



## **DAFTAR PUSTAKA**

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- Al-Turki, U. 2011. *A Framework for Strategic Planning in Maintenance*, *Journal of Quality in Maintenance Engineering*. Vol. 17, No.2, pp.150-162.
- Aulabih, Royyan, Saifoe El Unas dan Kartika P Negara. 2016. *Penerapan Metode Monte Carlo Pada Penjadwalan Proyek Gedung Dinas Sosial Kota Blitar*. Malang, Universitas Brawijaya.
- Bustamin, Maulidya Octaviani dan Nadjadji Anwar. 2015. *Kajian Percepatan Penjadwalan Pembangunan Landing Craft Utility (LCU) Dengan Metode Simulasi Monte Carlo*. Surabaya, Prosiding seminar Nasional Manajemen Teknologi XXIII Program Studi MMT-ITS.
- Heryanto, Imam Dan Totok Triwibowo. 2016. *Manajemen Proyek Berbasis Teknologi Informasi Mengelola Proyek Secara Sistematis Menggunakan Microsoft Project Revisi Kedua*. Bandung, Informatika.
- Husen, Abrar. 2011. *Manajemen Proyek Perencanaan, Penjadwalan & Pengendalian Proyek*. Yogyakarta; Penerbit Andi Yogyakarta.
- Kantor Staf Presiden Republik Indonesia. 2016. *Capaian 2 Tahun Pemerintahan Jokowi JK*. Online. Tersedia: [ksp.go.id](http://ksp.go.id) [20 Oktober 2016].
- Kementerian Energi Dan Sumber Daya Mineral Republik Indonesia. 2019. *Siaran Pers Nomor 423.Pers/04/SJI/2019 Progres Program 35.000 MW, 6 Pembangkit Beroperasi Tahun Ini*. Online. Tersedia: [www.esdm.go.id](http://www.esdm.go.id) [02 Juli 2019].
- Kurniawan, Fajar. 2013. *Manajemen Perawatan Industri Teknik dan Aplikasi Implementasi Total Productive Maintenance (TPM), Preventive Maintenance & Reliability Centered Maintenance (RCM)*. Yogyakarta, Graha Ilmu.
- Naveed, Asad dkk. 2017. *A Guide to the Project Management Body of Knowledge PMBOK Guide Sixth Edition*. Newtown Square; Project Management Institute.
- Prajoko, Alip dan Edison Manurung. 2018. *Analisis Penjadwalan Proyek Konstruksi Menggunakan Simulasi Monte Carlo (Studi Kasus Pembangunan Gedung Di Bintaro, Jakarta)*. Jakarta, Seminar Nasional Cendekiawan Ke 4 Tahun 2018 Buku 1:” Teknik, Kedokteran Hewan, Kesehatan. Lingkungan Dan Lanskap”.
- PT Pembangkitan Jawa Bali. 2019. *Laporan Tahunan 2018 PT Pembangkitan Jawa Bali Menghadirkan Nilai Tambah Dan Harapan Baru Bagi Pemangku Kepentingan Melalui Pengembangan Keberlanjutan*. Surabaya, PT Pembangkitan Jawa Bali.
- PT Pembangkitan Jawa Bali. 2017. *Pedoman Pelaksanaan Manajemen Outage PT Pembangkitan Jawa Bali*.
- PT Pembangkitan Jawa Bali Services. 2019. *Workpackage Overhaul PLTU*.

- PT PLN (Persero) Pusat Pendidikan Dan Pelatihan, *Pengoperasian PLTU*.  
Ramadhan, Rahmiyati Nur. 2017. *Analisa Waktu Penjadwalan Proyek Pembangunan Rumah Berdasarkan Simulasi Monte Carlo*. Pekanbaru, Universitas Riau.
- Santoso, Wahyu. 2017. *Analisa Percepatan Proyek Menggunakan Metode Crasing Dengan Penambahan Jam Kerja Empat Jam Dan Sistem Shift Kerja (Studi Kasus: Proyek Pembangunan Gedung Animal Health Care Prof. Soeparwi, Fakultas Kedokteran Hewan UGM, Yogyakarta)*. Yogyakarta, Universitas Islam Indonesia.
- Shofa, Widya Nurul, Irwan Soejanto dan Trismi Ristyowati. 2017. *Penjadwalan Proyek Dengan Penerapan Simulasi Monte Carlo Pada Metode Program Evaluation Review and Technique (PERT)*. Yogyakarta, Jurnal OPSI Vol 10 No 2.
- Sitompul, M. Taqwa. 2018. *Penerapan Metode Monte Carlo Pada Penjadwalan proyek Konstuksi (Studi Kasus: Proyek Pembangunan Apartemen The Reiz Condo Medan)*. Medan, Universitas Sumatera Utara.
- Sugiyono. 2016. *Metode Penelitian Kuantitatif, Kualitatif dan R&D*. Bandung. PT Alfabet.





## LAMPIRAN



Lampiran I Data WBS Major Overhaul Turbin Generator

NO	Task Name	Duration	Predecessors	Successors
1	MAJOR OVERHAUL TURBINE GENERATOR	60 days		
2	SHUTDOWN	1 day		3
3	TURBINE COOLING DOWN	5 days	2,9;297	
4	MEKANIK	47 days		
5	TURBIN UTAMA	47 days		
6	PEKERJAAN PEMBONGKARAN & INSPEKSI	24,13 days		
7	TURBIN UTAMA	19,13 days		
8	ENCLOSURE	0,5 days		
9	MEMBUKA ENCLOSURE FRONT STANDARD DAN HP TURBINE	4 hrs	3 11;49	
10	HEAT INSULATION	2,5 days		
11	DISASSEMBLY GIPS & HEAT INSULATION HP OUTER CASING	8 hrs	9 50SS;12	
12	PEMERIKSAAN DAN PERBAIKAN HEAT INSULATION CROSS OVER PIPE	8 hrs	11 15;13	
13	PEMBONGKARAN HEAT INSULATION GV	4 hrs	12	126
14	CROSS OVER PIPE	1 day		
15	DISASSEMBLY CROSS OVER PIPE	8 hrs	12 17;29;151	
16	TURBIN - TURNING GEAR	2,38 days		
17	DISASSEMBLY TURNING GEAR	6 hrs	15 18;23	
18	PEMERIKSAAN GEAR	2 hrs	17	19
19	PEMERIKSAAN COUPLING	2 hrs	18	20
20	PENGGANTIAN O RING	1 hr	19	21
21	PEMERIKSAAN BEARING GEAR BOX TURNING GEAR	8 hrs	20	173
22	COUPLING ROTOR TURBINE	2,75 days		
23	BUKA COVER COUPLING HP - LP	2 hrs	17 25;72;24	
24	DISCOUPLE COUPLING ROTOR HP - LP	3 hrs	89;23	26
25	BUKA COVER COUPLING LP-GENERATOR	2 hrs	23	26
26	DISCOUPLE COUPLING ROTOR LP-GENERATOR	3 hrs	24;25	30
27	TURBIN-BEARING	11 days		
28	JOURNAL BEARING 1-4	11 days		
29	DISASSEMBLY COVER BEARING JURNAL	8 hrs	15	33
30	DISASSEMBLY UPPER JOURNAL BEARING 2-4	4 hrs	26 41;33SS;38SS	
31	DISASSEMBLY UPPER JOURNAL BEARING 1	1 hr	41 45;35SS	
32	DISASSEMBLY LOWER JOURNAL BEARING 1-4	2 hrs	90	174
33	CEK CLEARANCE	1 hr	30SS;29 39SS	
34	THRUST BEARING	0,38 days		
35	CEK CLEARANCE	1 hr	31SS	36
36	DISASSEMBLY THRUST BEARING	2 hrs	35	175
37	OIL DEFLECTOR 1-4	0,38 days		
38	DISASSEMBLY UPPER OIL DEFLECTOR	3 hrs	30SS	176
39	CEK CLEARANCE	2 hrs	33SS	176
40	FRONT STANDARD	0,5 days		
41	BUKA CASING FRONT PEDESTAL	2 hrs	30 42;31	
42	DATA GAP EMERGENCY TRIP DEVICE	1 hr	41	43
43	CEK SPRING OVER SPEED DEVICE	1 hr	42 142SS	
44	PENGAMBILAN DATA AXIAL & RADIAL CLEARANCE	1,38 days		
45	ROTOR POSITION TURBINE	3 hrs	31	46
46	CEK CLEARANCE AXIAL DAN RADIAL BLADE ROTOR STATOR	8 hrs	45	85
47	HP TURBINE	13,5 days		
48	HP TURBINE OUTER CASING	3 days		
49	DISASSEMBLY UPPER CASING TURBIN	16 hrs	9	50
50	PERBAIKAN GIPS & HEAT INSULATION	8 hrs	11SS;49	52
51	HP TURBINE INNER CASING	2 days		
52	DISASSEMBLY INNER CASING TURBIN	16 hrs	50 66;68	
53	HP TURBINE ROTOR BLADE	1,25 days		
54	LIFT UP ROTOR BLADE	6 hrs	85 59;55;102;126	
55	RUN OUT ROTOR	1 hr	54	56
56	CEK BALANCE WEIGHT	1 hr	55	57
57	CEK SHROUDS & TENNON	2 hrs	56	144
58	HP TURBINE NOZZLE DIAPHRAGM	2,75 days		
59	DISASSEMBLY LOWER NOZZLE DIAPRAGM	20 hrs	54 90;60	
60	POLISHING SLIDING FACE (GREASING)	2 hrs	59	62
61	HP TURBINE LABYRINTH PACKING	0,13 days		
62	CEK SPRING	1 hr	60	64
63	HP TURBINE SEAL STRIP	0,13 days		
64	CEK SPRING	1 hr	62	69
65	HP TURBINE BOLT & NUT	1 day		
66	PERBAIKAN THREAD BOLT	8 hrs	52	144
67	HP TURBINE GLAND LABYRINTH (GRV)	8,5 days		
68	DISASSEMBLY UPPER HP TURBINE GLAND LABYRINTH (GRV)	3 hrs	52 89;108	
69	CEK SPRING	2 hrs	64	144
70	LP TURBINE	9,75 days		
71	LP TURBINE CASING (OUTTER)	1,88 days		
72	CHECK CLEARANCE SPLIT LINE/BIDANG CONTACT	1 hr	23	73
73	DISASSEMBLY TURBINE CASING (OUTTER)	8 hrs	72 74;77	
74	REAMER HOLE BOLT CASING	3 hrs	73	75
75	CEK EXPANTION JOINT TO CONDENSOR	3 hrs	74	152
76	LP TURBINE CASING (INNER)	3 days		
77	CHECK CLEARANCE SPLIT LINE	1 hr	73	78
78	UNBOLTING DAN LIFTING LP TURBINE CASING (INNER)	20 hrs	77 79;124	
79	PERBAIKAN THREAD BOLT LP TURBINE CASING (INNER)	3 hrs	78	81

Lampiran 1 Data WBS Major Overhaul Turbin Generator

NO	Task Name	Duration	Predecessors	Successors
80	LP TURBINE BOLT & NUT (OUTER)	0,38 days		
81	PERBAIKAN BOLT THREAD LP TURBINE BOLT & NUT (OUTER)	3 hrs	79	83
82	LP TURBINE BOLT & NUT (INNER)	1 day		
83	PERBAIKAN THREAD BOLT LP TURBINE BOLT & NUT (INNER)	8 hrs	81	152
84	LP TURBINE ROTOR BLADE	1 day		
85	LIFT UP ROTOR	6 hrs	46;54;86	
86	CEK BALANCE WEIGHT	1 hr	85	87
87	CEK SHROUDS & TENNON	1 hr	86	92
88	LP TURBINE NOZZLE DIAPHRAGM	8,38 days		
89	DISASSEMBLY UPPER NOZZLE DIAPHRAGM	3 hrs	68	24
90	DISASSEMBLY LOWER NOZZLE DIAPHRAGM	8 hrs	59	32
91	LP TURBINE LABYRINTH PACKING	0,25 days		
92	CEK SPRING	2 hrs	87	94
93	LP TURBINE SEAL STRIP	0,25 days		
94	INSPEKSI VISUAL	2 hrs	92	96
95	LP TURBINE GLAND LABYRINTH (GRV)	0,38 days		
96	INSPEKSI VISUAL	1 hr	94	97
97	CEK SPRING	2 hrs	96	99
98	LP TURBINE RELIEF DIAPHRAGM	0,5 days		
99	CEK RELIEF DIAPHRAGM	3 hrs	97	100
100	PENGGANTIAN GASKET	1 hr	99	152
101	MOP	3,13 days		
102	DISASSEMBLY MOP	11 hrs	54	103
103	PEMERIKSAAN BEARING	12 hrs	102	104
104	PENGGANTIAN GASKET, O RING	1 hr	103	105
105	PEMERIKSAAN IMPELER	1 hr	104	143
106	TURBINE MAIN STEAM VALVE	7,88 days		
107	MSV	3,25 days		
108	CEK CLEARANCE FLANGE BEFORE DISASSEMBLY	1 hr	68	109
109	PEMBONGKARAN HEAT INSULATION	3 hrs	108	110
110	DISASSEMBLY	20 hrs	109	111
111	PENGGANTIAN GASKET	1 hr	110	112
112	DATA GAP FLANGE	1 hr	111	114
113	MSV BOLT AND NUT	1,5 days		
114	PERBAIKAN THREAD BOLT	12 hrs	112	116
115	MSV BUSHING AND STEM	0,25 days		
116	POLISHING SLIDING FACE	2 hrs	114	118
117	MSV SEAT & DISC VALVE	2,63 days		
118	LAPPING	20 hrs	116	119
119	CONTACT CHECK	1 hr	118	121
120	MSV STRAINER	0,25 days		
121	INSPEKSI VISUAL	2 hrs	119	161
122	TURBINE - GOVERNOR VALVE	10,88 days		
123	GV BODY VALVE	4,25 days		
124	PEMASANGAN SCAFFOLDING	3 hrs	78	125
125	CEK CLEARANCE FLANGE BEFORE DISASSEMBLY & DISASSEMBLY FLANGE BOLT	1 hr	124	127
126	DISASSEMBLY	12 hrs	54;13	127
127	DATA GAP FLANGE	2 hrs	126;125	129
128	GV BOLT & NUT	0,38 days		
129	PERBAIKAN THREAD BOLT	3 hrs	127	131
130	GV BUSHING & STEM	0,38 days		
131	POLISHING SLIDING FACE	3 hrs	129	133
132	GV SEAT & DISC VALVE	2,63 days		
133	LAPPING	20 hrs	131	134
134	CONTACT CHECK	1 hr	133	136
135	GV SPRING	0,25 days		
136	PENGUKURAN SPRING	2 hrs	134	138
137	CYLINDER HYDRAULIC	3 days		
138	PEMBERSIHAN	8 hrs	136	139
139	CEK PISTON CYLINDER & SPRING	8 hrs	138	140
140	PENGGANTIAN O RING, GASKET & ASSEMBLY	8 hrs	139	166
141	PEKERJAAN CLEANING PART	20,13 days		
142	PEMBERSIHAN FRONT STANDARD	3 hrs	4355	208
143	PEMBERSIHAN MOP	3 hrs	105	285
144	PEMBERSIHAN HP TURBINE CASING OUTER & INNER	16 hrs	69;57;66	145
145	PEMBERSIHAN ROTOR BLADE HIP	24 hrs	144;14655	
146	PEMBERSIHAN NOZZLE DIAPHRAGM HIP	24 hrs	14555	14755
147	PEMBERSIHAN HP TURBINE LABYRINTH PACKING	4 hrs	14655	14855
148	PEMBERSIHAN HP TURBINE SEAL STRIP	3 hrs	14755	14955
149	PEMBERSIHAN HP TURBINE BOLT & NUT	20 hrs	14855	150
150	PEMBERSIHAN HP TURBINE GLAND LABYRINTH (GRV)	6 hrs	149	178
151	PEMBERSIHAN CROSS OVER PIPE	3 hrs	15	235
152	PEMBERSIHAN LP TURBINE CASING (OUTTER)	24 hrs	75;83;100	15355
153	PEMBERSIHAN LP TURBINE CASING (INNER)	24 hrs	15255	154
154	PEMBERSIHAN LP TURBINE BOLT & NUT (OUTER)	24 hrs	153	15555
155	PEMBERSIHAN LP TURBINE BOLT & NUT (INNER)	24 hrs	15455	156
156	PEMBERSIHAN LP TURBINE ROTOR BLADE	48 hrs	155	15755
157	PEMBERSIHAN NOZZLE DIAPHRAGM LP TURBINE	48 hrs	15655	15855
158	PEMBERSIHAN LP TURBINE LABYRINTH PACKING	3 hrs	15755	15955

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NO	Task Name	Duration	Predecessors	Successors
159	PEMBERSIHAN LP TURBINE SEAL STRIP	3 hrs	15855	160
160	PEMBERSIHAN LP TURBINE GLAND LABYRINTH (GRV)	3 hrs	159	184
161	PEMBERSIHAN MSV BODY VALVE	2 hrs	121	162
162	PEMBERSIHAN MSV BOLT AND NUT	24 hrs	161	163
163	PEMBERSIHAN MSV BUSHING AND STEM	2 hrs	162	164
164	PEMBERSIHAN MSV SEAT & DISC VALVE	2 hrs	163	165
165	PEMBERSIHAN MSV STRAINER	2 hrs	164	171
166	PEMBERSIHAN GV BODY VALVE	2 hrs	140	167
167	PEMBERSIHAN GV BOLT & NUT	12 hrs	166	168
168	PEMBERSIHAN GV BUSHING & STEM	2 hrs	167	169
169	PEMBERSIHAN GV SEAT & DISC VALVE	2 hrs	168	170
170	PEMBERSIHAN GV SPRING	2 hrs	169	172
171	PEMBERSIHAN CYLINDER HYDRAULIC MSV	4 hrs	165	191
172	PEMBERSIHAN CYLINDER HYDRAULIC GV	4 hrs	170	196
173	PEMBERSIHAN BEARING GEAR BOX TURNING GEAR	4 hrs	21	201
174	CLEANING JOURNAL BEARING 1-4	12 hrs	32	202
175	CLEANING PAD THRUST BEARING	2 hrs	36	203
176	CLEANING OIL DEFLECTOR 1-4	2 hrs	38;39	204
177	PEKERJAAN NDT PART	17,75 days		
178	NDT CHECK WELDING JOINT HP TURBINE CASING	2 hrs	150	179
179	NDT CHECK ROTOR HP TURBINE ROTOR BLADE	16 hrs	178;18055	
180	NDT CHECK HP TURBINE NOZZLE DIAPHRAGM	16 hrs	17955	18155
181	NDT CHECK LABYRINTH HP TURBINE	16 hrs	18055	18255
182	NDT CHECK HP TURBINE BOLT & NUT	10 hrs	18155	183
183	NDT CHECK HP TURBINE GLAND LABYRINTH (GRV)	16 hrs	182	229
184	NDT CHECK WELDING JOINT LP OUTER CASING	2 hrs	160;18555	
185	NDT CHECK WELDING JOINT LP INNER CASING	2 hrs	18455	18655
186	NDT CHECK LP TURBINE BOLT & NUT (INNER)	24 hrs	18555	18755
187	NDT CHECK ROTOR LP TURBINE	24 hrs	18655	18855
188	NDT CHECK NOZZLE DIAPHRAGM LP TURBINE	24 hrs	18755	18955
189	NDT CHECK LABYRINTH LP TURBINE SEAL STRIP	2 hrs	18855	190
190	NDT CHECK LP TURBINE GLAND LABYRINTH (GRV)	2 hrs	189	249
191	NDT WELDING JOIN SEAT & BODY VALVE MSV	2 hrs	171	192
192	NDT CHECK MSV BOLT AND NUT	8 hrs	191	193
193	NDT CHECK MSV BUSHING AND STEM	2 hrs	192	194
194	NDT CHECK MSV SEAT & DISC VALVE	2 hrs	193	195
195	NDT CHECK MSV STRAINER	2 hrs	194	256
196	NDT CHECK GV BODY VALVE	2 hrs	172	197
197	NDT CHECK GV BOLT & NUT	8 hrs	196	198
198	NDT CHECK GV BUSHING & STEM	2 hrs	197	199
199	NDT CHECK GV SEAT & DISC VALVE	2 hrs	198	200
200	NDT CHECK SPRING GV	2 hrs	199	261
201	NDT CHECK TURBIN - TURNING GEAR	2 hrs	173	270
202	NDT CHECK JOURNAL BEARING 1-4	6 hrs	174;273;274	
203	NDT CHECK THRUST BEARING	2 hrs	175	279
204	NDT CHECK OIL DEFLECTOR 1-4	2 hrs	176	282
205	PEKERJAAN PEMASANGAN DAN FINAL CHECK	26,75 days		
206	TURBIN UTAMA	26 days		
207	FRONT STANDARD	0,25 days		
208	PASANG CASING FRONT PEDESTAL	2 hrs	286;142	223;290
209	PENGAMBILAN DATA AXIAL & RADIAL CLEARANCE (AFTER)	5,5 days		
210	CEK CLEARANCE AXIAL DAN RADIAL BLADE ROTOR STATOR (AFTER)	8 hrs	280	211
211	ALIGNMENT ROTOR LP-HP DAN LP-GENERATOR	36 hrs	210	286
212	COUPLING ROTOR TURBINE	17,63 days		
213	COUPLE COUPLING ROTOR LP-GENERATOR	20 hrs	274	215
214	TUTUP COVER COUPLING LP-GENERATOR	2 hrs	277	216
215	COUPLE COUPLING ROTOR HP - LP	20 hrs	213	219
216	TUTUP COVER COUPLING HP - LP	2 hrs	214	270
217	HP TURBINE	16,88 days		
218	HP TURBINE INNER CASING	3,88 days		
219	ASSEMBLY UPPER INNER CASING TURBIN	20 hrs	215;220;250	
220	DATA EXTENSION BOLT	10 hrs	219	221
221	CHECK CLEARANCE SPLIT LINE (AFTER)	1 hr	220	240
222	HP TURBINE OUTER CASING	3,38 days		
223	ASSEMBLY UPPER OUTER CASING TURBIN	10 hrs	208	224
224	DATA EXTENSION BOLT	16 hrs	223	225
225	CHECK CLEARANCE SPLIT LINE (AFTER)	1 hr	224	266
226	HP TURBINE ROTOR BLADE	1,25 days		
227	LIFT IN ROTOR BLADE HP TURBINE ROTOR BLADE	10 hrs	285	247
228	HP TURBINE NOZZLE DIAPHRAGM	0,75 days		
229	ASSEMBLY LOWER NOZZLE DIAPHRAGM HIP	6 hrs	183	249
230	HP TURBINE GLAND LABYRINTH (GRV)	0,63 days		
231	ASSEMBLY UPPER HP TURBINE GLAND LABYRINTH (GRV)	3 hrs	242;250	232
232	CEK CLEARANCE	2 hrs	231	252
233	CROSS OVER PIPE	2,88 days		
234	PEMASANGAN SCAFFOLDING	2 hrs	270	235
235	ASSEMBLY CROSS OVER PIPE	10 hrs	234;151	236
236	PENGGANTIAN GASKET	1 hr	235;237;291	
237	PEMBONGKARAN SCAFFOLDING	2 hrs	236;291	293



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NO	Task Name	Duration	Predecessors	Successors
238	LP TURBINE	18 days		
239	LP TURBINE CASING (INNER)	5,38 days		
240	BOLTING DAN LIFT IN LP TURBINE CASING (INNER)	24 hrs	221	241
241	DATA EXTENSION BOLT	16 hrs	240	242
242	CHECK CLEARANCE SPLIT LINE (AFTER)	3 hrs	241	231
243	LP TURBINE CASING (OUTTER)	1,5 days		
244	ASSEMBLY TURBINE CASING (OUTTER)	10 hrs	253	245
245	CHECK CLEARANCE SPLIT LINE (AFTER)	2 hrs	244	277
246	LP TURBINE ROTOR BLADE	1,25 days		
247	LIFT IN ROTOR LP TURBINE ROTOR BLADE	10 hrs	227	279
248	LP TURBINE NOZZLE DIAPHRAGM	9,75 days		
249	ASSEMBLY LOWER NOZZLE DIAPHRAGM LP	8 hrs	229;190	273
250	ASSEMBLY UPPER NOZZLE DIAPHRAGM LP	8 hrs	219	231
251	LP TURBINE GLAND LABYRINTH (GRV)	0,38 days		
252	ASSEMBLY UPPER LP TURBINE GLAND LABYRINTH (GRV)	2 hrs	232	253
253	CEK CLEARANCE	1 hr	252	244
254	TURBINE MAIN STEAM VALVE NO.1 & NO.2	2,13 days		
255	MSV BODY VALVE	2,13 days		
256	ASSEMBLY	8 hrs	195	257
257	PEMASANGAN HEAT INSULATION	8 hrs	256	258
258	CEK CLEARANCE FLANGE AFTER DISASSEMBLY	1 hr	257	288
259	TURBINE - GOVERNOR VALVE NO.1, 2, 3 & 4	2,88 days		
260	GV BODY VALVE	2,88 days		
261	ASSEMBLY	8 hrs	200	262
262	DATA EXTENSION BOLT	10 hrs	261	263
263	CEK CLEARANCE FLANGE AFTER ASSEMBLY	1 hr	262	264
264	PEMBONGKARAN SCAFFOLDING	4 hrs	263	288
265	MAIN STEAM LINE	0,5 days		
266	PEMASANGAN FLANGE MAIN STEAM LINE	2 hrs	225	267
267	PEMASANGAN GASKET	1 hr	266	268
268	DATA GAP FLANGE MAIN STEAM LINE (AFTER)	1 hr	267	289
269	TURBIN - TURNING GEAR	1 day		
270	ASSEMBLY	8 hrs	216;201	234
271	TURBIN-BEARING	17,38 days		
272	JOURNAL BEARING 1-4	17,38 days		
273	ASSEMBLY LOWER JOURNAL BEARING 1-4	2 hrs	249;202	276;282;27455
274	ASSEMBLY UPPER JOURNAL BEARING 1-4	2 hrs	202;27355	283;275;213
275	CEK CLEARANCE (AFTER)	2 hrs	274	277
276	CONTACT CHECK (AFTER)	2 hrs	273	277
277	ASSEMBLY COVER BEARING LP & HP TURBINE	3 hrs	245;275;276	214
278	THRUST BEARING	0,5 days		
279	ASSEMBLY THRUST BEARING	2 hrs	247;203	280
280	CEK CLEARANCE (AFTER)	2 hrs	279	210
281	OIL DEFLECTOR 1-4	0,25 days		
282	ASSEMBLY LOWER OIL DEFLECTOR	2 hrs	273;204	285
283	ASSEMBLY UPPER OIL DEFLECTOR	2 hrs	274	285
284	MOP	9,31 days		
285	ASSEMBLY MOP	3,5 hrs	282;283;142	227;286
286	ALIGNMENT MOP	3 hrs	285;211	208
287	HEAT INSULATION	19 days		
288	PEMASANGAN HEAT INSULATION BODY GV	6 hrs	264;258	293
289	PEMASANGAN HEAT INSULATION MAIN STEAM LINE	4 hrs	268	293
290	PEMASANGAN HEAT INSULATION FRONT STANDART	6 hrs	208	293
291	PEMASANGAN HEAT INSULATION CROSS OVER PIPE	8 hrs	236	237
292	ENCLOSURE	0,75 days		
293	PASANG ENCLOSURE FRONT STANDART	6 hrs	237;290;286	383
294	LISTRİK	47 days		
295	GENERATOR	47 days		
296	BRUSH EXCİTER	2,38 days		
297	BUKA COVER EXCİTER (RUMAH EXCİTER)	4 hrs	3	298;306
298	PENGUKURAN TAHAPAN ISOLASI MOUNTING PLATE	1 hr	297	299
299	PEMERIKSAAN/PENGGANTIAN CARBON BRUSH	2 hrs	298	300
300	PEMERIKSAAN TERMINASI	3 hrs	299	301
301	PEMERIKSAAN MOUNTING PLATE	4 hrs	300	302
302	PENGUKURAN TAHAPAN ISOLASI MOUNTING PLATE	1 hr	301	303
303	TUTUP COVER EXCİTER	4 hrs	302	383;369
304	GENERATOR	46,5 days		
305	DISASSEMBLY	16,75 days		
306	PEMASANGAN SCAFFOLDING	2 hrs	297	307
307	Membuka Titik Bintang	6 hrs	306	308
308	Pengukuran Tahanan Isolasi Stator & Rotor	2 hrs	307	309
309	Drying line stator cooling	6 hrs	308	310
310	Pemeriksaan Shaft Grounding	2 hrs	309	311
311	Pelepasan cover kopling generator	4 hrs	310	312
312	PELEPASAN BRACKET UPPER SISI EXCİTER	8 hrs	311	313
313	PELEPASAN BRACKET UPPER SISI TURBINE	8 hrs	312	314
314	PENGUKURAN & PELEPASAN UPPER OUTER OIL DEFLECTOR BEARING 5 DAN 6	4 hrs	313	315
315	PENGUKURAN (SESUAI REKOMENDASI) DAN PEMBONGKARAN STOPPER BEARING 5 & 6	2 hrs	314	316
316	PENGUKURAN DAN PEMBONGKARAN BEARING UPPER 5 DAN 6	6 hrs	315	317
317	PENGUKURAN CLEARANCE BEARING UPPER 5 DAN 6	2 hrs	316	318

Lampiran 1 Data WBS Major Overhaul Turbin Generator

NO	Task Name	Duration	Predecessors	Successors
318	PENGUKURAN CLEARANCE DAN PEMBONGKARAN BEARING UPPER 7	4 hrs	317	319
319	PENGUKURAN DAN PEMBONGKARAN CLEARANCE BEARING LOWER 7	6 hrs	318	320
320	PENGUKURAN DAN PEMBONGKARAN H2 SEAL RING UPPER BEARING 5 DAN 6	4 hrs	319	321
321	PENGUKURAN DAN PEMBONGKARAN UPPER INNER OIL DEFLECTOR BEARING 5 & 6	4 hrs	320	322
322	PENGUKURAN DAN PEMBONGKARAN LOWER OUTER OIL DEFLECTOR BEARING 5 & 6	4 hrs	321	323
323	PENGUKURAN CLEARANCE BEARING LOWER 5 & 6	2 hrs	322	324
324	PEMBONGKARAN BEARING LOWER 5 & 6	6 hrs	323	325
325	PENGUKURAN DAN PEMBONGKARAN H2 SEAL RING LOWER BEARING 5 & 6	6 hrs	324	326
326	PENGUKURAN DAN PEMBONGKARAN LOWER INNER OIL DEFLECTOR BEARING 5 & 6	4 hrs	325	327
327	PELEPASAN SHAFT SUPPORT BEARING 7	4 hrs	326	328
328	PELEPASAN PONDASI EXCITER	4 hrs	327	329
329	PEMBONGKARAN DEFUSER END WINDING 2 SISI	6 hrs	328	330
330	PEMBONGKARAN BRACKET LOWER SISI EXCITER	6 hrs	329	331
331	PEMBONGKARAN BRACKET LOWER SISI TURBINE	6 hrs	330	332
332	PERSIAPAN PEMASANGAN SPESIAL TOOLS PULL OUT	8 hrs	331	333
333	PULL OUT ROTOR GENERATOR	8 hrs	332	335
334	INSPEKSI	15,75 days		
335	PEMERIKSAAN END WINDING	4 hrs	333	336
336	CLEANING DAN RED INSULATION WINDING STATOR	20 hrs	335	337
337	CLEANING DAN RED INSULATION ROTOR	20 hrs	336	338
338	PEMERIKSAAN FAN BLADE	2 hrs	337	339
339	PEMERIKSAAN STATOR, WEDGS [VISUAL & ASSESMENT]	20 hrs	338	340
340	PEMERIKSAAN DAN PENGUKURAN UT/PT BEARING 5,6,7,H2 SEAL RING DAN DEFLECTOR	20 hrs	339	341
341	PEMERIKSAAN ROTOR [VISUAL & ASSESMENT]	12 hrs	340	342
342	PEMERIKSAAN DAN CLEANING BAUT	12 hrs	341	343
343	PEMASANGAN DEFUSER END WINDING 2 SISI	8 hrs	342	344
344	PEMERIKSAAN VISUAL & CLEANING FLEXIBLE, ISOLATOR OUTGOING	8 hrs	343	346
345	ASSEMBLY	12,25 days		
346	PERSIAPAN PEMASANGAN SPESIAL TOOLS PULL IN	6 hrs	344	347
347	PULL IN ROTOR GENERATOR	8 hrs	346	348
348	PEMASANGAN BRACKET LOWER SISI EXCITER	6 hrs	347	349
349	PEMASANGAN BRACKET LOWER SISI TURBINE	6 hrs	348	350
350	PEMASANGAN & PEMERIKSAAN LOWER INNER OIL DEFLECTOR BEARING 5 & 6	6 hrs	349	351
351	PEMASANGAN & PEMERIKSAAN H2 SEAL RING LOWER BEARING 5 & 6	8 hrs	350	352
352	PEMASANGAN & PEMERIKSAAN BEARING LOWER 5 & 6	6 hrs	351	353
353	PENGUKURAN CLEARANCE BEARING LOWER 5 & 6 AFTER	2 hrs	352	354
354	PEMASANGAN & PEMERIKSAAN UPPER INNER OIL DEFLECTOR BEARING 5 & 6	4 hrs	353	355
355	PEMASANGAN & PEMERIKSAAN H2 SEAL RING UPPER BEARING 5 & 6	4 hrs	354	356
356	PEMASANGAN & PEMERIKSAAN BEARING UPPER 5 & 6	6 hrs	355	357
357	PEMERIKSAAN VISUAL & CLEARANCE BEARING UPPER 5 DAN 6	4 hrs	356	358
358	PEMERIKSAAN & PEMASANGAN UPPER OUTER OIL DEFLECTOR BEARING 5 DAN 6	4 hrs	357	359
359	PEMASANGAN BRACKET UPPER SISI EXCITER	4 hrs	358	360
360	PEMASANGAN BRACKET UPPER SISI TURBINE	4 hrs	359	361
361	PEMASANGAN PONDASI EXCITER	4 hrs	360	362
362	PEMASANGAN SHAFT SUPPORT BEARING 7	4 hrs	361	363
363	PEMASANGAN & PEMERIKSAAN BEARING LOWER 7	6 hrs	362	364
364	PEMASANGAN & PEMERIKSAAN BEARING UPPER 7	6 hrs	363	365
365	BEARING OIL FLUSHING	4 hrs	364	366
366	FINAL CHECK	8 hrs	365	367
367	TAGGING RELEASED	2 hrs	366	383
368	NGR	2 days		
369	PEMBERSIHAN DAN PENGUKURAN TRAF0	8 hrs	303	370
370	PEMBERSIHAN DAN PENGUKURAN RESISTOR	4 hrs	369	371
371	PEMERIKSAAN TERMINASI	4 hrs	370	373
372	STATOR COOLER	2,5 days		
373	PEMERIKSAAN & VISUAL CHECK LINE STATOR COOLER	6 hrs	371	374
374	PEMERIKSAAN DAN PEMBERSIHAN TUBE STATOR COOLER	6 hrs	373	375
375	FLOW TEST	8 hrs	374	377
376	13,8 KV IPB BUS DUCT	3,75 days		
377	BUKA MANHOLE, PEMBERSIHAN DAN PEMERIKSAAN BUS BAR	16 hrs	375	378
378	PEMERIKSAAN KONDISI TEKANAN UDARA	4 hrs	377	379
379	PEMERIKSAAN GROUNDING	2 hrs	378	380
380	PEMERIKSAAN COMPRESSOR	6 hrs	379	381
381	TUTUP MANHOLE	2 hrs	380	383
382	FASE START UP & COMMISSIONING	7 days		
383	FLUSHING	8 hrs	293;367;303;	384
384	INTERLOCK TEST (TURBINE-GENERATOR)	4 hrs	383;386SS;385SS;387SS	
385	BOILER FIRING	8 hrs	384SS	387
386	DEGASING	8 hrs	384SS	388
387	TURBINE GEAR START	4 hrs	384SS;385	388
388	TURBINE START	4 hrs	386;387 389SS	
389	FUNCTION TEST AC DC LUBE OIL	4 hrs	388SS	390
390	FIRST SYNCRONE (30% DARI KAPASITAS LOAD)	8 hrs	389	391
391	PENURUNAN BEBAN (LEPAS JARING - JARING)	8 hrs	390	392
392	TRIP DEVICE TURBINE	8 hrs	391	393
393	ROLLING	8 hrs	392	394
394	SYNCRONE	8 hrs	393	

Lampiran 2. Identifikasi Proyek

No	Project	Turbine Specs	Generator Specs	Schedule
1	Serious Inspection PLTU Indramayu Unit 2 PT Pembangunan Jawa Bali Unit Bisnis Jasa O&M PLTU Indramayu Ds. Sumur Adem, Kec. Sukra, Kabupaten Indramayu	<ul style="list-style-type: none"> <li>• Model N350 17.75/540/540</li> <li>• Rated output (guarantee) 330 MW</li> <li>• Mainsteam flow 969 t/h</li> <li>• Mainsteam pressure 17,75mPa (a)</li> <li>• Main steam temperature 540°C</li> <li>• Reheat steam flow 880.1t/h</li> <li>• Reheat steam temperature 540°C</li> <li>• Rated cooling water temperature 30 °C</li> <li>• Rated speed 3000 rpm</li> <li>• Maximum output at VWO 346,571 MW</li> <li>• Mainsteam flow at VWO 1025 t/h</li> <li>• Maximum feedwater temperature 282.1 °C</li> </ul>	<ul style="list-style-type: none"> <li>• Type 255-460</li> <li>• Rated speed 3000r/min</li> <li>• Active power 330MW</li> <li>• Power factor 0.85</li> <li>• Apparent power 388.2MVA</li> <li>• Rated voltage 24k</li> <li>• Voltage variation ±5%</li> <li>• Rated current 9339A</li> <li>• Number of poles 2</li> <li>• Frequency 50Hz</li> <li>• Excitation current 2495A</li> <li>• Insulation class F (Limited to class B)</li> <li>• Water temperature at inlet of H2 Cooler ≤38 °C</li> <li>• Type of cooling:                         <ul style="list-style-type: none"> <li>—Cooling of magnetic core H2</li> <li>—Cooling of stator winding H2O</li> <li>—Cooling of rotor winding H2</li> <li>—Cooling of high voltage terminals H2O</li> </ul> </li> </ul>	03 April 2018 – 28 Mei 2020, 56 Hari Kalender, 8 Jam Kerja Efektif.



