HINDUSTAN PETROLEUM CORPORATION LTD
NEW FCCU PROJECT
MAHUL, MUMBAI, MAHARASHTRA

JOB NO: *6891*
JOB CLOSEOUT REPORT – TIME ASPECT
(CONSTRUCTION ACTIVITIES)

JCR/6891/314

PREPARED BY

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ENGINEERS INDIA LIMITED (A Govt. of India Undertaking)

HPCL , MUMBAI

31.05.2011	Information / Action	VK	KS / VKG	JKB
DATE	**ISSUED FOR**	**Prepared By**	**Reviewed By**	**Approved By**

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1.1 INTRODUCTION:

Hindustan Petroleum corporation Limited (HPCL), Mumbai initially proposed to revamp the existing FCCU to increase the capacity of the unit from 1.2 MMTPA to 1.456 MMTPA under GFEC Project (EIL Job No. - 6269). Later on in view of Long shutdown period associated with revamp, decision was taken by HPCL management to shelve revamp units. Further, it was decided by HPCL Management to put New FCCU unit in place of revamp of existing FCCU.

Since engineering for revamp was almost completed by the time the management decision was taken, the intent was to utilise already engineered and procured equipments of FCCU Revamp and fit the same in New FCCU plot. Major equipments like Main air blower , Fluffing air blower , Wet Gas compressor, Hopper , Air Pre heater , Slide valves , cyclones , Towers , Exchangers , Vessels & Pumps, Air fin coolers and Analyzers has been procured under GFEC project (EIL Job no-6269 ,Total 162 nos. equipments). Balance 127 nos. equipments were procured under New FCCU Project.

Critical items like Reactor-Regenerator, orifice chamber, FG Cooler package and quench tower were ordered under GFEC Project, the manufacturing & delivery was completed in New FCCU Project through suitability negotiated contract amendments by HPCL.

The New FCCU Plot was initially occupied by old storage tanks and these were progressively dismantled by HPCL and site was handed over for main execution works in August 2008 against the schedule of December 2007.

Execution Methodology: The total NEW FCCU Project implemented in conventional basis except following:

1. RR Package
2. FG Cooler package
3. Heaters Package

New FCCU Project consists of the following units & Offsite.

1. **UNITS**
   a. Gas concentrating Unit (GCU -120)
   b. Fluidised catalytic cracking Unit (FCCU -114).
   c. Flue gas treating Unit (FGTU)
   d. Flue Gas scrubbing Unit (FGSU-110)
   e. RR Package and orifice chambers (114)
   f. Purge treating Unit (PTU-110)
   g. Caustic storage Unit.(110)

2. **OFFSITES**
   a. Connecting of all utilities and offsite lines to existing offsite lines.
   b. Air Drier facilities.
   c. Air compressor facilities
   d. Extension of Sea cooling Supply /Return line from existing line.

New FCCU Project was very challenging for site execution team because works were to be executed in ISBL, which was surrounded by other operational units like FRE unit in north, Pipe Alleys, tanks and control room etc on south, East & west sides. Safety of execution was of paramount importance due to these constraints.

The construction schedule to achieve the mechanical completion within 22.50 months was very challenging for site construction team. (Total Project duration : 27 months).

The key factor for accomplishment was realized as sensitivity and responsiveness to the work demands that pushed every team member to stretch up to their limits & beyond.

PRE –CONSTRUCTION PHASE:

During the Pre construction phase EIL ROV invited bids from the contractors to execute the various works, short listed the same and sent the recommendation to client. The contractor were finalised & awarded for various works by client

Important detailing during the pre construction phase included study on constructability, feasibility studies for movement of ODC inside the refinery / Unit area, heavy lift erection, optimisation of resources and optimal use of space for fabrication yards, maximum utilisation of work force during Monsoon period, Infrastructure requirement including office / Pota cabins , warehouse and manpower planning including selection of key personnel in the construction team etc. were coordinated by site team and timely input were provided to EIL ROV. Assessment/Quantification / Condition of already supplied items were also provided to client/ROV for further engineering and preventive action.

CONSTRUCTION PHASE:

Site Construction team was headed by the Resident construction Manager (RCM), with total responsibility of the site in execution, leading the team with full responsibility of safety during construction, quality & time.

The construction activity at site commenced from January 2008 (Schedule – 15.11.2007) with the commencement of Reactor regenerator and orifice chamber foundation works by contractor M/s SKB Builders.

Some of the Special features and highlights involved in the execution of the project were.

- All civil works executed based on priority fixed in view of release of maximum work front to Mechanical contractor considering availability of piping materials / equipments.
- Every month Review meeting conducted for every contractor / critical vendors chaired by ED (R) HPCL and higher officials of EIL along with EIL Project team to expedite the resolution of engineering hold up points, manufacturing & delivery of required material and construction works at Site.
- Electrical cable laying/ pulling was done with in a mechanical way automatic power winch machine with torque limits. Quality results were achieved and lot of time was saved.
- All 4 nos. Tower foundation for Gas concentrating unit (GCU) has been made on priority and towers also erected on foundation before commencement of RCC Super structure works in GCU area in view of space constraints.
- Fully covered fabrication yard within refinery provided to all mechanical contractors for pre fabrication works were provided by HPCL.
- About **1000-1200 ID achieved** per day during Peak pre fabrication period at yard by main ISBL Mechanical contractor M/s Offshore infrastructure limited.

The construction team at site worked with complete dedication from the day of commencement and out performed at all stages of the construction with much professionalism and maintained the standard quality at site.

The mechanical completion for New FCU project was finally achieved on 16th December 2010, with actual duration of 41.5 months from the date of award. Actual construction period was 35 months.

PRE – COMMISSIONING / COMMISSIONING PHASE :

For New FCCU Project total 107 nos. P&ID's issued (ISBL – EIL P& ID's 53 nos. , UOP P& ID's – 21 nos. , OSBL- 20 nos. , FGSU / PTU / CAUSTIC -13 Nos.)

For the simplification and systematic completion of the unit , the total work was sub divided into P& ID System – 118 nos. and Non P&ID Systems - 222 nos. systems

P&ID Systems

SL NO	SYSTEMS TYPE	ISBL	OSBL	FGSU / PTU / CAUSTIC	TOTAL
1.	Process Systems	19	31	9	**59**
2.	Utility Systems	25	23	11	**59**

The non-P&ID systems were introduced only to enable smooth take over of various systems by the client.

SL NO	SYSTEMS	ISBL	OSBL	FGSU	PTU	CASUTIC	OTHERS	TOTAL
1.	Equipments & Others	153	-	9	14	8	-	**184**
2.	Electrical Systems	-	-	-	-	-	15	**15**
3.	Instrumentation systems	-	-	-	-	-	7	**7**
4.	Civil Systems	-	-	-	-	-	16	**16**
TOTAL		**153**	**-**	**9**	**14**	**8**	**38**	**222**

The complete commissioning team of energetic , young and experienced POSD personnel from EIL-HO and operation & maintenance engineers from HPCL mobilised at site for the commissioning phase. The commissioning team fully supported by site team worked day in and day out to complete all the pre commissioning and commissioning activities as per the process and licensor's / client's requirement. The works were completed successfully which enabled smooth commissioning.

1.2 SALIENT FEATURES

1. **OWNER** : **HINDUSTAN PETROLEUM CORPORATION LTD.**
2. **PROJECT NAME& LOCN.** : **NEW FCCU PROJECT ,MAHUL, MUMBAI**
3. **DESIGN CAPACITY** :

UNIT	CAPACITY	PROCESSOR
NEW FCC	1.456 MMTPA	UOP
FGS	158 TPH OF FLUE GAS	BELCO
UTILITIES & OFFSITE	CORRESPONDING TO ABOVE	EIL

RAW MATERIAL	:	HVGO
FINISHED PRODUCT	:	LPG / GASOLENE (FCCG)
EIL SCOPE OF WORK	:	Project Management, Residual Process Engineering, Detailed Engineering, Procurement Services, Tendering, Construction Management & Supervision, Commissioning Assistance.
TYPE OF CONTRACT	:	CONVENTIONAL
PROJECT KEY DATES	:	
Zero Date	:	30.06.2007
Effective Start Date	:	30.06.2007
Construction Key dates.	:	
Sch. Start date	:	15.11.2007 FCCU , GCU , FGTU & U/O
		15.02.2009@ FGSU ,PTU & Caustic
Actual Start date	:	08.01.2008 (FCCU , GCU , FGTU & U/O)
Mech. Completion date	:	
Contractual	:	30.09.2009 (27.0 Months) FCCU , GCU , FGTU & U/O
	:	14.05.2010 (24.0 Months) @ FGSU ,PTU & Caustic
Actual	:	16.12.2010 (41.5 Months) FCCU , GCU , FGTU & U/O
	:	16.12.2010 (31.0 Months) @ FGSU ,PTU & Caustic
Gas-in Date		13.03.2011
Commissioning date	:	**18.04.2011**
PROJECT COST	:	₹900 Crores (Excluding tax)
PMC charges	:	₹47.8 Crores.
Process know how, basic engg	:	₹19.03 Crores.
Plant & Machinery	;	₹585.63 Crores (Including taxes & duties)
Erection & sub contract cost	:	₹104.39 Crores (Including taxes & duties)
Construction site equipment	:	₹3.44 Crores
Owners construction period expenses	:	₹6.88 Crores
Start up & commissioning	:	₹8.26 Crores
Misc. & Contingency	:	₹123.95 Crores (Including Taxes & duties.)
SOURCE OF FINANCE	:	Owner

@ : Awarded to EIL on 15.05.08 as change order on EPCM basis with completion schedule of 24 months.

1.3 DESCRIPTION OF PROJECT SITE

1.		Owner / Purchase		Hindustan Petroleum Corporation Limited., Refinery, Mahul, Mumbai – 400 074.
2.		Project Title	:	NEW FCCU PROJECT ,MAHUL, MUMBAI.
3.		Location	:	Mahul, Mumbai, Maharashtra, Mumbai
4.		Altitude	:	6.71 M above Mean Sea Level (MSL)
5.		Transport	:	
	5.1	Railway Nearest Railway Station	:	Kurla on board Gauge on Central Railway, (Approx. 10-12 km.)
	5.2	Road	:	The site is located approx. 25 km. from Mumbai. Access Road is Refinery Road.
	5.3	Air Port	:	Mumbai
	5.4	Sea Port	:	Mumbai
6.		Ambient Air Temperature		
	a.	Maximum dry bulb temp.	:	40 Deg. C (Design)
	b.	Maximum dry bulb temp.	:	10 Deg. C (Design)
	c.	Max. Wet bulb temp.	:	28 Deg. C (Design)
	d.	Design wet bulb temp for cooling tower	:	28 Deg. C
7.		Design Ambient Temperature for Electrical equipment	:	40 Deg. C
8.		Rainfall	:	
	a.	Annual Average	:	2000-2200 mm
	b.	Max. intensity	:	584.1 mm in 24 hrs.
	c.	Average Intensity	:	475.4 mm (monthly)
	d.	Design Intensity	:	100 mm / hr.
	e.	Period of rainfall	:	Major portion from June to September
9.		Relative Humidity	:	
	a	Maximum	:	100%
	b	Minimum	:	62%
10.		Wind Data	:	
	a	Basic Wind Speed	:	44 m / sec as per IS : 875 (Part-3)
	b	Max. Wind Velocity	:	160 km / hr.
11.		Seismic data	:	
	a	Zone	:	Zone III as per IS : 1893
	b	Coefficient	:	Basic Horizontal seismic coefficient 0.04 as per IS : 1893
	c	Site Coefficient	:	1.0
12.		Climate	:	Coastal and highly corrosive as found in Refineries and Petrochemical Plants.

1.4 PROJECT WORK LOAD (CONSTRUCTION)

S.N.	UNIT NAME	UOM	FCCU		OFFSITE		FGSU / PTU / CAUSTIC		TOTAL		REMARKS
			EST.	ACT.	EST.	ACT.	EST.*	ACT.	EST.	ACT.	
1	EARTH WORK	M3	32450	18700	10420	6200	2280	3150	45150	28050	
2	**RCC**								0	0	
	- FDNS/ SUB STRUCTURE	M3	7150	6600	3195	3357	910	800	11255	10757	
	- SUPER STRUCTURE	M3	2925	4575	900	1350	40	67	3865	5992	
	- RCC PAVEMENT	M3	1300	1100	0	0	225	195	1525	1295	
3	PCC	M3	880	780	600	305	73	140	1553	1225	
4	**STRL STEEL**								0	0	
	- FABN.	MT	873	1600	210	487	40	42	1123	2129	
	- ERECTION	MT	873	1600	210	487	40	42	1123	2129	
5	GRATINGS ERECTION	MT	275	306			20	20	295	326	
6	HAND RAIL	RM	3975	4950			460	720	4435	5670	
7	WBM	SM	23800	0			0	0	23800	0	
8	FALSE CEILING	SM			1280	1280	0	0	1280	1280	
9	GI PIPING	RM	2510	780			0	0	2510	780	
10	SHEETING WORKS	SM	1260	1260			0	0	1260	1260	
11	PIPE RACK LENGTH IN UNIT	RM	163	163			11		174	163	
12	**MECHNICAL / PIPING WORKS**								0	0	
	STATIC EQPT. ERCN.	NOS.	174	174	2	2	24	24	200	200	
	STATIC EQPT. ERCN.	MT	650	2055	91	91	106.1	142	847.1	2288	
	ROT. EQPT ERCN	NOS.	59	59	5	5	18	18	82	82	
	ROTARY . EQPT ERCN	MT	141	141	3.8	3.8	7.4	7.4	152.2	152.2	
	COMPRESSOR ERCN.	NOS.	4	4	1	1	2	2	7	7	
	COMPRESSOR ERCN.	MT	350	208.1	14	14	10	10	374	232.1	
	A/G WELDING	ID	180000	238341	55200	68550	5750	13300	240950	320191	
	A/G ERECTION	IM	217000	295081	174900	173350	10900	11300	402800	479731	
	RADIOGRAPHY- NO. OF JOINTS	NOS.	8000	13000	1595	1300	697	1500	10292	15800	
	NO. OF LOOPS	NOS.	594	594			70	70	664	664	
	U/G PIPING	RM	2500	2700			0	0	2500	2700	
	STEAM TRACING	RM	8500	11000	34000	19500	0	0	42500	30500	
	GI PIPE	RM	2510	780			200	150	2710	930	
	TANKS	NOS.	0	0			6	6	6	6	
	TANKS	MT	0	0			71.5	93.82	71.5	93.82	
13	**RR PACKAGE**								0	0	
	EQUIPMENT ERECTION	MT	711	711			0	0	711	711	
	STRUCTURE FAB. & ERCN	MT	1215	1215			0	0	1215	1215	
	CYCLONES & SLIDE VALVES	MT	151	151			0	0	151	151	
	REFRACTORY WORK	NOS.							0	0	
14	**ELECTRICALS**								0	0	
	- CABLE TRAY	KM	10.8	12.9				0.4	10.8	13.3	
	LT CABLE LAYING	KM	174.24	257				23	174.24	280	
	HT CABLE LAYING	KM	40.06	24.2				1	40.06	25.2	
	LIGHTING CABLE LAYING	KM	73.7	37				4	73.7	41	
	COMMUNICATION CABLE	KM	11	14.88				1	11	15.88	
	TRANSFORMER	NOS.	10	10				0	10	10	
	SWITCH BOARD PANELS	NOS.	141	141				0	141	141	
	MOTOR NO LOAD RUN	NOS.	118	126				27	118	153	
15	**INSTRUMENTATION**								0	0	
	CABLE TRAY	KM	16	20.1				2	16	22.1	
	BRANCH CABE AYNG	KM	75	63				10	75	73	
	POWER CABE AYNG	KM	13	11.17				4.83	13	16	
	MUTICORE CABE AYNG	KM	160	133				17	160	150	
	INSTRUMENT AIR INE	RM	1700	2200				300	1700	2500	
	IMPUSE PIPING	NOS.	1200	1275				100	1200	1375	
	INSTRUMENT MOUNTING	NOS.	2200	2154				121	2200	2275	
	LOOP CHECKING	NOS.	3700	2410				90	3700	2500	

Note (*) : For Electrical & Instrumentation works QTY clubbed with FCCU ISBL , OSBL and FGSU / PTU / CAUSTIC

1.5 WORK BREAD DOWN STRUCTURE

NEW FCCU PROJECT
FCCU

FCCU /GCU/OFFSITES
LICENSOR- UOP
FCCC-1.456 MMTPA

COLUMNS	
TOTAL(NOS)	9
WEIGHT (MT)	507

RR PACKAGE	
RR WEIGHT	711 MT
RR STRL	1215 MT
CYCLONE & SV	151 MT
ORFICE CHAMBER	10 MT

VESSELS	
TOTAL(NOS)	28
WEIGHT (MT)	299

HEAT EXCHANGERS	
TOTAL(NOS)	69
WEIGHT (MT)	685

COMPRESSOR	
TOTAL(NOS)	4
WEIGHT (MT)	208

PUMPS	
TOTAL(NOS)	59
WEIGHT (MT)	141

HEATERS	
TOTAL(NOS)	1
WEIGHT (MT)	248

OTHERS	
SKID (NOS. /MT)	3 5.6
FILTER(NOS. /MT)	1 /7.85
EJECTOR (NOS. /MT)	1 /0.28
AFC (NOS. /MT)	28 /96

CIVIL & STRL.	
RCC	15002 M3
STRL STEEL	2087 MT
PAVEMENT	1100 M3

PIPING	
AG WEDING	306891 ID
AG ERECTION	468971 IM

ELECTRICAL	
TRANSFORMER S	10 NOS.
CABE TRAY	12.9 KMS
HT CABLING	24.2 KM
IC CABLING	257.0 KMS
LG CABLING	37 KMS
SWITCH BOARD PANES	141 NOS.
COMMUNICATION CABE	14.85 KMS
NO DAD RUN	126 NOS.

INSTRUMENTATION	
CABE TRAY	20.1 KMS
BRANCH CABE	63 MS
POWER CABE	11.17 KMS
MULTICORE CABE	133 KMS
AIR LINE	2200 RM
IMPUSE PIPING	1275 NOS.
INSTRUMENT MOUNTING	2154 NOS.
LOOP CHECKING	240 NOS.

FGSU /PTU /CASUTIC
LICENSOR- BEC O
158 TPH OF FUEL GAS

QUENCH TOWER	
TOTAL(NOS)	1 NOS
WEIGHT (MT)	120

CLARIFIER	
TOTAL(NOS)	2
WEIGHT (MT)	66.7

TANKS	
TOTAL(NOS)	6
WEIGHT (MT)	92.4

HEAT EXCHANGERS	
TOTAL(NOS)	1
WEIGHT (MT)	7

OXIDATION BLOWER	
TOTAL(NOS)	2
WEIGHT (MT)	10

PUMPS	
TOTAL(NOS)	18
WEIGHT (MT)	7.4

OTHERS	
FILTER (NOS. /MT)	1 /14.2

CIVIL & STRL.	
RCC	867 M3
STRL STEEL	42 MT
PAVEMENT	195 M3

PIPING	
AG PIPING (ID)	13300
AG PIPING (IM)	11300

ELECTRICAL	
TRANSFORMER S	0
CABE TRAY	0.4 KMS
HT CABLING	1.0 KM
IC CABLING	23.0 KMS
LG CABLING	4.0 KMS
COMMUNICATION CABE	1.0 KMS
NO DAD RUN	27 NOS.

INSTRUMENTATION	
CABE TRAY	2 KMS
BRANCH CABE	10 KMS
POWER CABE	4.8 KMS
MULTICORE CABE	17 KMS
AIR LINE	0.3 KMS
IMPUSE PIPING	90 NOS.
INSTRUMENT MOUNTING	121 NOS.
LOOP CHECKING	90 NOS.

ENGINEERS INDIA LIMITED

PRDJECT :NEW FCCU PROJECT
JOB NO :6891
PMC :
CLENT :HPCL,MUMBAI

NO	DATE	PURPOSE	PREP BY	RECD BY	APPRD. BY

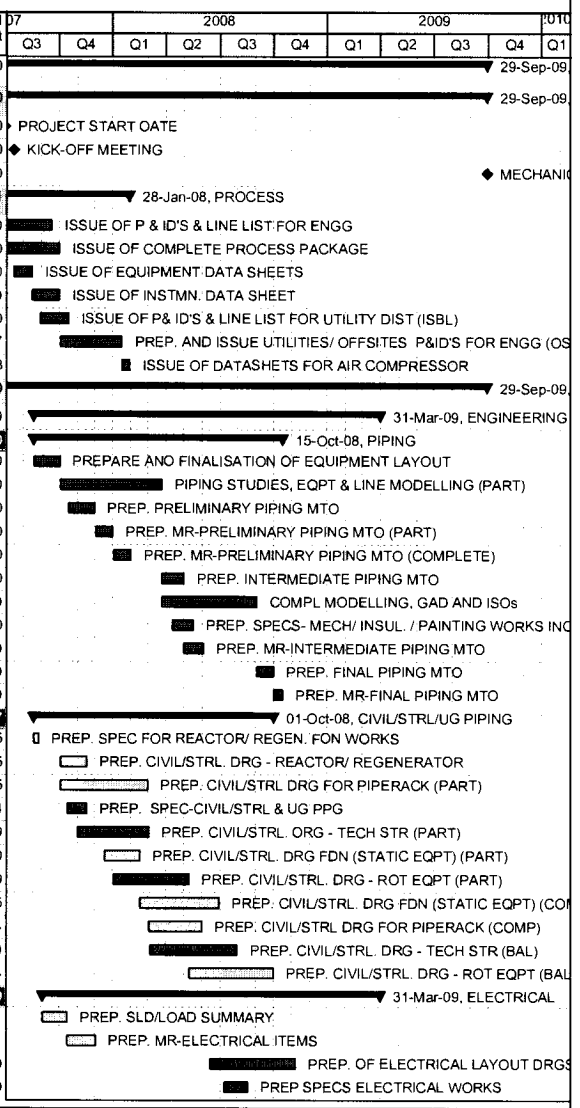
WORK BREAK DOWN STRUCTURE (NFFCUP)

2.0 CONSTRUCTION SCHEDULES & SCHEDULE PERFORMANCE

FCCU-HPCL, MUMBAI

26-May-11 22:21

Activity ID	Activity Name	Original Duration	Remaining Duration	Schedule % Complete	Start	Finish	Total Float
FCCU-HPCL, MUMBAI		571	571	0%	30-Jun-07	29-Sep-09	0
GENERAL		571	571	0%	30-Jun-07	29-Sep-09	0
GEN100	PROJECT START DATE	0	0	0%	30-Jun-07		0
GEN110	KICK-OFF MEETING	0	0	0%	16-Jul-07		0
GEN120	MECHANICAL COMPLETION	0	0	0%		29-Sep-09	0
PROCESS		145	145	0%	30-Jun-07	28-Jan-08	11
PROC110	ISSUE OF P & ID'S & LINE LIST FOR ENGG	68	68	0%	30-Jun-07	17-Sep-07	0
PROC120	ISSUE OF COMPLETE PROCESS PACKAGE	80	80	0%	30-Jun-07	01-Oct-07	0
PROC100	ISSUE DF EQUIPMENT DATA SHEETS	28	28	0%	16-Jul-07	16-Aug-07	0
PROC130	ISSUE OF INSTMN. DATA SHEET	40	40	0%	16-Aug-07	01-Oct-07	0
PROC140	ISSUE OF P& ID'S & LINE LIST FOR UTILITY DIST (ISBL)	41	41	0%	29-Aug-07	15-Oct-07	0
PROC150	PREP. AND ISSUE UTILITIES/ OFFSITES P&IO'S FOR ENGG (OSBL)	91	91	0%	02-Oct-07	15-Jan-08	7
PROC160	ISSUE OF DATASHETS FOR AIR COMPRESSOR	11	11	0%	16-Jan-08	28-Jan-08	13
UNIT-FCCU		571	571	0%	30-Jun-07	29-Sep-09	0
ENGINEERING		411	411	0%	17-Aug-07	31-Mar-09	29
PIPING		296	296	0%	17-Aug-07	15-Oct-08	0
ENGPP100	PREPARE ANO FINALISATION OF EQUIPMENT LAYOUT	39	39	0%	17-Aug-07	01-Oct-07	0
ENGPP140	PIPING STUDIES, EQPT & LINE MODELLING (PART)	150	150	0%	02-Oct-07	24-Mar-08	0
ENGPP110	PREP. PRELIMINARY PIPING MTO	40	40	0%	16-Oct-07	30-Nov-07	0
ENGPP120	PREP. MR-PRELIMINARY PIPING MTO (PART)	26	26	0%	01-Dec-07	31-Dec-07	0
ENGPP130	PREP. MR-PRELIMINARY PIPING MTO (COMPLETE)	27	27	0%	01-Jan-08	31-Jan-08	0
ENGPP150	PREP. INTERMEDIATE PIPING MTO	32	32	0%	25-Mar-08	30-Apr-08	0
ENGPP170	COMPL MODELLING, GAD AND ISOs	138	138	0%	25-Mar-08	01-Sep-08	0
ENGPP200	PREP. SPECS- MECH/ INSUL. / PAINTING WORKS INCL. OFFSITES	30	30	0%	11-Apr-08	15-May-08	0
ENGPP160	PREP. MR-INTERMEDIATE PIPING MTO	28	28	0%	01-May-08	02-Jun-08	0
ENGPP180	PREP. FINAL PIPING MTO	25	25	0%	02-Sep-08	30-Sep-08	0
ENGPP190	PREP. MR-FINAL PIPING MTO	13	13	0%	01-Oct-08	15-Oct-08	0
CIVIL/STRL/UG PIPING		286	286	0%	17-Aug-07	01-Oct-08	37
ENGCS100	PREP. SPEC FOR REACTOR/ REGEN. FDN WORKS	8	8	0%	17-Aug-07	25-Aug-07	75
ENGCS180	PREP. CIVIL/STRL. DRG - REACTOR/ REGENERATOR	39	39	0%	02-Oct-07	15-Nov-07	75
ENGCS110	PREP. CIVIL/STRL DRG FOR PIPERACK (PART)	130	130	0%	02-Oct-07	29-Feb-08	45
ENGCS105	PREP. SPEC-CIVIL/STRL & UG PPG	30	30	0%	13-Oct-07	16-Nov-07	14
ENGCS140	PREP. CIVIL/STRL. DRG - TECH STR (PART)	105	105	0%	01-Nov-07	01-Mar-08	19
ENGCS120	PREP. CIVIL/STRL. DRG FON (STATIC EQPT) (PART)	53	53	0%	17-Oec-07	15-Feb-08	80
ENGCS160	PREP. CIVIL/STRL. DRG - ROT EQPT (PART)	112	112	0%	01-Jan-08	09-May-08	29
ENGCS130	PREP. CIVIL/STRL. DRG FON (STATIC EQPT) (COMP)	116	116	0%	16-Feb-08	30-Jun-08	95
ENGCS115	PREP. CIVIL/STRL DRG FOR PIPERACK (COMP)	79	79	0%	01-Mar-08	31-May-08	64
ENGCS150	PREP. CIVIL/STRL. DRG - TECH STR (BAL)	129	129	0%	03-Mar-08	30-Jul-08	19
ENGCS170	PREP. CIVIL/STRL. ORG - ROT EQPT (BAL)	124	124	0%	10-May-08	01-Oct-08	44
ELECTRICAL		400	400	0%	01-Sep-07	31-Mar-09	29
ENGEL100	PREP. SLO/LOAO SUMMARY	37	37	0%	01-Sep-07	13-Oct-07	51
ENGEL110	PREP. MR-ELECTRICAL ITEMS	42	42	0%	15-Oct-07	01-Dec-07	51
ENGEL120	PREP. OF ELECTRICAL LAYOUT DRGS (PART)	126	126	0%	14-Jun-08	07-Nov-08	20
ENGEL140	PREP SPECS ELECTRICAL WORKS	36	36	0%	08-Jul-08	18-Aug-08	0



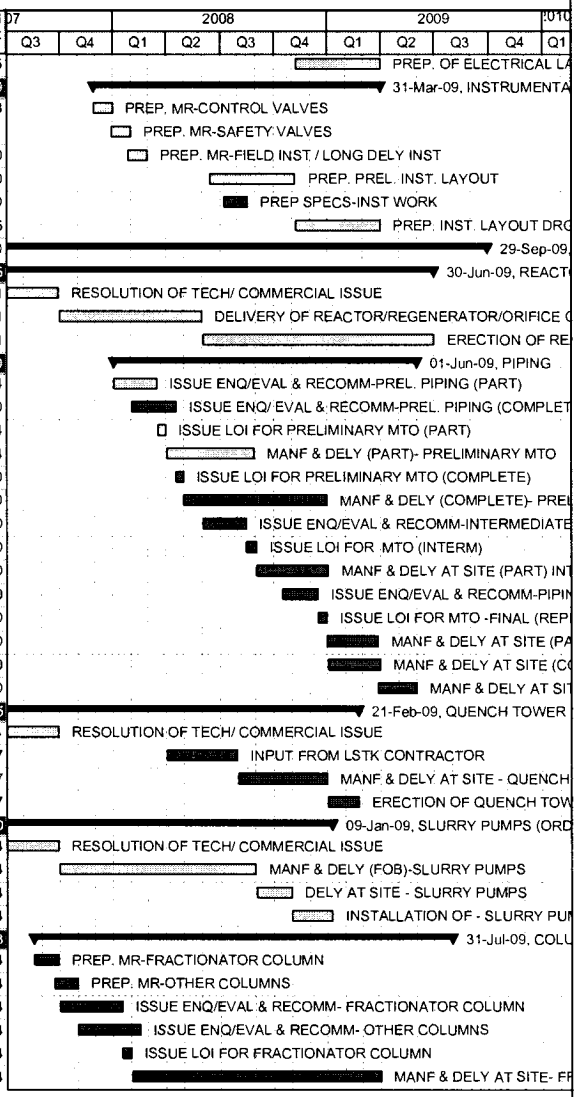
Actual Work | Critical Remaining Work | Summary | Remaining Work | Milestone

TASK filter: All Activities

FCCU-HPCL, MUMBAI

26-May-11 22:21

Activity ID	Activity Name	Original Duration	Remaining Duration	Schedule % Complete	Start	Finish	Total Float
ENGEL130	PREP. OF ELECTRICAL LAYOUT DRGS (COMPLETE)	123	123	0%	08-Nov-08	31-Mar-09	35
INSTRUMENTATION		342	342	0%	27-Nov-07	31-Mar-09	29
ENGIN100	PREP. MR-CONTROL VALVES	30	30	0%	27-Nov-07	31-Dec-07	68
ENGIN110	PREP. MR-SAFETY VALVES	30	30	0%	28-Dec-07	31-Jan-08	41
ENGIN120	PREP. MR-FIELD INST / LONG DELY INST	30	30	0%	26-Jan-08	29-Feb-08	80
ENGIN130	PREP. PREL. INST. LAYOUT	126	126	0%	14-Jun-08	07-Nov-08	20
ENGIN150	PREP SPECS-INST WORK	36	36	0%	08-Jul-08	18-Aug-08	0
ENGIN140	PREP. INST. LAYOUT DRG	123	123	0%	08-Nov-08	31-Mar-09	35
PROCUREMENT		571	571	0%	30-Jun-07	29-Sep-09	0
REACTOR / REGENERATOR/ORIFICE CHAMBERS (ORDERED UNDER JOB NO-6269)		508	508	0%	30-Jun-07	30-Jun-09	25
PRURR100	RESOLUTION OF TECH/ COMMERCIAL ISSUE	79	79	0%	30-Jun-07	29-Sep-07	31
PRURR110	DELIVERY OF REACTOR/REGENERATOR/ORIFICE CHAMBER	210	210	0%	01-Oct-07	31-May-08	31
PRURR120	ERECTION OF REACTOR/ REGENERATOR/ ORIFICE CHAMBER	338	338	0%	02-Jun-08	30-Jun-09	31
PIPING		361	361	0%	01-Jan-08	01-Jun-09	0
PRUPP100	ISSUE ENQ/EVAL & RECOMM-PREL. PIPING (PART)	65	65	0%	01-Jan-08	15-Mar-08	54
PRUPP130	ISSUE ENQ/ EVAL & RECOMM-PREL. PIPING (COMPLETE)	65	65	0%	01-Feb-08	16-Apr-08	0
PRUPP110	ISSUE LOI FOR PRELIMINARY MTO (PART)	13	13	0%	17-Mar-08	31-Mar-08	54
PRUPP120	MANF & DELY (PART)- PRELIMINARY MTO	130	130	0%	01-Apr-08	29-Aug-08	54
PRUPP140	ISSUE LOI FOR PRELIMINARY MTO (COMPLETE)	12	12	0%	17-Apr-08	30-Apr-08	0
PRUPP150	MANF & DELY (COMPLETE)- PRELIMINARY MTO	210	210	0%	01-May-08	31-Dec-08	0
PRUPP160	ISSUE ENQ/EVAL & RECOMM-INTERMEDIATE MTO	63	63	0%	03-Jun-08	14-Aug-08	0
PRUPP170	ISSUE LOI FOR MTO (INTERM)	15	15	0%	15-Aug-08	01-Sep-08	0
PRUPP180	MANF & DELY AT SITE (PART) INTERM MTO	105	105	0%	02-Sep-08	01-Jan-09	0
PRUPP200	ISSUE ENQ/EVAL & RECOMM-PIPING (FINAL)	52	52	0%	16-Oct-08	15-Dec-08	0
PRUPP210	ISSUE LOI FOR MTO -FINAL (REPEAT CRASH ORDER)	13	13	0%	16-Dec-08	30-Dec-08	0
PRUPP220	MANF & DELY AT SITE (PART) - MTO FINAL	75	75	0%	31-Dec-08	27-Mar-09	0
PRUPP190	MANF & DELY AT SITE (COMP) INTERM MTO	77	77	0%	02-Jan-09	01-Apr-09	0
PRUPP230	MANF & DELY AT SITE (COMP) - MTO FINAL	56	56	0%	28-Mar-09	01-Jun-09	0
QUENCH TOWER (ORDERED UNDER JOB NO-6269)		417	417	0%	30-Jun-07	21-Feb-09	15
PRUQT099	RESOLUTION OF TECH/ COMMERCIAL ISSUE	79	79	0%	30-Jun-07	29-Sep-07	174
PRUQT100	INPUT FROM LSTK CONTRACTOR	105	105	0%	01-Apr-08	31-Jul-08	17
PRUQT110	MANF & DELY AT SITE - QUENCH TOWER	131	131	0%	01-Aug-08	31-Dec-08	17
PRUQT120	ERECTION OF QUENCH TOWER	45	45	0%	01-Jan-09	21-Feb-09	17
SLURRY PUMPS (ORDERED UNDER JOB NO-6269)		387	387	0%	30-Jun-07	09-Jan-09	70
PRUSP100	RESOLUTION OF TECH/ COMMERCIAL ISSUE	79	79	0%	30-Jun-07	29-Sep-07	84
PRUSP110	MANF & DELY (FOB)-SLURRY PUMPS	288	288	0%	01-Oct-07	30-Aug-08	84
PRUSP120	DELY AT SITE - SLURRY PUMPS	53	53	0%	01-Sep-08	31-Oct-08	84
PRUSP130	INSTALLATION OF - SLURRY PUMPS	60	60	0%	01-Nov-08	09-Jan-09	84
COLUMNS		497	497	0%	17-Aug-07	31-Jul-09	3
PRUCL100	PREP. MR-FRACTIONATOR COLUMN	38	38	0%	17-Aug-07	29-Sep-07	4
PRUCL140	PREP. MR-OTHER COLUMNS	35	35	0%	21-Sep-07	31-Oct-07	4
PRUCL110	ISSUE ENQ/EVAL & RECOMM- FRACTIONATOR COLUMN	92	92	0%	01-Oct-07	15-Jan-08	4
PRUCL150	ISSUE ENQ/EVAL & RECOMM- OTHER COLUMNS	92	92	0%	01-Nov-07	15-Feb-08	4
PRUCL120	ISSUE LOI FOR FRACTIONATOR COLUMN	14	14	0%	16-Jan-08	31-Jan-08	4
PRUCL130	MANF & DELY AT SITE- FRACTIONATOR COLUMN	364	364	0%	01-Feb-08	31-Mar-09	4



Actual Work | Critical Remaining Work | Summary | Remaining Work | Milestone

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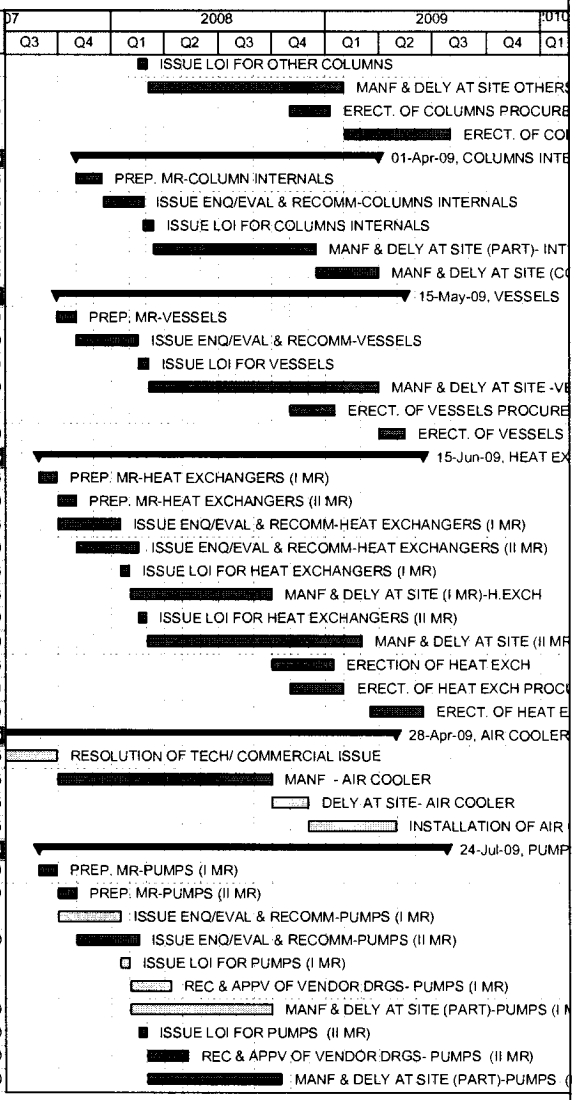
Activity ID	Activity Name	Original Duration	Remaining Duration	Schedule % Complete	Start	Finish	Total Float
PRUCL160	ISSUE LOI FOR OTHER COLUMNS	13	13	0%	16-Feb-08	01-Mar-08	4
PRUCL170	MANF & DELY AT SITE OTHERS COLUMNS	288	288	0%	03-Mar-08	31-Jan-09	4
PRUCL190	ERECT. OF COLUMNS PROCURED UNDER JOB NO-6269	60	60	0%	01-Nov-08	09-Jan-09	19
PRUCL180	ERECT. OF COLUMN & INTERNALS	155	155	0%	02-Feb-09	31-Jul-09	4
COLUMNS INTERNALS		359	359	0%	01-Nov-07	01-Apr-09	15
PRUCI100	PREP. MR-COLUMN INTERNALS	39	39	0%	01-Nov-07	15-Dec-07	18
PRUCI110	ISSUE ENQ/EVAL & RECOMM-COLUMNS INTERNALS	60	60	0%	17-Dec-07	23-Feb-08	18
PRUCI120	ISSUE LOI FOR COLUMNS INTERNALS	15	15	0%	25-Feb-08	12-Mar-08	18
PRUCI130	MANF & DELY AT SITE (PART)- INTERNALS	238	238	0%	13-Mar-08	15-Dec-08	18
PRUCI140	MANF & DELY AT SITE (COMP)- INTERNALS	92	92	0%	16-Dec-08	01-Apr-09	18
VESSELS		414	414	0%	29-Sep-07	15-May-09	7
PRUV099	PREP. MR-VESSELS	28	28	0%	29-Sep-07	31-Oct-07	10
PRUV100	ISSUE ENQ/EVAL & RECOMM-VESSELS	92	92	0%	01-Nov-07	15-Feb-08	10
PRUV120	ISSUE LOI FOR VESSELS	14	14	0%	16-Feb-08	03-Mar-08	10
PRUV121	MANF & DELY AT SITE -VESSELS	337	337	0%	04-Mar-08	31-Mar-09	10
PRUV160	ERECT. OF VESSELS PROCURED UNDER JOB NO - 6269	65	65	0%	01-Nov-08	15-Jan-09	14
PRUV150	ERECT. OF VESSELS	39	39	0%	01-Apr-09	15-May-09	10
HEAT EXCHANGERS		456	456	0%	29-Aug-07	15-Jun-09	15
PRUH099	PREP. MR-HEAT EXCHANGERS (I MR)	28	28	0%	29-Aug-07	29-Sep-07	16
PRUHE132	PREP. MR-HEAT EXCHANGERS (II MR)	27	27	0%	01-Oct-07	31-Oct-07	30
PRUHE100	ISSUE ENQ/EVAL & RECOMM-HEAT EXCHANGERS (I MR)	92	92	0%	01-Oct-07	15-Jan-08	16
PRUHE135	ISSUE ENQ/EVAL & RECOMM-HEAT EXCHANGERS (II MR)	92	92	0%	01-Nov-07	15-Feb-08	30
PRUHE120	ISSUE LOI FOR HEAT EXCHANGERS (I MR)	14	14	0%	16-Jan-08	31-Jan-08	16
PRUHE125	MANF & DELY AT SITE (I MR)-H.EXCH	208	208	0%	01-Feb-08	30-Sep-08	16
PRUHE140	ISSUE LOI FOR HEAT EXCHANGERS (II MR)	12	12	0%	16-Feb-08	29-Feb-08	30
PRUHE145	MANF & DELY AT SITE (II MR)-H. EXCH	314	314	0%	01-Mar-08	02-Mar-09	30
PRUHE130	ERECTION OF HEAT EXCH	90	90	0%	01-Oct-08	13-Jan-09	16
PRUHE160	ERECT. OF HEAT EXCH PROCURED UNDER JOB NO - 6269	79	79	0%	01-Nov-08	31-Jan-09	0
PRUHE150	ERECT. OF HEAT EXCH	79	79	0%	16-Mar-09	15-Jun-09	19
AIR COOLER (ORDERED UNDER JOB NO 6269)		464	464	0%	30-Jun-07	28-Apr-09	45
PRUAC100	RESOLUTION OF TECH/ COMMERCIAL ISSUE	79	79	0%	30-Jun-07	29-Sep-07	55
PRUAC110	MANF - AIR COOLER	314	314	0%	01-Oct-07	30-Sep-08	55
PRUAC120	DELY AT SITE- AIR COOLER	53	53	0%	01-Oct-08	01-Dec-08	55
PRUAC130	INSTALLATION OF AIR COOLER	127	127	0%	02-Dec-08	28-Apr-09	55
PUMPS		484	484	0%	29-Aug-07	24-Jul-09	8
PRUPU100	PREP. MR-PUMPS (I MR)	28	28	0%	29-Aug-07	29-Sep-07	10
PRUPU180	PREP. MR-PUMPS (II MR)	27	27	0%	01-Oct-07	31-Oct-07	10
PRUPU110	ISSUE ENQ/EVAL & RECOMM-PUMPS (I MR)	92	92	0%	01-Oct-07	15-Jan-08	61
PRUPU190	ISSUE ENQ/EVAL & RECOMM-PUMPS (II MR)	92	92	0%	01-Nov-07	15-Feb-08	10
PRUPU120	ISSUE LOI FOR PUMPS (I MR)	14	14	0%	16-Jan-08	31-Jan-08	61
PRUPU130	REC & APPV OF VENDOR DRGS- PUMPS (I MR)	60	60	0%	01-Feb-08	10-Apr-08	61
PRUPU140	MANF & DELY AT SITE (PART)-PUMPS (I MR)	208	208	0%	01-Feb-08	30-Sep-08	99
PRUPU200	ISSUE LOI FOR PUMPS (II MR)	12	12	0%	16-Feb-08	29-Feb-08	10
PRUPU210	REC & APPV OF VENDOR DRGS- PUMPS (II MR)	60	60	0%	01-Mar-08	09-May-08	10
PRUPU220	MANF & DELY AT SITE (PART)-PUMPS (II MR)	196	196	0%	01-Mar-08	15-Oct-08	10



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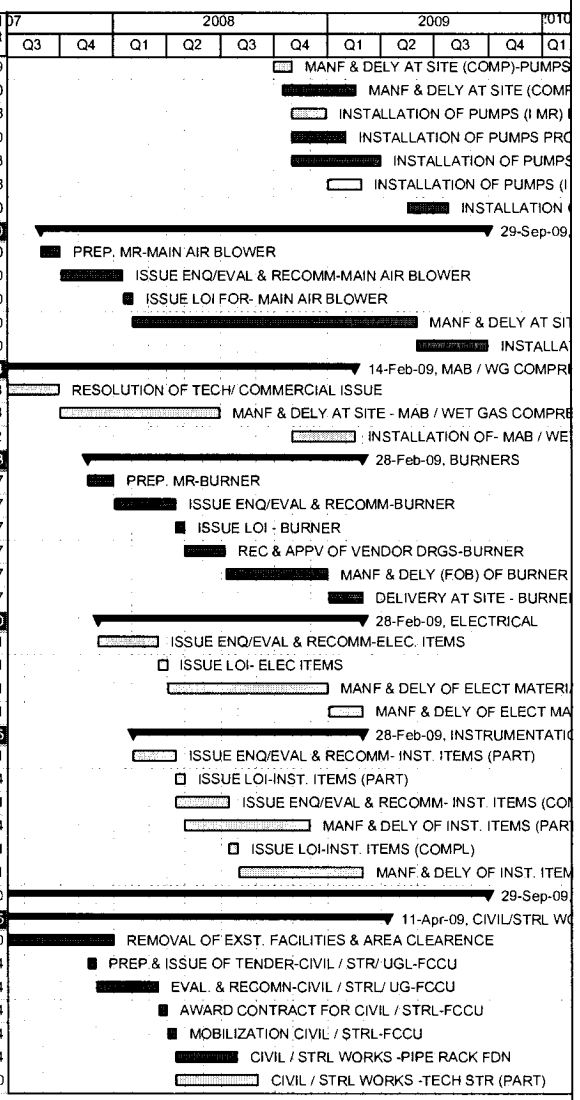
Activity ID	Activity Name	Original Duration	Remaining Duration	Schedule % Complete	Start	Finish	Total Float
PRUPU150	MANF & DELY AT SITE (COMP)-PUMPS (I MR)	27	27	0%	01-Oct-08	31-Oct-08	99
PRUPU230	MANF & DELY AT SITE (COMP)-PUMPS (II MR)	106	106	0%	16-Oct-08	16-Feb-09	10
PRUPU160	INSTALLATION OF PUMPS (I MR) PART	50	50	0%	01-Nov-08	29-Dec-08	78
PRUPU260	INSTALLATION OF PUMPS PROCURED UNDER JOB NO - 6269	79	79	0%	01-Nov-08	31-Jan-09	0
PRUPU240	INSTALLATION OF PUMPS (PART) (II MR)	129	129	0%	01-Nov-08	31-Mar-09	23
PRUPU170	INSTALLATION OF PUMPS (I MR) COMP	50	50	0%	30-Dec-08	25-Feb-09	78
PRUPU250	INSTALLATION OF PUMPS (BAL) (II MR)	60	60	0%	16-May-09	24-Jul-09	10
MAIN AIR BLOWER		530	530	0%	29-Aug-07	29-Sep-09	0
PRUM100	PREP. MR-MAIN AIR BLOWER	29	29	0%	29-Aug-07	01-Oct-07	0
PRUM110	ISSUE ENQ/EVAL & RECOMM-MAIN AIR BLOWER	92	92	0%	02-Oct-07	16-Jan-08	0
PRUM120	ISSUE LOI FOR- MAIN AIR BLOWER	14	14	0%	17-Jan-08	01-Feb-08	0
PRUM130	MANF & DELY AT SITE - MAIN AIR BLOWER	416	416	0%	02-Feb-08	01-Jun-09	0
PRUM140	INSTALLATION OF- MAIN AIR BLOWER	103	103	0%	02-Jun-09	29-Sep-09	0
MAB / WG COMPRESSORS (ORDERED UNDER JOB NO-6269)		412	412	0%	30-Jun-07	14-Feb-09	84
PRUW100	RESOLUTION OF TECH/ COMMERCIAL ISSUE	79	79	0%	30-Jun-07	29-Sep-07	208
PRUW110	MANF & DELY AT SITE - MAB / WET GAS COMPRESSOR	235	235	0%	01-Oct-07	30-Jun-08	208
PRUW120	INSTALLATION OF- MAB / WET GAS COMPRESSOR	91	91	0%	01-Nov-08	14-Feb-09	102
BURNERS		325	325	0%	16-Nov-07	28-Feb-09	23
PRUHT099	PREP. MR-BURNER	39	39	0%	16-Nov-07	31-Dec-07	27
PRUHT100	ISSUE ENQ/EVAL & RECOMM-BURNER	91	91	0%	01-Jan-08	15-Apr-08	27
PRUHT120	ISSUE LOI - BURNER	13	13	0%	16-Apr-08	30-Apr-08	27
PRUHT130	REC & APPV OF VENDOR DRGS-BURNER	60	60	0%	01-May-08	09-Jul-08	27
PRUHT140	MANF & DELY (FOB) OF BURNER	150	150	0%	10-Jul-08	31-Dec-08	27
PRUHT150	DELIVERY AT SITE - BURNER	51	51	0%	01-Jan-09	28-Feb-09	27
ELECTRICAL		316	316	0%	03-Dec-07	28-Feb-09	60
PRUE100	ISSUE ENQ/EVAL & RECOMM-ELEC. ITEMS	90	90	0%	03-Dec-07	15-Mar-08	51
PRUE110	ISSUE LOI- ELEC ITEMS	13	13	0%	17-Mar-08	31-Mar-08	51
PRUE120	MANF & DELY OF ELECT MATERIAL AT SITE (PART)	236	236	0%	01-Apr-08	31-Dec-08	51
PRUE130	MANF & DELY OF ELECT MATERIAL AT SITE (COMP)	51	51	0%	01-Jan-09	28-Feb-09	71
INSTRUMENTATION		274	274	0%	01-Feb-08	28-Feb-09	35
PRUIN110	ISSUE ENQ/EVAL & RECOMM- INST. ITEMS (PART)	64	64	0%	01-Feb-08	15-Apr-08	41
PRUIN100	ISSUE LOI-INST. ITEMS (PART)	13	13	0%	16-Apr-08	30-Apr-08	54
PRUIN120	ISSUE ENQ/EVAL & RECOMM- INST. ITEMS (COMPL)	78	78	0%	16-Apr-08	15-Jul-08	41
PRUIN115	MANF & DELY OF INST. ITEMS (PART)	183	183	0%	01-May-08	29-Nov-08	54
PRUIN130	ISSUE LOI-INST. ITEMS (COMPL)	14	14	0%	16-Jul-08	31-Jul-08	41
PRUIN140	MANF & DELY OF INST. ITEMS (COMPL)	182	182	0%	01-Aug-08	28-Feb-09	41
CONSTRUCTION		571	571	0%	30-Jun-07	29-Sep-09	0
CIVIL/STRL WORKS		452	452	0%	30-Jun-07	11-Apr-09	25
CONC099	REMOVAL OF EXST. FACILITIES & AREA CLEARENCE	158	158	0%	30-Jun-07	31-Dec-07*	0
CONC100	PREP & ISSUE OF TENDER-CIVIL / STR/ UGL-FCCU	12	12	0%	17-Nov-07	30-Nov-07	14
CONC110	EVAL. & RECOMN-CIVIL / STRL/ UG-FCCU	91	91	0%	01-Dec-07	15-Mar-08	14
CONC120	AWARD CONTRACT FOR CIVIL / STRL-FCCU	13	13	0%	17-Mar-08	31-Mar-08	14
CONC130	MOBILIZATION CIVIL / STRL-FCCU	13	13	0%	01-Apr-08	15-Apr-08	14
CONC135	CIVIL / STRL WORKS -PIPE RACK FDN	90	90	0%	16-Apr-08	29-Jul-08	14
CONC165	CIVIL / STRL WORKS -TECH STR (PART)	120	120	0%	16-Apr-08	02-Sep-08	40



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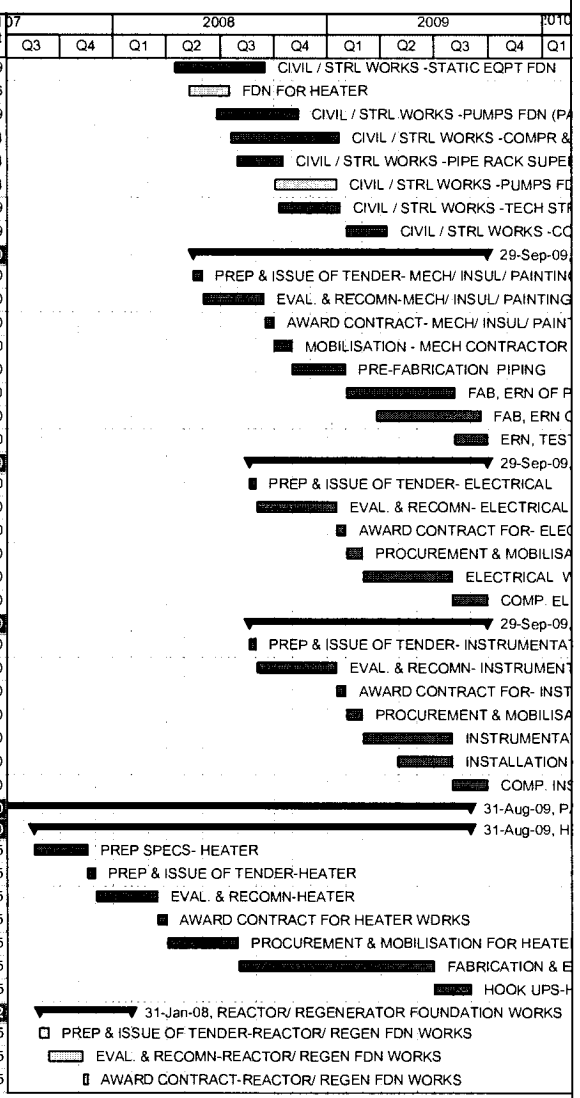
Activity ID	Activity Name	Original Duration	Remaining Duration	Schedule % Complete	Start	Finish	Total Float
CONC155	CIVIL / STRL WORKS -STATIC EQPT FDN	131	131	0%	16-Apr-08	15-Sep-08	29
CONC150	FDN FOR HEATER	60	60	0%	10-May-08	18-Jul-08	36
CONC185	CIVIL / STRL WORKS -PUMPS FDN (PART)	120	120	0%	25-Jun-08	11-Nov-08	29
CONC157	CIVIL / STRL WORKS -COMPR & SHED	158	158	0%	19-Jul-08	19-Jan-09	54
CONC140	CIVIL / STRL WORKS -PIPE RACK SUPER STR	67	67	0%	30-Jul-08	15-Oct-08	14
CONC190	CIVIL / STRL WORKS -PUMPS FDN (COMPLETE)	90	90	0%	02-Oct-08	14-Jan-09	44
CONC175	CIVIL / STRL WORKS -TECH STR (COMPLETE)	90	90	0%	09-Oct-08	21-Jan-09	19
CONC195	CIVIL / STRL WORKS -COMPLETE BALANCE WORKS	60	60	0%	02-Feb-09	11-Apr-09	29
MECHANICAL WORKS INCL. U/O		348	348	0%	16-May-08	29-Sep-09	0
CONM100	PREP & ISSUE OF TENDER- MECH/ INSUL/ PAINTING	14	14	0%	16-May-08	31-May-08	0
CONM110	EVAL. & RECOMN-MECH/ INSUL/ PAINTING	90	90	0%	02-Jun-08	13-Sep-08	0
CONM120	AWARD CONTRACT- MECH/ INSUL/ PAINTING	14	14	0%	15-Sep-08	30-Sep-08	0
CONM130	MOBILISATION - MECH CONTRACTOR	27	27	0%	01-Oct-08	31-Oct-08	0
CONM140	PRE-FABRICATION PIPING	79	79	0%	01-Nov-08	31-Jan-09	0
CONM150	FAB, ERN OF PIPING (PART)	159	159	0%	02-Feb-09	05-Aug-09	0
CONM160	FAB, ERN OF PIPING TILL HOOK-UP POINT - U/O	153	153	0%	24-Mar-09	17-Sep-09	0
CONM170	ERN, TESTING, INSULATION & PAINTING(COMPL) INCL. U/O	47	47	0%	06-Aug-09	29-Sep-09	0
ELECTRICAL WORKS INCL. U/O		283	283	0%	19-Aug-08	29-Sep-09	0
CONE100	PREP & ISSUE OF TENDER- ELECTRICAL	11	11	0%	19-Aug-08	30-Aug-08	0
CONE110	EVAL. & RECOMN- ELECTRICAL	118	118	0%	01-Sep-08	15-Jan-09	0
CONE120	AWARD CONTRACT FOR- ELECTRICAL	14	14	0%	16-Jan-09	31-Jan-09	0
CONE130	PROCUREMENT & MOBILISATION- ELECTRICAL	24	24	0%	02-Feb-09	28-Feb-09	0
CONE140	ELECTRICAL WORKS (PART)	131	131	0%	02-Mar-09	31-Jul-09	0
CONE150	COMP. ELECTRICAL WORK & HOOK UPS INCL. U/O	51	51	0%	01-Aug-09	29-Sep-09	0
INSTRUMENTATION WORKS INCL. U/O		283	283	0%	19-Aug-08	29-Sep-09	0
CONI100	PREP & ISSUE OF TENDER- INSTRUMENTATION	11	11	0%	19-Aug-08	30-Aug-08	0
CONI110	EVAL. & RECOMN- INSTRUMENTATION	118	118	0%	01-Sep-08	15-Jan-09	0
CONI120	AWARD CONTRACT FOR- INSTRUMENTATION	14	14	0%	16-Jan-09	31-Jan-09	0
CONI130	PROCUREMENT & MOBILISATION- INSTRUMENTATION	24	24	0%	02-Feb-09	28-Feb-09	0
CONI140	INSTRUMENTATION EREC WORKS (PART)	131	131	0%	02-Mar-09	31-Jul-09	0
CONI150	INSTALLATION OF DCS	80	80	0%	30-Apr-09	31-Jul-09	0
CONI160	COMP. INSTRUMENTATION EREC WORK & HOOK UPS INCL. U/O	51	51	0%	01-Aug-09	29-Sep-09	0
PACKAGES		551	551	0%	30-Jun-07	31-Aug-09	20
HEATER		518	518	0%	17-Aug-07	31-Aug-09	20
CONH099	PREP SPECS- HEATER	78	78	0%	17-Aug-07	15-Nov-07	25
CONH160	PREP & ISSUE OF TENDER-HEATER	13	13	0%	16-Nov-07	30-Nov-07	25
CONH170	EVAL. & RECOMN-HEATER	91	91	0%	01-Dec-07	15-Mar-08	25
CONH180	AWARD CONTRACT FOR HEATER WORKS	13	13	0%	17-Mar-08	31-Mar-08	25
CONH190	PRDCUREMENT & MOBILISATION FOR HEATER	105	105	0%	01-Apr-08	31-Jul-08	25
CONH200	FABRICATION & ERECTION OF HEATER	286	286	0%	01-Aug-08	30-Jun-09	25
CONH210	HOOK UPS-HEATER	53	53	0%	01-Jul-09	31-Aug-09	25
REACTOR/ REGENERATOR FOUNDATION WORKS		109	109	0%	27-Aug-07	31-Jan-08	62
CONRR110	PREP & ISSUE OF TENDER-REACTOR/ REGEN FDN WORKS	13	13	0%	27-Aug-07	10-Sep-07	75
CONRR120	EVAL. & RECOMN-REACTOR/ REGEN FDN WORKS	51	51	0%	11-Sep-07	08-Nov-07	75
CONRR130	AWARD CONTRACT-REACTOR/ REGEN FDN WORKS	6	6	0%	09-Nov-07	15-Nov-07	75



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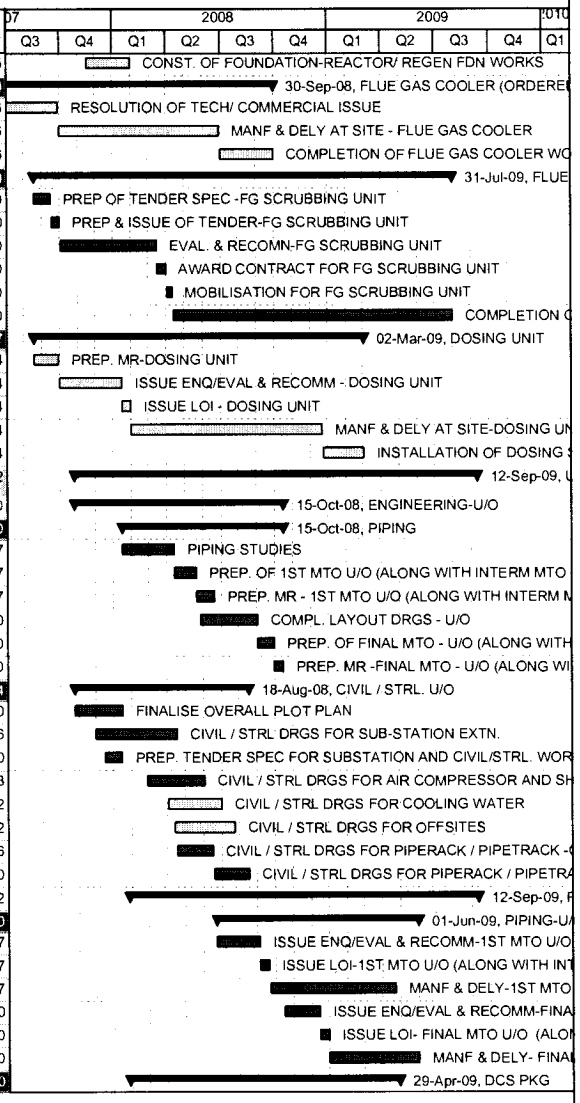
Activity ID	Activity Name	Original Duration	Remaining Duration	Schedule % Complete	Start	Finish	Total Float
CONRR140	CONST. OF FOUNDATION-REACTOR/ REGEN FDN WORKS	66	66	0%	16-Nov-07	31-Jan-08	75
FLUE GAS COOLER (ORDERED UNDER JOB NO-6269)		318	318	0%	30-Jun-07	30-Sep-08	60
CONFG100	RESOLUTION DF TECH/ COMMERCIAL ISSUE	79	79	0%	30-Jun-07	29-Sep-07	76
CONFG110	MANF & DELY AT SITE - FLUE GAS COOLER	235	235	0%	01-Oct-07	30-Jun-08	76
CONFG120	COMPLETION OF FLUE GAS COOLER WORKS	79	79	0%	01-Jul-08	30-Sep-08	76
FLUE GAS SCRUBBING UNIT		497	497	0%	17-Aug-07	31-Jul-09	0
CONSC100	PREP OF TENDER SPEC -FG SCRUBBING UNIT	26	26	0%	17-Aug-07	15-Sep-07	0
CONSC110	PREP & ISSUE OF TENDER-FG SCRUBBING UNIT	13	13	0%	17-Sep-07	01-Oct-07	0
CONSC120	EVAL. & RECOMN-FG SCRUBBING UNIT	143	143	0%	02-Oct-07	15-Mar-08	0
CONSC13(	AWARD CONTRACT FOR FG SCRUBBING UNIT	13	13	0%	17-Mar-08	31-Mar-08	0
CONSC140	MOBILISATION FOR FG SCRUBBING UNIT	10	10	0%	01-Apr-08	11-Apr-08	0
CONSC150	COMPLETION OF SCRUBBING UNIT WORK	408	408	0%	12-Apr-08	31-Jul-09	0
DOSING UNIT		390	390	0%	17-Aug-07	02-Mar-09	37
CONDU100	PREP. MR-DOSING UNIT	38	38	0%	17-Aug-07	29-Sep-07	44
CONDU105	ISSUE ENQ/EVAL & RECOMM - DOSING UNIT	91	91	0%	01-Oct-07	14-Jan-08	44
CONDU108	ISSUE LOI - DOSING UNIT	14	14	0%	15-Jan-08	30-Jan-08	44
CONDU110	MANF & DELY AT SITE-DOSING UNIT	280	280	0%	31-Jan-08	22-Dec-08	44
CONDU120	INSTALLATION OF DOSING SKID	60	60	0%	23-Dec-08	02-Mar-09	44
UTILITIES AND OFFSITES		478	478	0%	25-Oct-07	12-Sep-09	12
ENGINEERING-U/O		248	248	0%	25-Oct-07	15-Oct-08	0
PIPING		193	193	0%	16-Jan-08	15-Oct-08	0
UOPPG1000	PIPING STUDIES	76	76	0%	16-Jan-08	12-Apr-08	7
UOPPG1020	PREP. OF 1ST MTO U/O (ALONG WITH INTERM MTO - UNIT)	32	32	0%	14-Apr-08	20-May-08	7
UOPPG1030	PREP. MR - 1ST MTO U/O (ALONG WITH INTERM MTO - UNIT)	28	28	0%	21-May-08	21-Jun-08	7
UOPPG1040	COMPL. LAYOUT DRGS - U/O	83	83	0%	28-May-08	01-Sep-08	0
UOPPG1050	PREP. OF FINAL MTO - U/O (ALONG WITH FINAL MTO - UNIT)	25	25	0%	02-Sep-08	30-Sep-08	0
UOPPG1060	PREP. MR -FINAL MTO - U/O (ALONG WITH FINAL MTO - UNIT)	13	13	0%	01-Oct-08	15-Oct-08	0
CIVIL / STRL. U/O		207	207	0%	25-Oct-07	18-Aug-08	24
UOEGC1000	FINALISE OVERALL PLOT PLAN	71	71	0%	25-Oct-07	15-Jan-08	10
UOEGC1010	CIVIL / STRL DRGS FOR SUB-STATION EXTN.	120	120	0%	30-Nov-07	17-Apr-08	16
UOEGC1070	PREP. TENDER SPEC FOR SUBSTATION AND CIVIL/STRL. WORK OFFSITES	27	27	0%	15-Dec-07	15-Jan-08	10
UOEGC1040	CIVIL / STRL DRGS FOR AIR COMPRESSOR AND SHED	84	84	0%	27-Feb-08	03-Jun-08	13
UOEGC1050	CIVIL / STRL DRGS FOR COOLING WATER	78	78	0%	02-Apr-08	01-Jul-08	32
UOEGC1060	CIVIL / STRL DRGS FOR OFFSITES	88	88	0%	14-Apr-08	24-Jul-08	32
UOEGC1020	CIVIL / STRL DRGS FOR PIPERACK / PIPETRACK -OFFSITES (PART)	52	52	0%	18-Apr-08	17-Jun-08	16
UOEGC1030	CIVIL / STRL DRGS FOR PIPERACK / PIPETRACK -OFFSITES (COMPL)	53	53	0%	18-Jun-08	18-Aug-08	30
PROCUREMENT-U/O		415	415	0%	26-Jan-08	12-Sep-09	12
PIPING-U/O		239	239	0%	23-Jun-08	01-Jun-09	0
UOPRP1000	ISSUE ENQ/EVAL & RECOMM-1ST MTO U/O (ALONG WITH INTERM MTO - UNIT)	63	63	0%	23-Jun-08	03-Sep-08	7
UOPRP1010	ISSUE LOI-1ST MTO U/O (ALONG WITH INTERM MTO - UNIT)	15	15	0%	04-Sep-08	20-Sep-08	7
UOPRP1020	MANF & DELY-1ST MTO U/O (ALONG WITH INTERM MTO - UNIT)	183	183	0%	22-Sep-08	22-Apr-09	7
UOPRP1030	ISSUE ENQ/EVAL & RECOMM-FINAL MTO U/O (ALONG WITH FINAL MTO - UNIT)	52	52	0%	16-Oct-08	15-Dec-08	0
UOPRP1040	ISSUE LOI- FINAL MTO U/O (ALONG WITH FINAL MTO - UNIT)	13	13	0%	16-Dec-08	30-Dec-08	0
UOPRP1050	MANF & DELY- FINAL MTO U/O (ALONG WITH FINAL MTO - UNIT)	131	131	0%	31-Dec-08	01-Jun-09	0
DCS PKG		321	321	0%	26-Jan-08	29-Apr-09	0



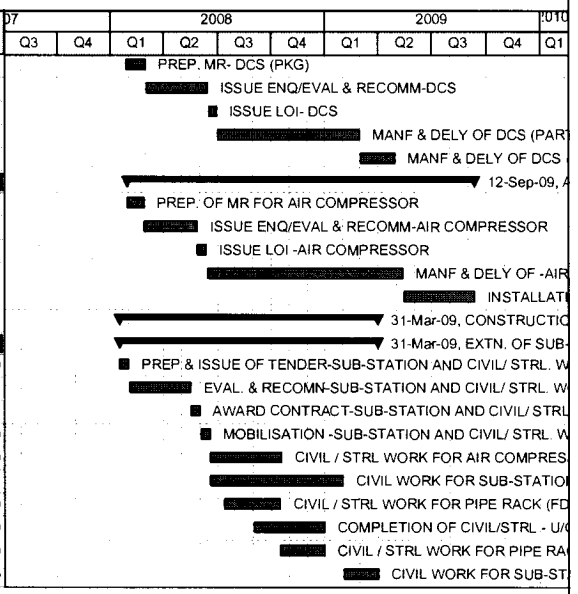
Actual Work | Critical Remaining Work | Summary | Remaining Work | Milestone

