180 Machine n 181 Weld top 2 182 Install cool	i newly assembled ressistor / diode pack into the Cold Mass ine hole for the fifth cryocooler Bimetal insert into hole cooler tubes and bellow new material over ressistor / diode pack area tor / Diode pack with cionduction plate installed	2 days Tue 08/11/11 Thu 10/11/11 0% 161 2 days Thu 10/11/11 Thu 10/11/11 0% 162 1 day Mon 14/11/11 Tue 15/11/11 0% 163 1 day Tue 15/11/11 Wed 16/11/11 0% 164 1 day Wed 16/11/11 Thu 17/11/11 0% 165 1 day Thu 17/11/11 Fri 18/11/11 66 0 0 days Fri 18/11/11 Fri 18/11/11 67 167	Dis-assemble the ressistor / Diode pack and re-build with new ressirto conduction block
173 Install 4K 174 Attach vac 175 Vacuum in 176 Cold mass 177 Coler Tower 178 Machine n 179 Manufactu 180 Machine n 181 Weld top 2 182 Install coo	newly assembled ressistor / diode pack into the Cold Mass ine hole for the fifth cryoscoler Bimetal insert into hole cooler tubes and bellow new material over ressistor / diode pack area	2 days Tue 08/11/11 Thu 10/11/11 0% 161 2 days Thu 10/11/11 Thu 10/11/11 0% 162 1 day Mon 14/11/11 Tue 15/11/11 0% 163 1 day Tue 15/11/11 Wed 16/11/11 0% 164 1 day Wed 16/11/11 Thu 17/11/11 0% 165 1 day Thu 17/11/11 Fri 18/11/11 66 0 0 days Fri 18/11/11 Fri 18/11/11 67 167	Dis-assemble the ressistor / Diode pack and re-build with new ressirto conduction block Install newly assembled ressistor / diode pack into the Cold Mass Machine hole for the fifth cryocooler Machine hole for the fifth cryocooler Medicine hole for the fifth cryocooler Machine hole for the fifth
174 Attach vac 175 Vacuum le 176 Cold mass 177 Cooler Tower 178 Machine n 179 Manufact 180 Machine n 181 Weld top a	newly assembled ressistor / diode pack into the Cold Mass ne hole for the fifth cryocooler Bimetal insert into hole cooler tubes and bellow new material over ressistor / diode pack area for / Diode pack with cionduction plate installed and weld new larger bore Fill / Vent tubes - Feed instrumentation lines through level tul oles in the cold mass for heater 5-5 mass ready for vacuum leak checking	2 days Tue 08/11/11 Thu 10/11/11 0% 161 2 days Thu 10/11/11 Thu 10/11/11 0% 162 1 day Thu 10/11/11 Thue 15/11/11 0% 162 1 day Tue 15/11/11 Wed 16/11/11 0% 163 1 day Wed 16/11/11 Wed 16/11/11 0% 164 1 day Wed 16/11/11 Thu 17/11/11 0% 165 1 day Wed 16/11/11 Thu 17/11/11 0% 165 0 days Fri 18/11/11 Fri 18/11/11 0% 167 e 2 days Fri 18/11/11 The 22/11/11 0% 168 2 wks Tue 22/11/11 Tue 06/12/11 0% 169 169 0 days Tue 06/12/11 Tue 06/12/11 0% 170	Dis-assemble the ressistor / Diode pack and re-build with new ressirto conduction block Install newly assembled ressistor / diode pack into the Cold Mass Machine hole for the fifth cryocooler Insert Bimetal insert into hole Medicine how material over ressistor / diode pack area Weld now material over ressistor / diode pack area Install and weld new larger bore Fill/ Vent tubes - Feed instrumentation lines through level tube Install and weld new larger bore Fill/ Vent tubes - Feed instrumentation lines through level tube Install and weld new larger bore Fill/ Vent tubes - Feed instrumentation lines through level tube Install and weld new larger bore Fill/ Vent tubes - Feed instrumentation lines through level tube Install and weld new larger bore Fill/ Vent tubes - Feed instrumentation lines through level tube Install and weld new larger bore Fill/ Vent tubes - Feed instrumentation lines through level tube Install and weld new larger bore Fill/ Vent tubes - Feed instrumentation lines through level tube Install and weld new larger bore Fill/ Vent tubes - Feed instrumentation lines through level tube Install and weld new larger bore Fill/ Vent tubes - Feed instrumentation lines through level tube Install and weld new larger bore Fill/ Vent tubes - Feed instrumentation lines through level tube