			<ul style="list-style-type: none"> <li>• <i>Normal duty conditions:</i></li> <li>• <i>—Stator water temperature rise 18K</i></li> <li>• <i>—Rotor winding temperature rise 48K</i></li> <li>• <i>Hydrogen pressure 0.3MPa(g)</i></li> <li>• <i>Deionized water temperature 46 °C</i></li> <li>• <i>Power 330MW</i></li> <li>• <i>Abnormal duty conditions:</i></li> <li>• <i>—With one cooler out of operation 258.8 MVA (220MW)</i></li> <li>• <i>Steady state negative phase-sequence current I2/IN 12%</i></li> <li>• <i>Transient negative phase-sequence current (I2/IN.)2t 10s</i></li> </ul>	
2	<p>Serious Inspection PLTU Rembang Unit 10  PT Pembangkitan Jawa Bali Unit Bisnis Jasa O&amp;M PLTU Rembang  Jalan Raya Semarang- Surabaya Km 130, Sluke, Rembang</p>	<ul style="list-style-type: none"> <li>• <i>Model N300-16.7/538/538-8</i></li> <li>• <i>TypeSub-Critical parameter,intermediatereheat, double casing with double steamexhaust condensing Turbines</i></li> <li>• <i>ManufacturerDongfang Turbines Co. Ltd</i></li> <li>• <i>Speed3000 rpm</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>Type QFSN-300-2-20B</i></li> <li>• <i>Rated output 300 MW</i></li> <li>• <i>Rated voltage 20kV</i></li> <li>• <i>Rated current 10.189kA</i></li> <li>• <i>Power factor 0.85 (Lagging)</i></li> <li>• <i>Speed 3000 r/min</i></li> <li>• <i>Frequency 50 Hz</i></li> <li>• <i>No. of phases 3</i></li> </ul>	<p>03 April 2018 –  28 Mei 2020, 56  Hari Kalender, 8  Jam Kerja  Efektif.</p>

		<ul style="list-style-type: none"> <li>• <i>Rotation Direction</i> Clockwise (viewed from T to G)</li> <li>• <i>Rated Output</i> 300MW</li> <li>• <i>Maximum Output</i> 325, 839MW</li> <li>• <i>Main Steam Pressure</i> 16,7 MPa</li> <li>• <i>Reheat Steam Pressure</i> 3,528MPa</li> <li>• <i>Reheat Steam Temperature</i> 537 C</li> <li>• <i>Back Pressure</i> 8,7 kPa</li> <li>• <i>Max Steam Flow</i> 1025 t/h</li> <li>• <i>Steam Distribution Mode</i> Electrical Governing</li> <li>• <i>EHC Type</i> HP EHC</li> <li>• <i>Number of Stages Governing</i> stages + 8 HP + 6 IP + 2x6 LP</li> <li>• <i>Number of Extraction Stages</i> 8 (4 LPH, 1 Deaerator, 3HP)</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Cooling Method</i> H2O-H2-H2</li> <li>• <i>Rated Hydrogen Pressure</i> 0.3 MPa (g)</li> <li>• <i>Stator Winding Connection</i> Y</li> <li>• <i>No. of Terminals</i> 6</li> </ul>	
3	<p>Serious Inspection PL.TU Nagan Raya Unit 1  PT PLN UPK Nagan Raya  Jl. Meulaboh - Tapaktuan, Suak Puntong, Kuala Pesisir, Kabupaten Nagan Raya, Aceh 23681</p>	<ul style="list-style-type: none"> <li>• <i>Model</i> NI10-8.83/535</li> <li>• <i>type</i> HP, double casing and double steam exhaust, condensing type turbine with single axis</li> <li>• <i>Rated power</i> 110MW</li> <li>• <i>Rated steam parameter</i> 8.83MPa/535°C</li> <li>• <i>Back pressure</i> 8KPa</li> <li>• <i>Feedwater temperature</i> 231.98°C</li> <li>• <i>Rotary direction</i> Clockwise</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Type</i> QFW-110-2</li> <li>• <i>Rated power (MW)</i> 110 MW</li> <li>• <i>Rated power factor</i> 40°C 0.85</li> <li>• <i>Rated rotating speed (r/min)</i> 3000</li> <li>• <i>Efficiency (%) Full load</i> 98.62%</li> <li>• <i>Rotating speed (r/min)</i> 3000</li> <li>• <i>No-load excitation current (A)</i> 340</li> <li>• <i>No-load excitation voltage (V)</i></li> </ul>	<p>10 Februari 2019  – 10 April 2019,  60 Hari  Kalender, 10 Jam  Kerja Efektif.</p>

4	<p>Serious Inspection PLTU Nagan Raya Unit 2  PT PLN UPK Nagan Raya  Jl. Meulaboh - Tapaktuan, Suak Puntong, Kuala Pesisir, Kabupaten Nagan Raya, Aceh 23681</p>	<p>direction from turbine to generator</p> <ul style="list-style-type: none"> <li>• Rotary speed 3000rpm</li> <li>• Flow stage 28 stages</li> <li>• HP parts 1 regulating stage+15 pressure stages</li> <li>• LP parts 2 ×6 pressure stages</li> </ul>	<p>I17</p> <ul style="list-style-type: none"> <li>• The number of phases 3</li> <li>• Excitation type shaft altering current brushless excitation</li> <li>• Capacity (MVA) 130MVA</li> <li>• Rated voltage (V) 13800</li> <li>• Rated current(A) 40°C 5414.2</li> <li>• Rated frequency (Hz) 50</li> <li>• Connecting type Y</li> <li>• The number of poles 2</li> <li>• Rated excitation current (A) 780</li> <li>• Rated excitation voltage (V) 335</li> <li>• Grade of insulation F</li> <li>• Cooling type Cooled by air</li> <li>• Manufacturer Nanjing steamer electric machinery (Group) limited liability company</li> </ul>	<p>10 Februari 2019  – 10 April 2019,  60 Hari  Kalender, 10 Jam  Kerja Efektif.</p>
		<ul style="list-style-type: none"> <li>• Model N110-8.83/535</li> <li>• type HP, double casing and double steam exhaust,</li> <li>• condensing type turbine with single axis</li> <li>• Rated power 110MW</li> <li>• Rated steam parameter 8.83MPa/535°C</li> </ul>	<ul style="list-style-type: none"> <li>• Type QFW-110-2</li> <li>• Rated power (MW) 110 MW</li> <li>• Rated power factor 40°C 0.85</li> <li>• Rated rotating speed(r/min) 3000</li> <li>• Efficiency (%) Full load 98.62%</li> <li>• Rotating speed (r/min) 3000</li> </ul>	



		<ul style="list-style-type: none"> <li>• Back pressure 8KPa</li> <li>• Feedwater temperature 231.98°C</li> <li>• Rotary direction Clockwise</li> <li>• direction from turbine to generator</li> <li>• Rotary speed 3000rpm</li> <li>• Flow stage 28 stages</li> <li>• HP parts 1 regulating stage+15 pressure stages</li> <li>• LP parts 2×6 pressure stages</li> </ul>	<ul style="list-style-type: none"> <li>• No-load excitation current (A) 340</li> <li>• No-load excitation voltage (V) 117</li> <li>• The number of phases 3</li> <li>• Excitation type shaft altering current brushless excitation</li> <li>• Capacity (MVA) 130MVA</li> <li>• Rated voltage (V) 13800</li> <li>• Rated current(A) 40°C 5414.2</li> <li>• Rated frequency (Hz) 50</li> <li>• Connecting type Y</li> <li>• The number of poles 2</li> <li>• Rated excitation current (A) 780</li> <li>• Rated excitation voltage (V) 335</li> <li>• Grade of insulation F</li> <li>• Cooling type Cooled by air</li> <li>• Manufacturer Nanjing steamer electric machinery (Group) limited liability company</li> </ul>	
5	<p>PT. Bukit Pembangkit Inovative (BPI) PLTU Banjarsari          Jl. Lintas Tengah Sumatera, Desa Sirah Pulau &amp; Desa Gunung Kembang, Kecamatan Merapi Barat,</p>	<ul style="list-style-type: none"> <li>• Brand Dongfang Turbine Co., Ltd</li> <li>• Rated Power 135 MW</li> <li>• Fresh Steam Press 13,73 Mpa</li> <li>• Reheat Steam Press 2,304 Mpa</li> <li>• Exhaust Pressure 9 Kpa</li> </ul>	<ul style="list-style-type: none"> <li>• Type WX21Z-073LLT</li> <li>• Rated Power 135 MW</li> <li>• Rated Output 158.8 MVA</li> <li>• Rated Voltage 13800 V</li> <li>• Rated Speed 3000 r/min</li> </ul>	<p>06 April – 16 Mei 2020, 45 Hari Kalender, 24 Jam, Status sedang berjalan.</p>

	Kabupaten Lahat, Sumatera Selatan	<ul style="list-style-type: none"> <li>• <i>Rated Speed 3000 r/min</i></li> <li>• <i>Inlet Steam Temp 537 °C</i></li> <li>• <i>Rated Fresh Steam Flow 409,4 t/h</i></li> <li>• <i>Model N135-13. 7/537</i></li> <li>• <i>Rated Frequency 50 Hz</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>Rated Frequency 50 Hz</i></li> <li>• <i>Power Factor 0.85</i></li> <li>• <i>Lagging</i></li> <li>• <i>Exciting Current 1451 A</i></li> <li>• <i>Connection Y</i></li> <li>• <i>Insulation Class 155 (F)</i></li> <li>• <i>Application Class 130 (B)</i></li> <li>• <i>Phase Number 3</i></li> <li>• <i>Standard GB/T 7064-2008</i></li> <li>• <i>Jinan Power Equipment Co., Ltd</i></li> </ul>	
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Lampiran 4 Durasi Probabilistik

NO	Task Name	SE IDY 2	SE RBG 10	SE NGR 1	SE NGR 2	MO BIR 2	MAKSIMAL	MEMUNGKIN KAN	MINIMAL
1	MAJOR OVERHAUL TURBINE GENERATOR								
2	SHUTDOWN								
3	TURBINE COOLING DOWN								
4	MEKANIK								
5	TURBIN UTAMA								
6	PEKERJAAN PEMBONGKARAN & INSPEKSI								
7	TURBIN UTAMA								
8	ENCLOSURE								
9	MEMBUKA ENCLOSURE FRONT STANDARD DAN HP TURBINE	8	4	4	3	4	8	5	3
10	HEAT INSULATION								
11	DISASSEMBLY GIPS & HEAT INSULATION HP OUTER CASING	8	8	8	8	8	8	8	8
12	PEMERIKSAAN DAN PERBAIKAN HEAT INSULATION CROSS OVER PIPE	8	24	8	8	8	24	12	8
13	PEMBONGKARAN HEAT INSULATION GV	4	4	4	4	4	4	4	4
14	CROSS OVER PIPE								
15	DISASSEMBLY CROSS OVER PIPE	9	24	8	8	12	24	13	8
16	TURBIN - TURNING GEAR								
17	DISASSEMBLY TURNING GEAR	6	8	6	6	4	8	6	4
18	PEMERIKSAAN GEAR	2	2	2	2	2	2	2	2
19	PEMERIKSAAN COUPLING	4	2	2	2	2	4	3	2
20	PENGGANTIAN O RING	4	1	1	1	1	4	2	1
21	PEMERIKSAAN BEARING GEAR BOX TURNING GEAR	8	8	8	8	8	8	8	8
22	COUPLING ROTOR TURBINE								
23	BUKA COVER COUPLING HP - LP	2	2	2	2	2	2	2	2
24	DISCOUPLE COUPLING ROTOR HP - LP	3	3	3	3	3	3	3	3
25	BUKA COVER COUPLING LP-GENERATOR	2	2	2	2	2	2	2	2
26	DISCOUPLE COUPLING ROTOR LP-GENERATOR	3	3	3	3	3	3	3	3
27	TURBIN-BEARING								
28	JOURNAL BEARING 1-4								
29	DISASSEMBLY COVER BEARING JURNAL	8	8	8	8	8	8	8	8
30	DISASSEMBLY UPPER JURNAL BEARING 2-4	4	4	4	4	4	4	4	4
31	DISASSEMBLY UPPER JURNAL BEARING 1	1	1	1	1	1	1	1	1
32	DISASSEMBLY LOWER JURNAL BEARING 1-4	4	2	2	2	2	4	3	2
33	CEK CLEARANCE	8	1	1	1	1	8	3	1
34	THRUST BEARING								
35	CEK CLEARANCE	1	1	1	1	1	1	1	1
36	DISASSEMBLY THRUST BEARING	2	2	2	2	4	4	3	2
37	OIL DEFLECTOR 1-4								
38	DISASSEMBLY UPPER OIL DEFLECTOR	3	3	3	3	3	3	3	3
39	CEK CLEARANCE	2	1	1	1	2	2	2	1

Lampiran 4 Durasi Probabilistik

NO	Task Name	SE IDY 2	SE RBG 10	SE NGR 1	SE NGR 2	MO BUR 2	MEMUNGKIN KAN		MINIMAL
							MAKSIMAL	MEMUNGKIN KAN	
40	FRONT STANDARD								
41	BUKA CASING FRONT PEDESTAL	2	2	2	1	2	2	2	1
42	DATA GAP EMERGENCY TRIP DEVICE	0,25	1	1	1	1	1	1	0,25
43	CEK SPRING OVER SPEED DEVICE	3	1	1	1	1	3	2	1
44	PENGAMBILAN DATA AXIAL & RADIAL CLEARANCE								
45	ROTOR POSITION TURBINE	3	3	3	3	3	3	3	3
46	CEK CLEARANCE AXIAL DAN RADIAL BLADE ROTOR STATOR	8	8	8	8	8	8	8	8
47	HP TURBINE								
48	HP TURBINE OUTER CASING								
49	DISASSEMBLY UPPER CASING TURBIN	8	24	16	16	16	24	16	8
50	PERBAIKAN GIPS & HEAT INSULATION	8	24	16	8	8	24	13	8
51	HP TURBINE INNER CASING								
52	DISASSEMBLY INNER CASING TURBIN	16	16	16	16	16	16	16	16
53	HP TURBINE ROTOR BLADE								
54	LIFT UP ROTOR BLADE	3	3	3	3	3	3	3	3
55	RUN OUT ROTOR	1	1	1	1	1	1	1	1
56	CEK BALANCE WEIGHT	1	1	1	1	1	1	1	1
57	CEK SHROUDS & TENNON	1	1	1	1	1	1	1	1
58	HP TURBINE NOZZLE DIAPHRAGM	2	2	2	2	2	2	2	2
59	DISASSEMBLY LOWER NOZZLE DIAPHRAGM	15	24	24	20	20	24	21	15
60	POLISHING SLIDING FACE (GREASING)	2	2	2	2	2	2	2	2
61	HP TURBINE LABYRINTH PACKING								
62	CEK SPRING	2	1	1	1	1	2	2	1
63	HP TURBINE SEAL STRIP								
64	CEK SPRING	1	1	1	1	1	1	1	1
65	HP TURBINE BOLT & NUT								
66	PERBAIKAN THREAD BOLT	8	8	8	8	8	8	8	8
67	HP TURBINE GLAND LABYRINTH (GRV)								
68	DISASSEMBLY UPPER HP TURBINE GLAND LABYRINTH (GRV)	3	3	3	3	3	3	3	3
69	CEK SPRING	2	1	1	1	2	2	2	1
70	LP TURBINE								
71	LP TURBINE CASING (OUTTER)								
72	CHECK CLEARANCE SPLIT LINE/BIDANG CONTACT	1	1	1	1	1	1	1	1
73	DISASSEMBLY TURBINE CASING (OUTTER)	16	8	8	8	8	16	10	8
74	REAMER HOLE BOLT CASING	12	3	3	3	3	12	5	3
75	CEK EXPANTION JOINT TO CONDENSOR	8	3	3	3	3	8	4	3
76	LP TURBINE CASING (INNER)								
77	CHECK CLEARANCE SPLIT LINE	1	1	1	1	1	1	1	1
78	UNBOLTING DAN LIFTING LP TURBINE CASING (INNER)	30	20	20	20	20	30	22	20









Lampiran 4 Durasi Probabilistik

NO	Task Name	Task Name										MEMUNGKINKAN	MINIMAL
		SE IDY 2	SE RBG 10	SE NGR 1	SE NGR 2	MO BR 2	MAKSIMAL	MEMUNGKINKAN	MINIMAL				
196	NDT CHECK GV BODY VALVE	2	2	2	2	2	2	2	2	2	2	2	2
197	NDT CHECK GV BOLT & NUT	8	8	8	8	8	8	8	8	8	8	8	8
198	NDT CHECK GV BUSHING & STEM	2	2	2	2	2	2	2	2	2	2	2	2
199	NDT CHECK GV SEAT & DISC VALVE	2	2	2	2	2	2	2	2	2	2	2	2
200	NDT CHECK SPRING GV	2	2	2	2	2	2	2	2	2	2	2	2
201	NDT CHECK TURBIN - TURNING GEAR	2	2	2	2	2	2	2	2	2	2	2	2
202	NDT CHECK JOURNAL BEARING 1.4	6	6	6	6	6	6	6	6	6	6	6	6
203	NDT CHECK THRUST BEARING	2	2	2	2	2	2	2	2	2	2	2	2
204	NDT CHECK OIL DEFLECTOR 1-4	2	2	2	2	2	2	2	2	2	2	2	2
205	PEKERJAAN PEMASANGAN DAN FINAL CHECK												
206	TURBIN UTAMA												
207	FRONT STANDARD												
208	PASANG CASING FRONT PEDESTAL	2	2	2	2	2	2	2	2	2	2	2	2
209	PENGAMBILAN DATA AXIAL & RADIAL CLEARANCE (AFTER)	10	10	10	10	10	10	10	10	10	10	10	10
210	CEK CLEARANCE AXIAL DAN RADIAL BLADE ROTOR STATOR (AFTER)	20	22	22	14	22	14	22	22	22	22	20	14
211	ALIGNMENT ROTOR LP-HP DAN LP-GENERATOR												
212	COUPLING ROTOR TURBINE	20	24	24	8	20	24	20	24	20	24	20	8
213	COUPLE COUPLING ROTOR LP-GENERATOR	2	2	2	2	2	2	2	2	2	2	2	2
214	TUTUP COVER COUPLING LP-GENERATOR	20	20	20	8	20	20	20	20	20	20	18	8
215	COUPLE COUPLING ROTOR HP - LP	2	2	2	2	2	2	2	2	2	2	2	2
216	TUTUP COVER COUPLING HP - LP												
217	HP TURBINE												
218	HP TURBINE INNER CASING												
219	ASSEMBLY UPPER INNER CASING TURBIN	20	20	20	6	20	6	20	20	20	18	6	6
220	DATA EXTRAENSION BOLT	10	10	10	6	10	6	10	10	10	10	6	6
221	CHECK CLEARANCE SPLIT LINE (AFTER)	1	1	1	1	1	1	1	1	1	1	1	1
222	HP TURBINE OUTER CASING												
223	ASSEMBLY UPPER OUTER CASING TURBIN	6	10	10	6	8	6	8	10	8	10	8	6
224	DATA EXTRAENSION BOLT	12	10	10	6	16	6	16	16	11	16	11	6
225	CHECK CLEARANCE SPLIT LINE (AFTER)	1	1	1	1	1	1	1	1	1	1	1	1
226	HP TURBINE ROTOR BLADE												
227	LIFT IN ROTOR BLADE HP TURBINE ROTOR BLADE	2	4	4	4	4	4	4	4	4	4	4	2
228	HP TURBINE NOZZLE DIAPHRAGM												
229	ASSEMBLY LOWER NOZZLE DIAPHRAGM HP	6	6	6	6	6	6	6	6	6	6	6	6
230	HP TURBINE GLAND LABYRINTH (GRV)												
231	ASSEMBLY UPPER HP TURBINE GLAND LABYRINTH (GRV)	3	3	3	2	3	2	3	3	3	3	3	2
232	CEK CLEARANCE	2	1	1	1	2	1	2	2	2	2	2	1
233	CROSS OVER PIPE												
234	PEMASANGAN SCAFFOLDING	2	3	3	3	8	3	8	8	4	8	4	2





Lampiran 4 Durasi Probabilistik

NO	Task Name	SE IDY 2	SE RBG 10	SE NGR 1	SE NGR 2	MO BIR 2	MEMUNGKIN KAN		
							MAKSIMAL	MEMUNGKIN KAN	MINIMAL
314	PENGUKURAN & PELEPASAN UPPER OUTER OIL DEFLECTOR BEARING 5 DAN 6	4	4	4	4	4	4	4	4
315	PENGUKURAN (SESUAI REKOMENDASI) DAN PEMBONGKARAN STOPPER BEARING 5 & 6	2	3	3	3	2	3	3	2
316	PENGUKURAN DAN PEMBONGKARAN BEARING UPPER 5 DAN 6	6	6	6	6	6	6	6	6
317	PENGUKURAN CLEARANCE BEARING UPPER 5 DAN 6	2	2	2	2	2	2	2	2
318	PENGUKURAN CLEARANCE DAN PEMBONGKARAN BEARING UPPER 7	4	4	4	4	4	4	4	4
319	PENGUKURAN DAN PEMBONGKARAN CLEARANCE BEARING LOWER 7	6	6	6	6	6	6	6	6
320	PENGUKURAN DAN PEMBONGKARAN H2 SEAL RING UPPER BEARING 5 DAN 6	4	4	4	4	4	4	4	4
321	PENGUKURAN DAN PEMBONGKARAN UPPER INNER OIL DEFLECTOR BEARING 5 & 6	4	4	4	4	4	4	4	4
322	PENGUKURAN DAN PEMBONGKARAN LOWER OUTER OIL DEFLECTOR BEARING 5 & 6	4	4	4	4	4	4	4	4
323	PENGUKURAN CLEARANCE BEARING LOWER 5 & 6	2	2	2	2	2	2	2	2
324	PEMBONGKARAN BEARING LOWER 5 & 6	6	6	6	6	6	6	6	6
325	PENGUKURAN DAN PEMBONGKARAN H2 SEAL RING LOWER BEARING 5 & 6	6	6	6	6	6	6	6	6
326	PENGUKURAN DAN PEMBONGKARAN LOWER INNER OIL DEFLECTOR BEARING 5 & 6	4	4	4	4	4	4	4	4
327	PELEPASAN SHAFT SUPPORT BEARING 7	4	4	4	4	4	4	4	4
328	PELEPASAN PONDASI EXCITER	4	4	4	4	4	4	4	4
329	PEMBONGKARAN DEFUSER END WINDING 2 SISI	6	6	6	6	6	6	6	6
330	PEMBONGKARAN BRACKET LOWER SISI EXCITER	6	6	6	6	6	6	6	6
331	PEMBONGKARAN BRACKET LOWER SISI TURBINE	6	6	6	6	6	6	6	6
332	PERSIAPAN PEMASANGAN SPESIAL TOOLS PULL OUT	8	8	8	8	8	8	8	8
333	PULL OUT ROTOR GENERATOR	8	8	8	8	6	8	8	6
334	INSPEKSI								
335	PEMERIKSAAN END WINDING	4	4	4	4	4	4	4	4
336	CLEANING DAN RED INSULATION WINDING STATOR	8	8	8	8	8	8	8	8
337	CLEANING DAN RED INSULATION ROTOR	8	8	8	8	8	8	8	8
338	PEMERIKSAAN FAN BLADE	2	2	2	2	2	2	2	2
339	PEMERIKSAAN STATOR, WEDGS [VISUAL & ASSESSMENT]	12	12	12	12	12	12	12	12
340	PEMERIKSAAN DAN PENGUKURAN U/PT BEARING 5,6,7 H2 SEAL RING DAN DEFLECTOR	20	20	20	20	20	20	20	20
341	PEMERIKSAAN ROTOR [VISUAL & ASSESSMENT]	12	12	12	12	12	12	12	12
342	PEMERIKSAAN DAN CLEANING BAUT	12	16	12	12	12	16	12	12
343	PEMASANGAN DEFUSER END WINDING 2 SISI	8	8	8	8	8	8	8	8
344	PEMERIKSAAN VISUAL & CLEANING FLEXIBLE, ISOLATOR OUTGOING	8	8	8	8	8	8	8	8
345	ASSEMBLY								
346	PERSIAPAN PEMASANGAN SPESIAL TOOLS PULL IN	6	6	6	6	6	6	6	6
347	PULL IN ROTOR GENERATOR	8	8	8	8	8	8	8	8
348	PEMASANGAN BRACKET LOWER SISI EXCITER	6	6	6	6	6	6	6	6
349	PEMASANGAN BRACKET LOWER SISI TURBINE	6	6	6	6	6	6	6	6
350	PEMASANGAN & PEMERIKSAAN LOWER INNER OIL DEFLECTOR BEARING 5 & 6	6	6	6	6	6	6	6	6
351	PEMASANGAN & PEMERIKSAAN H2 SEAL RING LOWER BEARING 5 & 6	8	8	8	8	8	8	8	8
352	PEMASANGAN & PEMERIKSAAN BEARING LOWER 5 & 6	6	8	8	8	6	8	8	6
353	PENGUKURAN CLEARANCE BEARING LOWER 5 & 6 AFTER	2	2	2	2	2	2	2	2
354	PEMASANGAN & PEMERIKSAAN UPPER INNER OIL DEFLECTOR BEARING 5 & 6	6	4	4	4	4	6	5	4











Lampiran 5 Perhitungan Iterasi Distribusi Triangular

NO	Task Name	PLAN						AVERAGE	ABSOLUTE ERROR	ITERASI
		MAX	OPT	MIN	STDEV	MIN	MAX			
81	PERBAIKAN BOLT THREAD LP TURBINE BOLT & NUT (OUTER)	3	16	6	3	9,192388155	9,5	0,19	21066,48199	
82	LP TURBINE BOLT & NUT (INNER)	8	24	12	8	11,3137085	16	0,32	11250	
83	PERBAIKAN THREAD BOLT LP TURBINE BOLT & NUT (INNER)	6	10	5	3	4,949747468	6,5	0,13	13047,33728	
84	LP TURBINE ROTOR BLADE	1	10	3	1	6,363961031	5,5	0,11	30123,96694	
85	LIFT UP ROTOR	1	10	4	1	6,363961031	5,5	0,11	30123,96694	
86	CEK BALANCE WEIGHT	3	3	3	3	0	3	0,06	0	
87	CEK SHROUDS & TENNON	8	24	17	8	11,3137085	16	0,32	11250	
88	LP TURBINE NOZZLE DIAPHRAGM	2	2	2	1	0,707106781	1,5	0,03	5000	
89	DISASSEMBLY UPPER NOZZLE DIAPHRAGM	2	4	3	2	1,414213562	3	0,06	5000	
90	DISASSEMBLY LOWER NOZZLE DIAPHRAGM	1	4	3	1	2,121320344	2,5	0,05	16200	
91	LP TURBINE LABYRINTH PACKING	2	2	2	1	0,707106781	1,5	0,03	5000	
92	CEK SPRING	3	3	3	3	0	3	0,06	0	
93	LP TURBINE SEAL STRIP	1	2	2	1	0,707106781	1,5	0,03	5000	
94	INSPEKSI VISUAL	11	11	10	8	2,121320344	9,5	0,19	1121,883657	
95	LP TURBINE GLAND LABYRINTH (GRV)	12	12	12	12	0	12	0,24	0	
96	INSPEKSI VISUAL	1	1	1	1	0	1	0,02	0	
97	CEK SPRING	1	1	1	1	0	1	0,02	0	
98	LP TURBINE RELIEF DIAPHRAGM	3	3	3	3	0	3	0,06	0	
99	CEK RELIEF DIAPHRAGM	1	2	2	1	0,707106781	1,5	0,03	5000	
100	PENGGANTIAN GASKET	11	11	10	8	2,121320344	9,5	0,19	1121,883657	
101	MOP	12	12	12	12	0	12	0,24	0	
102	DISASSEMBLY MOP	1	1	1	1	0	1	0,02	0	
103	PEMERIKSAAN BEARING	1	1	1	1	0	1	0,02	0	
104	PENGGANTIAN GASKET, O RING	1	1	1	1	0	1	0,02	0	
105	PEMERIKSAAN IMPELLER	1	1	1	1	0	1	0,02	0	
106	TURBINE MAIN STEAM VALVE	1	1	1	1	0	1	0,02	0	
107	MSV	1	2	2	1	0,707106781	1,5	0,03	5000	
108	CEK CLEARANCE FLANGE BEFORE DISASSEMBLY	3	3	3	3	0	3	0,06	0	
109	PEMBONGKARAN HEAT INSULATION	20	20	17	8	8,485281374	14	0,28	8265,306122	
110	DISASSEMBLY	1	2	2	1	0,707106781	1,5	0,03	5000	
111	PENGGANTIAN GASKET	1	1	1	1	0	1	0,02	0	
112	DATA GAP FLANGE	12	12	9	8	2,828427125	10	0,2	1800	
113	MSV BOLT AND NUT	2	4	3	2	1,414213562	3	0,06	5000	
114	PERBAIKAN THREAD BOLT	20	20	18	8	8,485281374	14	0,28	8265,306122	
115	MSV BUSHING AND STEM	1	2	2	1	0,707106781	1,5	0,03	5000	
116	POLISHING SLIDING FACE	1	1	1	1	0	1	0,02	0	
117	MSV SEAT & DISC VALVE	12	12	9	8	2,828427125	10	0,2	1800	
118	LAPPING	2	4	3	2	1,414213562	3	0,06	5000	
119	CONTACT CHECK	20	20	18	8	8,485281374	14	0,28	8265,306122	
120	MSV STRAINER	1	2	2	1	0,707106781	1,5	0,03	5000	

Lampiran 5 Perhitungan Iterasi Distribusi Triangular

NO	Task Name	PLAN	MAX	OPT	MIN	STDEV	AVERAGE	ABSOLUTE ERROR	ITERASI
121	INSPEKSI VISUAL	2	4	3	2	1,414213562	3	0,06	5000
122	TURBINE - GOVERNOR VALVE								
123	GV BODY VALVE	3	8	4	3	3,535533906	5,5	0,11	9297,520661
124	PEMASANGAN SCAFFOLDING	1	1	1	1	0	1	0,02	0
125	CEK CLEARANCE FLANGE BEFORE DISASSEMBLY & DISASSEMBLY FLANGE BOLT	12	20	16	8	8,485281374	14	0,28	8,265,306122
126	DISASSEMBLY	2	2	2	1	0,707106781	1,5	0,03	5000
127	DATA GAP FLANGE								
128	GV BOLT & NUT	3	8	7	3	3,535533906	5,5	0,11	9297,520661
129	PERBAIKAN THREAD BOLT								
130	GV BUSHING & STEM	3	4	3	2	1,414213562	3	0,06	5000
131	POLISHING SLIDING FACE								
132	GV SEAT & DISC VALVE	20	20	18	8	8,485281374	14	0,28	8,265,306122
133	LAPPING	1	2	2	1	0,707106781	1,5	0,03	5000
134	CONTACT CHECK								
135	GV SPRING	2	4	3	2	1,414213562	3	0,06	5000
136	PENGUKURAN SPRING								
137	CYLINDER HYDRAULIC	8	8	8	5	2,121320344	6,5	0,13	2396,449704
138	PEMBERSIHAN	8	8	8	5	2,121320344	6,5	0,13	2396,449704
139	CEK PISTON CYLINDER & SPRING	8	8	8	8	0	8	0,16	0
140	PENGGANTIAN O RING, GASKET & ASSEMBLY								
141	PEKERJAAN CLEANING PART								
142	PEMBERSIHAN FRONT STANDARD	3	3	3	3	0	3	0,06	0
143	PEMBERSIHAN MOP	3	3	3	3	0	3	0,06	0
144	PEMBERSIHAN HP TURBINE CASING OUTER & INNER	16	16	16	16	0	16	0,32	0
145	PEMBERSIHAN ROTOR BLADE HIP	24	48	29	24	16,97066275	36	0,72	5000
146	PEMBERSIHAN NOZZLE DIAPHRAGM HIP	24	48	29	24	16,97066275	36	0,72	5000
147	PEMBERSIHAN HP TURBINE LABYRINTH PACKING	4	4	4	4	0	4	0,08	0
148	PEMBERSIHAN HP TURBINE SEAL STRIP	3	3	3	3	0	3	0,06	0
149	PEMBERSIHAN HP TURBINE BOLT & NUT	20	20	20	20	0	20	0,4	0
150	PEMBERSIHAN HP TURBINE GLAND LABYRINTH (GRV)	6	6	6	6	0	6	0,12	0
151	PEMBERSIHAN CROSS OVER PIPE	3	3	3	3	0	3	0,06	0
152	PEMBERSIHAN LP TURBINE CASING (OUTTER)	24	24	20	12	8,485281374	18	0,36	5000
153	PEMBERSIHAN LP TURBINE CASING (INNER)	24	24	20	12	8,485281374	18	0,36	5000
154	PEMBERSIHAN LP TURBINE BOLT & NUT (OUTER)	24	24	24	24	0	24	0,48	0
155	PEMBERSIHAN LP TURBINE BOLT & NUT (INNER)	24	24	24	24	0	24	0,48	0
156	PEMBERSIHAN LP TURBINE ROTOR BLADE	48	48	48	48	0	48	0,96	0
157	PEMBERSIHAN NOZZLE DIAPHRAGM LP TURBINE	48	48	48	48	0	48	0,96	0
158	PEMBERSIHAN LP TURBINE LABYRINTH PACKING	3	3	3	3	0	3	0,06	0
159	PEMBERSIHAN LP TURBINE SEAL STRIP	3	3	3	3	0	3	0,06	0
160	PEMBERSIHAN LP TURBINE GLAND LABYRINTH (GRV)	3	3	3	3	0	3	0,06	0

Lampiran 3 Perhitungan Iterasi Distribusi Triangular

NO	Task Name	PLAN	MAX	OPT	MIN	STDEV	AVERAGE	ABSOLUTE ERROR	ITERASI
161	PEMBERSIHAN MSV BODY VALVE	2	2	2	2	0	2	0,04	0
162	PEMBERSIHAN MSV BOLT AND NUT	24	24	24	24	0	24	0,48	0
163	PEMBERSIHAN MSV BUSHING AND STEM	2	2	2	2	0	2	0,04	0
164	PEMBERSIHAN MSV SEAT & DISC VALVE	2	2	2	2	0	2	0,04	0
165	PEMBERSIHAN MSV STRAINER	2	2	2	2	0	2	0,04	0
166	PEMBERSIHAN GV BODY VALVE	2	2	2	2	0	2	0,04	0
167	PEMBERSIHAN GV BOLT & NUT	12	12	12	12	0	12	0,24	0
168	PEMBERSIHAN GV BUSHING & STEM	2	2	2	2	0	2	0,04	0
169	PEMBERSIHAN GV SEAT & DISC VALVE	2	2	2	2	0	2	0,04	0
170	PEMBERSIHAN GV SPRING	2	2	2	2	0	2	0,04	0
171	PEMBERSIHAN CYLINDER HYDRAULIC MSV	4	4	4	4	0	4	0,08	0
172	PEMBERSIHAN CYLINDER HYDRAULIC GV	4	4	4	4	0	4	0,08	0
173	PEMBERSIHAN BEARING GEAR BOX TURNING GEAR	4	4	4	4	0	4	0,08	0
174	CLEANING JOURNAL BEARING 1-4	12	12	12	12	0	12	0,24	0
175	CLEANING PAD THRUST BEARING	2	4	3	2	1,414213562	3	0,06	5000
176	CLEANING OIL DEFLECTOR 1-4	2	2	2	2	0	2	0,04	0
177	<b>PEKERJAAN NDT PART</b>								
178	NDT CHECK WELDING JOINT HP TURBINE CASING	2	2	2	2	0	2	0,04	0
179	NDT CHECK ROTOR HP TURBINE ROTOR BLADE	16	16	16	16	0	16	0,32	0
180	NDT CHECK HP TURBINE NOZZLE DIAPHRAGM	16	16	16	16	0	16	0,32	0
181	NDT CHECK LABYRINTH HP TURBINE	16	16	16	16	0	16	0,32	0
182	NDT CHECK HP TURBINE BOLT & NUT	10	11	11	10	0,707106781	10,5	0,21	102,0408163
183	NDT CHECK HP TURBINE GLAND LABYRINTH (GRV)	16	16	16	16	0	16	0,32	0
184	NDT CHECK WELDING JOINT LP OUTER CASING	2	2	2	2	0	2	0,04	0
185	NDT CHECK WELDING JOINT LP INNER CASING	2	2	2	2	0	2	0,04	0
186	NDT CHECK LP TURBINE BOLT & NUT (INNER)	24	24	24	24	0	24	0,48	0
187	NDT CHECK ROTOR LP TURBINE	24	24	24	24	0	24	0,48	0
188	NDT CHECK NOZZLE DIAPHRAGM LP TURBINE	24	24	24	24	0	24	0,48	0
189	NDT CHECK LABYRINTH LP TURBINE SEAL STRIP	2	2	2	2	0	2	0,04	0
190	NDT CHECK LP TURBINE GLAND LABYRINTH (GRV)	2	2	2	2	0	2	0,04	0
191	NDT WELDING JOIN SEAT & BODY VALVE MSV	2	2	2	2	0	2	0,04	0
192	NDT CHECK MSV BOLT AND NUT	8	8	8	8	0	8	0,16	0
193	NDT CHECK MSV BUSHING AND STEM	2	2	2	2	0	2	0,04	0
194	NDT CHECK MSV SEAT & DISC VALVE	2	2	2	2	0	2	0,04	0
195	NDT CHECK MSV STRAINER	2	2	2	2	0	2	0,04	0
196	NDT CHECK GV BODY VALVE	2	2	2	2	0	2	0,04	0
197	NDT CHECK GV BOLT & NUT	8	8	8	8	0	8	0,16	0
198	NDT CHECK GV BUSHING & STEM	2	2	2	2	0	2	0,04	0
199	NDT CHECK GV SEAT & DISC VALVE	2	2	2	2	0	2	0,04	0
200	NDT CHECK SPRING GV	2	2	2	2	0	2	0,04	0

Lampiran 5 Perhitungan Iterasi Distribusi Triangular

NO	Task Name	PLAN	MAX	OPT	MIN	STDEV	AVERAGE	ABSOLUTE ERROR	ITERASI
201	NDT CHECK TURBIN - TURNING GEAR	2	2	2	2	0	2	0,04	0
202	NDT CHECK JOURNAL BEARING 1-4	6	6	6	6	0	6	0,12	0
203	NDT CHECK THRUST BEARING	2	2	2	2	0	2	0,04	0
204	NDT CHECK OIL DEFLECTOR 1-4	2	2	2	2	0	2	0,04	0
205	PEKERJAAN PEMASANGAN DAN FINAL CHECK TURBIN UTAMA								
206	FRONT STANDARD								
207	PASANG CASING FRONT PEDESTAL	2	2	2	1	0,707106781	1,5	0,03	5000
208	PENGAMBILAN DATA AXIAL & RADIAL CLEARANCE (AFTER)								
209	CEK CLEARANCE AXIAL DAN RADIAL BLADE ROTOR STATOR (AFTER)	8	10	9	6	2,828427125	8	0,16	2812,5
210	ALIGNMENT ROTOR LP-HP DAN LP-GENERATOR	36	36	20	14	15,55634919	25	0,5	8712
211	COUPLING ROTOR TURBINE								
212	COUPLE COUPLING ROTOR LP-GENERATOR	20	24	20	8	11,3137085	16	0,32	11250
213	TUTUP COVER COUPLING LP-GENERATOR	2	2	2	2	0	2	0,04	0
214	COUPLE COUPLING ROTOR HP - LP	20	20	18	8	8,485281374	14	0,28	8265,306122
215	TUTUP COVER COUPLING HP - LP	2	2	2	2	0	2	0,04	0
216	HP TURBINE								
217	HP TURBINE INNER CASING								
218	ASSEMBLY UPPER INNER CASING TURBIN	20	20	18	6	9,899494937	13	0,26	13047,33728
219	DATA EXTENSION BOLT	10	10	10	6	2,828427125	8	0,16	2812,5
220	CHECK CLEARANCE SPLIT LINE (AFTER)	1	1	1	1	0	1	0,02	0
221	HP TURBINE OUTER CASING								
222	ASSEMBLY UPPER OUTER CASING TURBIN	10	10	8	6	2,828427125	8	0,16	2812,5
223	DATA EXTENSION BOLT	16	16	11	6	7,071067812	11	0,22	9297,520661
224	CHECK CLEARANCE SPLIT LINE (AFTER)	1	1	1	1	0	1	0,02	0
225	HP TURBINE ROTOR BLADE								
226	LIFT IN ROTOR BLADE HP TURBINE ROTOR BLADE	10	10	4	2	5,656854249	6	0,12	20000
227	HP TURBINE NOZZLE DIAPHRAGM								
228	ASSEMBLY LOWER NOZZLE DIAPHRAGM HIP	6	6	6	6	0	6	0,12	0
229	HP TURBINE GLAND LABYRINTH (GRV)								
230	ASSEMBLY UPPER HP TURBINE GLAND LABYRINTH (GRV)	3	3	3	2	0,707106781	2,5	0,05	1800
231	CEK CLEARANCE	2	2	2	1	0,707106781	1,5	0,03	5000
232	CROSS OVER PIPE								
233	PEMASANGAN SCAFFOLDING	2	8	4	2	4,242640687	5	0,1	16200
234	ASSEMBLY CROSS OVER PIPE	10	10	9	5	3,535533906	7,5	0,15	5000
235	PENGANTIAN GASKET	1	2	2	1	0,707106781	1,5	0,03	5000
236	PEMBONGKARAN SCAFFOLDING	2	4	3	1	2,121320344	2,5	0,05	16200
237	LP TURBINE								
238	LP TURBINE CASING (INNER)								
239	BOLTING DAN LIFT IN LP TURBINE CASING (INNER)	24	24	9	5	13,43502884	14,5	0,29	19316,29013



