



REPLY TO BIDDER'S PRE-BID QUERIES

ANNUAL RATE CONTRACT FOR SUPPLY OF TYPE-3 / TYPE-4 CNG STORAGE CASCADES FOR NCT OF DELHI, UP, HARYANA & RAJASTHAN

TENDER DOCUMENT NO. IGL/ET2/CP/CC17259, Dated 28.11.2022

VCS REFERENCE NO. VCS/C&P/17028/PC/CASCADE/03

Owner: Indraprastha Gas Ltd.

Consultant: VCS Quality Services Pvt Ltd.

Pre-bid meeting held on 05.12.2022

Date: 30.12.2022

SI. No.	Reference & Clause No.	Page No.	Subject Description	Bidder's Query/Clarification	IGL/VCS Reply
Commercial					
1	Clause No. 27.1 of SCC Commercial Vol. I of II	Page No. 77 of 107	<p>CONTRACT-CUM-EQUIPMENT PERFORMANCE BANK GUARANTEE:</p> <p>Within twenty one (21) Days of receipt of the Letter of Acceptance / Notification of Award, the successful bidder shall furnish to the Purchaser the Contract-Cum- Equipment Performance Bank Guarantee (CPBG) equivalent to 2.5% of contract value initially and 7.5% of individual release/purchase order value (Total order value will be inclusive of all taxes, duties and charges towards transportation, unloading etc. up to IGL site/store)</p>	<p>Within twenty one (21) Days of receipt of the Letter of Acceptance / Notification of Award, the successful bidder shall furnish to the Purchaser the Contract-Cum- Equipment Performance Bank Guarantee (CPBG) equivalent to 2.5% of contract value initially and 2.5% of individual release/purchase order value (Total order value will be inclusive of all taxes, duties and charges towards transportation, unloading etc. up to IGL site/store)</p> <p>You are requested to accept 2.5% + 2.5% CPBG.</p>	Tender Conditions shall Prevail
2	Clause No. 7.6 of IFB Commercial Vol. I of II	Page No. 12 of 107	Bid Submission date and time	Request for an extension on the Tender submission to at least 23/12/2022 as we need time to prepare all documents for the submission of the tender and the current submission date of 12/12/2022 is too short to complete all the requirements	Refer to Corrigendum#5, Dated 30.12.2022
3	Clause No. 8.1.3 (ii) of IFB Commercial Vol. I of II	Page No. 13 of 107	Bidder Evaluation Criteria (Technical)	Due to COVID and Ukraine war issues there has been a significant issues with logistics in the last 3 years hence we humbly request IGL to allow for 17 cascades delivered in last 7 years with one order of minimum 5 cascades completed. This will allow us to participate as a lot of CGD's have also delayed deliveries due to shortage in supply as well as the low demand of CNG during the lockdown etc.	Tender Conditions shall Prevail
4	Clause No. 30.2 of ITB Commercial Vol. I of II	Page 32 of 107	REJECTION CRITERIA	We understand that deviation sought for the change in financial criteria is not basis for rejection.	Financial loading is not applicable in this tender. Bidder to also fulfill the financial BEC criteria given under Clause No. 8.2 of IFB
5	Clause No. 8.2.1 of IFB Commercial Vol. I of II	Page 14 of 107	<p>BEC-Annual Turnover:</p> <p>The minimum annual turnover achieved by the bidder as per their audited financial results during any one of the three preceding financial year shall be INR 21,07,86,000/-</p>	<p>We earnestly request IGL to consider a turnover requirement of INR 10,00,00,000/- for any of the preceding financial years. Such a high turnover requirement limits the number of potential bidders thereby limiting competitive bidding and option for IGL to choose from more suppliers.</p> <p>We are happy to provide additional bank guarantee to provide financial comfort to IGL.</p>	Tender Conditions shall Prevail
6	Clause No. 8.2.3 of IFB Commercial Vol. I of II	Page 14 of 107	<p>BEC-Working Capital:</p> <p>The minimum working capital of the bidder as per audited financial statement for immediate preceding financial year shall be INR 4,21,57,000/-.</p>	<p>We earnestly request IGL to consider a working capital requirement of INR 2,00,00,000/- for any of the preceding financial years. Such a working capital requirement limits the number of potential bidders thereby limiting competitive bidding and option for IGL to choose from more suppliers.. We are happy to provide additional bank guarantee to provide financial comfort to IGL.</p>	Tender Conditions shall Prevail
7	Clause No. 22.3 (C) of GCC Commercial Vol. I of II	Page No.47 of 107	Payment shall be released within 45 days after receipt of relevant documents complete in all respects.	Payment should be released within 30 days from the date of GRN and after receipt of relevant documents complete in all respects as Cascade is a high value product.	Tender Conditions shall Prevail



