

Liquid Fuel Modication of 7EA Gas Turbine

ID		Task Name	Duration	Start	Finish	Predecessors	Resource Names	December			
								11/29	12/6	12/13	12/20
1		Notice to Proceed	1 day	Mon 4/5/10	Mon 4/5/10						
2		Engineering	50 days	Mon 9/6/10	Fri 11/12/10	1					
3		Review of systems and drawings	35 days	Mon 9/6/10	Fri 10/22/10						
4		Review of control system requirements	18 days	Mon 9/13/10	Wed 10/6/10						
5		Revise drawings	45 days	Mon 9/13/10	Fri 11/12/10						
6		Develop modification package for assembly	30 days	Mon 9/13/10	Fri 10/22/10						
7		Fabrication, Procurement, Purchasing	185 days	Mon 4/19/10	Fri 12/31/10						
8		Liquid Fuel System	185 days	Mon 4/19/10	Fri 12/31/10						
9		Fuel Forwarding Skid - Design and fabricate	75 days	Mon 9/20/10	Fri 12/31/10						
10		Fuel stop valve - Inspect & test	35 days	Mon 4/19/10	Fri 6/4/10						
11		Fuel Bypass / control valve - Inspect & test	30 days	Mon 4/26/10	Fri 6/4/10						
12		Main fuel pump - Inspect & test	30 days	Mon 5/10/10	Fri 6/18/10						
13		Fuel pump clutch - Inspect and test	25 days	Mon 5/3/10	Fri 6/4/10						
14		Duplex fuel filters & transfer valve -Purchase	42 days	Mon 4/26/10	Tue 6/22/10						
15		Flow divider - Procure & purchase	45 days	Mon 4/19/10	Fri 6/18/10						
16		Isolation valve - Flow divider (Purchase)	75 days	Mon 4/19/10	Fri 7/30/10						
17		Liquid fuel solenoid valve - Procure & purchase	25 days	Mon 4/19/10	Fri 5/21/10						
18		Fuel purge valves - Purchase	45 days	Mon 4/26/10	Fri 6/25/10						
19		Tubing and piping supports - Fabricate	21 days	Mon 6/14/10	Mon 7/12/10						
20		Tubing and fittings - Procure & purchase	30 days	Mon 5/24/10	Fri 7/2/10						
21		Instrumentation - Procure & Purchase	35 days	Mon 5/17/10	Fri 7/2/10						
22		Electrical Materials - Procure & purchase	21 days	Mon 6/7/10	Mon 7/5/10						
23		Combustion System	95 days	Mon 6/7/10	Fri 10/15/10						
24		Primary fuel nozzles - Procure & purchase	90 days	Mon 6/7/10	Fri 10/8/10						
25		Secondary fuel nozzles - Procure & purchase	90 days	Mon 6/14/10	Fri 10/15/10						
26		Flame detectors	50 days	Mon 6/21/10	Fri 8/27/10						
27		Consumable materials - Procure & purchase	36 days	Mon 6/7/10	Mon 7/26/10						
28		Water Injection System	105 days	Mon 5/17/10	Fri 10/8/10						
29		Injection Skid	105 days	Mon 5/17/10	Fri 10/8/10						
30		Design and drawings	12 days	Mon 7/5/10	Tue 7/20/10						
31		Skid & enclosure - Fabrication	25 days	Mon 6/7/10	Fri 7/9/10						
32		Pump & motor	25 days	Mon 5/17/10	Fri 6/18/10						
33		Variable Frequency Drive	25 days	Mon 5/17/10	Fri 6/18/10						
34		Piping and components	20 days	Mon 6/7/10	Fri 7/2/10						
35		Electrical and power distribution - procure & p	28 days	Mon 5/24/10	Wed 6/30/10						
36		Instrumentation - Procure & purchase	26 days	Mon 5/17/10	Mon 6/21/10						
37		Skid Assembly - Mechanical	15 days	Mon 9/13/10	Fri 10/1/10	31,32,34					

