

OWNER:	<b>CONCEPTUAL, BASIC and DETAIL DESIGN</b>			CONTRACTOR:
	<b>ENGINEERING OF STYRENE PARK OFFSITE</b>			
	<b>TECHNICAL CLARIFICATION LETTER</b>			
Contract No.				
Project Doc. No. :				TCL Rev. : 00
Material Requisition Title/ No. :	Shell and Tube Heat Exchangers			TCL Date : 20-May-2024
VENDOR's Name: DAMAFIN	VENDOR's Offer No. : 036213/0	Offer Date: 01-May-2024	Offer Rev. :00	Page 1 of 15

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<b>A</b>	<b>GENERAL ITEMS</b>				
1.	Technical Bid Evaluation will be done based on vendor's reply on purchaser's comment and revised offer. There is no time for second stage of clarification so vendor should check this TCL in detail and provide complete and clear reply along with all necessary data/document.				
2.	Vendor is sole responsible to consider this clarification and modify his offer based on this TCL. All modifications which need to be considered on the next revision of offer based on this clarification should be clearly marked with revision and cloud marks. Anyway this clarification has priority over the offer.				

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3.	All commercial issues which are included in technical offer will be considered for information only.				
4.	<p>Vendor to confirm that scope of work and supply are in full compliance with Material Requisition (MR) and its attachments and relevant codes and standards mentioned on MR and specifications.</p> <p>Vendor shall mention any deviation / alternative compared with requirements of MR and its attachments on the Deviation Form with sufficient technical reasons. Purchaser has no responsibility to discover any deviations entered in Vendor's proposal.</p> <p>Deviations which are not listed in the Deviation Form are not valid and in case of order no deviation or alternative would be</p>				

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	acceptable except the ones specified on the mentioned form and finalized before order at clarification stage.				
5.	Un-Priced Sub-Vendor order should be submitted for Client in case of order in detail stage.				
6.	Vendor shall guarantee suitability of all using materials (chemical composition, mechanical properties and origin of materials)				
7.	Required pipe clip data and also ladder platform layout will be finalized at detail stage in case of order. Pipe clips and ladder & platform clips shall be supplied / constructed by Vendor.  VENDOR should consider those in her scope without cost impact.				

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8.	All welds should be applied based on approved WPS/PQR. No welding is allowed before approval on WPS/PQR.				
9.	<p>In case of order Vendor should provide his quality control plan (VQCP) based on requirements specified on MR and its attachment and also vendor's experiences and send for approval. Purchaser's ITP attached to MR is a minimum requirement and vendor should consider it as a base and provide comprehensive Quality Control Plan.</p> <p>In case of order Vendor should provide complete NDE Map based on requirements specified on MR and its attachment and also vendor's experiences and send for approval.</p>				

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	Approved Vendor quality control plan (VQCP) and approved Vendor procedures/NDE Map will be the base for carrying out all required inspection and test.				
10.	Spare parts for pre-commissioning, commissioning and start up is in vendor scope of supply and should be fully as per requirements indicated on MR and its attachment. Vendor is responsible to recommend any additional required spares based on technical aspect, safe operation, his experiences and normal practices. Please send optional quotation (separately from original price).				

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11.	<p>Vendor shall send his optional quotation (separately from original price) for supply of spare parts for Two Years Operation.</p> <p>Purchaser has right to change and modify items, quantities of all specified as spare parts.</p> <p>Vendor is responsible to recommend any required spares based on technical aspect, safe operation, his experiences and normal practices.</p>				
12.	<p>Packing, shipping preparation and preservation shall be done according to approved procedure. Considering all requirements on MR and its attachments.</p>				

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13.	In case of order, all drawings and calculation books should be issued along with relevant E-File (native file).				
14.	Vendor shall note that Rust prevention for transportation and longtime storage is in their scope of work.				
15.	Regarding Sub-vendors/sub-suppliers, vendor shall note that Contractor / Purchaser have the right to reject sub-vendors/sub-suppliers if his capability is judged poor or not proven.				
16.	The material should be supplied from approved sub-supplier/sub-Vendor list either Pressure Parts or Non-Pressure Parts.				

