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To: [REDACTED]
USAID-OIEE-AESP Water and Sanitation Lead Engineer

From: [REDACTED] Senior Project Manager

Re: Extension of the Kabul Water Supply System - MTP-1 Bid Package Review

Date: March 01, 2010

This memo has been prepared to evaluate Bidding Documents for the MTP-1 program for the Extension of the Kabul Water Supply and provide a written summary of findings and recommendations on following:

1. Assess designs of MTP-1 to ensure that the engineering is of acceptable standards for construction.
2. Assess whether the bid documents are of acceptable standards to use for USAID procurement purposes.
3. Review the Fitchner material provided to determine what is relevant and useful for USAID needs.

The following documents were provided to Tetra Tech for reviewing.

- “Extension of the Kabul Water Supply System – Implementation”, End of the Year Report No.18, December 2009 (draft)
- USAID Afghanistan “Action Memorandum for the Mission director”, (November 2008)
- MTP1-Bidding Documents
 1. MTP1 – Bidding Documents Distribution Networks (MUD-483) (June 2008)
- Sample for Bidding Documents Headworks (MUD481-482)
 1. MUD-474 BD (similar to MUD481)
 2. MUD 473 BD (similar to MUD482)
- MTP-1 Design Reports
 1. MTP-1 Headworks Design Report (MUD481-482) (Feb 2008)
 2. MTP 1 Distribution Networks Design Report (MUD-483) (Feb 2008)
- MTP-1 Drawings
 1. MTP1 – Distribution Drawings (MUD-483) (June 2008)

2. MTP1 – Headworks Drawings (MUD481-482) Jan 2008
- MTP-1 Presentations
 1. MTP1-Presentation Headworks (MUD481-482) (Feb 2008)
 2. MTP-1 Presentation Distribution Networks (MUD483) (Feb 2008)

1) Assess designs of MTP-1 to ensure that the engineering is of acceptable standards for construction

Scope of MTP-1 Program

The MTP-1 Program includes the following elements:

- Laying of Logar II wellfield collectors
- Construction of a well houses, suction tank, pumping station and staff accommodation
- ME-equipment for wells, suction tank and pumping station Logar II, incl. stand-by power
- Construction of trunk main Logar II to reservoir E in Wazir Akbar Khan
- Construction of reservoir E on Bibi Mehro Hill in Wazir Akbar Khan
- Distribution networks for supply areas Tahie Musken & Zoo, Wazir Abad, Qale Fatullah, Teomany, Wazir Akbar Khan and Share Naw of reservoir E.

These elements have been packaged into 3 separate sub-projects (MUD-481, 482 and 483).

Contract MUD-481 relates to the supply and laying of well field collectors in Logar and from the Logar Pump Station to the reservoir E:

- Supply and laying of Logar II wellfield collectors between wells LG-12 through LG-20 and the new Logar II suction tank (ca. 10 km), connection to existing Logar I collector.
- Supply and laying of a trunk main between the proposed Logar II pumping station and the proposed reservoir E on Bibi Mehro Hill (ca. 10,5km) together with a short section of the reservoir E principal main (0,36km).

Contract MUD-482 relates to the supply and installation of electrical and mechanical equipment and civil works in Logar wells and Logar II pumping station as well as the construction of a new reservoir E. It includes the following components:

- Supply and installation of 3 new main pumps and related pipe work in new Logar II pumping station, pump drives and related electrical works
- Supply and installation of a new stand-by generator in Logar II PS and related auxiliary works
- Supply and installation of electro-mechanical equipment of 8 deep wells in the Logar II wellfield (LG-12, LG-13, LG-14, LG-16, LG-17, LG-18, LG-19 and LG-20)
- Construction of 8 well houses and related infrastructure
- Construction of suction tank and pump house and staff accommodation
- Construction of reservoir E (5000m³ capacity) on Bibi Mehro Hill in Wazir Akbar Khan.
- Supply and installation of complete hydraulic equipment for new reservoir E.