TASK filter: All Activities

FCCU-HPCL, MUMBAI

26-May-11 22:21

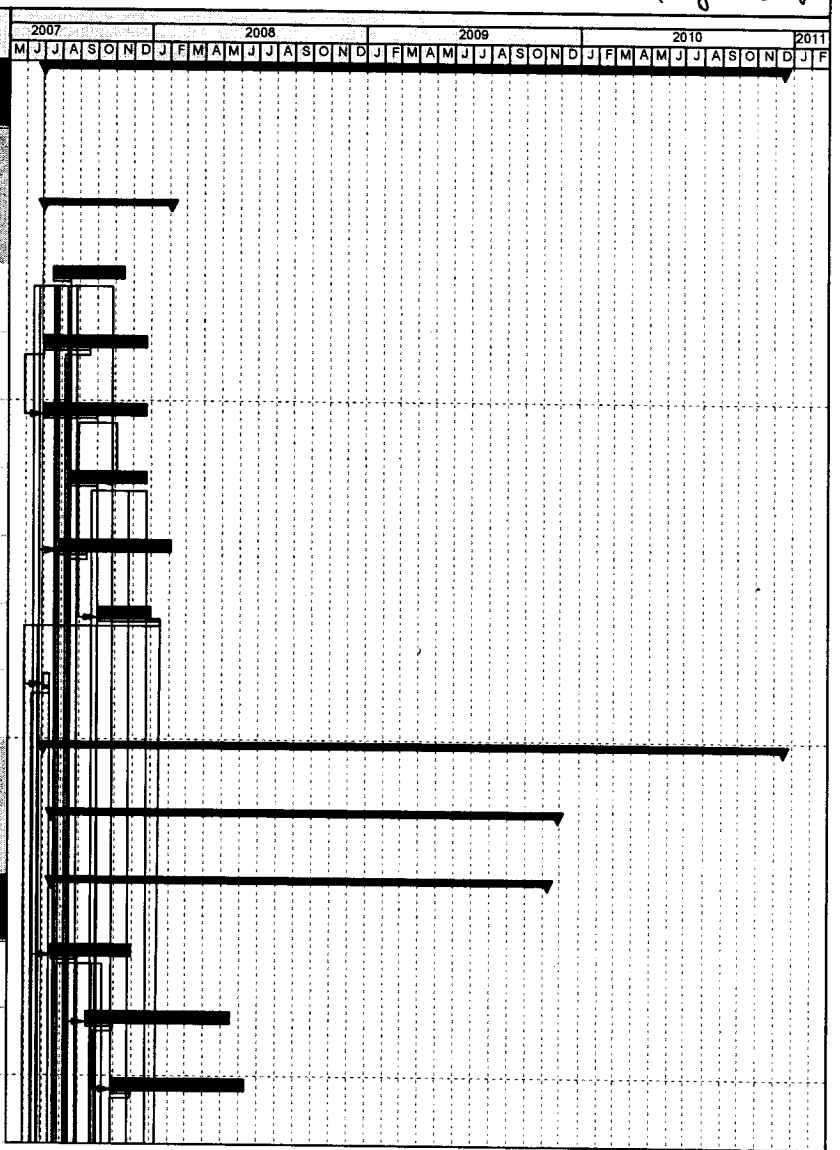
Activity ID	Activity Name	Original Duration	Remaining Duration	Schedule % Complete	Start	Finish	Total Float
PRUD100	PREP. MR- DCS (PKG)	30	30	0%	26-Jan-08	29-Feb-08	0
PRUD110	ISSUE ENQ/EVAL & RECOMM-DCS	91	91	0%	01-Mar-08	14-Jun-08	0
PRUD120	ISSUE LOI- DCS	13	13	0%	16-Jun-08	30-Jun-08	0
PRUD130	MANF & DELY OF DCS (PART)	209	209	0%	01-Jul-08	28-Feb-09	0
PRUD140	MANF & DELY OF DCS (COMP)	51	51	0%	02-Mar-09	29-Apr-09	0
AIR COMPRESSOR		414	414	0%	29-Jan-08	12-Sep-09	12
UOPAC1000	PREP. OF MR FOR AIR COMPRESSOR	25	25	0%	29-Jan-08	26-Feb-08	13
UOPAC1010	ISSUE ENQ/EVAL & RECOMM-AIR COMPRESSOR	78	78	0%	27-Feb-08	27-May-08	14
UOPAC1020	ISSUE LOI -AIR COMPRESSOR	14	14	0%	28-May-08	12-Jun-08	14
UOPAC1030	MANF & DELY OF -AIR COMPRESSOR	287	287	0%	13-Jun-08	13-May-09	14
UOPAC1040	INSTALLATION OF -AIR COMPRESSOR	105	105	0%	14-May-09	12-Sep-09	14
CONSTRUCTION-U/O		308	308	0%	16-Jan-08	31-Mar-09	21
EXTN. OF SUB-STATION BUILD AND CIVIL/STRL WORK U/O		308	308	0%	16-Jan-08	31-Mar-09	21
UOCONS1000	PREP & ISSUE OF TENDER-SUB-STATION AND CIVIL/ STRL. WORK U/O	14	14	0%	16-Jan-08	31-Jan-08	10
UOCONS1010	EVAL. & RECOMN-SUB-STATION AND CIVIL/ STRL. WORK U/O	90	90	0%	01-Feb-08	15-May-08	10
UOCONS1020	AWARD CONTRACT-SUB-STATION AND CIVIL/ STRL. WORK U/O	14	14	0%	16-May-08	31-May-08	10
UOCONS1030	MOBILISATION -SUB-STATION AND CIVIL/ STRL. WORK U/O	15	15	0%	02-Jun-08	18-Jun-08	10
UOCONS1060	CIVIL / STRL WORK FOR AIR COMPRESSOR AND SHED	104	104	0%	19-Jun-08	17-Oct-08	10
UOCONS1040	CIVIL WORK FOR SUB-STATION (80 %)	195	195	0%	19-Jun-08	31-Jan-09	24
UOCONS1070	CIVIL / STRL WORK FOR PIPE RACK (FDN)	82	82	0%	12-Jul-08	15-Oct-08	10
UOCONS1090	COMPLETION OF CIVIL/STRL - U/O	105	105	0%	01-Sep-08	31-Dec-08	10
UOCONS1080	CIVIL / STRL WORK FOR PIPE RACK (SUPERSTRUCTURE)	66	66	0%	16-Oct-08	31-Dec-08	10
UOCONS1050	CIVIL WORK FOR SUB-STATION COMPLETE	50	50	0%	02-Feb-09	31-Mar-09	25



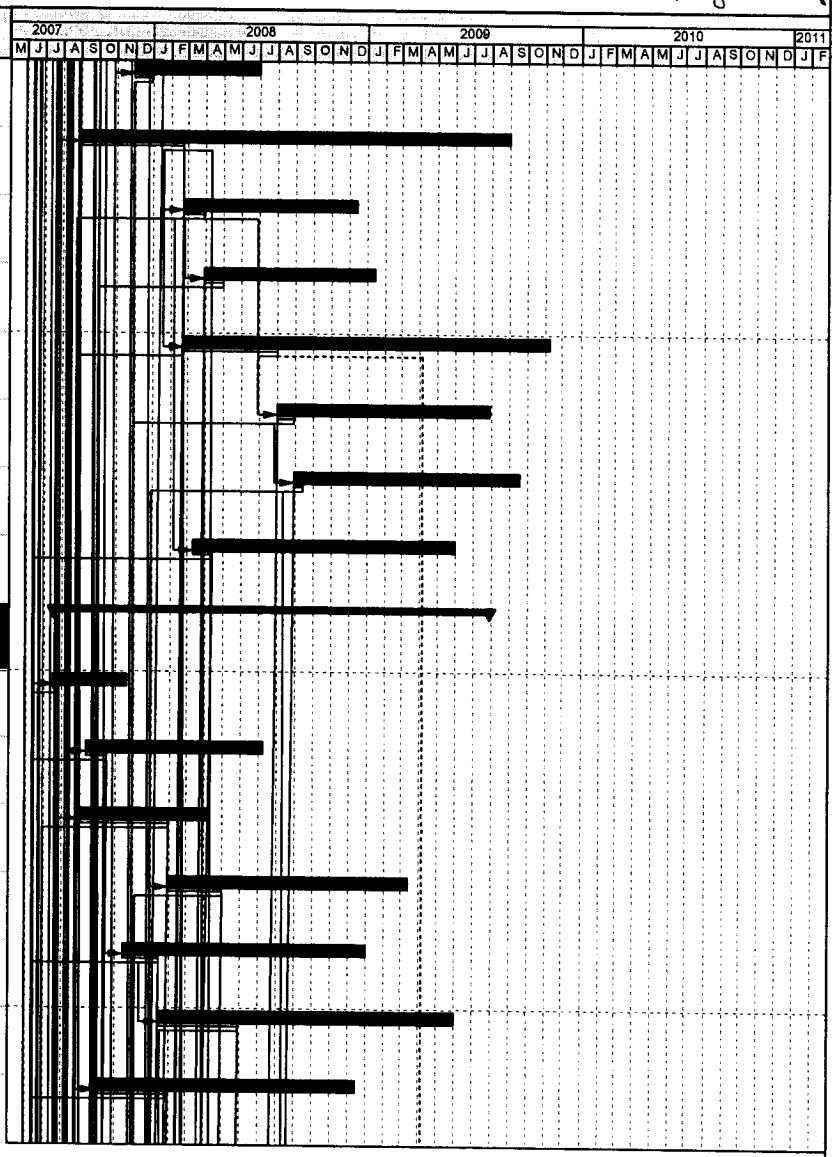
Actual Work Critical Remaining Work Summary
Remaining Work Milestone

TASK filter: All Activities

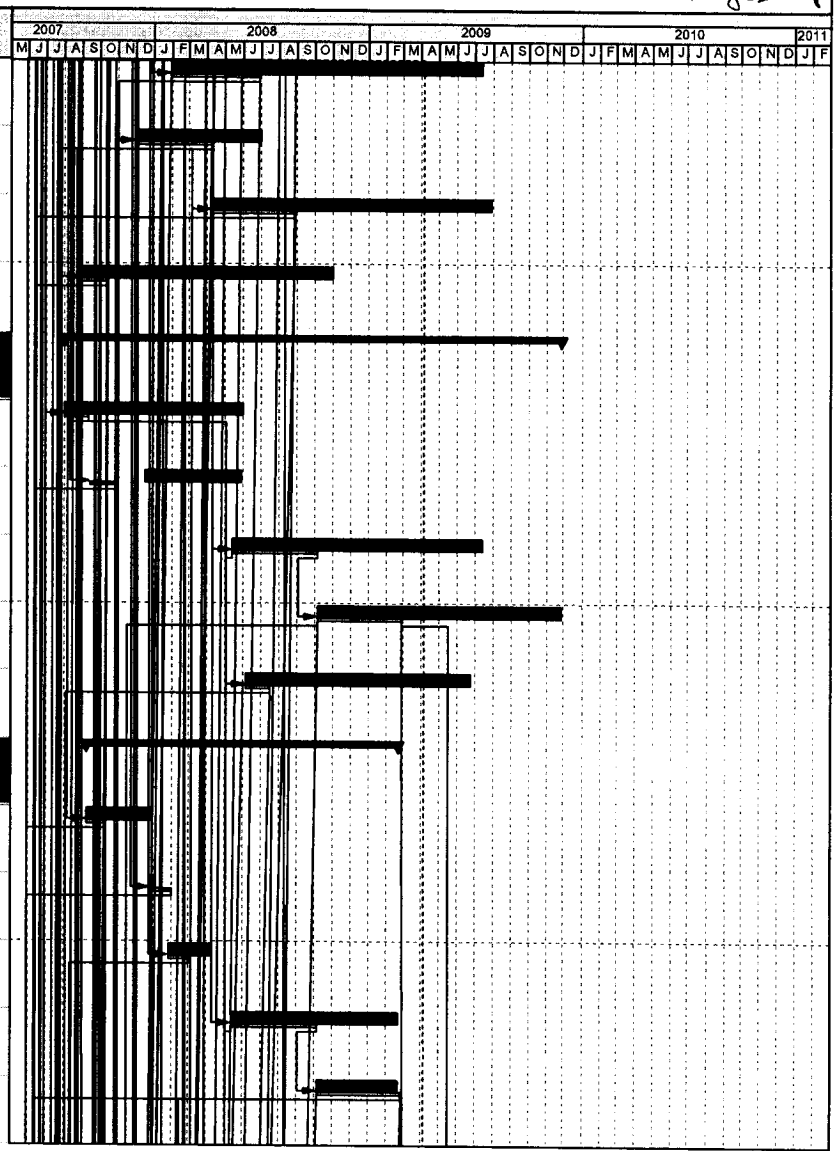
Activity ID	Activity Name	Original Duration (Days)	Early Start	Early Finish	Actual Start	Actual Finish
FCCU-HPCL, MUMBAI		802	30-Jun-07	24-Apr-09	30-Jun-07	
GENERAL		0				
PROCESS		197	30-Jun-07	16-Jul-07	30-Jun-07	
PROC100	ISSUE OF EQUIPMENT DATA SHEETS	28	16-Jul-07	16-Jul-07	16-Jul-07	16-Nov-07
PROC110	ISSUE OF P & ID'S & LINE LIST FOR ENGG	68	30-Jun-07	30-Jun-07	30-Jun-07	26-Dec-07
PROC120	ISSUE OF COMPLETE PROCESS PACKAGE	80	30-Jun-07	30-Jun-07	30-Jun-07	26-Dec-07
PROC130	ISSUE OF INSTMN. DATA SHEET	40	30-Jun-07	30-Jun-07	16-Aug-07	26-Dec-07
PROC140	ISSUE OF P& ID'S & LINE LIST FOR UTILITY DIST (ISBL)	41	16-Jul-07	16-Jul-07	27-Jul-07	05-Feb-08
PROC150	PREP. AND ISSUE UTILITIES/ OFFSITES P&ID'S FOR ENGG (OSBL)	91	30-Jun-07	30-Jun-07	02-Oct-07	01-Jan-08
PROC160	ISSUE OF DATASHETS FOR AIR COMPRESSOR	11	30-Jun-07	12-Jul-07		
UNIT-FCCU		802	30-Jun-07	24-Apr-09	30-Jun-07	
ENGINEERING		587	30-Jun-07	16-Jul-07	16-Jul-07	26-Nov-09
PIPING		422	16-Jul-07	16-Jul-07	16-Jul-07	10-Nov-09
ENGP	PREPARE AND FINALISATION OF EQUIPMENT LAYOUT	39	16-Jul-07	16-Jul-07	16-Jul-07	29-Nov-07
ENGP	PREP. PRELIMINARY PIPING MTO	40	16-Jul-07	16-Jul-07	13-Sep-07	15-May-08
ENGP	PREP. MR-PRELIMINARY PIPING MTO (PART)	26	16-Jul-07	16-Jul-07	30-Oct-07	10-Jun-08



Activity ID	Activity Name	Original Duration (Days)	Early Start	Early Finish	Actual Start	Actual Finish
	ENGP PREP. MR-PRELIMINARY PIPING MTO (COMPLETE)	27	16-Jul-07	16-Jul-07	29-Nov-07	30-Jun-08
	ENGP PIPING STUDIES, EQPT & LINE MODELLING (PART)	150	16-Jul-07	16-Jul-07	30-Aug-07	31-Aug-09
	ENGP PREP. INTERMEDIATE PIPING MTO	32	16-Jul-07	16-Jul-07	21-Feb-08	15-Dec-08
	ENGP PREP. MR-INTERMEDIATE PIPING MTO	28	16-Jul-07	16-Jul-07	29-Mar-08	15-Jan-09
	ENGP COMPL MODELLING, GAD AND ISOs	138	16-Jul-07	16-Jul-07	21-Feb-08	10-Nov-09
	ENGP PREP. FINAL PIPING MTO	25	16-Jul-07	16-Jul-07	31-Jul-08	31-Jul-09
	ENGP PREP. MR-FINAL PIPING MTO	13	16-Jul-07	16-Jul-07	29-Aug-08	18-Sep-09
	ENGP PREP. SPECS- MECH/ INSUL. / PAINTING WORKS INCL. OFFSITES	30	16-Jul-07	16-Jul-07	10-Mar-08	01-Jun-09
	CIVIL/STRL/UG PIPING	408	16-Jul-07	16-Jul-07	16-Jul-07	31-Jul-09
	ENGC PREP. SPEC FOR REACTOR/ REGEN. FDN WORKS	8	16-Jul-07	16-Jul-07	16-Jul-07	19-Nov-07
	ENGC PREP. SPEC-CIVIL/STRL & UG PPG	30	16-Jul-07	16-Jul-07	11-Sep-07	09-Jul-08
	ENGC PREP. CIVIL/STRL DRG FOR PIPERACK (PART)	130	16-Jul-07	16-Jul-07	30-Aug-07	07-Apr-08
	ENGC PREP. CIVIL/STRL DRG FOR PIPERACK (COMP)	79	16-Jul-07	16-Jul-07	29-Jan-08	13-Mar-09
	ENGC PREP. CIVIL/STRL. DRG FDN (STATIC EQPT) (PART)	53	16-Jul-07	16-Jul-07	14-Nov-07	31-Dec-08
	ENGC PREP. CIVIL/STRL. DRG FDN (STATIC EQPT) (COMP)	116	16-Jul-07	16-Jul-07	15-Jan-08	31-May-09
	ENGC PREP. CIVIL/STRL. DRG - TECH STR (PART)	105	16-Jul-07	16-Jul-07	29-Sep-07	15-Dec-08



Activity ID	Activity Name	Original Duration (Days)	Early Start	Early Finish	Actual Start	Actual Finish
ENGC	PREP. CIVIL/STRL. DRG - TECH STR (BAL)	129	16-Jul-07	16-Jul-07	30-Jan-08	15-Jul-09
ENGC	PREP. CIVIL/STRL. DRG - ROT EQPT (PART)	112	16-Jul-07	16-Jul-07	29-Nov-07	30-Jun-08
ENGC	PREP. CIVIL/STRL. DRG - ROT EQPT (BAL)	124	16-Jul-07	16-Jul-07	08-Apr-08	31-Jul-09
ENGC	PREP. CIVIL/STRL. DRG - REACTOR/ REGENERATOR	39	16-Jul-07	16-Jul-07	30-Aug-07	31-Oct-08
ELECTRICAL		572	16-Jul-07	16-Jul-07	31-Jul-07	26-Nov-09
ENGE	PREP. SLD/LOAD SUMMARY	37	16-Jul-07	16-Jul-07	31-Jul-07	31-May-08
ENGE	PREP. MR-ELECTRICAL ITEMS	42	16-Jul-07	16-Jul-07	16-Dec-07	28-May-08
ENGE	PREP. OF ELECTRICAL LAYOUT DRGS (PART)	126	16-Jul-07	16-Jul-07	13-May-08	15-Jul-09
ENGE	PREP. OF ELECTRICAL LAYOUT DRGS (COMPLETE)	123	16-Jul-07	16-Jul-07	07-Oct-08	26-Nov-09
ENGE	PREP SPECS ELECTRICAL WORKS	36	16-Jul-07	16-Jul-07	05-Jun-08	23-Jun-09
INSTRUMENTATION		533	30-Jun-07	16-Jul-07	08-Sep-07	22-Feb-09
ENGIN	PREP. MR-CONTROL VALVES	30	30-Jun-07	30-Jun-07	08-Sep-07	31-Dec-07
ENGIN	PREP. MR-SAFETY VALVES	30	30-Jun-07	30-Jun-07	28-Dec-07	05-Jan-08
ENGIN	PREP. MR-FIELD INST / LONG DELY INST	30	30-Jun-07	30-Jun-07	26-Jan-08	11-Apr-08
ENGIN	PREP. PREL. INST. LAYOUT	126	16-Jul-07	16-Jul-07	13-May-08	22-Feb-09
ENGIN	PREP. INST. LAYOUT DRG	123	16-Jul-07	16-Jul-07	07-Oct-08	22-Feb-09



DOC. NO. :
6891-00-2744-SO01-0

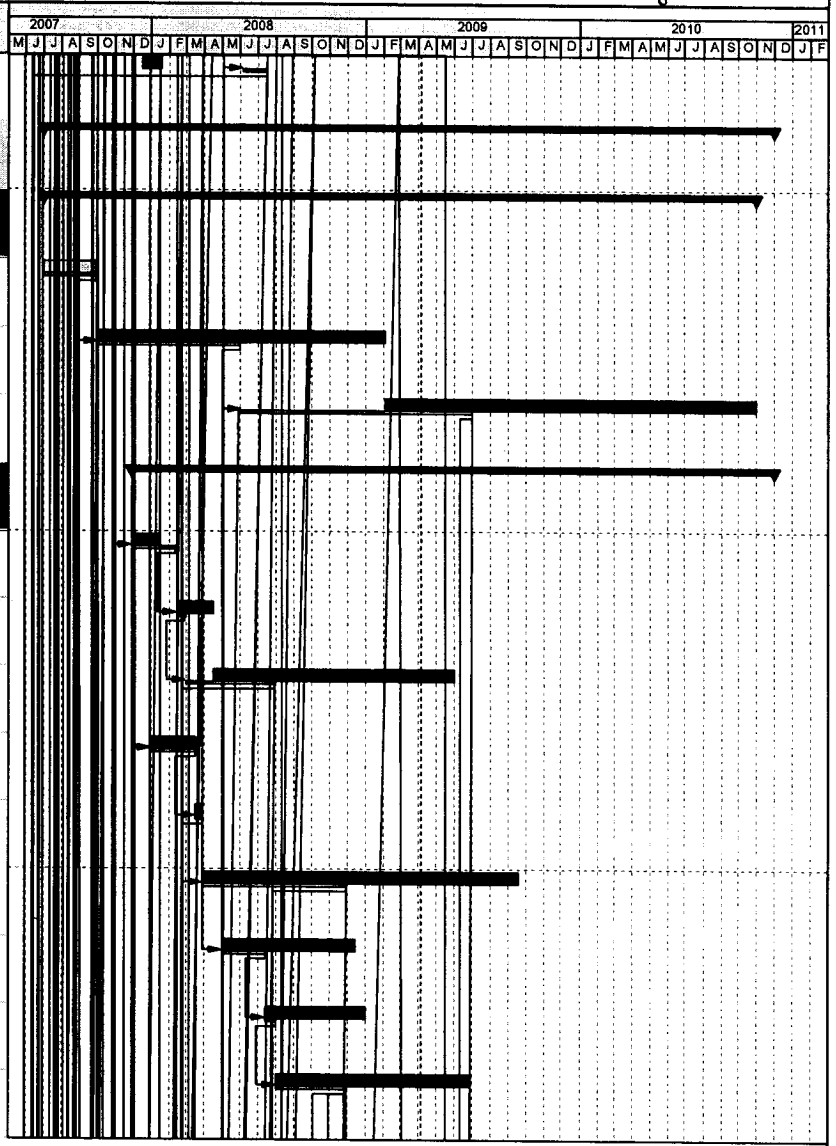
Primary Baseline
Actual Work
Critical Remaining ...

OVERALL PROJECT SCHEDULE

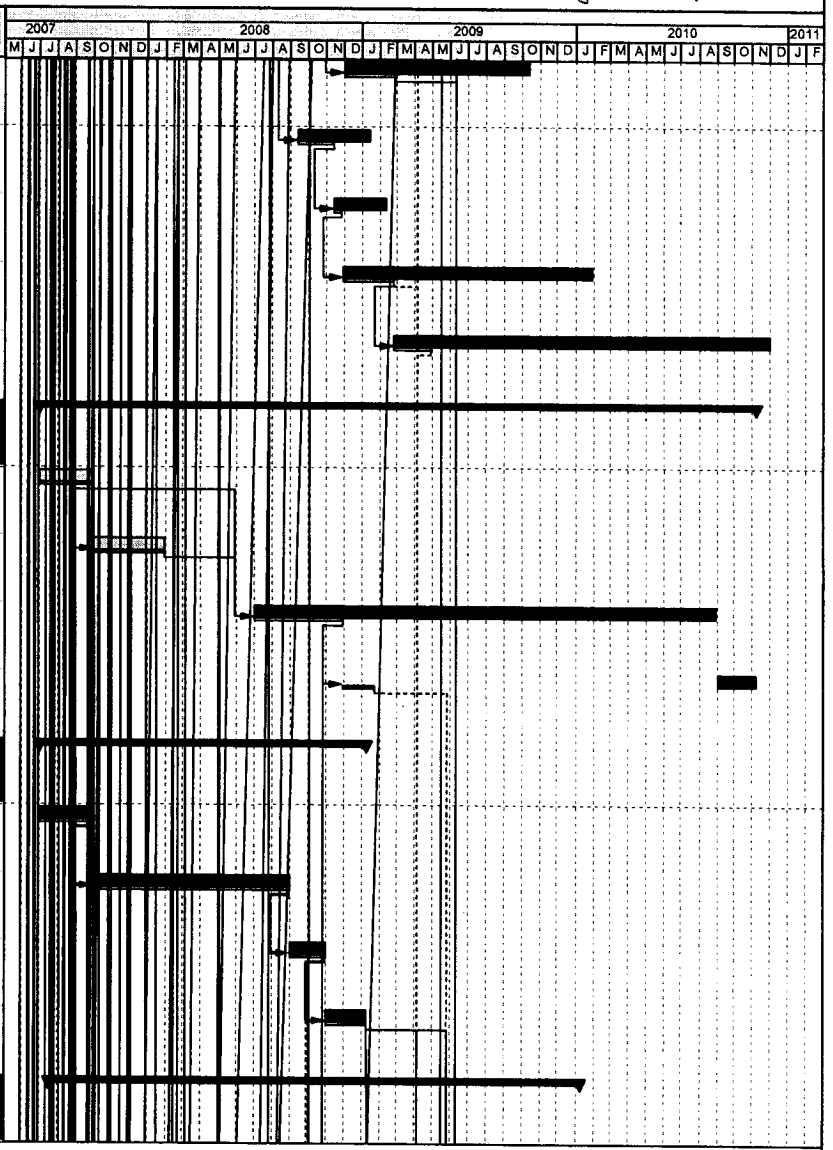
NEW FCC UNIT PROJECT

HPCL MUMBAI

Activity ID	Activity Name	Original Duration (Days)	Early Start	Early Finish	Actual Start	Actual Finish
	ENGI PREP SPECS-INST WORK	36	16-Jul-07	16-Jul-07	16-Dec-07	19-Jan-08
	PROCUREMENT	783	30-Jun-07	09-Jan-09	30-Jun-07	
	REACTOR / REGENERATOR/ORIFICE CHAMBER...	726	30-Jun-07	29-Sep-07	01-Oct-07	
	PRUR RESOLUTION OF TECH/ COMMERCIAL ISSUE	79	30-Jun-07	29-Sep-07		
	PRUR DELIVERY OF REACTOR/REGENERATOR/ORIFICE CHAMBER	210	29-Sep-07	29-Sep-07	01-Oct-07	03-Feb-09
	PRUR ERECTION OF REACTOR/ REGENERATOR/ ORIFICE CHAMBER	338	29-Sep-07	29-Sep-07	04-Feb-09	31-Oct-10
	PIPING	513	16-Jul-07	16-Jul-07	29-Nov-07	30-Nov-10
	PRUPI ISSUE ENQ/EVAL & RECOMM-PREL. PIPING (PART)	65	16-Jul-07	16-Jul-07	29-Nov-07	15-Jan-08
	PRUPI ISSUE LOI FOR PRELIMINARY MTO (PART)	13	16-Jul-07	16-Jul-07	13-Feb-08	15-Apr-08
	PRUPI MANF & DELY (PART)- PRELIMINARY MTO	130	16-Jul-07	16-Jul-07	16-Apr-08	31-May-09
	PRUPI ISSUE ENQ/ EVAL & RECOMM-PREL. PIPING (COMPLETE)	65	16-Jul-07	16-Jul-07	31-Dec-07	14-Mar-08
	PRUPI ISSUE LOI FOR PRELIMINARY MTO (COMPLETE)	12	16-Jul-07	16-Jul-07	15-Mar-08	28-Mar-08
	PRUPI MANF & DELY (COMPLETE)- PRELIMINARY MTO	210	16-Jul-07	16-Jul-07	29-Mar-08	20-Sep-09
	PRUPI ISSUE ENQ/EVAL & RECOMM-INTERMEDIATE MTO	63	16-Jul-07	16-Jul-07	01-May-08	15-Dec-08
	PRUPI ISSUE LOI FOR MTO (INTERM)	15	16-Jul-07	16-Jul-07	14-Jul-08	31-Dec-08
	PRUPI MANF & DELY AT SITE (PART) INTERM MTO	105	16-Jul-07	16-Jul-07	31-Jul-08	30-Jun-09



Activity ID	Activity Name	Original Duration (Days)	Early Start	Early Finish	Actual Start	Actual Finish
PRUPI	MANF & DELY AT SITE (COMP) INTERM MTO	77	16-Jul-07	16-Jul-07	01-Dec-08	15-Oct-09
PRUPI	ISSUE ENQ/EVAL & RECOMM-PIPING (FINAL)	52	16-Jul-07	16-Jul-07	13-Sep-08	15-Jan-09
PRUPI	ISSUE LOI FOR MTO -FINAL (REPEAT CRASH ORDER)	13	16-Jul-07	16-Jul-07	13-Nov-08	10-Feb-09
PRUPI	MANF & DELY AT SITE (PART) - MTO FINAL	75	16-Jul-07	16-Jul-07	28-Nov-08	31-Jan-10
PRUPI	MANF & DELY AT SITE (COMP) - MTO FINAL	56	16-Jul-07	16-Jul-07	24-Feb-09	30-Nov-10
QUENCH TOWER (ORDERED UNDER JOB NO-62...		565	30-Jun-07	30-Jan-08	30-Jun-08	
PRUQ	RESOLUTION OF TECH/ COMMERCIAL ISSUE	79	30-Jun-07	29-Sep-07		
PRUQ	INPUT FROM LSTK CONTRACTOR	105	01-Oct-07	30-Jan-08		
PRUQ	MANF & DELY AT SITE - QUENCH TOWER	131	30-Jan-08	30-Jan-08	30-Jun-08	30-Aug-10
PRUQ	ERECTION OF QUENCH TOWER	45	30-Jan-08	30-Jan-08	01-Sep-10	07-Nov-10
SLURRY PUMPS (ORDERED UNDER JOB NO-6269)		554	30-Jun-07	09-Jan-09		
PRUSI	RESOLUTION OF TECH/ COMMERCIAL ISSUE	79	30-Jun-07	29-Sep-07		
PRUSI	MANF & DELY (FOB)-SLURRY PUMPS	288	01-Oct-07	30-Aug-08		
PRUSI	DELY AT SITE - SLURRY PUMPS	53	01-Sep-08	31-Oct-08		
PRUSI	INSTALLATION OF - SLURRY PUMPS	60	01-Nov-08	09-Jan-09		
COLUMNS		656	16-Jul-07	16-Jul-07	16-Jul-07	10-Jan-10



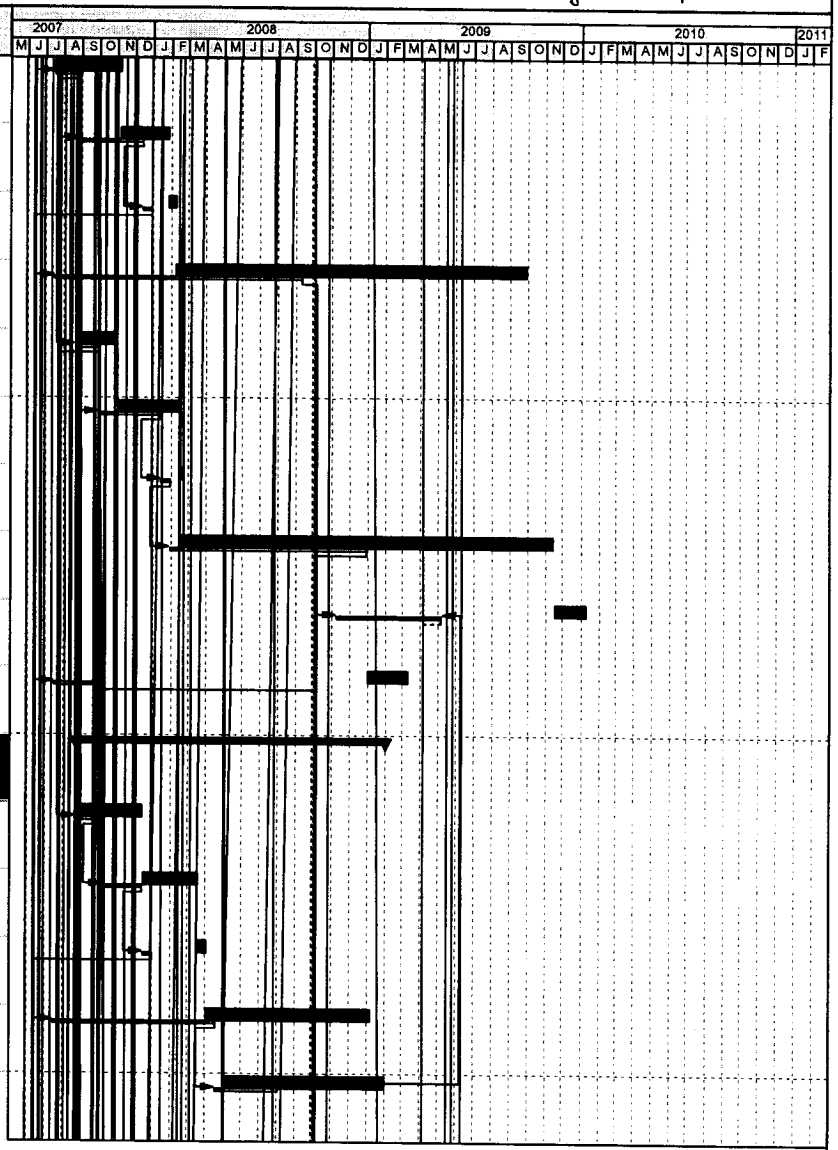
DOC. NO. :
6891-00-2744-SO01-0

OVERALL PROJECT SCHEDULE

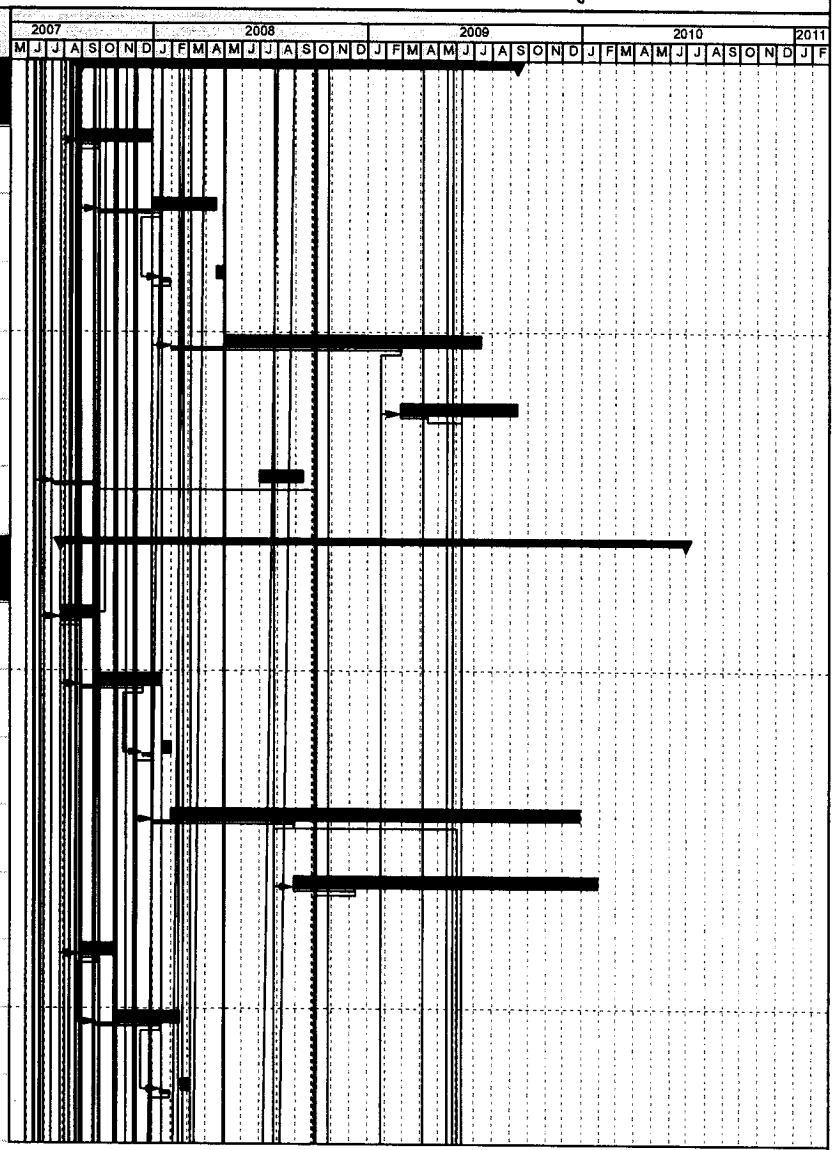
NEW FCC UNIT PROJECT

HPCL MUMBAI

Activity ID	Activity Name	Original Duration (Days)	Early Start	Early Finish	Actual Start	Actual Finish
	PRUC PREP. MR-FRACTIONATOR COLUMN	38	16-Jul-07	16-Jul-07	16-Jul-07	06-Nov-07
	PRUC ISSUE ENQ/EVAL & RECOMM-FRACTIONATOR COLUMN	92	16-Jul-07	16-Jul-07	07-Nov-07	26-Jan-08
	PRUC ISSUE LOI FOR FRACTIONATOR COLUMN	14	16-Jul-07	16-Jul-07	27-Jan-08	08-Feb-08
	PRUC MANF & DELY AT SITE-FRACTIONATOR COLUMN	364	16-Jul-07	16-Jul-07	09-Feb-08	30-Sep-09
	PRUC PREP. MR-OTHER COLUMNS	35	16-Jul-07	16-Jul-07	20-Aug-07	31-Oct-07
	PRUC ISSUE ENQ/EVAL & RECOMM- OTHER COLUMNS	92	16-Jul-07	16-Jul-07	01-Nov-07	15-Feb-08
	PRUC ISSUE LOI FOR OTHER COLUMNS	13	16-Jul-07	16-Jul-07	16-Feb-08	22-Feb-08
	PRUC MANF & DELY AT SITE OTHERS COLUMNS	288	16-Jul-07	16-Jul-07	16-Feb-08	15-Nov-09
	PRUC ERECT. OF COLUMN & INTERNALS	155	16-Jul-07	16-Jul-07	16-Nov-09	10-Jan-10
	PRUC ERECT. OF COLUMNS PROCURED UNDER JOB NO-6269	60	16-Jul-07	16-Jul-07	01-Jan-09	11-Mar-09
	COLUMNS INTERNALS	381	16-Jul-07	16-Jul-07	23-Aug-07	31-Jan-09
	PRUC PREP. MR-COLUMN INTERNALS	39	16-Jul-07	16-Jul-07	23-Aug-07	15-Dec-07
	PRUC ISSUE ENQ/EVAL & RECOMM-COLUMNS INTERNALS	60	16-Jul-07	16-Jul-07	16-Dec-07	18-Mar-08
	PRUC ISSUE LOI FOR COLUMNS INTERNALS	15	16-Jul-07	16-Jul-07	19-Mar-08	02-Apr-08
	PRUC MANF & DELY AT SITE (PART)-INTERNALS	238	16-Jul-07	16-Jul-07	03-Apr-08	05-Jan-09
	PRUC MANF & DELY AT SITE (COMP)-INTERNALS	92	16-Jul-07	16-Jul-07	01-May-08	31-Jan-09



Activity ID	Activity Name	Original Duration (Days)	Early Start	Early Finish	Actual Start	Actual Finish
	VESSELS	633	16-Jul-07	16-Jul-07	28-Aug-07	15-Sep-09
PRUV	PREP. MR-VESSELS	28	16-Jul-07	16-Jul-07	28-Aug-07	30-Dec-07
PRUV	ISSUE ENQ/EVAL & RECOMM-VESSELS	92	16-Jul-07	16-Jul-07	31-Dec-07	17-Apr-08
PRUV	ISSUE LOI FOR VESSELS	14	16-Jul-07	16-Jul-07	18-Apr-08	02-May-08
PRUV	MANF & DELY AT SITE -VESSELS	337	16-Jul-07	16-Jul-07	03-May-08	15-Jul-09
PRUV	ERECT. OF VESSELS	39	16-Jul-07	16-Jul-07	27-Feb-09	15-Sep-09
PRUV	ERECT. OF VESSELS PROCURED UNDER JOB NO - 6269	65	16-Jul-07	16-Jul-07	01-Jul-08	13-Sep-08
	HEAT EXCHANGERS	650	16-Jul-07	16-Jul-07	27-Jul-07	30-Jun-10
PRUH	PREP. MR-HEAT EXCHANGERS (I MR)	28	16-Jul-07	16-Jul-07	27-Jul-07	29-Sep-07
PRUH	ISSUE ENQ/EVAL & RECOMM-HEAT EXCHANGERS (I MR)	92	16-Jul-07	16-Jul-07	30-Sep-07	16-Jan-08
PRUH	ISSUE LOI FOR HEAT EXCHANGERS (I MR)	14	16-Jul-07	16-Jul-07	17-Jan-08	31-Jan-08
PRUH	MANF & DELY AT SITE (I MR)-H.EXCH	208	16-Jul-07	16-Jul-07	01-Feb-08	31-Dec-09
PRUH	ERECTION OF HEAT EXCH	90	16-Jul-07	16-Jul-07	29-Aug-08	31-Jan-10
PRUH	PREP. MR-HEAT EXCHANGERS (II MR)	27	16-Jul-07	16-Jul-07	29-Aug-07	31-Oct-07
PRUH	ISSUE ENQ/EVAL & RECOMM-HEAT EXCHANGERS (II MR)	92	16-Jul-07	16-Jul-07	01-Nov-07	17-Feb-08
PRUH	ISSUE LOI FOR HEAT EXCHANGERS (II MR)	12	16-Jul-07	16-Jul-07	18-Feb-08	03-Mar-08



DOC. NO. :
6891-00-2744-SO01-0

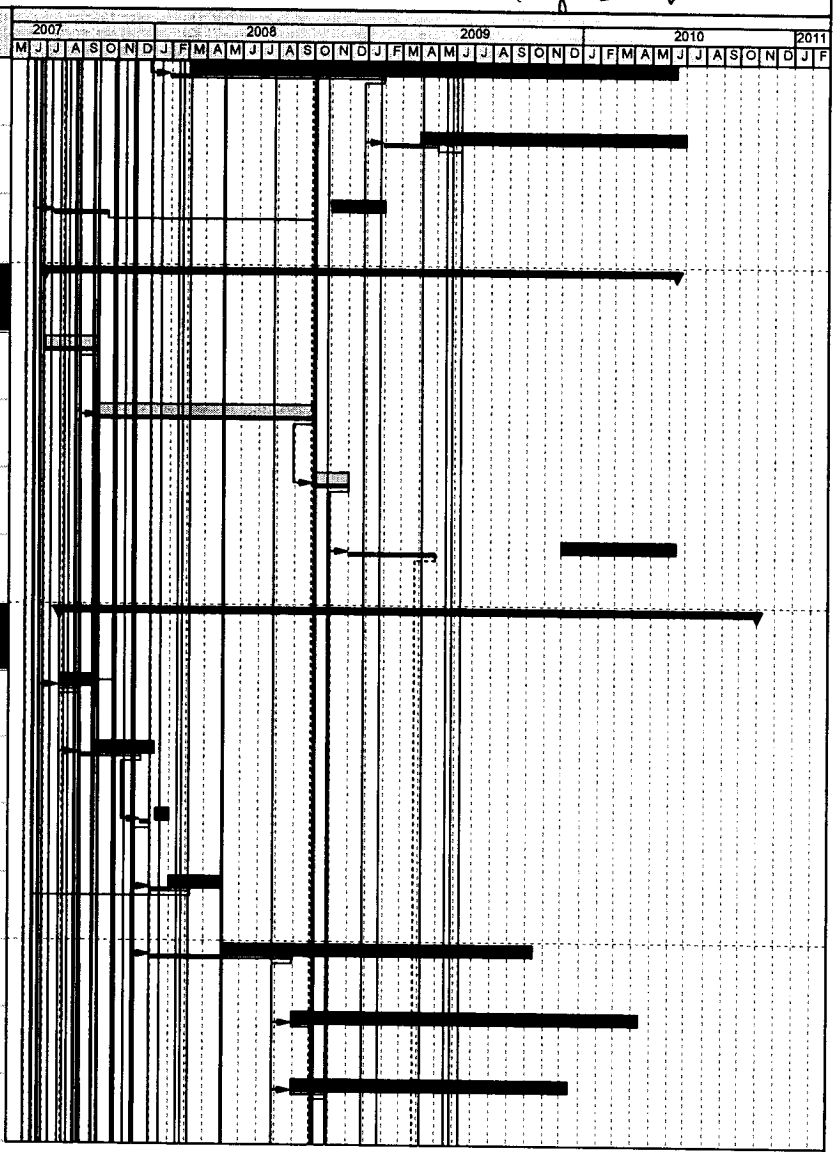
Primary Baseline
Actual Work
Remaining Work
Critical Remaining ...

OVERALL PROJECT SCHEDULE

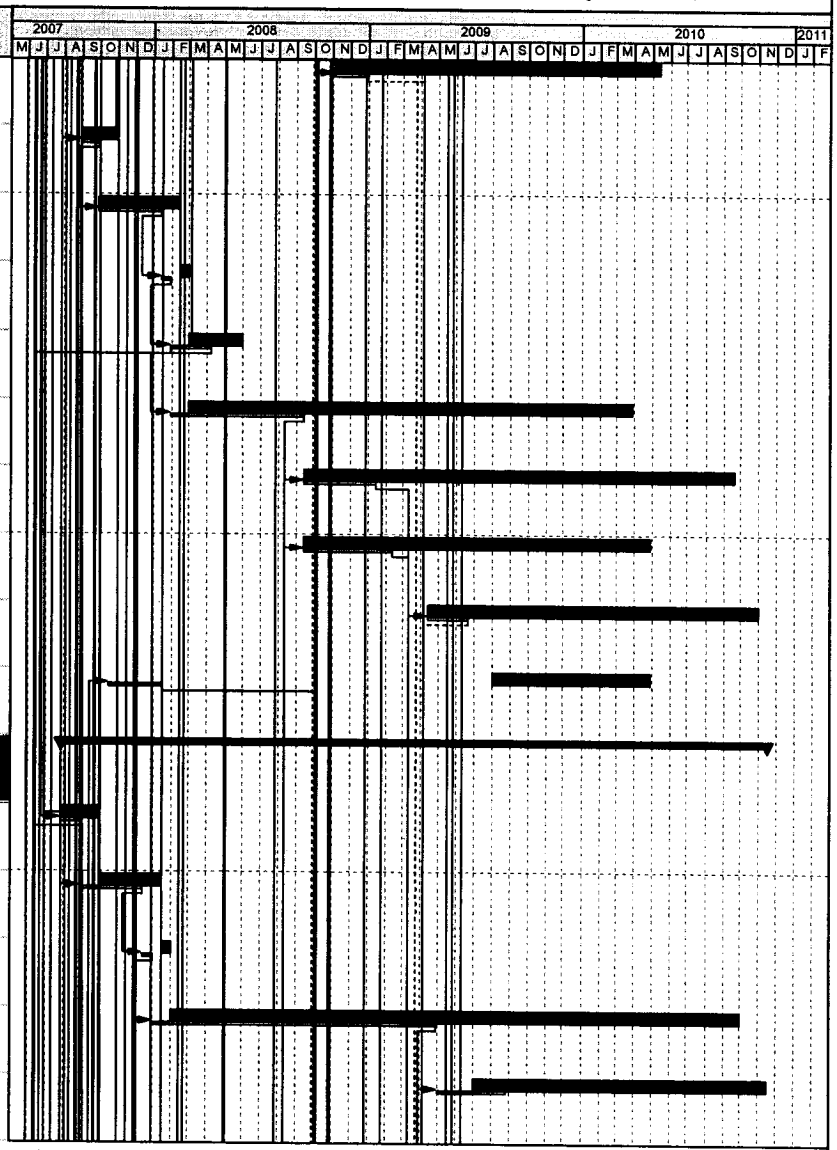
NEW FCC UNIT PROJECT

HPCL MUMBAI

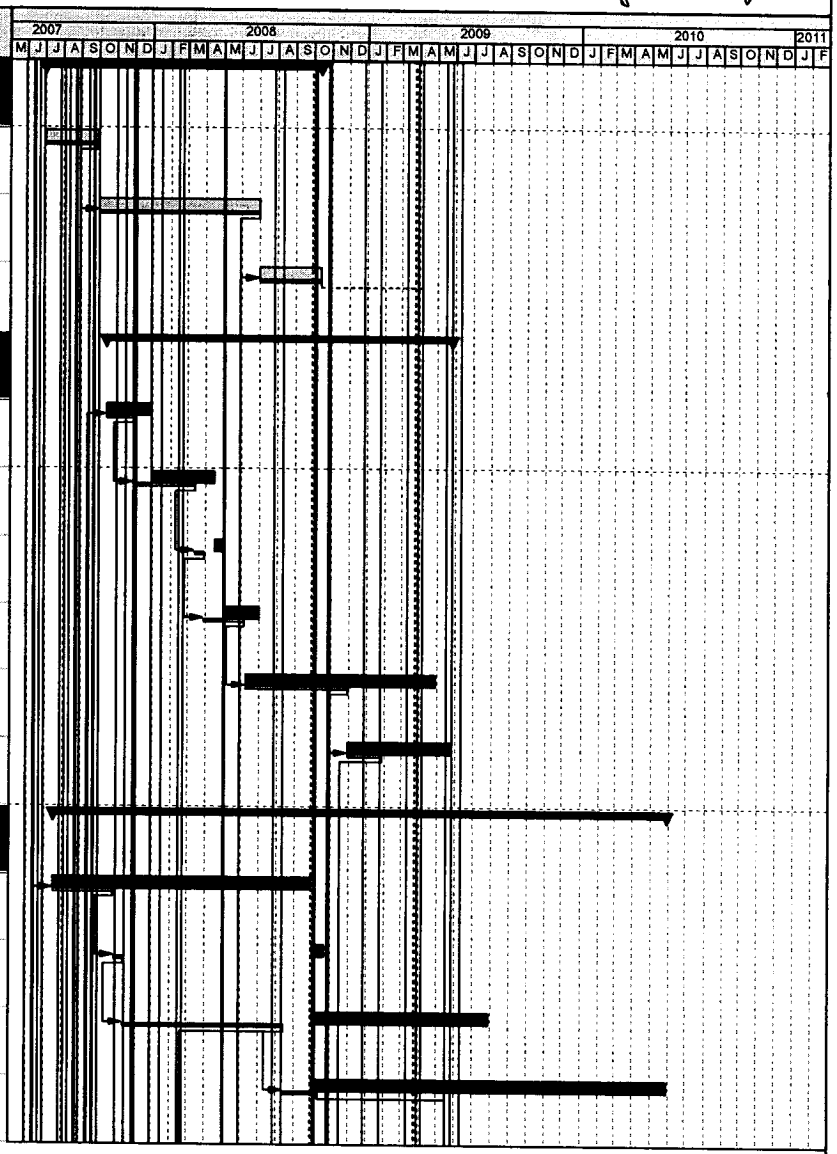
Activity ID	Activity Name	Original Duration (Days)	Early Start	Early Finish	Actual Start	Actual Finish
PRUH	MANF & DELY AT SITE (II MR)-H. EXCH	314	16-Jul-07	16-Jul-07	04-Mar-08	15-Jun-10
PRUH	ERECT. OF HEAT EXCH	79	16-Jul-07	16-Jul-07	01-Apr-09	30-Jun-10
PRUH	ERECT. OF HEAT EXCH PROCURED UNDER JOB NO - 6269	79	16-Jul-07	16-Jul-07	01-Nov-08	31-Jan-09
	AIR COOLER (ORDERED UNDER JOB NO 6269)	663	30-Jun-07	01-Dec-08	01-Dec-09	
PRUA	RESOLUTION OF TECH/ COMMERCIAL ISSUE	79	30-Jun-07	29-Sep-07		
PRUA	MANF - AIR COOLER	314	01-Oct-07	30-Sep-08		
PRUA	DELY AT SITE- AIR COOLER	53	01-Oct-08	01-Dec-08		
PRUA	INSTALLATION OF AIR COOLER	127	01-Dec-08	01-Dec-08	01-Dec-09	15-Jun-10
	PUMPS	692	16-Jul-07	16-Jul-07	27-Jul-07	31-Oct-10
PRUP	PREP. MR-PUMPS (I MR)	28	16-Jul-07	16-Jul-07	27-Jul-07	29-Sep-07
PRUP	ISSUE ENQ/EVAL & RECOMM-PUMPS (I MR)	92	16-Jul-07	16-Jul-07	30-Sep-07	07-Jan-08
PRUP	ISSUE LOI FOR PUMPS (I MR)	14	16-Jul-07	16-Jul-07	08-Jan-08	31-Jan-08
PRUP	REC & APPV OF VENDOR DRGS-PUMPS (I MR)	60	16-Jul-07	16-Jul-07	01-Feb-08	30-Apr-08
PRUP	MANF & DELY AT SITE (PART)-PUMPS (I MR)	208	16-Jul-07	16-Jul-07	01-May-08	15-Oct-09
PRUP	MANF & DELY AT SITE (COMP)-PUMPS (I MR)	27	16-Jul-07	16-Jul-07	29-Aug-08	15-Apr-10
PRUP	INSTALLATION OF PUMPS (I MR) PART	50	16-Jul-07	16-Jul-07	29-Aug-08	15-Dec-09



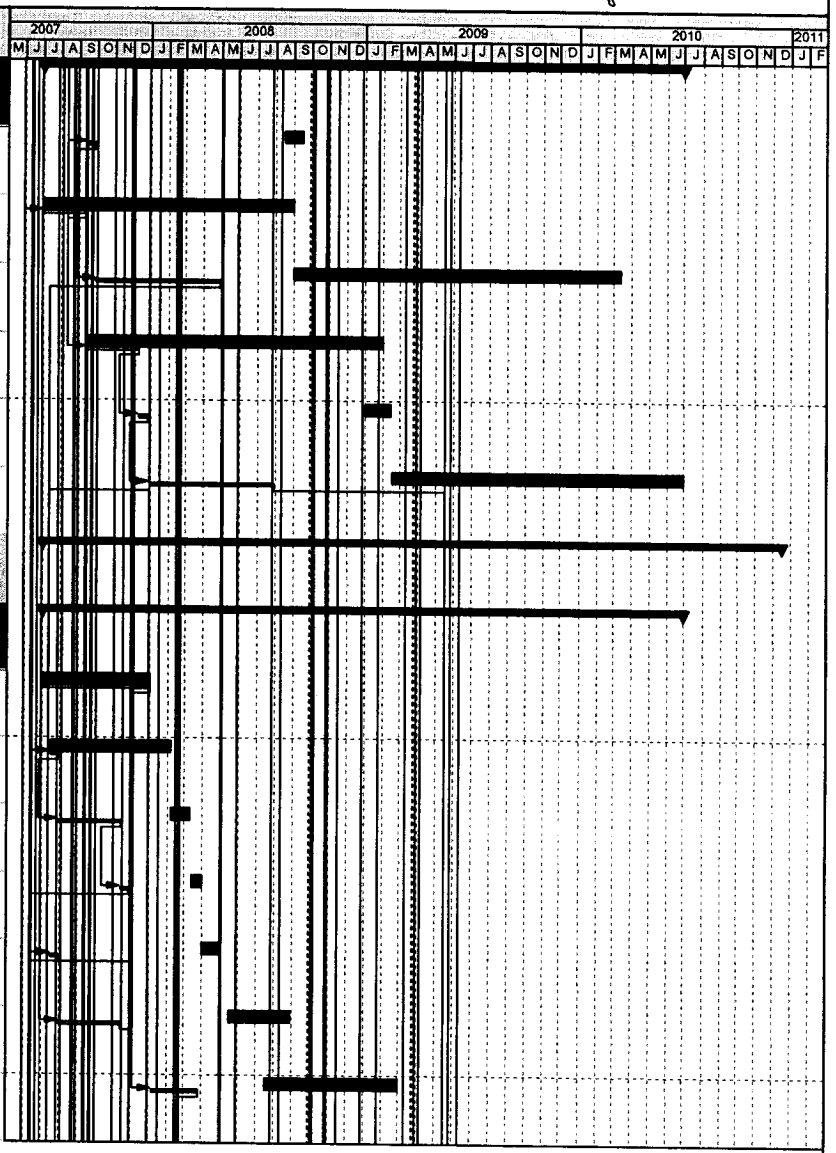
Activity ID	Activity Name	Original Duration (Days)	Early Start	Early Finish	Actual Start	Actual Finish
PRUPI	INSTALLATION OF PUMPS (I MR) COMP	50	16-Jul-07	16-Jul-07	03-Nov-08	15-May-10
PRUPI	PREP. MR-PUMPS (II MR)	27	16-Jul-07	16-Jul-07	29-Aug-07	31-Oct-07
PRUPI	ISSUE ENQ/EVAL & RECOMM-PUMPS (II MR)	92	16-Jul-07	16-Jul-07	29-Sep-07	15-Feb-08
PRUPI	ISSUE LOI FOR PUMPS (II MR)	12	16-Jul-07	16-Jul-07	16-Feb-08	29-Feb-08
PRUPI	REC & APPV OF VENDOR DRGS-PUMPS (II MR)	60	16-Jul-07	16-Jul-07	01-Mar-08	31-May-08
PRUPI	MANF & DELY AT SITE (PART)-PUMPS (II MR)	196	16-Jul-07	16-Jul-07	01-Mar-08	31-Mar-10
PRUPI	MANF & DELY AT SITE (COMP)-PUMPS (II MR)	106	16-Jul-07	16-Jul-07	13-Sep-08	20-Sep-10
PRUPI	INSTALLATION OF PUMPS (PART) (II MR)	129	16-Jul-07	16-Jul-07	13-Sep-08	30-Apr-10
PRUPI	INSTALLATION OF PUMPS (BAL) (II MR)	60	16-Jul-07	16-Jul-07	14-Apr-09	31-Oct-10
PRUPI	INSTALLATION OF PUMPS PROCURED UNDER JOB NO - 6269	79	16-Jul-07	16-Jul-07	01-Aug-09	30-Apr-10
MAIN AIR BLOWER		757	16-Jul-07	16-Jul-07	27-Jul-07	15-Nov-10
PRUM	PREP. MR-MAIN AIR BLOWER	29	16-Jul-07	16-Jul-07	27-Jul-07	01-Oct-07
PRUM	ISSUE ENQ/EVAL & RECOMM-MAIN AIR BLOWER	92	16-Jul-07	16-Jul-07	02-Oct-07	18-Jan-08
PRUM	ISSUE LOI FOR- MAIN AIR BLOWER	14	16-Jul-07	16-Jul-07	19-Jan-08	01-Feb-08
PRUM	MANF & DELY AT SITE - MAIN AIR BLOWER	416	16-Jul-07	16-Jul-07	02-Feb-08	30-Sep-10
PRUM	INSTALLATION OF- MAIN AIR BLOWER	103	16-Jul-07	16-Jul-07	01-Jul-09	15-Nov-10



Activity ID	Activity Name	Original Duration (Days)	Early Start	Early Finish	Actual Start	Actual Finish
	MAB / WG COMPRESSORS (ORDERED UNDER J...	469	30-Jun-07	14-Oct-08		
PRUW	RESOLUTION OF TECH/ COMMERCIAL ISSUE	79	30-Jun-07	29-Sep-07		
PRUW	MANF & DELY AT SITE - MAB / WET GAS COMPRESSOR	235	01-Oct-07	30-Jun-08		
PRUW	INSTALLATION OF- MAB / WET GAS COMPRESSOR	91	01-Jul-08	14-Oct-08		
	BURNERS	466	16-Jul-07	16-Jul-07	15-Oct-07	28-May-09
PRUH	PREP. MR-BURNER	39	16-Jul-07	16-Jul-07	15-Oct-07	31-Dec-07
PRUH	ISSUE ENQ/EVAL & RECOMM-BURNER	91	16-Jul-07	16-Jul-07	01-Jan-08	15-Apr-08
PRUH	ISSUE LOI - BURNER	13	16-Jul-07	16-Jul-07	16-Apr-08	30-Apr-08
PRUH	REC & APPV OF VENDOR DRGS-BURNER	60	16-Jul-07	16-Jul-07	01-May-08	30-Jun-08
PRUH	MANF & DELY (FOB) OF BURNER	150	16-Jul-07	16-Jul-07	07-Jun-08	30-Apr-09
PRUH	DELIVERY AT SITE - BURNER	51	16-Jul-07	16-Jul-07	29-Nov-08	28-May-09
	ELECTRICAL	451	16-Jul-07	16-Jul-07	16-Jul-07	31-May-10
PRUE	ISSUE ENQ/EVAL & RECOMM-ELEC. ITEMS	90	16-Jul-07	16-Jul-07	16-Jul-07	29-Sep-08
PRUE	ISSUE LOI- ELEC ITEMS	13	16-Jul-07	16-Jul-07	30-Sep-08	22-Oct-08
PRUE	MANF & DELY OF ELECT MATERIAL AT SITE (PART)	236	16-Jul-07	16-Jul-07	01-Oct-08	31-Jul-09
PRUE	MANF & DELY OF ELECT MATERIAL AT SITE (COMP)	51	16-Jul-07	16-Jul-07	02-Oct-08	31-May-10



Activity ID	Activity Name	Original Duration (Days)	Early Start	Early Finish	Actual Start	Actual Finish
	INSTRUMENTATION	391	30-Jun-07	30-Jun-07	30-Jun-07	30-Jun-10
PRUIN	ISSUE LOI-INST. ITEMS (PART)	13			16-Aug-08	15-Sep-08
PRUIN	ISSUE ENQ/EVAL & RECOMM- INST. ITEMS (PART)	64	30-Jun-07	30-Jun-07	30-Jun-07	31-Aug-08
PRUIN	MANF & DELY OF INST. ITEMS (PART)	183	30-Jun-07	30-Jun-07	01-Sep-08	15-Mar-10
PRUIN	ISSUE ENQ/EVAL & RECOMM- INST. ITEMS (COMPL)	78	30-Jun-07	30-Jun-07	13-Sep-07	31-Jan-09
PRUIN	ISSUE LOI-INST. ITEMS (COMPL)	14	30-Jun-07	30-Jun-07	01-Jan-09	15-Feb-09
PRUIN	MANF & DELY OF INST. ITEMS (COMPL)	182	30-Jun-07	30-Jun-07	16-Feb-09	30-Jun-10
	CONSTRUCTION	802	30-Jun-07	24-Apr-09	16-Jul-07	
	CIVIL/STRL WORKS	350	30-Jun-07	05-Jan-08	16-Jul-07	
CONC	REMOVAL OF EXST. FACILITIES & AREA CLEARENCE	158	30-Jun-07	31-Dec-07		
CONC	PREP & ISSUE OF TENDER-CIVIL / STR/ UGL-FCCU	12	16-Jul-07	16-Jul-07	16-Jul-07	06-Feb-08
CONC	EVAL. & RECOMN-CIVIL / STRL/ UG-FCCU	91	16-Jul-07	16-Jul-07	07-Feb-08	11-Mar-08
CONC	AWARD CONTRACT FOR CIVIL / STRL-FCCU	13	16-Jul-07	16-Jul-07	12-Mar-08	31-Mar-08
CONC	MOBILIZATION CIVIL / STRL-FCCU	13	16-Jul-07	16-Jul-07	01-Apr-08	30-Apr-08
CONC	CIVIL / STRL WORKS -PIPE RACK FDN	90	16-Jul-07	16-Jul-07	16-May-08	28-Aug-08
CONC	CIVIL / STRL WORKS -PIPE RACK SUPER STR	67	05-Jan-08	05-Jan-08	16-Jul-08	28-Feb-09



DOC. NO. :
6891-00-2744-SO01-0

Primary Baseline
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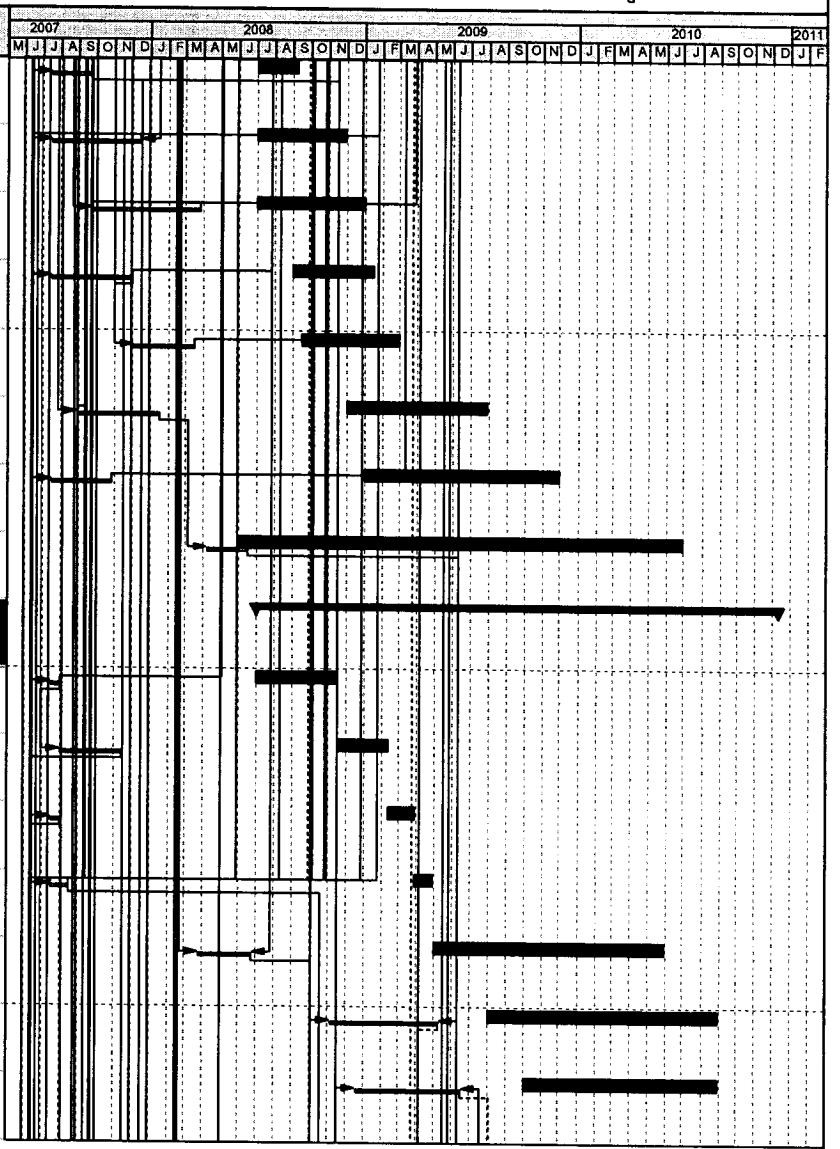
Remaining Work
Critical Remaining ...