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8	Clause No. 7.6 of IFB Commercial Vol. I of II	Page No. 12 of 107	Bid Submission date and time 12.12.2022 till 1430 HRS.IST	14 days from the date of Tender publication is too short period to arrange POA, EMD and other documentations , atleast 21 days period may please be considered between Tender Opening & final bid submission date . More over, bidder being a Public Limited Co, have some internal approval procedures for arranging POA, EMD and other documentations and hence requests for an extension of 7- 10 days for bid submission .	Refer to Corrigendum#5, Dated 30.12.2022
9	Clause No. 4.1 of IFB Commercial Vol. I of II	Page No. 10 of 107	The supply of cascades shall be made lot wise. 1st lot size of 33 Nos Cascades shall be delivered within 12 weeks from date of LOA	1st lot of Cascades shall be supplied within 16 weeks from the date of Intimation/LOA as input raw material like pipe & fittings are to be imported whose lead time of supply is approx 12 weeks .	Tender Conditions shall Prevail
Technical					
1	Technical Volume II of II Clause No. Datasheet Clause No. 10d & Clause 5.16.5	Page 28 of 88 & Page 62 of 88	Swagelok/ Parker/ Hamlet/ Sealexcel	Kindly confirm the vendors approved for fitting and tubing since some places only mention Swagelok/Parker and some places allow additional vendors. Kindly also provide an approved vendor for tubing.	Refer Approve Vendor list for all bought-out items
2	Technical Volume II of II Technical specifications Clause No 5.12.1.i	Page 59 of 88	Valves have to be approved as per Industrial Gas Cylinder IS:3224	We request you to only ask for PESO approved valve and not necessarily IS:3224. Since some valves are specially designed.	Tender Conditions shall Prevail.
3	Technical Volume II of II Technical specifications clause No 5.4 Cylinder Support	Page 52 of 88	The Cylinders shall be supported by means of a Neck mounting support type. Both sides of the cylinder's Neck shall be mounted over Aluminum support Plummer block. Plummer block shall be fastened to the Steel frame so that all cylinders are orientated in horizontal position. The Cylinders in a cascade must be structurally supported and held together as a unit and secured in a manner that prevents movement in relation to the structural assembly and movement that would result in the concentration of localized stresses.	We have supplied over 30 system to IGL and morethan 1000 systems overall. We only use highly durable and strong HDPE holders to hold the cylinders because that is tried and tested for us. We have cylinder and systems on the road for morethan last 20 years which has used such arrangement and therefore,the requirement of aluminium holders is strange and not an industry standard. Therefore, we request you to please reconsider, especially that we have supplied these to IGL	Tender Conditions shall Prevail
4	Technical Volume II of II Material requisition clause No. 4.0 (scope of supply & services)	Page 6 of 88	Maximum Water liter capacity of Cascade shall not exceed 4500 WL (+0 % & -3% tolerance)	Maximum Water liter capacity of Cascade shall not exceed 4500 WL (+0 % & -6% tolerance) Our PESO-approved cylinder capacity is 282 litre. We can provide 15x282 lit = 4230 lit cascade (-6% tolerance). Alternatively, we can approve another size from PESO which will satisfy the tolerance provided by IGL and submit the approval once we have it, positively within 12 weeks.The new cylinder will be of the same Type Approval family which is already granted to us by PESO.	Tender Conditions shall Prevail
5	Technical Volume II of II Technical specifications clause 5.2 (Cascade storage dimensions)	Page 49 of 88	Dimensions shall not exceed Length 4.9 Mtr., Width 2 Mtr., Height Approx. 2.5 Mtr. (with canopy/ container).	Dimensions shall not exceed Length 4.9 Mtr., Width 2.140 Mtr., Height Approx. 2.5 Mtr. (with canopy/ container).Our cascade dimensions will require width to be extended by 140mm, which can fit on the vehicle models provided by you and are running already with other CGD companies.	Tender Conditions shall Prevail



