

ITEM 9 - APPROVAL OF CHANGE ORDER NO. 2 OF KAMAN AUTOMATION, CONTROL & ENERGY FOR CONTRACT NO. EMA-03A, DISTRIBUTION SCADA REPLACEMENT, PROJECT NO. 201400160, CONTRACT NO. 16-16-07 - \$101,013.00

Motion by Mr. Simmeth seconded by Mr. Schad

WHEREAS, Heretofore and on the 23rd day of June, 2016, the Erie County Water Authority ("Authority") entered into a contract with Kaman Automation, Control & Energy for Contract No. EMA-03A, Distribution SCADA Replacement, identified as Contract No. 16-16-07; and

WHEREAS, Said contractor has submitted Change Order No. 2 in the sum of \$101,013.00 to provide for the following changes:

1. A 280-day time extension to the Substantial Completion and 334-day time extension to the Final Completion dates
2. Additional efforts were required to develop and test the radio communication system because radios were not setup by ECWA during the Factory Acceptance Testing
3. ECWA requested that the pump interlocks to reduce system pressure when a secondary station was started against the primary station
4. ECWA requested that the operation of the constant speed pumps be revised to operate differently than originally designed
5. ECWA requested that the operation of the VFD pumps be revised to operate differently than originally designed
6. ECWA requested that several sites have additional Chlorine monitoring as well as some sites have additional Fluoride monitoring
7. ECWA requested that additional interlocks to shutdown pumps and interlock pumps be added to the system to increase the optimization of the operation of the system
8. With the additional items being added to the programming, there will be additional Site Acceptance Testing required at the eight sites that have been transitioned to date
9. ECWA requested that Ball pumps be fully automated based on system demand, which was not part of original design
10. ECWA requested an additional allowance be added to cover any unforeseen issues with the transition of stations. These funds are only available to the contractor upon EMA and ECWA approval; and

WHEREAS, The reasons for the above changes are as follows:

1. The Contractor is requesting a 280-day time extension to the Substantial Completion and 334-day time extension to the Final Completion dates due to a) a change directive to the contractor. The information from ECWA was formulated over a longer period than expected and additional items were added during the process of

developing the change and b) as the radio system was not made available for testing the system during the FAT, this has caused difficulties during the implantation of the system over the radio network. Additional investigation was required to determine the settings for communication optimization.

2. During the Factory Acceptance Testing, ECWA did not set up the radios and connect them to the test system to ensure the operation of the stations on the radio network with the SCADA programming. This has caused issues in the live system that required additional testing and reconfiguration.
3. During operation of the new SCADA system, operations requested changes to the programming to enhance the operation to add more functionality to the system that was never previously discussed by operations. These features include interlocks between pump stations, revision of the operation of constant speed pumps versus VFD speed pumps and the revised operation of VFD speed pumps.
4. Additional programming was required for additional Chlorine and Fluoride monitoring at several stations. These stations include Veterans Park, Colvin, Ball, Windom and Aurora.
5. Additional items were also added for shutdown interlocks, access levels to setpoints, changes to level, pressure and flow operation, removal of devices from the program and updates to the PCN and drawings.
6. With the new operational changes this will require additional testing at the stations previously transitioned.
7. The operation at Ball pump station was also revised and includes more automation to have the system select the pumps by demand.
8. Additional allowance is being carried as a contingency to cover unforeseen work or issues; and

WHEREAS, Russell J. Stoll, Executive Engineer and Michael Haendiges, Production Engineer recommend approval of said Change Order No. 2;

NOW, THEREFORE, BE IT RESOLVED:

That Change Order No. 2 of Kaman Automation, Control & Energy in the amount of \$101,013.00 to provide for the abovementioned change be approved; and be it further

RESOLVED: That the Chairman is hereby authorized to execute said Change Order No. 2 on behalf of the Authority.

Ayes: Three; Commrs. Anderson, Schad and Simmeth
Noes: None



ERIE COUNTY WATER AUTHORITY
INTEROFFICE MEMORANDUM

March 16, 2018

To: Joseph T. Burns, Secretary to the Authority

From: Michael T. Haendiges, Production Engineer *MTH*

Subject: Contract EMA-003-A
Distribution SCADA Replacement
ECWA Project No. 201400160

Attached is a Change Order No. 2 request for the above referenced project.