OVERALL PROJECT SCHEDULE

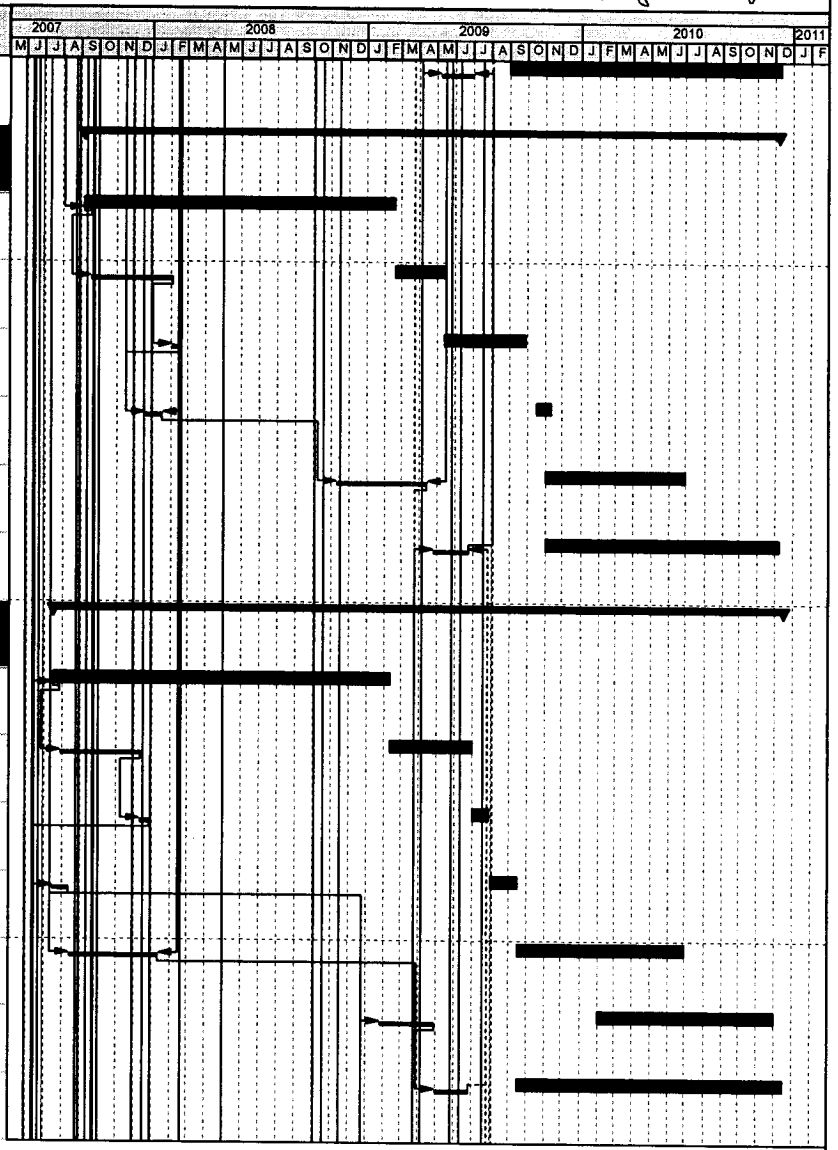
NEW FCC UNIT PROJECT

HPCL MUMBAI

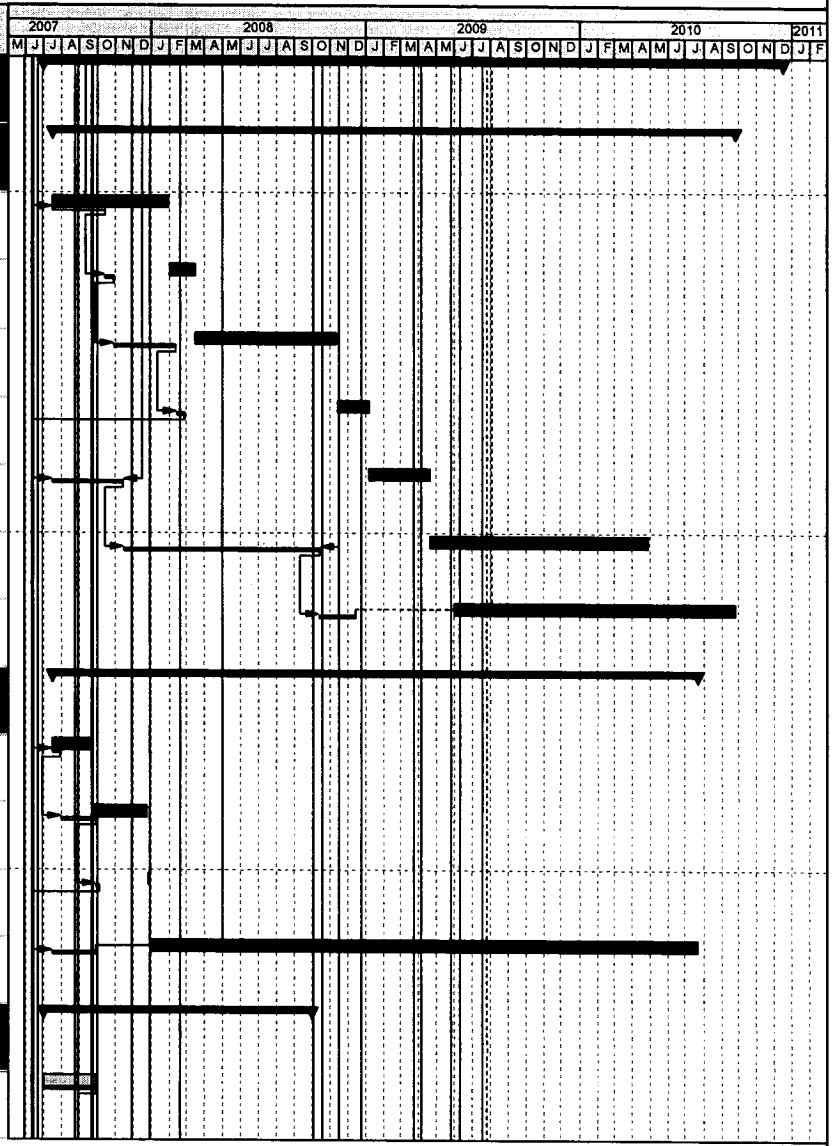
Activity ID	Activity Name	Original Duration (Days)	Early Start	Early Finish	Actual Start	Actual Finish
CONC	FDN FOR HEATER	60	16-Jul-07	16-Jul-07	01-Jul-08	08-Sep-08
CONC	CIVIL / STRL WORKS -STATIC EQPT FDN	131	16-Jul-07	16-Jul-07	01-Jul-08	29-Nov-08
CONC	CIVIL / STRL WORKS -COMPR & SHED	158	16-Jul-07	16-Jul-07	01-Jul-08	31-Dec-08
CONC	CIVIL / STRL WORKS -TECH STR (PART)	120	16-Jul-07	16-Jul-07	01-Sep-08	17-Jan-09
CONC	CIVIL / STRL WORKS -TECH STR (COMPLETE)	90	16-Jul-07	16-Jul-07	16-Sep-08	28-Feb-09
CONC	CIVIL / STRL WORKS -PUMPS FDN (PART)	120	16-Jul-07	16-Jul-07	01-Dec-08	31-Jul-09
CONC	CIVIL / STRL WORKS -PUMPS FDN (COMPLETE)	90	16-Jul-07	16-Jul-07	01-Jan-09	30-Nov-09
CONC	CIVIL / STRL WORKS -COMPLETE BALANCE WORKS	60	16-Jul-07	16-Jul-07	01-Jun-08	30-Jun-10
	MECHANICAL WORKS INCL. U/O	713	16-Jul-07	24-Apr-09	01-Jul-08	10-Dec-10
CONM	PREP & ISSUE OF TENDER- MECH/ INSUL/ PAINTING	14	16-Jul-07	16-Jul-07	01-Jul-08	17-Nov-08
CONM	EVAL. & RECOMN-MECH/ INSUL/ PAINTING	90	16-Jul-07	16-Jul-07	18-Nov-08	11-Feb-09
CONM	AWARD CONTRACT- MECH/ INSUL/ PAINTING	14	16-Jul-07	16-Jul-07	12-Feb-09	30-Mar-09
CONM	MOBILISATION - MECH CONTRACTOR	27	16-Jul-07	16-Jul-07	30-Mar-09	30-Apr-09
CONM	PRE-FABRICATION PIPING	79	05-Jan-08	05-Jan-08	01-May-09	30-May-10
CONM	FAB, ERN OF PIPING (PART)	159	04-Nov-08	04-Nov-08	01-Aug-09	30-Aug-10
CONM	FAB, ERN OF PIPING TILL HOOK-UP POINT - U/O	153	16-Jan-09	16-Jan-09	01-Oct-09	30-Aug-10



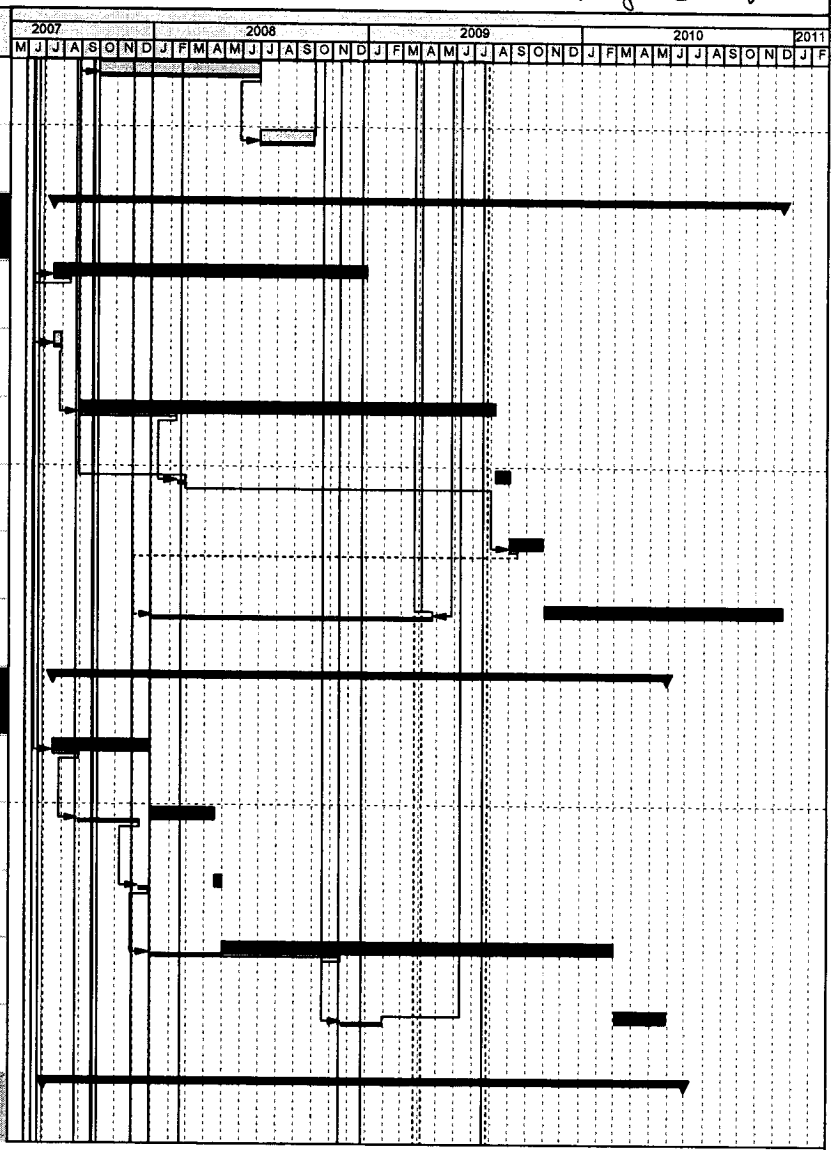
Activity ID	Activity Name	Original Duration (Days)	Early Start	Early Finish	Actual Start	Actual Finish
CONN	ERN, TESTING, INSULATION & PAINTING(COMPL) INCL. U/O	47	24-Apr-09	24-Apr-09	01-Sep-09	10-Dec-10
ELECTRICAL WORKS INCL. U/O		652	16-Jul-07	24-Apr-09	06-Sep-07	07-Dec-10
CONE	PREP & ISSUE OF TENDER-ELECTRICAL	11	16-Jul-07	16-Jul-07	06-Sep-07	19-Feb-09
CONE	EVAL. & RECOMN- ELECTRICAL	118	16-Jul-07	16-Jul-07	20-Feb-09	13-May-09
CONE	AWARD CONTRACT FOR-ELECTRICAL	14	16-Jul-07	16-Jul-07	14-May-09	30-Sep-09
CONE	PROCUREMENT & MOBILISATION-ELECTRICAL	24	15-Jan-08	15-Jan-08	16-Oct-09	12-Nov-09
CONE	ELECTRICAL WORKS (PART)	131	15-Jan-08	15-Jan-08	01-Nov-09	30-Jun-10
CONE	COMP. ELECTRICAL WORK & HOOK UPS INCL. U/O	51	24-Apr-09	24-Apr-09	01-Nov-09	07-Dec-10
INSTRUMENTATION WORKS INCL. U/O		708	16-Jul-07	26-Jan-09	16-Jul-07	15-Dec-10
CONI1	PREP & ISSUE OF TENDER-INSTRUMENTATION	11	16-Jul-07	16-Jul-07	16-Jul-07	10-Feb-09
CONI1	EVAL. & RECOMN-INSTRUMENTATION	118	16-Jul-07	16-Jul-07	11-Feb-09	01-Jul-09
CONI1	AWARD CONTRACT FOR-INSTRUMENTATION	14	16-Jul-07	16-Jul-07	02-Jul-09	31-Jul-09
CONI1	PROCUREMENT & MOBILISATION-INSTRUMENTATION	24	16-Jul-07	16-Jul-07	01-Aug-09	15-Sep-09
CONI1	INSTRUMENTATION EREC WORKS (PART)	131	16-Jul-07	16-Jul-07	16-Sep-09	30-Jun-10
CONI1	INSTALLATION OF DCS	80	26-Jan-09	26-Jan-09	01-Feb-10	30-Nov-10
CONI1	COMP. INSTRUMENTATION EREC WORK & HOOK UPS INCL. U/O	51	26-Jan-09	26-Jan-09	16-Sep-09	15-Dec-10



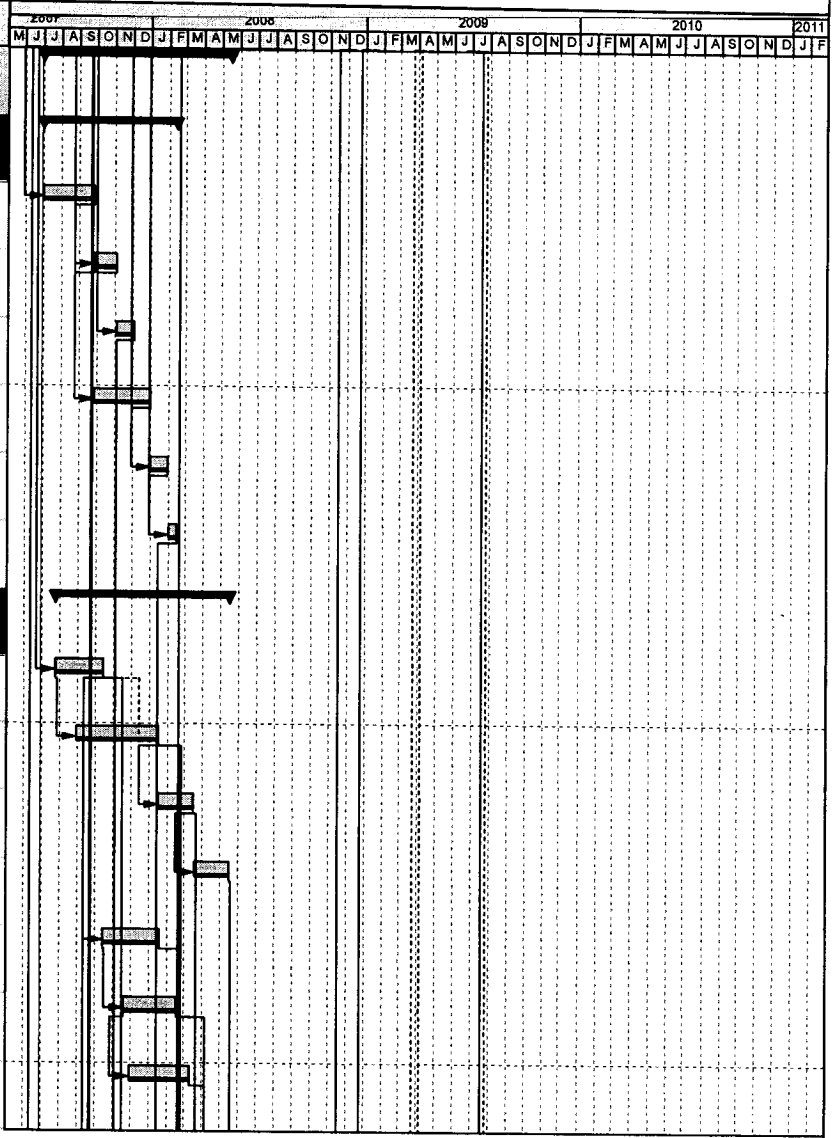
Activity ID	Activity Name	Original Duration (Days)	Early Start	Early Finish	Actual Start	Actual Finish
	PACKAGES	802	30-Jun-07	24-Apr-09	16-Jul-07	
	HEATER	514	16-Jul-07	16-Jul-07	16-Jul-07	24-Sep-10
COI	PREP SPECS- HEATER	78	16-Jul-07	16-Jul-07	16-Jul-07	30-Jan-08
COI	PREP & ISSUE OF TENDER-HEATER	13	16-Jul-07	16-Jul-07	01-Feb-08	15-Mar-08
COI	EVAL. & RECOMN-HEATER	91	16-Jul-07	16-Jul-07	16-Mar-08	12-Nov-08
COI	AWARD CONTRACT FOR HEATER WORKS	13	16-Jul-07	16-Jul-07	13-Nov-08	06-Jan-09
COI	PROCUREMENT & MOBILISATION FOR HEATER	105	16-Jul-07	16-Jul-07	07-Jan-09	20-Apr-09
COI	FABRICATION & ERECTION OF HEATER	286	16-Jul-07	16-Jul-07	21-Apr-09	30-Apr-10
COI	HOOK UPS-HEATER	53	16-Jul-07	16-Jul-07	01-Jun-09	24-Sep-10
	REACTOR/ REGENERATOR FOUNDATION WO...	81	16-Jul-07	16-Jul-07	16-Jul-07	22-Jul-10
COI	PREP & ISSUE OF TENDER-REACTOR/ REGEN FDN WORKS	13	16-Jul-07	16-Jul-07	16-Jul-07	19-Sep-07
COI	EVAL. & RECOMN-REACTOR/ REGEN FDN WORKS	51	16-Jul-07	16-Jul-07	20-Sep-07	26-Dec-07
COI	AWARD CONTRACT-REACTOR/ REGEN FDN WORKS	6	16-Jul-07	16-Jul-07	27-Dec-07	31-Dec-07
COI	CONST. OF FOUNDATION-REACTOR/ REGEN FDN WORKS	66	16-Jul-07	16-Jul-07	01-Jan-08	22-Jul-10
	FLUE GAS COOLER (ORDERED UNDER JOB ...	455	30-Jun-07	30-Sep-08		
COI	RESOLUTION OF TECH/ COMMERCIAL ISSUE	79	30-Jun-07	29-Sep-07		



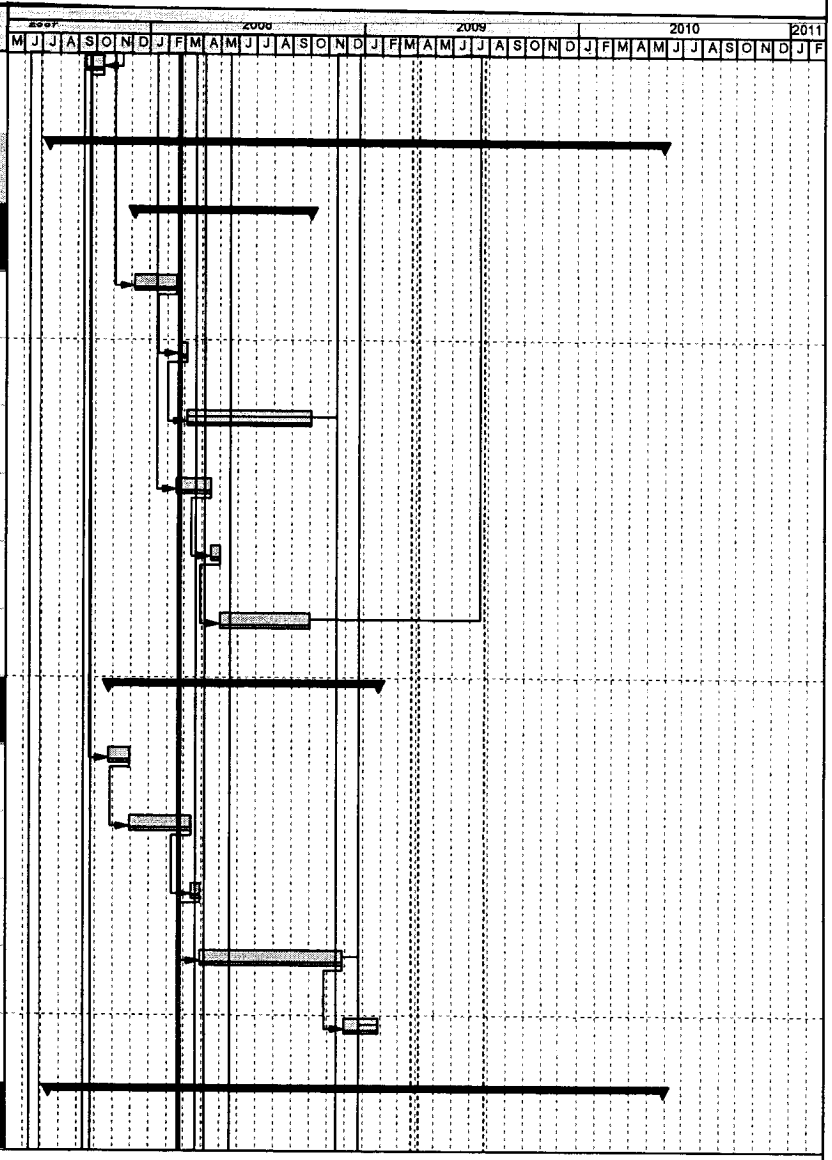
Activity ID	Activity Name	Original Duration (Days)	Early Start	Early Finish	Actual Start	Actual Finish
COI	MANF & DELY AT SITE - FLUE GAS COOLER	235	01-Oct-07	30-Jun-08		
COI	COMPLETION OF FLUE GAS COOLER WORKS	79	01-Jul-08	30-Sep-08		
FLUE GAS SCRUBBING UNIT		787	16-Jul-07	24-Apr-09	16-Jul-07	
COI	PREP OF TENDER SPEC -FG SCRUBBING UNIT	26	16-Jul-07	16-Jul-07	16-Jul-07	01-Jan-09
COI	PREP & ISSUE OF TENDER-FG SCRUBBING UNIT	13	16-Jul-07	30-Jul-07		
COI	EVAL. & RECOMN-FG SCRUBBING UNIT	143	30-Jul-07	30-Jul-07	30-Aug-07	08-Aug-09
COI	AWARD CONTRACT FOR FG SCRUBBING UNIT	13	30-Jul-07	30-Jul-07	09-Aug-09	04-Sep-09
COI	MOBILISATION FOR FG SCRUBBING UNIT	10	30-Jul-07	30-Jul-07	04-Sep-09	31-Oct-09
COI	COMPLETION OF SCRUBBING UNIT WORK	408	24-Apr-09	24-Apr-09	01-Nov-09	15-Dec-10
DOSING UNIT		558	16-Jul-07	16-Jul-07	16-Jul-07	31-May-10
COI	PREP. MR-DOSING UNIT	38	16-Jul-07	16-Jul-07	16-Jul-07	31-Dec-07
COI	ISSUE ENQ/EVAL & RECOMM - DOSING UNIT	91	16-Jul-07	16-Jul-07	01-Jan-08	17-Apr-08
COI	ISSUE LOI - DOSING UNIT	14	16-Jul-07	16-Jul-07	18-Apr-08	01-May-08
COI	MANF & DELY AT SITE-DOSING UNIT	280	16-Jul-07	16-Jul-07	02-May-08	03-Mar-10
COI	INSTALLATION OF DOSING SKID	60	16-Jul-07	16-Jul-07	04-Mar-10	31-May-10
UTILITIES AND OFFSITES		601	30-Jun-07	26-Jan-09	13-Jul-07	



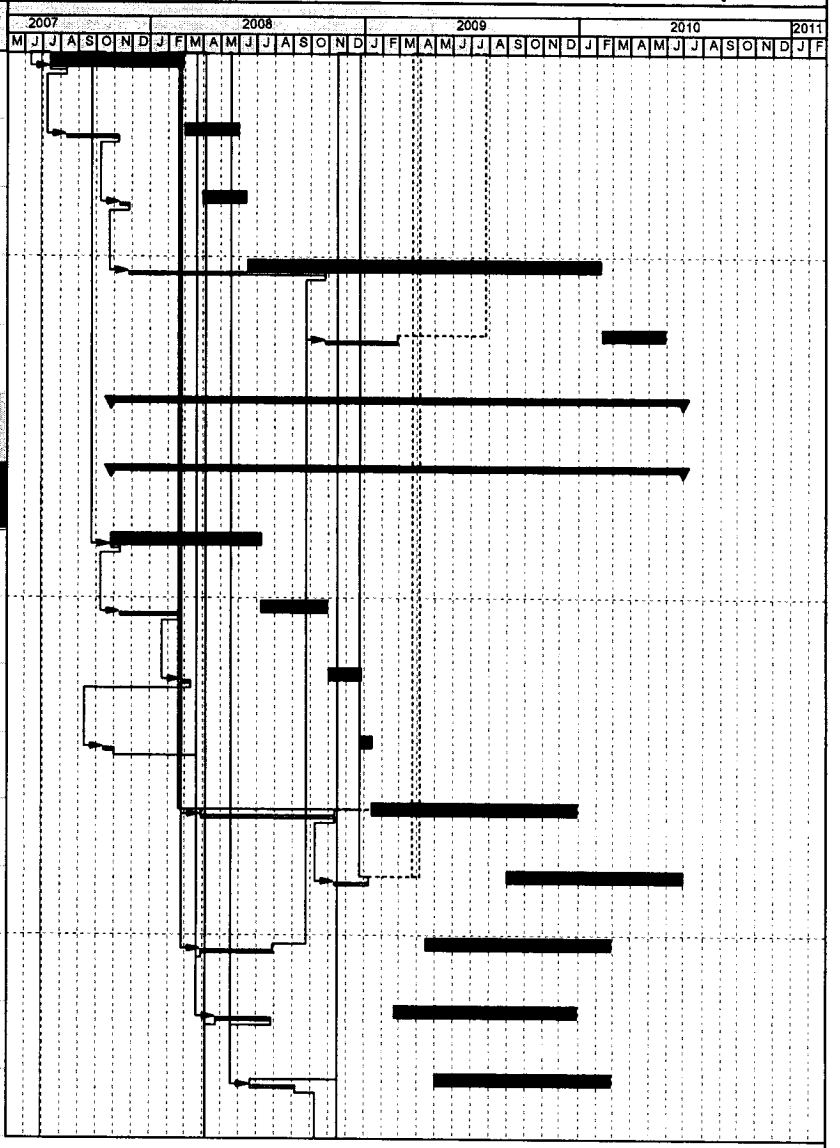
Activity ID	Activity Name	Original Duration (Days)	Early Start	Early Finish	Actual Start	Actual Finish
	ENGINEERING -U/O	319	30-Jun-07	16-May-08		
	PIPING	227	30-Jun-07	14-Feb-08		
	UOPP PIPING STUDIES	76	30-Jun-07	26-Sep-07		
	UOPP PREP. OF 1ST MTO U/O (ALONG WITH INTERM MTO - UNIT)	32	27-Sep-07	02-Nov-07		
	UOPP PREP. MR - 1ST MTO U/O (ALONG WITH INTERM MTO - UNIT)	28	03-Nov-07	05-Dec-07		
	UOPP COMPL. LAYOUT DRGS - U/O	83	27-Sep-07	01-Jan-08		
	UOPP PREP. OF FINAL MTO - U/O (ALONG WITH FINAL MTO - UNIT)	25	02-Jan-08	30-Jan-08		
	UOPP PREP. MR -FINAL MTO - U/O (ALONG WITH FINAL MTO - UNIT)	13	31-Jan-08	14-Feb-08		
	CIVIL / STRL. U/O	296	24-Jul-07	16-May-08		
	UOEG FINALISE OVERALL PLOT PLAN	71	24-Jul-07	13-Oct-07		
	UOEG CIVIL / STRL DRGS FOR SUB-STATION EXTN.	120	29-Aug-07	15-Jan-08		
	UOEG CIVIL / STRL DRGS FOR PIPERACK / PIPETRACK -OFFSITES (PART)	52	16-Jan-08	15-Mar-08		
	UOEG CIVIL / STRL DRGS FOR PIPERACK / PIPETRACK -OFFSITES (COMPL)	53	17-Mar-08	16-May-08		
	UOEG CIVIL / STRL DRGS FOR AIR COMPRESSOR AND SHED	84	15-Oct-07	19-Jan-08		
	UOEG CIVIL / STRL DRGS FOR COOLING WATER	78	19-Nov-07	16-Feb-08		
	UOEG CIVIL / STRL DRGS FOR OFFSITES	88	30-Nov-07	11-Mar-08		



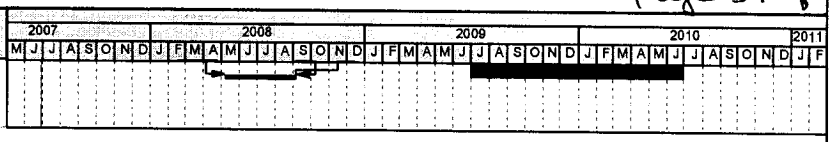
Activity ID	Activity Name	Original Duration (Days)	Early Start	Early Finish	Actual Start	Actual Finish
	UOEG PREP. TENDER SPEC FOR SUBSTATION AND CIVIL/STRL. WORK OFFSITES	27	13-Sep-07	13-Oct-07		
	PROCUREMENT-U/O	589	12-Jul-07	26-Jan-09	13-Jul-07	
	PIPING-U/O	301	06-Dec-07	04-Oct-08		
	UOPR ISSUE ENQ/EVAL & RECOMM-1ST MTO U/O (ALONG WITH INTERM MTO - UNIT)	63	06-Dec-07	16-Feb-08		
	UOPR ISSUE LOI-1ST MTO U/O (ALONG WITH INTERM MTO - UNIT)	15	18-Feb-08	05-Mar-08		
	UOPR MANF & DELY-1ST MTO U/O (ALONG WITH INTERM MTO - UNIT)	183	06-Mar-08	04-Oct-08		
	UOPR ISSUE ENQ/EVAL & RECOMM-FINAL MTO U/O (ALONG WITH FINAL MTO - UNIT)	52	15-Feb-08	15-Apr-08		
	UOPR ISSUE LOI- FINAL MTO U/O (ALONG WITH FINAL MTO - UNIT)	13	16-Apr-08	30-Apr-08		
	UOPR MANF & DELY- FINAL MTO U/O (ALONG WITH FINAL MTO - UNIT)	131	01-May-08	30-Sep-08		
	DCS PKG	455	25-Oct-07	26-Jan-09		
	PRUD PREP. MR- DCS (PKG)	30	25-Oct-07	28-Nov-07		
	PRUD ISSUE ENQ/EVAL & RECOMM-DCS	91	29-Nov-07	13-Mar-08		
	PRUD ISSUE LOI- DCS	13	14-Mar-08	28-Mar-08		
	PRUD MANF & DELY OF DCS (PART)	209	29-Mar-08	27-Nov-08		
	PRUD MANF & DELY OF DCS (COMP)	51	28-Nov-08	26-Jan-09		
	AIR COMPRESSOR	589	12-Jul-07	31-Jan-08	13-Jul-07	31-May-10



Activity ID	Activity Name	Original Duration (Days)	Early Start	Early Finish	Actual Start	Actual Finish
UOPA	PREP. OF MR FOR AIR COMPRESSOR	25	12-Jul-07	12-Jul-07	13-Jul-07	28-Feb-08
UOPA	ISSUE ENQ/EVAL & RECOMM-AIR COMPRESSOR	78	12-Jul-07	12-Jul-07	29-Feb-08	31-May-08
UOPA	ISSUE LOI -AIR COMPRESSOR	14	12-Jul-07	12-Jul-07	01-Apr-08	14-Jun-08
UOPA	MANF & DELY OF -AIR COMPRESSOR	287	12-Jul-07	12-Jul-07	15-Jun-08	10-Feb-10
UOPA	INSTALLATION OF -AIR COMPRESSOR	105	31-Jan-08	31-Jan-08	11-Feb-10	31-May-10
CONSTRUCTION-U/O		447	13-Oct-07	20-Jun-08	26-Oct-07	30-Jun-10
EXTN. OF SUB-STATION BUILD AND CIVIL/STRL ...		447	13-Oct-07	20-Jun-08	26-Oct-07	30-Jun-10
UOCO	PREP & ISSUE OF TENDER-SUB-STATION AND CIVIL/ STRL. WORK U/O	14	13-Oct-07	13-Oct-07	26-Oct-07	09-Jul-08
UOCO	EVAL. & RECOMN-SUB-STATION AND CIVIL/ STRL. WORK U/O	90	13-Oct-07	13-Oct-07	10-Jul-08	30-Oct-08
UOCO	AWARD CONTRACT-SUB-STATION AND CIVIL/ STRL. WORK U/O	14	13-Oct-07	13-Oct-07	01-Nov-08	26-Dec-08
UOCO	MOBILISATION -SUB-STATION AND CIVIL/ STRL. WORK U/O	15	13-Oct-07	13-Oct-07	27-Dec-08	13-Jan-09
UOCO	CIVIL WORK FOR SUB-STATION (80 %)	195	15-Jan-08	15-Jan-08	14-Jan-09	31-Dec-09
UOCO	CIVIL WORK FOR SUB-STATION COMPLETE	50	15-Jan-08	15-Jan-08	01-Sep-09	30-Jun-10
UOCO	CIVIL / STRL WORK FOR AIR COMPRESSOR AND SHED	104	31-Jan-08	31-Jan-08	16-Apr-09	28-Feb-10
UOCO	CIVIL / STRL WORK FOR PIPE RACK (FDN)	82	02-Apr-08	02-Apr-08	21-Feb-09	31-Dec-09
UOCO	CIVIL / STRL WORK FOR PIPE RACK (SUPERSTRUCTURE)	66	20-Jun-08	20-Jun-08	01-May-09	28-Feb-10



Activity ID	Activity Name	Original Duration (Days)	Early Start	Early Finish	Actual Start	Actual Finish
UOCO	COMPLETION OF CIVIL/STRL - U/O	105	20-Jun-08	20-Jun-08	01-Jul-09	30-Jun-10



DOC. NO. :
6891-00-2744-SO01-0

Primary Baseline
Actual Work
Remaining Work
Critical Remaining ...

OVERALL PROJECT SCHEDULE

NEW FCC UNIT PROJECT

HPCL MUMBAI

2.2 Adherence to Schedule

The Job was awarded on conventional basis with Contractual project Mechanical completion duration of 27 months from date of award. All construction schedules were prepared based on master project schedule. Status of award of various contracts, commencement and completion of works given in details subsequently in Annexure 4.1.

The major monitoring activities taken up in various phases of construction were:

- Construction Schedules were prepared for each contract and monitored on daily basis by the site and reporting done on weekly, monthly basis.
- Weekly progress report and Monthly progress report issued to reflect the status of the various works at site W.R.T to the schedule.
- Weekly Progress review meetings were conducted with contractor and client to evaluate the progress, resolve the queries, convey the priority / preferences of the works at site and coordination in release of various work fronts by the contractors.
- Monthly Programm was prepared in consultation with area coordinators, discussed with contractor. After approval, monthly programm sent to client, contractor and EIL Engineers.
- Material & drawings Hold Up reports prepared and sent to ROV fortnightly to let them know the various holds in drawings and shortages of materials at site.
- Time to time catch up plans for delay in the works were drawn along with the contractor, issued and reviewed periodically.
- In order to ensure receipt of 100% Isometrics at site , time to time report on Isometrics not received w.r.t. COSMAS line list was sent to EIL HO / EIL ROV
- List of isometrics, which were not found in COSMAS, sent to EIL HO / ROV periodically to ensure materials for those isometrics are not missed.
- Loop wise / System wise Piping Material shortage report for various units and offsite piping, impulse piping were prepared and issued on weekly basis.
- Separate material shortage report for compressor package loose items were prepared and issued to client / EIL ROV etc.

The various contract awarded in this project are.

1. M/s SKB Builders for RR Foundation works.
2. M/s SKB Builders for Civil / Structural for Area-I and U/G Piping works in ISBL
3. M/s SKB Builders for Civil / Structural for Area –II and Extension of Sub station -10.
4. M/s Offshore Infrastructure limited for Unit Mechanical works .
5. M/s Thermax for FG Cooler package works(Site works)
6. M/s Jasubhai Engineers Pvt. Limited for instrumentation works in Unit & offsite.
7. M/s Furnace fabrica for Civil / Strl & Mechanical works for PTU , Caustic and Mechanical works in FGSU
8. M/s Offshore Infrastructure limited for Extension of SCW Supply / Return line.
9. M/s Bridge & Roof for Civil / strl and Piping works in offsite- Part-I (Piping works Eqaul to 8" dia and below line)
10. M/s IOTL for Civil / strl and Piping works in offsite- Part-II (Piping works above 8" dia line.)
11. M/s Larsen & Tubro for RR Package works (Site works)
12. M/s Thermax for FCCU Feed Furnace (Site works)
13. M/s TICB for Electrical works in Unit & Offsite.
14. M/s Honeywell Automation India limited for DCS Package (Site Works)

The major issues faced during the execution of the project are as follows:

A. **Delay in release of Rev-0 isometrics at site**. 50% Isometrics was released progressively by June '09, 75% released by JULY 09, 90% released by Nov'09 and Balance 10% Progressively by May' 10 and revisions of isometrics continued till Completion of the project. This caused delays in pre-fabrication and erection.

B. **Delay in Receipt of Piping materials, Instrumentation & Electrical materials and Equipments at site**. This caused delays in pre-fabrication and erection.

- 50 % piping material recd. by July 2009, 75% piping materials recd by November 2009 and 90% piping materials recd by March 2010 and balance 10% piping materials recd by till completion of project This caused delays in completion of piping works.
- 50% Instrumentation items recd by January 2010. 75% instrumentation items recd by May 2010 90% Instrumentation items recd by August 2010 and balance 10% Instrumentation items recd by till completion of the project. – This caused delays in released of fronts to contractor.
- 50% Electrical items recd by January 2010, 75% Electrical items recd by April 2010, 90% Electrical items recd by June 2010 and balance 10% Electrical items recd by September 2010. This caused delays in released of fronts to respective contractor.
- Total 127 nos. Equipments procured under New FCCU Project (EIL Job No 6891)

C. **Delay in release of fronts in offsites by Client** : Caused delay in release of front to offsite contractor.

D. **Intermittent withdrawal of work permit** in offsite / unit area by client affected overall works completion.

E. **Delay in release of Tie in Points in offsite** by client to Hook Up with existing facilities.

F. **Philosophy adopted by client for award of contract for civil / Strl and Mechanical works in offsites:** Split of Offsite Civil/ Strl. & Mechanical contract in two parts based on line size i.e.

Part I: Piping works, Equal to 8" dia and below line along with associated civil & strl works.

Part-II: Piping works above 8" dia line. along with associated civil & strl works.

Due to this following problems were faced during execution

- Distribution of same drawing/ documents to two nos. of contractor.
- Lot of conflict in scope of both contractors if line size being reduced / expand in between.

- All drain vents / steam-tracing materials dumped under part-1 contractor due to which system-based issue the material like Steam trap, SS & CR stations etc were difficult.
- Line MTO in COSMAS not bifurcated as per the philosophy adopted for award of contract, hence faced lot of difficulties in proper material control.

G. As per contract, RA bills of the contractors should be paid within 30 days however there was significant delay in payments of RA bills by HPCL. This cause fund flow issues to contractor thereby affecting works.

However, all these project execution hick-ups were overcome with timely interactions with ROV / Client / Contractors by project & construction team of EIL.

Higher managements of client / contractor were also involved/ convinced in decision-making process to expedite problem resolution. The strategic intervention to expedite works at RCM level and area co-ordinator level with active support of Project Manager helped to resolve the issues faster. The contributions made by EIL ROV team were very significant and this helped the construction team to perform their role admirably. It was a great teamwork, which led to the success of this project.

2.3 OVERALL CONSTRUCTION SCHEDULE

SNO	ITEM		START DATE	COMPLN DATE	% WEIGHTAGE	Dec-07	Jan-08	Feb-08	Mar-08	Apr-08	May-08	Jun-08	Jul-08	Aug-08	Sep-08	Oct-08	Nov-08	Dec-08	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09	Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11
1	Reactor-Regenerator FDN. Works	SCH	######	28-Apr-08	2.44	5	11	22	52	82	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0																	
		ACT.	08-Jan-08	22-Jul-08					19	26	81.0	92.1	97.9	100.0																																
2	Reactor-Regenerator Package (Site Works)	SCH	######	30-Jun-09	3.08									2.0	6.0	17.0	26.4	38.0	50.0	61.0	72.0	79.0	87.0	96.0	100.0	100.0	100.0	100.0																	
		ACT.	07-Sep-08	25-Feb-11														10.9	21.2	41.6	56.5	77.8	80.4	83.9	85.1	87.3	88.6	89.7	90.3	90.3	90.3	96.5	96.5	98.0	98.5	98.9	99.1	99.6	99.7	99.7	99.9	99.9	99.9	100.0		
3	Civil & Structural works Part -I	SCH	31-Mar-08	11-Apr-09	11.55						2	6	10.3	16.2	22.4	33.0	47.2	63.0	76.0	87.5	95.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0																	
		ACT.	07-Apr-08	31-Dec-10								2.90	6.20	9.30	12.36	16.17	21.25	25.35	34.21	41.08	48.60	54.76	61.07	64.23	70.02	75.42	81.69	84.19	84.33	90.11	92.63	94.91	96.40	97.26	97.88	98.89	99.12	99.35	###	99.75	99.85	100.0			
4	Civil & Strucutral works part-II	SCH	31-Mar-08	11-Apr-09	12.83						2	6.3	10.3	16.2	22.4	33.0	47.2	63.0	76.0	87.0	95.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0																	
		ACT.	14-Jan-09	30-Jun-10															12.8	21.0	24.7	30.3	37.7	49.2	56.3	66.8	77.0	84.5	89.6	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0								
5	Mechanical works- Unit	SCH	30-Sep-08	29-Sep-09	33.55											0.5	4.0	10.0	16.0	26.0	37.0	49.0	62.0	75.0	86.0	92.0	96.0	100.0																	
		ACT.	31-Mar-09	31-Mar-11																			3.1	9.4	20.0	31.6	42.7	53.4	60.6	70.6	80.5	86.3	89.6	91.7	93.0	94.9	95.7	96.4	97.5	98.3	98.7	99.0	99.4	99.7	100.0	
6	Heaters Package(Site Works)	SCH	31-Mar-08	31-Aug-09	6.16									2.0	6.0	10.0	18.0	28.0	40.0	52.0	63.6	76.0	86.0	92.0	98.0	100.0	100.0	100.0																	
		ACT.	27-Jul-09	06-Dec-10																							12.0	14.7	20.4	59.2	77.2	85.6	94.2	96.4	96.4	96.4	99.4	99.4	99.4	99.5	99.8	100.0			
7	FG Cooler Package (Site works)	SCH	16-Oct-08	15-Apr-09	1.41												6.0	20.0	45.0	70.0	90.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0																	
		ACT.	01-Feb-09	30-Mar-10																	21.7	60.0	77.8	83.6	90.8	91.2	93.2	95.7	97.5	98.9	99.0	99.0	99.6	100.0											
9	Electrical works	SCH	31-Jan-09	29-Sep-09	3.40																	4.0	14.0	34.0	54.0	74.0	92.0	100.0																	
		ACT.	######	15-Nov-10																									4.7	9.9	20.7	27.4	33.4	46.4	66.7	81.9	85.3	88.3	93.0	96.4	98.4	100.0			
10	Instrumentation works	SCH	31-Jan-09	29-Sep-09	3.85																	4.0	14.0	34.0	54.0	74.0	92.0	100.0																	
		ACT.	######	30-Apr-11																							4.2	8.3	15.5	31.0	36.0	40.7	45.0	49.0	58.0	68.3	72.4	77.1	82.3	87.0	89.1	95.1	99.6	992.7	100.0	100.0
11	Civil & Str Works and Mechanical works Part-I (Utilities and offsites)	SCH	######	31-Dec-08	5.13							0.5	6	14.0	20.0	40.0	63.0	81.6	94.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0																	
		ACT.	07-Apr-09	31-Mar-11																				6.3	14.4	31.1	42.8	56.9	65.0	73.4	77.7	82.0	86.3	88.5	89.5	91.1	92.0	92.9	94.4	96.4	97.7	99.0	99.4	99.6	99.8	100.0
12	Civil & Str Mechanical works Part-II(Utilities and offsites)	SCH	30-Sep-08	29-Sep-09	6.41											0.5	3.0	9.0	15.0	24.0	33.0	44	57	73.0	83.0	94.0	99.0	100.0																	
		ACT.	18-Jun-09	31-Mar-11																				1.07	6.93	25.95	44.68	62.46	68.96	76.01	83.86	88.70	90.46	92.66	93.42	95.01	95.75	96.16	###	97.99	98.69	99.01	99.25	99.46	99.79	100.0
13	Civil & Strl works for Substation	SCH	######	31-Mar-09	3.85							2.0	8	16.0	23.0	30.0	44.0	61	70.0	80.0	92.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0																	
		ACT.	12-Jan-09	30-Jun-10															1.4	6.0	10.2	18.1	20.5	22.0	28.9	38.9	52.5	66.4	72.2	85.1	91.4	94.9	99.1	99.5	99.5	99.5	100.0								
14	Sea Cooling Supply & Return lines	SCH	28-Feb-09	31-Jul-09	1.80																2.0	5.0	15.0	30.0	55.0	90.0	100.0	100.0																	
		ACT.	06-Mar-09	31-Dec-10																	1.1	5.5	9.9	21.6	25.1	30.1	43.7	49.8	52.6	60.2	65.2	74.4	87.5	89.2	89.7	90.8	90.8	90.8	90.8	93.0	94.1	95.1	100.0		
15	DCS Installation	SCH	16-Mar-09	15-Jul-09	1.03																	8.0	42.0	74.0	100.0	100.0	100.0	100.0																	
		ACT.	######	31-May-11																						16.0	39.1	52.5	55.0	60.1	71.0	73.3	75.0	75.9	76.9	78.0	85.2	88.1	88.1	95.2	96.3				
16	Miscellanious	SCH	16-Mar-09	31-Jul-09	3.72																	5.0	15.0	20.0	49.0	65.0	95.0	100.0																	
		ACT.																																5.0	15.0	20.0	49.0	65.0	95.0	100.0				
		OVERALL SCHEDULE				0.1	0.2	**0.5**	**1.3**	**2.0**	**3.0**	**4.0**	**5.3**	**7.3**	**9.5**	**13.4**	**20.0**	**28.3**	**36.1**	**45.0**	**53.3**	**61.9**	**71**	**79.5**	**87.8**	**93.9**	**98.0**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
		OVERALL ACTUAL						**0.4**	**0.4**	**0.6**	**1.9**	**2.5**	**2.9**	**3.3**	**3.6**	**4.2**	**4.7**	**5.5**	**8.6**	**11.3**	**14.3**	**17.4**	**20.5**	**25.3**	**31.9**	**40.8**	**50.3**	**59.2**	**65.2**	**75.3**	**82.3**	**86.5**	**90.2**	**91.7**	**93.1**	**95.0**	**95.8**	**96.8**	**97.9**	**98.6**	**99.0**	**99.3**	**99.96**	**99.97**	**99.98**	**100**

2.4 DELAY ANALYSIS

Delay Due to Owner

- Delay in removal of Existing tanks in unit area Schedule was –Dec 07 and Actual- 19.08.2008
- Delay in re-routing of existing OWS line for release of front for foundation works for sub-station-10.
- Delay in Finalisation of Route and release of front for construction works for A/G Cable routing between SS-10 to Unit B/L.
- Delay in Finalisation of location for PTU & caustic Unit.
- Delay in rerouting of existing ATF line & Fire water line fouling with battery limit of FGSU for commencement of construction activity.
- Non-Availability of adequate space and delay in allocation of Covered space inside refinery complex for Pre fabrication & shot blasting yards.
- Because of location Shifting of PTU/Caustic Units by HPCL total piping was dismantled in Area 2, Area-3 and Area- 25 & redone upto new PTU/Caustic location (about 8000 IM) .
- **Area 48 in offsite**: 4 months delay in Completion of Structural works by HPCL Standing contractor for erection of pipes by offsite contractors.
- Increase in volume of piping works (about 4500 IM) due to shifting of Several Tie-ins by 80-120M. by HPCL. (Example - TP 4804, 8708 etc.).
- **Area 43 in offsite**: 12"/14" lines (about 2000 IM along with Sleepers were dismantled after complete welding as per HPCL requirement due to change in route. Again line were extra laid as per HPCL change route.
- **Area 43 in offsite:** Cat feed Pump area was handed over to offsite contractor in phased manner.
- **Area 46, 21 & 22 in offsite:** Agencies employed by HPCL for other job laid the lines in EIL-Corridor. After loosing 4-5 months Offsite contractor had to dismantle & lay our lines especially in area 46,22,21 etc
- **Area 68 in offsite:** As per HPCL decision pipes were put in trench which were designed and executed by HPCL and front for piping erection by offsite contractor released in October 2010.
- **Extra SM / SH i.e. 20" & 22"** line due to inability of HPCL to give the shutdown to Hook up with already laid line by offsite contractor. Client changed philosophy of hook up & hence execution of extra line was done by B&R along with insulation (About 6500 IM).

- As per original Project philosophy FRE Shut down Job were not in the EIL work of scope However the total Piping (4500 IM , Modification -2000ID) & structural works (40MT) connected with offsite line in FRE Unit was done during shutdown by offsite contractor.
- Due to frequent changing of Fire Water network route in offsite and around unit due to space constraint by HPCL , modifications were done & new lines were laid.(About 300 IM , Modification -1000 ID)
- As per HPCL requirement, 8" dia - 1600 Mtrs LPG & WP lines were laid extra with welding & testing in offsite.
- Delay in revival of Old orders (Under GFECP, EIL Job no-6269 AFC, EOT, Column internals etc.)
- Delay in release of Tie in points in offsite.
- Delay in finalisation of Firewater network in offsite and around unit due to space constraint.
- Delay in Opening of LC for foreign vendors causing delay in delivery of materials at site
- Delay in Delivery of materials whose payment routed through bank. Retiring of documents for release of materials was under client scope.

Conclusion:

- **However, delay in release of Offsite Tie-in point, SM/SH decision, FRE shut down etc. did have an overall impact of 6 months on the project.**

Delay due to award of contract by Client.

Delay due to award of following main work contracts

SL NO.	DESCRIPTION OF WORK	SCH	ACT.	Delay (Months)
1	RR Foundation works	15-Nov-07	08-Jan-08	2
2	Civil & Strl works Part-II	31-Mar-08	26-Dec-08	9
3	Extn. Substation-10 works	31-May-08	26-Dec-08	7
4	FG Cooler installation	16-Oct-08	01-Feb-09	4
5	RR Installation works	02-Jun-08	29-Aug-08	3
6	Unit Mechanical works	30-Sep-08	30-Mar-09	6
7	Civil & Mech. works U/O PART-I	30-Sep-08	31-Mar-09	6
8	Civil & Mechanical works U/O PART-II	30-Sep-08	14-May-09	7
9	DCS Installation	16-Mar-09	01-Aug-09	5
10	Instrumentation works	31-Jan-09	31-Jul-09	6
11	Heaters works	31-Mar-08	06-Jan-09	9
12	Electrical works	31-Jan-09	09-Oct-09	8
16	Civil & Mech works for FGCU , PTU & Caustic	16-Jan-09	04-Sep-09	8

Conclusion:

Please note that all main contracts awarded by HPCL with reduced Completion period of 3-5 months from EIL estimation completion of works.

All main work contracts were awarded 6-9 months late as against the schedule, However Delay in award of contracts did not affect the overall completion of the Project.

Delay on account of Engineering

- All stress line isometrics issued without stress analysis with support hold.
- Delay in release Rev-0 isometrics at site. 75% released by JULY 09, 90% released by Nov'09 and Balance 10% Progressively by May' 10 and revisions of isometrics continued till Completion of the project.
- Small-bore piping works affected due to delay in release in Isometrics and due to shortage of small bore piping material because of consideration of incorrect quantity in MTO.
- Completion of 25 nos. of piping sub systems were under hold due to cat cooler modification works by M/s L&T and front got released second week of December 2010.
- Delay in issue of vendor documents such as drawings / data sheet for motors and other equipments / Nozzle orientations of equipments.
- Lot of Mismatch found between GAD and P&ID & vendor requirements etc.
- Due to change in Scheme in Sprinkler system / Firewater network, there were lot of Galvanised material shortage and Unit mechanical contractor were asked to procure the short supplies.
- Mismatch of orifice flanges shown in ISO's and procured material, which has called for additional flanges.

Conclusion:

Net Delay Attributable due to engineering : NIL.

Delay on account of procurement:

SL No	ITEM DESCRIPTION	VENDOR NAME	SCH DEL. AT SITE	CONTRACTUAL DEL AT SITE	ACTUAL DEL. AT SITE	ACT. DELAY Wrt. SCH IN MONTHS	REMARKS
UNIT : FCCU / GCU / FGTU							
1	MAB	BHEL	1-Jun-09	Procured in Job no - 6269	Major by 30-Sep-10 and bal. by Feb '11	Effectively 14.0	Bare compressor already received under Job no 6269 but supply of loose components / parts / Auxiliaries etc. continued till Feb 2011.
2	WGC	BHEL	-	Procured in Job no - 6269			
3	AMAB (114-C-1003)	BHEL	1-Jun-09	15-Sep-09	30-Nov-10	Effectively 14.0	Bare compressor recd on 29.05.10 but supply of loose components / parts / Auxiliaries etc. continued till Feb 2011.
5	**All Pumps**		**16-Feb-09**	**21-Apr-09**	**4-Aug-10**	**Upto 11 months**	
	114-P-3074 A/B	KEPL	16-Feb-09	10-Dec-08	29-Jul-09	5.4	
	120-P-1001 A/S	Kishore Pumps	16-Feb-09	19-Apr-09	4-Aug-10	17.6	
	114-P-3066 A / S	Kirloskar brothers	16-Feb-09	21-Apr-09	28-Jan-10	11.4	
6	All Exchangers		2-Mar-09		20-Jan-10	10.7	
	114-E- 3080 A / B /C	Anup Engineers	2-Mar-09	18-May-09	12-Jan-10	10.4	
	114-E-3057 A/B	L&T (6269)	2-Mar-09		20-Jan-10	10.7	
7	Main Fractionators	GRE	31-Mar-09		2-Nov-09	7.1	
8	Reactor / Regenerator	L&T	31-Jan-08		3-Feb-09	12.1	
9	Delivery of AFC	PCTL	1-Dec-08		9-Jan-11	25.3	Strl material getting delivered at site from April 10 and continued till Jan'11
11	All vessels		31-Mar-09		29-Jan-10	10.0	
	114-D-3033	New Field	31-Mar-09	30-Apr-09	29-Jan-10	10.0	
12	Dosing System	Milton Roy	22-Dec-08		7-Apr-10	15.5	

SL No	ITEM DESCRIPTION	VENDOR NAME	SCH DEL. AT SITE	CONTRACTUAL DEL AT SITE	ACTUAL DEL. AT SITE	ACT. DELAY Wrt. SCH IN MONTHS	REMARKS
UNIT : FCCU / GCU / FGTU							
13	All Piping material	Various vendor	27-Feb-10	29-Oct-10	Major received by 30-Nov-10	Effectively 10.0	Schedule dates have been revised due to change in philosophy for FGSU. 90 % material recd by May 2010 and balance 10 % till completion of project.
14	All Electrical Items	Various vendor	26-Nov-09	16-Sep-10	30-Sep-10	10.1	Schedule dates have been revised due to change in Philosophy for FGSU. 90 % material recd. by June 2010 and balance 10 % by September 2010
15	All Instrumentation Items	Various vendor	29-Jan-10	8-Sep-10	Major received by 30-Nov-10	Effectively 10.0	Schedule dates have been revised due to change in Philosophy for FGSU. 90 % material recd by August 2010 and balance 10 % till completion of project
FGSU / PTU / CASUTIC							
1	Quench Tower	BHPV	19-Nov-09		5-Sep-10	9.5	
2	Heat Exchanger	Godrej	29-Jan-10	29-Mar-10	1-Jul-10	5.0	
3	Slurry Pumps 110-P-1001 A-C,1002 A/ B, 1003 A /B	Flow serve, Canada (Ordered under 6269)	2-Dec-09		18-Sep-10	9.5	
4	Clarifier	Eimco KCP Ltd.	8-Dec-09	24-Jan-10	21-Jul-10	7.4	

SL No	ITEM DESCRIPTION	VENDOR NAME	SCH DEL. AT SITE	CONTRACTUAL DEL AT SITE	ACTUAL DEL. AT SITE	ACT. DELAY Wrt. SCH IN MONTHS	REMARKS
UNIT : FCCU / GCU / FGTU							
5	110-FIL-2001	BHS SONTHOFEN	27-Feb-10	6-May-10	1-Oct-10	7.1	
5	Delivery of Tanks	HDOL	14-Dec-09	3-Jan-10	18-Jun-10	6.1	
6	Oxidation blower 110-C-2001A / B	Swam	28-Oct-09	4-Apr-10	11-Jan-11	14.5	Blower recd. On 29.09.10 and After cooler recd. On 11.01.11
7	**All pumps except Slurry Pumps**		**27-Oct-09**	**15-May-10**	**4-Oct-10**	**Upto 11 months**	
	110-P-1004	Goulds.	27-Oct-09	15-May-10	28-Sep-10	11.0	
	110-P-2002	Nagle.	27-Oct-09	15-May-10	4-Oct-10	11.2	
	Caustic Pumps (7no)	Flow serve, India	27-Oct-09	25-Mar-10	6-Aug-10	9.3	

Note: Dates has been revised in view of Change in execution Philosophy of FGSU.

Conclusion:

As evident from above table the **maximum delay in the completion of the project was caused due to delay in delivery of equipment & material,** followed by prolonged Ordering of short piping materials.

The contractual delivery date at site for Main Air blower by BHEL was 28.10.09 (As per original Sch AMAB should received at site by 01.06.09, There was a delay of 4 months). The main machine (bare compressor) received at site on 29.05.10(Delay of 8 months). Various parts, components, Piping materials, auxiliaries, instrument items etc. was further delayed and progressively completed on February 2011 **(Delay of 14 months from CDD).** The delay in this critical path activity was also the main reason for delay in completion of the project. The main reason for the delay in delivery of AMAB& it was BHEL's reluctance & lack of interest in completing the supplies due to commercial issues with clients. This resulted in delay in sub components procurement of bought out material & component. EIL/HPCL had to intervene and take action to procure short supply piping materials on behalf of BHEL to expedite the work completion.

Similarly, Main Air blower and Wet gas compressor already procured under GFEC Project EIL job no 6269. Supply of many parts, component, Piping materials, auxiliaries, instrument items etc for these compressors was also delayed and progressively completed in Jan – Feb-2011.

Delay in supply of AMAB, MAB. /WGC (14 months from CDD) and other equipments & piping materials delayed the completion of FCCU unit by 14.5 months

Delay in supply of Quench Towers (9 months from CDD) and other equipments & piping materials delayed the completion of FGSU / PTU / caustic by 7.1 months.

Net overall delay in Project	**:**	**14.5 months for FCCU and 7.1 Months for FGSU /PTU / CAUSTIC**
Delay Contributed by BHEL & others for completion of FCCU / GCU	:	14.5 months
Delay Contributed by BHPV & others for completion of FGSU / PTU / caustic	:	7.1 months

CONTRACT WISE CONSTRUCTION DELAY ANALYSIS

➢ CIVIL & STRUCTURAL WORKS PART-I:

Award date	31.03.2008	Contractual completion date	30-01-2009
Actual start date	07.04.08	Contractual duration	10 Months
Actual completion date (95%)	28.02.2010	Actual duration (95%)	22.8 months
Actual completion date (100%)	31.12.2010	Actual duration (100%)	32.8 months
Delay in completion (95%)	12.8 months	Delay in completion (100.0%)	22.80 months

Delay due to owner - 1.8 Months.
Delay due to Engineering - 2.0 Months.
Delay due to contractor - 3.0 months
Delay due to others - 16.0 Months.

Reasons for delay due to owner:

- Re routing of North Side, pipe alley to accommodate pipe rack foundation and CBD sump done by HPCL in the month of July 08.
- Re- routing of existing crude oil pipeline completed in **August 2009** HPCL to release the front for approach Bridge-3 & bridge-4 from south side.

Reasons for delay due to Projects / Engineering:

- Delay in release of drawings for Tech Structure, Pipe rack, Structural drawings and foundation drawings.
- Delay in release of holds in branch connection in UG piping drawings.

Reasons for Delay due to contractor:

- Due to inadequate mobilisation of Skilled and Unskilled work force especially carpenter, bar-bender etc.
- Due to Non-availability of adequate amount of Epoxy coated TMT Bar I, Shuttering material, RMC and scaffolding / staging materials as and when required.
- Delay in commencement of U/G Piping works due to delay in mobilisation of work force / resources especially Welders, Fitters etc for U/G piping works and remain continued until end of the job.
- Delay in supply / detailing of fabrication drawings and Fabrication of structural steel affected the site progress.

Reasons for Delay due to others:

- Analyser foundation front released in November 10 due to placement of CC 2000 crane for erection of quench tower by other agency.
- Front for structural works & pre coated sheet cladding of blower shed (2 bays) was released to SKB on 20.10.10 after completion of major erection works of AMAB.

- Structural works including hand rail , gratings at EL 110.00 of FGSU unit was under hold due to duct erection of quench tower by other agency and front released in end November 2010
- Some area for pavement, surface water drain release in end November 2010 as area was being developed by other HPCL agency.
- B/L OWS manhole and associated front released has released on 18.10.10
- Front for pre coated sheeting in Air compressor shed released on 22.10.10
- Front for hardstand released in November 2010 due to area used by other agency for crane handling.
- Super structure works for P/R –III was under hold due to Erection Of expansion Joint ordered on M/s Munaro miller. Expansion joint received on 30.09.10 and front released for super structure works on 20.10.10.

➢ CIVIL & STRUCTURAL WORKS FOR RR FOUNATION BY SKB:

Award date	08-01-08	Contractual completion date *	30-06-08
Actual start date	08-01-08 **	Contractual duration	3 * months
Actual completion date (95%)	01.07.2008	Actual duration (95%)	6.0 months
Actual completion date.(100%)	22.07.2008	Actual duration. (100%)	6.4 months
Delay in completion (95%)	3.0 months	Delay in completion (100.0%)	3.4 months

Note : (*) Contractual completion date from 3 months from date of final site clearance which is 01.04.08 , and (* *) : Date of mobilisation of contractor at site.

Delay due to owner - 2.65 months
Delay due to Engineering - NIL
Delay due to contractor - 0.75 months
Delay due to others - NIL

Reasons for delay due to owner:

- Pipe alley removed by HPCL and released to SKB for construction on 01.04.08

Reasons for delay due to Engineering:

- NIL

Reasons for delay due to Procurement

- NIL

Reasons for Delay due to contractor:

- Due to inadequate mobilisation of Skilled and Unskilled work force especially carpenter, bar-bender etc.

Reasons for Delay due to others:

- NIL

➢ CIVIL & STRUCTURAL WORKS FOR EXTENSION OF SUB STATION 10 BY M/S SKB

Award date	26.12.2008	Contractual completion date	25.09.2009
Actual start date	14.01.2009	Contractual duration	9 months
Actual completion date (95%)	28.02.2011	Actual duration (95%)	13.5 months

Actual completion date(100%)	30.06.2010	Actual duration (100%)	17.5 months
Delay in completion (95%)	4.5 months	Delay in completion (100.0%)	8.5 months

Delay due to owner - 3.0 months
Delay due to Engineering - NIL
Delay due to contractor - NIL
Delay due to others - 5.5

Reasons for delay due to owner:

- Delay in re-routing of existing OWS line for release of front for foundation works for sub-station.
- Delay in dismantling of Existing wall of sub station -10
- Delay in re-routing of existing Electrical / Instrumentation cables to release the front for cable trench inside the Sub station.

Reasons for delay due to Engineering:

- Delay in release of Super structure drawings for Extension of Sub-Station -10.

Reasons for delay due to Procurement

- NIL

Reasons for Delay due to contractor:

- Due to inadequate mobilisation of Skilled and Unskilled work force especially carpenter, bar-bender etc.
- Due to Non-availability of adequate amount of Epoxy coated TMT Bar, Shuttering material, ready mix concrete and scaffolding / staging materials as and when required.

Reasons for Delay due to others:

- Delay in release of front of false ceiling due to Erection of cut for Ac system by other agency.

➢ CIVIL & STRUCTURAL WORKS PART-II BY M/S SKB:

Award date	26.12.2008	Contractual completion date	25.09.2009
Actual start date	14.01.2009	Contractual duration	9 months
Actual completion date (95%)	30.09.2009	Actual duration (95%)	10.5 months
Actual completion date (100%)	30.06.2010	Actual duration (100%)	17.5 months
Delay in completion (95%)	1.5 Months	Delay in completion(100.0%)	8.5 months

Delay due to owner - NIL
Delay due to Engineering - NIL
Delay due to contractor - 3.0 months
Delay due to others - 5.5 months

Reasons for delay due to owner:

- NIL

Reasons for delay due to Engineering:

- Delay in release of drawings for Civil & structural works Tech- structure –II ,Pipe rack-II and other equipment foundation drawings.

- **Reasons for delay due to Procurement**
- NIL

Reasons for Delay due to contractor:

- Due to inadequate mobilisation of Skilled and Unskilled work force especially carpenter, bar-bender etc.
- Due to Non-availability of Epoxy coated TOR steel of various sizes as per project requirement.
- Non availability of Shuttering material as per project requirement
- Non-availability of Ready Mix concrete as and when required for concreting.
- Inadequate mobilization of Manpower and scaffolding / staging materials for super structure works affecting site progress

Reasons for Delay due to others:

- Delay in Release of Front for commencement of foundation works for Pipe rack –II due to space occupied by M/S L&T for erection of RR Package.

➢ SEA COOLING WATER SUPPLY / RETURN LINE BY M/S OFFSHORE LTD:

Award date	07.01.2009	Contractual completion date	06.11.2009
Actual start date	06.03.2009	Contractual duration	10 months
Actual completion date (95%)	30.11.2011	Actual duration (95%)	20.9 months
Actual completion date(100%)	31.12.2010	Actual duration (100%)	21.9 months
Delay in completion (95%)	10.9 months	Delay in completion(100.0%)	11.9 months

Delay due to owner - 11.9 months
Delay due to Engineering - NIL
Delay due to contractor - NIL
Delay due to others - NIL

Reasons for delay due to owner:

- Delay in release of 40" size Hook up front to contractor due to operational problem.
- Delay in release of front , boring portion in avenue –E by other agency (front released in the month of October 10)

Reasons for delay due to Engineering:

- NIL

Reasons for Delay due to contractor:

- NIL

Reasons for Delay due to others:

- NIL

➢ FG COOLER BY THERMAX (Site works):

Award date	01.02.2009	Contractual completion date	01.05.09
Actual start date	01.02.2009	Contractual duration	3 months.
Actual completion date (95%)	15.10.2009	Actual duration (95%)	8.4 months
Actual completion date (100%)	30.03.2010	Actual duration (100%)	13.9 months.
Delay in completion (95%)	5.4 months	Delay in completion(100.0%)	10.9 months.

Delay due to owner - 6 months
Delay due to Engineering - NIL
Delay due to contractor - 5 months
Delay due to others - NIL

Reasons for delay due to owner:

- Delay in finalisation of location of blower foundation in view of space constraint
- Delay in availability of DM water for hydro testing of FG cooler.

Reasons for delay due to Engineering:

- NIL

Reasons for Delay due to contractor:

- Detail engineering of piping was not in line with UOP specification / Standard hence called for Lot of piping modification at site by M/s Thermax.
- Delay in receipt of Soot blower panel and other piping items
- Due to inadequate resource mobilisation.

Reasons for Delay due to others:

- NIL

➢ HEATER PACKAGE BY M/s THERMAX (SITE WORKS):

Award date	06.01.2009	Contractual completion date	05.01.2010
Actual start date (Site)	27.07.2009	Contractual duration-Overall	12.0 months
Actual completion date (95%)	30.04.2010	Actual duration (95%)	16.0 months
Actual completion date (100%)	06.12.2010	Actual duration (100%)	23.0 months
Delay in completion (95%)	4 months	Delay in completion (100.0%)	11 months

Delay due to owner - NIL
Delay due to Engineering - NIL
Delay due to contractor - 11.0
Delay due to others - NIL

Reasons for delay due to owner:

- NIL

Reasons for delay due to Engineering:

- NIL

Reasons for delay due to Procurement:

- NIL

Reasons for Delay due to contractor:

- Delay in receipt of radiant panel, convention coils. Stacks & Soot blower panel by Thermax.
- Due to inadequate resource mobilisation mainly piping gang, Insulation gang etc.

Reasons for Delay due to others:

- NIL

➢ RR PACKAGE (SITE WORKS) BY L&T:

Award date	29.07.2008	Contractual completion date	28.03.2009
Actual start date	07.09.2008	Contractual duration	7 months
Actual completion date (95%)	28.02.2010	Actual duration (95%)	17.7 months
Actual completion date(100%)	25.02.2011	Actual duration (100%)	25.80 months
Delay in completion (95%)	10.7 months	Delay in completion (100.0%)	18.80 months

Delay due to owner - NIL
Delay due to Engineering - 2.8 months
Delay due to contractor - NIL
Delay due to others - 16.0 months

Reasons for delay due to owner:

- NIL

Reasons for delay due to Engineering / Procurement:

- Delay in Providing of supporting details for spring supports.
- One no. spring rod on regenerated standpipe received in the month of January 2011.

Reasons for Delay due to contractor:

- NIL

Reasons for Delay due to others:

- Delay in refractory dry out activities due to non completion of MAB , FGC & FGSU (Dry out completed on 25.01.2011)
- Due to modification of regenerator for cat cooler project at later stage (Modification work completed on 20.01.11)
    - ➢ Installation , welding & NDT of slide valves/ Expansion joint / Bellow including HPU and its refractory , Refractory dry out , UOP inspection after refractory dry out, liquidation of punch points from UOP after refractory dry out seal welding/ NDT/ PWHT/& boxing up of manholes. (All activities completed on 25.02.2011)

➢ UNIT MECHNICAL WORKS BY M/S OFFSHORE LTD:

Award date	30.03.2009	Contractual completion date	30.12.2009
Actual start date	31.03.2009	Contractual duration	9 months
Actual completion date (95%)	30.06.2010	Actual duration (95%)	15 months
Actual completion date(100%)	30.03.2011	Actual duration (100%)	24 months
Delay in completion (95%)	6 months	Delay in completion (100.0%)	15 months

Delay due to owner - NIL
Delay due to Engineering / Procurement - 6 months
Delay due to contractor - 3.0 months
Delay due to others - 6.0 months

Reasons for delay due to owner:

- NIL

Reasons for delay due to Engineering / Procurement:

- Initially all line Isometrics received at site with support hold for which commencement of hydro testing of loops got delayed.
- Delay Due to Re engineering of steam, air & other systems in RR Block including addition of spring supports at a later stage and modification of above consequently.
- Delay in receipt of piping materials for Sprinkler system, Alloy steel material for Catalyst handling system and balance component of WGC, MAB & AMAB by BHEL.
- Delay in receipt of springs for AMAB suction line and SM /SL line to & from turbine – AMAB LO console. **(BHEL Supply of Scope).**
- Piping modification (25000 ID) due to revised drawings received after completion of lines is also a reason of delay.

Reasons for Delay due to contractor:

- Delay in completion of Painting, Insulation and Fire proofing due to inadequate resources mobilisation.
- Delay in supply of safety showers, Spray nozzle, paints & Insulation materials etc.

Reasons for Delay due to others:

- 25 nos. of piping sub systems were kept under hold due to cat cooler modification works by M/s L&T and front got released in December 2010.
- Delay in AMAB and WGC final alignment & grouting pending due to non availability of BHEL representative
- Delay in completion of Firewater peripheral line by other agency.

➢ CIVIL & MECHNICAL WORKS –OFFSITES (PART I : EQUAL TO 8" AND BELOW LINE) BY M/S BRIDGE & ROOF :

Award date	31.03.2009	Contractual completion date	30.11.2009
Actual start date	07.04.2009	Contractual duration	8 months
Actual completion date (95%)	30.09.2010	Actual duration (95%)	17.8 months
Actual completion date(100%)	31.03.2011	Actual duration (100%)	23.8 months
Delay in completion (95%)	9.8 months	Delay in completion (100.0%)	15.8 months

Delay due to owner - 13.8 Months
Delay due to Engineering - NIL
Delay due to contractor - 2.0 Months
Delay due to others - NIL

Reasons for delay due to owner:

- Increase in volume of piping works due to shifting of Several Tie-ins by 80-120M. by HPCL. Tie in Point No- TP 5005 released in **December 2010**.
- **Area 48 in offsite**: 4 months delay in Completion of Structural works by HPCL Standing contractor for release of front for erection of pipes by offsite contractors.
- Increase in volume of piping works (about 4500 IM) due to shifting of Several Tie-ins by 80-120M. by HPCL. (Example TP 4804, 8708 etc.).
- **Area 68 in offsite:** As per HPCL, decision pipes were put in trench, which were designed and executed, by HPCL and front for piping erection by offsite contractor released in October 2010.
- **Extra SM / SH i.e. 20" & 22"** line due to inability of HPCL to give the shutdown to Hook up with already laid line by offsite contractor. Executions of extra line were done by B&R along with insulation (About 6500 IM).
- As per original Project philosophy FRE Shut down Job were not in the EIL work of scope However the total Piping (4500 IM , Modification -2000ID) & structural works (40MT) connected with offsite line in FRE Unit was done during shutdown by offsite contractor.
- Because of location Shifting of PTU/Caustic Units by HPCL total piping was dismantled in Area 2, Area-3 and Area- 25 & redone upto new PTU/Caustic location (about 8000 IM)
- As per HPCL requirement, 8" dia - 1600 Mtrs LPG & WP lines were laid extra with welding & testing in offsite.

Reasons for delay due to Engineering:

- NIL.

Reasons for Delay due to contractor:

- Inadequate resource mobilization for Civil & strl. Works, Non-availability of Structural materials, Piping Welders/ fitter, Mechanical clearance and Hydro testing gang, Painting/Insulation gangs etc.

Reasons for Delay due to others:

- NIL

➢ CIVIL & MECHNICAL WORKS –OFFSITES (PART-II , ABOVE TO ABOVE 8" LINE) BY M/S IOT ANWESHA ENGG AND CONST LTD :

Award date	14.05.2009	Contractual completion date	13.01.2010
Actual start date	18.06.2009	Contractual duration	8 months
Actual completion date (95%)	15.06.2010	Actual duration (95%)	11.9 months
Actual completion date(100%)	31.03.2011	Actual duration (100 %)	21.4 months
Delay in completion (95%)	3.9 Months	Delay in completion(100.0%)	13.4 months

Delay due to owner - 11.0 Months
Delay due to Engineering - NIL
Delay due to contractor - 2.0 Months
Delay due to others - NIL

Reasons for delay due to owner:

- **Area 43 in offsite**: 12"/14" lines (about 2000 IM along with Sleepers were dismantled after complete welding as per HPCL requirement due to change in route. Again, line were extra laid as per HPCL change route.
- **Area 43 in offsite:** Cat cooler Pump area was handed over to offsite contractor in phased manner.
- **Area 46 , 21 & 22 in offsite :** Agencies employed by HPCL for other job laid the lines in EIL-Corridor. After loosing 4-5 months Offsite contractor had to dismantle & lay our lines especially in area 46,22,21 etc
- **Area 68 in offsite :** As per HPCL decision pipes were put in trench which were designed and executed by HPCL and front for piping erection by offsite contractor released in October 2010.
- In offsite Sub header of Low Pressure Steam, lines were required for Steam Supply stations that were laid by offsite contractors (about 2000 IM).
- Because of location, Shifting of PTU/Caustic Units by HPCL total piping was dismantled in Area 2, Area-3 and Area- 25 & redone upto new PTU/Caustic location.
- Due to frequent changing of Fire Water network in offsite , huge modifications were done & new lines were laid.(About 300 IM , Modification -1000 ID) and fire water route finally finalised in December 2010
- Increase in volume of piping works due to shifting of Several Tie-ins by 80-120M. by HPCL. Lastly tie in points No 8602 & 8609 at area 52 (Tank -359) not given by HPCL till end of the project.
- Due to issuance / intermittent withdrawal of permits in operation area affected site. progress badly.

Reasons for delay due to Engineering:

- NIL

Reasons for Delay due to contractor:

- Inadequate mobilization of Manpower / resources for Civil & strl. works, Non-availability of Structural materials, Piping Welders/ fitter, Mechanical clearance and Hydro testing gang, Painting/Insulation gangs etc. affected site progress.

Reasons for Delay due to others:

- NIL

➢ **CIVIL & MECHANICAL WORKS FOR PTU AND CAUSTIC UNIT & ONLY MECHANICAL WORKS FOR FGSU UNITS BY M/s FURNACE FABRICA (FFIL).**

Award date	04.09.2009	Contractual completion date	03.03.2010
Actual start date	15.10.2009	Contractual duration	6.0 months
Actual completion date (95%)	25.12.2010	Actual duration (95%)	14.3 months
Actual completion date(100%)	31.03.2011	Actual duration (100%)	17.5 months
Delay in completion (95%)	8.3 months	Delay in completion (100.0%)	11.5 months

Delay due to owner - NIL
Delay due to Engineering / procurement - 8.0 Months
Delay due to contractor - 3.5 Months
Delay due to others - NIL

Reasons for delay due to owner:

- NIL

Reasons for delay due to Engineering / Procurement:

- Delay in delivery of Pipe fitting flanges mainly 316L specification, Bellows, strainers due to drawings revision/ missed by engineering during MTO procurement etc.
- After cooler for Oxidation, blowers from M/s swam Received on 11.01.11.
- 7 nos. pumps from flow serve Canada 110-P-1001A/B/C , 1002A/B, 1003A/B received on 18.09.10
- Middle piece of Quench tower received on 05.09.10 and after that minimum 3 months required for Mechanical completion of Quench tower.
- Effluent filter from BHS Sonthofen (110-FIL-2001) received on 01.10.10.
- Pump No 110-P-1004 from M/s Gould received on 28.09.10
- Pump No 110-P-2002 from M/s Nagle received on 04.10.10

Reasons for Delay due to contractor:

- Inexperience RCM of M/s Furnace fabrica.
- Inadequate resources mobilization like carpenter, bar bender, Piping Welders/ fitter, Mechanical clearance and Hydro testing gang, Painting/Insulation gangs etc.

Reasons for Delay due to others:

Completion of Nozzle works by BHPV for Quench towers completed in the 1st week of December 2010.

➢ DCS PACKAGE WORKS (SITE WORKS) BY HONEY WELL

Award date	01.08.2009	Contractual completion date	30.11.2009
Actual start date	01.08.2009	Contractual duration	4 months
Actual completion date (95%)	10.07.2010	Actual duration (95%)	11.3 months
Actual completion date (100%)	31.05.2011	Actual duration (100%)	20.1 months
Delay in completion (95%)	7.3 months	Delay in completion(100.0%)	16.1 months

Delay due to owner - NIL
Delay due to Engineering - 3 months
Delay due to contractor - NIL
Delay due to others - 13 months

Reasons for delay due to owner:

- Front for HMS (HART management system Hook UP with Existing System) and OPFR System yet to be released by HPCL

Reasons for delay due to Engineering:

- There was increase in I/O counter due to Non-availability data of vendor package, which resulted in addition of tags and their configuration in DCS.
- Due to revision of P& ID's resulting in increase of instruments tag.

