Republic of Serbia

MINISTRY OF FINANCE

Department for Contracting and Financing of EU Funded Programmes (CFCU)

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CONTRACTING AUTHORITY'S CLARIFICATIONS No. 2

"Construction and commissioning of waste water treatment plant at TPP Kostolac B"

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No.	Question	Answer
1	**Volume 3 - Employer's requirements - General** Please, confirm the following: a) VLE limits from Table -1 and Table-3 apply to WWTP-U. In this case we understand that we must use the minor value for the same parameter. b) VLE limits from Table -2 apply to WWTP-ODG&HPV. c) VLE limits from Table -4 apply to WWTP-S. d) VLE limits from Table -5 apply to Effluent Storm water treatment (Separators 1, 2, 3, 4). VLE limits from Table-5, do they apply to another stream?	a) Correct. b) Correct. c) Correct. d) VLE limits from Table - 5 apply to Effluent Storm water treatment.
2	**Volume 3-Employer's requirements - General** Please, we request that send us the following information: a) Technical characteristics from the existing pumps of Machine Hall and HFO. b) A general layout in CAD format. c) Geometrical definition drawings from existing civil works (HFO pit, Machine Hall pit etc.) d) Piezometric drawings from existing collectors (Machine hall, HFO, sand filters reject, Storm water, etc.). e) Existing soils and geotechnical studies.	All available information for the preparation of the bid is given in the Tender Dossier. a) Currently not available b) Currently not available c) Currently not available d) Currently not available e) Precise data are currently not available. The Preliminary Design states following: *"Based on the results of previously conducted field and laboratory researches conclusions regarding the lithological composition of the terrain*

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		at the location of objects and geo mechanical characteristics of represented materials were made. Field researches and laboratory tests of soil at the location of TPP Kostolac B were performed by the organization „Georad", OOUR „Georad" and results were presented in the "Study on geo mechanical characteristics of soil at the location of future TPP Kostolac B" (Georad, 1978). Investigative drilling of 6 investigative boreholes was conducted and the length of boreholes was 30m (TED-1 do TED-6). Representative samples of soils were taken from the boreholes and laboratory tests were performed (identification and classification examination, determination of physical and mechanical characteristics of soil). The borehole closest to the location of future WWTP is TED-3. Based on the results of drilling and laboratory tests it has been concluded that the soil at the location of facility has following layer characteristics: *1) at the surface of terrain is humus thickness around 0.6 m,* *2) beneath humus is the layer of loess thickness around 3.9 with following characteristics:* $\gamma = 20$ *kN/m3* *c = 20 kN/m2* $\phi = 23°$ *M = 15000 kN/m2* *3) furthermore there is a layer of loess clay thickness 4.10 m, with following characteristics:* $\gamma = 20$ *kN/m3* *c = 10 kN/m2* $\phi = 26°$ *M = 20000 kN/m2* *4) bellow is the layer of sandy clay*

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		thickness 0.4 m, with following characteristics: *γ = 20 kN/m3* *c = 10 kN/m2* *ϕ = 22°* *M = 25000 kN/m2* *5) on a larger depths su clay sand and fine grained sand, which haven't been laboratory tested. Depth of ground water is around 9.20m in the layer of sandy clay (4). Foundation of all objects in FGD is in loess layer (2) except for the sludge silos for which foundation is in the layer of loess clay (3)."* The data in the above mentioned text (in italic font) should be used as indicative ones bearing in mind following: 1. Geotechnical characteristics of the terrain on which WWTP will be located could be different from the presented data 2. Location of TPP Kostolac and WWTP foreseen by the Project is between two rivers
3	**<u>Volume 3-Employer's requirements-General</u>** Please, we need to locate in a plot plan, the battery limits from: -Auxiliary Steam -Service water -Potable water -Fire fighting -Oil and lubricants warehouse	Please see the drawing in Annex 2.1 to Clarifications No. 2 The drawing contains squares marking the closest potable water, which will serve both as service and drinking water. At the location of TPP Kostolac B there is hydrant network on which new objects can be connected. The distance of the objects to the connection point will be approximately 20m.
4	**<u>Volume 3-Employer's requirements-General</u>** We understand that the collector for the new cooling water in B3 unit is out of our scope. Please	Confirmed.

