Sl. No.	Description of Deliverable/Activity	Remarks
ANNEXURE-1 TO PY 54037- Deliverable list from SRU Licensor - DURING PRE-BID ENGINEERING STAGE OF PROJECT	
	During Pre-bid stage	
1	Basis of Design, BEDP	Feed gas condition, Product condition & Utility condition
2	Process Description	For all the systems
3	Process flow diagram	With Stream Summary(Composition, Flow Rate, Pressure, Temperature etc.,) for each process line
4	Equipment List	For entire Process, basic data shall be provided.
		For Column, Vessels etc. should be indicated with Materials, Design conditions, Main dimensions like Diameter, Length, Flow etc.
		For Heat exchanger- Main material, Flow, Area etc.
		For Pump, Compressor - Flow, Head etc.
		For Filters – Flow, Material etc.
		For Other items- Basic data required for engineering.
5	Material Selection	Material groups to be given within the Equipment list
6	Utility Chemical Requirements	
7	Process Specifications of catalysts, chemicals	
8	List of Special Tools	
9	Utility Consumption	Thermal refrigeration duty, Cooling water, Shaft power for pumps & compressors, DM water/BFW, Steam, Methanol losses, Ammonia, Etc.
10	Process Data of Pumps/Compressors	Type, Head, Flow, Shaft power
11	Process Data of Columns /Reactors/ Vessels	MOC, TL-TL, Dia, Internals
12	Process Data for Equipment	Type, MOC, Surface area, Heat Duty, Diameter, Tube length etc.,
13	Recommended vendors	For Internals/Packing/Chemicals/Catalysts
	POST ORDER BASIC ENGINEERING	
1	Basis of Design, BEDP	Feed gas condition, Product condition & Utility condition
2	P&ID's of BEDP for process systems (excluding vendor's data	These P&ID's shall contain the process systems, as far as those systems include equipment or instrumentation. Branch and collecting connections of auxiliary and utility systems shall be shown for the understanding of the systems
3	P&ID's of BEDP for auxiliary and utilities systems	These P&ID's shall contain the auxiliary and utility systems, as far as those systems include equipment or instrumentation. Branch connections, collecting and distribution systems and piping of auxiliary and utility systems are shown
4	Metallurgical Guidelines (Material Selection Diagram)	
5	List of mechanical design data for itemized equipment as part of the equipment list.	
6	List of safety-relevant devices	
7	Flare Load List	
8	Safety relief valve data sheets	
9	SIS List of gas detectors	
10	Concept of Safety Instrumented Systems (SIS)	
11	Risk matrix for SIL allocation	
12	SIS safety requirement specification, general part and specific part	
13	Hazardous Area Classification Plan top view	
14	Loop Index List (list of number and name of control loop shown in PID) & Loop Function List	
15	Measuring points index and basic specification analysers, flow, level, pressure, temperature, with process and design data (measuring ranges, alarm and switch points without vendor data)	

Sl. No.	Description of Deliverable/Activity	Remarks
16	Cause and Effect Diagram	
17	Control and switch valves basic specification	
18	Basic logic diagrams for SIS and DCS	
19	General design specification for DCS	
20	General design specification for SIS/PLC	
21	Alarm and trip setting list (without vendor scope)	
22	I/O list for DCS and SIS systems	
23	Electric Motors and Consumers List • User load summary • Classification of operational load status	
24	Overall preliminary plot plan without co-ordinates, equipment as per PFD	The plot plan shows: • The recommended location of the equipment based on LICENSEE's available space. • Required elevations with regard to process requirements • Main steel structure and support for equipment • Main pipe racks
25	Basic Engineering Design Package for Piping: • Basic pipe specification index • Basic line list • Fluid groups for pipe classes	
26	Analytical Manual:	Including: • Sample points • Frequency of measurements • Measuring method • Safety range
27	Safety Manual:	Including: Safety chapters to operating manual/ measures for plant protection
28	Process Specifications of catalysts, chemicals	
29	List of Special Tools	
30	Electrical load list of proprietary Electrical Equipment	
31	Civil Inputs	Weights, Dimensions, Dynamic Loads etc., for Proprietary equipment
32	Process Data of Pumps/Compressors	Type, Head, Flow, Shaft power
33	Process Data of Columns /Reactors/ Vessels	MOC, TL-TL, Dia, Internals, Internal flows, Pressure-Temperature profile across the stages.
34	Process Data for Equipment	Type, MOC, Surface area, Heat Duty, Diameter, Tube length etc.,
35	Recommended vendors	For Internals/Packing/Chemicals/Catalysts
36	No. of IO Signals of Equipment	Analog/Digital
37	Review of Detailed Engineering documents, P&IDs etc. till approval by end Customer	
38	Assistance during Detailed Engineering, Procurement, Construction, Pre-commissioning, Commissioning and Performance Guarantee Test Run	
39	Final Checking of Plant	
40	Training	
41	Support during advanced process control system	
42	As-built documents	