Lampiran 5 Perhitungan Iterasi Distribusi Triangular

NO	Task Name	PLAN	MAX	OPT	MIN	STDEV	AVERAGE	ABSOLUTE ERROR	ITERASI
241	DATA EXTENSION BOLT	16	16	10	6	7,071067812	11	0,22	9297,520661
242	CHECK CLEARANCE SPLIT LINE (AFTER)	3	3	1	1	1,414213562	2	0,04	11250
243	LP TURBINE CASING (OUTTER)	10	10	7	5	3,535533906	7,5	0,15	5000
244	ASSEMBLY TURBINE CASING (OUTTER)	2	2	1	1	0,707106781	1,5	0,03	5000
245	CHECK CLEARANCE SPLIT LINE (AFTER)	10	10	4	4	4,242640687	7	0,14	8265,306122
246	LP TURBINE ROTOR BLADE	8	8	8	6	1,414213562	7	0,14	918,3673469
247	LIFT IN ROTOR LP TURBINE ROTOR BLADE	8	8	8	6	1,414213562	7	0,14	918,3673469
248	LP TURBINE NOZZLE DIAPHRAGM	2	2	2	2	0	2	0,04	0
249	ASSEMBLY LOWER NOZZLE DIAPHRAGM LP	1	1	1	1	0	1	0,02	0
250	ASSEMBLY UPPER NOZZLE DIAPHRAGM LP	8	12	9	6	4,242640687	9	0,18	5000
251	LP TURBINE GLAND LABYRINTH (GRV)	8	12	9	6	4,242640687	9	0,18	5000
252	ASSEMBLY UPPER LP TURBINE GLAND LABYRINTH (GRV)	1	1	1	1	0	1	0,02	0
253	CEK CLEARANCE	8	12	9	6	4,242640687	9	0,18	5000
254	TURBINE MAIN STEAM VALVE NO.1 & NO.2	1	1	1	1	0	1	0,02	0
255	MSV BODY VALVE	8	12	9	6	4,242640687	9	0,18	5000
256	ASSEMBLY	8	12	9	6	4,242640687	9	0,18	5000
257	PEMASANGAN HEAT INSULATION	1	1	1	1	0	1	0,02	0
258	CEK CLEARANCE FLANGE AFTER DISASSEMBLY	8	12	9	6	4,242640687	9	0,18	5000
259	TURBINE - GOVERNOR VALVE NO.1, 2, 3 & 4	1	1	1	1	0	1	0,02	0
260	GV BODY VALVE	8	12	9	6	4,242640687	9	0,18	5000
261	ASSEMBLY	8	12	10	8	2,828427125	10	0,2	1800
262	DATA EXTENSION BOLT	10	12	10	6	4,242640687	9	0,18	5000
263	CEK CLEARANCE FLANGE AFTER ASSEMBLY	1	1	1	1	0	1	0,02	0
264	PEMBONGKARAN SCAFFOLDING	4	4	3	2	1,414213562	3	0,06	5000
265	MAIN STEAM LINE	2	3	3	2	0,707106781	2,5	0,05	1800
266	PEMASANGAN FLANGE MAIN STEAM LINE	1	1	1	1	0	1	0,02	0
267	PEMASANGAN GASKET	1	1	1	1	0	1	0,02	0
268	DATA GAP FLANGE MAIN STEAM LINE (AFTER)	8	12	9	6	4,242640687	9	0,18	5000
269	TURBIN - TURNING GEAR	2	2	2	2	0	2	0,04	0
270	ASSEMBLY	2	2	2	2	0	2	0,04	0
271	TURBIN-BEARING	2	2	2	2	0	2	0,04	0
272	JOURNAL BEARING 1-4	2	2	2	2	0	2	0,04	0
273	ASSEMBLY LOWER JOURNAL BEARING 1-4	2	2	2	2	0	2	0,04	0
274	ASSEMBLY UPPER JOURNAL BEARING 1-4	2	4	3	2	1,414213562	3	0,06	5000
275	CEK CLEARANCE (AFTER)	2	6	3	2	2,828427125	4	0,08	11250
276	CONTACT CHECK (AFTER)	3	6	4	2	2,828427125	4	0,08	11250
277	ASSEMBLY COVER BEARING LP & HP TURBINE THRUST BEARING	2	4	3	2	1,414213562	3	0,06	5000
278	THRUST BEARING	2	2	2	2	0	2	0,04	0
279	ASSEMBLY THRUST BEARING	2	2	2	2	0	2	0,04	0
280	CEK CLEARANCE (AFTER)	2	2	2	2	0	2	0,04	0

Lampiran 5 Perhitungan Iterasi Distribusi Triangular

NO	Task Name	PLAN	MAX	OPT	MIN	STDEV	AVERAGE	ABSOLUTE ERROR	ITERASI
281	OIL DEFLECTOR 1-4								
282	ASSEMBLY LOWER OIL DEFLECTOR	2	2	2	2	0	2	0,04	0
283	ASSEMBLY UPPER OIL DEFLECTOR	2	2	2	2	0	2	0,04	0
284	MOP								
285	ASSEMBLY MOP	3,5	6	4	2,5	2,474873734	4,25	0,085	7629,757785
286	ALIGNMENT MOP	3	4	3	2	1,414213562	3	0,06	5000
287	HEAT INSULATION								
288	PEMASANGAN HEAT INSULATION BODY GV	6	10	6	3	4,949747468	6,5	0,13	13047,33728
289	PEMASANGAN HEAT INSULATION MAIN STEAM LINE	4	6	4	3	2,121320344	4,5	0,09	5000
290	PEMASANGAN HEAT INSULATION FRONT STANDART	6	10	6	3	4,949747468	6,5	0,13	13047,33728
291	PEMASANGAN HEAT INSULATION CROSS OVER PIPE	8	10	6	3	4,949747468	6,5	0,13	13047,33728
292	ENCLOSURE								
293	PASANG ENCLOSURE FRONT STANDART	6	8	4	2	4,242640687	5	0,1	16200
294	LISTRIK								
295	GENERATOR								
296	BRUSH EXCITER								
297	BUKA COVER EXCITER (RUMAH EXCITER)	4	4	4	4	0	4	0,08	0
298	PENGUKURAN TAHAPAN ISOLASI MOUNTING PLATE	1	1	1	1	0	1	0,02	0
299	PEMERIKSAAN/PENGGANTIAN CARBON BRUSH	2	2	2	2	0	2	0,04	0
300	PEMERIKSAAN TERMINASI	3	3	3	3	0	3	0,06	0
301	PEMERIKSAAN MOUNTING PLATE	4	4	4	4	0	4	0,08	0
302	PENGUKURAN TAHAPAN ISOLASI MOUNTING PLATE	1	1	1	1	0	1	0,02	0
303	TUTUP COVER EXCITER	4	4	4	4	0	4	0,08	0
304	GENERATOR								
305	DISASSEMBLY								
306	PEMASANGAN SCAFFOLDING	2	8	4	2	4,242640687	5	0,1	16200
307	Membuka Titik Bintang	6	6	6	6	0	6	0,12	0
308	Pengukuran Tahanan Isolasi Stator & Rotor	2	2	2	1	0,707106781	1,5	0,03	5000
309	Drying line stator cooling	6	12	9	6	4,242640687	9	0,18	5000
310	Pemeriksaan Shaft Grounding	2	2	2	2	0	2	0,04	0
311	Pelepasan cover kopling generator	4	4	4	4	0	4	0,08	0
312	PELEPASAN BRACKET UPPER SISI EXCITER	8	8	8	8	0	8	0,16	0
313	PELEPASAN BRACKET UPPER SISI TURBINE	8	8	8	8	0	8	0,16	0
314	PENGUKURAN & PELEPASAN UPPER OUTER OIL DEFLECTOR BEARING 5 DAN 6	4	4	4	4	0	4	0,08	0
315	PENGUKURAN (SESUAI REKOMENDASI) DAN PEMBONGKARAN STOPPER BEARING 5 & 6	2	3	3	2	0,707106781	2,5	0,05	1800
316	PENGUKURAN DAN PEMBONGKARAN BEARING UPPER 5 DAN 6	6	6	6	6	0	6	0,12	0
317	PENGUKURAN CLEARANCE BEARING UPPER 5 DAN 6	2	2	2	2	0	2	0,04	0
318	PENGUKURAN CLEARANCE DAN PEMBONGKARAN BEARING UPPER 7	4	4	4	4	0	4	0,08	0
319	PENGUKURAN DAN PEMBONGKARAN CLEARANCE BEARING LOWER 7	6	6	6	6	0	6	0,12	0
320	PENGUKURAN DAN PEMBONGKARAN H2 SEAL RING UPPER BEARING 5 DAN 6	4	4	4	4	0	4	0,08	0
321	PENGUKURAN DAN PEMBONGKARAN UPPER INNER OIL DEFLECTOR BEARING 5 & 6	4	4	4	4	0	4	0,08	0

Lampiran 5 Perhitungan Iterasi Distribusi Triangular

NO	Task Name	PLAN	MAX	OPT	MIN	STDEV	AVERAGE	ABSOLUTE ERROR	ITERASI
322	PENGUKURAN DAN PEMBONGKARAN LOWER OUTER OIL DEFLECTOR BEARING 5 & 6	4	4	4	4	0	4	0,08	0
323	PENGUKURAN CLEARANCE BEARING LOWER 5 & 6	2	2	2	2	0	2	0,04	0
324	PEMBONGKARAN BEARING LOWER 5 & 6	6	6	6	6	0	6	0,12	0
325	PENGUKURAN DAN PEMBONGKARAN H2 SEAL RING LOWER BEARING 5 & 6	6	6	6	6	0	6	0,12	0
326	PENGUKURAN DAN PEMBONGKARAN LOWER INNER OIL DEFLECTOR BEARING 5 & 6	4	4	4	4	0	4	0,08	0
327	PELEPASAN SHAFT SUPPORT BEARING 7	4	4	4	4	0	4	0,08	0
328	PELEPASAN PONDASI EXCITER	4	4	4	4	0	4	0,08	0
329	PEMBONGKARAN DEFUSER END WINDING 2 SISI	6	6	6	6	0	6	0,12	0
330	PEMBONGKARAN BRACKET LOWER SISI EXCITER	6	6	6	6	0	6	0,12	0
331	PEMBONGKARAN BRACKET LOWER SISI TURBINE	6	6	6	6	0	6	0,12	0
332	PERSIAPAN PEMASANGAN SPESIAL TOOLS PULL OUT	8	8	8	8	0	8	0,16	0
333	PULL OUT ROTOR GENERATOR	8	8	8	6	1,414,213562	7	0,14	918,3673469
334	<b>INSPEKSI</b>								
335	PEMERIKSAAN END WINDING	4	4	4	4	0	4	0,08	0
336	CLEANING DAN RED INSULATION WINDING STATOR	20	20	8	8	8,485281374	14	0,28	8265,306122
337	CLEANING DAN RED INSULATION ROTOR	20	20	8	8	8,485281374	14	0,28	8265,306122
338	PEMERIKSAAN FAN BLADE	2	2	2	2	0	2	0,04	0
339	PEMERIKSAAN STATOR, WEDGS [VISUAL & ASSESSMENT]	20	20	12	12	5,656854249	16	0,32	2812,5
340	PEMERIKSAAN DAN PENGUKURAN UT/PT BEARING 5,6,7,H2 SEAL RING DAN DEFLECTOR	20	20	20	20	0	20	0,4	0
341	PEMERIKSAAN ROTOR [VISUAL & ASSESSMENT]	12	12	12	12	0	12	0,24	0
342	PEMERIKSAAN DAN CLEANING BAUT	12	12	12	12	0	12	0,24	0
343	PEMASANGAN DEFUSER END WINDING 2 SISI	8	8	8	8	0	8	0,16	0
344	PEMERIKSAAN VISUAL & CLEANING FLEXIBLE, ISOLATOR OUTGOING	8	8	8	8	0	8	0,16	0
345	<b>ASSEMBLY</b>								
346	PERSIAPAN PEMASANGAN SPESIAL TOOLS PULL IN	6	6	6	6	0	6	0,12	0
347	PULL IN ROTOR GENERATOR	8	8	8	8	0	8	0,16	0
348	PEMASANGAN BRACKET LOWER SISI EXCITER	6	6	6	6	0	6	0,12	0
349	PEMASANGAN BRACKET LOWER SISI TURBINE	6	6	6	6	0	6	0,12	0
350	PEMASANGAN & PEMERIKSAAN LOWER INNER OIL DEFLECTOR BEARING 5 & 6	6	6	6	6	0	6	0,12	0
351	PEMASANGAN & PEMERIKSAAN H2 SEAL RING LOWER BEARING 5 & 6	8	8	8	8	0	8	0,16	0
352	PEMASANGAN & PEMERIKSAAN BEARING LOWER 5 & 6	6	6	6	6	1,414,213562	7	0,14	918,3673469
353	PENGUKURAN CLEARANCE BEARING LOWER 5 & 6 AFTER	2	2	2	2	0	2	0,04	0
354	PEMASANGAN & PEMERIKSAAN UPPER INNER OIL DEFLECTOR BEARING 5 & 6	4	4	4	4	1,414,213562	5	0,1	1800
355	PEMASANGAN & PEMERIKSAAN H2 SEAL RING UPPER BEARING 5 & 6	4	4	4	4	1,414,213562	5	0,1	1800
356	PEMASANGAN & PEMERIKSAAN BEARING UPPER 5 & 6	6	6	6	6	1,414,213562	7	0,14	918,3673469
357	PEMERIKSAAN VISUAL & CLEARANCE BEARING UPPER 5 DAN 6	4	4	4	4	0	4	0,08	0
358	PEMERIKSAAN & PEMASANGAN UPPER OUTER OIL DEFLECTOR BEARING 5 DAN 6	4	4	4	4	0	4	0,08	0
359	PEMASANGAN BRACKET UPPER SISI EXCITER	4	4	4	4	0	4	0,08	0
360	PEMASANGAN BRACKET UPPER SISI TURBINE	4	4	4	4	1,414,213562	5	0,1	1800
361	PEMASANGAN PONDASI EXCITER	4	4	4	4	1,414,213562	5	0,1	1800
362	PEMASANGAN SHAFT SUPPORT BEARING 7	4	4	4	4	1,414,213562	5	0,1	1800
363	PEMASANGAN & PEMERIKSAAN BEARING LOWER 7	6	6	6	6	0	6	0,12	0



Lampiran 5 Perhitungan Iterasi Distribusi Triangular

NO	Task Name	PLAN	MAX	OPT	MIN	STDEV	AVERAGE	ABSOLUTE ERROR	ITERASI
364	PEMASANGAN & PEMERIKSAAN BEARING UPPER 7	6	6	6	6	0	6	0,12	0
365	BEARING OIL FLUSHING	4	4	4	4	0	4	0,08	0
366	FINAL CHECK	8	24	12	8	11,3137085	16	0,32	11250
367	TAGGING RELEASED	2	4	3	2	1,414213562	3	0,06	5000
368	<b>NGR</b>								
369	PEMBERSIHAN DAN PENGUKURAN TRAF0	8	8	8	8	0	8	0,16	0
370	PEMBERSIHAN DAN PENGUKURAN RESISTOR	4	8	5	4	2,828427125	6	0,12	5000
371	PEMERIKSAAN TERMINASI	4	8	5	3	3,535533906	5,5	0,11	9297,520661
372	<b>STATOR COOLER</b>								
373	PEMERIKSAAN & VISUAL CHECK LINE STATOR COOLER	6	6	6	4	1,414213562	5	0,1	1800
374	PEMERIKSAAN DAN PEMBERSIHAN TUBE STATOR COOLER	6	12	8	6	4,242640687	9	0,18	5000
375	FLOW TEST	8	8	8	8	0	8	0,16	0
376	<b>13.8 KV IPB BUS DUCT</b>								
377	BUKA MANHOLE; PEMBERSIHAN DAN PEMERIKSAAN BUS BAR	16	16	16	16	0	16	0,32	0
378	PEMERIKSAAN KONDISI TEKANAN UDARA	4	4	4	4	0	4	0,08	0
379	PEMERIKSAAN GROUNDING	2	4	3	2	1,414213562	3	0,06	5000
380	PEMERIKSAAN COMPRESSOR	6	6	6	4	1,414213562	5	0,1	1800
381	TUTUP MANHOLE	2	4	3	2	1,414213562	3	0,06	5000
382	<b>FASE START UP &amp; COMMISSIONING</b>								
383	FLUSHING	8							
384	INTERLOCK TEST (TURBINE-GENERATOR)	4							
385	BOILER FIRING	8							
386	DEGASING	8							
387	TURNING GEAR START	4							
388	TURBINE START	4							
389	FUNCTION TEST AC DC LUBE OIL	4							
390	FIRST SYNCRONE (30% DARI KAPASITAS LOAD)	8							
391	PENURUNAN BEBAN (LEPAS JARING - JARING)	8							
392	TRIP DEVICE TURBINE	8							
393	ROLLING	8							
394	SYNCHRONE	0							





Lampiran 6 Perhitungan Iterasi Distribusi Betapert

NO	Task Name	PLAN				MIN	STDEV	AVERAGE	ABSOLUTE ERROR	ITERASI
		MAX	OPT	MIN	STDEV					
81	PERBAIKAN BOLT THREAD LP TURBINE BOLT & NUT (OUTER)	3	16	6	3	9,192388155	9,5	0,19	21066,48199	
82	LP TURBINE BOLT & NUT (INNER)	8	24	12	8	11,3137085	16	0,32	11250	
83	PERBAIKAN THREAD BOLT LP TURBINE BOLT & NUT (INNER)	6	10	5	3	4,949747468	6,5	0,13	13047,33728	
84	LP TURBINE ROTOR BLADE	1	10	3	1	6,363961031	5,5	0,11	30123,96694	
85	LIFT UP ROTOR	1	10	4	1	6,363961031	5,5	0,11	30123,96694	
86	CEK BALANCE WEIGHT	3	3	3	3	0	3	0,06	0	
87	CEK SHROUDS & TENNON	8	24	17	8	11,3137085	16	0,32	11250	
88	LP TURBINE NOZZLE DIAPHRAGM	2	2	2	1	0,707106781	1,5	0,03	5000	
89	DISASSEMBLY UPPER NOZZLE DIAPHRAGM	2	4	3	2	1,414213562	3	0,06	5000	
90	DISASSEMBLY LOWER NOZZLE DIAPHRAGM	1	4	3	1	2,121320344	2,5	0,05	16200	
91	LP TURBINE LABYRINTH PACKING	2	2	2	1	0,707106781	1,5	0,03	5000	
92	CEK SPRING	3	3	3	3	0	3	0,06	0	
93	LP TURBINE SEAL STRIP	1	2	2	1	0,707106781	1,5	0,03	5000	
94	INSPEKSI VISUAL	2	4	3	2	1,414213562	3	0,06	5000	
95	LP TURBINE GLAND LABYRINTH (GRV)	1	4	3	1	2,121320344	2,5	0,05	16200	
96	INSPEKSI VISUAL	2	2	2	1	0,707106781	1,5	0,03	5000	
97	CEK SPRING	3	3	3	3	0	3	0,06	0	
98	LP TURBINE RELIEF DIAPHRAGM	1	2	2	1	0,707106781	1,5	0,03	5000	
99	CEK RELIEF DIAPHRAGM	11	11	10	8	2,121320344	9,5	0,19	1121,883657	
100	PENGANTIAN GASKET	12	12	12	12	0	12	0,24	0	
101	MOP	1	1	1	1	0	1	0,02	0	
102	DISASSEMBLY MOP	1	1	1	1	0	1	0,02	0	
103	MEMERIKSAAN BEARING	1	1	1	1	0	1	0,02	0	
104	PENGANTIAN GASKET, O RING	1	1	1	1	0	1	0,02	0	
105	MEMERIKSAAN IMPELER	1	1	1	1	0	1	0,02	0	
106	TURBINE MAIN STEAM VALVE	1	1	1	1	0	1	0,02	0	
107	MSV	1	2	2	1	0,707106781	1,5	0,03	5000	
108	CEK CLEARANCE FLANGE BEFORE DISASSEMBLY	3	3	3	3	0	3	0,06	0	
109	PEMBONGKARAN HEAT INSULATION	20	20	17	8	8,485281374	14	0,28	8265,306122	
110	DISASSEMBLY	1	2	2	1	0,707106781	1,5	0,03	5000	
111	PENGANTIAN GASKET	1	1	1	1	0	1	0,02	0	
112	DATA GAP FLANGE	12	12	9	8	2,828427125	10	0,2	1800	
113	MSV BOLT AND NUT	2	4	3	2	1,414213562	3	0,06	5000	
114	PERBAIKAN THREAD BOLT	20	20	18	8	8,485281374	14	0,28	8265,306122	
115	MSV BUSHING AND STEM	1	2	2	1	0,707106781	1,5	0,03	5000	
116	POUSHING SLIDING FACE	1	2	2	1	0,707106781	1,5	0,03	5000	
117	MSV SEAT & DISC VALVE	1	2	2	1	0,707106781	1,5	0,03	5000	
118	LAPPING	1	2	2	1	0,707106781	1,5	0,03	5000	
119	CONTACT CHECK	1	2	2	1	0,707106781	1,5	0,03	5000	
120	MSV STRAINER	1	2	2	1	0,707106781	1,5	0,03	5000	



Lampiran 6 Perhitungan Iterasi Distribusi Betapert

NO	Task Name	PLAN	MAX	OPT	MIN	STDEV	AVERAGE	ABSOLUTE ERROR	ITERASI
121	INSPEKSI VISUAL	2	4	3	2	1,414213562	3	0,06	5000
122	TURBINE - GOVERNOR VALVE								
123	GV BODY VALVE	3	8	4	3	3,535533906	5,5	0,11	9297,520661
124	PEMASANGAN SCAFFOLDING	1	1	1	1	0	1	0,02	0
125	CEK CLEARANCE FLANGE BEFORE DISASSEMBLY & DISASSEMBLY FLANGE BOLT	12	20	16	8	8,485281374	14	0,28	8265,306122
126	DISASSEMBLY	2	2	2	1	0,707106781	1,5	0,03	5000
127	DATA GAP FLANGE								
128	GV BOLT & NUT	3	8	7	3	3,535533906	5,5	0,11	9297,520661
129	PERBAIKAN THREAD BOLT								
130	GV BUSHING & STEM	3	4	3	2	1,414213562	3	0,06	5000
131	POLISHING SLIDING FACE								
132	GV SEAT & DISC VALVE	20	20	18	8	8,485281374	14	0,28	8265,306122
133	LAPPING	1	2	2	1	0,707106781	1,5	0,03	5000
134	CONTACT CHECK								
135	GV SPRING	2	4	3	2	1,414213562	3	0,06	5000
136	PENGUKURAN SPRING								
137	CYLINDER HYDRAULIC								
138	PEMBERSIHAN	8	8	8	5	2,121320344	6,5	0,13	2396,449704
139	CEK PISTON CYLINDER & SPRING	8	8	8	5	2,121320344	6,5	0,13	2396,449704
140	PENGGANTIAN O RING, GASKET & ASSEMBLY	8	8	8	8	0	8	0,16	0
141	PEKERJAAN CLEANING PART								
142	PEMBERSIHAN FRONT STANDARD	3	3	3	3	0	3	0,06	0
143	PEMBERSIHAN MOP	3	3	3	3	0	3	0,06	0
144	PEMBERSIHAN HP TURBINE CASING OUTER & INNER	16	16	16	16	0	16	0,32	0
145	PEMBERSIHAN ROTOR BLADE HIP	24	48	29	24	16,97056275	36	0,72	5000
146	PEMBERSIHAN NOZZLE DIAPHRAGM HIP	24	48	29	24	16,97056275	36	0,72	5000
147	PEMBERSIHAN HP TURBINE LABYRINTH PACKING	4	4	4	4	0	4	0,08	0
148	PEMBERSIHAN HP TURBINE SEAL STRIP	3	3	3	3	0	3	0,06	0
149	PEMBERSIHAN HP TURBINE BOLT & NUT	20	20	20	20	0	20	0,4	0
150	PEMBERSIHAN HP TURBINE GLAND LABYRINTH (GRV)	6	6	6	6	0	6	0,12	0
151	PEMBERSIHAN CROSS OVER PIPE	3	3	3	3	0	3	0,06	0
152	PEMBERSIHAN LP TURBINE CASING (OUTTER)	24	24	20	12	8,485281374	18	0,36	5000
153	PEMBERSIHAN LP TURBINE CASING (INNER)	24	24	20	12	8,485281374	18	0,36	5000
154	PEMBERSIHAN LP TURBINE BOLT & NUT (OUTER)	24	24	24	24	0	24	0,48	0
155	PEMBERSIHAN LP TURBINE BOLT & NUT (INNER)	24	24	24	24	0	24	0,48	0
156	PEMBERSIHAN LP TURBINE ROTOR BLADE	48	48	48	48	0	48	0,96	0
157	PEMBERSIHAN NOZZLE DIAPHRAGM LP TURBINE	48	48	48	48	0	48	0,96	0
158	PEMBERSIHAN LP TURBINE LABYRINTH PACKING	3	3	3	3	0	3	0,06	0
159	PEMBERSIHAN LP TURBINE SEAL STRIP	3	3	3	3	0	3	0,06	0
160	PEMBERSIHAN LP TURBINE GLAND LABYRINTH (GRV)	3	3	3	3	0	3	0,06	0

Lampiran 6 Perhitungan Iterasi Distribusi Betapert

NO	Task Name	PLAN	MAX	OPT	MIN	STDEV	AVERAGE	ABSOLUTE ERROR	ITERASI
161	PEMBERSIHAN MSV BODY VALVE	2	2	2	2	0	2	0,04	0
162	PEMBERSIHAN MSV BOLT AND NUT	24	24	24	24	0	24	0,48	0
163	PEMBERSIHAN MSV BUSHING AND STEM	2	2	2	2	0	2	0,04	0
164	PEMBERSIHAN MSV SEAT & DISC VALVE	2	2	2	2	0	2	0,04	0
165	PEMBERSIHAN MSV STRAINER	2	2	2	2	0	2	0,04	0
166	PEMBERSIHAN MSV BODY VALVE	2	2	2	2	0	2	0,04	0
167	PEMBERSIHAN MSV BOLT & NUT	12	12	12	12	0	12	0,24	0
168	PEMBERSIHAN MSV BUSHING & STEM	2	2	2	2	0	2	0,04	0
169	PEMBERSIHAN MSV SEAT & DISC VALVE	2	2	2	2	0	2	0,04	0
170	PEMBERSIHAN MSV SPRING	2	2	2	2	0	2	0,04	0
171	PEMBERSIHAN CYLINDER HYDRAULIC MSV	4	4	4	4	0	4	0,08	0
172	PEMBERSIHAN CYLINDER HYDRAULIC GV	4	4	4	4	0	4	0,08	0
173	PEMBERSIHAN BEARING GEAR BOX TURNING GEAR	4	4	4	4	0	4	0,08	0
174	CLEANING JOURNAL BEARING 1-4	12	12	12	12	0	12	0,24	0
175	CLEANING PAD THRUST BEARING	2	4	3	2	1,414213562	3	0,06	5000
176	CLEANING OIL DEFLECTOR 1-4	2	2	2	2	0	2	0,04	0
177	<b>PEKERJAAN NDT PART</b>								
178	NDT CHECK WELDING JOINT HP TURBINE CASING	2	2	2	2	0	2	0,04	0
179	NDT CHECK ROTOR HP TURBINE ROTOR BLADE	16	16	16	16	0	16	0,32	0
180	NDT CHECK HP TURBINE NOZZLE DIAPHRAGM	16	16	16	16	0	16	0,32	0
181	NDT CHECK LABYRINTH HP TURBINE	16	16	16	16	0	16	0,32	0
182	NDT CHECK HP TURBINE BOLT & NUT	10	11	11	10	0,707106781	10,5	0,21	102,0408163
183	NDT CHECK HP TURBINE GLAND LABYRINTH (GRV)	16	16	16	16	0	16	0,32	0
184	NDT CHECK WELDING JOINT LP OUTER CASING	2	2	2	2	0	2	0,04	0
185	NDT CHECK WELDING JOINT LP INNER CASING	2	2	2	2	0	2	0,04	0
186	NDT CHECK LP TURBINE BOLT & NUT (INNER)	24	24	24	24	0	24	0,48	0
187	NDT CHECK ROTOR LP TURBINE	24	24	24	24	0	24	0,48	0
188	NDT CHECK NOZZLE DIAPHRAGM LP TURBINE	24	24	24	24	0	24	0,48	0
189	NDT CHECK LABYRINTH LP TURBINE SEAL STRIP	2	2	2	2	0	2	0,04	0
190	NDT CHECK LP TURBINE GLAND LABYRINTH (GRV)	2	2	2	2	0	2	0,04	0
191	NDT WELDING JOIN SEAT & BODY VALVE MSV	2	2	2	2	0	2	0,04	0
192	NDT CHECK MSV BOLT AND NUT	8	8	8	8	0	8	0,16	0
193	NDT CHECK MSV BUSHING AND STEM	2	2	2	2	0	2	0,04	0
194	NDT CHECK MSV SEAT & DISC VALVE	2	2	2	2	0	2	0,04	0
195	NDT CHECK MSV STRAINER	2	2	2	2	0	2	0,04	0
196	NDT CHECK MSV BODY VALVE	2	2	2	2	0	2	0,04	0
197	NDT CHECK MSV BOLT & NUT	8	8	8	8	0	8	0,16	0
198	NDT CHECK MSV BUSHING & STEM	2	2	2	2	0	2	0,04	0
199	NDT CHECK MSV SEAT & DISC VALVE	2	2	2	2	0	2	0,04	0
200	NDT CHECK SPRING GV	2	2	2	2	0	2	0,04	0





Lampiran 6 Perhitungan Iterasi Distribusi Betapert

NO	Task Name	PLAN	MAX	OPT	MIN	STDEV	AVERAGE	ABSOLUTE ERROR	ITERASI
241	DATA EXTENSION BOLT	16	16	10	6	7,071067812	11	0,22	9297,520661
242	CHECK CLEARANCE SPLIT LINE (AFTER)	3	3	1	1	1,414213562	2	0,04	11250
243	LP TURBINE CASING (OUTTER)								
244	ASSEMBLY TURBINE CASING (OUTTER)	10	10	7	5	3,535533906	7,5	0,15	5000
245	CHECK CLEARANCE SPLIT LINE (AFTER)	2	2	1	1	0,707106781	1,5	0,03	5000
246	LP TURBINE ROTOR BLADE								
247	LIFT IN ROTOR LP TURBINE ROTOR BLADE	10	10	4	4	4,242640687	7	0,14	8265,306122
248	LP TURBINE NOZZLE DIAPHRAGM								
249	ASSEMBLY LOWER NOZZLE DIAPHRAGM LP	8	8	8	6	1,414213562	7	0,14	918,3673469
250	ASSEMBLY UPPER NOZZLE DIAPHRAGM LP	8	8	8	6	1,414213562	7	0,14	918,3673469
251	LP TURBINE GLAND LABYRINTH (GRV)								
252	ASSEMBLY UPPER LP TURBINE GLAND LABYRINTH (GRV)	2	2	2	2	0	2	0,04	0
253	CEK CLEARANCE	1	1	1	1	0	1	0,02	0
254	TURBINE MAIN STEAM VALVE NO.1 & NO.2								
255	MSV BODY VALVE								
256	ASSEMBLY	8	12	9	6	4,242640687	9	0,18	5000
257	PEMASANGAN HEAT INSULATION	8	12	9	6	4,242640687	9	0,18	5000
258	CEK CLEARANCE FLANGE AFTER DISASSEMBLY	1	1	1	1	0	1	0,02	0
259	TURBINE - GOVERNOR VALVE NO.1, 2, 3 & 4								
260	GV BODY VALVE								
261	ASSEMBLY	8	12	10	8	2,828427125	10	0,2	1800
262	DATA EXTENSION BOLT	10	12	10	6	4,242640687	9	0,18	5000
263	CEK CLEARANCE FLANGE AFTER ASSEMBLY	1	1	1	1	0	1	0,02	0
264	PEMBONGKARAN SCAFFOLDING	4	4	3	2	1,414213562	3	0,06	5000
265	MAIN STEAM LINE								
266	PEMASANGAN FLANGE MAIN STEAM LINE	2	3	3	2	0,707106781	2,5	0,05	1800
267	PEMASANGAN GASKET	1	1	1	1	0	1	0,02	0
268	DATA GAP FLANGE MAIN STEAM LINE (AFTER)	1	1	1	1	0	1	0,02	0
269	TURBIN - TURNING GEAR								
270	ASSEMBLY	8	12	9	6	4,242640687	9	0,18	5000
271	TURBIN-BEARING								
272	JOURNAL BEARING 1-4								
273	ASSEMBLY LOWER JOURNAL BEARING 1-4	2	2	2	2	0	2	0,04	0
274	ASSEMBLY UPPER JOURNAL BEARING 1-4	2	2	2	2	0	2	0,04	0
275	CEK CLEARANCE (AFTER)	2	4	3	2	1,414213562	3	0,06	5000
276	CONTACT CHECK (AFTER)	2	6	3	2	2,828427125	4	0,08	11250
277	ASSEMBLY COVER BEARING LP & HP TURBINE	3	6	4	2	2,828427125	4	0,08	11250
278	THRUST BEARING								
279	ASSEMBLY THRUST BEARING	2	4	3	2	1,414213562	3	0,06	5000
280	CEK CLEARANCE (AFTER)	2	2	2	2	0	2	0,04	0

Lampiran 6 Perhitungan Iterasi Distribusi Betapert

NO	Task Name	PLAN	MAX	OPT	MIN	STDEV	AVERAGE	ABSOLUTE ERROR	ITERASI
281	OIL DEFLECTOR 1-4								
282	ASSEMBLY LOWER OIL DEFLECTOR	2	2	2	2	0	2	0,04	0
283	ASSEMBLY UPPER OIL DEFLECTOR	2	2	2	2	0	2	0,04	0
284	MOP								
285	ASSEMBLY MOP	3,5	6	4	2,5	2,47487374	4,25	0,085	7629,757785
286	ALIGNMENT MOP	3	4	3	2	1,414213562	3	0,06	5000
287	HEAT INSULATION								
288	PEMASANGAN HEAT INSULATION BODY GV	6	10	6	3	4,949747468	6,5	0,13	13047,33728
289	PEMASANGAN HEAT INSULATION MAIN STEAM LINE	4	6	4	3	2,121320344	4,5	0,09	5000
290	PEMASANGAN HEAT INSULATION FRONT STANDART	6	10	6	3	4,949747468	6,5	0,13	13047,33728
291	PEMASANGAN HEAT INSULATION CROSS OVER PIPE	8	10	6	3	4,949747468	6,5	0,13	13047,33728
292	ENCLOSURE								
293	PASANG ENCLOSURE FRONT STANDART	6	8	4	2	4,242640687	5	0,1	16200
294	LUSTRIK								
295	GENERATOR								
296	BRUSH EXCITER								
297	BUKA COVER EXCITER (RUMAH EXCITER)	4	4	4	4	0	4	0,08	0
298	PENGUKURAN TAHANAN (ISOLASI MOUNTING PLATE)	1	1	1	1	0	1	0,02	0
299	PEMERIKSAAN/PENGGANTIAN CARBON BRUSH	2	2	2	2	0	2	0,04	0
300	PEMERIKSAAN TERMINASI	3	3	3	3	0	3	0,06	0
301	PEMERIKSAAN MOUNTING PLATE	4	4	4	4	0	4	0,08	0
302	PENGUKURAN TAHANAN (ISOLASI MOUNTING PLATE)	1	1	1	1	0	1	0,02	0
303	TUTUP COVER EXCITER	4	4	4	4	0	4	0,08	0
304	GENERATOR								
305	DISASSEMBLY								
306	PEMASANGAN SCAFFOLDING	2	8	4	2	4,242640687	5	0,1	16200
307	Membuka Tiik Brintang	6	6	6	6	0	6	0,12	0
308	Pengukuran Tahanan Isolasi Stator & Rotor	2	2	2	1	0,707106781	1,5	0,03	5000
309	Drying line stator cooling	6	12	9	6	4,242640687	9	0,18	5000
310	Pemeriksaan Shaft Grounding	2	2	2	2	0	2	0,04	0
311	Pelepasan cover kopling generator	4	4	4	4	0	4	0,08	0
312	PELEPASAN BRACKET UPPER SISI EXCITER	8	8	8	8	0	8	0,16	0
313	PELEPASAN BRACKET UPPER SISI TURBINE	8	8	8	8	0	8	0,16	0
314	PENGUKURAN & PELEPASAN UPPER OUTER OIL DEFLECTOR BEARING 5 DAN 6	4	4	4	4	0	4	0,08	0
315	PENGUKURAN (SESUAI REKOMENDASI) DAN PEMBONGKARAN STOPPER BEARING 5 & 6	2	3	3	2	0,707106781	2,5	0,05	1800
316	PENGUKURAN DAN PEMBONGKARAN BEARING UPPER 5 DAN 6	6	6	6	6	0	6	0,12	0
317	PENGUKURAN CLEARANCE BEARING UPPER 5 DAN 6	2	2	2	2	0	2	0,04	0
318	PENGUKURAN CLEARANCE DAN PEMBONGKARAN BEARING UPPER 7	4	4	4	4	0	4	0,08	0
319	PENGUKURAN DAN PEMBONGKARAN CLEARANCE BEARING LOWER 7	6	6	6	6	0	6	0,12	0
320	PENGUKURAN DAN PEMBONGKARAN H2 SEAL RING UPPER BEARING 5 DAN 6	4	4	4	4	0	4	0,08	0
321	PENGUKURAN DAN PEMBONGKARAN UPPER INNER OIL DEFLECTOR BEARING 5 & 6	4	4	4	4	0	4	0,08	0

