



## STAFF REPORT

DATE: 8/21/2018

**CONSENT**

ITEM #: 8

**TO:** City Council

**FROM:** Rob Weldon, Public Works Director

**AGENDA ITEM:** Well #2 Programmable Logic Controller (PLC) Replacement

**REVIEWED BY:** Kristina Handt, City Administrator

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**BACKGROUND:** Since construction in 2003 nearly all mechanical and electrical equipment in Well #2 is original and reaching a point of repair and/or replacement. One such and very critical electrical component that has reached this threshold is the Programmable Logic Controller or PLC. The PLC is the “brain” of the well. Nearly all critical controlling for the well to operate and communicate with the SCADA master control computer is done through the PLC. On June 28<sup>th</sup> and 29<sup>th</sup> of 2018 there were intermittent failures of this PLC in which all communication was lost between Well #2 and SCADA Control at Public Works. During this time, all automatic controls were lost between these sites and manual operation needed to be conducted.

Telemetry Process and Controls, the City’s control integrator, determined that the PLC is in need of replacement. Due to age and technology advancements, the existing PLC is difficult to find parts for and is no longer supported by its manufacture. To ensure technology advancements are met it is recommended to replace the existing PLC with a new one that will support current and future activities at Well #2

**ISSUE BEFORE COUNCIL:** Should the City Council approve replacement of the PLC in Well #2?

**PROPOSAL DETAILS/ANALYSIS:** By replacing the PLC in Well #2 the city strengthens its commitment to deliver an uninterrupted water supply to its consumers. In addition, replacement of a 15-year-old electrical component will allow better flexibility for future improvements as need at the well in the coming years.

**FISCAL IMPACT:** Cost of the replacement, installation, programming and 1-year warranty is \$10,331.00 and will be funded through the Water Utility Repair and Improvements portion of the General Budget.

**OPTIONS:**

- Approve replacement of Well #2 PLC
- Deny replacement of Well #2 PLC

**RECOMMENDATION:**

***“Motion to approve replacement of the Programmable Logic Controller at Well #2 by Telemetry Process and Controls for an amount not to exceed \$11,000”***

**ATTACHMENTS:**

- Telemetry Process and Controls - Quote



August 1, 2018

City of Lake Elmo - Public Works Department  
3800 Laverne Avenue  
Lake Elmo, MN 55042

Attention: Mr. Rob Weldon - Public Works Director  
[rweldon@lakeelmo.org](mailto:rweldon@lakeelmo.org)  
651-747-3941

Thank you for the opportunity to provide this proposal to replace and upgrade the existing Well #2 Allen-Bradley PLC and Operator Interface Terminal (OIT).

**- TPC PROPOSAL -**  
**Well pump house #2 PLC & OIT Upgrade**  
**with new Ethernet switch connection to the existing SCADA radio transceiver**

Telemetry and Process Controls, Inc. (TPC) will supply the following equipment and services:

- **New PLC / OIT panel components to replace existing panel components**
  - PLC, Micrologix 1400
  - PLC memory module
  - (2) PLC, 4 channel analog input module
  - PLC, 8-point relay output module
  - PLC, 4-channel analog output module
  - Ethernet switch, 5-port, unmanaged
  - Operator Interface Terminal (OIT), 7" color touch screen
  - (AR) Interposing relays
  - (AR) Misc. panel components, wire, wire duct, terminals, nameplates, etc.
- **SCADA Reporting Upgrade to include:**
  - PLC and HMI Programming to:
    - Accept a high-speed pulse input from the existing well pump discharge flowmeter to provide more accurate flow totalization from this site than what currently exists in the SCADA system
    - Accommodate a 4-20mADC input signal from a new fluoride scale or fluoride tank level transmitter for display on the SCADA HMI graphical user interface with an adjustable low level alarm set-point
  - Replace the discharge flowmeter's existing output signal cable
- **Programming and Field Services**
  - Program new PLC & OIT and provide update additions to the existing HMI
  - Installation
  - Initial start-up
  - Testing

TPC's Price is: \$ 10,331.00

Proposal Notes:

The 4-20mADC input signals from the existing chlorine scales to the PLC will be checked; and any "fixes" required to display this information on the SCADA HMI will be done at no charge.

TPC's price includes:

- Engineering
- Programming
- Factory Check Out
- Field installation, start-up and operator instruction services
- 1-Year Warranty

TPC's price does not include:

- Applicable taxes

Following your review, please let us know if you have any questions.

Sincerely,

*Dave Gardeen      John Coons*

<p style="text-align: center;"><b>- TPC PROPOSAL -</b> <b>Well pump house #2 PLC &amp; OIT Upgrade</b> <b>with new Ethernet switch connection to the existing SCADA radio transceiver</b></p>
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**Accepted by:**

The proposal and terms & conditions herein are acknowledged and accepted:

\_\_\_\_\_  
Name/Title

\_\_\_\_\_  
Date

\_\_\_\_\_  
Authorized Signature

\_\_\_\_\_  
Purchase Order No.

