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No.	Section	Clause No.	Cross Reference	Original Language	Comments from Voith Hydro	TCE Reply
1	VIC	3.1.2.(7)		Towards **Technical Data of Turbine**: Spiral case minimum design pressure : **5 Kg/Sq. cm**	Even after considering all design factors and safety margins, the minimum design pressure for spiral case including water hammer is 3 kg / sq.cm. Hence, we request that minimum design pressure for Spiral be specified as 3 kg / sq. cm instead of 5 kg. / sq. cm.	Agreed
2	VIC	3.1.2.(10)	3.2.10	Towards **Runaway Speed**: First critical speed of shaft system : **25%** higher than Runaway speed	As per the design calculations, first critical speed of shaft system @ 20% higher than Runaway speed is sufficiently safe for operations, as against 25% specified. Request you to review and confirm.	Agreed
3	VIC	3.2.7		Towards **Cavitation guarantees:** In case of cavitation pitting exceeding the guaranteed figures the supplier shall take corrective measures such as modification of design, finish, replacement, repair etc., at his cost and the turbine, after such modifications, repairs and replacement of parts (s) shall be subject to the **same cavitation guarantees as per the original equipment**.	We accept this; however, this shall not be subject to revolving or cumulative guarantees.	Not acceptable, Specification to be followed
4	VIC	3.2.11		Towards **Smooth, Stable & Quite operation & Noise Limit**: The peak-to-peak pressure pulsations at any of the 4 tapping located below the runner shall not exceed 3% of the rated net Head.	Pressure pulsation value of 3% is not applicable in case of low head Kaplan machines because of very high discharge, and is normally in the range of 15% to 20%. Hence we request you to please review and confirm the revised value as applicable for Kaplan machines.	Bidders may cover under deviation with justification furnishing examples of similar Commissioned projects.
5	VIC	3.2.12		Towards **Stress and Factor of Safety :** For other parts the factor of safety shall not be less than **3** w.r.t yield point at normal conditions.	Our stringent design standards (considering severe conditions for the testing and operation of the machine), provide for a factor of safety of 2 w.r.t. yield point, for all parts other than rotating parts, which are found to be sufficient for normal operating condition. (Relevant calculation sheet in support of the same will be submitted later). Hence this f.o.s. may be permitted.	Not acceptable, Specification to be followed
6	VIC	3.3.6		Towards **Draft Tube Liner, Bend and Cone** : Steel draft tube liner shall be provided for the **complete elbow portion** of draft tube up to a length where velocity of water is not more than 4 m/sec at discharge corresponding to maximum output.	Steel draft tube liner shall be provided for the complete elbow portion of draft tube up to a length where velocity of water is not more than 5 m/sec at discharge corresponding to maximum output.However liner shall be provided up to the full length of elbow portion.	Agreed

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7	VIC	3.9.1		Towards **Shop Tests** Runner : Static balance & Dynamic balance tests	Dynamic Balancing is applicable in case of smaller runners. Please appreciate that the weight and size of this runner is large and it will not be practically viable to conduct a Dynamic Balancing test for the same. Hence, only Static Balancing may be allowed.	Agreed
8		General		Transportation limits	Please provide the transportation limits w.r. to weight and dimensions	Refer Clause 2.21, page 41 of section VIC - Project Information.
9	VI.C	1	4	synchronous generators, each rated at 8250 kW (at generator terminals) and maximum capacity of 9075 kW i.e. 10% continuous overloading. The generator should be capable of delivering 120% of the rated output at rated power factor and shall be suitable for parallel operation between the generator units and with the grid.	Clause 1.0 and 4.0 of section VI C state different overloading values for generator. It is to inform you that we are considering 10% COL. Please confirm	120% was typo error. It is 10% continuous over loading.
10	VI.C	4.10.1		Creep detector equipment shall be provided to detect creeping of the generator at very low speed. It shall give alarm as well as initiate the hydrostatic lubrication system and braking system simultaneously.	Creep detector equipment is being provided in very large capacity of the generators. Hence, we recommend you that it is not required for such low capacity of the machine.	Not acceptable, Specification to be followed
11	VI.C	4.10.2		Rotor Temperature Indicator: Solid state type, rotor temperature indicator which works on the principle of change of resistance of field winding with temperature rise shall be provided. This shall be mounted on the unit control board. This instrument shall be provided with necessary time delay and auxiliary relay for annunciation.	This is applicable in case of Static Excitation System. However, the tender specifications have asked for Brushless Excitation System, for which Rotor Temp. Indicators are not required.	Both the options are available for bidders to quote (Refer Data Sheet A-1 , Clause no. 4.1)
12	VI.C	4.10.3		Mechanical over speed device shall be mounted on the extension shaft of generator and shall consist of a spring loaded latched switch mounted on a bracket. The switch will be operated by a spring loaded plunger mounted on the generator shaft. Adequate number of potential free contact (minimum 3 no.) shall be mounted in the switch box. This device shall be hand reset type and shall have suitable range of adjustment. Speed contacts shall also be provided as required for automatic operation of brake system and high pressure lubrication system etc.	We are providing speed protection system through speed sensing disc and through governor protection. In such a case, providing an additional mechanical overspeed is not required.	Bidders may cover under deviation with justification furnishing examples of similar Commissioned projects.

