

SCOPE OF WORK

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PART A (Technical):

M/s GAIL, Pata has awarded Purchase Order to BHEL-HPVP for Design, Engineering, Fabrication, Inspection, Testing and supply of Regenerator Column (Equipment No.: 06-CC-102) to GAIL, Pata. The column will be fabricated and Hydro tested in BHEL- HPVP shop as per drawings and supplied to site in two segments (main Column and Skirt section separately). Assembly & Welding of One C-seam joint (Column and Skirt separately) for the column will be carried out at site.

The approximate size and weight of Column segments are as below:

	ITEM DESCRIPTION	SIZE	APPROX. WT.
1.0	Regenerator Column (Item No.: 06 – CC - 102)		
1.1	Column Section	L =27800 mm OD= 4510 mm	78 MT
1.2	Skirt Section	L= 3700 mm OD (Max.) = 5750 mm MOC: SA516 GR.60 / IS 2062 GR. 250 QUALITY-B.	13 MT
1.3	Structure Platform, Ladder, Grating, Hand railing etc.		08 MT

The General arrangement drawings may be referred with respect to above to have a clear understanding of the work involved.

- GA Drawing of Regenerator Column - 1-CL-010-U0140 Rev. 3

The scope of works at site includes follows,

- 1.0 Unloading of Column sections, Platforms & Ladders and other loose materials from trailers/Trucks at site, handling, storage and stacking at designated place provided by Customer. Unloading includes arranging entry permission of vehicles at GAIL gate, liaisoning with security / CISF for entry of vehicles with materials. Bidder shall arrange suitable cranes/handling facilities for safe unloading of materials / columns at designated places and provide sleepers wherever required. The materials unloaded are to be stacked properly inside the covered stores or in the open fenced areas as per directions of BHEL-HPVP Engineer.
- 2.0 Visual inspection & MP / DP test of cut edges of Column sections.
- 3.0 Assembly, fit-up and Welding of column Skirt sections (C-Seam) in horizontal position at owner designated area. To ensure the verticality & plumbness of column is in bidder's scope.
- 4.0 MP / DP test of site joints.
- 2.0 Surface preparation and Painting of site joints and touch-up painting on column where ever required. Paint will be supplied by BHEL as Free issue.
- 3.0 Installation of Platform, Ladder, Grating, Hand railing, and other structural works on Column in horizontal position.
- 4.0 All scaffolding / Platforms up to complete column height inside & outside (as required) to carry out assembly, Welding & Painting of column sections, is in scope of bidder.
- 5.0 All other works required for successful completion of site works in all respects as per drawings, specifications and instructions of BHEL - HPVP/EIL.

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- 6.0 Deployment of Adequate handling equipment & lifting equipment including higher capacity cranes of required capacities for handling, unloading & assembly of column sections at designated place.
- 7.0 Deployment of all Tools & Tackles, construction machinery, welding machines, NDT equipments, backing ovens/ portable ovens for electrodes, tools & tackles, power rollers, sleepers etc. for site assembly, fit-up and welding of C-Seam joints of column segments.
- 8.0 Deployment of adequate and proper manpower such as welders, fitters, markers, supervisors, QA/QC personnel, NDT personnel, all other skilled, semi-skilled and unskilled manpower.
- 9.0 Supply of all consumables like welding materials, industrial Gases, Argon, grinding wheels etc.,
- 10.0 Strengthening / compaction of ground (for assembly of sections etc.) at owner designated area / fabrication yard shall be carried out by bidder.
- 11.0 Removal of temporary supports / spiders from column provided for transportation of sections.
- 12.0 All suitable arrangement required for completion of site activities i.e. C-seam, NDT, surface preparation & application of paints, installation of Platform, Ladder, Grating, Hand railing, and other structural works on Column.