Lampiran 6 Perhitungan Iterasi Distribusi Betapert

NO	Task Name	PLAN	MAX	OPT	MIN	STDEV	AVERAGE	ABSOLUTE ERROR	ITERASI
322	PENGUKURAN DAN PEMBONGKARAN LOWER OUTER OIL DEFLECTOR BEARING 5 & 6	4	4	4	4	0	4	0,08	0
323	PENGUKURAN CLEARANCE BEARING LOWER 5 & 6	2	2	2	2	0	2	0,04	0
324	PEMBONGKARAN BEARING LOWER 5 & 6	6	6	6	6	0	6	0,12	0
325	PENGUKURAN DAN PEMBONGKARAN H2 SEAL RING LOWER BEARING 5 & 6	6	6	6	6	0	6	0,12	0
326	PENGUKURAN DAN PEMBONGKARAN LOWER INNER OIL DEFLECTOR BEARING 5 & 6	4	4	4	4	0	4	0,08	0
327	PELEPASAN SHAFT SUPPORT BEARING 7	4	4	4	4	0	4	0,08	0
328	PELEPASAN PONDASI EXCITER	4	4	4	4	0	4	0,08	0
329	PEMBONGKARAN DEFUSER END WINDING 2 SISI	6	6	6	6	0	6	0,12	0
330	PEMBONGKARAN BRACKET LOWER SISI EXCITER	6	6	6	6	0	6	0,12	0
331	PEMBONGKARAN BRACKET LOWER SISI TURBINE	6	6	6	6	0	6	0,12	0
332	PERSIAPAN PEMASANGAN SPESIAL TOOLS PULL OUT	8	8	8	8	0	8	0,16	0
333	PULL OUT ROTOR GENERATOR	8	8	8	8	1,414213562	7	0,14	918,3673469
334	<b>INSPEKSI</b>								
335	PEMERIKSAAN END WINDING	4	4	4	4	0	4	0,08	0
336	CLEANING DAN RED INSULATION WINDING STATOR	20	20	8	8	8,485281374	14	0,28	8265,306122
337	CLEANING DAN RED INSULATION ROTOR	20	20	8	8	8,485281374	14	0,28	8265,306122
338	PEMERIKSAAN FAN BLADE	2	2	2	2	0	2	0,04	0
339	PEMERIKSAAN STATOR, WEDGS [VISUAL & ASSESMENT]	20	20	20	12	5,656854249	16	0,32	2812,5
340	PEMERIKSAAN DAN PENGUKURAN UT/PT BEARING 5,6,7,H2 SEAL RING DAN DEFLECTOR	20	20	20	20	0	20	0,4	0
341	PEMERIKSAAN ROTOR [VISUAL & ASSESMENT]	12	12	12	12	0	12	0,24	0
342	PEMERIKSAAN DAN CLEANING BAUT	12	16	13	12	2,828427125	14	0,28	918,3673469
343	PEMASANGAN DEFUSER END WINDING 2 SISI	8	8	8	8	0	8	0,16	0
344	PEMERIKSAAN VISUAL & CLEANING FLEXIBLE, ISOLATOR OUTGOING	8	8	8	8	0	8	0,16	0
345	<b>ASSEMBLY</b>								
346	PERSIAPAN PEMASANGAN SPESIAL TOOLS PULL IN	6	6	6	6	0	6	0,12	0
347	PULL IN ROTOR GENERATOR	8	8	8	8	0	8	0,16	0
348	PEMASANGAN BRACKET LOWER SISI EXCITER	6	6	6	6	0	6	0,12	0
349	PEMASANGAN BRACKET LOWER SISI TURBINE	6	6	6	6	0	6	0,12	0
350	PEMASANGAN & PEMERIKSAAN LOWER INNER OIL DEFLECTOR BEARING 5 & 6	6	6	6	6	0	6	0,12	0
351	PEMASANGAN & PEMERIKSAAN H2 SEAL RING LOWER BEARING 5 & 6	8	8	8	8	0	8	0,16	0
352	PEMASANGAN & PEMERIKSAAN BEARING LOWER 5 & 6	8	8	8	8	1,414213562	7	0,14	918,3673469
353	PENGUKURAN CLEARANCE BEARING LOWER 5 & 6 AFTER	2	2	2	2	0	2	0,04	0
354	PEMASANGAN & PEMERIKSAAN UPPER INNER OIL DEFLECTOR BEARING 5 & 6	4	6	5	4	1,414213562	5	0,1	1800
355	PEMASANGAN & PEMERIKSAAN H2 SEAL RING UPPER BEARING 5 & 6	4	6	5	4	1,414213562	5	0,1	1800
356	PEMASANGAN & PEMERIKSAAN BEARING UPPER 5 & 6	6	8	8	6	1,414213562	7	0,14	918,3673469
357	PEMERIKSAAN VISUAL & CLEARANCE BEARING UPPER 5 DAN 6	4	4	4	4	0	4	0,08	0
358	PEMERIKSAAN & PEMASANGAN UPPER OUTER OIL DEFLECTOR BEARING 5 DAN 6	4	4	4	4	0	4	0,08	0
359	PEMASANGAN BRACKET UPPER SISI EXCITER	4	6	5	4	1,414213562	5	0,1	1800
360	PEMASANGAN BRACKET UPPER SISI TURBINE	4	6	5	4	1,414213562	5	0,1	1800
361	PEMASANGAN PONDASI EXCITER	4	6	5	4	1,414213562	5	0,1	1800
362	PEMASANGAN SHAFT SUPPORT BEARING 7	4	6	5	4	1,414213562	5	0,1	1800
363	PEMASANGAN & PEMERIKSAAN BEARING LOWER 7	6	6	6	6	0	6	0,12	0

Lampiran 6 Perhitungan Iterasi Distribusi Betapert

NO	Task Name	PLAN	MAX	OPT	MIN	STDEV	AVERAGE	ABSOLUTE ERROR	ITERASI
364	PEMASANGAN & PEMERIKSAAN BEARING UPPER 7	6	6	6	6	0	6	0.12	0
365	BEARING OIL FLUSHING	4	4	4	4	0	4	0.08	0
366	FINAL CHECK	8	24	12	8	11,3137085	16	0.32	11250
367	TAGGING RELEASED	2	4	3	2	1,414213562	3	0.06	5000
368	<b>NGR</b>								
369	PEMBERSIHAN DAN PENGUKURAN TRAF0	8	8	8	8	0	8	0.16	0
370	PEMBERSIHAN DAN PENGUKURAN RESISTOR	4	8	5	4	2,828427125	6	0.12	5000
371	PEMERIKSAAN TERMINASI	4	8	5	3	3,535533906	5,5	0.11	9297,520661
372	<b>STATOR COOLER</b>								
373	PEMERIKSAAN & VISUAL CHECK LINE STATOR COOLER	6	6	6	4	1,414213562	5	0.1	1800
374	PEMERIKSAAN DAN PEMBERSIHAN TUBE STATOR COOLER	6	12	8	6	4,242640687	9	0.18	5000
375	FLOW TEST	8	8	8	8	0	8	0.16	0
376	<b>13.8 KV IP8 BUS DUCT</b>								
377	BUKA MANHOLE; PEMBERSIHAN DAN PEMERIKSAAN BUS BAR	16	16	16	16	0	16	0.32	0
378	PEMERIKSAAN KONDISI TEKANAN UDARA	4	4	4	4	0	4	0.08	0
379	PEMERIKSAAN GROUNDING	2	4	3	2	1,414213562	3	0.06	5000
380	PEMERIKSAAN COMPRESSOR	6	6	6	4	1,414213562	5	0.1	1800
381	TUTUP MANHOLE	2	4	3	2	1,414213562	3	0.06	5000
382	<b>FASE START UP &amp; COMMISSIONING</b>								
383	FLUSHING	8							
384	INTERLOCK TEST (TURBINE-GENERATOR)	4							
385	BOILER FIRING	8							
386	DEGASING	8							
387	TURNING GEAR START	4							
388	TURBINE START	4							
389	FUNCTION TEST AC DC LUBE OIL	4							
390	FIRST SYNCRONE (30% DARI KAPASITAS LOAD)	8							
391	PENURUMAN BEBAN (LEPAS JARING - JARING)	8							
392	TRIP DEVICE TURBINE	8							
393	ROLLING	8							
394	SYNCHRONE	0							



Lampiran 7 Hasil penyusunan work breakdown structure (WBS) dengan Microsoft Excel Crystal Ball

NO	Task Name	Predecessors	Successors	SIMULATION	START	TASK HOUR	FINISH
1	MAJOR OVERHAUL TURBINE GENERATOR						
2	SHUTDOWN		3			8	8
3	TURBINE COOLING DOWN		9,297		8	40	48
4	MEKANIK	2					
5	TURBIN UTAMA						
6	PEKERJAAN PEMBONGKARAN & INSPEKSI						
7	TURBIN UTAMA						
8	ENCLOSURE						
9	MEMBUKA ENCLOSURE FRONT STANDARD DAN HP TURBINE	3	11,49		48		48
10	HEAT INSULATION						
11	DISASSEMBLY GIPS & HEAT INSULATION HP OUTER CASING	9	50\$S,12		48	8	56
12	PEMERIKSAAN DAN PERBAIKAN HEAT INSULATION CROSS OVER PIPE	11	15,13		56		56
13	PEMBONGKARAN HEAT INSULATION GV	12	126		56	4	60
14	CROSS OVER PIPE						
15	DISASSEMBLY CROSS OVER PIPE	12	17,29,151		56		56
16	TURBIN - TURNING GEAR						
17	DISASSEMBLY TURNING GEAR	15	18,23		56		56
18	PEMERIKSAAN GEAR	17	19		56	2	58
19	PEMERIKSAAN COUPLING	18	20		58		58
20	PENGGANTIAN O RING	19	21		58		58
21	PEMERIKSAAN BEARING GEAR BOX TURNING GEAR	20	173		58	8	66
22	COUPLING ROTOR TURBINE						
23	BUKA COVER COUPLING HP - LP	17	25,72,24		56	2	58
24	DISCOUPLE COUPLING ROTOR HP - LP	89,23	26		70	3	73
25	BUKA COVER COUPLING LP-GENERATOR	23	26		58	2	60
26	DISCOUPLE COUPLING ROTOR LP-GENERATOR	24,25	30		73	3	76
27	TURBIN-BEARING						
28	JOURNAL BEARING 1-4						
29	DISASSEMBLY COVER BEARING JURNAL	15	33		56	8	64
30	DISASSEMBLY UPPER JOURNAL BEARING 2-4	26	41,33\$S,38\$S		76	4	80
31	DISASSEMBLY UPPER JOURNAL BEARING 1	41	45,35\$S		80	1	81
32	DISASSEMBLY LOWER JOURNAL BEARING 1-4	90	174		92		92
33	CEK CLEARANCE	30\$S,29	39\$S		76		76
34	THRUST BEARING						
35	CEK CLEARANCE	31\$S	36		80	1	81
36	DISASSEMBLY THRUST BEARING	35	175		81		81
37	OIL DEFLECTOR 1-4						
38	DISASSEMBLY UPPER OIL DEFLECTOR	30\$S	176		76	3	79
39	CEK CLEARANCE	33\$S	176		76		76
40	FRONT STANDARD						



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NO	Task Name	Predecessors	Successors	SIMULATION	START	TASK HOUR	FINISH
41	BUKA CASING FRONT PEDESTAL	30	42,31		80		80
42	DATA GAP EMERGENCY TRIP DEVICE	41	43		80		80
43	CEK SPRING OVER SPEED DEVICE	42	142SS		80		80
44	PENGAMBILAN DATA AXIAL & RADIAL CLEARANCE						
45	ROTOR POSITION TURBINE	31	46		81	3	84
46	CEK CLEARANCE AXIAL DAN RADIAL BLADE ROTOR STATOR	45	85		84	8	92
47	HP TURBINE						
48	HP TURBINE OUTER CASING						
49	DISASSEMBLY UPPER CASING TURBIN	9	50		48		48
50	PERBAIKAN GIPS & HEAT INSULATION	11SS,49	52		48		48
51	HP TURBINE INNER CASING						
52	DISASSEMBLY INNER CASING TURBIN	50	66,68		48	16	64
53	HP TURBINE ROTOR BLADE						
54	LIFT UP ROTOR BLADE	85	59,55,102,126		92		92
55	RUN OUT ROTOR	54	56		92	1	93
56	CEK BALANCE WEIGHT	55	57		93	1	94
57	CEK SHROUDS & TENNON	56	144		94	2	96
58	HP TURBINE NOZZLE DIAPHRAGM						
59	DISASSEMBLY LOWER NOZZLE DIAPRAGM	54	90,60		92		92
60	POLISHING SLIDING FACE (GREASING)	59	62		92	2	94
61	HP TURBINE LABYRINTH PACKING						
62	CEK SPRING	60	64		94		94
63	HP TURBINE SEAL STRIP						
64	CEK SPRING	62	69		94	1	95
65	HP TURBINE BOLT & NUT						
66	PERBAIKAN THREAD BOLT						
67	HP TURBINE GLAND LABYRINTH (GRV)	52	144		64	8	72
68	DISASSEMBLY UPPER HP TURBINE GLAND LABYRINTH (GRV)	52	89,108		64	3	67
69	CEK SPRING	64	144		95		95
70	LP TURBINE						
71	LP TURBINE CASING (OUTTER)						
72	CHECK CLEARANCE SPLIT LINE/BIDANG CONTACT	23	73		58	1	59
73	DISASSEMBLY TURBINE CASING (OUTTER)	72	74,77		59		59
74	REAMER HOLE BOLT CASING	73	75		59		59
75	CEK EXPANTION JOINT TO CONDENSOR	74	152		59		59
76	LP TURBINE CASING (INNER)						
77	CHECK CLEARANCE SPLIT LINE	73	78		59	1	60
78	UNBOLTING DAN LIFTING LP TURBINE CASING (INNER)	77	79,124		60		60
79	PERBAIKAN THREAD BOLT LP TURBINE CASING (INNER)	78	81		60		60
80	LP TURBINE BOLT & NUT (OUTER)						

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NO	Task Name	Predecessors	Successors	SIMULATION	START	TASK HOUR	FINISH
81	PERBAIKAN BOLT THREAD LP TURBINE BOLT & NUT (OUTER)	79	83	0	60		60
82	LP TURBINE BOLT & NUT (INNER)			0			
83	PERBAIKAN THREAD BOLT LP TURBINE BOLT & NUT (INNER)	81	152	0	60		60
84	LP TURBINE ROTOR BLADE			0			
85	LIFT UP ROTOR	46	54,86	0	92		92
86	CEK BALANCE WEIGHT	85	87	0	92		92
87	CEK SHROUDS & TENNON	86	92	0	92		92
88	LP TURBINE NOZZLE DIAPHRAGM			0			
89	DISASSEMBLY UPPER NOZZLE DIAPHRAGM	68	24	0	67	3	70
90	DISASSEMBLY LOWER NOZZLE DIAPHRAGM	59	32	0	92		92
91	LP TURBINE LABYRINTH PACKING			0			
92	CEK SPRING	87	94	0	92		92
93	LP TURBINE SEAL STRIP			0			
94	INSPEKSI VISUAL	92	96	0	92		92
95	LP TURBINE GLAND LABYRINTH (GRV)			0			
96	INSPEKSI VISUAL	94	97	0	92		92
97	CEK SPRING	96	99	0	92		92
98	LP TURBINE RELIEF DIAPHRAGM			0			
99	CEK RELIEF DIAPHRAGM	97	100	0	92	3	95
100	PENGGANTIAN GASKET	99	152	0	95		95
101	MOP			0			
102	DISASSEMBLY MOP	54	103	0	92		92
103	PEMERIKSAAN BEARING	102	104	0	92	12	104
104	PENGGANTIAN GASKET, O RING	103	105	0	104	1	105
105	PEMERIKSAAN IMPELER	104	143	0	105	1	106
106	TURBINE MAIN STEAM VALVE			0			
107	MSV			0			
108	CEK CLEARANCE FLANGE BEFORE DISASSEMBLY	68	109	0	67		67
109	PEMBONGKARAN HEAT INSULATION	108	110	0	67	3	70
110	DISASSEMBLY	109	111	0	70		70
111	PENGGANTIAN GASKET	110	112	0	70		70
112	DATA GAP FLANGE	111	114	0	70	1	71
113	MSV BOLT AND NUT			0			
114	PERBAIKAN THREAD BOLT	112	116	0	71		71
115	MSV BUSHING AND STEM			0			
116	POLISHING SLIDING FACE	114	118	0	71		71
117	MSV SEAT & DISC VALVE			0			
118	LAPPING	116	119	0	71		71
119	CONTACT CHECK	118	121	0	71		71
120	MSV STRAINER			0			

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NO	Task Name	Predecessors	Successors	SIMULATION	START	TASK HOUR	FINISH
121	INSPEKSI VISUAL	119	161	0	71		71
122	TURBINE - GOVERNOR VALVE						
123	GV BODY VALVE						
124	PEMASANGAN SCAFFOLDING	78	125	0	60	1	60
125	CEK CLEARANCE FLANGE BEFORE DISASSEMBLY & DISASSEMBLY FLANGE BOLT	124	127	0	60		61
126	DISASSEMBLY	54;13	127	0	92		92
127	DATA GAP FLANGE	126;125	129	0	92		92
128	GV BOLT & NUT						
129	PERBAIKAN THREAD BOLT	127	131	0	92		92
130	GV BUSHING & STEM						
131	POLISHING SLIDING FACE	129	133	0	92		92
132	GV SEAT & DISC VALVE						
133	LAPPING	131	134	0	92		92
134	CONTACT CHECK	133	136	0	92		92
135	GV SPRING						
136	PENGUKURAN SPRING	134	138	0	92		92
137	CYLINDER HYDRAULIC						
138	PEMBERSIHAN	136	139	0	92		92
139	CEK PISTON CYLINDER & SPRING	138	140	0	92		92
140	PENGANTIAN O RING, GASKET & ASSEMBLY	139	166	0	92	8	100
141	PEKERJAAN CLEANING PART						
142	PEMBERSIHAN FRONT STANDARD	4355	208	0	80	3	83
143	PEMBERSIHAN MOP	105	285	0	106	3	109
144	PEMBERSIHAN HP TURBINE CASING OUTER & INNER	69;57;66	145	0	96	16	112
145	PEMBERSIHAN ROTOR BLADE HIP	144	14655	0	112		112
146	PEMBERSIHAN NOZZLE DIAPHRAGM HIP	14555	14755	0	112		112
147	PEMBERSIHAN HP TURBINE LABYRINTH PACKING	14655	14855	0	112	4	116
148	PEMBERSIHAN HP TURBINE SEAL STRIP	14755	14955	0	112	3	115
149	PEMBERSIHAN HP TURBINE BOLT & NUT	14855	150	0	112	20	132
150	PEMBERSIHAN HP TURBINE GLAND LABYRINTH (GRV)	149	178	0	132	6	138
151	PEMBERSIHAN CROSS OVER PIPE	15	235	0	56	3	59
152	PEMBERSIHAN LP TURBINE CASING (OUTTER)	75;83;100	15355	0	95		95
153	PEMBERSIHAN LP TURBINE CASING (INNER)	15255	154	0	95		95
154	PEMBERSIHAN LP TURBINE BOLT & NUT (OUTER)	153	15555	0	95	24	119
155	PEMBERSIHAN LP TURBINE BOLT & NUT (INNER)	15455	156	0	95	24	119
156	PEMBERSIHAN LP TURBINE ROTOR BLADE	155	15755	0	119	48	167
157	PEMBERSIHAN NOZZLE DIAPHRAGM LP TURBINE	15655	15855	0	119	48	167
158	PEMBERSIHAN LP TURBINE LABYRINTH PACKING	15755	15955	0	119	3	122
159	PEMBERSIHAN LP TURBINE SEAL STRIP	15855	160	0	119	3	122
160	PEMBERSIHAN LP TURBINE GLAND LABYRINTH (GRV)	159	184	0	122	3	125

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NO	Task Name	Predecessors	Successors	SIMULATION	START	TASK HOUR	FINISH
161	PEMBERSIHAN MSV BODY VALVE	121	162		71	2	73
162	PEMBERSIHAN MSV BOLT AND NUT	161	163		73	24	97
163	PEMBERSIHAN MSV BUSHING AND STEM	162	164		97	2	99
164	PEMBERSIHAN MSV SEAT & DISC VALVE	163	165		99	2	101
165	PEMBERSIHAN MSV STRAINER	164	171		101	2	103
166	PEMBERSIHAN GV BODY VALVE	140	167		100	2	102
167	PEMBERSIHAN GV BOLT & NUT	166	168		102	12	114
168	PEMBERSIHAN GV BUSHING & STEM	167	169		114	2	116
169	PEMBERSIHAN GV SEAT & DISC VALVE	168	170		116	2	118
170	PEMBERSIHAN GV SPRING	169	172		118	2	120
171	PEMBERSIHAN CYLINDER HYDRAULIC MSV	165	191		103	4	107
172	PEMBERSIHAN CYLINDER HYDRAULIC GV	170	196		120	4	124
173	PEMBERSIHAN BEARING GEAR BOX TURNING GEAR	21	201		66	4	70
174	CLEANING JOURNAL BEARING 1-4	32	202		92	12	104
175	CLEANING PAD THRUST BEARING	36	203		81		81
176	CLEANING OIL DEFLECTOR 1-4	38,39	204		79	2	81
177	<b>PEKERJAAN NDT PART</b>						
178	NDT CHECK WELDING JOINT HP TURBINE CASING	150	179		138	2	140
179	NDT CHECK ROTOR HP TURBINE ROTOR BLADE	178	180SS		140	16	156
180	NDT CHECK HP TURBINE NOZZLE DIAPHRAGM	179SS	181SS		140	16	156
181	NDT CHECK LABYRINTH HP TURBINE	180SS	182SS		140	16	156
182	NDT CHECK HP TURBINE BOLT & NUT	181SS	183		140		140
183	NDT CHECK HP TURBINE GLAND LABYRINTH (GRV)	182	229		140	16	156
184	NDT CHECK WELDING JOINT LP OUTER CASING	160	185SS		125	2	127
185	NDT CHECK WELDING JOINT LP INNER CASING	184SS	186SS		125	2	137
186	NDT CHECK LP TURBINE BOLT & NUT (INNER)	185SS	187SS		125	24	149
187	NDT CHECK ROTOR LP TURBINE	186SS	188SS		125	24	149
188	NDT CHECK NOZZLE DIAPHRAGM LP TURBINE	187SS	189SS		125	24	149
189	NDT CHECK LABYRINTH LP TURBINE SEAL STRIP	188SS	190		125	2	127
190	NDT CHECK LP TURBINE GLAND LABYRINTH (GRV)	189	249		127	2	129
191	NDT WELDING JOIN SEAT & BODY VALVE MSV	171	192		107	2	109
192	NDT CHECK MSV BOLT AND NUT	191	193		109	8	117
193	NDT CHECK MSV BUSHING AND STEM	192	194		117	2	119
194	NDT CHECK MSV SEAT & DISC VALVE	193	195		119	2	121
195	NDT CHECK MSV STRAINER	194	256		121	2	123
196	NDT CHECK GV BODY VALVE	172	197		124	2	126
197	NDT CHECK GV BOLT & NUT	196	198		126	8	134
198	NDT CHECK GV BUSHING & STEM	197	199		134	2	136
199	NDT CHECK GV SEAT & DISC VALVE	198	200		136	2	138
200	NDT CHECK SPRING GV	199	261		138	2	140



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NO	Task Name	Predecessors	Successors	SIMULATION	START	TASK HOUR	FINISH
201	NDT CHECK TURBIN - TURNING GEAR	173	270		70	2	72
202	NDT CHECK JOURNAL BEARING 1-4	174	273,274		104	6	110
203	NDT CHECK THRUST BEARING	175	279		81	2	83
204	NDT CHECK OIL DEFLECTOR 1-4	176	282		81	2	83
205	PEKERJAAN PEMASANGAN DAN FINAL CHECK TURBIN UTAMA						
206	FRONT STANDARD						
207	PASANG CASING FRONT PEDESTAL	286,142	225,290	0	168		168
208	PENGAMBILAN DATA AXIAL & RADIAL CLEARANCE (AFTER)						
209	CEK CLEARANCE AXIAL DAN RADIAL BLADE ROTOR STATOR (AFTER)	280	211	0	168		168
210	ALIGNMENT ROTOR LP-HP DAN LP-GENERATOR	210	286	0	168		168
211	COUPLING ROTOR TURBINE						
212	COUPLE COUPLING ROTOR LP-GENERATOR	274	215	0	164		164
213	TUTUP COVER COUPLING LP-GENERATOR	277	216	0	168	2	170
214	COUPLE COUPLING ROTOR HP - LP	213	219	0	164		164
215	TUTUP COVER COUPLING HP - LP	214	270	0	170	2	172
216	HP TURBINE						
217	ASSEMBLY UPPER INNER CASING TURBIN	215	220,250	0	164		164
218	DATA EXTENSION BOLT	219	221	0	164		164
219	CHECK CLEARANCE SPLIT LINE (AFTER)	220	240	0	164	1	165
220	HP TURBINE OUTER CASING						
221	ASSEMBLY UPPER OUTER CASING TURBIN	208	224	0	168		168
222	DATA EXTENSION BOLT	223	225	0	168		168
223	CHECK CLEARANCE SPLIT LINE (AFTER)	224	266	0	168	1	169
224	HP TURBINE ROTOR BLADE						
225	LIFT IN ROTOR BLADE HP TURBINE ROTOR BLADE	285	247	0	166		166
226	HP TURBINE NOZZLE DIAPHRAGM						
227	ASSEMBLY LOWER NOZZLE DIAPHRAGM HIP	183	249	0	156	6	162
228	HP TURBINE GLAND LABYRINTH (GRV)						
229	ASSEMBLY UPPER HP TURBINE GLAND LABYRINTH (GRV)	242,250	232	0	165		165
230	CEK CLEARANCE	231	252	0	165		165
231	CROSS OVER PIPE						
232	PEMASANGAN SCAFFOLDING	270	235	0	172		172
233	ASSEMBLY CROSS OVER PIPE	234,151	236	0	172		172
234	PENGGANTIAN GASKET	235	237,291	0	172		172
235	PEMBONGKARAN SCAFFOLDING	236,291	283	0	172		172
236	LP TURBINE						
237	BOLTING DAN LIFT IN LP TURBINE CASING (INNER)	221	241	0	165		165



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NO	Task Name	Predecessors	Successors	SIMULATION	START	TASK HOUR	FINISH
241	DATA EXTENSION BOLT	240	242		165		165
242	CHECK CLEARANCE SP LIT LINE (AFTER)	241	231		165		165
243	LP TURBINE CASING (OUTTER)						
244	ASSEMBLY TURBINE CASING (OUTTER)	253	245		168		168
245	CHECK CLEARANCE SP LIT LINE (AFTER)	244	277		168		168
246	LP TURBINE ROTOR BLADE						
247	LIFT IN ROTOR LP TURBINE ROTOR BLADE	227	279		166		166
248	LP TURBINE NOZZLE DIAPHRAGM						
249	ASSEMBLY LOWER NOZZLE DIAPHRAGM LP	229;190	273		162		162
250	ASSEMBLY UPPER NOZZLE DIAPHRAGM LP	219	231		164		164
251	LP TURBINE GLAND LABYRINTH (GRV)						
252	ASSEMBLY UPPER LP TURBINE GLAND LABYRINTH (GRV)	232	253		165	2	167
253	CEK CLEARANCE	252	244		167	1	168
254	TURBINE MAIN STEAM VALVE NO.1 & NO.2						
255	MSV BODY VALVE						
256	ASSEMBLY	195	257		123		123
257	PEMASANGAN HEAT INSULATION	256	258		123		123
258	CEK CLEARANCE FLANGE AFTER DISASSEMBLY	257	288		123	1	124
259	TURBINE - GOVERNOR VALVE NO.1, 2, 3 & 4						
260	GV BODY VALVE						
261	ASSEMBLY	200	262		140		140
262	DATA EXTENSION BOLT	261	263		140		140
263	CEK CLEARANCE FLANGE AFTER ASSEMBLY	262	264		140	1	141
264	PEMBONGKARAN SCAFFOLDING	263	288		141		141
265	MAIN STEAM LINE						
266	PEMASANGAN FLANGE MAIN STEAM LINE	225	267		169		169
267	PEMASANGAN GASKET	266	268		169	1	170
268	DATA GAP FLANGE MAIN STEAM LINE (AFTER)	267	289		170	1	171
269	TURBIN - TURNING GEAR						
270	ASSEMBLY	216;201	234		172		172
271	TURBIN-BEARING						
272	JOURNAL BEARING 1-4						
273	ASSEMBLY LOWER JOURNAL BEARING 1-4	249;202	276;282;27455		162	2	164
274	ASSEMBLY UPPER JOURNAL BEARING 1-4	202;27355	283;275;213		162	2	164
275	CEK CLEARANCE (AFTER)	274	277		164		164
276	CONTACT CHECK (AFTER)	273	277		164		164
277	ASSEMBLY COVER BEARING LP & HP TURBINE	245;275;276	214		168		168
278	THRUST BEARING						
279	ASSEMBLY THRUST BEARING	247;203	280		166		166
280	CEK CLEARANCE (AFTER)	279	210		166	2	168

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NO	Task Name	Predecessors	Successors	SIMULATION	START	TASK HOUR	FINISH
281	<b>OIL DEFLECTOR 1-4</b>						
282	ASSEMBLY LOWER OIL DEFLECTOR	273,204	285		164	2	166
283	ASSEMBLY UPPER OIL DEFLECTOR	274	285		164	2	166
284	<b>MOP</b>						
285	ASSEMBLY MOP	282,283;143	227,286		166		166
286	ALIGNMENT MOP	285,211	208		168		168
287	<b>HEAT INSULATION</b>						
288	PEMASANGAN HEAT INSULATION BODY GV	264,258	293		141		141
289	PEMASANGAN HEAT INSULATION MAIN STEAM LINE	268	293		171		171
290	PEMASANGAN HEAT INSULATION FRONT STANDART	208	293		168		168
291	PEMASANGAN HEAT INSULATION CROSS OVER PIPE	236	237		172		172
292	<b>ENCLOSURE</b>						
293	PASANG ENCLOSURE FRONT STANDART	237,290;289;288	383		172		172
294	<b>LISTRIK</b>						
295	<b>GENERATOR</b>						
296	<b>BRUSH EXCITER</b>						
297	BUKA COVER EXCITER (RUMAH EXCITER)	3	298,306		48	4	52
298	PENGUKURAN TAHANAN ISOLASI MOUNTING PLATE	297	299		52	1	53
299	PEMERIKSAAN/PENGANTIAN CARBON BRUSH	298	300		53	2	55
300	PEMERIKSAAN TERMINASI	299	301		55	3	58
301	PEMERIKSAAN MOUNTING PLATE	300	302		58	4	62
302	PENGUKURAN TAHANAN ISOLASI MOUNTING PLATE	301	303		62	1	63
303	TUTUP COVER EXCITER	302	383;369		63	4	67
304	<b>GENERATOR</b>						
305	<b>DISASSEMBLY</b>						
306	PEMASANGAN SCAFFOLDING	297	307		52		52
307	Membuka Titik Bintang	306	308		52	6	58
308	Pengukuran Tahanan Isolasi Stator & Rotor	307	309		58		58
309	Drying line stator cooling	308	310		58		58
310	Pemeriksaan Shaft Grounding	309	311		58	2	60
311	Pelepasan cover kopling generator	310	312		60	4	64
312	PELEPASAN BRACKET UPPER SISI EXCITER	311	313		64	8	72
313	PELEPASAN BRACKET UPPER SISI TURBINE	312	314		72	8	80
314	PENGUKURAN & PELEPASAN UPPER OUTER OIL DEFLECTOR BEARING 5 DAN 6	313	315		80	4	84
315	PENGUKURAN (SESUAI REKOMENDASI) DAN PEMBONGKARAN STOPPER BEARING 5 & 6	314	316		84		84
316	PENGUKURAN DAN PEMBONGKARAN BEARING UPPER 5 DAN 6	315	317		84	6	90
317	PENGUKURAN CLEARANCE BEARING UPPER 5 DAN 6	316	318		90	2	92
318	PENGUKURAN CLEARANCE DAN PEMBONGKARAN BEARING UPPER 7	317	319		92	4	96
319	PENGUKURAN DAN PEMBONGKARAN CLEARANCE BEARING LOWER 7	318	320		96	6	102
320	PENGUKURAN DAN PEMBONGKARAN H2 SEAL RING UPPER BEARING 5 DAN 6	319	321		102	4	106
321	PENGUKURAN DAN PEMBONGKARAN UPPER INNER OIL DEFLECTOR BEARING 5 & 6	320	322		106	4	110

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NO	Task Name	Predecessors	Successors	SIMULATION	START	TASK HOUR	FINISH
322	PENGUKURAN DAN PEMBONGKARAN LOWER OUTER OIL DEFLECTOR BEARING 5 & 6	321	323		110	4	114
323	PENGUKURAN CLEARANCE BEARING LOWER 5 & 6	322	324		114	2	116
324	PEMBONGKARAN BEARING LOWER 5 & 6	323	325		116	6	122
325	PENGUKURAN DAN PEMBONGKARAN H2 SEAL RING LOWER BEARING 5 & 6	324	326		122	6	128
326	PENGUKURAN DAN PEMBONGKARAN LOWER INNER OIL DEFLECTOR BEARING 5 & 6	325	327		128	4	132
327	PELEPASAN SHAFT SUPPORT BEARING 7	326	328		132	4	136
328	PELEPASAN PONDASI EXCITER	327	329		136	4	140
329	PEMBONGKARAN DEFUSER END WINDING 2 SISI	328	330		140	6	146
330	PEMBONGKARAN BRACKET LOWER SISI EXCITER	329	331		146	6	152
331	PEMBONGKARAN BRACKET LOWER SISI TURBINE	330	332		152	6	158
332	PERSIAPAN PEMASANGAN SPESIAL TOOLS PULL OUT	331	333		158	8	166
333	PULL OUT ROTOR GENERATOR	332	335		166		166
334	<b>INSPEKSI</b>						
335	PEMERIKSAAN END WINDING	333	336		166	4	170
336	CLEANING DAN RED INSULATION WINDING STATOR	335	337		170		170
337	CLEANING DAN RED INSULATION ROTOR	336	338		170		170
338	PEMERIKSAAN FAN BLADE	337	339		170	2	172
339	PEMERIKSAAN STATOR, WEDGS [VISUAL & ASSESMENT]	338	340		172		172
340	PEMERIKSAAN DAN PENGUKURAN UJ/PT BEARING 5,6,7,H2 SEAL RING DAN DEFLECTOR	339	341		172	20	192
341	PEMERIKSAAN ROTOR [VISUAL & ASSESMENT]	340	342		192	12	204
342	PEMERIKSAAN DAN CLEANING BAUT	341	343		204		204
343	PEMASANGAN DEFUSER END WINDING 2 SISI	342	344		204	8	212
344	PEMERIKSAAN VISUAL & CLEANING FLEXIBLE, ISOLATOR OUTGOING	343	346		212	8	220
345	<b>ASSEMBLY</b>						
346	PERSIAPAN PEMASANGAN SPESIAL TOOLS PULL IN	344	347		220	6	226
347	PULL IN ROTOR GENERATOR	346	348		226	8	234
348	PEMASANGAN BRACKET LOWER SISI EXCITER	347	349		234	6	240
349	PEMASANGAN BRACKET LOWER SISI TURBINE	348	350		240	6	246
350	PEMASANGAN & PEMERIKSAAN LOWER INNER OIL DEFLECTOR BEARING 5 & 6	349	351		246	6	252
351	PEMASANGAN & PEMERIKSAAN H2 SEAL RING LOWER BEARING 5 & 6	350	352		252	8	260
352	PEMASANGAN & PEMERIKSAAN BEARING LOWER 5 & 6	351	353		260		260
353	PENGUKURAN CLEARANCE BEARING LOWER 5 & 6 AFTER	352	354		260	2	262
354	PEMASANGAN & PEMERIKSAAN UPPER INNER OIL DEFLECTOR BEARING 5 & 6	353	355		262		262
355	PEMASANGAN & PEMERIKSAAN H2 SEAL RING UPPER BEARING 5 & 6	354	356		262		262
356	PEMASANGAN & PEMERIKSAAN BEARING UPPER 5 & 6	355	357		262		262
357	PEMERIKSAAN VISUAL & CLEARANCE BEARING UPPER 5 DAN 6	356	358		262	4	266
358	PEMERIKSAAN & PEMASANGAN UPPER OUTER OIL DEFLECTOR BEARING 5 DAN 6	357	359		266	4	270
359	PEMASANGAN BRACKET UPPER SISI EXCITER	358	360		270		270
360	PEMASANGAN BRACKET UPPER SISI TURBINE	359	361		270		270
361	PEMASANGAN PONDASI EXCITER	360	362		270		270
362	PEMASANGAN SHAFT SUPPORT BEARING 7	361	363		270		270
363	PEMASANGAN & PEMERIKSAAN BEARING LOWER 7	362	364		270	6	276

Lampiran 7 Hasil penyusunan work breakdown structure (WBS) dengan Microsoft Excel Crystal Ball

NO	Task Name	Predecessors	Successors	SIMULATION	START	TASK HOUR	FINISH
364	PEMASANGAN & PEMERIKSAAN BEARING UPPER 7	363	365,369		276	6	282
365	BEARING OIL FLUSHING	364	366		282	4	286
366	FINAL CHECK	365	367		286		286
367	TAGGING RELEASED	366	383		286		286
368	NGR						
369	PEMBERSIHAN DAN PENGUKURAN TRAF0	303	370		67	8	75
370	PEMBERSIHAN DAN PENGUKURAN RESISTOR	369	371		75		75
371	PEMERIKSAAN TERMINASI	370	373		75		75
372	STATOR COOLER						
373	PEMERIKSAAN & VISUAL CHECK LINE STATOR COOLER	371	374		75		75
374	PEMERIKSAAN DAN PEMBERSIHAN TUBE STATOR COOLER	373	375		75		75
375	FLOW TEST	374	377		75	8	83
376	13.8 KV IP8 BUS DUCT						
377	BUKA MANHOLE; PEMBERSIHAN DAN PEMERIKSAAN BUS BAR	375	378		83	16	99
378	PEMERSIKSAAN KONDISI TEKANAN UDARA	377	379		99	4	103
379	PEMERSIKSAAN GROUNDING	378	380		103		103
380	PEMERSIKSAAN COMPRESSOR	379	381		103		103
381	TUTUP MANHOLE	380	383		103		103
382	FASE START UP & COMMISSIONING						
383	FLUSHING	293,367,303,381	384		286	8	294
384	INTERLOCK TEST (TURBINE-GENERATOR)	383	38655,38555,38755		294	4	298
385	BOILER FIRING	38455	387		294	8	302
386	DEGASING	38455	388		294	8	302
387	TURNING GEAR START	38455,385	388		302	4	306
388	TURBINE START	386,387	38955		306	4	310
389	FUNCTION TEST AC DC LUBE OIL	38855	390		306	4	310
390	FIRST SYNCRONE (30% DARI KAPASITAS LOAD)	389	391		310	8	318
391	PENURUNAN BEBAN (LEPAS JARING - JARING)	390	392		318	8	326
392	TRIP DEVICE TURBINE	391	393		326	8	334
393	ROLLING	392	394		334	8	342
394	SYNCHRONE	393	393		342	0	343