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13	VI.C	4.11.1		For stopping the generators quickly, each generator shall be provided with compressed air operated brakes, which will be operated automatically or manually from local control panel/unit board, in coordination with brake jets to bring the rotatory parts of the generator & turbine to stop from about 15% of rated speed during normal working.	We recommend to go for hydraulic operated brakes.	Not acceptable, Specification to be followed. This supercedes the Sl. No. 35 of the pre bid meeting
14	VI.C	4.12		DRAIN PLUGS Drain plugs shall be provided in the generator casing & it shall be so located that it would be possible to drain from all pockets water or any other liquid entered into the generator casing.	As machine is having IP42 protection, there is no requirement of drain plug.	Bidders may cover under deviation with justification furnishing examples of similar Commissioned projects.
15	VI.C	8.2.1	8.2.3	The brushless excitation system shall essentially comprise a pilot exciter (Permanent Magnet Generator), SCR bridge exciter, field breaker discharge resistor, main exciter, rotating diodes etc. Field excitation for the AC exciters shall be supplied by a PMG type, rotating field, high frequency pilot exciter through a static automatic voltage regulator.	As brushless excitation system is already provided and addititonally excitation transformer are also provided therefore, we recommend that the PMG is not required for this range of machine.	There is option for supply of excitation system as static or brussless. In case generator is been supplied with SEE, the bidders may supply excitation system with or without PMG as per design practice.
16	VI.C	11	3.2.4 Turbine and auxiliary	Generator-EFFICIENCY AND OUTPUT GUARANTEES The weighted average efficiency = 0.8* at full load + 0.1* efficiency at 80 % full load + 0.1* efficiency at 60 % full load. Weighted Average Efficiency ηav = k1*ηt110 + K2*ηt100 + k3*ηt80 + k4*ηt60 Where ηav= weighted average efficiency, ηt110, ηt100, ηt80 and ηt60 are the efficiencies of turbine at 110%, 100%, 80% and 60% load respectively of the turbine and k1 = 0.1, k2 = 0.6, k3 = 0.15, k4 = 0.15	There is a discripancy in the farmula for WAE. Please confirm which weighted average efficiency has to be taken while calculating the efficiencies for turbine and generator.	Turbine Formula is applicable for Generator also.
17	VI.C	3.8.1 page 44		Cooling Water System	Tender spec(s) ask for both the options. Water from Penstock tapping as well as from tail race. We suggest only 1 option is sufficient.	Penstock tap off with booster pumps (I Main + 1 Standby) for each unit feeding the main C.W header.However, each penstock tap-off shall have one direct by-pass line with valves joining the main C.W header for emergency purpose.
18	Sec. III	ITB 11.4.1		Deemed Export Benefits	We will not be liable for the implications in case deemed export benefits are withdrawn by govt. or customer could not provide project authority certificate or relevant documents to claim deemd exposrt benefit.	Taking deemed export benefit is bidders responsibility or other wise.

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19	SCC Sec. V			"Upon correction of the defects in the facilities or any part thereof by repair/replacement, such repair / replacement shall have the Defect Liability period extended by a period of twelve (12) months from the time such replacement / repair of the facilities or any part thereof".	As per pre-bid clarifications point no. 49, we understand that maximum period for repair warranty shall be 36 months from completion. Kindly confirm.	OK. It was already agreed in Pre-bid meeting.
20	SCC Sec. V	GCC Clause 13		Advance Payment Security	Kindly accept that the cumulative amount of reduction at any point of time shall be 100% of the advance, corresponding to cumulative value of the facilities completed as per a certificate to be issued by Proj. Manager.	Not acceptable, Specification to be followed

Additional Clarifications to Bidders

1	Sl. No. 48 of prebid meeting	The equipment shall be so designed and erected such that it shall not be prone for any ABNORMAL wear and tear within the 21 months period which jeopardize the performance of the units and requires replacement of equipment or the parts thereof.