Contract MUD-483 relates to the supply of pipes, fittings, valves, etc. and pipe laying works for new distribution networks, principal and local mains, in the central and northwest service area of Kabul (fed from reservoir E). The service area includes the distribution areas Nos, 905 (Tahie Musken & Zoo), 26 (Wazir Abad), 10 (Qale Fatullah), 27 (Teomany), 14 (Wazir Akbar Khan) and 7 (Share Naw). The contract includes the following components:

- Principal Mains : 25.8 kms Ductile Iron pipes DN 200-800
- Local Mains : 116.6 kms U-PVC pipes OD 110-160
- House connections: 6,900 nos with PE 20 pipes and 76 nos. of connections for buildings/flats

Tetra Tech reviewed the provided documents and assessed the constructability based on the design of MTP-1 phases. The engineering, presented in the final design documents, is of acceptable standards for this type of construction. It should be noted here that the only bid documents provided were for contract MUD-483. The documents provided for MUD-481 and 482 were “samples” of similar contracts from STP-1. For this reason our review of the samples was not as detailed as that done on the MUD-483 documents. The design presented was well done and appropriate for an engineering final design document, however below are some of our notes to bring to the attention of USAID.

MTP-1 Final Design Reports

1) Some of existing network parts are planned to be integrated into the new distribution network. The existing works are described in detail; however accurate as-built drawings of any of the existing works are not available. Schedules of operation may change from time to time. The information for existing network in the final design is based on the Engineer's knowledge as per February, 2006 and is subject to errors and omissions.

2) According to the Consultants, during the design period several meetings have been held between Consultant, CAWWS and Kabul Municipality (KM) in order to obtain information related to road developments as well as residential areas in the respective design areas. The process was very time consuming and the support given by CAWWS and KM was minor. Some developments had to be copied by hand instead of obtaining hard copies. The information flow was based on the process of little by little, resulting in requests again and again for the same information.

Another problem which was acknowledged and already is effecting some of the alignments of the principal mains are the new pipelines of a telecommunication company, which are partially constructed and bring constructed presently without any coordination with other utilities. This issue has been raised by Consultants in one of the meetings with KM, mainly to avoid uncontrolled actions by different utilities. Due to the ongoing developments in Kabul, a strict policy is required for the allocation of future alignments of different utilities.

KM promised to take action by providing a coordinator, who will be responsible to organize meetings with the relevant parties. However, taking into consideration that the Consultants experienced one difficult working environment with relevant parties during design, we can predict similar situation and some unnecessary delays in construction, due to possible conflict with existing utilities.

3) The yield of the Logar River Aquifer in the Kabul basin has been estimated by the Consultant not to exceed 24.6 million m³/year. Well drilling wasn't completed before the final design report was finished. Once the capacity of the individual wells is known the confirmation or re-evaluation of the hydraulics of the wellfield and the pumping station needs to be undertaken.

MUD-481 and MUD-482 Bid Documents

Bid Documents prepared for MUD-481 and MUD-482 were not provided for review, but instead “sample” documents were provided from similar contracts in STP-1. For MUD-481 documents from MUD-474 were provided and for MUD-482 documents from MUD-473 were provided. We found in reviewing the BOQs for each of these “samples” that the list of items seemed quite appropriate for the type of work, i.e. the “sample” provided for MUD-481 contained all appropriate pipe sizes, etc. Similarly, the specifications seemed to include an appropriate specification section for each item of work in the BOQ. This simple review provides no information as to the adequacy of the MUD-481 or MUD-482 bid documents. What it does is establish that the “sample” documents selected are an appropriate source as a starting point to preparing the MUD-481 and MUD-482 documents. When the applicable bid documents are available a thorough review of them should be conducted similar to the one that follows for MUD-483. Most specifically the section titled “Particular Technical Specifications” should be reviewed relative to the special type of work in each contract, i.e. well houses, pumping equipment, reservoirs, etc.