175 Vacuum le 176 Cold mass 177 Cooler Tower 178 Machine n 179 Manufactu 180 Machine n 181 Weld top 2 182 Install coo	newly assembled resistor / diode pack into the Cold Mass ne hole for the fifth crycocoler Bimetal insert into hole cooler tubes and bellow new material over resistor / diode pack area for / Diode pack with cionduction plate installed and weld new larger bore Fill / Vent tubes - Feed instrumentation lines through level tul oles in the cold mass for heater 5+5 mass ready for vacuum leak checking heat intercept to main fill line	2 days Tue 08/11/11 Thu 10/11/11 0% 161 2 days Thu 10/11/11 Thu 00 14/11/11 0% 162 1 day Mon 14/11/11 Tue 15/11/11 0% 163 1 day Tue 15/11/11 Wed 16/11/11 0% 164 1 day Wed 16/11/11 Thu 17/11/11 0% 165 1 day Thu 17/11/11 Fri 18/11/11 0% 166 0 days Fri 18/11/11 Fri 18/11/11 166 0 days Fri 18/11/11 Tue 06/12/11 0% 167 e 2 days Fri 18/11/11 Tue 06/12/11 0% 168 2 wks Tue 22/11/11 Tue 06/12/11 0% 169 0 0 days Tue 06/12/11 Tue 06/12/11 0% 170 171	Dis-assemble the ressistor / Diode pack and re-build with new ressirto conduction block Install newly assembled ressistor / diode pack into the Cold Mass Machine hole for the fifth cryocooler Medic hole for the fifth cryocooler Medic color tubes and bellow Weld color tubes and bellow Weld color tubes and bellow Weld color tubes and bellow Medic her waterial over ressistor / diode pack area Medic her waterial over ressistor / diode pack area Medic her waterial over ressistor / diode pack area Medic her waterial over ressistor / diode pack with cionduction plate installed Medic her waterial over ressistor / diode pack with cionduction plate installed Modic her bore Fill / Vent tubes - Feed instrumentation lines through level tube Modic her her cold mass for heater 5+5 Modic her her cold mass for heater 6+5
176 Cold mass 177 Cooler Tower 178 Machine n 179 Manufactu 180 Machine n 181 Weld top a 182 Install cool	newly assembled resistor / diode pack into the Cold Mass ne hole for the fifth cryocooler Bimetal insert into hole cooler tubes and bellow new material over resistor / diode pack area tor / Diode pack with cionduction plate installed and weld new larger bore Fill/ Vent tubes - Feed instrumentation lines through level tul oles in the cold mass for heater 5+5 mass ready for vacuum leak checking heat intercept to main fill line 4K lead heat intercepts	2 days Tue 08/11/11 Thu 10/11/11 0% 161 2 days Thu 10/11/11 Mon 14/11/11 0% 162 1 day Mon 14/11/11 Tue 15/11/11 0% 163 1 day Mon 14/11/11 Tue 15/11/11 0% 163 1 day Wet 15/11/11 Wet 16/11/11 0% 165 1 day Wet 16/11/11 Fint 18/11/11 0% 165 0 days Fri 18/11/11 Fri 18/11/11 0% 166 0 days Fri 18/11/11 Tue 18/11/11 0% 168 2 wks Tue 22/11/11 Tue 06/12/11 0% 169 0 days Fri 18/11/11 Tue 06/12/11 0% 170 4 hrs Tue 06/12/11 Tue 06/12/11 0% 171 1 day Wed 07/12/11 Wed 07/12/11 0% 172	Obs-assemble the ressistor / Diode pack and re-build with new ressirto conduction block Install newly assembled ressistor / diode pack into the Cold Mass Machine hole for the fifth cryocooler Machine hole for the fifth cryocooler Medicine hole fifth cryocooler Medicine hole for the fifth cryocooler Medicine hole for the fifth cryocooler Medicine hole fifth cryocooler Medicine hole for the fifth cryocooler Medicine hole fifth cryoco