Reasons for Delay due to contractor:

- NIL

Reasons for Delay due to others:

- Permanent 110AC UPS power received in November 2010
- Delay in handing over of Multicore cable for glanding & termination by Instrumentation contractor.
- Delay in release of front for field loop checking in PTU / Caustic / FGSU / Air compressor / Air dryer / FR etc released progressively by Mid of December 2010.

➢ INSTRUMENTATION WORKS IN UNIT & OFFSITE BY M/s JASUBHAI.

Award date	31.07.2009	Contractual completion date	30.03.2010
Actual start date	28.08.2009	Contractual duration	8.0 months
Actual completion date (95%)	30.12.2010	Actual duration (95%)	16.1 months
Actual completion date (100%)	30.04.2011	Actual duration (100%)	20.1 months
Delay in completion (95%)	8.1 months	Delay in completion (100.0%)	12.1 months

Delay due to owner - NIL
Delay due to Engineering - 3.0 months
Delay due to contractor - 3.0 months
Delay due to others - 6.1 months

Reasons for delay due to owner:

- NIL

Reasons for delay due to Engineering:

- Continuous revision in cable schedule, installation standard, Changes in BOM etc.
- Relocation of Tapping points as per UOP checklist etc.
- There was lot of items missing in MTO provided by ROV and actual items required as per receipt at site.

Reasons for delay due to Procurement

- Delivery of Instrument items continued till Nov 2010 also affected completion of work.
- Delay in ordering / Receipt of SS, Alloy steel piping materials including 3-5 way manifold.

Reasons for Delay due to contractor:

- Poor mobilisation of Manpower for cable tray / duct fire proofing works.

Reasons for Delay due to others:

- Delay in release of Tapping Points for AMAB, FGSU, FR, caustic, PTU, Air compressor etc. Taping points progressively released from 30.10.10 and continued till February 2011.
- Release of front in RR area for completion of balance works due to modification works for regenerator under cat cooler modification project (Regenerator modification works completed on 20.01.11) and released of front to instrumentation contractor.
- Front for Loop checking for AMAB/ MAB, FGSU, PTU & Caustic unit progressively released by February 2011.

➢ ELECTRICAL WORKS IN ISBL & OSBLBY M/s TICB.

Award date	09.10.2009	Contractual completion date	08.03.2010
Actual start date	04.11.2009	Contractual duration	5 months
Actual completion date (95%)	30.10.2010	Actual duration (95%)	11.8 months
Actual completion date (100%)	15.11.2010	Actual duration (100%)	12.4 months
Delay in completion (95%)	6.8 months	Delay in completion (100.0%)	7.4 months

Delay due to owner - 4.0 months.
Delay due to Engineering - NIL
Delay due to contractor - NIL
Delay due to others - 3.4 months.

Reasons for delay due to owner:

- Front for cable laying from SS-02 to SS-PTU released on end September 2010 for oxidation blower. **Trench made by HPCL.**

Reasons for delay due to Engineering:

- NIL

Reasons for delay due to Procurement

- Due to inadequate resource mobilisation for cable tray / Duct fire proofing works.

Reasons for Delay due to contractor:

- NIL

Reasons for Delay due to others:

- Front for cable laying from SS-07 to SS-10 released on 12.05.2010
- Front for cable laying from SS-10 to NFCCU B/L released on 01.04.2010
- Front for cable laying from SS-09 to PTU / Caustic released on 04.05.2010
- Front for cable laying from in Area 43 for Cat feed pump released on 30.07.2010
- Front for termination works inside PTU/ Caustic and FGSU Progressively released by October 2010.

Package Contracts status and others :

SL No	Agency / Package	Start date	Mech Comp. date	Commissioning date	Remarks
1.	AC Package by VOLTAS. (Supply , Installation and Testing & Commissioning)	06.06.2010	10.10.2010	26.04.11	PGTR – May 2011
2.	Pressurisation system by SK system. (Supply , Installation and Testing & Commissioning)	04.03.2010	28.02.2011	04.03.2011	
3.	UPS by M/s Gutor(Testing & Commissioning)	01.09.10	08.09.10	25.11.2010	
4.	CP system by M/s Corrtech (Supply , Installation and Testing & Commissioning)	16.11.10	25.12.2010	27.12.2010	
5.	Nitrogen Purging System by CTR	15.06.2010	15.07.2010	21.07.2010	
6.	AFC Installation by GEI	15.09.09	30.12.10	-	
7.	AFC Installation by BGR	01.09.09	30.11.10	-	
8.	AFC Installation by PCTL	15.02.10	30.08.10		
9.	Column Internal Works by Sulzer (**114-T-3022**)	25.08.09	10.02.10	-	
10.	Column Internal Works by KEVIN (**114-T-3020/ 3021/3023/3024 AND 120-T-1001**)	30.08.09	30.03.10	-	Front for 114-T-3024 released on 12.02.10
11.	Column Internal Works by Kamal (**114-T-3025/ 3026/3027**)	20.03.10	10.05.10	-	

2.5 CHRONOLOGICAL ACHIEVEMENT OF KEY MILESTONES

SL No.	DESCRIPTION	SCH	SCH MONTHS FROM START / ZERO DATES	ACT	ACT MONTHS FROM START / ZERO DATE	REMARKS
1	KOM for Foundation of RR by SKB	15-Nov-07	0	8-Jan-08	2	
2	Erection of GCU Towers before Commencement of Super structure Works	31-Mar-08	5	30-Oct-08	12	
3	KOM for Civil & Strl. works in ISBL Part-II by SKB	31-Mar-08	5	14-Sep-09	22	
4	KOM for Civil & strl. works in ISBL Part-I by SKB	31-Mar-08	5	1-Apr-08	5	
5	KOM for Civil & Mechanical works in OSBL by B&R	31-May-08	7	6-Apr-09	17	
6	KOM for Civil & Mechanical works in OSBL by IOTL	31-May-08	7	20-May-09	18	
7	Completion of Civil Foundation for FG Cooler	1-Jun-08	7	27-Jan-09	14	
8	KOM for RR Package Site works by L&T	2-Jun-08	7	8-Sep-08	10	
9	Heater foundation completed	18-Jul-08	8	29-May-09	18	
10	Sub Station -10 First Floor Slab Casting (EL 8.30)	1-Sep-08	10	7-Aug-09	21	
11	FG Cooler IBR Hydro testing of Boiler	15-Sep-08	10	23-Jun-09	19	
12	Civil / Strl works- Static Fdn	15-Sep-08	10	28-Jun-09	19	
13	Mechanical Completion of CP system by M/s Corrtech	18-Sep-08	10	25-Dec-10	37	
14	KOM for Unit Mechanical works by Offshore	30-Sep-08	11	31-Mar-09	17	
15	Commencement of site works for Pressurisation system by SK system	3-Oct-08	11	4-Mar-10	28	
16	Commencement of site works for Nitrogen Purging System by CTR	8-Oct-08	11	15-Jun-10	31	
17	Civil / Strl works for Pipe rack (Fdn)- Offsite	15-Oct-08	11	26-Jul-09	20	
18	Completion of Pipe Rack -II upto grid (A-F)	15-Oct-08	11	5-Aug-09	21	
19	Sub Station -10Second Floor Slab Casting (EL 11.30)	15-Oct-08	11	4-Sep-09	22	
20	Completion of Pipe Rack -II upto grid (G- J)	15-Oct-08	11	15-Sep-09	22	
21	Completion of Pipe Rack -II upto grid (K - N)	15-Oct-08	11	26-Oct-09	23	
22	Civil/ Strl Work for Air Compressor and Shed – Offsites	17-Oct-08	11	20-May-10	30	
23	Sub Station -10 Third Floor Slab Casting (EL 16.30)	1-Dec-08	13	4-Oct-09	23	
24	KOM for Air Fin cooler works by BGR in GCU	2-Dec-08	13	26-Aug-09	21	
25	KOM for Air Fin cooler works by GEI in GCU	2-Dec-08	13	26-Aug-09	21	
26	KOM for Air Fin cooler works by PCTL	2-Dec-08	13	4-Sep-09	22	
27	Mechanical Completion of Pressurisation system by SK system	7-Dec-08	13	28-Feb-11	39	
28	Commencement of site works for CP system by M/s Corrtech	12-Dec-08	13	16-Nov-10	36	
29	Commencement of site works for AC Package by VOLTAS.	22-Dec-08	13	6-Jun-10	31	
30	Mechanical Completion of UPS by M/s Gutor	22-Dec-08	13	8-Sep-10	34	
31	Installation of Pumps (I MR) Part	29-Dec-08	13	15-Aug-09	21	
32	Civil / Strl Work for Pipe Rack- S/S Offsite	31-Dec-08	14	12-May-10	30	
33	Compl of Civil/Strl- U/O	31-Dec-08	14	30-Jun-10	32	
34	Completion of foundation for 114-C-1001	1-Jan-09	14	5-Sep-09	22	
35	Sub Station -10 Final Floor Slab casting	1-Jan-09	14	22-Nov-09	24	
36	KOM for SCW Line by offshore	6-Jan-09	14	6-Jan-09	14	
37	Erect. Of Columns procured under job No. 6269	9-Jan-09	14	30-Jun-09	20	
38	Erection of Heat Exchanger	13-Jan-09	14	1-Apr-10	29	
39	Civil / Strl Works –Pumps Fdn Complete	14-Jan-09	14	7-Sep-09	22	
40	Erct. Of Vessels procured under Job No. 6269	15-Jan-09	14	24-Nov-09	24	
41	Mechanical Completion of AC Package by VOLTAS.	15-Jan-09	14	10-Oct-10	35	
42	Civil/Strl works – Compr & Shed	19-Jan-09	14	14-Jul-09	20	
43	Civil/Strl works- Tech Str (Compl)	21-Jan-09	14	15-Feb-09	15	
44	Completion of Technological Structure -I upto EL 127.50	21-Jan-09	14	15-May-09	18	

2.5 CHRONOLOGICAL ACHIEVEMENT OF KEY MILESTONES

SL No.	DESCRIPTION	SCH	SCH MONTHS FROM START / ZERO DATES	ACT	ACT MONTHS FROM START / ZERO DATE	REMARKS
45	Completion of Technological Structure -II upto EL 127.50	21-Jan-09	14	18-Nov-09	24	
46	Erection of Regenerator Bottom Piece	28-Jan-09	14	2-Feb-09	15	
47	Installation of pumps Procured under Job No. 6269	31-Jan-09	15	30-Jun-09	20	
48	KOM for Instrumentation works by JEPL	31-Jan-09	15	6-Aug-09	21	
49	KOM for Electrical works by TICB	31-Jan-09	15	15-Oct-09	23	
50	Civil Works for Sub-Station (80%)	31-Jan-09	15	15-Dec-09	25	
51	Erect. Of Heat Exchanger procured under job No. 6269	31-Jan-09	15	19-Jan-10	26	
52	Pre-Fabrication Piping	31-Jan-09	15	15-Sep-10	34	
53	KOM For Tray internal works by Sulzer (114-T-3022)	1-Feb-09	15	25-Aug-09	21	
54	KOM For Tray internal works by Kevin (114-T-3020/ 3021/3023/3024 AND 120-T-1001)	1-Feb-09	15	25-Aug-09	21	
55	KOM for Civil & Mechanical works in FGSU , PTU AND CASUTIC by FFIL	1-Feb-09	15	15-Sep-09	22	
56	KOM For Tray internal works by Kamal (114-T-3025 /3026 / 3027)	1-Feb-09	15	15-Feb-10	27	
57	Erection of Regenerator Middle Piece	13-Feb-09	15	7-Feb-09	15	
58	Erection of Reactor bottom section	13-Feb-09	15	28-Mar-09	16	
59	Installation of WGC	14-Feb-09	15	6-May-09	18	
60	Installation of MAB	14-Feb-09	15	1-Oct-09	23	
61	Erection of Regenerator Top Piece	20-Feb-09	15	23-Mar-09	16	
62	Erection of Reactor Top section	20-Feb-09	15	9-Apr-09	17	
63	FMC crane dismantled	20-Feb-09	15	26-May-09	18	
64	Erection of Quench tower	21-Feb-09	15	27-Nov-10	36	
65	Installation of Pumps (I MR) Comp	25-Feb-09	15	30-Nov-09	25	
66	Erection of Orifice chamber	28-Feb-09	15	21-Mar-09	16	
67	Procurement & mobilisation – Instrumentation Contractor	28-Feb-09	15	6-Aug-09	21	
68	Procurement & mobilization – Electrical Contractor	28-Feb-09	15	15-Oct-09	23	
69	Commencement of site works for UPS by M/s Gutor	28-Feb-09	15	1-Sep-10	34	
70	Installation of Dosing Skid	2-Mar-09	16	12-Apr-10	29	
71	KOM for DCS Package for site works	16-Mar-09	16	15-Jul-09	20	
72	Release of front for cable laying from SS-10 to NFCCU B/L	30-Mar-09	16	1-Apr-10	29	
73	Release of front for cable laying from SS-09 to PTU / Caustic	30-Mar-09	16	4-May-10	30	
74	Release of front for cable laying from SS-07 to SS-10.	30-Mar-09	16	12-May-10	30	
75	Release of front for cable laying from in Area 43 for Cat feed pump	30-Mar-09	16	30-Jul-10	32	
76	Reciept of Main Fractionators	31-Mar-09	17	2-Nov-09	24	
77	Installation of Pumps MR-II	31-Mar-09	17	30-Nov-09	25	
78	Civil works for Sub Station (Compl)	31-Mar-09	17	15-Apr-10	29	
79	Civil / Strl Works –Compl	11-Apr-09	17	30-Jun-10	32	
80	Mechanical Completion of Nitrogen Purging System by CTR	13-Apr-09	17	15-Jul-10	32	
81	Installation of Air Fin Cooler	28-Apr-09	17	5-Aug-10	33	
82	Foundation for 114-C-1003 completed	1-May-09	18	22-Aug-09	21	
83	Reciept of AMAB (Bare compressor)	1-May-09	18	29-May-10	30	
84	Foundation for 114-C-1002 completed	15-May-09	18	14-Jul-09	20	
85	Erection of vesseles	15-May-09	18	10-Jul-10	32	
86	FABRICATION & ERECTION OF HEATER	30-Jun-09	20	6-Dec-10	37	Mechanical completion
87	Commissioning of UPS by M/s Gutor	30-Jun-09	20	25-Nov-10	36	
88	Installation of Pumps (BAL) (II MR)	24-Jul-09	20	10-Nov-10	36	

2.5 CHRONOLOGICAL ACHIEVEMENT OF KEY MILESTONES

SL No.	DESCRIPTION	SCH	SCH MONTHS FROM START / ZERO DATES	ACT	ACT MONTHS FROM START / ZERO DATE	REMARKS
89	Commissioning of AC Package by VOLTAS.	29-Jul-09	20	26-Apr-11	41	
90	Commissioning of Pressurisation system by SK system	29-Jul-09	20	4-Mar-11	40	
91	Commissioning of CP system by M/s Corrtech	30-Jul-09	20	27-Dec-10	37	
92	Commissioning of Nitrogen Purging System by CTR	30-Jul-09	20	21-Jul-10	32	
93	Eerection of column & internals.	31-Jul-09	21	30-May-10	30	
94	Electrical works	31-Jul-09	21	16-Dec-10	37	
95	Instrumentation works	31-Jul-09	21	16-Dec-10	37	
96	Completion of Scrubbing Units	31-Jul-09	21	15-Dec-10	37	
97	Fabrication & erection of piping	5-Aug-09	21	15-Dec-10	37	
98	Installation of -AIR COMPRESSOR	12-Sep-09	22	30-Oct-10	36	
99	FAB, ERN OF PIPING TILL HOOK-UP POINT - U/O	17-Sep-09	22	16-Dec-10	37	
100	INSTALLATION OF- MAIN AIR BLOWER	29-Sep-09	22	16-Dec-10	37	
101	ERN, TESTING, INSULATION & PAINTING(COMPL) INCL. U/O	29-Sep-09	22	16-Dec-10	37	
102	Starting MAB			5-Jan-11	38	PRE-COMMISSIONING
103	Flare Header Line-Up to Flare			14-Jan-11	38	PRE-COMMISSIONING
104	DFAH lit-up			14-Jan-11	38	PRE-COMMISSIONING
105	R-R Section Refractory Dry-Out.			5-Jan-11	38	PRE-COMMISSIONING
106	R-R section Refractory Dry-out completion			26-Jan-11	38	PRE-COMMISSIONING
107	WGC No Load.			21-Feb-11	39	PRE-COMMISSIONING
108	Main Fractionator Steam out.			17-Feb-11	39	Start-up Activities
109	Fuel Gas Back-up in Main Fractionator			23-Feb-11	39	Start-up Activities
110	Fuel Gas Back-up in GCU			13-Mar-11	40	Start-up Activities
111	WGC Started			19-Mar-11	40	Start-up Activities
112	Cold Oil Circulation.			24-Feb-11	39	Start-up Activities
113	Feed Heater RDO Start			6-Mar-11	40	Start-up Activities
114	Hot Oil Circulation.			6-Mar-11	40	Start-up Activities
115	Catalyst Loading in E-Catalyst Hopper (114-H-1002)			18-Feb-11	39	Start-up Activities
116	Catalyst Loading in Regenerator.			16-Mar-11	40	Start-up Activities
117	Main Fractionator Blind Removal.			12-Mar-11	40	Start-up Activities
118	Establishing Catalyst Circulation.			23-Feb-11	39	Start-up Activities
119	Charge oil to Reactor Riser.			26-Feb-11	39	Start-up Activities
120	Reactor-Regenerator Stabilizing at 60% of throughput			27-Feb-11	39	Start-up Activities
121	Main Fractionator & Gas Concentration unit stabilizing			2-Apr-11	41	Start-up Activities
122	Establishing 100% throughput Operation			18-Apr-11	41	Start-up Activities

3.0 PERFORMANCE OF CONSTRUCTION ACTIVITIES

3.1 INTRODUCTION

Construction Materials:

Equipment & piping	:	All materials and Equipments were arranged through purchase orders on indigenous and imported vendors
RMC	:	Approved brand such as Ultratec , ACC etc. were used for which the supply was in the scope of contractors
Steel	:	TOR steel and structural steel manufactured by SAIL , TATA , TISCO & JINDAL were used . The supply was in the scope of contractors
Sand	:	Sand was locally available and used after satisfactory test results. The supply was in the scope of contractors
Bricks	:	Locally made bricks were used after satisfactory test results. The supply was in the scope of contractors
Aggregate	:	Sourced from locally available storing places available places available in outskirts of the city and are used after satisfactory test results. The supply was in the scope of contractors
Approach road	:	The site was well connected through the Expressway for which approach road was already available and vehicular movement was smooth.
Water	:	Construction water was arranged by client and used after desired testing
Power	:	Construction Power was arranged by Contractors. Contractors have arranged DG Sets of 125 KVA capacity as per requirement.
Access to inside Refinery	:	Strict Entry restriction (due to sensitive area) imposed by HPCL / CISF for outside workers with Police verification etc. had practical problems.

Skilled and unskilled manpower :

- **Unskilled Manpower:** Unskilled manpower was arranged by the concerned contractors, mostly from outside Maharastra and always there was a scarcity of manpower within the refinery.
- **Skilled Manpower :**
  - Skilled manpower was arranged by the concerned contractors, mostly from outside the Maharastra and always there was a scarcity of manpower within the refinery due to working of various construction agencies inside the refinery.
  - Resistance offered to the contractors by some local unions in and around the plant affected entry of manpower entry and smooth functioning of the construction works..

➢ **Consumables :**

- Welding rods / filler wires, Oxygen , Nitrogen , Argon etc were in the contractors scope of supply
- Welding electrodes of approved make were used after testing / MCT verification

3.2 INFRASTRUCTURE FACILITIES

- **Office:** The main office was established with in the HCPL refinery near HPCL New Admin building provided by client and situated 0.5 KMS from New FCCU construction site. A container was also provided by the client for EIL officials for conducting the meeting with contractors. EIL office and its personnel were given by e mail connectivity and local area network by the client.
- **Construction water:** Arrangements of construction water was in the scope of contractors. Hydro testing was done using water from client
- **Construction Power:** Arrangement of construction power was in the scope of contractors.
- **Ware house:** A full fledged ware house was allocated to EIL near the Boiler house to facilitate the storage of the free issue items for contractors. Open yard for storage of pipes / big consignment also provided by client inside the refinery as well as in calico yard which was situated outside the refinery. Covered / Open space provided by client for storage of items was not adequate and there was a space constraint through out the project. This had an impact on project schedule ultimately.
- **Storage:** Contractors has been asked to mobilize the storage container and build their there own storage facilities for brought out materials in contractors scope and client free issue items.
- **Fabrication yard:** Fully Covered fabrication yard were provided by client inside the refinery and near to construction site for prefabrication of piping works including blasting space.
- Site engineering group from RO, Vadodra was stationed at site for resolution of site queries and other immediate site problems as and when required.
- All contractors were monitored for the availability of sufficient no of labour license required for execution of work in all stages of the project.
- Walky – talkies were issued to safety , Electrical , instrumentation , POSD people to enable faster communication between site and office and extensively during pre commissioning activities

3.3 EQUPMNET ERECTION STATUS

UNIT	DESCRIPTION	PROCURRED UNDER GFECP	NEW EQUIPMENTS PROCURRED UNDER FCCUP	Total
1. FCCU				
	AIR FIN COOLERS	16	-	16
	COLUMNS	1	3	4
	COMPRESSORS	1	2	3
	EJECTORS	1	-	1
	EXCHANGERS	29	13	42
	EXPANSION JOINT	-	4	4
	FILTERS	1	3	4
	FURNACE	-	1	1
	ORIFICE CHAMBER	1	1	2
	PUMPS	9	24	33
	REACTOR REGENARATOR	-	2	2
	DOSING SKIDS	-	2	2
	SLIDE VALVE	4	-	4
	SPECIAL CHECK VALVE	4	-	4
	VESSELS	8	6	14
	SUB TOTAL	**75**	**61**	**136**
2. GCU				
	AIR FIN COOLERS	12	-	12
	COLUMNS	5	-	5
	COMPRESSORS	1	-	1
	EXCHANGERS	19	8	27
	FILTERS	1	-	1
	PUMPS	24	2	26
	VESSELS	12	2	14
	SUB TOTAL	**76**	**12**	**88**
3.UTILITIES & OFFSITES				
	AIR COMPRESSOR & DRYER	-	2	2
	PUMPS	-	5	5
	VESSELS	-	1	1
	SUB TOTAL	**0**	**8**	**8**
4.FGSU				
	COLUMNS	1	1	2
	PUMPS	8	8	16
	SUMP / TANK	2	2	4
	SUB TOTAL	**11**	**11**	**22**
5.PTU				
	CLARIFIER	-	5	5
	EXCHANGERS	-	1	1
	FILTER	-	1	1
	FILTER BIN	-	4	4
	OXIDATION BLOWERS	-	2	2
	PUMPS	-	3	3
	FILTRATE SUMP (RCC)	-	1	1
	TANK (Procured)	-	4	4
	SUB TOTAL	**0**	**21**	**21**
6.CAUSTIC				
	PUMPS	-	7	7
	SUMP / TANK (SITE FABRICATED)	-	3	3
	SUB TOTAL	**0**	**14**	**14**
	TOTAL	**162**	**127**	**289**

3.3 EQUPMNET ERECTION STATUS

	DESCRIPTION	LOI_NO	VENDOR	JOB NO	FON QTY	WT (MT)	LOI DATE	CDD	RCVD_DATE	SITE ASSEMBELLY	ERCN DATE	REMARKS
1. FCCU												
COLUMNS												
114-T-3024	HN side stripper	173	RD Engineers	6269	0	9.8	13-May-05	12-Jan-06	22-Nov-06		25-Nov-09	
114-T-3025	MAIN FRACTIONATOR	2	GR ENGINEERING	6891	208	165	08-Feb-08	15-Nov-09	02-Nov-09	YES	08-Nov-09	Heavy Lift
114-T-3026	LCO SIDE STRIPPER	3	ANUP ENGG.	6891	0	12.5	03-Mar-08	02-Feb-09	05-Jun-09		22-Nov-09	
114-T-3027	HCO SIDE STRIPPER	3	ANUP ENGG.	6891	0	12.5	03-Mar-08	02-Feb-09	05-Jun-09		22-Nov-09	
COMPRESSORS												
114-C-1001	Main Air Blower (MAB)	117	BHEL	6269	250	90.6	22-Mar-05	21-May-06	23-Feb-09	YES	01-Oct-09	Erection date of bare compressor
114-C-1002	Fluffing Compressor	164	Ingersoo-Rand, Ah'bad	6269	22	12	05-May-05	04-Mar-06	08-Apr-06	YES	14-Sep-09	Erection date of bare compressor
114-C-1003	AUXILIARY MAIN AIR BLOWER	5	BHEL	6891	230	29.25	29-Apr-08	15-Sep-08	29-May-10	YES	05-Jun-10	Bare compressor recd on 29.05.10. Erection date of bare compressor
EJECTORS												
114-J-1001	Steam Jet Ejector	248	New field Ind.	6269	0	0.28	15-Jul-05	14-Nov-05	03-Mar-06		02-Jul-10	
EXCHANGERS												
114-E-1001	FLUE GAS COOLER	0	THERMAX	6891	153	0	24-Jun-08	15-Jul-09	02-Feb-09	YES	30-Mar-10	PACKAGE **(Mechanical Completion date)**
114-E-3059	LCO Product/ Cat feed Exch	112	ITMMI, Mumbai	6269	0	6.585	04-Mar-05	03-Sep-05	23-Jan-06		02-Jan-10	
114-E-3060A	Slurry PA/HP Steam generator	128	Techno-Process	6269		8.889	02-Apr-05	01-Dec-05	11-May-06		10-Sep-09	
114-E-3060B	Slurry PA/HP Steam generator	128	Techno-Process,	6269	0	8.889	02-Apr-05	01-Dec-05	11-May-06		16-Oct-09	
114-E-3060C	Slurry PA/HP Steam generator	128	Techno-Process,	6269	0	8.889	02-Apr-05	01-Dec-05	11-May-06		09-Oct-09	
114-E-3060D	Slurry PA/HP Steam generator	128	Techno-Process,	6269	0	8.889	02-Apr-05	01-Dec-05	05-Jun-06		16-Oct-09	
114-E-3061	HCO PA/HP Steam Generator	129	ITMMI	6269	0	22.07	04-Apr-05	03-Oct-05	28-Apr-06		02-Jan-10	

3.3 EQUPMNET ERECTION STATUS

	DESCRIPTION	LOI_NO	VENDOR	JOB NO	FON QTY	WT (MT)	LOI DATE	CDD	RCVD_DATE	SITE ASSEMBELLY	ERCN DATE	REMARKS
114-E-3062A	Slurry/BFW Exch.	220	Tema India	6269	6	3	20-Jun-05	19-Feb-06	06-Apr-06		20-Oct-09	
114-E-3062B	Slurry BFW Exch.	220	Tema India	6269	0	3	20-Jun-05	19-Feb-06	06-Apr-06		20-Oct-09	
114-E-3065	HN PA Trim Cooler	249	Tema India	6269	3.8	4.5	15-Jul-05	14-Jul-06	18-Sep-06		09-Jul-09	
114-E-3067		111	Tema India	6269	0	4.25	04-Mar-05	03-Sep-05	06-Feb-06		21-Dec-09	
114-E-3068A	Spare Product Cooler	249	Tema India	6269	6.1	3.75	15-Jul-05	14-Jul-06	02-Nov-06		11-Jul-09	
114-E-3068B	Spare Product Cooler	249	Tema India	6269	0	3.75	15-Jul-05	14-Jul-06	02-Nov-06		11-Jul-09	
114-E-3069A	Main Fractionator OVHD Trim Condensate	249	Tema India	6269	0	15.65	15-Jul-05	14-Jul-06	02-Nov-06		09-Dec-09	
114-E-3069B	Main Fractionator OVHD Trim Condensate	249	Tema India	6269	0	15.65	15-Jul-05	14-Jul-06	02-Nov-06		16-Dec-09	
114-E-3069C	Main Fractionator OVHD Trim Condensate	249	Tema India	6269	0	15.65	15-Jul-05	14-Jul-06	04-Nov-06		09-Dec-09	
114-E-3069D	Main Fractionator OVHD Trim Condensate	249	Tema India	6269	0	15.65	15-Jul-05	14-Jul-06	04-Nov-06		20-Dec-09	
114-E-3069E	Main Fractionator OVHD Trim Condensate	249	Tema India	6269	0	15.65	15-Jul-05	14-Jul-06	17-Nov-06		22-Dec-09	
114-E-3069F	Main Fractionator OVHD Trim Condensate	249	Tema India	6269	0	15.65	15-Jul-05	14-Jul-06	17-Nov-06		22-Dec-09	
114-E-3070A	Slurry Cooler	249	Tema India	6269	13	2.95	15-Jul-05	14-Jul-06	27-Nov-06		07-Aug-09	
114-E-3070B	Slurry Cooler	249	Tema India	6269	0	2.95	15-Jul-05	14-Jul-06	27-Nov-06		07-Aug-09	
114-E-3070C	Slurry Cooler	249	Tema India	6269	0	2.95	15-Jul-05	14-Jul-06	24-Nov-06		07-Aug-09	
114-E-3070D	Slurry Cooler	249	Tema India	6269	0	2.95	15-Jul-05	14-Jul-06	24-Nov-06		07-Aug-09	
114-E-3071	LPG Vapouriser	194	Techno-Process	6269	4.5	0.99	08-Jun-05	07-Dec-05	13-Jan-06		01-Apr-10	
114-E-3072	LPG Superheater	193	UHEL, Coimbatore	6269	1.25	0.35	31-May-05	30-Nov-05	08-Dec-05		12-Jan-10	
114-E-3073A		361	Godrej & Boyce, ND	6269	12.2	17.6			10-Dec-06		25-Aug-09	
114-E-3073B		361	Godrej & Boyce, ND	6269	0	17.6	22-Dec-05	21-Nov-06	10-Dec-06		25-Aug-09	
114-E-3074A	HCO/BFW Exch.	327	UHEL, Coimbatore	6269	0	1.75	07-Nov-05	06-Jul-06	19-Jul-06		19-Dec-09	

3.3 EQUPMNET ERECTION STATUS

	DESCRIPTION	LOI_NO	VENDOR	JOB NO	FON QTY	WT (MT)	LOI DATE	CDD	RCVD_DATE	SITE ASSEMBELLY	ERCN DATE	REMARKS
114-E-3074B	HCO/BFW Exch.	327	UHEL, Coimbatore	6269	0	1.75	07-Nov-05	06-Jul-06	19-Jul-06		19-Dec-09	
114-E-3076A	RICH OIL/HN CR EXCHANGER	40	ANUP ENGG. LTD	6891	0	6.825	19-Sep-08	18-May-09	25-Jul-09		21-Dec-09	
114-E-3076B	RICH OIL/HN CR EXCHANGER	40	ANUP ENGG. LTD	6891	0	6.825	19-Sep-08	18-May-09	25-Jul-09		21-Dec-09	
114-E-3077A	HCO COOLER	4	PRICISION EQUIP.	6891	6.1	2.4	02-Apr-08	01-Mar-09	04-Mar-09		05-Aug-09	
114-E-3077B	HCO COOLER	4	PRICISION EQUIP.	6891	0	2.4	02-Apr-08	01-Mar-09	04-Mar-09		05-Aug-09	
114-E-3078A	CAT FEED/LCO PA EXCHANGER	41	TEMA INDIA LTD	6891	0	10.75	19-Sep-08	18-Jul-09	09-Nov-09		04-Jan-10	
114-E-3078B	CAT FEED/LCO PA EXCHANGER	41	TEMA INDIA LTD	6891	0	10.75	19-Sep-08	18-Jul-09	09-Nov-09		04-Jan-10	
114-E-3078C	CAT FEED/LCO PA EXCHANGER	41	TEMA INDIA LTD	6891	0	10.75	19-Sep-08	18-Jul-09	09-Nov-09		06-Jan-10	
114-E-3078D	CAT FEED/LCO PA EXCHANGER	41	Subs with 14-E-28D	69(LOI 19	0	10.75	19-Sep-08	18-Jul-09			06-Jan-10	
114-E-3079A	CAT FEED/HCO PA	42	TEAMCO HITECH ENGG LTD.	6891	0	9.8	01-Oct-08	30-May-09	14-Jul-09		04-Jan-10	
114-E-3079B	CAT FEED/HCO PA	42	TEAMCO HITECH ENGG LTD.	6891	0	9.8	01-Oct-08	30-May-09	14-Jul-09		04-Jan-10	
114-E-3080A	RESIDUE/CAT FEED EXCHANGER	40	ANUP ENGG	6891	6.4	9.25	19-Sep-08	18-May-09	12-Jan-10		13-Jan-10	
114-E-3080B	RESIDUE/CAT FEED EXCHANGER	40	ANUP ENGG	6891	0	9.25	19-Sep-08	18-May-09	12-Jan-10		13-Jan-10	
114-E-3080C	RESIDUE/CAT FEED EXCHANGER	40	ANUP ENGG	6891	0	9.25	19-Sep-08	18-May-09	12-Jan-10		13-Jan-10	
EXPANSION JOINT												
114-X-1005	REGENERATED CATALYST STAND PIPE EXPANSION	176	Flexider SRL Italy	6891	0	0.0558	23-Apr-09	22-Sep-09	17-Dec-09		01-Jan-11	
114-X-1006	SPENT CATALYST STAND PIPE EXPANSION JOINT	176	Flexider SRL Italy	6891	0	0.061	23-Apr-09	22-Sep-09	17-Dec-09		01-Jan-11	
114-X-1007	RECIRCULATION CATALYST STAND PIPE	176	Flexider SRL Italy	6891	0	0.0541	23-Apr-09	22-Sep-09	17-Dec-09		27-Oct-10	
114-X-1008	FLEU GAS LINE EXPANSION JOINT	176	Flexider SRL Italy	6891	0	0.156	23-Apr-09	22-Sep-09	17-Dec-09		22-Jan-10	
FILTERS												
114-FIL-1001	DUST CONTROL UNIT (FRESH CAT. STORAGE	208	PALL INDIA PVT. LTD.	6891	0	2.8	14-May-09	28-Dec-09	30-Jan-10		31-Mar-10	

3.3 EQUPMNET ERECTION STATUS

	DESCRIPTION	LOI_NO	VENDOR	JOB NO	FON QTY	WT (MT)	LOI DATE	CDD	RCVD_DATE	SITE ASSEMBELLY	ERCN DATE	REMARKS
114-FIL-1002	DUST CONTROL UNIT (FRESH CAT. STORAGE	208	PALL INDIA PVT. LTD.	6891	0	2.8	14-May-09	28-Dec-09	30-Jan-10		31-Mar-10	
114-X-1022	RAW OIL FILTER	425	FIL sep equipments	6891	0.4	0.76	17-Mar-10	12-May-10	06-Jul-10		15-Jul-10	
120-FIL-2001	Sweet Fuel Gas Filter Separator	260	Grand Prix	6269	0	0.75	28-Jul-05	27-Jan-06	26-Mar-06		10-Jun-09	
FURNACE												
114-F-3001	FCCU FEED FURNACE	113	THERMAX	6891	145	248	06-Jan-09	05-Dec-09	15-Dec-09	YES	06-Dec-10	**PACKAGE (Mechanical Completion date)**
ORIFICE CHAMBER												
114-D-1001	Orifce Chamber	142	Larsen & Toubro	6269		10	06-Apr-05	20-Jun-06	01-Jan-09		06-Aug-09	
PUMPS												
114-P-3060A	Main Frac. Bottom Booster Pump	133	KSB Pumps	6269	7.4	1.5	04-Apr-05	03-Oct-05	10-Dec-05		16-Dec-09	
114-P-3060B	Main Frac. Bottom Booster Pump	133	KSB Pumps	6269	0	1.5	04-Apr-05	03-Oct-05	10-Dec-05		17-Dec-09	
114-P-3062A	HCO PA pump	422	Sulzer Pump -ND	6269	17.6	5.627	31-Jan-06	30-Jan-07	21-Dec-06		09-Dec-09	
114-P-3062B	HCO PA pump	422	Sulzer Pump -ND	6269	0	5.627	31-Jan-06	30-Jan-07	21-Dec-06		09-Dec-09	
114-P-3063A	Main Frac. SW pump	15	FLOWSERVE INDIA CONTROLS PVT. LTD.	6891	7.4	1.024	29-Nov-08	28-Apr-09	21-Apr-09		30-Oct-09	
114-P-3063B	Main Frac. SW pump	15	FLOWSERVE INDIA CONTROLS PVT. LTD.	6891	0	1.024	29-Nov-08	28-Apr-09	21-Apr-09		30-Oct-09	
114-P-3064A	HN PA Pump	134	Kirloskar Ebara, Pune	6269	10	1.5	04-Apr-05	03-Feb-06	07-Nov-05		09-Nov-09	
114-P-3064B	HN PA Pump	134	Kirloskar Ebara, Pune	6269	0	1.5	04-Apr-05	03-Feb-06	07-Nov-05		09-Nov-09	
114-P-3068A	LCO Product Pump	290	Flowserve	6269	8.2	1.15	09-Sep-05	08-May-06	12-Jun-05		28-Nov-09	
114-P-3068B	LCO Product Pump	290	Flowserve	6269		1.15	09-Sep-05	08-May-06	12-Jun-05		28-Nov-09	
114-P-3070A	HCN+LEAN OIL PUMPS	6	KEPL	6891	10	2	16-May-08	10-Dec-08	30-Mar-09		01-Dec-09	
114-P-3070B	HCN+LEAN OIL PUMPS	6	KEPL	6891		2	16-May-08	10-Dec-08	30-Mar-09		01-Dec-09	
114-P-3070C	HCN+LEAN OIL PUMPS	6	Substituted by 14-P-27 C	6891	5	1	16-May-08	15-Jul-09	26-Jun-07		01-Dec-09	

3.3 EQUPMNET ERECTION STATUS

	DESCRIPTION	LOI_NO	VENDOR	JOB NO	FON QTY	WT (MT)	LOI DATE	CDD	RCVD_DATE	SITE ASSEMBELLY	ERCN DATE	REMARKS
114-P-3071A	LCO PA PUMPS	15	FLOWSERVE INDIA	6891		5	29-Jul-08	28-Apr-09	21-Apr-09		16-Dec-09	
114-P-3071B	LCO PA PUMPS	15	FLOWSERVE INDIA	6891		5	29-Jul-08	28-Apr-09	21-Apr-09		16-Dec-09	
114-P-3072A	MF REFLUX PUMPS	16	KSB PUMPS	6891	10.2	2	29-Jul-08	28-Apr-09	29-Jun-09		10-Nov-09	
114-P-3072B	MF REFLUX PUMPS	16	KSB PUMPS	6891		2	29-Jul-08	28-Apr-09	29-Jun-09		10-Nov-09	
114-P-3073A	HCO PRODUCT PUMPS	15	FLOWSERVE INDIA	6891	8.22	4.4	29-Jul-08	28-Apr-09	21-Apr-09		30-Nov-09	
114-P-3073B	HCO PRODUCT PUMPS	15	FLOWSERVE INDIA	6891		4.4	29-Jul-08	28-Apr-09	21-Apr-09		30-Nov-09	
114-P-3074A	CAT FEED PUMP	6	KEPL	6891		3	16-May-08	10-Dec-08	29-Jul-09		10-Nov-09	
114-P-3074B	CAT FEED PUMP	6	KEPL	6891		3	16-May-08	10-Dec-08	29-Jul-09		10-Nov-09	
114-P-3074C	CAT FEED PUMP	134	Substituted by 14-P-33 C	6269	6.6	1.5	31-Mar-09	30-Jun-09	15-Dec-09		16-Nov-09	
114-P-3075A	MF BOTTOMS PUMP	114	Kirloskar Ebara Pumps Ltd., Pune	6891	35	4.2	16-Jan-09	15-Dec-09	28-Nov-09		25-Dec-09	
114-P-3075B	MF BOTTOMS PUMP	114	Kirloskar Ebara Pumps Ltd., Pune	6891		4.2	16-Jan-09	15-Dec-09	28-Nov-09		25-Dec-09	
114-P-3076A	LCN PUMPS	7	SULZER PUMPS INDIA PVT. LTD.	6891		6	16-May-08	15-Dec-08	31-Dec-08		30-Oct-09	
114-P-3076B	LCN PUMPS	7	SULZER PUMPS INDIA PVT. LTD.	6891		6	15-May-08	15-Dec-08	31-Dec-08		30-Oct-09	
114-P-3076C	LCN PUMPS	7	SULZER PUMPS INDIA PVT. LTD.	6891		3	15-May-08	15-Dec-08	31-Dec-08		30-Oct-09	
114-P-3077A	INST. FLUSHING OIL PUMP	125	UT Pumps	6891	3.4	4.4	04-Mar-09	19-Aug-09	15-Dec-09		25-Dec-09	
114-P-3077B	INST. FLUSHING OIL PUMP	125	UT Pumps	6891		4.4	04-Mar-09	19-Aug-09	15-Dec-09		25-Dec-09	
114-P-3078A	FLUSHING OIL PUMP	212	SULZER PUMPS	6891	8	2.836	30-May-09	29-Dec-09	31-Dec-09		25-Dec-09	
114-P-3078B	FLUSHING OIL PUMP	212	SULZER PUMPS	6891		2.836	30-May-09	29-Dec-09	31-Dec-09		25-Dec-09	
120-P-1001A	AMINE BLOWDOWN DRUM	56	Kishore Pumps Pvt Ltd , Pune	6891	0	0.35	20-Oct-08	19-Apr-09	04-Aug-10		12-Oct-10	
120-P-1001S	AMINE BLOWDOWN DRUM	56	Kishore Pumps Pvt Ltd , Pune	6891	0	0.35	20-Oct-08	19-Apr-09	04-Aug-10		12-Oct-10	
REACTOR REGENARATOR												

3.3 EQUPMNET ERECTION STATUS

	DESCRIPTION	LOI_NO	VENDOR	JOB NO	FON QTY	WT (MT)	LOI DATE	CDD	RCVD_DATE	SITE ASSEMBELLY	ERCN DATE	REMARKS
114-CY-1001A	REACTOR CYCLONE	104	VAN TONGERENG	6269	0	7.16	23-Feb-05	22-Oct-05	05-Jan-06		25-Feb-09	
114-CY-1001B	REACTOR CYCLONE	104	VAN TONGERENG	6269	0	7.16	23-Feb-05	22-Oct-05	05-Jan-06		28-Feb-09	
114-CY-1001C	REACTOR CYCLONE	104	VAN TONGERENG	6269	0	7.16	23-Feb-05	22-Oct-05	05-Jan-06		03-Mar-09	
114-CY-1001D	REACTOR CYCLONE	104	VAN TONGERENG	6269	0	7.16	23-Feb-05	22-Oct-05	05-Jan-06		01-Mar-09	
114-CY-1002A	REGENARATOR CYCLONE	104	VAN TONGERENG	6269	0	8.57	23-Feb-05	22-Oct-05	05-Jan-06		15-Feb-09	
114-CY-1002B	REGENARATOR CYCLONE	104	VAN TONGERENG	6269	0	8.57	23-Feb-05	22-Oct-05	05-Jan-06		18-Feb-09	
114-CY-1002C	REGENARATOR CYCLONE	104	VAN TONGERENG	6269	0	8.57	23-Feb-05	22-Oct-05	05-Jan-06		21-Feb-09	
114-CY-1002D	REGENARATOR CYCLONE	104	VAN TONGERENG	6269	0	8.57	23-Feb-05	22-Oct-05	05-Jan-06		22-Feb-09	
114-CY-1002E	REGENARATOR CYCLONE	104	VAN TONGERENG	6269	0	8.57	23-Feb-05	22-Oct-05	05-Jan-06		25-Feb-09	
114-F-1001	AIR HEATER	297	Callidus	6269	0	0	09-Sep-05	08-May-06	05-Oct-07		12-Dec-08	
114-R-1001	REACTOR	142	Larsen & Toubro	6269	1350	540	06-Apr-05	20-Jun-06	03-Feb-09		06-Jul-09	
114-R-1002	REGENARATOR	142	Larsen & Toubro	6269	0	225	06-Apr-05	20-Jun-06	03-Feb-09		06-Jul-09	
SKIDS												
114-D-3037	APS TANK (LZ-3070)	347	MILTON ROY	6891	1.45	0.81	07-Dec-05	06-Jun-06	07-Apr-10		12-Apr-10	
114-D-3038	CAT FEED SURGE DRUM	347	MILTON ROY	6891		0.58	07-Dec-05	06-Jun-06	07-Apr-10		12-Apr-10	
114-LZ-3070	APS Dosing Sys (D-3037, P-3067A/B	347	MILTON ROY	6891	13.5	1.5	07-Dec-05	06-Jun-06	07-Apr-10		12-Apr-10	
114-LZ-3071	Metal Passivator (D-3038, P-3069A/B)	347	MILTON ROY	6891	0	2.62	07-Dec-05	06-Jun-06	07-Apr-10		12-Apr-10	
114-P-3067A	APS DOSING PUMP	347	MILTON ROY	6891		0.045	07-Dec-05	06-Jun-06	07-Apr-10		12-Apr-10	
114-P-3067B	APS DOSING PUMP	347	MILTON ROY	6891		0.045	07-Dec-05	06-Jun-06	07-Apr-10		12-Apr-10	
114-P-3069A	METAL PASSIVATOR DOSING PUMPS	347	MILTON ROY	6891		0.032	07-Dec-05	06-Jun-06	07-Apr-10		12-Apr-10	
114-P-3069B	METAL PASSIVATOR DOSING PUMPS	347	MILTON ROY	6891		0.032	07-Dec-05	06-Jun-06	07-Apr-10		12-Apr-10	

3.3 EQUPMNET ERECTION STATUS

	DESCRIPTION	LOI_NO	VENDOR	JOB NO	FON QTY	WT (MT)	LOI DATE	CDD	RCVD_DATE	SITE ASSEMBELLY	ERCN DATE	REMARKS
SLIDE VALVE												
114-X-1001	SLIDE VALVE	110	Remosa S. p.a.	6269	0	7.98	14-Apr-05	13-Oct-05	07-Feb-06		25-Mar-09	
114-X-1002	SPENT CATALYST SLIDE VALVE	110	Remosa S. p.a.	6269	0	4.4	14-Apr-05	13-Oct-05	07-Feb-06		28-Mar-09	
114-X-1003	RECIRCULATION CATALYST SLIDE VALVE	110	Remosa S. p.a.	6269	0	9.3	14-Apr-05	13-Oct-05	07-Feb-06		29-Mar-09	
114-X-1004	FLEU GAS SLIDE VALVE	110	Remosa S. p.a.	6269	0	9.88	14-Apr-05	13-Oct-05	07-Feb-06		01-Apr-09	
SPECIAL CHECK VALVE												
114-X-1010	MAB DISCHARGE SPRCIAL CHECK VALVE	272	Weir Valves & Controls USA	6269	0	0	08-Sep-05	23-Mar-06	22-Jul-06		29-Aug-10	
114-X-1011	REGENERATOR INLET AIR SPECIAL CHECK VALVE	272	Weir Valves & Controls USA	6269	0	0	08-Sep-05	23-Mar-06	22-Jul-06		22-Feb-10	
114-X-1012	REGENERATOR INLET FLUFFING AIR SPECIAL	272	Weir Valves & Controls USA	6269	0	0	08-Sep-05	23-Mar-06	22-Jul-06		20-Feb-10	
SPECIAL CHECK VALVE												
114-X-1009	AUXILIAR MAB DISCHARGE SPRCIAL	272	Weir Valves & Controls USA	6269	0	0	08-Sep-05	23-Mar-06	22-Jul-06		27-Aug-10	
VESSELS												
114-D-1002	Spent cat. Stripper Separator	305	V. H. Engineers	6269		1.4	19-Sep-05	18-Mar-06	05-Apr-06		27-Dec-09	
114-D-1003	Feed Steam Separator	305	V. H. Engineers	6269		1	19-Sep-05	18-Mar-06	05-Apr-06		09-Dec-09	
114-D-1004	DFAH Fuel Gas KOD	158	Phils Heavy Engg.	6269	2	1.6	29-Apr-05	28-Dec-05	10-Feb-06		16-Apr-09	
114-D-1005	Ejector Steam Separator	305	V. H. Engineers	6269		0.47	19-Sep-05	18-Mar-06	05-Apr-06		06-May-09	
114-D-3020	Frac. O/h Accumilator	271	ITMMI	6269		40	08-Sep-05	07-May-05	01-Aug-06	SITE WELDING	26-May-09	
114-D-3030	Plant Fuel KOD	158	Phils Heavy Engg.	6269	1.1	0.95	29-Apr-05	28-Dec-05	09-Dec-05		10-Jan-10	
114-D-3031	Plant Air KOD	158	Phils Heavy Engg.	6269	1.1	0.85	29-Apr-05	28-Dec-05	18-Jan-06		08-Jan-10	
114-D-3035	STEAM BLOWDOWN DRUM	109	MEENAKSHI ASSOCIATES PVT. LTD.	6891	1.7	0.46	23-Dec-08	22-Jun-09	04-Aug-09		05-Jun-09	
114-D-3039	CAT FEED SURGE DRUM	19	EXPO GA CONTAINERS LTD	6891	0	26	31-Jul-08	30-Apr-09	28-May-09		08-Jul-09	

3.3 EQUPMNET ERECTION STATUS

	DESCRIPTION	LOI_NO	VENDOR	JOB NO	FON QTY	WT (MT)	LOI DATE	CDD	RCVD_DATE	SITE ASSEMBELLY	ERCN DATE	REMARKS
114-D-3040	INST. FLUSHING OIL DRUM	24	RELIANCE FABRICATIONS PVT. LTD.,	6891	8.5	2.7	31-Jul-08	30-Apr-09	21-Jul-09		23-Jul-09	
114-D-3042	DECOKING DRUM	20	FURNACE FABRICATIONS PVT. LTD.	6891	15	1.8	31-Jul-08	30-Apr-09	14-Aug-09		08-Jan-10	
114-H-1001	Fresh Cat Stronge Hopper	202	EXPO GAS CONTAINERS LTD	6891	0	7.7	14-May-09	11-Nov-09	07-Oct-09		30-Jan-10	
114-H-1002	EQUILIBRIUM CATALYST STORAGE HOPPER	270	MULTITEX FILTRATION ENGG. LTD	6269	0	97	31-Jul-09	30-Sep-09	15-May-07		18-Jan-10	
120-D-1002	AMINE BLOWDOWN DRUM	19	EXPO GAS CONTAINERS LTD	6891	0	8.5	31-Jul-08	30-Apr-09	09-Jun-09	U/G Vessel	20-May-10	
AIR FIN COOLERS												
114-AFC-3001 A	MF OH Air Cooler	236	Paharpur CT, Calcutta	6269	0	15.55	30-Jun-05	29-Jan-06	14-Sep-06	YES	Jul-10	
114-AFC-3001 B	MF OH Air Cooler	236	Paharpur CT, Calcutta	6269	0	15.55	30-Jun-05	29-Jan-06	14-Sep-06	YES	Jul-10	
114-AFC-3001 C	MF OH Air Cooler	236	Paharpur CT, Calcutta	6269	0	15.55	30-Jun-05	29-Jan-06	14-Sep-06	YES	Jul-10	
114-AFC-3001 D	MF OH Air Cooler	236	Paharpur CT, Calcutta	6269	0	15.55	30-Jun-05	29-Jan-06	14-Sep-06	YES	Jul-10	
114-AFC-3001 E	MF OH Air Cooler	236	Paharpur CT, Calcutta	6269	0	15.55	30-Jun-05	29-Jan-06	14-Sep-06	YES	Jul-10	
114-AFC-3001 F	MF OH Air Cooler	236	Paharpur CT, Calcutta	6269	0	15.55	30-Jun-05	29-Jan-06	14-Sep-06	YES	Jul-10	
114-AFC-3001 G	MF OH Air Cooler	236	Paharpur CT, Calcutta	6269	0	15.55	30-Jun-05	29-Jan-06	14-Sep-06	YES	Jul-10	
114-AFC-3001 H	MF OH Air Cooler	236	Paharpur CT, Calcutta	6269	0	15.55	30-Jun-05	29-Jan-06	14-Sep-06	YES	Jul-10	
114-AFC-3001 I	MF OH Air Cooler	236	Paharpur CT, Calcutta	6269	0	15.55	30-Jun-05	29-Jan-06	14-Sep-06	YES	Jul-10	
114-AFC-3001 J	MF OH Air Cooler	236	Paharpur CT, Calcutta	6269	0	15.55	30-Jun-05	29-Jan-06	14-Sep-06	YES	Jul-10	
114-AFC-3001 K	MF OH Air Cooler	236	Paharpur CT, Calcutta	6269	0	15.55	30-Jun-05	29-Jan-06	14-Sep-06	YES	Jul-10	
114-AFC-3001 L	MF OH Air Cooler	236	Paharpur CT, Calcutta	6269	0	15.55	30-Jun-05	29-Jan-06	14-Sep-06	YES	Jul-10	
114-AFC-3002A	LCO PA Air Cooler	236	Paharpur CT, Calcutta	6269	0	14.65	30-Jun-05	29-Jan-06	21-Jun-06	YES	Jul-10	
114-AFC-3002B	LCO PA Air Cooler	236	Paharpur CT, Calcutta	6269	0	14.65	30-Jun-05	29-Jan-06	21-Jun-06	YES	Jul-10	
114-AFC-3003A	LCO PRDT Air Cooler	236	Paharpur CT, Calcutta	6269	0	12.35	30-Jun-05	29-Jan-06	04-Apr-06	YES	Jul-10	

3.3 EQUPMNET ERECTION STATUS

	DESCRIPTION	LOI_NO	VENDOR	JOB NO	FON QTY	WT (MT)	LOI DATE	CDD	RCVD_DATE	SITE ASSEMBELLY	ERCN DATE	REMARKS
114-AFC-3003B	LCO PRDT Air Cooler	236	Paharpur CT, Calcutta	6269	0	12.35	30-Jun-05	29-Jan-06	04-Apr-06	YES	Jul-10	
2. GCU												
COLUMNS												
114-T-3020	Primary Absorber	85	Techno-Process	6269	95	52.2	31-Dec-05	30-Nov-05	02-Apr-06	YES	12-Oct-08	ERCN COMPLETED BEFORE CIVIL WORKS
114-T-3021	Stripper	147	GR Engg.	6269	184	83.63	08-Apr-05	07-Mar-06	03-Oct-06	YES	12-Oct-08	ERCN COMPLETED BEFORE CIVIL WORKS
114-T-3022	Debutanizer column	86	ISGEC, Haryana	6269	0	130.8	31-Dec-05	30-Nov-05	25-May-06		18-Oct-08	ERCN COMPLETED BEFORE CIVIL WORKS
114-T-3023	Sponge absorber	173	RD Engineers	6269	0	24	13-May-05	12-Jan-06	28-Nov-06		14-Oct-08	ERCN COMPLETED BEFORE CIVIL WORKS
120-T-1001	Sponge Absorber	173	RD Engineers	6269	21	18.2	13-May-05	12-Jan-06	10-Sep-06		19-Oct-08	ERCN COMPLETED BEFORE CIVIL WORKS
COMPRESSORS												
114-C-3020	Wet Gas Compressor (WGC)	117	BHEL	6269	190	69.4	22-Mar-05	21-May-06	23-Feb-09	YES	06-May-09	
EXCHANGERS												
114-E-3050A	WGC Inter Stage Condensor	249	Tema India	6269	0	12.65	15-Jul-05	14-Jul-06	27-Jan-07		18-Aug-09	
114-E-3050B	WGC Inter Stage Condensor	249	Tema India	6269	0	12.65	15-Jul-05	14-Jul-06	27-Jan-07		18-Aug-09	
114-E-3050C	WGC Inter Stage Condensor	249	Tema India	6269	0	12.65	15-Jul-05	14-Jul-06	27-Jan-07		26-Aug-09	
114-E-3050D	WGC Inter Stage Condensor	249	Tema India	6269	0	12.65	15-Jul-05	14-Jul-06	27-Jan-07		26-Aug-09	
114-E-3051A	WGC After Cooler	249	Tema India	6269	0	18.1	15-Jul-05	14-Jul-06	27-Jan-07		24-Sep-09	
114-E-3051B	WGC After Cooler	249	Tema India	6269	0	18.1	15-Jul-05	14-Jul-06	27-Jan-07		24-Sep-09	
114-E-3051C	WGC After Cooler	249	Tema India	6269	0	18.1	15-Jul-05	14-Jul-06	27-Jan-07		24-Sep-09	
114-E-3051D	WGC After Cooler	249	Tema India	6269	0	18.1	15-Jul-05	14-Jul-06	27-Jan-07		24-Sep-09	
114-E-3054A	Stripper Reboiler Cond Pot	111	Tema India	6269	11.5	10.26	04-Mar-05	03-Sep-05	17-Mar-06		09-May-09	
114-E-3054B	Stripper Reboiler Cond Pot	111	Tema India	6269	0	10.26	04-Mar-05	03-Sep-05	13-Mar-06		09-May-09	

3.3 EQUPMNET ERECTION STATUS

	DESCRIPTION	LOI_NO	VENDOR	JOB NO	FON QTY	WT (MT)	LOI DATE	CDD	RCVD_DATE	SITE ASSEMBELLY	ERCN DATE	REMARKS
114-E-3055A	Debutanizer Reboiler 1 & 2	137	Tema India	6269	5.25	12.4	04-Apr-05	03-Dec-05	19-Jun-06		25-Apr-09	
114-E-3055B	Debutanizer Reboiler 1 & 2	137	Tema India	6269	0	12.4	04-Apr-05	03-Dec-05	19-Jun-06		25-Apr-09	
114-E-3056A	Debutanizer Feed/Bottom Exch.	111	Tema India	6269	10	10.275	04-Mar-05	03-Sep-05	24-Feb-06		25-Apr-09	
114-E-3056B	Debutanizer Feed/Bottom Exch.	111	Tema India	6269	0	10.275	04-Mar-05	03-Sep-05	24-Feb-06		15-Apr-09	
114-E-3057A	Debutanizer O/H Condenser	140	Larsen & Toubro	6269	0	24	06-Apr-05	05-Apr-06	20-Jan-10		21-Jan-10	
114-E-3057B	Debutanizer O/H Condenser	140	Larsen & Toubro,	6269	0	24	06-Apr-05	05-Apr-06	20-Jan-10		21-Jan-10	
114-E-3057C	Debutanizer O/H Condenser	140	Larsen & Toubro,	6269	0	24	06-Apr-05	05-Apr-06	04-Oct-07		22-Sep-09	
114-E-3057D	Debutanizer O/H Condenser	140	Larsen & Toubro,	6269	0	24	06-Apr-05	05-Apr-06	04-Oct-07		22-Sep-09	
114-E-3058	Stripper Feed Heater	220	Tema India	6269	4	7.15	20-Jun-05	19-Feb-06	04-Aug-06		25-May-09	
114-E-3063		149	Rolle S.p.a., Italy	6269	2	1.75	08-Apr-05	07-Apr-06	29-Jun-06		20-May-09	
114-E-3066	PR ABS Inter Cooler	249	Tema India	6269	6.1	8.5	15-Jul-05	14-Jul-06	25-Sep-06		25-May-09	
114-E-3081A	DEBUTANISER NAPHTHA COOLER	4	PRICISION EQUIP.	6891	6.1	8.5	02-Apr-08	01-Mar-09	04-Mar-09		28-May-09	
114-E-3081B	DEBUTANISER NAPHTHA COOLER	4	PRICISION EQUIP.	6891	0	8.5	02-Apr-08	01-Mar-09	04-Mar-09		28-May-09	
114-E-3082A	NH LEAN OIL TRIM COOLER	4	PRICISION EQUIP.	6891	6.4	8.8	02-Apr-08	01-Mar-09	04-Mar-09		27-May-09	
114-E-3082B	NH LEAN OIL TRIM COOLER	4	PRICISION EQUIP.	6891	0	8.8	04-Apr-08	01-Mar-09	04-Mar-09		27-May-09	
114-E-3083	L.P. Ccondensate Water Cooler	112	PRECISION EQUIPMENT (CHENNAI) PVT. LTD	6891	3	2	02-Jan-09	01-Oct-09	04-Nov-09		14-Nov-09	
114-E-3084		210	PATELS AIRTEMP	6891		5	22-May-09	21-Nov-09	30-Jan-10		03-Mar-10	
FILTERS												
120-FIL-1001	Sweet Fuel Gas Filter Separator	260	Grand Prix Fab (P) Ltd.	6269	0	0.75	28-Jul-05	27-Jan-06	31-Mar-06		12-Jun-09	-
PUMPS												
114-P-3050A	WGC Suc. KOD Pump	134	Kirloskar Ebara, Pune	6269	8	1	04-Apr-05	03-Feb-06	07-Nov-05		04-Jun-09	

3.3 EQUPMNET ERECTION STATUS

	DESCRIPTION	LOI_NO	VENDOR	JOB NO	FON QTY	WT (MT)	LOI DATE	CDD	RCVD_DATE	SITE ASSEMBELLY	ERCN DATE	REMARKS
114-P-3050B	WGC Suc. KOD Pump	134	Kirloskar Ebara, Pune	6269	0	1	04-Apr-05	03-Feb-06	07-Nov-05		04-Jun-09	
114-P-3051A	Comp I/S Pump	217	KSB Pumps	6269	10.9	2.208	14-Jun-05	13-Dec-05	03-Mar-06		04-Jun-09	
114-P-3051B	Comp I/S Pump	217	KSB Pumps	6269	0	2.208	14-Jun-05	13-Dec-05	03-Mar-06		04-Jun-09	
114-P-3052A	Primary Absorber Bottom Pump	151	Sulzer Pump -ND	6269	8.1	1.419	11-Apr-05	10-Oct-05	14-Nov-05		03-Jun-09	
114-P-3052B	Primary Absorber Bottom Pump	151	Sulzer Pump -ND	6269	0	1.419	11-Apr-05	10-Oct-05	14-Nov-05		03-Jun-09	
114-P-3053A	I/S Wash water Pump	134	Kirloskar Ebara, Pune	6269	10	1.574	04-Apr-05	03-Feb-06	14-Nov-05		03-Jun-09	
114-P-3053B	I/S Wash water Pump	134	Kirloskar Ebara, Pune	6269	0	1.574	04-Apr-05	03-Feb-06	14-Nov-05		03-Jun-09	
114-P-3054A	Stripper Feed Pump	134	Kirloskar Ebara, Pune	6269	35.6	6.15	04-Apr-05	03-Feb-06	14-Nov-05		03-Jun-09	
114-P-3054B	Stripper Feed Pump	134	Kirloskar Ebara, Pune	6269	0	6.15	04-Apr-05	03-Feb-06	14-Nov-05		03-Jun-09	
114-P-3055A	Debutaniser Reflux Pump	151	Sulzer Pump -ND	6269	8.1	1.419	11-Apr-05	10-Oct-05	14-Nov-05		06-Jun-09	
114-P-3055B	Debutaniser Reflux Pump	151	Sulzer Pump -ND	6269	0	1.419	11-Apr-05	10-Oct-05	14-Nov-05		06-Jun-09	
114-P-3056A	Stab. Naptha Recycle Pump	217	KSB Pumps	6269	10	1.879	14-Jun-05	13-Dec-05	25-Feb-06		30-May-09	
114-P-3056B	Stab. Naptha Recycle Pump	217	KSB Pumps	6269	0	1.879	14-Jun-05	13-Dec-05	25-Feb-06		30-May-09	
114-P-3057A	Lean Oil Pump	134	Kirloskar Ebara, Pune	6269	10	1.667	04-Apr-05	03-Feb-06	07-Nov-05		02-Jun-09	
114-P-3057B	Lean Oil Pump	134	Kirloskar Ebara, Pune	6269	0	1.667	04-Apr-05	03-Feb-06	07-Nov-05		02-Jun-09	
114-P-3058A	LPG Product Pump	151	Sulzer Pump -ND	6269	9.1	1.934	11-Apr-05	10-Oct-05	01-Dec-05		20-Jun-09	
114-P-3058B	LPG Product Pump	151	Sulzer Pump -ND	6269	0	1.934	11-Apr-05	10-Oct-05	01-Dec-05		20-Jun-09	
114-P-3059A	Abs. Inter Cooler Pump	421	Flowserve -ND	6269	7.2	1.257	31-Jan-06	30-Aug-06	14-Oct-06		03-Jun-09	
114-P-3059B	Abs. Inter Cooler Pump	421	Flowserve -ND	6269	0	1.257	31-Jan-06	30-Aug-06	14-Oct-06		03-Jun-09	
114-P-3061A	Abs. Inter Cooler Pump	219	Sulzer Pump -ND	6269	6.22	0.75	14-Jun-05	13-Dec-05	01-Mar-06		30-May-09	
114-P-3061B	Abs. Inter Cooler Pump	219	Sulzer Pump -ND	6269	0	0.75	14-Jun-05	13-Dec-05	01-Mar-06		30-May-09	

3.3 EQUPMNET ERECTION STATUS

	DESCRIPTION	LOI_NO	VENDOR	JOB NO	FON QTY	WT (MT)	LOI DATE	CDD	RCVD_DATE	SITE ASSEMBELLY	ERCN DATE	REMARKS
114-P-3065A	Condensate Pump	290	Flowserve	6269	6.24	0.672	09-Sep-05	08-May-06	08-Jun-06		02-Jun-09	
114-P-3065B	Condensate Pump	290	Flowserve	6269	0	0.672	09-Sep-05	08-May-06	08-Jun-06		02-Jun-09	
114-P-3066A	CBD Pump	55	Kirloskar Brothers, Pune	6891	6.1	0.8	20-Oct-08	21-Apr-09	28-Jan-10		30-Jan-10	
114-P-3066S	CBD Pump	55	Kirloskar Brothers, Pune	6891	0	0.8	20-Oct-08	21-Apr-09	28-Jan-10		30-Jan-10	
VESSELS												
114-D-3021	WGC Suction KOD	157	Techno-Process	6269	5	15.5	29-Apr-05	28-Dec-05	23-May-06		28-Feb-09	
114-D-3022	WGC I/S KOD	157	Techno-Process	6269	0	21.283	29-Apr-05	28-Dec-05	29-Mar-06		07-Aug-09	
114-D-3023	HP seprator	147	GR Engg.	6269	0	59.5	08-Apr-05	07-Mar-06	20-Oct-06		14-Sep-09	
114-D-3024	Debutanizer Reflux Drum	159	ISGEC, Haryana	6269	0	38.5	03-May-05	02-Mar-06	20-Apr-06		19-Aug-09	
114-D-3025	Stripper Water Separator	157	Techno-Process	6269	2	0.65	29-Apr-05	28-Dec-05	04-Feb-06		23-May-09	
114-D-3026	Stripper Reboiler Cond. Pot	158	Phils Heavy Engg.	6269	1	0.85	29-Apr-05	28-Dec-05	17-Dec-05		18-Apr-09	
114-D-3027	Debutanizer Reboiler Cond. Pot	158	Phils Heavy Engg.	6269	1.45	0.95	29-Apr-05	28-Dec-05	17-Dec-05		27-Sep-09	
114-D-3028	Closed Blowdown Drum	23	PATEL AIRTEMP	6891	87.5	12	29-Apr-05	28-Dec-05	10-Oct-09	U/G Vessel	20-May-10	
114-D-3029	Coalescer	259	Ravi Techno	6269	2	5	28-Jul-05	27-Jan-06	15-Jan-07		28-May-09	
114-D-3032	Coalescer	259	Ravi Techno	6269	7	7.7	28-Jul-05	27-Jan-06	02-Apr-07		13-Jun-09	
114-D-3033	IBR Vessels	22	New Field	6891	4.6	25.5	30-Jul-08	30-Apr-09	29-Jan-10		02-Feb-10	
114-D-3034	Condensate Flash Drum	293	Raj Engg. Co. Thane	6269	4.5	2.2	09-Sep-05	08-Mar-06	12-Jun-06		11-Apr-09	
114-D-3036	Atm. Condensate Flash Drum	293	Raj Engg. Co. Thane	6269	10	4.1	09-Sep-05	08-Mar-06	12-Jun-06		11-Apr-09	
120-D-1001	SOUR FUEL GAS KOD	324	ISGEC, Haryana	6269	11	4.7	11-Oct-05	10-Jul-06	30-Sep-06		16-Apr-09	
AIR FIN COOLERS												
114-AFC-3004A	Stablised Naptha Air Cooler	236	Paharpur CT, Calcutta	6269	0	13.64	30-Jun-05	29-Jan-06	06-May-06	YES	14-Apr-10	

3.3 EQUPMNET ERECTION STATUS

	DESCRIPTION	LOI_NO	VENDOR	JOB NO	FON QTY	WT (MT)	LOI DATE	CDD	RCVD_DATE	SITE ASSEMBELLY	ERCN DATE	REMARKS
114-AFC-3004B	Stablised Naptha Air Cooler	236	Paharpur CT, Calcutta	6269	0	13.64	30-Jun-05	29-Jan-06	06-May-06	YES	14-Apr-10	
114-AFC-3005A	HN Lean Air Cooler	236	Paharpur CT, Calcutta	6269	0	14.14	30-Jun-05	29-Jan-06	24-May-06	YES	14-Apr-10	
114-AFC-3005B	HN Lean Air Cooler	236	Paharpur CT, Calcutta	6269	0	14.14	30-Jun-05	29-Jan-06	24-May-06	YES	14-Apr-10	
114-AFC-3006A	WGC Comp Interstage	234	GEA Energy Sys, Chennai	6269	0	12.75	30-Jun-05	29-Jan-05	07-Oct-06	YES	15-Jan-10	
114-AFC-3006B	WGC Comp Interstage	234	GEA Energy Sys, Chennai	6269	0	12.75	30-Jun-05	29-Jan-06	07-Oct-06	YES	15-Jan-10	
114-AFC-3006C	WGC Comp Interstage	234	GEA Energy Sys, Chennai	6269	0	12.75	30-Jun-05	29-Jan-06	07-Oct-06	YES	15-Jan-10	
114-AFC-3006D	WGC Comp Interstage	234	GEA Energy Sys, Chennai	6269	0	12.75	30-Jun-05	29-Jan-06	07-Oct-06	YES	15-Jan-10	
114-AFC-3007A	WGC Air Cooler	234	GEA Energy Sys, Chennai	6269	0	12.4	30-Jun-05	29-Jan-06	07-Oct-06	YES	15-Jan-10	
114-AFC-3007B	WGC Air Cooler	234	GEA Energy Sys, Chennai	6269	0	12.4	30-Jun-05	29-Jan-06	07-Oct-06	YES	15-Jan-10	
114-AFC-3008A	Vent Condenser	264	GEI Hamon	6269	0	12.75	11-Aug-05	10-Feb-06	18-Feb-06	YES	15-Jan-10	
114-AFC-3008B	Vent Condenser	264	GEI Hamon	6269	0	12.75	11-Aug-05	10-Feb-06	18-Feb-06	YES	15-Jan-10	
3.UTILITIES & OFFSITES												
AIR COMPRESSOR												
506-C-1002	LP COMPRESSOR	209	F S ELLIOTT CO. LLC, USA	6891	50	14	15-May-09	14-Jan-10	09-Feb-10	YES	26-Jul-10	
AIR DRYER												
506-X-1002	INSTRUMENT AIR DRYER	82	Indicon Projects & Equip. Ltd.	6891	56	0.76	10-Sep-08	09-Aug-09	22-Feb-10	YES	23-Apr-10	
PUMPS												
61-P-1013 A	Cold Cat feed pump	87	Flowserve	6891	9.2	0.61	22-Sep-08	21-Jul-09	15-Sep-09		16-Jan-10	
61-P-1013 B	Cold Cat feed pump	87	Flowserve	6891	0	0.61	22-Sep-08	21-Jul-09	15-Sep-09		16-Jan-10	
61-P-1013 C	Cold Cat feed pump	87	Flowserve	6891	0	0.61	22-Sep-08	21-Jul-09	15-Sep-09		16-Jan-10	
61-P-1014A	PUMP-CENTRIFUGAL, HORIZONTAL	224	SULZER PUMPS INDIA	6891	0	0.99	18-Jun-09	17-Dec-09	31-Dec-09		16-Apr-10	