MUD-483 Bid Documents

Section V, Special Conditions of the Contract

This section covers numerous specific items to this contract. All these items are covered in a manner customary to this type

Section VI, Technical Specifications and Drawings

1. Section A.2.4, second paragraph should be updated to reflect US AID funding of the work in this contract.
2. Section B, General Technical Specifications, Section 1 is General Provisions and adequately covers all typical items such as Site Meetings, Progress Reports, Daily Reports, Staffing and Labor and Contractor’s Representative.
3. Section B, General Technical Specifications, Section 2 is Site Installation and Preparatory Works and covers Mobilization, Demobilization, Safety, First Aid Supplies, Construction Methods, As Built Drawings, Testing of Materials, and numerous other items typically covered in this section of a Bid Document. All these items are covered in a manner customary to this type of work.

4. Section B, General Technical Specifications, Section 3 is Equipment and Materials, appears to be complete and adequate for the work included in the scope of the project.

5. Section B, General Technical Specifications, Section 4 is Civil Works and covers Excavation, Trench Support, Backfill, Pipe Laying, Valve Chambers and numerous other items typically covered in this section of a Bid Document. All these items are covered in a manner customary to this type of work.

6. Section C, Particular Technical Specifications, contains numerous sections dealing with site specific matters such as climate, topography, existing water systems and others, all of these items are covered in a manner customary to this type of work.

Suggestions

A. Specification section 3.2.1 for Valves, last sentence calls for the Contractor to supply one valve key (wrench for operating buried valves) for each type of valve . We suggest this be increased to 20 valve keys based upon the size and scope of the project.

B. Specification section 3.5 for House Connections and Public Taps, similar to 3.2.1 referenced above, does not call for any valve keys. Again we suggest the Contractor supply 20 valve keys based upon the size and scope of the project.

C. Specification section 3.2.1 and 3.5, referenced in A and B above, fail to mention the configuration of the operating nut on valves. We recommend that all valves (gate, butterfly and service) be configured to match the existing Kabul system to provide for easier maintenance in the future.

D. Several items in the Bid Documents were highlighted, most likely as a reminder to insert corrected items such as bid day, date and time. All these highlighted items should be checked and updated prior to the issuance of Bid Documents.

2) Assess whether the bid documents are of acceptable standards to use for USAID procurement purposes

In the past, USAID has engaged in several water-related activities in Afghanistan, principally related to limited rural and urban water supply, irrigation system rehabilitation, and general planning and watershed management.

The MTP-1 project, as part of the Extension of the Kabul Water Supply System, intends to increase access to safe drinking water, recover the long-term technical, financial and environmental sustainability of potable water supply and sanitation services and improve hygiene behaviors for poor and vulnerable populations in Kabul, Afghanistan.

Through the MTP-1 project, we can state that USAID can firmly anticipate an increase in access to safe drinking water, sanitation, and hygiene education, including improved water resource planning and restoration associated with potable water delivery. The project will also increase water supply, improve water quality, and train project beneficiaries in water supply system maintenance and hygiene practices, and boost community awareness of the need for water conservation and watershed protection in relation to potable water supply.

Considering the above matters and based on the provided USAID document, USAID/Afghanistan “Action Memorandum for the Mission director”, (November 2008), we find that the bid documents are of acceptable standards to use for USAID procurement purposes. Additionally, below is what Tetra Tech finds as relevant to the procurement purposes as well. See also General Risk section of this memo.