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6	Technical Volume II of II Technical specifications clause 7.0.5 (Inspection & testing)	Page 66 of 88	Vendor shall carryout cylinder bursting test of one cylinder from the entire batch produced for supply in case offered cylinders are of new design (conforming to the requirement of IS 11119-2 & 3). Vendor shall inform the schedule of the testing well in advance to enable owner or their authorized representative to depute technical personnel for witnessing the test.	The manufacturing facility is located in Europe and we can definitely arrange for the authorized representative of the owner to witness the burst test at the expense of the owner.	Tender Conditions shall Prevail
7	Technical Volume II of II Technical specifications clause 5.2.6 & 5.5.3	Page 50 & 53 of 88	Clause No. 5.2.6- Working Pressure of cascade cylinder shall not be exceed 250 bar at 15 deg C Clause No. 5.5.3- Working Pressure of cascade cylinder shall be minimum 250 bar at 15 deg C	Both the statements are contradict to each other It should be as per clause no. 5.2.6 Working Pressure of cascade cylinder shall not be exceed 250 bar at 15 deg C	Please refer to Clause No. 5.5.3 for cylinder design. Clause No. 5.2.6 is for filling pressure and not cylinder design.
8	Technical Volume II of II Technical specifications clauses 5.6	Page 55 & 53 of 88	Marking of cylinders	Type 3 cylinders does not have marking it will be labeled with all the necessary information	Noted
9	Technical Volume II of II Technical specifications clauses 5.13.5	Page 59 & 53 of 88	Frame structure of each cascade shall be capable of withstanding 4G Impact	Offered cascade will comply to ADR requirements In the direction of travel – 2g Horizontal at right angle – 1g Vertically upwards- 1g Vertically Downwards- 2g ADR requirements are worldwide accepted and there is no standard that says the requirement of 4G static Cascade. 4G static calculation will make the frame too bulky and cascade will loose its advantage of light weight composite cylinders.	Tender Conditions shall Prevail
10	Technical Vol. II of II Technical Specifications clause 5.13.13	Page 60 of 88	Vent arrangement for each cascade shall be as per IS 7285 part 2	We understand that the subject's standard is for the manufacturing of steel cylinders and will not be applicable for the requirement	Noted, venting requirement shall meet PNGRB guidelines as mentioned in Clause No. 5.5.5, 1068-00-ME-TS-3001 Technical Volume II of II
11	Technical Vol. II of II Technical Specifications clause 5.15.4	Page 61 of 88	Temp Gauge requirement	Our System design does not have the requirement of temp gauge as the cylinders does not have any impact of pressure rise owing to increase in the temp rise	Tender Conditions shall Prevail
12	Technical Vol. II of II Technical Specifications clause 5.17	Page 63 of 88	painting Requirements	We do Powder coating onto the frame, as they have improved surface finish and life in comparison to wet paint Please consider the Powder coating also as a painting.	For powder coating specifications, see clause 5.17.3 in technical specifications (page 61 of 87)
13	Technical Vol. II of II Technical Specifications clause 9.0	Page 67 of 88	Periodic Re-qualifications	Please clarify the requirement for the subject clause	Periodic re-qualification checklist to be provided by the Bidder during detailed Engineering, as per PESO requirements.