177 Cooler Tower 178 Machine n 179 Manufactu 180 Machine n 181 Weld top a 182 Install cool	newly assembled ressistor / diode pack into the Cold Mass ne hole for the fifth crycocoler Bimetal insert into hole cooler tubes and bellow new material over ressistor / diode pack area for / Diode pack with cionduction plate installed and weld new larger bore Fill / Vent tubes - Feed instrumentation lines through level tul oles in the cold mass for heater 5+5 mass ready for vacuum leak checking heat intercept to main fill line 4K lead heat intercepts vacuum fig and evacuate	2 days Tue 08/11/11 Thu 10/11/11 0% 161 2 days Thu 10/11/11 Thu 10/11/11 0% 162 1 day Thu 10/11/11 Thue 15/11/11 0% 162 1 day Tue 15/11/11 Web 16/11/11 0% 163 1 day Web 16/11/11 Web 16/11/11 0% 164 1 day Web 16/11/11 Thu 17/11/11 0% 165 1 day Web 16/11/11 Fhi 18/11/11 0% 166 0 days Fri 18/11/11 Fri 18/11/11 0% 167 e 2 days Fri 18/11/11 The 06/12/11 0% 168 0 days Tue 06/12/11 Tue 06/12/11 0% 170 4 hrs Tue 06/12/11 Tue 06/12/11 0% 171 1 day Web 07/12/11 Web 07/12/11 0% 172 2 days Tue 22/11/11 Thu 24/11/11 0% 169	Dis-assemble the ressistor / Diode pack and re-build with new ressirto conduction block Install newly assembled ressistor / diode pack into the Cold Mass Machine hole for the fifth cryocooler Instal insert into hole Weld cooler tubes and bellow Weld new material over ressistor / diode pack area Weld new material over ressistor / diode pack area Newled cooler tubes and bellow Newled new material over ressistor / diode pack area Newled cooler tubes and bellow Newled new material over ressistor / diode pack area Newled cooler tubes and bellow Newled new material over ressistor / diode pack area Newled new material over ressistor / diode pack area Newled cooler tubes and bellow Newled new material over ressistor / diode pack area Newled newled new regere fore Fill/ Vent tubes Newled newled new regr
178 Machine n 179 Manufactu 180 Machine n 181 Weld top a 182 Install coo	newly assembled resistor / diode pack into the Cold Mass ne hole for the fifth crycocoler Bimetal insert into hole cooler tubes and bellow new material over resistor / diode pack area for / Diode pack with cionduction plate installed and weld new larger bore Fill / Vent tubes - Feed instrumentation lines through level tul oles in the cold mass for heater 5+5 mass ready for vacuum leak checking heat intercept to main fill line 4K lead heat intercepts n vacuum rig and evacute m leak check	2 days Tue 08/11/11 Thu 10/11/11 0% 161 2 days Thu 10/11/11 Thu 10/11/11 0% 162 1 day Mon 14/11/11 Tue 15/11/11 0% 163 1 day Mon 14/11/11 Tue 15/11/11 0% 163 1 day Wel 16/11/11 Wel 16/11/11 0% 164 1 day Wel 16/11/11 Fin 18/11/11 0% 165 1 day Wel 16/11/11 Fin 18/11/11 0% 166 0 days Fri 18/11/11 Fin 18/11/11 0% 167 e 2 days Fri 18/11/11 Tue 22/11/11 0% 169 0 days Tue 06/12/11 Tue 06/12/11 0% 171 0 days Tue 06/12/11 Tue 06/12/11 0% 171 1 day Wed 07/12/11 Wed 07/12/11 0% 172 2 days Wed 07/12/11 Thu 08/12/11 0% 169 2 days Wed 07/12/11 Thu 08/12/11 0% 172	Image: Dis-assemble the ressistor / Diode pack and re-build with new ressirto conduction block Image: Dis-assemble the ressistor / diode pack into the Cold Mass