

Description	W.F
Precommissioning & Commissioning	100.00%
A) Precommissioning	85.23%
1- Section 100	31.56%
1-1- General	8.21%
Fire Alarm and Fire extinguished and Fire Water,CCTV,Paging and Telephone test and Start up.	0.66%
Mechanical Test Check	0.82%
Hydrostatic Test Check	0.82%
Tightness Test Check	0.66%
Foundation Check	0.90%
Structural Check	0.90%
Insulation Check	1.72%
Painting Check	1.72%
1-2- Machinery and Equipment	6.94%
External Accessories assembled Check	0.76%
Internal Accessories assembled Check	0.76%
Erection and Alignment Check	1.39%
Vessels Hydraulic Test and Cleaning	1.39%
Equipment Cleaning	0.94%
Rotary Equipment No load Running Check	0.87%
Equipments Functional Check	0.83%
1-3- Piping	6.31%
Check for Completion of Pneumatic and Hydraulic Test	1.01%
Check for Completion of Flushing and drainage	0.63%
Chemical Cleaning Check	0.88%
Valve Direction and Type Check	0.63%
Pipe Support location and Type Check	0.82%
Correctness of Gaskets Check	0.79%
Recharging Calibration of Safety Valves	0.77%
Other Equipment in Line Direction and Type Check	0.78%
1-4- Instrumentation	4.73%
Check for Finishing the Instrumentation and Control loop Test	1.80%
Instrument Equipment Calibration Check and Recalibration if Necessary	1.47%
Shutdown System Checkout	1.04%
Others Instrumentation Check	0.43%
1-5- Electrical	5.36%
Check for Meg-Test finishing	0.86%
Check the Sequence Test	0.70%
Check the Energizing Test	0.64%
Motors Running Direction Check	0.59%
Motor Correctness , Completeness and Test run Check	0.64%
Grounding and Lightening System Test	0.64%
UPS & DCPS test Checking	0.64%
Equipment Protection System Check	0.27%
Other Electrical Tests	0.38%
2- Section 200	10.83%
3- Section 300	8.87%

Description	W.F
Precommissioning & Commissioning	100.00%
4- Section 400 & 600	19.58%
5- Section 500	7.27%
6- Control Room	4.30%
7- Catalyst Room	2.83%
B) Commissioning	14.77%
1- Plant Commissioning	14.77%
1-1- Safety Valves Check	1.99%
1-2- Check Fire Fighting Facilities	0.22%
1-3- Vessel & Tank Inside Check	1.48%
1-4- Filters Check	1.26%
1-5- Checking of VCM Feed , Equip. , Oil and grease Avalibility	1.40%
1-6- Utilities Operation	1.33%
1-7- Heat Exchangers Activation	1.62%
1-8- Vacuum Test	1.48%
1-9- Equipments Energizer	1.18%
1-10- Chemical Injection	1.48%
1-11- Plant Performance Control	1.33%

Note:

1-Refer to Contract Start up services for systems such as DCS , Paging , Fire alarm , UPS , DCPS , CCTV , Cathodic Protection and etc. to be done by Vendor and Process oriented works such az line flushing , tanks cleaning , acid wash , equipment completion & functioning and etc. to be done by client process operators with assistance of Petro Sina Personnel.

2-It is recomended to check & Start the general servises such as telephone(nor.& hot line),fire water,drinking water etc. at the beggining of Precommissioning