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14	Technical Vol. II of II Technical Specifications QAP	Page 82 & 83 of 88	In some of the points such as valves, gauges, and cyclic test reports it has been mentioned that TPIA will do 100% witness	We wish to clarify that these cylinders and the accessories will be imported and it is not possible for conducting the witnessing of the test for the subject cylinders and accessories.	Tender is asking for reports only.
15	Technical Vol. II of II Technical Specifications clause 5.1.12	Page 6 & 47 & 83 of 88	SCOPE OF SUPPLY & SERVICES	As per this clause the supplier needs to prepare single bank cascade, however as per page # 47 we need to provide 3 pressure gauges. Please clarify the same because a single bank cascade usually has only 1 pressure gauge and adding three pressure gauges has no functional value as all three pressure gauges will connect to the same pressure line and adding 3 pressure gauges in a single bank cascade will increase the number of possible joints which may or may not cause leakages etc over a period of time.	3 Nos. the pressure gauge shall provide one for Filling, another for decanting & other shall provide at the main gas distribution header to the cylinder.
16	Technical Vol. II of II Technical Specifications clause 5.6	Page 55 of 88	Marking of cylinders	Our Type 4 CNG Cylinders are marked on the boss part with the serial # and for ease of visibility the remaining information is available of the sticker which is on the body of the cylinder. It is not possible to mark permanently on the neck all of the information as is required in this section	All cylinder labeling sticker shall waterproof & tempered proof.
17	Technical Vol. II of II Technical Specifications clause 5.17	Page 63 of 88	Scope of work & Painting	This section states paint thickness should be 300 micron with primer of two coats of min 35 micron and 2 coats of paint of min 35 micron - which if totaled is 140 micron. Excessive paint film thickness can cause durability problems such as: Cracking Excessive stone chipping Loss of gloss Sinkage Pickling Delamination and we also have page 63 section 5.17 Painting wherein it is stated that minimum paint thickness should be 200 micron with each coat being between 80 to 120 micron. Request for confirmation on the thickness of paint with primer required which should ideally be between 180 - 200 micron in total.	Tender Conditions shall Prevail
18	Technical Vol. II of II Technical Specifications clause 5.6.8	Page 56 of 88	A symbol to indicate the nature of heat treatment (such as normalizing, or tempering) given to the cylinder during manufacturing.	The document states "A symbol to indicate the nature of heat treatment (such as normalizing, or tempering) given to the cylinder during manufacturing." - for Type 4 there is no such heat treatment done it is normally applicable for Type 1 cylinders. Request if the same could be rechecked and confirmed	All Type-IV cylinders shall manufactured & design as per ISO: 11119-3
19	Technical Vol. II of II Technical Specifications clause 5.4	Page 52 of 88	Cylinder support	Cylinder support is specified to be of Aluminium - we would request for consideration of Mild Steel and Polymer based mounting arrangements as well which meet the load and stress requirements. Aluminium is known to be light but of lesser strength than steel or other materials.	Tender Conditions shall Prevail