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	confirm.	
5	**Volume 3 - Employer's requirements** **WWTP-U** Please, confirm that the streams indicates in Annex 1 from Unit B3 are all the streams that we have to treat, and lead to the new WWTP-U.	Confirmed.
6	**Volume 3 - Employer's requirements** **WWTP-U** Please, confirm that streams from B3 Unit are the same in characteristics that the same streams from Unit B1 and B2.	It is expected that the WWTP-U streams from the new B3 unit will be similar in characteristics as the same streams from B1 and B2 units. However, the tenderer should assume the characteristics of the stream from new B3 unit in accordance with its experience with the similar projects related to the WWTP in new lignite fired units.
7	**Volume 3 - Employer's requirements** **WWTP-U** The following parameters that we have to comply in the WWTP-U effluent aren't indicated in "oily polluted and heavily oil polluted waste water quality". Please, confirm the maximum values for this parameter that we have to consider to design the WWTP-U. Biochemical Oxygen demand, BOD5 Chemical Oxygen demand, COD Ammonia (as NH4-N) Total inorganic nitrogen (NH4-N, NO3-N, NO2-N) Total Phosphorus Mineral oils Metals Organo-halogens Cianides Toxicity Arsenic (As) Lead (Pb) Total Chromium (Cr) Cadmium (Cd) Copper (Cu) Nickel (Ni) Mercury (Hg) Zinc (Zn) Fluorides (F) Sulphates (SO4) Sulphites Sulphides Chlorides (Cl) For the unknown parameters, we will consider that the raw value will be under the limit value indicate in the tables-1 or table-3. Please confirm.	Tender Dossier contains all relevant information and parameters related to the WWTP-U for the purpose of tender preparation. Effluent parameters shall be in accordance with relevant national legislation (i.e. Regulation for the limits on the emission of pollutants in water and deadlines for their achievement Official Gazette RS 67/11, 48/12, 1/16) and relevant EU Legislation, as stated in ER Chapter 4.6:"…*in conformity with the requirements of the "Best Available Techniques" as they are defined in the IPPC Directive 2008/01/EC and the IED Directive 2010/75/EU considering the existing specific site conditions and wastewater streams state*…" For the unknown parameters, you should consider that the values will be under the limit values according to EU and Serbian legislation.

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8	**Volume 3 - Employer's requirements** **WWTP-U** Please, confirm if the parameter "Total", indicates in Table 5.1, Table 5.2 and Table 5.3, are "Total Suspended Solids".	Confirmed.
9	**Volume 3 - Employer's requirements** **WWTP-U** Please, confirm the depth of the sewage and effluent collector.	It is not clear whether the question relates to the existing or future sewage and effluent collector. If the question refers to the depth of future sewage and effluent collector then it is up to the Tenderer to determine adequate depth according to the proposed technical solution. If the question refers to the depth of the existing collectors for oily and HFO polluted waters then the depth is up to 2m.
10	**Volume 3 - Employer's requirements** **WWTP-U** Please, confirm the average and peak hourly flow to design the pre-treatment for all streams.	Tender Dossier (Vol. 3, Employer's requirements, Chapter 5.5. and Annex I), contains all available information related to the waste water flow for the purpose of tender preparation.
11	**Volume 3 - Employer's requirements** **WWTP-U** Is it possible to change the centrifugal decanter by filter-press?	No. Employer's requirements (ER) Chapter 9.2.2 states that centrifugal dewater system should be used for the treatment of WWTP-U streams.
12	**Volume 3 - Employer's requirements** **WWTP-ODG&HPV** Please, confirm that streams from B3 Unit are the same in characteristics that the same streams from Unit B1 and B2.	It is expected that the WWTP-ODG&HPV streams from the new B3 unit will be similar in characteristics as the same streams from B1 and B2 units. However, the Tenderer should assume the characteristics of the stream from new B3 unit in accordance with its experience with the similar projects related to the WWTP in new lignite

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		fired units.
13	**Volume 3 - Employer's requirements WWTP-ODG&HPV** Please, confirm if the stream referred as RO permeate (408 m3/h) from unit B3, is reject instead of permeate.	Stream referred as referred as RO permeate (408 m3/h) is NOT reject.
14	**Volume 3 - Employer's requirements WWTP-ODG&HPV** Please, indicate quality of RO stream (pH, temperature, conductivity, TDS, Ca2+, Mg2+, SO42-, alkalinity, SiO2, Cl- and Na+ at least).	The Tenderer should assume the quality of RO stream according to its experience in the field of WWT in coal/lignite thermo power plants, bearing in mind that fact that WWTP-ODG&HPV is a future waste water stream, i.e. the quality of this waste water is currently not determined.
15	**Volume 3 - Employer's requirements WWTP-ODG&HPV** a) Please, indicate the maximum concentration in the FGD hydrocyclone overflow for the following parameter: Hardness, alkalinity, sulphates, COD, AOH, Zinc, Total inorganic nitrogen (NH4-n, NO3-N, NO2-N), Cadmium, Copper, Sulphites, fluorides, Mercury and sulphides. This parameter is included in table-2. b) For the unknown parameters, we will consider that the raw value will be under the limit value indicates in table-2. Please confirm.	a) Available data regarding quality of waste waters from FGD hydrocyclones overflow are given in the Employer's Requirements (ER) Chapter5.5.1,Table 5.5 b) Confirmed
16	**Volume 3 - Employer's requirements WWTP-ODG&HPV** Please, confirm the depth of the sewage and effluent collector.	It is not clear if the question relates to the existing or future sewage and effluent collector. If the question refers to the depth of future sewage and effluent collector then it is up to the tenderer to determine adequate depth according to the proposed technical solution.