Project: L.F. Modification at EDC_June
Date: Tue 10/19/10

Task 

Milestone



External Tasks



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Summary



External Milestone



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Project Summary



Deadline



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ID		Task Name	Duration	Start	Finish	Predecessors	Resource Names	December			
								11/29	12/6	12/13	12/20
38		Skid assembly - Electrical and Controls	10 days	Mon 9/27/10	Fri 10/8/10	37SS+10 days					
39		System Piping - Turbine Base	45 days	Mon 5/24/10	Fri 7/23/10						
40		Piping and supports - Fabrication	35 days	Mon 6/7/10	Fri 7/23/10						
41		Tubing and fittings - Procure and purchase	30 days	Mon 5/24/10	Fri 7/2/10						
42		Atomizing air System	66 days	Mon 4/26/10	Mon 7/26/10						
43		Main atomizing air compressor - Procure and purch	40 days	Mon 4/26/10	Fri 6/18/10						
44		Booster Compressor Motor - Procure & purchase	28 days	Mon 5/3/10	Wed 6/9/10						
45		Booster Compressor - Procure & purchase	31 days	Mon 6/7/10	Mon 7/19/10						
46		Booster compressor base - Fabricate	29 days	Mon 4/26/10	Thu 6/3/10						
47		AA instrument panel - Procure & purchase	18 days	Wed 6/2/10	Fri 6/25/10						
48		Air filter / separator - Procure & purchase	4 days	Mon 5/24/10	Thu 5/27/10						
49		Atomizing air heat exchanger - Inspect (at site)	2 days	Mon 6/28/10	Tue 6/29/10						
50		Air operated butterfly valves - Procure & purchase	21 days	Mon 6/7/10	Mon 7/5/10						
51		Check valves (4") - Procure & purchase	35 days	Wed 5/19/10	Tue 7/6/10						
52		Instrumentation - Procure & purchase	20 days	Mon 5/17/10	Fri 6/11/10						
53		AA Lower Turbine piping - Fabricate	31 days	Mon 6/14/10	Mon 7/26/10						
54		AA piping on aft accessory base - Fabricate	33 days	Mon 6/7/10	Wed 7/21/10						
55		AA interconnection piping - Fabricate	17 days	Mon 6/28/10	Tue 7/20/10						
56		AA header and flexible hoses - Procure & Purchase	35 days	Mon 5/24/10	Fri 7/9/10						
57		AA piping supports - Fabricate	16 days	Mon 6/28/10	Mon 7/19/10						
58		Tubing & Fittings - Procure & purchase	15 days	Mon 5/24/10	Fri 6/11/10						
59		Conduit, fittings, and cable - procure & purchase	18 days	Mon 6/21/10	Wed 7/14/10						
60		Purge Air System	44 days	Mon 5/17/10	Thu 7/15/10						
61		Heat exchanger support - Fabricate	7 days	Mon 6/28/10	Tue 7/6/10						
62		Off base piping and supports	5 days	Fri 7/2/10	Thu 7/8/10						
63		AOV's, MOV's, and manual valves - Procure & pur	31 days	Mon 5/24/10	Mon 7/5/10						
64		Purge system instrument and solenoid panel - Insp	29 days	Mon 6/7/10	Thu 7/15/10						
65		General instrumentation	33 days	Mon 5/17/10	Wed 6/30/10						
66		Purge system headers - Fabricate	25 days	Thu 5/27/10	Wed 6/30/10						
67		Piping supports	6 days	Mon 6/21/10	Mon 6/28/10						
68		Tubing and tube fittings - Procure & purchase	15 days	Mon 6/21/10	Fri 7/9/10						
69		Conduit, fittings, and cable - Procure & purchase	22 days	Mon 6/7/10	Tue 7/6/10						
70		False Start Drain System	49 days	Mon 5/10/10	Thu 7/15/10						
71		Air operated drain valves - Procure & purchase	14 days	Mon 5/10/10	Thu 5/27/10						
72		Tubing and fittings - Procure & purchase	16 days	Mon 6/7/10	Mon 6/28/10						
73		Pipe spool for exhaust drain - Fabricate	4 days	Mon 7/12/10	Thu 7/15/10						
74		Cooling Water System	40 days	Mon 5/17/10	Fri 7/9/10						