PART-B**BIDDER' S SCOPE OF WORKS / RESPONSIBILITY:**

1. **The detailed scope of work as mentioned above in Part-A and all works deemed required for the completion of the job are to be carried out by Bidder within the Quoted price.** The quantities indicated in SOQR are tentative only and may vary $\pm 15\%$. However, the rates quoted by the Bidder shall be firm till the completion of job and payment will be made based on actual quantity executed.
2. Execution inside the refinery will be under permit system. All safety measures at site are in bidder's scope.
All safety requirements of the plant as dictated by the operation group of the client shall be adhered to by bidder. All necessary safety equipments required shall be arranged by bidder. Bidder shall provide dedicated safety engineer throughout the contract period.
bidder has to obtain all work permits viz. Hot Work permit, Cold work permit etc. daily before starting the job and during extended periods after fulfilling all the formalities as required for the same.
Since, the work is to be carried out near existing running plant, temporary barricading as required at site has to be provided by bidder to the satisfaction of BHEL/ EIL / GAIL.
3. The welding consumables required for welding works of column are to be supplied by the bidder within the quoted rate and are to be procured from BHEL – HPVP/EIL approved vendors along with relevant test certificates.
4. Bidder to deploy the adequate and proper manpower at site for smooth and timely completion of site works. A tentative list of manpower is given in Manpower Deployment Schedule at ANNEXURE-V.
5. Bidder to ensure the timely payment of labour wages and payments to their employees/ staff at site without linking to the payment due from BHEL.
6. Bidder to mobilise the construction machineries as per the Construction Machinery Deployment Schedule given in ANNEXURE-VI and any other tools and tackles required for completion of the site works in all respects as per schedule.

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7. Assembly of column sections shall not be undertaken without the use of power rollers. Bidder shall mobilize crane(s) of adequate capacity to handle column sections for site assembly. Bidder shall provide power rollers of adequate capacity and numbers for carrying out the job at site. The rollers shall be properly placed so that equipment is not damaged while fabrication. In addition, supply of idlers of adequate capacity and number is the responsibility of the fabricator. All power rollers and idlers shall be kept on compacted ground/hard stand, as necessary and shall be properly leveled before rollers are kept. In case the ground is not having adequate strength, compaction of ground has to be made meeting all load requirements arising from assembly/hydro test point of view. The same shall be included in quoted price. Only plain leveled ground shall be provided for site activities by Owner.
8. Bidder to mobilise adequate handling equipment & lifting equipment of required capacities for handling & assembly of column sections.

9. Construction Power:

Construction Power shall be provided to the Bidder by owner free of charge. Customer shall provide only the power point from nearest substation/ tapping point. Further distribution including installation of Electrical panel, cabling, main switches, ELCB accessories, energy meter etc. along with all safety devices as per standard norms are to be arranged by Bidder at his own cost.

Construction Water:

Construction Water shall be provided to the Bidder at one point on free of charge. Further distribution of construction water to work spot with necessary piping, water meters etc. as per the rules and regulations in vogue at site shall be carried out by the Bidder at his own cost. Bidder shall arrange drinking water at his own cost.

10. Supply & Installation of all temporary staging and scaffolding materials including pipes and clamps/ swivel couplers, sleepers for etc. required for assembly, fit-up and welding column segments are to be done by Bidder and the quoted price should include the same.
11. A Stationary shed shall be provided by Bidder to ensure protection from wind and rain for all site activities like welding, stress relieving (if required) etc. In addition, Bidder shall provide proper storage for all critical equipments, machinery, tools & tackles, consumables etc.
12. Based on the schedule and quantum of site activities, bidder shall provide all resources such as welders, fitters, markers, supervisors, QA/QC personnel, NDT personnel, NDT equipments, welding materials, temporary circumferential stiffeners, tools & tackles, baking ovens/portable ovens for electrodes, saw machines etc. required for carrying out C seam joint in horizontal position, NDT, PWHT (if applicable) etc. All welding shall be carried out by qualified welders with approved procedures. NDT personnel shall be qualified to ASNT level-II. Qualified welding inspectors from approved body shall be employed.
13. Barricading for safety shall be required (in the vicinity of the operating plant). Design, supply of all material and related works for Barricading and, later on, taking back the same, after the completion of Project work, shall be in the scope of the bidder for this requisition. Dimensions for required total barricading shall be as per equipment proposed site work duly approved by client safety norms.
14. Bidder shall keep the column/ column sections well ventilated and well illuminated during all activities inside the column. For this purpose, suitable exhaust, air purge equipments and low voltage/ 12 V with step-down transformer connection shall be provided.
15. It is bidder's responsibility to remove all debris and clean the fabrication yard / owner designated area, once all activities are completed to the satisfaction of Engineer In charge.

