

ANNEXURE-A

3x800MW – NTPP-TALABIRA

Change in Speciation Points based on TCM resolution

Sr. No.	Domain / Description	No of CIS	Attachment details
1	Annexure-C2A_Boiler	65	VOLUME: I-A SCHEDULE: F1, TABLE 9 (For Sl. No. 64)
2	Annexure-C2B_Turbine	87	
3	Annexure C2C _CHS	9	
4	Annexure-C2D_AHS	24	
5	Annexure - C2E - CWS	43	Annexure-A and Annexure-B (For Sl. No.36), Annexure-C and Annexure-D (For Sl. No.37), Annexure-I ((For Sl. No.29)
6	Annexure - C2F - BOP	52	
7	Annexure-C2G_C&I	64	
8	Annexure-C2H _Electrical	91	
9	Annexure - C2I - Civil	67	
10	Annexure -C2J FGD	85	
11	Annexure-C2O _Volume II-K	10	Annexure-I Data sheet of mobile crane (For Sl. No.9)
	TOTAL	597	

Change in specification (Section B of Tender Specification)

Annexure C2A (Boiler)

Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as												
1.	L&T/Annexure-B2.1/Sl.no.6	Vol. II-B/Section-I/ Cl.no.4.10.00/ Pg 16 of 122 Corrigendum-37/ Sl.no.2/ Page 26 of 113	<p>The steam generators shall be designed for minimum rate of loading/ unloading mentioned below without compromising on design life of pressure parts:</p> <table><tr><td>a)</td><td>Step load change</td><td>Minimum ± 10% per minute</td></tr><tr><td>b)</td><td>Ramp Rate</td><td>Minimum ± 1% per minute (above 30 % to 50% load) Minimum ± 3% per minute (50% to 100% load)</td></tr></table>	a)	Step load change	Minimum ± 10% per minute	b)	Ramp Rate	Minimum ± 1% per minute (above 30 % to 50% load) Minimum ± 3% per minute (50% to 100% load)	<p>The steam generators shall be designed for minimum rate of loading/ unloading mentioned below without compromising on design life of pressure parts:</p> <table><tr><td>a)</td><td>Step load change</td><td>Minimum ± 10%</td></tr><tr><td>b)</td><td>Ramp Rate</td><td>Minimum ± 1% per minute (above 30 % to 50% load) Minimum ± 3% per minute (50% to 100% load)</td></tr></table>	a)	Step load change	Minimum ± 10%	b)	Ramp Rate	Minimum ± 1% per minute (above 30 % to 50% load) Minimum ± 3% per minute (50% to 100% load)
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a)	Step load change	Minimum ± 10%														
b)	Ramp Rate	Minimum ± 1% per minute (above 30 % to 50% load) Minimum ± 3% per minute (50% to 100% load)														
2.	L&T/Annexure-B2.1/Sl.no.3	Vol. II-A/Section-X Performance Guarantees/ Cl.no.4.03.10 Section B / Vol. I- B/Section-9 Performance Guarantees/ 9.4.3.10/ Page 98 of 310	<p>Steam Temperature Imbalance</p> <p>The Bidder shall demonstrate that at SH and RH outlets (in case of more than one outlet) the temperature imbalance between the outlets does not exceed 10 deg C under all loads including transients.</p>	<p>Steam Temperature Imbalance</p> <p>The Bidder shall demonstrate that at SH and RH outlets (in case of more than one outlet) the temperature imbalance between the outlets does not exceed 10 deg C under all loads and + 10 deg C / - 20 deg C during load transients.</p>												

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Annexure C2A (Boiler)

Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
3.	L&T/Annexure-B2.1/Sl.no.12	Vol. II-A/Section-V General Technical Requirements/ Cl.no. 3.07.02/ Page 4 of 46	Maximum temperature variations a) Under steady state condition : + 5°C for SH and RH b) During Load change i) 3% per minute : + 10°C for SH ii) 3% per minute : +10°C for RH	Maximum temperature variations a) Under steady state condition : + 5°C for SH and RH b) During Load change i) 3% per minute : + 10°C/ -20°C for SH ii) 3% per minute : +10°C/-20°C for RH
4.	L&T/Annexure-B2.1/Sl.no.13	Vol. II-A/Section-V General Technical Requirements/ Cl.no. 17.01.02 d)/ Page 19 of 46	d) Mercury (Hg) - 0.03 mg/Nm3 (Max)	d) Mercury (Hg).
5.	L&T/Annexure-B2.1/Sl.no.15	SECTION-B - Vol. II-B/Section-I/ Cl.no. 3.10.00/ Page 5 of 122	Two (2) Steam Coil Air Pre-Heaters (SCAPH) for secondary air one at each FD fan outlet bypass ducts (SCAPH for Two numbers for PA ,if required as proven practice of the bidder) with necessary dampers, drain pipe to blow down tank and necessary piping, valves, fittings, remote operated temperature control valve, motor operated isolating valve, steam piping, steam traps etc.	Two (2) Steam Coil Air Pre-Heaters (SCAPH) for secondary air one at each FD fan outlet bypass ducts (SCAPH for Two numbers for PA, if required as per proven practice of the bidder) with necessary dampers, drain pipe to boiler flash tank through SCAPH drain tank and necessary piping, valves, fittings, remote operated temperature control valve, motor operated isolating valve, steam piping, steam traps etc.

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Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
6.	L&T/Annexure-B2.1/SI.no.38	Vol. II-B/Section-I Steam Generator & Accessories/ Cl.no. 5.10.15 c) / Page 35 of 122	c) Heating steam shall be tapped from appropriate location with air temperature control valves (with necessary isolation valves) separately for both streams & Condensate from SCAPH shall be led to blow down tank.	c) Heating steam shall be tapped from appropriate location with air temperature control valves (with necessary isolation valves) separately for both streams & Condensate from SCAPH shall be led to SCAPH drain tank.
7.	L&T/Annexure-B2.1/SI.no.16	Vol. II-B/Section-I Steam Generator & Accessories/ Cl.no. 3.21.00/ Page 7 of 122	Gallery, Walkway, Platforms etc. Galleries, walkways, and main powerhouse buildings. Bunker Building shall be interconnected (1.5m clear width platform) with the respective steam generator at two elevations on either side of the steam generators (preferably at tripper floor level and feeder floor level) and in each level, floors shall be interconnected to boiler in front as well as in rear sides and two nos.(One on left and one on right side) for front or rear mill arrangement. Two (2) nos. of interconnecting walkways..... center line for each elevation.	Gallery, Walkway, Platforms etc. Galleries, walkways, and main powerhouse buildings. Boiler and Coal Bunker Building shall be interconnected with platform (min. 1.5m clear width) at Feeder floor level and Tripper floor levels. Number of interconnecting platform between boiler and coal bunker building for each level/floor specified above shall be two numbers on each side of boiler, i.e. four numbers per floor for side mill arrangement and two nos. for front and rear mill arrangement. Two (2) nos. of interconnecting walkways..... center line for each elevation.
8.	L&T/Annexure-B2.1/SI.no.22	Vol. II-B/Section-I Steam Generator & Accessories/ Cl.no. 5.04.03/ Pg. 22 of 122	The design pressure shall be at least 1.05 times the maximum operating pressure or as required by IBR / International Codes, whichever is higher. The design temperature shall be as per the IBR requirements. Further, the maximum operating pressure for the pressure parts up to the separators inlet shall be arrived at by adding a margin for increased pressure drop in the evaporator tubing due to	The design pressure shall be at least 1.05 times the maximum operating pressure or as required by IBR / International Codes, whichever is higher. The design temperature shall be as per the IBR requirements.

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			scaling during operation over a period of time. This margin shall be equal to at least 5% of the maximum operating pressure with evaporator tubing without scaling or actual expected increase in pressure drop in water wall / evaporator section, whichever is higher.	
9.	L&T/Annexure-B2.1/SI.no.31	Section B -Vol. II- B/Section-I Steam Generator & Accessories/ Cl.no. 5.11.08 e) / Pg. 37 of 122	e) The duct work shall be fitted with a steel hood to cover the opening.	e) Stands deleted.
10.	L&T/Annexure-B2.1/SI.no.33	Section B -Vol. II- B/Section-I Steam Generator & Accessories/ Cl.no. 5.11.09 vii) / Pg.38 of 122	vii) The minimum trouble free operational life of expansion joint shall not be less than 40000 hours of operation from the date of commissioning.	vii) The minimum trouble free operational life of expansion joint shall not be less than 20000 hours of operation from the date of commissioning.

Change in specification (Section B of Tender Specification)

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Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
11.	L&T/Annexure-B2.1/Sl.no.41	Vol. II-B/Section-I Steam Generator & Accessories/ Cl.no. 5.15.08 c) / Pg.53 of 122	c) The fuel pipe shall preferably have no horizontal run and if horizontal run is necessitated due to layout constraints it shall tilt either towards mills or burners.	c) The fuel pipe shall preferably have no horizontal run and if horizontal run is necessitated due to layout constraints it shall tilt (as applicable as per OEM proven practice) either towards mills or burners.
12.	L&T/Annexure-B2.1/Sl.no.42	Vol. II-B/Section-I Steam Generator & Accessories/ Cl.no. 3.01.00/ Pg. 2 of 122	Complete steam..... for chemical cleaning and wet lay up. Two (2) numbers of retractable type temperature probes with duplex type elements at the furnace outlet, complete with all accessories like guiding supports, cooling arrangement, motor with position indicator etc.	Complete steam..... for chemical cleaning and wet lay up. Two (2) numbers of retractable type temperature probes with duplex type elements at the furnace outlet or reheater inlet, complete with all accessories like guiding supports, cooling arrangement, motor with position indicator etc.
13.	L&T/Annexure-B2.1/Sl.no.51	Vol. II-B/Section-V De-NOX System/ Cl.no. 4.01.03 b)/ Pg. 7 of 30	b) Corrosion-resistant materials and suitable protective linings or coatings shall be provided as per standard and proven practice of the Bidder with suitable corrosion allowance.	b) Stands deleted.

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Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
14.	L&T/Annexure-B2.1/Sl.no.207 BHEL/ Annexure-2.4/ Sl.no.3	Vol. II-B/Section-I Steam Generator & Accessories/ Cl.no. 5.11.07 /Page 37 of 122	Ducting from I.D. fans to stack shall be done taking into account other service facilities, trenches etc.. The height of this duct shall be adequate to allow 50 T maintenance crane to pass. Material of construction and other requirement of flue gas ducting/damper at FGD outlet to stack inlet and duct portion at downstream of FGD bypass damper shall be as per Volume-II H3.	Ducting from I.D. fans to stack shall be done taking into account other service facilities, trenches etc.. The height of this duct at required locations shall be adequate to allow 50 T maintenance crane to pass and take care of all the required maintenance activities . Material of construction and other requirement of flue gas ducting/damper at FGD outlet to stack inlet and duct portion at downstream of FGD bypass damper shall be as per Volume-II H3.
15.	L&T/Annexure-B2.1/Sl.no.136	Vol. II-B/Section-I Steam Generator & Accessories / Cl.no.5.9 e)/ / Page 102 of 122	e) Design loading - SCAPH and connected air ducts shall be designed to handle flows corresponding to 60% BMCR loads with one of the two streams working without any undue noise / vibration.	e) Design loading - SCAPH and connected air ducts shall be designed to handle flows corresponding to 50% BMCR loads with one of the two streams working without any undue noise / vibration.
16.	L&T/Annexure-B2.1/Sl.no.133 & BHEL/ Annexure-2.1/ Sl.no.12	Vol. II-B/Section-I/ Steam Generator & Accessories/ Cl.no.5.09.09/ Page 30 of 122	The cavity height between two sections / banks of the economiser shall be minimum 1500 mm for maintenance access. Maximum depth of tube banks/ sections in the direction of gas flow shall be 2 Meters or maximum soot blowing radius, whichever is lower.	The cavity height between two sections / banks of the economiser shall be minimum 1500 mm for maintenance access. Maximum depth of tube banks/ sections in the direction of gas flow shall be 2.5 Meters or maximum soot blowing radius, whichever is lower.
17.	L&T/Annexure-B2.1/Sl.no.47 & BHEL/	Vol. II-B/Section-V De-NOx System/ Annexure-I/ Sl.no.1 u) / Page 23 of 30	u) Maximum Average free gas velocity over free flow area for SCR reactor:	u) Maximum Average free gas velocity over free flow area for SCR reactor:

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Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
	Annexure-2.1/ Sl.no.51	Corrigendum-37/ Ann C2A –Boiler Sl.no.12/ Page 29 of 113	5 m/sec @ 60%BMCR gas flow per reactor, 20% Excess air or Actual considered by bidder, whichever is higher and gas temperature corresponds to ambient temperature of 48° C and 66% RH.	5 m/sec @ 50%BMCR gas flow per reactor, 20% Excess air or Actual considered by bidder, whichever is higher and gas temperature corresponds to ambient temperature of 48° C and 66% RH.
18.	L&T/Annexure-B2.1/Sl.no.47 & BHEL/ Annexure-2.1/ Sl.no.51	Vol. II-B/Section-V De-NOX System/ Cl.no. 2.01.14/ Page 4 of 30	Complete transition ductwork..... as per their standard and proven practice. For this configuration, each stream shall cater the requirement corresponding to 60% BMCR operation. Economizer bypass..... at part load operation.	Complete transition ductwork..... as per their standard and proven practice. For this configuration, each stream shall cater the requirement corresponding to 50% BMCR operation. Economizer bypass..... at part load operation.
19.	L&T/Annexure-B2.1/Sl.no.60	Section B - Vol. II-B/Section-V De-NOX System/ Annexure-I/ Sl.no.1 v) / Page 23 of 30	v) SCR reactor design pressure: ± 660 mm wc (Minimum) or Maximum conceivable head of fans, whichever is higher, at 67% yield strength .	v) SCR reactor design pressure: ± 660 mm wc (Minimum) at 67% yield strength or Maximum conceivable head of fans, whichever is higher.

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20.	L&T/Annexure-B2.1/Sl.no.20 & BHEL/ Annexure-2.1/ Sl.no.49	Vol. II-B/Section-I Steam Generator & Accessories/ Cl.no. 5.11.11/ Page 40 of 122	-	Below note will be added under Vol-II-B Sec-I Cl.no.5.11.11: “Note- Either Double Multi louver (Bi-plane) type or guillotine type at SCR outlet is acceptable.”
21.	L&T/Annexure-B2.1/Sl.no.20 & BHEL/ Annexure-2.1/ Sl.no.49	Section B - Vol. II-B/Section-V De-NOX System/ Cl.no.4.02.03 / Page 8 of 30	Flue gas dampers Flue gas dampers shall be..... as minimum. <ul style="list-style-type: none"> One (1) Raw gas Guillotine..... bypass duct. One (1) Raw gas guillotine dampers including electric actuator to isolate each SCR pass in upstream and downstream. Sealing air systems. 	Flue gas dampers Flue gas dampers shall be..... as minimum. <ul style="list-style-type: none"> One (1) Raw gas Guillotine..... bypass duct. One (1) Raw gas guillotine dampers including electric actuator to isolate each SCR pass in upstream and Double Multi louver (Bi-plane) type or guillotine dampers including electric actuator to isolate each SCR pass in downstream. Sealing air systems.
22.	L&T/Annexure-B2.1/Sl.no.64	Vol - D / Section - I Annexure – III/ Cl.no. 6.02.11/ Page 19 of 72	All high temperature lines shall be provided with expansion markers with scales at certain hanger locations, as decided by the Owner/Consultant. The Bidder shall guarantee and prove..... till the above requirement is fulfilled.	All high temperature lines (Main steam, CRH and HRH Piping) shall be provided with expansion markers with scales at certain hanger locations, as decided by the Owner/Consultant. The Bidder shall guarantee and prove..... till the above requirement is fulfilled.

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Annexure C2A (Boiler)

Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
23.	BHEL/ Annexure-2.1/ Sl.no.5	Vol- II-B /Section-I/Cl.no. 3.03.00 c) / Page 2 of 122	c) Double isolation (one motorised and one manual) valve at the suction, Motorised isolation, Electrohydraulic operated control valve and a non-return valve on the discharge of the pump. Alternatively, Electrohydraulic operated control valve and a motor operated stop cum check valve is also acceptable, Pump minimum flow control valve and recirculation flow control valve (as required based on Bidder's proven practice).	c) Double isolation (one motorised and one manual) valve at the suction, Motorised isolation, Electrohydraulic operated control valve and a non-return valve (As applicable) on the discharge of the pump. Alternatively, Electrohydraulic operated control valve and a motor operated stop cum check valve is also acceptable, Pump minimum flow control valve and recirculation flow control valve (as required based on Bidder's proven practice).
24.	BHEL/ Annexure-2.1/ Sl.no.28	Vol- II-B /Section-I/Cl.no. 5.11.09 viii)/ Page 38 of 122	viii) All expansion joints shall be provided with protection plates inside the ducts (both air & flue gas) against erosion.	viii) All expansion joints shall be provided with protection plates inside the ducts (for flue gas application) against erosion."
25.	BHEL/ Annexure-2.1/ Sl.no.29 & 36 & L&T/Annexure-B2.1/Sl.no.48	Vol- II-B /Section-I/ Annexure-I/ Cl.no. 5.18 b) (3) / Page 118 of 122	b) Air velocity Maximum 16 m/sec..... air at economizer inlet. (3) Air heater air in leakage 10% of flue gas flow entering air heater for secondary air or actual guaranteed whichever is higher. Air heater air in leakage 10% of flue gas flow entering air heater for Primary air or actual guaranteed whichever is higher. (4) Design ambient temperature of 48 degree Celsius and 66 % RH.	b) Air velocity Maximum 16 m/sec..... air at economizer inlet. (3) Actual guaranteed air heater air in leakage for secondary air. Air heater air in leakage 10% of flue gas flow entering air heater or actual guaranteed, whichever is higher for Primary air. (4) Design ambient temperature of 48 degree Celsius and 66 % RH. The above velocities shall not be exceeded even in

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Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
			The above velocities shall not be exceeded even in case of operation with one stream of fan and air heater operation at 60% of BMCR load.	case of operation with one stream of fan and air heater operation at 60% of BMCR load.
26.	BHEL/ Annexure-2.1/ Sl.no.35 & 36 & L&T/Annexure- B2.1/Sl.no.48	Vol- II-B /Section-I/Annexure-I/Cl.no. 5.18 a) (3) / Page 118 of 122	<p>a) Flue gas velocity Maximum 13 m/sec up to..... stoichiometric air requirement at economizer inlet.</p> <p>(3) Air heater air-in-leakage - 12% of flue gas flow entering tri-sector APH or actual guaranteed leakage, whichever is higher and duct leakage 3%.</p> <p>(4) Design ambient temperature of 48 degree Celsius and 66 % RH.</p> <p>The above velocities shall not be exceeded even in case of operation with one stream of ID, FD, PA fans and air heater operation at 60% of BMCR load.</p>	<p>a) Flue gas velocity Maximum 13 m/sec up to..... stoichiometric air requirement at economizer inlet.</p> <p>(3) Air heater air-in-leakage - 12% of flue gas flow entering tri-sector APH or actual guaranteed leakage, whichever is higher. and duct leakage 3%.</p> <p>(4) Design ambient temperature of 48 degree Celsius and 66 % RH.</p> <p>The above velocities shall not be exceeded even in case of operation with one stream of ID, FD, PA fans and air heater operation at 60% of BMCR load.</p>

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Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as																														
27.	BHEL/ Annexure-2.1/ Sl.no.40	Vol- II-B /Section-II /Annexure-I/Sl.no.1 & 2 / Page 22 of 25	<table border="1"> <tr> <th>Sl. N o.</th><th>Items</th><th>Unit</th><th>Guarantee point</th><th>Design point (Max. Ambient temperature)</th></tr> <tr> <td>1.</td><td>Boiler Load</td><td></td><td>100% TMCR</td><td>100% BMCR</td></tr> <tr> <td>2.</td><td>Type of fuel</td><td></td><td>Design Coal</td><td>Worst Coal</td></tr> </table>	Sl. N o.	Items	Unit	Guarantee point	Design point (Max. Ambient temperature)	1.	Boiler Load		100% TMCR	100% BMCR	2.	Type of fuel		Design Coal	Worst Coal	<table border="1"> <tr> <th>Sl. N o.</th><th>Items</th><th>Unit</th><th>Guarantee point</th><th>Design point (Max. Ambient temperature)</th></tr> <tr> <td>1.</td><td>Boiler Load</td><td></td><td>100% TMCR</td><td>VWO</td></tr> <tr> <td>2.</td><td>Type of fuel</td><td></td><td>Design Coal</td><td>Worst coal from Range of 95% coal supplies (With max. ash from the Adequacy range)"</td></tr> </table>	Sl. N o.	Items	Unit	Guarantee point	Design point (Max. Ambient temperature)	1.	Boiler Load		100% TMCR	VWO	2.	Type of fuel		Design Coal	Worst coal from Range of 95% coal supplies (With max. ash from the Adequacy range)"
Sl. N o.	Items	Unit	Guarantee point	Design point (Max. Ambient temperature)																														
1.	Boiler Load		100% TMCR	100% BMCR																														
2.	Type of fuel		Design Coal	Worst Coal																														
Sl. N o.	Items	Unit	Guarantee point	Design point (Max. Ambient temperature)																														
1.	Boiler Load		100% TMCR	VWO																														
2.	Type of fuel		Design Coal	Worst coal from Range of 95% coal supplies (With max. ash from the Adequacy range)"																														
28.	BHEL/ Annexure-2.1/ Sl.no.47	Vol- II-B /Section-V /Cl.no. 6.00.00 (a) / Page 18 of 30	(a) Scale model by fabricating a three dimensional physical model fabricated with transparent material including inlet/outlet boiler ducts with a scale not less than 1:10.	(a) Scale model by fabricating a three dimensional physical model fabricated with transparent material including inlet/outlet boiler ducts with a scale in range of 1:15 to 1:10.																														
29.	BHEL/ Annexure-2.1/ Sl.no.86	Vol- II-B /Section-I/Cl.no. 5.16.07/ Page 56 of 122	The fan design shall be simply supported type. The layout of fans shall ensure interchangeability of the respective impellers. Similar fans shall have same direction of rotation.	The Fan design shall be simply supported/ overhung type as per bidder's proven design. The layout of fans shall ensure interchangeability of the respective impellers. Similar fans shall have same direction of rotation.																														

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30.	BHEL/ Annexure-2.1/ Sl.no.90	Vol. II-B/Section-I/ Cl.no. 3.09.00 i) / Page 4 of 122	i) One (1) x 100% peripheral AC VFD drive or One (1) x 100% central AC VFD drive, as per OEM's proven practice, connected to drive Air Heater along with Gear box and automatic clutching/ declutching arrangement.	i) One (1) x 100% peripheral AC drive or One (1) x 100% central AC drive, as per OEM's proven practice, connected to drive Air Heater along with Gear box and automatic clutching/ declutching arrangement.
31.	BHEL/ Annexure-2.1/ Sl.no.90	Vol. II-B/Section - I /Cl.no. 5.10.05/ Page 32 of 122	<p>Air heater drive system</p> <p>One (1) x100% peripheral AC VFD drive or One (1) x100% central AC VFD drive, as per OEM's proven practice, connected to drive Air Heater along with Gear box and automatic clutching/ declutching arrangement.</p> <p>The drive system shall consist of One (1) AC VFD drive fed from the Emergency Bus also, with gear box and automatic clutching/ declutching facility, one (1) no. independent air motor drive with its gear box and automatic clutching facility for rotation during non-availability of AC drive system. A suitable air.....to Owner/Consultant's approval.</p>	<p>Air heater drive system</p> <p>One (1) x100% peripheral AC drive or One (1) x100% central AC drive, as per OEM's proven practice, connected to drive Air Heater along with Gear box and automatic clutching/ declutching arrangement.</p> <p>The drive system shall consist of One (1) AC drive fed from the Emergency Bus also, with gear box and automatic clutching/ declutching facility, one (1) no. independent air motor drive with its gear box and automatic clutching facility for rotation during non-availability of AC drive system. A suitable air.....to Owner/Consultant's approval.</p>

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Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
32.	BHEL/ Annexure-2.1/ Sl.no.94	Vol. II-B/Section - I /Cl.no. 5.10.07/ Page 33 of 122	Each air heater shall be complete with all..... for radial and thrust loads. The air heater shall be supported..... bearing on hot end. Local locking device shall be provided to facilitate maintenance.	Each air heater shall be complete with all..... for radial and thrust loads. The air heater shall be supported..... bearing on hot end. Local locking device or suitable locking method as per OEM proven practice shall be provided to facilitate maintenance.
33.	BHEL/ Annexure-2.1/ Sl.no.98	Vol. II-D1/Section - II /Cl.no. 5.04.07/ Page 10 of 18	The access doors and inspection doors in the Boiler and ESP shall be lined with refractory material. The access doors in other portions..... and access doors occur.	The access doors and inspection doors in the boiler shall be lined with refractory material & for the ESP shall be lined with refractory material or mineral wool. The access doors in other portions..... and access doors occur.
34.	BHEL/ Annexure-2.1/ Sl.no.74	Vol. II-B/Section- I/Cl.no. 5.15.06 ix) c)/ Page 50 of 122	c) The classifier cone shall be lined with minimum 15 mm thick ceramic tiles on both inside and outside surfaces of the cone. The classifier vanes shall be lined with suitable material to provide minimum specified wear life.	c) The classifier cone (As applicable) shall be lined with minimum 15 mm thick ceramic tiles on both inside and outside surfaces of the cone. The classifier vanes shall be lined with suitable material to provide minimum specified wear life.

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Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as																																				
35.	BHEL/ Annexure-2.1/ Sl.no.75	Vol. II-B/ Section-I/ Cl.no. 5.15.07 / Page 52 of 122	Minimum Guaranteed Life of Coal Pulverizer Wear Parts	Minimum Guaranteed Life of Coal Pulverizer Wear Parts																																				
			The guaranteed life ... under :	The guaranteed life ... under :																																				
			<table><tr><th>Sl. No.</th><th>Item</th><th>Minimum Life in Equivalent Hours</th></tr><tr><td>1.</td><td>Seals</td><td>20000</td></tr><tr><td>2.</td><td>Grinding Elements (Rolls & Rings)</td><td>10000</td></tr><tr><td>3.</td><td>Mill Discharge valves</td><td>15000</td></tr><tr><td>4.</td><td>Classifier cone and other items lined with Ceramic materials</td><td>25000</td></tr><tr><td>5.</td><td>Classifier vane</td><td>25000</td></tr></table>	Sl. No.	Item	Minimum Life in Equivalent Hours	1.	Seals	20000	2.	Grinding Elements (Rolls & Rings)	10000	3.	Mill Discharge valves	15000	4.	Classifier cone and other items lined with Ceramic materials	25000	5.	Classifier vane	25000	<table><tr><th>Sl. No.</th><th>Item</th><th>Minimum Life in Equivalent Hours</th></tr><tr><td>1.</td><td>Seals (As applicable)</td><td>20000</td></tr><tr><td>2.</td><td>Grinding Elements (Rolls & Rings)</td><td>10000</td></tr><tr><td>3.</td><td>Mill Discharge valves</td><td>15000</td></tr><tr><td>4.</td><td>Classifier cone and other items lined with Ceramic materials (As applicable)</td><td>25000</td></tr><tr><td>5.</td><td>Classifier vane (As applicable)</td><td>25000</td></tr></table>	Sl. No.	Item	Minimum Life in Equivalent Hours	1.	Seals (As applicable)	20000	2.	Grinding Elements (Rolls & Rings)	10000	3.	Mill Discharge valves	15000	4.	Classifier cone and other items lined with Ceramic materials (As applicable)	25000	5.	Classifier vane (As applicable)	25000
			Sl. No.	Item	Minimum Life in Equivalent Hours																																			
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The Bidder shall.....to Owner's / Consultant's approval.	The Bidder shall.....to Owner's / Consultant's approval.																																							

Change in specification (Section B of Tender Specification)

Annexure C2A (Boiler)

Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as								
36.	BHEL/ Annexure-2.1/ Sl.no.30	Vol. II-D1/Section - II /Cl.no. 4.04.00/ Page 4 of 18	The bonded mineral wool shall be secured by means of galvanized steel wire (as per IS:280 or equivalent) of at least 24 SWG in the form of hexagonal netting of 10 mm to 13 mm aperture.	The bonded mineral wool shall be secured by means of galvanized steel wire (as per IS:280 or equivalent) of at least 0.56 mm (24 SWG) in the form of hexagonal netting of 10 mm to 13 mm aperture wire mesh of Galvanized steel wire up to 400 deg. C and Stainless steel wire for above 400 deg. C.								
37.	BHEL/ Annexure-2.1/ Sl.no.32	Vol. II-D1/Section - II /Cl.no. 4.10.00 d)/ Page 5 of 18	“ <table><tr><th>Item</th><th>Description</th></tr><tr><td>d) For Steam Generator outer casing</td><td>1.63 mm (16 SWG) ribbed Aluminium</td></tr></table> ”	Item	Description	d) For Steam Generator outer casing	1.63 mm (16 SWG) ribbed Aluminium	“ <table><tr><th>Item</th><th>Description</th></tr><tr><td>d) For Steam Generator outer casing</td><td>1.2 mm (18 SWG) ribbed Aluminium</td></tr></table> ”	Item	Description	d) For Steam Generator outer casing	1.2 mm (18 SWG) ribbed Aluminium
Item	Description											
d) For Steam Generator outer casing	1.63 mm (16 SWG) ribbed Aluminium											
Item	Description											
d) For Steam Generator outer casing	1.2 mm (18 SWG) ribbed Aluminium											
38.	BHEL/ Annexure-2.1/ Sl.no.17	Tender Drawing: 18A03-DWG-M001N sheet 2of 2	The isolation valve between Duplex strainer and LDO/HSD pressurizing pumps.	The isolation valve between Duplex strainer and LDO/HSD pressurizing pumps stands deleted.								

Change in specification (Section B of Tender Specification)

Annexure C2A (Boiler)

Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
39.	BHEL/ Annexure-2.1/ Sl.no.13	Vol. II-B/Section-I/ Cl.no. 5.09.06/ Page 30 of 122	Superheater, Reheater & Economizer Tubes shall be supported by steam / water-cooled hanger tubes / headers forming part of steam circuit such that the failure of even 50% of hanger tubes shall not to cause any dislocation / damage to the tube banks/setting. The stress in the hanger tubes under such condition also shall not exceed the maximum permissible limits as per the IBR.	Superheater, Reheater & Economizer Tubes shall be supported by steam or water cooled hanger tubes designed for a minimum of 2 times the calculated load so as not to cause any dislocation /damage to the tube banks/sections. The stress in the hanger tubes under such condition also shall not exceed the maximum permissible limits as per the IBR.
40.	BHEL/ Annexure-2.1/ Sl.no.134	Vol. IIA/ Section-XII/ Sub-Section-B/ Painting/ Annexure-I / Page 18 of 24/ Sl.no.5	<p>Specification content in Sl.no.5 of table</p> <p>"5) Uninsulated silencer, steel stack >120°C</p> <p>- Surface Preparation: Sa 2 ½ by blasting.</p> <p>- Primer: 1 coat of Ehthy zinc silicate - DFT 40µ.</p> <p>- Finish Paint: 2 coats of HR silicone aluminum paint to DFT of 20µ/coat.</p> <p>- Total DFT = 80µ."</p>	<p>Specification content in Sl.no.5 of table shall be modified as below,</p> <hr/> <p><u>"5a) Uninsulated silencer, steel stack >120°C to < 400°C:</u></p> <p>- Surface Preparation: Sa 2 ½ by blasting -</p> <p>Primer: 1 coat of Inorganic zinc silicate - DFT 40µ.</p> <p>- Finish Paint: 2 coats of HR silicone aluminum paint to DFT of 20µ/coat.</p> <p>- Total DFT = 80µ.</p> <hr/> <p><u>5b) Uninsulated silencer, steel stack >400°C:</u></p> <p>- Surface Preparation: Sa 2 ½ by blasting -</p> <p>Primer (As applicable): 1 coat of Inorganic zinc silicate - DFT 40µ.</p> <p>- Finish Paint: 2 coats of HR silicone aluminum paint to DFT of 20µ/coat.</p> <p>- Total DFT = 80µ. (With primer)/ 40µ. (Without primer)"</p>
41.	L&T/Annexure-	Vol. II-A/Section-X/	"NOx emission reduction for SCR System (@	

Change in specification (Section B of Tender Specification)

Annexure C2A (Boiler)

Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
	B2.1/Sl.no.1	<p>Performance Guarantees/Cl.no.4 .02.00, Sl.no.2</p> <p>Section B / Vol. I- B/Section- 9 Performance Guarantees/ Cl.no.9.4.2 /Sl.no.2 / Page 92 of 310</p> <p>Volume: I-A / Sch:F1 / PG Schedule (Section B) / Table 8/Sl.no.2/ Pg 194 of 210</p> <p>Corrigendum-37/ Annexure C2A – Division – Boiler/ Sl.no.10/ Page 28 of 113.</p>	<p>100% TMCR Guarantee point)</p> <p>The Bidder shall demonstrate that the maximum NOx emission at 6% O2 on dry basis at 100% TMCR shall not be more than 70 mg/Nm3 at SCR outlet for the design coal specified and with ammonia slip less than 2.5 ppm@ 6% O2 on dry basis.</p> <p>Note: For the above guarantee, SCR inlet NOx shall be increased from actual level by adjustment of air staging and other measures by 400 mg/Nm3 at 6% O2 on dry basis and outlet NOx shall be demonstrated.”</p>	<p>“NOx emission reduction for SCR System (@ 100% TMCR Guarantee point)</p> <p>The Bidder shall demonstrate that the maximum NOx emission at 6% O2 on dry basis at 100% TMCR shall not be more than 70 mg/Nm3 at SCR outlet (Corresponds to 400 mg/Nm3 at 6% O2 on dry basis as SCR inlet NOx) for the design coal specified and with ammonia slip less than 2.5 ppm@ 6% O2 on dry basis.</p> <p>Note: For the above guarantee, SCR inlet NOx shall be increased from actual level by adjustment of air staging and other measures to maximum possible extent and outlet NOx shall be demonstrated.</p> <p>Bidder shall submit Inlet NOx Vs Outlet NOx correction curve (400 mg/Nm3 at 6% O2 on dry basis at SCR inlet NOx Vs 70 mg/Nm3 at 6% O2 on dry basis at SCR outlet NOx as base reference for curve) for Inlet NOx variation, along with the bid for this guarantee.”</p>

Change in specification (Section B of Tender Specification)

Annexure C2A (Boiler)

Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
42.	L&T/Annexure-B2.1/SI.no.1	Vol. II-A/Section-X/Performance Guarantees/Cl.no.4 .03.13 Section B / Vol. I-B/Section-9 Performance Guarantees/Cl.no.9 .4.3.13	“NOx emission at economizer outlet Contractor shall demonstrate that over entire range of steam generator operation from 40% BMCR to 100% BMCR load and for whole range of specified coal(s) and mills in operation as per Employer’s choice, the total NOx (from thermal as well as fuel) at the inlet of SCR shall not exceed 325 mg/Nm3 at 6% oxygen (O2) content in flue gas on dry gas basis.”	“NOx emission at economizer outlet Contractor shall demonstrate that over entire range of steam generator operation from 40% BMCR to 100% BMCR load and for whole range of specified coal(s) and mills in operation as per Owner’s choice, the total NOx (from thermal as well as fuel) at the inlet of SCR shall not exceed 325 mg/Nm3 at 6% oxygen (O2) content in flue gas on dry gas basis. Note: Bidder shall submit correction curves for variation in Fuel nitrogen Vs outlet NOx (Fuel Nitrogen 1.09% Vs 325 mg/Nm3 at 6% O2 on dry basis at SCR inlet NOx as base reference for curve), along with the bid for this guarantee.”
43.	L&T/Annexure-B2.1/SI.no.1	Vol. II-B/Section-V/De-NOX System/ Annexure-I/ SI.no.1 h) Corrigendum-37/ Annexure C2A_ Division– Boiler/	“h) Critical Parameters for SCR system design Maximum Total NOX emission at SCR outlet with Inlet NOx of 400 mg/Nm3 @ 6% O2 on dry basis: (SCR inlet NOx shall be increased from actual level by adjustment of air staging and other measures by 400 mg/Nm3 and outlet NOx shall be demonstrated within the specified range for range of coal and load)	“h) Critical Parameters for SCR system design Maximum Total NOX emission at SCR outlet with Inlet NOx of 400 mg/Nm3 @ 6% O2 on dry basis: (SCR inlet NOx shall be increased from actual level by adjustment of air staging and other measures to maximum possible extent and outlet NOx shall be demonstrated within the specified range for range of coal and load)

Change in specification (Section B of Tender Specification)

Annexure C2A (Boiler)

Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as										
		Sl.no.6/ Page 27 of 113	<p>i) At 40% BMCR to 100% BMCR for range of Coal firing, SCR outlet NOx shall not exceed 100 mg/Nm3 at 6% O2 on dry basis.</p> <p>ii) At TMCR with specified range of coal firing SCR outlet NOx shall not exceed 70mg/Nm3 at 6% O2 on dry basis.”</p>	<p>i) At 40% BMCR to 100% BMCR for range of Coal firing, SCR outlet NOx shall not exceed 100 mg/Nm3 at 6% O2 on dry basis.</p> <p>ii) At TMCR with specified range of coal firing SCR outlet NOx shall not exceed 70mg/Nm3 at 6% O2 on dry basis.”</p>										
44.	Annexure_ B2.5 _ SG-Spares_ LT_ With SCR/ Sl.no.128 & Annexure_ B2.5 _SG-Spares_ LT_ Without SCR/ Sl.no.121	Vol. II-A/Section-IX Mandatory Spares, Tool & Tackles/ Annexure-II/ Page 5 of 40	<table><tr><th>SL. NO</th><th>DESCRIPTION OF TOOLS & TACKLES</th><th>QUANTITY REQUIRED</th></tr><tr><td>1.17.00</td><td>Thermo vision camera with data storage facility</td><td>1 no.</td></tr></table>			SL. NO	DESCRIPTION OF TOOLS & TACKLES	QUANTITY REQUIRED	1.17.00	Thermo vision camera with data storage facility	1 no.	SL. NO	DESCRIPTION OF TOOLS & TACKLES	QUANTITY REQUIRED
						SL. NO	DESCRIPTION OF TOOLS & TACKLES	QUANTITY REQUIRED						
1.17.00	Thermo vision camera with data storage facility	1 no.												
				1.17.00	Thermo vision camera with data storage facility for Condition monitoring by skin temperature measurement of Steam generator & it's Auxiliaries such as Furnace, Ducting, Fans, RAPH, Mills, Motor, Various bearings etc., and Outdoor EHV Switchyard ,Power transformers, Switchgears.	2 no.								

Change in specification (Section B of Tender Specification)

Annexure C2A (Boiler)

Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as		
					(Refer below note)	
				<u>Note:</u>		
				Description	Specification	
				Type	Hand held	
				Total quantity	Two (Common for three units)	
				Display	Minimum 3 inch & Colour LCD	
				Temperature range	0 deg C to +650 deg C (min)	
				Temperature measuring accuracy of reading	Minimum ± 2%	
				Storage medium	Minimum 4GB SD Memory card	
				Interface for image transfer	SD Memory card, WiFi, USB Cable with suitable drivers for downloading	

Change in specification (Section B of Tender Specification)

Annexure C2A (Boiler)

Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as														
					<table><tr><td></td><td>to PC</td></tr><tr><td>Focus</td><td>Manual and Auto</td></tr><tr><td>Power source</td><td>Rechargeable battery with External battery charger</td></tr><tr><td>Image Storage</td><td>Simultaneous storage of IR and visual images</td></tr><tr><td>Protection</td><td>IP54</td></tr><tr><td>Measurement distance</td><td>25 meters (Minimum)</td></tr></table>		to PC	Focus	Manual and Auto	Power source	Rechargeable battery with External battery charger	Image Storage	Simultaneous storage of IR and visual images	Protection	IP54	Measurement distance	25 meters (Minimum)	
	to PC																	
Focus	Manual and Auto																	
Power source	Rechargeable battery with External battery charger																	
Image Storage	Simultaneous storage of IR and visual images																	
Protection	IP54																	
Measurement distance	25 meters (Minimum)																	
45.	BHEL/ Annexure-2.1/ Sl.no.106 & L&T/Annexure- B2.1/Sl.no.85	Vol. II-B/Section-I/ Steam Generator & Accessories/ CI 6.01.01 (b)/ Page 72 of 122	“(b) After cutting to size and removal of cut outs, the plates shall be subjected to magnetic particle test or LPT along the edges of the plate and on areas adjacent to the cutouts.”	“(b) After cutting to size and removal of cut outs, the plates /pipes shall be subjected to magnetic particle test or LPT along the edges of the plate/ pipe and on areas adjacent to the cut-outs. MPT/LPT along the edges shall be carried out if gas cutting is employed.”														

Change in specification (Section B of Tender Specification)

Annexure C2A (Boiler)

Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
46.	BHEL/ Annexure-2.1/ Sl.no.109	Vol. II-B/Section-I Steam Generator & Accessories/ CI 6.01.01 (i)/ Page 73 of 122	“(i) All butt welds shall be subjected to 100% ultrasonic and magnetic particle examination after stress relief.”	“(i) All butt welds shall be subjected to 100% ultrasonic testing/ Radiography/ PAUT + TOFD before stress relief except for Gr. 91 & 92. Gr. 91 & 92 will be subjected to 100% RT/UT and MPI after SR.”
47.	BHEL/ Annexure-2.1/ Sl.no.115	Vol. II-B/Section-I Steam Generator & Accessories CI 6.01.02 g)/ Page 73 of 122	“(g) All weld joints in alloy steel headers of P 91, X20 and X22 & other material of P5B group and above shall be checked for Hardness. 5% hardness check shall be carried out on welds of other alloy steel Headers.”	“(g) All weld joints in alloy steel headers of P 91, X20 and X22 & other material of P15E group and above shall be checked for Hardness. 5% hardness check shall be carried out on welds of other alloy steel Headers”
48.	BHEL/ Annexure-2.1/ Sl.no.117	Vol. II-B/Section-I Steam Generator & Accessories CI 6.01.03 e)/ Page 74 of 122	“(e) Minimum 10 % of the fillet joints shall be subjected to MPI/ LPI. However Fillet welds of material grades P 5B and above or any other equivalent new material grade subject to the acceptance by client/consultant shall be subjected to 100 % MPI/ LPI.”	“(e) Minimum 10 % of the fillet joints shall be subjected to MPI/ LPI. However Fillet welds of material grades P15E and above or any other equivalent new material grade subject to the acceptance by client/consultant shall be subjected to 100 % MPI/ LPI.”

Change in specification (Section B of Tender Specification)

Annexure C2A (Boiler)

Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
49.	BHEL/ Annexure-2.1/ Sl.no.118	Vol. II-B/Section-I Steam Generator & Accessories CI 6.01.03 g)/ Page 74 of 122	"g) 10% hardness survey on butt welds of P5B material group and above."	"g) 10% hardness survey on butt welds of P15E material group and above. 10% hardness test shall also be carried out on weld of T23 material "
50.	BHEL/ Annexure-2.1/ Sl.no.121	Vol. II-B/Section-I Steam Generator & Accessories CI 6.01.04 f)/ Page 75 of 122	"f) All weld joints in alloy steel piping of P91, X20 and X22 & other material of P5B group and above shall be checked for Hardness. For PWHT Induction Heating shall be deployed. However, PWHT can be done in furnace also. 3% hardness check shall be carried out on welds of other alloy steel piping."	"f) All weld joints in alloy steel piping of P91, X20 and X22 & other material of P15E group and above shall be checked for Hardness. For PWHT Induction Heating shall be deployed. However, PWHT can be done in furnace also. 3% hardness check shall be carried out on welds of other alloy steel piping"
51.	BHEL/ Annexure-2.1/ Sl.no.125	Vol. II-B/Section-I Steam Generator & Accessories/ CI 6.02.00/ Page 78 of 122	"Non Pressure Bearing Attachments Load bearing welds shall be subjected to examination by ultrasonic testing (UT) and magnetic particle inspection (MPI) techniques after stress relief (SR). No load bearing welds shall be subjected to MPI after stress relief. The toes of the welds adjoining the /separator shall be ground smooth prior to stress relieving before carrying out this examination."	"Non Pressure Bearing Attachments Load bearing welds shall be subjected to examination by ultrasonic testing (UT) and magnetic particle inspection (MPI) techniques after stress relief (SR). No load bearing welds shall be subjected to MPI after stress relief. The toes of the welds adjoining the /separator shall be ground smooth prior to stress relieving before carrying out this examination. For inaccessible areas LPI shall be carried out."

Change in specification (Section B of Tender Specification)

Annexure C2A (Boiler)

Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
52.	L&T/Annexure-B2.1/SI.no.86	Vol. II-B/Section-I/ Steam Generator & Accessories/ CI 6.01.01/ Page 72 of 122	-	Below note under clause 6.01.01 shall be added, “Note: PT can be carried out in inaccessible areas where magnetic particle examination cannot be done (Inaccessible areas subjected to owner approval during detail engineering stage).”
53.	L&T/Annexure-B2.1/SI.no.89	Vol. II-B/Section-I/ Steam Generator & Accessories/ CI 6.01.01 (m) / Page 73 of 122	(m) Hydraulic Test and Pneumatic Test : Complete Separator shall be subjected to hydraulic pressure test and all compensating pads to be pneumatically tested.	(m) Hydraulic Test and Pneumatic Test : Complete Separator shall be subjected to hydraulic pressure test and all compensating pads (as applicable) to be pneumatically tested.
54.	L&T/Annexure-B2.1/SI.no.90 to 93	Vol. II-B/Section-I/ Steam Generator & Accessories/ CI 6.01.02/ Page 73 of 122	-	Below note under clause 6.01.02 shall be added, “Note: PT can be carried out in inaccessible areas where magnetic particle examination/UT cannot be done (Inaccessible areas subjected to owner approval during detail engineering stage).”
55.	L&T/Annexure-B2.1/SI.no.95	Vol. II-B/Section-I/ Steam Generator & Accessories/ CI 6.01.03 c) / Page 74 of 122	“c) Flash butt-welded, Straight Tube butt welded Tubes and Fusion welded panels will be checked by Steel ball test. Fin welded panels are inspected with sponge. These are not applicable for stubs.”	“c) Flash butt-welded, Straight Tube butt welded Tubes and Fusion welded panels will be checked by Steel ball test. Fin welded panels are inspected with sponge. These are not applicable for stubs. Wherever it is impossible to check clearance by steel

Change in specification (Section B of Tender Specification)

Annexure C2A (Boiler)

Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
				ball test, bidder shall perform sponge ball test”
56.	L&T/Annexure-B2.1/Sl.no.98	Vol. II-B/Section-I Steam Generator & Accessories/ CI 6.01.01 (g)/ Page 73 of 122	“(g) All butt welds shall be subjected to 100% radiographic examination before stress relief except for Gr.91 & 92 which will be subjected to RT after stress relief.”	“(g) All butt welds shall be subjected to 100% radiographic examination before stress relief except for Gr.91 & 92 which will be subjected to RT/TOFD/PAUT after stress relief.”
57.	L&T/Annexure-B2.1/Sl.no.99	Vol. II-B/Section-I Steam Generator & Accessories/ CI 6.01.04 h) iii) / Page 76 of 122	“iii). For all other pipes not..... to RT. . Wherever SR/PWHT is envisaged for alloy steel, above NDTs shall be after SR/PWHT.”	“iii). For all other pipes not..... to RT. . Wherever SR/PWHT is envisaged for alloy steel, above NDTs shall be after SR/PWHT. In case of P91 piping, NDT will be performed as per requirement after PWHT/ Stress relieving.”
58.	L&T/Annexure-B2.1/Sl.no.100	Vol. II-B/Section-I Steam Generator & Accessories/ CI 6.01.04 g) / Page 75 of 122	“(g) All load bearing attachment welds shall be subjected to MPI after SR.”	“(g) All load bearing attachment welds shall be subjected to MPI after SR. However, PT will be done in the areas where accessibility is an issue (Inaccessible areas subjected to owner approval during detail engineering stage).”
59.	L&T/Annexure-B2.1/Sl.no.103 to 106	Vol. II-B/Section-I Steam Generator & Accessories/ CI 6.03.04 / Page 81 & 82 of 122	Mills, Pulverised Coal Ducting and Burners Raw material for shaft, coupling and other rotating components shall be subjected to UT. MPI/LPI shall be carried out to check surface soundness.	Mills, Pulverised Coal Ducting and Burners Raw material for shaft, coupling and other rotating components shall be subjected to UT. MPI/LPI shall be carried out to check surface soundness.

Change in specification (Section B of Tender Specification)

Annexure C2A (Boiler)

Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
			<p>Wear-resistant parts shall be UT/ RT tested to check soundness after suitable heat treatment. Check for chemical composition, hardness and microstructure shall be carried out.</p> <p>Butt welds in the body casing of the mill shall be tested by RT and MPI. All other welds shall be tested by MPI/LPI for acceptance.</p> <p>Fabricated pipe welds should be examined by MPI.</p> <p>Ceramic/basalt lined piping/bends shall be checked for proper layout.</p> <p>Weldments on burner components shall be checked with suitable NDT. The burner assemblies shall be tested for operation at shop.</p> <p>Trial assembly (stacking) of at least two Mill complete with all major components needs to be carried out at shop.</p>	<p>Wear-resistant parts shall be UT/ RT tested to check soundness after suitable heat treatment. For Wear-resistant parts made up of composite materials, comprising of SG Iron & Hi Chrome etc where UT/ RT/MPI is technically not feasible, DPT on machined surface shall be conducted to ensure surface integrity and to check soundness after suitable heat treatment. Check for chemical composition, hardness and microstructure shall be carried out. For ceramic materials check for various properties including hardness, density, wear rate and composition shall be carried out.</p> <p>Butt welds in the tube / separator / body casing of the mill shall be tested by RT and MPI. All other welds in main tube/separator shall be tested by MPI/LPI for acceptance.</p> <p>Fabricated pipe welds should be examined by MPI/LPI.</p> <p>Ceramic/basalt lined piping/bends shall be checked for proper layout.</p> <p>Weldments on burner components shall be checked with suitable NDT. The burner assemblies shall be tested for operation at shop.</p> <p>Trial assembly (stacking) of at least one mill</p>

Change in specification (Section B of Tender Specification)

Annexure C2A (Boiler)

Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
				complete with all major components needs to be carried out at shop.
60.	Annexure-B2.7/Sl.no.B.1	Vol. II-B/Section-I Steam Generator & Accessories/ CI 5.20.03	-	<p>Below requirements for Steam Generator & Accessories shall be added in Cl.no.5.20.03 of Vol-II B Section-I,</p> <ul style="list-style-type: none">• Material: Structural steel shall be as per IS: 2062 (latest) for rolled steel members or plates.• Handrails: All Boiler & it's auxiliaries shall be provided with minimum 1000 mm high (from floor/ roof level) hand railing around all floor/roof openings, projections, walkways, platforms, steel stairs, etc., All handrails (main posts & horizontal rails) shall be 32 mm nominal bore MS pipes (medium class) conforming to IS: 1161 and shall be galvanized as per IS:4736. Minimum weight of galvanizing shall be 610 g/sqm. The spacing of vertical posts shall be maximum 1500mm. Two numbers of horizontal rails shall be provided including the top member. In addition, GI toe guard min 6 mm thick & min 150 mm wide shall be provided including throughout staircase and landing.• Staircase: All stairs shall have a maximum riser

Change in specification (Section B of Tender Specification)

Annexure C2A (Boiler)

Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification			Description To be read as		
						<p>height of 180mm and a minimum tread width of 275 mm. Minimum clear width of stair shall be 1200 mm unless specified otherwise.</p> <p>• Chequered plate: Shall conform to IS 3502 and shall be minimum 6 mm thick excluding projection. Steel for chequered plate shall conform to grade E250A semi killed of IS: 2062 or equivalent grade conforming to ASTM & BS standards only.</p>		
61.	L&T/Annexure-B2.1/Sl.no.14 BHEL/Annexure-2.4/Sl.no.1	Vol. II-A/Section-V General Technical Requirements/Annexure-II/Cl.no.4.2 A) 5)/Page 34 of 46	Sl. No	Area	Description	Sl. No	Area	Description
			5)	Estimated distance between D-row of Boiler Column and chimney centerline.	322.0 Meters.	5)	Estimated distance between D-row of Boiler Column and chimney centerline.	300 to 322.0 Meters. (Further this will be reviewed and finalized during detail engineering)
62.	BHEL/Annexure-2.2/Sl.no.7	Vol. II-B/Section-VI/Aux Boiler Cl 6.01.01	One number outdoor installation type, natural circulation, pressurized furnace, water tube boiler suitable for firing LDO and having minimum steaming capacity of 70 T/hr or of higher capacity with steam parameters at superheater outlet maintaining minimum 19 kg/cm ² (g) and temperature control range from 250 to 315°C. The auxiliary boiler the auxiliary steam requirement of one unit at a time.			One number outdoor installation type, natural circulation, pressurized furnace, water tube boiler suitable for firing LDO and having minimum steaming capacity of 70 T/hr or of higher capacity with steam parameters at superheater outlet maintaining minimum 19 kg/cm ² (g) and temperature of 315°C. The auxiliary boiler the auxiliary steam requirement of one unit at a time.		

Change in specification (Section B of Tender Specification)

Annexure C2A (Boiler)

Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
63.	L&T/ Annexure-B 2.1/ Sl.no.113	Vol. II-B/Section-I Steam Generator & Accessories/ Cl.5.20.09	For meeting the above requirement in respect of platforms the Bidder shall provide platform area of minimum 20,000 m2 (20,000 m2 For each boiler & it's SCR system, clear of all intervening pipes, columns, actuators, instrument enclosures, racks etc. excluding area covered by stairways) and separately for ESP as required. However bidder shall provide adequate platform over and above the minimum requirement based on system requirement without any cost implication. Bidder shall furnish detail floor plan drawings covering all platforms and shall clearly indicate all the dimensions of platforms and clear platform floor area in each drawing.	<p>For meeting the above requirement in respect of platforms the Bidder shall include in his proposal platform (Permanent Grating & chequered platforms only) area of 23,000 m2 (23,000 m2 for each Boiler (From "D"-row) & boiler auxiliaries including SCR system, RAPH, Fans, Coal bunker, Ducting clear of all intervening pipes, columns, actuators, instrument enclosures, racks etc. and excluding area covered by stairways & landings, Platforms of ESP, Chimney, Ammonia storage & handling system, FOPH, FGD, Auxiliary Boiler, Other buildings, Pipe racks, Cable tray, Ash handling system and all RCC floors) and platforms required for ESP, Chimney, Ammonia storage & handling system, FOPH, FGD, Other buildings, Pipe racks, Cable tray, Ash handling system and Auxiliary boiler shall be considered separately by bidder as required. The Bidder shall furnish unit rates for addition/deletion of the platform floor area with respect to the area mentioned above in Vol-IA/ Schedule: F1/ Table-9 (Schedule of Unit rates). Bidder shall furnish detail floor plan drawings covering all platforms and shall clearly indicate all the dimensions of platforms and clear platform floor area in each drawing during detail engineering stage.</p> <p>Note: For without SCR bid option 22,000 m2 shall be considered as base as against 23,000 m2.</p>

Change in specification (Section B of Tender Specification)

Annexure C2A (Boiler)

Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
64.	L&T/ Annexure-B 2.1/ Sl.no.113	Vol-IA/ Schedule-F1	-	Below Schedule newly added: In Vol-IA/ Schedule-F1, Table-9 (SCHEDULE OF UNIT RATES)
65.	BHEL/ Annexure-2.1/ Sl.no.474	Vol. II-A/Section-IV /Scope of Supply & Services, Terminal Points & Exclusions/ Cl. 2.03.00/ Page 20 of 27	Services for construction, fabrication, equipment erection, testing as well as trial run & commissioning of various equipment and accessories under the contract. The details of such services are indicated in detailed elsewhere in this specification volume. Bidder shall arrange tower crane for erection and construction work, wherever necessary. Minimum three (3) numbers of 650T capacity tower cranes shall be arranged under the scope of service in addition to the required resources for erection and construction of boiler.	Services for construction, fabrication, equipment erection, testing as well as trial run & commissioning of various equipment and accessories under the contract. The details of such services are indicated in detailed elsewhere in this specification volume. Bidder shall arrange sufficient number of suitable capacity/type tower of crane for erection and construction work, wherever necessary as per bidder's proven practice. Minimum three (3) numbers of 650T capacity tower cranes shall be arranged under the scope of service in addition to the required resources for erection and construction of boiler.

**VOLUME: I-A
SCHEDULE: F1
TABLE 9**

SCHEDULE OF UNIT RATES

The Unit Rates of various items are given as under. We confirm that the prices of these items as per the requirement of Technical Specifications are already included in the lump-sum prices quoted in Schedule- F1 Table 1 and price break up quoted in Tables 2 (A) to (Z) We further confirm that these unit rates shall be used for contract price adjustment on account of quantity variation.

Further, We hereby confirm that the unit rates quoted by us below are consistent with the lumpsum bid price and that we shall furnish all necessary justification to establish the reasonableness of these rates/prices, if required by the Purchaser. However, we clearly understand that the acceptance of our proposal for the subject package shall not mean automatic acceptance of these rates/prices and that these rates/ prices shall be adopted only if their reasonableness has been established by us and accepted by the Purchaser.

Price settlement on account of quantity variation for each unit shall be made/ deducted after final takeover of respective unit and after purchaser review/approval of bidder's as built floor plan drawings and BOQ.