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ID		Task Name	Duration	Start	Finish	Predecessors	Resource Names	December			
								11/29	12/6	12/13	12/20
75		AA temperature control valve	32 days	Mon 5/17/10	Tue 6/29/10						
76		Piping components - Procure & purchase	5 days	Mon 7/5/10	Fri 7/9/10						
77		Piping supports - Fabricate	3 days	Mon 6/7/10	Wed 6/9/10						
78		Shipping & Logistics	62 days	Fri 10/8/10	Mon 1/3/11						
79		Packing and shipping preparation	14 days	Fri 10/8/10	Wed 10/27/10						
80		Shipping	21 days	Thu 10/28/10	Thu 11/25/10	79					
81		Customs Clearance	5 days	Fri 11/26/10	Thu 12/2/10	80					
82		Transportation to site	4 days	Fri 12/3/10	Wed 12/8/10	81					
83		Material / Equipment	18 days	Thu 12/9/10	Mon 1/3/11						
84		Receiving at site	18 days	Thu 12/9/10	Mon 1/3/11						
85		Shipment arrival at site	1 day	Thu 12/9/10	Thu 12/9/10	82					
86		Receive Water Injection skid	1 day	Thu 12/9/10	Thu 12/9/10	82					
87		Receive Liquid Fuel Forwarding skid	1 day	Mon 1/3/11	Mon 1/3/11	9					
88		Receive Demin Water Forwarding skid	1 day	Mon 1/3/11	Mon 1/3/11	9					
89		Unit #11 - Unit Modification at site	34 days	Fri 12/10/10	Wed 1/26/11	85					
90		Accessory Base	34 days	Fri 12/10/10	Wed 1/26/11						
91		Liquid Fuel System	12 days	Fri 12/10/10	Mon 12/27/10						
92		Install Major Components	4 days	Fri 12/10/10	Wed 12/15/10	85					
93		Main pump clutch	1 day	Fri 12/10/10	Fri 12/10/10						
94		Main pump and base	2 days	Mon 12/13/10	Tue 12/14/10	93					
95		Stop valve	1 day	Fri 12/10/10	Fri 12/10/10						
96		Duplex Filters & Transfer valve	2 days	Mon 12/13/10	Tue 12/14/10	95					
97		Filter Gauge Panel	4 hrs	Wed 12/15/10	Wed 12/15/10	96					
98		Solenoid valve (20FL-1)	3 hrs	Mon 12/13/10	Mon 12/13/10	95					
99		Flow Divder & Isolation Valve assy	1 day	Wed 12/15/10	Wed 12/15/10	106					
100		Bypass valve	1 day	Fri 12/10/10	Fri 12/10/10						
101		Install Large Bore Pipe & supports	8 days	Thu 12/16/10	Mon 12/27/10	92					
102		Atomizing air system	12 days	Fri 12/10/10	Mon 12/27/10						
103		Install Major Components	4 days	Fri 12/10/10	Wed 12/15/10	85					
104		Install AA filter casing	1 day	Fri 12/10/10	Fri 12/10/10	85					
105		Main compressor	1 day	Mon 12/13/10	Mon 12/13/10	104					
106		Install booster compressor base	1 day	Tue 12/14/10	Tue 12/14/10	105					
107		Install booster compressor & motor	1 day	Wed 12/15/10	Wed 12/15/10	106					
108		Install Large Bore Pipe & supports	9 days	Wed 12/15/10	Mon 12/27/10	104,105,106					
109		Electrical and Instrumentation - all systems	28 days	Mon 12/20/10	Wed 1/26/11						
110		Install instrumentation on gage panel	4 days	Mon 12/20/10	Thu 12/23/10	108SS+3 days					
111		Install tubing and supports - all systems	10 days	Fri 12/24/10	Thu 1/6/11	110					