Lampiran 8 Hasil Simulasi Monte Carlo Triangular

NO	Task Name	SIMULATION	KODE	START	TASK HOUR	FINISH
1	MAJOR OVERHAUL TURBINE GENERATOR					
2	SHUTDOWN				8	8
3	TURBINE COOLING DOWN			8	40	48
4	MEKANIK					
5	TURBIN UTAMA					
6	PEKERJAAN PEMBONGKARAN & INSPEKSI					
7	TURBIN UTAMA					
8	ENCLOSURE					
9	MEMBUKA ENCLOSURE FRONT STANDARD DAN HP TURBINE		Q11	48	5	53
10	HEAT INSULATION					
11	DISASSEMBLY GIPS & HEAT INSULATION HP OUTER CASING			53	8	61
12	PEMERIKSAAN DAN PERBAIKAN HEAT INSULATION CROSS OVER PIPE		Q14	61	15	76
13	PEMBONGKARAN HEAT INSULATION GV			76	4	80
14	CROSS OVER PIPE					
15	DISASSEMBLY CROSS OVER PIPE		Q17	76	15	91
16	TURBIN - TURNING GEAR					
17	DISASSEMBLY TURNING GEAR		Q19	91	6	97
18	PEMERIKSAAN GEAR			97	2	99
19	PEMERIKSAAN COUPLING		Q21	99	3	102
20	PENGGANTIAN O RING		Q22	102	2	104
21	PEMERIKSAAN BEARING GEAR BOX TURNING GEAR			104	8	112
22	COUPLING ROTOR TURBINE					
23	BUKA COVER COUPLING HP - LP			97	2	99
24	DISCOUPLE COUPLING ROTOR HP - LP			106	3	109
25	BUKA COVER COUPLING LP-GENERATOR			99	2	101
26	DISCOUPLE COUPLING ROTOR LP-GENERATOR			109	3	112
27	TURBIN-BEARING					
28	JOURNAL BEARING 1-4					
29	DISASSEMBLY COVER BEARING JURNAL			91	8	99
30	DISASSEMBLY UPPER JURNAL BEARING 2-4			112	4	116
31	DISASSEMBLY UPPER JURNAL BEARING 1			118	1	119
32	DISASSEMBLY LOWER JURNAL BEARING 1-4			176	3	179
33	CEK CLEARANCE		Q34	112	4	116
34	THRUST BEARING		Q35	112	4	116
35	CEK CLEARANCE			118	1	119
36	DISASSEMBLY THRUST BEARING		Q38	119	3	122
37	OIL DEFLECTOR 1-4					
38	DISASSEMBLY UPPER OIL DEFLECTOR			112	3	115
39	CEK CLEARANCE		Q41	112	2	114
40	FRONT STANDARD					
41	BUKA CASING FRONT PEDESTAL		Q43	116	2	118
42	DATA GAP EMERGENCY TRIP DEVICE		Q44	118	1	119
43	CEK SPRING OVER SPEED DEVICE		Q45	119	2	121
44	PENGAMBILAN DATA AXIAL & RADIAL CLEARANCE					
45	ROTOR POSITION TURBINE			119	3	122
46	CEK CLEARANCE AXIAL DAN RADIAL BLADE ROTOR STATOR			122	8	130
47	HP TURBINE					
48	HP TURBINE OUTER CASING					
49	DISASSEMBLY UPPER CASING TURBIN		Q51	53	16	69
50	PERBAIKAN GIPS & HEAT INSULATION		Q52	69	15	84
51	HP TURBINE INNER CASING					
52	DISASSEMBLY INNER CASING TURBIN			84	16	100
53	HP TURBINE ROTOR BLADE					
54	LIFT UP ROTOR BLADE		Q56	136	4	140
55	RUN OUT ROTOR			140	1	141
56	CEK BALANCE WEIGHT			141	1	142
57	CEK SHROUDS & TENNON			142	2	144
58	HP TURBINE NOZZLE DIAPHRAGM					
59	DISASSEMBLY LOWER NOZZLE DIAPHRAGM			140	20	160
60	POLISHING SLIDING FACE (GREASING)		Q61	160	2	162
61	HP TURBINE LABYRINTH PACKING					
62	CEK SPRING			162	2	164
63	HP TURBINE SEAL STRIP		Q64	162	2	164
64	CEK SPRING			164	1	165
65	HP TURBINE BOLT & NUT					
66	PERBAIKAN THREAD BOLT			100	8	108
67	HP TURBINE GLAND LABYRINTH (GRV)					
68	DISASSEMBLY UPPER HP TURBINE GLAND LABYRINTH (GRV)			100	3	103
69	CEK SPRING			165	2	167
70	LP TURBINE		Q71	165	2	167
71	LP TURBINE CASING (OUTTER)					
72	CHECK CLEARANCE SPLIT LINE/BIDANG CONTACT			99	1	100
73	DISASSEMBLY TURBINE CASING (OUTTER)		Q75	100	11	111
74	REAMER HOLE BOLT CASING		Q76	111	7	118
75	CEK EXPANTION JOINT TO CONDENSOR		Q77	118	5	123
76	LP TURBINE CASING (INNER)					
77	CHECK CLEARANCE SPLIT LINE			111	1	112
78	UNBOLTING DAN LIFTING LP TURBINE CASING (INNER)		Q80	112	24	136
79	PERBAIKAN THREAD BOLT LP TURBINE CASING (INNER)		Q81	136	3	139
80	LP TURBINE BOLT & NUT (OUTER)					
81	PERBAIKAN BOLT THREAD LP TURBINE BOLT & NUT (OUTER)		Q83	139	8	147
82	LP TURBINE BOLT & NUT (INNER)					
83	PERBAIKAN THREAD BOLT LP TURBINE BOLT & NUT (INNER)		Q85	147	15	162



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NO	Task Name	SIMULATION	KODE	START	TASK HOUR	FINISH
84	<b>LP TURBINE ROTOR BLADE</b>					
85	LIFT UP ROTOR	0	Q87	130	6	136
86	CEK BALANCE WEIGHT	0	Q88	136	5	141
87	CEK SHROUDS & TENNON	0	Q89	141	5	146
88	<b>LP TURBINE NOZZLE DIAPHRAGM</b>					
89	DISASSEMBLY UPPER NOZZLE DIAPHRAGM	0		103	3	106
90	DISASSEMBLY LOWER NOZZLE DIAPHRAGM	0	Q92	160	16	176
91	<b>LP TURBINE LABYRINTH PACKING</b>					
92	CEK SPRING	0	Q94	146	2	148
93	<b>LP TURBINE SEAL STRIP</b>					
94	INSPEKSI VISUAL	0	Q96	148	3	151
95	<b>LP TURBINE GLAND LABYRINTH (GRV)</b>					
96	INSPEKSI VISUAL	0	Q98	151	3	154
97	CEK SPRING	0	Q99	154	2	156
98	<b>LP TURBINE RELIEF DIAPHRAGM</b>					
99	CEK RELIEF DIAPHRAGM	0		156	3	159
100	PENGGANTIAN GASKET	0	Q102	159	2	161
101	<b>MOP</b>					
102	DISASSEMBLY MOP	0	Q104	140	10	150
103	PEMERIKSAAN BEARING	0		150	12	162
104	PENGGANTIAN GASKET, O RING	0		162	1	163
105	PEMERIKSAAN IMPELER	0		163	1	164
106	<b>TURBINE MAIN STEAM VALVE</b>					
107	<b>MSV</b>					
108	CEK CLEARANCE FLANGE BEFORE DISASSEMBLY	0	Q110	103	2	105
109	PEMBONGKARAN HEAT INSULATION	0		105	3	108
110	DISASSEMBLY	0	Q112	108	15	123
111	PENGGANTIAN GASKET	0	Q113	123	2	125
112	DATA GAP FLANGE	0		125	1	126
113	<b>MSV BOLT AND NUT</b>					
114	PERBAIKAN THREAD BOLT	0	Q116	126	10	136
115	<b>MSV BUSHING AND STEM</b>					
116	POLISHING SLIDING FACE	0	Q118	136	3	139
117	<b>MSV SEAT &amp; DISC VALVE</b>					
118	LAPPING	0	Q120	139	15	154
119	CONTACT CHECK	0	Q121	154	2	156
120	<b>MSV STRAINER</b>					
121	INSPEKSI VISUAL	0	Q123	156	3	159
122	<b>TURBINE - GOVERNOR VALVE</b>					
123	<b>GV BODY VALVE</b>					
124	PEMASANGAN SCAFFOLDING	0	Q126	136	5	141
125	CEK CLEARANCE FLANGE BEFORE DISASSEMBLY & DISASSEMBLY FLANGE BOLT	0		141	1	142
126	DISASSEMBLY	0	Q128	140	15	155
127	DATA GAP FLANGE	0	Q129	155	2	157
128	<b>GV BOLT &amp; NUT</b>					
129	PERBAIKAN THREAD BOLT	0	Q131	157	6	163
130	<b>GV BUSHING &amp; STEM</b>					
131	POLISHING SLIDING FACE	0	Q133	163	3	166
132	<b>GV SEAT &amp; DISC VALVE</b>					
133	LAPPING	0	Q135	166	15	181
134	CONTACT CHECK	0	Q136	181	2	183
135	<b>GV SPRING</b>					
136	PENGUKURAN SPRING	0	Q138	183	3	186
137	<b>CYLINDER HYDRAULIC</b>					
138	PEMBERSIHAN	0	Q140	186	7	193
139	CEK PISTON CYLINDER & SPRING	0	Q141	193	7	200
140	PENGGANTIAN O RING, GASKET & ASSEMBLY	0		200	8	208
141	<b>PEKERJAAN CLEANING PART</b>					
142	PEMBERSIHAN FRONT STANDARD	0		119	3	122
143	PEMBERSIHAN MOP	0		164	3	167
144	PEMBERSIHAN HP TURBINE CASING OUTER & INNER	0		167	16	183
145	PEMBERSIHAN ROTOR BLADE HIP	0	Q147	183	34	217
146	PEMBERSIHAN NOZZLE DIAPHRAGM HIP	0	Q148	183	34	217
147	PEMBERSIHAN HP TURBINE LABYRINTH PACKING	0		183	4	187
148	PEMBERSIHAN HP TURBINE SEAL STRIP	0		183	3	186
149	PEMBERSIHAN HP TURBINE BOLT & NUT	0		183	20	203
150	PEMBERSIHAN HP TURBINE GLAND LABYRINTH (GRV)	0		203	6	209
151	PEMBERSIHAN CROSS OVER PIPE	0		91	3	94
152	PEMBERSIHAN LP TURBINE CASING (OUTTER)	0	Q154	162	19	181
153	PEMBERSIHAN LP TURBINE CASING (INNER)	0	Q155	162	19	181
154	PEMBERSIHAN LP TURBINE BOLT & NUT (OUTTER)	0		181	24	205
155	PEMBERSIHAN LP TURBINE BOLT & NUT (INNER)	0		181	24	205
156	PEMBERSIHAN LP TURBINE ROTOR BLADE	0		205	48	253
157	PEMBERSIHAN NOZZLE DIAPHRAGM LP TURBINE	0		205	48	253
158	PEMBERSIHAN LP TURBINE LABYRINTH PACKING	0		205	3	208
159	PEMBERSIHAN LP TURBINE SEAL STRIP	0		205	3	208
160	PEMBERSIHAN LP TURBINE GLAND LABYRINTH (GRV)	0		208	3	211
161	PEMBERSIHAN MSV BODY VALVE	0		159	2	161
162	PEMBERSIHAN MSV BOLT AND NUT	0		161	24	185
163	PEMBERSIHAN MSV BUSHING AND STEM	0		185	2	187
164	PEMBERSIHAN MSV SEAT & DISC VALVE	0		187	2	189
165	PEMBERSIHAN MSV STRAINER	0		189	2	191
166	PEMBERSIHAN GV BODY VALVE	0		208	2	210

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NO	Task Name	SIMULATION	KODE	START	TASK HOUR	FINISH
167	PEMBERSIHAN GV BOLT & NUT			210	12	222
168	PEMBERSIHAN GV BUSHING & STEM			222	2	224
169	PEMBERSIHAN GV SEAT & DISC VALVE			224	2	226
170	PEMBERSIHAN GV SPRING			226	2	228
171	PEMBERSIHAN CYLINDER HYDRAULIC MSV			191	4	195
172	PEMBERSIHAN CYLINDER HYDRAULIC GV			228	4	232
173	PEMBERSIHAN BEARING GEAR BOX TURNING GEAR			112	4	116
174	CLEANING JOURNAL BEARING 1-4			179	12	191
175	CLEANING PAD THRUST BEARING			122	3	125
176	CLEANING OIL DEFLECTOR 1-4		Q177	115	2	117
177	<b>PEKERJAAN NDT PART</b>					
178	NDT CHECK WELDING JOINT HP TURBINE CASING			209	2	211
179	NDT CHECK ROTOR HP TURBINE ROTOR BLADE			211	16	227
180	NDT CHECK HP TURBINE NOZZLE DIAPHRAGM			211	16	227
181	NDT CHECK LABYRINTH HP TURBINE			211	16	227
182	NDT CHECK HP TURBINE BOLT & NUT		Q184	211	11	222
183	NDT CHECK HP TURBINE GLAND LABYRINTH (GRV)			222	16	238
184	NDT CHECK WELDING JOINT LP OUTER CASING			211	2	213
185	NDT CHECK WELDING JOINT LP INNER CASING			211	2	213
186	NDT CHECK LP TURBINE BOLT & NUT (INNER)			211	24	235
187	NDT CHECK ROTOR LP TURBINE			211	24	235
188	NDT CHECK NOZZLE DIAPHRAGM LP TURBINE			211	24	235
189	NDT CHECK LABYRINTH LP TURBINE SEAL STRIP			211	2	213
190	NDT CHECK LP TURBINE GLAND LABYRINTH (GRV)			213	2	215
191	NDT WELDING JOIN SEAT & BODY VALVE MSV			195	2	197
192	NDT CHECK MSV BOLT AND NUT			197	8	205
193	NDT CHECK MSV BUSHING AND STEM			205	2	207
194	NDT CHECK MSV SEAT & DISC VALVE			207	2	209
195	NDT CHECK MSV STRAINER			209	2	211
196	NDT CHECK GV BODY VALVE			232	2	234
197	NDT CHECK GV BOLT & NUT			234	8	242
198	NDT CHECK GV BUSHING & STEM			242	2	244
199	NDT CHECK GV SEAT & DISC VALVE			244	2	246
200	NDT CHECK SPRING GV			246	2	248
201	NDT CHECK TURBIN - TURNING GEAR			116	2	118
202	NDT CHECK JOURNAL BEARING 1-4			191	6	197
203	NDT CHECK THRUST BEARING			125	2	127
204	NDT CHECK OIL DEFLECTOR 1-4			117	2	119
205	<b>PEKERJAAN PEMASANGAN DAN FINAL CHECK</b>					
206	<b>TURBIN UTAMA</b>					
207	<b>FRONT STANDARD</b>					
208	PASANG CASING FRONT PEDESTAL		Q210	309	2	311
209	<b>PENGAMBILAN DATA AXIAL &amp; RADIAL CLEARANCE (AFTER)</b>					
210	CEK CLEARANCE AXIAL DAN RADIAL BLADE ROTOR STATOR (AFTER)		Q212	275	8	283
211	ALIGNMENT ROTOR LP-HP DAN LP-GENERATOR		Q213	283	23	306
212	<b>COUPLING ROTOR TURBINE</b>					
213	COUPLE COUPLING ROTOR LP-GENERATOR		Q215	253	17	270
214	TUTUP COVER COUPLING LP-GENERATOR			356	2	358
215	COUPLE COUPLING ROTOR HP - LP		Q217	270	15	285
216	TUTUP COVER COUPLING HP - LP			358	2	360
217	<b>HP TURBINE</b>					
218	<b>HP TURBINE INNER CASING</b>					
219	ASSEMBLY UPPER INNER CASING TURBIN		Q221	285	15	300
220	DATA EXTENSION BOLT		Q222	300	9	309
221	CHECK CLEARANCE SPLIT LINE (AFTER)			309	1	310
222	<b>HP TURBINE OUTER CASING</b>					
223	ASSEMBLY UPPER OUTER CASING TURBIN		Q225	311	8	319
224	DATA EXTENSION BOLT		Q226	319	11	330
225	CHECK CLEARANCE SPLIT LINE (AFTER)			330	1	331
226	<b>HP TURBINE ROTOR BLADE</b>					
227	LIFT IN ROTOR BLADE HP TURBINE ROTOR BLADE		Q229	259	5	264
228	<b>HP TURBINE NOZZLE DIAPHRAGM</b>					
229	ASSEMBLY LOWER NOZZLE DIAPHRAGM HP			238	6	244
230	<b>HP TURBINE GLAND LABYRINTH (GRV)</b>					
231	ASSEMBLY UPPER HP TURBINE GLAND LABYRINTH (GRV)					
232	CEK CLEARANCE		Q233	336	3	339
233	<b>CROSS OVER PIPE</b>		Q234	339	2	341
234	PEMASANGAN SCAFFOLDING		Q236	369	5	374
235	ASSEMBLY CROSS OVER PIPE		Q237	374	8	382
236	PENGGANTIAN GASKET		Q238	382	2	384
237	PEMBONGKARAN SCAFFOLDING		Q239	390	3	393
238	<b>LP TURBINE</b>					
239	<b>LP TURBINE CASING (INNER)</b>					
240	BOLTING DAN LIFT IN LP TURBINE CASING (INNER)		Q242	310	13	323
241	DATA EXTENSION BOLT		Q243	323	11	334
242	CHECK CLEARANCE SPLIT LINE (AFTER)		Q244	334	2	336
243	<b>LP TURBINE CASING (OUTTER)</b>					
244	ASSEMBLY TURBINE CASING (OUTTER)		Q246	344	7	351
245	CHECK CLEARANCE SPLIT LINE (AFTER)		Q247	351	1	352
246	<b>LP TURBINE ROTOR BLADE</b>					
247	LIFT IN ROTOR LP TURBINE ROTOR BLADE		Q249	264	6	270
248	<b>LP TURBINE NOZZLE DIAPHRAGM</b>					
249	ASSEMBLY LOWER NOZZLE DIAPHRAGM LP		Q251	244	7	251

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NO	Task Name	SIMULATION	KODE	START	TASK HOUR	FINISH
250	ASSEMBLY UPPER NOZZLE DIAPRAGM LP		Q252	300	7	307
251	<b>LP TURBINE GLAND LABYRINTH (GRV)</b>					
252	ASSEMBLY UPPER LP TURBINE GLAND LABYRINTH (GRV)			341	2	343
253	CEK CLEARANCE			343	1	344
254	<b>TURBINE MAIN STEAM VALVE NO.1 &amp; NO.2</b>					
255	<b>MSV BODY VALVE</b>					
256	ASSEMBLY		Q258	211	9	220
257	PEMASANGAN HEAT INSULATION		Q259	220	9	229
258	CEK CLEARANCE FLANGE AFTER DISASSEMBLY			229	1	230
259	<b>TURBINE - GOVERNOR VALVE NO.1 , 2 , 3 &amp; 4</b>					
260	<b>GV BODY VALVE</b>					
261	ASSEMBLY		Q263	248	10	258
262	DATA EXTENSION BOLT		Q264	258	9	267
263	CEK CLEARANCE FLANGE AFTER ASSEMBLY			267	1	268
264	PEMBONGKARAN SCAFFOLDING		Q266	268	3	271
265	<b>MAIN STEAM LINE</b>					
266	PEMASANGAN FLANGE MAIN STEAM LINE		Q268	331	3	334
267	PEMASANGAN GASKET			334	1	335
268	DATA GAP FLANGE MAIN STEAM LINE (AFTER)			335	1	336
269	<b>TURBIN - TURNING GEAR</b>					
270	ASSEMBLY		Q272	360	9	369
271	<b>TURBIN-BEARING</b>					
272	<b>JOURNAL BEARING 1-4</b>					
273	ASSEMBLY LOWER JURNAL BEARING 1-4			251	2	253
274	ASSEMBLY UPPER JURNAL BEARING 1-4			251	2	253
275	CEK CLEARANCE (AFTER)		Q277	253	3	256
276	CONTACT CHECK (AFTER)		Q278	253	4	257
277	ASSEMBLY COVER BEARING LP & HP TURBINE		Q279	352	4	356
278	<b>THRUST BEARING</b>					
279	ASSEMBLY THRUST BEARING		Q281	270	3	273
280	CEK CLEARANCE (AFTER)			273	2	275
281	<b>OIL DEFLECTOR 1-4</b>					
282	ASSEMBLY LOWER OIL DEFLECTOR			253	2	255
283	ASSEMBLY UPPER OIL DEFLECTOR			253	2	255
284	<b>MOP</b>					
285	ASSEMBLY MOP		Q287	255	4	259
286	ALIGNMENT MOP		Q288	306	3	309
287	<b>HEAT INSULATION</b>					
288	PEMASANGAN HEAT INSULATION BODY GV		Q290	271	6	277
289	PEMASANGAN HEAT INSULATION MAIN STEAM LINE		Q291	336	4	340
290	PEMASANGAN HEAT INSULATION FRONT STANDART		Q292	311	6	317
291	PEMASANGAN HEAT INSULATION CROSS OVER PIPE		Q293	384	6	390
292	<b>ENCLOSURE</b>					
293	PASANG ENCLOSURE FRONT STANDART		Q295	393	5	398
294	<b>LISTRİK</b>					
295	<b>GENERATOR</b>					
296	<b>BRUSH EXCITER</b>					
297	BUKA COVER EXCITER (RUMAH EXCITER)			48	4	52
298	PENGUKURAN TAHANAN ISOLASI MOUNTING PLATE			52	1	53
299	PEMERIKSAAN/PENGGANTIAN CARBON BRUSH			53	2	55
300	PEMERIKSAAN TERMINASI			55	3	58
301	PEMERIKSAAN MOUNTING PLATE			58	4	62
302	PENGUKURAN TAHANAN ISOLASI MOUNTING PLATE			62	1	63
303	TUTUP COVER EXCITER			63	4	67
304	<b>GENERATOR</b>					
305	<b>DISASSEMBLY</b>					
306	PEMASANGAN SCAFFOLDING		Q308	52	5	57
307	Membuka Titik Bintang			57	6	63
308	Pengukuran Tahanan Isolasi Stator & Rotor		Q310	63	2	65
309	Drying line stator cooling		Q311	65	9	74
310	Pemeriksaan Shaft Grounding			74	2	76
311	Pelepasan cover kopling generator			76	4	80
312	PELEPASAN BRACKET UPPER SISI EXCITER			80	8	88
313	PELEPASAN BRACKET UPPER SISI TURBINE			88	8	96
314	PENGUKURAN & PELEPASAN UPPER OUTER OIL DEFLECTOR BEARING 5 DAN 6			96	4	100
315	PENGUKURAN (SESUAI REKOMENDASI) DAN PEMBONGKARAN STOPPER BEARING 5 & 6		Q317	100	3	103
316	PENGUKURAN DAN PEMBONGKARAN BEARING UPPER 5 DAN 6			103	6	109
317	PENGUKURAN CLEARANCE BEARING UPPER 5 DAN 6			109	2	111
318	PENGUKURAN CLEARANCE DAN PEMBONGKARAN BEARING UPPER 7			111	4	115
319	PENGUKURAN DAN PEMBONGKARAN CLEARANCE BEARING LOWER 7			115	6	121
320	PENGUKURAN DAN PEMBONGKARAN H2 SEAL RING UPPER BEARING 5 DAN 6			121	4	125
321	PENGUKURAN DAN PEMBONGKARAN UPPER INNER OIL DEFLECTOR BEARING 5 & 6			125	4	129
322	PENGUKURAN DAN PEMBONGKARAN LOWER OUTER OIL DEFLECTOR BEARING 5 & 6			129	4	133
323	PENGUKURAN CLEARANCE BEARING LOWER 5 & 6			133	2	135
324	PEMBONGKARAN BEARING LOWER 5 & 6			135	6	141
325	PENGUKURAN DAN PEMBONGKARAN H2 SEAL RING LOWER BEARING 5 & 6			141	6	147
326	PENGUKURAN DAN PEMBONGKARAN LOWER INNER OIL DEFLECTOR BEARING 5 & 6			147	4	151
327	PELEPASAN SHAFT SUPPORT BEARING 7			151	4	155
328	PELEPASAN PONDASI EXCITER			155	4	159
329	PEMBONGKARAN DEFUSER END WINDING 2 SISI			159	6	165
330	PEMBONGKARAN BRACKET LOWER SISI EXCITER			165	6	171
331	PEMBONGKARAN BRACKET LOWER SISI TURBINE			171	6	177
332	PERSIAPAN PEMASANGAN SPESIAL TOOLS PULL OUT			177	8	185
333	PULL OUT ROTOR GENERATOR		Q335	185	7	192
334	<b>INSPEKSI</b>					
335	PEMERIKSAAN END WINDING			192	4	196



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NO	Task Name	SIMULATION	KODE	START	TASK HOUR	FINISH
336	CLEANING DAN RED INSULATION WINDING STATOR		Q338	196	12	208
337	CLEANING DAN RED INSULATION ROTOR		Q339	208	12	220
338	PEMERIKSAAN FAN BLADE			220	2	222
339	PEMERIKSAAN STATOR, WEDGS [VISUAL & ASSESMENT]		Q341	222	15	237
340	PEMERIKSAAN DAN PENGUKURAN UT/P/T BEARING .5,6,7,H2 SEAL RING DAN DEFLECTOR			237	20	257
341	PEMERIKSAAN ROTOR [VISUAL & ASSESMENT]			257	12	269
342	PEMERIKSAAN DAN CLEANING BAUT		Q344	269	14	283
343	PEMASANGAN DEFUSER END WINDING 2 SISI			283	8	291
344	PEMERIKSAAN VISUAL & CLEANING FLEXIBLE, ISOLATOR OUTGOING			291	8	299
345	ASSEMBLY					
346	PERSIAPAN PEMASANGAN SPESIAL TOOLS PULL IN			299	6	305
347	PULL IN ROTOR GENERATOR			305	8	313
348	PEMASANGAN BRACKET LOWER SISI EXCITER			313	6	319
349	PEMASANGAN BRACKET LOWER SISI TURBINE			319	6	325
350	PEMASANGAN & PEMERIKSAAN LOWER INNER OIL DEFLECTOR BEARING 5 & 6			325	6	331
351	PEMASANGAN & PEMERIKSAAN H2 SEAL RING LOWER BEARING 5 & 6			331	8	339
352	PEMASANGAN & PEMERIKSAAN BEARING LOWER 5 & 6		Q354	339	7	346
353	PENGUKURAN CLEARANCE BEARING LOWER 5 & 6 AFTER			346	2	348
354	PEMASANGAN & PEMERIKSAAN UPPER INNER OIL DEFLECTOR BEARING 5 & 6		Q356	348	5	353
355	PEMASANGAN & PEMERIKSAAN H2 SEAL RING UPPER BEARING 5 & 6		Q357	353	5	358
356	PEMASANGAN & PEMERIKSAAN BEARING UPPER 5 & 6		Q358	358	7	365
357	PEMERIKSAAN VISUAL & CLEARANCE BEARING UPPER 5 DAN 6			365	4	369
358	PEMERIKSAAN & PEMASANGAN UPPER OUTER OIL DEFLECTOR BEARING 5 DAN 6			369	4	373
359	PEMASANGAN BRACKET UPPER SISI EXCOTER		Q361	373	5	378
360	PEMASANGAN BRACKET UPPER SISI TURBINE		Q362	378	5	383
361	PEMASANGAN PONDASI EXCOTER		Q363	383	5	388
362	PEMASANGAN SHAFT SUPPORT BEARING 7		Q364	388	5	393
363	PEMASANGAN & PEMERIKSAAN BEARING LOWER 7			393	6	399
364	PEMASANGAN & PEMERIKSAAN BEARING UPPER 7			399	6	405
365	BEARING OIL FLUSHING			405	4	409
366	FINAL CHECK		Q368	409	15	424
367	TAGGING RELEASED		Q369	424	3	427
368	NGR					
369	PEBERSIHAN DAN PENGUKURAN TRAFIO			67	8	75
370	PEBERSIHAN DAN PENGUKURAN RESISTOR		Q372	75	6	81
371	PEMERIKSAAN TERMINASI		Q373	81	5	86
372	STATOR COOLER					
373	PEMERIKSAAN & VISUAL CHECK LINE STATOR COOLER		Q375	86	5	91
374	PEMERIKSAAN DAN PEMBERSIHAN TUBE STATOR COOLER		Q376	91	9	100
375	FLOW TEST			100	8	108
376	13.8 KV IPB BUS DUCT					
377	BUKA MANHOLE, PEMBERSIHAN DAN PEMERIKSAAN BUS BAR			108	16	124
378	PEMERIKSAAN KONDISI TEKANAN UDARA			124	4	128
379	PEMERIKSAAN GROUNDING		Q381	128	3	131
380	PEMERIKSAAN COMPRESSOR		Q382	131	5	136
381	TUTUP MANHOLE		Q383	136	3	139
382	FASE START UP & COMMISSIONING					
383	FLUSHING			427	8	435
384	INTERLOCK TEST (TURBINE-GENERATOR)			435	4	439
385	BOILER FIRING			435	8	443
386	DEGASING			435	8	443
387	TURNING GEAR START			443	4	447
388	TURBINE START			447	4	451
389	FUNCTION TEST AC DC LUBE OIL			447	4	451
390	FIRST SYNCRONE (30% DARI KAPASITAS LOAD)			451	8	459
391	PENURUNAN BEBAN (LEPAS JARING - JARING)			459	8	467
392	TRIP DEVICE TURBINE			467	8	475
393	ROLLING			475	8	483
394	SYNCRONE			483	0	483

Working Time Normal	Hour	8	
Duration Project	Day	60,375	
Working Time Normal + Add Time	Hour	9	
Duration Project	Day	53,66666667	
Duration Standart	Hour	480	
Duration Standart	Day	60	
Variant Duration With Working Time Normal	Lagging	Day	-0,375
Variant Duration With Working Time Normal + Add Time	Leading	Day	6,333333333

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NO	Task Name	SIMULATION	KODE	START	TASK HOUR	FINISH
1	MAJOR OVERHAUL TURBINE GENERATOR					
2	SHUTDOWN				8	8
3	TURBINE COOLING DOWN			8	40	48
4	MEKANIK					
5	TURBIN UTAMA					
6	PEKERJAAN PEMBONGKARAN & INSPEKSI					
7	TURBIN UTAMA					
8	ENCLOSURE					
9	MEMBUKA ENCLOSURE FRONT STANDARD DAN HP TURBINE		Q11	48	5	53
10	HEAT INSULATION					
11	DISASSEMBLY GIPS & HEAT INSULATION HP OUTER CASING			53	8	61
12	PERIKSAAN DAN PERBAIKAN HEAT INSULATION CROSS OVER PIPE		Q14	61	13	74
13	PEMBONGKARAN HEAT INSULATION GV			74	4	78
14	CROSS OVER PIPE					
15	DISASSEMBLY CROSS OVER PIPE		Q17	74	14	88
16	TURBIN - TURNING GEAR					
17	DISASSEMBLY TURNING GEAR		Q19	88	6	94
18	PEMERIKSAAN GEAR			94	2	96
19	PEMERIKSAAN COUPLING		Q21	96	3	99
20	PENGGANTIAN O RING		Q22	99	2	101
21	PEMERIKSAAN BEARING GEAR BOX TURNING GEAR			101	8	109
22	COUPLING ROTOR TURBINE					
23	BUKA COVER COUPLING HP - LP			94	2	96
24	DISCOUPLE COUPLING ROTOR HP - LP			105	3	108
25	BUKA COVER COUPLING LP-GENERATOR			96	2	98
26	DISCOUPLE COUPLING ROTOR LP-GENERATOR			108	3	111
27	TURBIN-BEARING					
28	JOURNAL BEARING 1-4					
29	DISASSEMBLY COVER BEARING JURNAL			88	8	96
30	DISASSEMBLY UPPER JOURNAL BEARING 2-4			111	4	115
31	DISASSEMBLY UPPER JOURNAL BEARING 1			117	1	118
32	DISASSEMBLY LOWER JOURNAL BEARING 1-4			176	3	179
33	CEK CLEARANCE		Q35	111	4	115
34	THRUST BEARING					
35	CEK CLEARANCE			117	1	118
36	DISASSEMBLY THRUST BEARING		Q38	118	3	121
37	OIL DEFLECTOR 1-4					
38	DISASSEMBLY UPPER OIL DEFLECTOR			111	3	114
39	CEK CLEARANCE		Q41	111	2	113
40	FRONT STANDARD					
41	BUKA CASING FRONT PEDESTAL			115	2	117
42	DATA GAP EMERGENCY TRIP DEVICE		Q44	117	1	118
43	CEK SPRING OVER SPEED DEVICE		Q45	118	2	120
44	PENGAMBILAN DATA AXIAL & RADIAL CLEARANCE					
45	ROTOR POSITION TURBINE			118	3	121
46	CEK CLEARANCE AXIAL DAN RADIAL BLADE ROTOR STATOR			121	8	129
47	HP TURBINE					
48	HP TURBINE OUTER CASING					
49	DISASSEMBLY UPPER CASING TURBIN		Q51	53	16	69
50	PERBAIKAN GIPS & HEAT INSULATION		Q52	69	14	83
51	HP TURBINE INNER CASING					
52	DISASSEMBLY INNER CASING TURBIN			83	16	99
53	HP TURBINE ROTOR BLADE					
54	LIFT UP ROTOR BLADE		Q56	134	4	138
55	RUN OUT ROTOR			138	1	139
56	CEK BALANCE WEIGHT			139	1	140
57	CEK SHROUDS & TENNON			140	2	142
58	HP TURBINE NOZZLE DIAPHRAGM					
59	DISASSEMBLY LOWER NOZZLE DIAPHRAGM		Q61	138	21	159
60	POLISHING SLIDING FACE (GREASING)			159	2	161
61	HP TURBINE LABYRINTH PACKING					
62	CEK SPRING		Q64	161	2	163
63	HP TURBINE SEAL STRIP			163	1	164
64	CEK SPRING			99	8	107
65	HP TURBINE BOLT & NUT			99	8	107
66	PERBAIKAN THREAD BOLT			99	8	107
67	HP TURBINE GLAND LABYRINTH (GRV)					
68	DISASSEMBLY UPPER HP TURBINE GLAND LABYRINTH (GRV)			99	3	102
69	CEK SPRING		Q71	164	2	166
70	LP TURBINE					
71	LP TURBINE CASING (OUTTER)					
72	CHECK CLEARANCE SPLIT LINE/BIDANG CONTACT			96	1	97
73	DISASSEMBLY TURBINE CASING (OUTTER)		Q75	97	11	108
74	REAMER HOLE BOLT CASING		Q76	108	6	114
75	CEK EXPANTION JOINT TO CONDENSOR		Q77	114	4	118
76	LP TURBINE CASING (INNER)					
77	CHECK CLEARANCE SPLIT LINE			108	1	109
78	UNBOLTING DAN LIFTING LP TURBINE CASING (INNER)		Q80	109	23	132
79	PERBAIKAN THREAD BOLT LP TURBINE CASING (INNER)		Q81	132	3	135
80	LP TURBINE BOLT & NUT (OUTER)					
81	PERBAIKAN BOLT THREAD LP TURBINE BOLT & NUT (OUTER)		Q83	135	7	142
82	LP TURBINE BOLT & NUT (INNER)					
83	PERBAIKAN THREAD BOLT LP TURBINE BOLT & NUT (INNER)		Q85	142	13	155
84	LP TURBINE ROTOR BLADE					
85	LIFT UP ROTOR		Q87	129	5	134
86	CEK BALANCE WEIGHT		Q88	134	4	138
87	CEK SHROUDS & TENNON		Q89	138	4	142
88	LP TURBINE NOZZLE DIAPHRAGM					
89	DISASSEMBLY UPPER NOZZLE DIAPHRAGM			102	3	105
90	DISASSEMBLY LOWER NOZZLE DIAPHRAGM		Q92	159	17	176
91	LP TURBINE LABYRINTH PACKING					



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NO	Task Name	SIMULATION	KODE	START	TASK HOUR	FINISH
92	CEK SPRING		Q94	142	2	144
93	LP TURBINE SEAL STRIP					
94	INSPEKSI VISUAL		Q96	144	3	147
95	LP TURBINE GLAND LABYRINTH (GRV)					
96	INSPEKSI VISUAL		Q98	147	3	150
97	CEK SPRING		Q99	150	2	152
98	LP TURBINE RELIEF DIAPHRAGM					
99	CEK RELIEF DIAPHRAGM			152	3	155
100	PENGGANTIAN GASKET		Q102	155	2	157
101	MOP					
102	DISASSEMBLY MOP		Q104	138	10	148
103	PEMERIKSAAN BEARING			148	12	160
104	PENGGANTIAN GASKET, O RING			160	1	161
105	PEMERIKSAAN IMPELER			161	1	162
106	TURBINE MAIN STEAM VALVE					
107	MSV					
108	CEK CLEARANCE FLANGE BEFORE DISASSEMBLY		Q110	102	2	104
109	PEMBONGKARAN HEAT INSULATION			104	3	107
110	DISASSEMBLY		Q112	107	16	123
111	PENGGANTIAN GASKET		Q113	123	2	125
112	DATA GAP FLANGE			125	1	126
113	MSV BOLT AND NUT					
114	PERBAIKAN THREAD BOLT		Q116	126	9	135
115	MSV BUSHING AND STEM					
116	POLISHING SLIDING FACE		Q118	135	3	138
117	MSV SEAT & DISC VALVE					
118	LAPPING		Q120	138	17	155
119	CONTACT CHECK		Q121	155	2	157
120	MSV STRAINER					
121	INSPEKSI VISUAL		Q123	157	3	160
122	TURBINE - GOVERNOR VALVE					
123	GV BODY VALVE					
124	PEMASANGAN SCAFFOLDING		Q126	132	4	136
125	CEK CLEARANCE FLANGE BEFORE DISASSEMBLY & DISASSEMBLY FLANGE BOLT			136	1	137
126	DISASSEMBLY		Q128	138	15	153
127	DATA GAP FLANGE		Q129	153	2	155
128	GV BOLT & NUT					
129	PERBAIKAN THREAD BOLT		Q131	155	6	161
130	GV BUSHING & STEM					
131	POLISHING SLIDING FACE		Q133	161	3	164
132	GV SEAT & DISC VALVE					
133	LAPPING		Q135	164	17	181
134	CONTACT CHECK		Q136	181	2	183
135	GV SPRING					
136	PENGUKURAN SPRING		Q138	183	3	186
137	CYLINDER HYDRAULIC					
138	PEMBERSIHAN		Q140	186	7	193
139	CEK PISTON CYLINDER & SPRING		Q141	193	7	200
140	PENGGANTIAN O RING, GASKET & ASSEMBLY			200	8	208
141	PEKERJAAN CLEANING PART					
142	PEMBERSIHAN FRONT STANDARD			118	3	121
143	PEMBERSIHAN MOP			162	3	165
144	PEMBERSIHAN HP TURBINE CASING OUTER & INNER			166	16	182
145	PEMBERSIHAN ROTOR BLADE HIP		Q147	182	31	213
146	PEMBERSIHAN NOZZLE DIAPHRAGM HIP		Q148	182	31	213
147	PEMBERSIHAN HP TURBINE LABYRINTH PACKING			182	4	186
148	PEMBERSIHAN HP TURBINE SEAL STRIP			182	3	185
149	PEMBERSIHAN HP TURBINE BOLT & NUT			182	20	202
150	PEMBERSIHAN HP TURBINE GLAND LABYRINTH (GRV)			202	6	208
151	PEMBERSIHAN CROSS OVER PIPE			88	3	91
152	PEMBERSIHAN LP TURBINE CASING (OUTER)		Q154	157	19	176
153	PEMBERSIHAN LP TURBINE CASING (INNER)		Q155	157	19	176
154	PEMBERSIHAN LP TURBINE BOLT & NUT (OUTER)			176	24	200
155	PEMBERSIHAN LP TURBINE BOLT & NUT (INNER)			176	24	200
156	PEMBERSIHAN LP TURBINE ROTOR BLADE			200	48	248
157	PEMBERSIHAN NOZZLE DIAPHRAGM LP TURBINE			200	48	248
158	PEMBERSIHAN LP TURBINE LABYRINTH PACKING			200	3	203
159	PEMBERSIHAN LP TURBINE SEAL STRIP			200	3	203
160	PEMBERSIHAN LP TURBINE GLAND LABYRINTH (GRV)			203	3	206
161	PEMBERSIHAN MSV BODY VALVE			160	2	162
162	PEMBERSIHAN MSV BOLT AND NUT			162	24	186
163	PEMBERSIHAN MSV BUSHING AND STEM			186	2	188
164	PEMBERSIHAN MSV SEAT & DISC VALVE			188	2	190
165	PEMBERSIHAN MSV STRAINER			190	2	192
166	PEMBERSIHAN GV BODY VALVE			208	2	210
167	PEMBERSIHAN GV BOLT & NUT			210	12	222
168	PEMBERSIHAN GV BUSHING & STEM			222	2	224
169	PEMBERSIHAN GV SEAT & DISC VALVE			224	2	226
170	PEMBERSIHAN GV SPRING			226	2	228
171	PEMBERSIHAN CYLINDER HYDRAULIC MSV			192	4	196
172	PEMBERSIHAN CYLINDER HYDRAULIC GV			228	4	232
173	PEMBERSIHAN BEARING GEAR BOX TURNING GEAR			109	4	113
174	CLEANING JOURNAL BEARING 1-4			179	12	191
175	CLEANING PAD THRUST BEARING		Q177	121	3	124
176	CLEANING OIL DEFLECTOR 1-4			114	2	116
177	PEKERJAAN NDT PART					
178	NDT CHECK WELDING JOINT HP TURBINE CASING			208	2	210
179	NDT CHECK ROTOR HP TURBINE ROTOR BLADE			210	16	226
180	NDT CHECK HP TURBINE NOZZLE DIAPHRAGM			210	16	226
181	NDT CHECK LABYRINTH HP TURBINE			210	16	226
182	NDT CHECK HP TURBINE BOLT & NUT		Q184	210	11	221