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20	Clause No. 5.4 (Cylinder Supports)/1068-00- ME-TS-3001 Technical Vol. II of II	Page No. 52 of 88	The Cylinders shall be supported by means of Neck mounting support type. Both sides of the cylinders Neck shall be mounted over Aluminium support Plummer block".	We wish to submit here that NEX-G Cylinders manufactured by us for CNG Cascades are body mounted. The Cylinders are fitted to the Cascades with the help of 'Clamping brackets'. Clamping brackets hold and supports the Cylinder on the body. These Cylinders are all horizontal aligned. We have supplied over 100 Cascades so far to leading CGD players in the Indian industry and all these Cascades have cylinder body mounted with the help of the brackets holding them in place. As you are also aware that metal cylinders have also been conventionally / traditionally mounted on the cascades with the help of the body mounting brackets.	Noted, please refer to Corrigendum#4
21	Clause No. 4 (Scope of Supply & Services) 1068/00/ME/MR/3001 Technical Volume II of II	Page No. 6 of 88	Point No. 4 (S.No.1.1)- The cascade shall be given with 2 nos. (1 Working + 1 Spare) inlet/outlet manifold along with an isolation valve. Each manifold shall be terminated with a 1/2" quick connect body (Female coupler) and stem (male coupler) (End Connection: 1/2" NPT (F) for body material : SS 316	Could you please clarify whether IGL needs the 2nd set of inlet/outlet manifold with an isolation valve fitted on to the cascade as STAND BY Option OR 2nd set of QRC to be supplied separately as spare loose parts. Generally, TTL supply the Cascade with Single Bank system, fitted with common inlet /outlet with isolation valve with end terminated via 1/2" quick connect body (female coupler) and stem (male Coupler) - End Connection : 1/2" NPT (F) assembled with Cascade.	Tender Conditions shall Prevail
22	Clause No. 7.10 1068/00/ME/MR/3001 Technical Volume II of II	Page No. 8 of 88	Purchase orders/certificate of origin of material of bought out items soon after placement of order.	Purchase orders/certificate of origin of material of bought out items are very difficult to provide soon after the placement of order, however Time Tech can share the certificate of origin & supplier test certificate for valves, fittings, Isolation valve, NRV and SRV during Cascade Inspection stage.	Noted
23	Clause No. 4 (Scope of Work) 1068/00/ME/SOW/3001 Technical Volume II of II	Page No. 14 of 88	All Fittings should be hydro-tested to a pressure of 1.5 times the minimum Working pressure 255/cm2g at 15 deg. C.	All the fittings will be pneumatically pressure tested after the assembly of Cascade with 275 Bar (Hold time max 60 minutes) pressure (In assembled condition of tubing Manifold) in Presence of TPIA .	Noted
24	Clause No. 4 (Scope of Work) 1068/00/ME/SOW/3001 Technical Volume II of II	Page No. 15 of 88	A pressure relief safety valve on single bank header shall be used, to release of excess pressure set at a rating 5% less than the pressure rating for fusible burst disc.	Ideally, Pressure setting of relief Safety Valve on a single Bank header system should be 1.2 times of Test Pressure (1.2 X 250 = 300 Bar) which is 20% less than the pressure setting of fusible burst disc (375 Bar) .	Noted, shall be reviewed during detailed engineering
25	Clause No. 4 (Scope of Work) 1068/00/ME/SOW/3001 Technical Volume II of II	Page No. 15 of 88	Primer and paint selected and applied to have a service life of at least Ten years. The exterior of the equipment is required to be corrosion free for at least Ten years and to have a fade free life without oxidation of paint surface for at least Ten years in an environment of bright sunlight with an intensive UV content.	As a standard practice in the CGD industry, prevailing service life of Primer & Paint is max 3 years for CNG Cascades with 300 micron coating thickness.	Noted