The following documents are attached:

- Blue Authorization Form - this form provides the project name and project number, the action that is being requested of the Board, and it provides a list of approvals that are required prior to being acted on by the Board.
- Four (4) original Change Order requests signed by the Engineering Consultant and Contractor.
- Backup information from Kaman Automation (Contractor) and EMA, Inc. (Consultant).

MHT:jmf
Attachments
cc: R.Stoll
L.Kowalski
CONT-EMA-003-A-1401-I-186-B

ERIE COUNTY WATER AUTHORITY
AUTHORIZATION FORM
For Approval/Execution of Documents
(check which apply)

Contract: EMA-03A **Project No.:** 201400160
Project Description: Distribution SCADA Replacement

Item Description:

<input type="checkbox"/> Agreement	<input type="checkbox"/> Professional Service Contract	<input type="checkbox"/> Amendment	<input checked="" type="checkbox"/> Change Order
<input type="checkbox"/> BCD	<input type="checkbox"/> NYSDOT Agreement	<input type="checkbox"/> Contract Documents	<input type="checkbox"/> Addendum
<input type="checkbox"/> Recommendation for Award of Contract	<input type="checkbox"/> Recommendation to Reject Bids		
<input type="checkbox"/> Request for Proposals			
<input type="checkbox"/> Other			

Action Requested:

<input checked="" type="checkbox"/> Board Authorization to Execute	<input checked="" type="checkbox"/> Legal Approval
<input type="checkbox"/> Board Authorization to Award	<input checked="" type="checkbox"/> Execution by the Chairman
<input type="checkbox"/> Board Authorization to Advertise for Bids	<input type="checkbox"/> Execution by the Secretary to the Authority
<input type="checkbox"/> Board Authorization to Solicit Request for Proposals	
<input type="checkbox"/> Other	

Approvals Needed:

APPROVED AS TO CONTENT:

<input checked="" type="checkbox"/> Department Head	<u><i>Mar. J. Hambrick</i></u>	Date: <u>3/16/2018</u>
<input type="checkbox"/> Risk Manager	_____	Date: _____
<input type="checkbox"/> Director of Administration	_____	Date: _____
<input checked="" type="checkbox"/> Executive Engineer	<u><i>Russell J. Toll</i></u>	Date: <u>3/16/18</u>

APPROVED AS TO FORM:

<input checked="" type="checkbox"/> Legal	_____	Date: _____
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APPROVED FOR BOARD RESOLUTION:

<input checked="" type="checkbox"/> Secretary to the Authority	_____	Date: _____
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Remarks: Change Order #2.

Resolution Date: _____ **Item No:** _____

CHANGE ORDER NO. 2

Erie County Water Authority
350 Ellcott Square Building, 295 Main Street
Buffalo, New York 14203

Contract No.: EMA-03A **Project No.:** 201400160 **Date:** March 16, 2018

Project: Distribution SCADA Replacement

Contractor: Kaman Automation Inc. **Engineer:** EMA Inc.
1000 University Ave. Ste 800 PO Box 1414 – BMO-94
Rochester, NY 14607 Minneapolis, MN 55480-1414

DESCRIPTION OF CHANGE:

1. A 280-day time extension to the Substantial Completion and 334-day time extension to the Final Completion dates.
2. Additional efforts were required to develop and test the radio communication system because radios were not setup by ECWA during the Factory Acceptance Testing.
3. ECWA requested that pump interlocks to reduce system pressure when a secondary station was started against the primary station.
4. ECWA requested that the operation of the constant speed pumps be revised to operate differently than originally designed.
5. ECWA requested that the operation of the VFD pumps be revised to operate differently than originally designed.
6. ECWA requested that several sites have additional Chlorine monitoring as well as some sites have additional Fluoride monitoring.
7. ECWA requested that additional interlocks to shutdown pumps and interlock pumps be added to the system to increase the optimization of the operation of the system.
8. With the additional items being added to the programming, there will be additional Site Acceptance Testing required at the eight sites that have been transitioned to date.
9. ECWA requested that Ball pumps be fully automated based on system demand, which was not part of original design.
10. ECWA requested an additional allowance be added to cover any unforeseen issues with the transition of stations. These funds are only available to the contractor upon EMA and ECWA approval.