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External Tasks



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ID		Task Name	Duration	Start	Finish	Predecessors	Resource Names	December			
								11/29	12/6	12/13	12/20
112		Install conduit and cable - all systems	11 days	Fri 1/7/11	Fri 1/21/11	111					
113		Terminate and loop check to JB 1 & JB 2 - all	3 days	Mon 1/24/11	Wed 1/26/11	112					
114		Turbine Base	22 days	Fri 12/10/10	Mon 1/10/11						
115		Atomizing Air System	7 days	Fri 12/10/10	Mon 12/20/10						
116		Install base piping	7 days	Fri 12/10/10	Mon 12/20/10	82					
117		Install AA header	1 day	Fri 12/10/10	Fri 12/10/10	85					
118		Install flexible hoses to nozzles	2 days	Wed 12/15/10	Thu 12/16/10	121					
119		Combustion System	4 days	Fri 12/10/10	Wed 12/15/10						
120		Install Primary dual fuel nozzles	2 days	Fri 12/10/10	Mon 12/13/10	85					
121		Install Secondary dual fuel nozzles	1 day	Tue 12/14/10	Tue 12/14/10	120					
122		Install 3-way purge valves	1 day	Wed 12/15/10	Wed 12/15/10	121					
123		Purge Air System	5 days	Tue 12/21/10	Mon 12/27/10						
126		Water Injection System	3 days	Thu 12/30/10	Mon 1/3/11						
127		Install Water Injection header	2 days	Thu 12/30/10	Fri 12/31/10	135					
128		Tie in water injection header	1 day	Mon 1/3/11	Mon 1/3/11	127					
129		Instrumentation and tubing	17 days	Fri 12/17/10	Mon 1/10/11						
130		Install tubing to fuel nozzles	14 days	Fri 12/17/10	Wed 1/5/11	118,136					
131		Install flame detectors	1 day	Thu 1/6/11	Thu 1/6/11	130					
132		Install purge protection panel	2 days	Fri 1/7/11	Mon 1/10/11	131					
133		Install drains on headers and low points	3 days	Tue 1/4/11	Thu 1/6/11	128					
134		Gas Fuel System	14 days	Wed 12/15/10	Mon 1/3/11						
135		Install fuel gas headers	2 days	Tue 12/28/10	Wed 12/29/10	125					
136		Install fuel gas hoses to fuel nozzles	2 days	Wed 12/15/10	Thu 12/16/10	121					
137		Modifiy Fuel Gas Module	5 days	Tue 12/28/10	Mon 1/3/11	125					
138		Off Base Systems	34 days	Fri 12/10/10	Wed 1/26/11						
139		Install purge air system	7 days	Tue 12/28/10	Wed 1/5/11	125					
140		Tie in to water injection supply	1 day	Thu 1/6/11	Thu 1/6/11	128,139					
141		Tie into cooling water system	4 days	Thu 1/6/11	Tue 1/11/11	139					
142		Install false start drain system	1 day	Wed 1/12/11	Wed 1/12/11	141					
143		Unit #12 - Unit Modification at site	34 days	Fri 12/10/10	Wed 1/26/11						
144		Accessory Base	34 days	Fri 12/10/10	Wed 1/26/11						
145		Liquid Fuel System	12 days	Fri 12/10/10	Mon 12/27/10						
146		Install Major Components	4 days	Fri 12/10/10	Wed 12/15/10						
147		Main pump clutch	1 day	Fri 12/10/10	Fri 12/10/10						
148		Main pump and base	2 days	Mon 12/13/10	Tue 12/14/10	147					
149		Stop valve	1 day	Fri 12/10/10	Fri 12/10/10						
150		Duplex Filters & Transfer valve	2 days	Mon 12/13/10	Tue 12/14/10	149					