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NO	Task Name	SIMULATION	KODE	SEAT	TASK HOUR	TENSI
183	NDT CHECK HP TURBINE GLAND LABYRINTH (GRV)			221	16	237
184	NDT CHECK WELDING JOINT LP OUTER CASING			206	2	208
185	NDT CHECK WELDING JOINT LP INNER CASING			206	2	208
186	NDT CHECK LP TURBINE BOLT & NUT (INNER)			206	24	230
187	NDT CHECK ROTOR LP TURBINE			206	24	230
188	NDT CHECK NOZZLE DIAPHRAGM LP TURBINE			206	24	230
189	NDT CHECK LABYRINTH LP TURBINE SEAL STRIP			206	2	208
190	NDT CHECK LP TURBINE GLAND LABYRINTH (GRV)			208	2	210
191	NDT WELDING JOIN SEAT & BODY VALVE MSV			196	2	198
192	NDT CHECK MSV BOLT AND NUT			198	8	206
193	NDT CHECK MSV BUSHING AND STEM			206	2	208
194	NDT CHECK MSV SEAT & DISC VALVE			208	2	210
195	NDT CHECK MSV STRAINER			210	2	212
196	NDT CHECK GV BODY VALVE			232	2	234
197	NDT CHECK GV BOLT & NUT			234	8	242
198	NDT CHECK GV BUSHING & STEM			242	2	244
199	NDT CHECK GV SEAT & DISC VALVE			244	2	246
200	NDT CHECK SPRING GV			246	2	248
201	NDT CHECK TURBIN - TURNING GEAR			113	2	115
202	NDT CHECK JOURNAL BEARING 1-4			191	6	197
203	NDT CHECK THRUST BEARING			124	2	126
204	NDT CHECK OIL DEFLECTOR 1-4			116	2	118
205	<b>PEKERJAAN PEMASANGAN DAN FINAL CHECK</b>					
206	<b>TURBIN UTAMA</b>					
207	<b>FRONT STANDAR</b>					
208	PASANG CASING FRONT PEDESTAL		Q210	308	2	310
209	<b>PENGAMBILAN DATA AXIAL &amp; RADIAL CLEARANCE (AFTER)</b>					
210	CEK CLEARANCE AXIAL DAN RADIAL BLADE ROTOR STATOR (AFTER)		Q212	274	9	283
211	ALIGNMENT ROTOR LP-HP DAN LP-GENERATOR		Q213	283	22	305
212	<b>COUPLING ROTOR TURBINE</b>					
213	COUPLE COUPLING ROTOR LP-GENERATOR		Q215	253	19	272
214	TUTUP COVER COUPLING LP-GENERATOR			357	2	359
215	COUPLE COUPLING ROTOR HP - LP		Q217	272	17	289
216	TUTUP COVER COUPLING HP - LP			359	2	361
217	<b>HP TURBINE</b>					
218	<b>HP TURBINE INNER CASING</b>					
219	ASSEMBLY UPPER INNER CASING TURBIN		Q221	289	16	305
220	DATA EXTENSION BOLT		Q222	305	9	314
221	CHECK CLEARANCE SPLIT LINE (AFTER)			314	1	315
222	<b>HP TURBINE OUTER CASING</b>					
223	ASSEMBLY UPPER OUTER CASING TURBIN		Q225	310	8	318
224	DATA EXTENSION BOLT		Q226	318	11	329
225	CHECK CLEARANCE SPLIT LINE (AFTER)			329	1	330
226	<b>HP TURBINE ROTOR BLADE</b>					
227	LIFT IN ROTOR BLADE HP TURBINE ROTOR BLADE		Q229	259	5	264
228	<b>HP TURBINE NOZZLE DIAPHRAGM</b>					
229	ASSEMBLY LOWER NOZZLE DIAPRAGM HIP			237	6	243
230	<b>HP TURBINE GLAND LABYRINTH (GRV)</b>					
231	ASSEMBLY UPPER HP TURBINE GLAND LABYRINTH (GRV)		Q233	337	3	340
232	CEK CLEARANCE		Q234	340	2	342
233	<b>CROSS OVER PIPE</b>					
234	PEMASANGAN SCAFFOLDING		Q236	370	4	374
235	ASSEMBLY CROSS OVER PIPE		Q237	374	8	382
236	PENGANTIAN GASKET		Q238	382	2	384
237	PEMBONGKARAN SCAFFOLDING		Q239	390	3	393
238	<b>LP TURBINE</b>					
239	<b>LP TURBINE CASING (INNER)</b>					
240	BOLTING DAN LIFT IN LP TURBINE CASING (INNER)		Q242	315	11	326
241	DATA EXTENSION BOLT		Q243	326	10	336
242	CHECK CLEARANCE SPLIT LINE (AFTER)		Q244	336	1	337
243	<b>LP TURBINE CASING (OUTTER)</b>					
244	ASSEMBLY TURBINE CASING (OUTTER)		Q246	345	7	352
245	CHECK CLEARANCE SPLIT LINE (AFTER)		Q247	352	1	353
246	<b>LP TURBINE ROTOR BLADE</b>					
247	LIFT IN ROTOR LP TURBINE ROTOR BLADE		Q249	264	5	269
248	<b>LP TURBINE NOZZLE DIAPHRAGM</b>					
249	ASSEMBLY LOWER NOZZLE DIAPRAGM LP		Q251	243	8	251
250	ASSEMBLY UPPER NOZZLE DIAPRAGM LP		Q252	305	8	313
251	<b>LP TURBINE GLAND LABYRINTH (GRV)</b>					
252	ASSEMBLY UPPER LP TURBINE GLAND LABYRINTH (GRV)			342	2	344
253	CEK CLEARANCE			344	1	345
254	<b>TURBINE MAIN STEAM VALVE NO.1 &amp; NO.2</b>					
255	<b>MSV BODY VALVE</b>					
256	ASSEMBLY		Q258	212	9	221
257	PEMASANGAN HEAT INSULATION		Q259	221	9	230
258	CEK CLEARANCE FLANGE AFTER DISASSEMBLY			230	1	231
259	<b>TURBINE - GOVERNOR VALVE NO.1, 2, 3 &amp; 4</b>					
260	<b>GV BODY VALVE</b>					
261	ASSEMBLY		Q263	248	10	258
262	DATA EXTENSION BOLT		Q264	258	10	268
263	CEK CLEARANCE FLANGE AFTER ASSEMBLY			268	1	269
264	PEMBONGKARAN SCAFFOLDING		Q266	269	3	272
265	<b>MAIN STEAM LINE</b>					
266	PEMASANGAN FLANGE MAIN STEAM LINE		Q268	330	3	333
267	PEMASANGAN GASKET			333	1	334
268	DATA GAP FLANGE MAIN STEAM LINE (AFTER)			334	1	335
269	<b>TURBIN - TURNING GEAR</b>					
270	ASSEMBLY		Q272	361	9	370
271	<b>TURBIN-BEARING</b>					
272	<b>JOURNAL BEARING 1-4</b>					
273	ASSEMBLY LOWER JOURNAL BEARING 1-4			251	2	253

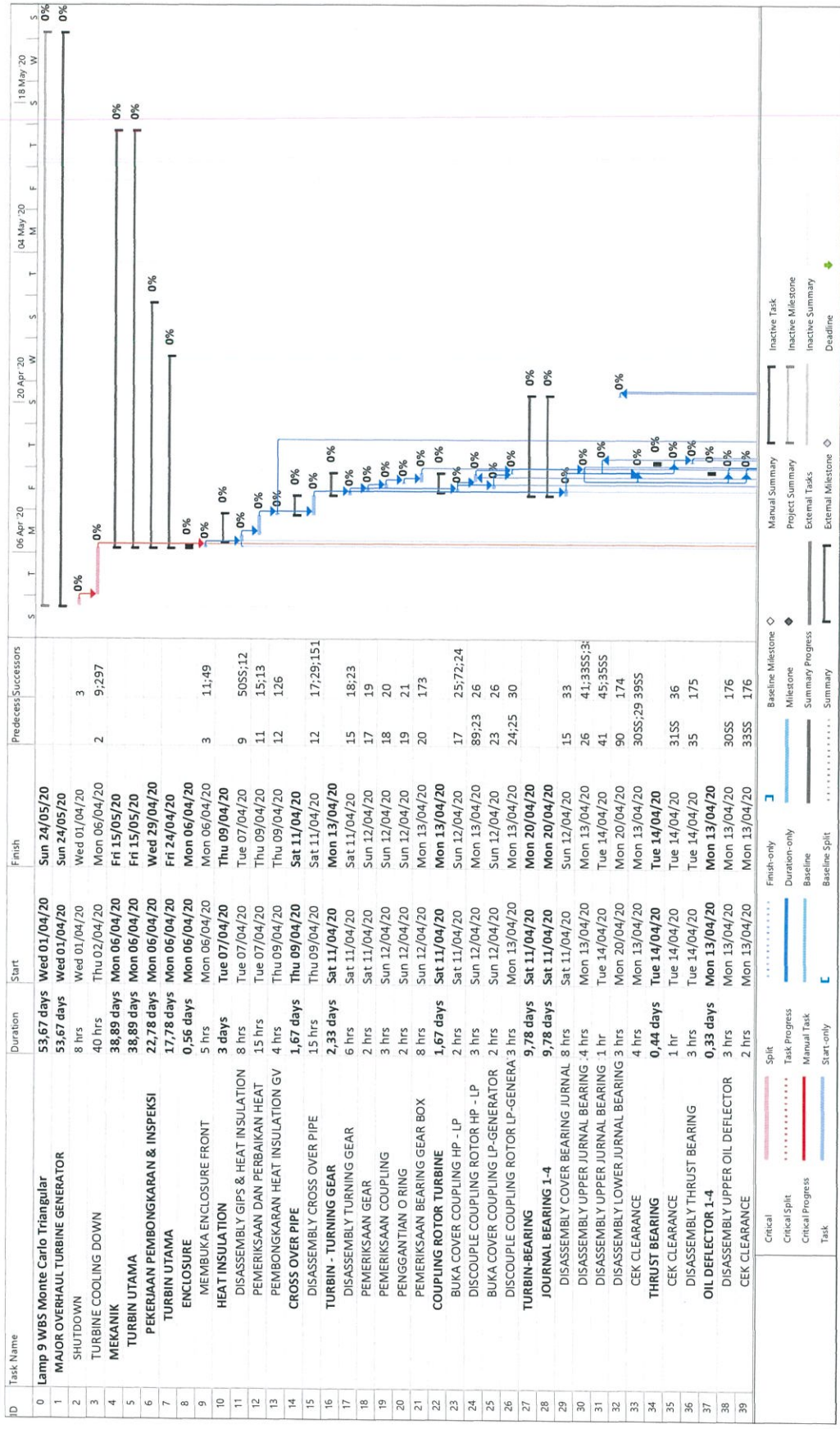
Lampiran 8 Hasil Simulasi Monte Carlo Betapert

NO	Task Name	SIMULATION	KODE	START	TASK HOUR	FINISH
274	ASSEMBLY UPPER JURNAL BEARING 1-4			251	2	253
275	CEK CLEARANCE (AFTER)		Q277	253	3	256
276	CONTACT CHECK (AFTER)		Q278	253	3	256
277	ASSEMBLY COVER BEARING LP & HP TURBINE		Q279	353	4	357
278	<b>THRUST BEARING</b>					
279	ASSEMBLY THRUST BEARING		Q281	269	3	272
280	CEK CLEARANCE (AFTER)			272	2	274
281	<b>OIL DEFLECTOR 1-4</b>					
282	ASSEMBLY LOWER OIL DEFLECTOR			253	2	255
283	ASSEMBLY UPPER OIL DEFLECTOR			253	2	255
284	<b>MOP</b>					
285	ASSEMBLY MOP		Q287	255	4	259
286	ALIGNMENT MOP		Q288	305	3	308
287	<b>HEAT INSULATION</b>					
288	PEMASANGAN HEAT INSULATION BODY GV		Q290	272	6	278
289	PEMASANGAN HEAT INSULATION MAIN STEAM LINE		Q291	335	4	339
290	PEMASANGAN HEAT INSULATION FRONT STANDART		Q292	310	6	316
291	PEMASANGAN HEAT INSULATION CROSS OVER PIPE		Q293	384	6	390
292	<b>ENCLOSURE</b>					
293	PASANG ENCLOSURE FRONT STANDART		Q295	393	4	397
294	<b>LISTRİK</b>					
295	<b>GENERATOR</b>					
296	<b>BRUSH EXCITER</b>					
297	BUKA COVER EXCITER (RUMAH EXCITER)			48	4	52
298	PENGUKURAN TAHANAN ISOLASI MOUNTING PLATE			52	1	53
299	PEMERIKSAAN/PENGGANTIAN CARBON BRUSH			53	2	55
300	PEMERIKSAAN TERMINASI			55	3	58
301	PEMERIKSAAN MOUNTING PLATE			58	4	62
302	PENGUKURAN TAHANAN ISOLASI MOUNTING PLATE			62	1	63
303	TUTUP COVER EXCITER			63	4	67
304	<b>GENERATOR</b>					
305	<b>DISASSEMBLY</b>					
306	PEMASANGAN SCAFFOLDING		Q308	52	4	56
307	Membuka Titik Bintang			56	6	62
308	Pengukuran Tahanan Isolasi Stator & Rotor		Q310	62	2	64
309	Drying line stator cooling		Q311	64	9	73
310	Pemeriksaan Shaft Grounding			73	2	75
311	Pelepasan cover kopling generator			75	4	79
312	PELEPASAN BRACKET UPPER SISI EXCITER			79	8	87
313	PELEPASAN BRACKET UPPER SISI TURBINE			87	8	95
314	PENGUKURAN & PELEPASAN UPPER OUTER OIL DEFLECTOR BEARING 5 DAN 6			95	4	99
315	PENGUKURAN (SESUAI REKOMENDASI) DAN PEMBONGKARAN STOPPER BEARING 5 & 6		Q317	99	3	102
316	PENGUKURAN DAN PEMBONGKARAN BEARING UPPER 5 DAN 6			102	6	108
317	PENGUKURAN CLEARANCE BEARING UPPER 5 DAN 6			108	2	110
318	PENGUKURAN CLEARANCE DAN PEMBONGKARAN BEARING UPPER 7			110	4	114
319	PENGUKURAN DAN PEMBONGKARAN CLEARANCE BEARING LOWER 7			114	6	120
320	PENGUKURAN DAN PEMBONGKARAN H2 SEAL RING UPPER BEARING 5 DAN 6			120	4	124
321	PENGUKURAN DAN PEMBONGKARAN UPPER INNER OIL DEFLECTOR BEARING 5 & 6			124	4	128
322	PENGUKURAN DAN PEMBONGKARAN LOWER OUTER OIL DEFLECTOR BEARING 5 & 6			128	4	132
323	PENGUKURAN CLEARANCE BEARING LOWER 5 & 6			132	2	134
324	PEMBONGKARAN BEARING LOWER 5 & 6			134	6	140
325	PENGUKURAN DAN PEMBONGKARAN H2 SEAL RING LOWER BEARING 5 & 6			140	6	146
326	PENGUKURAN DAN PEMBONGKARAN LOWER INNER OIL DEFLECTOR BEARING 5 & 6			146	4	150
327	PELEPASAN SHAFT SUPPORT BEARING 7			150	4	154
328	PELEPASAN PONDASI EXCITER			154	4	158
329	PEMBONGKARAN DEFUSER END WINDING 2 SISI			158	6	164
330	PEMBONGKARAN BRACKET LOWER SISI EXCITER			164	6	170
331	PEMBONGKARAN BRACKET LOWER SISI TURBINE			170	6	176
332	PERSIAPAN PEMASANGAN SPESIAL TOOLS PULL OUT			176	8	184
333	PULL OUT ROTOR GENERATOR		Q335	184	8	192
334	<b>INSPEKSI</b>					
335	PEMERIKSAAN END WINDING			192	4	196
336	CLEANING DAN RED INSULATION WINDING STATOR		Q338	196	10	206
337	CLEANING DAN RED INSULATION ROTOR		Q339	206	10	216
338	PEMERIKSAAN FAN BLADE			216	2	218
339	PEMERIKSAAN STATOR, WEDGS [VISUAL & ASSESSMENT]		Q341	218	13	231
340	PEMERIKSAAN DAN PENGUKURAN UT/PT BEARING 5,6,7,H2 SEAL RING DAN DEFLECTOR			231	20	251
341	PEMERIKSAAN ROTOR [VISUAL & ASSESSMENT]			251	12	263
342	PEMERIKSAAN DAN CLEANING BAUT		Q344	263	13	276
343	PEMASANGAN DEFUSER END WINDING 2 SISI			276	8	284
344	PEMERIKSAAN VISUAL & CLEANING FLEXIBLE, ISOLATOR OUTGOING			284	8	292
345	<b>ASSEMBLY</b>					
346	PERSIAPAN PEMASANGAN SPESIAL TOOLS PULL IN			292	6	298
347	PULL IN ROTOR GENERATOR			298	8	306
348	PEMASANGAN BRACKET LOWER SISI EXCITER			306	6	312
349	PEMASANGAN BRACKET LOWER SISI TURBINE			312	6	318
350	PEMASANGAN & PEMERIKSAAN LOWER INNER OIL DEFLECTOR BEARING 5 & 6			318	6	324
351	PEMASANGAN & PEMERIKSAAN H2 SEAL RING LOWER BEARING 5 & 6			324	8	332
352	PEMASANGAN & PEMERIKSAAN BEARING LOWER 5 & 6		Q354	332	8	340
353	PENGUKURAN CLEARANCE BEARING LOWER 5 & 6 AFTER			340	2	342
354	PEMASANGAN & PEMERIKSAAN UPPER INNER OIL DEFLECTOR BEARING 5 & 6		Q356	342	5	347
355	PEMASANGAN & PEMERIKSAAN H2 SEAL RING UPPER BEARING 5 & 6		Q357	347	5	352
356	PEMASANGAN & PEMERIKSAAN BEARING UPPER 5 & 6		Q358	352	8	360
357	PEMERIKSAAN VISUAL & CLEARANCE BEARING UPPER 5 DAN 6			360	4	364
358	PEMERIKSAAN & PEMASANGAN UPPER OUTER OIL DEFLECTOR BEARING 5 DAN 6			364	4	368
359	PEMASANGAN BRACKET UPPER SISI EXCITER		Q361	368	5	373
360	PEMASANGAN BRACKET UPPER SISI TURBINE		Q362	373	5	378
361	PEMASANGAN PONDASI EXCITER		Q363	378	5	383
362	PEMASANGAN SHAFT SUPPORT BEARING 7		Q364	383	5	388
363	PEMASANGAN & PEMERIKSAAN BEARING LOWER 7			388	6	394
364	PEMASANGAN & PEMERIKSAAN BEARING UPPER 7			394	6	400
365	BEARING OIL FLUSHING			400	4	404
366	FINAL CHECK		Q368	404	13	417
367	TAGGING RELEASED		Q369	417	3	420
368	<b>NGR</b>					

Lampiran 8 Hasil Simulasi Monte Carlo Betapert

NO	Task Name	SIMULATION	KODE	START	TASK HOUR	FINISH
369	PEMBERSIHAN DAN PENGUKURAN TRAF0			67	8	75
370	PEMBERSIHAN DAN PENGUKURAN RESISTOR		Q372	75	5	80
371	PEMERIKSAAN TERMINASI		Q373	80	5	85
372	STATOR COOLER					
373	PEMERIKSAAN & VISUAL CHECK LINE STATOR COOLER		Q375	85	6	91
374	PEMERIKSAAN DAN PEMBERSIHAN TUBE STATOR COOLER		Q376	91	8	99
375	FLOW TEST			99	8	107
376	13 & KV IPB BUS DUCT					
377	BUKA MANHOLE; PEMBERSIHAN DAN PEMERIKSAAN BUS BAR			107	16	123
378	PEMERIKSAAN KONDISI TEKANAN UDARA			123	4	127
379	PEMERIKSAAN GROUNDING		Q381	127	3	130
380	PEMERIKSAAN COMPRESSOR		Q382	130	6	136
381	TUTUP MANHOLE		Q383	136	3	139
382	FASE START UP & COMMISSIONING					
383	FLUSHING			420	8	428
384	INTERLOCK TEST (TURBINE-GENERATOR)			428	4	432
385	BOILER FIRING			428	8	436
386	DEGASING			428	8	436
387	TURNING GEAR START			436	4	440
388	TURBINE START			440	4	444
389	FUNCTION TEST A/C D/C LUBE OIL			440	4	444
390	FIRST SYNCRONE (30% DARI KAPASITAS LOAD)			444	8	452
391	PENURUNAN BEBAN (LEPAS JARING - JARING)			452	8	460
392	TRIP DEVICE TURBINE			460	8	468
393	ROLLING			468	8	476
394	SYNCHRONE			476	0	476
	Working Time Normal			Hour	8	
	Duration Project			Day	59,5	
	Working Time Normal + Add Time			Hour	9	
	Duration Project			Day	52,88888889	
	Duration Standart			Hour	480	
	Duration Standart			Day	60	
	Variant Duration With Working Time Normal	Leading		Day	0,5	
	Variant Duration With Working Time Normal + Add Time	Leading		Day	7,111111111	

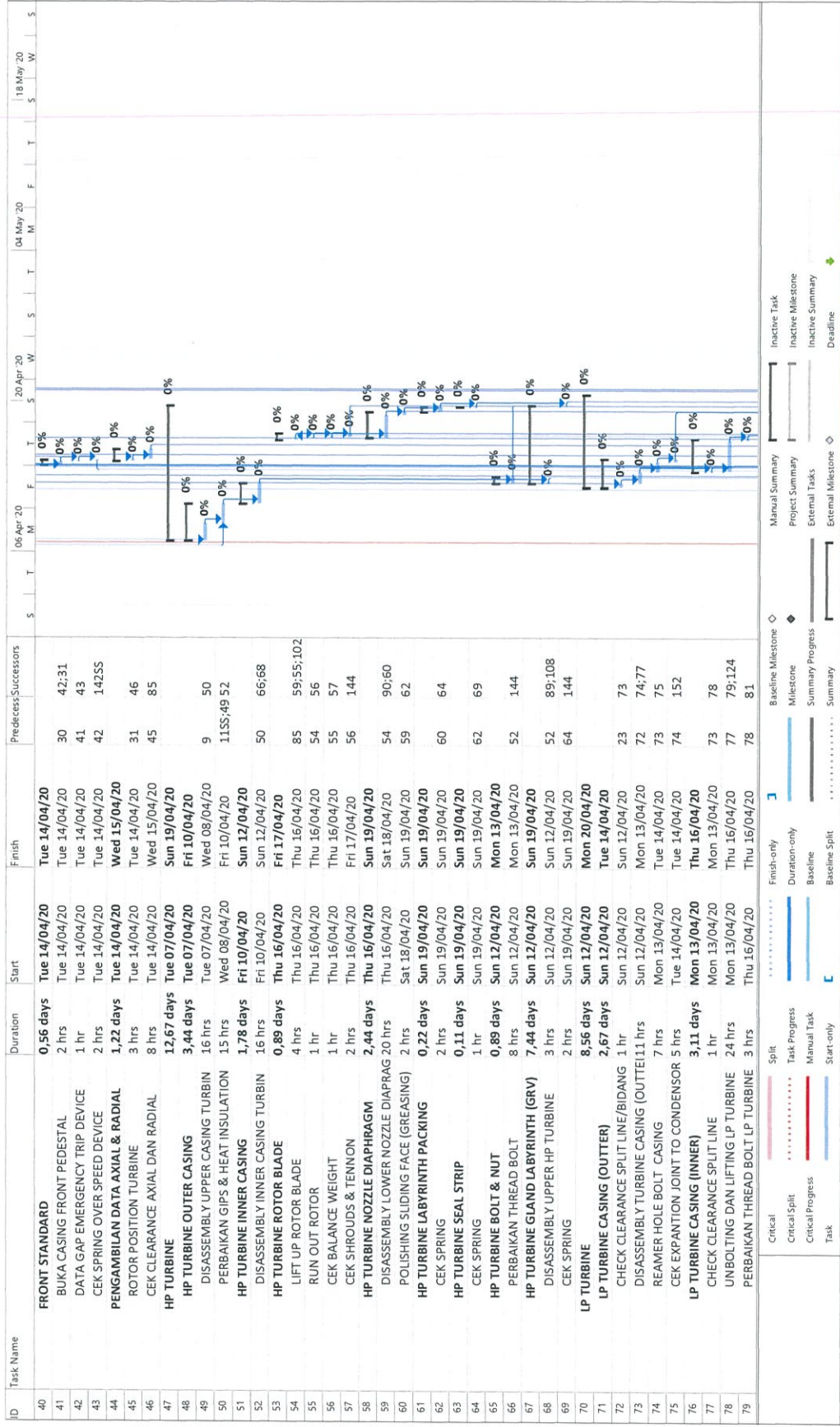




Legend:

- Critical
- Critical Split
- Critical Progress
- Task
- Split
- Task Progress
- Manual Task
- Start-only
- Finish-only
- Duration-only
- Baseline
- Baseline Split
- Manual Summary
- Project Summary
- External Tasks
- External Milestone
- Baseline Milestone
- Milestone
- Summary Progress
- Summary
- Inactive Task
- Inactive Milestone
- Inactive Summary
- Deadline





Critical Critical Split Critical Progress Task Split Task Progress Manual Task Start-only Finish-only Duration-only Baseline Baseline Split Manual Summary Project Summary External Tasks External Milestone Baseline Milestone Milestone Summary Progress Summary Inactive Task Inactive Milestone Inactive Summary Deadline

ID	Task Name	Duration	Start	Finish	Predecessors/Successors	06 Apr '20	10 Apr '20	14 Apr '20	18 Apr '20	22 Apr '20	26 Apr '20	30 Apr '20	04 May '20	08 May '20	12 May '20	16 May '20	18 May '20
80	LP TURBINE BOLT & NUT (OUTER)	0,89 days	Thu 16/04/20	Fri 17/04/20													
81	PERBAIKAN BOLT THREAD LP TURBINE	8 hrs	Thu 16/04/20	Fri 17/04/20	79												
82	LP TURBINE BOLT & NUT (INNER)	1,67 days	Fri 17/04/20	Sun 19/04/20	83												
83	PERBAIKAN THREAD BOLT LP TURBINE	15 hrs	Fri 17/04/20	Sun 19/04/20	81												
84	LP TURBINE ROTOR BLADE	1,78 days	Wed 15/04/20	Fri 17/04/20													
85	LIFT UP ROTOR	6 hrs	Wed 15/04/20	Thu 16/04/20	46												
86	CEK BALANCE WEIGHT	5 hrs	Thu 16/04/20	Thu 16/04/20	85												
87	CEK SHROUDS & TENNON	5 hrs	Thu 16/04/20	Fri 17/04/20	86												
88	LP TURBINE NOZZLE DIAPHRAGM	8,11 days	Sun 12/04/20	Mon 20/04/20													
89	DISASSEMBLY UPPER NOZZLE DIAPHRAGM	3 hrs	Sun 12/04/20	Sun 12/04/20	68												
90	DISASSEMBLY LOWER NOZZLE DIAPHRAGM	16 hrs	Sat 18/04/20	Mon 20/04/20	59												
91	LP TURBINE LABYRINTH PACKING	0,22 days	Fri 17/04/20	Fri 17/04/20	32												
92	CEK SPRING	2 hrs	Fri 17/04/20	Fri 17/04/20	87												
93	LP TURBINE SEAL STRIP	0,33 days	Fri 17/04/20	Fri 17/04/20	94												
94	INSPEKSI VISUAL	3 hrs	Fri 17/04/20	Fri 17/04/20	96												
95	LP TURBINE GLAND LABYRINTH (GRV)	0,56 days	Fri 17/04/20	Sat 18/04/20													
96	INSPEKSI VISUAL	3 hrs	Fri 17/04/20	Sat 18/04/20	94												
97	CEK SPRING	2 hrs	Sat 18/04/20	Sat 18/04/20	96												
98	LP TURBINE RELIEF DIAPHRAGM	0,56 days	Sat 18/04/20	Sat 18/04/20	97												
99	CEK RELIEF DIAPHRAGM	3 hrs	Sat 18/04/20	Sat 18/04/20	100												
100	PENGGANTIAN GASKET	2 hrs	Sat 18/04/20	Sat 18/04/20	99												
101	MOP	2,67 days	Thu 16/04/20	Sun 19/04/20													
102	DISASSEMBLY MOP	10 hrs	Thu 16/04/20	Fri 17/04/20	54												
103	PEMERIKSAAN BEARING	12 hrs	Fri 17/04/20	Sun 19/04/20	102												
104	PENGGANTIAN GASKET, O RING	1 hr	Sun 19/04/20	Sun 19/04/20	103												
105	PEMERIKSAAN IMPELER	1 hr	Sun 19/04/20	Sun 19/04/20	104												
106	TURBINE MAIN STEAM VALVE	6,22 days	Sun 12/04/20	Sat 18/04/20	104												
107	MSV	2,56 days	Sun 12/04/20	Wed 15/04/20													
108	CEK CLEARANCE FLANGE BEFORE	2 hrs	Sun 12/04/20	Sun 12/04/20	68												
109	PEMBONGKARAN HEAT INSULATION	3 hrs	Sun 12/04/20	Mon 13/04/20	108												
110	DISASSEMBLY	15 hrs	Mon 13/04/20	Tue 14/04/20	109												
111	PENGGANTIAN GASKET	2 hrs	Tue 14/04/20	Tue 14/04/20	110												
112	DATA GAP FLANGE	1 hr	Wed 15/04/20	Wed 15/04/20	111												
113	MSV BOLT AND NUT	1,11 days	Wed 15/04/20	Thu 16/04/20													
114	PERBAIKAN THREAD BOLT	10 hrs	Wed 15/04/20	Thu 16/04/20	112												
115	MSV BUSHING AND STEM	0,33 days	Thu 16/04/20	Thu 16/04/20	114												
116	POLISHING SLIDING FACE	3 hrs	Thu 16/04/20	Thu 16/04/20	114												
117	MSV SEAT & DISC VALVE	1,89 days	Thu 16/04/20	Sat 18/04/20	116												
118	LAPPING	15 hrs	Thu 16/04/20	Sat 18/04/20	116												
119	CONTACT CHECK	2 hrs	Sat 18/04/20	Sat 18/04/20	118												

Manual Summary | Project Summary | External Tasks | Inactive Task | Inactive Milestone | Inactive Summary | Deadline

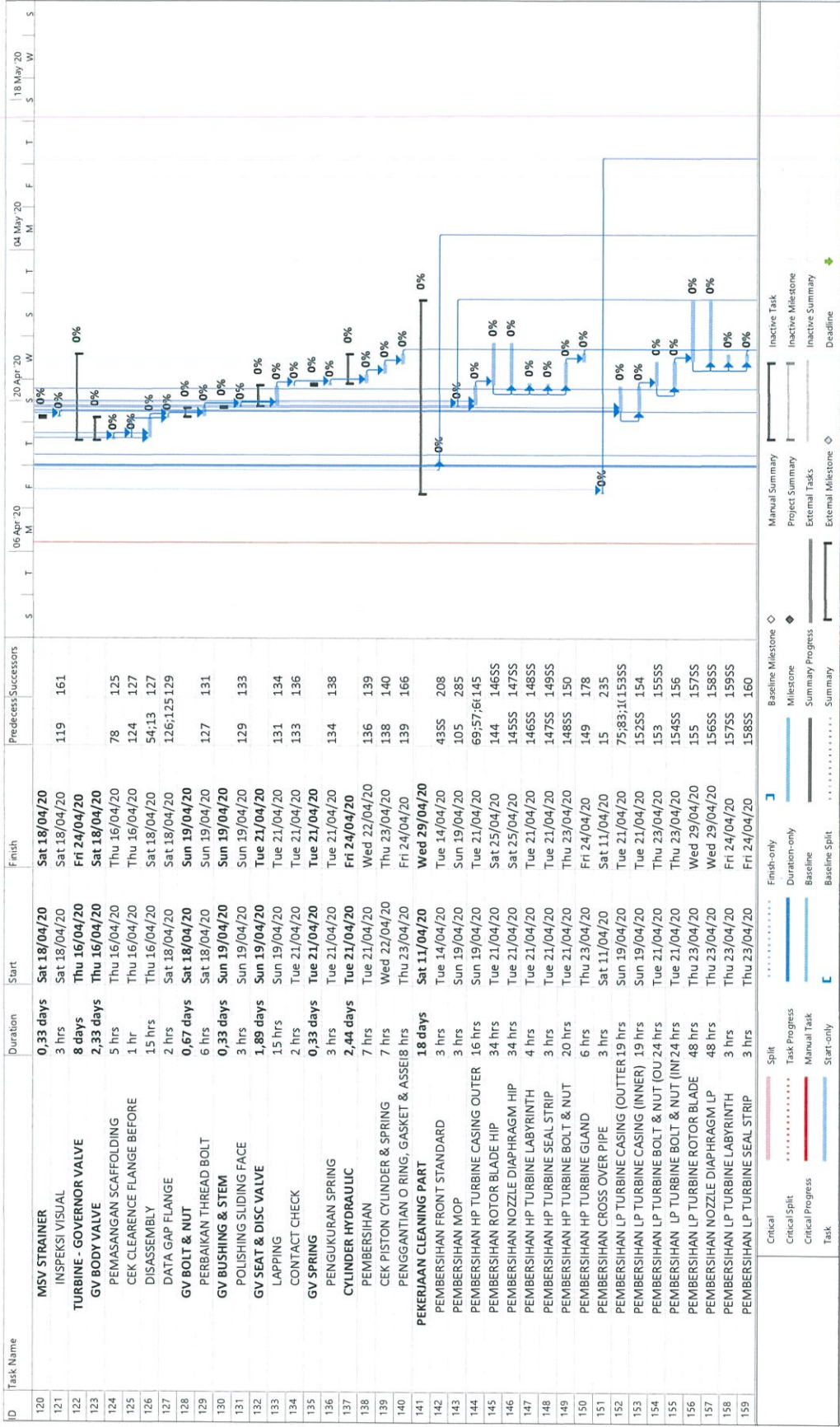
Baseline Milestone | Milestone | Summary Progress | Summary

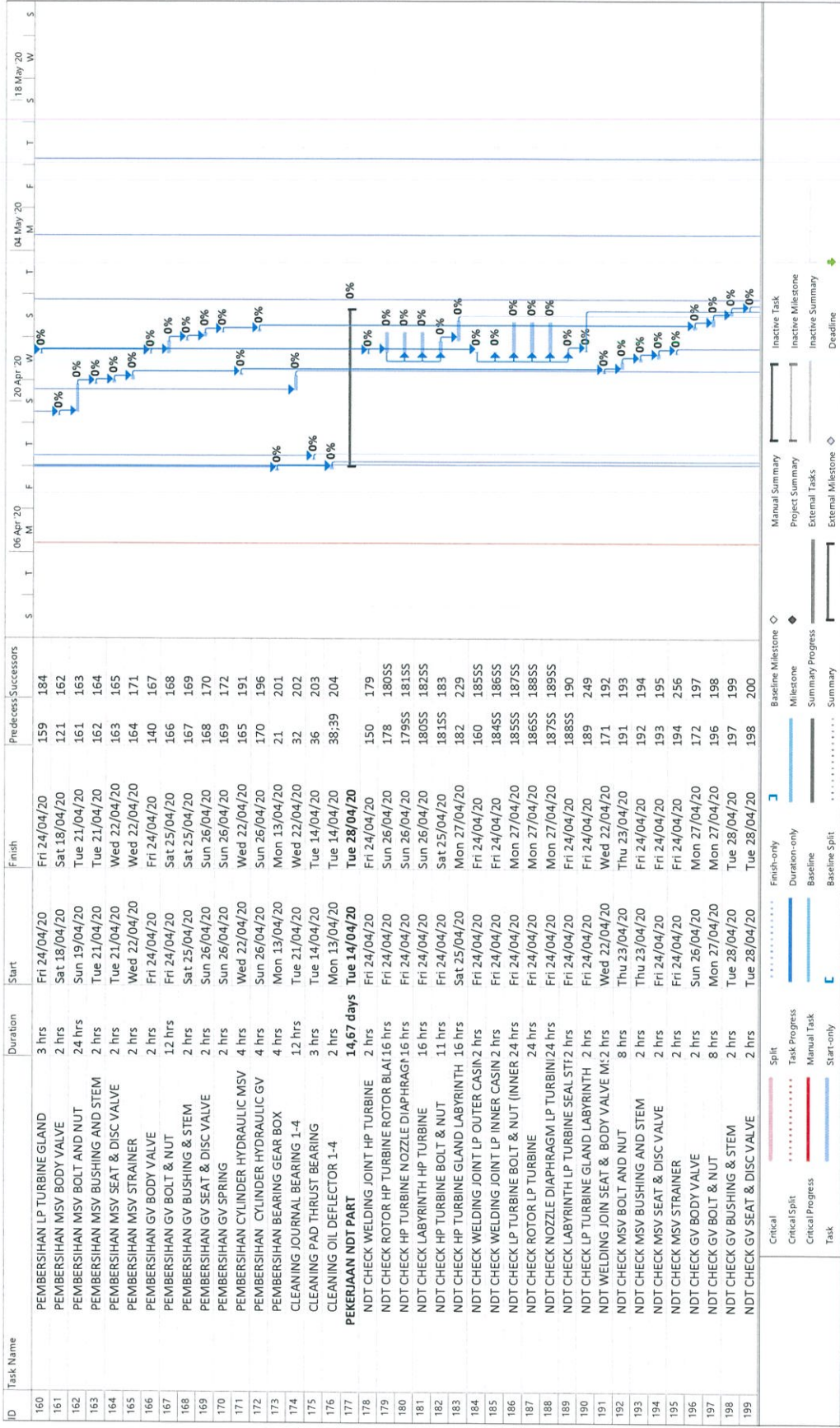
Finish-only | Duration-only | Baseline | Baseline-Split