S.No	Item	Unit	Supply including Transportation & insurance and Installation Price (In Rs.)
1.	For with SCR bid option: Unit rate per square meter of platform floor area- Supply and Installation for addition/deletion of platform floor area with respect to platform area (Base) of 23,000 m2 as per clause no. 5.20.09 of Vol II-B Section-I	m ²	
2.	For without SCR bid option: Unit rate per square meter of platform floor area- Supply and Installation for addition/deletion of platform floor area with respect to platform area (Base) of 22,000 m2 as per clause no. 5.20.09 of Vol II-B Section-I	m ²	

Signature :
Name :
Designation :
Company :

Company Seal

Date :



Change in specification (Section B of Tender Specification)

Annexure C2B (Turbine)

Sl. No.	TCM Reference	Tender Spec. Ref. (Vol / Sec/ Cl No.)	Description as in Specification	Description To be read as
1.	BHEL / S.No 205	Vol-II-A / Sec-V/ 3.08.00 (5)	<p>5) Bidder shall furnish, within 6 (six) months from the date of placement of award / during detail engineering, following details:</p> <p>a. 'Fatigue Damage', resulting from</p> <p>i. The number of Cold start up, Warm start up and Hot start up as defined elsewhere in the specification and</p> <p>ii. Load cycling during defined plant life.</p> <p>b. 'Creep damage'</p> <p>c. Creep-Fatigue interaction curve for materials (selected for vulnerable locations) for which fatigue and creep damage have been computed along with the reference used for creep fatigue interaction curve.</p> <p>d. The combined creep fatigue damage shall lie within acceptable limits.</p> <p>e. Material data used for determining the fatigue and creep damage.</p>	<p>5) Bidder shall design Steam Generator, Steam Turbine-Generator system meeting the load cycling conditions as per the specification. In no case the design life of Steam Generator, Steam Turbine-Generator system shall be affected due to</p> <p>a. 'Fatigue Damage', resulting from</p> <p>i. The number of Cold start up, Warm start up and Hot start up as defined elsewhere in the specification and</p> <p>ii. Load cycling during defined plant life.</p> <p>b. 'Creep damage'</p> <p>c. deleted</p> <p>d. The combined creep fatigue damage shall lie within acceptable limits.</p> <p>e. to g. – deleted</p> <p>6) For the steam generator, in addition to the above requirement, specific design features...</p> <p>7)</p> <p>a) Provision for life consumption/Equivalent Operating Hours (EOH....</p>

Change in specification (Section B of Tender Specification)

Annexure C2B (Turbine)

Sl. No.	TCM Reference	Tender Spec. Ref. (Vol / Sec/ Cl No.)	Description as in Specification	Description To be read as
			<p>f.Code used for determining fatigue and creep along with details of its validation.</p> <p>g. Details of specific changes in design to accommodate the defined load cycling.</p> <p>h. For the steam generator, in addition to the above requirement, specific design features...</p> <p>6)</p> <p>a) Provision for life consumption/Equivalent Operating Hours (EOH....</p> <p>b) Resulting Damage Factor</p>	b) Resulting Damage Factor
2.	L&T / Annex-13 / S.No 896	Vol-IIA/ Sec-V/Cl. 18.01.03	Before any item of plant or equipment leaves its place of manufacture the Owner shall be given the option of witnessing inspections and tests for compliance with the specification and related standards.	The Categorization and the list of QAP and non QAP items shall be finalized and subjected to approval of the Owner/ Consultant during detailed engineering. For items requiring witness by Owner as per the QAP, the Owner shall be given the option of witnessing inspections and tests for compliance with the specification and related standards before such item of plant or equipment leaves its place of manufacture.
3.	BHEL / S.No 288	Vol:II-A/Section VIII / 2.05.00	... No material shall be despatched from the manufacturer's works before the same is accepted subsequent to pre-despatch final inspection including verification of records of all previous tests/inspections	... No material shall be despatched from the manufacturer's works before the same is accepted subsequent to pre-despatch final inspection or verification of records of tests/inspections or

Change in specification (Section B of Tender Specification)

Annexure C2B (Turbine)

Sl. No.	TCM Reference	Tender Spec. Ref. (Vol / Sec/ Cl No.)	Description as in Specification	Description To be read as
			by Owner/Consultant and duly authorised for despatch issuance of Material Despatch Clearance Certificate (MDCC).	verification of certificate of compliance (as the case may be) as per the approved Quality Plan by Owner/Consultant and duly authorised for despatch issuance of Material Despatch Clearance Certificate (MDCC).
4.	L&T / Annex-6 / S.No 348	Vol-IIA/ Sec-IX/ Mandatory Spares/ Annexure I / 2.01.21 i)	b) Complete assembly of HPT module, except bladed rotor (includes inner bladed casing including all internals in assembled condition and fitted in outer casing) along with Breach nuts (if applicable). The HP Turbine Rotor at line item 2.01.21 , i) a) above shall be supplied in assembled condition inside this casing. : 1 set	b) Deleted
5.	L&T / Annex-6 / S.No 349	Vol-IIA/ Sec-IX/ Mandatory Spares/ Annexure I / 2.01.21 ii)	b) Complete assembly of IPT module, except bladed rotor (includes inner bladed casing including all internals in assembled condition), along with full set of both ends of stationery gland seal segments (Finned).The IP Turbine Rotor at line item 2.01.21 , ii) a) above shall be supplied in assembled condition inside this casing. : 1 set	b) Deleted
6.	L&T / Annex-4 / S.No 274	Vol-IIA/ Sec-IX/ Mandatory Spares/ Annexure I / 2.01.22	i) LP Turbine bladed rotor (if two rotors are there per unit then 2 nos. have to be supplied) : 1 No. or 2 Nos. as per applicability	i) LP Turbine bladed rotor : 1 no. in case of identical LP rotors/single LP rotor design or 1 no. of each type/design in case of non identical rotors

Change in specification (Section B of Tender Specification)

Annexure C2B (Turbine)

Sl. No.	TCM Reference	Tender Spec. Ref. (Vol / Sec/ Cl No.)	Description as in Specification	Description To be read as
7.	BHEL / S.No 300,302,303 L&T / Annex-6 / S.No 357,359,360	Vol-IIA/ Sec-IX/ Mandatory Spares/ Annexure I / 2.01.30 (i) , (iii),(iv)	i) Hydraulic Speed Governor Assembly (if applicable, else equivalent items) iii) Emergency Governor (if applicable, else equivalent items)... iv) Electro-Hydraulic Converter (EHC) Complete Assembly each type (if applicable, else equivalent items) ...	i) Hydraulic Speed Governor Assembly (if applicable) iii) Emergency Governor (if applicable) ... iv) Electro-Hydraulic Converter (EHC) Complete Assembly each type (if applicable) ...
8.	L&T / Annex-6 / S.No 371	Vol-IIA/ Sec-IX/ Mandatory Spares/ Annexure I / 2.01.35 ii)	ii) HP Turbine Overload valve servomotor assembly (if applicable) : 1 set	ii) HP Turbine Overload valve Actuator with servo system (if applicable) : 1 set
9.	BHEL / S.No 320 L&T / Annex-6 / S.No 384, 387,388,389	Vol-IIA/ Sec-IX/ Mandatory Spares/ Annexure I	2.05.11 Complete Servomotor Assembly of the Valve 2.05.14 All Studs, Bolts, Nuts and Washers for Servomotor 2.05.15 All Gaskets, "O" rings and all seals of servomotor 2.05.16 All internals of Servomotor	2.05.11 Complete Actuator assembly of the valve with servo system 2.05.14 Deleted 2.05.15 Deleted 2.05.16 Deleted
10.	BHEL / S.No 326 L&T / Annex-6 / S.No 400, 402,403,40	Vol-IIA/ Sec-IX/ Mandatory Spares/ Annexure I	2.06.11 Complete Servomotor Assembly of the Valve 2.06.14 All Studs, Bolts, Nuts and Washers for Servomotor 2.06.15 All Gaskets, "O" rings and all seals of	2.06.11 Complete Actuator Assembly of the Valve with servo system 2.06.14 Deleted 2.06.15 Deleted

Change in specification (Section B of Tender Specification)

Annexure C2B (Turbine)

Sl. No.	TCM Reference	Tender Spec. Ref. (Vol / Sec/ Cl No.)	Description as in Specification	Description To be read as
	4		servomotor 2.06.16 All internals of Servomotor	2.06.16 Deleted
11.	BHEL / S.No 331 L&T / Annex-6 / S.No 413, 416,417,418	Vol-IIA/ Sec-IX/ Mandatory Spares/ Annexure I	2.07.11 Complete Servomotor Assembly of the Valve 2.07.14 All Studs, Bolts, Nuts and Washers for Servomotor 2.07.15 All Gaskets, "O" rings and all seals of servomotor 2.07.16 All internals of Servomotor	2.07.11 Complete Actuator Assembly of the Valve with servo system 2.07.14 Deleted 2.07.15 Deleted 2.07.16 Deleted
12.	BHEL / S.No 336 L&T / Annex-6 / S.No 430,433,434,435	Vol-IIA/ Sec-IX/ Mandatory Spares/ Annexure I	2.08.11 Complete Servomotor Assembly of the Valve 2.08.14 All Studs, Bolts, Nuts and Washers for Servomotor 2.08.15 All Gaskets, "O" rings and all seals of servomotor 2.08.16 All internals of Servomotor	2.08.11 Complete Actuator Assembly of the Valve with servo system 2.08.14 Deleted 2.08.15 Deleted 2.08.16 Deleted
13.	L&T / Annex-6 / S.No 439	Vol-IIA/ Sec-IX/ Mandatory Spares/ Annexure I / 2.10.08	Temperature control valve thermostat	Temperature control valve thermostat : 1 Set for complete replacement in one Temperature control valve
14.	L&T / Annex-5 / S.No 340	Vol-IIA/ Sec-IX/ Mandatory Spares/ Annexure I / 2.25.04	Tube Plugs for Drain Cooler : 10 Nos.	Tube Plugs for Drain Cooler (if separate drain cooler is offered) : 10 nos. of each type

Change in specification (Section B of Tender Specification)

Annexure C2B (Turbine)

Sl. No.	TCM Reference	Tender Spec. Ref. (Vol / Sec/ Cl No.)	Description as in Specification	Description To be read as
15.	BHEL / S.No 201 L&T/ Annex 5 / S.No 316	VOLUME: II-A/SECTION-IX/Annexure II	LIST OF TOOLS & TACKLES FOR STEAM TURBINE GENERATOR & AUXILIARIES 2.00.00 Steam Turbine 	LIST OF TOOLS & TACKLES FOR STEAM TURBINE GENERATOR & AUXILIARIES Note: The list of special tools and tackles to be supplied by the Bidder for O&M of Steam Turbine Generator & Auxiliaries are specified below. Alternatively, Bidder may offer the set of special tools & tackles, as per their OEM standard and the same shall be furnished along with the Bid. In such case, the list of tools & tackles below shall serve only as a reference for the functional requirement of O&M and not binding to the Bidder. If any special tools & tackles, other than those furnished in the Bid are found applicable during detail engineering for meeting the functional requirement of O&M, the same shall be supplied by the Bidder without any additional price implication. 2.00.00 Steam Turbine
16.	BHEL / S.No 140	Vol II A/ Section IX / Annexure II / Clause 2.06.02, 2.06.03	2.06.02 : Automatically controlled torque tube expander complete with mandrel and one spare set of rollers for each tube size 2.06.03 : Tube cutting tool	2.06.02 : Deleted 2.06.03 : Deleted
17.	BHEL /	Vol II A/ Section	2.07.01 :	2.07.01 : LP heaters man way cover removal

Change in specification (Section B of Tender Specification)

Annexure C2B (Turbine)

Sl. No.	TCM Reference	Tender Spec. Ref. (Vol / Sec/ Cl No.)	Description as in Specification	Description To be read as
	S.No 140	IX / Annexure II / Clause 2.07.01 , 2.07.02	Automatically controlled torque tube expander complete with mandrel and one spare set of rollers for each tube size 2.07.02 : Tube cutting tool	bar 2.07.02 : Deleted
18.	BHEL / S.No 228	Vol-II-A / Sec-X/ 2.11.00 & Sec-B / Vol-IB / Sec-9-PG/ 9.2.11	After the conductance of Performance test, the Bidder shall submit the test evaluation report of Performance test results to Owner/Consultant promptly but not later than one month from the date of conductance of Performance test. Preliminary test reports shall be submitted to the Owner/Consultant after completing each test run. Four (4) hard copies	After the conductance of Performance test, the Bidder shall submit the test evaluation report of Performance test results to Owner/Consultant promptly but not later than one month from the date of conductance of Performance test. The data of each test run shall be submitted to the Owner/Consultant after completing each test run. Four (4) hard copies
19.	BHEL / S.No 476,477,478 L&T / Annex-5 / S.No 320 - 323	Vol II A/ Section X / Cl. 4.03.48 Section B / Vol. I-B/Section-9 /cl. 9.4.3.48	.....Bidder shall demonstrate Unit Auxiliary Power Consumption at 55 % TMCR in KW less than or equal to APCUL@55%, as quoted by the bidder, which is defined as below: $APCUL@55\% (kW) = (APCU@100\% * 0.55) + 5280$ Where, $APCU@100\% (kW) - \text{Unit Auxiliary Power Consumption at } 100\% \text{ TMCR as quoted by the bidder for Category - I Guarantee}$	.....Bidder shall demonstrate Unit Auxiliary Power Consumption at 55 % TMCR in KW less than or equal to APCUL@55%, as quoted by the bidder, which is defined as below: $APCUL@55\% (kW) = (APCU@100\% * 0.55) + 9000$ Where, $APCU@100\% (kW) - \text{Unit Auxiliary Power Consumption at } 100\% \text{ TMCR as quoted by the bidder for Category - I}$

Change in specification (Section B of Tender Specification)

Annexure C2B (Turbine)

Sl. No.	TCM Reference	Tender Spec. Ref. (Vol / Sec/ Cl No.)	Description as in Specification	Description To be read as
			APCUL@55% (kW) - Maximum allowable limit for quoting Unit Auxiliary Power Consumption at 55 % TMCR by the bidder.	Guarantee APCUL@55% (kW) - Maximum allowable limit for quoting Unit Auxiliary Power Consumption at 55 % TMCR by the bidder.
20.	L&T / Annex-5 / S.No 315	Vol-II-A / Sec-X/ 5.01.00 & Sec B / Vol-IB / Sec-9-PG/ 9.5.1	<p>38) Any other continuous / intermittent equipment</p> <p>Note:</p> <p>While guaranteeing the auxiliary power consumption the bidder shall necessarily include:</p> <p>i) Power consumption of any other continuous operating auxiliaries for unit operation at guarantee point.</p> <p>ii) Power consumption of any other intermittently operating auxiliaries for unit operation at guarantee point.</p> <p>iii) Bidder shall ensure that</p> <p>If any equipment connected to station supply is required for unit running, it shall be measured separately and added to the unit auxiliary power consumption.</p>	<p>38) Any other continuous operating equipment</p> <p>Note:</p> <p>While guaranteeing the auxiliary power consumption the bidder shall necessarily include:</p> <p>i) Power consumption of any other continuous operating auxiliaries for unit operation at guarantee point.</p> <p>ii) Deleted</p> <p>iii) Bidder shall ensure that</p> <p>In case of any intermittent equipment other than those listed in the specification are operating during PG test, suitable measurement and deduction shall be made for such equipment.</p> <p>If any equipment connected to station supply is required for unit running, it shall be measured</p>

Change in specification (Section B of Tender Specification)

Annexure C2B (Turbine)

Sl. No.	TCM Reference	Tender Spec. Ref. (Vol / Sec/ Cl No.)	Description as in Specification	Description To be read as
				separately and added to the unit auxiliary power consumption.
21.	BHEL / S.No 229 L&T / Annex-4 / S.No 262	Vol-II-A / Sec-X/ 6.01.02 & Sec B / Vol-IB / Sec-9-PG/ 9.6.1.2	<p>Applicable corrections for Heat Rate, Output and Condenser Pressure</p> <p>i) Corrections Applicable for Turbine Cycle Heat rate & Turbine Generator Output Tests</p> <p>(a) Variation in Condenser back pressure for main condenser</p> <p>(b) Change in system water storage.</p> <p>(c) Variation in power factor.</p> <p>(d) Variation in Frequency</p> <p>(e) Variation in Voltage</p> <p>Above correction curves shall be provided for following cases:</p> <ul style="list-style-type: none"> ➤ 105% of TMCR for Output Guarantee ➤ 105% of TMCR for Heat Rate Guarantee ➤ 100% of TMCR for Heat Rate Guarantee ➤ 55% of TMCR for Heat Rate Guarantee <p>ii) Corrections Applicable for Condenser pressure Guarantee</p> <p>a) Variation in CW temperature</p> <p>It may be noted that the heat balance diagrams and guarantees shall be furnished considering the quantities</p>	<p>Applicable corrections for Heat Rate, Output and Condenser Pressure</p> <p>i) Corrections Applicable for Turbine Cycle Heat rate & Turbine Generator Output Tests</p> <p>(a) Variation in Main Steam Pressure</p> <p>(b) Variation in Main Steam Temperature</p> <p>(c) Variation in Reheat Steam Temperature</p> <p>(d) Variation in Condenser back pressure for main condenser</p> <p>(e) Change in system water storage (or make up water quantity).</p> <p>(f) Variation in reheater spray quantity , if applicable, due to change in reheater spray quantity with respect to coal properties</p> <p>(g) Variation in power factor.</p> <p>(h) Variation in Frequency</p> <p>(i) Variation in Voltage</p> <p>Above correction curves shall be provided for following cases:</p> <ul style="list-style-type: none"> ➤ 105% of TMCR for Output Guarantee ➤ 105% of TMCR for Heat Rate Guarantee ➤ 100% of TMCR for Heat Rate Guarantee ➤ 55% of TMCR for Heat Rate Guarantee

Change in specification (Section B of Tender Specification)

Annexure C2B (Turbine)

Sl. No.	TCM Reference	Tender Spec. Ref. (Vol / Sec/ CI No.)	Description as in Specification	Description To be read as
			of water for reheater sprays. During Performance Guarantee Testing in case the reheater spray quantity used are at variance from the values used in the heat balance diagrams, the actual values will be used for calculation of heat rate and no correction shall be allowed.	<p>The heat balance diagrams and guarantees shall be furnished considering the quantities of water for reheater sprays with any mill combination in service to the Purchaser's choice. For reheater, the spray quantities used shall not exceed the limits specified elsewhere in the specification. During Performance Guarantee Testing in case the spray quantity used are at variance from the values used in the heat balance diagrams, the actual values will be used for calculation of heat rate and no correction shall be allowed.</p> <p>However, correction on account of variation in Reheater spray quantities with respect to values used for the purpose of turbine cycle heat rate values shall be permitted only to the extent that such variations are solely attributable to the change in coal properties with respect to those specified for the design coal.</p> <p>ii) Corrections Applicable for Condenser pressure Guarantee</p> <p>a) Variation in CW temperature</p>
22.	L&T / Annex-13 / S.No 909	Vol IIA/Sec XIV / CI 4.00.00	ii) Class II items : M)	Deleted

Change in specification (Section B of Tender Specification)

Annexure C2B (Turbine)

Sl. No.	TCM Reference	Tender Spec. Ref. (Vol / Sec/ Cl No.)	Description as in Specification				Description To be read as
			9	Welding electrode (For Pr. Parts)	2.01.02 (a)		
			10	Welding electrode (For Non Pr. Parts other than Civil structures)	2.01.02 (b)		
23.	BHEL / S.No 212 L&T / Annex-5 / S.No 317	Vol-II-C / Sec-I/ 3.01.02	... Power operated (Hydraulic/pneumatic) quick closing non-turn valves and ordinary non-return valves for each extraction line (except for heater(s) located in condenser neck) including steam lines feeding to BFP turbine drives and cold reheat line as per ASME-TDP-1.				... Power operated (Hydraulic/pneumatic) quick closing non-turn valves and ordinary non-return valves for each extraction line as per clause 6.10.04 of this section and the tender drawings.
24.	L&T / Annex-4 / S.No 244	Vol-II-C / Sec-I/ 3.01.13	DC solenoid operated vacuum breaker valve with air lock relay and with provision for remote operation.				DC operated vacuum breaker valve with provision for remote operation.
25.	L&T / Annex-4 / S.No 246	Vol-II-C / Sec-I/ 4.09.00	...The radiated sound level of the turbine generator train shall not exceed 90 dB (A) when measured at a distance of 1.0 metre in plan from the outline of the turbine generator at the shaft centreline elevation at any load considering the background noise of the other machine and auxiliaries....				...The radiated sound level of the turbine generator train shall not exceed 90 dB (A) when measured at a distance of 1.0 metre in plan from the outline of the turbine generator at a height of 1.5 m above floor level in elevation considering the background noise of the other machine and auxiliaries
26.	L&T / Annex-4 / S.No 247	Vol-II-C / Sec-I/ 5.02.00	The turbine generator shall be guaranteed to operate satisfactorily on loss of full export load without damage to the machine.				The turbine generator shall be guaranteed to operate safely at House Load on loss of full export load without damage to the machine, for an expected period of around one hour.
27.	BHEL / S.No 202	Vol II C/ Section I / Clause	...The rotor shall be heat stabilized after machining as				...The rotor shall be heat stabilized as per ASTM -A-472, or approved equivalent standards as per

Change in specification (Section B of Tender Specification)

Annexure C2B (Turbine)

Sl. No.	TCM Reference	Tender Spec. Ref. (Vol / Sec/ Cl No.)	Description as in Specification	Description To be read as
		6.02.01	per, ASTM -A-472, or approved equivalent standards....	OEM standard practice....
28.	BHEL / S.No 207	Vol-II-C / Sec-I/ 6.02.03	The critical speed of the combined turbine and generator rotor shall not lie within (-) 10% and (+)15% of the operating speed of 3000 rpm and at specified soaking speed.	The critical speed of the combined turbine and generator rotor shall not lie within the over speed limit of the turbine (of minimum +10% of operating speed) and (-)10% of the operating speed of 3000 rpm and at the soaking speed.
29.	L&T / Annex-4 / S.No 254	Vol-II-C / Sec-I/ 6.06.01	... All main bearings shall be lined with tin base babbit and the lining shall be properly secured to the bearing shell ...	... All main bearings shall be lined with tin base babbit or equivalent material as per OEM proven practice and the lining shall be properly secured to the bearing shell ...
30.	BHEL / S.No 209 L&T / S.No.552	Vol-II-C / Sec-I/ 6.10.01 (a)	... The valves shall specifically include the following features: a) Devices to trip the generator and close all non-return and isolating valves on the extraction lines, when these stop valves are closed. b) Mechanical position indicator to show valve open/close/travel and signal switches to indicate valve position (open or close). These signal lamps shall be mounted on valve testing panels and shall also be duplicated in the DDCMIS.	... The valves shall specifically include the following features: a) System / Provision to trip the generator and close all non-return and isolating valves on the extraction lines, when these stop valves are closed. b) Mechanical position indicator to show valve open/close/travel and signal switches to indicate valve position (open or close). These positions of the valve shall be displayed in the DDCMIS.
31.	BHEL / S.No 213	Vol-II-C / Sec-I/ 6.10.04 (b) & (c)	b) ... They shall be suitable for on load testing individually.... c) NRVs shall be suitable for on load testing individually and shall be provided with fail safe design and shall close on loss of power. The valves shall be full bore type designed for minimum pressure drop....	b) ... Provision for online testing of QCNRV as per OEM proven practice shall be ensured c) The valves shall be full bore type designed for minimum pressure drop....

Change in specification (Section B of Tender Specification)

Annexure C2B (Turbine)

Sl. No.	TCM Reference	Tender Spec. Ref. (Vol / Sec/ Cl No.)	Description as in Specification	Description To be read as
32.	BHEL / S.No 214	Vol-II-C / Sec-I/ 6.11.00	Vacuum Breaker To bring the turbine rotor from full rated speed to rest as quickly as possible whenever required, necessary DC operated vacuum breaker with silencer, permitting the rapid reduction of vacuum in condenser, shall be included. Provision shall be made for remote operation of vacuum breakers.	Vacuum Breaker To bring the turbine rotor from full rated speed to rest as quickly as possible whenever required, necessary DC operated vacuum breaker permitting the rapid reduction of vacuum in condenser, shall be provided. A safety mesh shall be provided at the suction side of the valve. Provision shall be made for remote operation of vacuum breakers.
33.	BHEL / S.No 219, 220 L&T / Annex-4 / S.No 258,259	Vol-II-C / Sec-I/ 6.13.02 / Control Fluid System	a) 2 x 100% A.C. motor driven Control Fluid pumps mounted vertically in Fire resistant control fluid tank supplying oil, for control function [viz. servomotors/ actuators of control valves or for the operation of protective devices for TG set. ... (d) Ensure surfaces of reservoir in contact with fluid to be stainless steel, with 2x100% vapour extraction fans (if required) along with access ladders, platforms, railings and manholes with covers on reservoir etc (g) Duplex filters at downstream of all pumps having mesh size as per Bidder's standard practice ...	a) 2 x 100% A.C. motor driven Control Fluid pumps connected to control oil tank and supplying oil for control function viz. servomotors/ actuators of control valves or for the operation of protective devices for TG set. ... (d) Ensure surfaces of reservoir in contact with fluid to be stainless steel, with 2x100% vapour extraction fans (if required). Access ladders, platforms, railings and manholes with covers on reservoir etc., applicable as per the sizing and design of the tank shall be provided ... (g) Filters at downstream of all pumps having mesh size as per Bidder's standard practice
34.	BHEL / S.No 235	Vol-II-C / Sec-I/ 6.13.05	.. Piping & all other components of the system coming in contact with oil shall be stainless steel. All the parts of lube oil coolers (tubular or plate type) which are coming	... All piping, fittings, valves, complete strainers including body and element shall be of stainless steel. Further all the parts of lube oil coolers

Change in specification (Section B of Tender Specification)

Annexure C2B (Turbine)

Sl. No.	TCM Reference	Tender Spec. Ref. (Vol / Sec/ Cl No.)	Description as in Specification	Description To be read as
			in contact of lube oil shall be of stainless steel.	(tubular or plate type) which are coming in contact of lube oil shall be of stainless steel. Main oil tank, oil pumps shall and other components of the system coming in contact with oil be of compatible material as per bidder's proven practice.
35.	BHEL / S.No 222	Vol-II-C / Sec-I/ 6.15.07	.... All the piping, fittings, valves, oil tanks, strainers including body and element associated with oil system of HP & LP bypass system shall be of stainless steel. Oil readily available in Indian market shall be used in oil unit of bypass station....	.... All the piping, fittings, valves, oil tanks, strainers including body and element associated with oil system of HP & LP bypass system shall be of stainless steel. The Oil supplied shall be from a field proven sub supplier. Oil readily available in Indian market shall preferably be used in oil unit of bypass station
36.	BHEL / S.No 142 L&T / Annex-5 / S.No 302	Vol II C/ Section II / Clause 5.02.01	The water box for the high pressure heaters shall be of forged construction and welded to the shell. The low-pressure heaters	The water box for the high pressure heaters shall be of forged construction / dished end made by forming from plate with material of SA 516 Gr.70 and welded to the shell. The low-pressure heaters
37.	BHEL / S.No 143	Vol II C/ Section II / Clause 5.02.07	Insulation cleats shall be provided on shell and water box.	Insulation cleats shall be provided on shell and water box, which shall be welded either at shop / site.
38.	BHEL / S.No 144	Vol II C/ Section II / Clause 6.01.02	...The terminal temperature difference shall be zero at all load conditions....	...The terminal temperature difference shall be within 2 deg.F of the saturation temperature of the steam in the deaerator at operating pressure at all load conditions.....
39.	L&T / Annex-5 / S.No 304	Vol-II-C / Sec-II/ Cl. 7.03.00	ii) Heat exchanger tubes and water boxes will be tested by one of the following methods for cracks, imperfections etc.	ii) Heat exchanger water boxes will be tested by one of the following methods for cracks, imperfections etc.

Change in specification (Section B of Tender Specification)

Annexure C2B (Turbine)

Sl. No.	TCM Reference	Tender Spec. Ref. (Vol / Sec/ Cl No.)	Description as in Specification	Description To be read as
			a) Black light b) Magnetic particles c) Dye penetrant	a) Black light b) Magnetic particles c) Dye penetrant In case of tubes, at least 3 smallest U bend portions of tubes shall be Dye penetrant tested.
40.	L&T / Annex-5 / S.No 327	Vol-II-C / Sec-III/ Cl. 4.03.07	Rating of the motor shall be selected with at least 10% margin over the maximum power required within the range of operation.	Motor Rating : For MDBFP: The maximum continuous motor rating corresponding to maximum cooling water temperature to cooler inlet shall not be less than the following without overloading the motor: i. 10% margin over power requirement at design point as per specification at 50 Hz. ii. Maximum power demand of driven equipment under all conditions of operation as per specification with frequency variation from 48.5 Hz to 51.5 Hz. For CEP & Drip Pump: Motor Rating at 50 deg C ambient temperature shall not be less than 10% margin over maximum power demand of driven equipment under all conditions of operation as per specification with frequency variation from

Change in specification (Section B of Tender Specification)

Annexure C2B (Turbine)

Sl. No.	TCM Reference	Tender Spec. Ref. (Vol / Sec/ Cl No.)	Description as in Specification	Description To be read as
				48.5 Hz to 51.5 Hz and the motor shall not be overloaded during any mode of operation of the driven equipment.
41.	BHEL / S.No 167	Vol II C/ Section III / Clause 5.10.03	A flow measuring arrangement shall be provided in the balancing leak off line to monitor the condition of wear in balancing device.	A flow measuring arrangement, if applicable as per OEM design , shall be provided in the balancing leak off line to monitor the condition of wear in balancing device.
42.	BHEL / S.No 147	Vol II C/ Section III / Clause 5.18.03	a) One no. Main oil pump, AC motor driven, with submerged suction b) One no. full capacity auxiliary oil pump, ac motor-driven, with sub-merged suction..... . . . j) One no. emergency bearing oil pump, DC motor-driven, submerged suction type ...	a) One no. Main oil pump, AC motor driven, with submerged / flooded suction b) One no. full capacity auxiliary oil pump, ac motor-driven, with sub-merged / flooded suction j) One no. emergency bearing oil pump, DC motor-driven, submerged / flooded suction type...
43.	BHEL / S.No 157	Vol II C/ Section III / Clause 5.18.05	j) Exhaust relief diaphragm and rupture disc.	j) Exhaust relief diaphragm and rupture disc, if required as per OEM / System design .
44.	BHEL / S.No 159	Vol II C/ Section III / Clause 5.18.08	i) Complete insulation and lagging for the auxiliary turbine, steam admission and exhaust pipes and gland seal piping shall be provided by the Bidder as per proven OEM practice. Permanent metal covering heat insulation shall be provided. Proper thickness...	i) Complete insulation and lagging for the auxiliary turbine, steam admission and exhaust pipes and gland seal piping shall be provided by the Bidder as per proven OEM practice. Proper thickness...
45.	BHEL / S.No 173,176,177,226	Vol IIC / Section III / 8.03.00 Vol IIC / Section	Contractor may conduct the type test and/ or produce type test report Such report will be acceptable only if the test is conducted within the last 5 years as on the	Contractor may conduct the type test and/ or produce type test report Such report will be acceptable only if the test is conducted within the

Change in specification (Section B of Tender Specification)

Annexure C2B (Turbine)

Sl. No.	TCM Reference	Tender Spec. Ref. (Vol / Sec/ Cl No.)	Description as in Specification	Description To be read as
		III / Annexure IV / Note 5 Vol II D1 / Section I / 7.05.00	date of issue of LOA.	last 5 years as on the date of price bid submission.
46.	L&T / Annex-5 / S.No 282	Vol-II-C / Sec– IV/ Cl. 3.01.02	Air-extraction systems shall be as follows : Two (2) nos. 100% capacity, single stage / two stage liquid ring type design mechanical vacuum pumps for each condenser/shell of which one will operate continuously and both will be operated during start-up to create initial vacuum within 25 minutes time.	Air-extraction systems shall be as follows : Two (2) nos. 100% capacity, single stage / two stage liquid ring type design mechanical vacuum pumps for each condenser/shell of which one will operate continuously and both will be operated during start-up to create initial vacuum within 30 minutes time as per HEI.
		Vol-II-C / Sec– IV/ Cl. 5.02.01	...Besides, the pump capacity shall also be such that at starting, with both pumps working in parallel, it is possible to create within 25 minutes sufficient vacuum in the condenser suitable for raising the steam turbine to its full speed....	...Besides, the pump capacity shall also be such that at starting, with both pumps working in parallel, it is possible to create within 30 minutes sufficient vacuum in the condenser suitable for raising the steam turbine to its full speed....
47.	BHEL / S.No 244	Vol:II-C/Section IV/5.01.03	... Metallic (SS), thin walled inserts or shields are to be inserted and then expanded, either mechanically, hydraulically or by a combination of the two, into the tube ends of the condenser to eradicate tube end erosion and corrosion while the condenser is in service. This metallic (SS) end shields can restore tube to tube sheet joint strength effectively. ...	... The Condenser tubes shall be secured with the tube sheet as per the OEM proven practice, ensuring tube to tube sheet joint strength and eliminating tube end erosion and corrosion while the condenser is in service. ...
48.	L&T /	Vol-II-C / Sec–	Each unit shall be complete with liquid ring vacuum	Each unit shall be complete with liquid ring vacuum

Change in specification (Section B of Tender Specification)

Annexure C2B (Turbine)

Sl. No.	TCM Reference	Tender Spec. Ref. (Vol / Sec/ Cl No.)	Description as in Specification	Description To be read as
	Annex-5 / S.No 281	IV/ Cl. 5.02.06	pump, drive motor, flexible coupling and coupling guards, heat exchanger for seal water cooling, seal water recirculation pumps, air ejector, rotameters for discharge air measurement, and other necessary instrumentation, control and wiring. The entire unit shall be mounted on a common steel base frame.	pump, drive motor, flexible coupling and coupling guards, heat exchanger for seal water cooling, seal water recirculation pumps, air ejector (if applicable), rotameters for discharge air measurement, and other necessary instrumentation, control and wiring. The entire unit shall be mounted on a common steel base frame.
49.	L&T / Annex-5 / S.No 290	Vol-II-C / Sec– IV/ Cl. 7.02.00	vi) Hydrostatic testing of condenser steam space shall be carried out after connecting all the pipes with the condenser along with condenser vacuum systems by filling the steam space with water up to the tip of the last stages of blades of LP cylinder.	vi) Hydrostatic testing of condenser steam space shall be carried out after connecting all the pipes with the condenser along with condenser vacuum systems by filling the steam space with water up to 300 mm above final joint of condenser exhaust neck to turbine.
50.	BHEL / S.No 242	Vol:II-C/Section IV/7.02.00(vii)	vii) Condenser water boxes shall be tested hydraulically at a minimum test pressure of 1.5 times the design pressure.	vii) Condenser Water Box shall be tested hydraulically at a minimum test Pressure of 1.3 times the design Pressure.
	L&T / Annex-5 / S.No 298	Vol:II-C/Section IV/Annexure I / 1.07.00	Water box test pressure : 1.5 times the design pressure	Water box test pressure : 1.3 times the design pressure
51.	L&T / Annex-13 / S.No 909	Vol-II D1/ Sec-I/Cl. 6.07.05	All special welding electrodes and filler wires to be supplied and used for the work under this specification shall be of reputed make, approved/tested quality with valid test certificate and shall have proven performance record for similar application. Approval of the Owner as well as IBR should be sought in selection of the electrodes for specific uses.	All special welding electrodes and filler wires to be supplied and used for the work under this specification shall meet the requirement of IBR.

Change in specification (Section B of Tender Specification)

Annexure C2B (Turbine)

Sl. No.	TCM Reference	Tender Spec. Ref. (Vol / Sec/ Cl No.)	Description as in Specification	Description To be read as
52.	L&T / Annex-13 / S.No 911	Vol-II D1/ Sec-I/Cl. 7.08.03	The Bidder shall carryout radiography tests of all field-welded joints coming under IBR the acceptability standard of which shall be as per IBR (latest revision)....	The Bidder shall carryout radiography tests / UT / PAUT of all field-welded joints coming under IBR the acceptability standard of which shall be as per IBR (latest revision)....
53.	BHEL / S.No 236	Vol-II-D1 / Sec-I/ Annexure 1	1. Main Steam lines including OLV piping : From Superheater outlet up to inlet of HP Turbine stop valve	1. Main Steam lines : From Superheater outlet up to inlet of HP Turbine stop valve
54.	L&T / Annex-13 / S.No 898	Vol-II D2/ Sec-I/Cl. 8.01.02	All the longitudinal and circumferential welded seams shall be subjected to chalk and kerosene test prior to hydraulic testing...	All the longitudinal and circumferential welded seams shall be subjected to chalk and kerosene test / penetrant test prior to hydraulic testing...
55.	L&T / Annex-12 / S.No 730	VOLUME: II IA /SECTION-I/ 4.01.03	The design flow rate of Auxiliary Cooling Water (ACW) in ACW system for each unit shall be decided a minimum of 10 percent margin over and above the total required ACW flow rate in all the operating Plate type Heat Exchanger (PHE) plus ACW flow for common station Auxiliaries.	The design flow rate of Auxiliary Cooling Water (ACW) in ACW system for each unit shall be decided a minimum of 5 percent margin over and above the total required ACW flow rate in all the operating Plate type Heat Exchanger (PHE) plus ACW flow for common station Auxiliaries.

Change in specification (Section B of Tender Specification)

Annexure C2B (Turbine)

Sl. No.	TCM Reference	Tender Spec. Ref. (Vol / Sec/ Cl No.)	Description as in Specification	Description To be read as
56.	L&T / Annex-12 / S.No 735 & 738	VOLUME: II-IA /SECTION-I/ 4.02.01	<p>The required flow in this system shall be based on the requirement of each individual connected cooler in this system with respect to flow and terminal temperature rise as encountered during maximum possible thermal load conditions. Bidder shall list out the required flow and terminal temperature rise of each cooler and the number of individual equipment coolers (operating/standby) for each BTG unit compressed air system for main plant and DG set in his Bid proposal. The total required flow and heat load shall be computed by the Bidder by summing up the requirement of flow and heat load respectively for each of the operating individual coolers of TG and Boiler Island , compressed air system for main plant ,compressed air system of ash handling plant, equipments of FGD system (with booster pump required if any) etc. and DG set for each 800 MW unit. A minimum of 10 percent margin shall be considered over and above the total heat load to compute the design heat load and design DMCW flow in the closed circuit for each 800 MW unit.</p> <p>In computing the design heat load and design DMCW flow in individual DMCW system, Bidder shall ensure that the average temperature rise of DMCW is limited to ACW temperature rise under all circumstances.</p>	<p>The total required flow in this system shall be based on the requirement of each individual connected cooler in this system under maximum possible thermal load conditions. Bidder shall list out the required flow and terminal temperature rise of each cooler and the number of individual equipment coolers (operating/standby) for each BTG unit, compressed air system for main plant and DG set in his Bid proposal. The total required heat load shall be computed by the Bidder by summing up the requirement of heat load for each of the operating individual coolers of TG and Boiler Island, compressed air system for main plant, compressed air system of ash handling plant, equipments of FGD system (with booster pump required if any) etc. and DG set for each 800 MW unit. A minimum of 5 percent margin shall be considered over and above the total heat load and total flow to compute the design heat load and design DMCW flow respectively in the closed circuit for each 800 MW unit.</p>

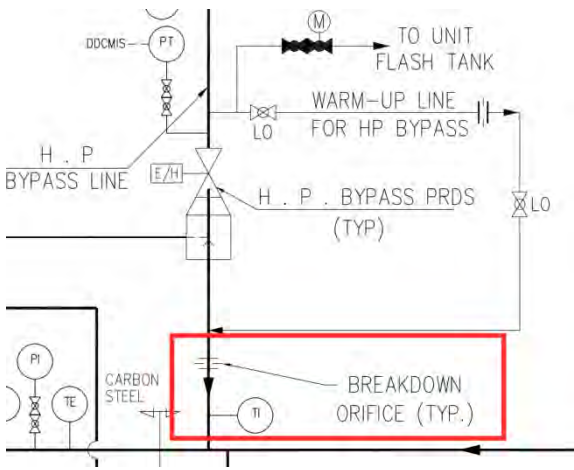
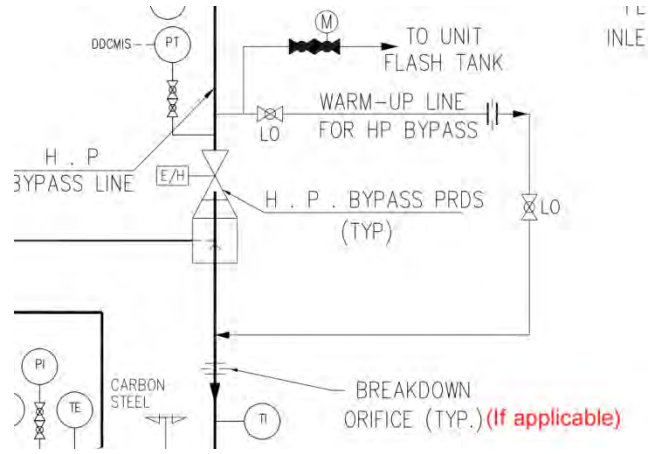
Change in specification (Section B of Tender Specification)

Annexure C2B (Turbine)

Sl. No.	TCM Reference	Tender Spec. Ref. (Vol / Sec/ Cl No.)	Description as in Specification	Description To be read as
57.	L&T / Annex-12 / S.No 736	VOLUME: II IA /SECTION-I/ 4.02.02	<p>The sizing of DMCW pumps for this system shall consider the design criteria as specified below:</p> <p>a) Capacity : Design DMCW flow as computed in Clause No. 4.02.01 above with 10% margin.</p>	<p>The sizing of DMCW pumps for this system shall consider the design criteria as specified below:</p> <p>a) Capacity : Design DMCW flow as computed in Clause No. 4.02.01 above with additional 5% margin.</p>
58.	L&T / Annex-12 / S.No 738	VOLUME: II IA /SECTION-V/ 4.04.00 b)	<p>a) Heat Load</p> <p>The required heat load shall be computed by obtaining the summation of the maximum permissible heat loads encountered in the respective operating coolers of Boiler and Turbine islands for each 800 MW unit, and BOP equipment which shall be cooled by DMCW system. A minimum of 10 percent margin over and above the total required heat load as obtained above shall be taken into account by the Bidder to work out the design heat load rejected by DMCW system for each 800 MW unit, BOP equipment and to be picked up by ACW system for the same.</p> <p>b) Flow</p> <p>Design DMCW flow rate shall be computed by obtaining the summation of the required flow rates to each individual operating coolers cooled by DMCW system under maximum permissible thermal load conditions for each 800 MW unit. The design DMCW flow rate shall be equally shared by the operating plate heat exchangers.</p> <p>The design flow rate in the clarified water (ACW) side of</p>	<p>a) Heat Load</p> <p>The design heat load rejected by DMCW system for each 800 MW unit and common system / equipment and to be picked up by ACW system shall be computed as per Clause 4.02.01, Section I, Vol II-IA.</p> <p>b) Flow</p> <p>Design DMCW flow rate for PHE design shall be computed as per Clause 4.02.01, Section I, Vol II-IA. The design DMCW flow rate shall be equally shared by the operating plate heat exchangers.</p> <p>The design flow rate in the clarified water (ACW) side of the operating plate heat exchangers for each unit shall be equal to the total required ACW flow rate in all the operating Plate type Heat Exchanger (PHE) plus ACW flow for common station Auxiliaries under design heat load. The design ACW flow rate shall be equally shared by the</p>

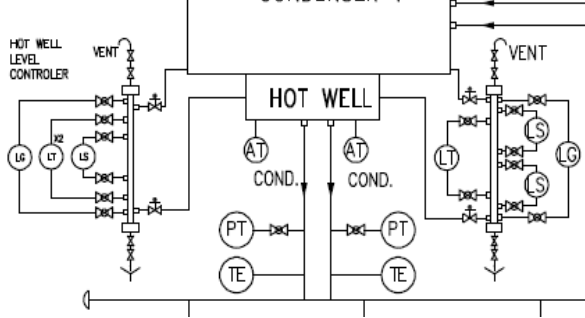
Change in specification (Section B of Tender Specification)

Annexure C2B (Turbine)

Sl. No.	TCM Reference	Tender Spec. Ref. (Vol / Sec/ CI No.)	Description as in Specification	Description To be read as
			the operating plate heat exchangers for each unit shall be considered same as the design DMCW flow rate. The design ACW flow rate shall be equally shared by the operating plate heat exchangers.	operating plate heat exchangers.
59.	L&T / Annex-5 / S.No 314	18A03-DWG-M-001A Flow scheme for MS, CRH, HRH & HP-LP bypass system	Break down Orifice in HP Bypass valve Downstream Piping :  <p>The diagram shows a piping system for the HP bypass. It includes a DDCMIS PT, a warm-up line for the HP bypass, and an H.P. bypass PRDS (TYP). A breakdown orifice (TYP.) is highlighted in a red box. The system also includes a carbon steel section and a TI sensor.</p>	The Break Down Orifice in HP Bypass valve Downstream Piping shall be provided, if required as per the OEM design. The tender drawing will be modified as :  <p>The diagram shows a piping system for the HP bypass, similar to the one in the specification. It includes a DDCMIS PT, a warm-up line for the HP bypass, and an H.P. bypass PRDS (TYP). A breakdown orifice (TYP.) is highlighted in a red box. The system also includes a carbon steel section and a TI sensor. The text "(If applicable)" is added in red next to the breakdown orifice label.</p>

Change in specification (Section B of Tender Specification)

Annexure C2B (Turbine)

Sl. No.	TCM Reference	Tender Spec. Ref. (Vol / Sec/ CI No.)	Description as in Specification	Description To be read as
60.	L&T / Annex-5 / S.No 283	18A03-DWG-M-001B Flow diagram for power cycle system (Condensate)		<p>Following new note added in the Tender P&ID:</p> <p>14. Suction pipe arrangement from condenser hotwell and level measurement and conductivity analysers as per bidder's standard and proven practice is also acceptable.</p>
61.	L&T / Annex-5 / S.No 307	18A03-DWG-M-001C Flow Diagram Power cycle system (Feed Water)	Notes:	<p>Following new note added in the Tender P&ID:</p> <p>15. Tapping for HP Bypass Spray has been shown downstream of HP Heaters. However, Bidder may take this tapping upstream of HP Heaters as per their Standard Practice</p>
62.	L&T / Annex-5 / S.No 306	18A03-DWG-M-001D Flow diagram for extraction steam system and heater drain & vents system	NRVs in the Extraction line to BFPT from IP Turbine.	The ordinary NRV in the common extraction line to BFPTs A & B between the motorized isolation valve and the QCNRV at Grid C6 of the Tender drawing is deleted.

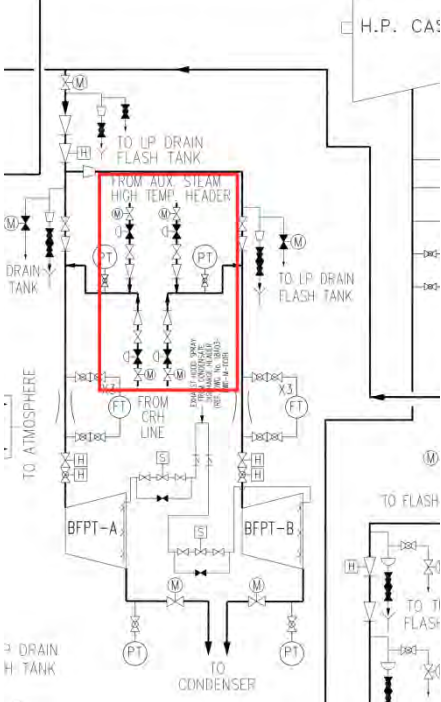
Change in specification (Section B of Tender Specification)

Annexure C2B (Turbine)

Sl. No.	TCM Reference	Tender Spec. Ref. (Vol / Sec/ CI No.)	Description as in Specification	Description To be read as
63.	L&T / Annex-5 / S.No 308	18A03-DWG-M-001D Flow diagram for extraction steam system and heater drain & vents system	Control Valve in steam supply line to BFPT from auxiliary steam header and CRH line :	Following new note added in the Tender P&ID: 13. Alternatively, common control valve for steam supply line to each BFPT from auxiliary steam header and CRH line as per Bidder's standard practice shall also be acceptable.

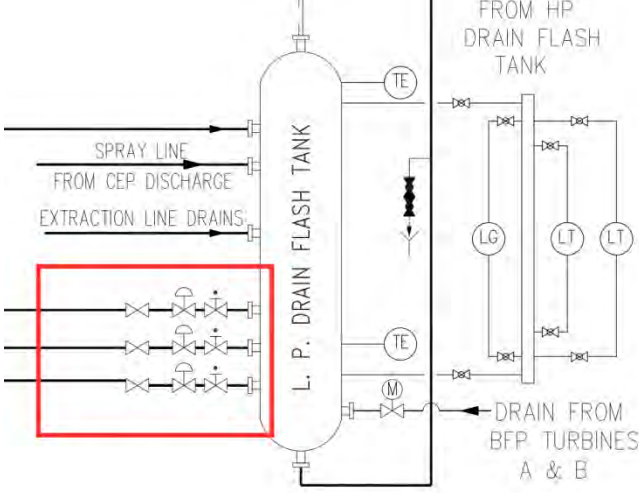
Change in specification (Section B of Tender Specification)

Annexure C2B (Turbine)

Sl. No.	TCM Reference	Tender Spec. Ref. (Vol / Sec/ Cl No.)	Description as in Specification	Description To be read as
				
64.	L&T / Annex-5 / S.No 309	18A03-DWG-M-001D Flow diagram for extraction steam system and heater drain & vents system	Connection of LPH Emergency Drains to Condenser through Flash Tanks:	Following new note added in the Tender P&ID: 14. Alternatively, LPH emergency drains can be connected directly to condenser with suitable design provisions, as per the OEM Standard and proven design.

Change in specification (Section B of Tender Specification)

Annexure C2B (Turbine)

Sl. No.	TCM Reference	Tender Spec. Ref. (Vol / Sec/ CI No.)	Description as in Specification	Description To be read as
				

Change in specification (Section B of Tender Specification)

Annexure C2B (Turbine)

SI. No.	TPS II SE PBQ Ref	Tender Spec. Ref. (Vol / Sec/ CI No.)	Description as in Specification	Description To be read as
65.	L&T/PBQ/ LOT 1/ STG/ S.No 3	VOLUME: II- A/SECTION-V/ 3.08.00 (b)	b) Sliding Pressure Operation from rated pressure down to 40% of rated pressure with as well as without any throttle reserve	b) Sliding Pressure Operation from 100% TMCR down to 40% TMCR with as well as without any throttle reserve
66.	L&T/PBQ/ LOT 2/ Mech BOP/ S.No 258	VOLUME: II- A/SECTION-V/Annexure II / 4.4	XV) All equipment operating maintenance platform including supporting structures such as grating platform in the oil equipment room, control fluid equipment room, valve room, Deaerator, Gland Steam Condenser, Flash tank and for other equipment supplied and erected by the Bidder.	All equipment operating maintenance platform including supporting structures such as grating platform in the oil equipment room (if applicable) , control fluid equipment room, valve room, Deaerator, Gland Steam Condenser, Flash tank and for other equipment supplied and erected by the Bidder.
67.	Nil	Vol-IIA/ Sec-IX/ Mandatory Spares/ Annexure I / 2.01.21 iii) to vi)	Quantity to be supplied for the package: 10% (to be rounded off to the next higher integer) of each type used in the system	Quantity to be supplied for the package: 10% (to be rounded off to the next higher integer) of each type used in the system for one unit.
68.	Nil	Vol-IIA/ Sec-IX/ Mandatory Spares/ Annexure I / 2.01.22 iii) , iv)	Quantity to be supplied for the package: 25% (to be rounded off to the next higher integer) of each type/size used in the system	Quantity to be supplied for the package: 25% (to be rounded off to the next higher integer) of each type/size used in the system for one unit (consisting of 1 or 2 LP turbines as per the design)
69.	Nil	Vol-IIA/ Sec-IX/ Mandatory Spares/ Annexure I / 2.15.02	Quantity to be supplied for the package: ii) Gaskets : 30% (Rounded off to the next higher	Quantity to be supplied for the package: ii) Gaskets : 30% (Rounded off to the next higher

Change in specification (Section B of Tender Specification)

Annexure C2B (Turbine)

Sl. No.	TPS II SE PBQ Ref	Tender Spec. Ref. (Vol / Sec/ CI No.)	Description as in Specification	Description To be read as
			integer) of total requirement of each type & size iii) Fasteners : 10% (Rounded off to the next higher integer) of each type used in the system	integer) of total requirement of each type & size used in the system for 1 unit iii) Fasteners : 10% (Rounded off to the next higher integer) of each type used in the system for 1 unit
70.	Nil	Vol-IIA/ Sec-IX/ Mandatory Spares/ Annexure I / 2.25.01	Quantity to be supplied for the package: i) Tube plugs : 25 Nos. (or 2%)	Quantity to be supplied for the package: i) Tube plugs: 100 Nos. of each type in one unit
71.	Nil	Vol-IIA/ Sec-IX/ Mandatory Spares/ Annexure I / 2.42.02	Quantity to be supplied for the package: Condenser On Load Tube Cleaning System Valve Complete Assembly : 10% (Rounded off to the next higher integer) of each type and size of total population or minimum 1(one) No. whichever is higher	Quantity to be supplied for the package: Condenser On Load Tube Cleaning System Valve Complete Assembly : 10% (Rounded off to the next higher integer) of each type and size of total population in one unit or minimum 1(one) No. whichever is higher
72.	Nil	Vol-IIA/ Sec-IX/ Mandatory Spares/ Annexure I / 2.46.01 iii) to xii)	Quantity to be supplied for the package: for each type of pump per unit	Quantity to be supplied for the package: for each type of pump.
73.	NIL	Vol-II-C / Sec-I/ 6.13.01	..The grade of oil to be used with complete specification for both control system and lube oil system shall be stated along with Bid...	..The grade of oil to be used with complete specification for both control system and lube oil system shall be stated along with Bid. The Oil supplied shall be from a field proven sub supplier. Fire resistant type control oil shall be free from “Trixylyl phosphate (TXP)” in the fluid composition.

Change in specification (Section B of Tender Specification)

Annexure C2B (Turbine)

SI. No.	TPS II SE PBQ Ref	Tender Spec. Ref. (Vol / Sec/ CI No.)	Description as in Specification	Description To be read as
74.	L&T/PBQ/ LOT 1/ STG/ S.No 1	VOLUME: II- C/SECTION-I/ 11.01.02	<p>h) 40% TMCR output under rated turbine throttle inlet steam conditions corresponding to sliding pressure operation (both pure & modified) at 77 mmHg (abs) condenser pressure with 0% & 1% make-up.</p> <p>....</p> <p>m) 40% TMCR output under rated turbine throttle inlet steam conditions corresponding to pure sliding pressure operation at 89 mmHg (abs) condenser pressure with 1% make-up.</p>	<p>h) 40% TMCR output with turbine throttle inlet steam conditions corresponding to sliding pressure operation (both pure & modified) at 77 mmHg (abs) condenser pressure with 0% & 1% make-up.</p> <p>....</p> <p>m) 40% TMCR output with turbine throttle inlet steam conditions corresponding to pure sliding pressure operation at 89 mmHg (abs) condenser pressure with 1% make-up.</p>
75.	<p>L&T/PBQ/ LOT 1/ STG/ S.No 13</p> <p>L&T/PBQ/ LOT 2/ STG/ S.No 644</p>	VOLUME: II- C/SECTION-I/ 11.01.04	<p>...Heat balances with 1% cycle make-up shall be computed with 1% of main steam flow tapped off from CRH line.....</p> <p>... Steam supply to deaerator shall be from IP-LP cross over/ cross around pipe or from a point as per optimised cycle of Bidder and the minimum deaerator pressure shall be 3.5 ata during low-load operation and HP-LP bypass operation. During cold startup the supply shall be from auxiliary steam header and deaerator pressure shall be maintained at 1.5 ata.</p> <p>Drive turbines of BFP shall get steam from IP-LP crossover/ cross around pipe or from a point as per optimised cycle of Bidder during normal operation and from CRH line at low loads (below 60% TMCR).</p>	<p>...Heat balances with 1% cycle make-up shall be computed with 1% of main steam flow tapped off from CRH line (Auxiliary steam requirement under normal operation shall be considered from this tap off)...</p> <p>.....Steam supply to deaerator shall be from IP-LP cross over/ cross around pipe or from a point as per optimised cycle of Bidder. Deaerator pressure during cold / warm / hot startup and during HP-LP bypass operation shall be decided by Bidder based on minimum Feed Water temperature required by Boiler at Economizer inlet as per Boiler OEM standard practice.</p> <p>Drive turbines of BFP shall get steam from IP-LP</p>

Change in specification (Section B of Tender Specification)

Annexure C2B (Turbine)

Sl. No.	TPS II SE PBQ Ref	Tender Spec. Ref. (Vol / Sec/ CI No.)	Description as in Specification	Description To be read as
				crossover/ cross around pipe or from a point as per optimised cycle of Bidder during operation of turbine from full load to 60% load or below. At lower loads the steam shall be tapped off from the CRH line.
76.	BHEL/PB Q/LOT 1/ Annexure-10/S.No 5 L&T / Lot I / PBQ_STG Mech / S.No 10	Vol. II C /Section-II/ANNEXURE-II/1.0	HP Heaters : Tubes: ASTM A 213 Gr TP 304 for seamless tubes without circumferential joint or ASTM A 688 Gr TP 304 for welded tubes.	HP Heaters: Tubes: ASTM A 213 Gr TP 304 / 304N for seamless tubes without circumferential joint or ASTM A 688 Gr TP 304 / 304N for welded tubes.
77.	BHEL/PB Q/LOT 2/ Annexure-2/ Condensate Polishing Unit / S.No 3	VOLUME: II-C/SECTION-VI/2.17.00	First fill of resins for all Condensate Polisher Mixed Beds (Service Vessels), mixed storage vessel (Regeneration area) and makeup resin hopper, One (1) spare charge of resins during commissioning and one (1) spare charge of resins as mandatory spare.....	First fill of resins for all Condensate Polisher Mixed Beds (Service Vessels), mixed storage vessel (Regeneration area) and makeup resin hopper and One (1) spare charge of resins during commissioning apart from the spare charge of resins to be supplied as mandatory spare as per Section IX/ Vol II A

Change in specification (Section B of Tender Specification)

Annexure C2B (Turbine)

Sl. No.	TPS II SE PBQ Ref	Tender Spec. Ref. (Vol / Sec/ CI No.)	Description as in Specification	Description To be read as
78.	BHEL/PB Q/LOT 2/ Annexure-2/ Condensate Polishing Unit / S.No 5	VOLUME: II-C/SECTION-VI/3.23.00	DM water, acid/alkali piping shall be Stainless Steel material to ASTM A 312 TP 304 for all sizes. All fittings shall be SS material.	DM water piping, fittings shall be of Stainless Steel ASTM A 312 TP 304 and Alkali piping, fittings shall be of Stainless Steel ASTM A 312 TP 316 for all sizes. Piping for Acid service shall be of MSRL/CPVC as per ASTM F441 (Sch.80).
79.	BHEL/PB Q/LOT 1/ Annexure-7/Water System / S.No 8	IIC/VII/ANNEXURE-I	2) c) Ball Collector i) Housing : Stainless Steel. ii) Internals : SS-317L	2) c) Ball Collector i) Housing : Stainless Steel. ii) Internals : SS-316 / SS- 317 L
80.	L&T/PBQ/ LOT 2/ Mech BOP/ S.No 271	VOLUME: II-D1 /SECTION-I/ 6.01.05	Pipes shall not be less than 20 mm bore unless authorized by the Owner/Consultant.	Pipes other than sampling lines shall not be less than 20 mm bore unless authorized by the Owner/Consultant.

