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; Comms. Anderson, Schad and Simmeth
Noes: None

03/22/18
To: Joseph T. Burns, Secretary to the Authority

From: Michael T. Haendiges, Production Engineer

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).
### Item 15.1

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

<table>
<thead>
<tr>
<th>Contract:</th>
<th>EMA-03A</th>
<th>Project No.:</th>
<th>201400160</th>
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<tbody>
<tr>
<td>Project Description:</td>
<td>Distribution SCADA Replacement</td>
<td></td>
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**Item Description:**
- [ ] Agreement  
- [ ] Professional Service Contract  
- [ ] Amendment  
- [x] Change Order  
- [ ] BCD  
- [ ] NYSDOT Agreement  
- [ ] Contract Documents  
- [ ] Addendum  
- [ ] Recommendation for Award of Contract  
- [ ] Recommendation to Reject Bids  
- [ ] Request for Proposals  
- [ ] Other ________________________

**Action Requested:**
- [x] Board Authorization to Execute  
- [x] Legal Approval  
- [x] Execution by the Chairman  
- [ ] Board Authorization to Award  
- [ ] Execution by the Secretary to the Authority  
- [ ] Board Authorization to Advertise for Bids  
- [ ] Board Authorization to Solicit Request for Proposals  
- [ ] Other ________________________

**Approvals Needed:**

**APPROVED AS TO CONTENT:**
- [x] Department Head  
  Date: 3/6/2016
- [ ] Risk Manager  
  Date: 
- [ ] Director of Administration  
  Date: 
- [x] Executive Engineer  
  Date: 3/6/16

**APPROVED AS TO FORM:**
- [x] Legal  
  Date: 

**APPROVED FOR BOARD RESOLUTION:**
- [x] Secretary to the Authority  
  Date: 

**Remarks:** Change Order #2.

**Resolution Date:** ________________________  
**Item No:** ________________________
CHANGE ORDER NO. 2

Erie County Water Authority
350 Ellicott 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.
1000 University Ave. Ste 800
Rochester, NY 14607

Engineer: EMA Inc.
PO Box 1414 – BMO-94
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 implementation 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, Bell, 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 ($12,660.00)
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: ________________________
Kaman Automation Inc.

ENGINEER: ______________________ Date: ________________________
EMA Inc.
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<th>CHANGE IN CONTRACT TIMES:</th>
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<td>Final Completion: All Work</td>
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<table>
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<th>Net Increase/Decrease of this Change Order:</th>
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<tr>
<td>$101,013.00</td>
<td>Milestone M1: All Work</td>
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<td>Substantial Completion: All Work</td>
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<td>Final Completion: All Work</td>
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</table>
Gary Scheerer
EMA, Inc.
PO Box 1414 – BMO-94
Minneapolis, MN 55480-1414

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

March 16, 2018

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)

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<th>Description</th>
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<th>Price Ea.</th>
<th>Ext. Price</th>
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<td>Revise DNP3 Configuration.</td>
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<td>Add Pump station to Pump Station Interlocks.</td>
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<td>3</td>
<td>Revise Constant Speed Pump Operation.</td>
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<td>4</td>
<td>Revise VFD Pump Operation.</td>
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<td>Add Chlorine and Fluoride Monitoring (7 Units).</td>
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<td>Miscellaneous Items</td>
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<td>8</td>
<td>Add Ball Station Automatic Operation</td>
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<td><strong>Total</strong></td>
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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,

Gréory H. Merriam

Gregory H. Merriam
Buffalo Department Manager