Invitation for Bids

Ukraine

Municipal Water Infrastructure Project Chernivtsi, Phase 1

Rehabilitation and Modernisation of Raw Water Intake Mytkiv and Water Treatment Plant Vikno – Line 3

ICB No. 509491

THE MUNICIPAL ENTERPRISE CHERNIVTSIVODOKANAL (CVK) HAS RECEIVED FINANCING FROM KFW DEVELOPMENT BANK (KFW) TOWARD THE COST OF THE "MUNICIPAL WATER INFRASTRUCTURE PROJECT CHERNIVTSI, PHASE 1 REHABILITATION AND MODERNISATION MEASURES FOR WATER SUPPLY INFRASTRUCTURE"

AND INTENDS TO APPLY PART OF THE PROCEEDS TOWARD PAYMENTS UNDER THE CONTRACTS FOR "MUNICIPAL WATER INFRASTRUCTURE PROJECT CHERNIVTSI, PHASE 1 – LINE 3"

Bidding process will be governed by the KfW Procurement Guidelines, Document version January 2019, 2nd update as of Novemner 2023. Please refer to: www.kfw-entwicklungsbank.de/PDF/Download-Center/PDF-Dokumente-Richtlinien/FZ-Vergaberichtlinien-V-2021-EN.pdf

The Municipal Enterprise Chernivtsivodokanal (CVK) now invites sealed bids from eligible Bidders for:

- Improvement of efficiency and effectiveness of the system of production, supply and distribution of water
- Increase energy efficiency

by execution of the Works related to Rehabilitation and Modernisation of Raw Water Intake Mytkiv and Water Treatment Plant Vikno including following measures:

I. **Works Launch Complex (LC) 1 - Mytkiv Surface Raw Water Intake.**

Surface water to supply Chernivtsi with potable water is extracted from the Dniester River at the Mytkiv intake. This intake was designed to supply water to Chernivtsi based on an estimated future population of approximately 1 million people. The design capacity of the water intake is around 150 thousand m3/day, although the Mytkiv station currently operates at up to 65 thousand m3/day.
The Mytkiv water intake consists of a water intake structure with filters located on the Dniester River, two gravity lines from the intake structure to the pumping station building on the bank of the Dniester River. The intake structure below the ground has a diameter of 24 meters and a depth of 21.9 meters.
The pumping station (PS) inside the water intake building is divided into two parts:

- Intake chamber with two vertical screens.
- Pumping station with all installations of the 1st lift (PS I).

Currently PS I has 5 pumps installed with 6 kV electric motors having following capacity:

- D4000/100 (Q=4,000m^3/h, H=100 m) – 2pcs (subject for replacement);
- D2000/100 (Q=2,000m^3/h, H=100 m) – 2 pcs.;
- D630/90 (Q=630m^3/h, H=90 m) – 1 pcs

In daily regular pumping regime only one pump D2000/100 is in operation, which is equipped with a high-voltage frequency converter. The pumping station operates with a capacity of up to 2500 m3/h at a pressure of 80 m.
To secure sustainable operation of the PS two (2) installed pumps D4000/10 shall be replaced with new pumping units PU No 1 and No 4 as described below.
At the time of its construction, the pumping station was equipped with a water hammer protection system located at the beginning of the main pipeline. This system has not been in operation for at least 20 years and is outdated.

Currently, a "safety valve" has been installed to minimize the impact of water hammer. In order to avoid water hammer, one pump is constantly running. It is required to design and install a new water hammer protection system at the beginning of the main pressure pipeline.
Two pressure steel pipes with diameters of DN 1400 mm and DN1200 mm having length of 6.7 km deliver water to the Vikno water treatment plant (currently only the DN1400 mm pipe is in operation).

Scope of Work for Launch Complex (LC) 1 includes but is not limited to:

- Preparation of the complete Detailed Design Stage R and conducting additional surveys as needed
- Replacement of two existing pumping units D4000/100 (Q=4,000m^3/h, H=100 m) (PUs) No. 1 and No. 4 by new pumps with hydraulic characteristics that shall provide safe, optimal performance and flexible operation of the water pumping regimes. Paramters of the new pumps to be installed as replacement of the existing units shall be as follows:
  PU No. 1 – Q = 2,450 m^3/hour, H=90 m;
  PU No. 4 – Q = 2,000 m^3/hour, H=90 m.

- Design and supply one new frequency converter, which controls only one pump operation.
- Design and install for new pumping units and valves the nominal electrical power connection to the power grid.
- Design and install power supply to the new pumping units following specifications provided in the Contract PART 2 Work Requirements and Drawings
- Design and install automatic control system for new pumping units.
- Connect the new pumping units and shut-off valves to the updated SCADA system.
- Replacement of 18 existing valves for the prevention of water hammering in the existing surge tanks and undertake needed measures to avoid flooding of the PS
- Replacement of 10 shut-off and control valves on the pipelines of pumps subject to replacement.
- Replacement of existing pipelines inside the pumping unit at lines of pumps subject to replacement.
- Design and construction of two new foundations for new pumps.
- Replacement of external onsite water supply networks and chamber for non-return valve.
- Replacement of 11 shut-off, control and other type of valves on the route of the water main Ø1400 mm NS-I Mytkiv - NS-II Vikno based on the results of the design solutions prepared for eliminating water hammering.
- Replacement of the existing service platforms for the 2 new pumping units to be replaced.
- Replacement of two service rails inside the surge tanks No. 1 and No. 2.
- Reconstruction of the concrete structures inside of the pumping station and also inside the surge tanks in accordance with specifications and details provided in the Works Requirements and Drawings.
- Preparation of As Built Drawings, testing and commissioning of the installations