3.3 EQUPMNET ERECTION STATUS

	DESCRIPTION	LOI_NO	VENDOR	JOB NO	FON QTY	WT (MT)	LOI DATE	CDD	RCVD_DATE	SITE ASSEMBELLY	ERCN DATE	REMARKS
61-P-1014B	PUMP-CENTRIFUGAL, HORIZONTAL	224	SULZER PUMPS INDIA	6891	0	0.99	18-Jun-09	17-Dec-09	31-Dec-09		16-Apr-10	
VESSELS												
506-D-1003	Emergency Air Surge Vessel	108	Hindustan Dorr	6891	58	90	23-Dec-08	22-Jun-09	15-Oct-09		08-Jul-10	
4.FGSU												
COLUMNS												
110-T-1001	Quench Tower	243	BHPV, Vizag	6891	210	120	07-Jul-05	06-Mar-06	05-Sep-10	YES	15-Sep-10	Middle piece received in September 10 and erection of all 3 segment completed in September 2010
PUMPS												
110-P-1001A	Scrubber Recirculation Pump	187	Flowserve -Canada	6891	1.06	0.83	25-Aug-05	09-Jan-06	18-Sep-10		19-Sep-10	
110-P-1001B	Scrubber Recirculation Pump	187	Flowserve -Canada	6891	0	0.83	25-Aug-05	09-Jan-06	18-Sep-10		19-Sep-10	
110-P-1001C	Scrubber Recirculation Pump	187	Flowserve -Canada	6891	0	0.83	25-Aug-05	09-Jan-06	18-Sep-10		19-Sep-10	
110-P-1002A	FM Recirculation Pump	187	Flowserve -Canada	6891	5.8	0.3	25-Aug-05	09-Jan-06	18-Sep-10		19-Sep-10	
110-P-1002B	FM Recirculation Pump	187	Flowserve -Canada	6891	0	0.3	25-Aug-05	09-Jan-06	18-Sep-10		19-Sep-10	
110-P-1003A	Scrubber purge Pump	187	Flowserve -Canada	6891	5.4	0.72	25-Aug-05	09-Jan-06	18-Sep-10		19-Sep-10	
110-P-1003B	Scrubber purge Pump	187	Flowserve -Canada	6891	0	0.72	25-Aug-05	09-Jan-06	18-Sep-10		19-Sep-10	
110-P-1004	Emergency O/F Pumps	323	Goulds Pump	6891	0	0.171	16-Oct-09	15-May-10	28-Sep-10		17-Oct-10	
SUMP												
110-S-1001	EMERGENCY OVERFLOW SUMP		RRC WORKS	6891	103	0						
TANK												
110-TK-1001	DILUTION WATER TANK	291	HINDUSTAN DORR-OLIVER LTD	6891	119	18.4	04-Sep-09	03-Jan-10	03-Jan-10		28-Apr-10	

3.3 EQUPMNET ERECTION STATUS

	DESCRIPTION	LOI_NO	VENDOR	JOB NO	FON QTY	WT (MT)	LOI DATE	CDD	RCVD_DATE	SITE ASSEMBELLY	ERCN DATE	REMARKS
5.PTU												
CLARIFIER												
-	COGULANT METERING PUMPS	302	THE EIMCO KCP LTD.	6891		2.5	25-Sep-09	24-Jan-10	21-Jul-10	YES	26-Aug-10	
110-TK-2001A	CLARIFIER	302	THE EIMCO KCP LTD.	6891	67	32	25-Sep-09	24-Jan-10	21-Jul-10	YES	26-Aug-10	
110-TK-2001B	CLARIFIER	302	THE EIMCO KCP LTD.	6891	0	32	25-Sep-09	24-Jan-10	21-Jul-10	YES	26-Aug-10	
110-XM-2001A	CLARIFIER RACK MECHANISM	302	THE EIMCO KCP LTD	6891	0	0	25-Sep-09	24-Jan-10	21-Jul-10	YES	26-Aug-10	
110-XM-2001B	CLARIFIER RACK MECHANI5M	302	THE EIMCO KCP LTD	6891	0	0	25-Sep-09	24-Jan-10	21-Jul-10	YES	26-Aug-10	
EXCHANGERS												
110-E-2001	DUPLEX EXCHANGER	309	GODREJ & BOYCE MFG. CO. LTD	6891	4.5	7	07-Oct-09	29-Mar-10	01-Jul-10		14-Aug-10	
FILTER												
110-FIL-2001	EFFLUENT FILTER	389	BHS SONTHOFEN	6891	34.25	14.24	07-Dec-09	06-May-10				
FILTER BIN												
110-FB-2001A	FILETR BIN		ARRANGED BY HPCL	6891	0	0						
110-FB-2001B	FILETR BIN		ARRANGED BY HPCL	6891	0	0						
110-FB-2001C	FILETR BIN		ARRANGED BY HPCL	6891	0	0						
110-FB-2001D	FILETR BIN		ARRANGED BY HPCL	6891	0	0						
OXIDATION BLOWERS												
110-C-2001A	OXIDATION BLOWERS	379	SWAM	6891	26	5	06-Nov-09	04-Apr-10	11-Jan-11		15-Jan-11	
110-C-2001B	OXIDATION BLOWERS	379	SWAM	6891	0	5	06-Nov-09	04-Apr-10	11-Jan-11	YES	15-Jan-11	BLOWER RECD ON 29.09.10 & AFTER COOLER RECD ON 11.01.11
PUMPS												

JOB CLOSE OUT REPORT - TIME ASPECT
CONSTRUCTION ACTIVITIES

NFCCU PROJECT

3.3 EQUPMNET ERECTION STATUS

	DESCRIPTION	LOI_NO	VENDOR	JOB NO	FON QTY	WT (MT)	LOI DATE	CDD	RCVD_DATE	SITE ASSEMBELLY	ERCN DATE	REMARKS
110-P-2002	Califier Filtrate transfer Pumps	333	NAGLE	6891		0.7	20-Oct-09	15-May-10	04-Oct-10		10-Nov-10	
110-P-2003A	Effluent Pumps	322	Sulzer Pumps	6891		1	16-Oct-09	15-Apr-10	20-Apr-10		13-May-10	
110-P-2003B	Effluent Pumps	322	Sulzer Pumps	6891		1	16-Oct-09	15-Apr-10	20-Apr-10		13-May-10	
SUMP												
110-S-2001	FILTRATE SUMP		FFIL (RCC at SITE)	6891	7	0						
TANK												
110-TK-2002A	OXIDATION TANK	291	HINDUSTAN DORR-OLIVER LTD	6891	103	7.67	04-Sep-09	03-Jan-10	18-Jun-10		18-Aug-10	
110-TK-2002B	OXIDATION TANK	291	HINDUSTAN DORR-OLIVER LTD	6891	0	7.67	04-Sep-09	03-Jan-10	18-Jun-10		18-Aug-10	
110-TK-2002C	OXIDATION TANK	291	HINDUSTAN DORR-OLIVER LTD	6891	0	7.67	04-Sep-09	03-Jan-10	18-Jun-10		18-Aug-10	
110-TK-2003	EFFLUENT TANK	291	HINDUSTAN DORR-OLIVER LTD	6891	1.9	1.13	04-Sep-09	03-Jan-10	08-Jan-10		18-Aug-10	
110-XM-2002A	OXIDATIONN TANK MIXERS	291	HINDUSTAN DORR-OLIVER LTD	6891	0	4.194	04-Sep-09	03-Jan-10	18-Jun-10		18-Aug-10	
110-XM-2002B	OXIDATIONN TANK MIXERS	291	HINDUSTAN DORR-OLIVER LTD	6891	0	4.194	04-Sep-09	03-Jan-10	18-Jun-10		18-Aug-10	
110-XM-2002C	OXIDATIONN TANK MIXERS	291	HINDUSTAN DORR-OLIVER LTD	6891	0	4.194	04-Sep-09	03-Jan-10	18-Jun-10		18-Aug-10	
6.CAUSTIC												
PUMPS												
110-P-2004A	Caustick supply Pumps	290	Flowserve	6891	1.65	0.09	16-Aug-09	25-Mar-10	06-Aug-10		08-Aug-10	
110-P-2004B	Caustick supply Pumps	290	Flowserve	6891	0	0.09	16-Aug-09	25-Mar-10	06-Aug-10		08-Aug-10	
110-P-2005A	Caustick feed Pumps	290	Flowserve	6891	6.2	0.165	16-Aug-09	25-Mar-10	06-Aug-10		08-Aug-10	
110-P-2005B	Caustick feed Pumps	290	Flowserve	6891	0	0.165	16-Aug-09	25-Mar-10	06-Aug-10		08-Aug-10	
110-P-2006A	Caustick delivery pumps	290	Flowserve	6891	3	0.028	16-Aug-09	25-Mar-10	06-Aug-10		08-Aug-10	
110-P-2006B	Caustick delivery pumps	290	Flowserve	6891	0	0.028	16-Aug-09	25-Mar-10	06-Aug-10		08-Aug-10	

3.3 EQUPMNET ERECTION STATUS

	DESCRIPTION	LOI_NO	VENDOR	JOB NO	FON QTY	WT (MT)	LOI DATE	CDD	RCVD_DATE	SITE ASSEMBELLY	ERCN DATE	REMARKS
110-P-2006C	Caustick delivery pumps	290	Flowserve	6891	0	0.028	16-Aug-09	25-Mar-10	06-Aug-10		08-Aug-10	
SUMP												
110-S-2005A	CAUSTIC SUMP		FFIL (RCC at SITE)	6891		0						
110-S-2005B	CAUSTIC SUMP		FFIL (RCC at SITE)	6891		0						
110-S-2005C	CAUSTIC SUMP		FFIL (RCC at SITE)	6891		0						
TANK												
110-H-2001	CAUSTIC STORAGE TANK HEATER		FFIL (FAB. AT SITE)	6891	0	0						FAB & ERCN. BY FFIL
110-TK-2004	CAUSTIC STORAGE TANK		FFIL (FAB. AT SITE)	6891	75.61	24.92						FAB & ERCN. BY FFIL
110-TK-2005	CAUSTIC DRY TANK		FFIL (FAB. AT SITE)	6891	34	9.19						FAB & ERCN. BY FFIL
110-TK-2006A	CAUSTIC BIN		FFIL (FAB. AT SHOP)	6891	106	2.331						FAB & ERCN. BY FFIL
110-TK-2006B	CAUSTIC BIN		FFIL (FAB. AT SHOP)	6891	0	2.331						FAB & ERCN. BY FFIL

3.4 MAJOR PROBLEMS , SOLUTIONS AND SUGGESTIONS

Sl No	MAJOR PROBLEM FACED	ACTION TAKEN	SUGGESTION FOR FUTURE PROJECTS
A.	**PROBLEM FACED DURING EXECUTION OF SITE WORKS**		
1.	Release of Structural AFC drawing of 400 MT structure works on Pipe rack –II for future provision of Air fine cooler at EL 118.00 and Structural works upto 43 mtrs. Height for supporting of 42" fractionator overhead line and 36" flare line .	Matter taken up with EIL projects / Engineering to find alternate scheme to reduce the structural quantity. Various discussions took place between EIL Project / Engineering & HPCL. Subsequently future provision of AFC on PR-II was deleted by HPCL. Considering the deletion of future AFC at EL 118.00 ROV structural revised their scheme and brought down the total structural qty to 300 MT, which was also high from execution point of view. Site has come out with proposal of revised pipe route for easier execution of PR-II Accordingly again ROV strl has revised their scheme and brought down to total structural qty to 216 MT.	
2.	All equipments (Rotary) & valves procured under GFECP (EIL Job No – 6269) were stored for longer period.	Client initiated to line Up the vendor / agencies to overhaul all pumps, compressors, EOT crane, Valves and Air fin	Before Usage of long duration stored equipment, equipment should be overhauled in advance to avoid unknown problems

Sl No	MAJOR PROBLEM FACED	ACTION TAKEN	SUGGESTION FOR FUTURE PROJECTS
		coolers etc before installation.	during execution.
3.	Conventional Stream trap (STA) assembly (as per EIL standard) drawing issued to site and accordingly the same was installed , where as compact type trap was procured for this purpose.	Matter Taken up with EIL ROV to update the drawings / MTO and all STA rectified at site.	Piping should release the AFC ISO's / drawings considering the type of STA in order to avoid repetition of modification works.
4.	Rates for Supply of collars for cement lined pipe were not available in ISBL mechanical contract	Contractor was advised to supply the collars in existing structural rates	Rates for Supply of collars should be in SOR as an independent item.
5.	Initially all line Isometrics received at site were with support holds which held the hydro testing of loops.	Matter taken up with ROV to remove the support HOLD by providing supporting arrangement / marking supports on ISOs.	AFC drawing for critical structures should be released to site well in advance.
6.	Piping Interface problem at ISBL / OSBL B/L resulting modification works.	Matter taken up with EIL ROV for visit of Piping designer / General civil at site in order to change / revise all the deficient drawings.	Piping / General civil should prepare the detail drawings considering the requirement of Client / Process licensor and P&ID
7.	Non implementation of requirement of the P&ID's in isometrics / GADs resulted in modification works.		

Sl No	MAJOR PROBLEM FACED	ACTION TAKEN	SUGGESTION FOR FUTURE PROJECTS
8.	Fire water / Sprinkler networks P& ID /ISO's not prepared in line with client's requirement / standard resulting modification works including huge procurement of Galvanized Piping materials.		
9.	**PTU/Caustic (110)** Piping MTO was not matching with AFC Isometrics issued to Site.	Actual MTO made at site as per Isometrics / Site condition and informed project as well as ROK for net requirement of piping material.	Piping Should take care of total material requirement and Procurement should be done accordingly.
10.	**PTU/Caustic/FGSU (110)** Mismatch of Stub end flange pattern (long / short) shown in isometrics and actual procured	Matter taken up with ROK and in consultation with piping extra length of stub has been trimmed off.	Piping should be doubly ensured that correct material should be procured as per Isometrics requirement.
11.	Sub header for Steam traced line not considered in offsite and tank farm area	Matter taken Up with ROV and revised drawings of 2", 3" and 4" lines issued for offsite and tank farm area resulting in additional material requirement.	Piping should consider all utility requirements during detail engineering phase and before release of AFC drawings.
12.	**FGSU (110)** Rubber Expansion Bellows for pump 110-P-1003 A/B found leaking heavily after taken	Matter taken up with ROK and revised piping sketch issued without bellows to avoid immediate procurement of bellows.	Should be taken care by EIL Procurement team.

Sl No	MAJOR PROBLEM FACED	ACTION TAKEN	SUGGESTION FOR FUTURE PROJECTS
	into operation.		
13.	**FGSU (110)** Oxidation tank piping coming from blower discharge were not meeting P&ID requirement.	Piping has been modified as per licensor's requirement in consultation with project / ROK and. Additional Material required for modification	Designer should have considered the requirement of Licensor's during detail engineering to avoid any site modification.
14.	**FGSU/PTU/Caustic (110)** Trims are not shown in Isometrics issued for FGSU / PTU/ Caustic unit by ROK.	Mater discussed with ROK and found that they have not considered the trim items in MTO , resulting crash procurement of trim items materials.	Designer should take care of trim requirement during details engineering and Procurement action should be taken care off.
15.	Bubbles have noticed on mastic flooring of Caustic Storage unit at several locations.	Rectification done by patch removal & recoating of two layer including primer as per manufacturer advise.	Proper cleaning should be done between each coat & Heating of surface to remove moisture if any.
16.	Leakages have been noticed in MSS 10 switchgear hall at more than 10 locations through joints and as well as through old building ceilings at 2 locations in front of PCC 381.	Site has done root cause analysis and found that Water proofing membrane has been punctured at few locations due to various agencies works after water proofing work. Rectified by site	Water proofing works should be done after completion of other agencies work for protection of film/membrane.
17.	4905 KW, 6.6 KV HT motor for AMAB supplied by BHEL was having tripping problem when it was started on DOL(direct On Line) on earth fault. . Matter was	Matter taken up with BHEL, Bhopal and as per their advise the earth fault settings were fine tuned after taking 2 trials on load .	New experience to be shared and value of motor imbalance during load test done at shops shall be measured/calculated during inspection and test values to be shared with

Sl No	MAJOR PROBLEM FACED	ACTION TAKEN	SUGGESTION FOR FUTURE PROJECTS
	urgent since this had a bearing on plant commissioning. Meanwhile since drive has a VFD, we tried to start machine on variable speed for urgent analysis & resolution	Since the motor was designed for both VFD and DOL start. Machine (dynamics) inherent design of winding to suit DOL/VFD starts was creating the imbalance during starting because of high current in DOL start and normal current in VFD start. At last, relay setting have been fine tuned on load to come out of this problem	design for relay setting in such cases.
B.	**PROBLEM FACED IN EQUIPMENTS ERECTION**		
1.	114-H-1002 (Procured under GFECP): Hopper received at site in single piece with out hydro testing and without fixing of nozzle despite being dispatched in four pieces as per contract with 300 mm extra length.	Hooper was cut into two pieces in order to transport smoothly to site. Erected in position & Seam Welded . After the requisite NDT hydro test conducted	This type of activity should be indicated in the contract in order to minimize the delay / processing extra items
2.	**114-D-3020 reflux drum** was supplied by M/s ITM in three pieces (shell in two parts plus boot). Rates for welding, radiography & SR etc was	Site welding has been done by offshore as extra items under guidance of ITM as per provision of Purchase order and supervision of EIL procurement engineer	Rates for welding, radiography & SR etc should be available in SOR as an independent item.

Sl No	MAJOR PROBLEM FACED	ACTION TAKEN	SUGGESTION FOR FUTURE PROJECTS
	not available in Mechanical contract.		
3.	114-E-3080 A/B/C: Leakage found during hydro testing of exchangers supplied by M/s Anup	Vendor Visited at site and agreed to replace the damaged tubes & restored back	Probable cause was also quality of tubes. To be taken care during Engineering & manufacturing.
4.	114-E-3050C/D and 114-E-3051 A/B: Leakage found during hydro testing of exchangers (tube side)		
5.	Interface problem with catalyst loading system supplied by Intercat	Interacted with vendor & EIL ROV , suggested change in piping Sizes and route in order to function the system properly	Interface problem should be taken care by piping before release of AFC drawings in order to avoid any delay.
6.	Pump -110-P-1004 by Gould's pump: As per P&ID there should be foot valve and suction strainer which was missing when received at site.	Temporary strainer has been provided at site in consultation with ROV. As per Vendor operating manuals foot valves was required.	Rotary should inform to Piping for any changes during detail engineering by vendors.
7.	**110-T1001 Quench tower by BHPV:** During erection of quench tower, the foundation bolts were not properly fitting to the slot in equipment due to less tolerance of hole diameter on the base plate.	All the holes on the base plate of equipment made larger to facilitate the erection informing vendor and EIL procurement.	This type of problems should be taken care by EIL Procurement. Provision of slots alternatively can avoid erection problems.

Sl No	MAJOR PROBLEM FACED	ACTION TAKEN	SUGGESTION FOR FUTURE PROJECTS
8.	**110-T-1001 Quench tower by BHPV:** Orientation plan of nozzles gave the completely reverse directional idea for Quench Tower erection.	The same has been adjusted as per equipment layout drawings and GAD of unit.	Should to taken care during details engineering
9.	Erection of effluent filter (110-F-2001) – Foundation details was not matching with vendor drawings. A foundation bolt detail was not available	Matter taken at site and foundation bolt details provide by Vendor and same has been fabricated site	EIL Engineering should ensure that vendor should supply the correct foundation bolts.
C.	**DEALING WITH CLIENTS**		
1.	Delay in PO amendment and processing of RA bills for payments	Matter taken up with HPCL top management to expedite the same for continuous cash flow of contractors payments	EIL top Management should intervene in such matter to help the cash flow of contractor and insist on client for lesser time to be taken for PO amendments and Payments of RA bills .
2.	Delay in release of material by transporters for which payment routed through bank	Regular follow up with client to expedite delivery of the material for which payment was routed through bank.	Client to take prompt action in making payment and releasing the dispatch documents from banks.
3.	Due to safety reasons operation of Hydra has been banned in side HPCL refinery from 31.05.2010 midway during project execution	Matter taken up by EIL top management with HPCL top management to review the decision once again in view of completion of project.	Truck mounted cranes to be used in place of hydra / alternative to hydra and it should be mentioned in contract.

Sl No	MAJOR PROBLEM FACED	ACTION TAKEN	SUGGESTION FOR FUTURE PROJECTS
4.	Space (Closed/ open) for warehouse Management for proper stacking of material	During various meetings / discussion with client EIL expressed that space for storing of materials is inadequate and client should provide the adequate space along with storage area with air conditioning to store critical electronic items of electrical / instrumentation .	Stores space / storage area requirement should be specified by EIL and agreed upon by client.
5.	Non-Issuance and intermittent withdrawal of work permit in offsite affected completion of works in offsite.	Matter taken up with Client for issuance of work permit to offsite contractors in consultation so that work can be completed	Clint should take care for regular issue of work permit to the contractor.
D.	**SYSTEM IMPROVEMENT**		
1.	Stud & Bolt for installation of instruments by Instrumentation contractor : Mechanical contractor provides only flanged end tapping points and Stud bolts and gaskets required by instrumentation contractor during installation of instruments so practically stud bolts and gaskets required by instrumentation contractor.	Matter resolved by Site Planning / Site Instrumentation department with Mechanical contractor to handover the required stud bolts and gaskets to instrumentation contractor.	Stud Bolts and gaskets for installation of instruments should be available in Instrumentation contractor MTO as well as detail shall be mentioned in instrumentation BOM against each Tag..

Sl No	MAJOR PROBLEM FACED	ACTION TAKEN	SUGGESTION FOR FUTURE PROJECTS
	It has been observed that Stud bolts and Gaskets of tapped flange dumped in Mechanical contractor MTO.		
E.	**TECHNICAL FEED BACK**		
1.	**Analyzers :** No detail of utility requirement (i.e. Air, Cooling water , Wash water / drinking water , N2 supply , Connection of return line , requirement of Heat trace supply (230 VAC), Cable schedule and mismatch the tapping provided by mechanical & probe supplied by vendor	Matter taken up with ROV and issued necessary drawings/ documents for utility , cable schedule & related tapping points modification / provisions	Engineering should include all requisite details in the AFC drawings & documents.
2.	Packages /Vendor cable schedule etc not incorporated in EIL overall cable schedule and site did all exercise of finding / handing over / incorporation of additional tags in DCS etc.	Document colleted from various package vendors by site and issued to contractor for execution.	One cable common cable schedule inclusive of vendor / Package shall be issued for construction.

Sl No	MAJOR PROBLEM FACED	ACTION TAKEN	SUGGESTION FOR FUTURE PROJECTS
3.	Mismatch in Thermo well rating for TG & TE procured instrument & thermo well tapping provided as per isometric. There was insertion length issue.	On detection of the mismatches revised ISOs were issued by ROV to resolve the problem.	Engineering to take care of mismatches before issuing ISOs and MTO.
4.	Mismatch in procured control valves size / rating and Control valve size / rating shown in isometrics resulted in modification in entire piping loop of valve.		
F.	**CONTRACT IMPROVEMNT**		
1.	Following activities should be incorporated in Instrumentation contractors of works • PMI Checking • Glass Wool insulation for steam traced impulse line • Painting of impulse line	For PMI, insulation and Painting HPCL provided their standing order agency to complete the job.	To be implemented in tender of Instrument SOR
2.	Following activities should be Shifted to Mechanical contractors SOR from Instrumentation contracts. • Safety valves testing	• Safety valve installation in the scope of mechanical contractor so mechanical will do the testing as well as installation of safety valves.	

Sl No	MAJOR PROBLEM FACED	ACTION TAKEN	SUGGESTION FOR FUTURE PROJECTS
	• Installation of LG & LT directly coming on Equipment or on stand pipe	• Center to center matching , Testing of Isolation valves / stand pipe etc is in mechanical scope , so the installation of LG/LT will become one point responsibility and rework can be avoided.	
3.	Delay in procurement of Bought out items by contractor	Matter taken up during every meeting with vendor and also follow was made up on daily basis for finalization of Sub vendors by contractor. Necessary engineering approval from EIL engineering was obtained. Required support was taken from procurement department.	Inputs required from EIL by the contractors for procurement of Bought out items, must be given on Priority. -Most of the inputs regarding specifications, standards, MOC, approved vendor list etc. are given in the bidding documents
G.	**OFFICE FACILITIES**		
1.	**Internet / Email facility:** Internet facility being provided by client through their LAN was of low speed . EIL server cannot be accessed with the available speed	No action taken	High speed internet facility needs to be provided.

Sl No	MAJOR PROBLEM FACED	ACTION TAKEN	SUGGESTION FOR FUTURE PROJECTS
2.	Availability of PC's for each employee: PC's were providing to employee on sharing basis. All employee should be issued separate PC with High speed internet facility , protected with antivirus software and necessary basic software like MS office , Auto-cad , PDF converter. PC should be connected with LAN printer preferably, A3 size printer.	PC's provided by client with minimum facilities.	Should be taken care by EIL IT department- depending up on the contract with client.

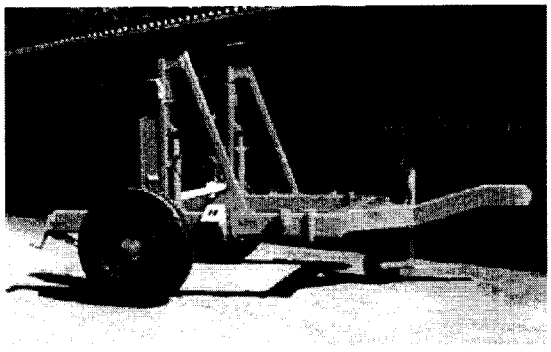
3.5 Special Construction features.

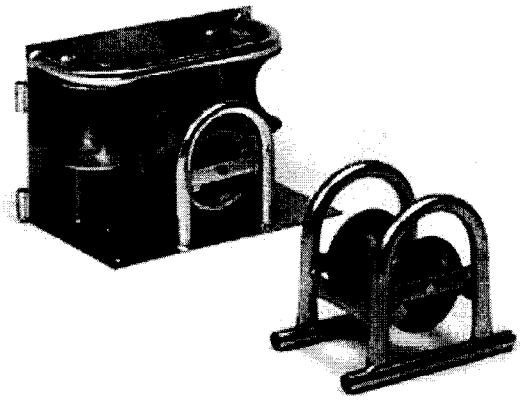
ELECTRICAL CABLE LAYING

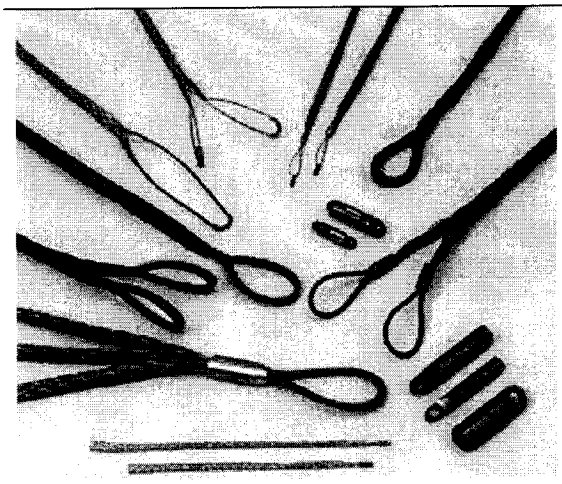
Current Technique / Technology : Presently the cable pulling is being done manually in cable trench as well as in cable trays at heights. Experienced workers in group pull the cables under continuous supervision / guidance of the supervisor.

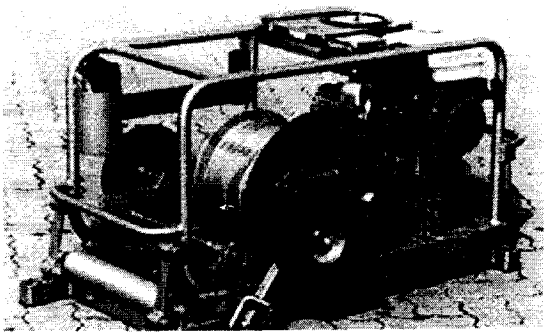
New Technique / Technology implemented in NFCCU Project : Mechanical cable pulling is done with diesel engine operated automatic power winch machine having 5T Torque limits. In this method Automatic power winch M/C is placed near to load end where cable has to reach. Steel wire available in winch M/s. is used for pulling the cable is brought near the cable drum and attached to cable with the help of attachment device called cable grips. Rollers are used at direction change and at a fixed interval. The Torque is set in the winch M/C based on cable dia. and length to be pulled. In case of overload i. e. cable gets stuck, the winch trips thus saving cables from any damage. The labour deployment is reduced and the engaged person only checks the cable at critical junction and is not required to put force. In this process deployment of labour gets reduced considerably. The time taken is also very less in our case 4 hrs. Work was done in 15 min. no loop formation is to be made and the quality of job is also increased considerably.

➢









Reference / Source of this Technique / Technology : This was implemented at EIL, HPCL, Mumbai site. Preference to use of this technique was part of the contract.

Presently this machine is being imported. In India only pulley based mechanical cable pulling M/C is available. However, it may be developed indigenously also once the market is there.

- Availability of Machine Operators: Shall not be a problem.
- **Cost :** Unit rate initially will be net 20% more because of machinery procurement. However, the time quality and safety will easily mitigate it.
- **Quality :** Very High – The laying is very much controlled and have a good quality.
- **Safety :** Very High – The manpower requirement reduces considerably and machine is having inbuilt safety devices.
- **Time :** Reduces significantly. In our case we would have taken 4 hrs. in normal way but it was reduced to 15 mins.
- **Owner :** Insisted by Owner.
- **Labour Component**: Reduces by 35%. Experienced specialized cable pullers Requirement is reduced.

B. SYSTEM INVOLVEMENT

- **Implementation Schedule in EIL Project** :
  - This can be implemented immediately if cable size J 50 mm dia. & Length involved J 200 Kms.

- Implement – after 2 Years with cable size J 50 mm dia and length involved J 100 kms.
- 100% Implement after 4 years for cable size J 50 mm.

- **EIL Business Scenario where it can be implemented.** Grass Root Refinery Project + Existing Refinery / Petrochemical. Not in P/L project + Offshore.
- **Tender requirement**: Should appear in mobilization list of equipment being attachment to Tender.
- **EIL Costing Department:** Costing Dept to take a note for this addition.
- **EIL Planning Department**: Planning Dept. to take a note for reduction in time. Schedule to be revised accordingly.
- **SOR change** : SOR for this particular item has been changed and is attached herewith taking care of deployment of this machine.
- **EIL Specification change** : Required changes in specification has been done and is attached herewith.
- **Code Requirement** : Not applicable.
- Control of this change will lie with Engineering
- Qualification of Bidders during evaluation. This is not a very high cost capital good and can be imported and hence shall be the requirement to be met for qualification.

C SITE EXECUTION

- EIL Construction Engineer: Training not required. Only exposure to this machine to be done.
- **Safety requirement**: No special requirement expects checking for trip on over load.
- **EIL QA Doc**. Need not change except to be written in procedure. Changes in formats. Machine details may be written in formats.
- Awareness to Contractor for this change. Through vendor meet/communication to all enlisted contractors

3.6. Material control at site

The control of the inventory (Free issue materials) at site made through the in house developed software tools , which is have interface of COSMAS Package (at Planning end) and WAMS (at warehouse end) for bulk piping material controls. WAMS package being maintained by warehouse, for receipt and issue of all types of materials including Piping materials, Equipments, electrical items, Instrumentation items.

Material against some PO's received were received without MTC. Warehouse cooperated in issuing the materials to the contractors but maintained list of such items, taken up with Project manager and Vendors. Thus work was not hampered at site because of not issuing the material to the contractors.

Due to lack of nomenclature philosophy in numbering of repeat orders for the materials , vendor continued to generate the package list / Invoice as per parent order numbers only whereas the repeat orders in WAMS entered with 1000 series . This resulted in difficulty in accounting the materials (warehouse accounted in parent orders resulting in over stock and simultaneously shortage in 1000 series purchase order).

Delay in receipt of PO dump file for COSMAS & WAMS (Sometimes material were received at site, but corresponding PO details were not available in dump) resulting delay n successive activities. Detailing of certain PO's was also an issue of concern, for example details of instrumentation tagged items ordered of some vendor and not available in PO dump. Package dose not permit the site user to add / edit PO for Tagged items. Based on the feed back received from site, ROV Update the PO dump for WAMS and send back to site which takes times.

U/G Piping works:

There was no correlation between the lines wise Under ground piping MTO in COSMAS and line wise MTO of drawings received (Lines Nos.) . SO line wise MTO in OCSMAS was corrected as per drawings. . The exception reports was generated for the piping items for the piping items missed in COSMAS and conveyed to ROV for further procurement action to avoid the material shortage.

A/G Piping works:

- The exception reports was generated from In order to ensure receipt of 100% Isometrics at site , time to time report on Isometrics not received w.r.t. COSMAS line list was sent to EIL HO / EIL ROV.
- List of isometrics, which were not found in COSMAS, sent to EIL HO / ROV periodically to ensure materials for those isometrics are not missed.
- At various stages of project, contractor was asked to submit the material requirement for the balance works. EIL Mechanical Engineer, Planning Engineer, contractor collectively made the line wise MTO for the balance works, tallied with the COSMAS. Exception report for the additional

material requirement generated, sent to Project Manager for further procurement action to avoid the material shortage.

- Loop wise / System wise Piping Material shortage report for various units and offsite piping, impulse piping were prepared and issued on weekly basis.
- Separate material shortage report for compressor package loose items prepared and issued to client / EIL ROV etc.

Instrumentation works:

Instrument index was converted to excel form, checked for order details tag wise. The tag wise order details with WAMS Tag wise receipt information. The exception list with respect to order and receipt was prepared in this manner , which was communicated and expedited with ROV and thus availability of all the instruments were ensured.

Handing over of Spares / Surplus materials:

It has been observed that the handing over methodology of spares / surplus materials needs to be formalized at the beginning to avoid problems later on as the client always insist on taking over as per methodology being adopted in their warehouse and the nomenclature as per the methodology like SAP , ERP etc. which they normally use now a days. Interfacing of item codes of EIL and client should be bridged by software to have easy handing / taking over of the materials.

Various report / formats were formulated by using database tool such as MS Access, Excel about the status of the materials.

3.7 SAFETY

The contractors were asked to submit their HSE procedures as per company HSE guidelines for review and approval by EIL. The HSE procedures of all contractors including their HSE site plan and reporting formats were reviewed and approved by EIL. The implementation and reporting methodology of HSE activities, as per guidelines for HSE at construction sites, were issued to all contractors. The contractors at site were advised to conduct regular HSE meetings and HSE awareness programs. All contractors deployed qualified / identified safety officers at site for taking care of safety aspects of the daily activities. EIL employees, employees of contractors and workmen at site, made emphasis for the use of personnel protective equipments. There was no major accident reported from site till completion of the project.

Following safety related points were taken care during project execution for all the Manpower irrespective of their Trades.

3.7.1 Safety Rules & Regulations for Fitters, Welders, Gas Cutters and others :

1. Attend tool box meeting daily in the morning before commencement of work.
2. Welder as well as his Co-Worker used welding screen or welding goggles so that Welding Arc should not be observed by naked eyes.
3. Asbestos hand-gloves were used while handing hot objects.
4. Use of safety belts and fall arresters while working at height above 2 meters.
5. Loose nylon or polyester dress not used.
6. Goggles of face screen were used while chipping, polishing, grinding, scrapping and filling.
7. Radiography works carried after cordoning the working area with suitable indicators and after check listing.
8. Permission from IOCL to be obtained before carrying out the trenching works for any road crossing etc.
9. While working for open cut road crossing, proper indication & marker for traffic diversion with clear indication have been shown to avoid any accident.
10. Side slops were provided for all deep excavations and shall be executed after permit.

3.7.2 Safety Instructions for Electrical Equipment :

1. Electrical equipment and lines was considered as live unless they are positively known to be dead.
2. No employee was allowed to get up on a pole or work on apparatus in service or work in proximity to a live conductor, unless the Man-in-Charge of the work had obtained the necessary permit for work from the Authority-in-Charge of the apparatus or the lines.

3. Any danger zones were clearly marked by boards painted with the words "DANGER" written both in English and in vernacular in red color and hung at appropriate places.

3.7.3 Safety During work: All engineers / supervisors / workmen were advised to use safety helmet at all time. Safety belts were used for working at height. For scaffolding of Civil / mechanical works, only steel tubular pipes with H. frames were allowed to avoid any accident.

HSE Review Meeting: Monthly HSE review meeting was been conducted every month along with Contractors Site-in-Charge and Safety officers.

- Achieved 5.2 Million safe hrs. without LTA and recognized a certificate from client is attached herewith.
- As a safety promotion activity, successfully exhibit the safety exhibition depicting the unsafe acts and conditions prevailing at different sites.
- Design and construct the HSE grading system to evaluate the contractor HSE performance. This system is now basis of evaluation of HSE performance of contractor in HPCL for other projects.
- Successfully liaison with client and external agencies.
- Successes fully completed HSE audits by external IRQS audits with no NC.
- Observed and celebrate fire day, Environment day and National safety day. Invited eminent personality from NSC to celebrate the NSD.

HSE Statistics of the NFCCU:

1. No of Near Misses	:	61
2. No of disciplinary action against Staff:	:	263
3. No of activities for which JSA completed	:	56
4. No of Weekly HSE meeting	:	90
5. No of RCM meeting	:	20
6. No of training programme conducted	:	12
7. No of Induction conducted	:	318
8. No of TBT conducted	:	6103
9. No of Unsafe acts/practices detected	:	68000
10. Total Penalty Imposed on contractor	:	₹ 488050.00

SAFETY RECOGNITION CERTIFICATES

CERTIFICATE OF RECOGNITION

HINDUSTAN PETROLEUM CORPORATION LIMITED
(MUMBAI REFINERY)

Congratulates

इंजीनियर्स इंडिया लिमिटेड (भारत सरकार का उपक्रम) ENGINEERS INDIA LIMITED (A Govt. of India Undertaking)

On the achievement of

5.2 MILLION MAN-HOURS

WORK WITHOUT ANY

LOSS TIME ACCIDENT

AS ENGINEERING PROJECT MANAGEMENT CONSULTANT
(Achieved from the manpower of 12 conventional contractors of NFCCU PROJECT)
(Job No 6891)

DURING THE PERIOD
24.04.2009 TO 30.06.10

This is issued with our total appreciation for the individual and collective efforts by all, who have devoted to this accomplishment.

V.V. NAGADA
General Manager
(Projects)

3.7 PERFORMANCE RATING OF THE CONTRACTORS

S NO.	NAME OF CONTRACTOR	DESCRIPTION OF WORKS	RATING OF VARIOUS FACTORS											OVERALL PERFORMANCE
			1	2	3	4	5	6	7	8	9	10	11	
1	SKB Builders	Civil & strl works - ISBL & Extn. Of SS-10	VG	G	F	F	VG	VG	G	G	VG	VG	G	GOOD
2	Offshore Infrastructure Ltd.	Mechanical works- Unit	VG	VG	G	VG	VG	VG	VG	VG	VG	VG	VG	VERY GOOD
3	Thermax Limited	Heaters works	F	F	F	F	F	F	F	F	F	F	P	FAIR
4	Thermax Limited	FG Cooler installation	F	F	F	F	F	F	F	F	F	F	F	FAIR
5	Offshore Infrastructure Ltd.	Sea Cooling Line	VG	VG	G	VG	VG	VG	G	VG	VG	VG	G	GOOD
6	Bridge & Roof	Civil & Mech. works U/O PART-I	VG	VG	VG	G	VG	VG	G	VG	VG	VG	G	GOOD
7	IOT Anwesha	Civil & Mech. works U/O PART-II	F	F	F	F	F	F	F	F	F	F	F	FAIR
8	Larsen & Tubro	Installation of RR Package	VG	VG	VG	VG	VG	VG	VG	VG	VG	VG	VG	VERY GOOD
9	Jasubhai Engineering Pvt. Ltd.	Instrumentation works	VG	G	G	VG	VG	VG	G	G	VG	VG	G	GOOD
10	Technimont ICB , Mumbai	Electrical works	VG	G	VG	VG	VG	VG	G	G	VG	VG	F	VERY GOOD
11	Furnace Fabrica (India) Limited	Civil & Mech works for FGSU , PTU & Caustic	F	F	F	F	F	F	F	F	F	F	F	FAIR

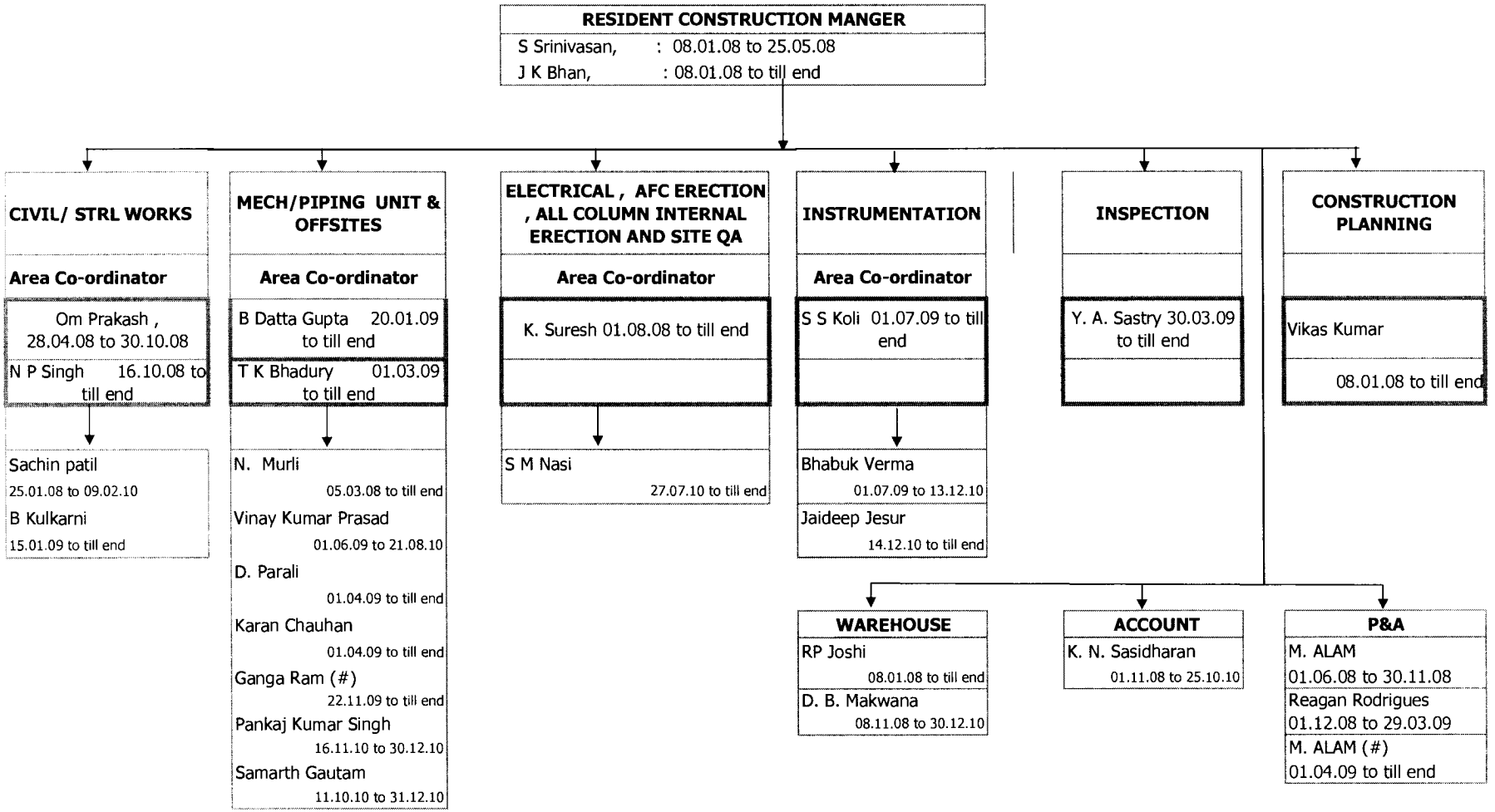
FACTORS :

1 JOB COMPETENCY AND SYSTEMATIC APPROACH.
2 QUALITY STANDARD AND INITIATE FOR CORRECTION.
3 DEPENDABILITY & DISCIPLINE WITH RESPECT TO RESPONSE TO RESOURCE AUGMENTATION / MOBILISATION/ PERFORMANCE : FOLLOW UP INSTRUTION OF R.C.M. / AREA ENGINEERS.
4 SAFE CONSTRUCTIONS PRACTICES.
5 ATTITUDE & FLEXIBILITY TOWARDS CHANGES.
6 LABOUR RELATION & PAYMENTS
7 FINANCIAL STRENGTH AND IMAGE / REPUTATION.
8 QUALITY OF SUPERVISION.
9 REASONABLE IN MAKING EXTRA CLAIMS, ADHERENCE TO AGREED COST ESTIMATE & TIME.
10 COMMUNICATION & RESPONSE TO PROBLEM SOLUTION.
11 TIME PERFORMANCE.

RATING :

VG - VERY GOOD
G - GOOD
F - FAIR
P - POOR

4.1 ORGANISATIONCHART FOR FIELD OFFICE



NOTE (#) : Outsourced

4.2 MANPOWER DEPLOYMENT AT FIELD OFFICE

Sl No	DISCIPLINE	CONSTRUCTION MANMONTHS			Jan-08	Feb-08	Mar-08	Apr-08	May-08	Jun-08	Jul-08	Aug-08	Sep-08	Oct-08	Nov-08	Dec-08	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09	Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10
A		CONTROL	SPENT																																				
1	RCM	28	25	REQD	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.5	0.5	0.5	0.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.75	0.75	0.75	0.75	0.75	0.75	0.75
				DEPLOY	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.5	0.5	0.5	0.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.75	0.75	0.75	0.75	0.75	0.75	0.75
2	CIVIL/ STRL	45	60	REQD	0.25	0.25	0.25	0.5	0.5	0.5	0.5	0.5	1	1	1	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2	1	1	1	1
				DEPLOY	0.25	0.25	0.25	0.5	0.5	0.5	0.5	0.5	1	1	1	1	1.25	1.75	2	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	1.5	1.25	1	1	1	1
3	MECH/PIPING	63	123	REQD	0	0	0	0	0.25	0.25	0.25	0.5	0.5	0.5	0.75	1	2	2	3	4	4	5	5	5	5	5	5	6	6	6	6	7	7	7	7	7	7	7	7	7
				DEPLOY	0	0	0	0	0.25	0.25	0.25	0.50	0.50	0.50	0.75	1.00	1.25	1.50	2.50	3.50	3.50	4.25	4.25	4.25	4.25	4.00	4.80	5.75	5.75	5.75	5.75	6.50	6.75	7.00	6.75	6.50	5.25	5.95	6.50	7.00
4	ELECTRICAL	21	20	REQD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2
				DEPLOY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.75	0.75	0.75	0.75	0.75	0.75	1	1.4	2	2	2	2	2
5	INSTRUMENTATION	17	27	REQD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0.5	1	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2	2	2	1.5	1.5	1.5	2
				DEPLOY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0.5	1	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2	2	2	1.5	1.5	1.5	2
6	INSPECTION	22	18	REQD																1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
				DEPLOY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5
7	STORE	38	40	REQD	0	0	0	0	0	0	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1
				DEPLOY	0	0	0	0	0	0	0.25	0.25	0.25	0.25	0.5	0.75	0.75	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	0.5	0.5	0.5	0.5
8	SAFETY	22	34	REQD								0.25	0.25	0.25	0.5	0.5	0.5	0.5	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1
				DEPLOY	0	0	0	0	0	0	0	0.25	0.25	0.25	0.5	0.5	0.5	0.5	1	1	1	1	1.25	2	2	2	2	2	2	2	2	2	2	1.25	1.25	1	1	0.5	0.5	0.5
9	PLANNING	26	27	REQD	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1
				DEPLOY	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.5	0.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.75	0.75	0.5	0.5	0.5
10	DOCUMENTATION	13	0.0	REQD									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
				DEPLOY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B																																							
1	P&A	17	21	REQD						0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5
				DEPLOY	0	0	0	0	0	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	1	1	1	1	1	1	1	1	1	1	1	1	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5
2	ACCOUNT	0	20	REQD											0.25	0.25	0.25	0.25	0.25	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
				DEPLOY	0	0	0	0	0	0	0	0	0	0	0.25	0.25	0.25	0.25	0.25	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0
	TOTAL	312	415	REQD	1.5	1.5	1.5	1.8	2	2	3	3.5	5	5	6	7.3	8.3	8.3	11	17	18	19	21	21	21	22	22	23	23	23	22	23	23	22	21	21	19	18	17	17
				DEPLOY	0.8	0.8	0.8	1	1.3	1.5	1.8	2.3	3	3	4.8	5.3	5.8	6.8	10	15	15	16	17	17	18	18	19	20	20	20	19	20	20	20	18	17	15	15	14	15

NOTE : PARTIAL MANPOWER USED FOR PARALLE ON GOING EIL PROJECT AT HPCL . MUMBAI (EIL JOB NO -6760, 6269,A062,6776 ETC.)

4.3 LIST OF MAJOR CONTRACTS

SL NO.	DESCRIPTION OF WORK	NAME OF CONTRACTOR	DATE OF AWARD		DATE OF START		CONTRACT VALUE (RS. LACS)	ACTUAL AMOUNT PAID IN Rs. (Lacs)	MAJOR QUANTUM OF WORK				ORIGINAL CONTRACT DURATION (MONTHS)	COMPLETION DATE			CONTRACT DURATION IN MONTH			REMARKS & REASON FOR DELAY IF ANY
			SCH	ACT.	CONTR.	ACTUAL			ITEM DES.	UOM	TENDER QTY	ACT. QTY		SCH.	CONTR.	ACTUAL	SCH.	CONTR.	ACTUAL	
1	RR FOUNDATION WORKS	SKB	15-Nov-07	08-Jan-08	08-Jan-08	08-Jan-08	305.3	@ 305.3	RCC	CM	1750.0	1900.0	3	31-Jan-08	08-Apr-08	***22-Jul-08***	2.5	3.0	6.4	Dealy in Release of front by HPCL and inadeqate mobilisation of Man power by SKB
2	CIVIL & STRL. WORKS IN UNIT PART-1	SKB	31-Mar-08	31-Mar-08	31-Mar-08	07-Apr-08	1256.5	@ 2004.5	RCC	CM	2825.0	4600.0	10	11-Apr-09	30-Jan-09	***31-Dec-10***	12.4	10.0	32.8	Dealy in Release of front.
									Pavement	CM	2500.0	1100.0								
									U/G PPG	RM	2000.0	2500.0								
									STRL	MT	73.0	440.0								
3	Civil & Strl works Part-II	SKB	31-Mar-08	26-Dec-08	26-Dec-08	14-Jan-09	2371.0	@ 2037.00	RCC	CM	4000.00	4675.00	9	11-Apr-09	25-Sep-09	***30-Jun-10***	12.4	9.0	17.5	Dealy in Release of front.
									STRL	MT	300.00	250.00								
4	Extn. Substation-10 works	SKB	31-May-08	26-Dec-08	26-Dec-08	12-Jan-09	@@@		RCC	CM	1520.0	1975.0	8	31-Mar-09	25-Aug-09	***30-Jun-10***	10.0	8.0	17.6	Dealy in Release of front.
									Flooring	SM	2500.0	2400.0								
									Roof treatment	SM	900.0	900.0								
									Plastering	SM	6300.0	6000.0								
									Painting	SM	7320.0	7250.0								
5	FG Cooler Package (Site works)	THERMAX	16-Oct-08	01-Feb-09	01-Feb-09	01-Feb-09	125.6	@ 125.60	Evaporator Module	MT	154.0	154.0	3	15-Apr-09	01-May-09	***30-Mar-10***	6.0	3	13.9	
									Steam Drum/ Downcomer	MT	29.5	29.5								
									Piping	IM	2300.0	2300.0								
6	RR Package (Site works)	L&T	02-Jun-08	29-Aug-08	29-Aug-08	07-Sep-08	8806.5	@ 8586.3	RR Weight	MT	711.0	711.0	7.0	30-Jun-09	28-Mar-09	***25-Feb-11***	12.9	7.0	29.6	Dealy in Release of front due to Cat cooler modification works
									RR Strl.	MT	1215.0	1215.0								
									CyClone & SV	MT	151.0	151.0								
									Orifice chamber	MT	10.0	10.0								
7	Unit Mechanical works	OFFSHORE	30-Sep-08	30-Mar-09	30-Mar-09	31-Mar-09	4067.0	2339.7	STATIC EQPT.	MT	650.0	1344.0	9	29-Sep-09	30-Dec-09	***31-Mar-11***	12.0	9.0	24.0	Dealy in Reciept of Piping Materials and Due to cat cooler modification works.
									PUMPS	Nos	59.0	59.0								
									COMPRESSOR	Nos	3.0	3.0								
									PIPING FABN	ID	180000.0	238341.0								
									PIPING ERCN	IM	217000.0	295081.0								
									STRL.	MT	500.0	910.0								
8	Sea Cooling Supply & Return Line	OFFSHORE	07-Jan-09	07-Jan-09	07-Jan-09	06-Mar-09	780.0	543.05	U/G PIPING	RM	750.00	950.00	10	06-Nov-09	06-Nov-09	***30-Dec-10***	10.0	10.0	21.8	Dealy in Release of front by HPCL
									A/G PIPING	RM	60.00	80.00								
									RCC	CM	850.00	550.00								
9	Civil & Mech. works U/O PART-I	B&R	30-Sep-08	31-Mar-09	31-Mar-09	07-Apr-09	915.6	728.24	RCC	CUM	1520.00	1352.00	8	29-Sep-09	30-Nov-09	***31-Mar-11***	12.0	8.0	23.8	Dealy in Release of front by HPCL
									PIPING FABN	ID	27200.00	40250.00								
									PIPING ERCN	IM	80900.00	113350.00								
									STRL.	MT	100.00	287.00								
10	Civil & Mechanical works U/O PART-II	IOTL	30-Sep-08	14-May-09	14-May-09	18-Jun-09	716.6	464.13	PUMPS	Nos	2.00	2.00	8	29-Sep-09	13-Jan-10	***31-Mar-11***	12.0	8.0	21.4	Dealy in Release of front by HPCL
									PIPING FABN	ID	28125.00	28300.00								
									PIPING ERCN	IM	93000.00	60000.00								
									RCC	CUM	500.00	880.00								
									STRL.	MT	110.00	180.00								
11	DCS Package (Site works)	HAIL	16-Mar-09	01-Aug-09	01-Aug-09	01-Aug-09	775.9	711.53	DCS Panels	Nos	40.00	40.00	4	15-Jul-09	30-Nov-09	***31-May-11***	4.0	4.0	22.0	Dealy in Release of front by other agency
									Internal Loop	Nos	2400.00	2400.00								

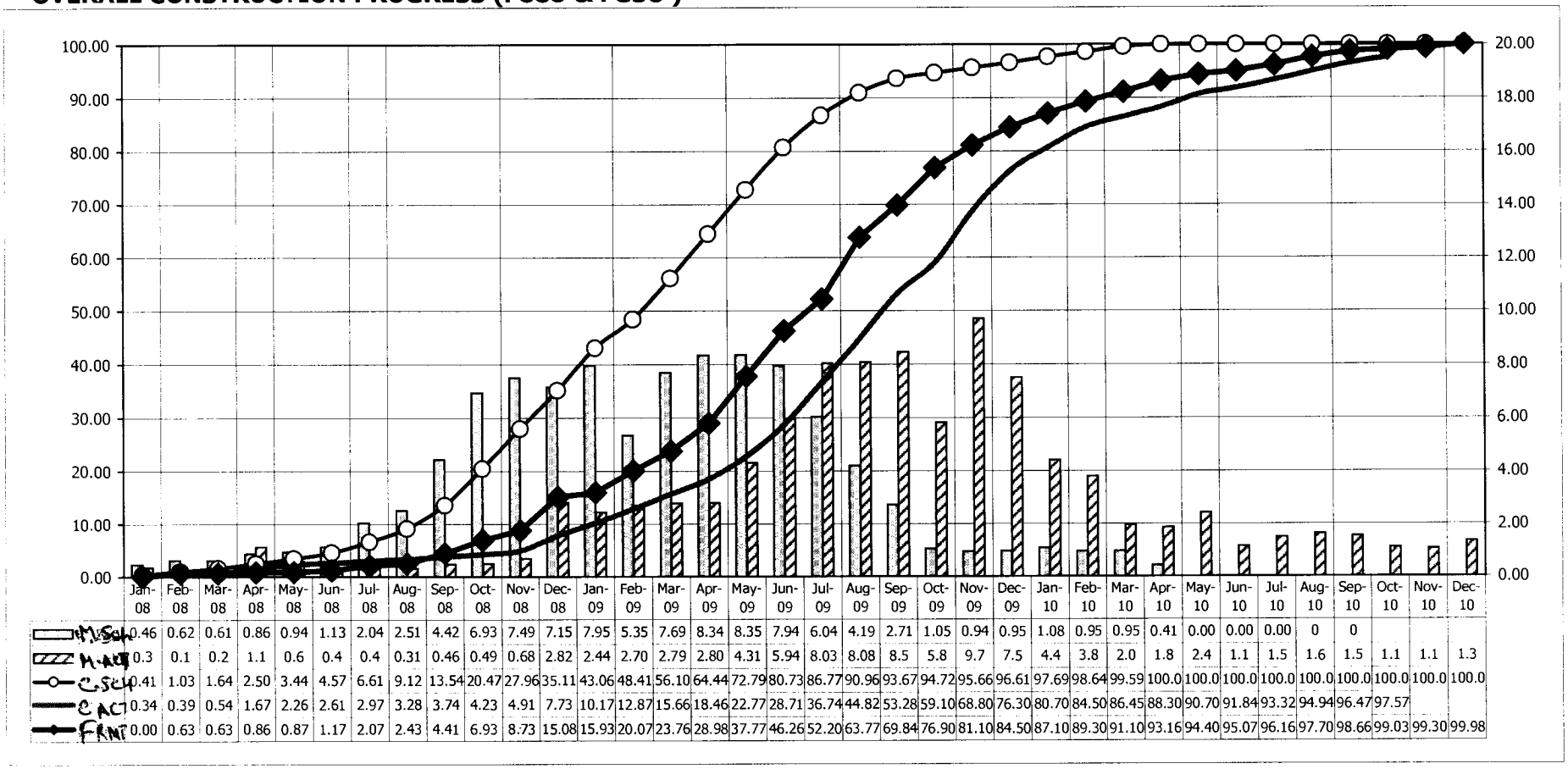
4.3 LIST OF MAJOR CONTRACTS

SL NO.	DESCRIPTION OF WORK	NAME OF CONTRACTOR	DATE OF AWARD		DATE OF START		CONTRACT VALUE (RS. LACS)	ACTUAL AMOUNT PAID IN Rs. (Lacs)	MAJOR QUANTUM OF WORK				ORIGINAL CONTRACT DURATION (MONTHS)	COMPLETION DATE			CONTRACT DURATION IN MONTH			REMARKS & REASON FOR DELAY IF ANY
			SCH	ACT.	CONTR.	ACTUAL			ITEM DES.	UOM	TENDER QTY	ACT. QTY		SCH.	CONTR.	ACTUAL	SCH.	CONTR.	ACTUAL	
12	Instrumentation works	JEPL	31-Jan-09	31-Jul-09	31-Jul-09	28-Aug-09	620.1	350.93	TRAYS	KM	16.00	22.10	8	29-Sep-09	30-Mar-10	***30-Apr-11***	8	8.0	20.1	Dealy in Release of front by other agency
									Multicore Cable	KM	160.00	150.00								
									Branch Cable	KM	75.00	73.00								
									Power Cable	KM	13.00	16.00								
									Instrument Air Line	KM	1700.00	2500.00								
									Instrument Installation	Nos	2200.00	2275.00								
									Loop Checking	Nos	3700.00	2500.00								
13	Heaters Package (Site works)	THERMAX	31-Mar-08	06-Jan-09	06-Jan-09	27-Jul-09	1824.0	@ 1817.0	HEATERS	Nos	1.00	1.00	12	31-Aug-09	05-Jan-10	***06-Dec-10***	17.0	12.0	23.0	Due to inadeqate mobilisation of resources.
									BURNERS	Nos	6.00	6.00								
									Convection section	MT	87.50	87.50								
									Stack		87.50	87.50								
									COIL PIPES	MT	15.70	15.70								
									RAD PANEL	MT	38.56	38.56								
									SHOOT BLOWER	NO	8.00	8.00								
14	Electrical works	TICB	31-Jan-09	09-Oct-09	09-Oct-09	04-Nov-09	605.3	@ 796.0	TRANSFORMERS	Nos	10.0	10.0	5	29-Sep-09	08-Mar-10	***15-Nov-10***	8	5.0	12.4	Dealy in Release of front by other agency
									TRAYS	KM	10.8	13.3								
									CABLE LAYING - HT	KM	40.1	25.2								
									CABLE LAYING - LT	KM	174.2	280.0								
									CABLE LAYING - LIGHTING	KM	73.7	41.0								
									HT/LTSWITCHBOARDS,S8/UPS/BATTERY/CHARGER	Nos	141.0	141.0								
									MOTOR NLR	Nos	118.0	153.0								
15	Civil & Mech works for FGCU , PTU & Caustic	FURNACE FABRICA	16-Jan-09	04-Sep-09	04-Sep-09	15-Oct-09	903	568.73	RCC	CUM	950.00	867.00	6	30-Apr-10	03-Mar-10	***31-Mar-11***	15.4	6.0	17.5	Dealy in Reciept of Piping Materials/ Equipments and inadequate mobilisation of resources by contractor.
									STATIC EQPT.	MT	106.10	142.00								
									PUMPS	Nos	18.00	18.00								
									COMPRESSOR	Nos	2.00	2.00								
									PIPING FABN	ID	5750.00	13300.00								
									PIPING ERCN	IM	10900.00	11300.00								
									STRL.	MT	40.00	22.00								

NOTE : @ - Final Bill Amount.
@@@ : Contract value included with Civil &strl . works part-II

PROGRESS CURVES

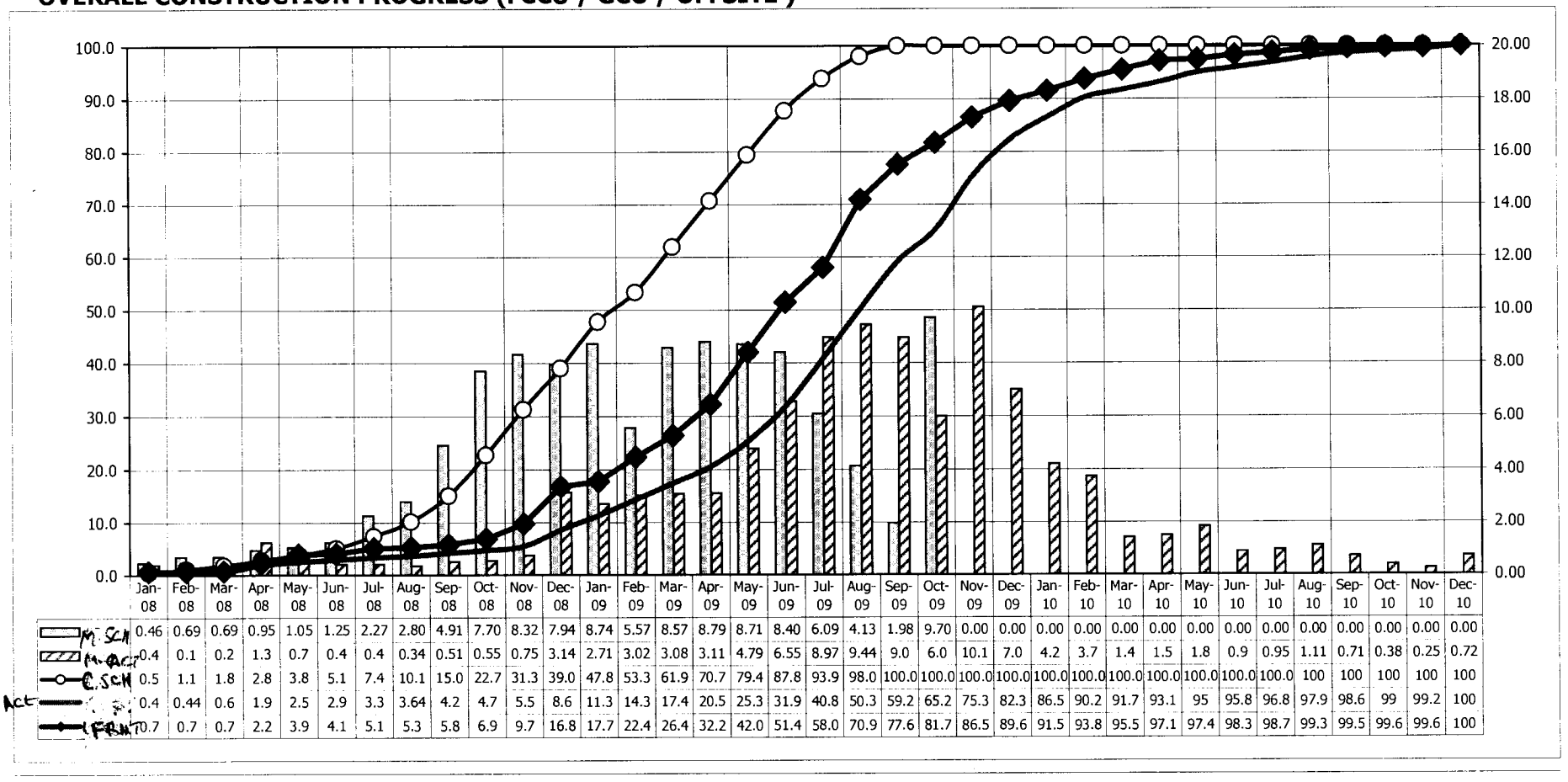
OVERALL CONSTRUCTION PROGRESS (FCCU & FGSU)



	Jan-08	Feb-08	Mar-08	Apr-08	May-08	Jun-08	Jul-08	Aug-08	Sep-08	Oct-08	Nov-08	Dec-08	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09	Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10
M.SCH	0.46	0.62	0.61	0.86	0.94	1.13	2.04	2.51	4.42	6.93	7.49	7.15	7.95	5.35	7.69	8.34	8.35	7.94	6.04	4.19	2.71	1.05	0.94	0.95	1.08	0.95	0.95	0.41	0.00	0.00	0.00	0	0			
M.ACT	0.3	0.1	0.2	1.1	0.6	0.4	0.4	0.31	0.46	0.49	0.68	2.82	2.44	2.70	2.79	2.80	4.31	5.94	8.03	8.08	8.5	5.8	9.7	7.5	4.4	3.8	2.0	1.8	2.4	1.1	1.5	1.6	1.5	1.1	1.1	1.3
C.SCH	0.41	1.03	1.64	2.50	3.44	4.57	6.61	9.12	13.54	20.47	27.96	35.11	43.06	48.41	56.10	64.44	72.79	80.73	86.77	90.96	93.67	94.72	95.66	96.61	97.69	98.64	99.59	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
C.ACT	0.34	0.39	0.54	1.67	2.26	2.61	2.97	3.28	3.74	4.23	4.91	7.73	10.17	12.87	15.66	18.46	22.77	28.71	36.74	44.82	53.28	59.10	68.80	76.30	80.70	84.50	86.45	88.30	90.70	91.84	93.32	94.94	96.47	97.57		
FRNT	0.00	0.63	0.63	0.86	0.87	1.17	2.07	2.43	4.41	6.93	8.73	15.08	15.93	20.07	23.76	28.98	37.77	46.26	52.20	63.77	69.84	76.90	81.10	84.50	87.10	89.30	91.10	93.16	94.40	95.07	96.16	97.70	98.66	99.03	99.30	99.98

PROGRESS CURVES

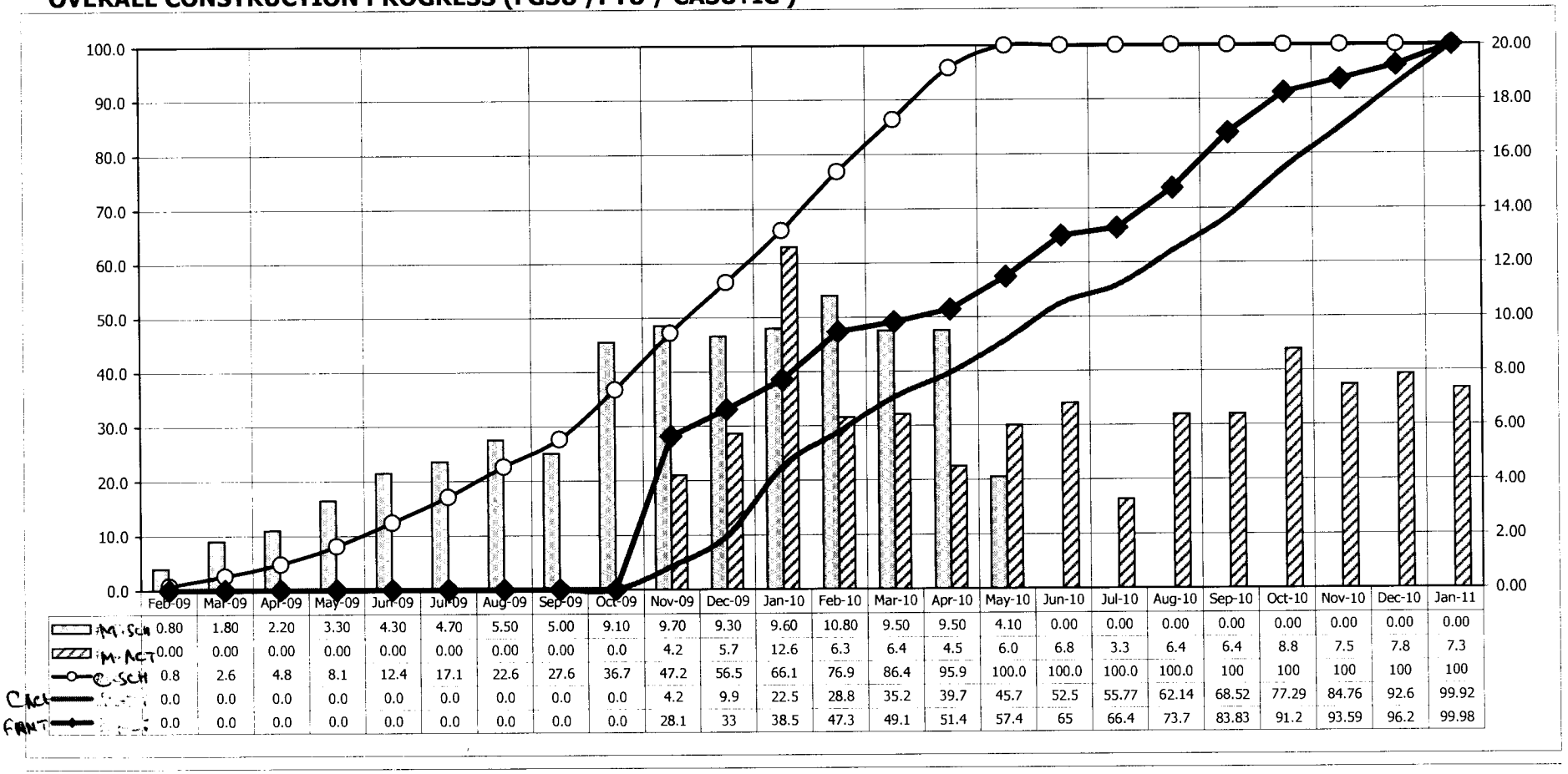
OVERALL CONSTRUCTION PROGRESS (FCCU / GCU / OFFSITE)



	Jan-08	Feb-08	Mar-08	Apr-08	May-08	Jun-08	Jul-08	Aug-08	Sep-08	Oct-08	Nov-08	Dec-08	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09	Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10
M. SCH	0.46	0.69	0.69	0.95	1.05	1.25	2.27	2.80	4.91	7.70	8.32	7.94	8.74	5.57	8.57	8.79	8.71	8.40	6.09	4.13	1.98	9.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M. ACT	0.4	0.1	0.2	1.3	0.7	0.4	0.4	0.34	0.51	0.55	0.75	3.14	2.71	3.02	3.08	3.11	4.79	6.55	8.97	9.44	9.0	6.0	10.1	7.0	4.2	3.7	1.4	1.5	1.8	0.9	0.95	1.11	0.71	0.38	0.25	0.72
C.SCH	0.5	1.1	1.8	2.8	3.8	5.1	7.4	10.1	15.0	22.7	31.3	39.0	47.8	53.3	61.9	70.7	79.4	87.8	93.9	98.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100	100	100	100	100	100
C. ACT	0.4	0.44	0.6	1.9	2.5	2.9	3.3	3.64	4.2	4.7	5.5	8.6	11.3	14.3	17.4	20.5	25.3	31.9	40.8	50.3	59.2	65.2	75.3	82.3	86.5	90.2	91.7	93.1	95	95.8	96.8	97.9	98.6	99	99.2	100
FRM	0.7	0.7	0.7	2.2	3.9	4.1	5.1	5.3	5.8	6.9	9.7	16.8	17.7	22.4	26.4	32.2	42.0	51.4	58.0	70.9	77.6	81.7	86.5	89.6	91.5	93.8	95.5	97.1	97.4	98.3	98.7	99.3	99.5	99.6	99.6	100