REASON FOR CHANGE:

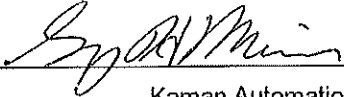
1. The Contractor is requesting a 280-day time extension to the Substantial Completion and 334-day time extension to the Final Completion dates due to:
 - a) A change directive to the contractor. The information from ECWA was formulated over a longer period than expected and additional items were added during the process of developing the change.
 - b) As the radio system was not made available for testing the system during the FAT, this has caused difficulties during the implantation of the system over the radio network. Additional investigation was required to determine the settings for communication optimization.
2. During the Factory Acceptance Testing, ECWA did not set up the radios and connect them to the test system to ensure the operation of the stations on the radio network with the SCADA programming. This has caused issues in the live system that required additional testing and reconfiguration.
3. During operation of the new SCADA system, operations requested changes to the programming to enhance the operation to add more functionality to the system that was never previously discussed by operations. These features include interlocks between pump stations, revision of the operation of constant speed pumps versus VFD speed pumps and the revised operation of VFD speed pumps.
4. Additional programming was required for additional Chlorine and Fluoride monitoring at several stations. These stations include Veterans Park, Colvin, Ball, Windom and Aurora.
5. Additional items were also added for shutdown interlocks, access levels to setpoints, changes to level, pressure and flow operation, removal of devices from the program and updates to the PCN and drawings.
6. With the new operational changes this will require additional testing at the stations previously transitioned.
7. The operation at the Ball pump station was also revised and includes more automation to have the system select the pumps by demand.
8. Additional allowance is being carried as a contingency to cover unforeseen work or issues.


COMPENSATION:

1. 280-day time extension to the Substantial Completion and 334-day time extension to the Final Completion dates
2. Revise DNP3 Configuration (\$10,638.00)
3. Add Pump station to Pump Station Interlocks (\$12,176.00)
4. Revise Constant Speed Pump Operation (\$4,312.00)
5. Revise VFD Pump Operation (\$4,312.00)
6. Add Chlorine and Fluoride Monitoring (\$3,162.00)
7. Miscellaneous Items (\$19,838.00)
8. Additional SAT Testing (\$12,650.00)
9. Add Ball Station Automatic Operation (\$10,925.00)
10. Additional Contract Contingency (\$23,000.00)

APPROVALS:

OWNER: _____ Date: _____
 Erie County Water Authority

CONTRACTOR:  _____ Date: 3/16/2018
 Kaman Automation Inc.

ENGINEER:  _____ Date: 3/16/2018
 EMA Inc.

CHANGE IN CONTRACT PRICE:		CHANGE IN CONTRACT TIMES:	
Original Contract Price:		Original Contract Times:	
		Milestone M1: All Work	<u>July 13, 2016</u>
\$ <u>1,221,760.00</u>		Substantial Completion: All Work	<u>October 26, 2017</u>
		Final Completion: All Work	<u>October 26, 2017</u>
Net changes from previous Change Orders:		Net Changes from previous Change Orders:	
\$ <u>142,732.25</u>			<u>90 days / 0 days / 0 days</u>
Contract Price prior to this Change Order:		Contract Times prior to this Change Order:	
		Milestone M1: All Work	<u>July 13, 2016</u>
\$ <u>1,364,492.25</u>		Substantial Completion: All Work	<u>January 24, 2018</u>
		Final Completion: All Work	<u>January 24, 2018</u>
Net Increase/Decrease of this Change Order:		Net Increase/Decrease of this Change Order:	
		Milestone M1: All Work	<u>0 days</u>
\$ <u>101,013.00</u>		Substantial Completion: All Work	<u>280 days</u>
		Final Completion: All Work	<u>334 days</u>
Contract Price with all approved Change Orders:		Contract Times with all approved Change Orders:	
		Milestone M1: All Work	<u>July 13, 2016</u>
\$ <u>1,465,505.25</u>		Substantial Completion: All Work	<u>October 31, 2018</u>
		Final Completion: All Work	<u>December 24, 2018</u>

KAMAN

Automation

MINARIK | ZELLER | GCF

Kaman Automation, Inc.
1000 University Ave
Rochester, NY 14607
P: 585.254.8840

www.kamanace.com

Gary Scheerer
EMA, Inc.
PO Box 1414 – BMO-94
Minneapolis, MN 55480-1414

March 16, 2018

Subject: 161101 Erie County Water Authority Distribution SCADA Upgrade Change Order Memo 18 and ECWA Site Communication Strategy documents.

