

PROCESS ENGINEERING SERVICES

3x150 TPH Oil & Gas fired boilers - Package Review

Client: Technip Energies, Chennai

Project: IOCL, Barauni, Bihar

Scope Of Work: Boiler Package Review and Bidder Evaluation for 3 x 150 TPH Oil & Gas fired boilers considering three vendors covering

- i) Technical Job Specifications for Design
- ii) Conceptual Design Basis.
- iii) Mechanical data sheets
- iv) Review of Thermal Rating & Sizing calculations
- v) Process data sheet
- vi) EPC tender
- vii) Technical bids including technical Clarifications, Deviations, Proposal, PIDs, GA and Layout and Client comments resolution

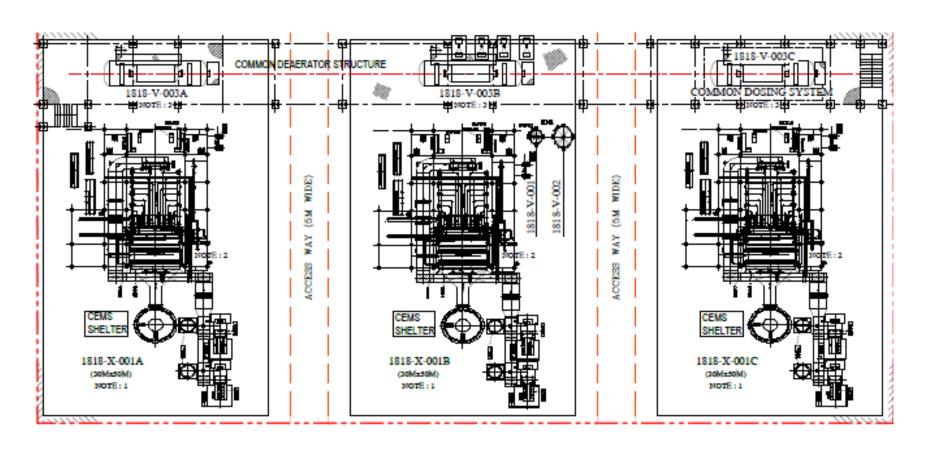


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-	DS	Technip DS Row I	Description PURCHASER / OWNER	Uni		-	OEM BOILER						OEM BOILER						OEM BOILER					
+1	2						IOCL Genral				IOCL Geprot					IOCL Gaprot								
21	2	2	MANUFACTURER - REFERENCE																			-		
3	2	3	LOCATION Site & Elevation ASL		occuss Davig	m Basid	Vado	dara, Gajara	t, India	Robut Pr	тоског Визі	on Backs	Vado	durs, Gejari	r, india	Roder Pr	recess Desi	ga Basis	Vado	dara, Gujaru	Lindia	Rofur Pr	rocess Desig	on Bac
4	2	4	UNIT						3	518					- 10	18					1	518		
- 5	2	5	TEMN'						1616-X-4	201 A/IB/C					1916-X-0	AND AREAS					1816-X-0	001 A/B/C		
6.1	2	- 6	TYPE		relation)			Water to	abe boilists	(Noteral cir.	cylytion)	- 3		- Water t	abo boilute	(Notural cir.	culation)			Water to	the boilers	d'Noteral cir	culation?	
31	2	7	NUMBER REQUIRED				5 Working / Outwalby ASME 1 8 IDR						3 Working / 0 stradby					3 Working / 0 standby						
al	2	8	DESIGN CODE									ASSME I & IDR						ASME I A IDR						
8	2	9	STEAM PRODUCTION	1/6						R) Note 1						R) Note 1			_			R) Note 1		
100	2	10	STEAM TEMPERATURE AT B.L. (min/scen/mox/do				450 / 455 / 460 / 465					450 / 455 / 460 / 455					450 / 455 / 460 / 485							
- 11	2		STEAM PRESSURE AT B.L. (min/norm/mux/design)				367317387488FV						367377387486FV						36/31/38/484FV					
12	2	12	HEAT ABSORBED AT MCR :	MMkcdihr	_	will be given later						Lord						301311301400.1						
16	2	142	AND DESCRIPTION OF THE PROPERTY OF THE PROPERT	PHINTECOLTS	Feel Oil		Feel Gas			Feel Oil			-	Fuel Gas		Feel Oil			Feel Gas			Fact Oil		
\rightarrow	2	_	OPERATING CONDITIONS		MCR I	Pesk	Turndown		Peak	Turndown		Peak	Turndown	****	Pesh	Turndown		Pesk	Turndown		Peak	Turndown		Per
