

Ref No.: PE/PG/KAG/E-6966/2022 dated. 29.04.2022

Date: 13.05.2022

CORRIGENDA - 01

PROJECT: 4X210 MW + 3 X 500 MW NTPC KAHALGAON-FGD project.

PACKAGE: AGITATOR OF FGD SLURRY TANKS

TENDER ENQUIRY NO: PE/PG/KAG/E-6966/2022 dated. 29.04.2022

TENDER DUE DATE: 27.05.2022 (2.00M)

Bidders to note following amendments w.r.t subject tender:

- ***Pls refer enclosed Annexure-1 for Technical Pre-Bid Clarification pertaining to subject tender.***

Bidders to ensure the submission of bid within the tender due date and time.

With Regards,
For & on behalf of BHEL

Raeesul Azam
Engineer/PG-III/BHEL-PEM

PROJECT: 4X210 MW + 3 X 500 MW NTPC KAHALGAON-FGD				
PACKAGE : AGITATOR OF FGD SLURRY TANKS				
TENDER ENQUIRY NO:PF/PG/KAG/E-6966/2022 dated. 29.04.2022				
Annexure-01 for Technical Pre-Bid Clarification				
Sr. No	Section/Clause/Page No	Statement of the referred Clause	Clarification Required	BHEL Reply
1	Section II - Annexure-8 Agitator Schedule Page 250/267	19 - b) Mounting of Agitaor (For Vertical Agitators): The Agitators shall be mounted on the Agitator platform which shall be approximately at a height of 1.0 m from the tank roof. However, the Agitator platform is excluded from bidder's scope. Notes - 6. Slope of roof shall be considered approximate 5 deg for all the tanks.	Pls clarify the "1.0m from the tank roof" given shall be considered from the Tank Roof Center or Tank Roof Edge? Because considering the 5 deg slope, if 1.0m is from tank roof center, then height from tank roof edge will be more than 1.0m	Platform shall be 1.0 m from tank roof edge"
2	NIT Letter - Clause 13 Page 4/8 of Tendernotice_1 NIT LETTER	Further to SI no. 17 & 18 of SCC (Special conditions of Contract) for NTPC KORBA TPP-FGD project, bidders to note that demurrage/detention charges, if any, claimed by the transporter shall be paid by the Supplier/vendor.....	As foreign bidder, most likely we will deliver materials via container, and under such condition we could only provide max 14 days detention free period as per shipping company. Any delay beyond this 14 days shall be responsible by Client only	This clause pertains to inland transportation within India.
3	SCC - Clause 17 Demurrage Charges Page 42/43 of Tendernotice_5 OTHER MISC DOCS	Demurrage Charges shall be paid by the Supplier/vendor only to transporter.....		
4	Section C, Sub-Section-C1 4.0 - A) - 1 - x Page 21/267	Supporting arrangement including tie rods, gusset plates etc. of Side Entry Agitator on the tank Wall. Vessel Nozzle and mating flange for supporting on the tank wall , gaskets and fasteners	"Vessel Nozzle and mating flange" are excluded from supply scope, please confirm	As per the technical specification Vessel Nozzle is excluded from the scope of the bidder. The mating flange for the side entry agitator shall be in the bidder scope.
5	Section C, Sub-Section-C1 4.0 - A) - 1 - xii Page 22/267	Foundation plate with foundation bolts	1. Foundation plate with foundation bolts for fixing of the External Supports of side entry agitator shall be connected by welding with rebar of Absorber or Aux Tank foundation to ensure same settlement so as to avoid the impact on agitators, those IPs shall be imbeded during foundation construction, so design can be done by bidder, but supply to be excluded from Bidder scope, please confirm.	Bidder to note that incase the side entry agitator supports needs to be connected by welding with the Aux Tank Foundation, the insert plates that needs to be embedded in the foundation shall be BHEL scope.
6	Section C, Sub-Section-C1 4.1 - IX Page 23/267	Static and dynamic (as far as applicable) balancing of all agitators shall be carried out after assembly.	Since the agitator impeller RPM is very low, Dynamic balance is not applicable and only static balance will be carried out. Pls confirm.	BHEL informed that the balancing (static/dynamic) shall be decided during detail engineering based on the applicable codes and standards furnished by the bidder and subject to NTPC approval. Bidder to comply.
7	Section C, Sub-Section-C1 4.1 - XXV Page 24/267	Bidder shall provide the design and arrangement of baffle plates in circular tanks.	Since Aux Absorbent Tank is designed with side entry, baffle design not applicable	Noted.
8	Section C, Sub-Section-C1 4.2 - A) - III Page 24/267	Although Agitator will have substantial low speed it is mandatory that rotating assembly shall be dynamically balanced to its rated speed.	Since the agitator impeller RPM is very low, Dynamic balance is not applicable and only static balance will be carried out. Pls confirm.	Refer our reply at SI. no. 6.
9	Section C, Sub-Section-C1 4.2 - A) - IV Page 24 of 267	Impeller should be dynamically balanced to Gr: G16: ISO-1940 after rubber lining of shaft.	Since the agitator impeller RPM is very low, Dynamic balance is not applicable and only static balance will be carried out. Pls confirm.	Refer our reply at SI. no. 6.