Complementary activities to the design, procurement, investigation or supervision of STP or MTP components have taken place throughout the 2009 year; these relate mainly to coordination and technical aspects of important issues such as the protection of water resources, awareness campaigns, sector studies, new water metering technologies, etc. The activities are described in section 3.6.1 to 3.6.5 of “Implementation, End-of-the Year Report No 18”, December 2009 (Draft) presented by “Water for Kabul consultants-Extension of Kabul Water Supply Systems / JV Fichtner W&T-IGIP-BETS”

According to the End-of-the Year Report No 18, the procurement method will need to be agreed among parties at the time of negotiation of potential a financing agreement. The final Procurement plan and prequalification method will also have to be agreed by parties. The entire MTP for Kabul Water Supply including MTP-1 has already been marketed during the second round of the procurement of MUD-473 thru 475, based on a Program Brief document describing the STP and entire MTP packages. Other marketing strategies have been suggested for the next period (third round of the procurement of MUD-475)

A tentative schedule for MTP-1 phase is given in the general implementation chart of Annex 3 of the EOYR # 17. In summary, the schedule for procurement is as follows:

- (Validation of final Bidding Documents completed by AUWSSC by Nov)
- (Validation of MTP-1 final Procurement Plan by Dec. 2009)
- Submission by AUWSSC/ARDS of draft Bidding Documents for NOL to Donors by Feb 2010
- Incorporation of comments of donors, revision and clearance of BD by April 2010
- Re-submission for NOL to Donors and NOL for bidding issued by Donors by May 2010
- Notification / advertisement of bidding opportunity and tendering between June and Aug 2010
- Bid opening, bid evaluation, BER, NOL by donors and SPC between Sept and Nov. 2010
- Awards, contracts negotiation and contract agreements by Dec 2010
- Start of contracts, mobilization of Contractors as from Jan. 2011

The implementation period of MUD-481 is estimated at 18 months and includes a 6-months supply period and a 1-month winter break. The implementation period of MUD-482 is estimated at 19 months and MUD-483 covers an estimated period of 24 months including a 7-month supply period and 2 winter season breaks.

3) Review the Fitchner material provided to determine what is relevant and useful for USAID needs

Section I. Invitation For Bids

1. (Page 1, para. 1) Notice was originally published in April, 2005. An Invitation to Bidders should be published at the time bidding documents are available in order to generate a sufficient amount of competition in the bidding process.
2. (Page 1, para. 2) Should US AID funding be referenced here?
3. (Page 2, para. 5) Appears to adequately address the Bidder's financial, equipment and staffing requirements. 3. Since the bid documents only require a 10% Performance Surety (typical for this part of the world) these financial, equipment and staffing requirements should be adhered to.
4. (Page 3, para. 9) Requires a 5% Bid Surety which is quite standard for this type of work.

Section II, Instructions to Bidders

1. (Page 14, para 13) States that the Bid Surety shall be "...in the currency of the Employer's country, or in the equivalent amount in a freely convertible currency". This language should be compatible with the Invitation For Bids, page 3, para 9, which stipulates US dollars.

Section III, Bid Data Sheet

1. Page 7/8, Contract Award, calls for the amount of the Performance Security to be 10% of the contract amount. Typically the performance security amount is 100% of the contract amount. The performance security becomes an issue in the event of default by the Contractor and failure to complete the scope of work in the contract. The Owner would then look to the surety company to step in and complete the work. The Owner would want the surety company to be obligated to the contract amount, not just 10% of it.

Section V, Special Conditions of the Contract

This section covers numerous specific items to this contract. All these items are covered in a manner customary to this type.

General Risk

Security in the country as well as in Kabul is increasingly unstable since 2007. It had further incidence in 2008 and 2009 on the mobilization of contractors and delays, increased costs for transportation of imported goods to project sites.

Several organizations are engaged in the implementation of extensions to the water supply system of Kabul, other are likely to invest into new urban service infrastructures, including groundwater development. To avoid uncontrolled growth of the system and competition for the limited groundwater resources, technical co-ordination of these activities is required. The coordination should ensure that uniform technical standards are followed.

Low incomes of the potential consumers and the weight of the investments required to catch up with the demand put the project at the limit of economical sustainability. If lasting bad economic parameters outcome in a permanent low income of the population of Kabul prevent the potential customers to become actual ones because of lack of money, then the project objective – healthy water for more health – cannot be achieved.

No immediate negative environmental impacts appear to be associated with the project.