Image: Dis-assemble the ressistor / diode pack into the Cold Mass Image: Dis-assemble the ressistor / diode pack into the Cold Mass Image: Dis-assemble the ressistor / diode pack into the Cold Mass Image: Dis-assemble the ressistor / diode pack into the Cold Mass Image: Dis-assemble the ressistor / diode pack into the Cold Mass Image: Dis-assemble the ressistor / diode pack into the Cold Mass Image: Dis-assemble the ressistor / diode pack into the Cold Mass Image: Dis-assemble the ressistor / diode pack into the Cold Mass Image: Dis-assemble the ressistor / diode pack area Image: Dis-assemble the ressistor / Diode pack with cionduction plate installed Image: Dis-assemble the ressistor / Diode pack with cionduction plate installed Image: Dis-assemble the ressistor / Diode pack with cionduction plate installed Image: Dis-assemble the ressistor / Diode pack with cionduction plate installed Image: Dis-assemble the ressistor / Diode pack with cionduction plate installed Image: Dis-assemble the ressistor / Diode pack with cionduction plate installed Image: Dis-assemble the ressistor / Diode pack with cionduction plate installed Image: Dis-assemble the ressistor / Diode pack with cionduction plate installed <tr< td=""></tr<>
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Wrap 1st stage Copper plates to shield connections Sign off Tower MLI wrapping Apply MLI to Shield and cold mass bore Sign off Shield and cold mass bore wrapping Integrate cold mass MLI with bore MLI Sign off cold mass to bore MLI conection Apply MLI to shield ends Apply MLI to shield and cold mass bore and shield bore Sign off shield MLI and warm bore and shield ends Sign off MLI at warm bore and shield ends Sign off MLI at warm bore and shield ends Sign off MLI at warm bore and shield ends Install level sensor cold mass 2 - new fill line / vent line Install temp sensors cold mass 2 Install temp sensors to cold mass 2 Add temp sensors to cold mass supports	2 days Tue 24/01/12 Wed 25/01/12 0% 203 0 days Wed 25/01/12 Wed 25/01/12 0% 204 6 days Tue 31/01/12 Tue 07/02/12 0% 204 0 days Tue 07/02/12 Tue 07/02/12 0% 206 2 days Mon 20/02/12 Tue 07/02/12 0% 243 0 days Tue 21/02/12 Tue 21/02/12 0% 244 4 days Tue 21/02/12 The 24/02/12 0% 244 4 days Mon 27/02/12 Thu 01/03/12 0% 210 0 days Tue 01/03/12 Thu 01/03/12 0% 210 10 days Tue 06/03/12 Tue 06/03/12 0% 210,211 2 days Mon 05/03/12 Tue 06/03/12 0% 245 0 days Tue 06/03/12 Tue 06/03/12 0% 213	Wrap 1st stage Copper plates to st Sign off Tower MLI wrapping Sign off Tower MLI wrapping Sign off Sign Sign off Sign off Sign o
Sign off Tower MLI wrapping Apply MLI to Shield and cold mass bore Sign off Shield and cold mass bore wrapping Integrate cold mass MLI with bore MLI Sign off Shield and cold mass to bore MLI concetion Apply MLI to shield and Apply MLI between warm bore and shield bore Sign off shield MLI and warm bore ALI Integrate MLI between warm bore and shield ends Sign off MLI at warm bore / shield connection Install level sensor cold mass 2 - new fill line / vent line Install level sensor sold mass 2 Install temp sensors so cold mass 2 Add temp sensors to cold mass supports	0 days Wed 25/01/12 Wed 25/01/12 0% 204 6 days Tue 31/01/12 Tue 07/02/12 0% 188 0 days Tue 07/02/12 0% 206 2 days Mon 20/02/12 Tue 21/02/12 0% 208 0 days Tue 21/02/12 Tue 21/02/12 0% 208 4 days Tue 21/02/12 Tue 21/02/12 0% 244 4 days Mon 27/02/12 Thu 01/03/12 0% 210 0 days Tue 1/02/12 Thu 01/03/12 0% 210,211 2 days Mon 05/03/12 Tue 06/03/12 0% 210,211	25/01 Sign off Tower MLI wrapping Apply MLI to Shield and 07/02 Sign off Shield and cold 0, historic at a cold 21/02 Sign of Shield and cold 21/02 Sign off cold r