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16. All safety requirements of the plant as dictated by EIL/ GAIL shall be adhered to by Bidder. All necessary safety equipments required shall be arranged by Bidder. Bidder shall provide dedicated safety engineer throughout the contract period. The following health/safety / Environment points shall be taken care of by Bidder.
- Helmets, fall arrestors, safety belts, goggles etc. for personnel safety of people working on ground and at elevations.
 - Proper illumination and ventilation in and around the work area.
 - Welding fumes to be vented out and exhausted suitably.
 - Waste water after pickling & passivation and draining after testing shall be disposed suitably.
 - Safety/work permits to be obtained, as and when required
17. For carrying out site welding/ NDT etc proper steel tubular scaffolding/ temporary platforms, temporary ladders of good design shall be provided by bidder inside and outside of the columns. After completion of all activities, all materials used for testing/ NDT etc. shall be removed and all area shall be cleared as per the instructions of the Engineer-in-Charge. Bamboo scaffoldings and wooden platforms are not permitted. Bamboo scaffolding may be used during Pickling & Passivation of site joint.
18. Proper tools / tackles / cranes / measuring instruments duly calibrated shall be made available at site for supervision / inspection. Care shall be taken for protection of clad portion during handling of sections.
19. **INSPECTION & TESTING:**
- QAP for the total job is enclosed in the tender. However, Bidder shall prepare and submit QAP and Job procedures for site works which are to be approved by M/s BHEL -HPVP / EIL/ GAIL in line with the relevant Standards and specifications of this package. All the materials shall be inspected by M/s. BHEL - HPVP / EIL/ GAIL after receipt at site as per approved ITP/ QAP & Specifications. Necessary assistance required for carrying out the Inspection has to be provided by Bidder.
- Site works shall be inspected stage wise and in Final stage by M/s. BHEL - HPVP & EIL/ GAIL as per approved QAP / ITP's & as mentioned in the Specifications and Standards. All Necessary assistance required for carrying out the Inspection has to be provided by Bidder.
- The site works should conform to the allowances mentioned in the relevant specifications and standards. Any rework / repairs resulting against the same are to be carried out by the Bidder without any cost implications to the satisfaction of BHEL-HPVP & EIL/ GAIL.
- The welders deployed for the site works are to be Qualified as per approved WPS and PQR. All the necessary tests required for the qualification of Welders are to be carried out by Bidder.
 - The welding consumables required for welding of column segments are to be supplied by the Bidder within the quoted rate and are to be procured from BHEL – HPVP/EIL/ GAIL approved vendors along with relevant Manufacturer test certificates.
 - PMI, if applicable, is to be carried out for the site weld joints as per specifications and standards.
 - All NDT such as MPT / DPT etc. as applicable are to be carried out by Bidder. The job procedures & Inspection test plans (ITP's) for the same are to be prepared in line with Specifications / Standards and are to be submitted to BHEL- HPVP/ EIL/ GAIL for approval.
 - Painting of site joints and touch-up painting of columns if required as per the painting schedule are to be carried out by Bidder. Required paints are to be supplied by BHEL as free issue.