PROGRESS CURVES

OVERALL CONSTRUCTION PROGRESS (FGSU /PTU / CASUTIC)



	Feb-09	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09	Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10	Jan-11
M.Sch	0.80	1.80	2.20	3.30	4.30	4.70	5.50	5.00	9.10	9.70	9.30	9.60	10.80	9.50	9.50	4.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M.Act	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	4.2	5.7	12.6	6.3	6.4	4.5	6.0	6.8	3.3	6.4	6.4	8.8	7.5	7.8	7.3
C.Sch	0.8	2.6	4.8	8.1	12.4	17.1	22.6	27.6	36.7	47.2	56.5	66.1	76.9	86.4	95.9	100.0	100.0	100.0	100.0	100	100	100	100	100
CACT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.2	9.9	22.5	28.8	35.2	39.7	45.7	52.5	55.77	62.14	68.52	77.29	84.76	92.6	99.92
FANT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28.1	33	38.5	47.3	49.1	51.4	57.4	65	66.4	73.7	83.83	91.2	93.59	96.2	99.98

4.5 CONTRACTOR PERFORMANCE BAR CHART

4.5.1 CIVIL & STRUCTURAL WORKS-PART -I (M/s SKB BUILDERS)

Sr No	WORK ITEM DESCRIPTION	UOM	QTY. (Sch)	QTY. (Act)	WTD. VALUE(%)		15-Apr-08	15-May-08	15-Jun-08	15-Jul-08	15-Aug-08	15-Sep-08	15-Oct-08	15-Nov-08	15-Dec-08	15-Jan-09	15-Feb-09	15-Mar-09	15-Apr-09	15-May-09	15-Jun-09	15-Jul-09	15-Aug-09	15-Sep-09	15-Oct-09	15-Nov-09	15-Dec-09	15-Jan-10	15-Feb-10	15-Mar-10
						S	1118	2137	2018	1768	1667	2567	2717	1089	200	434														
						F			2400	0	2171	329	200	3800	500	500	200	300	300	350	0	0	0	0	0	0	0	0	0
1	EXCAVATION	CM	12580	8700	0.37	P			1350	900	1800	1250	250	2000	1500	3000	1000	50	500	350	585	570	300	200	100	0	0	0	0	0
						A			685	790	1365	925	85	1555	575	1370	350	21	294	100	0	285	100	100	50	50	0	0	0	0
						S			400	300	300	400	400	400	300	155													
						F										500	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	DISPOSAL OF EARTH	CM	2655	500	0.14	P										400	0	0	0	0	0	0	0	0	0	0	0	0	0	0
						A										450	0	0	50	0	0	0	0	0	0	0	0	0	0	0
						S		58.24	84	58	58	91	91	91	19	0													
						F			57	3	42	0	13	35	30	45	0	65	35	150	0	0	25	0	0	0	0	0	0	0
3	PCC	CM	550	500	1.41	P			35	45	35	24	30	50	60	150	50	60	45	60	70	30	60	21	45	60	50	60	60	40
						A			27	25	3	22	15	24	15	72	3	19	38	5	5	10	25	5	9	10	51	30	45	26
						S		1471	2288	1879	1879	2860	2860	2860	1062	245													
						F			1500	0	632	33	735	3600	2500	400	0	900	600	1000	200	200	100	0	0	0	0	0	0	0
4	CENTERING/ SHUTTERING	SM	17405	12000	1.18	P			910	900	830	1860	990	1650	3000	2400	1500	1910	1300	1200	1500	1800	1500	900	300	250	210	100	80	10
						A			582	283	140	266	579	735	630	2436	1065	710	1100	1300	250	450	905	520	225	40	110	20	70	0
						S		450	650	450	450	700	700	700	150															
						F				738	316	55	16	200	75	370	181	350	3	350	0	0	46	0	0	0	0	0	0	0
5	RCC -SUB STRUCTURE	CM	4250	2700	22.82	P				604	650	620	215	300	400	600	175	350	300	450	571	547	416	78	40	29	12	12	5	5
						A				304	224	233	99	63	134	299	157	74	162	91	78	38	395	70	41	17	0	7	0	0
						S			50	125	125	175	175	175	175	75														
						F					40	20	225	283	92	330	0	50	222	238	0	200	0	0	0	100	100	0	0	0
6	RCC -SUPER STRUCTURE	CM	1075	1900	26.76	P					10	40	190	300	240	500	360	350	460	290	15	102	229	300	90	108	208	90	60	0
						A					4	14	74	184	142	155	150	180	151	283	19	93	39	188	17	0	118	30	60	0
						S					15	20	20	15	3															
						F						25	15	25	1	104	23	23	70	4	50	0	50	0	0	50	0	0	0	0
7	STRL FABRICATION	MT	73	440	6.82	P						15	15	30	50	65	120	100	100	0	35	70	63	60	30	85	0	26	5	0
						A						0	0	10	2	12	76	11	89	0	55	15	25	13	7	88	0	21	5	0
						S						15	15	20	20	3														
						F										125	0	38	113	4	20	0	50	0	0	90	0	0	0	0
8	STRL ERECTION	MT	73	440	3.72	P										10	60	100	100	60	20	83	88	38	65	111	81	138	100	55
						A										5	0	24	83	4	20	6	48	18	39	20	61	57	45	40
						S							20	20	20	10	3													
						F										75	0	38	113	0	24	0	50	50	0	90	0	0	0	0
9	STRL PAINTING	MT	73	440	0.53	P										0	0	0	0	0	40	0	0	50	45	100	150	150	335	240
						A										0	0	0	0	0	5	0	0	25	35	25	28	2	95	100
						S								4	4	2														
						F										5	0	1	0	3	1	0	0	0	0	16	0	0	0	0
10	GRATINGS	MT	10	26	0.24	P										0	0	2	3	0	6	0	6	6	2	8	8	6	4	4
						A										0	0	1	2	0	2	0	0	4	1	7	2	4	0	2
						S								200	200	175														

4.5 CONTRACTOR PERFORMANCE BAR CHART

4.5.1 CIVIL & STRUCTURAL WORKS-PART -I (M/s SKB BUILDERS)

Sr No	WORK ITEM OESCRIPTION	UOM	QTY. (Sch)	QTY. (Act)	WTD. VALUE(%)		15-Apr-08	15-May-08	15-Jun-08	15-Jul-08	15-Aug-08	15-Sep-08	15-Oct-08	15-Nov-08	15-Dec-08	15-Jan-09	15-Feb-09	15-Mar-09	15-Apr-09	15-May-09	15-Jun-09	15-Jul-09	15-Aug-09	15-Sep-09	15-Oct-09	15-Nov-09	15-Dec-09	15-Jan-10	15-Feb-10	15-Mar-10
11	HAND RAIL	RM	575	1250	0.35	F										350	0	300	0	240	50	0	300	0	0	0	10	0	0	0
						P										0	0	0	300	210	0	300	300	250	750	400	1260	200	150	150
						A										0	0	150	30	10	60	0	0	250	220	230	250	150	0	70
						S								10	15	15														
12	BRICK MASONRY	CM	40	0	0	F												0	0	0	0	0	0	0	0	0	0	0	0	0
						P												0	0	0	0	0	0	0	0	0	0	0	0	0
						A												0	0	0	0	0	0	0	0	0	0	0	0	0
						S			100	50	50	400	400	450	450	310														
13	SAND FILLING	CM	2210	210	0.11	F											25	5	120	0	60	0	0	0	0	0	0	0	0	0
						P											0	25	21	30	65	0	0	0	0	0	0	0	0	0
						A											0	5	65	65	45	10	0	0	0	0	0	0	0	0
						S								600	660														
14	ROOFING	SM	1260	1260	0.17	F												0	0	0	0	1260	0	0	0	0	0	0	0	0
						P												0	0	0	0	1000	500	500	500	500	1260	700	760	660
						A												0	0	0	0	0	0	0	0	0	250	250	100	300
						S							5500	5500	5500	5500	1800													
15	WBM	SM	23800	0	0	F												0	0	0	0	3000	4000	0	0	0	0	0	0	0
						P												0	0	0	0	1500	0	0	0	0	0	0	300	430
						A												0	0	0	0		0	0	0	0	0	0	160	125
						S			100	250	250	250	250	250	200	50														
16	PPG FABRICATION	RM	1600	2500	2.41	F					3000	0	0	0	0	0	0	0	0	0	1100	0	500	0	0	0	0	0	0	0
						P					500	1900	1000	700	200	500	900	450	450	300	650	360	100	500	450	500	450	200	100	100
						A					100	96	424	220	0	0	0	50	300	180	486	0	95	180	75	450	150	200	0	0
						S				150	200	250	300	300	300	100														
17	PPG WRP/EXCAVATION LAYING	RM	1600	2500	4.02	F						2000	0	0	0	0	2000	0	0	0	200	0	1400	0	0	0	0	0	0	0
						P						5000	1000	1000	0	600	900	450	450	300	700	0	100	400	450	500	900	200	150	150
						A						0	0	0	0	0	0	25	145	180	630	0	70	140	75	335	550	200	0	0
						S							400	400	400	400														
18	PPG HYDROTESTING	RM	1600	2500	1.61	F					0	0	0	0	0	0	0	500	0	0	200	0	1400	0	0	400	0	0	0	0
						P					0	0	0	0	0	0	0	300	450	300	800	0	100	400	450	500	900	200	150	150
						A					0	0	0	0	0	0	0	25	145	90	720	0	70	140	75	335	550	200	0	0
						S				10	15	15	15	15	15	10														
19	RADIOGRAPHY	NO	95	125	0.06	F						30		0	0	0	0	25	0	0	15	0	60	0	0	25	0	0	0	0
						P						0		0	20	0	0	0	30	45	0	0	0	10	0	30	30	20	5	5
						A						0		0	0	0	0	0	5	30	5	0	0	5	0	20	10	15	0	0
						S						10	10	10																
20	STRESS RELIEVING	NO	30	30	0.03	F						10						20	0	0	5	0	0	5	0	0	0	0	0	0
						P						0						0	0	20	0	0	0	10	0	0	10	8	2	0
						A						0						0	0	0	0	0	0	5	0	0	2	6	2	0
						S							600	700	700	510														
21	GI PIPING	RM	2510	500	0.07	F																					450	450	450	450

4.5 CONTRACTOR PERFORMANCE BAR CHART

4.5.1 CIVIL & STRUCTURAL WORKS-PART -I (M/s SKB BUILDERS)

Sr No	WORK ITEM DESCRIPTION	UOM	QTY. (Sch)	QTY. (Act)	WTD. VALUE(%)		15-Apr-08	15-May-08	15-Jun-08	15-Jul-08	15-Aug-08	15-Sep-08	15-Oct-08	15-Nov-08	15-Dec-08	15-Jan-09	15-Feb-09	15-Mar-09	15-Apr-09	15-May-09	15-Jun-09	15-Jul-09	15-Aug-09	15-Sep-09	15-Oct-09	15-Nov-09	15-Dec-09	15-Jan-10	15-Feb-10	15-Mar-10
21	FAB/LAYING	RM	2510	500	0.07	P																				150	120	80	95
						A																				10	0	45	45
						S								1000	1000	510													
22	GI TESTING	RM	2510		0.07	F																							
						P																							
						A																							
						S								10	10	5													
23	EARTH ELECTRODES	NO	25	0	0	F																							
						P																							
						A																							
						S							200	200	200	200	200												
24	EARTHING STRIPS	RM	1000	1000	0.36	F																			800	0	0	0	0
						P																			100	0	300	300	300
						A																			100	200	50	95	205
			CUMM. Sch (%)				2.40%	10.07%	28.29%	30.05%	40.02%	54.83%	71.13%	86.63%	95.17%	99.32%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
			CUMM FRONT % RELEASE						9.10%	10.75%	19.97%	22.25%	26.04%	36.09%	38.81%	54.24%	56.59%	66.62%	74.20%	84.22%	85.78%	90.08%	96.67%	97.21%	97.21%	98.52%	98.51%	98.51%	99.35%	99.50%
			MONTHLY % PROGRAMM						4.15%	6.27%	7.50%	11.20%	9.61%	10.08%	10.02%	16.45%	12.90%	14.12%	12.38%	11.33%	8.76%	9.58%	9.82%	9.09%	6.96%	6.58%	10.69%	5.18%	4.30%	4.32%
			CUMM ACT % PROGRESS						2.90%	6.20%	9.30%	12.36%	16.17%	21.25%	25.35%	34.21%	41.08%	48.60%	54.76%	61.07%	64.23%	70.02%	75.42%	81.69%	84.19%	84.33%	90.11%	92.63%	94.91%	96.40%

4.5 CONTRACTOR PERFORMANCE BAR CHART

4.5.2 CIVIL & STRUCTURAL WORKS-PART -II (M/s SKB BUILDERS)

Sr No	WORK ITEM DESCRIPTION	UOM	QTY. (Sch)	QTY. (Act)	WTD. VALUE(%)		15-Jan-09	15-Feb-09	15-Mar-09	15-Apr-09	15-May-09	15-Jun-09	15-Jul-09	15-Aug-09	15-Sep-09	15-Oct-09	15-Nov-09	15-Dec-09
1	EXCAVATION	CM	14670	7500	5.38	S	4500	2555	2500	2500	2000	615						
						F		6000	0	0	7000	0	0	0	0	0	0	0
						P		1055	900	200	900	2500	0	150	300	350	150	115
						A		600	0	0	525	1410	0	0	100	315	35	105
2	DISPOSAL OF EARTH	CM	2500	1500	0.54	S					500	800	800	400				
						F		500	0	0	0	0	0	1000	0	0	0	0
						P		0	0	0	500	0	0	1000	0	0	1	0
						A		0	0	0	0	0	0	500	0	0	300	0
3	PCC	CM	260	210	0.75	S	85	30	30	40	40	35						
						F		115	0	0	75	20	0	0	0	0	0	0
						P		30	30	15	30	90	0	5	19	15	10	0
						A		21	3	0	11	46	0	0	19	11	0	7
4	CENTERING/ SHUTTERING	SM	17600	12500	1.56	S	5148	3024	1180	1070	2280	2226	1100	1100	472			
						F		5000	1500	1000	2500	2000	500	0	0	0	0	0
						P		3042	2500	2100	1500	2400	2400	2400	1800	2000	2000	1700
						A		1302	538	1515	430	1015	1075	1612	1138	750	900	900
5	RCC -SUB STRUCTURE	CM	2300	2150	23.07	S	670	360	275	250	375	370						
						F		1080	0	159	511	300	100	0	0	0	0	0
						P		360	400	150	600	677	110	30	75	60	105	150
						A		188	103	0	184	609	92	10	0	46	3	105
6	RCC -SUPER STRUCTURE	CM	1700	2525	45.16	S		100	175	175	325	325	250	250	100			
						F		250	480	499	0	771	475	0	0	0	25	25
						P		100	210	450	100	222	850	636	630	577	380	125
						A		44	88	241	85	217	317	463	410	255	280	125
7	BACKFILLING	CM	11600	8000	4.29	S		500	1000	2500	2500	2500	2100	500				
						F			5000	0	1000	2000	0	0	0	0	0	0
						P			0	0	1000	1200	0	0	1000	0	0	500
						A			0	0	0	970	0	0	500	0	0	500
						S			15	15	15	15	15	4	1			

4.5 CONTRACTOR PERFORMANCE BAR CHART

4.5.2 CIVIL & STRUCTURAL WORKS-PART -II (M/s SKB BUILDERS)

Sr No	WORK ITEM DESCRIPTION	UOM	QTY. (Sch)	QTY. (Act)	WTD. VALUE(%)		15-Jan-09	15-Feb-09	15-Mar-09	15-Apr-09	15-May-09	15-Jun-09	15-Jul-09	15-Aug-09	15-Sep-09	15-Oct-09	15-Nov-09	15-Dec-09
8	BOLTS/INSERTS	MT	80	90	0.72	F		10	0	2	8	55	5	0	10	0	0	0
						P		0	2	3	3	3	21	10	10	2	2	1
						A		2	0	2	3	2	51	5	23	0	1	1
9	STRL FABRICATION	MT	300	250	4.92	S			20	60	60	70	60	30				
						F		0	9	167	0	54	0	2	0	0	0	18
						P		0	0	15	100	30	25	25	90	50	45	125
						A		0	0	15	85	8	0	2	46	14	5	36
10	STRL ERECTION	MT	300	250	2.68	S			15	35	60	60	60	50	20			
						F		0	0	0	0	0	0	232	0	0	0	18
						P		0	0	0	0	0	0	20	70	60	130	230
						A		0	0	0	0	0	0	0	26	19	4	41
11	STRL PAINTING	MT	300	250	0.38	S					20	60	70	50	50	50		
						F		0	0	0	0	0	0	232	0	0	0	18
						P		0	0	0	0	0	0	0	0	0	100	200
						A		0	0	0	0	0	0	0	0	0	0	0
12	GRATINGS	MT	30	25	0.29	S						10	10	10				
						F		0	0	0	0	0	0	12	0	0	0	13
						P		0	0	0	0	0	0	9	0	6	1	10
						A		0	0	0	0	0	0	0	4	1	0	5
13	HAND RAIL	RM	700	700	0.25	S						150	150	150	150	100		
						F		0	0	0	0	0	0	700	0	0	0	0
						P		0	0	0	0	0	0	150	120	600	100	300
						A		0	0	0	0	0	0	0	0	75	0	75
						CUMM. Sch (%) - S	**12.76%**	**23.62%**	**34.96%**	**48.35%**	**65.40%**	**80.90%**	**89.82%**	**96.87%**	**99.58%**	**100.00%**	**100.00%**	**100.00%**
						CUMM FRONT % RELEASE- F	**33.77%**	**32.93%**	**43.53%**	**58.07%**	**67.35%**	**84.62%**	**97.67%**	**97.73%**	**97.74%**	**97.74%**	**97.71%**	**100.00%**
						MONTHLY % PROGRAMM - P	**12.79%**	**11.60%**	**10.62%**	**10.94%**	**14.35%**	**13.23%**	**17.15%**	**14.52%**	**15.50%**	**14.35%**	**11.11%**	**9.90%**
						CUMM ACT % PROGRESS- A	**12.79%**	**21.00%**	**24.69%**	**30.33%**	**37.73%**	**49.15%**	**56.33%**	**66.76%**	**76.99%**	**84.45%**	**89.64%**	**96.15%**

4.5 CONTRACTOR PERFORMANCE BAR CHART

4.5.3 CIVIL & STRUCTURAL WORKS-SUB STATION (M/s SKB BUILDERS)

S.NO	WORK ITEM DESCRIPTION	UOM	QTY. (Sch)	QTY. (Act)	WTD. VALUE (%)		15-Jan-09	15-Feb-09	15-Mar-09	15-Apr-09	15-May-09	15-Jun-09	15-Jul-09	15-Aug-09	15-Sep-09	15-Oct-09	15-Nov-09	15-Dec-09	15-Jan-10	15-Feb-10
1	Mobilisation	%	100	100	4.31	S	10	30	30	30						0				
						F							100	0	0	0	0	0	0	0
						P							0	0	0	0	0	0	0	0
						A							0	0	0	0	0	0	0	0
2	Excavation	CM	3000	2000	2.72	S	500	2000	500							0				
						F		1500	0	100	0	0	400	0	0	0	0	0	0	0
						P		1500	900	600	450	0	360	0	100	100	40	10	0	0
						A		330	895	150	0	0	160	0	100	60	30	10	0	0
3	EXCAVATION	CM	150	90	0.61	S	20	80	50							0				
						F		120	0	10	0	20	0	0	0	0	0	0	0	0
						P		50	45	30	45	10	15	15	0	10	20	20	4	0
						A		13	24	9	0	3	2	0	0	9	10	16	4	0
4	RCC sub structure	CM	620	625	12.7	S	50	220	350							0				
						F		520	15	42	0	0	106	0	0	0	0	0	0	0
						P		250	370	380	95	0	90	0	125	125	93	53	3	3
						A		125	60	215	10	0	75	0	0	32	30	50	0	3
5	RCC in Sup. Str	CM	900	1250	45.73	S			50	250	250	250	100			0				
						F		0	75	164	51	315	595	0	0	0	150	150	0	0
						P		0	30	77	120	50	265	300	425	335	160	210	60	1
						A		0	8	36	35	16	132	225	289	296	100	150	59	1
6	Form work	SM	6900	6500	1.54	S	150	500	1000	1550	1550	1550	600			0				
						F		810	10	2680	1500	1000	900	0	0	0	0	0	0	0
						P		280	600	1000	600	150	1800	1200	1500	1600	600	400	75	10
						A		40	305	840	160	113	757	975	1450	950	500	325	65	10
7	Back filling	CM	2300	2200	2.24	S		200	500	500	500	600				0				
						F		0	0	1500	0	0	0	0	0	0	0	700	0	0
						P		0	0	0	0	500	0	0	0	0	0	0	0	0
						A		0	0	500	0	300	0	0	0	0	0	0	0	0
8	Brick Work	CM	700	540	4.57	S				150	200	200	200	40		0				
						F		0	0	0	0	0	340	0	200	0	0	0	0	0

4.5 CONTRACTOR PERFORMANCE BAR CHART

4.5.3 CIVIL & STRUCTURAL WORKS-SUB STATION (M/s SKB BUILDERS)

S.NO	WORK ITEM DESCRIPTION	UOM	QTY. (Sch)	QTY. (Act)	WTD. VALUE (%)		15-Jan-09	15-Feb-09	15-Mar-09	15-Apr-09	15-May-09	15-Jun-09	15-Jul-09	15-Aug-09	15-Sep-09	15-Oct-09	15-Nov-09	15-Dec-09	15-Jan-10	15-Feb-10
8	BRICK WORK	CM	790	540	4.37	P		0	0	0	0	0	0	90	110	300	160	195	75	10
						A		0	0	0	0	0	8	12	90	140	95	120	65	5
9	Plastering	SM	6300	6000	4.07	S					1200	1800	1800	1500		0				
						F		0	0	0	0	0	6300	0	0	0	0	0	0	0
						P		0	0	0	0	0	0	600	300	1300	600	3200	2000	1900
						A		0	0	0	0	0	0	0	0	1200	380	1800	900	1700
10	Flooring	SM	2500	2400	6.5	S					500	600	700	700		0				
						F		0	0	0	0	0	2500	0	0	0	0	0	0	0
						P		0	0	0	0	0	0	0	100	50	400	1800	900	650
						A		0	0	0	0	0	0	0	0	0	250	650	850	350
11	Flase ceiling	SM	1280	150	0.41	S							400	600	280	0				
						F		0	0	0	0	0	1280	0	0	0	0	0	0	0
						P		0	0	0	0	0	0	0	0	0	0	0	0	0
						A		0	0	0	0	0	0	0	0	0	0	0	0	0
12	Door/ window	SM	180	180	0.3	S							80	100						
						F		0	0	0	0	0	180	0	0	0	0	0	0	0
						P		0	0	0	0	0	0	0	20	0	0	180	170	110
						A		0	0	0	0	0	0	0	0	0	0	10	60	90
13	Painting (Int/Ext)	SM	7320	7250	4.91	S					1250	1500	2000	2000	570	0				
						F		0	0	0	0	0	7200	120	0	0	0	0	0	0
						P		0	0	0	0	0	0	0	0	0	600	1200	2000	3000
						A		0	0	0	0	0	0	0	0	0	0	0	400	1250
14	Roof Treatment	SM	900	900	0.91	S								700	200	0				
						F		0	0	0	0	0	0	0	900	0	0	0	0	0
						P		0	0	0	0	0	0	0	0	0	0	900	450	550
						A		0	0	0	0	0	0	0	0	0	0	0	300	300
						CUMM. Sch (%) - S	**2.48%**	**12.57%**	**25.39%**	**39.19%**	**55.32%**	**72.47%**	**86.15%**	**95.72%**	**99.06%**	**99.06%**	**99.06%**	**99.06%**	**99.06%**	**99.06%**
						CUMM FRONT % RELEASE- F	**11.51%**	**18.74%**	**25.60%**	**35.24%**	**33.35%**	**47.64%**	**97.35%**	**99.10%**	**99.08%**	**99.08%**	**100.00%**	**100.00%**	**100.00%**	**100.00%**
						MONTHLY % PROGRAMM - P	**2.05%**	**9.87%**	**13.71%**	**13.23%**	**10.39%**	**0.03%**	**13.83%**	**13.51%**	**21.09%**	**17.05%**	**12.40%**	**19.24%**	**8.70%**	**6.03%**
						CUMM ACT % PROGRESS- A	**1.39%**	**5.98%**	**10.16%**	**18.07%**	**20.52%**	**21.95%**	**28.90%**	**38.89%**	**52.51%**	**66.42%**	**72.22%**	**85.09%**	**91.35%**	**94.91%**

4.5 CONTRACTOR PERFORMANCE BAR CHART

4.5.4 CIVIL & MECHANICAL WORKS FOR PTU & CAUSTIC AND MECHANICAL WORKS FOR FGSU - BY M/s FURNACE FABRICA

	WORK ITEM DESCRIPTION	UOM	QTY. (Sch)	QTY. (Act)	WTD. VALUE		15-Sep-09	15-Oct-09	15-Nov-09	15-Dec-09	15-Jan-10	15-Feb-10	15-Mar-10	15-Apr-10	15-May-10	15-Jun-10	15-Jul-10	15-Aug-10	15-Sep-10	15-Oct-10	15-Nov-10	15-Dec-10
1	EXCAVATION	CUM	2280	3150	1.68	S			684	1140	456											
						F				1350	1130	20	100	300	0	200	0	0	50	0	0	0
						P				350	1800	900	305	450	88	286	30	30	0	0	20	20
						A				0	2030	165	296	321	2	255	1	0	45	0	25	25
2	PCC	CUM	73	140	0.95	S			20	45	8											
						F				27	0	8	30	10	2	13	0	0	10	40	0	0
						P				10	35	30	6	12	8	9	6	6	0	35	15	15
						A				0	13	16	32	12	4	8	0	4	7	28	2	2
3	RCC SUB STRUCTURE	CUM	910	800	11.66	S			100	425	385											
						F				250	150	0	130	70	50	0	0	0	5	145	0	0
						P				100	450	450	250	210	53	100	90	40	33	98	66	66
						A				0	68	178	215	57	28	22	26	33	0	77	30	30
4	RCC - SUPER STRUCTURE	CUM	40	67	2.28	S					40											
						F				30	0	0	27	0	0	10	0	0	0	0	0	0
						P				0	0	50	57	64	60	41	0	0	0	0	0	0
						A				0	0	0	0	4	30	33	0	0	0	0	0	0
5	STRL. FABN.	MT	40	42	1.57	S			10	10	15	5										
						F				8	24	0	0	6	0	0	0	0	2	0	2	0
						P				17	24	60	16	18	14	5	5	5	3	1	10	10
						A				0	7	1	7	11	9	0	0	2	4	0	7	7
6	STRL. ERCN.	MT	40	42	1.29	S				15	15	10										
						F						0	0	18	5	5	0	5	5	0	0	4
						P						0	10	0	14	0	5	4	18	42	42	42
						A						0	0	11	2	1	0	1	9	0	0	0
7	STRL. PAINTING	MT	40	42	0.15	S					15	15	10									
						F						0	0	15	0	8	0	5	5	1	4	4
						P						0	0	0	0	0	0	0	15	42	42	42
						A						0	0	0	0	0	0	0	0	0	0	0
8	GRATINGS	MT	20	20	0.44	S					8	8	4									
						F								5	0	3	0	2	10	0	0	0
						P								0	0	5	0	0	5	8	4	4
						A								0	0	0	0	4	9	3	0	0
9	HAND RAIL	RM	460	460	0.31	S					150	150	160									
						F								0	0	50	0	100	50	140	60	60
						P								0	0	0	0	50	100	300	109	109
						A								0	0	0	0	50	4	297	0	0

4.5 CONTRACTOR PERFORMANCE BAR CHART

4.5.4 CIVIL & MECHANICAL WORKS FOR PTU & CAUSTIC AND MECHANICAL WORKS FOR FGSU - BY M/s FURNACE FABRICA

	WORK ITEM DESCRIPTION	UOM	QTY. (Sch)	QTY. (Act)	WTD. VALUE		15-Sep-09	15-Oct-09	15-Nov-09	15-Dec-09	15-Jan-10	15-Feb-10	15-Mar-10	15-Apr-10	15-May-10	15-Jun-10	15-Jul-10	15-Aug-10	15-Sep-10	15-Oct-10	15-Nov-10	15-Dec-10
						S					25	45	36.3									
10	STATIC EQPT. ERCN.	MT	106.3	128	3.11	F									48	0	31	18	0	31	0	0
						P									48	0	0	30	18	6	26	26
						A									48	0	31	1	11	5	6	6
						S					25	45	36.3									
11	ST. EQPT. ALIGN/ GRTG.	MT	106.3	128	0.93	F									48	0	31	18	0	31	0	0
						P									0	48	18	30	18	6	37	37
						A									0	31	18	1	11	0	0	0
						S						6	6									
12	PUMPS ERCN	Nos	12	20	1.46	F											2	0	7	8	3	0
						P											0	4	10	17	3	2
						A											0	0	0	15	3	2
						S						6	6									
13	PUMPS ALIGN/GRTG.	Nos	12	20	0.49	F											2	0	7	8	3	0
						P											0	0	10	17	3	2
						A											0	0	0	15	3	2
						S						12										
14	COMPRESSOR ERCN.	MT	12	12	0.38	F														10	0	0
						P														0	9	1
						A														0	8	2
						S						12										
15	COMP. ALIGN/GRTG.	MT	12	12	0.12	F														10	0	0
						P														0	10	3
						A														0	7	3
	PIPING FABRICATION																					
						S			200	500	500	200	100									
18	CS NIBR PPG	ID	1500	5000	5.46	F				600	1600	600	100	200	0	400	0	700	400	100	200	100
						P				600	900	2000	1000	1500	100	500	600	600	1200	1327	807	807
						A				484	410	738	289	0	0	9	227	500	316	1090	530	530
						S			100	1200	1200	1200	550									
19	SS PPG	ID	4250	6500	8.21	F				1100	1300	200	400	200	800	1500	0	300	200	200	200	100
						P				600	3600	2000	900	1200	500	500	1500	1800	1800	964	500	500

4.5 CONTRACTOR PERFORMANCE BAR CHART

4.5.4 CIVIL & MECHANICAL WORKS FOR PTU & CAUSTIC AND MECHANICAL WORKS FOR FGSU - BY M/s FURNACE FABRICA

	WORK ITEM DESCRIPTION	UOM	QTY. (Sch)	QTY. (Act)	WTD. VALUE		15-Sep-09	15-Oct-09	15-Nov-09	15-Dec-09	15-Jan-10	15-Feb-10	15-Mar-10	15-Apr-10	15-May-10	15-Jun-10	15-Jul-10	15-Aug-10	15-Sep-10	15-Oct-10	15-Nov-10	15-Dec-10
						A				404	776	864	474	474	460	85	84	360	755	1043	421	421
	PIPING ERECTION																					
20	CS NIBR PPG	IM	5800	5800	2.54	S				750	2000	2000	1050									
						F										2500	0	1100	400	300	1500	100
						P										500	2400	2400	3300	2213	2100	1588
						A										95	257	183	437	1889	1299	916
21	SS PPG	IM	5100	5000	2.19	S					1500	2600	1000									
						F										1900	0	300	1200	600	800	200
						P										150	240	2700	3300	2431	2100	1800
						A										0	236	775	876	779	1216	1091
	PIPING SUPPORTING																					
22	CS NIBR PPG	IM	5800	5800	1.41	S				750	2000	2000	1050									
						F										2500	0	1100	400	0	1500	1500
						P										500	2400	2100	3300	2171	2231	1869
						A										0	0	493	802	723	856	635
23	SS PPG	IM	5100	5000	1.46	S					1500	2600	1000									
						F										2500	0	300	1200	0	800	200
						P										150	2400	2400	3300	1000	2911	2911
						A										0	0	685	144	0	260	260
	PIPING HYDROTESTING																					
24	CS NIBR PPG	IM	5800	5800	0.56	S						5000	800									
						F													3000	0	2000	800
						P													2100	1000	3000	3000
						A													0	0	600	500
24	SS PPG	IM	5100	5000	0.63	S						3000	2100									
						F													3000	0	500	500
						P													2000	1000	2500	2500
						A													0	0	0	0
25	STRESS RELEIVE	Nos	640	1100	1.6	S						640										
						F						150	0	50	0	100	0	600	0	0	100	100
						P						0	0	0	120	80	120	180	600	150	797	797
						A						80	0	0	36	0	0	0	33	53	0	0
26	RADIOGRAPHY	Nos	697	1500	3.64	S			10	250	250	130	57									
						F						300	0	0	0	0	0	900	0	0	0	0
						P						0	0	0	180	150	120	150	900	604	646	646
						A						120	0	0	26	19	12	82	37	58	206	206
27	INSULATION -PPG	IM	2000	2000	0.49	S						300	1700									
						F													500	0	500	500

4.5 CONTRACTOR PERFORMANCE BAR CHART

4.5.4 CIVIL & MECHANICAL WORKS FOR PTU & CAUSTIC AND MECHANICAL WORKS FOR FGSU - BY M/s FURNACE FABRICA

	WORK ITEM DESCRIPTION	UOM	QTY. (Sch)	QTY. (Act)	WTD. VALUE		15-Sep-09	15-Oct-09	15-Nov-09	15-Dec-09	15-Jan-10	15-Feb-10	15-Mar-10	15-Apr-10	15-May-10	15-Jun-10	15-Jul-10	15-Aug-10	15-Sep-10	15-Oct-10	15-Nov-10	15-Dec-10
27	INSULATION -PPG	IM	2000	2000	0.49	P													0	500	1500	1500
						A													0	0	0	0
28	PAINTING -PPG Primer	IM	5800	5800	0.25	S			1200	3800	800											
						F				0	2600	0	0	0	0	1200	0	500	1100	0	200	200
						P				2000	2000	2400	2695	0	2100	2400	3600	2100	2100	1897	1360	153
						A				0	105	0	0	0	0	216	1952	760	670	737	1207	153
29	PAINTING -PPG Final	IM	3900	3900	0.17	S						1600	2300									
						F													2000	0	500	500
						P													0	2000	2500	3000
						A													0	0	0	0
	QUENCH TOWER ERECTION																					
30	Erection of Shells	MT	120	120	3.03	S					120											
						F										51	0	0	69	0	0	0
						P										51	0	69	69	10	2	0
						A										51	0	0	59	8	2	0
31	Site Welding	RM	22	23	1.68	S						22										
						F													22	1	0	0
						P													0	13	10	0
						A													0	13	10	0
	DUCT FABRICATION /ERECTION																					
32	DUCT FABRICATION	MT	29	22	1.28	S				29												
						F				29	0	0	0	0	0	0	0	0	0	0	0	0
						P				29	29	19	7	6	6	5	5	5	1	1	1	1
						A				0	10	5	1	0	0	0	1	4	0	0	1	1
33	DUCT Erection	MT	29	22	1.07	S						29										
						F										6	0	0	2	4	10	10
						P										0	0	6	8	2	11	11
						A										0	0	0	6	5	11	11
34	Site Welding	MT	29	22	0.48	S						29										
						F													8	4	10	
						P													8	2	11	11
						A													6	5	10	1
	TANK WORKS																					
35	Fabrication	MT	71.5	72	1.57	S			11.5	30	30											
						F				72	0	0	0	0	0	0	0	0	0	0	0	0
						P				30	72	6	6	6	0	0	0	0	0	0	0	0
						A				0	66	0	0	6	0	0	0	0	0	0	0	0
						S				11.5	60											

4.5 CONTRACTOR PERFORMANCE BAR CHART

4.5.4 CIVIL & MECHANICAL WORKS FOR PTU & CAUSTIC AND MECHANICAL WORKS FOR FGSU - BY M/s FURNACE FABRICA

	WORK ITEM DESCRIPTION	UOM	QTY. (Sch)	QTY. (Act)	WTD. VALUE		15-Sep-09	15-Oct-09	15-Nov-09	15-Dec-09	15-Jan-10	15-Feb-10	15-Mar-10	15-Apr-10	15-May-10	15-Jun-10	15-Jul-10	15-Aug-10	15-Sep-10	15-Oct-10	15-Nov-10	15-Dec-10
36	Erection of Shells	MT	71.5	72	3.32	F					0	72	0	0	0	0	0	0	0	0	0	0
						P					20	35	40	50	30	30	37	34	8	8	6	2
						A					0	0	0	11	9	15	3	26	0	4	2	2
37	Welding of shells	RM	300	750	7.29	S				50	150	100										
						F					0	300	0	0	200	150	100	0	0	0	0	0
						P					0	75	150	210	210	360	48	5	5	5	3	2
						A					0	0	0	85	160	417	83	0	0	0	3	2
38	Heating coil fabrication	RM	130	130	1.01	S				130												
						F						130	0	0	0	0	0	0	0	0	0	0
						P						0	0	0	0	0	130	130	130	130	130	130
						A						0	0	0	0	0	0	0	0	0	0	130
39	NDT of Shells	MT	300	750	1.46	S					150	150										
						F						300	0	0	0	400	40	0	0	0	0	0
						P						0	0	0	0	480	449	60	17	17	5	5
						A						0	0	0	0	261	472	0	0	12	0	5
40	Post weld heat treatment	Nos	4	4	0.97	S					2	2										
						F						4	0	0	0	0	0	0	0	0	0	0
						P						0	0	0	0	2	4	2	2	2	1	1
						A						0	0	0	0	0	2	0	0	1	0	0
41	Hydrotesting	MT	4	4	0.58	S							4									
						F										4	0	0	0	0	0	0
						P										0	4	2	2	2	1	1
						A										0	2	0	0	1	0	0
					CUMM. Sch (%) - S		0.00%	0.83%	6.76%	33.39%	66.58%	91.31%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
					CUMM FRONT % RELEASE- F				24.19%	30.65%	37.96%	49.76%	52.07%	55.16%	63.21%	73.97%	75.23%	82.23%	90.73%	95.73%	97.78%	98.80%
					MONTHLY % PROGRAMM - P					11.80%	23.10%	22.37%	15.44%	17.20%	16.18%	15.68%	15.74%	16.19%	19.78%	19.84%	19.85%	10.25%
					CUMM ACT % PROGRESS- A				5.00%	10.07%	20.72%	27.56%	33.06%	39.81%	47.88%	56.64%	61.03%	66.86%	71.66%	77.91%	85.04%	93.26%

4.5 CONTRACTOR PERFORMANCE BAR CHART

4.5.5 MECHANICAL WORKS -UNIT BY M/s OFFSHORE INFRASTRUCTURE LTD.

	WORK ITEM DESCRIPTION	UOM	QTY. (Sch)	QTY. (Act)	WTD. VALUE		15-Apr-09	15-May-09	15-Jun-09	15-Jul-09	15-Aug-09	15-Sep-09	15-Oct-09	15-Nov-09	15-Dec-09	15-Jan-10	15-Feb-10	15-Mar-10	15-Apr-10	15-May-10	15-Jun-10	15-Jul-10
							1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	STATIC EQPT. ERCN.	MT	650	1344	2.95	S	25	75	150	150	150	50	50									
						F			272	191	6	54	127	150	250	166	85	1	6	34		2
						P			230	108	280	260	27	295	211	256	231	32	23	22		22
						A			94	36	54	269	27	194	95	222	231	10	7	15		22
2	ST. EQPT. ALIGN/ GRTG.	MT	650	1344	0.89	S		50	75	150	150	150	75									
						F			272	191	0	94	127	150	250	166	85	1	6	34		2
						P			120	210	280	260	75	400	200	274	227	92	23	23		20
						A			39	91	37	281	1	198	175	211	200	69	6	16		20
3	PUMPS ERCN	Nos	57	57	0.38	S		20	10	35	40	15	2									
						F			24	0	0	0	0	12	19	0	0	0	0	0		1
						P			24	5	0	0	0	8	18	2	2	2	2	2		0
						A			19	5	0	0	0	8	23	0	0	0	0	0		0
4	PUMPS ALIGN/GRTG.	Nos	57	57	0.13	S		20	10	35	40	15	2									
						F			24	0	0	0	0	12	19	0	0	0	0	0		1
						P			24	9	3	0	0	8	10	19	5	2	2	2		0
						A			15	6	3	0	0	2	12	12	5	0	0	0		0
5	COMPRESSOR ERCN.	MT	350	350	1	S		70				100	100	80								
						F			70	0	0	73	12	40	0	0	0	0	0	0		76
						P			0	21	0	48	68	0	0	172	0	0	0	0		56
						A			0	19	0	19	68	0	23	0	0	0	0	0		56
6	COMP. ALIGN/GRTG.	MT	350	350	0.31	S		70				100	100	80								
						F			70	0	0	73	12	40	0	0	0	0	0	0		0
						P			49	70	0	0	0	0	0	172	20	100	120	0		107
						A			0	0	0	0	0	0	50	0	20	1	0	0		0
7	STRL. FABN.	MT	500	910	3.08	S		50	100	150	150	25	25									
						F			150	4	226	291	29	150	0	90	0	70	0	0		0
						P			52	85	100	245	285	160	185	54	70	64	12	5		1
						A			45	59	81	74	216	89	131	74	66	62	7	3		1
						S		25	50	150	150	75	25	25								

4.5 CONTRACTOR PERFORMANCE BAR CHART

4.5.5 MECHANICAL WORKS -UNIT BY M/s OFFSHORE INFRASTRUCTURE LTD.

	WORK ITEM DESCRIPTION	UOM	QTY. (Sch)	QTY. (Act)	WTD. VALUE		15-Apr-09	15-May-09	15-Jun-09	15-Jul-09	15-Aug-09	15-Sep-09	15-Oct-09	15-Nov-09	15-Dec-09	15-Jan-10	15-Feb-10	15-Mar-10	15-Apr-10	15-May-10	15-Jun-10	15-Jul-10
							1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
8	STRL. ERCN.	MT	500	910	2.52	F			60	44	23	307	16	150	125	75	40	70	0	0		0
						P			19	58	85	70	126	150	200	300	245	86	22	10		5
						A			12	22	30	56	69	81	120	185	239	74	12	3		2
9	STRL. PAINTING	MT	500	910	0.29	S				100	100	100	100	100								
						F			60	25	41	308	16	150	125	75	40	726	0	0		0
						P			0	0	0	0	0	0	200	300	300	300	210	150		38
						A			0	0	0	0	0	0	62	186	199	201	92	87		31
10	GRATING FABN/ ERCN	MT	235	255	2.86	S		25	25	35	40	50	50	5	5							
						F			180	15	4	2	21	0	8	0	10	0	15	0		0
						P			0	80	120	92	23	10	22	15	22	11	4	14		10
						A			0	52	56	67	37	1	0	0	16	7	5	3		1
11	HANDRAIL ERCN.	RM	2700	3000	0.18	S		200	250	300	400	500	500	300	200	50						
						F			1500	50	0	150	400	500	0	0	200	0	200	0		0
						P			0	300	800	600	600	600	500	400	300	125	70	237		189
						A			0	27	772	500	516	0	281	287	292	55	33	30		23
12	FIRE PROOFING	CM	75	80	0.26	S		20	20	20	10	5										
						F			18	12	10	25	0	5	3	0	7	0	0	0		0
						P			18	18	22	20	21	20	20	15	10	6	5	5		5
						A			0	18	22	0	0	11	5	9	10	0	0	0		0
	PIPING FABRICATION																					
13	CS NIBR PPG	ID	140000	160000	16.88	S		12500	24000	26000	29000	28000	11000	9100	400							
						F			55000	28000	6000	14500	21500	10000	5000	7000	2000	5000	5000	0		0
						P			35000	36000	35000	23000	19500	18000	14000	11807	7000	5500	3000	3399		1617
						A			23551	21868	30401	19496	17426	12371	10799	5079	4858	4275	3477	1982		900
14	CS IBR PPG.	ID	23500	24240	2.56	S			2000	4000	4500	4500	4500	3500	500							
						F			3500	3500	1500	3700	0	3800	2000	3000	1000	1000	800	90		440
						P			0	3000	3000	4500	2400	8000	5000	10900	2500	2000	500	409		217
						A			0	4576	2579	1607	632	1870	1336	7151	2037	1163	440	212		487
						S			1500	3000	3100	3000	1000	900								

4.5 CONTRACTOR PERFORMANCE BAR CHART

4.5.5 MECHANICAL WORKS -UNIT BY M/s OFFSHORE INFRASTRUCTURE LTD.

	WORK ITEM DESCRIPTION	UOM	QTY. (Sch)	QTY. (Act)	WTD. VALUE		15-Apr-09	15-May-09	15-Jun-09	15-Jul-09	15-Aug-09	15-Sep-09	15-Oct-09	15-Nov-09	15-Dec-09	15-Jan-10	15-Feb-10	15-Mar-10	15-Apr-10	15-May-10	15-Jun-10	15-Jul-10
							1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
15	AS PPG	ID	12500	18500	2.77	F			300	300	1200	4200	4500	500	1000	2000	1800	1000	0	1500		100
						P			0	1500	1200	2100	7400	3000	3000	5020	2000	2200	1800	500		460
						A			0	0	1182	1615	4447	1312	1424	2565	1681	1228	846	1340		70
16	SS PPG	ID	4000	6000	0.79	S			700	900	1000	700	400	300								
						F			500	0	1152	1948	0	400	0	200	300	400	200	400		490
						P			0	600	1300	2200	700	0	600	1489	800	700	210	100		517
						A			0	0	1249	2262	0	0	0	484	217	521	267	203		387
	PIPING ERECTION																					
17	CS NIBR PPG	IM	160000	184000	14.56	S		5000	19000	24000	25000	25000	30000	30000	2000							
						F			35000	18000	11020	34980	17000	15000	19000	19000	7500	3000	500	2800		0
						P			36000	40000	30000	24000	26000	20000	36500	14787	8000	4500	3000	1800		890
						A			16751	19609	22039	20024	20905	16263	32265	20245	7433	2921	1374	2200		600
18	CS IBR PPG.	IM	35000	24500	1.94	S			3000	4500	5500	7000	7000	7000	1000							
						F			0	0	2400	4600	2800	5200	5000	1000	1000	1000	500	400		600
						P			0	0	1000	3000	5400	6000	18000	21381	3000	2000	1200	600		330
						A			0	0	999	3161	5000	223	3795	6027	1664	1218	728	544		212
19	AS PPG	IM	17000	18000	1.42	S			1500	2600	3000	3500	3200	3200								
						F			0	0	400	5100	0	500	4000	0	3500	3500	0	1000		0
						P			0	0	0	500	2400	3000	7500	13713	8000	5000	3000	2939		847
						A			0	0	0	0	1040	0	2247	3550	4321	2611	1292	1192		347
20	SS PPG	IM	5000	65000	51	S			400	800	900	1000	1000	900								
						F			0	0	1500	0	1500	0	1000	0	500	500	500	500		400
						P			0	0	400	1500	1100	500	2000	3096	1500	1500	1500	1000		400
						A			0	0	360	0	984	0	560	796	564	1036	312	532		403
	PIPING SUPPORTING																					
21	CS NIBR PPG	IM	160000	184000	9.71	S		5000	19000	24000	25000	25000	30000	30000	2000							
						F			25000	15000	24020	35980	17000	15000	19000	20000	6000	3500	500	2800		0
						P			0	30000	40000	24000	25000	20000	36500	13395	8000	5000	3000	1500		1250
						A			0	17669	31532	22777	26172	18844	29611	19896	8273	4027	1203	1946		681

4.5 CONTRACTOR PERFORMANCE BAR CHART

4.5.5 MECHANICAL WORKS -UNIT BY M/s OFFSHORE INFRASTRUCTURE LTD.

	WORK ITEM DESCRIPTION	UOM	QTY. (Sch)	QTY. (Act)	WTD. VALUE		15-Apr-09	15-May-09	15-Jun-09	15-Jul-09	15-Aug-09	15-Sep-09	15-Oct-09	15-Nov-09	15-Dec-09	15-Jan-10	15-Feb-10	15-Mar-10	15-Apr-10	15-May-10	15-Jun-10	15-Jul-10
							1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
22	CS IBR PPG.	IM	35000	24500	1.29	S			3000	4500	5500	7000	7000	7000	1000							
						F			0	0	2440	4560	2800	5200	5000	1000	1000	1000	500	400		600
						P			0	0	0	3000	6000	7500	18000	23568	3000	2500	1200	800		325
						A			0	0	0	0	6200	3395	1837	7174	2606	1534	397	607		206
23	AS PPG	IM	17000	18000	0.95	S			1500	2600	3000	3500	3200	3200								
						F			0	0	400	5100	0	500	4000	0	3500	3500	0	0		500
						P			0	0	0	500	4000	3000	7500	15390	8000	5000	3000	3000		528
						A			0	0	0	0	0	0	1610	4635	4836	2366	1307	1406		497
24	SS PPG	IM	5000	65000	0.34	S			400	800	900	1000	1000	900								
						F			0	0	1500	0	0	1500	1000	0	500	500	0	800		600
						P			0	0	0	1500	0	500	2000	4680	1800	2000	1600	1200		500
						A			0	0	0	0	0	0	320	1890	1055	864	344	422		351
	PIPING HYDROTESTING																					
25	CS NIBR PPG	IM	160000	184000	4.85	S			5000	20000	26000	26000	30000	30000	23000							
						F			0	0	25000	15000	0	10000	20000	0	20000	60000	20000	8000		5200
						P			0	15000	15000	24000	25000	30000	40000	40000	40000	42000	51000	52000		20936
						A			0	0	2555	4644	7652	5650	14399	13037	20264	23102	28395	15420		21295
26	CS IBR PPG.	IM	35000	24500	0.65	S				4000	6000	6500	7000	7000	4500							
						F										2150	9860	5990	5500	0		500
						P										0	8000	5000	9000	1500		714
						A										1172	6838	5232	8860	620		434
27	A5 PPG	IM	17000	18000	0.47	S				2500	3000	3500	3500	3500	1000							
						F											0	9000	3000	0		5500
						P											1000	0	3000	10000		7538
						A											0	0	220	3790		6712
28	SS PPG	IM	5000	65000	0.17	S				700	900	1000	1100	1100	200							
						F										200	800	2000	1000	1500		900
						P										0	3000	1000	2100	4500		2636

4.5 CONTRACTOR PERFORMANCE BAR CHART

4.5.5 MECHANICAL WORKS -UNIT BY M/s OFFSHORE INFRASTRUCTURE LTD.

	WORK ITEM DESCRIPTION	UOM	QTY. (Sch)	QTY. (Act)	WTD. VALUE		15-Apr-09	15-May-09	15-Jun-09	15-Jul-09	15-Aug-09	15-Sep-09	15-Oct-09	15-Nov-09	15-Dec-09	15-Jan-10	15-Feb-10	15-Mar-10	15-Apr-10	15-May-10	15-Jun-10	15-Jul-10
							1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
						A										180	0	475	0	1147		0
29	PPG. CEMENT LINING	IM	45800	36000	2.37	S						24000	21800									
						F				15000	0	3000	8000	2000	6000	0	900	0	100	0		3000
						P				0	6000	6000	4000	8000	6000	12000	1030	436	436	0		3000
						A				0	6038	4518	3902	4318	4641	4113	494	0	536	0		3000
30	STRESS RELEIVE	Nos	8600	8600	1.13	S			1000	1000	1000	1000	2000	2000	600							
						F			1500	0	100	700	3200	0	0	1500	0	150	850	1600		100
						P			250	500	700	450	800	850	800	800	900	300	180	300		749
						A			113	445	693	474	705	665	631	641	834	470	554	1011		325
31	RADIOGRAPHY	Nos	8000	11500	2.53	S		556	1253	1507	1671	1609	751	613	40							
						F			3000	500	500	1000	900	0	300	1300	300	700	2500	0		40
						P			400	900	900	900	1000	1050	900	900	900	600	210	1200		699
						A			276	754	589	836	945	1230	711	689	823	1025	718	933		421
32	STEAM TRACING	RM	8500	11500	0.76	S						1000	3000	3000	1500							
						F								700	100	2200	2000	2000	1000	2400		950
						P								1000	500	2000	3000	2000	2100	1000		722
						A								170	130	2010	2124	1160	1385	2719		689
33	GI PIPING	IM	11000	11000	1.45	S							2000	4500	4500							
						F										0	3000	1000	5000	0		0
						P										4000	4000	3000	4500	6000		6895
						A										0	416	942	100	0		0
34	Sp. NOZZLE IN FW Sys.	Nos	858	858	0.19	S							100	400	358							
						F																
						P																
						A																
35	INSULATION - PPG	IM	95000	105000	2.31	S						5000	25000	35000	30000							
						F						12000	3000	0	0	0	15000	30000	20000	10000		12000
						P						0	5000	7000	15000	20000	20000	30000	30000	35000		15992
						A						0	0	0	0	930	17035	18080	13907	22105		4938

4.5 CONTRACTOR PERFORMANCE BAR CHART

4.5.5 MECHANICAL WORKS -UNIT BY M/s OFFSHORE INFRASTRUCTURE LTD.

	WORK ITEM DESCRIPTION	UOM	QTY. (Sch)	QTY. (Act)	WTD. VALUE		15-Apr-09	15-May-09	15-Jun-09	15-Jul-09	15-Aug-09	15-Sep-09	15-Oct-09	15-Nov-09	15-Dec-09	15-Jan-10	15-Feb-10	15-Mar-10	15-Apr-10	15-May-10	15-Jun-10	15-Jul-10
							1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
36	INSULATION - EQPT.	SM	3250	3250	0.71	S		500	500			400	500	600	600	150						
						F				1000	0	600	0	0	0	600	1000	50	0	0		0
						P				0	0	300	0	450	1200	1200	1000	511	77	0		29
						A				0	0	0	0	185	243	1278	1033	434	48	0		0
37	PAINTING -PPG Primer	IM	217000	230000	0.91	S	10000	35000	35000	35000	36000	45000	21000									
						F			110000	10000	34805	20195	14000	11000	10000	6000	8400	4600	500	100		400
						P			70000	60000	48000	40000	20000	20000	15000	8000	9865	6000	661	0		0
						A			59248	21199	42832	23312	22409	9285	13715	6135	8830	4374	1161	100		400
38	PAINTING -PPG Final	IM	210000	230000	0.91	S					15000	40000	50000	50000	50000	5000						
						F						12000	3000	10000	15000	0	55000	50000	55000	19000		7000
						P						5000	12000	20000	20000	20000	40000	40000	45000	50000		22955
						A						0	0	5448	9052	18065	32649	37207	47849	48905		3822
39	PAINTING - EQPT.	5M	6000	6700	0.71	S						500	1500	1500	2000	500						
						F						500	1600	0	0	2000	2400	100	0	50		50
						P						430	420	1400	1400	2000	3500	700	194	300		100
						A						0	0	294	774	2619	2313	406	22	0		100
40	CHEM. CLEANING	IM	200000	30000	0.13	S								20000	150000	30000						
						F																
						P																
						A																
					CUMM. Sch (%) - S		1.78%	7.59%	18.37%	32.39%	47.71%	64.64%	79.99%	93.33%	98.78%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
					CUMM FRONT % RELEASE- F		0.00%	11.61%	23.89%	33.96%	40.88%	56.02%	65.40%	71.85%	80.08%	85.92%	86.26%	94.68%	96.90%	97.47%	97.65%	98.55%
					MONTHLY % PROGRAMM - P		0.00%	3.10%	10.41%	15.03%	15.12%	15.28%	14.34%	13.87%	17.12%	18.37%	9.79%	7.21%	5.76%	5.68%	1.89%	3.25%
					CUMM ACT % PROGRESS- A		0.00%	3.10%	9.38%	19.98%	31.63%	42.74%	53.35%	60.57%	70.60%	80.45%	86.28%	89.59%	91.67%	92.98%	94.87%	95.73%

4.5 CONTRACTOR PERFORMANCE BAR CHART

4.5.6 CIVIL / MECHANICAL WORKS -OFFSITE PART-II BY M/s IOTL

	WORK ITEM DESCRIPTION	UOM	QTY SCH	QTY ACT.	WTD VALUE (%)		15-Jun-09	15-Jul-09	15-Aug-09	15-Sep-09	15-Oct-09	15-Nov-09	15-Dec-09	15-Jan-10	15-Feb-10	15-Mar-10	15-Apr-10	15-May-10	15-Jun-10	15-Jul-10
1	MOBILISATION	%	100	100	6.31	S	15	25	25	25	10									
						F														
						P														
						A														
2	SUPPLY OF B.O.I	%	100	100	6.31	S	15	20	20	25	20				0					
						F								100						
						P								0						
						A								0						
3	EXCAVATION	CUM	1370	2200	0.19	S		300	350	400	320				0					
						F		400	0	400	400	300	0	0	500	200	0	0	0	0
						P		75	300	600	550	550	200	0	0	500	200	50	0	0
						A		25	145	265	515	350	200	0	0	500	150	25	0	0
4	PCC	CUM	50	100	0.59	S		5	15	15	15				0					
						F		20	0	20	11	4	0	10	15	10	0	15	0	0
						P		0	15	21	45	10	5	2	18	5	5	3	5	4
						A		0	4	18	18	5	3	9	13	10	2	10	4	4
5	RCC	CUM	500	500	4.46	S		50	150	175	125				0					
						F		110	0	100	0	140	0	90	150	0	0	10	0	0
						P		0	80	120	210	180	75	55	125	115	95	50	20	30
						A		0	30	50	52	93	20	80	60	10	45	10	15	20
6	STRL. FABN.	MT	110	180	5.83	S	2	25	25	25	25	8			0					
						F			3	2	25	0	0	0	40	0	15	25	70	0
						P			0	0	20	0	5	4	0	44	32	14	50	30
						A			3	0	17	5	2	0	0	12	33	36	40	20
7	STRL. ERCN.	MT	110	180	4.77	S		18	25	28	28	11			0					
						F			3	2	25	0	0	0	40	0	15	25	70	70
						P			0	0	3	0	12	4	0	43	43	15	78	78
						A			0	4	1	13	9	0	0	0	43	18	73	73
8	STRL. PAINTING	MT	110	180	0.55	S				25	30	30	25		0					
						F			3	2	25	0	0	0	40	0	15	25	70	0
						P			0	0	0	0	12	0	0	30	70	60	80	65
						A			0	0	0	0	0	0	0	0	15	20	65	45
	PIPING FABRICATION														0					
9	CS NIBR PPG	ID	27900	21000	19.88	S	1500	6000	8000	7000	3000	2400			0					
						F	2500	3500	2500	2500	500	450	1050	500	500	150	150	600	4000	2000
						P	1500	5000	5500	3000	2100	1200	950	202	614	514	392	300	5000	2500
						A	0	1582	5396	2106	1264	1152	1298	488	400	72	440	256	3500	1800

4.5 CONTRACTOR PERFORMANCE BAR CHART

4.5.6 CIVIL / MECHANICAL WORKS -OFFSITE PART-II BY M/s IOTL

	WORK ITEM DESCRIPTION	UOM	QTY SCH	QTY ACT.	WTD VALUE (%)		15-Jun-09	15-Jul-09	15-Aug-09	15-Sep-09	15-Oct-09	15-Nov-09	15-Dec-09	15-Jan-10	15-Feb-10	15-Mar-10	15-Apr-10	15-May-10	15-Jun-10	15-Jul-10
						S				195					0					
10	CS IBR PPG.	ID	195	1700	1.61	F				858	242	0	0	0	0	0	0	0	600	0
						P				550	700	900	900	900	800	667	341	145	525	600
						A				200	0	0	0	100	133	326	196	63	242	300
						S				30					0					
11	SS PPG	ID	30	0	0	F														
						P														
						A														
	PIPING ERECTION														0					
						S		20000	20000	20000	23000	10000			0					
12	CS NIBR PPG	IM	93000	46000	17.41	F	15000	15000	5500	3500	1000	2000	2000	0	1000	0	2000	500	1500	1500
						P	0	24000	36000	21000	1000	2000	2231	308	1250	315	315	1739	1052	1052
						A	0	10261	13368	13000	0	2140	1923	58	935	0	576	820	500	500
						S				650					0					
13	CS IBR PPG.	IM	650	5500	2.08	F				3227	500	1000	0	0	0	2000	0	0	500	0
						P				0	2000	0	3000	3000	1600	720	1124	860	800	800
						A				0	0	0	0	1400	880	1596	264	0	660	660
						S				100					0					
14	SS PPG	IM	100	0	0	F				0	0	0	0	0	0	0	0	0	0	0
						P				0	0	0	0	0	0	0	0	0	0	0
						A				0	0	0	0	0	0	0	0	0	0	0
	PIPING SUPPORTING														0					
						S		15000	20000	20000	26000	12000			0					
15	CS NIBR PPG	IM	93000	46000	9.67	F	10000	20000	5500	3500	1000	2000	2000	0	1000	0	2000	500	1500	1200
						P	0	15000	36000	22000	9000	7000	4368	1050	2000	1268	1268	3200	9600	5600
						A	0	0	10232	17320	4750	3330	4318	0	782	0	0	468	2600	1800
						S				650					0					
16	CS IBR PPG.	IM	650	5500	1.16	F					2000	1000	0	0	0	2000	0	0	500	0
						P					2000	0	0	3000	1600	1400	2120	1500	1100	1100
						A					0	0	0	1400	200	1280	620	380	340	340
						S				100					0					
17	SS PPG	IM	100	0	0	F														
						P														
						A														
	PIPING HYDROTESTING														0					
						S			20000	20000	33000	20000			0					
18	CS NIBR PPG	IM	93000	46000	3.87	F			21000	0	16000	2000	2000	0	1000	0	2000	500	1500	0

4.5 CONTRACTOR PERFORMANCE BAR CHART

4.5.6 CIVIL / MECHANICAL WORKS -OFFSITE PART-II BY M/s IOTL

	WORK ITEM OESCRIPTION	UOM	QTY SCH	QTY ACT.	WTD VALUE (%)		15-Jun-09	15-Jul-09	15-Aug-09	15-Sep-09	15-Oct-09	15-Nov-09	15-Dec-09	15-Jan-10	15-Feb-10	15-Mar-10	15-Apr-10	15-May-10	15-Jun-10	15-Jul-10
18	CS NIBR PPG	IM	93000	46000	3.67	P				10000	22000	25000	32228	27200	12115	10317	9000	9000	9600	5600
						A				0	5265	2507	6028	15085	2798	1317	2000	0	2600	1800
19	CS IBR PPG.	IM	650	5500	0.46	S					650				0					
						F								3000	0	2000	0	0	500	500
						P								0	3000	2176	4176	4000	5000	5000
						A								0	824	0	0	0	1200	2300
20	SS PPG	IM	100	0	0	S					100				0					
						F														
						P														
						A														
21	RADIOGRAPHY	Nos	300	200	0.42	S	20	70	70	70	40	30			0					
						F		100	20	0	75	0	5	0	0	0	0	0	0	0
						P		90	120	120	75	25	120	88	68	58	50	30	30	16
						A		0	35	10	20	10	37	20	10	8	15	10	12	2
22	STEAM TRACING	RM	19000	8000	2.52	S				4000	5000	5000	5000		0					
						F				1500	3500	2500	400	0	0	0	0	0	0	0
						P				2000	2100	2000	7420	3000	1780	680	580	580	500	500
						A				0	0	580	1220	4320	1200	0	0	0	0	0
23	INSULATION -PPG	IM	80000	30000	2.52	S				5000	15000	25000	25000	10000	0					
						F					20000	0	4000	0	0	0	8000	0	0	0
						P					0	0	10000	20000	30000	9960	4260	9860	9160	9160
						A					0	0	0	0	12040	5700	2400	600	0	0
24	PAINTING -PPG Primer	IM	93000	46000	1.74	S	15000	30000	20000	20000	8000				0					
						F	15000	15000	5500	3500	1000	0	1000	0	2000	0	1000	0	2000	
						P	15000	36000	24000	12000	4000	0	3500	0	3400	800	700	500	500	200
						A	2700	17270	10998	4288	2744	0	2800	0	2100	0	600	400	300	0
25	PAINTING -PPG Final	IM	93000	35000	1.33	S				25000	30000	30000	8000		0					
						F					27000	2000	1000	0	0	0	5000	0	0	0
						P						12000	20000	25000	11000	10000	11000	14800	13536	200
						A						5260	2990	10750	0	0	1200	1264	0	0
					CUMM. Sch (%) - S		2.53%	16.81%	34.53%	55.40%	77.11%	91.10%	97.67%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
					CUMM FRONT % RELEASE- F		11.15%	24.83%	47.43%	56.99%	89.02%	95.32%	99.39%	99.82%	99.60%	99.77%	99.82%	99.82%	99.82%	99.80%
					MONTHLY % PROGRAMM - P		2.90%	13.02%	22.01%	22.28%	24.18%	13.23%	22.11%	15.98%	14.78%	11.32%	8.67%	5.65%	4.75%	2.01%
					CUMM ACT % PROGRESS- A		1.07%	6.93%	25.95%	44.68%	62.46%	68.96%	76.01%	83.86%	88.70%	90.46%	92.66%	93.42%	95.01%	95.75%

4.5 CONTRACTOR PERFORMANCE BAR CHART

4.5.7 CIVIL / MECHANICAL WORKS -OFFSITE BY M/s BRIDGE & ROOF

	WORK ITEM DESCRIPTION	UOM	QTY SCH	QTY ACT.	WTD VALUE (%)		15-Apr-09	15-May-09	15-Jun-09	15-Jul-09	15-Aug-09	15-Sep-09	15-Oct-09	15-Nov-09	15-Dec-09	15-Jan-10	15-Feb-10	15-Mar-10	15-Apr-10	15-May-10	15-Jun-10	15-Jul-10	15-Aug-10	15-Sep-10
						S		150	1300	1200	1100	1200	1100											
						F			1800	0	0	2200	0	0	0	0	1000	0	0	0	0	0	0	
1	EXCAVATION	CUM	6050	5000	0.26	P			300	1800	1200	900	1200	900	1500	869	975	776	500	200	500	200	200	200
						A			140	162	775	524	149	750	631	94	699	276	300	0	300	0	0	150
						S		5	65	80	80	90	75	5										
						F			52	0	28	220	0	0	0	0	15	15	0	0	0	0	0	
2	PCC	CUM	400	115	0.4	P			30	70	16	45	60	15	33	25	25	9	3	5	3	3	3	3
						A			0	6	15	16	5	5	13	17	14	15	3	2	3	1	0	2
						S		10	150	375	340	325	280	40										
						F			387	0	13	500	50	0	0	0	100	15	0	0	0	0	0	
3	RCC	CUM	1520	765	4.02	P			100	150	200	205	300	300	190	125	180	45	11	5	11	5	5	7
						A			0	17	79	148	56	75	140	57	123	49	6	1	4	2	1	7
						S			25	25	35	15												
						F			28	52	0	70	0	10	30	0	10	15	5	0	0	0	0	0
4	STRL. FABN.	MT	100	220	4.19	P			10	10	45	80	75	45	29	38	26	13	2	0	0	0	0	0
						A			0	4	25	48	28	26	21	12	23	6	27	0	0	0	0	0
						S			22	30	30	18												
						F			25	0	19	50	20	65	5	0	21	10	5	0	0	0	0	
5	STRL. ERCN.	MT	100	220	3.43	P			0	8	20	6	25	1	85	100	83	45	11	11	5	5	4	3
						A			0	4	0	6	24	5	47	21	48	29	25	6	0	0	2	2
						S						30	30	25	15									
						F						75	20	65	5	0	25	0	10	0	10	10	0	0
6	STRL. PAINTING	MT	100	200	0.39	P						0	0	0	90	150	60	120	190	100	190	170	100	100
						A						0	0	0	0	0	0	0	0	0	0	60	0	30
	PIPING FABRICATION																							
						S		100	3000	4000	4000	4500	4500	2900										
						F			4000	7130	3870	0	100	0	900	1200	1800	0	2700	1100	3000	1000	100	0
7	CS NIBR PPG	ID	23000	27000	15.04	P			5000	5500	6000	2800	2100	2000	1870	1020	1577	1146	2542	1800	1543	1721	1100	686
						A			1950	4572	3429	1424	867	988	1750	1643	1231	604	2439	1559	1432	1604	522	342
						S					400	500	100											
						F																		
8	CS IBR PPG.	ID	1000	0	0	P																		
						A																		
						S			600	600	650	710	560	80										
						F			100	0	0	470	630	0	0	0	800	0	1400	0	1400	0	0	0
9	SS PPG	ID	3200	3500	2.54	P			0	150	0	200	1000	700	280	888	810	449	226	1358	226	880	400	200
						A			0	44	0	192	354	330	192	78	361	223	368	358	368	249	189	165
	PIPING ERECTION																							
						S			10000	13000	15000	15000	11000	4500										
						F			25000	12000	1500	8500	7000	1000	4000	0	0	4000	6000	2000	1500	2000	500	0
10	CS NIBR PPG	IM	68500	75000	16.71	P			10000	25000	24000	21000	16000	10000	9000	6489	5339	5339	4709	9000	4709	2550	2600	3100
						A			1060	8188	16273	12515	6530	4215	3730	1150	0	630	6709	8000	2300	910	1200	1123

4.5 CONTRACTOR PERFORMANCE BAR CHART

4.5.7 CIVIL / MECHANICAL WORKS -OFFSITE BY M/s BRIDGE & ROOF

	WORK ITEM DESCRIPTION	UOM	QTY SCH	QTY ACT.	WTD VALUE (%)		15-Apr-09	15-May-09	15-Jun-09	15-Jul-09	15-Aug-09	15-Sep-09	15-Oct-09	15-Nov-09	15-Dec-09	15-Jan-10	15-Feb-10	15-Mar-10	15-Apr-10	15-May-10	15-Jun-10	15-Jul-10	15-Aug-10	15-Sep-10
11	CS IBR PPG.	IM	2800	0	0	S						1600	1200											
						F																		
						P																		
						A																		
12	SS PPG	IM	9600	11000	2.48	S			700	1350	2200	2400	2400	550										
						F			500	0	100	2400	1650	0	0	0	2434	0	2916	0	1000	0	0	0
						P			0	500	300	2000	1500	1500	900	3328	2578	1500	1328	1265	1328	1425	954	500
						A			0	0	150	1578	1658	370	0	750	1250	0	1290	1000	1125	950	325	250
	PIPING SUPPORTING																							
13	CS NIBR PPG	IM	68500	75000	9.28	S			5000	15000	15000	15000	12000	6500										
						F			25000	12000	5000	15000	7000	1000	4000	0	0	4000	6000	2000	1500	2000	500	0
						P			5000	21000	30000	21000	16000	12000	12000	7098	5998	5339	4709	9000	4709	2550	2600	3100
						A			0	2255	19816	15135	2910	2970	8816	1100	0	630	6709	8000	2300	910	1200	1123
14	CS IBR PPG.	IM	2800	0	0	S						1600	1200											
						F																		
						P																		
						A																		
15	SS PPG	IM	9600	11000	2.48	S				1500	2300	2400	2500	900										
						F						3000	1650	0	0	0	2434	0	2916	0	1000	0	0	0
						P						0	2500	3000	1710	3328	2924	1500	1328	1265	1328	1425	954	500
						A						0	2940	0	816	404	0	0	1290	1000	1125	950	325	250
	PIPING HYDROTESTING																							
16	CS NIBR PPG	IM	68500	75000	3.71	S					16000	21000	22500	9000										
						F					12000	13000	10000	20000	4000	0	0	4000	6000	2000	1500	2000	500	0
						P					0	15000	25000	25000	51000	30000	40000	5998	23000	23000	2200	30400	23000	27000
						A					0	0	1969	5531	8100	3400	7439	0	6000	1200	1250	1620	1200	5600
17	CS IBR PPG.	IM	2800	0	0	S								1500	1300									
						F																		
						P																		
						A																		
18	SS PPG	IM	9600	11000	71	S					2000	2500	2700	2400										
						F								4000	0	0	2434	0	2916	0	1000	0	0	0
						P								0		5000	0	0	0	7600	7600	7600	7600	7600
						A								0		0	0	0	0	0	0	0	0	0
19	STRESS RELEIVE	Nos	775	775	0.58	S			70	80	150	200	200	75										
						F			100	100	200	0	50	0	0	0	150	0	40	135	40	0	0	0
						P			54	0	120	120	202	90	120	90	90	66	11	40	11	105	25	25
						A			54	36	86	22	20	100	0	56	160	55	20	10	20	85	12	18
20	RADIOGRAPHY	Nos	1295	1100	1.36	5			170	200	225	350	200	150										
						F			200	300	0	0	350	0	0	0	0	0	0	250	0	0	0	0
						P			0	210	300	150	244	190	300	300	300	146	50	125	50	147	85	45
						A			0	90	117	49	96	101	38	44	169	96	15	107	15	54	67	35