Change in specification (Section B of Tender Specification)

Annexure C2B (Turbine)

Sl. No.	TPS II SE PBQ Ref	Tender Spec. Ref. (Vol / Sec/ CI No.)	Description as in Specification	Description To be read as
81.	L&T/PBQ/ LOT 2/ Mech BOP/ S.No 268	VOLUME: II-D1 /SECTION-I/ 6.04.11	All power cycle piping in Boiler and Turbine area including hot small bore piping shall be stress analyzed and shop fabricated.	All power cycle piping in Boiler and Turbine area of size 65 NB and above shall be stress analyzed and shop fabricated.
82.	L&T/PBQ/ LOT 2/ Mech BOP/ S.No 272	VOLUME: II-D1 /SECTION-I/ 6.12.01	q) For all sizes below 50 mm, socket welded end valves may be used.	For all sizes of 50 mm and below , socket welded end valves may be used.
83.	L&T/PBQ/ LOT 2/ Mech BOP/ S.No 273 & 274	VOLUME: II-D1 /SECTION-I/ 6.12.02 h)	<p>ii) ... The internal components of traps shall be of AISI-316 stainless steel construction. Material of construction of the body shall be selected by the Bidder based on the service conditions stipulated.</p> <ul style="list-style-type: none"> • All Y-type strainers, wherever provided with steam traps or otherwise, shall have AISI-316 stainless steel screen of not more than 20 mesh size. Screen open area 	<p>ii) ... The internal components of traps shall be of AISI-304 stainless steel construction. Material of construction of the body shall be selected by the Bidder based on the service conditions stipulated.</p> <ul style="list-style-type: none"> • All Y-type strainers, wherever provided with steam traps or otherwise, shall have AISI-304 stainless steel screen of not more than 20 mesh size. Screen open area ...

Change in specification (Section B of Tender Specification)

Annexure C2B (Turbine)

Sl. No.	TPS II SE PBQ Ref	Tender Spec. Ref. (Vol / Sec/ CI No.)	Description as in Specification	Description To be read as
84.	L&T/PBQ/ LOT 2/ Mech BOP/ S.No 282	VOLUME: II-D1 /SECTION-II/ 1.01.01	The thermal insulation shall be applied on the outer surface of equipment, piping, valves, fittings, having skin temperature more than 60°C, to conserve the thermal energy and also to maintain the outside surface temperature of the insulation below or at 60°C for personnel protection.	The thermal insulation shall be applied on the outer surface of equipment, piping, valves, fittings, having fluid temperature more than 60°C either on a continuous basis or occasionally , to conserve the thermal energy and also to maintain the outside surface temperature of the insulation below or at 60°C for personnel protection.
85.	BHEL/PB Q/LOT 1/ Annexure-7/Layout/ S.No 27	Vol II-D1/Sec-II Thermal Insulation / Cl. 4.13.00	Hexagonal wire mesh shall be conforming to following: Temperature Range Material Mesh size (a) Up to 400°C Galvanized Steel 10-13 mm aperture- 0.71 mm diameter ...	Hexagonal wire mesh shall be conforming to following: Temperature Range Material Mesh size (a) Up to 400°C Galvanized Steel 10-13 mm aperture- 24 SWG diameter ...
86.	BHEL/PB Q/LOT 1/ Annexure-7/Layout/ S.No 26	Vol II-D1/Sec-II Thermal Insulation Cl. 5.02.04	Where insulation is applied in two or more layers, each layer of mattress shall be backed with hexagonal wire mesh. For the first layer of insulation and in case of single layer insulation, hexagonal wire mesh shall be provided on both the surface of the mattress. For pipe sections, the sections shall be held in place by binding wires without any wire mesh.	Where insulation is applied in single or more layers, each layer of mattress shall be backed with hexagonal wire mesh. For pipe sections, the sections shall be held in place by binding wires without any wire mesh.

Change in specification (Section B of Tender Specification)

Annexure C2B (Turbine)

Sl. No.	TPS II SE PBQ Ref	Tender Spec. Ref. (Vol / Sec/ CI No.)	Description as in Specification	Description To be read as
87.	BHEL/PB Q/LOT 1/ Annexure-7/Layout/ S.No 23&25	Vol II-D1/Sec-II Thermal Insulation CI. 6.02.00	e) Alkalinity as percentage of Na ₂ O: Not exceeding 0.6% h) Settlement: Nil (When tested as per Cl. 21.1 & 21.2 of IS:3144)	e) Alkalinity : 7-10 pH h) Settlement: Nil (When tested as per Cl. 22 of IS:3144)

Change in specification (Section B of Tender Specification)

Annexure C2C (CHS)

Change in Speciation Points for Coal Handling System based on TCM resolution 3x800MW – NTPP-TALABIRA				
Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
1.	Annexure 2.1/BHEL/ ISG MECH. – CHP,LHP & GHP/401	Vol. II-H2 Coal Handling System / 5.36.03/Page 50 of 114	Operating speed of the pump shall not preferably be more than 1500 RPM	Operating speed of the pump shall not preferably be more than 1500 RPM (Except DFDS Pump) .
2.	Annexure 2.1/BHEL/ ISG MECH. - CHP,LHP & GHP/402	Vol. II-H2 Coal Handling System / 4.17.00/ Page 7 of 114	Required nos. of electrically operated flap gate of positioner type (for speed regulation) to be installed in various bifurcating chutes exclusive of flap gates on traveling trippers	Required nos. of electrically operated flap gate of positioner type to be installed in various bifurcating chutes
3.	Annexure 2.1/BHEL/ ISG MECH. - CHP,LHP & GHP/403	Vol. II-H2 Coal Handling System / 5.18.00/ Page 28 of 114	Hoist for handling Pipe conveyor discharge equipment is excluded from bidder's scope and it shall be provided by pipe conveyor supplier. Monorail required for the hoist in the receiving tower will be provided by Bidder.	Hoists and monorails for handling drive components of Pipe Conveyor in receiving tower shall be provided by the Bidder . Hoist Capacity and Quantity is as follows. Electric Hoist : 7.5 T capacity – 2 nos. 5 T capacity - 1 no

Change in specification (Section B of Tender Specification)

Annexure C2C (CHS)

4.	Annexure 2.1/BHEL/ ISG MECH. - CHP,LHP & GHP/404	Vol. II-H2 Coal Handling System / 5.18.00/Page 28 of 114	In Receiving Tower, Coal from mine end pipe conveyor [Rated Capacity: 3000 TPH, Design capacity: 3300 TPH, belt speed approx. 5 m/s Pipe Conveyor Floor level (Maximum) in the receiving tower is 24m, conveyor coasting time is 10.2 sec] shall be fed to BC#1A or BC#1B through its discharge pulley		In Receiving Tower, Coal from mine end pipe conveyor [Rated Capacity: 3000 TPH, Design capacity: 3300 TPH, belt speed approx. 5 m/s Pipe Conveyor Floor level (Maximum) in the receiving tower is 24m, conveyor coasting time is 10.2 sec] shall be fed to BC#1A or BC#1B through its discharge pulley. Bidder to consider provision for accommodating dual drive for pipe conveyor and receiving tower shall be sized accordingly. Tentative Details are furnished below : “Dual drive of 600 KW VFD Motor. Total installed power for Pipe conveyor PC-1 is 1200 KW.”
5.	Annexure 2.1/BHEL/ ISG MECH. - CHP,LHP & GHP/405	V-IIA-Sec-IX- Anx-I-3-BOP- MANDATORY SPARES 3.11.06 ix) Conveyor Drive System,	3.11.06 ix) Conveyor Drive System		Deleted
			c) Pulley Complete with Shaft (excluding bearing & Plummer Block)	One (1) No for each size of Pulley & Shaft Diameter	
			x) Plummer block complete with bearing	Two (2) Nos. for each type and size	
6.	Annexure-E-2.6/BHEL/ S.No.3	Vol IIA, Sec XIV, /Finalization of Sub Vendors/ 4.00.00/ a (ii) Class II items/ D/ 3.0	Belt Liners		Deleted
7.	Annexure-E-2.3/BHEL/ S.No.1	Vol: III-E/2 / Sch: III-E2/1 Coal Handling System/SI No 9/Page 1 of 44	Please confirm that the commissioning spares will be included in bidder's scope and a full set of the same shall be handed over to the plant owner.		Deleted

Change in specification (Section B of Tender Specification)

Annexure C2C (CHS)

8.	Annexure-E-2.1/L&T/813	Vol. II-H2/Coal Handling System/5.02.00 (viii)/Page 11 of 114.	For calculating minimum slack side tension to be provided from wrap consideration a factor of 1.5 over total effective belt tension is to be considered to prevent slippage of belt during starting.	For calculating minimum slack side tension to be provided from wrap consideration, a start-up factor of 1.2 for Scoop type fluid coupling & 1.5 for Delay filled type fluid coupling over total effective belt tension is to be considered to prevent slippage of belt during starting
9.	Annexure-E-2.1/L&T/816	Vol. II-H2/Coal Handling System/5.14.02-iv-c /Page 25 of 114.	Adequate cut out with guide rollers shall be provided in Galleries to facilitate replacement of conveyor belts.	Deleted

Change in specification (Section B of Tender Specification)**Annexure C2D (AHS)****Change in Speciation Points for Ash Handling System based on TCM resolution
3x800MW – NTPP-TALABIRA**

Sl.No	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
1.	ISG (Mec-AHP)-413	CORRIGENDUM -8 Dt. 06.03.2021/ SL. NO. 8/ Page 55 of 294	High Temperature IR Camera with necessary accessories to cover entire bottom ash hopper shall be provided by the Bidder for viewing bottom ash hopper from Control Room. Number of camera (min. 4 Nos.) and its locations shall be finalized by the Bidder during detailed engineering	High definition (HD) fixed cameras (6 Nos.) shall be fixed outside bottom ash hopper for monitoring ash accumulation inside BA hoppers. The location and details shall be finalised during detail engineering.
2.	ISG (MEC. –AHP)/ 416	Corrigendum 5/Sr. No.-302/Page 894 of 1335	15% over and above the head and capacity calculated based on the criteria specified in the TS.	15% margin shall be considered for the pumps over and above the head and capacity calculated based on the criteria specified in the TS" other than BA Slurry pump, BAOF pump and HCSD pump. However, 15% margin shall be considered over and above the head for BA Slurry pump, BAOF pump and HCSD pump.
3.	ISG (MEC. –AHP) / 417	CORRIGENDUM -8 Dt. 06.03.2021/ SL. NO. 2/ Page 175 of 294	Unitized (1 per unit) ash slurry pump house is proposed.	Bidder shall consider the slurry pump house building shall be of Steel frame, Roof : RCC over metal deck and Side: Fly ash brick inline with Ash water pump house as specified in Vol. II-G1/Section-I General – Page 52 of 118. Alternatively, Bidder shall consider complete RCC building with brick walls for unitized BA Slurry PH along with unitized AHP MCC room on top of the PH. Cellar room shall also be provided in between equipment floor and MCC Room floor. Passenger cum Goods elevator if applicable as per Standard/TS shall be provided. Min. 3T single girder underslung crane or 1.5 times the heaviest part to be lifted shall be provided in the pump house. The slurry sump shall be of RCC, located outside the building with 20mm thick alloy CI liners on all slopes and bottom portion of the sump. The common trough above the slurry sump shall also be lined with CI liners of 20mm thick".
4.	ISG (MEC. –	CORRIGENDUM -8 Dt. 06.03.2021/ SL.	Coarse ash collected in Air pre-heater hoppers shall be automatically collected and conveyed to the jet pumps	Coarse ash from SCR, APH and duct hoppers of each unit shall be collected in wet mode in a common coarse ash tank located at

Change in specification (Section B of Tender Specification)**Annexure C2D (AHS)****Change in Speciation Points for Ash Handling System based on TCM resolution
3x800MW – NTPP-TALABIRA**

Sl.No	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
	AHP)/419	NO. 1/ Page 175 of 294	located below each hopper through ash mixing vessel. Ash flows to the ash mixing vessel by gravity for making slurry. The coarse ash slurry thus produced shall be transported to bottom ash slurry pump house of each unit located in the Boiler area by high pressure jet pumping system. Coarse ash collected in Duct hoppers if applicable shall be automatically collected and conveyed to the jet pumps located below each hopper through ash mixing vessel. Ash flows to the ash mixing vessel by gravity for making slurry. The coarse ash slurry thus produced shall be transported to bottom ash slurry pump house of each unit located in the Boiler area by high pressure jet pumping system.	boiler area. From coarse ash tank slurry shall be further disposed to BA slurry sump of each unit through jet pumps/ centrifugal disposal pumps (1W+1S) and further conveyed to dewatering bin by BA slurry pumps. The MOC of tank is of tested quality mild steel plates of thickness not less than 10 mm (IS: 2062) and suitably stiffened with rolled steel sections. The effective storage capacity of coarse ash tank is Equivalent to 10 (1X10 minutes or 2X5minutes) minutes of storage of ash slurry transportation rate. The Body of nozzles fitted in the tank shall be Cast Iron and the tips shall be Anti corrosive tool steel / stainless steel of hardness not less than 550 BHN".
5.	ISG (MEC. – AHP)/422 & L&T/Ann-12/800	CORRIGENDUM -3 dt. 18.12.2020/Page 19 of 40	Table-SI.No.29 Ash crusher above ART Qty-6+6 Location-Silo area Duty factor-1.0	Dewatering Bin to HCSD Mixing Tank [Agitator Retention Tank (ART)] Dewatered moist ash from dewatering bins shall be conveyed to HCSD mixing tank (Agitator Retention Tank) via two (2) nos. with top hood belt conveyors common for four (4) numbers dewatering bins per unit. There will be vibrating feeder arrangement to enable feed bottom ash to the downstream conveyors in controlled manner. Bottom ash shall be duly crushed before feeding it to ART. There shall be double/single roll type heavy duty crusher arrangement in belt conveying system before ART. Each conveyor shall be connected with one ART per unit. Each Conveyor capacity shall be envisaged as minimum 100 TPH (dry ash basis) for handling moist bottom ash & coarse ash in continuous mode and all

Change in specification (Section B of Tender Specification)

Annexure C2D (AHS)

**Change in Speciation Points for Ash Handling System based on TCM resolution
3x800MW – NTPP-TALABIRA**

Sl.No	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
				<p>connected equipment like crusher etc. shall be suitable for this load. Slurry disposal system from dewatering bins to ART has been elaborated in flow diagram for dry fly ash, dewatering bin & HCSD system (Drawing No. 18A03-DWG-M-AHP-002/R1). Based on the above, Cl.No.3.01.06, 3.02.01 and 3.02.02 will be modified as below.</p> <p>Cl.No.3.01.06: Para-1 Dewatering Bin (04 Nos. per unit) Bottom ash and economizer ash in slurry form will be conveyed to bottom ash hopper slurry sump by jet pumps and transported to dewatering bins by BA slurry pumps to four (4) numbers conical bottom steel dewatering bins (3W+1SB). APH, SCR and duct hoppers ash in slurry form shall be conveyed to the coarse ash tanks located in the boiler area & transported to BA slurry sump either by jet pumps or by centrifugal disposal pumps. The coarse ash from BA slurry sump will be disposed to the dewatering bins of each unit by BA slurry pumps. In normal operation each bin shall be capable of holding bottom ash, economiser ash, SCR ash, APH ash and duct hopper ash generated in eight (8) hours from one (1) boiler unit. Each bin shall be provided with a margin of two hours to meet any exigency. Hence the total holding capacity of each bin shall be ten (10) hours. The distribution of Bottom & Coarse ash slurry lines from BA slurry pumps would be provided with suitable bifurcations and branch-off connections to the bins.</p> <p>Cl.No.3.02.01: One (1) conical bottom steel sedimentation tank shall be provided for clarifying overflow and decanted water from dewatering bins of all three (3) units. BA overflow water from BA</p>

Change in specification (Section B of Tender Specification)

Annexure C2D (AHS)

**Change in Speciation Points for Ash Handling System based on TCM resolution
3x800MW – NTPP-TALABIRA**

Sl.No	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
				overflow sump / tank by BA overflow transfer pumps, drain water from silo area drain pumps discharge, drain water from vacuum pump area drain pumps discharge of all three (3) units shall also be fed to this sedimentation tank for reuse. Cl.No.3.02.02: Clarified water from the sedimentation tank shall be fed to one (1) conical bottom steel surge tank common for all three (3) units by gravity. The above changes are applicable wherever the same is indicated in the Tender Specification.
6.	ISG (MEC. – AHP)/425	Vol. II-H1 Ash Handling System/ 5.07.00/ Page 35 of 90	Belt conveyor & accessories	Conveyor shall be of open type with FRP hood and the deck plate of 3mm thick at the conveyor bottom to avoid spillage of moist ash sticking in the return belt
7.	ISG (MEC. – AHP)/427	Vol. II-H1 Ash Handling System/ 3.08.11/ Page 13 of 90	Fluidizing system complete with air blowers, suction filters....., relief valves, discharge pressure indicators, drive motor, air heaters, temperature indicators, fluidizing pads, insulated piping, valves and other accessories as necessary and as per respective specification for continuous supply of heated air to all ESP hoppers & buffer hopper simultaneously through pads of all ESP hoppers & buffer hopper for easy flow of ash. Quantity of air blowers shall be two (2) nos. with one (1) no. working and one (1) no. standby for each unit. Bidder to specifically note that all ESP hoppers shall be connected with fluidizing line & shall be operated simultaneously.	"Fluidizing system complete with air blowers, suction filters....., relief valves, discharge pressure indicators, drive motor, air heaters, temperature indicators, fluidizing pads, insulated piping, valves and other accessories as necessary and as per respective specification for continuous supply of heated air to ESP hoppers which is under evacuation & buffer hopper simultaneously through pads of all ESP hoppers & buffer hopper for easy flow of ash. Quantity of air blowers shall be two (2) nos. with one (1) no. working and one (1) no. standby for each unit".

Change in specification (Section B of Tender Specification)

Annexure C2D (AHS)

**Change in Speciation Points for Ash Handling System based on TCM resolution
3x800MW – NTPP-TALABIRA**

Sl.No	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
8.	ISG (PQR)/430	Corrigendum 8 Sl. no. 4; Page 178 of 294	<p>ASH HANDLING SYSTEM Bidder / Sub-Contractor should have executed at least one number ash handling plant/system involving design / design agency/ agencies , engineering, manufacture/got manufactured, procurement, supply, erection/supervised erection and commissioning of the following system which should have completed satisfactory operation for a period of not less than one year as on date of LOA.</p> <p>i) Pneumatic Fly Ash handling system for conveying fly ash from ESPs to silos through ISH/Buffer hoppers shall be combination of Vacuum cum Pressure conveying system. For each Unit, the vacuum conveying ash evacuation capacity per stream from ESPs to ISH / Buffer hoppers shall be minimum 50 TPH or more and the Pneumatic pressure conveying (transportation) system for transporting fly ash from ISH / Buffer hoppers to silos shall be having a minimum capacity of 50TPH per stream for a conveying distance not less than 500m including fly ash storage Silos.</p> <p>ii) The Bottom ash handling system comprising jet pump system in conjunction with water impounded bottom ash hopper designed for 30TPH capacity (dry ash basis) or more for pulverized coal fired boilers.</p> <p>iii) The High Concentration Slurry Disposal system (HCSD) for a capacity of 60TPH which includes HCSD piston diaphragm pumps, mixing tank, Ash Retention</p>	<p>Cl.No.3.02.02, Sec-III, Vol-IIA will be modified as below. Ash Handling System: Bidder / Sub-Contractor(s) should have executed at least one number ash handling plant/system involving design / design agency/ agencies, engineering, manufacture/got manufactured, procurement, supply, erection/supervised erection and commissioning of the following system which should have completed satisfactory operation for a period of not less than one year as on the date of LOA.</p> <p>i) a) Pneumatic Fly Ash handling system for conveying fly ash from ESPs to Intermediate Surge Hoppers/Buffer hoppers shall be by Vacuum conveying system. For each Unit, the vacuum conveying ash evacuation capacity per stream from ESPs to ISH / Buffer hoppers shall be minimum 30 TPH or more.</p> <p>and</p> <p>i) b) the Pneumatic pressure conveying (transportation) system for transporting fly ash from ISH / Buffer hoppers to silos shall have a minimum capacity of 30TPH per stream for a conveying distance not less than 500m including fly ash storage Silos.</p> <p>ii) The Bottom ash handling system comprising jet pump system in conjunction with water impounded bottom ash hopper designed for 50TPH capacity (dry ash basis) or more for pulverized coal fired boilers.</p> <p>iii) The High Concentration Slurry Disposal system (HCSD) for a capacity of 60TPH which includes HCSD piston diaphragm pumps.</p> <p>For the purpose of qualification, the experience as at i)a, i)b, ii) and iii) above in separate plants is also permissible. The</p>

Change in specification (Section B of Tender Specification)

Annexure C2D (AHS)

**Change in Speciation Points for Ash Handling System based on TCM resolution
3x800MW – NTPP-TALABIRA**

Sl.No	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
			<p>Tank, charge pumps, garlanding of ash dyke, etc.</p> <p>iv) The Dewatering bin system for a 210MW capacity coal fired boiler which includes dewatering bin, sedimentation tank and surge tank for separating ash & water from the slurry of Bottom ash hopper & coarse ash hoppers.</p> <p>For the purpose of qualification, the experience as at i), ii), iii) and iv) above in separate plants is also permissible. The bidder/Subcontractor who meets any one of the above requirements can also participate provided he associates with the firms who in turn meet the other requirements. The activity of design and engineering under i), ii) & iv) should have been carried out by the bidder/Subcontractor / through any external design agency/agencies. The activity of design and engineering under iii) should have been carried out either by the bidder/Sub-contractor or through any external design engineering agency/agencies having experience for high concentration slurry disposal (HCSD) system.</p> <p>QR for Design engineering Agency for HCSD system</p> <p>Design engineering agency/agencies for HCSD system should be either an HCSD system supplier meeting the qualification of clause iv) above, for the offered system or consultancy organisation who has designed and engineered similar system(s) for handling not less than 60 tonnes of ash per hour, for pulverised coal</p>	<p>bidder/Sub-contractor(s) who meets any one of the above requirements can also participate provided he associates with the firms who in turn meet the other requirements. In such case, the Bidder/sub contractor(s) shall be required to furnish 'Letter of Support' from the Associates for successful performance of the relevant system for a period of seven years or up to the end of defect liability period of contract whichever is later as per the format enclosed as Annexure. The Letter of Support should be submitted at the time of placement of order on the approved sub contractor.</p> <p>The activity of design and engineering under i) & ii) should have been carried out by the bidder/ Subcontractor(s) / through any external design agency/agencies. The activity of design and engineering under iii) should have been carried out either by the bidder/Sub-contractor or through any external design engineering agency/agencies having experience for high concentration slurry disposal (HCSD) system. The systems specified under (i), (ii) and (iii) above can be carried out by engaging separate AHS subcontractors as applicable.</p> <p>QR for Design engineering Agency for HCSD system</p> <p>Design engineering agency/agencies for HCSD system should be either an HCSD system supplier meeting the qualification of clause iv) above, for the offered system or consultancy organisation who has designed and engineered similar system(s) for handling not less than 60 tonnes of ash per hour, for pulverised coal fired power station(s) and the system(s) should have been in successful</p>

Change in specification (Section B of Tender Specification)

Annexure C2D (AHS)

**Change in Speciation Points for Ash Handling System based on TCM resolution
3x800MW – NTPP-TALABIRA**

SI.No	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
			fired power station(s) and the system(s) should have been in successful operation for atleast two (2) years as on the date of LOA.	operation for at least two (2) years as on the date of LOA.
9.	BHEL/Annexure D2.4, Sl.No.4 & L&T/Ann-12/768	Vol-IIA/ Section-IX, Annexure-I Cl.No.3.15.05	Pneumatic operated Outlet Valve for APH, Eco/Duct & SCR Hoppers Ash Conveying i) Complete assembly ii) Seat & disc iii) Spring for air inlet valve iv) Cylinder v) Solenoid vi) Limit Switches / Proximity Switches	Pneumatic operated valve at the jet pump outlet below APH, Eco/Duct & SCR Hoppers Ash Conveying. i) Complete assembly ii) Seat & disc iii) Spring for air inlet valve iv) Cylinder v) Solenoid vi) Limit Switches / Proximity Switches
10.	BHEL & L&T /Annexure D2.7, Sl.No.17	SECTION-B, Vol. II-H1, 5.34.07 F) ii)	HCSD slurry line pipe fittings and bends shall be at least 10D radius of seamless carbon steel pipes (Schedule-80)/slurry pipeline MOC with 10 mm additional thick plate at the back of fittings.	HCSD slurry line pipe fittings and bends shall be at least 3D radius of seamless carbon steel pipes (Schedule-80)/slurry pipeline MOC.
11.	BHEL & L&T /Annexure D2.7, Sl.No.18	Vol.II A - Section IX, Mandatory spares, 3.15.35, vi,a, page 6 of 83	3.15.35.vi) a – ART tank assembly	3.15.35.vi) a – ART tank assembly (Deleted)
12.	BHEL /Annexure D2.7, Sl.No.19 &	Vol.II A - Section IX, Mandatory spares, 3.15.02, ii), b), page 271 of 421	Bottom Ash Slurry Transfer System From Jet Pumps To Dewatering Bin ii) Alloy CI Fittings for Wet Bottom Ash Slurry Line a) Fittings (i.e. pipe bends, elbows, laterals, y-piece,	Deleted

Change in specification (Section B of Tender Specification)**Annexure C2D (AHS)****Change in Speciation Points for Ash Handling System based on TCM resolution
3x800MW – NTPP-TALABIRA**

Sl.No	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
	L&T/Ann-12/762		spool piece etc.) b) Sleeve couplings (complete set) c) Gaskets for sleeve coupling	
13.	BHEL & /Annexure D2.7, Sl.No.20 & L&T/Ann-12/763	Vol.II A - Section IX, Mandatory spares, 3.15.03, page 273 of 421	Coarse Ash System: iii) Alloy CI Fittings for Wet Coarse Ash Slurry Line a) Fittings (i.e. pipe bends, elbows, laterals, y-piece, spool piece etc.) b) Sleeve couplings (complete set) c) Gaskets for sleeve coupling	Deleted
14.	BHEL & L&T /Annexure D2.7, Sl.No.21	Vol.II A - Section IX, Mandatory spares, 3.15.19, page 279 of 421	Chain Wheel Manual operated Knife Gate Valves below Economiser/Duct, SCR, ESP, APH Hoppers & Buffer Hopper: iv) Cylinder	Deleted
15.	BHEL & L&T /Annexure D2.7, Sl.No.22	Vol.II A - Section IX, Mandatory spares, 3.15.24, page 281 of 421	Refrigerant Air Dryer for Conveying Air Compressor: i) Complete set of Discharge valve ii) Complete set of suction valve	Deleted
16.	BHEL/Annexure D2.7, Sl.No.23	Vol.II-H1, 5.08.00, page 44 of 90	Bearing of clinker crusher-Grease lubricated, split type, self-aligning type heavy duty roller bearings. Clear water sealing to be provided at gland seals	Bearing of clinker crusher-Grease lubricated, self-aligning type heavy duty roller bearings.
17.	L&T/Ann-12/745	SECTION-B Vol. II-H1	The bottom ash hopper associated equipment shall be located above ground for ease in maintenance. Jet	Slurry pipes from jet pump (BA hoppers as well as APH/duct hoppers) to slurry pump house on pedestal.

Change in specification (Section B of Tender Specification)

Annexure C2D (AHS)

**Change in Speciation Points for Ash Handling System based on TCM resolution
3x800MW – NTPP-TALABIRA**

Sl.No	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
		Ash Handling System 3.01.05 & 8.01.00	pumps and piping shall be above ground and pipeline shall be on pedestals in Boiler area. Further the pipes shall be routed on a pipe rack. The Bottom ash, Eco & SCR hopper ash slurry pipelines from the jet pump outlet to dewatering bins, APH hopper & Duct hopper ash slurry pipelines from the jet pump outlet below APH and Duct hoppers to dewatering bins shall be run in the pipe rack.	Slurry pipes from BA slurry pump house to dewatering bin shall be routed on pipe rack. However, slurry pipes from slurry pump house to main pipe rack between boiler & ESP shall be on pedestal.
18.	L&T/Ann-12/755	SECTION-B Vol. II-H1 Ash Handling System 3.08.14, 5.29.01 & 5.30.00	Min. 25 mm thick Ceramic lined (with 90% alumina) MS fittings (MS shell of min 6 mm thickness). On both ends of the bends, laterals elbows, etc 1m length straight pipe/spool piece connected by flange shall also be lined with min. 25 mm thick ceramic (with 90% alumina) lined on 6 mm thick MS ERW pipe to IS 3589 for longer life of bends and fittings.	The following clauses 3.08.14, 5.29.01 & 5.30.00 will be modified as below. Min. 20 mm thick Ceramic lined (with 90% alumina) MS fittings (MS shell of min 6 mm thickness). On both ends of the bends, laterals elbows, etc 1m length straight pipe/spool piece connected by flange shall also be lined with min. 20 mm thick ceramic (with 90% alumina) lined on 6 mm thick MS ERW pipe to IS 3589 for longer life of bends and fittings.
19.	L&T/Ann-12/760	Vol. II-A/Section-IX Mandatory Spares-BOP 3.15.01, ii), c), page 270 of 421 Hopper	Discharge Gate: Gate Shaft Assembly	"Gate & Shaft assembly".
20.	L&T/Ann-12/773	Vol. II-A/Section-IX Mandatory Spares-BOP 3.15.07,	Branch Air Intake Valves: iv) Solenoid v) Limit Switches / Proximity Switches	Deleted.

Change in specification (Section B of Tender Specification)

Annexure C2D (AHS)

**Change in Speciation Points for Ash Handling System based on TCM resolution
3x800MW – NTPP-TALABIRA**

Sl.No	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
		page 275 of 421		
21.	L&T/Ann-12/776	Vol. II-A/Section-IX Mandatory Spares-BOP 3.15.09, page 276 of 421	Alloy CI Fittings & Bag Filter for Fly Ash Vacuum Extraction System: vii) Bag filter fan complete assembly	Bag filter fan complete assembly is deleted from the spares list.
22.	L&T/Ann-12/809	Volume: II – H1, Technical specification for Ash handling system E)/ Page 72 of 90	<p>E) Dense Slurry Pumps</p> <p>viii) The pump shall be fitted with rubber diaphragms, which shall avoid the contact of the abrasive slurry with pump moving parts such as pistons, piston rods, cylinder liners and packing. PLC controlled diaphragm positioning system of approved make shall be provided.</p> <p>ix) The pump cylinder shall have an easily removable cover to facilitate easy access to the cylinder liner, piston and piston rod. The piston rod shall be hard chrome plated. The stuffing box area shall be covered with a quick removable inspection cover, which also provides a water and dust protection.</p> <p>x) The contoured preformed diaphragm shall be mounted in diaphragm housing. Suitable clamping arrangement shall be provided to minimize stresses in the diaphragm material. The diaphragm housing cover construction shall allow for easy access and change out</p>	<p>1. The clause 5.34.07.E.viii, ix, x, xi & xii of Vol-II H1 is modified as below.</p> <p>viii) The pump shall be fitted with rubber diaphragms, which shall avoid the contact of the abrasive slurry with pump moving parts such as pistons, piston rods, cylinder liners and packing. PLC (if applicable) controlled diaphragm positioning system of approved make shall be provided / the movement of diaphragm is to be controlled through a suitable and proven diaphragm positioning system as per OEM standard.</p> <p>The suction and discharge valves of the pump shall be specially designed for high abrasive media to reduce the wear and subsequently to increase the service life.</p> <p>ix) The pump cylinder shall have an easily removable cover to facilitate easy access to the cylinder liner, piston and piston rod. The piston rod shall be hard chrome plated. The stuffing box (if applicable) area shall be covered with a quick removable inspection cover, which also provides a water and dust protection.</p> <p>x) The contoured preformed diaphragm shall be mounted in diaphragm housing. Suitable clamping arrangement shall be</p>

Change in specification (Section B of Tender Specification)

Annexure C2D (AHS)

**Change in Speciation Points for Ash Handling System based on TCM resolution
3x800MW – NTPP-TALABIRA**

Sl.No	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
			<p>of a diaphragm within a short period.</p> <p>xi) The pump shall have a hydraulic reservoir compactly integrated in the pump base frame. the hydraulic fluid make up system shall include at least a constant speed motor, high pressure oil pump, filter, accumulator, flow indicators and required valve systems, to assure continuous available system feed oil.</p> <p>xii) The pump shall have an integral adjustable spring loaded over pressure relief valve for low pressures and low capacity only and a hydraulic pressure loaded overpressure relief valve for high pressures and/or high capacities.</p>	<p>provided to minimize stresses in the diaphragm material. The diaphragm housing (if applicable) cover construction shall allow for easy access and change out of a diaphragm within a short period.</p> <p>xi) The pump shall have a hydraulic reservoir compactly integrated in the pump base frame. the hydraulic fluid make up system shall include at least a constant speed motor, high pressure oil pump, filter, accumulator, flow indicators and required valve systems, to assure continuous available system feed oil. OEM's standard design practice for the hydraulic reservoir system shall also be acceptable.</p> <p>xii) The pump shall have an integral adjustable spring loaded over pressure relief valve for low pressures and low capacity only and a hydraulic pressure loaded overpressure relief valve for high pressures and/or high capacities. OEM's standard design shall also be acceptable.</p> <p>2. The mandatory spares for flat diaphragm HCSD pumps shall be supplied as per Cl.No.3.15.35 (i), Annexure-I of Sec-IX of Vol-IIA.</p> <p>In case of multi hose diaphragm HCSD pumps, the following mandatory spares shall be supplied.</p> <p>a. Primary hose diaphragm-24 Nos.</p> <p>b. Secondary hose diaphragm-24 Nos.</p> <p>c. Valve seat-96 Nos.</p>

Change in specification (Section B of Tender Specification)

Annexure C2D (AHS)

**Change in Speciation Points for Ash Handling System based on TCM resolution
3x800MW – NTPP-TALABIRA**

Sl.No	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
				<p>d. Valve cone reinforcement ring-96 Nos.</p> <p>e. Valve cone-96 Nos.</p> <p>f. Compression spring-96 Nos.</p> <p>g. Guide bush-96 nos.</p> <p>h. O-ring of each type and size-96 Nos.</p> <p>i. Air filter cartridge-20 nos.</p> <p>j. Diaphragm for Pulsorber-6 Nos.</p> <p>k. Pump seals-6 sets.</p> <p>l. Piston seals-6 sets.</p> <p>3. Acceptance criteria for HCSD pump sub vendor will be modified as 2.01.01(a) instead of 2.01.01(a/b) of Sec-XIV of Vol-IIA.</p> <p>4. Bidder is requested to include in their scope the tools required for carrying out regular maintenance of the pumps based on the recommendations of Pump OEMs.</p>
23.	L&T Additional point-2 dated 01.11.2022	Vol. II-H1 Ash Handling System 5.30.00	Pipes & Fittings for Pneumatic Ash Transport Line: Conveying from ESP to Buffer Hopper -Material and Hardness: Alloy CI Pipe as per BS: 1211 & IS: 1536 , min. 450 BHN hardness	<p>CI.5.30.00 is modified as below.</p> <p>"Pipes & Fittings for Pneumatic Ash Transport Line: Conveying from ESP to Buffer Hopper-Material and Hardness: CI Pipe as per class-D IS: 1536 or equivalent BS, min. 450 BHN hardness".</p> <p>All other specification furnished in the above clause is unaltered.</p>
24.	L&T/Ann-12/760	Vol-IB, Sec-9, Cl.No. 9.5.2.5	Ash Handling Plant The Auxiliary Power consumption Performance Guarantee test of equipment's listed below shall be performed at the test rig of the sub vendor's shop floor	<p>Ash Handling Plant</p> <p>The Auxiliary Power consumption Performance Guarantee test of equipment's listed below shall be performed at the test rig of the sub vendor's shop floor by operating them at the rated flow and</p>

Change in specification (Section B of Tender Specification)

Annexure C2D (AHS)

**Change in Speciation Points for Ash Handling System based on TCM resolution
3x800MW – NTPP-TALABIRA**

Change in Speciation Points for Ash Handling System based on TCM resolution 3x800MW – NTPP-TALABIRA																																																												
Sl.No	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification			Description To be read as																																																						
			by operating them at the rated flow and head. The actual job motor shall be used for auxiliary power measurement at shop floor test rig. Auxiliary power consumption shall be checked for all the equipment's (working and standby) for three units. However, the maximum power consumption equipment will be considered for the calculation of Auxiliary power consumption and the number of equipment considered shall be the no. of working equipment as per table below.			head. The actual job motor shall be used for auxiliary power measurement at shop floor test rig. Auxiliary power consumption shall be checked for all the equipment's (working and standby) for three units. However, the maximum power consumption equipment will be considered for the calculation of Auxiliary power consumption and the number of equipment considered shall be the no. of working equipment as per table below.																																																						
			<table><tr><th>SL. No.</th><th>Drive</th><th>No. of equipment for three units (W + S)</th><th>Location</th><th>Duty Factor</th><th>Total Power consumption in KW</th></tr><tr><td>1</td><td>Transport air compressor</td><td>9+9</td><td>AHS compressor house</td><td>1.0</td><td></td></tr><tr><td>2</td><td>Ref. air drying plant (ADP)</td><td>9+9</td><td>AHS compressor house</td><td>1.0</td><td></td></tr><tr><td>3</td><td>Instrument air compressor with air</td><td>3+1</td><td>AHS compressor house</td><td>1.0</td><td></td></tr></table>			SL. No.	Drive	No. of equipment for three units (W + S)	Location	Duty Factor	Total Power consumption in KW	1	Transport air compressor	9+9	AHS compressor house	1.0		2	Ref. air drying plant (ADP)	9+9	AHS compressor house	1.0		3	Instrument air compressor with air	3+1	AHS compressor house	1.0		<table><tr><th>SL. No.</th><th>Drive</th><th>No. of equipment for three units (W + S)</th><th>Location</th><th>Duty Factor</th><th>Total Power consumption in KW</th></tr><tr><td>1</td><td>Transport air compressor</td><td>9+9</td><td>AHS compressor house</td><td>1.0</td><td></td></tr><tr><td>2</td><td>Ref. air drying plant (ADP)</td><td>9+9</td><td>AHS compressor house</td><td>1.0</td><td></td></tr><tr><td>3</td><td>Instrument air compressor with air drying plant</td><td>3+1</td><td>AHS compressor house</td><td>1.0</td><td></td></tr><tr><td>4</td><td>Seal water pump</td><td>3+1</td><td>Ash water pump house</td><td>1.0</td><td></td></tr></table>	SL. No.	Drive	No. of equipment for three units (W + S)	Location	Duty Factor	Total Power consumption in KW	1	Transport air compressor	9+9	AHS compressor house	1.0		2	Ref. air drying plant (ADP)	9+9	AHS compressor house	1.0		3	Instrument air compressor with air drying plant	3+1	AHS compressor house	1.0		4	Seal water pump	3+1	Ash water pump house	1.0	
SL. No.	Drive	No. of equipment for three units (W + S)	Location	Duty Factor	Total Power consumption in KW																																																							
1	Transport air compressor	9+9	AHS compressor house	1.0																																																								
2	Ref. air drying plant (ADP)	9+9	AHS compressor house	1.0																																																								
3	Instrument air compressor with air	3+1	AHS compressor house	1.0																																																								
SL. No.	Drive	No. of equipment for three units (W + S)	Location	Duty Factor	Total Power consumption in KW																																																							
1	Transport air compressor	9+9	AHS compressor house	1.0																																																								
2	Ref. air drying plant (ADP)	9+9	AHS compressor house	1.0																																																								
3	Instrument air compressor with air drying plant	3+1	AHS compressor house	1.0																																																								
4	Seal water pump	3+1	Ash water pump house	1.0																																																								

Change in specification (Section B of Tender Specification)

Annexure C2D (AHS)

**Change in Speciation Points for Ash Handling System based on TCM resolution
3x800MW – NTPP-TALABIRA**

Sl.No	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification						Description To be read as					
				drying plant					5	Vacuum Pump	18+18	ESP area	1.0	
			4	Seal water pump	3+1	Ash water pump house	1.0		6	Vent fan for silo	3+3	Top of silo	1.0	
			5	Vacuum Pump	18+18	ESP area	1.0		7	Fluidising blowers for ESP and Buffer hoppers (ISH)	3+3	ESP area	1.0	
			6	Vent fan for silo	3+3	Top of silo	1.0		8	Fluidising blowers for fly ash silo	6+3	Silo utility building	1.0	
			7	Fluidising blowers for ESP and Buffer hoppers (ISH)	3+3	ESP area	1.0		9	Heater for Fluidising blowers for ESP and Buffer hoppers (ISH)	3+3	ESP area	1.0	
			8	Fluidising blowers for fly ash silo	6+3	Silo utility building	1.0		10	Heater for Fluidising blowers for fly ash silo	6+3	Silo utility building	1.0	
			9	Heater for Fluidising blowers for ESP and Buffer hoppers	3+3	ESP area	1.0		11	Instrument air compressor with air drying plant	1+1	Silo utility building	1.0	
									12	Clinker/Ash crusher below BAH	9+9	Bottom Ash Hopper	0.25	

Change in specification (Section B of Tender Specification)

Annexure C2D (AHS)

**Change in Speciation Points for Ash Handling System based on TCM resolution
3x800MW – NTPP-TALABIRA**

Sl.No	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification						Description To be read as					
				(ISH)						Feed gate		area		
			10	Heater for Fluidising blowers for fly ash silo	6+3	Silo utility building	1.0			13	Sludge transfer pump below surge tank	1+1	Surge tank area	0.25
			11	Instrument air compressor with air drying plant	1+1	Silo utility building	1.0			14	Common ash water transfer pump	1+1	Common ash water transfer pump house	1.0
			12	Clinker/Ash crusher below BAH Feed gate	9+9	Bottom Ash Hopper area	0.25			15	Sludge pump below Sedimentation tank	1+1	Dewatering bin area	0.25
			13	Sludge transfer pump below surge tank	1+1	Surge tank area	0.25			16	BA LP Pump	3+1	Ash water pump house	1.0
			14	Common ash	1+1	Common ash water	1.0			17	BA HP Pump	3+1	Ash water pump house	1.0
										18	Flushing pump	1	Ash water pump house	0.35
										19	Eco ash water	3+1	Ash water	1.0

Change in specification (Section B of Tender Specification)

Annexure C2D (AHS)

**Change in Speciation Points for Ash Handling System based on TCM resolution
3x800MW – NTPP-TALABIRA**

Change in Speciation Points for Ash Handling System based on TCM resolution 3x800MW – NTPP-TALABIRA															
SI.No	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification						Description To be read as						
				water transfer pump		transfer pump house					pumps		Pump house		
			15	Sludge pump below Sedimentation tank	1+1	Dewatering bin area	0.25		20	HCSD water pump	3+1	Silo utility building	1.0		
								21	HCSD Pump	3+3	Silo utility building	1.0			
			16	BA LP Pump	3+1	Ash water pump house	1.0		22	HCSD Charge Pump	3+3	Silo utility building	1.0		
			17	BA HP Pump	3+1	Ash water pump house	1.0		23	ART Agitator	3+3	Silo utility building	1.0		
			18	Flushing pump	1	Ash water pump house	0.35		24	Bottom ash conveyor	3+3	Dewatering bin area	1.0		
			19	Eco ash water pumps	3+1	Boiler area	1.0		25	Dosing screw conveyor	3+3	Silo area	1.0		
			20	HCSD water pump	3+1	Silo utility building	1.0		26	Ash mixer	3+3	Silo area	1.0		
			21	HCSD Pump	3+3	Silo utility building	1.0		27	Vibrating feeder below Dewatering bin	3+21	Dewatering bin area	1.0		
			22	HCSD Charge Pump	3+3	Silo utility building	1.0		28	Ash crusher above ART	3+3	Silo area	1.0		
			23	ART Agitator	3+3	Silo utility building	1.0		29	BA slurry pumps	3+6	Boiler area	0.5		

Change in specification (Section B of Tender Specification)

Annexure C2D (AHS)

**Change in Speciation Points for Ash Handling System based on TCM resolution
3x800MW – NTPP-TALABIRA**

Sl.No	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification						Description To be read as					
			24	Bottom ash conveyor	3+3	Dewatering bin area	1.0		30	BA overflow pumps	3+3	Boiler area	1.0	
			25	Dosing screw conveyor	3+3	Silo area	1.0		31	Centrifugal coarse ash pump(if applicable)	3+3	Boiler area	0.25	
			26	Ash mixer	3+3	Silo area	1.0							
			27	Vibrating feeder below Dewatering bin	3+45	Dewatering bin area	1.0							
			28	Ash crusher above ART	3+3	Silo area	1.0							
			29	BA slurry pumps	3+6	Boiler area	0.5							

Change in specification (Section B of Tender Specification)

Annexure C2E (CWS, HVAC, LP piping)

Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
1.	BHEL-178 & L&T-723	3.01.01 b), VOLUME: II-IA / SECTION-III	ix) Reverse ratchet mechanism and Reverse rotation switch.	"ix) RRI/Reverse rotation switch(for VTP & CVP). Provision of alarm for this shall be considered as applicable".
		6.10.00	An adequately sized non-reverse ratchet shall be provided in the motor stool to check reverse rotation of the pumps.	Suitable reverse rotation switch shall be provided in the motor stool to check reverse rotation of the pumps.
		2.01.04, Section:I, Vol-II-IA	Each pump shall be equipped with non-reversible ratchet to prevent.....	Each pump shall be equipped with RRI/Reverse rotation switch (for VTP & CVP). Provision of alarm for this shall be considered as applicable.
2.	BHEL-180	Vol. II-IA/ Section-III, Clause No. 6.20.00 Page 6 of 27	Wearing Rings & Shaft Sleeves	Wearing Rings (if applicable) & Shaft Sleeves.
		Vol. II-IA/ Section-III, Clause No. 7.06.00 (ii) (iii) Page 21 of 27	(ii) Impeller and wearing rings. (iii) Wearing rings shall be.....	(ii) Impeller and wearing rings (if applicable). (iii) Wearing rings (if applicable) shall be.....

Change in specification (Section B of Tender Specification)

Annexure C2E (CWS, HVAC, LP piping)

Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
		Vol. II-IA/ Section-III, Clause No. 6.04.00 (e) Page 4 of 27	e) A replaceable type sealing wearing ring bolted on to the suction part.	e) A replaceable type sealing wearing ring (if applicable) bolted on to the suction part.
3.	BHEL-181	Vol. II-IA/ Section-III, Clause No.6.22.00 (a) Page 7 of 26	<p>Sealing Arrangement</p> <p>a) A mechanical seal shall be provided in line with the standard practice of the manufacturer.</p> <p>b) A seal flushing system shall be provided which will supply the glands with flushing water both during pump start-up / shutdown and also while the pump is running.</p> <p>c) The seal flushing water shall be filtered by the provision of 2x100% basket type strainers with isolation valves for each pump set.</p> <p>d) Bidder shall make necessary arrangement for proper drainage of the seal area by providing drainage pumps.</p> <p>e) Mechanical seal shall be of approved</p>	<p>Sealing Arrangement</p> <p>a) A mechanical seal or stuffing box with packing flushed with water shall be provided in line with the standard practice of the manufacturer.</p> <p>b) A seal flushing system shall be provided which will supply the glands with flushing water both during pump start-up / shutdown and while the pump is running.</p> <p>c) The seal flushing water shall be filtered by the provision of 2x100% basket type strainers with isolation valves for the sealing water pumps.</p> <p>d) Bidder shall make necessary arrangement for proper drainage of the seal area by providing drainage pumps.</p> <p>e) Mechanical seal (if provided) of cartridge construction type, shall be of approved design. 2x100% capacity seal water pumps common for all the CW pumps shall be provided inside the pump house at suitable location."</p>

Change in specification (Section B of Tender Specification)

Annexure C2E (CWS, HVAC, LP piping)

Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
			<p>design. This shall have a minimum life between overhauls of 16,000 operating hours. The seal design shall be of cartridge construction for ease of maintenance and shall be able to accommodate the shaft deflections.</p> <p>f) 2x100% capacity seal water pumps shall be provided for each CW pump, if applicable.</p> <p>g) The stuffing box housing shall be of axially split design so as to facilitate easy removal of packing.</p>	
4.	BHEL-182	Vol. II-IA/ Section-III, Clause No.6.23.00 (a) Page 8 of 26	.....The bush bearings (if provided) shall be lubricated with filtered pump fluid.	"The bush bearings (if provided) shall be lubricated with filtered (if applicable) pump fluid"
5.	BHEL-184	Vol-II-IA, Section:III, 6.26.00(a)	Two (2) numbers per sump pit of such fixed drainage pumps shall be provided in the CW pump house bottom floor sump. The minimum capacity of each pump...	Two (2) numbers per sump pit of such dedicated portable / fixed drainage pumps shall be provided in the CW pump house bottom floor sump to meet the requirement of expected spillage/ leakage in the bottom floor area. The minimum capacity of each pump...
		Vol-IIK, Sec-I, Group-A, Annexure-II, SI	CWPH bottom floor washing effluent pumps	CWPH bottom floor washing effluent pumps : (Note-6) Note no:6 newly added as "Two (2) numbers per sump

Change in specification (Section B of Tender Specification)

Annexure C2E (CWS, HVAC, LP piping)

Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
		no:8		pit of such dedicated portable / fixed drainage pumps shall be provided in the CW pump house bottom floor sump to meet the requirement of expected spillage/ leakage in the bottom floor area".
6.	BHEL-187	Vol-II-IA, Sec-III, 7.05.03 (b) Performance (Stage-II) Tests at Site	NPSH tests are to be conducted on one pump of each type at 3% head drop conditions.	NPSH tests are to be conducted during pump model studyfor one pump at 3% head drop conditions.
		Vol-II-IA, Section:III, TECHNICAL REQUIREMENTS OF CW PUMPS (VERTICAL WET PIT TYPE) as applicable, Performance (II Stage) Tests at Site, Performance (Stage-II) Tests at Site		
7.	BHEL-188	Vol. II-IA/ Section-III, Clause No. 7.07.00 Page 19 of 26	Hydrostatic Test Hydrostatic test shall be done for the following maximum suction pressure shall be taken into account.	Hydrostatic Test Hydrostatic test shall be done for the following maximum suction pressure shall be taken into account.

Change in specification (Section B of Tender Specification)

Annexure C2E (CWS, HVAC, LP piping)

Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
			i) Suction draft tube. ii) Volute casing iii) Divergent Pipe. iv) Any other applicable pressure parts.	i) Divergent Pipe. ii) Any other applicable pressure parts. Hydro fill test as per applicable code for the below areas to ensure leak tightness. i) Suction draft tube. ii) Volute casing
8.	BHEL-190	Vol. II-IA/ Section-III, Data sheet Sl.No:16 (h) Page 22 of 26	Range of operation Bidder to indicate (Preferably between 70% to 130%)	Range of operation Bidder to indicate (Preferably between 75% to 130%)
		Vol. II-IA/ Section-III, TECHNICAL REQUIREMENTS OF CW PUMPS (VERTICAL WET PIT TYPE) as applicable, SL no:14	..... shall not be less than 70 % and/or greater than 130% of the first critical speed.	..... shall not be less than 75 % and/or greater than 130% of the first critical speed.
		Vol. II-IA/ Section-III, DATA SHEET - VERTICAL	Pump operating range : 70 % to 130 % of rated flow.	Pump operating range : 75 % to 130 % of rated flow.

Change in specification (Section B of Tender Specification)

Annexure C2E (CWS, HVAC, LP piping)

Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
		TURBINE (CW) PUMPS as applicable, table, sl no: 13		
9.	BHEL-192	Vol. II-IA/ Section-III, Data sheet Sl.No:18 (b) Page 23 of 26	Casing cover 2% Ni Cl to IS 210 Gr. FG260	Casing cover 2% Ni Cl to IS 210 Gr. FG260 / ASTM 516 Gr70 with TAR epoxy painting
10.	BHEL-193	Vol. II-IA/ Section-III, Data sheet Sl.No:18 (i) Page 23 of 26	Stuffing box CI IS 210 FG 260 Ni 2 with coal tar epoxy coating	Stuffing box CI IS 210 FG 260 Ni 2 with coal tar epoxy coating / CF8
11.	BHEL-194	Vol. II-IA/ Section-III, Data sheet Sl.No:18 (j) Page 23 of 26	j) Intermediate shaft including yoke SS - AISI A 276 Gr 410	j) Intermediate shaft including yoke/ coupling hub and spacer SS - AISI A 276 Gr 410 / SS410(Q)
12.	BHEL-197	Vol. II-IA/ Section-III, Data sheet	Thrust block	"Thrust block: If applicable"

Change in specification (Section B of Tender Specification)

Annexure C2E (CWS, HVAC, LP piping)

Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
		Sl.No:19 (g) Page 24 of 26		
		Vol. II-IA/ Section-III, 3.01.01, b (ii),	..... grounding pads, thrust blocks, fitting lugs,.....	..... grounding pads, thrust blocks (if applicable) , fitting lugs,.....
13.	BHEL-198	Vol. II-IA/ Section-III, Data sheet Sl. No:20 (c) Page 25 of 26	Dynamic balancing test for all rotating parts	"Single / multiple plane dynamic balancing test for all rotating parts".
14.	L&T-724	4.01.04, Vol. II-IA/Section-I	The estimated CW system flow for each unit shall be considered as condenser cooling water design flow + ACW design flow + Flow to chlorination plant/unit + Flow for ball cleaning system	"The estimated CW system flow for each unit shall be considered as condenser cooling water design flow + ACW design flow + Flow to chlorination plant/unit + Cold blow down* ". (*- To be included if blow down is considered from CW supply headers)".
15.	L&T-731	clause no: 4.01.11,b, page no:10 of 16, section-I of vol-II-IA,	the angle of inclination of the side walls of this forebay with the direction of water flow shall not exceed 9 degrees under any circumstances.	"The angle of inclination of the side walls and bottom slab angle of fore bay as per HIS".

Change in specification (Section B of Tender Specification)

Annexure C2E (CWS, HVAC, LP piping)

Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
		"GA of CW pump house (Dwg No. 18A03-DWG-M-006),	"The angle of inclination of the side walls is indicated as 9 degree. Bottom slab angle of fore bay is indicated as 9 degree..	Drawing shall be read as "The angle of inclination of the side walls and bottom slab angle of fore bay as per HIS".
16.	L&T- 732	Clause no: 7.02.00, Section:III, Vol-II-IA.	Model Test of CW Pumps As applicable for CW pump: a) For the offered..... at best efficiency point (i.e. BEP). The pump model report shall be furnished during detail engineering after completion of test at shop for Owner/consultant approval.	Model Test of CW Pumps As applicable for CW pump: a) For the offered..... at best efficiency point (i.e. BEP). Alternatively the document of the previously conducted pump model test by the bidder / associate shall be considered if the specific speed of the model conducted should be within the range ($\pm 5\%$ of the specific speed of the pump offered at best efficiency point (i.e. BEP). The pump model report shall be furnished during detail engineering after completion of test at shop for Owner/consultant approval.
17.	L&T-734	4.05.00, Vol. II-IA/Section-III	NPSH available shall be equal to or greater than 1.2 times the maximum NPSH required by the pump over the operating range or 2 m more than NPSH required, whichever is higher.	"NPSH available shall be equal to or greater than 1.2 times the maximum NPSH required by the pump, at pump rated duty point or 2 m more than NPSH required, whichever is higher".
18.	L&T-739	Flow diagram DM closed cycle cooling water system-DMCW TG (18A03-DWG-M-001H)	Gate valves and globe valves across the control valve are shown in DMCW pump recirculation header.	The requirement shall be read as "Butterfly valves shall may also be used for isolation (ON-OFF) purpose in DMCW pump recirculation header" in addition to the existing requirement shown in drawing.

