

ENGINEERING CHECKLIST
PROJECT: ENNORE 2X660 MW

Important Note: Bidder to Mandatorily fill the below checklist and furnish along with part-II bid, otherwise offer shall be rejected.

Sl. No.	DESCRIPTION	NOT CONFIRMED (If applicable Please Tick Mark 'V')	CONFIRMED (If applicable Please Tick Mark 'V')
1	All Analysers shall have 2 x 4-20 mA, galvanically isolated outputs and relay contacts for alarms shall be provided as per Specs.		
2	All offered analyser shall be suitable for 240 V supply & shall be 4 wire analysers.		
3	Mandatory spares shall be offered against each line item of the specs. If any item is not available meeting the description of the specs, then functionally equivalent item shall be offered against that line item.		
4	Pl. furnish the cell constants for each Tag No. and confirm that in the event of any change in cell constant required during approval stage, same shall be done without any commercial implication.		
5	Analysers are with digital communication facility like RS485 / HART / Modbus / Profibus (One of the communication method will be chosen during detailed Engg. with price implication.). Pl. confirm.		
6	All sample wetted parts & Sampling tubes/coil of Primary & Secondary coolers shall be SS316 material. Also cooling water lines from headers to Coolers shall be SS 316		
7	Primary Coolers shall be IBR/U Stamp/TUV/Lloyd certified with Inconel 625 cooler coils.		
8	Pl. confirm that offer includes high pressure reducing valve in the primary rack for all High Pr. Samples (>100 Kg/cm ²)		
9	Chiller for the project shall have required capacity for the system (Minimum 5 TR) & shall be with SS 316 Tank		
10	1 time Gas filling shall be considered for Chiller at site during commissioning/handover. This is in addition to gas filling done for functional checking during inspection at vendor works.		
11	Packing shall be as per corporate standard indicated in Specs.		
12	Pl. confirm that all analyzers shall be provided with all consumables & reagents required for 12 months operation after commissioning of system.		
13	All items with limited shelf life shall be supplied during commissioning only. If any items require replacement due to expiry of shelf life, same shall be replaced without any commercial implication to BHEL-EDN (Such as Tygon tube, pH Cells, DO sensors, Reagents).		
14	All headers in Primary racks & Wet Panel shall be supplied with suitable sized counter and mating flanges. In addition to this, 1 set of mating & counter flanges shall be provided for all the cooling water headers for connecting to tapping point in field.		
15	Pl. confirm that that IBR certified Isolation valve, Blowdown valves in primary rack shall be offered, and for primary coolers IBR certified coil/U-stamped cooler shall be offered.		
16	Pl. confirm that all components/accessories required to meet the intent of the specification shall be offered. If it is found, at any stage of procurement /commissioning, that some components/accessories have not been offered/supplied, same shall be supplied without any cost/time implication to BHEL to meet the system / product requirement		
17	Pl. confirm that for tubing between wet and dry panel suitable DFDC connectors shall be provided		
18	Pl. confirm that insulation of Pipe between Chiller and wet panel shall be done at site.		
19	Pl. confirm that stream selector shall be with pulse based selection.		
20	Mandatory Spares shall be sent in pre-decided lots in containers /secure boxes distinctly marked in Red colour with boldly written "S" mark on each face of the containers /secure boxes.		
21	Pl. confirm that There is no deviation w.r.t Annexure 'C' and Annexure 'D'.		
22	Items used for SWAS system shall be from Approved vendors indicated in Specs. For items not covered in the list bidders approved vendors will be acceptable.		
23	Site work for both Analysers & Sample Handling system shall be as per Scope of Supply		
24	If offered Models of Analysers are not accepted during document approval, same shall be replaced by Analyser models of customer approved vendors without any commercial impact.		
25	All sample wetted parts & Sampling tubes/coil of Primary & Secondary coolers shall be SS 316. Also cooling water lines from headers to Coolers shall be SS 316		
26	Individual Flow indicators are provided in return cooling water lines of each primary & secondary coolers.		
27	Bulkhead in Primary racks & Wet Panel shall be suitable for pipe sizes indicated in Enquiry specs		
28	Primary & Secondary cooler shell drain shall be valved and piped to waste drain header as per Specs.		
29	After Secondary Cooler both Thermal Shut off Valve and Temperature Switch has been offered as per specs requirements.		
30	Silica Analyser and Sodium Analyser shall be suitable for 3 channel measurement as per specs.		
31	Loose supply item such as cabling and tubing shall be calculated by considering the Total Qty of Analyser for both the units (2 Units) and 30 Meter per run.		
32	Complete piping, tubing, fittings, valves, blow down valves, sample relief valves, shell relief valves, filters and other wetted parts in the sampling and analyzing system shall be of Swagelok, Dr Thiedig or Parker make only.		
33	All critical components like PRV, Back pressure regulator, thermal shutoff valve etc shall be of Sentry, Lowe or Dr Thiedig make only.		
34	Primary and Secondary Sample coolers shall be of Forbes Marshall, Steam Equipment (Panflow, USA), Sentry, Lowe or Dr Thiedig make only with Third Party Certification like Third party (TUV/ Lloyd) design Validation for ASME Design and IBR Form IIC certification for material & design tractability.		
35	Inconel – 625 coil primary coolers will be supplied for all high pressure and temperature sampling lines.		
36	Laser cutting will be carried out at only those fabricators, which is having laser cutting machine for stainless steel sheet metal for more than 1.5 mm thickness.		
37	Vendor shall use Swagelok / Parker De-burring tool to remove burrs on tubing.		
38	At later stage if it is found that vendor offer is not in line with tender specification then vendor to supply material in line with tender specification without any price impact to BHEL.		

(Company seal and Signature)