II. **Works Launch Complex (LC) 2- Vikno Water Treatment Plant**

The design capacity of the Vikno water treatment plant is 100,000 m3/day, but it is currently operating at 60,000 m3/day. Due to backflow and valve leaks, technical water losses amount to more than 10,000 m3/day. The water treatment plant consists of:

a) Reaction chambers
b) 8 horizontal sedimentation tanks
c) 5 high-speed sand filters
d) 2 clean water tanks of 3000 m3 each
e) Coagulant dosing systems
f) Chlorination systems
g) Recirculation and reuse of flushing water (currently not in use)
h) 2nd Lift Pumping station (Second lift)
i) Water hammer prevention equipment

2nd Lift Pumping station (Vikno pumping station)

Pumping station facility located on the territory of the Vikno Water Treatment Plant is designed and constructed to supply water to the reservoirs (2 x 20,000 m^3) located at the Shubranets Water Pumping Station through two parallel pressure main pipelines that are 35.5 km long, having diameters DN 1000

mm and DN900 mm. Along the pipeline route, water from the pressure main is also supplied to the town of Zastavna and the villages of Vikno and Pohorylivka (approximately 900 m3/day).
The pumping equipment installed at Vikno pumping station consists of 5 pumping units of the 2nd lift with 6kV motors:

- 3 Pumps type TsN 1000-180 having a capacity Q=1000 m³/h and head: H=180 m
- 2 Pumps type TsN 3000-197 having a capacity Q=3000 m³/h and head: H=197 m. These pumps are subject to replacement under the currant Contract.
- 3 pumping units for filters backwash having 6 kV motors:
- 3 backwash water pumps type D 6300/27 (Q=6300 m³/h; H=27 m)

The number of pumps in operation depends on the consumption and water level in the water reservoirs located on the Shubranets Water Pumping Station terriotry.
The outlet pressure head from the Vikno pumping station is 126 m (12.6 bar) and the pressure is regulated by throttling the valve.

Scope of Work for Launch Complex (LC) 2 includes but not limited to:

- Preparation of the complete Detailed Design Stage R and conducting additional surveys as needed.
- Replacement of two existing pump units TsN 3000-197 with new pumps Q = 2,100 m^3/h, H = 152 m.
- Design and install of the frequency converter that controls only one pump motor operation.
- Design and install new electrical power lines and connection to the power grid for new pumps and valves installations.
- Design and install a new automatic control system for the operation of the new pumping units.
- Design and connect new pumping units and shut-off valves to the automated remote control and monitoring system.
- Replace existing hydraulic shock prevention valves in the existing surge tank No. 1.
- Replacement of shut-off and control valves on the lines of pumps.
- Replacement of existing pipelines inside the pumping station
- Replacement of the section of the external on-site water supply pipe network DN 1000 mm from NS-II to the surge tank No. 1.
- Replacement of 36 shut-off, control and air release valves on the route of the main water supply DN1200 and DN900 Vikno Pumping Station to Shubranets Water Pumping Station based on the calculation results and number of facilities needed to avoid water hammering
- Replacement of 35 shut-off valves on filters in the flushing water system and old valves installated at the settling tanks as specified in the Works Requirements and Drawings.
- Installation of two water turbidity sensors at the entrance and exit of treatment plants.
- Repair and restoration works at 2nd lift PS building structures, surge tank No. 1, the building of water treatment plant: reagent building, settling tanks, and filter building in accordance with the list of defects and design documents prepared.
- Replacement and reloading of quartz sand with a fraction of 0.8-1.4 mm in filters with total volume of 1400 m^3.
- Preparation of As Built Drawings, testing and commissioning of the installations.

Bidding will be conducted by means of the Single Stage International Competitive Bidding **(ICB)** procedure with qualification as specified in the KfW Guidelines for Guidelines for Procurement of Goods, Works and associated Services in Financial Cooperation with Partner Countries (“KfW Guidelines” “Document version Jan. 2019 - 1. update as of Jan. 2021”)

The General Conditions of Contract are based on the Banks (KfW) Harmonized Edition of the Conditions of Contract for Construction prepared and copyrighted by the International Federation of Consulting Engineers (Fédération Internationale des Ingénieurs-Conseils, or FIDIC), FIDIC 2010.

Interested eligible Bidders may obtain further information from

Municipal Enterprise “Chernivtsivodokanal”
Komunal’nykiv Str 5
Chernivtsi, 58023,
Ukraine

Electronic mail address: piu.cvk@gmail.com, attention Mr. H. Dudko and copy to office@mwip-chernivtsi.com

A complete set of bidding documents in electronic format will be available to interested Bidders following written formal request by email to the addresses indicated above.

Qualification Documents and Bids must be delivered to the address indicated in the clause ITB 22.1 of the bidding documents on or before **June 18**, **2024 at 12:00 o'clock** (noon) local time. Late qualification document and bids will be rejected.

In the first public session, only the Qualification Documents will be opened in the presence of the Bidders' designated representatives. In the second public session only the Bids of those Bidders who have fulfilled the qualification criteria will be opened.

All bids must be accompanied by a Bid Security.