



Ref No.: PE/PG/KR1/E-6898/2021 dated. 16.03.2022

Date: 31.03.2022

**CORRIGENDA - 01**

**PROJECT: (3X200+3X500+1x500) MW NTPC KORBA TPP-FGD project.**

**PACKAGE: AGITATOR OF FGD SLURRY TANKS**

**TENDER ENQUIRY NO: PE/PG/KR1/E-6898/2021 dated. 16.03.2022**

**TENDER DUE DATE: 13.04.2022 (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

Raesul Azam  
Engineer/PG-III/BHEL-PEM

**PROJECT: (3X200+3X500+1x500) MW NTPC KORBA TPP-FGD project.**

**PACKAGE: AGITATOR OF FGD SLURRY TANKS**

**TENDER ENQUIRY NO: PE/PG/KR1/E-6898/2021 dated. 16.03.2022**

**Annexure-01 for TechnicalPre-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 310/326 and 311/326	19 - b) Mounting of Agitator (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	"1.0m from the tank roof" is the height from tank roof edge.
2	NIT Letter - Clause 13 Page 4/8 of Tendornotice_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 Tendornotice_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 38/326	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	Vessel Nozzle is excluded from bidder scope. However, the mating flange (agitator flange) including mountings are included in bidder scope of supply.
5	Section C, Sub-Section-C1 4.0 - A) - 1 - xii Page 38/326	Foundation plate with foundation bolts, vessel nozzle	1. Vessel nozzle shall be in BHEL scope, pls confirm 2. 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.	1. Noted. Vessel nozzle is excluded from bidder's scope. 2. Bidder to note that incase of side entry agitators, if the supporting arrangement is through ground, then BHEL shall provide the foundation (civil works), however, the supporting arrangement along with bolts shall be provided by bidder. Also, in case of vertical agitators, the foundation plate along with bolts shall be in bidder's scope of supply.
6	Section C, Sub-Section-C1 4.1 - IX Page 40/326	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. Further, in the NTPC Agitator Quality Plan (page 149/326) only static balance test is required. 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 4.2 - A) - III Page 42/326	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. Further, in the NTPC Agitator Quality Plan (page 149/326) only static balance test is required. 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.
8	Section C, Sub-Section-C1 4.2 - A) - IV) Page 42 of 326	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. Further, in the NTPC Agitator Quality Plan (page 149/326) only static balance test is required. 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.
9	Section C, Sub-Section-C1 4.2 - B) - XI) Page 42 of 326	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.

Sr. No	Section/Clause/Page No	Statement of the referred Clause	Clarification Required	BHEL Reply
10	Section C, Sub-Section-C1 4.2 - B) -2 - Vertical Agitators for Other Slurry Tanks & Drain Pit Tanks - I Page 42&43 of 326	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 309 of 426 Annexure-8 SI No.4 of Seal Type, same also mentioned as Not Required.	The sealing requirement shall be as per Annexure-8 SI No.4 for Seal Type.
11	Section C, Sub-Section-C1 4.2 - H COUPLING & COUPLING GUARD) -VI Page 45 of 326	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.	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.
12	Section C, Sub-Section-C1 4.2 - L) - vii) Page 46 of 326	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. Further, in the NTPC Agitator Quality Plan (page 149/326) only static balance test is required. 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.
13	Section C, Sub-Section-C1 10 INSPECTION AND TESTING - 7 Mechanical Run Test (in air) Page 53 of 326	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.	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.
14	Section C, Sub-Section-C1 10 INSPECTION AND TESTING - 8 Mechanical Run Test (in slurry of similar concentration as applicable for the project) Page 53 of 326	Mechanical Run Test (in slurry of similar concentration as applicable for the project) 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 slurry will be bidder's existing slurry inside the testing platforms, slurry details can be provided before testing, but it will not be in slurry of similar concentration as applicable for the project	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.
15	Section I, Sub-Section-D Page 259-266 of 326	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.
16	Section I, Sub-Section-D Annexure-8 Agitator Schedule Page 259-266 of 326	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.	Noted. The pre-requisites for the agitators in case of outages shall be discussed during detail engineering with the successful bidder and finalized.
17	Section I, Sub-Section-D Annexure-8 Agitator Schedule Page 259-266 of 326	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.	Bidder to follow the technical specification. Exact dimensions shall be decided based on the technical/process requirements of the agitators along with applicable codes and standards for slurry tanks.