4.5 CONTRACTOR PERFORMANCE BAR CHART

4.5.7 CIVIL / MECHANICAL WORKS -OFFSITE BY M/s BRIDGE & ROOF

	WORK ITEM DESCRIPTION	UOM	QTY SCH	QTY ACT.	WTD VALUE (%)		15-Apr-09	15-May-09	15-Jun-09	15-Jul-09	15-Aug-09	15-Sep-09	15-Oct-09	15-Nov-09	15-Dec-09	15-Jan-10	15-Feb-10	15-Mar-10	15-Apr-10	15-May-10	15-Jun-10	15-Jul-10	15-Aug-10	15-Sep-10
						S						4500	4500	4500	1500									
						F						2500	10500	0	0	0	0	0	0	0	0	0	0	
21	STEAM TRACING	RM	15000	11000	4.09	P						0	4000	2000	2000	3000	6000	3000	5200	5200	5200	5200	5200	5200
						A						0	2980	1620	1000	0	200	0	0	0	0	0	0	
						S					150	200	200	200	150									
						F							900	0	0	0	0	0	0	0	0	0	0	
22	GI PIPING	IM	900		0	P							0	0	0	0	0	0	0	0	0	0	0	
						A							0	0	0	0	0	0	0	0	0	0	0	
						S							12000	15000	11400									
						F						12000	13000	6000	0	0	0	0	0	0	0	0	0	
23	INSULATION -PPG	IM	38400	29000	3.59	P						0	0	0	10000	20000	28000	27000	25050	22000	25050	22940	22000	22000
						A						0	0	0	0	0	0	2950	1790	320	500	0	0	0
						S		4000	15000	20000	15000	5000	5000	4500										
						F			25000	12000	7500	4500	8000	0	2000	0	0	0	6000	6000	6000	4000	6000	0
24	PAINTING -PPG Primer	IM	68500	75000	1.67	P			25000	27000	15000	10000	5000	0	3000	0	0	0	4500	2500	2500	2000	3500	1655
						A			15321	14095	14138	5168	5210	0	4650	0	0	0	3918	7500	1250	1200	2500	1250
						S					5000	15000	18000	20000	10500									
						F						12000	28000	15000	4000	0	0	0	0	0	0	0	0	
25	PAINTING -PPG Final	IM	68500	35000	0.78	P						0	10000	5000	15000	20000	30000	27000	10000	10000	10000	10000	10000	10000
						A						0	0	0	0	0	6850	18150	0	0	0	0	0	
					CUMM. Sch (%) - S		2.03%	4.38%	15.06%	30.25%	48.15%	67.34%	85.29%	96.20%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
					CUMM FRONT % RELEASE- F				31.93%	42.52%	48.32%	68.98%	88.71%	94.40%	96.44%	96.41%	99.03%	99.24%	99.61%	99.62%	99.62%	99.62%	99.62%	99.62%
					MONTHLY % PROGRAMM - P				9.16%	16.20%	20.01%	19.39%	21.16%	16.75%	19.55%	19.30%	19.84%	15.72%	10.05%	8.42%	7.25%	4.25%	4.25%	4.01%
					CUMM ACT % PROGRESS- A				6.26%	14.40%	31.11%	42.77%	56.94%	64.96%	73.37%	77.74%	82.03%	86.27%	88.51%	89.52%	91.12%	92.01%	92.89%	94.37%

4.5 CONTRACTOR PERFORMANCE BAR CHART

4.5.8 ELECRICALWORKS BY M/S TECHNIMONT ICB PVT LTD

	WORK ITEM DESCRIPTION	UOM	QTY SCH	QTY ACT.	WTD		15-Oct-09	15-Nov-09	15-Dec-09	15-Jan-10	15-Feb-10	15-Mar-10	15-Apr-10	15-May-10	15-Jun-10	15-Jul-10	15-Aug-10	15-Sep-10	15-Oct-10	15-Nov-10	15-Dec-10
1	SUPPLY OF BOUGHT-OUT ITEMS	%	100	100	8.28	S		20	35	35	10										
						F					6	0	0	0	0	0	0	94	0	0	
						P					0	0	0	0	0	0	0	1	0	0	
						A					0	0	0	0	0	0	0	1	0	0	
2	EXCAVATION	NOS	6	6	1.66	S		1	4	1											
						F			3	3	0	0	0	0	0	0	0	0	0	0	
						P			3	3	0	0	0	0	0	0	0	0	0	0	
						A			1	3	0	0	0	0	0	0	0	0	0	0	
3	DRY TYPE TRANSFORMERS	NOS	2	4	0.70	S				2											
						F				2	0	0	0	0	0	0	0	0	0	0	
						P				2	2	0	0	0	0	0	0	0	0	0	
						A				0	2	0	0	0	0	0	0	0	0	0	
4	STRL STEEL FAB/ERN	MT	50	77	3.36	S		3	19	18	9	1									
						F			16	19	6	8	0	7	7	6	1	3	0	3	
						P			16	10	15	10	10	3	4	6	7	5	1	4	
						A			4	12	10	6	11	5	7	4	6	4	0	4	
5	HT/LTSWITCHBOARDS,SB/ UPS/BATTERY/ CHARGER	NOS	138	141	3.28	S		5	67	56	10		0								
						F			3	79	56	0	0	0	0	0	0	2	1	0	
						P			46	75	61	3	3	4	0	0	0	2	1	0	
						A			3	74	57	0	0	4	0	0	0	1	2	0	
6	BUSDUCTS	RM	207	207	1.73	S			40	150	17		0								
						F			40	0	0	110	57	0	0	0	0	0	0	0	
						P			40	25	172	172	125	7	1	0	0	0	0	0	
						A			18	17	0	15	150	6	1	0	0	0	0	0	
7	PB STNS	NOS	230	230	1.50	S			40	135	55		0								
						F				20	6	24	100	25	0	0	0	20	0	14	
						P				40	75	83	75	150	150	120	30	35	7	17	
						A				0	17	11	0	39	46	42	15	28	4	17	
8	CABLE TRAY	RM	10800	13300	13.91	S		20	2300	5100	3380		0								
						F			1000	1200	2000	1800	3500	1000	500	600	1301	99	100	60	

4.5 CONTRACTOR PERFORMANCE BAR CHART

4.5.8 ELECRICALWORKS BY M/S TECHNIMONT ICB PVT LTD

	WORK ITEM DESCRIPTION	UOM	QTY SCH	QTY ACT.	WTD		15-Oct-09	15-Nov-09	15-Dec-09	15-Jan-10	15-Feb-10	15-Mar-10	15-Apr-10	15-May-10	15-Jun-10	15-Jul-10	15-Aug-10	15-Sep-10	15-Oct-10	15-Nov-10	15-Dec-10
8	CABLE TRAY	RM	10600	13500	13.91	P			2300	2000	2000	4800	3000	2000	1199	1800	49	600	240	60	
						A			450	1674	1598	2021	2381	1477	1229	721	609	700	240	60	
9	CABLE LAYING -HT	RM	40066	25200	14.65	S			7000	17000	16066		0								
						F				0	0	2050	6321	5699	8730	600	300	1000	500	0	
						P				5000	2700	3000	14000	20000	16460	6000	4000	1100	650	0	
						A				0	0	1696	6675	5169	7860	0	2300	850	650	0	
10	CABLE LAYING - LT	RM	174224	280000	21.97	S			4000	45000	78000	47224	0								
						F				0	8000	3000	39000	165000	10000	15000	7200	9535	23265	0	
						P				4500	16000	15000	5000	100200	99235	36000	10000	9000	17500	6000	
						A				0	3606	4911	19483	126000	62535	21200	8251	10574	17440	6000	
11	CABLE LAYING - LIGHTING	RM	73710	47500	4.00	S			1100	21000	39610	12000	0								
						F			500	1000	13500	0	5000	3000	5600	1900	3500	1800	3700	6847	
						P			1000	5000	7000	5000	7000	8000	4000	1200	2500	4500	4505	6897	
						A			100	5710	3045	3154	5045	4480	6877	2005	2069	2810	4155	6897	
12	END TERMINATION HT	NOS	216	244	1.79	S				143	73		0								
						F				0	0	18	57	55	60	10	0	30	3	6	0
						P				15	15	20	55	77	131	30	40	15	24	6	0
						A				0	0	0	68	41	55	11	0	31	27	6	0
13	END TERMINATION LT	NOS	2340	2274	2.31	S			50	775	1050	465	0								
						F				0	0	120	1080	0	800	0	0	0	270	174	0
						P				100	100	100	125	600	1200	1200	1000	150	319	200	0
						A				0	0	63	119	50	408	299	211	411	263	200	0
14	LIGHTING POLES	NOS	471	462	1.15	S				80	330	61	0								
						F				100	0	80	220	0	25	0	0	0	0	15	0
						P				50	150	150	250	140	100	30	40	30	0	15	0
						A				0	60	95	132	75	57	6	0	0	0	15	0
15	LIGHTING FIXTURES (Sub station + Field)	NOS	1638	1638	2.38	S			50	550	880	158	0								
						F			225	175	90	510	200	0	150	100	10	40	45	60	0
						P			50	400	400	400	400	400	300	120	120	90	90	67	0
						A			50	70	199	193	227	296	173	99	11	27	58	67	0

4.5 CONTRACTOR PERFORMANCE BAR CHART

4.5.8 ELECRICALWORKS BY M/S TECHNIMONT ICB PVT LTD

	WORK ITEM DESCRIPTION	UOM	QTY SCH	QTY ACT.	WTD		15-Oct-09	15-Nov-09	15-Dec-09	15-Jan-10	15-Feb-10	15-Mar-10	15-Apr-10	15-May-10	15-Jun-10	15-Jul-10	15-Aug-10	15-Sep-10	15-Oct-10	15-Nov-10	15-Dec-10
16	EARTH STRIPS	RM	4100	5800	3.03	S		100	1050	1425	1075	450	0								
						F			1150	0	500	650	1300	400	200	275	275	250	100	524	0
						P			1150	1120	600	600	600	700	600	210	30	300	171	597	0
						A			183	411	700	711	624	611	754	270	160	305	98	597	0
17	EARTH ELECTRODES	NOS	30	54	0.45	S			30				0								
						F				20	0	0	0	2	2	0	0	28	2	0	0
						P				6	12	2	10	3	8	1	5	21	28	0	0
						A				18	0	1	0	3	1	0	1	0	20	10	0
18	FA & PA EQPT INSTN.	NOS	773	328	0.95	S			20	440	313		0								
						F					0	100	100	0	0	0	0	122	0	0	0
						P					15	150	25	200	200	120	50	0	132	41	0
						A					0	0	0	49	120	21	0	0	43	41	0
19	LAYING OF COMMUNICATION CABLE	RM	11000	15885	1.06	S			1500	4800	4700		0								
						F					0	0	0	3000	5000	3000	0	3885	1000	0	0
						P					0	0	0	5000	5000	12000	7500	9000	8352	1500	0
						A					0	0	0	1430	330	570	3120	0	6000	1500	0
20	SAND FILLING	CUM	1500	1857	0.65	S				410	1090		0								
						F					0	0	120	380	700	0	0	307	150	250	0
						P					0	0	85	700	1000	120	120	120	170	150	0
						A					0	0	118	160	827	0	62	170	270	150	0
21	MOTOR NO LOAD RUN	NOS	118	153	1.00	S				17	75	26	0								
						F					0	0			2	0	48	15	36	0	52
						P					0	0			0	0	50	60	43	6	31
						A					0	0			2	0	0	60	31	6	31
					CUMM. Sch (%) - S		0.26%	4.65%	22.80%	58.84%	91.24%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
					CUMM FRONT % RELEASE- F			10.01%	14.18%	24.25%	30.78%	37.87%	56.40%	77.75%	86.12%	90.29%	92.47%	94.97%	97.71%	98.44%	99.95%
					MONTHLY % PROGRAMM - P			4.65%	13.17%	18.09%	14.48%	15.21%	18.88%	32.25%	86.12%	14.00%	7.51%	4.99%	5.50%	2.03%	1.46%
					CUMM ACT % PROGRESS- A			4.65%	9.93%	20.71%	27.42%	33.36%	46.39%	66.67%	81.94%	85.33%	88.31%	93.03%	96.41%	98.44%	99.90%

4.5 CONTRACTOR PERFORMANCE BAR CHART

4.5.9 INSTRUMENTATION WORKS-UNITS & OFFSITES BY M/s JASUBHAI ENGINEERS PVT. LTD.

Sl No	WORK ITEM DESCRIPTION	UOM	QTY SCH	QTY ACT.	WTD		15-Aug-09	15-Sep-09	15-Oct-09	15-Nov-09	15-Dec-09	15-Jan-10	15-Feb-10	15-Mar-10	15-Apr-10	15-May-10	15-Jun-10	15-Jul-10	15-Aug-10	15-Sep-10	15-Oct-10	15-Nov-10	15-Dec-10
1	JB frame Fabn/ Ercn	Nos	240	300	1.42	S		25	110	65	40												
						F					240	0	0	0	0	23	1	0	9	4	12	7	
						P					93	45	40	36	6	4	23	0	10	21	24	7	
						A					93	5	4	20	12	4	24	0	4	5	16	7	
2	JB Installation	Nos	240	300	0.53	S			100	100	40												
						F					150	0	0	0	70	43	0	1	9	4	12	11	
						P					81	3	10	120	80	8	24	0	10	21	25	10	
						A					76	3	0	0	100	19	24	1	0	8	17	7	
3	Cable Duct Erection	RM	950	950	3.09	S			50	400	450	50											
						F					50	225	35	240	200	150	0	0	0	0	40	10	
						P					300	250	152	658	400	252	0	0	0	0	40	28	
						A					50	223	20	235	171	202	0	0	0	0	22	28	
4	Multicore Cable Laying	RM	160000	150000	8.88	S					60000	70000	15000	15000									
						F										100000	28000	0	2000	0	13000	3000	
						P										80000	50000	30000	30000	4000	20000	3058	
						A										50000	45400	10817	21783	0	14942	0	
5	Multicore cable glanding	Nos	480	450	0	S					180	180	60	60									
						F																	
						P																	
						A																	
6	Multicore cable termination	Nos	3780	3500	0.52	S					1500	1500	500	280									
						F										2500	0	200	0	0	212	534	
						P										1500	2500	1200	900	450	325	487	
						A										0	971	516	864	24	265	374	
7	Angle tray fabn/ ercn.	RM	3000	4500	4	S			500	1000	1000	500											
						F					850	550	0	300	400	1400	1500	0	80	20	190	140	
						P					1266	1000	919	1919	1400	400	1187	1200	1200	300	104	38	
						A					656	325	0	234	445	553	1480	0	0	16	95	151	

4.5 CONTRACTOR PERFORMANCE BAR CHART

4.5.9 INSTRUMENTATION WORKS-UNITS & OFFSITES BY M/s JASUBHAI ENGINEERS PVT. LTD.

Sl No	WORK ITEM DESCRIPTION	UOM	QTY SCH	QTY ACT.	WTD		15-Aug-09	15-Sep-09	15-Oct-09	15-Nov-09	15-Dec-09	15-Jan-10	15-Feb-10	15-Mar-10	15-Apr-10	15-May-10	15-Jun-10	15-Jul-10	15-Aug-10	15-Sep-10	15-Oct-10	15-Nov-10	15-Dec-10
8	FRP tray Erection	RM	13000	19000	11.25	S			2000	2000	2500	3000	3000	500									
						F					4000	3000	2000	1500	1500	500	500	2000	500	650	850	1400	
						P					3477	3900	3663	3000	2400	1434	621	1500	1500	2100	226	1693	
						A					2765	2172	2610	1640	979	1313	894	1043	729	1379	170	1513	
9	Branch Cable Laying	RM	75000	78000	17.31	S			2000	20000	20000	20000	11000	2000									
						F					8000	4500	12000	3500	7000	5000	2000	6000	7000	1000	6500	5000	8000
						P					5225	10000	23615	25000	3000	24000	10345	24000	1500	12000	7700	8293	12500
						A					6138	4447	8196	4889	1648	3537	6513	4857	5726	7549	4907	5681	9500
10	Power Cable Laying	RM	13000	16000	4.73	S					4000	5000	2000	2000									
						F											9000	1000	1171	0	0	0	4500
						P											8000	1800	1200	0	0	0	4500
						A											8590	1181	1400	0	0	0	4500
11	Branch cable glanding/ Trmn.	Nos	3980	3980	1.18	S			100	300	700	800	1200	880									
						F					250	230	220	500	500	200	200	100	600	125	365	200	450
						P					200	578	1064	1400	1400	1400	506	900	900	600	370	275	500
						A					222	214	201	277	208	272	319	327	425	390	360	174	375
12	Calibration of Instruments	Nos	2000	2031	3.01	S		200	500	500	300	200	150	150									
						F					1450	50	100	50	100	0	90	0	30	86	24	10	110
						P					668	200	251	50	300	150	40	90	120	120	76	95	600
						A					728	55	138	25	46	52	97	0	42	91	36	56	450
13	Stanchion support installation	Nos	900	1100	1.3	S			200	200	200	150	100	50									0
						F					250	80	40	130	100	200	0	50	0	0	140	44	0
						P					200	270	387	350	300	225	259	210	150	180	148	101	0
						A					156	90	44	48	67	69	114	41	65	41	109	88	0
14	Instrument Installation	Nos	2200	2275	4.04	S			200	300	450	450	350	300	150								0
						F					190	170	55	115	320	350	0	100	100	0	355	217	0
						P					383	350	682	700	600	1200	393	300	600	600	482	256	0
						A					136	162	80	102	130	177	171	137	74	129	398	182	0

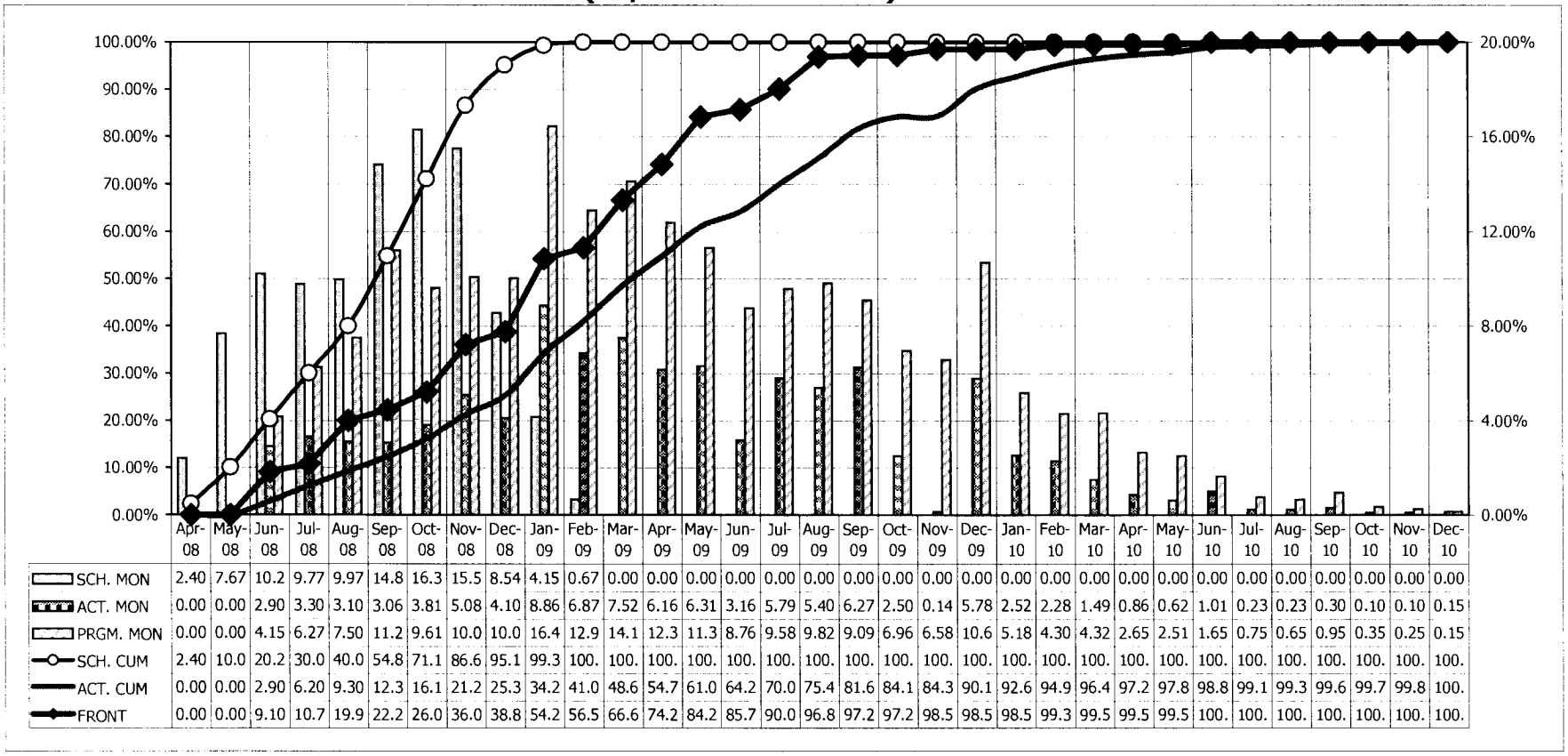
4.5 CONTRACTOR PERFORMANCE BAR CHART

4.5.9 INSTRUMENTATION WORKS-UNITS & OFFSITES BY M/s JASUBHAI ENGINEERS PVT. LTD.

Sl No	WORK ITEM DESCRIPTION	UOM	QTY SCH	QTY ACT.	WTD		15-Aug-09	15-Sep-09	15-Oct-09	15-Nov-09	15-Dec-09	15-Jan-10	15-Feb-10	15-Mar-10	15-Apr-10	15-May-10	15-Jun-10	15-Jul-10	15-Aug-10	15-Sep-10	15-Oct-10	15-Nov-10	15-Dec-10
15	Instrument Air Line	RM	1700	2500	2.22	S			150	300	300	300	300	200	150								
						F					500	500	200	200	600	200	0	0	0	0	0	0	200
						P					300	630	600	500	300	300	322	240	210	450	142	121	150
						A					409	380	70	296	355	358	63	0	50	67	21	12	115
16	Impulse - Pre Fabn	Nos	1200	1365	4.04	S		50	250	250	250	200	100	100									
						F					230	120	95	55	300	0	0	40	10	10	150	144	150
						P					314	360	395	400	300	500	178	300	300	300	200	174	150
						A					206	89	99	38	100	76	46	58	77	57	120	141	112
17	Impulse - Erection	Nos	1200	1365	3.23	S			250	250	250	200	100	100	50								
						F					150	75	35	110	180	20	130	40	60	30	180	144	150
						P					214	260	421	500	300	400	75	360	300	300	234	185	150
						A					128	51	47	71	100	98	75	64	95	67	173	119	112
18	LCP / Analyzer panel Ercn	Nos	14	14	0.83	S				2	2	3	3	2	2								
						F					1	0	0	0	0	1	0	1	3	0	2	0	0
						P					1	1	0	0	0	4	1	0	4	0	2	0	0
						A					1	0	0	0	0	0	1	0	4	0	2	0	0
19	Installation of Gas Oetector	Nos	19	12	0.2	S					5	5	5	4									
						F							0	0	12	0	0	0	0	0	0	0	0
						P							10	0	0	5	5	0	0	0	0	0	0
						A							0	0	7	0	5	0	0	0	0	0	0
20	Loop Checking	Nos	3700	2500	4.44	S						800	2000	600	300								
						F											1500	400	250	0	100	150	50
						P											500	600	600	600	329	443	600
						A											383	169	406	213	186	109	550
					CUMM. Sch (%) - S		1.1%	9.3%	20.5%	37.2%	59.6%	78.5%	90.9%	97.5%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
					CUMM FRONT % RELEASE- F			17.31%	17.31%	21.34%	33.98%	39.84%	46.04%	50.47%	58.57%	76.47%	78.90%	80.93%	82.10%	84.21%	90.01%	92.01%	97.25%
					MONTHLY % PROGRAMM - P			5.76%	9.64%	9.64%	13.68%	12.89%	16.60%	19.91%	18.44%	23.38%	18.19%	16.71%	13.00%	10.15%	9.65%	4.01%	6.90%
					CUMM ACT % PROGRESS- A			4.20%	8.25%	15.53%	30.95%	36.00%	40.69%	44.97%	48.95%	58.02%	68.25%	72.44%	77.06%	82.33%	86.99%	89.11%	95.01%

PROGRESS CURVES

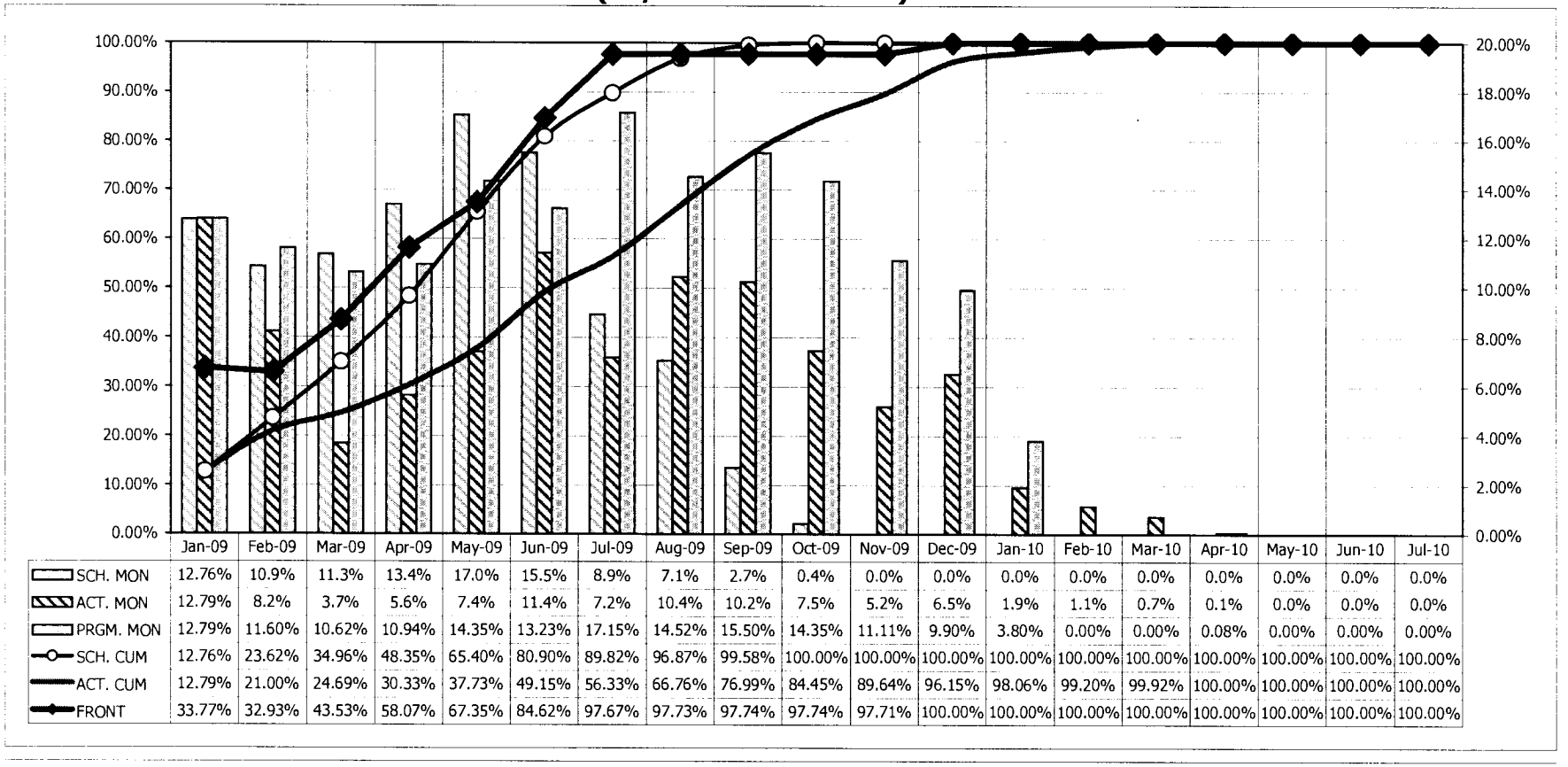
CIVIL & STRUCTURAL WORKS-PART -I (M/s SKB BUILDERS)



	Apr-08	May-08	Jun-08	Jul-08	Aug-08	Sep-08	Oct-08	Nov-08	Dec-08	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09	Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10
SCH. MON	2.40	7.67	10.2	9.77	9.97	14.8	16.3	15.5	8.54	4.15	0.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ACT. MON	0.00	0.00	2.90	3.30	3.10	3.06	3.81	5.08	4.10	8.86	6.87	7.52	6.16	6.31	3.16	5.79	5.40	6.27	2.50	0.14	5.78	2.52	2.28	1.49	0.86	0.62	1.01	0.23	0.23	0.30	0.10	0.10	0.15
PRGM. MON	0.00	0.00	4.15	6.27	7.50	11.2	9.61	10.0	10.0	16.4	12.9	14.1	12.3	11.3	8.76	9.58	9.82	9.09	6.96	6.58	10.6	5.18	4.30	4.32	2.65	2.51	1.65	0.75	0.65	0.95	0.35	0.25	0.15
SCH. CUM	2.40	10.0	20.2	30.0	40.0	54.8	71.1	86.6	95.1	99.3	100.	100.	100.	100.	100.	100.	100.	100.	100.	100.	100.	100.	100.	100.	100.	100.	100.	100.	100.	100.	100.	100.	100.
ACT. CUM	0.00	0.00	2.90	6.20	9.30	12.3	16.1	21.2	25.3	34.2	41.0	48.6	54.7	61.0	64.2	70.0	75.4	81.6	84.1	84.3	90.1	92.6	94.9	96.4	97.2	97.8	98.8	99.1	99.3	99.6	99.7	99.8	100.
FRONT	0.00	0.00	9.10	10.7	19.9	22.2	26.0	36.0	38.8	54.2	56.5	66.6	74.2	84.2	85.7	90.0	96.8	97.2	97.2	98.5	98.5	98.5	99.3	99.5	99.5	99.5	100.	100.	100.	100.	100.	100.	100.

PROGRESS CURVES

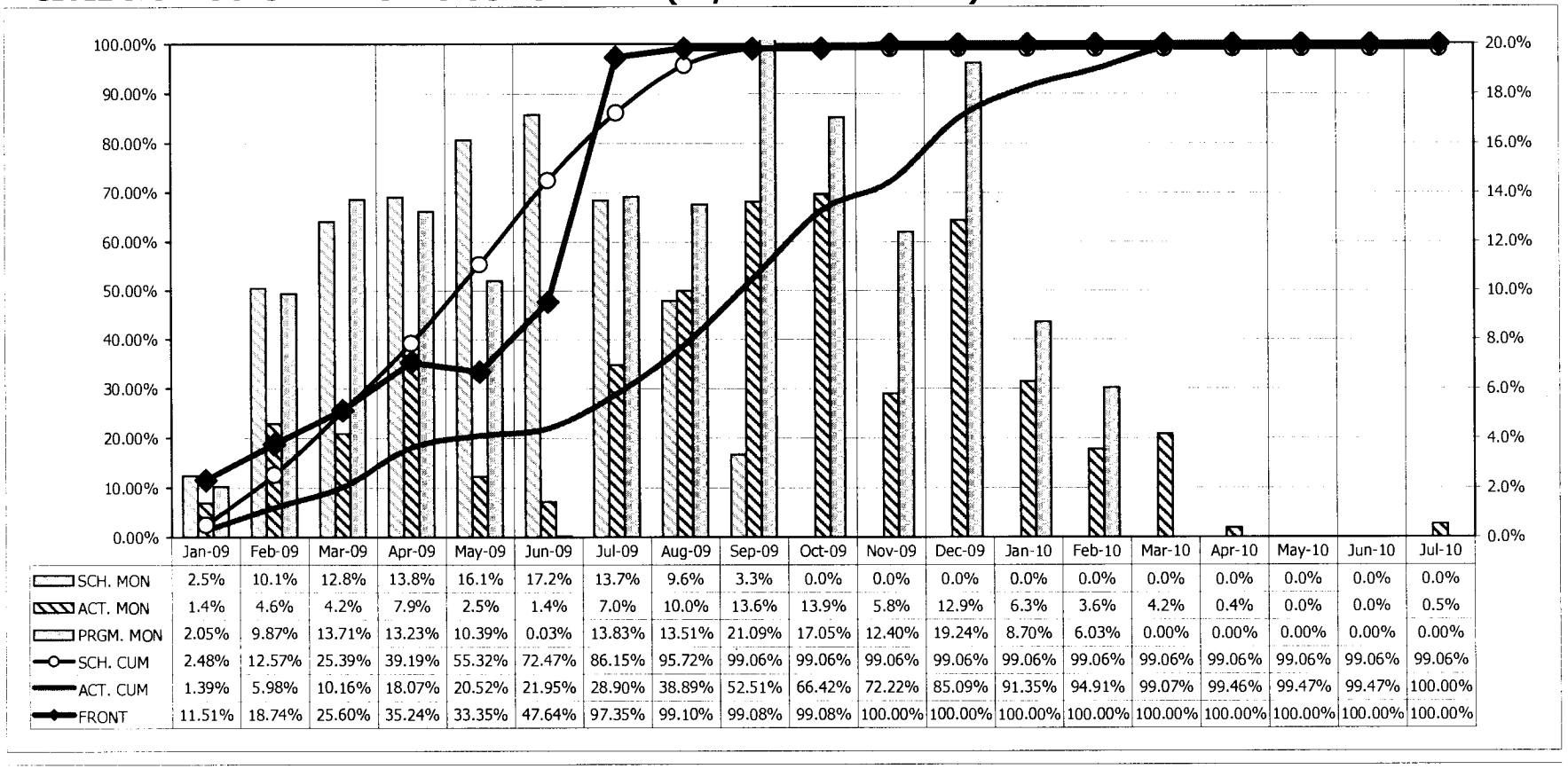
CIVIL & STRUCTURAL WORKS-PART -II (M/s SKB BUILDERS)



	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09	Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10	Jul-10
SCH. MON	12.76%	10.9%	11.3%	13.4%	17.0%	15.5%	8.9%	7.1%	2.7%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
ACT. MON	12.79%	8.2%	3.7%	5.6%	7.4%	11.4%	7.2%	10.4%	10.2%	7.5%	5.2%	6.5%	1.9%	1.1%	0.7%	0.1%	0.0%	0.0%	0.0%
PRGM. MON	12.79%	11.60%	10.62%	10.94%	14.35%	13.23%	17.15%	14.52%	15.50%	14.35%	11.11%	9.90%	3.80%	0.00%	0.00%	0.08%	0.00%	0.00%	0.00%
SCH. CUM	12.76%	23.62%	34.96%	48.35%	65.40%	80.90%	89.82%	96.87%	99.58%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
ACT. CUM	12.79%	21.00%	24.69%	30.33%	37.73%	49.15%	56.33%	66.76%	76.99%	84.45%	89.64%	96.15%	98.06%	99.20%	99.92%	100.00%	100.00%	100.00%	100.00%
FRONT	33.77%	32.93%	43.53%	58.07%	67.35%	84.62%	97.67%	97.73%	97.74%	97.74%	97.71%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

PROGRESS CURVES

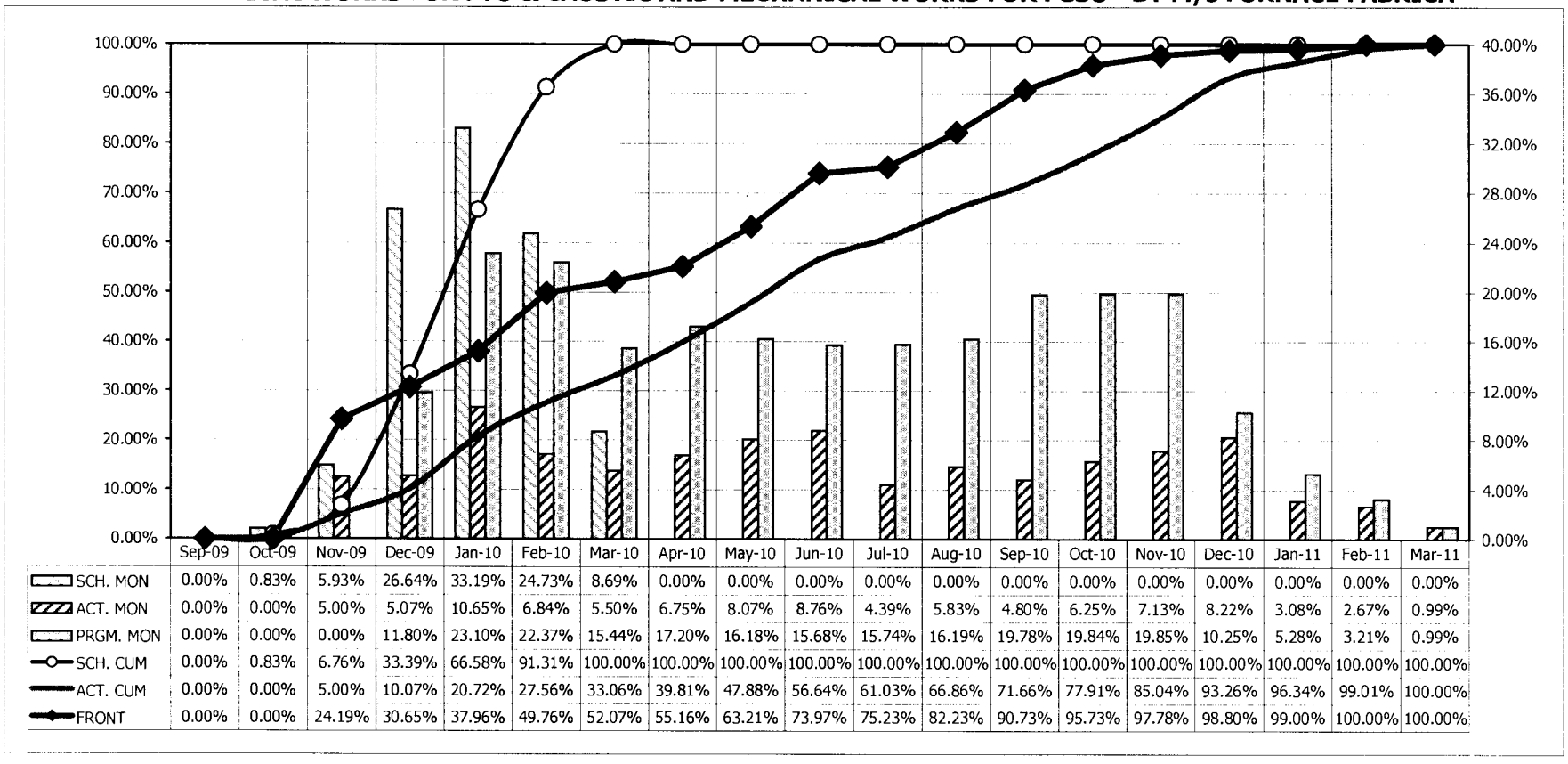
CIVIL & STRUCTURAL WORKS-SUB STATION (M/s SKB BUILDERS)



	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09	Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10	Jul-10
SCH. MON	2.5%	10.1%	12.8%	13.8%	16.1%	17.2%	13.7%	9.6%	3.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
ACT. MON	1.4%	4.6%	4.2%	7.9%	2.5%	1.4%	7.0%	10.0%	13.6%	13.9%	5.8%	12.9%	6.3%	3.6%	4.2%	0.4%	0.0%	0.0%	0.5%
PRGM. MON	2.05%	9.87%	13.71%	13.23%	10.39%	0.03%	13.83%	13.51%	21.09%	17.05%	12.40%	19.24%	8.70%	6.03%	0.00%	0.00%	0.00%	0.00%	0.00%
SCH. CUM	2.48%	12.57%	25.39%	39.19%	55.32%	72.47%	86.15%	95.72%	99.06%	99.06%	99.06%	99.06%	99.06%	99.06%	99.06%	99.06%	99.06%	99.06%	99.06%
ACT. CUM	1.39%	5.98%	10.16%	18.07%	20.52%	21.95%	28.90%	38.89%	52.51%	66.42%	72.22%	85.09%	91.35%	94.91%	99.07%	99.46%	99.47%	99.47%	100.00%
FRONT	11.51%	18.74%	25.60%	35.24%	33.35%	47.64%	97.35%	99.10%	99.08%	99.08%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

PROGRESS CURVES

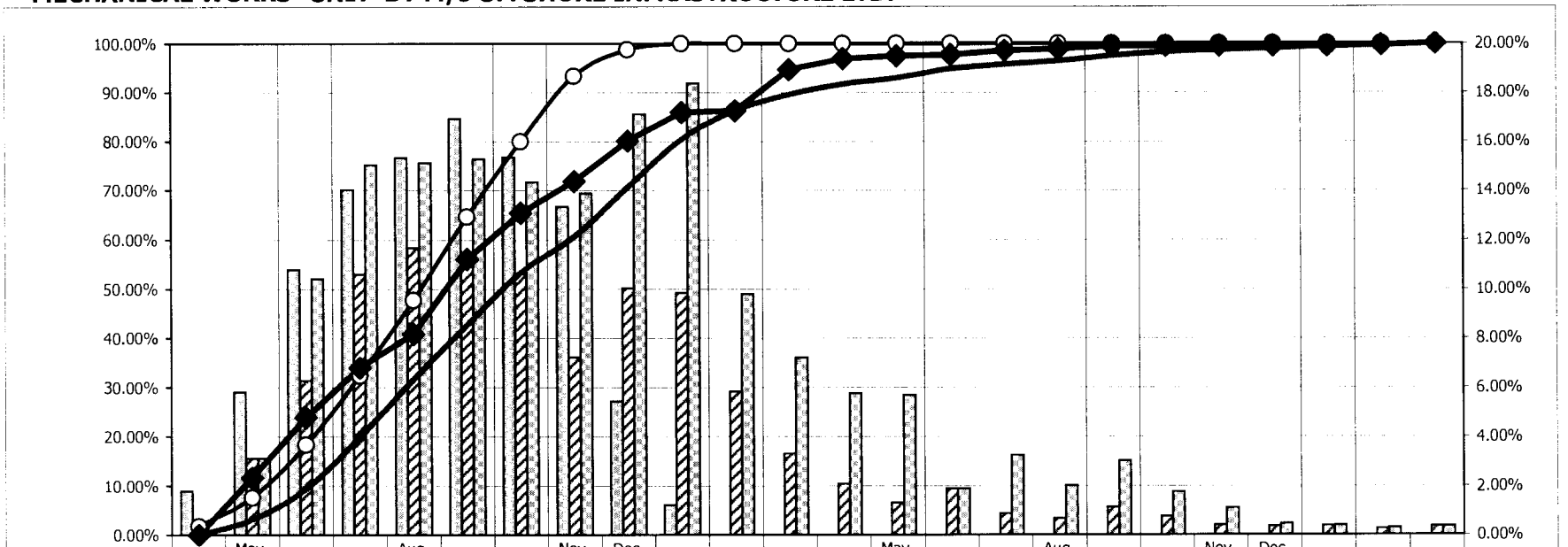
CIVIL & MECHANICAL WORKS FOR PTU & CAUSTIC AND MECHANICAL WORKS FOR FGSU - BY M/s FURNACE FABRICA



	Sep-09	Oct-09	Nov-09	Dec-09	Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11
SCH. MON	0.00%	0.83%	5.93%	26.64%	33.19%	24.73%	8.69%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
ACT. MON	0.00%	0.00%	5.00%	5.07%	10.65%	6.84%	5.50%	6.75%	8.07%	8.76%	4.39%	5.83%	4.80%	6.25%	7.13%	8.22%	3.08%	2.67%	0.99%
PRGM. MON	0.00%	0.00%	0.00%	11.80%	23.10%	22.37%	15.44%	17.20%	16.18%	15.68%	15.74%	16.19%	19.78%	19.84%	19.85%	10.25%	5.28%	3.21%	0.99%
SCH. CUM	0.00%	0.83%	6.76%	33.39%	66.58%	91.31%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
ACT. CUM	0.00%	0.00%	5.00%	10.07%	20.72%	27.56%	33.06%	39.81%	47.88%	56.64%	61.03%	66.86%	71.66%	77.91%	85.04%	93.26%	96.34%	99.01%	100.00%
FRONT	0.00%	0.00%	24.19%	30.65%	37.96%	49.76%	52.07%	55.16%	63.21%	73.97%	75.23%	82.23%	90.73%	95.73%	97.78%	98.80%	99.00%	100.00%	100.00%

PROGRESS CURVES

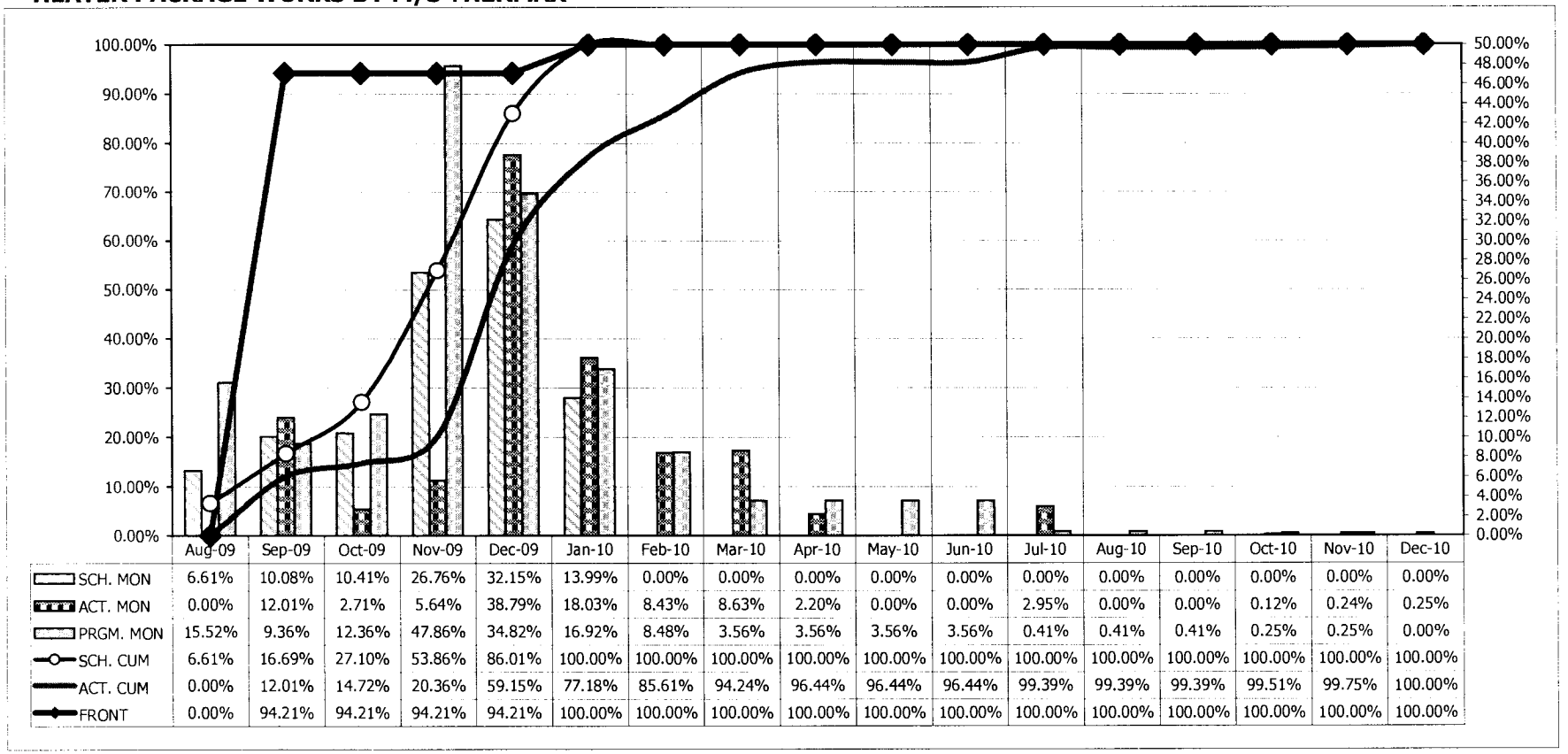
MECHANICAL WORKS -UNIT BY M/s OFFSHORE INFRASTRUCTURE LTD.



	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09	Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11
SCH. MON	1.78%	5.81%	10.78	14.02	15.32	16.93	15.35	13.34	5.45%	1.22%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
ACT. MON	0.00%	3.10%	6.28%	10.60	11.65	11.11	10.61	7.22%	10.03	9.85%	5.83%	3.31%	2.08%	1.31%	1.89%	0.86%	0.66%	1.13%	0.75%	0.40%	0.34%	0.38%	0.26%	0.35%
PRGM. MON	0.00%	3.10%	10.41	15.03	15.12	15.28	14.34	13.87	17.12	18.37	9.79%	7.21%	5.76%	5.68%	1.89%	3.25%	2.01%	3.01%	1.75%	1.10%	0.45%	0.39%	0.29%	0.35%
SCH. CUM	1.78%	7.59%	18.37	32.39	47.71	64.64	79.99	93.33	98.78	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
ACT. CUM	0.00%	3.10%	9.38%	19.98	31.63	42.74	53.35	60.57	70.60	80.45	86.28	89.59	91.67	92.98	94.87	95.73	96.39	97.52	98.27	98.67	99.01	99.39	99.65	100.00
FRONT	0.00%	11.61	23.89	33.96	40.88	56.02	65.40	71.85	80.08	85.92	86.26	94.68	96.90	97.47	97.65	98.55	98.85	99.50	99.50	99.50	99.50	99.50	99.75	100.00

PROGRESS CURVES

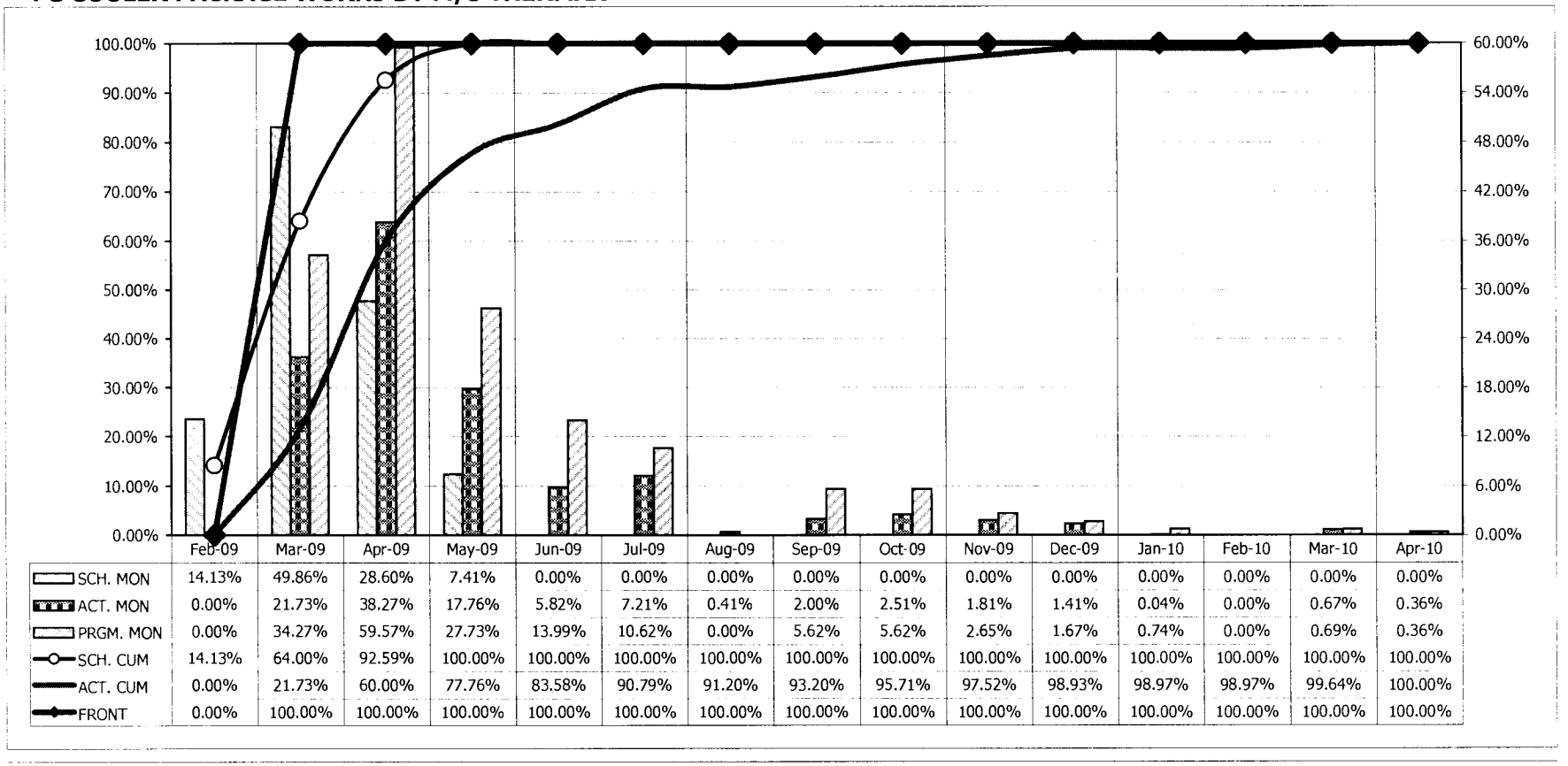
HEATER PACKAGE WORKS BY M/S THERMAX



	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09	Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10
SCH. MON	6.61%	10.08%	10.41%	26.76%	32.15%	13.99%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
ACT. MON	0.00%	12.01%	2.71%	5.64%	38.79%	18.03%	8.43%	8.63%	2.20%	0.00%	0.00%	2.95%	0.00%	0.00%	0.12%	0.24%	0.25%
PRGM. MON	15.52%	9.36%	12.36%	47.86%	34.82%	16.92%	8.48%	3.56%	3.56%	3.56%	3.56%	0.41%	0.41%	0.41%	0.25%	0.25%	0.00%
SCH. CUM	6.61%	16.69%	27.10%	53.86%	86.01%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
ACT. CUM	0.00%	12.01%	14.72%	20.36%	59.15%	77.18%	85.61%	94.24%	96.44%	96.44%	96.44%	99.39%	99.39%	99.39%	99.51%	99.75%	100.00%
FRONT	0.00%	94.21%	94.21%	94.21%	94.21%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

PROGRESS CURVES

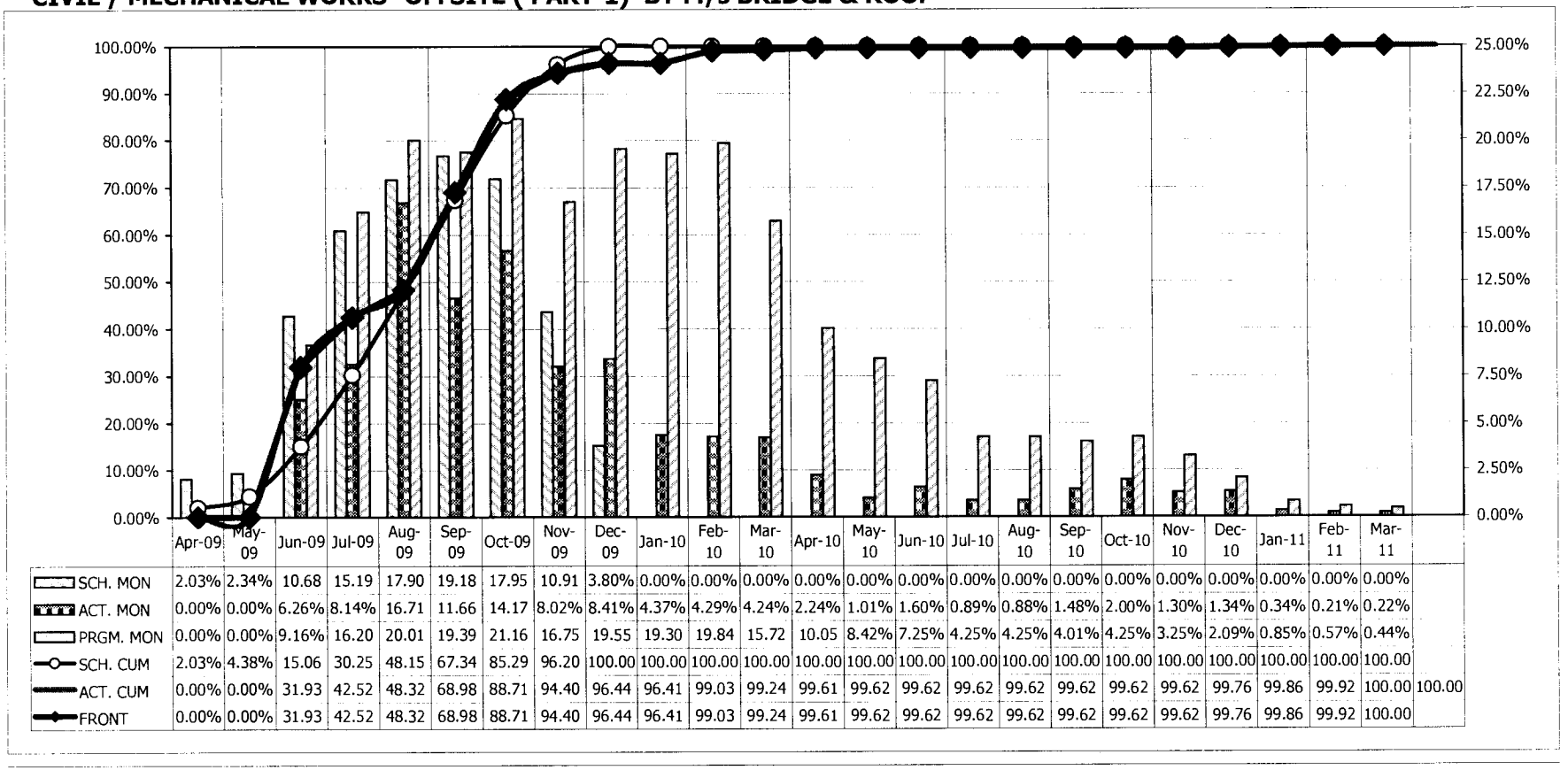
FG COOLER PACKAGE WORKS BY M/S THERMAX



	Feb-09	Mar-09	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09	Jan-10	Feb-10	Mar-10	Apr-10
SCH. MON	14.13%	49.86%	28.60%	7.41%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
ACT. MON	0.00%	21.73%	38.27%	17.76%	5.82%	7.21%	0.41%	2.00%	2.51%	1.81%	1.41%	0.04%	0.00%	0.67%	0.36%
PRGM. MON	0.00%	34.27%	59.57%	27.73%	13.99%	10.62%	0.00%	5.62%	5.62%	2.65%	1.67%	0.74%	0.00%	0.69%	0.36%
SCH. CUM	14.13%	64.00%	92.59%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
ACT. CUM	0.00%	21.73%	60.00%	77.76%	83.58%	90.79%	91.20%	93.20%	95.71%	97.52%	98.93%	98.97%	98.97%	99.64%	100.00%
FRONT	0.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

PROGRESS CURVES

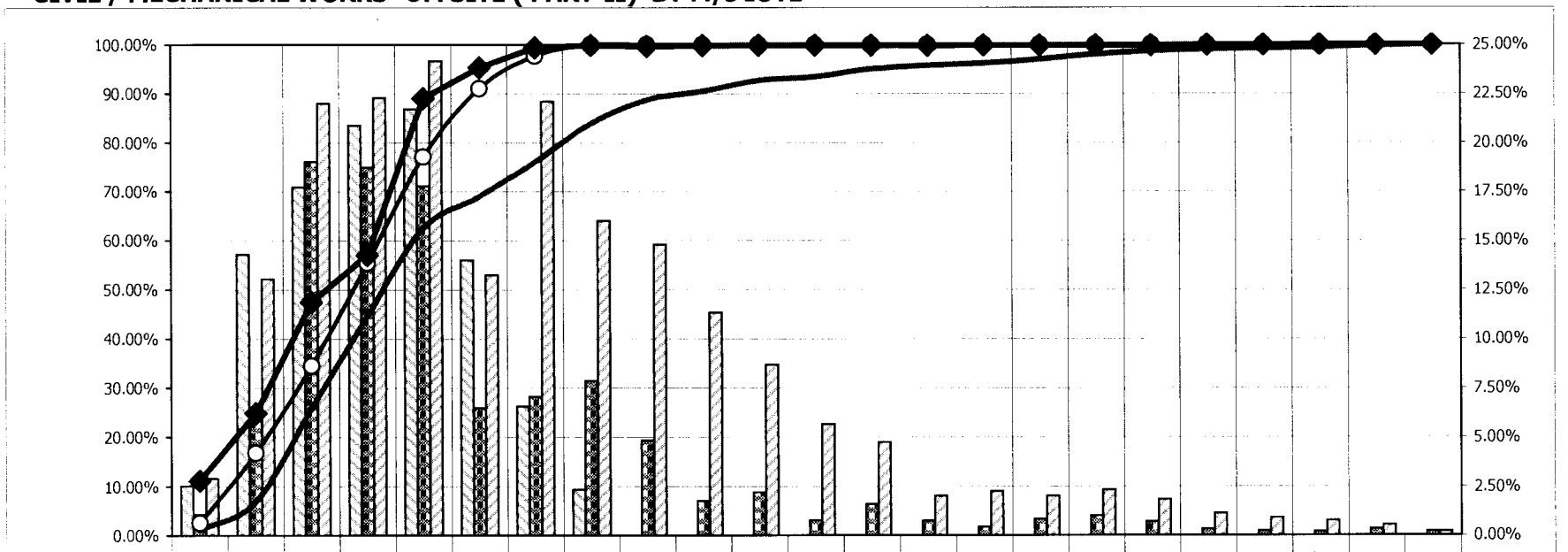
CIVIL / MECHANICAL WORKS -OFFSITE (PART-1) BY M/s BRIDGE & ROOF



	Apr-09	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09	Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	
SCH. MON	2.03%	2.34%	10.68	15.19	17.90	19.18	17.95	10.91	3.80%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
ACT. MON	0.00%	0.00%	6.26%	8.14%	16.71	11.66	14.17	8.02%	8.41%	4.37%	4.29%	4.24%	2.24%	1.01%	1.60%	0.89%	0.88%	1.48%	2.00%	1.30%	1.34%	0.34%	0.21%	0.22%	
PRGM. MON	0.00%	0.00%	9.16%	16.20	20.01	19.39	21.16	16.75	19.55	19.30	19.84	15.72	10.05	8.42%	7.25%	4.25%	4.25%	4.01%	4.25%	3.25%	2.09%	0.85%	0.57%	0.44%	
SCH. CUM	2.03%	4.38%	15.06	30.25	48.15	67.34	85.29	96.20	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	
ACT. CUM	0.00%	0.00%	31.93	42.52	48.32	68.98	88.71	94.40	96.44	96.41	99.03	99.24	99.61	99.62	99.62	99.62	99.62	99.62	99.62	99.62	99.76	99.86	99.92	100.00	100.00
FRONT	0.00%	0.00%	31.93	42.52	48.32	68.98	88.71	94.40	96.44	96.41	99.03	99.24	99.61	99.62	99.62	99.62	99.62	99.62	99.62	99.62	99.76	99.86	99.92	100.00	

PROGRESS CURVES

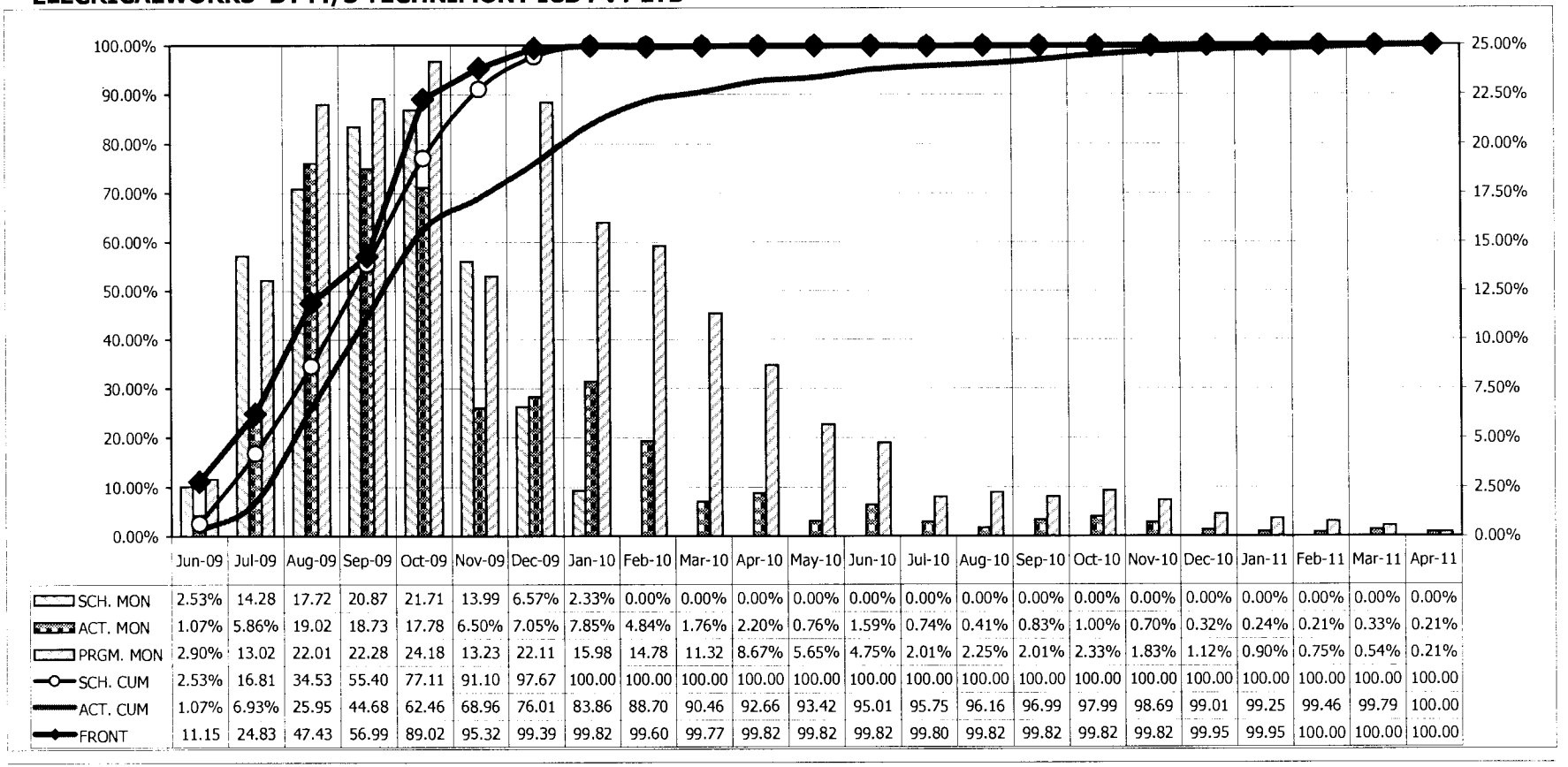
CIVIL / MECHANICAL WORKS -OFFSITE (PART-II) BY M/s IOTL



	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09	Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11
SCH. MON	2.53%	14.28	17.72	20.87	21.71	13.99	6.57%	2.33%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
ACT. MON	1.07%	5.86%	19.02	18.73	17.78	6.50%	7.05%	7.85%	4.84%	1.76%	2.20%	0.76%	1.59%	0.74%	0.41%	0.83%	1.00%	0.70%	0.32%	0.24%	0.21%	0.33%	0.21%
PRGM. MON	2.90%	13.02	22.01	22.28	24.18	13.23	22.11	15.98	14.78	11.32	8.67%	5.65%	4.75%	2.01%	2.25%	2.01%	2.33%	1.83%	1.12%	0.90%	0.75%	0.54%	0.21%
SCH. CUM	2.53%	16.81	34.53	55.40	77.11	91.10	97.67	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
ACT. CUM	1.07%	6.93%	25.95	44.68	62.46	68.96	76.01	83.86	88.70	90.46	92.66	93.42	95.01	95.75	96.16	96.99	97.99	98.69	99.01	99.25	99.46	99.79	100.00
FRONT	11.15	24.83	47.43	56.99	89.02	95.32	99.39	99.82	99.60	99.77	99.82	99.82	99.82	99.80	99.82	99.82	99.82	99.82	99.95	99.95	100.00	100.00	100.00

PROGRESS CURVES

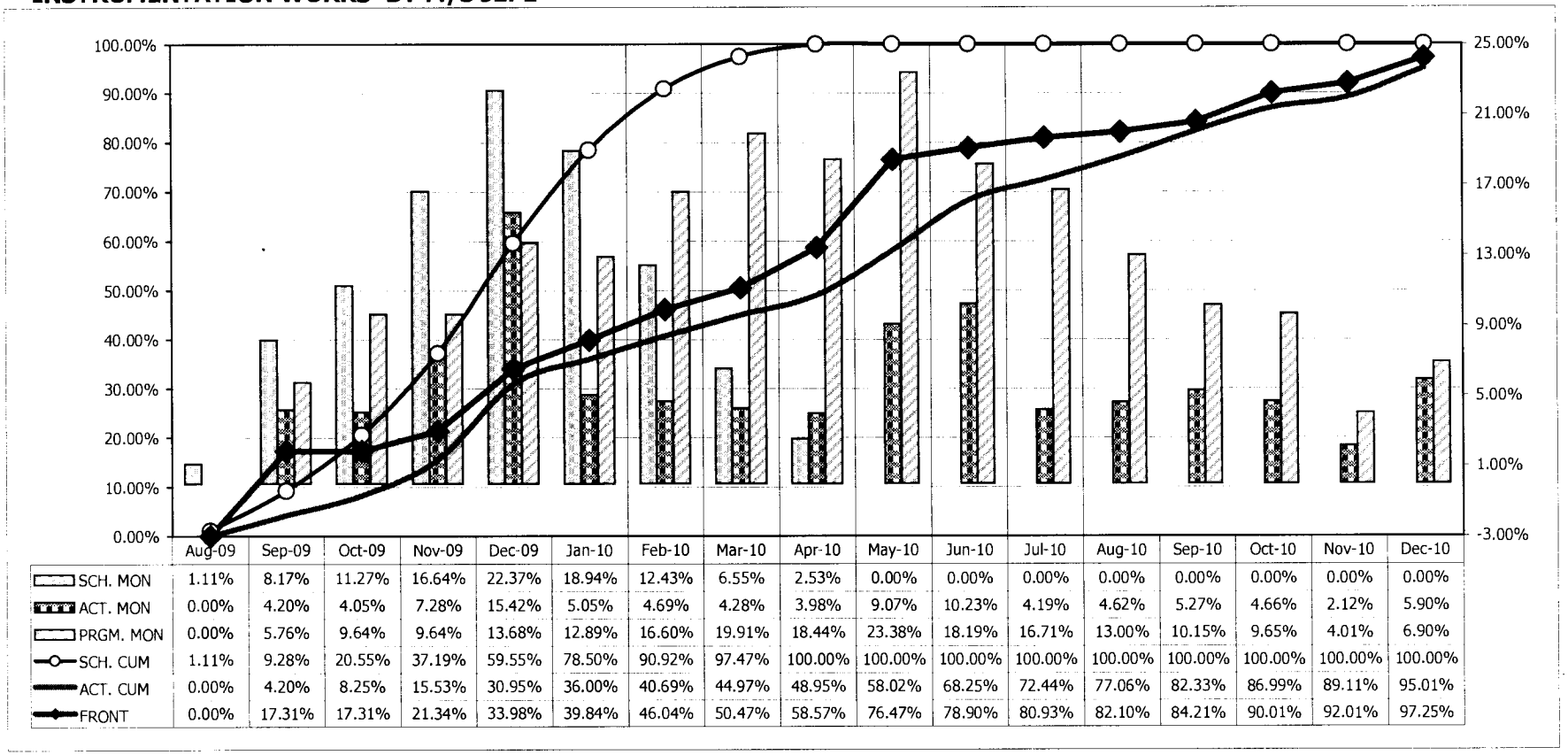
ELECRICALWORKS BY M/S TECHNIMONT ICB PVT LTD



	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09	Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11
SCH. MON	2.53%	14.28	17.72	20.87	21.71	13.99	6.57%	2.33%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
ACT. MON	1.07%	5.86%	19.02	18.73	17.78	6.50%	7.05%	7.85%	4.84%	1.76%	2.20%	0.76%	1.59%	0.74%	0.41%	0.83%	1.00%	0.70%	0.32%	0.24%	0.21%	0.33%	0.21%
PRGM. MON	2.90%	13.02	22.01	22.28	24.18	13.23	22.11	15.98	14.78	11.32	8.67%	5.65%	4.75%	2.01%	2.25%	2.01%	2.33%	1.83%	1.12%	0.90%	0.75%	0.54%	0.21%
SCH. CUM	2.53%	16.81	34.53	55.40	77.11	91.10	97.67	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
ACT. CUM	1.07%	6.93%	25.95	44.68	62.46	68.96	76.01	83.86	88.70	90.46	92.66	93.42	95.01	95.75	96.16	96.99	97.99	98.69	99.01	99.25	99.46	99.79	100.00
FRONT	11.15	24.83	47.43	56.99	89.02	95.32	99.39	99.82	99.60	99.77	99.82	99.82	99.82	99.80	99.82	99.82	99.82	99.82	99.95	99.95	100.00	100.00	100.00

PROGRESS CURVES

INSTRUMENTATION WORKS BY M/S JEPL



	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09	Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10
SCH. MON	1.11%	8.17%	11.27%	16.64%	22.37%	18.94%	12.43%	6.55%	2.53%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
ACT. MON	0.00%	4.20%	4.05%	7.28%	15.42%	5.05%	4.69%	4.28%	3.98%	9.07%	10.23%	4.19%	4.62%	5.27%	4.66%	2.12%	5.90%
PRGM. MON	0.00%	5.76%	9.64%	9.64%	13.68%	12.89%	16.60%	19.91%	18.44%	23.38%	18.19%	16.71%	13.00%	10.15%	9.65%	4.01%	6.90%
SCH. CUM	1.11%	9.28%	20.55%	37.19%	59.55%	78.50%	90.92%	97.47%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
ACT. CUM	0.00%	4.20%	8.25%	15.53%	30.95%	36.00%	40.69%	44.97%	48.95%	58.02%	68.25%	72.44%	77.06%	82.33%	86.99%	89.11%	95.01%
FRONT	0.00%	17.31%	17.31%	21.34%	33.98%	39.84%	46.04%	50.47%	58.57%	76.47%	78.90%	80.93%	82.10%	84.21%	90.01%	92.01%	97.25%

4.7 UNIT WISE WORK LOAD DATA

Unit Description	RCC (M3)		Strl. Steel (MT)		Pipe Rack Length (M)	Eqpt. Total		Tanks		Piping U/G		Piping Total		Piping Welding (ID)				Electrical						Remarks
	FDN/ Sub Str.	Super /Strr.	FAB	ERCN		(Nos.)	(MT)	(Nos.)	(MT)	(KM)	(IM)	(KM)	(IM)	Total	CS	AS	SS	LT Cable (KM)	HT Cable (KM)	Light. Cable (KM)	Motor NLR (Nos.*)	Eqpt. (Nos.)	Transf. (Nos.)	
FCCU ISBL	6600	4575	1600	1600	163	237	2404			2.7	8910	65	233000	208740	184240	18500	6000	257	24.2	37	126	0	0	
FGSU /PTU /CAUSTIC	800	67	42	42		44	159.4	6	93.82			4	10800	11500	6500	0	5000	23	1	4	27	0	0	
OFFSITE WORKS	1852	0	487	487		8	108	0	0			42	164600	62030	57530	0	4500							
SCW line Supply & Return	880	0	0	0	0	0	0	0	0	0.95	36640	1.0275	39549.2	0										
Substation - 10	625	1350	0	0	0	0	0	0	0					0								141	10	
TOTAL	**10757**	**5992**	**2129**	**2129**	**163**	**289**	**2671**	**6**	**93.82**	**3.65**	**45550**	**112**	**447949.2**	**282270**	**248270**	**18500**	**15500**	**280**	**25.2**	**41**	**153**	**141**	**10**	

Unit Description	Instrumentation								Insulation		Remarks
	CABLE TRAY (KM)	BRANCH CABLE (KM)	POWER CABLE(KM)	MULTICORE CABLE (KM)	INSTRUMENT AIR LINE (RM)	IMPULSE PIPING (Nos.)	INSTRUMENT MOUNTING (Nos.)	LOOP CHECKING (Nos.)	IM	(M2)	
FCCU ISBL	20.1	63	11.17	133	2200	1275	2154	2410	145000	2850	
FGSU /PTU /CAUSTIC	2	10	4.83	17	300	100	121	90			
OFFSITE WORKS									70000	0	Offsites to be clubbed with FCCU ISBL
SCW line Supply & Return	0	0	0	0	0	0	0	0			
Substation - 10	0	0	0	0	0	0	0	0			
TOTAL	**22.1**	**73**	**16**	**150**	**2500**	**1375**	**2275**	**2500**	**215000**	**2850**	

4.7 UNIT WISE WORK LOAD DATA

Unit Description	RR PACK. & OC		Ejectors		Columns		Vessels		Exchangers		Air Fin Coolers		Pumps		Compressors / Oxidation Blower		Filters		Heaters		Clarifier		Skids		Remarks
	(Nos.)	(MT)	(Nos.)	(MT)	(Nos.)	(MT)	(Nos.)	(MT)	(Nos.)	(MT)	(Nos.)	MT	(Nos.)	(MT)	(Nos.)	(MT)	(Nos.)	(MT)	(Nos.)	MT	(Nos.)	(MT)	(Nos.)	(MT)	
FCCU	1	846	1	0.28	4	199.80	14	190.00	42	341.00	16	240.6	33	95.40	3	131.85	4	7.11	1	248			2	5.6	
GCU	0	0	0	0	5	308.80	14	198.43	27	343.87	12	156.9	26	45.45	1	69.4	1	0.75							
FGSU	0	0	0	0	1	134.00							8	4.70											
PTU	0	0	0	0									3	2.70	2	10	1	14.24			2	66.5			
CUASTIC	0	0	0	0									5	0.59											
Offsites	0	0	0	0			2	90.76					5	3.81	1	14									
TOTAL	**1**	**846**	**1**	**0.28**	**10**	**642.6**	**30**	**479.19**	**69**	**684.87**	**28**	**397.5**	**80**	**152.65**	**7**	**225.25**	**6**	**22.1**	**1**	**248**	**2**	**66.5**	**2**	**5.6**	

4.8 RESOURCE DEPLOYMENT REQIRED VS DEPLOYED

MECHANICAL WORKS -ISBL BY M/s OFFSHORE INFRASTRUCTURE LTD.