Apply MLI to Shield and cold mass bore Sign off Shield and cold mass bore wrapping Integrate cold mass MLI with bore MLI Sign off cold mass to bore MLI concection Apply MLI to shield ends Apply MLI between warm bore and shield bore Sign off shield MLI and warm bore MLI Integrate MLI between warm bore and shield ends Sign off shield MLI and warm bore f MLI Integrate MLI between warm bore and shield ends Sign off MLI at warm bore / shield connection Install level sensor cold mass 2 - new fill line / vent line Install level sensors cold mass 2 Install temp sensors to cold mass 2 Add temp sensors to cold mass supports	6 days Tue 31/01/12 Tue 07/02/12 0% 188 0 days Tue 07/02/12 Tue 07/02/12 0% 206 2 days Mon 20/02/12 Tue 21/02/12 0% 243 0 days Tue 21/02/12 Tue 21/02/12 0% 243 4 days Tue 21/02/12 Tue 21/02/12 0% 244 4 days Mon 27/02/12 Thu 01/03/12 0% 210 0 days Tuu 01/03/12 Thu 01/03/12 0% 210,211 2 days Mon 05/03/12 Tue 06/03/12 0% 245 0 days Tuu 06/03/12 Tue 06/03/12 0% 213	Apply MLI to Shield and cold 07/02 Sign off Shield and cold 02/02 Sign off Shield and cold 21/02 Sign off Science
Sign off Shield and cold mass bore wrapping Integrate cold mass NLL with bore MLI Sign off cold mass to bore MLI conection Apply MLI to shield ends Apply MLI between warm bore and shield bore Sign off shield MLI and warm bore MLI Integrate MLI between warm bore and shield ends Sign off MLI at warm bore and shield ends Sign off MLI at warm bore and shield ends Install level sensor cold mass 2 - new fill line / vent line Install level sensors cold mass 2 Install temp sensors cold mass 2 Add temp sensors to cold mass supports	0 days Tue 07/02/12 Tue 07/02/12 0% 206 2 days Mon 20/02/12 Tue 21/02/12 0% 243 0 days Tue 21/02/12 Tue 21/02/12 0% 208 4 days Tue 21/02/12 Tue 21/02/12 0% 244 4 days Mon 27/02/12 Thu 41/03/12 0% 210 0 days Tue 1/03/12 Thu 01/03/12 0% 210,211 2 days Mon 05/03/12 Tue 06/03/12 0% 245 0 days Tue 06/03/12 Tue 06/03/12 0% 213	07/02 Sign off Shield and cold Integrate cold in 21/02 Sign off cold r
Sign off cold mass to bore MLI conection Apply MLI to shield ends Apply MLI between warm bore and shield bore Sign off shield MLI and warm bore MLI Integrate MLI between warm bore and shield ends Sign off MLI at warm bore in the shield ends Sign off MLI at warm bore in the shield ends Install level sensor cold mass 2 - new fill line / vent line Install level sensor cold mass 2 Install temp sensors cold mass 2 Install temp sensors to cold mass 2 Add temp sensors to cold mass supports	0 days Tue 21/02/12 Tue 21/02/12 0% 208 4 days Tue 21/02/12 Fri 24/02/12 0% 244 4 days Mon 27/02/12 Thu 01/03/12 0% 210 0 days Thu 01/03/12 Thu 01/03/12 0% 210.211 2 days Mon 05/03/12 Tue 06/03/12 0% 245 0 days Tue 06/03/12 Tue 06/03/12 0% 213	21/02 Sign off cold r
Apply MLI to shield ends Apply MLI between warm bore and shield bore Sign off shield MLI and warm bore MLI Integrate MLI between warm bore and shield ends Sign off MLI at warm bore / shield connection Install level sensor cold mass 2 - new fill line / vent line Install level sensor cold mass 2 Install temp sensors cold mass 2 Install temp sensors to cold mass supports	4 days Tue 21/02/12 Fri 24/02/12 0% 244 4 days Mon 27/02/12 Thu 01/03/12 0% 210 0 days Thu 01/03/12 Thu 01/03/12 0% 210,211 2 days Mon 05/03/12 Tue 06/03/12 0% 245 0 days Tue 06/03/12 Tue 06/03/12 0% 245	