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	Split		Summary		External Milestone	
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ID		Task Name	Duration	Start	Finish	Predecessors	Resource Names	December			
								11/29	12/6	12/13	12/20
151		Filter Gauge Panel	4 hrs	Wed 12/15/10	Wed 12/15/10	150					
152		Solenoid valve (20FL-1)	3 hrs	Mon 12/13/10	Mon 12/13/10	149					
153		Flow Divder & Isolation Valve a	1 day	Wed 12/15/10	Wed 12/15/10	160					
154		Bypass valve	1 day	Fri 12/10/10	Fri 12/10/10						
155		Install Large Bore Pipe & supports	8 days	Thu 12/16/10	Mon 12/27/10	146					
156		Atomizing air system	12 days	Fri 12/10/10	Mon 12/27/10						
157		Install Major Components	4 days	Fri 12/10/10	Wed 12/15/10						
158		Install AA filter casing	1 day	Fri 12/10/10	Fri 12/10/10						
159		Main compressor	1 day	Mon 12/13/10	Mon 12/13/10	158					
160		Install booster compressor base	1 day	Tue 12/14/10	Tue 12/14/10	159					
161		Install booster compressor & m	1 day	Wed 12/15/10	Wed 12/15/10	160					
162		Install Large Bore Pipe & supports	9 days	Wed 12/15/10	Mon 12/27/10	158,159,160					
163		Electrical and Instrumentation - all sys	28 days	Mon 12/20/10	Wed 1/26/11						
164		Install instrumentation on gage pane	4 days	Mon 12/20/10	Thu 12/23/10	162SS+3 days					
165		Install tubing and supports - all syste	10 days	Fri 12/24/10	Thu 1/6/11	164					
166		Install conduit and cable - all system	11 days	Fri 1/7/11	Fri 1/21/11	165					
167		Terminate and loop check to JB 1 &	3 days	Mon 1/24/11	Wed 1/26/11	166					
168		Turbine Base	22 days	Fri 12/10/10	Mon 1/10/11						
169		Atomizing Air System	7 days	Fri 12/10/10	Mon 12/20/10						
170		Install base piping	7 days	Fri 12/10/10	Mon 12/20/10						
171		Install AA header	1 day	Fri 12/10/10	Fri 12/10/10						
172		Install flexible hoses to nozzles	2 days	Wed 12/15/10	Thu 12/16/10	175					
173		Combustion System	4 days	Fri 12/10/10	Wed 12/15/10						
174		Install Primary dual fuel nozzles	2 days	Fri 12/10/10	Mon 12/13/10						
175		Install Secondary dual fuel nozzles	1 day	Tue 12/14/10	Tue 12/14/10	174					
176		Install 3-way purge valves	1 day	Wed 12/15/10	Wed 12/15/10	175					
177		Purge Air System	5 days	Tue 12/21/10	Mon 12/27/10						
178		Install purge headers	3 days	Tue 12/21/10	Thu 12/23/10	170					
179		Tie in purge headers	2 days	Fri 12/24/10	Mon 12/27/10	178					
180		Water Injection System	3 days	Thu 12/30/10	Mon 1/3/11						
181		Install Water Injection header	2 days	Thu 12/30/10	Fri 12/31/10	189					
182		Tie in water injection header	1 day	Mon 1/3/11	Mon 1/3/11	181					
183		Instrumentation and tubing	17 days	Fri 12/17/10	Mon 1/10/11						
184		Install tubing to fuel nozzles	14 days	Fri 12/17/10	Wed 1/5/11	172,190					
185		Install flame detectors	1 day	Thu 1/6/11	Thu 1/6/11	184					
186		Install purge protection panel	2 days	Fri 1/7/11	Mon 1/10/11	185					
187		Install drains on headers and low po	3 days	Tue 1/4/11	Thu 1/6/11	182					

