



## LEHIGH COUNTY AUTHORITY

March 26, 2012

### BOARD MEETING AGENDA

1. Call to Order
2. Review of Agenda
  - *Public Participation Sign-In Request*
3. Executive Sessions
4. Approval of Minutes
  - *March 12, 2012 Workshop Meeting Minutes*
5. Public Comments
6. Action / Discussion Items

#### **FINANCE AND ADMINISTRATION**

- *Personnel Study – Pay Classification Plan (Approval)*

#### **WATER**

- *Arcadia West Pumping Station Modifications (Approval)*

#### **WASTEWATER**

- *None*

7. System Operations Overview
8. Staff Comments
9. Solicitor's Comments
10. Other Comments
11. Adjournment

#### **APRIL MEETINGS**

Workshop Meeting  
Board Meeting

April 9 – 12:00 p.m.  
April 23 – 12:00 p.m.

#### **PUBLIC PARTICIPATION POLICY**

In accordance with Authority policy, members of the public shall record their name, address, and discussion item on the sign-in sheet at the start of each meeting; this information shall also be stated when addressing the meeting. Members of the public will be allowed 5 minutes to make comments/ask questions regarding non-agenda items, but time may be extended at the discretion of the Chair; comments/questions regarding agenda items may be addressed after the presentation of the agenda item. Members of the public may not request that specific items or language be included in the meeting minutes.

**FINANCE & ADMINISTRATION**

**ACTION ITEMS**

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1. **Personnel Study** (Approval)

Fox Lawson, consultant for the 2012 Personnel Study, will make a presentation on the recommended Pay Classification Plan. Approval of the recommended Plan is anticipated.

**DISCUSSION ITEMS**

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1. **None**

**INFORMATION ITEMS**

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1. **Recently Purchased Investments – Certificates of Deposit (CDs)**

Fund	Bank	Location	Gross Amount	Date of Purchase	Date Due	Net Rate %
Wtr R&R	PSDLAF Collateralized CD		1,000,000.00	2/28/12	6/29/12	0.200
LLRI CR	Mizuho Corporate Bank	New York, NY	245,000.00	2/29/12	11/29/12	0.300
WW Capac	Big Sky Western Bank	Big Sky, MT	200,000.00	3/8/12	3/8/13	0.250
LLRI CR	Synovus Bank	Columbus, Ga	208,000.00	3/14/12	3/14/13	0.300
Basin Street	Safra National Bank of NY	New York, NY	98,000.00	3/23/12	3/23/13	0.250

Fund Descriptions for Investments:

Wtr R & R	Renewal and Replacement
LLRI CR	Little Lehigh Relief Interceptor Capital Reserves
Basin Street	Basin Street Project
WW Capac	Wastewater Capacity

## WATER

### **ACTION ITEMS**

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1. **Arcadia West Pumping Station Modifications** (Approval)

Proposals were opened on March 2, 2012 for SCADA services at the station. We reviewed the proposals received and recommend award to Aptus Control Systems, Inc. at a price of \$34,559.82. A Memorandum to the Board, Capital Project Authorization Amendment, and Professional Services Authorization (PSA) are attached for Board approval (**green**). The Terms and Conditions attached to the Aptus proposal are being reviewed and the final revision will be attached to the executed PSA.

### **DISCUSSION ITEMS**

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1. **None.**

### **INFORMATION ITEMS**

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1. **Interconnection with Allentown**

Phase 2 - Connection to City Transmission System at 26<sup>th</sup> and Chew Streets – Approximately two-thirds of the project has been completed. Pipelaying in West Walnut Street (South Whitehall Township) has begun. The final work area, along Ott and Chew Streets, will be deferred until after June 1 to avoid potential conflicts with Mayfair. A contract time extension will be included in a future change order.

LCCD/PADEP has assessed a penalty for violations of the construction stormwater NPDES permit that occurred in the fall of 2011 after the record rainfalls. The Contractor is agreeing to pay the settlement amount suggested by LCCD rather than have the matter sent to PADEP for enforcement.

2. **Water Main Replacement Project – Oakland Park (UMT)**

Due to changes in the NPDES permit requirements effective as of 2011, this project will require that we complete an E&S plan for review by the Lehigh County Conservation District. Since a NPDES permit is required we anticipate a spring 2012 start date.