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Annexure C2E (CWS, HVAC, LP piping)

Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
19.	L&T-742	clause no: 4.01.11(i), page no:13 of 16, Section: I of Vol-II-IA.	..... . For CV pump, One number CW re-circulation line for each unit, suitable for handling a flow of 50% of one CW pump flow with electrically operated butterfly valve (with actuator) and after interconnecting the line from other units, then the pipe header size shall be designed to handle100% pump flow with flow restricting orifice plate.....	“.....For CV pump, One number CW re-circulation line for each unit, suitable for handling a flow of 50% of one CW pump flow with electrically operated butterfly valve (with inching type actuator) / non inching type electrical operator BFV with flow restricting orifice plate shall be provided. Further, after interconnecting the individual recirculation line from other units, the common pipe header shall be designed to handle100% of one CW pump flow.....”
20.	L&T-826	5.01.24, Vol. II-D2/Section-I	Entire CW/ACW, raw water piping, AHP makeup piping, CT makeup piping and blow down piping shall be internally coated with coal tar epoxy coating with minimum two (2) coats.	If the chloride content in the makeup water is more than 100 ppm, internal coating is to be provided for entire CW/ACW, raw water piping, AHP makeup piping, CT makeup piping and blow down piping for dia 1000NB & above. Internal coating shall be with coal tar epoxy coating with minimum two (2) coats. Overall DFT shall be minimum 500 microns"
		4.01.08, Vol. II-IA/Section-I	Entire CW/ACW and blow down piping shall be internally coated with coal tar epoxy coating with minimum two (2) coats. Overall DFT shall be minimum 500 microns,if the chloride content in the makeup water is more than 100 ppm.	If the chloride content in the makeup water is more than 100 ppm, internal coating is to be provided for entire CW/ACW, CT makeup piping and blow down piping for dia 1000NB & above. Internal coating shall be with coal tar epoxy coating with minimum two (2) coats. Overall DFT shall be minimum 500 microns"
21.	L&T-831	Clause no:4.2 (A) table, sl no:1, page no:34 of 46, annexure-II, section:V, vol-IIA	Pitch (estimated): 151.0 Meters	Pitch (estimated): 151.0 Meters (Minimum)

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Annexure C2E (CWS, HVAC, LP piping)

Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
		Clause no:4.2 (B) table, sl no:1, page no:37 of 46, annexure-II, section:V, vol-IIA.	Total TG building length: Total TG building length: 453.5M (minimum) (Total 43 columns with two numbers expansion joint at two places).	"Total TG building length: 453.5 m (estimated) [Max. negative value is 3.0m] (with two numbers expansion joint at two places)".
22.	L&T-832	Clause 4.4 (x) / Annexure II / Section V/ Vol IIA	-	Included as a new clause under Clause 4.4 (x) / Annexure II / Section V/ Vol IIA of the tender specification. "(j) Pipe cum cable rack between CD bay shall be provided either with independent column / foundation OR by interconnection of Turbine and boiler structure without independent column / foundation "
23.	L&T-833	clause no: 1.05.00, Page no: 3 of 27, Section:IV, Vol-II-A.	Water cooled,..... accessories, CW line pressure balanced expansion joints butterfly valves,,	"Water cooled, accessories, CW line pressure balanced expansion joints / two (2) nos (one (1) is horizontal pipe & another one (1) is vertical pipe) Inline tied expansion joints, butterfly valves,,
		clause no: 3.01.26, Page no: 4 of 89, Section:I, Vol-II-C.	" Water cooled, accessories, CW line pressure balanced expansion joints butterfly valves, water box handling devices,"	" Water cooled, accessories, CW line pressure balanced expansion joints / two (2) nos (one (1) is horizontal pipe & another one (1) is vertical pipe) Inline tied expansion joints, butterfly valves, water box handling devices,"

Change in specification (Section B of Tender Specification)

Annexure C2E (CWS, HVAC, LP piping)

Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
		clause no: 3.01.04, Page no: 4 of 89, Section:IV, Vol-II-C.	"Pressure balanced Rubber expansion Joints as required with counter flanges, control units, rocking washer (Spherical nuts), fastening materials along with bolts, nuts & gaskets etc. and Butterfly valves to be located on C.W. piping at condenser water box inlet and outlet."	"Pressure balanced Rubber expansion Joints / two (2) nos (one (1) is horizontal pipe & another one (1) is vertical pipe) Inline tied expansion joints, as required with counter flanges, control units, rocking washer (Spherical nuts), fastening materials along with bolts, nuts & gaskets etc. and Butterfly valves to be located on C.W. piping at condenser water box inlet and outlet."
		clause no: 3.03.01, Page no: 5 of 28, Section:I, Vol-II-D2.	" The expansion joints Pressure balance rubber Expansion Joints will be condenser."	" The expansion joints Pressure balance rubber Expansion Joints / two (2) nos (one (1) is horizontal pipe & another one (1) is vertical pipe) Inline tied expansion joints will be condenser."
24.	L&T-834	VOLUME: II-A, SECTION-V, ANNEXURE-II, clause no. 4.4 (XV), P.no. 43,44 of 46	XV) All equipment operating maintenance platform including supporting structures such as grating platform in the oil equipment room, control fluid equipment room, valve room, Deaerator, Gland Steam Condenser, Flash tank and for other equipment supplied and erected by the Bidder.	XV) All equipment operating maintenance platform including supporting structures such as grating platform in the oil equipment room (if applicable) , control fluid equipment room, valve room, Deaerator, Gland Steam Condenser, Flash tank and for other equipment supplied and erected by the Bidder.
25.	L&T-835	Vo. II-D2/ Section-I Clause 5.01.06	All buried pipes at rail/road crossing shall be taken through RCC box culvert. Box culverts shall be designed and constructed in accordance with civil specification in Volume-II-G/1 & G/2	For road crossings of CW pipelines, RCC box culverts (or) RCC encasing with suitable design requirement considered in selection of piping like axle loads etc. along with the earth cover motioned elsewhere in this specification. All other buried pipes (except CW pipe) at rail/road crossing shall be taken through RCC box culvert. Box culverts shall be designed and constructed in accordance with civil specification in Volume-II-G/1 & G/2.
		Vo. II-D2/ Section-I Clause 5.01.22	..... Wherever road crossings are encountered, RCC box culvert is to be	..... Wherever road crossings are encountered for CW pipelines, RCC box culverts (or) RCC encasing with suitable design requirement considered in

Change in specification (Section B of Tender Specification)

Annexure C2E (CWS, HVAC, LP piping)

Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
			provided	selection of piping like axle loads etc. along with the earth cover mentioned elsewhere in this specification. All other buried pipes (except CW pipe) at rail/road crossing shall be taken through RCC box culvert.
		Vol II-IA/ Section-I Clause 4.01.11 (j)	RCC box culvert shall be provided for each road/rail crossing for buried CW pipes. During laying of CW pipe necessary sand bedding shall be provided as specified in Clause no 6.00.00 of Volume-II-D2, Section I of this specification.	RCC box culvert (or) RCC encasing with suitable design requirement considered in selection of piping like axle loads etc. along with the earth cover mentioned elsewhere in this specification shall be provided for each road/rail crossing for buried CW pipes. During laying of CW pipe necessary sand bedding shall be provided as specified in Clause no 6.00.00 of Volume-II-D2, Section I of this specification.
26.	L&T-836 & 1156	clause no: 7.00.00 (i), section:V, Vol-II-A	A walkway of 750 mm (minimum width) with pipe hand rails& toe guards shall be provided all along length of the trestle for maintenance of cables & pipes. Ladders for.....".	" i) A walkway of 600 mm (minimum width) with pipe hand rails & toe guards shall be provided all along length of the trestle for maintenance of cables in all areas and for AHP pipes . Ladders for.....".
		Vol. II-D2/Section-II LP Piping, Valves & Specialties, 4.01.05, Page 6 of 50	All trestles shall be provided with continuous walkway of minimum 750 mm width with handrail and toe-guards all along the length of the trestle along with approach ladders near roads, passageways etc. Walkway shall be provided shall be provided with GI Grating .	All trestles shall be provided with continuous walkway of minimum 600 mm width with handrail and toe-guards all along the length of the trestle along with approach ladders near roads, passageways etc. Walkway shall be provided shall be provided with GI Grating .

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Annexure C2E (CWS, HVAC, LP piping)

Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
		Vol. II-A/Section-V General Technical Requirements, e) Page 42 of 46	A walkway of 750 mm (minimum width) with hand rails & toe guards shall be provided all along length of the trestle for maintenance of cables. Ladders/staircase for approach to these platforms shall be provided near roads, passage ways and turning points.	A walkway of 600 mm (minimum width) with hand rails & toe guards shall be provided all along length of the trestle for maintenance of cables. Ladders/staircase for approach to these platforms shall be provided near roads, passage ways and turning points.
27.	L&T-838	Vol II-A/ Section-V Clause 7.00.00 (C) (ii)	Clear head room in passage bay between TG hall and first row of boiler column i.e. CD bay 8 m	"Clear headroom in the CD shall be maintained 8.0m except at Annexure building area interconnection, where 5.0m headroom shall be provided".
28.	L&T-840	clause no: 4.01.06 (b), section-I, vol-II-IA.	"..... William's Formula for design purposes based on pumping capacity as obtained above.	"..... William's Formula for design purposes based on pumping capacity as obtained above. DARCY-WEISBACH formula may also be used for calculating pressure drop of piping ".
		clause no: 4.03.00 (d), section-I, vol-II-IB/1.	".....Hazen and William's Formula for design purposes based on pumping capacity as obtained in (a) above.	".....Hazen and William's Formula for design purposes based on pumping capacity as obtained in (a) above. DARCY-WEISBACH formula may also be used for calculating pressure drop of piping ".
		clause no: 5.24.00 (b), page no: 27 of 105, section-I, vol-II-IB/4.	-	In note, newly added. DARCY-WEISBACH formula may be used for calculating pressure drop of piping.
29.	L&T-842	Volume II-J/ Section-III, 2.01.01	Modular type air washer units as an alternative option.	Modular type air washer system description to be included as an alternative option in cl no: 2.01.01, Section:III, Vol-II-J. Ref attached "Annexure-I for HVAC.

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Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
30.	L&T-843	Volume II-J/ Section-III, 1.02.00, table, sl no:15	CHP Switchgear room: Fresh and filtered air supply system with Centrifugal Fan of 2 X 60% capacity (for capacity 15000 CMH and above) with Pre and Fine Filters / Tube Axial Flow Fan with Pre and Fine filters (for capacity below 15000 CMH) and air exhaust through Back draft Dampers.	CHP Switchgear room: Fresh and filtered air supply system with Centrifugal Fan of 2 X 60% capacity with Pre and Fine Filters and air exhaust through Back draft Dampers.
		Volume II-J/ Section-III, 1.02.00, table, sl no:16	AHS Switchgear room Fresh and filtered air supply system with Centrifugal Fan of 2 X 60% capacity (for capacity 15000 CMH and above) with Pre and Fine Filters / Tube Axial Flow Fan with Pre and Fine filters (for capacity below 15000 CMH) and air exhaust through Back draft Dampers.	AHS Switchgear room Fresh and filtered air supply system with Centrifugal Fan of 2 X 60% capacity with Pre and Fine Filters and air exhaust through Back draft Dampers.
		Volume II-J/ Section-III, 1.02.00, table, sl no:24	Switchyard Control Building: Electrical Room – Fresh and filtered air supply system with Centrifugal Fan of 2x60% capacity (for capacity 15000 CMH and above) with Pre and Fine Filters / Tube Axial Flow Fan with Pre and Fine filters (for capacity below 15000 CMH) and air exhaust through Back draft Dampers.	Switchyard Control Building: Electrical Room – Fresh and filtered air supply system with Centrifugal Fan of 2x60% capacity with Pre and Fine Filters and air exhaust through Back draft Dampers.
		Volume II-J/ Section-III, 1.02.00, table, sl no:25	Silo Utility Building MCC room: Fresh and filtered air supply system with Centrifugal Fan of 2x60% capacity (for capacity 15000 CMH and above) with Pre and Fine Filters / Tube Axial Flow Fan with Pre and Fine filters (for capacity below 15000 CMH) and air	Silo Utility Building MCC room: Fresh and filtered air supply system with Centrifugal Fan of 2x60% capacity with Pre and Fine and air exhaust through Back draft Dampers.

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Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
			exhaust through Back draft Dampers.	
		Volume II-J/ Section-III, 1.02.00, table, sl no:18	Clarified Water Pump House, Fire water Pump House, And DM clarified water pump house: Electrical room - Fresh and filtered air supply system with Centrifugal Fan of 2x60% capacity (for capacity 15000 CMH and above) with Pre and Fine Filters / Tube Axial Flow Fan with Pre and Fine filters (for capacity below 15000 CMH) and air exhaust through Back draft Dampers.	Clarified Water Pump House, Fire water Pump House, And DM clarified water pump house: Electrical room - Fresh and Filtered air supply system with Centrifugal Fan of 2x60% capacity (for capacity 50000 CMH and above) with Pre and Fine Filters / Tube Axial Flow Fan with Pre and Fine filters (for capacity below 50000 CMH) and air exhaust through Back draft Dampers. In both the cases, Pre and Fine Filters should be located on the suction side of the Fan. For Tube Axial Flow Fan, necessary additional structure / support as per requirement are to be provided.
		Volume II-J/ Section-III, 1.02.00, table, sl no:20	Chlorination plant buildings (For CW / RW / PW) Electrical room - Fresh and filtered air supply system with Centrifugal Fan of 2x60% capacity (for capacity 15000 CMH and above) with Pre and Fine Filters / Tube Axial Flow Fan with Pre and Fine filters (for capacity below 15000 CMH) and air exhaust through Back draft Dampers.	Chlorination plant buildings (For CW / RW / PW) Electrical room - Fresh and Filtered air supply system with Centrifugal Fan of 2x60% capacity (for capacity 50000 CMH and above) with Pre and Fine Filters / Tube Axial Flow Fan with Pre and Fine filters (for capacity below 50000 CMH) and air exhaust through Back draft Dampers. In both the cases, Pre and Fine Filters should be located on the suction side of the Fan. For Tube Axial Flow Fan, necessary additional structure / support as per requirement are to be provided.
		Volume II-J/ Section-III, 1.02.00, table, sl	Circulating water pump house /ACW Pump house: Electrical MCC room - Fresh and filtered air	Circulating water pump house /ACW Pump house: Electrical MCC room - Fresh and Filtered air supply system with Centrifugal Fan of 2x60% capacity (for

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Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
		no:21	supply system with Centrifugal Fan of 2x 60% capacity (for capacity 15000 CMH and above) with Pre and Fine Filters / Tube Axial Flow Fan with Pre and Fine filters (for capacity below 15000 CMH) and air exhaust through Back draft Dampers.	capacity 50000 CMH and above) with Pre and Fine Filters / Tube Axial Flow Fan with Pre and Fine filters (for capacity below 50000 CMH) and air exhaust through Back draft Dampers. In both the cases, Pre and Fine Filters should be located on the suction side of the Fan. For Tube Axial Flow Fan, necessary additional structure / support as per requirement are to be provided.
		Volume II-J/ Section-III, 1.02.00, table, sl no:22	Raw water Pump House: Electrical room – Fresh and filtered air supply system with Centrifugal Fan of 2x60% capacity (for capacity 15000 CMH and above) with Pre and Fine Filters / Tube Axial Flow Fan with Pre and Fine filters (for capacity below 15000 CMH) and air exhaust through Back draft Dampers.	Raw water Pump House: Electrical room – Fresh and Filtered air supply system with Centrifugal Fan of 2x60% capacity (for capacity 50000 CMH and above) with Pre and Fine Filters / Tube Axial Flow Fan with Pre and Fine filters (for capacity below 50000 CMH) and air exhaust through Back draft Dampers. In both the cases, Pre and Fine Filters should be located on the suction side of the Fan. For Tube Axial Flow Fan, necessary additional structure / support as per requirement are to be provided.
		Volume II-J/ Section-III, 1.02.00, table, sl no:23	STP MCC Room: Fresh and filtered air supply system with Centrifugal Fan of 2x60% capacity (for capacity 15000 CMH and above) with Pre and Fine Filters / Tube Axial Flow Fan with Pre and Fine filters (for capacity below 15000 CMH) and air exhaust through Back draft Dampers.	STP MCC Room: Fresh and Filtered air supply system with Centrifugal Fan of 2x60% capacity (for capacity 50000 CMH and above) with Pre and Fine Filters / Tube Axial Flow Fan with Pre and Fine filters (for capacity below 50000 CMH) and air exhaust through Back draft Dampers. In both the cases, Pre and Fine Filters should be located on the suction side of the Fan. For Tube Axial Flow Fan, necessary additional structure / support as per requirement are to be provided.
		Volume II-J/ Section-III, 1.02.00, table, sl	Ash water transfer Pump House MCC room: Fresh and filtered air supply system with Centrifugal Fan of 2x60% capacity (for capacity	Ash water transfer Pump House MCC room: Fresh and Filtered air supply system with Centrifugal Fan of 2x60% capacity (for capacity 50000 CMH and above)

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Annexure C2E (CWS, HVAC, LP piping)

Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
		no: 26	15000 CMH and above) with Pre and Fine Filters / Tube Axial Flow Fan with Pre and Fine filters (for capacity below 15000 CMH) and air exhaust through Back draft Dampers.	with Pre and Fine Filters / Tube Axial Flow Fan with Pre and Fine filters (for capacity below 50000 CMH) and air exhaust through Back draft Dampers. In both the cases, Pre and Fine Filters should be located on the suction side of the Fan. For Tube Axial Flow Fan, necessary additional structure / support as per requirement are to be provided.
		Volume II-J/ Section-III, 1.02.00, table, sl no: 27	Ash water Pump House MCC room: Fresh and filtered air supply system with Centrifugal Fan of 2x60% capacity (for capacity 15000 CMH and above) with Pre and Fine Filters / Tube Axial Flow Fan with Pre and Fine filters (for capacity below 15000 CMH) and air exhaust through Back draft Dampers.	Ash water Pump House MCC room: Fresh and Filtered air supply system with Centrifugal Fan of 2x60% capacity (for capacity 50000 CMH and above) with Pre and Fine Filters / Tube Axial Flow Fan with Pre and Fine filters (for capacity below 50000 CMH) and air exhaust through Back draft Dampers. In both the cases, Pre and Fine Filters should be located on the suction side of the Fan. For Tube Axial Flow Fan, necessary additional structure / support as per requirement are to be provided.
		Volume II-J/ Section-III, 1.02.00, table, sl no: 28	All cable cellar rooms: Fresh and filtered air supply system with Centrifugal Fan of 2x60% capacity (for capacity 15000 CMH and above) with Pre and Fine Filters / Tube Axial Flow Fan with Pre and Fine filters (for capacity below 15000 CMH) and air exhaust through Back draft Dampers.	All cable cellar rooms: Fresh and Filtered air supply system with Centrifugal Fan of 2x60% capacity (for capacity 50000 CMH and above) with Pre and Fine Filters / Tube Axial Flow Fan with Pre and Fine filters (for capacity below 50000 CMH) and air exhaust through Back draft Dampers. In both the cases, Pre and Fine Filters should be located on the suction side of the Fan. For Tube Axial Flow Fan, necessary additional structure / support as per requirement are to be provided.
		Volume II-J/ Section-III, 1.02.00, table, sl no: 30	DM Plant building: Electrical room - Fresh and filtered air supply system with Centrifugal Fan of 2x60% capacity (for capacity 15000 CMH and above) with Pre	DM Plant building: Electrical room - Fresh and Filtered air supply system with Centrifugal Fan of 2x60% capacity (for capacity 50000 CMH and above) with Pre and Fine Filters / Tube Axial

Change in specification (Section B of Tender Specification)

Annexure C2E (CWS, HVAC, LP piping)

Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
			and Fine Filters / Tube Axial Flow Fan with Pre and Fine filters (for capacity below 15000 CMH) and air exhaust through Back draft Dampers.	Flow Fan with Pre and Fine filters (for capacity below 50000 CMH) and air exhaust through Back draft Dampers. In both the cases, Pre and Fine Filters should be located on the suction side of the Fan. For Tube Axial Flow Fan, necessary additional structure / support as per requirement are to be provided.
		Volume II-J/ Section-III, 1.02.00, table, sl no: 34	ETP RO Plant building Electrical room - Fresh and filtered air supply system with Centrifugal Fan of 2x60% capacity (for capacity 15000 CMH and above) with Pre and Fine Filters / Tube Axial Flow Fan with Pre and Fine filters (for capacity below 15000 CMH) and air exhaust through Back draft Dampers.	ETP RO Plant building Electrical room - Fresh and Filtered air supply system with Centrifugal Fan of 2x60% capacity (for capacity 50000 CMH and above) with Pre and Fine Filters / Tube Axial Flow Fan with Pre and Fine filters (for capacity below 50000 CMH) and air exhaust through Back draft Dampers. In both the cases, Pre and Fine Filters should be located on the suction side of the Fan. For Tube Axial Flow Fan, necessary additional structure / support as per requirement are to be provided.
		Volume II-J/ Section-III, 1.02.00, table, sln: 35	ETP UF- RO Plant building Electrical room - Fresh and filtered air supply system with Centrifugal Fan of 2x60% capacity (for capacity 15000 CMH and above) with Pre and Fine Filters / Tube Axial Flow Fan with Pre and Fine filters (for capacity below 15000 CMH) and air exhaust through Back draft Dampers.	ETP UF- RO Plant building Electrical room - Fresh and Filtered air supply system with Centrifugal Fan of 2x60% capacity (for capacity 50000 CMH and above) with Pre and Fine Filters / Tube Axial Flow Fan with Pre and Fine filters (for capacity below 50000 CMH) and air exhaust through Back draft Dampers. In both the cases, Pre and Fine Filters should be located on the suction side of the Fan. For Tube Axial Flow Fan, necessary additional structure / support as per requirement are to be provided.

Change in specification (Section B of Tender Specification)

Annexure C2E (CWS, HVAC, LP piping)

Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
		Volume II-J/ Section-III, 1.02.00, table, sl no: 39	Hydrogen generation Plant electrical room: Fresh and filtered air supply system with Centrifugal Fan of 2x60% capacity (for capacity 15000 CMH and above) with Pre and Fine Filters / Tube Axial Flow Fan with Pre and Fine filters (for capacity below 15000 CMH) and air exhaust through Back draft Dampers.	Hydrogen generation Plant electrical room: Fresh and Filtered air supply system with Centrifugal Fan of 2x60% capacity (for capacity 50000 CMH and above) with Pre and Fine Filters / Tube Axial Flow Fan with Pre and Fine filters (for capacity below 50000 CMH) and air exhaust through Back draft Dampers. In both the cases, Pre and Fine Filters should be located on the suction side of the Fan. For Tube Axial Flow Fan, necessary additional structure / support as per requirement are to be provided.
31.	L&T-844	clause no: 5.03.00, section-III, Vol-IIJ	-	Added as a new clause d) For Air washer unit sizing calculation, to consider +5m effective operating height from the above operating floor of TG hall.
32.	L&T-845	2.04.10, Volume II-J/Section-IV	A. Non Chemical Water Treatment Device „One(1) No. {Suitable for the make up water quality for the system requirement.(The water analysis is enclosed else where in the specification)} B. Water Softening Device One (1) No. {Suitable for the make up water quality for the system requirement.(The water analysis is enclosed else where in the specification)}	{Suitable for the make up water quality for the system requirement.(The water analysis is enclosed else where in the specification))- Stands deleted in clause no: 2.04.10, A & B. Newly added the following sentence in the bottom of clause no: 2.04.10. "For the makeup water quality specified elsewhere in the specification suitable systems as given above (for both A&B) shall be provided, as applicable.
33.	L&T-847	clause no: 1.02.00, table, slno:xxxvi, section:IV, vol-IIJ	Canteen Building (AC area): Non ductable Split AC Units with standby.	Canteen Building (AC area): Non ductable Split AC Units (One common standby of same capacity of single unit for each premises (i.e. Dining hall-workman-1no &

Change in specification (Section B of Tender Specification)

Annexure C2E (CWS, HVAC, LP piping)

Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as																																																						
				Dining hall-executives-1 no, office-1 no. & Air conditioned store-1 no.))																																																						
34.	L&T-848	Section-B / Volume I-B/ Section-9, Cl. no: 9.5.2.14 Cl no:5.02.13, Section:X, Vol-IIA.	<p>The Auxiliary Power Guarantee test of equipment's listed below shall be performed at site by operating the required working equipment (as per specification) to achieve the design indoor conditions as per specification. The auxiliary power shall be measured at switchgear end of the equipment.</p> <table><tr><th>Sl. NO.</th><th>Drive</th><th>Location</th><th>Duty Factor</th></tr><tr><td>A</td><td colspan="3">Air Conditioning System</td></tr><tr><td>1</td><td>Water cooled chiller¹</td><td rowspan="5">TG Building</td><td>1.0</td></tr><tr><td>2</td><td>AHU Centrifugal fan¹</td><td>1.0</td></tr><tr><td>3</td><td>AHU Fresh air fan</td><td>1.0</td></tr><tr><td>4</td><td>AHU Precision unit fan</td><td>1.0</td></tr><tr><td>5</td><td>FCU</td><td>1.0</td></tr></table>	Sl. NO.	Drive	Location	Duty Factor	A	Air Conditioning System			1	Water cooled chiller ¹	TG Building	1.0	2	AHU Centrifugal fan ¹	1.0	3	AHU Fresh air fan	1.0	4	AHU Precision unit fan	1.0	5	FCU	1.0	<p>The Auxiliary Power Guarantee test of equipment's listed below shall be performed at site by operating the working equipmentexcluding standby (as per specification) to achieve the design indoor conditions as per specification. The auxiliary power shall be measured at switchgear end of the equipment.</p> <table><tr><th>Sl. NO.</th><th>Drive</th><th>Location</th><th>Duty Factor</th></tr><tr><td>A</td><td colspan="3">Air Conditioning System</td></tr><tr><td>1</td><td>VAM (Vapour absorption machine)</td><td rowspan="7">TG Building</td><td>1.0</td></tr><tr><td>2</td><td>AHU Centrifugal fan¹</td><td>1.0</td></tr><tr><td>3</td><td>AHU Fresh air fan</td><td>1.0</td></tr><tr><td>4</td><td>AHU Precision unit fan</td><td>1.0</td></tr><tr><td>5</td><td>FCU Centifugal fan</td><td>1.0</td></tr><tr><td>6</td><td>Chilled water pumps</td><td>1.0</td></tr><tr><td>7</td><td>Condenser water</td><td>1.0</td></tr></table>	Sl. NO.	Drive	Location	Duty Factor	A	Air Conditioning System			1	VAM (Vapour absorption machine)	TG Building	1.0	2	AHU Centrifugal fan ¹	1.0	3	AHU Fresh air fan	1.0	4	AHU Precision unit fan	1.0	5	FCU Centifugal fan	1.0	6	Chilled water pumps	1.0	7	Condenser water	1.0
Sl. NO.	Drive	Location	Duty Factor																																																							
A	Air Conditioning System																																																									
1	Water cooled chiller ¹	TG Building	1.0																																																							
2	AHU Centrifugal fan ¹		1.0																																																							
3	AHU Fresh air fan		1.0																																																							
4	AHU Precision unit fan		1.0																																																							
5	FCU		1.0																																																							
Sl. NO.	Drive	Location	Duty Factor																																																							
A	Air Conditioning System																																																									
1	VAM (Vapour absorption machine)	TG Building	1.0																																																							
2	AHU Centrifugal fan ¹		1.0																																																							
3	AHU Fresh air fan		1.0																																																							
4	AHU Precision unit fan		1.0																																																							
5	FCU Centifugal fan		1.0																																																							
6	Chilled water pumps		1.0																																																							
7	Condenser water		1.0																																																							

Change in specification (Section B of Tender Specification)

Annexure C2E (CWS, HVAC, LP piping)

Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification				Description To be read as			
				Centifugal fan				pumps		
			6	Chilled water pumps		1.0	8	Cooling tower fan		1.0
			7	Condenser water pumps		1.0	9	Water cooled precision Air Conditioners (PAC)	ESP Building, FGD & Switchyard control room	1.0
			8	Cooling tower fan		1.0	10	PAC - Condenser water pump		1.0
						11	PAC - Cooling tower fan	1.0		
			9	Water cooled precision Air Conditioners (PAC)	ESP Building & Switchyard control room	1.0	12	Non-Ductable split type AC units	ACin all areas	1.0
			10	PAC - Condenser water pump		1.0	B Ventilation System			
			11	PAC - Cooling tower fan		1.0	1	Air washer -Centrifugal fan	TG Building	1.0
						2	Air washer Centrifugal pumps	1.0		
						3	Roof Extractors	1.0		
			12	Non-Ductable split type AC units	ACin all areas	1.0	4	Unitary Air Filtration fans	ESP Building	1.0
			B	Ventilation System				5		Unitary Air Filtration pumps	1.0

Change in specification (Section B of Tender Specification)

Annexure C2E (CWS, HVAC, LP piping)

Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification				Description To be read as			
			2	Air washer - Centrifugal fan	TG Building	1.0	6	Centrifugal fans for pressurisationventilation system	Ventilation in all areas	1.0
			3	Air washer Centrifugal pumps		1.0	8	Tube axial fan		1.0
			4	Roof Extractors		1.0	9	Exhaust fans		1.0
			5	Unitary Air Filtration fans	ESP Building	1.0				
			6	Unitary Air Filtration pumps		1.0				
			7	Centrifugal fans for pressurisation ventilation system	Ventilation in all areas	1.0				
			8	Tube axial fan		1.0				
			9	Exhaust fans		1.0				

Change in specification (Section B of Tender Specification)

Annexure C2E (CWS, HVAC, LP piping)

Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
35.	L&T-851	Annexure-I, table, sl no:32, Section:III, Vol-IIK	32. For handling fan/ fan motor in Air washer room	<p>"32. For handling fan and fan motor in Air washer room (Note:3),Type of service: Indoor / outdoor, No.of hoist: As per layout arrangement".</p> <p>Also the following new note shall be added in below table of Annexure-I.</p> <p>"Note-3 (Serial No.32):</p> <p>For handling motor/fan impeller of modular type air washer unit, "Tripod with suitable chain pulley block and suitable trolley shall be provided. The selection criteria for the above shall be as given in specification for handling equipment".</p>
36.	L&T 854 and Annexure Z-2.7 S.No.20 - common points.	Section:IX, vol-IIA	Mandatory spares for HVAC (Air conditioning & ventilation system).	Sub package wise list of mandatory spares for HVAC (Air conditioning & ventilation system) covered in the tender specification is attached as Annexure-A to be deleted. Instead a common consolidated mandatory spares required for the HVAC system of the entire EPC scope is furnished in Annexure-B (attached).
37.	Annexure Z-2.7 S.No.21 - common	Section:IX, vol-IIA	Mandatory spares for Crane & Hoist.	sub package wise list of mandatory spares for Crane & Hoist covered in the tender specification, which are to be deleted / modified as specified in Annexure-C (attached). Instead a common consolidated mandatory spares required for the Crane & Hoist of the entire EPC scope is

Change in specification (Section B of Tender Specification)

Annexure C2E (CWS, HVAC, LP piping)

Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
	points.			furnished in Annexure-D (attached).
38.	L&T- TCM F2.3, SI no:14	Vol: III-F1 / Sch: III-F1/3 / Cooling tower SI no: 5.02.00	Louvres:	Louvres (as applicable as per OEM design for the site condition).
		Vol: II-IA / Section: IV / Cooling tower SI no: 4.05.00	Louver and Casing	Louver (as applicable as per OEM design for the site condition) and Casing
		Vol: II-IA / Section: IV / Cooling tower Annexure-I, table, Material of construction.	Louvers: RCC	Louvers (as applicable as per OEM design for the site condition): RCC
39.	F2.7 Common for BHEL and L&T	Vol-II-A, Sec-II, Clause no:3.02.07, Page no:7 of 20.	The sub-contractor at least two nos. concrete volute pumps / vertical turbine pump each of capacity 32,000m ³ / hr or more during last ten years .....of not less than one year as on the date of issue of LOA.	The sub-contractor.....at least two nos. concrete volute pumps / vertical turbine pump each of capacity 32,000m ³ / hr or more (if pump configuration as 2x50% per unit) / 22,000 m³/hr or more (if pump configuration as 3x33% per unit) during last ten years not less than one year as on the date of issue of LOA

Change in specification (Section B of Tender Specification)

Annexure C2E (CWS, HVAC, LP piping)

Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
		Vol-IB, Sec-12, Clause no:12.2.7, Page no:7 of 20.	The sub-contractor at least two nos. concrete volute pumps / vertical turbine pump each of capacity 32,000m ³ / hr or more during last ten years .....of not less than one year as on the date of issue of LOA.	The sub-contractor.....at least two nos. concrete volute pumps / vertical turbine pump each of capacity 32,000m ³ / hr or more (if pump configuration as 2x50% per unit) / 22,000 m³/hr or more (if pump configuration as 3x33% per unit) during last ten years not less than one year as on the date of issue of LOA
		clause no: 7.05.03 (i), Sec:III, Vol-II-IA	Noise: 85 dBA at 1.5m from equipment outline	Noise: 85 dBA at 1.0m from equipment outline and 1.5 meter above floor level.
		Annexure-I, Table, sl no:16J, Sec:III, Vol-II-IA	Noise level: 85 dB (A) at 1 m distance at all direction	
		Vol: III-F1 / Sch: III-F1/2 / Cl no: 5.07.00 / Page 7 of 10	Impeller	Due to repetition (in clause no: 5.03.00), clause no: 5.07.00 stands deleted.
		Table, sl no:36, Circulating water pumps, Section:9, Vol-IB	36. Circulating water pumps: 100% TMCR: 02 55% TMCR: 02	36A. Circulating water pumps: 100% TMCR: 02 55% TMCR: 02 Remarks: If 2x50% capacity CWP configuration 36B. Circulating water pumps: 100% TMCR: 03 55% TMCR: 03 Remarks: If 3x33% capacity CWP configuration

Change in specification (Section B of Tender Specification)

Annexure C2E (CWS, HVAC, LP piping)

Sl.No.	TCM Reference	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
		Vol: III-F1 / Sch: III-F1/1 / Horizontal centrifugal pumps CI no: 4.02.00	Pump duty: Continuous / Intermittent	Pump duty: Continuous / Intermittent"
		Clause no:4.8.0, Time Schedule for Completion of the Project, Table, SI no:17, Section:4, Vol-IB	17. Readiness of CW System : 40 (with facilities common for Unit#1,2 & 3 as applicable)	17. Readiness of CW System (as applicable for the type of pump selected by bidder): 40 (for CVP: with facilities common for Unit#1,2 & 3 as applicable) (For VTP: Common facilities and standby pumps shall be available)
40	BHEL-TCM-183 & L&T-TCM-F2.6-SI no:3	SI no:4, F. Circulating water system, Section:XIV, Vol-IIA	4. Carton shaft (Intermittent shaft)	4. Intentionally Deleted

Change in specification (Section B of Tender Specification)

Annexure C2E (CWS, HVAC, LP Piping)

Sl. No.	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
41	IIA/IX/3.10.02/197 of 354	NDCT i) Spray nozzles : 10% of total quantity used for one (1) Tower ii) Set of fills (Film type) : 10% of total quantity used for one (1) Tower iii) Drift Eliminator : 5%	NDCT i) Spray nozzles : 10% of total quantity used for one (1) Tower ii) Set of fills (Film type) : 10% of total quantity used for one (1) Tower iii) Drift Eliminator : 5% of total quantity used for one (1) Tower
42	Vol. II-J/Section-IV 1.03.03 Page 6 of 67	The return air is conveyed through return air duct above False Ceiling via RA grilles and diffusers and led back to the AHU rooms.	The return air is conveyed through return air duct above False Ceiling via RA grilles and diffusers and led back to the AHU rooms. In service building area, the return air is conveyed through plenum between False Ceiling and true ceiling via RA grilles and diffusers and led back to the AHU rooms. However cooling load for the plenum to be considered while calculating the cooling load.
43	Vol. II-D2/Section-I, 5.01.05, Page 10 of 29	Manholes shall be provided wherever required and the sizes shall be as indicated below: Pipe size 900 NB and below - 500 NB manhole. Pipe size 950 NB to 1100 NB - 600 NB manhole. Pipe size 1150 NB to 1800 NB - 800 NB manhole. Pipe size 1800 NB and more - 1000 NB manhole.	Manholes shall be provided wherever required and the sizes shall be as indicated below: Pipe size 1200 NB to 1800 NB - 800 NB manhole. Pipe size 1800 NB and more - 1000 NB manhole.

Annexure-A (In line with the sl no:20, Annexure-Z2.7 Common point, the following items stands deleted in "List of mandatory spares, Annexure-I-1 to 4, Section:IX, vol-IIA of Tender specification")

Ventilation system:

Clause no	Description
1.22.00	SG area ventilation system
1.22.01	Unitary air filtration unit
1.22.02	Fan filter unit
1.22.03	C&I Items
1.33.00	Local Control Station / Starter Panel / Distribution Boards (For feeding Ventilation Fans & Split ACs)
2.43.00	Ventilation system
2.43.01	Centrifugal Fans
2.43.02	Centrifugal pumps
2.43.03	Spray Nozzles
2.43.04	SS Filters
2.43.05	Flow Regulating Valve
2.43.06	Basket for POT Strainer
2.43.07	Valves
2.43.08	Roof Extractors
2.43.09	Tube Axial fan (includes Bifurcated fan)
2.43.10	Propeller fan
2.43.11	C&I Items
2.72.00	Local Control Station / Starter Panel / Distribution Boards (For feeding Ventilation Fans & Split ACs)
3.13.00	Ventilation system
3.13.01	Centrifugal fan
3.13.02	Tube Axial fan (includes Bifurcated fan)
3.13.03	Propeller fan
3.14.00	Electrical System for Air conditioning & Ventilation Package
3.14.01	VFD System (if applicable)- (Connected to Low Voltage Supply- 415V)
3.14.02	415 Volt Motor
3.14.03	Local Push Button stations, Local Starter Panel, Local Control Panel
3.15.43	Ventilation system
3.15.65	Local Control Station / Starter Panel / Distribution Boards (For feeding Ventilation Fans & Split ACs)
3.16.33	Local Control Station / Starter Panel / Distribution Boards (For feeding Ventilation Fans & Split ACs)
4.45.00	Ventilation system
4.72.00	Local Control Station / Starter Panel / Distribution Boards (For feeding Ventilation Fans & Split ACs)

Air conditioning system:

Clause no.	Description
1.23.00	SG area Air conditioning system
1.23.01	Water Cooled Precision Air Conditioner
1.23.02	Centrifugal Pumps
1.23.03	Split type Air Conditioners
1.23.04	C&I Items
2.44.00	Air conditioning system
2.44.01	Vapor Absorption Machine (VAM)
2.44.02	Vapor Compression Machine (VCM) - Screw compressors
2.44.03	Refrigerant Condenser
2.44.04	Chiller (each categories)
2.44.05	Air Handling Units (AHU)
2.44.06	Centrifugal Blowers of All AHU
2.44.07	Centrifugal pumps
2.44.08	Heat Exchangers
2.44.09	Cooling Tower
2.44.10	Valves
3.12.00	Air conditioning system
3.12.01	Water cooled Precision Air Conditioner
3.12.02	Cooling Tower
3.12.03	Centrifugal Pumps
3.12.04	Split type Air Conditioners
4.71.00 to 4.71.09	Water Cooled Precision Air Conditioner
4.71.10	Centrifugal Pumps

Talabira (3x800MW)

Bidder is requested to note that, from the sub package wise list of mandatory spares for HVAC (Air conditioning & ventilation system) covered in the tender specification, which are listed in the Annexure-A (attached) stands deleted. Instead a common consolidated mandatory spares required for the HVAC system of the entire EPC scope is furnished below in Annexure-B. Bidder is requested to note and confirm quoting for the list of items furnished in Annexure-B for mandatory spares required for the HVAC system of the entire EPC scope.

Annexure-B (Common mandatory spares for HVAC system): To be included in Section:IX, vol-IIA of tender specification as below.

Anx-I-7 HVAC, Crane & Hoist, Section:IX, vol-IIA of Tender specification

Sl no	Equipment/Package Name	Quantity to be supplied for the Package	Bidder's confirmation
Ventilation system			
7.00.01	Centrifugal fan (each type, rating, Size & Model)		
	i) Impeller	10% of total population.	
	ii) Gasket	2 sets	
	iii) Fan bearing	2 sets	
	iv) Fan motor bearing	2 sets	
	v) V-Belts (if V-Belt drive)	2 sets	
	vi) Pillow block	1 set	
	vii) Motor for fan	10% of total population.	
	viii) Filter (pre & fine filters)	2 sets	
	ix) Rubber pads for Foundation	1 set	
7.00.02	Tube Axial fan & Roof extractor (includes Bifurcated fan) (each type, rating, Size & Model)		
	i) Fan motor bearing	2 sets	
	ii) Filter (pre & fine filters)	2 sets	
	iii) Motor for fan	10% of total population.	
7.00.03	Propeller fan (each type, rating, Size & Model)		
	Fan complete with motor	10% of total population.	
7.00.04	Spray Nozzles (if applicable)		
	i) Spray nozzles for air washer unit	1Set (one set means complete replacement for one air washer)	
7.00.05	SS Filters (if applicable)		
	i) SS Filters for Air washer	1Set (one set means complete replacement for one air washer)	
7.00.06	Flow Regulating Valve (each type, rating & size) (if applicable)		
	i) For Air Washer	1No.	
7.00.07	Basket for POT Strainer (each type, rating & size) (if applicable)		
	i) Strainer Basket for Air Washer	1No.	
7.00.08	Valves (each type, rating & size) (if applicable)		
	i) Gate valve for Air washer	2Nos.	
	ii) NR Valve for Air Washer	1 no.	

	iii) Gate valve for Unitary Air Filtration Unit	2Nos.	
	iv) Gate Valve for Make-up Drain of Air washer	1No.	
7.00.09	Unitary air filtration unit (each type, rating & size)		
	i) Set of Bearings for fan and motor	1 set	
	ii) V-belt for U.A.F. Fans	1 set	
	iii) Spray nozzle	1 set	
7.00.10	Fan filter unit (each type, rating & size)		
	i) Set of Bearings for fan motor	1 set	
	ii) Filter	1 set	
7.00.11	Modular Air washer unit (if applicable) (for each type)		
	(i) Supply Air fans		
	a) V-belts for Supply air fans	2 sets	
	b) Supply air fan bearings	1 set	
	(ii) Air Washer pump		
	a) Impeller for Pump	2 no of each type	
	b) Pump Shaft	2 no of each type	
	c) Pump Bearing	10% of total population.	
	d) Shaft Sleeves	10% of total population.	
	e) Gland Packings for pumps	2 sets	
	f) Spray nozzles	5% of total population or 100 numbers whichever is higher.	
	g) Air Washer Pump inlet water strainer	3 nos	
	h) Brass suction screen/strainer for air washer tank	3 sets	
	(iii) Electrical actuators		
	a) Actuators	10% of total population -each type, model and rating	
	b) Motor for centrifugal fan for air washer unit	10% of total population- each rating.	
Air conditioning system			
7.01.01	Water Cooled Precision Air Conditioner (For each capacity, rating & size)		
	i) Compressor complete	2 sets	
	ii) Bearings for each blower and motor	2 sets	
	iii) Fan-motor (EC) set	10% of total population.	
	iv) Filters	2 sets	
	v) Expansion Valve EVE	1 set.	
	vi) Drier	1 set.	
	vii) Return Air sensor	1 set.	
	viii) H.P. & L.P. Switch	1 set.	
	ix) Cooling Tower (for Water Cooled Precision Air Conditioner & centralised air conditioning system (For each capacity, rating & size)		
	a) Spray nozzles	10% of total quantity used in each tower	
	b) Set of fills	10% of total quantity used each Tower	
	c) Bearings for fan and motor	2 sets	
7.01.02	Centrifugal pumps (each type, rating size & Model) (For Air conditioning & Ventilation system)		
	i) Impeller	10% of total population.	
	ii) Bearings (pump & motor)	10% of total population.	
	iii) Shaft	1 No.	
	iv) Impeller Lock nut	1 No.	

	v) Shaft protection sleeve	1 No.	
	vi) Pump-Motor Coupling Complete	1Set	
	vii) All wearing rings, lantern rings (as applicable)	10% of total population.	
	viii) Motor for pumps	10% of total population.	
	IX) Gland packing , mechanical seal (as applicable).	10% of total population.	
7.01.03	Vapor Absorption Machine (VAM) (each type, rating, Size & Model)		
	Absorbent pump		
	i) Bearings	1Set	
	ii) Shaft	1 no.	
	iii) Shaft sleeve	1 no.	
	iv) Impeller	10% of total population.	
	v) Gasket (as applicable)	1 set.	
	vi) Motor for pump	1 no.	
	Refrigerant pump		
	i) Bearings	1Set	
	ii) Shaft	1 no.	
	iii) Shaft sleeve	1 no.	
	iv) Impeller	10% of total population.	
	v) Gasket (as applicable)	1 set.	
	vi) Motor for pump	1 no.	
	Vacuum pump		
	i) Bearings	1Set	
	ii) Shaft	1 no.	
	iii) Shaft sleeve	1 no.	
	iv) Impeller	10% of total population.	
	v) Gasket (as applicable)	1 set.	
	vi) Motor for pump	1 no.	
7.01.04	Vapor Compression Machine (VCM)- Screw compressors (each type, rating, Size & Model)		
	i) Oil filter	1Set	

	ii) Oil filter 'O' ring	1Set	
	iii) Refrigerant filter	1Set	
	iv) Ref. filter 'O' ring	1Set	
	v) EXV valve	1 No.	
	vi) Differential pressure switch	1 No.	
	vii) Solenoid valve 2 way	1Set	
	viii) Solenoid valve coil	1Set	
	ix) Solenoid valve 'O' ring	1Set	
	x) Solenoid valve gasket valve	1Set	
7.01.05	Refrigerant Condenser (each type, rating, Size & Model)		
	i) All Gaskets	1Set	
	ii) Tubes	10%	
	iii) Tubes plugs	10% of tubes	
7.01.06	Chiller (each type, rating, Size & Model)		
	i) All Gaskets	1Set	
	ii) Tubes	10%	
	iii) Tubes plugs	10% of tubes	
7.01.07	Air Handling Units (AHU) (each type, rating, Size & Model)		
	i) Air filters of each size and type	1Set	
	ii) 3-way Mixing valve	1 No.	
7.01.08	Centrifugal Blowers of All AHU (each type, rating, Size & Model)		
	i) Rotating Assembly	1Set	
	ii) Complete Set of Bearing	1Set	
	iii) V-belts for AHU Blower	1 No.	

	Electrical System for Air conditioning Package		
7.02.01	VFD System (if applicable)- (Connected to Low Voltage Supply- 415V) (each type, make, Model, rating & area of application)	One Complete VFD unit	
7.02.02	415 Volt Motor (for Air condition system for each type and rating of Motor)		
a)	End Shield Cover Driving & Non-Driving End	1 set	
b)	Heaters (if applicable)	2 sets	
c)	Bearings (DE and NDE)	2 sets	
d)	Cooling Fan	One (1) set	

e)	Dust seals and gaskets	1 Set	
f)	Complete Set of Coupling (each size)	1 set	
7.02.03	Ventilation system: Local Push Button stations / Local Starter Panel / Local Control Panel (each type & Rating)	5% of total population	

7.03.01	C&I Items (each type, Range , model & length) as applicable		
i)	Pressure & Temperature gauges(including Thermowell)	10% of total population.	
ii)	Pressure transmitters	10% of total population.	
iii)	Flow & Limit switches	10% of total population.	
iv)	Temperature Element with thermowell	10% of total population.	

Note:

Refer Note of Annexure-I, Section:IX, Vol-IIA of tender specification.

Annexure-C

I) In line with the sl no:21, Annexure-Z2.7 Common point, below listed items stands deleted in "List of mandatory spares, Annexure-I-1 to 4, Section:IX, vol-IIA of Tender specification".

Crane & Hoist:

Clause no	Description
1.19.00	Miscellaneous Cranes and Hoists
1.19.01	SG EOT/Under Slung Cranes
1.19.02	Electric Hoist (For each capacity Hoists)
1.19.03	Manual Hoist (For each capacity Hoists)
1.47.00 to 1.47.04	Double Girder EOT Crane
2.39.01	EOT Cranes
2.39.02	Hoist
2.39.03	Electrical
2.41.00	Electrical Hoist
3.01.08	Underslung Cranes
3.01.09	VVVF System - (For Cranes & Hoists)
3.03.07	Underslung Cranes (at DM plant)
3.04.04	Under slung Crane in Clarified water pump house
3.04.05	Electric Hoist in DM Clarified Water Pump House
3.06.02	VVVF System (For Cranes)
3.07.12	Underslung Cranes (at Effluent Treatment Plant)
3.07.13	Electric Hoist (at Effluent Treatment Plant)
3.07.14	VVVF System - (For Hoist)
3.07.15	VVVF System (For crane)
3.09.23	VVVF System - (For Cranes & Hoists)
3.10.05	EOT & Semi Gantry Crane (CW Pump House) (Each type/capacity) separate set of mandatory spares to be supplied
3.10.06	Electric Hoists (CW system)
3.10.07	C&I Items
3.10.08	VVVF System - (For Cranes & Hoists)
3.11.18	i) EOT Cranes for Workshop and CHP Maintenance Building
3.15.40	EOT U/S Cranes (For each type & capacity)
3.15.41	Electric Hoists (For each type & capacity)
3.02.09	Electric Hoist (PT plant)
3.05.06	Electric Hoist (for CW/RW/PW ClO ₂ System and CW Chemical Treatment System)
3.09.12	Electric Hoist (Fire Water Booster Pump House)
3.11.13	Electrical Hoist for coal handling plant
4.74.00	Underslung Cranes (at FGD System)
4.73.00	Electric Hoist (For FGD System)
5.27.00	EOT Cranes for 765kV/400 kV/33kV Switchyard, Workshop & Non Plant Buildings
5.28.00	Electrical Hoist

II) In line with the sl no:21, Annexure-Z2.7 Common point,, the following items shall be modified as below in "List of mandatory spares, Annexure-I-1 to 4, Section:IX, vol-IIA of Tender specification".

Clause no	Description as existing	To be read as
1.32.00	VVVFD System (For Elevators, Cranes, Hoists)	VVVFD System (For Elevators, Cranes, Hoists)
2.55.00	VVVFD System - (For Elevators, Cranes, Hoists)	VVVFD System - (For Elevators, Cranes, Hoists)
3.11.21	VVVFD System - (For Elevators, Cranes, Hoists)	VVVFD System - (For Elevators, Cranes, Hoists)
3.15.46	VVVFD System - (For Elevators, Cranes, Hoists)	VVVFD System - (For Elevators, Cranes, Hoists)
4.77.00	VVVFD System - (For Elevator, Cranes & Hoists)	VVVFD System - (For Elevator, Cranes & Hoists)

Talabira (3x800MW)

Bidder is requested to note that, from the sub package wise list of mandatory spares for Crane & Hoist covered in the tender specification, which are deleted / modified as specified in Annexure-C (attached). Instead a common consolidated mandatory spares required for the Crane & Hoist of the entire EPC scope is furnished below in Annexure-D. Bidder is requested to note and confirm quoting for the list of items furnished in Annexure-B for mandatory spares required for the Crane & Hoist of the entire EPC scope.

Annexure-D (Common mandatory spares for Crane & Hoist): To be included in Section:IX, vol-IIA of tender specification as below.

Anx-I-7 HVAC, Crane & Hoist, Section:IX, vol-IIA of Tender specification

Sl no	Equipment/Package Name	Quantity to be supplied for the Package	Bidder's confirmation
7.04.01	Single Girder EOT/ Under slung Cranes (For each type, Size, Rating, model & capacity)		
i)	Brake drums for hoist, cross-travel & long travel drives	1 set each drive / 30% of total population whichever is higher.	
ii)	Brake lining with rivets for:		
	a) Hoist	6 pairs / 30% of total population whichever is higher.	
	b) Cross travel	6 pairs / 30% of total population whichever is higher.	
	c) Long travel	2 pairs / 30% of total population whichever is higher.	
iii)	Wire rope for hoisting	1 complete length	
iv)	Set of Wheel Bearings (for long travel drive) as applicable	1 set / 30% of total population whichever is higher.	
v)	Set of Axle Bearings (for cross travel drive) as applicable	1 set / 30% of total population whichever is higher.	
vi)	Set of Gearbox Bearings (for long travel & cross travel both) and Sleeves (as applicable)	1 set / 30% of total population whichever is higher.	
vii)	Shaft Bearings (for long travel & cross travel both) as applicable	1 set / 30% of total population whichever is higher.	
viii)	Set of Seals for Travel Gear Box (for long travel & cross travel both)	1 set / 30% of total population whichever is higher.	
ix)	Complete Set of Hydraulic Thruster for Brakes (if applicable) (for long travel & cross travel both)	1 set. / 30% of total population whichever is higher.	
x)	Brake Spring (for long travel & cross travel both)	1 set / 30% of total population whichever is higher.	
xi)	Brake Coil (for long travel & cross travel both)	2 sets / 30% of total population whichever is higher.	
xii)	Motor for MH, LT & CT	1 no each / 30% of total population whichever is higher.	

7.04.03	TG hall EOT Cranes (For each type & capacity)		
A)	Long Travel Unit		
i)	Set of Bearings of Wheels	1Set	
ii)	Set of Gearbox Bearings with Sleeves	1Set	
iii)	Long Travel end Shaft Bearings	1Set	
iv)	Set of Seals for Travel Gear Box	1Set	

v)	Long Travel Brake Shoes, Liners with rivets	2Sets	
vi)	Complete Set of Hydraulic Thruster for Brakes (if applicable)	1 No.	
vii)	Brake Spring	1Set	
viii)	Brake Coil	2Sets	
ix)	Motor	1 No.	
B)	Cross Travel Unit		
i)	Set of Axle Bearings	1Set	
ii)	Set of Gearbox Bearings with Sleeves	1Set	
iii)	Set of seals for Gearbox	1Set	
iv)	Cross Travel end Shaft Bearing	1Set	
v)	Cross travel Brake Shoes, Liners with rivets	2Sets	
vi)	Complete Set of Hydraulic Thruster for Brakes (if applicable)	1 No.	
vii)	Brake Spring	1Set	
viii)	Brake Coil	2Sets	
ix)	Motor	1 No.	
C)	Main hoist		
i)	All Bearings used in all Gear Assemblies, Lifting Hook, Trolley wheels, pulley etc.	1 Set	
ii)	Set of seals for Gearbox	1 Set	
iii)	Complete Set of Hydraulic Thruster for Brakes (if applicable)	1 No.	
iv)	Brake Shoes [Brake shoes, liner with rivets for each size of brake (Pair of each size)	2 Sets	
v)	Brake Springs	2 Sets	
vi)	Motor	1 no.	
vii)	Brake Coil	2 Sets	
viii)	Wire Rope	1 complete length	
D)	Aux. hoist		
i)	All Bearings used in all Gear Assemblies, Lifting Hook, Trolley wheels, pulley etc	1 Set	
ii)	Set of seals for Gearbox	1 Set	
iii)	Complete Set of Hydraulic Thruster for Brakes (if applicable)	1 No.	
iv)	Brake Shoes [Brake shoes, liner with rivets for each size of brake (Pair of each size)	2 Sets	
v)	Brake Springs	2 Sets	
vi)	Motor	1 no.	
vii)	Brake Coil	2 Sets	
viii)	Wire Rope	1 complete length	
E)	Electrical		
i)	Limit Switches for:		
	a) Main Hoist	1 Set	
	b) Aux. Hoist	1 Set	
	c) Cross Travel	1 Set	
	d) Long Travel	1 Set	

7.04.02	For all other EOT cranes (other than TG hall EOT crane) and for Semi gantry Crane (For each type, Size, Rating, model & capacity)		
(i)	Set of Bearings for		
a)	CT wheel	1 set	
b)	LT wheel	1 set	
c)	MH	1 set	
d)	AH (as applicable)	1 set	
e)	MH Main Pulley	2 Nos.	
f)	MH Eq. Pulley	2 Nos.	

g)	AH Main pulley(as applicable)	2 Nos.	
h)	AH Eq. Pulley(as applicable)	2 Nos.	
(ii)	Brake linings with rivets for:		
a)	MH brake	1 set	
b)	AH brake(as applicable)	1 set	
c)	CT brake	1 set	
d)	LT brake	2 sets	
e)	MH creep brake	1 set	
f)	AH creep brake(as applicable)	1 set	
(iii)	Brake shoes, liner with rivets for :		
a)	MH brake	1 set	
b)	AH brake(as applicable)	1 set	
c)	CT brake	1 set	
d)	LT brake	2 sets	
e)	MH creep brake	1 set	
f)	AH creep brake(as applicable)	1 set	
iv	Motor for MH, AH(as applicable), CT<	1 no each.	

7.04.04	Electrical Hoist (For each type, Size, Rating, model & capacity)		
a	Bearings	One (1) Set / 30% of total population whichever is higher.	
b	Brake liner with rivets	One (1) Set / 30% of total population whichever is higher.	
c	Brake Coil	Two (2) Nos. / 30% of total population whichever is higher.	
d	Limit switch	Two (2) Nos. / 30% of total population whichever is higher.	
e	Local Control Station	One (1) No. / 30% of total population whichever is higher.	
f	Gear Box	Two (2) Sets / 30% of total population whichever is higher.	
g	Motor	One (1) No. / 30% of total population whichever is higher.	
h	Rope guide & rope tightner	One (1) No. / 30% of total population whichever is higher.	