Apply MLI between warm bore and shield bore Sign off shield MLI and warm bore MLI Integrate MLI between warm bore and shield ends Sign off MLI at warm bore / shield connection Install level sensor cold mass 2 - new fill line / vent line Install level sensor cold mass 2 Install leven sensor scold mass 2 Install temp sensors cold mass 2 Install temp sensors cold mass 2 Install temp sensors to cold mass supports	4 days Mon 27/02/12 Thu 01/03/12 0% 210 0 days Thu 01/03/12 Thu 01/03/12 0% 210,211 2 days Mon 05/03/12 Tue 06/03/12 0% 245 0 days Tue 06/03/12 Tue 06/03/12 0% 213	
Sign off shield MLI and warm bore MLI Integrate MLI between warm bore and shield ends Sign off MLI at warm bore / shield connection Instrumentation Install level sensor cold mass 2 - new fill line / vent line Install external temp sensors cold mass 2 Install lemp sensors radiation shield 2 Add temp sensors to cold mass supports	0 days Thu 01/03/12 Thu 01/03/12 0% 210,211 2 days Mon 05/03/12 Tue 06/03/12 0% 245 0 days Tue 06/03/12 Tue 06/03/12 0% 245	
Integrate MLI between warm bore and shield ends Sign off MLI at warm bore / shield connection Instrumentation Install level sensor cold mass 2 - new fill line / vent line Install external temp sensors cold mass 2 Install temp sensors radiation shield 2 Add temp sensors to cold mass supports	2 days Mon 05/03/12 Tue 06/03/12 0% 245 0 days Tue 06/03/12 Tue 06/03/12 0% 213	
Instrumentation Install level sensor cold mass 2 - new fill line / vent line Install external temp sensors cold mass 2 Install temp sensors radiation shield 2 Add temp sensors to cold mass supports		
Install level sensor cold mass 2 - new fill line / vent line Install external temp sensors cold mass 2 Install temp sensors radiation shield 2 Add temp sensors to cold mass supports	108.5 days Thu 22/09/11 Tue 21/02/12 0%	06/03 \$\$jg
Install external temp sensors cold mass 2 Install temp sensors radiation shield 2 Add temp sensors to cold mass supports		o Install evel sensor cold mass 2 - new fill line / vent line
Install temp sensors radiation shield 2 Add temp sensors to cold mass supports	1 day Fri 09/12/11 Fri 09/12/11 0% 175 1 day Wed 07/12/11 Wed 07/12/11 0% 172	g instali kevel sensor od armas 2 - new nili ina / venn ina arma i instali kevel sensor od armas 2 - i i i ina / venn i
Add temp sensors to cold mass supports	1 day Thu 22/09/11 Fri 23/09/11 0% 199SF	winstall temp sensors radiation shield 2
Attach thermal sensors to the Copper plates	1 day Fri 23/12/11 Fri 23/12/11 0% 231	Add temp sensors to cold mass supports
	1 day Mon 16/01/12 Mon 16/01/12 0% 223	Attach thermal sensors to the Copper pla
Apply thermal instramentation top shield	1 day Tue 21/02/12 Tue 21/02/12 0% 244	Apply thermal
Current Leads Install HTS leads with upper and lower voltage taps	1 day Fri 13/01/12 Fri 13/01/12 0% 1 day Fri 13/01/12 Fri 13/01/12 0% 186	Current Leads
Coolers	63 days Mon 09/01/12 Wed 04/04/12 0%	
Install Single stage cooler to Tower	1 day Mon 09/01/12 Mon 09/01/12 0% 183	Unstall Single stage color to Tower
Install the 2 stage coolers to sleeves	2 days Fri 30/03/12 Mon 02/04/12 0% 248	
Install cro cooler hoses	1 day Tue 03/04/12 Tue 03/04/12 0% 226	
Recharge for UK operation Assembly	1 day Wed 04/04/12 Wed 04/04/12 0% 227	