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External Tasks



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ID		Task Name	Duration	Start	Finish	Predecessors	Resource Names	December			
								11/29	12/6	12/13	12/20
188		Gas Fuel System	14 days	Wed 12/15/10	Mon 1/3/11						
189		Install fuel gas headers	2 days	Tue 12/28/10	Wed 12/29/10	179					
190		Install fuel gas hoses to fuel nozzles	2 days	Wed 12/15/10	Thu 12/16/10	175					
191		Modify Fuel Gas Module	5 days	Tue 12/28/10	Mon 1/3/11	179					
192		Off Base Systems	12 days	Tue 12/28/10	Wed 1/12/11						
193		Install purge air system	7 days	Tue 12/28/10	Wed 1/5/11	179					
194		Tie in to water injection supply	1 day	Thu 1/6/11	Thu 1/6/11	182,193					
195		Tie into cooling water system	4 days	Thu 1/6/11	Tue 1/11/11	193					
196		Install false start drain system	1 day	Wed 1/12/11	Wed 1/12/11	195					
197		Off Base Skids	24 days	Fri 12/10/10	Wed 1/12/11						
198		Fuel Forwarding	24 days	Fri 12/10/10	Wed 1/12/11						
199		Install Foundation	7 days	Fri 12/10/10	Mon 12/20/10	85					
200		Set skids on Foundation	1 day	Tue 1/4/11	Tue 1/4/11	87					
201		Install interconnect piping from skid to turbine (by c	2 days	Wed 1/5/11	Thu 1/6/11	200					
202		Install interconnect piping from tank to fwd pump (t	2 days	Fri 1/7/11	Mon 1/10/11	201					
203		install interconnect conduit & wiring (by others)	1 day	Tue 1/11/11	Tue 1/11/11	202					
204		Install interconnect conuit and cable to GT Controls	1 day	Wed 1/12/11	Wed 1/12/11	203					
205		Water Injection Skid	7 days	Fri 12/10/10	Mon 12/20/10						
206		Install Foundation	7 days	Fri 12/10/10	Mon 12/20/10	85					
207		Set skid on Foundation	1 day	Fri 12/10/10	Fri 12/10/10	86					
208		Install interconnect piping to turbine (by others)	2 days	Mon 12/13/10	Tue 12/14/10	207					
209		Install interconnect piping from fwd pump (by other	2 days	Wed 12/15/10	Thu 12/16/10	208					
210		install interconnect conduit & wiring to power (by o	1 day	Fri 12/17/10	Fri 12/17/10	209					
211		Install interconnect conuit and cable to GT Controls	1 day	Mon 12/20/10	Mon 12/20/10	210					
212		Demin Water Forwarding Skid	21 days	Fri 12/10/10	Fri 1/7/11						
213		Install Foundation	7 days	Fri 12/10/10	Mon 12/20/10	85					
214		Set skid on Foundation	1 day	Tue 1/4/11	Tue 1/4/11	88					
215		Install interconnect piping to WI Skid (by others)	1 day	Wed 1/5/11	Wed 1/5/11	214					
216		Install interconnect piping from tank (by others)	1 day	Thu 1/6/11	Thu 1/6/11	215					
217		install interconnect conduit & wiring (by others)	1 day	Fri 1/7/11	Fri 1/7/11	216					
218		Control System (modification of existing system)	55 days	Mon 10/25/10	Fri 1/7/11						
219		Evaluate control system hardware	10 days	Mon 10/25/10	Fri 11/5/10						
220		Order required hardware	25 days	Mon 11/8/10	Fri 12/10/10	219					
221		Evaluate control systme software	30 days	Mon 10/25/10	Fri 12/3/10	219SS					
222		Develop & Implement dual fuel logic	12 days	Mon 12/6/10	Tue 12/21/10	221					
223		Review termination schedule & implement new devices	25 days	Mon 12/6/10	Fri 1/7/11	221					

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