7.04.05	Manual Hoist (For each type, Size, Rating, model & capacity)		
a	Grooved pulley	2 sets / 30% of total population whichever is higher.	
b	Pinion	1 set / 30% of total population whichever is higher.	
c	Bearing	1 set / 30% of total population whichever is higher.	
d	Shaft pin	1 set / 30% of total population whichever is higher.	

7.04.06	VVVFD System (as applicable) (For Cranes and Hoists)	One Complete VVVFD unit - (To be repeated for each type, make, Model, rating & area of application)	
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Note:

Refer Note of Annexure-I, Section:IX, Vol-IIA of tender specification.

Annexure for HVAC-I

Modular Air Washer Unit

- i) Each Air Washer Units (Evaporative System) shall consist of the various Sections such as Air washer chamber / Casing, Tank, Distribution louvers, set of metallic/fabric filters, suction louvers, bird screens, water headers, Spray nozzle, piping, valves, etc, Drift eliminators, Pumps, Fans, Necessary controls & Instrumentation and all other required accessories.
- ii) Air washer units of modular type with housing/casing shall be double skin construction. Double skin panel shall be made of 22 G galvanized sheets on outer side and 20 G galvanized sheets inside with insulation
- iii) The modular air washer tank shall be fabricated from MS plate of minimum 6 mm thick and inside and outside surface of the casing and tank shall be spray galvanized. Minimum depth of the tank shall be 600 mm as per manufacturing standard of OEM. Tank construction shall be such that the suction screen can be replaced while the unit is operating. Tank shall be provided with overflow, drain with valve, float valve makeup connection with a gate valve backup, quick fill connection with globe valve etc. The overflow pipe shall be connected to drain pipe after isolating valve on drain pipe.
- iv) The distribution plate shall be fabricated out of minimum 16G galvanized steel sheet & galvanized steel angle supports with minimum 50% free area.
- v) Air washer shall be two-bank construction (one uni-flow and the other cross flow). The water shall be sprayed at filter bank. All header and stand pipes shall be galvanized.
- vi) The spray nozzles shall be of poly propylene and shall be self cleaning type. The nozzle shall be designed to produce fine atomised spray and shall be properly spaced to give a uniform coverage of the air washer section. The pressure drop through the nozzle should be in the range of 1.4 to 2.4 Kg/cm²(g).
- vii) The eliminator plates shall be of minimum 24G thick GS sheets class 350 or from 100% virgin PVC of minimum finished thickness of 3 mm. The eliminator section made of GSS shall have minimum six bends. The PVC eliminators shall be UV stabilised using Titanium di-oxide and shall withstand the weathering test as per IS: 4892 for 500 hrs. All supports, tie rods and space bar shall be of either galvanized steel or 100% virgin PVC construction and shall be complete with suitable drip tray and drain pipe.
- viii) An airtight inspection door of 600mm X 700mm size and a water marine light be provided for each air washer unit.
- ix) Suitable number of stainless steel screens shall be provided in the air washer tank to arrest the dirt entering the circulating water pump suction. Suitable GI grid shall be used inside the screen for reinforcement
- x) Centrifugal fans shall generally be DIDW type for TG building.

- xi) Both inside and outside of all the sections of the metal chamber unit shall be spray galvanized to prevent corrosion. The nuts and bolts used for joining the section shall be stainless steel. The connection pieces shall have at least two (2) coats of rust inhibiting paint.

Design Criteria for Ventilation system:

Modular air washer units for Ventilation System of adequate numbers each of maximum capacity of one lakh cubic meter per hours shall be provided for evaporative cooling for the required heat load. A minimum 10% margin shall be considered while sizing the equipment/plant capacity. one (01) centrifugal fan per modular air washer unit shall be provided.

Evaporative Cooling System

Evaporative type ventilation system shall be provided for TG building as specified below. Modular Air washer units of metallic construction with protective coating of double bank spray system shall be distributed along A-row and in BC bay of the building. Air washer unit provided in BC bay shall be at 24 m or above level.

Filtered and Cooled air from each modular air washer unit shall be distributed to various areas through supply air ducting and grills. The TG building shall be provided with adequate number of roof extractors.

Redundancy of equipments

- i) Pumps for each modular Air Washer Unit system shall be 2x100% Capacity.
- ii) Fans for each modular air washer unit shall be 1x100% capacity.
- iii) Supply air fans/Exhaust air fans/roof exhausters shall be in multiplicity.

System description:

- iv) Modular air washers of adequate numbers each of capacity of one lac cubic meter per hours (maximum) shall be provided for evaporative cooling of various floors of turbine building including maintenance bay and electrical bay(cable vault rooms, switchgear rooms etc). Each air washer system shall consist of one(01) centrifugal fans, two (02) centrifugal circulating water pumps (1 working + 1 standby), and air intake louvers, filters, air washer internals, ducts and other piping and accessories for the system. Besides, roof extractors shall be provided for TG building. The total number of air washer units for the total capacity shall be decided based on:

- a) Total internal heat load within the turbine building, inclusive of electricity bay and maintenance bay and considering the heat dissipated by various electrical switchgears, motors, equipment hot surface, steam piping as well as the dissipated heat, operating

personnel, solar transmission through the building walls and glass, and any other sources of heat.

- b) Summer ambient conditions.
- c) Efficiency of air washer shall be 90% with two banks opposed type spray system
- v) The number of roof extractors in the turbine building to be sized so as to exhaust about 70% of the total air supplied in order to reduce ingress of dust- laden air into the building.
- vi) Air washer shall be double bank spray type mainly consisting of an airtight chamber or casing containing air distribution louvers, spray nozzles, a tank for collecting spray water, eliminators with flooding nozzles, pre filters and a pump with piping valves, strainers and specialties for re-circulating water. One
(1) level switch in the air washer tank shall be provided to give an alarm in the air washer plant room.
- vii) The supplied air shall be exhausted through roof exhausters to maintain an overpressure of 1-2mm of water column to reduce dust ingress.
 - a. Evaporative cooling ventilation fans shall be interlocked with fire protection system, to get the same tripped in the event of fire.

Change in specification (Section B of Tender Specification)

Annexure C2F (BOP)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
1.	L&T Annexure 2.1 / Annexure No12/ Sr. No.655	Flow diagram – Cooling water and auxiliary cooling water system /2.02.01	CT blowdown is utilized for coal dust suppression and Ash disposal system.	“CT blowdown is utilized for FGD process water requirement, Ash disposal system and , coal dust suppression ”
		Vol. II-IB/4/Section-I Effluent Treatment Plant 4.00.00, iv, Page 48 of 105	Reactor Type Clarifier: “Design rated output flow rate, in m3/hour (each): 300 (Minimum). However actual capacity shall be decided by Bidder as per P&ID & approved Water Balance Diagram for ETP & 20 for CHP Waste Water. However, clarifier shall be designed such that it shall be capable to run at 20% overloading.”	Reactor Type Clarifier: “Actual capacity shall be decided by Bidder as per P&ID & approved Water Balance Diagram for ETP & 20 for CHP Waste Water. However, clarifier shall be designed such that It shall be capable to run at 20% overloading.”
2.	L&T Annexure 2.1 / Annexure No12/ Sr. No.656	Vol. II-L,Water balance diagram, Note 9	Note9: “DM plant shall be sized for 3% of BMCR flow plus other misc. uses.”	“Intentionally Deleted”

Change in specification (Section B of Tender Specification)

Annexure C2F (BOP)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
		Vol. II - IB/3/Section-I Demineralisation plant and Potable water treatment plant	“.....There shall be three (3) DM chains, each of 150 Cu.m/hr capacity, up to Mixed Bed and then to (3) nos. Ultrafiltration Units of capacity of a minimum of 135 m3/hr each out of which two (2) will be operating for 3 x 800 MW units and one (1) will be kept as common standby for regeneration and maintenance purposes...”	“.....There shall be two (2) DM chains, each of 150 Cu.m/hr capacity, up to Mixed Bed and then to Two (2) nos. Ultrafiltration Units of capacity of a minimum of 135 m3/hr each for 3 x 800 MW units”
3.	L&T Annexure 2.1 / Annexure No12/ Sr. No.658	Vol. II-IB/2/Section-I/2.14.00	“Both compartment of the reservoir shall be of effective capacity having 4 hours of storage of inlet water quantity (i.e. clarifier outlet design flow) to clarified water storage tank and shall be complete with isolation gates etc.”	“.....Both compartment of the reservoir shall be of effective capacity having 2 hours of storage of inlet water quantity.....”
4.	L&T Annexure 2.1 / Annexure No12/ Sr. No.661	Vol. II-L, Water balance diagram	Note 2. “The figures shown here are indicative minimum only. Successful Bidder shall finalise these figures during detail engineering stage in consultation with Owner/Consultant”	“The figures shown here are indicative only. Successful Bidder shall finalise these figures during detail engineering stage in consultation with Owner/Consultant”

Change in specification (Section B of Tender Specification)

Annexure C2F (BOP)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
5.	L&T Annexure 2.1 / Annexure No12/ Sr. No.662	Vol. II-IB/4, SECTION-I Effluent treatment plant, Annexure-VII/23.00.00.ix,	Design temperature of ETP RO modules shall be maximum 35 deg C	The bidder may consider cold blow down as an alternative option of Hot blow down. However, Design temperature of ETP RO modules shall be maximum 35 deg C to be maintained.
6.	L&T Annexure 2.1 / Annexure No12/ Sr. No.663	Vol. II-IB/4 SECTION-I Effluent treatment plant/2.01.00 & 2.01.00	“The treated effluent will have to conform to the present-day limits of discharge of liquid effluents from Thermal Power Plants recommended by the Ministry of Environment & Forests (MOEF), Government of India & Provision will have to be kept for disposal of treated effluents [From the Central Monitoring Basin (CMB)] in case of emergency, meeting the norm”	“.....The treated effluent will have to conform to the present-day limits of discharge of liquid effluents from Thermal Power Plants recommended by the Ministry of Environment & Forests (MOEF), Government of India. The system shall comply with the requirements of the Ministry of Environment & Forest, Government of India (MOEF) as laid down in relevant standards/documents.”
7.	L&T Annexure 2.1 / Annexure No12/ Sr. No.664	Vol. II-IB/4/Section-I Effluent Treatment	“From CHP clarifier, the outlet effluent shall be discharged to CMB”	“.....From CHP clarifier, the outlet effluent shall be discharged to CMB / CHP area dust suppression

Change in specification (Section B of Tender Specification)

Annexure C2F (BOP)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
		Plan/3.01.09		tank.....”
8.	L&T Annexure 2.1 / Annexure No12/ Sr. No.665	Vol. II-IB/2/Section-IV Chlorination Plant & CW Conditioning/4.02.00, page 6 of 29	“.....CIO2 Dosing Continuous dosage 1 ppm minimum Capacity of generator....”	“...CIO2 dosing: : 0.5 ppm dosage rate with periodic dosing of 4hrs/day/unit”
9.	L&T Annexure 2.1 / Annexure No12/ Sr. No.666	Volume II L,Flow Diagram- RW Chlorine Dioxide Unloading and Dosing System: 18A03-DWG-M- 001EE sheet 1,2 & 3 of 3	As per P&ID, Diaphragm Valves shown Piping system MOC & size: CPVC industrial grade, PN16 rating, DIN standard or Sch.80 class. All ball valves shall be of union type only.	Tender drawings – P&ID of drawing no:18A03-DWG-M-001EE sheet 1,2 & 3 of 3 will be modified as CPVC ball valves instead of Diaphragm valves.
10.	L&T Annexure 2.1 / Annexure No12/ Sr. No.670	Vol. II-IB/2/Section-IV Chlorination Plant & CW Conditioning/3.01.23, page 3 of 29 Flow Diagram-RW Chlorine Dioxide Unloading and Dosing System: 18A03-	HCl / NaClO2 storage, unloading pumps and dosing pump arrangement shall be located in a poly propylene glass lining area with dyke and sump pit. All drains from CW/RW/PW Chlorine-dioxide HCl system shall pass through a lime pit for neutralization before discharge into CMB. Two nos. (1W+1S)	Tender P&ID drawing number : 18A03-DWG-M-001EE sheet 1,2 & 3 will be updated suitably.

Change in specification (Section B of Tender Specification)

Annexure C2F (BOP)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
		DWG-M-001EE sheet 1,2 & 3 of 3	pumps shall be provided for discharging of neutralized effluent in each CW/RW/PW chlorine-dioxide system. In CW chemical treatment area common lime pit along with transfer pumps can be considered for H2SO4 drains and HCl drains.	
11.	L&T Annexure 2.1 / Annexure No12/ Sr. No.671	Vol. II-C/2/Section-VI Condensate Polishing Unit/ Annexure-III	MOC of N-pit pumps	“MOC of N-pit pumps - 1. Casing: cast iron IS: 210 Grade FG 260 / Poly Propylene 2. Impeller: Cast Iron IS: 210 Grade FG 260 / Poly Propylene 3. Wearing rings (if applicable): SS- 316 Shaft, Shaft sleeves: SS-410”
12.	L&T Annexure 2.1 / Annexure No12/ Sr. No.675	Vol. II-G1/Section-IV/ Specific Design Requirements- Architectural/ Water Pre- treatment & DM water System (3)	UF Permeate Open storage tank & pump house – Open shed with Steel frame, single skin zincalume sheet	“.....PW chlorination building, UF permeate pump house with Steel frame, single skin zincalume sheet. –open shed”

Change in specification (Section B of Tender Specification)

Annexure C2F (BOP)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
13.	L&T Annexure 2.1 / Annexure No12/ Sr. No.677	Volume II-IB/3: SECTION - I; TS for DM & PW/2.00.00, ANNEXURE II, Pg 22 of 65	"Pressure Sand Filter: Number: 3(2W+1S) Design Capacity: 210 m3/hr Type: Vertical cylindrical with dished ends"	"Pressure Sand Filter: Number: 3(2W+1S) Design Capacity: 210 m3/hr Type: Vertical/Horizontal cylindrical with dished ends....."
14.	L&T Annexure 2.1 / Annexure No12/ Sr. No.679	Volume: I-A / PG Schedule (Section B) / Table 8	"b)TDS of RO permeate: should not exceed 50 ppm"	"b) TDS of RO permeate: should not exceed ≤ 100 ppm".
15.	L&T Annexure 2.1 / Annexure No12/ Sr. No.680	Vol. II-IB/3/Section-I Demineralising Plant & Potable Water Treatment Plant/8.04.00 , b)/ Page 17 of 65	"Effluent from the mixed bed unit shall be guaranteed to meet the following requirements, at rated capacity, throughout the period between two successive regenerations: Sodium: <5 ppb"	" Effluent from the..... sodium:<15 ppb....."
16.	L&T Annexure 2.1 / Annexure No12/ Sr. No.681	Vol. II-IB/3/Section-I Demineralising Plant & Potable Water Treatment Plant/ clause no:2.01.00	The time requirement for regeneration and backwash operation Activated Carbon Filter (ACF), Strongly Acidic Cation (SAC), Strongly Basic Anion (SBA) and Mixed Bed (MB) unit shall not be more than	".....Demineralization by WAC - SAC-WBA-SBA-MB Exchanger may be considered as alternative to tender requirement for the Demineralization Plant."

Change in specification (Section B of Tender Specification)

Annexure C2F (BOP)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
			as mentioned below: i) PSF: 20 min (max.)/Stream ii) ACF: 20 min (max.)/Stream ii) SAC-SBA: 4 hrs. (max.) per Stream (all together) iii) SAC-SBA : 2 hrs./exchanger iv) MB : 4 hours.	

Change in specification (Section B of Tender Specification)

Annexure C2F (BOP)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
		Volume: I-A / PG Schedule (Section B) / Table 8/36., b)	b) The time requirement for regeneration and backwash operation shall not be more than as mentioned below: 1. PSF/ ACF : 20 min (max.)/Stream 2. SAC SBA: 4 hrs. (max.) per Stream (all together) 3. SAC SBA : 2 hrs./exchanger 4. MB :4 hours.	"The time requirement for regeneration and backwash operation shall not be more than as mentioned below: 1. PSF/ ACF : 20 min (max.)/Stream 2. WAC,SAC,WBA & SBA: 4 hrs. (max.) per Stream (all together) 3. WAC,SAC,WBA & SBA:: 2 hrs./exchanger 4. MB: 4 hours".
17.	L&T Annexure 2.1 / Annexure No12/ Sr. No.682	Volume: I-A / PG Schedule (Section B) / Table 8/36,vii)	"Colloidal Silica at UF outlet shall be below detectable limit"	"Colloidal Silica at UF outlet shall be <0.01 ppm as SiO2."
18.	L&T Annexure 2.1 / Annexure No12/ Sr. No.686	Volume II-IB/SECTION- I; Pg 19 of 46/ ANNEXURE I	"Demineralization by SAC-SBA MB has been proposed for the Demineralization Plant"	".....Demineralization by WAC - SAC-WBA-SBA-MB Exchanger may be considered as alternative to tender requirement for the

Change in specification (Section B of Tender Specification)

Annexure C2F (BOP)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
				Demineralization Plant.”
19.	L&T Annexure 2.1 / Annexure No12/ Sr. No.688	Flow Scheme for FGD waste water treatment system/ 18A03-DWG-M- 001V	FGD Waste Water analysis.	As an alternative option that “FGD waste water shall pass through Filter press first and then to the Primary Clarifier and secondary clarifier, as inlet TSS level is high”
20.	L&T Annexure 2.1 / Annexure No12/ Sr. No.689	Vol. II-IB/4/Section-I Effluent Treatment Plant/46.00.00, Page 94 of 104	“TUBE SETTLERS (ETP REJECT SYSTEM) “	“TUBE SETTLERS / LAMELLA CLARIFIER (ETP REJECT SYSTEM)”
21.	L&T Annexure 2.1 / Annexure No12/ Sr. No.696	Vol. II-IB/3/Section-I Demineralising Plant & Potable Water Treatment Plant/8.04.00, b)/ Page 17 of 65	“Effluent from the mixed bed unit shall be guaranteed to meet the following requirements, at rated capacity, throughout the period between two successive regenerations: Iron as Fe: Nil Free CO2 ppm as CO2: Nil	“Effluent from the mixed bed unit shall be guaranteed to meet the following requirements, at rated capacity, throughout the period between two successive regenerations: Iron as Fe: BDL

Change in specification (Section B of Tender Specification)

Annexure C2F (BOP)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
			Total hardness: Nil”	Free CO ₂ ppm as CO ₂ : BDL Total hardness: BDL ”
		Volume: I-A / PG Schedule (Section B) / Table 8/ 10., iii), iv), v).36.2	Qualities of treated water from MB units shall be guaranteed for the following parameters: Iron as Fe (ppm): NIL Free CO ₂ ppm as CO ₂ (ppm): NIL Total Hardness (ppm): NIL	
22.	L&T Annexure 2.1 / Annexure No12/ Sr. No.698	Vol. II-C/3/Section-VI Condensate Polishing System/3.23.00 .	“DM water, acid/alkali piping shall be Stainless Steel material to ASTM A 312 TP 304 for all sizes. All fittings shall be SS material”	“DM water, acid/alkali piping shall be CS piping/fitting with rubber lining will be used”
23.	L&T Annexure 2.1 / Annexure No12/ Sr. No.699	Vol. II-IB/3/Section-I Demineralising Plant & Potable Water Treatment Plant/8.04.00, b), c)/ Page 16 of 65	Guarantee: Activated Carbon Filter: Free chlorine content in the outlet water shall be nil. Suspended iron content in the outlet water shall be nil.	“..... Free chlorine content in the outlet water shall be BDL, c) Suspended iron content in the outlet water shall be BDL.....”
		Volume: I-A / PG Schedule	ii) Activated Carbon Filters	

Change in specification (Section B of Tender Specification)

Annexure C2F (BOP)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
		(Section B) / Table 8/36.2, b), c).	Free chlorine content in the outlet water shall be NIL Suspended iron content in the outlet water shall be NIL	
24.	L&T Annexure 2.1 / Annexure No12/ Sr. No.700	Vol. II-C/Section-VI/ Condensate Polishing System/5.0/ Page 22 of 25	"Free Board % of Bed Depth: Not less than 100%"	"....Free Board % of Bed Depth: Not less than 50%...."
25.	L&T Annexure 2.1 / Annexure No12/ Sr. No. 705	Flow Diagram for CPU (Service Vessel Area) 18A03-DWG-M-001CC	"Gate valve for air blower discharge line, acid & caustic regeneration line and valve associated with regeneration area"	"Butterfly lugged wafer type valve for air blower discharge line, acid & caustic regeneration line and valve associated with regeneration area".
26.	Annexure 2.1 / Annexure No12/ Sr. No.706	Flow Diagram for CPU (Service Vessel Area) 18A03-DWG-M-001CC	In regeneration area: motorised valves	In tender drawing 18A03-DWG-M-001CC also shall be updated as motorized valves .
27.	L&T Annexure 2.1 / Annexure No12/ Sr. No.711	Vol. II-IB/4/Section-I Effluent Treatment Plant (Page 93 of 104)/ 44.00.00 (Point B_ii) & 45.00.00	Location of CMB Overflow Sump Transfer Pump & ETP Sludge Sump Transfer Pump to be Outdoor	"CMB OVERFLOW SUMP TRANSFER PUMP.....b).....ii) Location – Outdoor...." "ETP SLUDGE SUMP TRANSFER PUMP.....b).....i) Location – Outdoor...."

Change in specification (Section B of Tender Specification)

Annexure C2F (BOP)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
		(Point B_i) VOLUME: II-G/1, Section 4_Specific Design Requirements (Architectural) (Page 3 of 127)/ 1.00.00 (ETP Building List)	CMB transfer pump & ETP sludge sum transfer pump mentioned as Indoor.	
28.	L&T Annexure 2.1 / Annexure No12/ Sr. No.712 & BHEL Annexure 2.1 / Annexure No / Sr. No. 522	Vol. II-A/Section-II Qualifying Requirements – Technical Page 8 of 17	“The Bidder /Sub- Contractor should have designed, supplied, erected and commissioned during the last ten years at least one number sea water reverse osmosis plant with a permeate water capacity of minimum 30 m3 / hour which should have been in successful operation for a period of not less than one year as on date of LOA.”	“The Bidder /Sub- Contractor should have designed, supplied, erected and commissioned during the last ten years at least one number reverse osmosis plant with a permeate water capacity of minimum 30 m3 / hour which should have been in successful operation for a period of not less than one year as on date of LOA.”
29.	L&T Annexure 2.1 / Annexure No12/ Sr. No.690	Vol. II-A/Section-IV Scope of Supply & Services, Terminal Points	<u>Supply of Equipment and Systems</u> Bidder shall supply mandatory spares, tools and tackles, first charge and	For supply of first charge and subsequent charging of lubricating oil, Transformer oil & all

Change in specification (Section B of Tender Specification)

Annexure C2F (BOP)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
		& Exclusions /1.00.00, Page 1 of 27	subsequent charging of lubricating oil, Transformer oil & all consumables including operating <u>chemicals till the provisional takeover / successful completion of trial operation of the Unit / Sub-Systems.</u>	consumables including operating chemicals the clause may be read in the following conjecture, “in case of unit wise systems, requirement of chemicals up to successful completion of trial operation of the respective unit shall be in the scope of the Bidder. In case of systems common for all three units, the scope of supply of chemicals shall be up to the successful completion of trial operation of such system or the successful completion of trial operation of the first unit, whichever is later.”
		Vol. II-IB/4/Section-I Effluent Treatment Plant vii), Page 18 of 104	Contractor shall supply first charge and subsequent charges of lubricating oil, inhibitor of oil &all consumables including operating chemicals like lime, ferric chloride,	For supply of first charge and subsequent charges of lubricating oil, inhibitor of oil &all consumables including operating chemicals like

Change in specification (Section B of Tender Specification)

Annexure C2F (BOP)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
			<p>polyelectrolyte, acid, alkali, SBS, anti-sealant, other <u>chemicals etc. as required for entire operation of ETP & reject treatment plant till the successful completion of trial operation of the Main plant one Unit and ETP & reject treatment plant and in addition chemicals for two (2) months requirement in a phased manner as decided by the Owner.</u></p>	<p>lime, ferric chloride, polyelectrolyte, acid, alkali, SBS, anti-sealant, other chemicals etc. as required for entire operation of ETP & reject treatment plant, the clause may be read in the following conjecture, “in case of unit wise systems, requirement of chemicals up to successful completion trial operation of the respective unit shall be in the scope of the Bidder. In case of systems common for all three units, the scope of supply of chemicals shall be up to the successful completion of trial operation of such system or the successful completion of trial operation of the first unit, whichever is later.”</p>
		<p>Vol. II-IB/2/Section-I Guide Technical Specification</p>	<p>Bidder shall supply first charge and subsequent charging of lubricating oil, inhibitor of oil & all consumables including operating <u>chemicals like lime, ferric chloride,</u></p>	<p>For the supply of first charge and subsequent charging of lubricating oil, inhibitor of oil & all consumables including operating chemicals like</p>

Change in specification (Section B of Tender Specification)

Annexure C2F (BOP)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
		2.27.00, Page 4 of 46	<u>poly electrolyte etc. as required for entire operation of PT plant till the successful completion of trial operation of the Main plant one Unit and PT plant and in addition chemicals for two (2) months requirement in a phased manner as decided by Owner.</u>	lime, ferric chloride, poly electrolyte etc. as required for entire operation of PT plant the clause may be read in the following conjecture, “in case of unit wise systems, requirement of chemicals up to successful completion trial operation of the respective unit shall be in the scope of the Bidder. In case of systems common for all three units, the scope of supply of chemicals shall be up to the successful completion of trial operation of such system or the successful completion of trial operation of the first unit, whichever is later.”
		Vol. II-IB/2/Section-I Guide Technical Specification 5.27.00, Page 7 of 65	Bidder shall supply first charge and subsequent charges of lubricating oil, inhibitors of oil & all consumables including operating chemicals like acid, alkali, other <u>chemicals, etc., first fill of filters, resin, and</u>	For supply first charge and subsequent charges of lubricating oil, inhibitors of oil & all consumables including operating chemicals like acid, alkali, other chemicals, etc., first fill of filters,

Change in specification (Section B of Tender Specification)

Annexure C2F (BOP)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
			<u>degasser tower packing for all the units complete with make-up filter, resin and packing as required for entire operation of DM plant till the successful completion of trial operation of the Main plant one Unit and DM plant and in addition chemicals for two (2) months requirement in a phased manner as decided by the Owner.</u>	resin, and degasser tower packing for all the units complete with make-up filter, resin and packing as required for entire operation of DM plant the clause may be read in the following conjecture “in case of unit wise systems, requirement of chemicals up to successful completion trial operation of the respective unit shall be in the scope of the Bidder. In case of systems common for all three units, the scope of supply of chemicals shall be up to the successful completion of trial operation of such system or the successful completion of trial operation of the first unit, whichever is later.”
		Vol. II-C/Section-VI Condensate Polishing System/	First fill of resins for all Condensate Polisher Mixed Beds (Service Vessels), mixed storage vessel (Regeneration area) and makeup resin hopper, One (1) spare charge	For first fill of resins for all Condensate Polisher Mixed Beds (Service Vessels), mixed storage vessel (Regeneration area) and

Change in specification (Section B of Tender Specification)

Annexure C2F (BOP)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
		2.17.00, Page 5 of 25	<p>of resins during commissioning and one (1) spare charge of resins as mandatory spare. Further, first fill of lubricants and grease and all</p> <p>consumables and 10% of the full charge of each variety of lubricants / grease which is expected to be utilized during the first year of operation and chemical requirement <u>upto provisional take over shall also be provided.</u></p>	<p>makeup resin hopper, One (1) spare charge of resins during commissioning and one (1) spare charge of resins as mandatory spare. Further, first fill of lubricants and grease and all consumables and 10% of the full charge of each variety of lubricants / grease which is expected to be utilized during the first year of operation and chemical requirement, the clause may be read in the following conjecture</p> <p>“in case of unit wise systems, requirement of chemicals up to successful completion trial operation of the respective unit shall be in the scope of the Bidder. In case of systems common for all three units, the scope of supply of chemicals shall be up to the successful completion of trial operation of such system or the successful completion of trial operation of the first unit,</p>

Change in specification (Section B of Tender Specification)

Annexure C2F (BOP)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
				whichever is later."
30.	L&T Annexure 2.1 / Annexure No12/ Sr. No.2 (water system) additional points)	SECTION-B VOLUME: II-K/Section -I: Sump Pumps, Drives & Accessories/ Sl.no. 1, 2 & 3 Page 16 of 30	Pump Capacity (min).... Capacity of each pump should be so selected to empty the sum pit in 10 minutes.	"Capacity of each pump should be so selected to empty the sum pit in 45 minutes"
	Fire Protection & Detection			
31.	L&T Annexure 2.1 / Annexure No12/ Sr. No.868	Vol. II-J Section-II Fire Protection & Detection Annexure-I 3.01.05 Point (ii) Annexure-I	3. As per annexure-I, sr. no. 16, Unit Control Room, Relay Control Equipment Room, Computer Rooms & UPS/Battery Charger Room etc. (other rooms shall also be included where necessary).	3. "S.No.16..... Protection system – Clean agent / Inert gas flooding system, Portable Fire Extinguishers for Battery room....."
32.	L&T Annexure 2.1 / Annexure	Vol. II-J Section-II Fire Protection &	"Pressure switches", "Level switches" & "Level gauge" for hydro pneumatic tank.	"Intentionally Deleted"

Change in specification (Section B of Tender Specification)

Annexure C2F (BOP)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
	No12/ Sr. No.869	Detection.03.00, Electrical Cl. No. ii/point no.774		
33.	L&T Annexure 2.1 / Annexure No12/ Sr. No.870	Vol. II-A/Section-IX Mandatory Spares-SG & Auxiliaries/1.11.15	Spares for Multimedia soot blower:/cleaning system (Fire fighting, high pr jet cleaning.	"Spares for Multimedia soot blower:/cleaning system (high pr jet cleaning)"
	Hydrogen Generation Plant			
34.	L&T Annexure 2.1 / Annexure No12/ Sr. No.722	Hydrogen Generation Plant/5.00.00, e) , (g), page no 9 of 24	Max. Oxygen impurity in Hydrogen : 1 ppm (max) at Solid polymer electrolyser outlet.	"Max. Oxygen impurity in Hydrogen : 1 ppm (max) outlet at Manifold after purification system.
	Miscellaneous Pump			
35.	L&T Annexure 2.1 / Annexure No12/ Sr. No.856	Vol. II-IB/1/Section-II/ Annexure-I(Page 10 of 13)/ SI No.11	DATA SPECIFICATION SHEET for Plant Potable Water Pumps and Colony Potable Water pumps Impeller type: Semi Open	"DATA SPECIFICATION SHEET for Plant Potable Water Pumps and Colony Potable Water pumps Impeller type: Closed type"

Change in specification (Section B of Tender Specification)**Annexure C2F (BOP)**

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
36.	L&T Annexure 2.1 / Annexure No12/ Sr. No.858	Vol. II-A/Section-IX Mandatory Spares- BOP/3.02.02	Vertical Turbine/Centrifugal Pumps	“Cl:3.02.1 - Horizontal Centrifugal Pumps Cl:3.02.02 - Vertical Turbine Pumps”
37.	L&T Annexure 2.1 / Annexure No12/ Sr. No.859	Vol. II-A/Section-IX Mandatory Spares- BOP/3.03.02	DEMINERALIZATION PLANT -Vertical Type Turbine/Centrifugal Pumps	“Cl:3.03.02 – Deleted”
38.	L&T Annexure 2.1 / Annexure No12/ Sr. No.860	Vol. II-A/Section-IX Mandatory Spares- BOP/3.04.01	Vertical Turbine/Centrifugal Pumps	“Cl:3.04.01 - Horizontal Centrifugal Pumps Cl:3.04.02 - Vertical Turbine Pumps”
39.	L&T Annexure 2.1 / Annexure No12/ Sr. No.862	Vol. II-A/Section-IX Mandatory Spares- BOP/3.05.02	Vertical Turbine/Centrifugal Pumps	“Cl:3.05.1 - Horizontal Centrifugal Pumps Cl:3.05.02 - Vertical Turbine Pumps”
40.	L&T Annexure 2.1 / Annexure No12/ Sr. No.864	Vol. II-A/Section-IX Mandatory Spares- BOP/3.07.02	Vertical Turbine/Centrifugal Pumps	“Cl:3.07.1 - Horizontal Centrifugal Pumps Cl:3.07.02 - Vertical Turbine Pumps”

Change in specification (Section B of Tender Specification)

Annexure C2F (BOP)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
41.	L&T Annexure 2.7 / Sr. No.1	Vol. II-IB/1/Section-I/General Requirements for Water Transportation System/ clause no: 2.02.03 & Vo-II-A/Section-IV, Scope of Supply & Services, Terminal points & Exclusions	<u>Terminal point not specified</u> The following shall be included in Bidder scope, a. Terminal points Colony potable water pipe shall be provided near Main Gate complex of Thermal power plant used for CISF Complex and skill development centre/ITI. b. Terminal point for Colony potable water pipe shall be at south east corner compound wall of thermal power plant near Raw water reservoir used for integrated Township (Tentative Co-ordinates 210 45' 57.49"N, 830 59'27.18"E)	“....In addition, Potable Water Transportation System shall also convey filtered water from the filtered Water storage tank by means of 2x100% horizontal centrifugal pumps capacity – 55 m3/hr, head 7.5 kg/cm2 (minimum), Pipe diameter 300 NB (minimum). to colony and CISF Complex & skill development centre/ITI. However, further increase in pressure requirement shall be taken care by Purchaser through booster pump. There shall be provision of online chlorine dosing at potable water pump discharge.”
42.	L&T Annexure 2.7 / Sr. No.2	Vo-II-A/Section-IV, Scope of Supply & Services, Terminal points & Exclusions	<u>Terminal point not specified</u> for Colony potable water pumps, piping, valves and accessories. In serial no 13, this shall be included	For point no: a&b: Technical specification will be modified in Vo-II-A/Section-IV, Scope of Supply & Services, Terminal points & Exclusions as indicated in Annexure-A below.

Change in specification (Section B of Tender Specification)

Annexure C2F (BOP)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
43.	BHEL Annexure 2.1 / Annexure No / Sr. No. 505	Vol. II-IB/4/Section-I Effluent Treatment Plant Page -22 of 104	Recovery Rate ETP RO Skid – 85%age ETP Reject (SWRO Membrane) Skid – 60%age Outlet of Reverse Osmosis Plant TDS - <50mg/l	ETP RO Skid – 85% age ETP Reject (SWRO Membrane) Skid – 50% age Outlet of Reverse Osmosis Plant TDS - <100mg/l
44.	BHEL Annexure 2.7 / Annexure No / Sr. No. 3	Vol. II-A/Section-XIV Finalization of Sub Vendors clause no: 4.00.00 a) Mechanical items, Class-I,G, SI No 13 Travelling water screen	Travelling water screen	"INTENTIONALLY DELETED"
45.	BHEL Annexure 2.3 / Annexure No / Sr. No. 2	Vol: III-F2/A / Sch: III-F2A/5 Trash Rack, Travelling Water Screen, Stop Log Gates, Sluice Gate, Coarse Screen & Specialties /Data Sheet	Trash Rack, Travelling Water Screen, Stop Log Gates, Sluice Gate, Coarse Screen & Specialties /Data Sheet	"INTENTIONALLY DELETED"
46.	BHEL	Vol: III-F2/D / Sch: III-F2D/2	MOC of Fab Reactor (MS-FRP (6mm+3mm min)	"MOC of the Fab Reactor as MS-FRP"

Change in specification (Section B of Tender Specification)

Annexure C2F (BOP)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
	Annexure 2.3 / Annexure No / Sr. No. 4	Sewage Treatment Plant/Data sheet/ SI 10.00.00/pg 3 of 7 Vol. II-IB/4/Section-II Sewage Treatment System/ FAB REACTOR SI 1.09 pg 6 of 11		(6mm+3mm min) / MS+RL (6mm MS +3mm RL (min))"
47.	BHEL Annexure 2.3 / Annexure No / Sr. No. 5	Vol: III-F2/D / Sch: III-F2D/2 Sewage Treatment Plant/Data sheet/ SI 10.00.00/pg 3 of 7 Vol. II-IB/4/Section-II Sewage Treatment System/ Plate Settler/Tube Settler/ Secondary Settler / sl 1.09 pg 6 of 11	MOC of tube settler (MS-FRP (6mm+3mm min)	"MOC of Tube Settler as MS-FRP (6mm+3mm min) / MS+RL (6mm MS +3mm RL (min))"
48.	BHEL Annexure 2.3 / Annexure No / Sr. No. 6	Vol: III-F2/D / Sch: III-F2D/2 Sewage Treatment Plant/Data sheet/ SI 11.00.00 /pg 3 of 7 Vol. II-IB/4/Section-II Sewage Treatment System Hypo Contact Cum Filter Feed Tank/ SI 1.10/pg 7 of 11	MOC of Hypo Contact Cum Filter Feed Tank (MS- FRP (6mm+3mm min)	"MOC of the Hypo Contact Cum Filter Feed Tank " as MS-FRP (6mm+3mm min) / MS+RL (6mm MS +3mm RL (min))"
49.	BHEL	Vol: III-F2/D / Sch: III-F2D/2 Sewage Treatment	MOC of Hypo Dosing Tank (MS-FRP (6mm+3mm	"MOC of the Hypo Dosing Tank " as MS-FRP (6mm+3mm min) / MS+RL

Change in specification (Section B of Tender Specification)

Annexure C2F (BOP)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
	Annexure 2.3 / Annexure No / Sr. No. 7	Plant/Data sheet/ SI 12.00.00/pg 3 of 7 Vol. II-IB/4/Section-II Sewage Treatment System/ hypo dosing tank/ SI 1.11.1/pg 7 of 11	min)	(6mm MS +3mm RL (min))"
50.	BHEL Annexure 2.3 / Annexure No / Sr. No. 9	Vol: III-F2/D / Sch: III-F2D/2 Sewage Treatment Plant/Data sheet/ SI 18.00.00/pg 5 of 7 Vol. II-IB/4/Section-II Sewage Treatment System/ Treated Water Pumps / SI 1.17/pg 8 of 11	MOC of "Interconnecting Piping Material is UPVC, thickness as per IS 4985	"MOC of the Interconnecting Piping Material - UPVC, thickness as per IS 4985 / Carbon Steel with Rubber lining"
51.	BHEL Annexure 2.3 / Annexure No / Sr. No. 10	Vol: III-F2/D / Sch: III-F2D/2 Sewage Treatment Plant/Data sheet/ SI 22.00.00/pg 7 of 7 Vol. II-IB/4/Section-II Sewage Treatment System/ Dosing tank / SI 1.21 (i) /pg 10 of 11	MOC Of Tank PVC as per IS 4985	"MOC of Tank PVC / MSRL"
52.	L&T Annexure 2.1 / Annexure No12/ Sr. No. 725	Vol-II-IB2/ section-I/clause 3.01.00 & 18A03-DWG-M-001G	Water for CLO2 generator for raw water chlorination shall also be drawn from the overhead clarified water tank	Intentionally deleted

Change in specification (Section B of Tender Specification)

Annexure-A

"SI. No.	Items/Description	Terminal Point	Scope of EPC Bidder	Connecting Package and it's scope"
"13	Colony potable water pumps, piping, valves and accessories.	<p>a. Terminal points for Colony potable water pipe shall be provided near Main Gate complex of Thermal power plant for CISF Complex and skill development centre/ITI.</p> <p>b. Terminal point for Colony potable water pipe shall be at south east corner compound wall of thermal power plant near Raw water reservoir for integrated Township (Tentative Co-ordinates 21⁰ 45' 57.49"N, 83⁰ 59'27.18"E)</p>	<p>Entire scope of work up to terminal points including pumps, piping with valves and accessories shall be in Bidder's scope.</p> <p>All Civil works shall also be in Bidder's scope</p>	Purchaser / Bidder"

Change in specification (Section B of Tender Specification)**Annexure C2G (C&I)**

Sl. No	TCM Reference	Tender spec. Reference(Vol / Section / Clause No.)	Description as in Specification	Description To be read as
1.	BHELAnnexure 2.1 / BHEL - HPBP Trichy-Mechanical SI No 34	Vol-II E/Section –III / 3.03.05 / 28 of 46	Extra temperature sensors required for optimizing soot blower action shall be provided by the Bidder.	The mentioned clause 3.03.05 deleted.
2.	BHEL Annexure 2.1 / BHEL- HPBP Trichy-C&I SI No 56	Vol-II E/Sec-II/2.12.00/Sh 7 of 37	(x) On-line Carbon in Ash Analysis System	The mentioned point (x) deleted.
3.	BHEL Annexure 2.1 / BHEL- HPBP Trichy-C&I SI No 57	Vol-II E/Sec-III/2.14.00/Sh 21 of 46	On-line Carbon in Ash Analysis System	The entire clause 2.14.00 is deleted.
4.	BHEL Annexure 2.1 / BHEL- HPBP Trichy-C&I SI No 53	Vol-II E/Sec-I/ 2.02.02/Sh 4 of 47	Acoustic Boiler temperature	Acoustic Boiler temperature requirement is deleted.
5.	BHEL Annexure 2.1 / BHEL- HPBP Trichy-C&I SI No 54	Vol-II E/Sec-II/ 2.12.00/Sh 7 of 37	v) Acoustic temperature measurement system (Acoustic Pyrometer)	The mentioned point (v) deleted.

Change in specification (Section B of Tender Specification)

Annexure C2G (C&I)

Sl. No	TCM Reference	Tender spec. Reference(Vol / Section / Clause No.)	Description as in Specification	Description To be read as
6.	BHEL Annexure 2.1 / BHEL-HPBP Trichy-C&I SI No 55	Vol-II E/Sec-III/ 2.11.00/Sh 15 of 46	Acoustic temperature measurement system (Acoustic Pyrometer)	The entire clause 2.11.00 is deleted.
7.	BHEL Annexure 2.1 / BHEL-HPBP Trichy-C&I SI No 61	Vol-II E/Sec-III/ 2.01.14/Sh 6 of 46	(h) Internal temperature measurement to detect loss/ inadequacy of cooling air and with automatic shutter closure/ retraction arrangement on loss of air or high temperature	The mentioned point (h) deleted.
8.	BHEL Annexure 2.1 / BHEL-HPBP Trichy-C&I SI No 62	Vol-II E/Sec-III/ 2.12.04/Sh 17 of 46	ASLD System shall be possible to perform calibration of sensors without disconnecting the sensor.	The mentioned point is deleted.
9.	BHEL Annexure 2.1 / BHEL-HPBP Trichy-C&I SI No 68	Vol-II E/Sec-XIV/6.04.03/Sh 83 of 100	FAT to be conducted at elevated temp. Of <u>45 deg C for minimum 48 hours.</u>	FAT to be conducted at <u>ambient temperature. Duration of FAT shall be the time taken to complete the functional checks of the system.</u>
10.	BHEL Annexure 2.1 / BHEL-HPBP Trichy-C&I SI No 69	Vol-II E/Sec-III/2.01.09/Sh 5 of 46	Flame Monitoring System shall be provided with self-diagnostic features, wide viewing angle, fast response time and high detection range. The sensor fault, alarming, diagnostic and pre-historized flame intensity value of flame monitoring system shall be hooked up to <u>integral OWS</u> with suitable software.	Flame Monitoring System shall be provided with self-diagnostic features, wide viewing angle, fast response time and high detection range. The sensor fault, alarming, diagnostic and pre-historized flame intensity value of flame monitoring system shall be hooked up to <u>DDCMIS HMI</u> .
11.	BHEL Annexure 2.1	Vol IIE/ Sec III/ 1.16.00/ 4 of	All HT equipment such as CID/ ID/ Booster Fan, PA Fan, FD Fan, Mill and their motors	All HT equipment such as CID/ ID/ Booster Fan, PA Fan, FD Fan, Mill and their motors

Change in specification (Section B of Tender Specification)

Annexure C2G (C&I)

Sl. No	TCM Reference	Tender spec. Reference(Vol / Section / Clause No.)	Description as in Specification	Description To be read as
	/ BHEL- BAP- SI No 87	46	shall be provided with bearing vibration probes (both in X and Y direction) at each DE and NDE bearing of drives and driven equipment along with key-phasor for online vibration monitoring and analysis. For details Bidder shall refer to Section-IV of this volume.	shall be provided with bearing vibration probes (both in X and Y direction) at each DE and NDE bearing of drives and driven equipment (<u>Except for bearings housed in a mono block housing wherein one set of vibration probes, both in X and Y direction is also acceptable</u>) along with key-phasor for online vibration monitoring and analysis. For details Bidder shall refer to Section-IV of this volume.
12.	BHEL Annexure 2.1 / BHEL- HPEP, Hyd SI No 160	Volume-II E / Section-IV / Clause 5.01.03 / page 26 OF 38	BFP Turbine Supervisory Instruments: m) Stop valve metal temperature measurements	BFP Turbine Supervisory Instruments: m) Deleted
13.	BHEL Annexure 2.1 / BHEL- HEEP, Haridwar SI No 279	Vol. II-E/Sec-IV/3.02.01.(e).(ii)/ 11 of 38	LP Turbine (1 & 2) Exhaust Over Pressure Protection	LP Turbine (1 & 2) Exhaust Over Pressure Protection (<u>if applicable</u>)
14.	BHEL Annexure 2.1 / BHEL- HEEP, Haridwar SI No 282	Vol. II-E/Sec-IV/4.04.02.(a)/ 21 of 38	Conductivity and pH transmitter after the primary water pumps for measurement and protection.	Conductivity transmitter after the primary water pumps for measurement and protection.
15.	BHEL Annexure 2.1 / BHEL- EDN- C&I	Vol. II-E/Section-VIII / Corrigendum 37 26.02.03 / 26.02.04 Page 2 of 112	Bidder's scope under this package shall include but not be limited to design, testing, supply, installation, commissioning of APC (Advanced Process Control) software for	Bidder's scope under this package shall include but not be limited to design, testing, supply, installation, commissioning of APC (Advanced Process Control) software for

Change in specification (Section B of Tender Specification)

Annexure C2G (C&I)

Sl. No	TCM Reference	Tender spec. Reference(Vol / Section / Clause No.)	Description as in Specification	Description To be read as
.	SI No 468		each unit along with required hardware, interface software and training as per specifications laid down in this tender document. The Bidder shall also provide all the related services for design, development/configuration, implementation, installation of software and control scheme, performance testing, training, warranty etc.	each unit along with required hardware, interface software and training as per specifications laid down in this tender document. The Bidder shall also provide all the related services for design, development/configuration, implementation, installation of software and control scheme, performance testing, training, warranty etc. <u>'Developer/ Administrator level training' man days for APC is part of overall C&I mandays as mentioned in Vol II A sec V cl 19.01.00.</u>
16.	BHEL Annexure 2.1 / BHEL- PCRI HWR SI No 472	Vol. II-E, Sec XI, Clause 3.01.02, Page 4 of 16	AAQMS 1. CO Analyzer Range: 0-1 PPM to 0-1000 PPM 2. CO2 Analyzer Range: 0-10000 PPM	AAQMS 1. CO Analyzer Range 0-1 PPM to <u>0-100 PPM</u> 2. CO2 Analyzer Range <u>0-1000 PPM</u>
17.	L&TAnnexure 2.1 / L&T-STG-C&I-LMTG SI No 560	Vol. II-E/Section-I General Technical Requirements /8.02.03/ (30 of 47)	All the position limit switches employed in the pneumatic on-off valves shall be non-contact type.	All the position limit switches employed in the pneumatic on-off valves shall be non-contact type/ <u>OEM proven practice.</u>

Change in specification (Section B of Tender Specification)

Annexure C2G (C&I)

Sl. No	TCM Reference	Tender spec. Reference(Vol / Section / Clause No.)	Description as in Specification	Description To be read as
18.	L&TAnnexure 2.1 / L&T-STG-C&I-LMTG SI No 561	Vol. II-E/Section-I General Technical Requirements /8.02.04/ (30 of 47)	All regulating duty control valves shall have mechanical position indicator and contact less position transmitter (4-20 mA DC output) for monitoring the position from local and control room respectively. Air lock relays shall be provided with all regulating duty pneumatic drives to achieve stay put / fail safe condition on air failure. Hand wheel shall be provided for local operation.	All regulating duty control valves shall have mechanical position indicator and contact less position transmitter (4-20 mA DC output) <u>or as per OEM proven practice</u> for monitoring the position from local and control room respectively. Air lock relays shall be provided with all regulating duty pneumatic drives to achieve stay put / fail safe condition on air failure. Hand wheel shall be provided for local operation.
19.	L&TAnnexure 2.1 / L&T-C&I SI No 1178	Vol. II-E/Section-VII/Instruments and Systems / 6.08.01, Page 203 of 268	Vibration Analysis & Diagnostic System shall be complete with condition monitoring module, <u>redundant</u> server along with 24" LED monitor, .....etc.	Vibration Analysis & Diagnostic System shall be complete with condition monitoring module, server along with 24" LED monitor, .....etc.
20.	L&TAnnexure 2.1 / L&T-C&I SI No 1182	Vol. II-E/Section-VII, Instruments and Systems /1.05.02, Note-7, Page 69 of 268	For pipeline sizes of 500 mm and less, the orifice plates shall be an integral unit comprising of carrier ring assembly, tapping arrangement on both upstream as well down stream side. For line sizes more than 500 mm, the orifice plate shall be disc type. For disc type orifice plate, suitable corner tapping arrangement on both upstream as well as downstream side shall be provided. All tapping arrangements shall be complete with a piece of impulse pipe line and a shut – off valve suitable for specified line pressure.	For pipeline sizes of <u>50</u> mm and less, the orifice plates shall be an integral unit comprising of carrier ring assembly, tapping arrangement on both upstream as well down stream side. For line sizes more than 500 mm, the orifice plate shall be disc type. For disc type orifice plate, suitable corner tapping arrangement on both upstream as well as downstream side shall be provided. All tapping arrangements shall be complete with a piece of impulse pipe line and a shut – off valve suitable for specified line pressure.

Change in specification (Section B of Tender Specification)

Annexure C2G (C&I)

Sl. No	TCM Reference	Tender spec. Reference(Vol / Section / Clause No.)	Description as in Specification	Description To be read as
21.	L&TAnnexure 2.1 / L&T-C&I SI No 1186	Vol. II-E/Section-VII/Instruments and Systems /1.01.04, Page 11 of 268	Ultrasonic Type Level Transmitter [NOTE c]) Separate Sensor Unit and Electronic Unit with LCD Display shall be provided	Ultrasonic Type Level Transmitter [NOTE c]) Separate sensor Unit and electronic Unit with LCD Display shall be provided <u>where sensor Unit is installed at location which is not easily approachable i.e. top of tank.</u>
22.	L&TAnnexure 2.1 / L&T-C&I SI No 1197	Vol. II-E/Section- XIII Operator Training Simulator /1.01.00, Page 1 of 32	3D graphical models shall be provided for complete power plant including Boiler, Turbine and Generator together with all accessories, auxiliaries and associated equipment, Balance of Plant Systems and FGD Systems.	<u>2D</u> graphical models shall be provided for complete power plant including Boiler, Turbine and Generator together with all accessories, auxiliaries and associated equipment, Balance of Plant Systems and FGD Systems.
23.	L&TAnnexure 2.1 / L&T-C&I SI No 1222	Vol. II-E/Section-VI /4.02.03 (c), Page 8 of 13	Flue Gas Pressure Transmitters and Flowmeter at Flue Gas Duct Inlet & Outlet for Fan Blade Pitch Control.	Flue Gas Pressure Transmitters at Flue Gas Duct Inlet & Outlet for Fan Blade Pitch Control. <u>1 No. of Flue gas flow meter at each absorber inlet for monitoring purpose.</u>
24.	L&TAnnexure 2.1 / L&T- SG & Aux SI No 233	Volume: II-E/ Section-III/ 2.08.01 and 2.08.02/ Page 10 of 46	Adequate number of Thermocouple type fire detection system for each Mill and Air-heater shall be provided as a composite & complete unit with all required signals & accessories with adequate redundancy shall be provided. <u>Coal bunkers shall also be monitored for fire condition.</u> The controls & protection required for the Mill Fire Detection system and air heater fire detection system shall be implemented using rate-of-rise algorithm taking care of Manufacturer's recommendation. <u>Similarly for the coal bunker CO analyzer shall be</u>	2.08.01 Adequate number of Thermocouple type fire detection system for each Mill and Air-heater shall be provided as a composite & complete unit with all required signals & accessories with adequate redundancy shall be provided. 2.08.02 The controls & protection required for the Mill Fire Detection system and air heater fire detection system shall be implemented using rate-of-rise algorithm taking care of Manufacturer's recommendation.

