



KenGen

KENYA ELECTRICITY GENERATING COMPANY PLC

RFx: 5000009956

KGN-GDD-059-2022

TENDER FOR SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF OLKARIA GEOTHERMAL LAKESIDE WATER TREATMENT PLANT COMPONENTS.
(Water Pumps, Sand filter housing, water treatment chemicals, ultrafiltration plant, and Water analysis tools).

(Citizen Contractors)

10th June, 2022

CLARIFICATION NO. 1

In accordance with the “Tender for Supply, Installation, Testing and Commissioning of Olkaria Geothermal Lakeside Water Treatment Plant Components.” KenGen hereby issues Clarification No 1

No.	Clarification Request	KENGEN’S RESPONSE
A.	<ol style="list-style-type: none">1. Requirement A1 talks of submersible pumps, yet the initial description is for a Horizontal multistage pump. Are they surface pumps or Submersible pumps?2. Specifications for the pumps are not indicated i.e., required flow (Q) and pumping head (H) as done for the other multistage pumps. Please provide us with these.	<p>Pumps required for Schedule A are submersible centrifugal type stainless steel pumps c/w at least 55kw water filled rewindable motors.</p> <p>The pumps are required to give a flow of 100m³/hr. at a total dynamic head 180m. The pumps must be connected via common manifold with non-return valves and wired to operate on a duty standby mode and including a spare pump with motor of similar size.</p> <p>The installation of the pumps at the intake must incorporate a water-cooling jacket/sleeve for the motor. The supplier shall provide drawings and dimensions for the product offered.</p>
B.	<p>Reference is made to the subject tender number. We seek clarification for Schedule A, Item 1:Skid mounted Electrical driven horizontal multistage centrifugal pumps. Kindly share information on the expected flow rate and head to enable size for the appropriate pumps.</p>	<p>Pumps required for Schedule A are submersible centrifugal type stainless steel pumps c/w at least 55kw water filled rewindable motors.</p> <p>The pumps are required to give a flow of 100m³/hr. at a total dynamic head 180m. The pumps must be connected via common manifold with non-return valves and wired to operate on a duty standby mode and including a spare pump with motor of similar size.</p> <p>The installation of the pumps at the intake must incorporate a water-cooling jacket/sleeve for the motor. The supplier shall provide drawings and</p>

		dimensions for the product offered.
C.	<p>With regards to the referenced tender we are writing to seek two clarifications.</p> <ol style="list-style-type: none"> 1. For the pumps required under schedule A, the site visit confirmed that the pumps required are surface pumps and not submersible pumps as indicated in the document. There is however no pump duty requirement noted in the document (in the detailed scope of works) in terms of flow in m³/hr. and head in meters. Kindly provide this information 2. We request for a water analysis report for the water to be treated by the ultrafiltration unit under schedule D 	<p>Pumps required for Schedule A are submersible centrifugal type stainless steel pumps c/w at least 55kw water filled rewindable motors.</p> <p>The pumps are required to give a flow of 100m³/hr. at a total dynamic head 180m. The pumps must be connected via common manifold with non-return valves and wired to operate on a duty standby mode and including a spare pump with motor of similar size.</p> <p>The installation of the pumps at the intake must incorporate a water-cooling jacket/sleeve for the motor. The supplier shall provide drawings and dimensions for the product offered.</p> <p>The Raw water analysis report is herewith attached. APPENDIX A</p>
D.	<p>We request for clarification on the following items</p> <ol style="list-style-type: none"> 1. Schedule A – Can you kindly specify the volumes desired and head. We calculated this to be 100M³/Hr and a head of 200M. 2. Schedule D – Specification of Pretreatment to UF matches the product specification from the Sand Filters. Can we have this adjusted to below 50 Microns? 3. There is no mention whatsoever of disinfection, yet there is mention of drinking water quality. Are we free to input mechanical and maintenance free technologies like Ozonation etc. for this? 	<p>Pumps required for Schedule A are submersible centrifugal type stainless steel pumps c/w at least 55kw water filled rewindable motors.</p> <p>The pumps are required to give a flow of 100m³/hr. at a total dynamic head 180m. The pumps must be connected via common manifold with non-return valves and wired to operate on a duty standby mode and including a spare pump with motor of similar size.</p> <p>The installation of the pumps at the intake must incorporate a water-cooling jacket/sleeve for the motor. The supplier shall provide drawings and dimensions for the product offered.</p> <p>Please supply according to the specifications specified in the tender document.</p> <p>There is no need for disinfection unit</p>
E.	<p>SCHEDULE 1 : There is no technical data for schedule 1(horizontal centrifugal pump) There was no details Required pump Head , Flow , Pump type Without that data we CANT select the pump and their pricing</p>	<p>Pumps required for Schedule A are submersible centrifugal type stainless steel pumps c/w at least 55kw water filled rewindable motors.</p> <p>The pumps are required to give a flow of 100m³/hr. at a total dynamic head 180m. The pumps must be connected via common manifold with non-return valves and wired to operate on a duty standby mode and including a spare pump with motor of similar size.</p>

	<p>Ultrafiltration Plant Capacity?</p> <p>Inlet water analysis?</p>	<p>The installation of the pumps at the intake must incorporate a water-cooling jacket/sleeve for the motor. The supplier shall provide drawings and dimensions for the product offered.</p> <p>The ultrafiltration plant capacity is 5 m³/hr</p> <p>Water analysis report is attached.</p>
F.	<p>Schedule A has three pumps - two to be connected as duty and standby and one as a spare.</p> <p>The BQ indicated three panels presumably one for each pump. This system can only have one control and hence one panel. Our recommendation is we have just one panel unless spare ones are required.</p> <p>Similarly, I believe the same would apply to the other pump sets in Schedule B.</p>	<p>Each pump will be operated by its own control panel. Two pumps will be connected to a common manifold with only one operating at a time, hence the duty-standby mode. The third one will be used as a spare unit.</p>

CHEMICAL ANALYSIS REPORT

APPENDIX A.



POWER PLANT CHEMISTRY LABORATORY

CHEMICAL ANALYSIS REPORT

Source: Raw water from Lake Naivasha

Date of sampling: 27/5/2022

PHYSICAL TESTS

pH: 8.105@24.9°C

Turbidity: 6.58 N.T.U

EC @25°C: 281(microsiemens/cm)

CHEMICAL TESTS

	Results mg/l (ppm)	Max.guideline value mg/l (ppm)
Total Alkalinity as CaCO ₃	102.4	500
Total hardness as CaCO ₃	56	500
Free Ammonia & saline	0.00598	-
Chloride (Cl ⁻)	6.255	250

Sulphate (SO ₄ ²⁻)	2.148	250
Silica (SiO ₂)	0.082	-
TDS, dried at 100°C	168	1000
Fluoride (F ⁻)	1.07	1.5
Sodium (Na ⁺)	25.7	200
Potassium (K ⁺)	18.5	-
Calcium (Ca ²⁺)	14.7	-
Magnesium (Mg ²⁺)	4.69	-
Iron (total) Fe ³⁺	0.45	0.3
Lithium (Li ⁺)	0.1	-

Remarks: Slightly alkaline and moderately soft water that is fairly well mineralized.

Analyzed by:-Jackline Githinji &Patrick Makokha

Date: 29/5/22

ACKNOWLEDGEMENT OF CLARIFICATION No. 1

We, the undersigned hereby certify that the clarification is an integral part of the document and the alterations set out in the clarification has been incorporated in the tender proposal.

Signed.....

Tenderer.....

Date.....