**Terms and Conditions**

**ACCEPTANCE:** This proposal is an invitation for an offer and will become a binding contract when accepted.

**LIMITATION OF PROPOSAL:** The prices and terms quoted in this proposal are subject to acceptance by the Purchaser within a period of (365) calendar days from the date herein.

**EXCLUSIONS:** This proposal is based solely and completely on specifications submitted to Telemetry and Process Controls, Inc. (TPC) at the time of the writing of the proposal. General plans and specification not actually submitted shall not apply. This proposal, together with all annexed specifications, when accepted, shall be the complete agreement between the parties; and any alternations or unusual and undisclosed conditions or deviations from the above specifications involving extra costs shall be agreed upon in writing by both parties and shall become an additional charge over and above the proposal price set forth herein. Delays or impossibility of performance by TPC because of strikes, accidents, or other reasons beyond the control of TPC shall relieve us from all liability herein.

**SHIPMENT:** Time of shipment shall be as stated in the proposal after receipt of order and acceptance and final approval of all drawings and submittal.

**TERMS OF PAYMENT:** Terms are Net 30 days, based on rated credit. Otherwise, alternate arrangements must be made. These terms and conditions have control over any terms presented by Buyer, through a purchase order or otherwise.

We reserve the right to cancel the contract or cease work if payments thereon are not received when due. 1.5% per month shall be charged on all unpaid balances.

**TAXES:** The Purchaser shall pay any local, state or federal sales, excise or use tax imposed on the equipment in addition to the prices quoted.

**WARRANTY LIMITATION:** There are no warranties that extend beyond the warranties herein after expressed.

**WARRANTIES:** All work shall be done in a workmanlike manner according to standard practices. We warrant performance against defects in materials and workmanship for a period of twelve (12) months from the date of shipment from TPC. We agree to pass on to the Purchaser such warranties, if any, as may be extended by the manufacturer for material supplied. Labor for replacing defective materials shall not be provided by us unless it is specifically spelled out in the proposal. We shall not be responsible for materials damaged, lost or stolen after delivery, through no fault of ours, or for failure to deliver and perform because of reasons beyond our control.

**EXCLUSIVE REMEDIES:** Remedies are limited to the repair or replacement at FOB point of delivery. Consequential damages are excluded. In no event shall TPC be responsible for consequential damages of any such defective material or workmanship including, but not limited to, the Purchaser's loss of material or profits, increased expenses of operation, downtime or reconstruction of the work, and in no event shall TPC's obligation under this warranty exceed the original contract price of the defective item. It is agreed that any action for breach of express or implied warranty shall be initiated within fifteen (15) months of the date of shipment by TPC and only those defects that are documented to have occurred within twelve (12) months from the date of the equipment's start-up and acceptance or (15) months from the date of TPC's shipment, whichever happens first, will be covered by the warranty.

**DISCLAIMER:** TPC will not be responsible for damage to equipment or materials through improper installation, storage, improper services, or through attempts to operate it in excess of its rated capacity or recommended use, intentional or otherwise, by parties other than TPC or its authorized representatives.

**CONDITIONS OF SALE:** Prices quoted are those now in effect. Seller reserves the right to bill at the prices in effect at the time of shipment if the proposal is not accepted in writing within thirty (30) days, unless a longer term of validity is in writing on the proposal.

#### **LIMITATIONS OF LIABILITY**

A. Neither Seller nor its suppliers of any tier will be liable to Purchaser, whether in contract, in tort (including negligence and strict liability), under any warranty or otherwise, for any special, indirect, incidental, or consequential loss or damage whatsoever, or for loss of or to the plant, loss of use of equipment or power system, cost of capital, loss of profits or revenue or the loss of use thereof, cost of environmental damage or clean-up, or claims of customers of Purchaser. The remedies set forth herein are exclusive, and the total cumulative liability of seller and its suppliers under any purchase order or any act or omission in connection therewith or related thereto, whether in contract, in tort (including negligence and strict liability), under any warranty, or otherwise, will be limited to the price of the contract.

B. The provisions of this Article shall survive termination, cancellation or expiration of the purchase order and shall apply, notwithstanding any other provisions of this Agreement or any related document thereto, to the fullest extent permitted by law. Prior to the transfer of any equipment or material furnished or for which work is furnished hereunder from the project site (except temporarily for repair work or permanently for disposal), or the transfer of any interest therein or in the plant, Purchaser shall obtain for Seller written assurances from the transferee of limitation of and protection against liability following the proposed transfer at least equivalent to that afforded seller and its suppliers under the purchase order.