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20. Bidder shall arrange Insurance as may be required under law for all his employees and workmen/ labour engaged by them and for all construction machineries, tools and tackles deployed by them.
21. **The Bidder has to obtain labour license before commencement of site works as per the Labour Act.** However, FORM-V will be issued by GAIL for the labour license. All liasioning activities required for obtaining labour license from Labour Dept. to be done by Bidder. It is the Bidder's responsibility to maintain the required documentation as per labour act and same will be submitted to BHEL/ Owner for their verification.
22. The Bidder shall fulfill all statutory obligations with regard to **Employee Provident Fund (EPF) & ESI** in respect of his employees and labour / workmen engaged by them and should submit proof to site In-charge / Resident Manager of BHEL - HPVP for the latest payments made to the concerned statutory authority along with each Running Account Bill.
- The Bidder shall be required to submit the following documents/details.
- a) Copy of PF-ECR duly stamped by the designated Bank, along with a print of the digitally signed PDF data sheet of the ECR as proof of payment, each month.
 - b) Copy of the online challan endorsed / stamped by the designated bank as proof of receipt of payment towards monthly contribution of ESI contribution.
 - c) Copy of Return of contribution in respect of ESI for each contribution period of the six months i.e., for the contribution period ended 30th Sept and the contribution period ended 31st March.
 - d) Bidder shall also ensure that all statutory obligations such as Labour License, ESI, and PF etc. are complied with as long as they work with BHEL-HPVP in GAIL premises.
23. Since the site works are to be carried out in operating unit inside refinery, Bidder has to obtain all work permits viz. Hot Work permit, Cold work permits etc. daily before start of the job and all the formalities required to obtain the same are fulfilled by the Bidder.
24. **SITE OFFICE / STORES SHED:**
- Bidder to make his own arrangements for temporary shed for office & stores for his machinery, tools & tackles etc.
25. Bidder has to arrange for Gate Entry of all the incoming materials to site for execution of site work and all the formalities and liasioning activities with CISF / EIL/ GAIL are to be taken care by the Bidder at his own cost.
- Unloading of the materials from the Trucks / Trailers carrying the above materials to the site is to be done in the shortest possible time and delay / detention of the same, if attributable to Bidder, will be charged to his account. Bidder has to deploy exclusive dedicated staff to take care of all the above activities.
26. Bidder to arrange Gate passes for their manpower and staff at site. For issue of Gate passes for entry inside the GAIL premises, all the employees and labour engaged by the Bidder have to produce Police Verification certificate (PVC) from the police station where they hail from and same is to be submitted to Local police authorities for issue of PVC. Similarly, Photo Identity card for all the employees and workmen engaged by Bidder are required for gate pass. Without PVC and Photo Identity card, Gate passes for entry inside the GAIL premises will not be issued.
27. Bidder shall arrange for the necessary transport, medical, accommodation and other facilities for his employees, staff and labour at his own cost and abide by all labour laws, Safety codes and statutory regulations and keep owner indemnified in respect thereof.

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Rest room with necessary facilities required for the Labour deployed as per the labour rules & regulations is to be established at site.

28. All expenses towards mobilization & demobilization including bringing in equipment, clearing the site etc., shall be deemed to be included in the prices quoted and no separate payments on account of such expenses shall be entertained.
29. It shall be entirely the Bidder's responsibility to provide, operate and maintain all necessary construction equipment /machineries, scaffoldings and safety gadgets, cranes and other lifting tools & tackles, and appliances to perform the work in a workman like and efficient manner and complete all the jobs as per time schedule.
30. Proper approaches and Hard stand if required for the movement and operation of the cranes, grading of the areas for stacking & assembly of column segments shall also be the responsibility of the Bidder.
31. Bidder has to arrange sufficient quantities of Scaffolding materials, temporary Gratings, Jallies etc. for making safe working platforms as the jobs are to be carried out at different elevations. These scaffolding materials should meet the Safety requirements / specifications of EIL/ GAIL prevalent at site.
32. The Bidder shall perform their jobs in eco-friendly manner and in consonance with the objectives of Site environment management system.
33. The Bidder shall adhere to the Health, Safety and Environment (HSE) management system.
34. It shall be Bidder's responsibility to comply with all rules and regulations in force at construction site.

BHEL-HPVP SCOPE:

- a) All the permanent materials will be supplied by BHEL- HPVP.
- b) All AFC drawings, Specifications, Standards and approved QAP & WPS for total job will be furnished by BHEL-HPVP.
- c) Supply of Paints.

SIGNATURE OF THE TENDERER WITH SEAL