Critical | Split | Task Progress | Critical Progress | Task

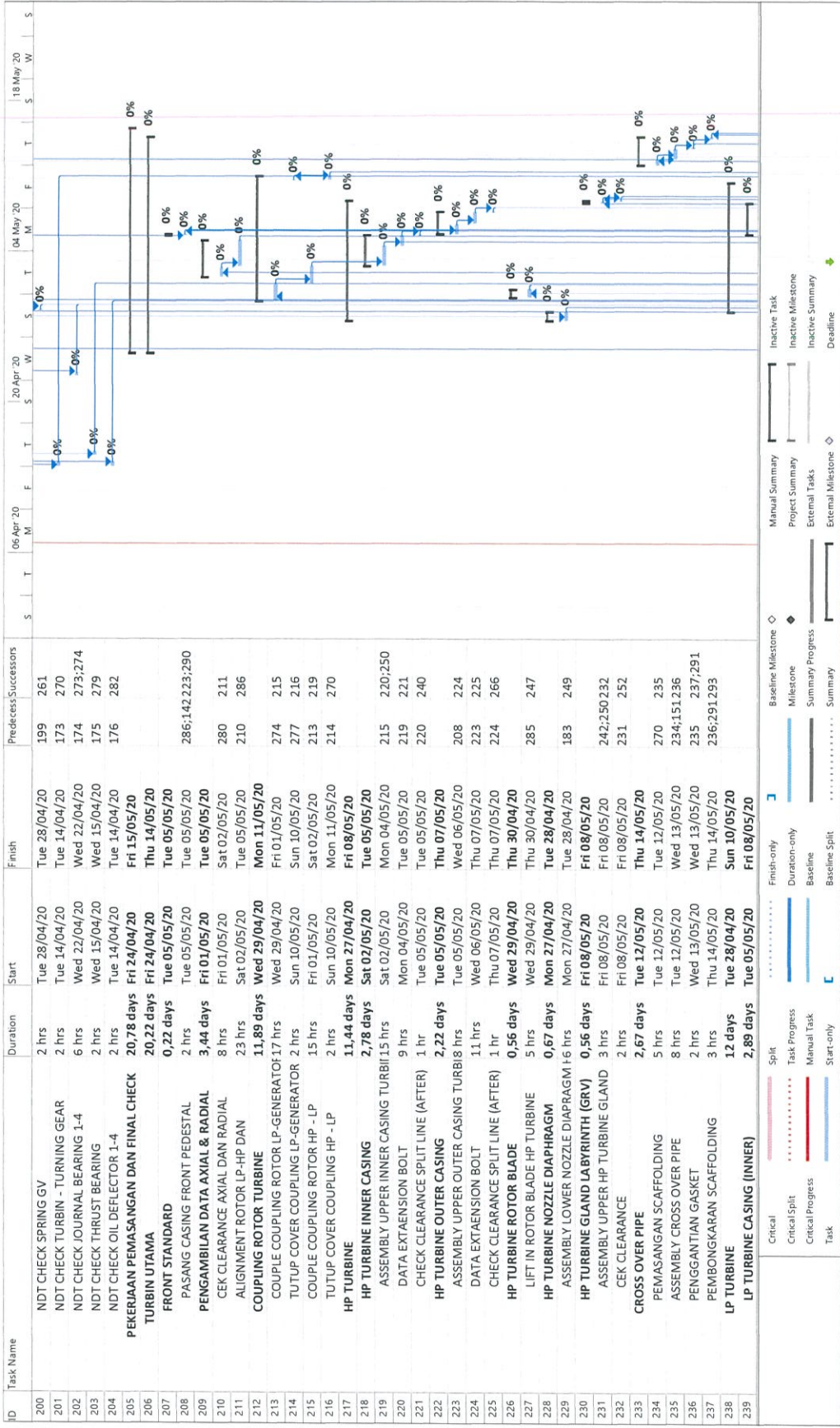
Start-only | Baseline-Split | Summary



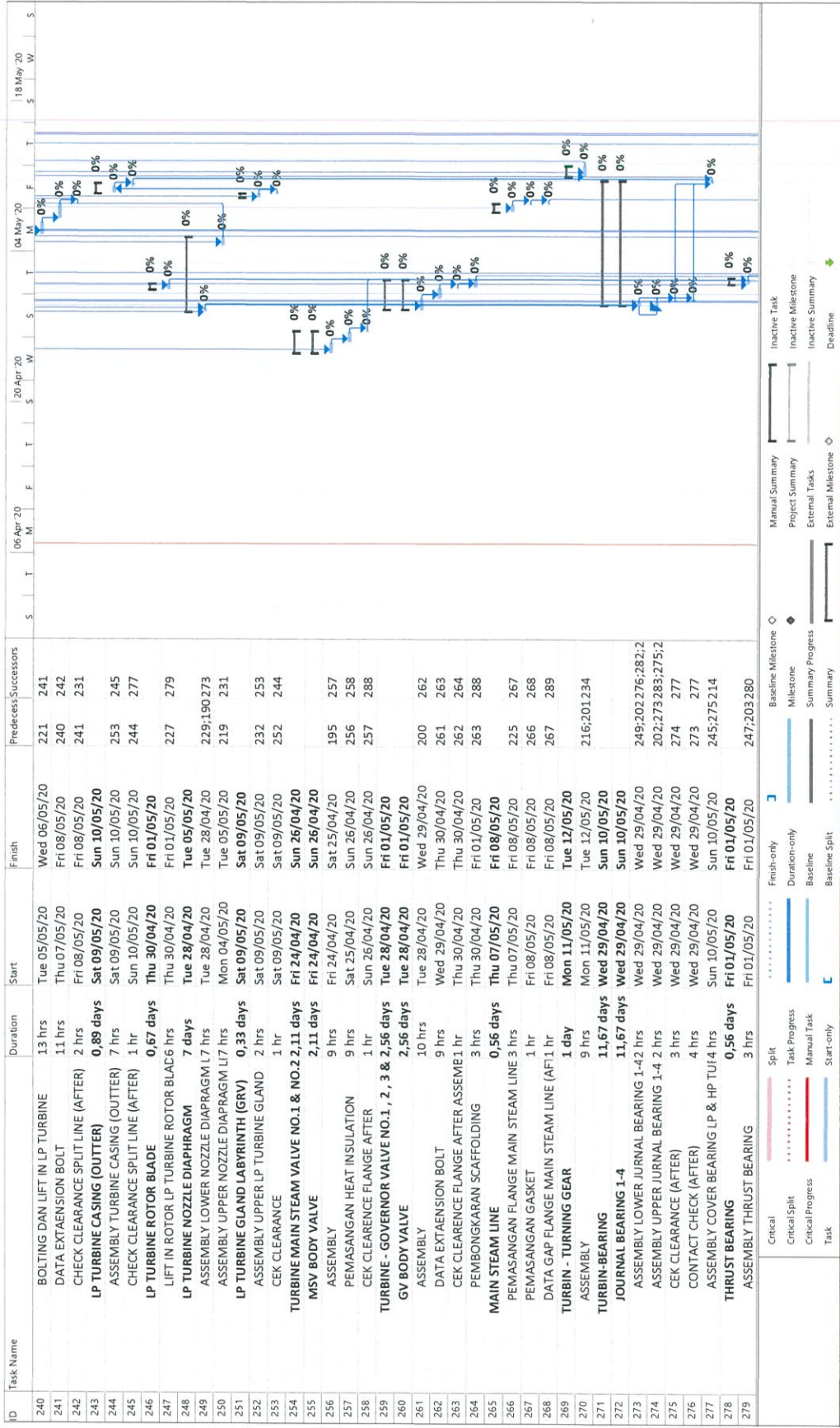




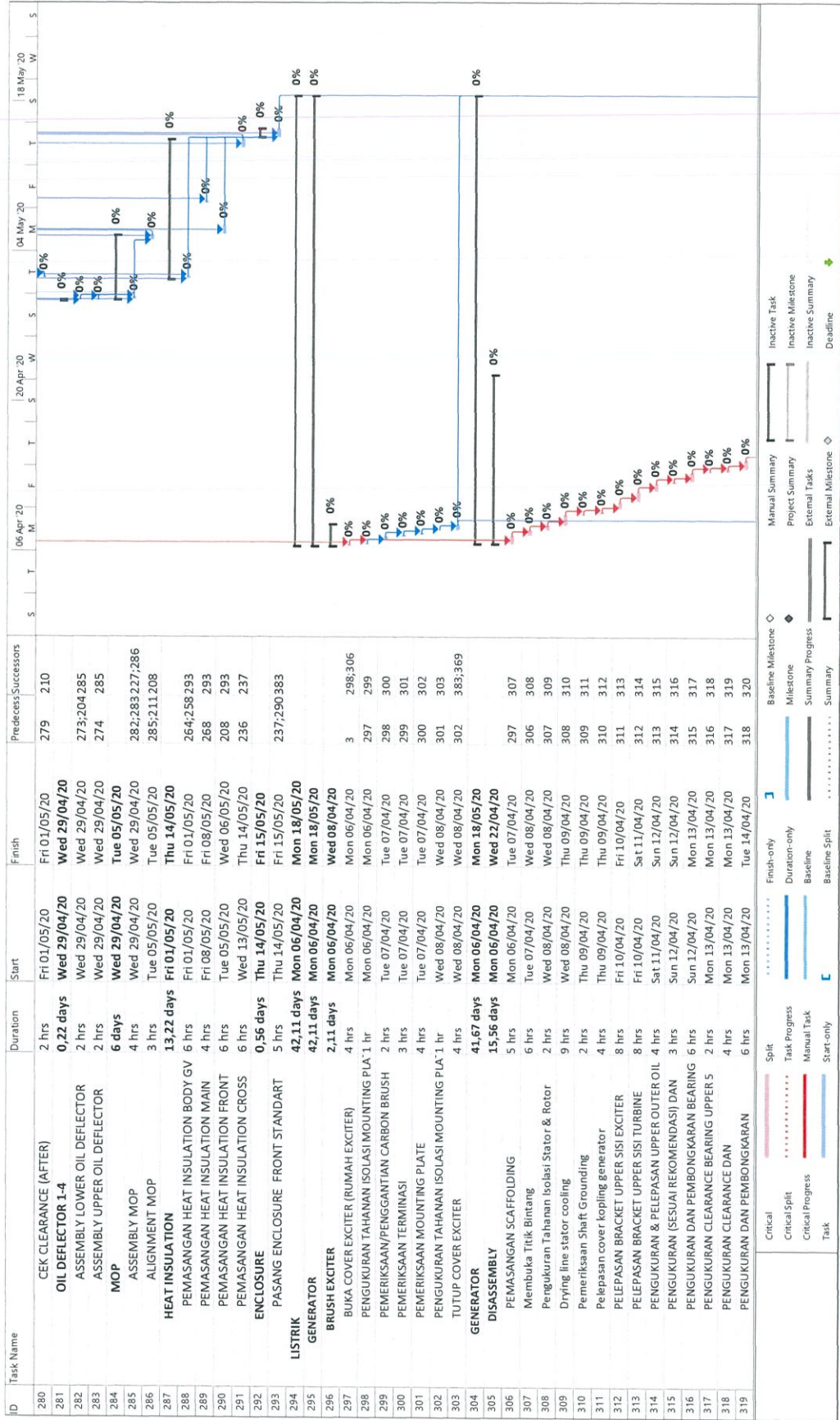








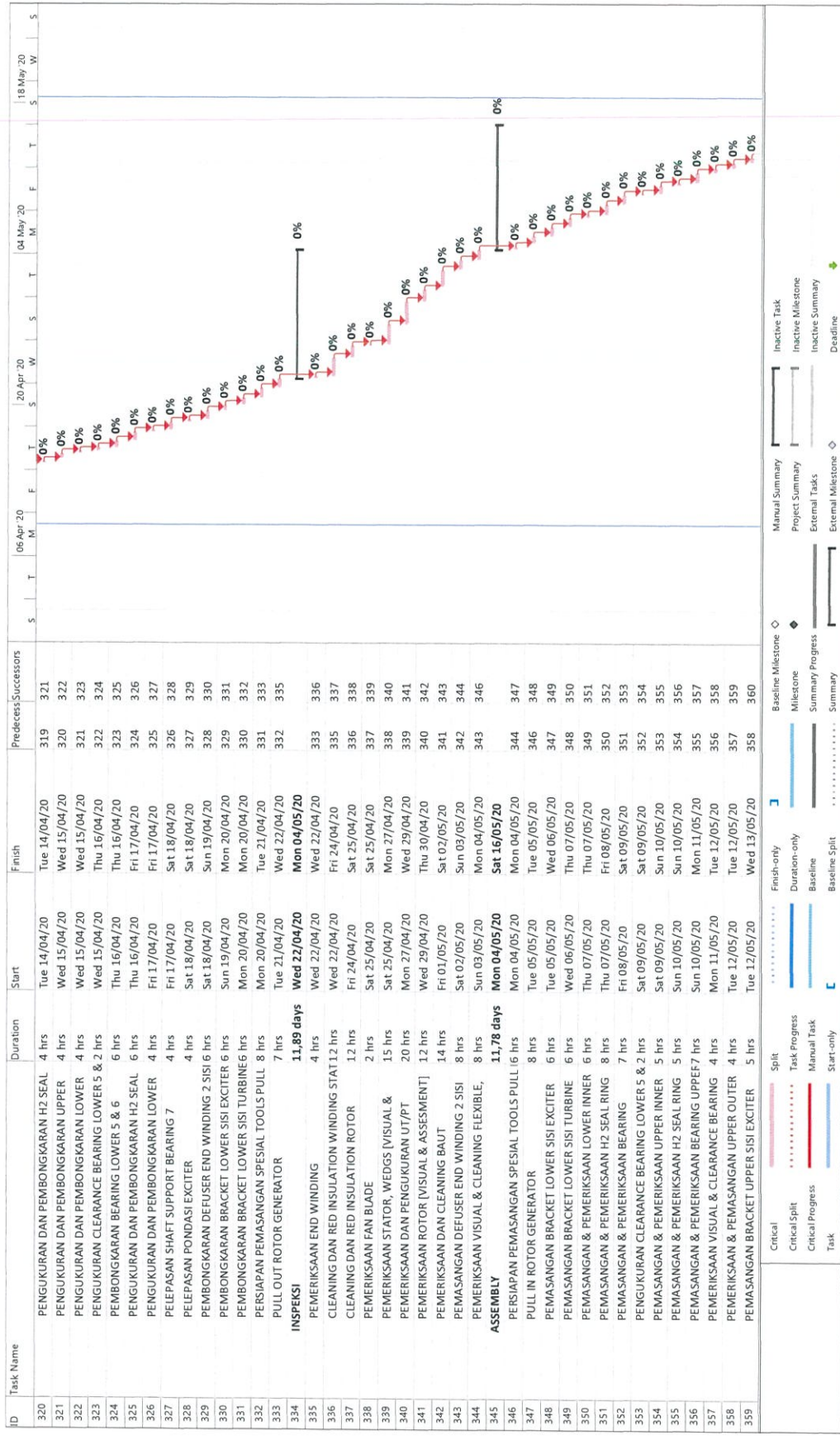
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■ Manual  
■ Task  
■ Critical Progress  
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■ Split  
■ Duration-only  
■ Finish-only  
■ Milestone  
■ Summary Progress  
■ Summary  
■ Baseline Split  
■ Baseline  
■ Baseline Milestone  
■ Inactive Task  
■ Inactive Milestone  
■ Inactive Summary  
■ External Tasks  
■ External Milestone  
■ Deadline



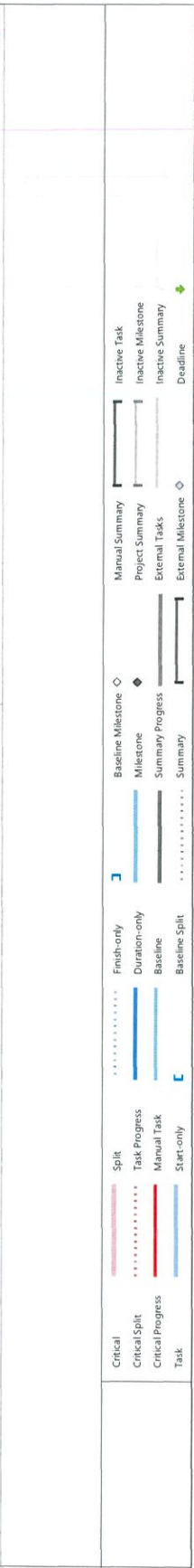
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- Critical Split**: Dashed red line
- Critical Progress**: Solid blue line
- Task**: Solid black line
- Split**: Dashed black line
- Task Progress**: Solid blue line
- Manual Task**: Solid black line
- Start-only**: Solid black line
- Finish-only**: Solid black line
- Duration-only**: Solid black line
- Baseline**: Dashed black line
- Baseline Split**: Dashed black line
- Summary Progress**: Dashed black line
- Summary**: Dashed black line
- Milestone**: Diamond symbol
- Baseline Milestone**: Diamond symbol
- Inactive Milestone**: Diamond symbol
- Manual Summary**: Solid black line
- Project Summary**: Solid black line
- External Tasks**: Solid black line
- External Milestone**: Diamond symbol
- Inactive Task**: Solid black line
- Inactive Milestone**: Diamond symbol
- Inactive Summary**: Solid black line
- Deadline**: Solid black line with arrowhead

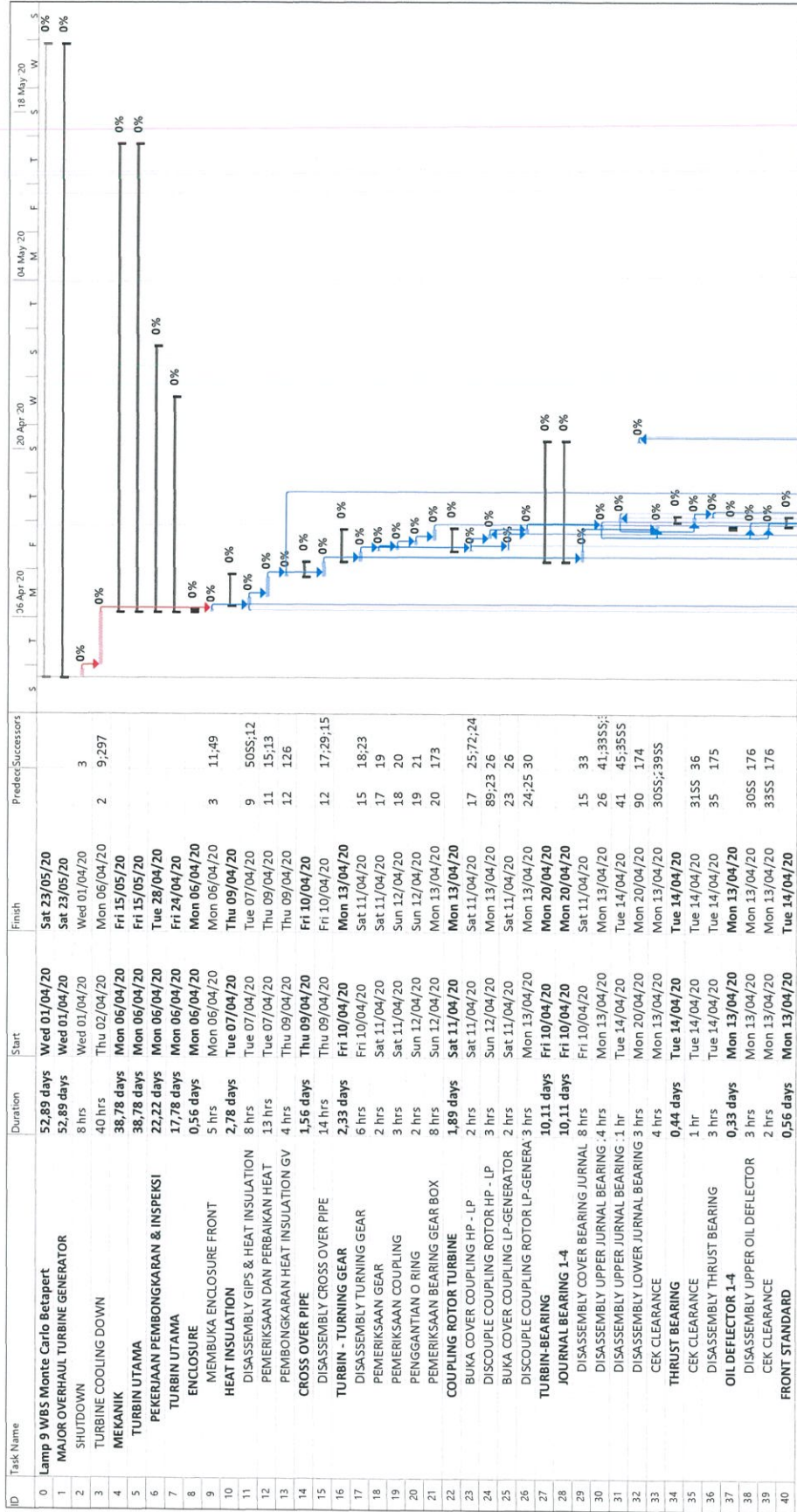




ID	Task Name	Duration	Start	Finish	Predecessors/Successors
360	PEMASANGAN BRACKET UPPER SISI TURBINE	5 hrs	Wed 13/05/20	Wed 13/05/20	359 361
361	PEMASANGAN PONDASI EXCITER	5 hrs	Wed 13/05/20	Thu 14/05/20	360 362
362	PEMASANGAN SHAFT SUPPORT BEARING 7	5 hrs	Thu 14/05/20	Thu 14/05/20	361 363
363	PEMASANGAN & PEMERIKSAAN BEARING LOWE 6 hrs	6 hrs	Thu 14/05/20	Fri 15/05/20	362 364
364	PEMASANGAN & PEMERIKSAAN BEARING UPPER 6 hrs	6 hrs	Fri 15/05/20	Sat 16/05/20	363 365
365	BEARING OIL FLUSHING	4 hrs	Sat 16/05/20	Sat 16/05/20	364 366
366	FINAL CHECK	15 hrs	Sat 16/05/20	Mon 18/05/20	365 367
367	TAGGING RELEASED	3 hrs	Mon 18/05/20	Mon 18/05/20	366 383
368	<b>NGR</b>	<b>2,11 days</b>	<b>Wed 08/04/20</b>	<b>Fri 10/04/20</b>	
369	PEMBERSIHAN DAN PENGUKURAN TRAF0	8 hrs	Wed 08/04/20	Thu 09/04/20	303 370
370	PEMBERSIHAN DAN PENGUKURAN RESISTOR	6 hrs	Thu 09/04/20	Fri 10/04/20	369 371
371	PEMERIKSAAN TERMINASI	5 hrs	Fri 10/04/20	Fri 10/04/20	370 373
372	<b>STATOR COOLER</b>	<b>2,44 days</b>	<b>Fri 10/04/20</b>	<b>Mon 13/04/20</b>	
373	PEMERIKSAAN & VISUAL CHECK LINE STATOR COO 5 hrs	5 hrs	Fri 10/04/20	Sat 11/04/20	371 374
374	PEMERIKSAAN DAN PEMBERSIHAN TUBE STATOR 9 hrs	9 hrs	Sat 11/04/20	Sun 12/04/20	373 375
375	FLOW TEST	8 hrs	Sun 12/04/20	Mon 13/04/20	374 377
376	<b>13,8 KV IPB BUS DUCT</b>	<b>3,44 days</b>	<b>Mon 13/04/20</b>	<b>Thu 16/04/20</b>	
377	BUKA MANHOLE; PEMBERSIHAN DAN	16 hrs	Mon 13/04/20	Tue 14/04/20	375 378
378	PEMERIKSAAN KONDISI TEKANAN UDARA	4 hrs	Tue 14/04/20	Wed 15/04/20	377 379
379	PEMERIKSAAN GROUNDING	3 hrs	Wed 15/04/20	Wed 15/04/20	378 380
380	PEMERIKSAAN COMPRESSOR	5 hrs	Wed 15/04/20	Thu 16/04/20	379 381
381	TUTUP MANHOLE	3 hrs	Thu 16/04/20	Thu 16/04/20	380 383
382	<b>FASE START UP &amp; COMMISSIONING</b>	<b>6,22 days</b>	<b>Mon 18/05/20</b>	<b>Sun 24/05/20</b>	
383	FLUSHING	8 hrs	Mon 18/05/20	Tue 19/05/20	293;367;384
384	INTERLOCK TEST (TURBINE-GENERATOR)	4 hrs	Tue 19/05/20	Tue 19/05/20	383 386SS;385
385	BOILER FIRING	8 hrs	Tue 19/05/20	Wed 20/05/20	384SS 387
386	DEGASING	8 hrs	Tue 19/05/20	Wed 20/05/20	384SS 388
387	TURNING GEAR START	4 hrs	Wed 20/05/20	Wed 20/05/20	384SS;38388
388	TURBINE START	4 hrs	Wed 20/05/20	Thu 21/05/20	386;387 389SS
389	FUNCTION TEST AC DC LUBE OIL	4 hrs	Wed 20/05/20	Thu 21/05/20	388SS 390
390	FIRST-SYNCRONE (30% DARI KAPASITAS LOAD)	8 hrs	Thu 21/05/20	Fri 22/05/20	389 391
391	PENURUNAN BEBAN (LEPAS JARING - JARING)	8 hrs	Fri 22/05/20	Fri 22/05/20	390 392
392	TRIP DEVICE TURBINE	8 hrs	Sat 23/05/20	Sat 23/05/20	391 393
393	ROLLING	8 hrs	Sat 23/05/20	Sun 24/05/20	392 394
394	SYNCHRONE	0 hrs	Sun 24/05/20	Sun 24/05/20	393



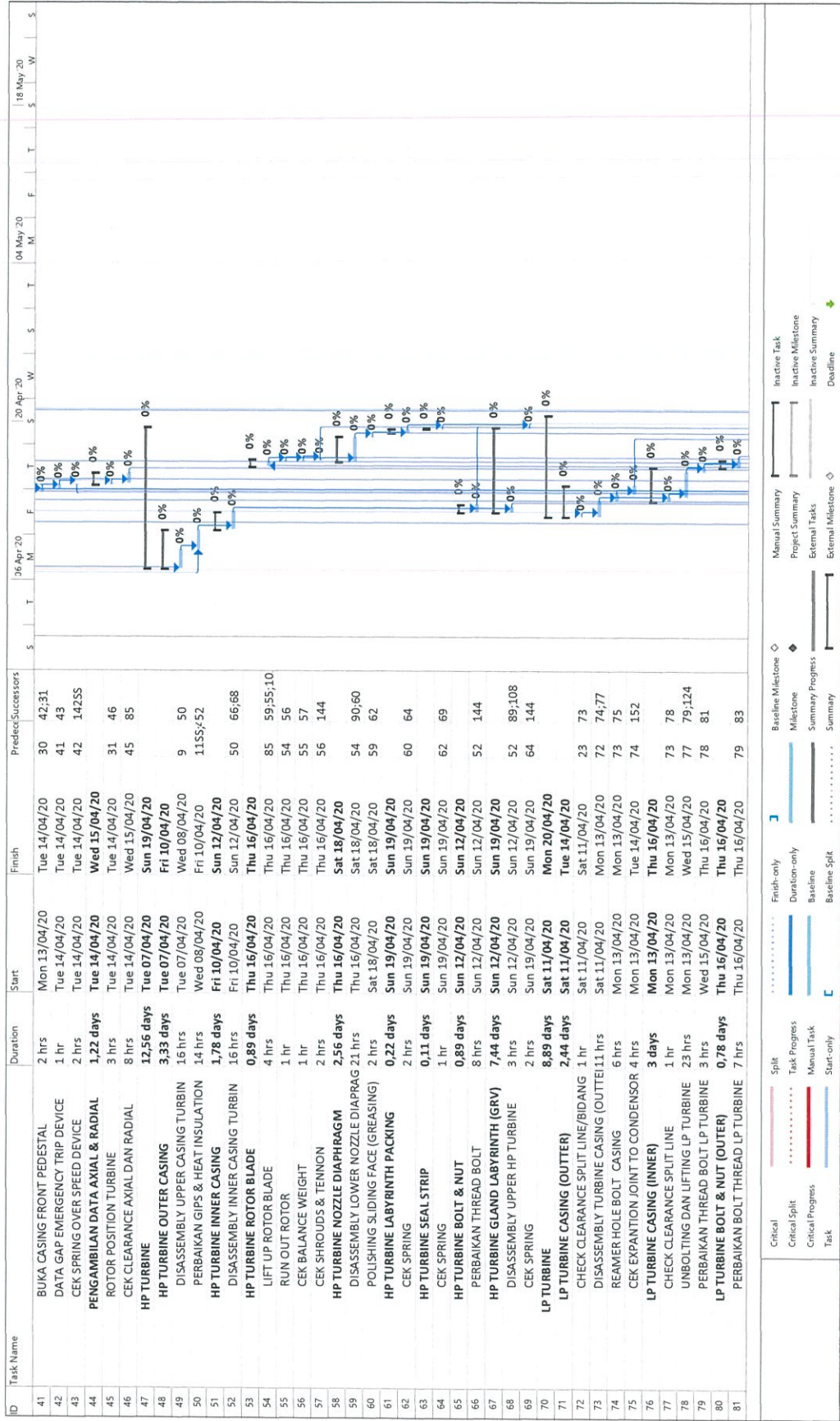
█ Critical █ Split █ Task Progress █ Manual Task █ Start-only █ Finish-only █ Duration-only █ Baseline █ Baseline Split █ Baseline Milestone ◇ Milestone █ Summary Progress █ Summary █ Manual Summary █ Project Summary █ External Tasks █ External Milestone █ Inactive Task █ Inactive Milestone █ Inactive Summary █ Deadline



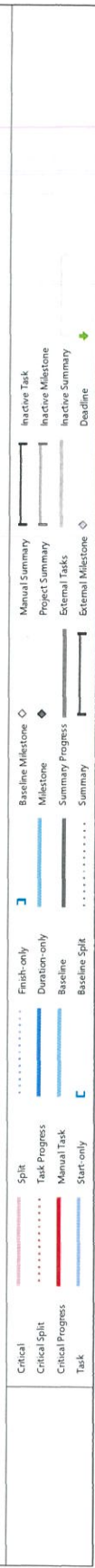
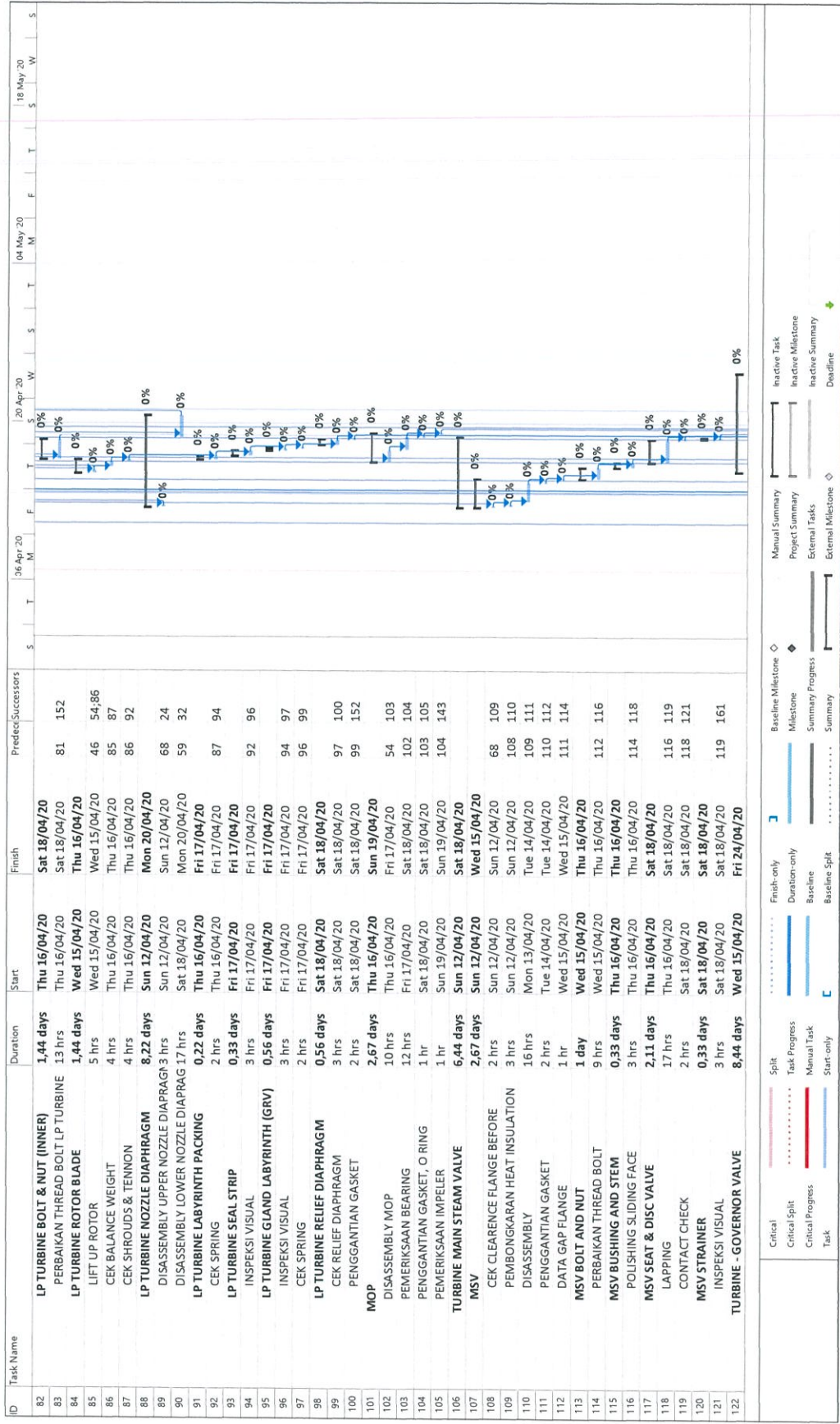
Legend for Gantt chart symbols:

- Critical**: Red dashed line
- Critical Split**: Red dashed line with a split symbol
- Critical Progress**: Red solid line
- Task**: Blue solid line
- Split**: Blue dashed line
- Task Progress**: Blue solid line with a progress bar
- Manual Task**: Blue solid line with a manual task icon
- Start-only**: Blue solid line with a start-only icon
- Finish-only**: Blue solid line with a finish-only icon
- Duration-only**: Blue solid line with a duration-only icon
- Baseline Milestone**: Diamond symbol
- Milestone**: Diamond symbol
- Summary Progress**: Blue solid line with a summary progress icon
- Summary**: Blue solid line with a summary icon
- External Milestone**: Diamond symbol
- External Task**: Blue solid line with an external task icon
- Manual Summary**: Blue solid line with a manual summary icon
- Project Summary**: Blue solid line with a project summary icon
- Inactive Milestone**: Diamond symbol
- Inactive Task**: Blue solid line with an inactive task icon
- Inactive Summary**: Blue solid line with an inactive summary icon
- Deadline**: Green arrow symbol

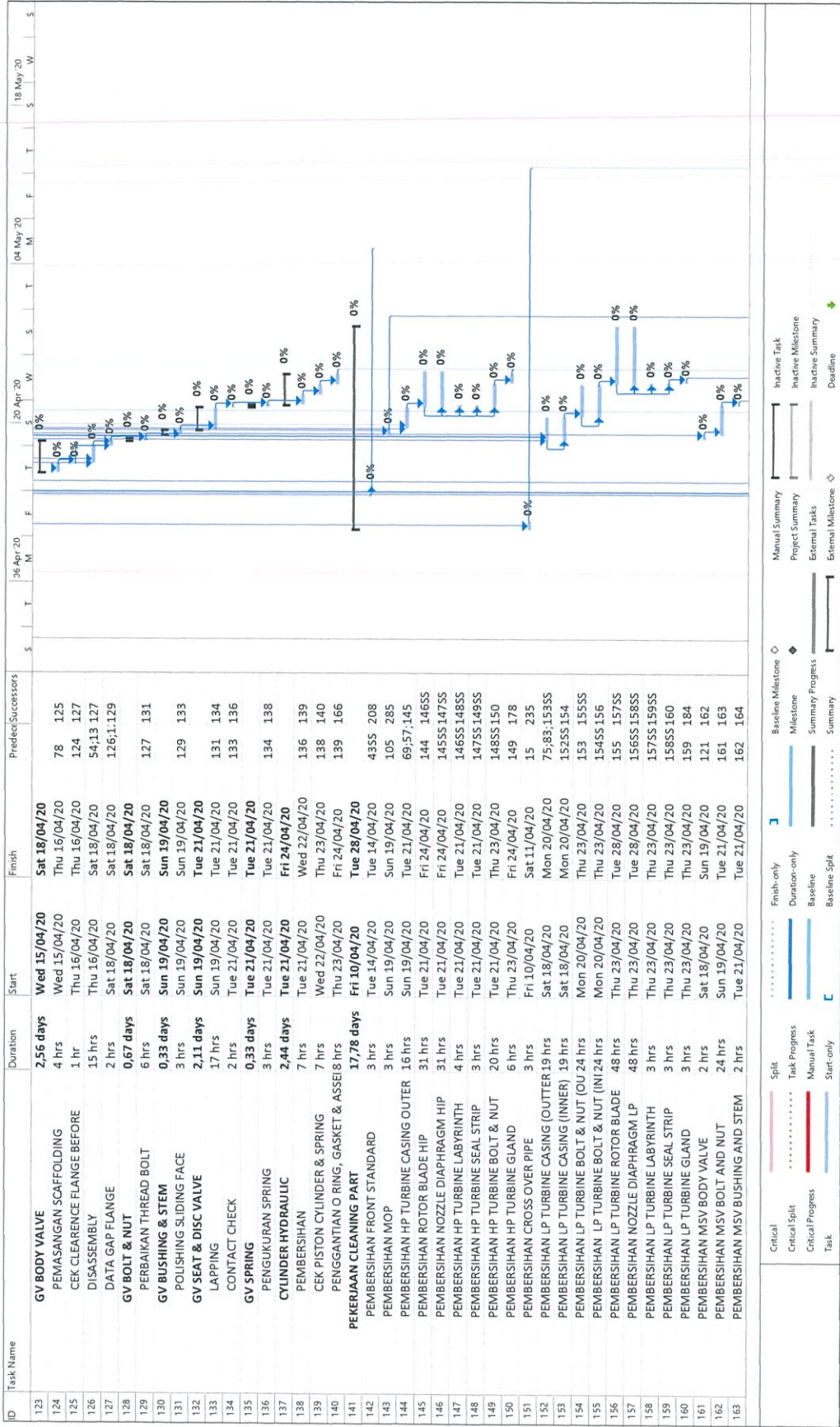


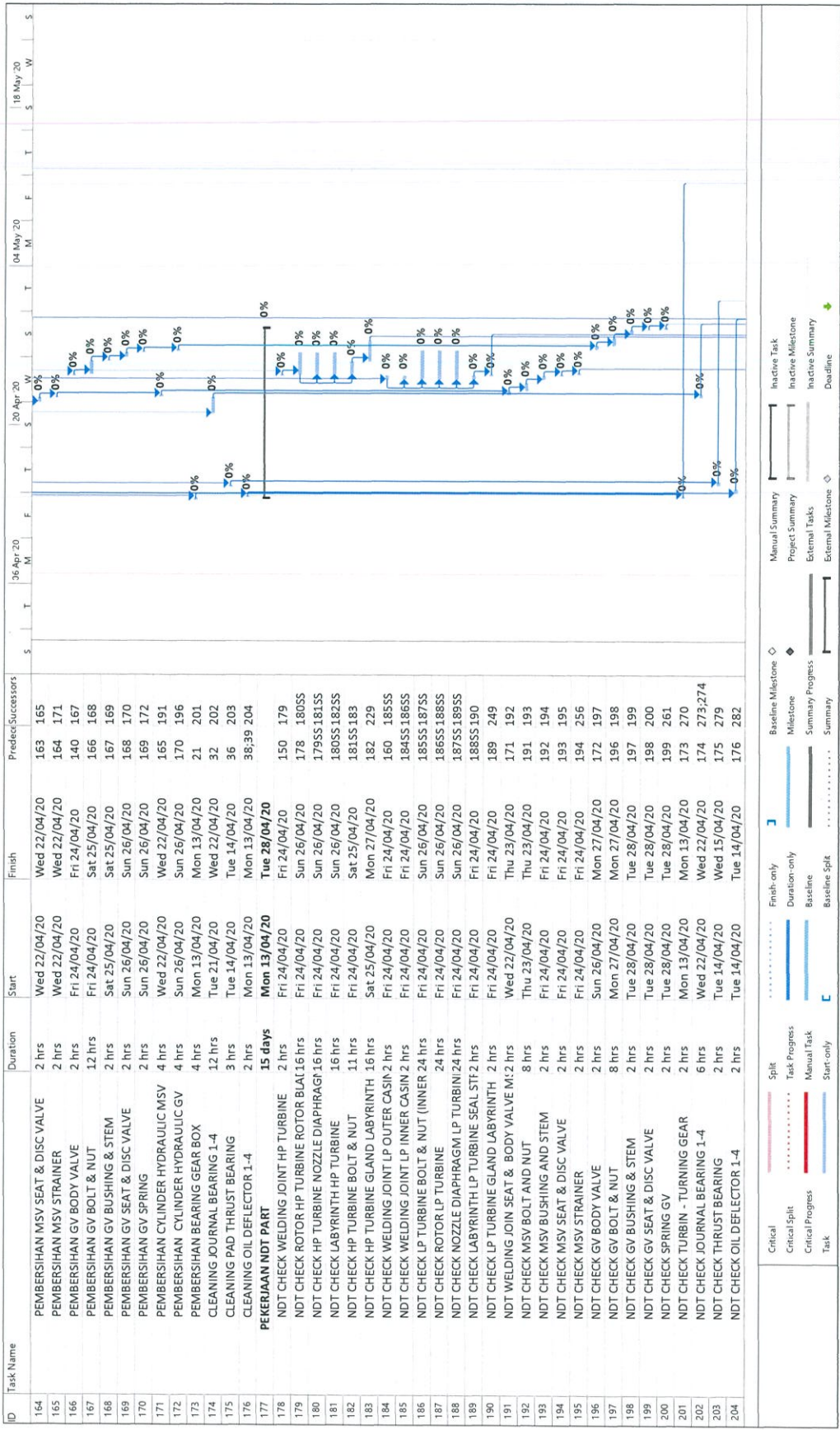


■ Critical  
■ Critical Split  
■ Critical Progress  
■ Task  
■ Split  
■ Task Progress  
■ Manual Task  
■ Start-only  
■ Finish-only  
■ Duration-only  
■ Baseline  
■ Baseline Split  
■ Manual Summary  
■ Project Summary  
■ External Tasks  
■ External Milestone  
■ Baseline Milestone  
■ Milestone  
■ Summary Progress  
■ Summary  
■ Inactive Task  
■ Inactive Milestone  
■ Inactive Summary  
■ Deadline