Assembly Assembly starts on Solenoid 1	83 days Wed 21/12/11 Fri 13/04/12 0% 0 days Wed 21/12/11 Wed 21/12/11 0% 231SS	21/12 Assembly starts on Solenoid 1
Suspend shield around the cold mass	2 days Wed 21/12/11 Thu 22/12/11 0% 197,175	Summaria and Summaria
Install cold mass supports to Vacuum vessel	2 days Wed 04/01/12 Thu 05/01/12 0% 201	, Install cold mass supports to Vacuum vesse
Move vacuum vessel over the shield / cold mass assembly	2 days Fri 06/01/12 Mon 09/01/12 0% 232	Very secure vacuum vessel over the shield / cold mas
Connect the supports to the cold mass Suspend the Cold mass / shield inside the vacuum vessel	2 days Tue 10/01/12 Wed 11/01/12 0% 233	Connect the supports to the cold mass
Suspend the Cold mass / shield inside the vacuum vessel Cold mass and shield inside vacuum vessel	2 days Thu 12/01/12 Fri 13/01/12 0% 234 0 days Fri 13/01/12 Fri 13/01/12 0% 235	Suspend the Cold mass / shield inside the 1301 de Cold mass / shield inside the
Connect cold mass support intercepts to the shield	1 day Mon 16/01/12 Mon 16/01/12 0% 236	Connect cold mass and a field in the vector of the vector
Weld Cooler sleeves to the cold mass stub tubes	2 days Tue 17/01/12 Wed 18/01/12 0% 237,121	Weld Cooler sleeves to the cold mass s
Add copper sheet to the holes in the shield	1 day Thu 19/01/12 Thu 19/01/12 0% 238	Add copper sheet to the holes in the si
Align Vacuum vessel end plate to the cold mass bore Align the Cold Mass to the vacuum vessel	2 days Wed 08/02/12 Thu 09/02/12 0% 207	Align Vacuum vesseller
Align the Cold Mass to the vacuum vessel Cold mass aligned to the Vacuum Vessel	1 wk Fri 10/02/12 Thu 16/02/12 0% 240 0 days Thu 16/02/12 Thu 16/02/12 0% 241	Align the Cold Mas 16/02 & Cold mass aligne
Install shield bore tube	1 day Fri 17/02/12 Fri 17/02/12 0% 242	e-install shield bore
Weld shield end plates	1 day Mon 20/02/12 Mon 20/02/12 0% 243	J-Weld shield end
Install warm bore	1 day Fri 02/03/12 Fri 02/03/12 0% 212	
Weld end plates to the Vacuum vessel Vacuum Vessel closed	3 days Wed 07/03/12 Fri 09/03/12 0% 214	
Vacuum Vessel closed Detailed leak checking of the Vacuum vessel and cold mass	0 days Fri 09/03/12 Fri 09/03/12 0% 246 4 days Mon 26/03/12 Thu 29/03/12 0% 195	09/03 🗸 V.
Install vacuum system to solenoid	2 days Wed 04/04/12 Thu 05/04/12 0% 227	
Commision vacuum systems and initial pump down	3 days Fri 06/04/12 Tue 10/04/12 0% 249	
Test LN2 cooldown system	1 day Wed 11/04/12 Wed 11/04/12 0% 250	
Connect power leads from feedthroughs to vacuum vessel terminal block Connect all instrumentation cables	1 day Thu 12/04/12 Thu 12/04/12 0% 251 1 day Fri 13/04/12 Fri 13/04/12 0% 252	
Connect all instrumentation cables Solenoid ready for cool down and training	1 day Fri 13/04/12 Fri 13/04/12 0% 252 0 days Fri 13/04/12 Fri 13/04/12 0% 253	
Power and Controls Racks	276 days Wed 08/12/10 Thu 05/01/12 0%	Power and Controls Racks
Specification of the control requirements	147 days Wed 08/12/10 Fri 08/07/11 0%	Specification of the control requirements
Specification of the controls complete Hardware constituction	0 days Wed 24/08/11 Wed 24/08/11 0% 17 wks Wed 24/08/11 Tue 20/12/11 0% 257	24/08 Specification of the controls complete
Hardware construction Software writting and debugging	17 wks Wed 24/08/11 Tue 20/12/11 0% 257 17 wks Wed 24/08/11 Tue 20/12/11 0% 257	Software writing and debugging
Documentation	17 wks Wed 24/08/11 Tue 20/12/11 0% 257	Documentation