No.	Question	Answer
17	**Volume 3 - Employer's requirements WWTP-ODG&HPV** Please, confirm the average and peak hourly flow to design the pre-treatment for all streams.	Tender Dossier (Vol. 3, Employer's Requirements, Chapter 5.5.1 and Annex I) contains all relevant information related to the waste water flow for the purpose of tender preparation.
18	**Volume 3 - Employer's requirements WWTP-ODG&HPV** Is it possible to change the centrifugal decanter by filter-press?	No it is not possible to change centrifugal decanter with filter-press. Centrifugal decanter shall be used as stated in Employer's Requirements, Chapter 9.3.3.7.
19	**Volume 3 - Employer's requirements WWTP-S** Please confirm that wastewater parameters characteristics are as follow: DQO: <700 mg/l DBO: <350 mg/l SS: <288,5 mg/l NTK: <57,7 mg/l Pt: <6,3 mg/l FOG:<10 mg/l	Confirmed.
20	**Volume 3 - Employer's requirements WWTP-S** Please indicate pumping pit (existing) dimensions	The existing pumping station is circular in basin, with the lock chamber, which is its integral part and which is rectangular in plan. The inner diameter of the pump station is 2 m, depth of pumping stations is 5.5 m. The bottom of the pumping station was 64.35 meters above sea level.
21	**Volume 3 - Employer's requirements WWTP-S** Please indicate distribution facility dimensions	The tenderer should foresee the adequate dimensions of the distribution facility that would be appropriate for functionality of the WWTP-S system.
22	**Volume 3 - Employer's requirements WWTP-S** Please indicate emergency tank dimensions	The tenderer should foresee the adequate dimensions of the emergency tank that would be appropriate for functionality of the WWTP-S system.

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23	**Volume 3 - Employer's requirements WWTP-S** Please indicate depth and dimension of existing pipes and channels (inlet pipe and discharge channel)	Dimension of inlet pipe is ϕ150mm and outlet pipe dimension is ϕ200mm. Depth is approximately 1m.
24	**Volume 3 - Employer's requirements WWTP-S** Please, confirm the average and peak hourly flow to design the pre-treatment.	Tender Dossier (Vol. 3 Annex I) contains all available information related to the waste water flow for the purpose of tender preparation.
25	**Volume 3 - Employer's requirements WWTP-S** Please confirm that channel where grid must be installed like a pre-treatment in WWTP-S is already built.	Confirmed.
26	**Volume 3 - Employer's requirements WWTP-S** Regarding SBR reactor, please confirm if it must be buried or surface.	The Tenderer should foresee the adequate solution for the SBR reactor according to its experience in the field of WWTP. However, this solution shall be appropriate in terms of the functionality of the WWTP-S system.
27	**Volume 3 - Employer's requirements WWTP-S** Regarding SBR reactor, please confirm if it must be built on concrete or pre-manufactured in carbon steel.	The Tenderer should foresee the adequate solution for the SBR reactor according to its experience in the field of WWTP. However, this solution shall be appropriate in terms of the functionality of the WWTP-S system.
28	**Volume 3 - Employer's requirements WWTP-S** Please, confirm if cycles in SBR are set by specification or we can design based on our experience.	Number of cycles is not set by specification. Solution shall be appropriate in terms of the functionality of the WWTP-S system.
29	**Volume 3 - Employer's requirements WWTP-S** Regarding sludge silo from WWTP-S, please indicate the following: - Volume and shape - Material (concrete or carbon steel) - Installation: Buried or surface	The technical solution for the sludge silo from WWTP-S must fulfil the functional requirements of the Tender (i.e. the capacity of WWTP-S unit defined in Vol. 3 Chapter 5.5.3) Dimensions, materials and other technical solutions can be based on the experience and so far applied knowledge by Tenderer.

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30	**Volume 3 - Employer's requirements WWTP-S** Regarding dosing pumps, please confirm that all part (housing, piston…) must be of stainless steel.	All parts of dosing pumps do not have to be of stainless steel.
31	**Volume 3 - Employer's requirements WWTP-S** Please, confirm that all dosing pumps must be of stainless steel.	All dosing pumps do not have to be of stainless steel.
32	**Volume 3 - Employer's requirements STORM WATER** Please, indicate maximum concentration from TSS and Hydrocarbons from Naphtha in the influent to design Separators nº1, 2, 3 and 4. For the unknown parameters, we will consider that the raw value will be under the limit value indicates in table-5. Please confirm.	Tender Dossier does not contain the requested information, but the Employer's Requirements Chapter 9.4 states that the Storm water shall be treated in 4 separators with defined characteristics. No. We do not confirm that for the unknown parameters tenderer shall consider that the raw value will be under the limit value indicated in table-5.
33	**Volume 3 - Employer's requirements STORM WATER** Please, confirm the depth of the sewage and effluent collector for all separators.	It is not clear if the question relates to the existing or future sewage and effluent collector. If the question refers to the depth of future sewage and effluent collector then it is up to the Tenderer to determine adequate depth according to the proposed technical solution. If the question refers to the depth of existing collectors for storm water then the depth is up to 3m.
34	**Volume 3 - Employer's requirements STORM WATER** Please confirm the supplier of storm water separators that studied the basic engineering.	The separator manufacturer provided in the conceptual design is ACO group. However the Tenderer is not obliged to use this this type of separator in its bid.