Sr. No	Section/Clause/Page No	Statement of the referred Clause	Clarification Required	BHEL Reply
10	Section C, Sub-Section-C1 4.2 - B) - XI) Page 25 of 267	Seal life has to be guaranteed, taking into consideration all its components for 25000 hrs. If the seals fail before the completion of guaranteed period, the same should be replaced free of cost by the bidder.	As per Mechanical Seal OEM, the standard warranty given is only 8000hrs, so request to accept guarantee life as 8000hrs. However, actual working life under design condition can be expected up to or more than 25000hrs subject to strictly following up the O&M guidelines.	Noted. Same shall be discussed during engineering and shall be subjected to NTPC approval.
11	Section C, Sub-Section-C1 4.2 - B) -2 - Vertical Agitators for Other Slurry Tanks & Drain Pit Tanks - I Page 25 of 267	Agitator shall be supplied with stuffing box or any proven equivalent or superior sealing type. Construction of Gland Packing shaft seal system shall be as per the below fig:	Considering no pressure for slurry Tanks and drain pit, such requirement here is not applicable. As per our current design for existing NTPC projects Skeleton Oil Seal will be used here. Further, on page 249 of 267 Annexure-8 SI No.4 of Seal Type, same also mentioned as Not Required.	Type of sealing shall be discussed during engineering and shall be subjected to NTPC approval.
12	Section C, Sub-Section-C1 4.2 - H COUPLING & COUPLING GUARD) -VI Page 27 of 267	It is desirable that for servicing of seal, coupling half should not be removed. Coupling should be dynamically balanced to Gr: G6.3, ISO-1940.	Dynamic balance is not applicable and only static balance will be carried out.	Refer our reply at SI. no. 6.
13	Section C, Sub-Section-C1 4.2 - L) - vii) Page 28 of 267	Impeller should be dynamically balanced to Gr: G16: ISO-1940 after rubber lining of shaft.	Since the agitator impeller RPM is very low, Dynamic balance is not applicable and only static balance will be carried out.	Refer our reply at SI. no. 6.
14	Section C, Sub-Section-C1 9 INSPECTION AND TESTING - 7 Mechanical Run Test (in air) Page 34 of 267	Mechanical Run Test (in air) Each Agitator unit shall be given a 4-hour mechanical run test in air at vendor's shop.	1. The quantity of Agitator to be tested shall be as per approved MQP post order, but shall not be each agitator. 2. "4-hour mechanical run test in air" technically is not allowed.	Details of Mechanical run test for Agitators shall be discussed during detailed engineering. All test shall be done in line with the QAP to be approved by customer during detailed engineering. Bidder to comply.
15	Section C, Sub-Section-C1 9 INSPECTION AND TESTING - 8 Mechanical Run Test (in water) Page 34 of 267	Mechanical Run Test (in water) Each agitator unit shall be given a load test in slurry at the vendor's shop. The duration of this test shall be 4 hours unless agreed otherwise.....	1. The quantity of Agitator to be tested shall be as per approved MQP post order, but shall not be each agitator. 2. Testing time will be 30 mins as per existing NTPC approved MQP, it will not be 4 hours. 3. Testing medium as water or slurry will be decided DDE. Since bidder's existing slurry already inside the testing platforms, Slurry may be used.	The Mechanical run test for Agitators shall be carried out with air/water along with other test requirement in line with the QAP to be approved by customer during detailed engineering. Bidder to comply.
16	Section C, Sub-Section-C1 9 INSPECTION AND TESTING - 8 Mechanical Run Test (in water) Page 34 of 267	c) Bearing housing vibrations. Maximum acceptable vibration velocity is 6 mm/sec.	Pls clarify the basis of such requirement or pls provide the standard/code	Bidder to follow the technical specification.
17	Section C, Sub-Section-C1 9 INSPECTION AND TESTING - 10.2.2 Page 35 of 267	Guaranteed Site vibration of the equipment.....as per ISO-10816 and 1.5-2.3mm/sec even if Motor rating falls below 15kw.	1. Pls clarify the cases if value below 1.5mm/sec for motor rating falls below 15kW. 2. Further, for motors above 15kW, the vibration is subject to the tank strength and rigidity, which are closely affecting the vibration	Bidder to follow technical specification. Further Any deviation to this requirement is subject to customer approval during detailed engineering based on applicable codes and standards to be furnished by the successful bidder during detail engineering.
18	Section I, Sub-Section-D Page 199-205 of 267	List of Makes of Sub-Vendor Items	Sub-vendor given for Motors, Paints etc, please confirm Bidder can use NTPC approved vendors beyond list, or propose its own vendors during DDE post order	Bidder has to submit the sub-vendor questionnaire provided with the specification in Section I, Sub-Section-C2B along with necessary credentials in case the successful bidder wants to propose its own sub-vendors during detail engineering. Further as mentioned in the technical specification, acceptance of makes shall be subjected to BHEL/ End customer acceptance during the detail engineering. Bidder to comply.
19	Section I, Sub-Section-D Annexure-8 Agitator Schedule Page 250 of 267	Notes: 1. There shall be complete re-suspension of all solids after a 24 hour outage. Accumulation of solids shall not prevent agitator restart.	As per our project experience in case agitator outage: 1. If outage time is within 7 hours (i.e. before impeller being buried inside settlement), agitator can re-start again. 2. If outage time is expected beyond 7 hours, slurry level inside tank shall be reduced below Minimum Slurry Level to avoid impeller being buried inside settlement.	Bidder to follow technical specification requirement. However, agitator outage time / minimum slurry level shall be reviewed during detail engineering based on the industry practices / recommendation.
20	Section I, Sub-Section-D Annexure-8 Agitator Schedule Page 250 of 267	Notes: 4. Although the height of all tanks is fixed above, same may vary slightly during detailed engineering as per design calculation of tanks.	It is ok if tank height vary slightly. However, if beyond 200mm there will be commercial implications.	Noted. Bidder to consider the height of the agitator platform from the top of the tank as 1.0M inline with the technical specification.