Gary:

In response to Memo 18 change order request and ECWA site communication strategy, we are pleased to submit Kaman Automation proposal 161101 CO Memo 18 Rev 3 for your review and acceptance.

Work Scope

- 1) Revise DNP3 protocol as discussed during the workshop on January 18, 2018 and incorporate suggested changes in the ECWA Site Communication Strategy Rev 3 document.
- 2) Add pump station to pump station pump start interlocks for Pine Hill, Clark, Violet, and Lakeview. Provide two (2) additional BMXNOR0200H DNP3 modules
- 3) Revise constant speed pump operation.
- 4) Revise VFD pump operation.
- 5) Add additional Chlorine and Fluoride monitoring to Veterans Park, Colvin, Ball, Windom, and Aurora (7 new meters).
- 6) Miscellaneous items: No flow pump shutdown, High high discharge pressure pump shutdown, Start fill deadband supervisor access, Adjustable time delay for level, pressure and flow modes, Notification popup, Remove MGuard general alarms, Revise layout drawings to show router and network switch, and Veterans Park min speed.
- 7) Additional FAT of two (2) sites (Hamburg and Lakeview) and additional SAT of the six (6) pump stations in production (Veterans Park, Colvin, Lakeview, Hamburg, Shadagee, and Violet).
- 8) Add Ball Station automatic operation.
- 9) Miscellaneous Allowance: This allowance may be used as required for additional material, engineering, programming, and/or support as needed. These activities will only be performed when authorized by EMA and ECWA.

Note: This scope of work includes the required revisions to the PCN, P&IDs, Memory Map, PLC programming, OIT programming, HMI Programming, and SAT check lists.

Exceptions and Clarifications:

- 1) The FAT check lists will not be revised; the SAT check lists will be used for the additional FAT of the 6 sites.
- 2) Miscellaneous Allowance will only be used when authorized by ECWA and tracked separately. This activity will be to assist ECWA in engineering, programming and/or support as needed.
- 3) The rate of \$115/hours and applies for Monday – Friday 7:00am to 5:00pm support. Additional charges will apply for nights, weekends, and holidays. Additional charges will also apply if the estimate of the miscellaneous allowance is exceeded.
- 4) Please provide authorization to proceed as soon as possible. Any delay will continue to impact the schedule.
- 5) A functional radio system must be provided for communication analysis prior to deploying additional changes to the DNP3 configuration.

Schedule:

Based on the current delays and the additional work required we estimate the project substantial completion of October 31, 2018, with the overall project completion of December 24, 2018.

Pricing Summary

- Schedule of Values (SOV)

Item #	Description	Qty.	Price Ea.	Ext. Price
1	Revise DNP3 Configuration.	Lot	\$10,638	\$10,638
2	Add Pump station to Pump Station Interlocks.	Lot	\$12,176	\$12,176
3	Revise Constant Speed Pump Operation.	Lot	\$4,312	\$4,312
4	Revise VFD Pump Operation.	Lot	\$4,312	\$4,312
5	Add Chlorine and Fluoride Monitoring (7 Units).	Lot	\$3,162	\$3,162
6	Miscellaneous Items	Lot	\$19,838	\$19,838
7	Additional FAT and SAT	Lot	\$12,650	\$12,650
8	Add Ball Station Automatic Operation	Lot	\$10,925	\$10,925
9	Miscellaneous Allowance	Lot	\$23,000	\$23,000
			Total	\$101,013

Thank you for the opportunity to provide you with this proposal. Please let me know of any questions or need for additional information.

Best Regards,

Gregory H. Merriam

Gregory H. Merriam
Buffalo Department Manger