	WORK ITEM DESCRIPTION		15-Apr-09	15-May-09	15-Jun-09	15-Jul-09	15-Aug-09	15-Sep-09	15-Oct-09	15-Nov-09	15-Dec-09	15-Jan-10	15-Feb-10	15-Mar-10	15-Apr-10	15-May-10	15-Jun-10	15-Jul-10	15-Aug-10	15-Sep-10	15-Oct-10	15-Nov-10	15-Dec-10
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
	MANPOWER																						
1	WELDERS- STRL	Reqd.	3	3	5	5	8	11	11	15	14	17	24	18	24	5	3	5	5	5	3	3	2
		Deployed	2	2	3	3	5	7	7	10	9	11	16	12	16	3	2	3	3	3	2	2	1
2	WELDERS -PPG	Reqd.	6	14	42	51	53	52	56	49	46	68	72	59	64	52	44	44	34	34	29	27	26
		Deployed	6	14	42	51	53	52	56	49	46	68	72	59	64	52	44	44	34	34	29	27	26
3	TACK WELDER	Reqd.	2	7	11	7	12	15	18	18	15	18	22	18	18	10	8	8	7	7	7	7	6
		Deployed	2	6	10	6	11	14	16	16	14	16	20	16	16	9	7	7	6	6	6	6	5
4	FITTERS -MECH	Reqd.	6	14	42	51	53	52	56	49	46	68	72	59	64	52	44	44	34	34	29	27	26
		Deployed	3	16	33	48	53	52	53	52	52	77	82	72	74	56	45	45	36	36	30	29	25
5	FITTERS -MILL WRIGHT	Reqd.	2	3	5	6	5	5	6	6	5	11	12	8	3	6	6	6	5	5	6	5	2
		Deployed	1	2	3	4	3	3	4	4	3	7	8	5	2	4	4	4	3	3	4	3	1
6	RIGGERS	Reqd.	12	28	84	102	106	104	112	98	92	136	144	118	128	104	88	88	68	68	58	54	52
		Deployed	16	42	85	81	96	116	140	138	136	148	175	170	170	146	126	136	121	115	148	152	135
7	GAS CUTTERS	Reqd.	3	7	21	26	27	26	28	25	23	34	36	30	32	26	22	22	17	17	15	14	13
		Deployed	3	3	12	15	16	17	20	20	18	20	23	20	22	16	12	15	13	13	9	9	9
8	GRINDERS	Reqd.	3	7	21	26	27	26	28	25	23	34	36	30	32	26	22	22	17	17	15	14	13
		Deployed	3	3	12	15	16	17	20	20	19	21	23	20	23	16	12	14	14	14	9	9	9
9	OPERATOR/MECHANIC/ELECTRICIAN	Reqd.	8	13	23	22	22	22	30	30	30	30	30	30	30	28	21	21	20	20	20	16	15
		Deployed	7	12	21	20	20	20	27	27	27	27	27	27	27	25	19	19	18	18	18	16	15

4.8 RESOURCE DEPLOYMENT REQIRED VS DEPLOYED

MECHANICAL WORKS -ISBL BY M/s OFFSHORE INFRASTRUCTURE LTD.

	WORK ITEM DESCRIPTION		15-Apr-09	15-May-09	15-Jun-09	15-Jul-09	15-Aug-09	15-Sep-09	15-Oct-09	15-Nov-09	15-Dec-09	15-Jan-10	15-Feb-10	15-Mar-10	15-Apr-10	15-May-10	15-Jun-10	15-Jul-10	15-Aug-10	15-Sep-10	15-Oct-10	15-Nov-10	15-Dec-10
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
10	SEMISKILLED	Reqd.	9	12	18	12	18	20	29	27	26	36	79	132	122	142	178	116	141	141	150	150	150
		Deployed	6	8	12	8	12	13	19	18	17	24	66	66	61	71	89	58	47	47	21	25	31
11	HELPERS/UNSKILLED	Reqd.	21	49	105	128	133	130	140	123	135	170	180	177	192	182	170	170	170	145	155	171	181
		Deployed	20	42	68	71	74	85	112	136	136	150	156	155	162	150	139	165	165	145	155	171	181
12	OTHERS	Reqd.	12	12	20	20	20	20	20	20	19	20	20	20	20	14	13	13	12	12	12	12	12
		Deployed	11	11	18	18	18	18	18	18	17	18	18	18	18	13	12	12	11	11	11	11	11
13	SUPERVISORS	Reqd.	24	30	42	46	44	44	50	55	54	56	56	58	56	50	52	56	43	43	40	29	25
		Deployed	20	25	35	38	37	37	42	46	45	47	47	48	47	42	43	47	36	36	33	24	21
14	SAFETY OFFICERS	Reqd.	4	4	2	4	4	4	4	6	6	5	5	5	5	5	4	4	4	2	2	4	4
		Deployed	3	3	2	3	3	3	3	5	5	4	4	4	4	4	3	3	3	2	2	3	3
	TOTAL	**Reqd.**	**114**	**203**	**440**	**503**	**529**	**530**	**586**	**544**	**532**	**701**	**788**	**759**	**789**	**701**	**674**	**618**	**575**	**549**	**540**	**531**	**525**
	TOTAL	**Deployed**	**103**	**189**	**356**	**381**	**417**	**454**	**537**	**559**	**544**	**638**	**737**	**692**	**706**	**607**	**557**	**572**	**510**	**483**	**477**	**487**	**473**
	EQUIPMENT & MACHINERY																						
1	TRUCK/ TRIALERS	Reqd.	1	2	2	2	4	5	5	5	5	5	5	5	5	5	6	6	6	6	6	5	5
		Deployed	1	2	2	2	4	5	5	5	5	5	5	5	5	5	5	5	4	4	3	3	3
2	DG SETS	Reqd.	16	16	15	15	15	16	16	16	16	16	17	17	17	18	18	18	18	18	16	14	10
		Deployed	16	16	15	15	15	16	16	16	16	16	17	17	17	18	18	18	18	18	16	14	10
3	COMPRESSORS	Reqd.	1	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2
		Deployed	1	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2

4.8 RESOURCE DEPLOYMENT REQIRED VS DEPLOYED

MECHANICAL WORKS -ISBL BY M/s OFFSHORE INFRASTRUCTURE LTD.

	WORK ITEM DESCRIPTION		15-Apr-09	15-May-09	15-Jun-09	15-Jul-09	15-Aug-09	15-Sep-09	15-Oct-09	15-Nov-09	15-Dec-09	15-Jan-10	15-Feb-10	15-Mar-10	15-Apr-10	15-May-10	15-Jun-10	15-Jul-10	15-Aug-10	15-Sep-10	15-Oct-10	15-Nov-10	15-Dec-10
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
4	CRANES	Reqd.	1	1	3	3	3	3	4	3	3	2	4	3	3	3	3	3	3	3	3	3	3
		Deployed	1	1	3	3	3	3	4	3	3	2	4	3	3	3	3	3	3	3	3	3	3
5	HYDRA	Reqd.	5	5	5	6	6	6	6	6	6	6	6	6	6	6	0	0	0	0	0	0	0
		Deployed	4	4	4	5	5	5	5	5	5	5	5	5	5	5	0	0	0	0	0	0	0
6	WELDING MACHINE	Reqd.	24	32	62	71	76	78	82	79	75	95	106	92	103	72	62	64	54	54	47	45	43
		Deployed	27	30	60	74	75	75	75	75	80	94	98	98	98	98	74	74	70	70	40	40	40
7	SR RECORDER	Reqd.	3	3	3	3	3	3	3	3	3	3	3	3	10	6	8	8	8	8	6	4	4
		Deployed	3	3	3	3	3	3	3	3	3	3	3	3	10	6	8	8	8	8	6	4	4
	TOTAL	**Reqd.**	**51**	**61**	**93**	**103**	**110**	**114**	**119**	**115**	**111**	**130**	**144**	**129**	**147**	**113**	**100**	**102**	**91**	**91**	**80**	**73**	**67**
	TOTAL	**Deployed**	**53**	**58**	**90**	**105**	**108**	**110**	**111**	**110**	**115**	**128**	**135**	**134**	**141**	**138**	**111**	**111**	**105**	**105**	**70**	**66**	**62**

4.8 CONTRACTOR RESOURCE REQUIRED vs DEPLOYMENT

CIVIL & MECHANICAL WORKS FOR PTU & CAUSTIC AND MECHANICAL WORKS FOR FGSU - BY M/s FURNACE FABRICA

SL No	WORK ITEM DESCRIPTION	UOM	15-Jan-10	15-Feb-10	15-Mar-10	15-Apr-10	15-May-10	15-Jun-10	15-Jul-10	15-Aug-10	15-Sep-10	15-Oct-10	15-Nov-10	15-Dec-10
	MANPOWER													
1	CARPENTERS	Reqd.	13	13	29	29	29	15	15	15	15	11	11	11
		Deployed	6	6	13	13	13	7	7	7	7	7	7	7
2	BAR BENDERS	Reqd.	9	11	29	29	29	18	7	7	7	5	5	5
		Deployed	4	5	13	13	13	8	3	3	3	3	3	3
3	MASONS	Reqd.	7	0	0	2	2	2	2	2	2	2	2	2
		Deployed	3			1	1	1	1	1	1	1	1	1
4	WELDERS- STRL	Reqd.	2	4	9	11	11	4	4	4	7	5	5	5
		Deployed	1	2	4	5	5	2	2	2	3	3	3	3
5	WELDERS -PPG	Reqd.	4	4	5	5	5	9	9	11	20	18	18	18
		Deployed				2	2	4	3	5	9	9	9	9
6	FITTERS -MECH	Reqd.	4	4	5	5	5	9	9	11	20	18	18	18
		Deployed	2	2	3	5	5	4	8	6	7	7	7	7
7	FITTERS -MILL WRIGHT	Reqd.	3	3	3	3	3	3	3	5	8	8	8	8
		Deployed	1	1	1	1	1	1	2	3	5	5	5	5
8	RIGGERS	Reqd.	8	8	10	9	9	18	18	22	40	36	36	36
		Deployed	2	2	4	4	4	7	22	21	29	26	26	26
9	GAS CUTTERS	Reqd.	2	2	3	2	2	5	5	6	10	9	9	9
		Deployed	1	1	2	2	2	3	4	4	6	5	5	5
10	GRINDERS	Reqd.	2	2	3	2	2	5	5	6	10	9	9	9
		Deployed		1	2	5	5	2	2	1	2	2	2	2
11	ELECTRICIAN/OPERATOR/DRIVER	Reqd.	4	4	4	4	4	4	8	8	10	8	8	8
		Deployed	2	2	2	2	2	2	4	4	5	4	4	4
12	HELPERS/ SEMISKILLED	Reqd.	15	9	27	57	57	69	45	48	57	57	57	57
		Deployed	5	3	9	19	19	23	15	16	19	19	19	19
13	OTHERS	Reqd.	11	9	9	18	18	25	27	31	43	38	38	38
		Deployed	6	5	5	10	10	14	15	17	24	21	21	21
14	SAFETY OFFICERS	Reqd.	2	2	2	2	2	2	5	5	6	6	6	6
		Deployed	1	1	1	1	1	1	4	4	5	5	5	5

4.8 CONTRACTOR RESOURCE REQUIRED vs DEPLOYMENT

CIVIL & MECHANICAL WORKS FOR PTU & CAUSTIC AND MECHANICAL WORKS FOR FGSU - BY M/s FURNACE FABRICA

SL No	WORK ITEM DESCRIPTION	UOM	15-Jan-10	15-Feb-10	15-Mar-10	15-Apr-10	15-May-10	15-Jun-10	15-Jul-10	15-Aug-10	15-Sep-10	15-Oct-10	15-Nov-10	15-Dec-10
15	STORE INCHARGE	Reqd.	1	1	1	1	1	1	1	1	2	2	2	2
		Deployed	1	1	1	1	1	1	1	1	2	2	2	2
16	SUPERVISORS	Reqd.	6	15	12	15	15	18	18	18	18	18	18	18
		Deployed	2	5	4	5	5	6	6	6	6	6	6	6
	TOTAL MANPOWER	**Reqd.**	**92**	**91**	**149**	**193**	**193**	**207**	**181**	**199**	**274**	**247**	**247**	**247**
	TOTAL MANPOWER	**Deployed**	**37**	**37**	**64**	**89**	**89**	**86**	**99**	**101**	**133**	**125**	**125**	**125**
	EQUIPMENT & MACHINERY													
1	DG SETS	Reqd.	2	2	2	2	2	2	2	5	5	5	5	5
		Deployed	2	2	2	2	2	2	2	5	5	5	5	5
2	DW PUMPS	Reqd.	2	2	2	2	3	3	3	2	2	2	2	2
		Deployed	2	2	2	2	3	3	3	2	2	2	2	2
3	CRANES	Reqd.	1	1	2	2	2	3	3	6	6	6	6	6
		Deployed	0	0	1	1	1	1	1	2	2	2	2	2
4	HYDRA	Reqd.	2	2	2	2	2							
		Deployed	1	1	1	1	1							
5	WELDING MACHINE	Reqd.	9	13	21	23	23	20	20	23	40	34	34	34
		Deployed	4	6	6	6	6	6	8	14	14	14	14	14
6	TRUCKS	Reqd.	4	4	4	4	4	6	6	6	6	6	3	3
		Deployed	2	2	2	2	2	2	2	2	2	2	1	1
7	GRINDING M/C.	Reqd.	3	3	4	3	3	7	7	8	11	10	10	10
		Deployed		1	1	1	1	2	2	4	4	4	4	4
8	CUTTING M/C.	Reqd.	3	3	4	3	3	7	7	8	11	10	10	10
		Deployed		1	1	1	1	2	2	3	3	3	3	3
9	HEATING OVEN	Reqd.		2	2	2	2	2	4	4	4	4	4	4
		Deployed		2	2	2	2	2	4	4	4	4	4	4
	TOTAL EQUIPMENT & MACHINERY	**Reqd.**	**26**	**32**	**42**	**44**	**45**	**50**	**52**	**63**	**84**	**77**	**74**	**74**
		Deployed	**11**	**17**	**18**	**18**	**19**	**20**	**24**	**36**	**36**	**36**	**35**	**35**

4.8 CONTRACTOR RESOURCE REQUIRED vs DEPLOYMENT

CIVIL / MECHANICAL WORKS -OFFSITE BY M/s BRIDGE & ROOF

	WORK ITEM DESCRIPTION	UOM	15-Oct-09	15-Nov-09	15-Dec-09	15-Jan-10	15-Feb-10	15-Mar-10	15-Apr-10	15-May-10	15-Jun-10	15-Jul-10	15-Aug-10	15-Sep-10	15-Oct-10
	MANPOWER														
1	CARPENTERS	Reqd.	43	46	60	53	55	53	39	46	10	5	5	3	3
		Deployed	33	35	46	41	42	41	30	35	8	4	4	2	2
2	WELDERS- STRL	Reqd.	5	5	5	5	8	9	14	8	6	6	2	2	3
		Deployed	3	3	3	3	5	6	9	5	4	4	1	1	2
3	WELDERS -PPG	Reqd.	8	10	12	12	16	18	18	18	16	16	12	12	12
		Deployed	4	5	6	6	8	9	9	9	8	8	8	8	8
4	TACK WELDERS	Reqd.	6	8	9	9	12	14	14	14	12	12	9	9	9
		Deployed	4	4	4	4	4	4	5	5	5	4	5	5	6
5	FITTERS -MECH	Reqd.	8	10	12	12	16	18	18	18	16	16	12	12	12
		Deployed	6	7	8	7	10	10	10	8	7	7	7	7	7
6	RIGGERS	Reqd.	20	25	30	30	40	45	45	45	40	40	30	30	30
		Deployed	19	23	21	20	33	31	31	22	26	29	29	31	18
7	GAS CUTTERS	Reqd.	4	5	6	6	8	9	9	9	8	8	6	6	6
		Deployed	2	2	2	2	2	2	2	2	2	2	2	2	2
8	GRINDERS	Reqd.	4	5	6	6	8	9	9	9	8	8	6	6	6
		Deployed	2	2	2	2	2	2	2	2	2	2	2	2	2
9	OPERATOR/MECHANIC/ELECTRICIAN	Reqd.	13	13	13	13	11	11	11	11	11	9	6	6	6
		Deployed	7	7	7	7	6	6	6	6	6	5	5	5	5
10	SKILLED	Reqd.	8	8	12	12	14	14	14	14	14	8	12	16	12
		Deployed	4	4	6	6	7	7	7	7	7	4	6	8	6
11	HELPERS/UNSKILLED	Reqd.	28	30	30	28	43	35	43	33	28	18	23	25	23
		Deployed	11	12	12	11	17	14	17	13	11	7	9	10	9
12	OTHERS	Reqd.	11	13	13	11	16	26	26	14	14	14	6	6	5
		Deployed	7	8	8	7	10	16	16	9	9	9	4	4	3
	TOTAL MANPOWER	Reqd.	157	176	207	196	245	260	258	237	183	160	129	133	126
	TOTAL MANPOWER	Deployed	102	112	125	116	146	148	144	123	95	85	82	85	70

4.8 CONTRACTOR RESOURCE REQUIRED vs DEPLOYMENT

CIVIL / MECHANICAL WORKS -OFFSITE BY M/s BRIDGE & ROOF

	WORK ITEM DESCRIPTION	UOM	15-Oct-09	15-Nov-09	15-Dec-09	15-Jan-10	15-Feb-10	15-Mar-10	15-Apr-10	15-May-10	15-Jun-10	15-Jul-10	15-Aug-10	15-Sep-10	15-Oct-10
	EQUIPMENT & MACHINERY														
1	DUMPER	Reqd.	4	4	4	4	4	4	4	4	4	4			
		Deployed	4	4	4	4	4	4	4	4	4	4			
2	DG SETS	Reqd.	8	8	10	10	10	10	14	10	10	10	10	10	10
		Deployed	8	8	10	10	10	10	14	10	10	10	10	10	10
3	COMPRESSORS	Reqd.	2	2	2	2	2	2	2	1	1	1	1	1	1
		Deployed	2	2	2	2	2	2	2	1	1	1	1	1	1
4	CRANES	Reqd.	2	2	2	2	2	2	2	2	3	3	3	3	3
		Deployed	1	1	1	1	1	1	1	1	1	1	1	1	1
5	HYDRA	Reqd.	2	3	3	3	3	3	3	3					
		Deployed	2	2	2	2	2	2	2	2					
6	WELDING MACHINE	Reqd.	19	22	25	25	35	41	47	38	33	33	20	20	23
		Deployed	11	11	11	11	11	11	11	7	7	10	10	10	10
7	TRUCKS/TRACTORS/TRAILORS	Reqd.	4	4	4	4	4	4	3	3	3	3	3	3	3
		Deployed	3	3	3	3	3	3	2	2	2	2	2	2	2
8	SR RECORDER	Reqd.	3	3	3	3	3	3	3	5	3	3	3	3	3
		Deployed	2	2	2	2	2	2	2	4	2	2	2	2	2
9	RADIOGRAPHY M/C	Reqd.	1	1	1	1	1	1	1	1	1	1	1	1	1
		Deployed	1	1	1	1	1	1	1	1	1	1	1	1	1
	TOTAL EQUIPMENT & MACHINERY	**Reqd.**	**45**	**49**	**54**	**54**	**64**	**70**	**79**	**67**	**58**	**58**	**41**	**41**	**44**
		Deployed	**34**	**34**	**36**	**36**	**36**	**36**	**39**	**32**	**28**	**31**	**27**	**27**	**27**

NFCCU PROJECT

JOB CLOSE OUT REPORT - TIME ASPECT
CONSTRUCTION ACTIVITIES

4.8 CONTRACTOR RESOURCE REQUIRED vs DEPLOYMENT

CIVIL / MECHANICAL WORKS -OFFSITE PART-II BY M/s IOTL

SL. NO	WORK ITEM DESCRIPTION	UOM	15-Sep-09	15-Oct-09	15-Nov-09	15-Dec-09	15-Jan-10	15-Feb-10	15-Mar-10	15-Apr-10	15-May-10	15-Jun-10	15-Jul-10	15-Aug-10	15-Sep-10	15-Oct-10	15-Nov-10	15-Dec-10
			4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	MANPOWER																	
1	CARPENTERS	Reqd.	5	8	9	9	9	9	9	9	3	3	2	2	2	2	2	2
		Deployed	3	5	6	6	6	6	6	6	2	2	1	1	1	1	1	1
1	BAR BENDER	Reqd.	5	8	9	9	9	9	9	9	3	3	2	2	2	2	2	2
		Deployed	3	3	3	3	5	5	5	5	5	2	1	1	1	1	1	1
2	MASONS	Reqd.	10	10	12	12	8	8	8	8	8	4	4	4	4	4	4	2
		Deployed	5	5	6	6	4	4	4	4	4	2	2	2	2	2	2	1
3	WELDERS -PPG	Reqd.	15	15	15	15	15	15	15	15	15	12	12	10	10	10	10	10
		Deployed	9	9	9	9	9	9	9	9	9	7	7	9	9	9	9	9
4	FITTERS -MECH	Reqd.	15	15	15	15	15	15	15	15	15	12	12	10	10	10	10	10
		Deployed	8	14	14	14	11	11	11	11	8	6	8	8	8	8	8	8
5	RIGGERS	Reqd.	31	31	31	31	31	31	31	31	31	24	24	20	20	20	20	20
		Deployed	28	28	28	25	10	10	10	10	8	12	12	12	12	12	12	12
6	GAS CUTTERS	Reqd.	8	8	8	8	8	8	8	8	8	6	6	5	5	5	5	5
		Deployed	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
7	GRINDERS	Reqd.	8	8	8	8	8	8	8	8	8	6	6	5	5	5	5	5
		Deployed	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3	2
8	Supervisor	Reqd.	8	8	8	8	8	8	10	10	10	10	10	10	10	10	10	10
		Deployed	5	5	5	5	5	5	6	6	6	6	6	6	6	6	6	6
9	HELPERS/UNSKILLED	Reqd.	45	60	71	66	60	60	66	48	26	15	24	24	24	24	24	24
		Deployed	30	40	47	44	40	40	44	32	17	10	16	16	16	16	16	16
	TOTAL MANPOWER	**Reqd.**	**144**	**162**	**176**	**172**	**162**	**162**	**169**	**151**	**123**	**91**	**99**	**89**	**89**	**89**	**89**	**87**
	TOTAL MANPOWER	**Deployed**	**94**	**112**	**121**	**115**	**91**	**91**	**96**	**84**	**60**	**50**	**57**	**59**	**59**	**59**	**59**	**57**

4.8 CONTRACTOR RESOURCE REQUIRED vs DEPLOYMENT

CIVIL / MECHANICAL WORKS -OFFSITE PART-II BY M/s IOTL

SL. NO	WORK ITEM DESCRIPTION	UOM	15-Sep-09	15-Oct-09	15-Nov-09	15-Dec-09	15-Jan-10	15-Feb-10	15-Mar-10	15-Apr-10	15-May-10	15-Jun-10	15-Jul-10	15-Aug-10	15-Sep-10	15-Oct-10	15-Nov-10	15-Dec-10
			4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	EQUIPMENT & MACHINERY																	
1	DUMPER	Reqd.	4	5	5	5	5	5	4	4	4	4	4	4	1	1	1	1
		Deployed	4	5	5	5	5	5	4	4	4	4	4	4	1	1	1	1
2	DG SETS	Reqd.		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
		Deployed	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
3	JCB	Reqd.		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
		Deployed	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4	COMPRESSORS	Reqd.		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
		Deployed	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5	CRANES	Reqd.		2	2	2	2	2	2	2	2	2	2	2	2	2	2	1
		Deployed	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	GRINDING M/C.	Reqd.		13	13	13	13	13	13	13	13	11	11	10	10	10	10	8
		Deployed	15	11	11	11	11	11	11	11	11	11	11	9	9	9	9	8
7	OVENS	Reqd.		17	17	17	17	17	17	17	17	14	14	12	12	12	12	12
		Deployed	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
8	TRACTOR/TRAILOR	Reqd.		3	3	3	3	3	3	3	3	3	2	2	2	2	2	2
		Deployed	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1
9	HYDRA	Reqd.		4	4	4	4	4	4	4	4							
		Deployed	2	2	2	2	2	2	2	2	2							
10	DRILL MACHINE	Reqd.		2	2	2	2	2	2	2	2	2	1	1	1	1	1	1
		Deployed	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1
10	WELDING MACHINE	Reqd.		20	20	20	20	20	20	20	20	17	17	15	15	15	15	15
		Deployed	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	TOTAL EQUIPMENT & MACHINERY	**Reqd.**	**4**	**72**	**72**	**72**	**72**	**72**	**71**	**71**	**71**	**59**	**56**	**51**	**48**	**48**	**48**	**45**
		Deployed	**57**	**54**	**54**	**54**	**54**	**54**	**53**	**53**	**53**	**51**	**49**	**47**	**44**	**44**	**44**	**43**

4.8 CONTRACTOR RESOURCE REQUIRED vs DEPLOYMENT

ELECRICALWORKS BY M/S TECHNIMONT ICB PVT LTD

	WORK ITEM DESCRIPTION	UOM	15-Oct-09	15-Nov-09	15-Dec-09	15-Jan-10	15-Feb-10	15-Mar-10	15-Apr-10	15-May-10	15-Jun-10	15-Jul-10	15-Aug-10	15-Sep-10	15-Oct-10	15-Nov-10
	MANPOWER															
1	WELDERS- STRL	Reqd.		1	6	5	6	6	7	7	6	6	6	3	2	2
		Deployed		1	6	5	6	6	7	7	6	6	6	3	2	2
2	FITTERS -MECH	Reqd.		4	23	23	24	28	29	26	25	21	15	15	10	10
		Deployed			19	19	20	24	25	22	21	17	11	11	6	6
3	RIGGERS	Reqd.		6	9	16	19	24	24	23	21	21	18	16	10	10
		Deployed			3	10	13	18	18	17	15	15	12	10	4	4
4	STORE KEEPERS	Reqd.		1	3	3	3	4	4	4	4	4	4	3	3	3
		Deployed			2	2	2	3	3	3	3	3	3	2	2	2
5	SAFETY ENGINEERS	Reqd.			1	1	1	1	3	2	2	2	2	1	1	1
		Deployed			1	1	1	1	3	2	2	2	2	1	1	1
6	ELECTRICIAN	Reqd.		5	18	19	22	29	31	29	26	24	31	20	16	16
		Deployed			13	14	17	24	26	24	21	19	26	15	11	11
7	SEMISKILLED	Reqd.		15	16	19	7	7	7	7	7	8	8	8	8	8
		Deployed			1	4	5	5	5	5	5	6	6	6	6	6
8	HELPER/UNSKILLED	Reqd.		18	32	51	61	81	89	108	98	89	81	64	73	67
		Deployed		3	17	36	46	66	74	93	83	74	66	49	58	52
9	OTHERS	Reqd.		5	8	8	8	8	8	8	10	11	10	10	10	9
		Deployed		2	5	5	5	5	5	5	7	8	7	7	7	6
10	SUPERVISORS	Reqd.		6	6	6	6	6	10	10	10	7	6	5	5	5
		Deployed		3	3	3	3	3	7	7	7	4	3	2	2	2
	TOTAL MANPOWER	**Reqd.**		**60**	**118**	**147**	**153**	**189**	**205**	**218**	**203**	**187**	**175**	**141**	**134**	**127**
	TOTAL MANPOWER	**Deployed**		**9**	**67**	**96**	**115**	**151**	**167**	**180**	**165**	**149**	**137**	**103**	**96**	**89**
	EQUIPMENT & MACHINERY															
1	DG SETS	Reqd.		3	3	3	3	3	3	3	3	3	3	3	2	2
		Deployed		3	3	3	3	3	3	3	3	3	3	3	2	2
2	CABLE WINCH	Reqd.			2	2	2	2	2	2	2	2	2	2	2	2
		Deployed			2	2	2	2	2	2	2	2	2	2	2	2
3	HAMMERING M/C	Reqd.		5	5	5	8	8	8	8	8	8	8	8	8	8

4.8 CONTRACTOR RESOURCE REQUIRED vs DEPLOYMENT

ELECRICALWORKS BY M/S TECHNIMONT ICB PVT LTD

	WORK ITEM DESCRIPTION	UOM	15-Oct-09	15-Nov-09	15-Dec-09	15-Jan-10	15-Feb-10	15-Mar-10	15-Apr-10	15-May-10	15-Jun-10	15-Jul-10	15-Aug-10	15-Sep-10	15-Oct-10	15-Nov-10
3	HAMMERING M/C.	Deployed		5	5	5	8	8	8	8	8	8	8	8	8	8
4	WELDING MACHINE	Reqd.		5	9	9	9	9	9	9	9	9	9	9	9	9
		Deployed		4	8	8	8	8	8	8	8	8	8	8	8	8
5	GRINDING MACHINE	Reqd.		29	29	29	29	31	31	31	31	31	29	29	29	29
		Deployed		25	25	25	25	25	25	25	25	25	25	25	25	25
6	DRILL MACHINE	Reqd.		4	4	5	11	11	11	11	11	11	11	11	11	11
		Deployed		3	3	4	10	10	10	10	10	10	10	10	10	10
7	CUTTING MACHINE	Reqd.		9	9	9	9	9	9	9	9	9	9	9	9	9
		Deployed		9	9	9	9	9	9	9	9	9	9	9	9	9
8	GAS CUTTING SET	Reqd.		3	3	3	3	3	3	3	3	3	3	3	3	3
		Deployed		3	3	3	3	3	3	3	3	3	3	3	3	3
9	HYDRAULIC CRIMPING TOOK	Reqd.		2	2	2	2	2	2	2	2	2	2	2	2	2
		Deployed		1	1	1	1	1	1	1	1	1	1	1	1	1
10	CABLE JACK	Reqd.		7	7	7	7	7	7	7	7	7	7	7	7	7
		Deployed		7	7	7	7	7	7	7	7	7	7	7	7	7
	TOTAL EQUIPMENT & MACHINERY	**Reqd.**		**67**	**73**	**74**	**83**	**85**	**85**	**85**	**85**	**85**	**83**	**83**	**82**	**82**
		Deployed		**60**	**66**	**67**	**76**	**76**	**76**	**76**	**76**	**76**	**76**	**76**	**75**	**75**

4.8 CONTRACTOR RESOURCE REQUIRED vs DEPLOYMENT

INSTRUMENTATION WORKS-UNITS & OFFSITES BY M/s JASUBHAI ENGINEERS PVT. LTD.

Sl No	WORK ITEM DESCRIPTION	UOM	15-Nov-09	15-Dec-09	15-Jan-10	15-Feb-10	15-Mar-10	15-Apr-10	15-May-10	15-Jun-10	15-Jul-10	15-Aug-10	15-Sep-10	15-Oct-10	15-Nov-10	15-Dec-10
	MANPOWER															
1	WELDERS- PIPING	Reqd.	2	2	3	3	4	4	4	5	5	7	9	7	7	7
		Deployed	2	2	3	3	4	4	4	5	5	7	9	7	7	7
2	FITTERS -MECH	Reqd.	7	11	11	12	12	13	13	14	13	12	15	13	13	13
		Deployed	5	9	9	10	10	11	11	12	11	10	13	11	11	11
3	ELECTRICIAN	Reqd.	3	3	5	5	6	7	7	10	20	16	14	11	11	11
		Deployed	2	2	4	4	5	6	6	9	19	15	13	10	10	10
4	INST. TECHNICIAN	Reqd.	2	2	4	4	4	4	4	6	4	8	6	6	6	5
		Deployed	1	1	2	2	2	2	2	3	2	4	3	3	3	3
5	CABLE LAYING GANG	Reqd.			16	16	22	16	16	49	24	17	15	14	14	8
		Deployed			6	6	12	6	6	39	14	7	5	4	4	3
6	STORE OFFICER	Reqd.	2	2	4	4	4	4	4	3	3	5	4	5	5	5
		Deployed	2	2	4	4	4	4	4	3	3	5	4	5	5	5
7	SAFETY ENGINEER	Reqd.	2	2	2	2	2	2	2	2	2	2	2	2	2	2
		Deployed	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	HELPERS / UNSKILLED	Reqd.	41	41	41	41	45	51	51	48	42	47	37	36	36	36
		Deployed	29	29	29	29	26	32	32	29	23	28	29	28	28	28
9	OTHERS	Reqd.	10	10	10	10	10	10	10	8	10	10	9	9	9	9
		Deployed	7	7	7	7	7	7	7	5	7	7	6	6	6	6
10	SUPERVISORS	Reqd.	4	4	4	4	5	6	6	6	7	6	6	4	4	4
		Deployed	1	1	1	1	1	2	2	2	3	2	2	2	2	2
	TOTAL MANPOWER	**Reqd.**	**73**	**77**	**100**	**101**	**114**	**117**	**117**	**151**	**130**	**130**	**117**	**107**	**107**	**100**
	TOTAL MANPOWER	**Deployed**	**50**	**54**	**66**	**67**	**72**	**75**	**75**	**108**	**88**	**86**	**85**	**77**	**77**	**76**

4.8 CONTRACTOR RESOURCE REQUIRED vs DEPLOYMENT

INSTRUMENTATION WORKS-UNITS & OFFSITES BY M/s JASUBHAI ENGINEERS PVT. LTD.

Sl No	WORK ITEM DESCRIPTION	UOM	15-Nov-09	15-Dec-09	15-Jan-10	15-Feb-10	15-Mar-10	15-Apr-10	15-May-10	15-Jun-10	15-Jul-10	15-Aug-10	15-Sep-10	15-Oct-10	15-Nov-10	15-Dec-10
	EQUIPMENT & MACHINERY															
1	DG SETS	Reqd.	3	3	3	3	3	3	3	2	2	2	2	2	2	2
		Deployed	3	3	3	3	3	3	3	2	2	2	2	2	2	2
2	DRILL MACHINE	Reqd.	22	22	22	22	21	21	21	21	20	23	23	23	23	23
		Deployed	19	19	19	19	18	18	18	18	17	20	20	20	20	20
3	GRINDING M/C	Reqd.	6	6	6	6	10	10	10	9	9	9	9	9	9	9
		Deployed	4	4	4	4	8	8	8	7	7	7	7	7	7	7
4	CALIBRATION EQUIPMENT	Reqd.	1	1	2	2	2	2	2	2	2	2	2	2	2	2
		Deployed	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5	PIPE BENDERS	Reqd.	6	6	6	6	6	6	6	6	6	6	6	6	6	6
		Deployed	6	6	6	6	6	6	6	6	6	6	6	6	6	6
6	CUT-OFF M/C.	Reqd.	2	2	2	2	3	3	3	4	4	4	4	4	4	4
		Deployed	1	1	1	1	2	2	2	3	3	3	3	3	3	3
7	COMPRESSORS	Reqd.	1	1	1	1	1	1	1	1	1	1	1	1	1	1
		Deployed	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	WELDING MACHINE	Reqd.	5	5	6	6	7	7	7	8	8	10	12	10	10	10
		Deployed	4	4	4	4	4	4	4	7	7	7	7	7	7	7
	TOTAL EQUIPMENT & MACHINERY	**Reqd.**	**46**	**46**	**48**	**48**	**53**	**53**	**53**	**53**	**52**	**57**	**59**	**57**	**57**	**57**
		Deployed	**39**	**39**	**39**	**39**	**43**	**43**	**43**	**45**	**44**	**47**	**47**	**47**	**47**	**47**

4.9 CONTRACTOR RESOURCE REQUIRED vs DEPLOYMENT

SUMMARY OF RESOURCE DEPLOYMENT - PROJECT WISE AT COMPLEX LEVEL

	WORK ITEM DESCRIPTION	UOM	15-Apr-09	15-May-09	15-Jun-09	15-Jul-09	15-Aug-09	15-Sep-09	15-Oct-09	15-Nov-09	15-Dec-09	15-Jan-10	15-Feb-10	15-Mar-10	15-Apr-10	15-May-10	15-Jun-10	15-Jul-10	15-Aug-10	15-Sep-10	15-Oct-10	15-Nov-10	15-Dec-10
			16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
	MANPOWER																						
1	WELDERS- STRL	Reqd.	3	3	5	5	8	11	15	23	26	29	43	41	57	34	31	26	23	22	22	17	13
		Deployed	2	2	3	3	5	7	10	16	20	22	31	30	40	24	22	20	19	18	16	14	11
2	WELDERS -PPG	Reqd.	6	14	42	51	53	67	79	74	73	99	107	97	102	90	81	81	67	76	69	55	54
		Deployed	6	14	42	51	53	61	69	63	61	83	89	77	84	72	63	62	56	60	55	45	44
3	TACK WELDER	Reqd.	2	7	11	7	12	15	24	25	24	27	34	31	31	23	20	20	16	16	16	7	6
		Deployed	2	6	10	6	11	14	20	20	18	20	24	20	21	14	12	11	11	11	12	6	5
4	FITTERS -MECH	Reqd.	6	14	42	51	53	67	79	85	107	133	143	137	144	129	120	115	94	106	92	78	66.9
		Deployed	3	16	33	48	53	60	73	78	102	125	135	130	136	110	95	96	78	82	69	61	51
5	FITTERS -MILL WRIGHT	Reqd.	2	3	5	6	5	5	6	6	5	13	15	10	6	9	9	9	9	12	14	12	9
		Deployed	1	2	3	4	3	3	4	4	3	8	9	6	3	5	5	6	6	8	9	8	6
6	RIGGERS	Reqd.	12	28	84	102	106	135	163	154	153	205	223	204	213	189	170	170	140	157	144	110	107.8
		Deployed	16	42	85	81	96	144	187	189	182	180	220	215	215	180	171	199	183	187	204	190	173
7	GAS CUTTERS	Reqd.	3	7	21	26	27	34	40	37	37	50	54	49	51	45	41	40	33	38	34	27	27
		Deployed	3	3	12	15	16	19	24	24	22	25	28	26	28	22	19	23	21	23	18	16	16
8	GRINDERS	Reqd.	3	7	21	26	27	34	40	37	37	50	54	49	51	45	41	40	33	38	34	27	27
		Deployed	3	3	12	15	16	19	24	24	23	25	28	26	32	25	18	20	19	20	15	13	13
9	OPERATOR/MECHANIC/ ELECTRICIAN	Reqd.	8	13	23	22	22	22	42	50	63	70	72	80	83	78	72	82	81	70	61	51	34
		Deployed	7	12	21	20	20	20	34	36	49	54	56	64	67	63	57	66	68	56	48	41	29
10	INST. TECHNICIAN	Reqd.								2	2	4	4	4	4	4	6	4	8	6	6	6	5
		Deployed								1	1	2	2	2	2	2	3	2	4	3	3	3	3
11	HELPERS/ SEMISKILLED	Reqd.	9	12	18	12	18	28	45	58	62	90	117	190	210	230	278	187	219	232	237	225	217
		Deployed	6	8	12	8	12	18	28	27	29	44	86	93	98	108	130	89	81	86	58	56	56
12	HELPERS/UNSKILLED	Reqd.	21	49	105	128	133	175	228	264	272	299	324	323	334	291	261	254	264	231	238	231	241
		Deployed	137	223	260	270	221	262	310	384	393	478	507	239	243	212	189	211	218	200	208	215	225

4.9 CONTRACTOR RESOURCE REQUIRED vs DEPLOYMENT

SUMMARY OF RESOURCE DEPLOYMENT - PROJECT WISE AT COMPLEX LEVEL

	WORK ITEM DESCRIPTION	UOM	15-Apr-09	15-May-09	15-Jun-09	15-Jul-09	15-Aug-09	15-Sep-09	15-Oct-09	15-Nov-09	15-Dec-09	15-Jan-10	15-Feb-10	15-Mar-10	15-Apr-10	15-May-10	15-Jun-10	15-Jul-10	15-Aug-10	15-Sep-10	15-Oct-10	15-Nov-10	15-Dec-10
			16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
13	OTHERS	Reqd.	12	12	20	20	20	20	31	48	50	60	63	72	81	65	71	76	69	81	74	68	59
		Deployed	11	11	18	18	18	18	25	35	37	43	45	51	56	44	47	51	46	52	48	44	38
14	SUPERVISORS	Reqd.	42	48	66	70	69	69	75	89	88	98	111	81	87	81	86	88	73	72	67	56	47
		Deployed	33	36	50	53	52	52	57	65	64	69	75	56	61	56	58	60	47	46	43	34	29
15	SAFETY OFFICERS	Reqd.	4	4	2	4	4	4	4	8	9	10	10	10	12	11	10	13	13	11	11	13	12
		Deployed	3	3	2	3	3	3	3	6	7	7	7	7	9	8	7	10	10	9	9	10	9
16	STORE OFFICER/KEEPER	Reqd.	4	4	4	4	4	4	4	6	7	10	9	6	8	7	6	6	8	7	8	8	7
		Deployed	2	2	2	2	2	2	2	4	5	8	8	6	8	7	6	6	8	7	8	8	7
17	CARPENTERS	Reqd.	78	80	92	98	104	108	154	133	157	138	114	91	77	77	29	22	22	20	15	12	12
		Deployed	42	50	60	69	72	75	110	92	108	96	76	60	49	50	17	12	12	10	10	8	8
18	BAR BENDERS	Reqd.	78	80	92	98	104	104	104	79	89	71	49	29	29	29	18	7	7	7	5	5	4.5
		Deployed	40	50	61	71	73	73	73	51	56	46	25	13	13	13	8	3	3	3	3	3	3
19	MASONS	Reqd.						10	10	12	12	15	8	8	10	10	6	6	6	6	6	6	3.5
		Deployed						5	5	6	6	7	4	4	5	5	3	3	3	3	3	3	2
20	CABLE LAYING GANG	Reqd.										16	16	22	16	16	49	24	17	15	14	14	8
		Deployed										6	6	12	6	6	39	14	7	5	4	4	3
	TOTAL MANPOWER	**Reqd.**	**249**	**336**	**585**	**656**	**696**	**840**	**1065**	**1101**	**1184**	**1387**	**1456**	**1452**	**1517**	**1381**	**1316**	**1180**	**1128**	**1149**	**1097**	**970**	**912**
	TOTAL MANPOWER	**Deployed**	**284**	**447**	**636**	**684**	**674**	**803**	**1001**	**1060**	**1122**	**1279**	**1386**	**1081**	**1115**	**970**	**911**	**904**	**853**	**843**	**800**	**748**	**702**
	EQUIPMENT & MACHINERY																						
1	TRUCK/ TRIALERS	Reqd.	1	2	2	2	4	5	12	12	12	12	12	12	11	11	12	11	11	11	11	7	6.5
		Deployed	1	2	2	2	4	7	10	10	10	10	10	10	9	9	9	8	7	7	6	4	4
2	DG SETS	Reqd.	17	17	16	16	16	17	28	34	36	39	40	38	42	39	38	38	41	41	38	26	20
		Deployed	18	18	17	17	17	21	29	35	37	40	42	38	42	39	38	38	41	41	38	26	20
3	COMPRESSORS	Reqd.	1	2	3	3	3	3	6	7	7	7	7	7	7	6	6	6	5	5	5	4	4
		Deployed	1	2	3	3	3	4	6	7	7	7	7	7	7	6	6	6	5	5	5	4	4

4.9 CONTRACTOR RESOURCE REQUIRED vs DEPLOYMENT

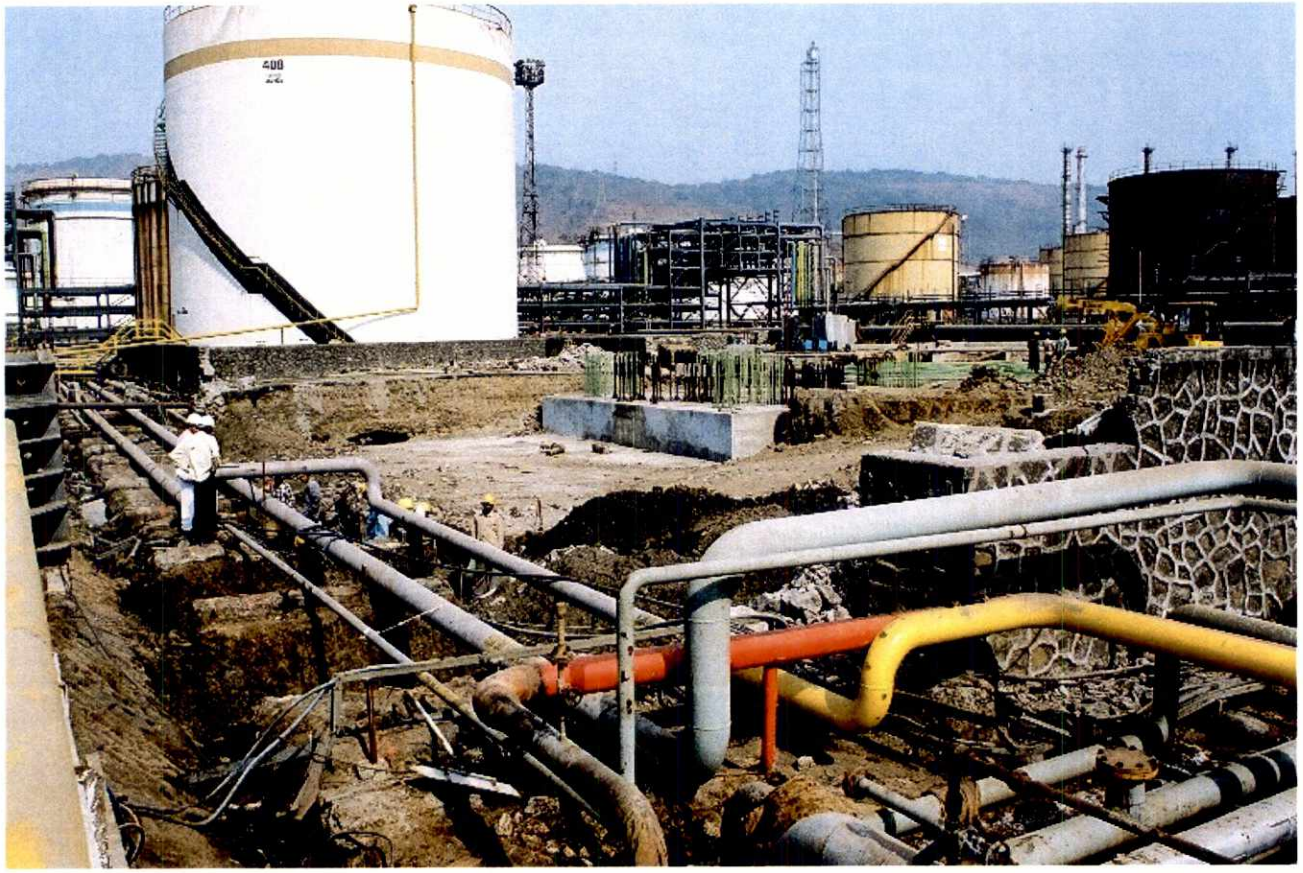
SUMMARY OF RESOURCE DEPLOYMENT - PROJECT WISE AT COMPLEX LEVEL

	WORK ITEM DESCRIPTION	UOM	15-Apr-09	15-May-09	15-Jun-09	15-Jul-09	15-Aug-09	15-Sep-09	15-Oct-09	15-Nov-09	15-Dec-09	15-Jan-10	15-Feb-10	15-Mar-10	15-Apr-10	15-May-10	15-Jun-10	15-Jul-10	15-Aug-10	15-Sep-10	15-Oct-10	15-Nov-10	15-Dec-10
			16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
4	CRANES	Reqd.	1	1	3	3	3	3	8	7	7	7	9	9	9	9	11	11	14	14	14	11	10
		Deployed	1	1	3	3	3	4	6	5	5	4	6	6	6	6	6	6	7	7	7	6	6
5	HYDRA	Reqd.	5	5	5	6	6	6	12	13	13	15	15	15	15	15							
		Deployed	4	4	4	5	5	7	9	9	9	10	10	10	10	10							
6	WELDING MACHINE	Reqd.	39	47	76	85	85	92	137	148	150	182	207	190	210	169	149	151	131	149	137	113	101.15
		Deployed	29	32	66	80	80	93	108	116	125	147	154	139	139	135	114	119	121	121	91	81	73
7	SR RECORDER	Reqd.	3	3	3	3	3	3	6	6	6	6	6	6	13	11	11	11	11	11	9	4	4
		Deployed	3	3	3	3	3	3	5	5	5	5	5	5	12	10	10	10	10	10	8	4	4
8	CONC. MIXER	Reqd.	6	6	6	6	6	6	6	6	6	5	4	2	2	2	2	2	2				
		Deployed	4	4	4	4	4	4	4	4	4	3	3										
9	VIBRATORS	Reqd.	8	8	8	8	8	8	8	8	8	8	8										
		Deployed	6	6	6	6	6	6	6	6	6	6	7										
10	DUMPER	Reqd.	23	23	23	23	23	23	19	19	19	19	19	2	2	2	2	2					
		Deployed	2	2	2	2	2	6	11	11	11	11	11	8	8	8	8	8	4	1	1	1	1
11	DW PUMPS	Reqd.										2	2	2	2	3	3	3	2	2	2	2	2
		Deployed										2	2	2	2	3	3	3	2	2	2	2	2
12	RADIOGRAPHY M/C	Reqd.									1	1	1	1	1	1	1	1	1	1	1	1	1
		Deployed									1	1	1	1	1	1	1	1	1	1	1	1	1
13	GRINDING M/C.	Reqd.						17	13	48	48	51	51	57	57	57	58	58	56	59	58	58	26.9
		Deployed						15	11	40	40	40	41	45	45	45	45	45	45	45	45	45	19
14	CUTTING M/C.	Reqd.						11	11	11	11	14	14	16	15	15	20	20	21	24	23	23	13.9
		Deployed						10	10	10	10	10	11	12	12	12	14	14	15	15	15	15	6
15	HEATING OVEN	Reqd.						17	17	17	17	17	19	19	19	19	16	18	16	16	16	16	15.9
		Deployed						14	14	14	14	14	16	16	16	16	16	18	18	18	18	18	18
16	DRILL MACHINE	Reqd.						2	2	28	28	29	35	34	34	34	34	32	35	35	35	35	24

4.9 CONTRACTOR RESOURCE REQUIRED vs DEPLOYMENT

SUMMARY OF RESOURCE DEPLOYMENT - PROJECT WISE AT COMPLEX LEVEL

	WORK ITEM DESCRIPTION	UOM	15-Apr-09	15-May-09	15-Jun-09	15-Jul-09	15-Aug-09	15-Sep-09	15-Oct-09	15-Nov-09	15-Dec-09	15-Jan-10	15-Feb-10	15-Mar-10	15-Apr-10	15-May-10	15-Jun-10	15-Jul-10	15-Aug-10	15-Sep-10	15-Oct-10	15-Nov-10	15-Dec-10
			16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
16	DRILL MACHINE	Deployed						2	2	24	24	25	31	30	30	30	30	28	31	31	31	31	21
17	JCB	Reqd.						2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
		Deployed						1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
18	CABLE WINCH	Reqd.									2	2	2	2	2	2	2	2	2	2	2	2	
		Deployed									2	2	2	2	2	2	2	2	2	2	2	2	
19	HAMMERING M/C.	Reqd.								5	5	5	8	8	8	8	8	8	8	8	8	8	
		Deployed								5	5	5	8	8	8	8	8	8	8	8	8	8	
20	GAS CUTTING SET	Reqd.								3	3	3	3	3	3	3	3	3	3	3	3	3	
		Deployed								3	3	3	3	3	3	3	3	3	3	3	3	3	
21	HYDRAULIC CRIMPING TOOK	Reqd.								2	2	2	2	2	2	2	2	2	2	2	2	2	
		Deployed								1	1	1	1	1	1	1	1	1	1	1	1	1	
22	CABLE JACK	Reqd.								7	7	7	7	7	7	7	7	7	7	7	7	7	
		Deployed								7	7	7	7	7	7	7	7	7	7	7	7	7	
23	CALIBRATION EQUIPMENT	Reqd.								1	1	2	2	2	2	2	2	2	2	2	2	2	2
		Deployed								1	1	1	1	1	1	1	1	1	1	1	1	1	1
24	PIPE BENDERS	Reqd.								6	6	6	6	6	6	6	6	6	6	6	6	6	6
		Deployed								6	6	6	6	6	6	6	6	6	6	6	6	6	6
25	CUT-OFF M/C.	Reqd.								2	2	2	2	3	3	3	4	4	4	4	4	4	4
		Deployed								1	1	1	1	2	2	2	3	3	3	3	3	3	3
	TOTAL EQUIPMENT & MACHINERY	**Reqd.**	**103**	**113**	**145**	**155**	**157**	**215**	**287**	**391**	**399**	**444**	**483**	**445**	**475**	**429**	**399**	**398**	**382**	**403**	**384**	**335**	**243.4**
		Deployed	**69**	**74**	**110**	**125**	**127**	**197**	**232**	**321**	**335**	**362**	**387**	**360**	**370**	**361**	**332**	**336**	**339**	**336**	**300**	**270**	**190**



VIEW SHOWING RR AREA FOR FOUNDATION WORKS

VIEW SHOWING WORK IN PROGRESS FOR RR FOUNDATION

FCCU AREA BEFORE COMMENCEMENT OF MAIN CIVIL WORKS

ERCN. OF RR STRUCTURE IN MODULAR FORM AND RR IN SEGMENTS

FCC UNIT FROM WEST SIDE IN JULY 2009 SHOWING RR PACKAGE, FGC AND OTHER CIVIL WORKS .

CIVIL WORKS FOR TECHNOLOGICAL STRUCTURE IN ISBL

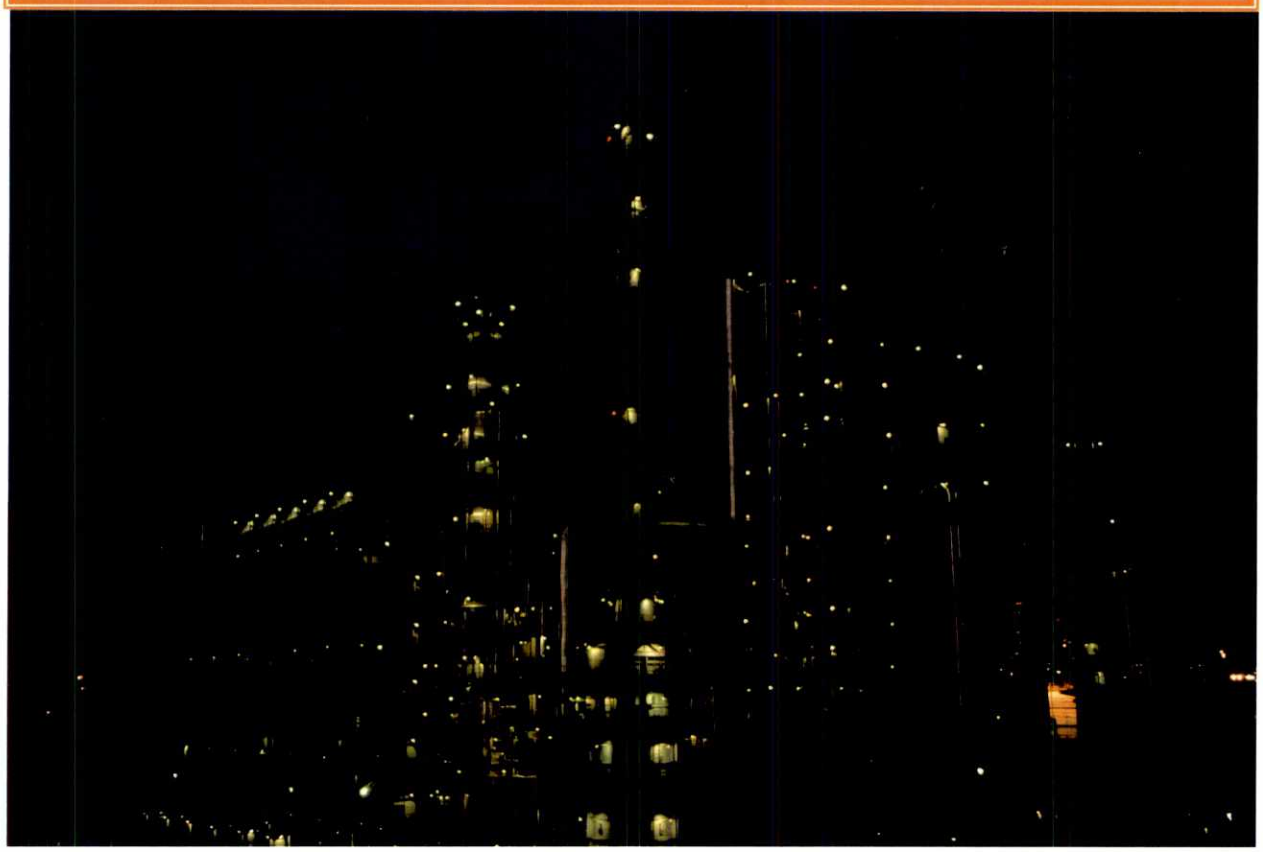
OVERALL VIEW FROM SOUTH SHOWING RR STRUCUTRE, GCU, AND MAB SHED ETC. IN SEPTEMBER 2009

OVERALL VIEW FROM SOUTH SHOWING RR STRUCUTRE, GCU, AND MAB SHED ETC. IN FEBRUARY 2010

OVERALL VIEW FROM NORTH SHOWING RR STRUCUTRE, HEATER AND TECH-II ETC. IN APRIL 2011

OVERALL VIEW OF GAS TREATING UNIT AND OTHER UNIT FACILITES FROM EAST IN APRIL 2011 AFTER COMMISSIONING

OVERALL VIEW OF FCC UNIT FROM SOUTH WEST SHOWING TECH-II, HEATER, MAIN FRACTIANATOR, RR STRUCTURE, FGSU ETC. IN APRIL 2011



OVERALL NIGHT VIEW OF FCC UNIT FROM NORTH WEST SHOWING TECH-II, HEATER, MAIN FRACTIANATOR, RR STRUCTURE, FGSU ETC. IN APRIL 2011

OVERALL DAY VIEWOF FCCU AND OTHER UNIT FACILITES FROM SOUTH WEST IN APRIL 2011

OVERALL NIGHT VIEW OF FCCU AND OTHER UNIT FACILITES FROM SOUTH WEST IN APRIL 2011

COMMENCEMENT OF CIVIL WORKS FOR EXTN . OF SUB STATION-10

CIVIL WORKS FOR EXTN. OF SUB STATION-10 IN AUGUST 2009

CIVIL WORKS FOR EXTN . OF SUB STATION-10 IN FEBRUARY 2010

COMPLETION OF CIVIL WORKS FOR EXTN . OF SUB STATION-10

PTU AREA IN DECEMBER 2009 BEFORE COMMENCEMENT OF CIVIL WORKS

PURGE TREATING UNIT IN APRIL 2011

CAUSTIC STORAGE UNIT IN DECMBER 2009 BEFORE COMMENCEMENT OF CIVIL WORKS

CAUSTIC STORAGE UNIT IN APRIL 2011

5.0 SYNOPSIS OF CONSTRUCTION PERFORMANCE

The New FCCU Project of M/s Hindustan Petroleum Corporation Ltd., Mumbai is a new process unit of the refinery with two main units: FCCU & GCU with the capacity of processing 1.456 MMTPA of feeds. The FGC, FGSU, PTU & Caustic units added for waste heat recovery and environmentally improving the properties of flue gas before emission in to atmosphere.

The mechanical completion of the project was achieved on 16.12.2010 for both FCCU & FGSU with a delay of 7 months for FGSU and 14.5 months delay for FCCU.

The project construction took off with RR foundation works from January 2008, with scheduled construction execution within 22 months in line with project completion schedule. However, the completion took 35 months for successful Construction execution of the Project for various reasons.

- Overall Performance of the Main civil and Structural contractor for ISBL, Civil & Mechanical contractor for OSBL was satisfactory.
- Overall performance of the ISBL Main Mechanical contractor (M/s Offshore Infrastructure Limited) was very good.
- Performance of Electrical & instrumentation contract were also very good.
- The delay in deliverables like Drawings, materials, and equipment had delayed completion of the project.

More efforts are required to improve EIL performance in certain areas, such as;

- Release of revised ISO continued upto completion of the project.
- Mismatches with equipments, instrument flanges have resulted in modifications of the lines.
- Variation in contractual and actual quantities, in Civil, structural & Mechanical works led to quantity ammnedments.
- Bulk materials and Critical equipment got delayed, even not received in sequence to optimize construction time.

Drawings release and coordination amongst all Depts.

Due to shifting of balance engineering from EIL HO to EIL ROV and due to conceptual change of FCCU revamp to New FCCU unit some of minute details were missed during the finalization of drawings. Considerable fouling and mismatches were encountered during execution in ISBL as well as OSBL.

Release of Mechanical drawings in ISBL continued up to end of the project. Available materials could not be best utilized, as the sequence of the release of drawings was not maintained.

Issue of Isometrics in part with HOLD in supports etc. has resulted in various modifications and called for additional material requirement. Shortages were worked out time to time based on which further procurement action by ROV / client was initiated which has resulted of additional MR's and additional procurement time.

Major Electrical and Instrumentation drawings initially issued at site were mostly in order but some revisions occurred. The correlation with the disciplines in issue of drawings, conveyance of modifications done by a discipline to other, incorporation of site modifications or process revisions in the vendor drawings couldn't be perfected leading to some hick-ups though not significant.

Material availability / Vendor's response :

1. Supply of Free issue items to Contractors :
   Delay in receipt of Free Issue materials had major impact on overall delay in the project.

   Some unforeseen shortage cropped up due to the following, which was conveyed to ROV time to time for Crash purchases for early receipt of the material at site.
   - Incomplete MTO computed by Engineering in COSMOS package.
   - Fabrication of piping spools, which become obsolete, due to delay in release of subsequent revisions resulted in additional requirement of Piping Material.
   - Unexpected site modifications required to be made for piping in order to avoid the fouling resulted additional requirement of material.
2. **Compressor Package by BHEL:** Piping / other accessories of the Compressor was not received as per requirement & lot of additional efforts and time as spent by both EIL projects and site to get over the following problems.
   - Preparation of MTO & procurement of materials short supplied by vendor.
   - Lot of modifications, as the fabricated spools as per vendor ISO's were not matching with site requirement.
   - Re-work has cost additional time and cost to site.
3. **Contractors Supply bought out items :**
   Most of the contractor could not supply their part of bought out items in time due to
   - Delay in ordering and payments to Sub vendors.
   - Non-availability of financial power to the respective site-in-charges.

Financial Status, Organization and Resourcefulness of the contractor's :

1. **M/s. SKB BUILDERS (CIVIL & STRL. WORKS- ISBL)**
   - Financially satisfactory. Contractor was resourceful but needs better organisation.
2. **M/s. OFFSHORE INFRASTRUCTURE LIMITED (ISBL MECHANICAL WORKS & SCW LINE WORKS)**
   - Agency executed the contract in organised manner with requisite resource mobilisation and cash flow. Non Payments of RA bills at time has been never been a constraints for site activities.
3. **M/s. BRIDGE & ROOF I LTD (CIVIL & MECHANICAL WORKS – OSBL (PART-1)).**
   Being a government U/T Company, payment delay during their tenure of site work did affect for the procurement of bought out items, payments to Manpower mobilized at site but was overcome by EIL site intervention and a proactive RCM.
4. **M/s. IOT ANVESA (CIVIL & MECHANICAL WORKS – OSBL (PART-II)).**
   Financial performance satisfactory, Contractor was resourceful but needs better site organisation
5. **M/s. ICB TECHNIMONT (ELECTRICAL WORKS – ISBL & OSBL WORKS)**
   Agency was financially sound, the agency having full control in site activities right from procurement of the bought out items to till completion of site activities. Payment of the RA bills of the bill was never a concern for the site activities.
6. **M/s. JASUBHAI ENGINEERING PVT. LTD. (INSTRUMENTATION WORKS - ISBL & OSBL)**
   Financially satisfactory, no financial problems arose during their tenure of site. Procurement of bought out items taken care by JEPL Vadodara office. Many RCM changed during construction period but this initial phase was well covered up by an organised site team.
7. **M/s. FURNNACE FABRICA INDIA LIMITED (CIVIL & MECHNAICAL WORKS FOR FGSU / PTU / CAUSTIC UNIT)**
   Initially site office encountered various problems due to lack of Proper planning mismanagement due to inexperienced site person etc. However, latter on they deployed the experienced engineers / supervisors and supporting staff for smooth completion of works.
8. **M/s. L&T (RR PACKAGE – SITE WORKS)**
   Agency executed the contract in organised manner with requisite resource mobilisation and cash flow. Non Payments of RA bills in time has been never been a constraints for site activities
9. **M/s. THERMAX (FG COOLER PACKAGE & HEATER PACKAGE – SITE WORKS)**
   Agency executed the contract in organised manner with requisite resource mobilisation and cash flow. Non Payments of RA bills in time has been never been a constraints for site activities

Client / Contractor Interaction:

1. Weekly and Monthly meetings were held with all the contractors on regular basis.
2. Daily review meetings were conducted on the day's program vis-à-vis progress and next day's program by EIL / HPCL with contractors.
3. Regular presentations indicating the site progress against scheduled Program including holds, if any to be analyzed with Client/ EIL projects and there after action plan was develop to improve the condition.
4. EIL Team had regular interaction with Client team for resolving issues related to project.

In general, client has shown complete satisfaction on EIL system of working.

The project was successfully commissioned and Unit dedicated to the nation by Hon'ble Minister, P&NG, Shri S. Jaipal Reddy Mumbai, on April 14, 2011.

Photographs showing Hon'ble Minister, P&NG, Shri S. Jaipal Reddy (Centre left) , C&MD of HPCL(Centre right) , Directors of HPCL , Shri JK Bhan , RCM , EIL, New FCCU Project (first from left) and other officials of HPCL / EIL during function.

EIL Team takes pride in delivering another project thro' Excellence to the Nation.