***	2	96	STEAMFLOW	1/5	150	165	30	150	DDE	30	750	165	30	150	165	- 30	150	165	30	150	165	30	150	165
14	2	17	STEAM OUTLET TEMPERATURE (at BL)	- C	455	455	455	455	455	DDE	455	451	455	455	455	455	455	455		190	100	- 30	150	100
14	2	55	FEED WATER TEMPERATURE	· · ·	400.	400	190	110	110	190	110	110	190	210	190	190	110	190	_	-		_	_	
15			STEAM OUTLET PRESSURE (w.BL)		_		190	37	110	192	37	190	170	32	110	190	52	190	_		-	-		
103	2	19		kg/cm2(g)	-		000		0.00	000		200			125				_		_	_	-	
117	2	20		kg/cm2(g)	-		DDE	435	300	DDE	43.5	DDE	38.6	4.6	47.5	38.6	46	42.5				_	\leftarrow	-
18	2	21	FEED WATER PRESSURE AT B.L.	kg/cm2(g)	-		ODE	56	DDE	ODE	36	DDE	71.27	68.3	65.70	71.27	68.9	65.76				_	-	
13	2	22	FEED WATER FLOW (including deceptaheater flow)	kg/kr			DDE	197500	DDE	DOE	197500	DOE	ading to 30 TPH Not	oding to 150 TPH Not	eding to 965 TPH Net Street	Correspo ading to DO TPH Net	eding to 150 TPH Not	nding to 165 TPH Net						
20	2	23	DESUPERHEATER WATER FLOW	kgNr	_		DDE	0090	DOE	300	0050	DDE	Later	Steam Later	Later	Shown	Steam	Steam- Later	1					
						7							9.3 % of	0.0 % of	0.3 % of	0.3 % of	0.3346	0.2 % of						
-21	2	24	CONTINUOUS BLOW DOWN	l			DDE	5700	200	DOE	5700	DOE	physics.	ortenes.	oteom	couse	phone	phown					1 7	4
	1,000	10.000							T-CE-	district.			flow	flow	flow	flow	Henry	floor					i = J	
22	2	25	TYPE OF FUEL		Feel Oil		F	LNG / RF	G		Feel Oil		P	LNG / RE	G		Feel Oil		B	LNG / RF	G		Feel Oil	
23	2	26	FUEL FLOW (BASED ON AVERAGE LHV)	kg/h			DOE	REFERING	300	DOE	REFERING	DOE	Bufur (militar list	Bufur EP10	Latter	Refer	12555	Enter	-1					
24	2	27	FUEL TEMPERATURE	10		_	ODE	40	DOE	DDE	60	DDE		40			80					_		$\overline{}$
25	2	26	FUEL AVERAGE LHV	healthig			ODE	50311	DOE	300	3800	DDE		10911 - FILN	G.		3800				_			
26	2	23	EXCESS AIR	*	15			50	- Line	-	15	-	- 85	-	10	90	53	45						
	_		EXCESS FIRM	-	-	-	_	-	_	_	10		Соптиро	_	Correspo	Consepo.	Company	Corrupe			_	_	-	
21	2	30	COMBUSTION AIR FLOWRATE	kg/h			DDE	103262	DOE	DDE	197060	DDE	ading to 30 TPH Not Steam	ading to ISO TPH Not Chase	nding to 365 TPH Not Otean	nding to 30 TPH Not Shoom	eding to 150 TPH Not Steam	ading to 365 T#H Not Stoom						
28	2	31	COMBUSTION AIR TEMPERATURE (1)	C			DDE	80 - 30	200€	DDE	80 - 90	DDE				10								
						- 0							Comune	Correspo	Correspo	Comsupo	Consepo	Corregno						
- 1				I				1 1			1 1			-		ading to			1				(J	4