Shipping	7 days Wed 21/12/11 Thu 29/12/11 0% 259,258	Shipping
Unpack and setup	1 wk Fri 30/12/11 Thu 05/01/12 0% 261	Unpack and setup
Control system ready for operations Data Logging	0 days Thu 05/01/12 Thu 05/01/12 0% 262	05/01 Control system ready for operations
Specification of system requirements	0 days Fri 08/07/11 Fri 08/07/11 0% 256	08/07 Specification of system requirements
Build of hardware	3 mons Mon 11/07/11 Fri 30/09/11 0% 265	Build of hardware
Ship Data logging system to WANG	2 wks Mon 03/10/11 Fri 14/10/11 0% 266	Ship Data logging system to WANG
Data logging system arrives at WANG	0 days Fri 14/10/11 Fri 14/10/11 0% 267	14/10 Data Logging system arrives at WANG
Install, test, debug and commission data logging system Training and Operations	2 wks Fri 23/12/11 Thu 05/01/12 0% 268,262FF 96 days Tue 10/01/12 Tue 22/05/12 0%	histali, test, debug and commission data logging
Solenoid 2	25 days Tue 10/01/12 Mon 13/02/12 0%	Solenoid 2
LN2 Cooldown	4 days Tue 10/01/12 Fri 13/01/12 0% 154	▲ LN2 Cooldown
He Cooldown	2 days Mon 16/01/12 Tue 17/01/12 0% 272	Le Cooldown
Soak test with coolers operating Coil Ramp / Operation with probable Quench / warm up / cool down / operate cycles	3 days Wed 18/01/12 Fri 20/01/12 0% 273 2 wks Mon 23/01/12 Fri 03/02/12 0% 274	Soak test with coolers operating
Coil Ramp / Operation with probable Quench / warm up / cool down / operate cycles Take Coil Magnetic measurements when coils are stable	2 wks Mon 23/01/12 Fri 03/02/12 0% 274 1 day Mon 06/02/12 Mon 06/02/12 0% 275	Doit Ramp / Operation with a contract of the c
Warm system to room tempurature	1 wk Tue 07/02/12 Mon 13/02/12 0% 276	📥 Warm system to roor
Solenoid 2 ready for Packaging and Shipping	0 days Mon 13/02/12 Mon 13/02/12 0% 277	13/02 🕹 Solenoid 2 ready fo
Solenoid 1	27 days Mon 16/04/12 Tue 22/05/12 0%	
LN2 Cooldown He Cooldown	4 days Mon 16/04/12 Thu 19/04/12 0% 254	
He Cooldown Soak test with coolers operating	2 days Fri 20/04/12 Mon 23/04/12 0% 280 3 days Tue 24/04/12 Thu 26/04/12 0% 281	
Coil Ramp Up	2 days Fri 27/04/12 Mon 30/04/12 0% 282	
Operation with probable Quench / warm up / cool down / operate cycles	2 wks Tue 01/05/12 Mon 14/05/12 0% 283	
Take Coil Magnetic measurements when the coils are stable	1 day Tue 15/05/12 Tue 15/05/12 0% 284	
Warm system to room tempurature Solenoid 1 ready for Packaging and shipping	1 wk Wed 16/05/12 Tue 22/05/12 0% 285 0 days Tue 22/05/12 Tue 22/05/12 0% 286	
Solenoid 1 ready for Packaging and shipping Shipping	0 days Tue 22/05/12 Tue 22/05/12 0% 286 101 days Tue 14/02/12 Tue 03/07/12 0%	
Install shipping fixtures into Vessels / Towers for solenoid 2	1 wk Tue 14/02/12 Mon 20/02/12 0% 278	install shipping
Package solenoid 2	1 wk Tue 21/02/12 Mon 27/02/12 0% 289	Package s
Ship Solenoid 2 to UK	4 wks Tue 28/02/12 Mon 26/03/12 0% 290	
Solenoid 2 arrives at RAL Install shipping fixtures into Vessels / Towers for solenoid 1	0 days Mon 26/03/12 Mon 26/03/12 0% 291	
Install shipping fixtures into Vessels / Towers for solenoid 1 Package Solenoid 1	1 wk Wed 23/05/12 Tue 29/05/12 0% 287 1 wk Wed 30/05/12 Tue 05/06/12 0% 293	
Ship Solenoid 1 to UK	4 wks Wed 06/06/12 Tue 03/07/12 0% 293	
Solenoid 1 arrives at RAL	0 days Tue 03/07/12 Tue 03/07/12 0% 295	
<u> </u>		
at One stream star O alexa side Mando Tools	Dollad Lin Task	
ct: Spectrometer Solenoids Ver16 Task Milestone - Tue 13/09/11 Progress Summary		Up Progress External Tasks Group By Summary Deadline