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26	Clause No. 5 (Basic of Work) 1068/00/ME/SOW/3001 Technical Volume II of II	Page No. 16 of 88	Point No. 5 (g) Static Load analysis of Multi element gas container (MEGC).	As a standard practice in the CGD industry , 4-G static test Calculation by FEA methods (four times gravity impact from any direction) is relied upon while procurement of cascade on complete assembled cascade with all the cylinders mounted . Test Report is to be certified by TPI / Chartered Engineer.	Accepted with 4-G load Calculation along X, Y & Z direction.
27	Clause No. 8. (AS-BUILT DOCUMENTS) 1068/00/ME/SOW/3001 Technical Volume II of II	Page 20 of 88	As-built drawing of cascades GAD / Fabrication Drawing / P&ID/4G calculation and /PESO certificates of all valves/Cylinder filling permission by PESO/Cylinder positioning report/ Force acceleration & breaking condition at near misses during -0.5 g to above 0.8 g load calculation etc.	Time Tech can provide GAD , P&ID (Vent & Pressure manifold) , 4G calculation and PESO certificates of all valves/Cylinder filling permission by PESO/Cylinder positioning report only .	Accepted along with 4-G load calculation.
28	Clause No. 9 (ii) (SERVICES TO BE RENDERED BY BIDDER) 1068/00/ME/SOW/3001 Technical Volume II of II	Page 21 of 88	Gas flow calculations, 4-G static test Calculation by FEA methods (four times gravity impact from any direction) of one complete assembled cascade with all the cylinders mounted test to be certified by TPI / Chartered Engineer & filled and sequencing time calculations for cascade for maximizing the recovery from the cascade storage for residual cylinder pressure of incoming vehicle for refill pressure 30 kg/cm2 (g).	Time Tech can provide only 4-G static test Calculation by FEA methods (four times gravity impact from any direction) of one complete assembled cascade with all the cylinders mounted test to be certified TPI / Chartered Engineer.	Tender Conditions shall Prevail
29	Clause No. 5.1.10 1068-00-ME-TS-3001 Technical Vol. II of II	Page 47 of 88	MEGC / cascade module shall be painted all side with Client logo of adequate size.	Branding provision available one side on door.	Tender Conditions shall Prevail
30	Clause No. 5.2.15 1068-00-ME-TS-3001 Technical Vol. II of II	Page 50 of 88	Full bore ball valves for isolation shall be provided at inlet of each fill line and at cascade outlet line. The end connection at battery limit shall be 3/4" and 1/2" OD * 1/2" NPTF Quick release coupling + nipple of appropriate size for filling and Decantation.	This is clause is contradicting with deviation sr no.1 clause no.4/1.1 (Page No.4 of 86), please confirm	All isolation valves, Fittings, and Tubing shall be 3/4" OD connection & QRC nipple + coupling shall 1/2" OD * 1/2" NPTF connection for filling and decanting.
31	Clause No. 5.2.31 1068-00-ME-TS-3001 Technical Vol. II of II	Page 52 of 88	Vendor shall provide the adequate number of bolts / anchor bolts for mounting of cascade on Vehicles.	Time Tech Cascade will have 8 nos. of ISO corners at all the corners (As per ISO 1161) which can be clamped/ bolted to the truck body.	Ok Noted
32	Clause No. 5.4 (Cylinder Supports) 1068-00-ME-TS-3001 Technical Volume II of II	Page 52 of 88	The Cylinders shall be supported by means of Neck mounting support type . Both sides of the cylinders Neck shall be mounted over Aluminum support Plummer block . Plummer block shall be fastened to the Steel frame so that all cylinders are orientated in horizontal position.	Time Tech manufacture Cascade with horizontal cylinder mounting with body clamping as per OISD 179 requirement , cylinders will be mounted horizontally with distance > 30 mm apart from each other with clamping bracket on the cylinder body. Time Tech have supplied more than 100 cascades so far with body clamp horizontal mounting feature to many CGDs. eg. IOCL , BPCL, MGL , HPOIL , ADANI etc.	Noted, please refer to Corrigendum#4



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33	Clause No. 5.5 (For 4500 WL Capacity Mobile Cascade) 1068-00-ME-TS-3001 Technical Volume II of II	Page 52 of 88	For 4500WL capacity mobile cascade	At clause 5.5 of the tender , it says , the tender is for Mobile Cascade where as at Clause No 5 of the Technical Specification it says " mobile storage cascade ". Please clarify , whether the tender is for Mobile Or Storage Cascade application . We are confused whether to follow Clause no 5.5 or Clause No 5 for the Technical Specifications .	"Storage" shall not be confused with "Stationary".
34	Clause No. 5.5.5 1068-00-ME-TS-3001 Technical Volume II of II	Page 53 of 88	The vent height shall be minimum 03 meters from working platform as per PNGRB guidelines.	Time Tech's vent header outlet of Cascade will be minimum 3 mtr form the ground level (Working Platform) . Please confirm, if our interpretation on working platform is correct ?	Noted
35	Clause No. 5.5.8 1068-00-ME-TS-3001 Technical Volume II of II	Page 53 of 88	The end connection at battery limit shall be ¾" OD tube.	Size of end termination is not written/ mentioned which is required for filling/decanting.Please specify .	Tender Conditions shall Prevail
36	Clause No. 5.5.22 1068-00-ME-TS-3001 Technical Volume II of II	Page 54 of 88	The vent height shall be minimum 03 meters from base of the cascade	Both the Clause No 5.5.22 & 5.5.5 are contradicting to each other , Please clarify	Noted, to be reviewed during detailed engineering
37	Clause No. 5.5.23 1068-00-ME-TS-3001 Technical Volume II of II	Page 54-55 of 88	For easy access, operation and maintenance of the cascade system, 1.0 m clear space all around each of the cascades shall be provided. Each such storage unit should be separated from other units by a distance of not less than 2m.	For easy access, operation and maintenance of the cascade system, maintaining 1.0 m clear space all around each of the cascades on vehicle is very difficult & just not possible to design a Cascade with 1 m clearance on all sides to fit on Truck body and hence this clause is not applicable for Cascade Manufacturer . Please delete .	Noted, not applicable for mobile cascades
38	Clause No. 5.5.24 1068-00-ME-TS-3001 Technical Volume II of II	Page 55 of 88	The location of inlet/ outlet tube manifold and pressure/temperature gauges shall be towards the length side of cascade for width side of cascade for mobile.	The exact location or position of the inlet/ outlet tube manifold and pressure/temperature gauges is not clearly defined/mentioned at Clause No : 5.5.24.	To be discussed during detailed engg
39	Clause No. 5.13.4 1068-00-ME-TS-3001 Technical Volume II of II	Page 59 of 88	Cascade storage system to be skid mounted and complete with removable metal frames and non-metal/non-sparking spacer material.	Time Tech mobile cascades are made of metal Skid as per IS: 2062 standard & permanently welded for safety . Thus Propose to remove/delete " complete with removable metal frames and non-metal/non-sparking spacer material. "	Tender Conditions shall Prevail
40	Clause No. 5.13.13 1068-00-ME-TS-3001 Technical Volume II of II	Page 60 of 88	Vent arrangement for each cascade shall be as per IS 7285 part 2, 2017.	IS 7285 (PART 2) is not applicable for Type -4 Cascade .	Noted, venting requirement shall meet PNGRB guidelines as mentioned in Clause No. 5.5.5, 1068-00-ME-TS-3001 Technical Volume II of II