Change in specification (Section B of Tender Specification)

Annexure C2G (C&I)

Sl. No.	TCM Reference	Tender spec. Reference(Vol / Section / Clause No.)	Description as in Specification	Description To be read as
			<u>provided.</u>	
25.	BHEL Annexure 2.1 / S.No.58,59	Vol-II E/Sec-III/ 3.04.07/Sh 29 of 46	SADC System shall be complete with wind box to furnace differential pressure transmitters, switches, actuators with smart positioners, non-contact position transmitters etc.	3.04.07 SADC System shall be complete with wind box to furnace differential pressure transmitters, switches etc. <u>3.04.08 Actuators for SADC and Burner tilt drives shall be as per OEM proven standard practice.</u>
26.	BHEL Annexure 2.1 / S.No.274	Vol-II E, Section-VII/ 1.04.01 (12)/52 of 268	Thermocouple Calibration & Accuracy : As per <u>IEC-751</u> / ANSI- MC 96.1 (Special Class)	Thermocouple Calibration & Accuracy : As per ANSI MC 96.1 (special class)/ <u>IS:7358/ DIN IEC-584</u>
27.	BHEL Annexure 2.1 / S.No.277	Vol. II-E/Sec-IV/3.01.01.(d)/ 7 of 38	Relative axial expansion of HP, IP & LP turbines shall be monitored by contact less measurement based upon eddy current principle to measure relative axial displacement between the rotors and casings of the turbine due to their different thermal inertia particularly during start up/shutdown and in case of major load variations.	Relative axial expansion of HP, IP & LP turbines (<u>OEM Standard and proven practice for combined differential expansion for IP and LP</u>) shall be monitored by contact less measurement based upon eddy current principle to measure relative axial displacement between the rotors and casings of the turbine due to their different thermal

Change in specification (Section B of Tender Specification)

Annexure C2G (C&I)

Sl. No .	TCM Reference	Tender spec. Reference(Vol / Section / Clause No.)	Description as in Specification			Description To be read as		
						inertia particularly during start up/shutdown and in case of major load variations.		
28.	BHEL Annexure 2.1 / S.No.523	VOL II-A/Section-XIV/Finalisation of Subvendor/Cl.no.4.00.00/(C). C&I Items , (i) Class I items	S.No .	Description	Refer Acceptanc e criteria Clause No.	S.No .	Description	Refer Acceptanc e criteria Clause No.
			22	Oxygen Analyser (Both HT & LT)	2.01.01 (b)	22	Oxygen Analyser (Both HT & LT)	2.01.01 (a/b)
			23	CO& CO2 Analyzer	2.01.01 (b)	23	CO& CO2 Analyzer	2.01.01 (a/b)
			24	Large Video Screens (LED Type)	2.01.01 (b)	24	Large Video Screens (LaserType)	2.01.01 (a/b)
			25	Ammonia Slip Analyzer	2.01.01 (b)	25	Ammonia Slip Analyzer	2.01.01 (a/b)
			26	Ammonia Leak Detector	2.01.01 (b)	26	Ammonia Leak Detector	2.01.01 (a/b)
			27	pH, Conductivity, ORP and Dissolved Oxygen	2.01.01 (b)	27	pH, Conductivity, ORP and Dissolved Oxygen	2.01.01

Change in specification (Section B of Tender Specification)

Annexure C2G (C&I)

Sl. No	TCM Reference	Tender spec. Reference(Vol / Section / Clause No.)	Description as in Specification			Description To be read as		
				Analyzer			Analyzer	(a/b)
			28	Residual Chloride Analyzer	2.01.01 (b)	28	Residual Chloride Analyzer	2.01.01 (a/b)
			29	Chlorine Analyzer	2.01.01 (b)	29	Chlorine Analyzer	2.01.01 (a/b)
			30	Silica Analyzer	2.01.01 (b)			
			31	Phosphate Analyzer	2.01.01 (b)	30	Silica Analyzer	2.01.01 (a/b)
			32	Sodium Analyzer	2.01.01 (b)	31	Phosphate Analyzer	2.01.01 (a/b)
			33	Hydrazine Analyzer	2.01.01 (b)			
			34	TDS and Turbidity Analyzer	2.01.01 (b)	32	Sodium Analyzer	2.01.01 (a/b)
			35	Chlorine Leak Detector	2.01.01 (b)	33	Hydrazine Analyzer	2.01.01 (a/b)
			36	Hydrogen purity Analyzer & leak detector	2.01.01 (b)	34	TDS and Turbidity Analyzer	2.01.01 (a/b)
			37	Smart Positioners	2.01.01 (b)	35	Chlorine Leak Detector	2.01.01 (a/b)
			38	Smart Transmitter (P, L, F, DP)	2.01.01 (b)	36	Hydrogen purity Analyzer & leak detector	2.01.01 (a/b)

Change in specification (Section B of Tender Specification)

Annexure C2G (C&I)

Sl. No .	TCM Reference	Tender spec. Reference(Vol / Section / Clause No.)	Description as in Specification			Description To be read as		
			39	Temperature Transmitter	2.01.01 (b)	37	Smart Positioners	2.01.01 (a/b)
			40	Thermocouples/ Metal Temperature Thermocouples /RTDs	2.01.01 (b)	38	Smart Transmitter (P, L, F, DP)	2.01.01 (a/b)
			41	Level Transmitters (Acoustic type – 3 D)	2.01.01 (b)	39	Temperature Transmitter	2.01.01 (a/b)
			42	Level Transmitters (Displacer Type)	2.01.01 (b)	40	Thermocouples/ Metal Temperature Thermocouples /RTDs	2.01.01 (a/b)
			43	Level Transmitters(Ultrasonic, Radar type)	2.01.01 (b)	41	Level Transmitters (Acoustic type – 3 D)	2.01.01 (a/b)
			44	Level Transmitters (Capacitance type)	2.01.01 (b)	42	Level Transmitters (Displacer Type)	2.01.01 (a/b)
			45	Mass flow meter (Coriolis Principle)	2.01.01 (b)	43	Level Transmitters(Ultrasonic, Radar type)	2.01.01 (a/b)
			46	Magnetic Flowmeter	2.01.01 (b)	44	Level Transmitters (Capacitance type)	2.01.01 (a/b)
			47	Parshall Flume type Flow Transmitter	2.01.01 (b)	45	Mass flow meter (Coriolis Principle)	2.01.01 (a/b)
			48	Ultrasonic Flow	2.01.01 (b)			

Change in specification (Section B of Tender Specification)

Annexure C2G (C&I)

Sl. No .	TCM Reference	Tender spec. Reference(Vol / Section / Clause No.)	Description as in Specification			Description To be read as		
				Transmitter		46	Magnetic Flowmeter	2.01.01 <u>(a/b)</u>
			49	Instrumentation Cables (including Triad cable)	2.01.01 (b)	47	Parshall Flume type Flow Transmitter	2.01.01 <u>(a/b)</u>
			50	Thermocouple cables	2.01.01 (b)	48	Ultrasonic Flow Transmitter	2.01.01 <u>(a/b)</u>
			51	Fibre optic cables	2.01.01 (b)	49	Instrumentation Cables (including Triad cable)	2.01.01 <u>(a/b)</u>
						50	Thermocouple cables	2.01.01 <u>(a/b)</u>
						51	Fibre optic cables	2.01.01 <u>(a/b)</u>
29.	BHEL Annexure 2.1 / S.No.523	VOL II-A/Section-XIV/Finalisation of Subvendor/Cl.no.4.00.00/(C). C&I Items , (ii) Class II items	S.No .	Description	Refer Acceptance criteria Clause No.	S.No .	Description	Refer Acceptance criteria Clause No.
			11	Flow Switch	2.01.02 (b)	11	Flow Switch	2.01.02 <u>(a/b)</u>

Change in specification (Section B of Tender Specification)

Annexure C2G (C&I)

Sl. No	TCM Reference	Tender spec. Reference(Vol / Section / Clause No.)	Description as in Specification			Description To be read as		
			12	Flow Meters (Other than Class I items)	2.01.02 (b)	12	Flow Meters (Other than Class I items)	2.01.02 <u>(a/b)</u>
			13	Junction Boxes	2.01.02 (b)	13	Junction Boxes	2.01.02 <u>(a/b)</u>
			14	Erection Hardware including pipe, fittings, manifold etc.,	2.01.02 (b)	14	Erection Hardware including pipe, fittings, manifold etc.,	2.01.02 <u>(a/b)</u>
			15	Laptop	2.01.02 (b)	15	Laptop	2.01.02 <u>(a/b)</u>
			16	Laser Printers	2.01.02 (b)	16	Laser Printers	2.01.02 <u>(a/b)</u>
			17	Level Switches (Float , Displacer Type, Capacitance) & Level Gauges (All Types)	2.01.02 (b)	17	Level Switches (Float , Displacer Type, Capacitance) & Level Gauges (All Types)	2.01.02 <u>(a/b)</u>
			18	Level Switches (RF type)	2.01.02 (b)	18	Level Switches (RF type)	2.01.02 <u>(a/b)</u>
			19	Level Switches (Conductivity type)	2.01.02 (b)	19	Level Switches (Conductivity type)	2.01.02 <u>(a/b)</u>
			20	LIE / LIR	2.01.02 (b)	20	LIE / LIR	2.01.02 <u>(a/b)</u>

Change in specification (Section B of Tender Specification)

Annexure C2G (C&I)

Sl. No.	TCM Reference	Tender spec. Reference(Vol / Section / Clause No.)	Description as in Specification			Description To be read as		
			21	LIU/Optical Link	2.01.02 (b)	21	LIU/Optical Link	2.01.02 (a/b)
			22	Media Converters	2.01.02 (b)	22	Media Converters	2.01.02 (a/b)
			23	Panels/ cabinets (DCS,PLC,CEMS,SWA S)	2.01.02 (b)	23	Panels/ cabinets (DCS,PLC,CEMS,SWA S)	2.01.02 (a/b)
			24	Pressure Gauges/DP Gauge	2.01.02 (b)	24	Pressure Gauges/DP Gauge	2.01.02 (a/b)
			25	Pressure & Differential Pressure Switches, Temperature Switches	2.01.02 (b)	25	Pressure & Differential Pressure Switches, Temperature Switches	2.01.02 (a/b)
			26	Proximity sensor/switch	2.01.02 (b)	26	Proximity sensor/switch	2.01.02 (a/b)
			27	Rotameter	2.01.02 (b)	27	Rotameter	2.01.02 (a/b)
			28	Server Station/ Engineering/Operator Work Stations	2.01.02 (b)	28	Server Station/ Engineering/Operator Work Stations	2.01.02 (a/b)
			29	Solenoid Valves	2.01.02 (b)	29	Solenoid Valves	2.01.02 (a/b)

Change in specification (Section B of Tender Specification)

Annexure C2G (C&I)

Sl. No.	TCM Reference	Tender spec. Reference(Vol / Section / Clause No.)	Description as in Specification			Description To be read as		
			30	Temperature Gauges	2.01.02 (b)	30	Temperature Gauges	2.01.02 (a/b)
30.	BHEL Annexure 2.1 / S.No.7	V-IIA-Sec-IX-Anx-I-6- C&I/ Sl. No. 6.13.00	High Temperature IR Camera			<u>Bottom Ash Hopper Camera</u>		
31.	L&TAnnexure 2.1 / S.No.573	Vol. II-E/Section-IV Turbine Generating Unit & Auxiliaries /3.02.02 (d)/(12 of 38)	<p>d . Electro hydraulic transducer (servo valve) shall accept electrical signal from the valve position controller and convert it into hydraulic signal to operate hydraulic actuator of control valve. Servo valve shall be of highest reliability by two or three coil design and position feedback signal of servo valve shall be available to the control system. Controller shall be able to detect for any open and short circuit of servo valve coil and stuck valve condition.</p> <p>e. Position transducers to determine the actual position of the electro-hydraulic transducer.</p>			<p>d) Electrohydraulic transducer (Servo valve) shall accept electrical <u>signal from control system</u> and convert it into hydraulic signal to operate hydraulic actuator of control valve. Servo valve shall be of highest reliability by two or three coil design and position feedback signal <u>from LVDT of hydraulic actuator of control valve</u> shall be available to the control system.</p> <p>e) <u>Deleted</u></p>		

Change in specification (Section B of Tender Specification)**Annexure C2G (C&I)**

Sl. No	TCM Reference	Tender spec. Reference(Vol / Section / Clause No.)	Description as in Specification	Description To be read as
32.	L&TAnnexure 2.1 / S.No.1168	Vol. II-E/ Section-I General Technical Requirements/2.02.07, Page 7 of 47	Facility shall be provided in the Plant DDCMIS (Unit/ Common DDCMIS) to monitor the analog parameters & digital status from <u>Relay and Energy Metering System</u> , Intelligent MCCs, Plant UPS etc. through soft communication link.	Facility shall be provided in the Plant DDCMIS (Unit/ Common DDCMIS) to monitor the analog parameters & digital status from Intelligent MCCs, Plant UPS etc. through soft communication link. <u>For connectivity of IMCC, Numerical relay and MFM with DDCMIS RMS/ EMS architecture (Dwg No. 18A03-DWG-E-4100) shall be referred.</u>
33.	L&TAnnexure 2.1 / S.No.1168	Vol. II-E/ Section-I General Technical Requirements/6.05.02 (h), Page 18 of 47	All soft links amongst DDCMIS and various PLC / proprietary control systems / Intelligent Controller / <u>SMART MCC</u> shall be redundant bidirectional OPC link, as applicable.	All soft links amongst DDCMIS and various PLC / proprietary control systems / Intelligent Controller shall be redundant bidirectional OPC link, as applicable.
34.	L&TAnnexure 2.1 / S.No.1168	Vol. II-E/ Section-I General Technical Requirements/2.03.02, Page 8 of 47	Control Systems of HGP, FDAS <u>and EMS/ RMS</u> shall be interfaced with Plant DDCMIS for supervisory monitoring of parameters and status.	Control Systems of HGP& FDAS shall be interfaced with Plant DDCMIS for supervisory monitoring of parameters and status.

Change in specification (Section B of Tender Specification)

Annexure C2G (C&I)

Sl. No	TCM Reference	Tender spec. Reference(Vol / Section / Clause No.)	Description as in Specification	Description To be read as
35.	L&TAnnexure 2.1 / S.No.1168	Vol. II-E/ Section-II Scope of work/2.02.03/Point.(b), Page 3 of 37	In addition to above, soft signals from various microprocessor based control systems supplied by Bidder shall be connected to Main Plant DDCMIS/ BOP DDCMIS/FGD DDCMIS. Communication shall be Serial/ Modbus over TCP/IP/ OPC over TCP/IP as per requirements. <u>Relay Management Systems shall be connected through IEC61850 protocol.</u> All interface cables and accessories along with network components/ converters/ adapters etc. as required shall be provided by Bidder.	In addition to above, soft signals from various microprocessor based control systems supplied by Bidder shall be connected to Main Plant DDCMIS/ BOP DDCMIS/FGD DDCMIS. Communication shall be Serial/ Modbus over TCP/IP/ OPC over TCP/IP as per requirements. All interface cables and accessories along with network components/ converters/ adapters etc. as required shall be provided by Bidder.
36.	L&TAnnexure 2.1 / S.No.1168	Vol. II-E/ Section-II Scope of work/2.02.03/Point.(b),S.no. 14, Page 5 of 37	14. Energy Management System & Relay Management System (Respective Areas) : Plant/ BOP/ FGD DDCMIS	14. Deleted
37.	L&TAnnexure 2.1 / S.No.1168	Tender Drawing : 18A03-DWG-I-0001_CNTRL SYS ARCH-PLANT DDCMIS R1, 18A03-DWG-I-0002_CNTRL SYS ARCH_BOP DDCMIS R1, 18A03-DWG-I-0003_CNTRL SYS	<ol style="list-style-type: none"> Connectivity of Relay management System with DDCMIS is shown through IEC61850 protocol. Connectivity of Energy management System with DDCMIS is shown through Modbus TCP/IP protocol. 	<ol style="list-style-type: none"> Connectivity of Relay management System with DDCMIS stands deleted. Connectivity of Energy management System with DDCMIS stands deleted.

Change in specification (Section B of Tender Specification)

Annexure C2G (C&I)

Sl. No.	TCM Reference	Tender spec. Reference(Vol / Section / Clause No.)	Description as in Specification	Description To be read as
		ARCH_FGD DDCMIS R0		
38.	L&TAnnexure 2.1 / S.No.1173	Vol. II-E/ Section-VII/ Instruments and Systems/5.01.02, Page 172 of 268	Bidder to note that PLC system shall be from <u>single manufacturer only. PLC system supplied & engineered through system house shall not be acceptable. It should be supplied & engineered from PLC manufacturer only.</u> PLC shall be sourced from original manufacturers.	PLC shall be sourced from original manufacturers.
39.	L&TAnnexure 2.1 / S.No.1174	Vol. II-E/ Section-VII Instruments and Systems/5.01.11 (d), Page 174 of 268	These faults shall typically be reported as colour change on system status display and messages on programmer station/OWS as well as through local indication. The diagnostic system shall ensure that the faults are detected before any significant change in any controller output has taken place. Failure of any I/O modules, Controller etc. shall be annunciated to OWS. For I/O modules, these alarms shall be grouped, while for controller, comm. controller, power supply, these shall be individual. <u>In case the faults are not acknowledged / rectified within certain interval, then the same shall be reported to predefined users through messaging system described subsequently in this subsection. The exact strategy of the messaging system shall be elaborated and finalized during</u>	These faults shall typically be reported as colour change on system status display and messages on programmer station/OWS as well as through local indication. The diagnostic system shall ensure that the faults are detected before any significant change in any controller output has taken place. Failure of any I/O modules, Controller etc. shall be annunciated to OWS. For I/O modules, these alarms shall be grouped, while for controller, comm. controller, power supply, these shall be individual.

Change in specification (Section B of Tender Specification)

Annexure C2G (C&I)

Sl. No	TCM Reference	Tender spec. Reference(Vol / Section / Clause No.)	Description as in Specification	Description To be read as
			<u>detailed engineering.</u>	
40.	L&TAnnexure 2.1 / S.No.1176	Vol. II-E/ Section-VII/ Instruments and Systems/6.07.07, Page 202 of 268	10% installed wired spare channel of each type shall be considered in each VMS panel.	5% installed wired spare channel of each type shall be considered in each VMS panel.
41.	L&TAnnexure 2.1 / S.No.1177	Vol. II-E/Section-VII Instruments and Systems /6.07.08, Page 202 of 268	One potential free normally open relay contact for alarm and one changeover type contact for trip shall be provided, for each channel from the monitor. Critical alarm and trip relay output shall be configured in 2 out 3 logic. Each relay shall have separate module so as to implement 2 out of 3 logic. Contact of alarm & trip relays shall be hardwired to DDCMIS/ PLC system.	One potential free relay contact for trip shall be provided from each channel. Contact of trip relay shall be hardwired to DDCMIS/ PLC system
42.	L&TAnnexure 2.1 / S.No.1190	Vol. II-E/ Section-VIII / DDCMIS/10.01.01(Point 1), Page 61 of 112	<u>32 / 64 bit- On board Intel-Xeon quad core, 3.46 GHz processor with 1066 MHz bus with Hyper threading or higher</u>	a) <u>For DDCMIS/PLC - 32 / 64 bit- On board latest proven Intel-Xeon family processor or higher.</u> b) <u>For MIS and other package workstations.</u>

Change in specification (Section B of Tender Specification)

Annexure C2G (C&I)

Sl. No.	TCM Reference	Tender spec. Reference(Vol / Section / Clause No.)	Description as in Specification			Description To be read as		
						<u>latest i7 processor or higher.</u>		
43.	L&TAnnexure 2.1 / S.No.1191	Vol. II-E/ Section-VIII / DDCMIS/10.01.01, Page 62 of 112	9	Miscellaneous Requirement	System chipset: Intel Express 2 x RS-232 ports 1 x parallel port 4 nos. USB (3.0/2.0 ports (2 nos. on front side) 2 x Ethernet (10/100/1000 MB) cards (Industrial Grade) 2 nos. Graphic output cards minimum. Sound Card &	9	Miscellaneous Requirement	System chipset: Intel Express 2 x RS-232 ports 1 x parallel port 4 nos. USB (3.0/2.0 ports (2 nos. on front side) 2 x Ethernet (10/100/1000 MB) cards (Industrial Grade) 2 nos. Graphic output cards minimum. Sound Card &

Change in specification (Section B of Tender Specification)

Annexure C2G (C&I)

Sl. No	TCM Reference	Tender spec. Reference(Vol / Section / Clause No.)	Description as in Specification			Description To be read as							
					Internal speakers <u>Wireless internet & Bluetooth interface.</u> <u>Redundant power supply (In-built)</u>			Internal speakers					
44.	L&TAnnexure 2.1 / S.No.1194	Vol. II-E/Section-IX, CEMS /3.04.00, Sr. No. 7, Page 3 of 27	Analog Output signals: 2 nos. 4~20 mA DC galvanically isolated (HART based if available) One signal shall be connected to Data logger and to CEMS OWS. From Data logger the signals shall be connected to Plant DDCMIS. <u>Other signal shall be connected to Pollution control board system.</u>			Analog Output signals: 2 nos. 4~20 mA DC galvanically isolated (HART based if available) One signal shall be connected to Data logger and to CEMS OWS. From Data logger the signals shall be connected to Plant DDCMIS and to Pollution control board.							
45.	L&TAnnexure 2.1 / S.No.1195	Vol. II-E/Section-X,SWAS/2.10.00, Sno.14, Page no- 6 of 37	<table><tr><td rowspan="2">Condenser Hotwell (Both sides)</td><td>Specific conductivity</td></tr><tr><td><u>Cation conductivity</u></td></tr></table>			Condenser Hotwell (Both sides)	Specific conductivity	<u>Cation conductivity</u>	<table><tr><td>Condenser Hotwell (Both sides)</td><td>Specific conductivity</td></tr></table>			Condenser Hotwell (Both sides)	Specific conductivity
Condenser Hotwell (Both sides)	Specific conductivity												
	<u>Cation conductivity</u>												
Condenser Hotwell (Both sides)	Specific conductivity												

Change in specification (Section B of Tender Specification)

Annexure C2G (C&I)

Sl. No	TCM Reference	Tender spec. Reference(Vol / Section / Clause No.)	Description as in Specification	Description To be read as
46.	L&TAnnexure 2.1 / S.No.1195	Vol. II-E/Section-X,SWAS/2.10.00, Page no-7 of 37	For hotwell conductivity measurement, Bidder shall provide direct insertion type / <u>withdrawable type</u> conductivity cell whereas for all other samples it shall be flow-through type. Monitors for hotwell conductivity shall be suitable for field mounting. <u>Two numbers (Duplex) of cation exchange columns (one working and one standby) should be provided with manual switching for each cation conductivity measurements.</u>	For hotwell conductivity measurement, Bidder shall provide direct insertion type / <u>withdrawable type</u> conductivity cell whereas for all other samples it shall be flow-through type. Monitors for hotwell conductivity shall be suitable for field mounting.
47.	L&TAnnexure 2.1 / S.No.1195	DWG. NO.: 18A03-DWG-I-0009 SWAS SCHEME DRAWING R0	Requirement of 2 no. of Cation Conductivity analysers for hotwell.	Requirement of 2 no. of Cation Conductivity analysers for hotwell is deleted.
48.	L&TAnnexure 2.1 / S.No.1198	Vol. II-E/ Section- XIII Operator Training Simulator/1.04.04, Page 2 of 32	In case the basic plant / equipment data is not available for a few plant areas, then <u>artificial intelligence based modeling</u> shall be required to be provided.	In case the basic plant / equipment data is not available for a few plant areas, then <u>similar equipment data from other plant</u> shall be required to be provided.

Change in specification (Section B of Tender Specification)

Annexure C2G (C&I)

Sl. No	TCM Reference	Tender spec. Reference(Vol / Section / Clause No.)	Description as in Specification	Description To be read as
49.	L&TAnnexure 2.1 / S.No.1225	Vol. II-E/ Section-IX / CEMS/3.03.00, Page 2 of 27	For Extractive sampling and dilution type system, the entire system including analyzers, sample handling/ conditioning system etc. offered shall be sourced from / assembled at Original Analyzer Manufacturer (OAM) works i.e. all components involved shall be imported or sourced from OAM only.	For Extractive sampling and dilution type system, the entire system including analyzers, sample handling/ conditioning system etc. offered shall be sourced from / assembled at Original Analyzer Manufacturer (OAM) works i.e. all components involved shall be imported or sourced from OAM only. <u>Incase CEMS is sourced from other than OAM, then complete CEMS documents shall be vetted by OAM and also OAM technical expert shall be available during FAT of CEMS for validation of complete system.</u>

Change in specification (Section B of Tender Specification)**Annexure C2G (C&I)**

Sl. No	TCM Reference	Tender spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
50.	General	Vol. II-E/ Section-VII / Instruments & Systems/8.03.02, Page 220 of 268	Low Voltage Power Cable (Core, Armoured) S.no.4. Conductor Insulation : <u>Extruded HR PVC insulation conforming to Type C of IS-5831</u> or extruded cross-linked polyethylene (XLPE) conforming to IS: 7098 (Part-1)	Low Voltage Power Cable (Core, Armoured) S.no.4. Conductor Insulation : Extruded cross-linked polyethylene (XLPE) conforming to IS: 7098 (Part-1)
51.	General	Vol. II-E/ Section-VI / FGD PLANT/4.03.07,S.no(c), Page no. 9 of 13	Flow measurement of lime stone slurry to Oxidation tank and at each outlet header of slurry recirculation pumps.	Flow measurement of lime stone slurry to Oxidation tank and at each outlet header of slurry recirculation pumps (<u>As applicable</u>).
52.	General	VOL II E/ Section VII/Instruments and Systems/Cl.no. 8.01.14/Page no. 208 of 268	10% spare cores or minimum one core (whichever is more) shall be provided for core cables when the number of cores is more than three (3).	<u>For spare philosophy of core cable refer Vol. II-F1/Section-I/Clause 4.34.08</u>
53.	General	Volume: II-E/ Section-IX/ 3.10.00 Mercury Analysis system/S/N 4/ Page 16 of 27	Principle of Measurement - Cold Vapor Atomic Fluorescence (CVAF)	Principle of Measurement - Cold Vapor Atomic Fluorescence (CVAF) <u>/Cold Vapour Atomic Absorption (CVAA)</u>

Change in specification (Section B of Tender Specification)

Annexure C2G (C&I)

Sl. No	TCM Reference	Tender spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification				Description To be read as							
54.	General	Volume: II-E/ Section-X/ 2.06.04 / Page 3 of 37	One (1) no. Operator Work Station with suitable software with 24” colour LED monitor <u>for each unit</u> and one (1) no. A4 sized B&W laser jet printer common for three (3) units				One (1) no. Operator Work Station with suitable software with 24” colour LED monitor and one (1) no. A4 sized B&W laser jet printer common for three (3) units							
55.	General	VOL-II-E/Section I/General Requirements/2.01.04, Page no. 2 of 47	In addition, LED type large video-screens (LVS) per unit basis forming a video wall shall be provided. All the information required for safe and efficient operation of the plant shall be displayed on <u>LED based</u> monitors of OWS and LVS at high speed and accuracy.				In addition, <u>Laser</u> type large video-screens (LVS) per unit basis forming a video wall shall be provided. All the information required for safe and efficient operation of the plant shall be displayed on monitors of OWS and LVS at high speed and accuracy.							
56.	General	VOL-II-E/Section II/ Scope of work/ TABLE-A/ LIST OF HMI / PERIPHERALS/PLANT DDCMIS/ S.N.2, Page no. 26 of 37	Operating Device	Location	Quantity				Operating Device	Location	Quantity			
					U1	U2	U3	COMMON			U1	U2	U3	COMMON
			Large Video Screen (LVS) with PC	Unit Control Room	5	5	5	3	Large Video Screen (LVS) with PC	Unit Control Room	<u>10</u>	<u>10</u>	<u>10</u>	<u>6</u>

Change in specification (Section B of Tender Specification)

Annexure C2G (C&I)

Sl. No	TCM Reference	Tender spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
57.	General	VOL-II/Section VII/Instruments and Systems/4.03.14/Point (a),Page no. 164 of 268	An arc shaped Large Video Screen (LVS) Panel shall be supplied for mounting large video screens in number of tiers in various control rooms as specified elsewhere in this specification	An arc shaped Large Video Screen (LVS) Panel shall be supplied for mounting large video screens in <u>Two- Tiers in unit control rooms and in One-Tier in CHP, AHP, PWS & FGD Control rooms</u> as specified elsewhere in this specification
58.	General	VOL-II/Section VIII/DDCMIS/14.01.01,Page no. 79 of 112	One set of 5x1 Display Wall for Unit-1,2 & 3 each and one set of 3x1 Display wall for Common DDCMIS having 70" HD LED light source video wall shall be provided. Display Controller shall be connected to respective DDCMIS network on which 5 workstations (for Unit-1, 2 & 3 each) and 3 workstations (common) shall be connected and displayed on LVS via network.	One set of <u>5x2</u> Display Wall for Unit-1,2 & 3 each and one set of <u>3x2</u> Display wall for Common DDCMIS having 70" HD <u>Laser</u> light source video wall shall be provided. Display Controller shall be connected to respective DDCMIS network on which <u>10 workstations (for Unit-1, 2 & 3 each) and 6 workstations (common)</u> shall be connected and displayed on LVS via network.
59.	General	VOL-II/Section VIII/DDCMIS/14.01.02,Page no. 80 of 112	One set of 2x1 Display Wall for Coal Handling System DDCMIS and one set of 3x1 Display Wall for each of Ash Handling System and Plant Water System DDCMIS having 70" HD LED light source video wall shall be provided.	One set of 2x1 Display Wall for Coal Handling System DDCMIS and one set of 3x1 Display Wall for each of Ash Handling System and Plant Water System DDCMIS having 70" HD <u>Laser</u> light source video wall shall be provided.

Change in specification (Section B of Tender Specification)**Annexure C2G (C&I)**

Sl. No	TCM Reference	Tender spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
60.	General	VOL-IIIE/Section VIII/DDCMIS/14.01.03,Page no. 80 of 112	One set of 3x1 Display Wall for FGD DDCMIS having 70" HD LED light source video wall shall be provided.	One set of 3x1 Display Wall for FGD DDCMIS having 70" HD <u>Laser</u> light source video wall shall be provided.
61.	General	VOL-IIIE/Section VIII/DDCMIS/14.02.01(S.N.4), Page no. 80 of 112	Illumination Type : LED	Illumination Type : <u>Laser</u>
62.	General	VOL-III/Tender Drawing/18A03-DWG-I-0001_CNTRL SYS ARCH-PLANT DDCMIS R1	Single Tier LVS (5X1/3X1) configuration is shown for each unit and common system. Display Controller is connected to respective DDCMIS network on which 5 workstations (for Unit-1, 2 & 3 each) and 3 workstations (common) is connected and displayed on LVS via network.	Two Tier LVS (<u>5X2/3X2</u>) configuration for each unit and common system shall be considered. Display Controller is connected to respective DDCMIS network on which <u>10 workstations</u> (for Unit-1, 2 & 3 each) and <u>6 workstations</u> (common) is connected and displayed on LVS via network shall be considered.
63.	General	VOL IIA/Section XIV Finalisation of Subvendor/ CL.no.4.00.00/ Class I Items/ S.no.24	Large Video Screens (LED Type)	Large Video Screens (<u>Laser</u> Type)

Change in specification (Section B of Tender Specification)

Annexure C2G (C&I)

Sl. No	TCM Reference	Tender spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
64.	General	VOL IIA/Section IX/Anx-I-6/ C&I Spares/Cl.no. 6.01.13, Point (b)	LVS (Complete with projectors, LED's and Accessories)	LVS (Complete with projectors, <u>Laser</u> and Accessories)

Change in specification (Section B of Tender Specification)

Annexure C2H (Electrical)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
1.	TCM-BHEL-Annex-2.1 ,Sl.no 63,64	Vol-II- F1/,Section-1/General Electrical specification/Clause 4.29.10	Intelligent Draw out Type PMCC/MCC (As a minimum requirement) Soot Blower MCC Non Intelligent Draw out Type PMCC/MCC ... Soot Blower MCC	Intelligent Draw out Type PMCC/MCC (As a minimum requirement) Soot Blower MCC Stands deleted Non Intelligent Draw out Type PMCC/MCC ... Soot Blower MCC (included)
2.	TCM-BHEL-Annex-2.1 ,Sl.no 71& TCM-L&T-Annex-2.1 ,Sl.no 219	Vol. II-F1/Section-III/ Electric Motor Actuators/4.03.00/Page 2 of 7	A safety factor of 300% shall be used for sizing of actuators for valves	A safety factor of minimum 150% shall be used for sizing of actuators for valves
3.	TCM-BHEL-Annex-2.1 ,Sl.no 96	Volume II-B, Section II, ESP, Scope of supply: Clause no 2.01.11 Page 3 of 25	Insulators along with heating and ventilation system for insulator Compartments complete with fans, heaters and necessary controls or adequately rated thermostatically controlled, panel type electrical heaters etc. to avoid moisture condensation.	Insulator compartment shall be provided with adequately rated thermostatically controlled, Tubular type electrical heaters to avoid moisture condensation.
4.	TCM-BHEL-Annex-2.1 ,Sl.no 248	Volume II-C/ Section-I/Steam Turbine Generator & Accessories /7.05.00 (3-d)/ 29 of 89	Fastening elements used in generator shall be non-magnetic	Fastening elements used in generator shall be non-magnetic/ magnetic as per OEM standard Proven Practice.

Change in specification (Section B of Tender Specification)

Annexure C2H (Electrical)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
5.	TCM-BHEL-Annex-2.1 ,Sl.no 249	Volume II-C/ Section-I/Steam Turbine Generator & Accessories /7.05.00 (5-e)/ 31 of 89	The terminal connector shall be suitable for termination of at least thirty two (32) numbers of braided flexible per phase	Terminal connector shall be designed for terminating required numbers of braided flexible to have adequate clearance between phases to sustain forces arising out of three phase sudden short circuit.
6.	TCM-BHEL-Annex-2.1 ,Sl.no 250	Volume II-C/ Section-I/Steam Turbine Generator & Accessories /7.05.00 (8-b)/ 32 of 89	High strength non-magnetic alloy steel forging shall be provided on the retaining rings to prevent any axial movement.	High strength non-magnetic alloy steel forging shall be provided on the retaining rings to prevent any axial Movement. However OEM standard and proven Materiel for Snap ring is also acceptable
7.	TCM-BHEL-Annex-2.1 ,Sl.no 253	Volume II-C/ Section-I/Steam Turbine Generator & Accessories /7.05.00-15, 35 of 89	Transportation: Bidder shall furnish details regarding provisions made to prevent ingress of moisture during transportation, storage and long shutdown. The Bidder shall bring out the requirement, if any of nitrogen gas. Complete Nitrogen system along with the necessary nitrogen cylinders shall be furnished by the Bidder.	Transportation: Bidder shall furnish details regarding provisions made to prevent ingress of moisture during transportation, storage and long shutdown. The Bidder shall bring out the requirement, of nitrogen gas/ Dry Air . Complete Nitrogen / Dry air system along with the necessary nitrogen cylinders/ Dry air blower shall be furnished by the Bidder.

Change in specification (Section B of Tender Specification)

Annexure C2H (Electrical)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
		7.06.00 Gas System-11(g)/ 37 of 89	<u>Nitrogen Capping</u> : During the transportation and storage the machine shall be kept under nitrogen atmosphere. Bidder shall bring out the requirement of nitrogen gas during the normal operation. The Complete nitrogen system as applicable along with the necessary nitrogen cylinders shall be furnished for each machine.	<u>Nitrogen Capping</u> : During the transportation and storage the machine shall be kept under nitrogen / Dry air atmosphere. Bidder shall bring out the requirement of nitrogen gas / Dry air during the normal operation, The Complete system along with necessary nitrogen cylinders / Dry air blower as applicable shall be furnished for each machine.
8.	TCM-BHEL-Annex-2.1 ,Sl.no 254	Volume II-C/ Section-I/Steam Turbine Generator & Accessories /7.06.00 (2)/ 36 of 89	Generator hydrogen leakage shall be less than 12 m3/ day	Generator hydrogen leakage shall not be more than 18 m3/ day .
9.	TCM-BHEL-Annex-2.1 ,Sl.no 255	Volume II-C/ Section-I/Steam Turbine Generator & Accessories /Driers/7.06.00-4/ 36 of 89	Refrigeration type Drier: 2x100% duty to maintain the H2 inside the machine dry with 0°C dew point at operating pressure with provisions to prevent condensation.	2x100% duty to maintain the H2 inside the machine dry with 3 - 5°C dew point at operating pressure with provisions to prevent condensation. Refrigeration type.
10.	TCM-BHEL-Annex-2.1 ,Sl.no 256	Volume II-C/ Section-I/Steam Turbine Generator & Accessories /7.06.00-5/ 36 of 89	5).Valve Interlocking : A 3-way valve shall be used along with the drier for interconnecting the H2 and air line (as applicable) preferably have mechanical interlocking, such that closing of H2 side port is positively ensured before opening of the air side port.	5).Valve Interlocking..... Stands deleted .

Change in specification (Section B of Tender Specification)

Annexure C2H (Electrical)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
11.	TCM-BHEL-Annex-2.1 ,Sl.no 257	Volume II-C/ Section-I/Steam Turbine Generator & Accessories /7.06.00-8 (h)/ 36 of 89	Alarms in TG MMI and annunciation contacts for ... Hydrogen leakage into cooling water	7.06.00-8 (h) Hydrogen leakage into cooling water Stands Deleted
12.	TCM-BHEL-Annex-2.1 ,Sl.no 262	Volume II-C/ Section-I/Steam Turbine Generator & Accessories /7.09.06 (C-c)/ 48 of 89	The exciter enclosure and support: The exciter shall be totally enclosed, self-ventilated, with positive air pressure frame supported on the generator foundation with journal bearings. Degree of protection of enclosure shall be IP: 54.	The exciter enclosure and support: The exciter..... Degree of protection of enclosure shall be IP 54 or OEM Standard Proven practice
13.	TCM-BHEL-Annex-2.1 ,Sl.no 264	Volume II-C/ Section-I/Steam Turbine Generator & Accessories /8.01.06/55 of 89	Brushless excitation system: Type test for which type test reports need to be submitted: (a) Exciter: Temperature rise test at peak rating of excitation system. Considering the test bed constraint, temperature rise test for exciter shall be conducted at 100% of rated excitation. Ceiling duty condition shall also be demonstrated (b) Permanent Magnet Generator Temperature rise test at peak rating of excitation system. Ceiling duty condition shall also be demonstrated (subject to test bed constraint).	Exciter: Temperature rise test at peak rating of excitation system. Considering the test bed constraint, temperature rise test for exciter shall be conducted at 100% of rated excitation. Ceiling duty condition shall also be demonstrated. Design Calculation for Ceiling duty requirement shall be furnished. (b) Permanent Magnet Generator Temperature rise test at peak rating of excitation system subject to test bed constraint. Ceiling duty condition shall also be demonstrated. Design Calculation for Ceiling duty requirement shall be furnished

Change in specification (Section B of Tender Specification)

Annexure C2H (Electrical)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
14.	TCM-BHEL-Annex-2.1 ,Sl.no 265	Volume II-C/ Section-I/Steam Turbine Generator & Accessories /8.02.00(o)/55 of 89	Measurement of phase to neutral and phase to phase capacitance of all the three phases of the stator and the rotor and calculation of the equivalent generator capacitance as viewed from the generator terminals; also the measurement of the capacitance between the complete winding and the body.	Measurement of phase to neutral and phase to phase capacitance of all the three phases of the stator and the rotor and calculation of the equivalent generator capacitance as viewed from the generator terminals; also the measurement of the capacitance between the complete Stator winding and the body will be measured during Routine test .
15.	TCM-BHEL-Annex-2.1 ,Sl.no 268	Volume II-C/ Section-I/Steam Turbine Generator & Accessories /8.02.00 (i)/58 of 89	a)Measurement of insulation resistance of the following before and after high voltage test: v) Exciter side bearings and oil pipe connections.	a)Measurement of insulation resistance of the following before and after high voltage test: v)Exciter side bearings and oil pipe connections, Stands Deleted
16.	TCM-BHEL-Annex-2.1 ,Sl.no 269 TCM-L&T-Annex-2.1 ,Sl.no 536	Volume II-C/ Section-I/Steam Turbine Generator & Accessories /8.02.00 (k)/58 of 89	K) Determination of direct axis synchronous reactance. Determination of potier reactance.	K) Determination of direct axis synchronous reactance. Determination of potier reactance. Stands Deleted
17.	TCM-BHEL-Annex-2.1 ,Sl.no 271	Volume II-C/ Section-I/Steam Turbine Generator & Accessories /8.02.00 (l)/58 of 89	AC high voltage testing of the field windings after the heat run test, with the rotor revolving at 3000 rpm and also with the stationary rotor.	AC high voltage testing of the field windings with the rotor revolving at 3000 rpm during balancing of generator rotor. Final AC high voltage test with stationary rotor after heat run test.

Change in specification (Section B of Tender Specification)

Annexure C2H (Electrical)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
18.	TCM-BHEL-Annex-2.1 ,Sl.no 432	Vol. II-F/1/Section-II A.C. & D.C. Motors Clause No. 4.02.08	The motor shall be provided with insulated bearing on one side	The motor shall be provided with insulated bearing on one side (or) Insulation shall be provided between bearing and frame on one side to prevent the flow of circulating currents through Bearing.
19.	TCM-BHEL-Annex-2.1 ,Sl.no 435	Vol. II-F/1/Section-II A.C. & D.C. Motors Clause No. 8.04.00 4)	Full load reading of voltage, current, power input and slip	Full load reading of voltage, current, power input and slip (subject to test bed constraint).
20.	TCM-BHEL-Annex-2.1 ,Sl.no 436	Vol. II-F/1/Section-II A.C. & D.C. Motors Clause No. 8.04.00 6)	Momentary overload test	Momentary overload test (subject to test bed constraint).
21.	TCM-BHEL-Annex-2.1 ,Sl.no 441	Vol. II-F-1/ Section-IV/ Generatorbusduct/ 4.14.03	The allowable air leakage shall be less than 5% of the total enclosure volume per hour. The contractor shall demonstrate this guaranteed figure during factory test as well as during site acceptance test.	The allowable air leakage shall be complied as per the IS- 8084 requirement
22.	TCM-BHEL-Annex-2.1 ,Sl.no 457	Vol. II-A/Section-IX Mandatory Spares-Turbine & Auxiliaries/ ANNEXURE- I/ SI No 2.33.07 Page 109 of 421	Sl. No. Equipment/Package Name Quantity to be supplied for the pkg 2.33.07 Switches of each type and rating	Switches of each type and rating- 2 sets

Change in specification (Section B of Tender Specification)

Annexure C2H (Electrical)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
23.	TCM-BHEL-Annex-2.1 ,Sl.no 489	<p>Vol-II-F1,Section-1,General electrical specification/04.14.03</p> <p>Vol. II-F2/Section-III/ Battery & Battery Charger/ 3.01.08</p> <p>Vol. II-F1/Section-I/ General Electrical Specification/ 1.11.20</p>	<p>04.14.03 The starting sequence of DC motors as per product specific requirement and Sizing of 220V DC system is in accordance to the above.</p> <p>a) For duration 0 minute to 1 minute</p> <ul style="list-style-type: none"> ➤ Tripping breakers. ➤ Starting current of all automatically started DC drives. ➤ Solenoid valves. ➤ Indicating lamps, protective relays, auxiliary relays on switchgears and control panels ➤ Emergency lighting <p>b) For duration 1 minutes to 179 minutes duration</p> <ul style="list-style-type: none"> ➤ Running currents of DC motors ➤ Indicating lamps, protective relays, auxiliary relays on switchgears and control panels ➤ Emergency lighting <p>c) For duration 179 minutes to 180 min duration</p> <ul style="list-style-type: none"> ➤ Closing and spring charging of breakers ➤ Indicating lamps, protective relays, auxiliary relays on switchgears and control panels ➤ Emergency lighting 	<p>04.14.03. The starting sequence of DC motors as per product specific requirement and Sizing of 220V DC system is in accordance to that.</p> <p>a) For duration 0 minute to 1 minute</p> <ul style="list-style-type: none"> ➤ Tripping breakers. ➤ Starting current of all automatically started DC drives.(DC JOP starting at 15th Minute) ➤ Solenoid valves. ➤ Indicating lamps, protective relays, auxiliary relays on switchgears and control panels ➤ Emergency lighting <p>b) For duration 1 minutes to 179 minutes duration</p> <ul style="list-style-type: none"> ➤ Running currents of DC motors for 1 minutes to 60minutes, ➤ Indicating lamps, protective relays, auxiliary relays on switchgears and control panels ➤ Emergency lighting <p>c) For duration 179 minutes to 180 min duration</p> <ul style="list-style-type: none"> ➤ Closing and spring charging of breakers ➤ Indicating lamps, protective relays, auxiliary relays on switchgears and

Change in specification (Section B of Tender Specification)

Annexure C2H (Electrical)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
				<ul style="list-style-type: none"> ➤ control panels ➤ Emergency lighting
24.	TCM-BHEL-Annex-2.1 ,Sl.no 491	Vol. II-F2/Section-III/ Battery & Battery Charger/ 4.03.01	a) The charger shall be natural air-cooled, solid-state type, with full wave, fully controlled, bridge configurations.	a) The charger shall be natural air-cooled/ Forced Cooling for above 400A , solid-state type, with full wave, fully controlled, bridge configurations.
		Vol. II-F2/Section-III Battery & Battery Charger/4.03.02	c) The panels shall conform to the degree of protection IP-52. Minimum thickness of sheet metal used shall be 2mm.	c) The panels shall conform to the degree of protection IP-42 . Minimum thickness of sheet metal used shall be 2mm.
25.	TCM-BHEL-Annex-2.1 ,Sl.no 493	Vol. II-F2/Section-IV HT CABLE / 3.08.00	For 3.3KV and above rating cables shall be dry cured in pressurized nitrogen atmosphere.	For 3.3KV and above rating cables shall be dry cured /steam cured / Moisture Cured (Sioplas) .
26.	TCM-BHEL-Annex-2.1 ,Sl.no 495	Vol. II-F2/Section-IV FIRE SURVIVAL CABLE ANNEXURE-IV	1100V, copper conductor, heat resisting insulation, extruded inner sheath of low smoke and very low halogen content fire resisting material, single layer of copper wire armour for single core / single layer of round galvanized steel wire for multicore.....	1100V, copper conductor, ..., single layer of Aluminium wire armour for single core / single layer of round galvanized steel wire for multicore,.... with IEC-60331, Part 11.
27.	TCM-BHEL-Annex-2.1 ,Sl.no 497 TCM-L&T-	Vol. II-F2/Section-VII/ Illumination System/ 4.03.05	Minimum Number of welding DBs to be provided: a) Main Power House: 5 nos. b) Transformer Yard: 3 nos.	Minimum Number of welding DBs to be provided: a) Main Power House: 4 nos. b) Transformer Yard: 2 nos. c) Compressor House: 2 Nos

Change in specification (Section B of Tender Specification)

Annexure C2H (Electrical)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
	Annex-2.1,Sl.no 229		c) Compressor House: 2 Nos d) CPU Regeneration house: 2 Nos e) ACW Pump houses: 2 Nos each f) Boiler area: 5 no. (per Unit) g) ESP area & FGD area: 5 no.	d) CPU Regeneration house: 2 Nos e) ACW Pump houses: 2 Nos each f) Boiler area: 2 nos. (per Unit) g) ESP area & FGD area: 2 no. h) Fuel Oil area: 2 no. However the Bidder has to comply with Vol. II-F1/Section-I, General Electrical Specification, Clause 4.43.00, for providing Welding receptacles for both Main plant & BOP Areas. If required additional Welding DBs to be provided to meet this specification.
28.	TCM-BHEL-Annex-2.1 ,Sl.no 499	Vol. II-F2/Section-IX Cable Fire Sealing/ 7.07.02	7.07.00 Cable Fire Sealing 7.07.01 .Cable/cable tray openings in walls and floors or through pipe sleeves from One area to another or from one elevation to another within the unit shall be sealed by a fire proof sealing system (FPSS) of minimum 2 Hrs rating. The FPSS shall effectively prevent the spread of fire from the flaming to non-flaming side of a fire. 7.07.02 Wherever the cables/cable trays pass through walls/floors, fire proof cable penetration seals rated for two hour shall be provided. This shall be by suitable block	7.07.00 Cable Fire Sealing 7.07.01 .The fire proof cable penetration sealing system shall be of the following types; i) Type - A Type A fire sealing system shall be either Silicone foam or equivalent foam system or using individual blocks for each cable along with suitable frame work rated for one(1) hour. Type A shall be implemented at floor openings below C&I panels, control panels/Boards etc. in CER & CCR/Control Room. ii) Type-B

Change in specification (Section B of Tender Specification)

Annexure C2H (Electrical)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
			<p>system using individual blocks with suitable framework or by silicon RTV foaming system. In case foaming system is offered, damming board, if used, shall not be considered for fire rating criteria. Any of the system offered shall be of proven type as per BS: 476 (Part-20) or equivalent standard.</p> <p>In order to prevent fire propagation through cable penetrations, after laying, dressing& clamping of cables, all the openings shall be properly sealed by using Fire Stop Mortar Seal and Fire Retardant Cable coating compound. Also the cable runs both before and after the fire scale shall be suitably Sprayed with anti-fire propagation liquid.</p>	<p>Type B fire sealing system of Fire Stop Mortar Seal and Fire-Retardant Cable coating compound rated for two (2) hours shall be provided. This will be provided in wall and floor crossings of cables/cable trays, opening below HT/LT Switchgears/board other than those covered under Type A.</p> <p>7.07.02 –Stands deleted</p>
29.	TCM-BHEL-Annex-2.1 ,Sl.no 501	Vol. II-A/Section-XIII/ Cathodic Protection System/ 3.04.00	Required number of anode (one anode ground bed near each TRU/CP unit location) ground beds with anodes, canisters and back fill materials.	<p>b)Required number of anode (one anode ground bed near each TRU/CP unit location) ground beds with anodes, canisters and back fill materials. The anodes shall be of either High Silicon Cast Iron (HSCI) type or Mixed Metal Oxide (MMO) coated Titanium anode type.</p> <p>Each anode bed shall be sized for 100% protection of pipelines Separately. Each CP station shall have an independent anode ground bed, shallow or deep well construction type.</p>

Change in specification (Section B of Tender Specification)

Annexure C2H (Electrical)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
30.	TCM-L&T(Electrical Additional Point)-Annex-2.1 ,Sl.no 1	Vol-II F2/Section-III Battery and battery charger / 3.01.10/ (3 of 26) 3.01.14 (4 of 26)	While estimating battery capacities, aging margin shall be 1.0 for Lead Acid Plante and 1.15 for Ni – Cd type, temperature correction factor as per manufacturer's standard and a design load margin of 20% shall be considered. -----	While estimating battery capacities, aging margin shall be 1.0 for Lead Acid Plante and 1.15 for Ni – Cd type, temperature correction factor as per manufacturer's standard and a design load margin of 15% shall be considered. ----- .
31.	TCM-L&T(Electrical Additional Point)-Annex-2.1 ,Sl.no 4	Vol-II F1/Section-I/ General electrical specification/ 4.27.04	An appropriate diversity factor (on name plate rating) with a minimum of 0.9 for continuously running loads & purchaser feeders and 0.4 for intermittent loads like cranes, plug points, sump pumps, elevators and 0.2 for MOVs & Actuators etc., shall be considered.	An appropriate diversity factor (on name plate rating) with a minimum of 0.9 for continuously running loads & purchaser feeders and 0.4 for intermittent loads like cranes, plug points, sump pumps, elevators and 0.1 for MOVs & Actuators etc., shall be considered.
32.	TCM-L&T(Electrical Additional Point)-Annex-2.1 ,Sl.no 6	Vol-II F1/Section-I/ General electrical specification/ 4.27.05	The incomers, bus coupler and bus bars of 415 V Switchgears fed from 415V PMCC/PCC shall be sized (continuous thermal rating) with 20% margin over the estimated total load on the MCC/Swgr	..... The incomers, bus coupler and bus bars of 415 V Switchgears fed from 415V PMCC/PCC shall be sized (continuous thermal rating) with 10% margin over the estimated total load on the MCC/Swgr
33.	TCM-L&T(Electrical Additional Point)-Annex-2.1 ,Sl.no 7	Vol-II F1, Section-I/ General electrical specification/ 4.27.05	All the outgoing breaker rating shall be based on the highest rated nameplate current rating of the connected equipment with 10% margin rounded off to the next higher rating.	All the outgoing breaker rating shall be based on rated current requirement of the connected equipment with 10% margin rounded off to the next higher rating. Bidder shall comply with Technical specification Vol. II-F1/Section-VII, Clause No 5.04.03.Circuit breaker shall be three poles air break type with stored energy, trip

Change in specification (Section B of Tender Specification)

Annexure C2H (Electrical)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
				free mechanism and shunt trip. To ensure maximum interchangeability, operation flexibility, reduction in inventory, the ratings of breakers shall be restricted to not more than 4 ratings.
34.	TCM-L&T(Electrical Additional Point)-Annex-2.1 ,Sl.no 9	Vol-II F1/Section-I/ General electrical specification/4.34.04	For all HV & LV power and 220V DC cable 10% design margin in load current shall be considered.	For all HV & LV power and 220V DC cable shall be sized according to the sizing criteria Specified.
35.	TCM-L&T(Electrical Additional Point)-Annex-2.1 ,Sl.no 10	Vol-II F1/Section-XI, Station Transformer/ 3.04.00 /Case-I & Case-II, (e)	ST sizing shall take care of all operating conditions as per CEA guidelines. 10% margin on the aforesaid mentioned sum	ST sizing..... 10% margin on the aforesaid mentioned sum Stands Deleted
36.	TCM-L&T(Electrical Additional Point)-Annex-2.1 ,Sl.no 11	Vol-II F2, Section-II, 3.01.04	20% spare margin shall be considered while calculating the total load on the L.T. board	10% spare margin shall be considered while calculating the total load on the L.T. board.
37.	TCM-L&T(Electrical Additional Point)-Annex-2.1 , Generator Transformers, Sl.no 15	Vol. II-F1/Section-IX 3.07.00	The dynamic ability to withstand short circuit shall be demonstrated (a) by tests or (b) by furnishing the test report of transformers supplied by the Bidder & detailed test calculation to prove dynamic short circuit withstand capability for the offered transformers.	The dynamic ability to withstand short circuit shall be demonstrated (a) by tests or (b) by furnishing the test report of transformers supplied by the Bidder & detailed test calculation to prove dynamic short circuit withstand capability for the offered transformers.

Change in specification (Section B of Tender Specification)

Annexure C2H (Electrical)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
		Vol. II-F1/Section-IX 5.03.00	Short-circuit withstand test, if the type test certificate as per the relevant standards for the similar type of transformer is not furnished or the furnished type test certificate is not meeting the requirements.	Short-circuit withstand test shall be demonstrated by furnishing the detailed calculation to prove Thermal ability &dynamic short circuit withstand capability for the offered transformers. if the type test certificate as per the relevant standards for the similar type of transformer is not furnished or the furnished type test certificate is not meeting the requirements
38.	TCM-L&T(Electrical Additional Point)-Annex-2.1 ,Sl.no 14	Vol. II-F1/Section-I General Electrical Specification,14.00.00,Type test	Sl.No.(i),Power Transformer , 5 Years validity period	Sl.No.(i), ST,UT&UAT , 5 Years validity period
39.	TCM-L&T(Electrical Additional Point)-Annex-2.1 ,Sl.no 18	Vol. II-A/ Section-XIV 4.00.00,LIST OF ITEMS. b) Electrical items, Class I	C) Power Transformer 1. GENERATOR TRANSFORMER 2. STATION TRANSFORMER 3. BUS REACTOR	C) Power Transformer 1. GENERATOR TRANSFORMER Stands Deleted 2. STATION TRANSFORMER Stands Deleted 3. BUS REACTOR Stands Deleted .Note: *Refer Annexure -QR Power Transformer& reactor for the Qualification requirement of Generator transformer, Interconnecting Transformer ,Station transformer, Inter Bus transformer , Shunt reactor

Change in specification (Section B of Tender Specification)

Annexure C2H (Electrical)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
		Vol. II-A/Section-II Qualifying Requirements – Technical, 3.02.05 a)	3.02.05	3.02.05 a) Qualification requirement Power Transformer& reactor: Refer Annexure -QR Power Transformer& reactor
40.	TCM- L&T(Electrical Additional Point)-Annex- 2.1 ,Sl.no 18	Vol. II-A/ Section-XIV 2.01.01	Deletion of I3.CONTROL CARD I4.IGBT BANK	I3.CONTROL CARD I4.IGBT BANK Stands deleted
41.	TCM-L&T- Annex-2.1 ,Sl.no 213	Vol. II-A/Section-IX Mandatory Spares-SG & Auxiliaries	1.39.06-Complete Set of Coupling (for each type, size and rating of motor)-1 Set 1.39.07-Bearings (DE) (for each type, size and rating of motor)-2 Sets 1.39.08-Bearings (NDE) (for each type, size and rating of motor)- 2 sets 1.40.04-Bearings (DE and NDE) (for each type and rating of Motor)-2Sets 1.40.08- Complete Set of Coupling (for each type, size and rating of Motor)-1Set 1.44.02- Local Starters Panel (AC) complete (For each Type, Make, kW Rating, Enclosure material & Degree of Protection)- 2Nos	1.39.06-Stands deleted 1.39.07-Stands deleted 1.39.08-Stands deleted 1.40.04-Stands deleted 1.40.08- Stands deleted 1.44.02- Local Starters Panel (AC) complete (For each Type, Make, kW Rating, Enclosure material & Degree of Protection)-1No

Change in specification (Section B of Tender Specification)

Annexure C2H (Electrical)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
42.	TCM-L&T- Annex-2.1 ,Sl.no 214	Vol. II-F1/Section-I 1.11.17,	VFD/VVFD: Wherever LV VFD drives provided, One spare VFD panel similar in all respect to other VFD panels to be provided and erected for each unit in case of coal feeders. In case of major failure in any of the VFD panels, Power & Control Cables shall be removed from the defective VFD panel and connected to the spare VFD panel.	VFD/VVFD: Wherever LV VFD drives provided, Spare VFD Module (each type, make, Model, rating & area of application) shall be provided as specified in Vol-II, Section –IX, Annexure-I. One Spare VFD panel similar in all respect to other VFD panels for coal feeders shall be supplied as loose item.
		Vol. II-F2/Section-XI, 1.01.01	VFD/VVFD: Wherever LV VFD drives provided, One spare VFD panel similar in all respect to other VFD panels to be provided and erected for each unit in case of coal feeders. In case of major failure in any of the VFD panels, Power & Control Cables shall be removed from the defective VFD panel and connected to the spare VFD panel.	Wherever LV VFD drives provided, Spare VFD Module (each type, make, Model, rating & area of application) shall be provided as specified in Vol-II, Section –IX, Annexure-I. One Spare VFD panel similar in all respect to other VFD panels for coal feeders shall be supplied as loose item.
43.	TCM-L&T- Annex-2.1 ,Sl.no 220	Vol.II-F1/Section-III,7.00.00	7.00.00 ACCESSORIES As required for the driven equipment, the actuator shall be furnished with Starting equipment mounted on the actuator. This shall include: 7.01.00 One (1) triple pole breaker 7.02.00 One (1) reversing starter, with mechanically interlocked contactors, 3	7.00.00 ACCESSORIES As required for the driven equipment, the actuator shall be furnished with starting equipment mounted on the actuator. This shall include:

Change in specification (Section B of Tender Specification)

Annexure C2H (Electrical)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
			thermal Overload relays, 2 N.O. + 2 N.C. auxiliary contacts for each contactor. 7.03.00 One (1) lockable type remote-local selector switch 7.04.00 CLOSE-STOP-OPEN oil tight push buttons with indication lights 7.05.00 415/110V control transformer with primary & secondary MCBs.	7.01.00 One (1) triple pole breaker, Stands Deleted.....
44.	TCM-L&T-Annex-2.1 ,Sl.no 539	Volume : II-C / SECTION-I, 8.03.02	8.00.00 Generator Tests 8.03.00 Site Tests 8.03.02 Commissioning Checks iii) Site tests on Digital AVR.	iii) Site tests on Digital AVR. 2) Vi) Heat run test (To be performed at Shop Floor during FAT).....
45.	TCM-L&T-Annex-2.1 ,Sl.no 935	Vol. II-F2/Section-XII,Clause no 2.04.00(I)	2.04.00(I) SF6 gas handling equipment	2.04.00(I) SF6 Gas Processing Unit -2Nos
		Vol. II-A / Section-IX, Clause, 5.03.01	5.03.01, SF6 filling machine No-1 Stands deleted	5.03.01, SF6 filling machine No-1 Stands deleted
46.	TCM-L&T-Annex-2.1 ,Sl.no 936	Vol-II-F2, Section-XII, 4.03.00	4m wide road shall be provided around the building in addition to approach road from switchyard fence area till the building.	4m wide road shall be provided around the building in addition to approach road from switchyard fence area till the building. 4 m wide road inside the fence of switchyard for complete periphery shall be provided. Bidder to note that this road is

Change in specification (Section B of Tender Specification)

Annexure C2H (Electrical)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
				<p>dedicated road inside the switchyard fence which is in addition to main patrol road outside the switchyard fence.</p> <p>.....</p> <p>Roads and Rail roads for Switchyard shall be provided as indicated in the Plot Plan Drawing 18A03-DWG-M-002A.</p> <p>.....</p>
47.	TCM-L&T-Annex-2.1 ,Sl.no 938	Vol. II-F2/Section-XII 765kV,400kV & 33 kV GIS Clause No. 5.01.06 (31 of 116)	Fast Acting Earthing Switches: 1) Fast acting earthing switches shall be located at the bus bar and at all external HV connections of feeders like HV cables or overhead lines or Transformer connections. The switching capability shall be 200A inductive at 25KV and 25A capacitive at 25KV.	Fast Acting Earthing Switches: 1) Fast acting earthing switches shall be located at the bus bar and at all external HV connections of feeders like HV cables or overhead lines or transformer connections .The Fast Acting Earthingswitches shall have inductive and capacitive current switching capability as per IEC-62271-102.
48.	TCM-L&T-Annex-2.1 ,Sl.no 940	Corrigendum-3 dated 18.12.2020. SI.No. 62 (26 of 40)	Rated Normal Current Bus bar: 765kV : 5000A 400kV : 5000A	Rated Normal Current Bus bar: 765kV : 4000A 400kV : 4000A
49.	TCM-L&T-Annex-2.1 ,Sl.no 941	Volume-II-F/2 Section-XII,765 kV & 400 kV GIS,Annexure-A - System parameters, SI No. 9	Maximum RIV for frequency between 0.5 to 2MHz in open and close condition (micro volt) - For 765kV GIS 1000 at 320kVrms For 400kV GIS 2500 at 508kVrms	Maximum radio interference voltage for frequency between 0.5 to 2MHz in open & close condition (Micro volt)-as per IEC 62271-1, Cl.7.9.1

Change in specification (Section B of Tender Specification)

Annexure C2H (Electrical)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
50.	TCM-L&T-Annex-2.1 ,Sl.no 945	Volume-II-F/2 Section-XII, 5.01.01, SL No. 23	23) The gap between open contacts shall withstand at least rated phase to ground voltage for eight (8) hours at zero gauge pressure of SF6 gas. The breaker shall also withstand all dielectric stresses in open position at SF6 lockout pressure for 60minutes.	23) The gap between open contacts shall withstand at least rated phase to ground voltage for eight (8) hours at zero gauge pressure of SF6 gas. -The breaker shall also withstand all dielectric stresses in open position at SF6 lockout pressure for 15minutes .
51.	TCM-L&T-Annex-2.1 ,Sl.no 950	Vol. II-F1/Section-I, 22.02.02 Volume-II-F/2 Section-XII, 4.04.00	The equipment shall be designed to withstand normal operating voltage even if the inside gas pressure decreases to atmospheric pressure as long as no switching operations are performed.	The switchgear shall be designed for continuous operation under all system Operating conditions including sudden change of load and voltage and short circuits within its ratings. The equipment shall be designed to withstand normal operating voltage even if the inside gas pressure decreases to atmospheric pressure as long as no switching operations are performed
52.	TCM-L&T-Annex-2.1 ,Sl.no 952	Volume-II-F/2 Section-XII, 4.32.00	These insulators shall be designed to have high structural strength and electrical dielectric properties and shall be free of any voids and free of partial discharge at a voltage which is at least 5% greater than the rated voltage.	The switchgear, which shall be of modular design, shall have complete phase isolation. The conductors and the live parts shall be mounted on high graded epoxy resin insulators. These insulators shall be designed to have high structural strength and electrical dielectric properties and shall be free of any voids and free of partial discharge (PD test as per IEC 62271-203 Table -6)

Change in specification (Section B of Tender Specification)

Annexure C2H (Electrical)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
53.	TCM-L&T-Annex-2.1 ,Sl.no 988	Volume-II-F/2 Section-XII, Annexure-E - High voltage wave trap (AIS), SI No. 13	400kV , 800 kV - Rated inductance of main coil at 100kHz frequency 1.0 mH (depending on frequency plan)	420kV, 800 kV - Rated inductance of main coil at 100kHz frequency 0.5mH
54.	TCM-L&T-Annex-2.1 ,Sl.no 1017	Vol. II-F1/Section-I , 5.04.01-21	21. Space for 2 nos of LV panels on each side of LV switchgear shall be provided in each LV switchgear (PMCC/ PCC/ MCC).	21. Space for 1 no of LV panels on each side of LV switchgear shall be provided in each LV switchgear (PMCC/ PCC/ MCC).
55.	TCM-L&T-Annex-2.1 ,Sl.no 1019	Vol-II F1/Section-1,General electrical specification, 4.34.07	The minimum sizes of L.T power cable to be chosen are as below: - AL - 16 mm ² (3 core) & Cu - 2.5 mm ² (3 core)	The minimum sizes of L.T power cable to be chosen are as below: - AL - 10 mm² (3 core) & Cu - 2.5 mm ² (3 core)
56.	TCM-L&T-Annex-2.1 ,Sl.no 1021 TCM-BHEL-Annex-2.1 ,Sl.no 500	Vol. II-F2/Section-IX, Clause 7.06.04, Vol. II-F1/Section-I, 4.40.03	HV & MV cables and LV power multicore cables shall be laid in touching formation or 1D spacing with applicable group derating factors. Power cables shall be laid in Single Layer only	.....All LT power cables shall be laid in single layer in trays. However in Main plant area LT power cables above 95 sq.mm size shall be laid in single layer in trays while cables up to & including 95 sq.mm shall be laid in maximum of 2 layers
		Vol. II-F2/Section-IX, Annexure-A Clause 2.04.03,	1100V grade power cables shall be laid in single layer in trays. Control and Instrumentation cables can be laid up to a maximum of three layers in each tray.	1100V grade power cables shall be laid in single layer in trays, However in Main plant area LT power cables above 95 sq.mm size shall be laid in single layer in trays while cables up to & including 95 sq.mm shall be laid in maximum of 2 layers.