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17.	All materials shall be new and un-corroded.				
18.	Surface preparation and Painting should be performed based on relevant specifications. Primer, intermediate and final coat shall be carried out based on approved painting procedure by Vendor.				
19.	In case of order Purchaser would not review documents sent by Vendor before receiving Vendor Print Index and Schedule. Vendor Print Index Schedule (VPIS) shall be prepared as first document after PO. All documents will be issued after getting final approval of this mentioned document.				

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20.	Vendor shall note that packing and marking to be performed based on MR and relevant specifications, as minimum.				
21.	All necessary devices for transportation (including adequate saddles, nozzle covers, bolts, nuts, temporary gaskets for shipping, cradle, wooden belts for sling the equipment, packing boxes, fitting, etc ... ) should be supplied by VENDOR.				
22.	Nozzle attachment welds to shell shall be 100% inspected by ultrasonic examination.				
23.	PT on formed heads to be performed by vendor.				
24.	Vendor shall note that ASME B16.47 Series B to be used for flange sizes greater than 24 inch (If any).				

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25.	Vendor shall note that special tools (if any) for operation is in her scope of supply.				
26.	Vendor shall note that preservation with N2 purging with 1 barg is in vendor scope of work and supply. All sufficient tools and material such as pressure gauges, nozzle covers, temporary gaskets, bolts and nuts to be also supplied by VENDOR.				
27.	Vendor shall note that setting bolt is in her scope of supply (Where Required).				
28.	All required NDT in MR should be performed by vendor.				
29.	Vendor shall note that anchor bolt is out her scope of supply.				

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30.	Vendor shall confirm that test & inspection will be performed fully as per MR and its attachments and relevant codes and standards.				
31.	Vendor shall note that Guarantee time to be a period of 12 months after successful start-up or 18 months after shipping whichever comes earlier.				
32.	Please sign and stamp Deviation List in project format.				
33.	For all pressure parts and those required special consideration well as for supports the material certificate should be in accordance with EN 10204, 3.1, Material certificate for non-pressure parts shall be in accordance with EN 10204, 2.2.				

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34.	Please submit reference list along with updated proposal.				
35.	All gaskets to be used for hydrostatic test shall be same as operating case and new.				
36.	Please submit sub vendor list				
37.	VENDOR shall note that Mechanical guarantee of Exchangers are in her scope of work. Thermal calculation and guarantee are not in vendor scope of work.				
38.	In case vessels subject to PWHT, materials shall be ordered with guaranteed properties on the basis of simulated post weld heat treatment according to the intended heat				

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	treatment of the vessel and provisions for repairs. Necessity of PWHT to be based on MR, its attachments and relevant codes and standard.				
39.	Test Rings and Test flanges are in VENDOR's scope and shall be supplied as per requirements specified on MR and its attachments.				
40.	Suitable sliding device shall be designed and provided for exchangers with removable bundle.				
41.	Sufficient pulling eye bolts or pulling lugs should be designed and provided for removable bundles.				

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42.	Sufficient / suitable lifting eye bolts or lifting lugs should be designed and provided for removable sections.				
43.	Providing Required Facilities For Inspection and Test shall be in VENDOR's Scope of work.				
44.	Please note that no varnish or internal coating inside pipes, flanges, elbows and generally inside the heat exchangers is acceptable.				
45.	The heat exchangers shall be supplied with one installed set of gasket. (Not included in commissioning spare parts).				
46.	Unless Otherwise Specified on Other Project Specifications, All C.S. Bolts and Nuts Shall Be Coated Properly to Provide				

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	Proper Protection Such as Galvanization, etc.				
47.	GA for heat exchanger shall be considered as main refernce for quotation.				
48.	U-Tubes shall be in one piece construction and shall be post form heat treated after bending. U-Bend plus 300 mm of straight tube shall be heat reated.				