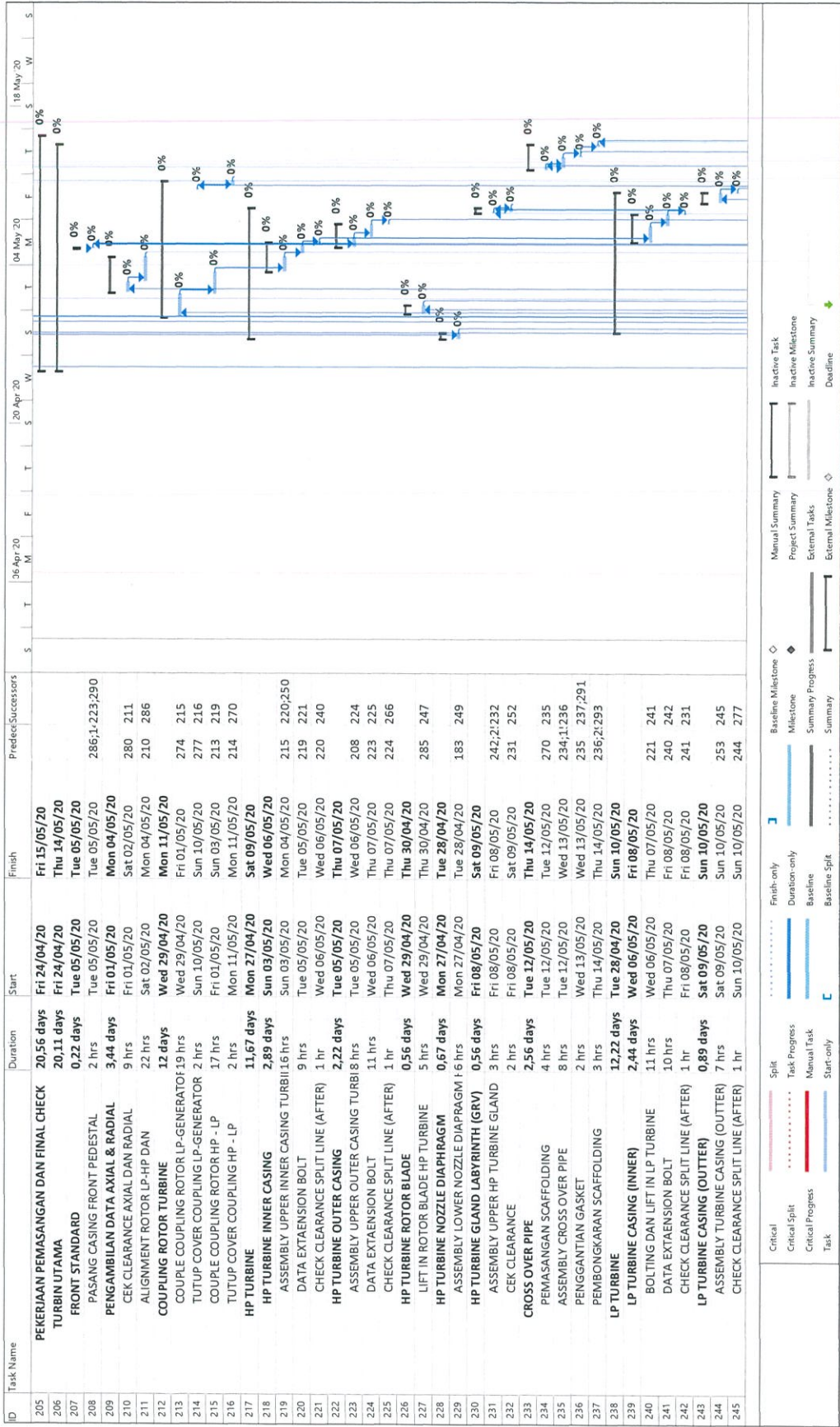




Legend for Gantt chart symbols:

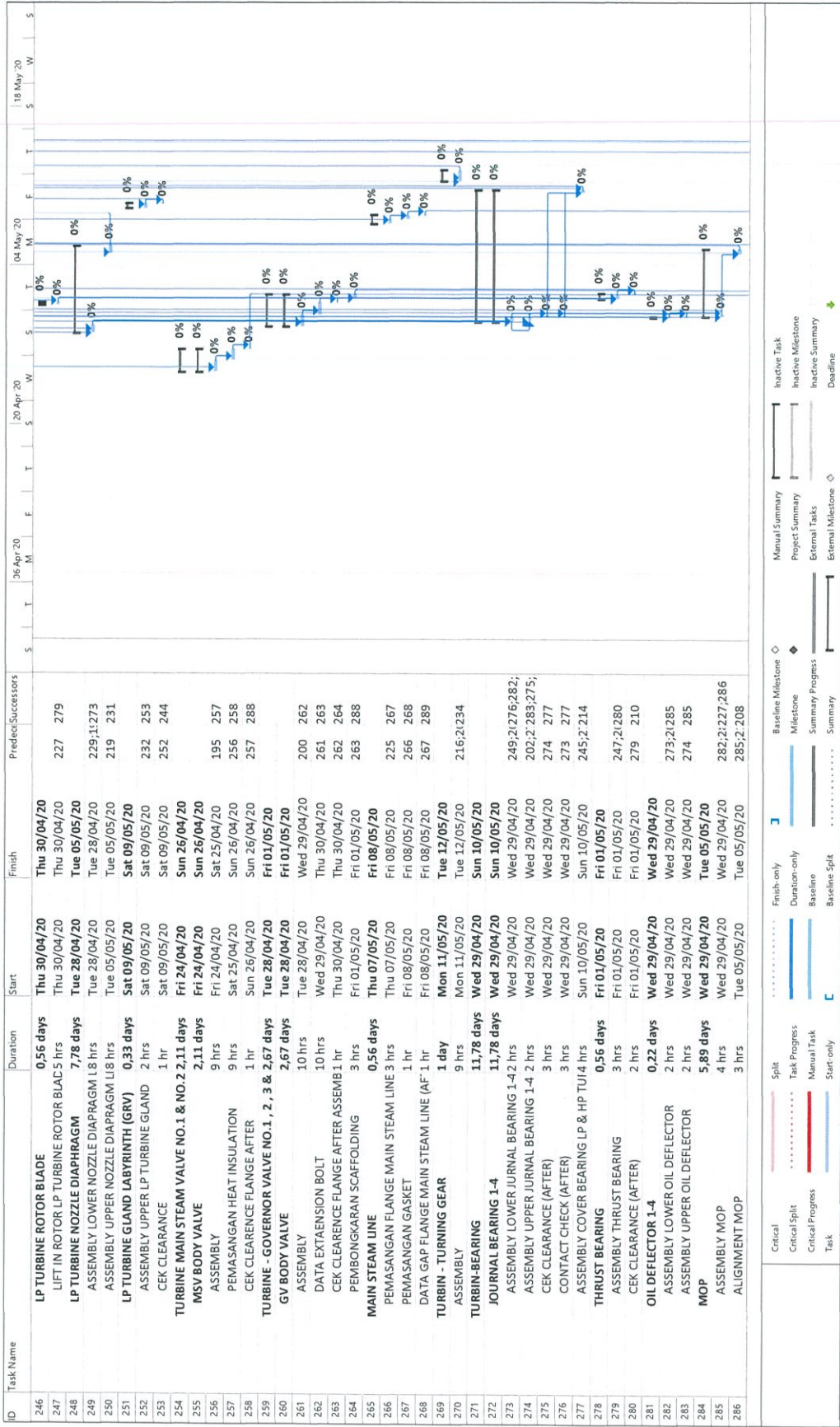
- Critical**: Red bar
- Critical Split**: Red bar with vertical line
- Manual Task**: Blue bar
- Task Progress**: Blue bar with horizontal line
- Task**: Blue bar
- Split**: Red bar with vertical line
- Task Progress**: Blue bar with horizontal line
- Start-only**: Blue bar with vertical line at start
- Finish-only**: Blue bar with vertical line at finish
- Duration-only**: Blue bar
- Baseline**: Dotted line
- Baseline Split**: Dotted line with vertical line
- Manual Summary**: Blue bar with vertical line
- Project Summary**: Blue bar with vertical line
- External Tasks**: Blue bar with vertical line
- External Milestone**: Blue diamond
- Baseline Milestone**: Blue diamond
- Milestone**: Blue diamond
- Summary**: Blue bar with vertical line
- Inactive Task**: Grey bar
- Inactive Milestone**: Grey diamond
- Inactive Summary**: Grey bar with vertical line
- Deadline**: Green arrow





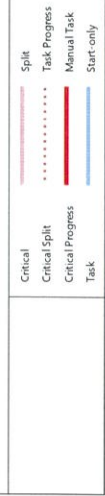
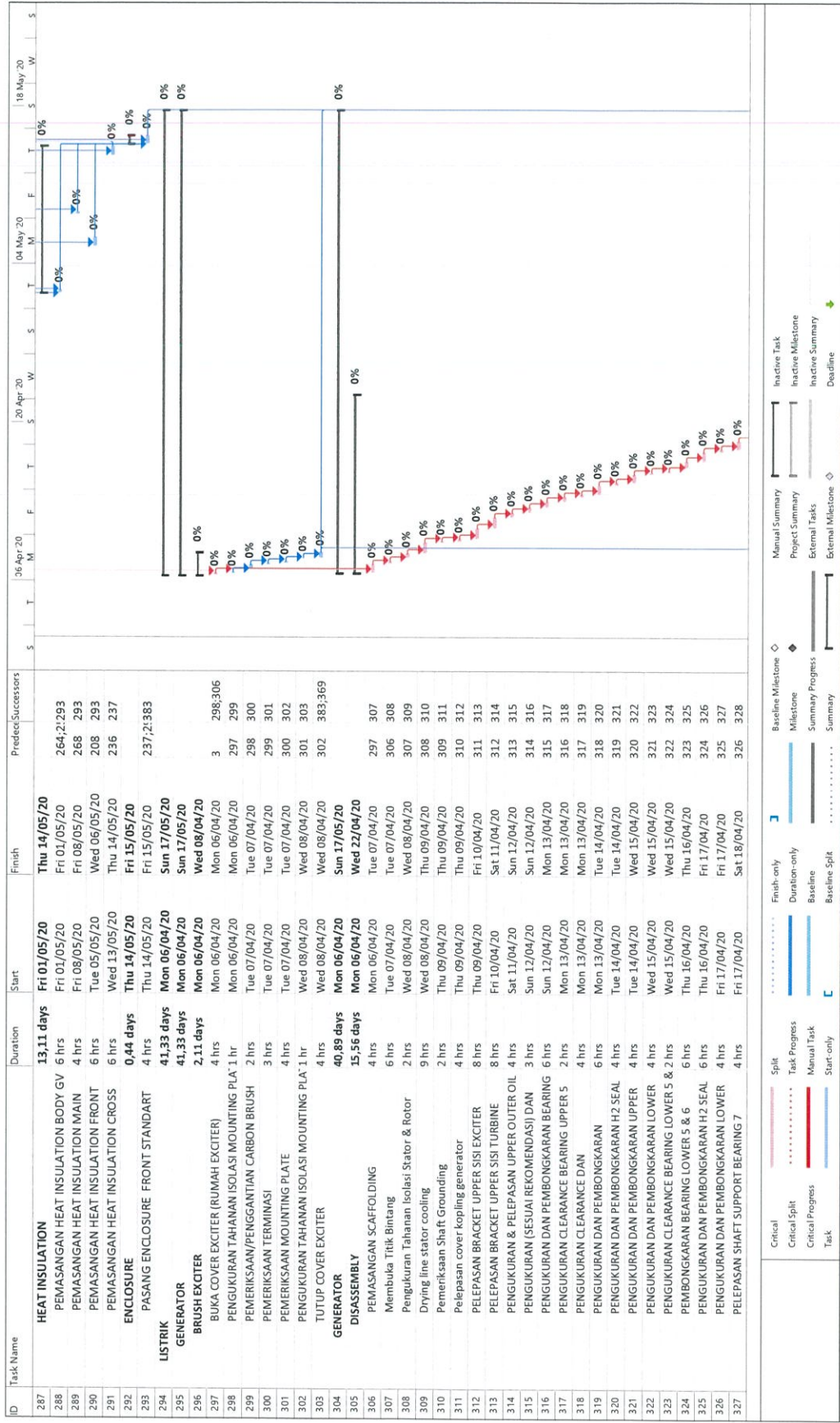
Legend for Gantt chart symbols:

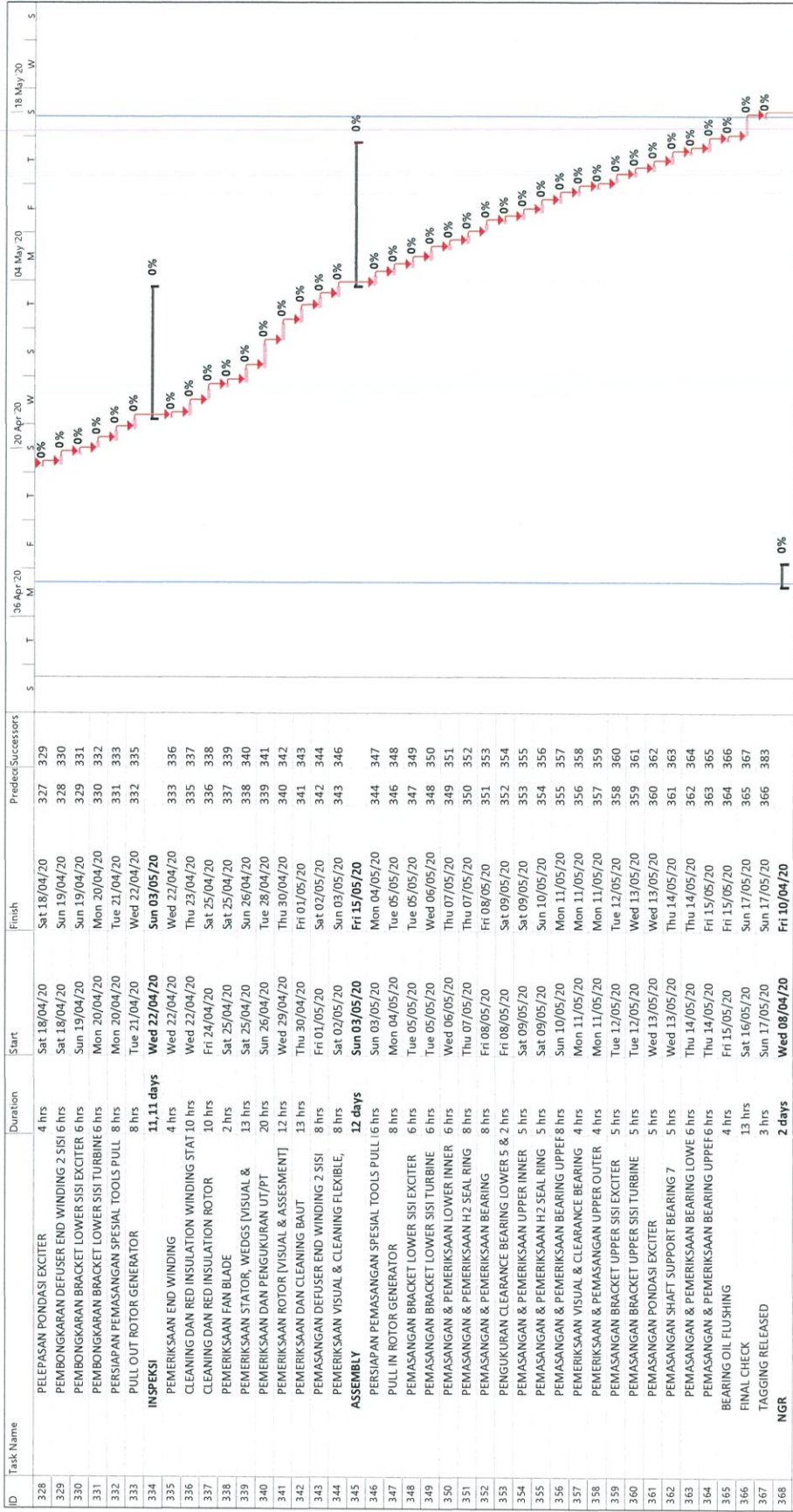
- Critical: Red dashed line
- Critical Split: Red dashed line with a split symbol
- Critical Progress: Red solid line
- Task: Blue solid line
- Split: Red dashed line with a split symbol
- Task Progress: Blue solid line with a progress bar
- Manual Task: Blue solid line with a manual task symbol
- Start-only: Blue solid line with a start-only symbol
- Finish-only: Blue solid line with a finish-only symbol
- Duration-only: Blue solid line with a duration-only symbol
- Baseline: Blue solid line with a baseline symbol
- Baseline Split: Blue solid line with a baseline split symbol
- Summary Progress: Blue solid line with a summary progress symbol
- Summary: Blue solid line with a summary symbol
- Baseline Milestone: Blue solid line with a milestone symbol
- Milestone: Blue solid line with a milestone symbol
- Manual Summary: Blue solid line with a manual summary symbol
- Project Summary: Blue solid line with a project summary symbol
- External Tasks: Blue solid line with an external task symbol
- External Milestone: Blue solid line with an external milestone symbol
- Inactive Task: Blue solid line with an inactive task symbol
- Inactive Milestone: Blue solid line with an inactive milestone symbol
- Inactive Summary: Blue solid line with an inactive summary symbol
- Deadline: Blue solid line with a deadline symbol



Critical: Critical Split: Manual Task: Task Progress: Split: Task Progress: Manual Task: Start only: Finish only: Milestone: Baseline Milestone: Manual Summary: Project Summary: External Tasks: Inactive Task: Inactive Milestone: Inactive Summary: Deadline:







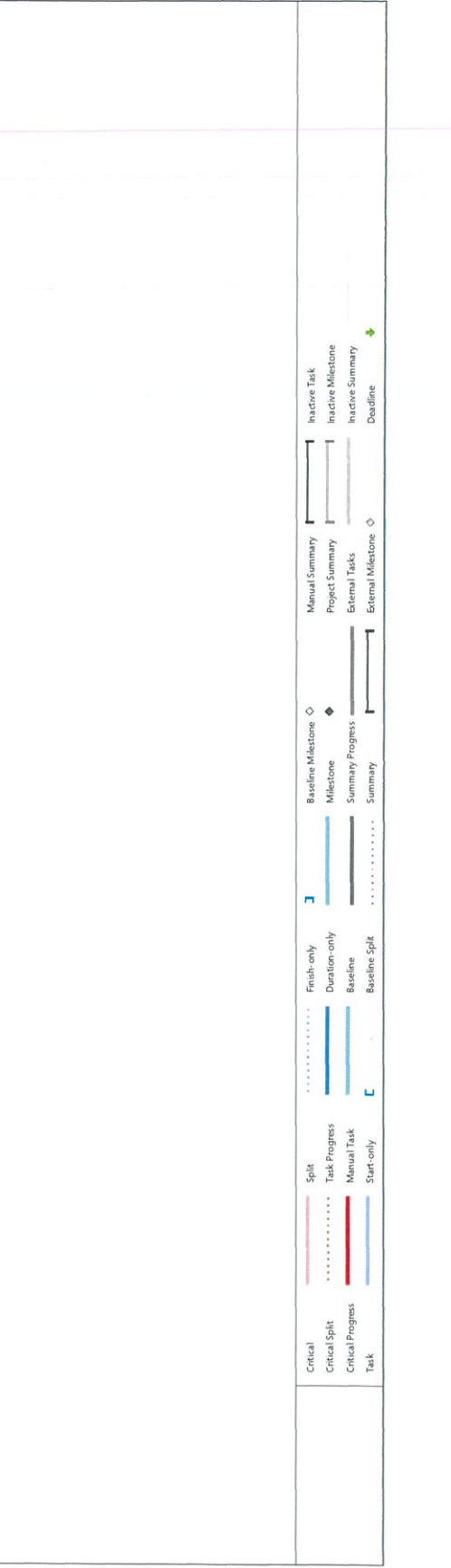
ID	Task Name	Duration	Start	Finish	Predecessors	Successors
328	PELEPASAN PONDASI EXCITER	4 hrs	Sat 18/04/20	Sat 18/04/20		327 329
329	PEMBONGKARAN DEFUSER END WINDING 2 SISI	6 hrs	Sat 18/04/20	Sun 19/04/20		328 330
330	PEMBONGKARAN BRACKET LOWER SISI EXCITER	6 hrs	Sun 19/04/20	Sun 19/04/20		329 331
331	PEMBONGKARAN BRACKET LOWER SISI TURBINE	6 hrs	Mon 20/04/20	Mon 20/04/20		330 332
332	PERSIAPAN PEMASANGAN SPESIAL TOOLS PULL	8 hrs	Mon 20/04/20	Tue 21/04/20		331 333
333	PULL OUT ROTOR GENERATOR	8 hrs	Wed 22/04/20	Wed 22/04/20		332 335
334	INSPEKSI	11,11 days	Wed 22/04/20	Sun 03/05/20		
335	PEMERIKSAAN END WINDING	4 hrs	Wed 22/04/20	Wed 22/04/20		333 336
336	CLEANING DAN RED INSULATION WINDING STAT	10 hrs	Thu 23/04/20	Thu 23/04/20		335 337
337	CLEANING DAN RED INSULATION ROTOR	10 hrs	Fri 24/04/20	Sat 25/04/20		336 338
338	PEMERIKSAAN FAN BLADE	2 hrs	Sat 25/04/20	Sat 25/04/20		337 339
339	PEMERIKSAAN STATOR, WEDGS (VISUAL & PEMERIKSAAN DAM PENGUKURAN UT/PT	13 hrs	Sat 25/04/20	Sun 26/04/20		338 340
340	PEMERIKSAAN ROTOR (VISUAL & ASSESMENT)	12 hrs	Sun 26/04/20	Tue 28/04/20		339 341
341	PEMERIKSAAN DAM CLEANING BAUT	13 hrs	Thu 30/04/20	Thu 30/04/20		340 342
342	PEMERIKSAAN DEFUSER END WINDING 2 SISI	8 hrs	Fri 01/05/20	Fri 01/05/20		341 343
343	PEMERIKSAAN VISUAL & CLEANING FLEXIBLE	8 hrs	Sat 02/05/20	Sat 02/05/20		342 344
344	ASSEMBLY	12 days	Sat 02/05/20	Fri 15/05/20		343 346
345	PERSIAPAN PEMASANGAN SPESIAL TOOLS PULL	16 hrs	Sun 03/05/20	Mon 04/05/20		344 347
346	PULL IN ROTOR GENERATOR	8 hrs	Mon 04/05/20	Tue 05/05/20		346 348
347	PEMASANGAN BRACKET LOWER SISI EXCITER	6 hrs	Tue 05/05/20	Tue 05/05/20		347 349
348	PEMASANGAN BRACKET LOWER SISI TURBINE	6 hrs	Tue 05/05/20	Wed 06/05/20		348 350
349	PEMASANGAN & PEMERIKSAAN LOWER INNER	6 hrs	Wed 06/05/20	Thu 07/05/20		349 351
350	PEMASANGAN & PEMERIKSAAN H2 SEAL RING	8 hrs	Thu 07/05/20	Thu 07/05/20		350 352
351	PEMASANGAN & PEMERIKSAAN BEARING	8 hrs	Fri 08/05/20	Fri 08/05/20		351 353
352	PENGUKURAN CLEARANCE BEARING LOWER 5 & 2 hrs	5 hrs	Fri 08/05/20	Sat 09/05/20		352 354
353	PEMASANGAN & PEMERIKSAAN UPPER INNER	5 hrs	Sat 09/05/20	Sat 09/05/20		353 355
354	PEMASANGAN & PEMERIKSAAN H2 SEAL RING	5 hrs	Sat 09/05/20	Sun 10/05/20		354 356
355	PEMASANGAN & PEMERIKSAAN BEARING UPPER	8 hrs	Sun 10/05/20	Mon 11/05/20		355 357
356	PEMERIKSAAN VISUAL & CLEARANCE BEARING	4 hrs	Mon 11/05/20	Mon 11/05/20		356 358
357	PEMERIKSAAN & PEMASANGAN UPPER OUTER	4 hrs	Mon 11/05/20	Mon 11/05/20		357 359
358	PEMASANGAN BRACKET UPPER SISI EXCITER	5 hrs	Tue 12/05/20	Tue 12/05/20		358 360
359	PEMASANGAN BRACKET UPPER SISI TURBINE	5 hrs	Tue 12/05/20	Wed 13/05/20		359 361
360	PEMASANGAN PONDASI EXCITER	5 hrs	Wed 13/05/20	Wed 13/05/20		360 362
361	PEMASANGAN SHAFT SUPPORT BEARING 7	5 hrs	Wed 13/05/20	Thu 14/05/20		361 363
362	PEMASANGAN & PEMERIKSAAN BEARING LOWE 6 hrs	6 hrs	Thu 14/05/20	Thu 14/05/20		362 364
363	PEMASANGAN & PEMERIKSAAN BEARING UPPER 6 hrs	6 hrs	Thu 14/05/20	Fri 15/05/20		363 365
364	BEARING OIL FLUSHING	4 hrs	Fri 15/05/20	Fri 15/05/20		364 366
365	FINAL CHECK	13 hrs	Sat 16/05/20	Sun 17/05/20		365 367
366	TAGGING RELEASED	3 hrs	Sun 17/05/20	Sun 17/05/20		366 383
367	NGR	2 days	Wed 08/04/20	Fri 10/04/20		

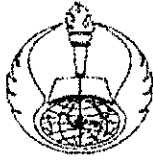
Legend:

- Critical
- Critical Split
- Critical Progress
- Task
- Split
- Task Progress
- Manual Task
- Start-only
- Finish-only
- Duration-only
- Baseline
- Baseline Split
- Manual Summary
- Project Summary
- External Tasks
- External Milestone
- Baseline Milestone
- Milestone
- Summary Progress
- Summary
- Inactive Task
- Inactive Milestone
- Inactive Summary
- Deadline



ID	Task Name	Duration	Start	Finish	Predicted Successors	30 Apr '20	04 May '20	18 May '20
369	PEMBERSIHAN DAN PENGUKURAN TRAF0	8 hrs	Wed 08/04/20	Thu 09/04/20	303 370			
370	PEMBERSIHAN DAN PENGUKURAN RESISTOR	5 hrs	Thu 09/04/20	Thu 09/04/20	369 371			
371	PEMERIKSAAN TERMINASI	5 hrs	Fri 10/04/20	Fri 10/04/20	370 373			
372	<b>STATOR COOLER</b>	<b>2,44 days</b>	<b>Fri 10/04/20</b>	<b>Sun 12/04/20</b>				
373	PEMERIKSAAN & VISUAL CHECK LINE STATOR COO	6 hrs	Fri 10/04/20	Sat 11/04/20	371 374			
374	PEMERIKSAAN DAN PEMBERSIHAN TUBE STATOR	8 hrs	Sat 11/04/20	Sun 12/04/20	373 375			
375	FLOW TEST	8 hrs	Sun 12/04/20	Sun 12/04/20	374 377			
376	<b>13,8 KV IPB BUS DUCT</b>	<b>3,56 days</b>	<b>Mon 13/04/20</b>	<b>Thu 16/04/20</b>				
377	BUKA MANHOLE; PEMBERSIHAN DAN	16 hrs	Mon 13/04/20	Tue 14/04/20	375 378			
378	PEMERIKSAAN KONDISI TEKANAN UDARA	4 hrs	Tue 14/04/20	Wed 15/04/20	377 379			
379	PEMERIKSAAN GROUNDING	3 hrs	Wed 15/04/20	Wed 15/04/20	378 380			
380	PEMERIKSAAN COMPRESSOR	6 hrs	Wed 15/04/20	Thu 16/04/20	379 381			
381	TUTUP MANHOLE	3 hrs	Thu 16/04/20	Thu 16/04/20	380 383			
382	<b>FASE START UP &amp; COMMISSIONING</b>	<b>6,22 days</b>	<b>Sun 17/05/20</b>	<b>Sat 23/05/20</b>				
383	FLUSHING	8 hrs	Sun 17/05/20	Mon 18/05/20	293;34384			
384	INTERLOCK TEST (TURBINE-GENERATOR)	4 hrs	Mon 18/05/20	Tue 19/05/20	383 386SS;385			
385	BOILER FIRING	8 hrs	Mon 18/05/20	Tue 19/05/20	384SS 387			
386	DEGASING	8 hrs	Mon 18/05/20	Tue 19/05/20	384SS 388			
387	TURNING GEAR START	4 hrs	Tue 19/05/20	Tue 19/05/20	384SS;388			
388	TURBINE START	4 hrs	Wed 20/05/20	Wed 20/05/20	386;34389SS			
389	FUNCTION TEST AC DC LUBE OIL	4 hrs	Wed 20/05/20	Wed 20/05/20	388SS 390			
390	FIRST SYNCRONE (30% DARI KAPASITAS LOAD)	8 hrs	Wed 20/05/20	Thu 21/05/20	389 391			
391	PENURUNAN BEBAN (LEPAS JARING - JARING)	8 hrs	Thu 21/05/20	Fri 22/05/20	390 392			
392	TRIP DEVICE TURBINE	8 hrs	Fri 22/05/20	Sat 23/05/20	391 393			
393	ROLLING	8 hrs	Sat 23/05/20	Sat 23/05/20	392 394			
394	SYNCRONE	0 hrs	Sat 23/05/20	Sat 23/05/20	393			





**UNIVERSITAS PGRI ADI BUANA SURABAYA**  
**FAKULTAS TEKNOLOGI INDUSTRI**  
Program Studi : Teknik Industri – Teknik Elektro  
KAMPUS II: Jl. Dukuh Menanggal XII/4 ☎ (031) 8281181 Surabaya 60234

**BERITA ACARA BIMBINGAN TUGAS AKHIR**

Form TA-03

Nama	: Agus Nofianto	Foto 3x4	
No Registrasi	: 163700055		
Program Studi	: Teknik Industri		
Pembimbing	: Muhamad Abdul Jumali, S.T., M.T.		
Periode Bimbingan	: Gasal/Genap*) Tahun 2019/2020		
Judul Tugas Akhir	Analisa Percepatan Overhaul Turbin Generator Menggunakan Simulasi Monte Carlo		
<b>KEGIATAN KONSULTSI / BIMBINGAN</b>			
No	Tanggal	Materi pembimbingan	Keterangan/paraf
1	02 Mei 2020	a. Finalisasi BAB 1,2 dan 3 berdasarkan proposal. b. Penyampaian konsep BAB 4	<i>Jue</i>
2	08 Mei 2020	a. Penyampaian data yang akan diteliti b. Penyampaian simulasi dan hasil simulasi	<i>Jue</i>
3	10 Mei 2020	a. Koreksi penulisan Analisa data	<i>Jue</i>
4	14 Mei 2020	a. Finalisasi hasil Analisa data dan pembahasan. b. Finalisasi lampiran data	<i>Jue</i>
5	16 Mei 2020	a. Penyampaian Kesimpulan dan saran	<i>Jue</i>
6	17 Mei 2020	a. Abstrak	<i>Jue</i>
7	04 Juni 2020	a. Finalisasi Tugas Akhir	<i>Jue</i>
Dinyatakan selesai: 05 Juni 2020			

Surabaya, 05 Juni 2020

Mengetahui,  
Ketua Program Studi,

Yunia Dwie Nurdahyanie, S.T., M.T.

Pembimbing,

Muhamad Abdul Jumali, S.T., M.T.

Mahasiswa,

Agus Nofianto



**UNIVERSITAS PGRI ADI BUANA SURABAYA**  
**FAKULTAS TEKNOLOGI INDUSTRI**

Program Studi : Teknik Industri – Teknik Elektro  
KAMPUS II: Jl. Dukuh Menanggal XII/4 ☎ (031) 8281181 Surabaya 60234

**BERITA ACARA UJIAN TUGAS AKHIR**

Pada

Hari, tanggal : Selasa, 30 Juni 2020  
Jam : 08 00 WIB  
Tempat : Gedung Fakultas Teknik

Telah dilaksanakan Ujian Tugas Akhir:

Nama Mahasiswa : Agus Nofianto  
Program Studi : Teknik Industri  
Judul Tugas Akhir : Analisa Percepatan Overhad Turbin Generator  
Menggunakan Simulasi Maple CAD  
Bidang Keahlian :  
Tanda Tangan : *INS*

Saran-saran perbaikan :

*Perbaiki alinea/diagram BAB III*

**Tim Penguji**

Nama

( Tanda tangan )

1. *Rusdiyanto*
2. *Janitra*

*[Signature]*  
*[Signature]*

\*) Jangka waktu perbaikan Tugas Akhir dua minggu setelah ujian.

Apabila waktu tersebut tidak dipenuhi, maka nilai Ujian Tugas Akhir dianggap batal dan mahasiswa yang bersangkutan diwajibkan mengulang Ujian lisan.



**FORM REVISI TUGAS AKHIR**

Nama Mahasiswa : Agus Nopianto  
NIM : 163700055  
Fakultas / Progdil : FTI / Tekniu Industri  
Judul Tugas Akhir : Analisa Percepatan Overhaul Turbin Generator Menggunakan Simulasi Monte Carlo

Ujian Tanggal : 30 Juni 2020

No Bab.	Tanggal	Materi Konsultasi	Keterangan Catatan	Tanda Tangan Penguji
I				
II				
III	<u>30 Juni 2020</u>	<u>Diagram Alir</u>		<u>Yamb</u>
IV				
V				

Disetujui Dosen Penguji  
Pada Tanggal,.....30 Juni 2020  
Penguji I,

Penguji II,

(Signature)  
( )

(Signature)  
( )

- Penyelesaian Revisi paling lambat 2 minggu dari pelaksanaan Ujian Tugas Akhir.
  - Pengetikan, penjilidan, penandatngani Tugas Akhir dan mengumpulkan Tugas Akhir paling lambat 2 minggu dari revisi.
- Apabila sampai batas waktu tersebut ( point 1,a dan b ) mahasiswa belum menyelesaikan revisi dan tanda tangan, maka **Ujian dinyatakan Gugur**.
- Foto copy Form Revisi diserahkan ke Program Studi.
  - Tugas Akhir yang sudah direvisi diserahkan ke Fakultas 3 (Tiga) eksemplar untuk dijilid.



Nomor : M271335  
Sifat : Biasa  
Lampiran : -

Sidoarjo, 16 Agustus 2019

Kepada  
Yth. Dekan  
Fakultas Teknologi Industri  
Universitas PGRI Adi Buana Surabaya

Perihal : Surat Penerimaan Praktek Magang Universitas PGRI Adi Buana Surabaya

Sesuai dengan Surat :

Nomor : 408/FTI?VIII/2019  
Tanggal : 13 Agustus 2019  
Perihal : Permohonan Ijin Kerja Praktek

Dengan ini kami sampaikan bahwa Mahasiswafi Saudara atas nama :

NO	NAMA	NIM	PROGRAM STUDI
1.	Agus Nofianto	163700055	Teknik Industri

dapat melaksanakan kegiatan Praktek Magang di PT PJB Services pada :

Waktu : 19 Agustus 2019 – 18 September 2019  
Pukul : 07.30 - 16.00 WIB  
Tempat : PT. PJB Services  
Jl. Raya Bandara Juanda No. 17 Sidoarjo 61253

Demikian kami sampaikan atas perhatian dan kerjasamanya diucapkan terimakasih.

MANAJER PERENCANAAN HUMAN CAPITAL PJB SERVICES,



IGN. WISNU RAHMADI

**PT PJB SERVICES**

Jl. Raya Bandara Juanda No. 17, Sidoarjo 61253, Jawa Timur - Indonesia  
Telp. (62-31) 8548391 - 8557909, Fax : (62-31) 8548360  
e-mail : info@pjbservices.com

[www.pjbservices.com](http://www.pjbservices.com)