Change in specification (Section B of Tender Specification)

Annexure C2H (Electrical)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
57.	TCM-L&T-Annex-2.1 ,Sl.no 1025	Vol. II-F1/Section-V HT Switchgears, Clause 4.01.07	For easy maintenance the width of the panel shall not be less than 800mm unless otherwise mentioned or stated.	For easy maintenance adequate width shall be provided in the panel as per type tested design of manufacturer
58.	TCM-L&T-Annex-2.1 ,Sl.no 1027	Vol. II-F1/Section-VII 1.01.01 g)	g) AC Fuse Board	g)AC Fuse Board Stands deleted
59.	TCM-L&T-Annex-2.1 ,Sl.no 1047	Vol. II-F2/Section-IX, 7.02.05	Sufficient spacing not less than 300 mm (Between bottom of the upper tray and top of the lower tray) shall be provided between trays and maintained to permit adequate access, for installing and maintaining the cables.	Sufficient spacing not less than 300 mm (Between bottom of the upper tray and Bottom of the lower tray) shall be provided between trays and maintained to permit adequate access, for installing and maintaining the cables Tender specification requirement of Minimum distance between Instrumentation Signal cables and AC power Cables shall be complied as in Vol-II E, Section –XIV, Clause 3.10.00, Cabling & interconnection, Sl.no. “s”
60.	TCM-L&T-Annex-2.1 ,Sl.no 1048	Vol. II-F2/Section-XI 4.06.00	The Total Harmonic Distortion (THD) of the voltage and current at inverter output shall be as per IEC 61800-4. VFD output shall be pure sine wave with harmonics distortion in output voltage and Current less than 3% .	The Total Harmonic Distortion (THD) of the voltage and current at inverter output shall be as per IEC 61800-4. VFD output shall be pure sine wave with harmonics distortion in output voltage and Current less than limit specified in IEC

Change in specification (Section B of Tender Specification)

Annexure C2H (Electrical)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
		Vol. II-F2/Section-XI Annexure-A 22.0	22.0 Harmonic limitations I) Voltage harmonics a) Source side: Maximum 5% b) Load side: Maximum 5%	22.0 Harmonic limitations I) Voltage harmonics a) Source side: Maximum limit as per IEC b) Load side: Maximum limit as per IEC
61.	TCM-L&T- Annex-2.1 ,Sl.no 1050	Vol. II-F2/Section-XVII ,4.06.02	ETHERNET DISTRIBUTION SWITCHES 3. Input Power Supply: 24V DC/ 230V AC	ETHERNET DISTRIBUTION SWITCHES 3. Input Power Supply: 220V DC/ 230V AC
62.	TCM-L&T- Annex-2.1 ,Sl.no 1063	Vol. II-F1/Section-III/ Electric Motor Actuators/ 06.06.00	A space heater shall be included in the limit switch compartment suitable for 240V, 1 phase, 50 Hz supply	Space heater shall be provided and heater source may be derived from actuator power source internally.
63.	TCM-L&T- Annex-2.1 ,Sl.no 1066	Vol. II-F1/Section-I/ General electrical specification/ 4.42.02	For Chimney 100% lighting shall be of emergency lighting & Aviation obstruction lighting.	For Chimney shall be provided with Emergency supply for 100% Aviation obstruction lighting , 20% emergency lighting & 80% Normal lighting shall be provided

Change in specification (Section B of Tender Specification)

Annexure C2H (Electrical)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
64.	TCM-L&T- Annex-2.1 ,Sl.no 1070	Vol. II-A/Section-X Performance Guarantees,5.02.00 Section B / Vol. I-B/Section- 9 Performance Guarantees , 9.5.2	Station Auxiliary Power Consumption with design coal	Station Auxiliary Power Consumption with design coal. While guaranteeing the station auxiliary power consumption the bidder shall necessarily include all the station auxiliaries with duty factors as have been defined at the ensuing paragraphs of this chapter .However Lighting load shall not be considered for station auxiliary power consumption, accordingly lighting load will be measured and deducted.
		Vol. II-A/Section-X Performance Guarantees,5.01.00 Section B / Vol. I- B/Section-9 Performance Guarantees , 9.5.1	Unit Auxiliary Power Consumption with design coal	Vol. II-A/Section-X , Performance Guarantees, Clause No 5.01.00, Unit Auxiliary Power Consumption at 100% and at 55% TMCR with design Coal. Note: While guaranteeing the auxiliary power consumption the bidder shall necessarily Include: v) However, Unit Lighting load shall not be

Change in specification (Section B of Tender Specification)

Annexure C2H (Electrical)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
				considered for Unit auxiliary power consumption, accordingly lighting load will be measured and deducted.....
65.	TCM-L&T-Annex-2.1 ,Sl.no 1071	Section B / Vol. I-B/Section-9, 9.5.2	The PG test will be conducted for Durations in which irradiance level is greater than 800 W/m ² and the test will continue until a total horizontal radiation of 5 KWh/m ² has been achieved. The data will be recorded at 15 minute intervals for validating the PR values guaranteed by the Bidder against the value mentioned in the above for that calendar month. In case of destruction due to any component failure, entire test will be repeated. Each sub-system of roof top solar connected to single isolation transformer shall be demonstrated for the period of one month.PG test shall necessarily be commenced from 1st day of Calendar month and shall be conducted till end of the particular month.	<p>Guarantee Test for Rooftop Solar Pv:</p> <p>The PG test will be conducted for Durations in which irradiance level is greater than 800 W/m²and the test will continue until a total horizontal radiation of 5 KWh/m² has been achieved. The data will be recorded at 15 minute intervals for validating the PR values guaranteed by the Bidder against the value mentioned in the above for that calendar month. In case of destruction due to any component failure, entire test will be repeated. Each sub-system of roof top solar connected to single isolation transformer shall be demonstrated for the period of one month.PG test shall necessarily be commenced from 1st day of Calendar month and shall be conducted till end of the particular month.</p> <p>.....</p> <p>During PG test, if there is an Extreme weather condition or grid outage or Main</p>

Change in specification (Section B of Tender Specification)

Annexure C2H (Electrical)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
				supply failure where isolation transformer is connected, those time slots will not be considered.....
66.	TCM-L&T-Annex-2.1 ,Sl.no 1108	Volume-II-A, Section-IX ,Annexure -1, SI No. 5.01.15 g)	765kV & 400kV Circuit breaker: Observing windows (for each type) – 3Nos.	g)Observing windows (for each type) Stands deleted
67.	TCM-L&T-Annex-2.1 ,Sl.no 1133	Vol. II-F1/Section-I, Clause No 1.11.41, Corrigendum-28 Annexure-1	1.11.41, Miscellaneous Electricals: Earthing requirement for the above electrical installation & buildings shall be..... In the EPC tender floated and further issuance of Corrigendum (Up to 27) the FOLLOWING SCOPE OF WORK OUTSIDE PLANT BOUNDARY in respect of Section A have been de-scoped (Intentionally deleted): a) Laying of Main Approach Road to power plant	1.11.41, Miscellaneous Electricals: Earthing requirement for the above electrical installation & buildings shall be provided as per IS 3043 & local statutory requirement. In addition to the power supply feeders for the internal peripheral road lighting inside compound wall (which is under the scope of bidder), bidder shall also provide power supply to Peripheral road Street lights outside the compound wall with same no. of feeders, rating and the associated cables to be laid up to compound wall and terminated there with suitable Terminal box/Junction Box for the sue of Purchaser/Other Contractor.

Change in specification (Section B of Tender Specification)

Annexure C2H (Electrical)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
		<p>Cl. 12. Annexure C2I (Civil)</p> <p>Cl. 21. Annexure C2I (Civil)</p>	<p>b) Laying of Peripheral fencing and two-lane road.</p> <p>The approach road (4 M wide BT road with earthen drains) for intake pump house from the nearby road is under the bidder's scope – Intentionally Deleted</p> <p>All roads shall be RCC roads except approach roads to Raw Water Reservoir ,and some of the patrol road along compound wall inside plant boundary as per Plot plan which are BT roads (Refer Clause 4.36.00 for Terminal points)</p>	
68.	TCM-L&T-Annex-2.1 ,Sl.no 1133A	Vol. II-F1/Section-I, Clause No 1.11.41,	<p>In the EPC tender floated and further issuance of Corrigendum (Up to 27) the FOLLOWING SCOPE OF WORK OUTSIDE PLANT BOUNDARY in respect of Section A have been de-scoped (Intentionally deleted):</p> <p>a) Laying of Main Approach Road to power plant</p> <p>b) Laying of Peripheral fencing and two-lane road.</p> <p>The approach road (4 M wide BT road with earthen drains) for intake pump house from the nearby road is under the bidder's scope – Intentionally Deleted</p>	<p>Miscellaneous Electricals:</p> <p>.....</p> <p>In addition to the power supply feeders for the internal peripheral road lighting inside compound wall (which is under the scope of bidder), bidder shall also provide power supply to Peripheral road Street lights outside the compound wall with same no. of feeders, rating and the associated cables to be laid up to compound wall and terminated there with suitable Terminal box/Junction Box for the sue of Purchaser/Other Contractor.</p> <p>Bidder to consider Distribution Board with</p>

Change in specification (Section B of Tender Specification)

Annexure C2H (Electrical)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
		Corrigendum-28: Annexure-1 Cl. 12. Annexure C2I (Civil) Cl. 21. Annexure C2I (Civil)	All roads shall be RCC roads except approach roads to Raw Water Reservoir ,and some of the patrol road along compound wall inside plant boundary as per Plot plan which are BT roads (Refer Clause 4.36.00 for Terminal points)	two Sources of 63A MCCB , 440V, 3-Phase ,4 wire at single location near Main entry gate for Lighting power supply of Approach road Street lights.
69.	TCM-BHEL-Annex-2.1 ,Sl.no 490 TCM-L&T-Annex-2.1 ,Sl.no 1139	Vol-II F2 Section -III Battery and Battery charger Cl.3.01.03	Batteries shall be Lead Acid PLANTE type for Main Plant & Switchyard and NiCd type for BOP & FGD system complete with associated float charger and float-cum-boost charger.	Batteries shall be Lead Acid PLANTE type for Main Plant. Plante/Ni- Cd type for Switchyard, BOP & FGD system complete with associated float charger and Float-cum-boost charger.

Change in specification (Section B of Tender Specification)

Annexure C2H (Electrical)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
70.	TCM-L&T-Annex-2.1 ,Sl.no 1147	Vol. II-F1/Section-I General Electrical Specification, Clause 1.11.21	Each Main Plant UPS shall have dedicated 2x100% Lead Acid Plante battery with a back-up time of 1 hour.	Each Main Plant UPS and common UPS shall have dedicated 2x100% Lead Acid Plante battery /Ni-Cd battery with a back-up time of 1 hour for each battery.
		Vol. II-F2/Section-VIII Uninterruptible Power Supply, Clause 1.01.00	Each Main Plant UPS shall have dedicated 2x100% Lead Acid Plante battery with a back-up time of 1 hour for each battery	Each Main Plant UPS shall have dedicated 2x100% Lead Acid Plante battery / Ni-Cd type battery with a back-up time of 1 hour for each battery
71.	TCM-L&T-Annex-2.1 ,Sl.no 1153	Vol-II-F2, Section-IX,Cabling, Grounding & Lightning Protection,Cluase 3.01.06	Horizontal air termination (i.e. G.S. Flat conductor) shall be so laid that no part of the rood shall be more than nine (9) metres from the nearest roof conductor.	Horizontal air termination shall be laid in line with IEC-62305 requirement
72.	TCM-L&T-Annex-2.1 ,Sl.no 1155	Vol-II-F2, Section-IX,Cabling, Grounding & Lightning Protection,Cluase 3.02.01	The shielding mast for lightning protection shall be installed at the top of steel columns cap plates of power house building	Lightning protection of powerhouse building shall be provided with horizontal and vertical air termination as per IEC 62305
73.	TCM-BHEL-Annex-2.1 , Sl.no 438, Sl.no 439, Sl.no 440	Vol. II-F/1/Section-II A.C. & D.C. Motors, 8.04.00	The following type tests shall be performed on a representative sample of 11000V and 3300V motor of each type & rating, even if type test certificates of these tests are submitted by the bidder for purchaser's approval: 1. Measurement of stator resistance (& rotor resistance on slip ring motors)	The following type tests shall be performed on a representative sample of 11000V and 3300V motor of each type & rating, even if type test certificates of these tests are submitted by the bidder for purchaser's approval: 1. Measurement of stator resistance (& rotor resistance on slip ring motors)

Change in specification (Section B of Tender Specification)

Annexure C2H (Electrical)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
	TCM-L&T- Annex-2.1 ,Sl.no 1158		2. No load running of motor and reading of voltage, current, power input and speed 3. Locked rotor reading of voltage, current, power input and values of torque of motor. 4. Full load reading of voltage, current, power input and slip 5. Temperature rise test. 6. Momentary overload test. 7. Test for vibration severity of motor. 8. Test for noise level of motor. 9. Degree of protection test for the enclosure followed by IR, HV and no load run test. 10. Over speed test. 11. Fault level withstand test for each type of terminal box. 12. Lightning impulse withstand test on the sample coil as per IEC 60034, part- 15. 13. Surge withstand test on inter-turn insulation as per clause no. 5.1.2 of IEC 60034, part-15	2. No load running of motor and reading of voltage, current, power input and speed 3. Locked rotor reading of voltage, current, power input and values of torque of motor. 4. Full load reading of voltage, current, power input and slip 5. Temperature rise test. 6. Momentary overload test. 7. Test for vibration severity of motor. 8. Test for noise level of motor. 9. Degree of protection test for the enclosure followed by IR, HV and no load run test. Stands Deleted 10. Over speed test. 11. Fault level withstand test for each type of terminal box. Stands Deleted 12. Lightning impulse withstand test on the sample coil as per IEC 60034, part- 15. Stands Deleted 13. Surge withstand test on inter-turn insulation as per clause no. 5.1.2 of IEC 60034, part-15. Stands Deleted on the sample coil as per IEC 60034, part-15. Stands Deleted

Change in specification (Section B of Tender Specification)

Annexure C2H (Electrical)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
74.	TCM-L&T-Annex-2.1 ,Sl.no 1155	Vol. II-F1/Section-V HT Switchgears, 5.03.00	Type Test Following minimum tests shall be performed on a typical section of the bus assembly, unless otherwise mentioned in the Annexure: a) P.F. & Impulse Test b) Temperature rise Test	Type test certificate on switchgear/ Switchgear panels of each voltage class and each Current rating shall be submitted as per relevant IS/IEC standard However Temperature rise test shall be performed for switchgear/Switchgear panels of each voltage class and each Current rating as per relevant IS/IEC Standard.
75.	TCM-L&T-Annex-2.1 ,Sl.no 329	Vol. II-F/1/Section-II A.C. & D.C. Motors, CI 6.08.08 Page 10 of 15	For 11000V and 3300V motor, the terminal box shall be phase-segregated type	For 11000V and 3300V motor, the terminal box shall be phase-segregated type / Elastimold type
76.	TCM-L&T-Annex-J2.6,Sl.no 7	Vol. II-A/Section-XIV,Finalization of Sub Vendors, Clause no4.00.00 ,List of items b) Electrical items, Class-II,	1)Roof Top Solar System: 1-Data logger 2-DC side Surge Arrestor 3-Control card 4-IGBT bank	1)Roof Top Solar System: 1-Data logger 2-DC side Surge Arrestor 3- Control card Stands deleted 4- IGBT bank Stands deleted
77.	TCM-BHEL-Annex-2.1 ,Sl.no 444	SCHEDULE: III-D/27 Vol. III-D 7.00.00 Page 285 of 303	Plant Security & Surveillance System Maintenance Facilities f) Confirm deputation of service engineer with required spares and components on quarterly visit and on demand basis during two(2) years warranty period and three (3) years Comprehensive annual maintenance	SCHEDULE: III-D/27 Vol. III-D CI no.7.00.00, Maintenance Facilities- Stands Deleted.

Change in specification (Section B of Tender Specification)

Annexure C2H (Electrical)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
			period demand basis during Posting of maintenance engineer and keeping stock of spares at site during warranty and AMC period	
78.	TCM-BHEL-Annex-2.1 ,Sl.no 450	Vol. II-F2/Section-XIV Plant Security &Surveillance System , Cl no. 5.01.01 Page 12 of 69	k) The server, SAN,VMS,NPR,Analytics, camera should be from single OEM	(k). ANPR, Analytics, Camera, VMS should be from single OEM. Make of Server & SAN can be from different OEM but same shall be supplied from reputed and proven manufacturers like DELL/HP/LENOVO/ camera's OEM
79.	TCM-BHEL-Annex-2.1 ,Sl.no 452	Vol. II-F2/Section-XIV Plant Security &Surveillance System 5.02.04 Page 18 of 69 Vol. II-F2/Section-XIV Plant Security &Surveillance System 5.02.07 Page 24 of 69	Data Sheet of Outdoor PTZ type Dome Camera Operating Temperature : -30°C to 60°C Data Sheet of Sheet of 5-50mm Bullet type camera Operating Temperature: -30°C~+60°C,	Data Sheet of Outdoor PTZ type Dome Camera Operating Temperature : 0°C to 60°C Data Sheet of Outdoor PTZ type Dome Camera Operating Temperature : 0°C to 60°C

Change in specification (Section B of Tender Specification)

Annexure C2H (Electrical)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
80.	TCM-BHEL-Annex-2.1 ,Sl.no 453	Vol. II-F2/Section-XIV Plant Security & Surveillance System , CI no.5.02.13: Page 34 of 69	(iii) Industrial Switch 12. Power Characteristics: 48 VDC Redundant power inputs. Power supply should be industrial grade Operating temperature: -40°C to 75°C Storage temperature: -40°C to 85°C	(iii) Industrial Switch Specification: 230V AC /48 VDC Redundant power input Power supply. should be industrial grade Operating temperature: 0°C to 70°C Storage temperature: 0°C to 85°C Operating humidity: 5% to 90% non-condensing
81.	TCM-L&T-Annex-2.1 ,Sl.no 1210	Vol. II-F2/ Section-XIV Plant Security & Surveillance System,CI 5.02.11, Page 27 of 69	The ANPR system shall be able to run with other applications like Illegal Parking, Speed detection, Face detection, Security analytic features for other cameras and should be able to relate them. The ANPR system should detect model of the vehicle. The ANPR system should detect no helmet of the riders.	
		Vol. II-F2/ Section-XIV Plant Security & Surveillance System,CI no.5.02.07 Page 23 of 69	---	44)Video Analytics: Line crossing detection, Intrusion detection, Unattended baggage detection, Object removal detection, Face detection The special features like Line crossing detection, Intrusion detection, Unattended baggage detection, Object removal detection, Face

Change in specification (Section B of Tender Specification)

Annexure C2H (Electrical)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
				detection shall be provided at all gates including main gates, Thermal Site Office/ Admin Building, CCR (Unit#1,2,3 and Common), weighbridges and loading /unloading areas of fuel oil, Ash, lime, gypsum& Ammonia
		Vol. II-F2/ Section-XIV Plant Security & Surveillance System,CI no.5.02.03,6)Page 15 of 69	06)Video Analytics: Line crossing detection, Intrusion detection, Unattended baggage detection, Object removal detection, Face detection	06)Video Analytics: Line crossing detection, Intrusion detection, Unattended baggage detection, Object removal detection, Face detection The special features like Line crossing detection, Intrusion detection, Unattended baggage detection, Object removal detection, Face detection shall be provided at all gates including main gates, Thermal Office, Admin Building, CCR (Unit#1,2,3 and Common), weighbridges and loading /unloading areas of fuel oil, Ash, lime, gypsum& Ammonia
		Vol. II-F2/ Section-XIV Plant Security & Surveillance System,CI no.5.01.11,i) Page 12 of 69	i) All the gates including Main Gate, Automatic Number Plate Recognition (ANPR) shall be installed. Motorized Zoom 5-50mm and Motorized Zoom 2.8-12mm cameras shall be used at gates to view the registration plate of the vehicles entering	i) All the gates including Main Gate, Automatic Number Plate Recognition (ANPR) shall be installed. Motorized Zoom 5-50mm and Motorized Zoom 2.8-12mm cameras shall be used at gates to view the registration plate of the vehicles entering

Change in specification (Section B of Tender Specification)

Annexure C2H (Electrical)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
			and exiting the plant. A Video Analytic software will allow the CCTV system to create a White List and Black List of vehicles. Any violation of the traffic entrance rule by Black Listed vehicles will generate an audio and visual alarm at the Security Control Room and the concerned gate(s). ANPR facility shall be extended to weighbridges and loading /unloading areas of fueloil, Ash, lime, gypsum& Ammonia.	and exiting the plant. A Video Analytic software will allow the CCTV system to create a White List and Black List of vehicles. Any violation of the traffic entrance rule by Black Listed vehicles will generate an audio and visual alarm at the Security Control Room and the concerned gate(s). ANPR facility shall be extended to weighbridges and loading /unloading areas of fuel oil, Ash, lime, gypsum& Ammonia. In Video Analytics special features like Line crossing detection, Intrusion detection, Unattended baggage detection, Object removal detection, Face detection shall be provided at all gates including main gates, Thermal Site Office/Admin Building, CCR (Unit#1,2,3 and Common), weighbridges and loading /unloading areas of fuel oil, Ash, lime, gypsum& Ammonia

Change in specification (Section B of Tender Specification)

Annexure C2H (Electrical)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
82.	TCM-L&T-Annex-2.1 ,Sl.no 1213	Vol. II-F2/ Section-XIV Plant Security & Surveillance System, Block Schematic Drawing of Plant Security & Surveillance System, Annexure-B, Page 69 of 69	6) Plant Intrusion Detection System- PIDS CCTV Operator Station- 1no - Security Control Room 7) Plant Intrusion Detection System- PIDS CCTV Operator Station- 2 to 10 nos- Security Control Room	6) Plant Intrusion Detection System- PIDS CCTV Operator Station number - 1&2- CCR &Service Building Room 7) Plant Intrusion Detection System- PIDS CCTV Operator Station number - 3 to 11- Security Control Room
		Vol. II-F2/ Section-XIV Plant Security & Surveillance System, Block Schematic Drawing of Plant Security & Surveillance System, Annexure-B, Page 69 of 69	B)Perimeter Intruder Detection System 4)Work Station with 29 inch monitor-2nos 8) Work Stations with 29 inch monitors at various other locations-10nos	B)Perimeter Intruder Detection System 4)Work Station with 29 inch monitor-2nos 8) Work Stations with 29 inch monitors at various other locations- 9nos
83.	TCM-L&T-Annex-2.1 ,Sl.no 1217	Vol. II-A/ Section-IX Mandatory Spares-Electrical, 5.31.00, Page 398 of 421	Printers & Plotters (Each type & Size) - 3 nos.	A3 Size LaserJet Colour Printer- 3 nos.
84.	TCM-L&T-Annex-2.1 ,Sl.no 1218	Vol. II-A/ Section-IX Mandatory Spares-Electrical,CI no.5.32.02, Page 398 of 421	Network Video Recorder (For Each type, make & Model)	Storage Hard Disk (For Each type, make & Model) - 10% of installed quantity.

Change in specification (Section B of Tender Specification)

Annexure C2H (Electrical)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
85.	TCM-L&T-Annex-2.1,Sl.no 1219	Vol. II-A/ Section-IX Mandatory Spares-Electrical, Cl no.5.32.05, Page 398 of 421	Camera Enclosure (For Each type, make & Model) - 10% of installed quantity	Camera Enclosure (For Each type, make & Model) - 10% of installed quantity Stands Deleted.
86.	TCM-L&T-Annex-2.1,Sl.no 1219	Vol. II-F2/ Section-XVII Energy & Relay Management System,Cl3.04.00, Page 3 of 11	Data dump from EMS & RMS to DDCMIS along with time stamping shall be provided.	Data dump from EMS & RMS to DDCMIS along with time stamping shall be provided Stands Deleted
87.	TCM-L&T-Annex-2.1,Sl.no 989	Vol. II-F2/Section-XII,GIS, Clause 5.12.02	5.12.00-Laptop Configuration and Synchronizing Trolley, 5.12.01-..... 5.12.02-.....	5.12.00-Laptop Configuration and Synchronizing Trolley, 5.12.01-..... 5.12.02-..... Stands deleted
88.	TCM-L&T-Annex-2.1,Sl.no 1121	Vol. II-F1/Section-I General Electrical Specification,,4.34.13	Fire Survival cable:..... Fire alarm, annunciation and protection system.....	Fire Survival cable:..... Fire alarm, annunciation and protection system (CHP Area).....
89.	TCM-BHEL-Annex-2.1,Sl.no 497 TCM-L&T-Annex-2.1,Sl.no 229	Vol. II-F1/Section-I General Electrical Specification , 4.27.00 LT Service Transformer,	Each switchgear/MCC/distribution board shall be fed by 2x100% transformers/feeders and these shall be rated to carry the maximum load Expected to be imposed.	Each switchgear/MCC/distribution board shall be fed by 2x100% Transformers/feeders and these shall be rated to carry the maximum load expected to be imposed. Welding transformer shall be Sized for 1X100% rated load with Welding DB having single source configuration.

Change in specification (Section B of Tender Specification)

Annexure C2H (Electrical)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
90.	TCM-L&T- Annex-2.1 ,Sl.no 1016	Vol. II-F1/Section-I General Electrical Specification, Construction Power– clause 1.11.34	Distributing 11 kV Power supply, deriving 415V power supply and distribution to various construction power loads shall be in the scope of the Bidder. Bidder shall arrange necessary transformers DBs, armoured cables etc. for the distribution to bidder's Construction loads.	Distributing 11 kV Power supply, deriving 415V power supply and distribution to various construction power loads shall be in the scope of the Bidder. Bidder shall arrange necessary transformers DBs, armoured cables etc. for the distribution to bidder's Construction loads. Downstream distribution and associated items are supplied on temporary basis and shall be taken back after completion project activities.
91.	TCM-L&T- Annex- 2.1,Sl.no 987	Vol. II-F/2/Section-V Electrical Control & Relay Boards, Annexure-B, Page -16 of 33	COMPREHENSIVE GENERATOR PROTECTION (2 redundant modules).....	COMPREHENSIVE GENERATOR PROTECTION (2 Redundant modules of Generator protection with different hardware platform).....

. *QR for Power Transformers& Reactors

1.0 Qualification Requirement (765kV-315MVA 1- Ph Generator Transformer)

The Bidder/Sub-vendor should meet the qualifying requirements of any one of the qualifying routes stipulated under following clause

1.1 ROUTE -1

Bidder/Sub-vendor should have designed, manufactured and supplied at least two (2) numbers 765kV voltage level single phase Generator transformers of at least 200 MVA capacity which should have been in successful operation for at least two years prior to the date of Techno Commercial bid opening.

1.2ROUTE-2

Bidder/Sub-vendor should have Designed, manufactured and supplied at least two (2) numbers of (one each at two different installation) 400 kV or above voltage level Generator Transformers of at least 200MVA capacity single phase transformer or at least 315MVA capacity three phase transformer as a Single unit which should have been in successful operation For two (2) years prior to the date of Techno Commercial bid opening and have Established manufacturing facility in India for 800kV class transformers and have Manufactured and supplied 800kV class or above Transformer and facility prior to the Date of Techno commercial bid opening.

NOTES:

Two different installations means two different project sites or two different contracts.

2.0 Qualification Requirement (765kV/400KV-500MVA ICT)

Bidder/Sub-vendor should have designed, manufactured and supplied, at least two (2) numbers of a 765kV voltage level single phase Inter Connecting Transformer of 500 MVA unit capacity which should have been in successful operation for at least two years prior to the date of Techno-Commercial bid opening

3.0 Qualification Requirement (765kV-Shunt Reactor)

Bidder/Sub-vendor should have designed, manufactured and supplied, at least two (2) numbers of a 765kV voltage level single phase reactors of at least 63 MVAR unit capacity which should have been in successful operation for at least two years prior to the date of Techno-Commercial bid opening.

4.0 Qualification Requirement (400kV-Shunt Reactor)

Bidder/Sub-vendor should have designed, manufactured and supplied, at least two (2) numbers of a 400 kV voltage level Three phase reactors of at least 80 MVAR unit capacity Which should have been in successful operation for at least two years prior to the date of Techno-Commercial bid opening

5.0 Qualification Requirement (400kV/11.5kV/11.5 kV Station Transformer and 400kV/33kV Inter Bus Transformer)

Bidder/Sub-vendor should have designed, manufactured and supplied, at least two (2) numbers of a 400kV voltage level Transformer of 100 MVA unit capacity which should have been in successful operation for at least two years prior to the date of Techno-Commercial bid opening

Change in specification (Section B of Tender Specification)

Annexure C2I (Civil)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
1.	L&T / BHEL TCM Annexure- 2.7 common points	Section B Volume-II-G2/Part-A/ Section-VI Cement Concrete (Plain & Reinforced) Clause 2.05.03 Aggregates	The Crushed stone sand in general shall not be used for the following structures/facilities :- a) Chimney and Silos (structures constructed using slip form technology) b) IDCT c) All internal & external plastering works. The structures where the slip form construction is envisaged the M sand or Crushed stone sand may be used for casting its foundations only as they are not constructed using slip form Technology.	In the structures where the slip for construction is envisaged, M sand or Crushed stone sand may be used to meet the design requirements for slip form with all special precautions like use of construction chemicals and other admixtures to avoid dragging issues.
2.	L&T Point no 1242	Section B Volume-II-G2/Part-A/ Section X : Roads and Drainage Clause 2.07.00 & Drawing No. 18A03- DWG-C-0006	All the roads shall be of width as specified in Overall plot plan & Roads and drains layout tender drawings. Shoulder width shall be 1500 mm on both sides for all type of roads.	All the roads shall be of width as specified in Overall plot plan & Roads and drains layout tender drawings. Shoulder width shall be 1500 mm on both sides for all type of roads. The top of the shoulders/walkway on both sides shall be 200 mm above the top of the road at ends, with kerb blocks on both road sides and the top of walkway shall be laid with paver blocks of strength 30 MPa.. In the Shoulder / walkway, at every 10m interval 100mm DI pipe sloping from road edge to drain shall be laid to pass on

Change in specification (Section B of Tender Specification)

Annexure C2I (Civil)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
				rain water from road to drain.
3.	L&T Point no 1250	Section B Volume-II/G1/Section- II/Clause : 5.03.00	For all non-plant buildings as mentioned in the following list, Maximum allowable total settlement should be restricted to 25 mm for all foundations.	For all non-plant buildings as mentioned in the following list, Maximum allowable total settlement should be restricted to 40 mm for all foundations.

Change in specification (Section B of Tender Specification)

Annexure C2I (Civil)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
4.	L&T Point no 1257	Section B Volume-IIG1/Section-II/Specific Design requirements (civil) clause 6.01.00	Ground floor slab/Grade slab (non-suspended) 200mm Paving (except for RCC Roads) 200mm	Ground floor slab/Grade slab (non-suspended) 150mm or as per design requirements whichever is higher Paving (except for RCC Roads) 150mm or as per design requirements whichever is higher
5.	L&T Point no 1257	Section B Volume-IIG1/Section-I General clause 4.21.02	The entire boiler area and Transformer yard area shall be paved with reinforced cement concrete with 200 mm thickness minimum and sloped to drains. The RCC paving applicable in the EPC package, Shall be 200 mm thick and sloped to drains.	The entire boiler area and Transformer yard area shall be paved with reinforced cement concrete with 150 mm thickness minimum and sloped to drains. The RCC paving applicable in the EPC package, Shall be 150 mm thick or as per design requirements, whichever is higher and shall be sloped to drains.

Change in specification (Section B of Tender Specification)

Annexure C2I (Civil)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
6.	L&T Point no 1263 to 1265	Section B Volume-IIG-1/Section- V/General Specification & Design Criteria of RCC Chimney clause 1.07.00	Borosilicate Blocks iii) Flexural strength of at least 0.62 Mpa / 0.8N/Sq.mm as per ASTM C.203/C.240. iv) Thermal conductivity of 0.087 W/m°K at a mean temperature of 38 °C as per ASTM C177 and ASTM C518.	Borosilicate Blocks iii) Flexural strength of minimum 0.62 MPa as per ASTM C.203/C.240 shall be followed. iv) Thermal conductivity of 0.087 W/m°K at a mean temperature of 38 °C as per ASTM C177 or ASTM C518.
7.	L&T Point no 1267 to 1269	Section B Volume-IIG-1/Section- V/General Specification & Design Criteria of RCC Chimney clause 1.07.00	Adhesive membrane i) Tensile strength at 23° C of 1.0 N/mm2 as per ASTM D.412. ii) Elongation at 23° C of 147.0 % as per ASTM D.412 iii) Moisture vapor transmission of 0.0048 Perm inches as per ASTM C.96 Method E	Adhesive membrane i) Tensile strength at 23° C of 1.0 N/mm2 (Minimum) as per ASTM D.412 ii) Elongation at 23° C of 147.0 % (Minimum) as per ASTM D.412 iii) Moisture vapor transmission of 0.0048 Perm inches (Maximum) as per ASTM E.96

Change in specification (Section B of Tender Specification)

Annexure C2I (Civil)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
8.	L&T Point no 1270	Section B Volume - II - G-1 / Section V / General Specification & Design Criteria of RCC Chimney clause 1.07.00	Mixing machine <ul style="list-style-type: none"> • The mixing machine must be CE – approved. • The mixing machine shall have thermal motor protection to minimize failure and fire risk. 	Mixing machine <ul style="list-style-type: none"> • The mixing machine must be CE – approved. • Mixing machine type and motor rating shall be as per OEM standard practice/ recommendations. • The mixing machine shall have thermal motor protection to minimize failure and fire risk.
9.	L&T Point no 1276	Section B Volume-II-G-1/Section V / General Specification & Design Criteria of RCC Chimney clause 1.07.00	Mixing of Adhesive Membrane <ul style="list-style-type: none"> • The temperature for mixing the main material and hardener shall be about 24 deg C. 	Mixing of Adhesive Membrane <ul style="list-style-type: none"> • The temperature for mixing the main material and hardener shall be as per OEM recommendations

Change in specification (Section B of Tender Specification)

Annexure C2I (Civil)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
10.	L&T Point no 1294	Section B Volume-II-G1/ Section IV/ Clause 2.04.00	Xiii) Service building shall have a circular atrium with walkway all around. Accordingly, a circular dome shall be used as roof for atrium portion.	Xiii) Service building shall have a circular atrium with walkway all around. Accordingly, a circular dome shall be used as roof for atrium portion. Central atrium / courtyard shall be provided with Translucent Polycarbonate sheet.
11.	L&T Point no 1301	Section B Volume-II-G1/ Section-IV clause 4.00.00	6) Metal Cladding : In between the metal sheet, there will be lamellar mineral wool insulation having density 100 kg/m ³ and average thickness 50 mm conforming to IS:8183 having a thermal conductivity value of 0.040 W/m ² K at 50oC mean temp	6) Metal Cladding : In between the metal sheet, there will be Prefabricated Rock wool insulation having density 100 kg/m ³ and average thickness 50 mm conforming to IS:8183 having a thermal conductivity value of 0.040 W/m ² K at 50oC mean temp

Change in specification (Section B of Tender Specification)

Annexure C2I (Civil)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
12.	L&T Point no 1317	Section B Volume – II-G1 / Section – V clause 6.05.00	6.05.00 Outer Platforms 6.05.01 Outer platforms shall be 6.05.02 The minimum clear width 6.05.03 Hand railing shall be 6.05.04 40 mm dia G.I. drainage 6.05.05 150 mm dia DI RWDC pipe	6.05.00 Warning lights Warning lights can be installed on door mounted on RCC shell as per requirements of ICAO/DARA. External platforms not required
13.	L&T Point no 1317	Section B Volume-II-G1/ Section-V/ clause 1.01.00	<ul style="list-style-type: none"> Other Auxiliaries, Internal Steel Platforms, External RCC Platforms, ladders, Rack & Pinion elevator etc. <p>..... The scope of this work shall consist of, but not limited to, the design and construction of reinforced concrete windshield, foundations with associated pipe work, Borosilicate lining, stairs, cage ladders, rack & pinion type elevator, external and internal platforms, walkways as specified or required for</p>	<ul style="list-style-type: none"> Other Auxiliaries, Internal Steel Platforms, ladders, Rack & Pinion elevator etc. <p>..... The scope of this work shall consist of, but not limited to, the design and construction of reinforced concrete windshield, foundations with associated pipe work, Borosilicate lining, stairs, cage ladders, rack & pinion type elevator, internal platforms, walkways as specified or required for operation and maintenance</p>

Change in specification (Section B of Tender Specification)

Annexure C2I (Civil)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
			operation and maintenance	
14.	L&T Point no 1317	Section B Volume-II-G1/ Section- V/clause 4.01.01	All permanent loads due to the weight of chimney shell, internal steel platforms, external RCC platforms, linings, ladders, flue ducts, staircases, Elevator and other accessories etc.	All permanent loads due to the weight of chimney shell, internal steel platforms, linings, ladders, flue ducts, staircases, Elevator and other accessories etc.

Change in specification (Section B of Tender Specification)

Annexure C2I (Civil)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
15.	L&T Point no 1317	Section B Volume-II-G1/ Section- V/clause 6.03.01	Internal platforms shall be provided at levels matching with the External Platforms and as required meeting all functional requirement and shall be supported on structural steel beams.	Internal platforms shall be provided as required meeting all functional requirement and shall be supported on structural steel beams.
16.	L&T Point no 1317	Section B Volume-II-G1/ Section- V/clause 6.07.02	Steel Personnel doors of size 1200mm x 2100mm shall be provided in shell for access to external platforms, at different levels so that aviation warning lights could be approached for maintenance purposes.	Intentionally deleted

Change in specification (Section B of Tender Specification)**Annexure C2I (Civil)**

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
17.	L&T Point no 1317	Section B Volume-II-G1/ Section- V/clause 6.11.00	The entire inside surface of the chimney shell, horizontal surface of the shell at top, underside of roof slab, top exposed surface of external platforms etc. shall be painted	The entire inside surface of the chimney shell, horizontal surface of the shell at top, underside of roof slab, etc. shall be painted
18.	L&T Point no 1320	Section B Volume-II-G1/ Section – V clause 6.03.01	The platforms shall be located not more than 40m intervals throughout the height of the chimney. Total nos. of internal platforms shall be 4 nos.(minimum) for single flue and 5 nos. (minimum) for Bi-Flue	The platforms shall be located not more than 45m intervals throughout the height of the chimney. Total nos. of internal platforms shall be 3 nos.(minimum) for single flue and 4 nos. (Minimum) for Bi-Flue Chimney
19.	L&T Point no 1322	Section B Volume-II-G1/Section-II/ Annexure-II/ Clause 3.0 (i)	The entire staging for supporting the formwork, walkways and platforms for placing concreting equipment such as vibrators, etc., shall be of structural steel. The staging shall be designed for the worst combination of loading as specified hereinafter. The Staging system for TG deck shall meet the following minimum requirements.	The entire staging for supporting the formwork, walkways and platforms for placing concreting equipment such as vibrators, etc., shall be of structural steel. The staging shall be designed for the worst combination of loading as specified hereinafter. The Staging system for TG deck shall meet the following minimum requirements Or Bidder's proven practice subjected to approval of owner/consultant.

Change in specification (Section B of Tender Specification)**Annexure C2I (Civil)**

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
20.	L&T Point no 1335	Section B Volume-II-G1/Section-I / clause 4.09.01	Separate pipe rack between C-D row shall be provided, so that the power house columns can be designed independent of the pipe loads on this rack	Pipe rack between C-D row shall be provided. CD bay pipe rack may be connected with turbine building / boiler column with PTFE connection. Accordingly The loadings shall be considered on the Boiler and TG building design with required margin.
21.	L&T Point no 1343	Section B Volume-IIG1/Section- II Clause 6.03.00	<p>Ground floor slab-on-grade shall be minimum M-30grade RCC construction laid over minimum 100mm thick lean concrete of Grade M10. Minimum consolidated 230mm thick graded BG stone or laterite (63mm down size) soling with interstices filled with sand/gravel and compacted mechanically, shall be provided as sub-base below lean concrete. The sub-base shall be laid over rammed and hydraulically compacted sand fill of minimum 300 mm thick over well compacted (Min. 90% Proctor density) sub-grade.</p> <p>The ground floor slab shall be of minimum 200mm thick or as per design requirement (whichever is higher) with double layer reinforcement (top & bottom)of 10mm (minimum)dia at the rate of 200 (maximum)</p>	<p>Ground floor slab-on-grade shall be minimum M-30grade RCC construction laid over minimum 100mm thick lean concrete of Grade M10. Minimum consolidated 230mm thick graded BG stone or laterite (63mm down size) soling with interstices filled with sand/gravel and compacted mechanically, shall be provided as sub-base below lean concrete. The sub-base shall be laid over rammed and compacted minimum 300 mm thick (Min. 90% Proctor density) sub-grade.</p> <p>The ground floor slab shall be of minimum 150mm thick or as per design requirement (whichever is higher) with double layer reinforcement (top & bottom)of 10mm (minimum)dia at the rate of 200 (maximum) c/c both ways with 50 mm thk IPS floor finish.</p>

Change in specification (Section B of Tender Specification)

Annexure C2I (Civil)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
			c/c both ways with 50 mm thk IPS floor finish.	
22.	L&T Point no 715	Section B Volume-II-G1/Section-III Specific Requirement clause 5.00.00 Design [Struc.]	Crane Girders At crane girder level, walkway shall be provided on both sides. Walkway at column location s shall have minimum clear width of 750mm.	Crane Girders At crane girder level, walkway shall be provided on both sides. Walkway at column location s shall have minimum clear width of 600mm.

Change in specification (Section B of Tender Specification)

Annexure C2I (Civil)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
23.	L&T Point no 715	Section B Volume-II-G1/Section-IV Specific Design Requirements- clause 4.00.00 (24) (b)	Provision of safety, health and welfare according to Factories Act shall be complied with. These shall include provision of continuous walkway, minimum 500 mm wide, along the crane girder at crane girder level on both sides,	Provision of safety, health and welfare according to Factories Act shall be complied with. These shall include provision of continuous walkway, minimum 600 mm wide, along the crane girder at crane girder level on both sides,
24.	L&T Point no 932	Section B Volume-II-G2/Part-A/Section-V Bored Cast in Situ Concrete Pile Clause 4.04.04	<p>Pull-out Test</p> <p>The test shall be carried out to an overload of fifty percent (50%) of the estimated safe load or a displacement of 12 mm total whichever is earlier.</p> <p>.....</p> <p>The safe load shall be taken as the least of the followings :</p> <p>a) Two-thirds of the total load at which the load-displacement is 12 mm.</p> <p>b) Half the load at which the load-displacement curve shows a clear break (downward trend).</p>	<p>Pull-out :</p> <p>The test shall be carried out as per IS 2911 (Part 4) latest version for safe loading criteria.</p>

Change in specification (Section B of Tender Specification)

Annexure C2I (Civil)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
25.	L&T Point no 930	Section B Volume-II-G2/Part- A/Section-V Bored Cast in Situ Concrete Pile clause 4.04.02	Vertical Load Test [as per IS : 2911 (Part-IV)] Load tests shall be carried out on single piles to check the bearing capacity or the quality of piles in the manner specified below : Deflectometers shall be supported independently and in such a way as to be not affected by the settlement of the piles.	Vertical Load Test :IS 2911 (Part IV) Load tests shall be carried out on single piles to check the bearing capacity or the quality of piles in the manner specified in latest version of IS 2911 (Part-IV)
26.	L&T Point no 930 & 932	Section B Volume-II-G2/Part- A/Section-V Bored Cast in Situ Concrete Pile clause 4.04.03	Lateral Load Test The test shall be carried out by introducing hydraulic jack with gauge between two piles under test or the reaction shall be suitably obtained otherwise. b) Final load at which the total displacement corresponds to 5 mm.	Lateral Load Test The test shall be carried out as per IS 2911 (Part 4) latest version for safe loading criteria.

Change in specification (Section B of Tender Specification)

Annexure C2I (Civil)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
27.	L&T Point no 920	Section B Volume-II-G1/Section-V General Specification & Design Criteria of RCC Chimney [Civil &Struc] clause 3.00.00	Grade of concrete for foundation raft /pile cap and windshield shall be M30 (minimum) with minimum cement content of 400 Kg/m ³ as per Technical Specification for Cement Concrete (Plain and Reinforced).	Grade of concrete for foundation raft /pile cap and windshield shall be M30 (minimum) with cement content of 400 Kg/m ³ as per Technical Specification for Cement Concrete (Plain and Reinforced).
28.	L&T Point no 920	Section B Volume-II-G1/Section-V General Specification & Design Criteria of RCC Chimney [Civil & Struc] clause 9.00.00 5) c)	From the point of view of creep, shrinkage as well as initial setting property of concrete, cement content shall not preferably be more than 400 Kg. per Cu.M of concrete.	From the point of view of creep, shrinkage as well as initial setting property of concrete, cement content shall be of 400 Kg. per Cu.M of concrete.

Change in specification (Section B of Tender Specification)

Annexure C2I (Civil)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
29.	L&T Point no 923	Section B Volume-II-G1/Section-I Clause 4.22.04	Ultrasonic pulse velocity (UPV) test shall be carried out for crusher foundation to ascertain the homogeneity and integrity of concrete. Testing shall be done as per IS: 1331 (Part-1).	Ultrasonic pulse velocity (UPV) test shall be carried out for crusher foundation to ascertain the homogeneity and integrity of concrete. Testing shall be done as per IS: 13311 (Part-1).
30.	L&T Point no 930 & 932	Section B Volume-II-G2/Part-A/Section-V Bored Cast in Situ Concrete Pile Clause 1.00.00 Scope	Bored Cast-in-situ RCC pile passing through top soil overburden and highly weathered rock layer and terminating in the underlying sand stone layer with a socket length not less than 3D, (where D is the diameter of the pile) within such layer, will be considered	Bored Cast-in-situ RCC pile passing through top soil overburden and terminating in the underlying weathered rock with a socket length not less than 3D, (where D is the diameter of the pile) within such layer, will be considered
31.	L&T , Point no 1337	Section B Volume-II-G1/ Section IV clause 4.00.00 (13)(a) Roof waterproofing	“For roofs having no structural slope: Water ponding/flood test is to be conducted after application. Water shall be filled up and retained for at least 24 to 48 hours. Loosely laid 120-150 GSM geotextile (non-woven polyester) shall be provided over the Elastomeric coating. Laying protective slope	“For roofs having no structural slope: Water ponding/flood test is to be conducted after application. Water shall be filled up and retained for at least 24 to 48 hours. Loosely laid 120-150 GSM geotextile (non-woven polyester) shall be provided over the Elastomeric coating. Laying protective slope (1:100) with 35mm average thick (thickness

Change in specification (Section B of Tender Specification)

Annexure C2I (Civil)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
			(1:100) with 75mm average thick (thickness will depend upon the required slope and span of the building) M 15 grade screed mixed with polypropylene fibres (RECRON or equivalent) and admixed with integral liquid waterproofing compound conforming to IS: 2645.	will depend upon the required slope and span of the building) M 15 grade screed mixed with polypropylene fibres (RECRON or equivalent) and admixed with integral liquid waterproofing compound conforming to IS: 2645.
32.	L&T Point no 1239	Section B Volume-II-G1/ Section-I/ Clause 4.25.02	<p>Raw water reservoir shall be designed to store the total plant water requirements including service water. Reservoir shall be constructed by optimized cutting/filling required to build up raw water storage capacity as indicated in Mechanical volume.</p> <p>The reservoir shall be formed with optimum cutting and filling of the earth (without compromising the safety of power plant) with top of the bund shall not exceed 204.0m including free board of 1.5 m and bottom level shall be kept above the ground water table subject to the property of the excavated soil fit for embankment construction.</p>	<p>Reservoir shall be constructed to build up raw water storage capacity as indicated in Mechanical volume.</p> <p>The reservoir shall be formed with top of the bund shall not exceed 204.0m including free board of 1.5 m and bottom level shall be kept to meet the storage capacity. The bed / bottom level of the RWR shall be at the discretion of the successful bidder fulfilling the above conditions of top level, storage capacity & freeboard.</p>

Change in specification (Section B of Tender Specification)

Annexure C2I (Civil)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
33.	L&T Point no 1240	Section B Volume-II-G1/ Section-V/ Clause 6.01.00 (7)	The maximum width of opening shall be limited to an angle of not more than 30 ⁰ subtended at the center of the concrete shell	The maximum width of opening shall be limited to an angle of not more than 45 ⁰ subtended at the center of the concrete shell.
34.	L&T, Point no 1241	Section B Volume-II-G1/ Section-V/ Clause 6.01.00 (7)	The total plan area of the openings at a particular section shall not be more than 15% of the plan area of concrete shell at that location.	The total plan area of the openings at a particular section shall not be more than 20% of the plan area of concrete shell at that location.
35.	L&T Point no 1271	Section B Volume-IIG1 / Section V / General Specification & Design Criteria of RCC Chimney clause 1.07.00	Heat cycling resistance <ul style="list-style-type: none"> The lining system shall, through documented testing, have been proven resistant to thermal shock, for a minimum of 1000 cycles, where each cycle results in the lining surface temperature to rise from ambient temperature to 180 °C, and back to ambient temperature. The lining system shall also withstand occasional excursion of flue gas temperature of more than 200°C. 	Heat cycling resistance <ul style="list-style-type: none"> The lining system shall also to withstand excursion temperature of 300°C for 30 minutes during air preheater trip condition. The duration of heating and cooling shall be as per supplier's recommendations. Number of cycles-3.

Change in specification (Section B of Tender Specification)

Annexure C2I (Civil)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
36.	L&T Point no 1280	Section B Volume II-G1/ Section-I, Clause 4.27.01	Sulphate Resistant cement as per IS12330 shall be used. Minimum wall thickness shall be 200mm. Cover to concrete is 50mm minimum on all faces	Ordinary Portland cement namely Grade 43 shall be used. Minimum wall thickness shall be 200mm. Cover to concrete is 50mm minimum on all faces.
37.	L&T Point no 1281	Section B Volume-IIG1/Section- I/ Clause 4.22.01	Over boulder soling, 100 mm thick lean concrete (1:4:8) shall be spread. Final layer shall be minimum 200mm thick RCC slab of grade M30 having double layer reinforcement of 10 dia 200 c/c both ways. Slope is to be maintained through all layers.	Over boulder soling, compacted soil with 1:300 grading shall be provided and soil shall be topped by 200 mm mill reject layer/coal sacrificial layer in coal stockyards
38.	L&T Point no 1281	Section B Volume-IIG1/Section- I/ Clause 3.00.00	RCC paving for Coal Stockpile, Foundations for Stacker and Re-claimers, Coal stock pile run off drains, fencing, roads, security tower, along with associated items etc.	Foundations for Stacker and Re-claimers, Coal stock pile run off drains, fencing, roads, security tower, along with associated items etc.

Change in specification (Section B of Tender Specification)

Annexure C2I (Civil)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
39.	L&T Point no 1288	Section B Volume-IIG1/Section- I/ General clause 4.28.00	Sewage treatment Plant 2 Nos	Sewage treatment system Sewage treatment system shall be planned with two number of STP buildings with all the required facilities as per functional requirement. However, based on design requirements, a maximum of two number of additional modular STP shall be permitted. These modular STP shall be located nearer to the plant boundary (within compound wall) with covered shed.
40.	L&T Point no 1302	Section B Volume-II-G1/ Section- IV clause 4.00.00. 6) Metal cladding	Note: For single skin wall cladding/ roofing, specification for outer sheet as mentioned above is to be followed and the thickness of the sheet shall be 0.8mm minimum.. Flashings shall be of same material that of sheeting	Note: For single skin wall cladding/ roofing, specification for sheet as mentioned above is to be followed and the thickness of the sheet shall be 0.8mm minimum for roof sheeting and 0.6mm minimum for side cladding. Flashings shall be of same material that of sheeting

Change in specification (Section B of Tender Specification)

Annexure C2I (Civil)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
41.	L&T Point no 1307	Section B Volume – IIG1 / Section – V, clause 1.01.00 (General Specification & Design	The steel flue shall be vertically supported at top & at intermediate levels (minimum four platforms for Single flue and minimum five platforms for Bi-flue chimney) and horizontally restrained on steel platform at intervals satisfying all functional requirements	The steel flue shall be vertically supported at top & at intermediate levels (minimum 1 platform(s)) and horizontally restrained on steel platform at intervals satisfying all functional requirements
42.	L&T Point no 1308	Section B Volume-IIG1 / Section – V, Clause 3.00.00 (General Specification & Design Criteria)	Plates for steel flue shall be CORTEN-B Steel conforming to IS 2062 having yield stress 250 MPa	Plates for steel flue shall be Mild steel of minimum 8 mm thick confirming to IS:2062 having yield stress of 250 MPa.

Change in specification (Section B of Tender Specification)

Annexure C2I (Civil)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
43.	L&T Point no 1310	Section B Volume-II-G1/ Section-V, Clause 6.01.00 (10)	Minimum thickness of wind-shield at top of chimney shall be 300 mm and the minimum thickness of the RCC shell at the top of raft shall be 850mm.	Minimum thickness of wind-shield at top of chimney shall be 300 mm and the minimum thickness of the RCC shell at the top of raft shall be 600mm for single flue chimney and 850mm for Bi-flue chimney.
44.	L&T Point no 1311	Volume-II-G1/ Section-V, Clause-6.02.01(1)	The flue can shall be of corrosion resistant steel type "COR-TEN B" of minimum 10 mm thick. Top 10m length (below roof) or length equal to 2 times flue diameter whichever is larger shall be provided using material confirming to AISI:316L or BS:1449. Above the roof also, the liner is of AISI:316L/BS:1449 and the height of the flue shall be as per the design requirement	The flue can shall be of steel type "Mild steel of minimum" of minimum 8 mm thick. Flue can projecting above the chimney roof slab shall be mild steel with 8 mm minimum thickness wrapped with Titanium liner 2 mm thickness with suitable support. The height of the flue shall be as per the design requirement. Insulation outside the flue can above the roof is not required.