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Date: 30.12.2022

SI. No.	Reference & Clause No.	Page No.	Subject Description	Bidder's Query/Clarification	IGL/VCS Reply
41	Clause No. 5.15.4 1068-00-ME-TS-3001 Technical Volume II of II	Page 61 of 88	Temperature gauge of diameter 4"(-20 to 100°C) with necessary arrangement on high bank only shall be used.	Temperature gauge , should be in the range of 0-200°C . Refer Clause No 4/1.1 Page no.4 of 86 - It is written temperature range from 0-200°C . where as at Clause No 5.15.4 - It is written -20 °C to 100°C thus both the above values are contradictory to each other . Therefore, Please clarify the lower range of the Temperature Gauge ? Cascade is for single bank arrangement as mentioned at clause 4/1.1 Page no.4 of 86 where as it is mentioned as " high bank only shall be used " at clause No 5.15.4 which is contradictory to each other and confusing statement . Please Clarify ?	Noted, to be reviewed during detailed engineering
42	Clause No. 5.15.5 1068-00-ME-TS-3001 Technical Volume II of II	Page 62 of 88	Temperature gauge shall be direct contact type so which could with oil filled Thermowell probe for necessary arrangements.	Our temp. gauge will be contact type with capillary, stem and process connection are made from stainless steel. In 3/4" Tube you can not put thermowell because min. diameter thermowell is 25mm & inside diameter of 3/4" tubing is approx.15mm. So thermowell can't be fitted inside the tubing for direct contact.	Noted, to be reviewed during detailed engineering
43	Clause No. 5.17.1 1068-00-ME-TS-3001 Technical Volume II of II	Page 63 of 88	Point No. 51.17.1-Painting: Surface preparation of cascade frame by shot blasting as per grade SA 2 ½, Swedish standard SIS 055 900. Two coats of paint shall be applied with minimum thickness of 200 microns.	This clause is contradicting to clause no. 4 scope of work(page 13 of 86), Painting requirement is 300 microns, Please delete .	Paint Permissible thickness in each coat shall be within 80 to 120 microns refer to SIS 055 900 or IS: 9954
44	Clause No. 5.17.5 1068-00-ME-TS-3001 Technical Volume II of II	Page 63 of 88	Point No. 51.17.5-Painting: Surface preparation by Shot Blasting as per grade SA 2 1/2 IS 9954/ ISO 8501. Two coats of paint shall be applied with minimum thickness of 200 microns.	This clause is contradicting to clause no. 4 scope of work(page 13 of 86), Painting requirement is 300 microns	Paint Permissible thickness in each coat shall be within 80 to 120 microns refer to SIS 055 900 or IS: 9954