Change in specification (Section B of Tender Specification)

Annexure C2I (Civil)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
45.	L&T Point no 1311	Volume-II-G1/ Section-V, Clause-1.06.00 (vi)	<p>External surface of chimney flue can projecting over the chimney roof shall be wrapped with 2 mm thick Titanium sheet (Grade2 as per ASME SB265) over insulation.</p> <p>The insulation shall be semi-rigid, resin bonded type, in the form of slabs and shall conform to IS: 8183. The Insulation shall consist of 6 layers of insulation material (resin bonded rock wool) each of a minimum thickness of 25 mm and all joints shall be staggered.</p>	External surface of chimney flue can projecting over the chimney roof shall be wrapped with 2 mm thick Titanium sheet (Grade2 as per ASME SB265) .
46.	L&T Point no 1312	Section B Volume-II-G1/ Section-V, Clause-6.02.01 4) Flue support arrangement	The support brackets and bearing assembly shall be welded to the locally thickened portion of the flue and in turn support the flue on the support platform. The arrangement shall cater for thermal movements of liner elements in a smooth and easy manner.	The support brackets and bearing assembly shall be welded to the locally thickened portion of the flue and in turn support the flue on the support platform. The arrangement shall cater for thermal movements of liner elements in a smooth and easy manner. Alternatively, flue can be supported by hanger assembly arrangement.

Change in specification (Section B of Tender Specification)

Annexure C2I (Civil)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
47.	L&T Point no 1313	Section B Volume-II-G1/ Section-V, Clause-6.02.02	However, the minimum thickness of the liner determined from structural consideration alone shall not be less than 6 mm and corrosion allowance adopted shall not be less than 4 mm and thereby minimum total installed thickness of flue liner shall not be less than 10 mm.	However, the minimum total installed thickness of flue liner shall not be less than 8 mm.
48.	L&T Point no 1313	Section B Volume-II-G1/ Section-V/ Clause 6.15.00	Like in the case of steel liners, the minimum thickness of duct plates shall not be less than 10 mm in any case from structural condition and corrosion allowance point of view	Like in the case of steel liners, the minimum thickness of duct plates shall not be less than 8 mm in any case from structural condition and corrosion allowance point of view
49.	L&T Point no 1330	Section B Volume-IIG1/Section-I/ Clause 4.23.02	Sump shall be designed as un-cracked section in accordance with IS: 3370 (Latest Revision) by working stress method.	The tanks and sumps shall be designed as Tightness class 3 in accordance with IS: 3370 (Latest Revision).

Change in specification (Section B of Tender Specification)

Annexure C2I (Civil)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
50.	L&T Point no 1330	Section B Volume-II-G1/Section-I/ Clause 4.23.06	Sump shall be RCC and designed as un-cracked section in accordance with IS: 3370 (Latest Revision) by working stress method.	Sump shall be RCC and designed as Tightness class 3 in accordance with IS: 3370 (Latest Revision).
51.	L&T Point no 1330	Section B Volume-II-G1/ Section-I/ Clause 4.25.01	Sump shall be designed as un-cracked section in accordance with IS: 3370 (Latest Revision) by working stress method.	The tanks and sumps shall be designed as Tightness class 3 in accordance with IS: 3370 (Latest Revision).
52.	L&T Point no 1330	Section B Volume-II-G1/ Section-I/ Clause 4.26.07	Clarified water tank including RCC roof shall be designed as un-cracked structure as per IS: 3370. The structure shall be designed as un-cracked section in accordance with IS: 3370 (Latest Revision) by working stress method.	Clarified water tank including RCC roof shall be designed as Tightness class 3 in accordance with IS: 3370 (Latest Revision). The structure shall be designed as Tightness class 3 in accordance with IS: 3370 (Latest Revision).

Change in specification (Section B of Tender Specification)

Annexure C2I (Civil)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
53.	L&T Point no 1330	Section B Volume-II-G1/ Section-I/ Clause 4.26.09	Concrete channel shall be provided with proper design and detailing as per design criteria. Shall be designed as un-cracked section as per IS:3370.	Concrete channel shall be provided with proper design and detailing as per design criteria. Shall be designed as Tightness class 3 in accordance with IS: 3370 (Latest Revision).
54.	L&T Point no 1330	Section B Volume-II-G1/ Section-I/ Clause 4.26.10	All RCC water / liquid retaining and conveying structures shall be designed as un-cracked sections.	All RCC water / liquid retaining and conveying structures shall be designed as Tightness class 3 in accordance with IS: 3370 (Latest Revision).
55.	L&T Point no 1330	Section B Volume-II-G1/ Section-I/ Clause 4.27.01	The RCC Sump of the pump houses shall be designed as Un-cracked section as per IS: 3370 (Latest Revision) by working stress method..... Forebay: It shall be designed as Un-cracked section as per IS: 3370 (Latest Revision).	The RCC Sump of the pump houses shall be designed as Tightness class 3 in accordance with IS: 3370 (Latest Revision)..... Forebay: It shall be designed as Tightness class 3 in accordance with IS: 3370 (Latest Revision).

Change in specification (Section B of Tender Specification)**Annexure C2I (Civil)**

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
56.	L&T Point no 1330	Section B Volume-II-G1/ Section-I/ Clause 4.29.03	The structure shall be designed as un-cracked section in accordance with IS: 3370 (Latest Revision) by working stress method.	The structure shall be designed as Tightness class 3 in accordance with IS: 3370 (Latest Revision).
57.	L&T Point no 1330	Section B Volume-II-G1/ Section-I/ Clause 4.33.12	The RCC Sumps / Liquid retaining Tanks shall be designed as Un-cracked section as per IS: 3370 (Latest Revision) by working stress method.	The RCC Sumps / Liquid retaining Tanks shall be designed as Tightness class 3 in accordance with IS: 3370 (Latest Revision).
58.	L&T Point no 1330	Section B Volume-II-G1/ Section-I/ Clause 4.34.00 (2)(a)	Design of CW Basin wall, sump, column foundations, outlet channel, duct, sludge pit, Hot water distribution basin/ Hot water Channel shall be designed as Uncracked section as per IS : 3370 (Part I to IV). Both water face and soil face of above liquid retaining structures shall be designed as uncracked section.	Design of CW Basin wall, sump, column foundations, outlet channel, duct, sludge pit, Hot water distribution basin/ Hot water Channel shall be designed as Tightness class 3 in accordance with IS: 3370 (Latest Revision). Both water face and soil face of above liquid retaining structures shall be designed as Tightness class 3 in accordance with IS: 3370 (Latest Revision).

Change in specification (Section B of Tender Specification)

Annexure C2I (Civil)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
59.	L&T Point no 1330	Section B Volume-II-G1/ Section-I/ Clause 4.34.00 (2)	Individual Outlet Channel leading to CW Channel RCC cooling water channels shall be of rectangular shape and designed as a water retaining structure as un-cracked section.	Individual Outlet Channel leading to CW Channel RCC cooling water channels shall be of rectangular shape and designed as a water retaining structure as Tightness class 3 in accordance with IS: 3370 (Latest Revision).
60.	L&T Point no 874	Section B Volume-II-G1/Section-III Specific Design Requirement [Struc.] clause 1.00.00	For painting of structural steel members :shall be applied with primer paint shall be single coat of zinc ethyl silicate primer of 75micron thick and conform to IS-2074 (Latest Revision). The surface preparation shall be done in accordance with IS : 1477 (Part I & II) (Latest Revision) – Code of Practice for Finishing of Ferrous Metals in Buildings. Two coats of synthetic enamel paint conforming to IS:2932 (Latest Revision) of approved shade and quality and not less than 50 microns each coat shall also be applied. Total Dry film thickness of the finished paint shall not be less than 175 microns.. For structures fabricated in shop, one additional coat of primer shall be given at	For painting of structural steel members: shall be applied with primer paint shall be single coat of zinc ethyl silicate primer of 75micron thick and conform to IS-2074 (Latest Revision). The surface preparation shall be done in accordance with IS : 1477 (Part I & II) (Latest Revision) – Code of Practice for Finishing of Ferrous Metals in Buildings. Two coats of synthetic enamel paint conforming to IS:2932 (Latest Revision) of approved shade and quality and not less than 50 microns each coat shall also be applied above primer coat with applicable tie coat of minimum 25 microns. Total Dry film thickness of the finished paint shall not be less

Change in specification (Section B of Tender Specification)

Annexure C2I (Civil)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
			the shop of 75 micron thick	than 200 microns For structures fabricated in shop, one additional coat of primer shall be given at the shop of 75 micron thick
61.	General	Section B Volume-II-G1/Section-V General Specification & Design Criteria of RCC Chimney [Civil &Struc] clause 12.00.00	12.00.00 CHIMNEY STEEL AND METAL WORK	12.00.00 CHIMNEY STEEL AND METAL WORK FABRICATION (at Site / Shop fabrication)

Change in specification (Section B of Tender Specification)**Annexure C2I (Civil)**

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
62.	TCM-L&T- Sl.no 1156 Electrical	Section B Volume-II-G1/Section-I General clause 4.19.00 Pipe/Cable Trestles and Foundations	All cable racks shall be provided with continuous walkway of minimum 750mm width with handrail and toe-guards all along the length of the trestle along with approach ladders near roads, passageways etc.	All cable racks shall be provided with continuous walkway of minimum 600 mm width with handrail and toe-guards all along the length of the trestle along with approach ladders near roads, passageways etc.
63.	L&T Point no 915	Section B Volume-II-G1/Section-III Specific Design Requirement [Struc.]	Radiographic Test: Generally splicing should not be provided in tension flange of Bunker Girders and crane girders. Spot radiography shall be carried out on 100% joints in tension zone and 10% joints in compression zone	Radiographic Test / UT(Ultrasonic Test): Generally splicing should not be provided in tension flange of Bunker Girders and crane girders. Spot radiography shall be carried out on 100% joints in tension zone and 10% joints in compression zone.
64.	L&T Point no 926	Section B Volume-II-G2/Par-A/Section-VI Clause 5.03.00	Inspection and Core Tests	Inspection and Core Tests (As per IS 456 Clause 17.3 and 17.4)

Change in specification (Section B of Tender Specification)

Annexure C2I (Civil)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
65.	L&T point no 835	Section B Volume-II-G1/Section-I Clause 4.27.01	For road crossings of CW pipelines, RCC box culverts shall be provided.	For road crossings of CW pipelines, RCC box culverts/RCC encasing shall be provided.
66.	L&T Point no 731	Section B Volume-II-G1/Section-I/ clause 4.27.01 CW Pump House with Switchgear Room	It is suggested that the bottom of the fore-bay shall be kept flat and the difference in level between the channel and C. W pump sump shall be made up in the channel stretch before joining the fore-bay, using a slope as per Hydraulic Institute Standards (HIS).	It is suggested that the bottom of the fore-bay shall be kept flat/slope and the difference in level between the channel and C. W pump sump shall be made up in the channel stretch before joining the fore-bay, using a slope as per Hydraulic Institute Standards (HIS).
67.	L&T Point no 1330	Section B Volume-II-G1/ Section-I/ Clause 4.27.01	Fore bay: Pressure relief valve shall not be considered for the design of fore-bay.	Fore bay: Sandwich slab/Pressure relief valve may be considered for the design of fore-bay.

Change in specification (Section B of Tender Specification)

Annexure C2J (FGD)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
1.	Annexure I2.1 , Sl. No.524	Vol-II.H3 Sec-II Cl. No: 3.01.01.xi	2 x 100% Flue Gas Quenching Water Pumps	"2 x 100% Flue Gas Quenching Water Pumps (if applicable)"
2.	Annexure I2.1 , Sl. No.527	Vol-II-H3 Sec-I 5.07.17.g Pg 14 of 48	Bidder shall provide condensate collection and transfer system with one no. common condensate storage tank of capacity minimum 5 m3 complete with associated piping, fittings, valves, pumping system (2x100% of 5 m3/h capacity each), level control, etc for draining of condensate from Chimney and Ducts. Pumped condensate shall be discharged into Absorber / FGD waste water tanks as per OEM proven practice	" Bidder shall provide condensate collection and transfer system with one no. common condensate storage tank of capacity minimum 5 m3 complete with associated piping, fittings, valves, pumping system (2x100% of 5 m3/h capacity each), level control, etc for draining of condensate from Chimney and Ducts. Pumped condensate shall be discharged into Absorber / FGD wastewater tanks as per OEM proven practice Alternatively, Bidder may also provide system to discharge the condensate directly into the Absorber by gravity through C276 pipes, as per proven practice.
3.	Annexure I2.1 , Sl. No.530	Vol-II-H3 Sec-I 5.09.00 Pg 22 of 48	The contractor shall offer and demonstrate mixing arrangement such that n-1 numbers of agitators are sufficient to avoid the slurry settlement in the absorber tank in case of one agitator under breakdown (n - total no. of installed agitators).	The contractor shall offer and demonstrate mixing arrangement such that n-1 numbers of agitators are sufficient to avoid the slurry settlement in the absorber tank in case of one agitator under breakdown (n - total no. of installed agitators). FGD with JAS (Jet Air Sparger) oxidation system, the contractor shall provide 2 nos of agitators in absorber to keep the slurry in suspension during maintenance/ shutdown

Change in specification (Section B of Tender Specification)

Annexure C2J (FGD)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
4.	Annexure I2.1 , Sl. No.532	Vol-1A Sec-F1 (PG schedule) 7 Pg 189 of 210	Category-I 7. FGD SO2 Removal Efficiency: Contractor shall guarantee the guaranteed SO2 removal efficiency (97.86%) under design point condition with worst coal firing at BMCR load condition	Category-I 7. FGD SO2 Removal Efficiency: "FGD SO2 removal efficiency: Contractor shall guarantee the SO2 removal efficiency under VWO condition considering 25% excess air at economizer outlet, 15% airpreheater leakage, 2% duct leakage, 1% ESP leakage with worst coal firing conditions in Range of 95% coal supplies at 45 degC and 60% RH ambient condition. Contractor to consider maximum value of chlorine and fluorine value specified in the coal analysis"
5.	Annexure I2.1 , Sl. No.533	Vol-1A Sec-F1 (PG schedule) 8 Pg 189 of 210	8. Limestone Consumption Rate: Limestone consumption of FGD system in kg/hr under design point condition with worst coal firing at BMCR load. Limiting Value: Bids with limestone consumption higher than 15983 kg/hr per unit shall not be Accepted	8. Limestone Consumption Rate "Contractor shall guarantee the limestone consumption rate under VWO condition considering 25% excess air at economizer outlet, 15% airpreheater leakage, 2% duct leakage, 1% ESP leakage with worst coal firing conditions in Range of 95% coal supplies at 45 degC and 60% RH ambient condition. Contractor to consider maximum value of chlorine and fluorine value specified in the coal analysis Limiting Value: Bids with limestone consumption higher than 14500 kg/hr per unit shall not be accepted"
6.	Annexure I2.1 , Sl. No.537	Vol-II.H3 Sec-I 5.08.3.r Pg no: 21 of 48	Each mist eliminator face shall be automatically washed for a duration of at least one minute every hour. However, only one mist eliminator face of a given mist eliminator shall be washed at a time; the back side (top) of the first	"Each mist eliminator face shall be automatically washed for a duration of at least one minute every hour. However, only one mist eliminator face of a given mist eliminator shall be washed at a time; the back side (top) of the first mist eliminator and the

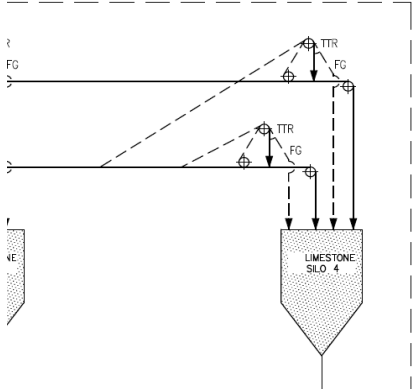
Change in specification (Section B of Tender Specification)

Annexure C2J (FGD)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
			mist eliminator and the front side (bottom) of the second mist eliminator face may be washed at a time. The mist eliminator wash control system shall be capable of being easily reprogrammed to change the wash sequence, frequency, and duration. The wash system design shall ensure that the mist eliminators are cleaned thoroughly and it shall allow the operator to change the dwell time (length of time not washing), and the duration of wash of each segment.	front side (bottom) of the second mist eliminator face may be washed at a time. The mist eliminator wash control system shall be capable of being easily reprogrammed to change the wash sequence, frequency, and duration. The wash system design shall ensure that the mist eliminators are cleaned thoroughly, and it shall allow the operator to change the dwell time (length of time not washing), and the duration of wash of each segment. Alternatively, ME washing system requirement, the internal arrangement and the Sequence of washing etc...shall be as per OEM's standard proven design."
7.	Annexure I2.1 , Sl. No.538	Vol-II.H3 Sec-I 5.08.3.v Pg no: 22 of 48	The absorber oxidation tank shall be provided with an overflow line complete with sealing pot, overflow and drain line. The absorber overflow shall be taken to a sump in the absorber region, from where the slurry shall be pumped back to the absorber by a sump pump.	"The absorber oxidation tank shall be provided with an overflow line complete with sealing pot (if required), overflow and drain line. The absorber overflow shall be taken to a sump in the absorber region, from where the slurry shall be pumped back to the absorber by a sump pump"
8.	Annexure I2.1 , Sl. No.539	Vol-II.H3 Sec-I 5.18.1 Pg no: 28 of 48	The contractor shall provide 1x100% horizontal type slurry pumps to pump slurry from absorber to emergency absorption tank for each unit. It should be possible to discharge the contents of absorber into emergency absorption tank within 2 hrs.	"The contractor shall provide 1x100% or 2x50% horizontal type slurry pumps to pump slurry from absorber to emergency absorption tank for each unit. It should be possible to discharge the contents of absorber into emergency absorption tank within 2 hrs.
9.	Annexure I2.1 , Sl. No.543	Vol-II.H3 Sec-I 5.19.4 Pg no: 29 of 48	Computational Fluid Dynamics (CFD) Modelling	"The Bidder shall perform model study (CFD modelling of complete system to achieve an optimum size and layout of the ducting and absorber internals considering uniform distribution of gas, appropriate velocity distribution, minimum pressure

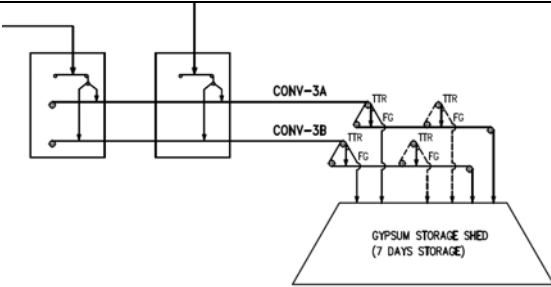
Change in specification (Section B of Tender Specification)

Annexure C2J (FGD)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
10.	Annexure I2.1 , Sl. No.544	Vol-II.H3 Sec-I 9.02.5 Pg no: 43 of 48	Report on CFD analysis of gas path in absorber.	drop, etc.”
11.	Annexure I2.1 , Sl. No.545	Vol-II.H3 Sec-I 4.03.5 Pg no: 6 of 48	2 x 100% Vacuum pumps (for each vacuum belt filter)	“1 x 100% Vacuum pumps (for each vacuum belt filter)”
12.	Annexure I2.1 , Sl. No.396	TENDER DRG. 18A03-DWG-M-001V SH. 2 OF 3		“First three silos shall be fed by tripper & last (fourth) silo shall be fed by conveyor only”

Change in specification (Section B of Tender Specification)

Annexure C2J (FGD)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
13.	Annexure I2.1 , Sl. No.397	TENDER DRG. 18A03-DWG-M-001V SH. 1 OF 3 & Corrigendum-5 & Corrigendum-8		"No intermediate belt feeder and flap gate in Gypsum handling system."
14.	Annexure I2.1 , Sl. No.398	Vol. IIH3/ Section- IV Limestone and Gypsum Storage Handling System Page 30 of 80 5.14.00 Gypsum Storage & Corrigendum-5 & Corrigendum-8	The gypsum storage shed will be sized for seven (7) days gypsum production of all the units operating at BMCR with highest Sulphur content coal. <u>Maximum height of the stockpile shall be limited to 6 m.</u> Suitable clearance may be provided above stockpile for movement of pay loader/ dozer.	"The gypsum storage shed will be sized for seven (7) days gypsum production of all the units operating at BMCR with highest Sulphur content in 95% range of coal. Maximum height of the stockpile will be selected based on bidder standard practice".
15.	Annexure I2.1 , Sl. No.400	Vol. IIH3/ Section- IV Limestone and Gypsum Storage Handling System Page 30 of 80 5.14.00 Gypsum	Newly added	"Maximum angle of repose for stacking gypsum cakes coming after vacuum belt filter is 50 deg."

Change in specification (Section B of Tender Specification)

Annexure C2J (FGD)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
		Storage		
16.	Annexure I2.5 , Sl. No.2	Vol.II-A; Cl.4.06.00; Pg. no 330 of 421	<u>Oxidation Air Distributor</u>	"Oxidation air distributor (if applicable)"
17.	Annexure I2.5 , Sl. No.3	Vol.II-A; Cl.4.14.00; Pg.no 333 of 421	<u>Magnetic Separators</u> iv) Sheaves v) V-belt	"Sheaves & V belt stands deleted"
18.	Annexure I2.5 , Sl. No.4	Vol.II-A; Cl.4.17.00 Pg.no 334 of 421	<u>Limestone Sampler</u>	"Limestone sampler stands deleted"
19.	Annexure I2.5 , Sl. No.5	Vol.II-A; Cl.4.18.00 Pg.no 334 of 421	<u>Limestone crusher</u> v) Cage bars/Perforated screen plates as applicable	"Cage bars/Perforated screen plates as applicable stands deleted"
20.	Annexure I2.5 , Sl. No.6	Vol.II-A; Cl.4.18.00 Pg.no 335 of 421	<u>Limestone crusher</u> xii. d. Fusible plugs	"Fusible plugs (if applicable)"
21.	Annexure I2.5 , Sl. No.7	Vol.II-A; Cl.4.18.00; Pg.no 335 of 421	<u>Limestone crusher</u> xii. e) Oil pump motor set (if applicable) f) Oil filter g) Complete actuator and engaging assembly (including motor, gear box etc.) h) Cooler assembly (if applicable) i) Oil/Water valves	"Oil pump motor set (if applicable) Oil filter, complete actuator, and engaging assembly (including motor, gear box etc.) Cooler assembly (if applicable), Oil/Water valves stands deleted"

Change in specification (Section B of Tender Specification)

Annexure C2J (FGD)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
22.	Annexure I2.5 , Sl. No.8	Vol.II-A; Cl.4.20.00; Pg.no 336 of 421	<u>Bucket Elevator</u> ii.Belt	"Belt stands deleted".
23.	Annexure I2.5 , Sl. No.9	Vol.II-A; Cl.4.22.00; Pg. no 338 of 421	<u>Wet ball mill</u> viii. Speed reducer a) Complete assembly b) Bearings c) Oil seal for gear box d) Gear set	"Speed reducer a) Complete assembly b) Bearings c) Oil seal for gear box d) Gear set" stands deleted".
24.	Annexure I2.5 , Sl. No.10	Vol.II-A; Cl.4.23.00; Pg. no 339 of 421	<u>Limestone Slurry Handling Horizontal Centrifugal Pumps (for each type & size)</u> v.Impeller/ casing liner	"impeller/casing liner (if applicable)"
25.	Annexure I2.5 , Sl. No.11	Vol.II-A; Cl.4.25.00 Pg. no 339 of 421	<u>Vertical Centrifugal Pumps (for each type & size), If Applicable</u>	"Vertical Centrifugal Pumps (for each type & size), If Applicable stands deleted"
26.	Annexure I2.5 , Sl. No.12	Vol.II-A; Cl.4.35.00; Pg.no 343 of 421	<u>Travelling Tripler</u> v) Travel Drive & Driven Sprocket with Chain ix)Festoon roller assembly	"Travel Drive & Driven Sprocket with Chain, if applicable) and Festoon roller assembly stands deleted".

Change in specification (Section B of Tender Specification)

Annexure C2J (FGD)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
27.	Annexure I2.5 , Sl. No.13	Vol.II-A; Cl.4.37.00 Pg.no 344 of 421	<u>Lining material for duct and wet interference material C276</u> i) Lining material	"Lining material for absorber(C276) i) Lining material
28.	Annexure I2.5 , Sl. No.15	Vol.II-A; Cl.4.40.00 Pg.no 345 of 421	<u>Flap gate</u> v)Coils for Solenoid Valve vi)Air Filter Regulator	"Complete solenoid valve with coil, coils for solenoid valve, air filter regulator stands deleted".
29.	Annexure I2.5 , Sl. No.16	Vol.II-A; Sec-IX, Cl.4.00.00: Pg.no 27 to 30 of 40	<u>List of Tools and tackles system for FGD system</u> 4.59.00: Booster fans	"Booster fans (if applicable)"
30.	Annexure I2.7 , Sl. No.B.1	Vol IIA: Sec- XIV; Cl.4.04.00,	<u>FGD system Class-1 Item</u>	"Other than the following equipment/system pertaining to FGD system shall be considered as Class-II items. <ul style="list-style-type: none"> • Booster fans • Oxidation air blower • Wet ball Mill • Limestone/Gypsum slurry/slurry recirculation pumps/ Gas cooling pumps • Gypsum dewatering system (Vacuum belt filter)"
31.	Annexure I2.7 , Sl. No.B.2	Vol IIA: Sec- XIV; Cl.4.04.00,	FGD system Class-1 Item, Sl no 25(i); Absorber	"Absorber stands deleted"
32.	Annexure I2.7 , Sl. No.B.5	Vol IIA: Sec- XIV; Cl.4.04.00,	FGD system Class-1 Item, Sl no 25 (x); Vacuum pumps	"Vacuum pumps stands deleted"

Change in specification (Section B of Tender Specification)

Annexure C2J (FGD)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
33.	Annexure I2.1, Sl. No.592	Vol.II-H3 / Sec-I / Wet Limestone based FGD system /Cl.3.02.4/ Pg 3 of 48	The pH – value in the absorber sump is controlled by the limestone dosing and shall be approximately 5.6 - 5.8.	“The PH value in the absorber sump shall be as per QFGDM standard practice”.
34.	Annexure I2.1 , Sl. No.594	Vol. II-H3/Sec-I/Wet Limestone based FGD system /Cl.4.04.4/ Pg 7 of 48	2 x 100% Mist Eliminator Wash Water Pumps	“2 x 100% Mist Eliminator Wash Water Pumps for each Unit”
35.	Annexure I2.1 , Sl. No.595	Vol. II-H3/Sec-I/Wet Limestone based FGD system/Cl.5.23.3 / Pg 31 of 48	2x100% pumps shall be provided for supplying water for the mist eliminator washing system of the absorber. The capacity of the pumps shall be such that the total capacity of working pumps is sufficient to meet the wash water requirements of mist eliminators of the absorber. Also 2x100% pumps shall be provided for supplying water for the normal flue gas quenching system at the Absorber inlet (if required). A further 10% margin shall be provided over the above capacity for all the above pumps.	“2x100% pumps shall be provided for supplying water for the mist eliminator washing system of the absorber of each unit”.
36.	Annexure I2.1, Sl. No.596	Vol. II-H3/Sec-I/ Wet Limestone based FGD system/Cl. 5.23.3/ Pg 48 of 48	7. Process Water System c) Mist Eliminator wash water pumps 2 x 100%	“c) Mist Eliminator wash water pumps 2 x 100% for each unit”
37.	Annexure I2.1, Sl. No.597	Tender drawing	Mist Eliminator Wash Water Pumps (1W+1S) for 3units	“Mist Eliminator wash water pumps 2 x 100% for each unit”
38.	Annexure I2.1, Sl. No.598	Vol.II-H3 / Sec-I / Wet Limestone based FGD system/Cl. 5.03.1 /Pg 10 of 48	Gravimetric feeders shall be sized to meet 120% of the maximum mill capacity.	“Gravimetric feeders shall be sized to meet 110% of the maximum mill capacity”

Change in specification (Section B of Tender Specification)

Annexure C2J (FGD)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
39.	Annexure I2.1, Sl. No.603	Vol.II-H3 / Sec-I / Wet Limestone based FGD system/ Cl. 5.08.3 / Pg 19 of 48	c) .....This shall be proven by two phase computational fluid dynamic simulation (liquid and gas). The scope of modelling shall include flue gas path inside the absorber vessel including inlet and outlet duct.	"The Bidder shall perform model study (CFD modelling of complete system to achieve an optimum size and layout of the ducting and absorber internals considering uniform distribution of gas, appropriate velocity distribution, minimum pressure drop, etc."
40.	Annexure I2.1, Sl. No.604	Vol.II-H3 / Sec-I / Wet Limestone based FGD system/Cl. 6.9.00 / Pg 33 of 48	The Bidder shall perform model study (CFD modelling of complete system to achieve an optimum size and layout of the ducting and absorber internals considering uniform distribution of gas and spray, appropriate velocity	"The Bidder shall perform model study (CFD modelling of complete system to achieve an optimum size and layout of the ducting and absorber internals considering uniform distribution of gas, appropriate velocity distribution, minimum pressure drop, etc."
41.	Annexure I2.1 , Sl. No.605	Vol.II-H3 / Sec-I / Wet Limestone based FGD system/Cl. 6.08.1 / Pg 33 of 48	The modelling should cover all the operating conditions of FGD system covering boiler start-up to 100% BMCR condition.	"The CFD modelling of FGD system shall be done at 100% BMCR condition."
42.	Annexure I2.1, Sl. No.606	Vol.II-H3 / Sec-I / Wet Limestone based FGD system/ Cl. 5.08.3 / Pg 20 of 48	I) Two/ Three stage chevron vane type mist eliminators made of FRP or polypropylene or Polysulfone or stainless steel shall be provided at the exit of the absorber. The mist elimination system shall be designed to limit the mist content of exit flue gas not to exceed 20 mg/Nm3. Provision shall be kept for addition of one more layer of	"Two/ Three stage chevron vane type mist eliminators made of FRP or polypropylene or Polysulfone or stainless steel shall be provided at the exit of the absorber. The mist elimination system shall be designed to limit the mist content of exit flue gas not to exceed 20 mg/Nm3."

Change in specification (Section B of Tender Specification)

Annexure C2J (FGD)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
			mist eliminator for future use.	
43.	Annexure I2.1, Sl. No.607	Vol.II-H3 / Sec-I / Wet Limestone based FGD system/ Cl. 5.08.3 / Pg 20 of 48	n)...The superficial gas velocity in the mist eliminator area should not exceed 3 m/sec for vertical gas flow mist eliminators and 5.5 M/sec for horizontal gas flow mist eliminators.	"The superficial gas velocity in the mist eliminator area shall be OEM's proven design".
44.	Annexure I2.1, Sl. No.608	Vol.II-H3 / Sec-I / Wet Limestone based FGD system/ Cl. 5.08.3 / Pg 21 of 48	p) The mist eliminator shall be capable of meeting ASTM E84 flammability standards.	"The mist eliminator shall be designed as per process requirement and OEM proven standards"
45.	Annexure I2.1, Sl. No.610	Vol.II-H3 / Sec-I / Wet Limestone based FGD system/ Cl. 5.08.3 / Pg 21 of 48	q) The mist elimination wash system shall consist of a fixed grid of headers and nozzles that are capable of washing the front and back sides (upstream and downstream, respectively) of the first mist eliminator and the front side of the second mist eliminator. The nozzles used in the wash system shall be full cone spray nozzles with no more than a 90 (degrees) spray angle, and they shall not use any moving parts to achieve the spray pattern. The overlap from adjacent wash nozzles shall provide a minimum of 150 percent coverage (on average) of the mist eliminators. The wash nozzles shall be located no more than 1 M from the mist eliminator surface.	<p>"Each mist eliminator face shall be automatically washed for a duration of at least one minute every hour. However, only one mist eliminator face of a given mist eliminator shall be washed at a time; the back side (top) of the first mist eliminator and the front side (bottom) of the second mist eliminator face may be washed at a time. The mist eliminator wash control system shall be capable of being easily reprogrammed to change the wash sequence, frequency, and duration. The wash system design shall ensure that the mist eliminators are cleaned thoroughly, and it shall allow the operator to change the dwell time (length of time not washing), and the duration of wash of each segment.</p> <p>Alternatively, ME washing system requirement, the internal arrangement and the Sequence of washing etc...shall be as per OEM's standard proven design."</p>

Change in specification (Section B of Tender Specification)

Annexure C2J (FGD)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
46.	Annexure I2.1, Sl. No.612	Vol.II-H3 / Sec-I / Wet Limestone based FGD system/ Cl. 5.08.3 / Pg 21 of 48	s) The mist eliminator wash piping shall be constructed of rubber lined carbon steel or glass fiber reinforced plastics. The mist eliminator spray headers shall be made of FRP or rubber lined Carbon Steel, corrosion and erosion resistant in the inner and outer side (Silicon Carbide coating on metal/FRP surface exposed to slurry). Polypropylene or PVC is also acceptable for mist eliminator wash header provided contractor or its collaborator has proven experience for the same.	"The mist eliminator wash piping/header outside flue gas path shall be constructed of carbon steel. The mist eliminator wash piping/ headers inside flue gas path shall be made of FRP (with Silicon Carbide coating on outer surface exposed to slurry) or rubber lined Carbon Steel. Polypropylene or PVC is also acceptable for mist eliminator spray header provided contractor or its collaborator has proven experience for the same.
47.	Annexure I2.1, Sl. No.615	Vol.II-H3 / Sec-I / Wet Limestone based FGD system/ Cl. 5.13.5 / Pg 25 of 48	<u>Primary & Secondary Dewatering Hydro-cyclones</u> The Hydro-cyclone shall be able to operate stably without performance reduction in various loading conditions by controlling number of cyclones to satisfy the lowest slurry flow and pressure; It shall also be able to perform normally in various slurry concentrations (15% to 30%).	"The Hydro-cyclone shall be able to operate stably without performance reduction in various loading conditions by controlling number of cyclones to satisfy the lowest slurry flow and pressure; It shall also be able to perform at various slurry concentrations".
48.	Annexure I2.1, Sl. No.616	Vol.II-H3 / Sec-I / Wet Limestone based FGD system/ Cl. 5.14.2 / Pg 26 of 48	The vacuum belt filter cloth shall be polyester or polypropylene as per the proven design of the supplier and shall be guaranteed for a minimum life of not less than 8000 hrs.	"The vacuum belt filter cloth shall be polyester or polypropylene as per the proven design of the supplier and shall be guaranteed for a minimum life of not less than 8000 hrs. If single vacuum belt filter cloth is not able to achieve the guaranteed life, equivalent balance quantity of belt filter cloths (based on the guaranteed life of 8000 hours) shall be provided as warehouse spare as part of main supply.
49.	Annexure I2.1, Sl. No.617	Vol.II-H3 / Sec-I / Wet Limestone based FGD system/ Cl. 5.14.2 / Pg 26 of 48	A 2M (min.) wide platform shall be provided around each belt filter for easy approach and maintenance.	"A 2M (min.) wide platform/floor shall be provided around each belt filter for easy approach and maintenance".

Change in specification (Section B of Tender Specification)

Annexure C2J (FGD)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
50.	Annexure I2.1 , Sl. No.619	Vol.II-H3 / Sec-I / Wet Limestone based FGD system/ Cl. 5.17.2 / Pg 27 of 48	The contractor shall provide 1x100% horizontal type slurry pumps to pump slurry from absorber to emergency absorption tank for each unit. It should be possible to discharge the contents of absorber into emergency absorption tank within 2 hrs.	"The contractor shall provide 1x100% or 2x50% horizontal type slurry pumps to pump slurry from absorber to backup absorption tank for each unit. It should be possible to discharge the contents between normal slurry level and minimum slurry level in the absorber into emergency absorption tank within 2 hrs."
51.	Annexure I2.1 , Sl. No.620	Vol.II-H3 / Sec-I / Wet Limestone based FGD system Cl. 5.19.3 / Pg 28 of 48	.....The pump shall be single stage centrifugal type capable of delivering the rated flow at rated head with margins as specified in the data sheets. The slurry concentration in the pump shall not exceed 30% by weight	"The pump shall be single stage centrifugal type capable of delivering the rated flow at rated head with margins as specified in the data sheets. The slurry concentration in the pump shall not exceed 30% by weight except for wet ball mill circuit pump. The slurry concentration of wet ball mill circuit pump shall be as per OEM's proven practice".
52.	Annexure I2.1 , Sl. No.621	Vol.II-H3 / Sec-I / Wet Limestone based FGD system/ Cl. 5.19.4 / Pg 29 of 48	All the slurry pumps shall be provided with motorized suction and discharge valves.	"All the slurry pumps shall be provided with motorized/Pneumatic suction and discharge valves".
53.	Annexure I2.1 , Sl. No.622	Vol.II-H3 / Sec-I / Wet Limestone based FGD system/ Cl. 5.19.4 / Pg 29 of 48	In addition, flushing water lines with motorized valves shall be provided for each pump for automatic flushing of the pump after each shut down. The flushing water for the pumps shall be taken from the process water supply tank	"All the slurry pumps shall be provided with motorized/Pneumatic suction and discharge valves".
54.	Annexure I2.1 , Sl. No.623	Vol.II-H3 / Sec-I / Wet Limestone based FGD system/ Cl. 5.22.3 / Pg 31 of 48	The isolation valves provided in all the slurry lines shall be of knife gate type / butterfly type..... Motorized actuators shall be provided for valves requiring frequent operation as indicated in the relevant scheme.	"The isolation valves provided in all the slurry lines shall be of knife gate type / butterfly type..... Motorized/Pneumatic actuators shall be provided for valves requiring frequent operation as indicated in the specification".

Change in specification (Section B of Tender Specification)

Annexure C2J (FGD)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
55.	Annexure I2.1 , Sl. No.624	Vol.II-H3 / Sec-I / Wet Limestone based FGD system/ Cl. 5.22.1 / Pg 30 of 48	Slurry pipes shall be designed to keep the velocity above the settling velocity under all operating conditions. The contractor may provide a recirculation line with motorized isolation valve for the above purpose.	"Slurry pipes shall be designed to keep the velocity above the settling velocity under all operating conditions. The contractor may provide a recirculation line with motorized/pneumatic isolation valve for the above purpose."
56.	Annexure I2.1 , Sl. No.625	Vol.II-H3 / Sec-I / Wet Limestone based FGD system/ Cl. 4.04.2 / Pg 7 of 48	2 x 100% Process Water Pumps.	"2 x 100% process water Pumps for each Unit"
57.	Annexure I2.1 , Sl. No.626	Vol.II-H3 / Sec-I / Wet Limestone based FGD system/ Cl. 5.23.2 / Pg 31 of 48	Process water shall be pumped from this tank using 2x100 % (one working & one standby) to cater to the water requirement of the FGD system....	"2 x 100% process water Pumps for each Unit"
58.	Annexure I2.1 , Sl. No.627	Vol.II-H3 / Sec-I / Wet Limestone based FGD system/ Cl. 4.04.3 / Pg 7 of 48	2 x 100% Flue Gas Quenching Water Pumps	"2 x 100% Flue Gas Quenching Water Pumps (if applicable)"
59.	Annexure I2.1 , Sl. No.629	Vol.II-L / Tender Drawings/ Flow Scheme of LSFO FGD system (Sht1 of 3)	Flow Scheme of LSFO FGD system (Sht 1 of 3): Flue Gas quenching pump (1W+1S), is indicated supplying water to Emergency Quenching Tanks	"Flue Gas quenching pump (1W+1S), is indicated supplying water to Emergency Quenching Tanks (if required)"

Change in specification (Section B of Tender Specification)

Annexure C2J (FGD)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
60.	Annexure I2.1 , Sl. No.636	Vol. II-H3 / Section-VI / Annex-I Piping, valves & Specialties/ Cl. Annexure-I / Specification of Pipes & Fittings / Pg 14 of 20	1) Material of Pipe- Slurry Piping: c) Below 80 mm NB: FRP	"Pipe size up to 400 NB: FRP & above 400 NB IS-3589 with minimum pipe thickness of 6 mm and 6 mm thick rubber lining".
61.	Annexure I2.1 , Sl. No.637	Vol.II-H3 / Sec-I / Wet Limestone based FGD system Cl. 4.05.17/ Pg 8 of 48	Bidder shall supply all consumables including operating chemicals as required for entire operation of FGD wastewater treatment plant till the successful completion of trial operation of the plant and in addition chemicals for two (2) months requirement in a phased manner as decided by Purchaser.	"Bidder shall supply all consumables including operating chemicals as required for entire operation of FGD wastewater treatment plant till the successful completion of trial operation of the system or successful completion of trial operation of the first Unit whichever is later".
62.	Annexure I2.1 , Sl. No.638	Vol. II-H3/Section-V/ Annexure-B, SI No-1 &2 Schedule of Dust suppression system	Nozzle capacity sprinkler type dust suppression system for Uncrushed limestone stockpile & gypsum storage area shall be decided during detail engineering based on the spacing as stipulated in the specification & number of nozzle to be working as decided by the bidder.	"Sprinkler nozzle capacity shall be as per Bidder standard design".
63.	Annexure I2.1, Sl. No.642	Vol. II-G1/Section-I General/ Cl. 4.33.04	This building shall be single storey steel structure of framed / braced design. Roof shall be colour coated zincalume metal slopped roof truss. Crane Supporting Structures shall be provided including Supply and Erection of EOT Crane of capacity as per the Technological Requirement. Side Cladding shall be of Fly ash brick wall upto 3.0m and colour coated single skin zincalum sheet metal cladding above brick wall.	"This building shall be single storey steel structure of framed / braced design. Roof shall be colour coated zincalume metal slopped roof truss. Side Cladding shall be of Fly ash brick wall upto 3.0m and colour coated single skin zincalum sheet metal cladding above brick wall".
64.	Annexure I2.1, Sl. No.643	Vol. II -H3 / Section – I/ Cl. 5.07.02 (c)	Horizontal flue gas ducts shall be designed additionally for minimum 245 kg/m fly ash loading on the surface or for one fourth of duct full of ash or for maximum possible accumulation of ash in the duct work, under all normal,	"Horizontal flue gas ducts shall be designed additionally for 10% of ash load or for maximum possible accumulation of ash in the duct work, under all normal, upset or abnormal operating conditions, whichever is higher. The ash density for the purpose of loading shall be at least 1350 kg/cum".

Change in specification (Section B of Tender Specification)

Annexure C2J (FGD)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
			upset or abnormal operating conditions, whichever is higher. The ash density for the purpose of loading shall be at least 1350 kg/cum.	
65.	Annexure I2.1 , Sl. No.651	Vol.II-H3 / Sec-I / Wet Limestone based FGD system/ Cl. 5.15.5 / Pg 26 of 48	The vacuum receiver/ water separator and pump internals shall be suitably lined to protect against the corrosive environment. The material selected for vacuum pumps and vacuum receivers shall be proven for similar application.	"The material selected for vacuum pumps and vacuum receivers shall be proven for similar application".
66.	Annexure I2.1 , Sl. No.821	Vol. III-H3/Sec -V/ Cl. 5.01.12	The bags shall preferably be grouped in separate compartment to facilitate bag cleaning. The collector shall have air tight access doors into each bag compartment and each hopper.	"The bags shall preferably be housed in a single compartment or grouped in separate compartment (if required) to facilitate bag cleaning. The collector shall have airtight access doors into each bag compartment and each hopper".
67.	Annexure I2.5 , Sl. No.2	Vol.II-A, Cl. 4.11.00 Pg. no 332 of 421	<u>Fluid Couplings</u>	"Fluid coupling (if applicable)"
68.	Annexure I2.5 , Sl. No.3	Vol.II-A, Cl. 4.12.00 Pg.no 332 of 421	<u>Gear Boxes</u> i.Bearings ii.Oil seal for gear box iii.Worm/Pinion for gear box	"Bearing (if applicable) Oil seal for gear box (if applicable) Worm/Pinion for gear box (if applicable)".
69.	Annexure I2.5 , Sl. No.6	Vol.II-A, Cl. 4.18.00 Pg. no 334 of 421	<u>Limestone Crusher</u> iv. Rotor assembly complete consisting of rotor shaft & keys, End discs, Centre discs, distance rings, suspension bars, disc clamping nuts and shaft extension etc. but without hammers, bearings and pillow blocks	"Rotor assembly complete consisting of rotor shaft & keys, End discs, Centre discs, distance rings, suspension bars, disc clamping nuts and shaft extension etc. but without hammers, bearings and pillow blocks (if applicable)".

Change in specification (Section B of Tender Specification)

Annexure C2J (FGD)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
70.	Annexure I2.5 , Sl. No.7	Vol.II-A, Cl. 4.18.00 Pg no 335 of 421	<u>Limestone Crusher</u> vii.Liners, Suspension bars Kick-off plate, Screen plate upper & lower, Tramp iron pick up plate,	"Liners, Suspension bars Kick-off plate, Screen plate upper & lower ,Tramp iron pick up plate (if applicable)".
71.	Annexure I2.5 , Sl. No.10	Vol.II-A, Cl. 4.18.00 Pg no 335 of 421	<u>Limestone Crusher</u> Multi Disc assembly (for fluid coupling) & Resilient Drive plate assy.	"Multi Disc assembly (for fluid coupling) & Resilient Drive plate assy (if applicable)"
72.	Annexure I2.5 , Sl. No.11	Vol.II-A, Cl. 4.18.00 Pg no 335 of 421	<u>Limestone Crusher</u> Xii)) Gear coupling/other flexible coupling of crusher drive along with bolts and sealing kit, as applicable .	"Gear coupling/other flexible coupling of crusher drive along with bolts and sealing kit (if applicable)"
73.	Annexure I2.5 , Sl. No.15	Vol.II-A, Cl. 4.28.00 Pg no 339 of 421	<u>Hydro Cyclones (for each type & size)</u> Complete vessel assembly, Measuring nozzle , Flanges for cycles , Filters& Vortex finder	"Complete vessel assembly if applicable), Measuring nozzle if applicable) , Flanges for cycles if applicable) , Filters& Vortex finder (if applicable)"
74.	Annexure I2.5 , Sl. No.18	Vol.II-A, Cl. 4.39.00 Pg no 344 of 421	<u>Mill Hydro cyclone</u> iv. Complete vessel assembly vii.Measuring nozzle x.Filters xi. Vortex finder viii.Flanges for cycles	"Complete vessel assembly if applicable), Measuring nozzle if applicable) , Flanges for cycles if applicable) , Filters& Vortex finder (if applicable)"
75.	Annexure I2.5 , Sl. No.20	Vol.II-A, Cl. 4.45.00 Pg no 346 of 421	Ventilation system	"Ventilation system stands deleted"
76.	Annexure I2.5 , Sl. No.22	Vol.II-A, Cl. 4.75.00 Pg no 369 of 421	<u>Goods Cum Passenger Elevator for FGD System:</u> b. lubrication oil pump motor c. Door Motor d. Cooling Fan of Motors	b. lubrication oil pump motor (if applicable) c. Door Motor (if applicable) d. Cooling Fan of Motors (if applicable) e. Brake motor (if applicable)

Change in specification (Section B of Tender Specification)

Annexure C2J (FGD)

(1) Sl. No.	(2) TCM Reference	(3) Tender Spec. Reference (Vol / Section / Clause No.)	(4) Description as in issued Specification	(5) Description To be read as
			e. Brake motor i. fan cover	i. fan cover (if applicable)"
77.	Annexure I2.5 , Sl. No.23	Vol.II-A, Cl. 4.76.00 Pg no 370 of 421	<u>Rack& Pinion - FGD System:</u> ii)Lubrication oil pump motor iii) Door Motor iv) Cooling Fan of Motors v) Brake motor ix) Fan Cover	ii) Lubrication oil pump motor (if applicable) iii) Door Motor (if applicable) iv) Cooling Fan of Motors (if applicable) v) Brake motor (if applicable) ix) Fan Cover (if applicable)"
78.	Annexure I2.5 , Sl. No.24	Vol.II-A, Cl. 4.77.00 Pg no 371 of 421	VVVFD System - (For Elevator, Cranes & Hoists): One Complete VVVFD unit - (To be repeated for each type, make, Model, rating & area of application)	"VVVFD System - (For Traction type Elevator, Cranes (if applicable)): One Complete VVVFD unit - (To be repeated for each type, make, Model, rating & area of application)".
79.	Annexure I2.5 , Sl. No.25	Vol.II-A, Cl. 4.71.00 Pg no 365 of 421	Water Cooled Precision Air Conditioner:	"Water Cooled Precision Air Conditioner stands deleted"

Change in specification (Section B of Tender Specification)

Annexure C2J (FGD)

Sl. No.	Tender Spec. Reference (Vol / Section / Clause No.)	Description as in issued Specification	Description To be read as
80.	Vol. II-H3, Sec-1, Cl. 5.17.10; Pg 28 of 48	The material of Casing, impeller, shaft, shaft sleeves of wastewater handling pumps shall be of duplex stainless steel	"The material of Casing, impeller, shaft, shaft sleeves of wastewater handling pumps shall be same of slurry pump"
81.	Vol. II-H3, Section-VI, Annexure-I; Pg 15 of 19	CPVC material shall be used for Piping and Fittings (with solvent connection) for handling of FGD plant Wastewater.	"CPVC/FRP with SiC coating of 2.5 mm thickness material shall be used for Piping and Fittings (with solvent connection) for handling of FGD plant Wastewater."
82.	Vol. II-H3, Section-1V, Annexure-I; Pg 76 of 80	Crusher drive speed 750 rpm	"Crusher drive speed 750 rpm stands deleted".
83.	Vol.II-A, Sec-x, Performance guarantee; Cl. 5.02.03	Process water pumps and mist eliminator pumps present in station auxiliary power consumption	Process water pumps and mist eliminator pumps will be changed to Unit auxiliary power consumption (added in Cl. 5.01.00) from station auxiliary power consumption (deleted from Cl. 5.02.03)
84.	Vol. II-H3, Sec-IV, Cl. 5.17.10; Pg 4 of 80	Two (2) Nos. automatic limestone sampling units complete with all accessories for crushed limestone & uncrushed limestone to be provided in Crusher House and Storage silo	Limestone sampling Unit stands deleted
85.	Vol. II-H3, Sec-IV, Cl. 5.08.00; Pg 22 of 80	Limestone sampling Unit	

Change in specification (Section B of Tender Specification)

Annexure C2O (Vol-II-K)

Change in Speciation Points for Vol-IIK on TCM resolution 3x800MW – NTPP-TALABIRA				
Sl.No	TCM Reference	Tender Specification Reference (Vol/Sec/Clause No.)	Description as in issued Specification	Description to be read as
1.	Annexure-P-2.1/BHEL/PEM/504	V.IIK / Section –VII / Annexure I / Page 7 of 12 S. No. 10	Pedestal drilling machine: Drilling capacity in steel: 70 mm Maximum drilling speed: 3500 rpm Pillar Dia : 121 mm Number of speed: 8 Table size (mm): 410 X410 Pillar length : 1450	<u>Pedestal Drilling Machine :</u> <i>Drilling capacity in steel: 40 mm.</i> <i>Maximum drilling speed: As per manufacturer standard.</i> Pillar Dia : 121 mm Number of speed: 8 Table size (mm): 410 X410 Pillar length : 1450
2.	Annexure-P-2.3/BHEL/4	V.IIK / Sec –II (Miscellaneous Cranes) / Annexure II / Schedule of Brakes/S.No.4	Brakes for Long Traverse: <ul style="list-style-type: none"> • Two (2) Nos. Electro Hydraulic Thruster Brakes. • Two (2) Nos. Hydraulic Thruster (Foot Operated) • Two (2) Nos. Electromagnetic DC type brake. 	Brakes for Long Traverse: <ul style="list-style-type: none"> • One (1) No. Electro Hydraulic Thruster Brake. • One (1) No. Electromagnetic DC type brake.
3.	Annexure-P-2.7/BHEL/2	V.IIK / Sec –III (Miscellaneous Cranes) / Clause No.5.11.09 / Page 6 of 13.	Micro-speed attachment in hoist shall be provided if considered necessary by the Owner. “	Deleted
4.	Annexure-P-2.7/BHEL/3	V.IIK / Sec –IV (Elevators)/ Clause No.6.01.03 (d) i / Page 8 of 28.	Car Platform: It shall be constructed of structural steel shapes securely fastened together with one layer of wood flooring. Floor of the elevators shall be as specified in Annexure.	Car Platform: It shall be constructed of structural steel shapes securely fastened together. Floor of the elevators shall be as specified in Annexure.

Change in specification (Section B of Tender Specification)

Annexure C2O (Vol-II-K)

5.	Annexure-P-2.7/BHEL/4	VOLUME: III-H/ SCHEDULE: III-H/2/ MISCELLANEOUS CRANES, Part 2 : (TG Hall EOT crane)	The lifting capacity shall be as per cl.no. 10.2, sec 10, volume IIB of the tender specification."	Deleted
6.	Annexure-2.1/L&T/820	V.IIK / Sec –III (Miscellaneous Hoist)/Clause no. 4.03.01/	Lift above the operating floor: Highest position of the hook shall be such that during operation of hoists, the vertical distance between bottom of any equipment handled and top of any permanent structure or equipment in the operating area shall be at least one meter.	Lift above the operating floor: Highest position of the hook shall be such that during operation of hoists, the vertical distance between bottom of any equipment handled and top of any permanent structure or equipment in the operating area shall be at least one meter.* * For CHP/FGD transfer towers, crusher house the same shall be at least 500mm.

Change in specification (Section B of Tender Specification)

Annexure C2O (Vol-II-K)

7.	Annexure- 2.1/L&T/714	Vol II-K SECTION-III Miscellaneous Hoists	<p>For equipment weighing 200 kg or more and less than 2000 Kg with lift less than 6 M, manual hoist or fixed chain pulley block (where there is restriction for providing monorail as per layout) shall be provided as specified elsewhere in this specification.</p> <p>For equipment weighing 2000Kg and above, Electric hoist shall be provided.</p> <p>In both the cases if the lifting height 6 M and more Electric hoist shall be provided.</p>	<p>For equipment inside buildings weighing 200 kg or more and less than 2000 Kg with lift less than 6 M, manual hoist or fixed chain pulley block (where there is restriction for providing monorail as per layout) shall be provided as specified elsewhere in this specification.</p> <p>For equipment outside buildings weighing 200 kg or more and less than 2000 Kg with lift less than 6 M, four nos of chain pulley block of 2000 kgs capacity and 6 m lift with tripod tool shall be provided.</p> <p>For equipment weighing 2000Kg and above, Electric hoist shall be provided.</p> <p>In both the cases if the lifting height 6 M and more, Electric hoist shall be provided.</p>
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Change in specification (Section B of Tender Specification)

Annexure C2O (Vol-II-K)

8.	Annexure- 2.1/L&T/719	Vol-IIK /Sec-III/ Annexure- I/S.No.44/P.No. 11 of 13.	CW inter connection valve chamber – 12 Ton Capacity Hoist	<p>CW inter connection valve chamber - 12T electric hoist (or) 10 T Mobile Crane (Note 2).</p> <p>Note-2 (for Serial No.44): One common mobile crane of 10T(min) capacity shall be provided for the handling of equipments/components located outside the pump house of CW system during the dismantling and assembling of BFVs components and motor with adequate approach & reach to the handling equipment/component from the nearest approach of mobile crane. For description & data sheet, bidder to refer Clause no.7.04.00 of Sec- II/Vol-IIK for Mobile Crane details.</p>
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Change in specification (Section B of Tender Specification)

Annexure C2O (Vol-II-K)

9.	Annexure-2.1/L&T/719	Vol-IIK /Sec-II/ Clause No. 7.04.00 (Newly Added Clause)	Not Specified about Mobile Crane details.	Mobile Crane writeup: One wheel mounted mobile crane with suitable lifting capacity / lifting height (10T min) (for the single heaviest weight of the components of BFV like BFV stem with gate, valve seat etc (except Body) / motor whichever is higher with a margin of 20%) and suitable boom luffing for the handling of equipment's/components located outside the pump house of CW system during the maintenance like dismantling and assembling of BFVs components and motor. Mobile crane shall be designed, Inspection & testing shall be as per IS-4573. Note: Proper approach for movement of this mobile crane to handle the BFVs of CWS located outside CWPB is to be provided Mobile crane data sheet: The technical details are to be furnished by the bidder in the attached Annexure-I (Data sheet of mobile cranes).
10.	Annexure-2.1/L&T/331	VOLUME: II-K /SECTION-VII/ 3.02.14	... A pit of suitable diameter and depth (cement plastered) to be provided for the dismantling/assembling of BFPs keeping in vertical position. The location of the pit shall be selected such that, the crane access is available.	... A pit of suitable diameter and depth (cement plastered), if applicable , to be provided for the dismantling/assembling of BFPs keeping in vertical position. The location of the pit shall be selected such that, the crane access is available.

TECHNICAL DATA SHEET - MOBILE CRANE

Sl.No	Item	Specification
1	Type	To be filled by the Bidder
2	Quantity of Cranes	
3	Boom Length (Minimum)	
4	Lifting Capacity (Minimum)	
5	Lifting Capacity (Maximum)	
6	Lifting Height (Minimum)	
7	Boom luffing	
8	Boom luffing arrangement	
9	Hoisting arrangement	
10	Boom extension arrangement	
11	Steering	
12	Engine	
13	Travel speed	
14	Rated power	
15	Model number	
16	Inspection & Testing	
17	Mandatory Spares	
18	Capacity Selection Criteria	