We are adding to the project a section of water main along Highland Court in the Clearview Manor development in LMT. This 845' section has experienced 3 main breaks in the last year and a half. As this area is not contiguous with the rest of the project, it will not need to be included in any NPDES permit submittals.

3. **Water Main Relocation Project – Slatedale**

Our water facilities on West Grant Street were successfully relocated in June. Work on Main Street has been scheduled for 2012. PaDOT held a special meeting with the project representatives, to determine the best course of action for taking the 12-inch line on Main Street out of service during the construction of bridge abutments. LCA staffing is evaluating options for a temporary line. Our exposure, by PaDOT Agreement, is about \$25,000.

4. **Water Meter Replacement Project**

Phase 2 - TSE, Inc. has replaced 3,353 out of 3,871 aging meters, radio-read units and backflow preventers through March 14. The substantial completion date is June 9, 2012.

5. **Arcadia West Pumping Station Modifications**

T&M continues to work on the design to the pumping station improvements.

6. **Lehigh Country Authority Facility Emergency Power Capability**

This project provides emergency back-up power for the LCA Office Operations Center and ten-other facilities. An RFP for design related services was sent to nine responding firms March 15, 2012; proposals are due on April 16 2012. We anticipate requesting Board approval for the Design Phase of this project at the May Work Shop meeting.

7. **Developments**

Water system construction is occurring at the following developments:

Valley West Estates, Phases 4, 5 & 6, 46 residential lots (sfd), UMT *(There has not been any construction activity at this development in over two years.)*

Water system plans are being reviewed for the following developments:

Above & Beyond (personal care facility), 2 commercial lots, UMT

Diocesan Pastoral Center, 2 commercial lots, 3 additional lots, & residual lot for existing cemetery, LMT

Hamilton Crossings, 3 commercial lots, LMT

Hickory Park Estates, 3 residential lots (sfd), UMT

Hillview Farms, 31 residential lots (sfd), LMT/SWT

Indian Creek Industrial Park, 6 commercial lots, UMIIT, water and sewer

Lehigh Hills, 247 residential lots (sfa/sfd), UMT

Morgan Hills, 40 residential lots (sfd), Water & Sewer, WeisT

North Whitehall Commercial Center (Walmart), 5 commercial lots, NWT, water & sewer

Parkland Fields (formerly Rabenold Farms I), 205 residential lots (sfd), (Portion south of I-78), UMT

Rabenold Farms II, 288 apartment units and clubhouse, (Portion north of I-78), UMT

Red Maple Acres Expansion, 29 units, LMT

Shepherd's Corner, 1 commercial lot, LMT

Spring Creek Properties Subdivision 1, 14 commercial and industrial lots, LMT

Trexler Business Center, Lot 1, 1 commercial building, LMT

Trexler Senior Living Center, 2 commercial lots, LMT *(In bankruptcy)*

Weilers Road Twins, 82 residential lots (sfa), UMT

West Hills Business Center, 8 industrial lots, WeisT

Woodmere Estates, 60 residential units (sfd), UMT

## WASTEWATER

### ACTION ITEMS

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1. *None.*

### DISCUSSION ITEMS

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1. *None.*

### INFORMATION ITEMS

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1. **Vera Cruz Area Sewer Project**

PACT Construction continues to work with the installation of manholes and laterals in Milestone Area #3 and anticipates completion by the end of April. Milestone Area #2 was completed on February 27. Final paving in completed portions of the project area, is anticipated for spring of 2012. Substantial Completion and Final Completion are presently January 29, 2012 and March 29, 2012, respectively, but may move back as far as April 2012.

2. **Infiltration and Inflow (I&I) Program Update**

A meeting was held with the SCARP Partners to identify potential projects for 2012 that will provide a reduction in I & I. The Partners were in agreement to initiate these "low hanging fruit" projects that will require LCA capital funding. We are currently developing the scope and budget for the 2012 projects.

The Partners are interested in an information meeting for the municipal officials in order to convey the future financial requirements.

Rehab effectiveness flow motoring is being planned for the 2012 rehab projects. The metering will determine the I & I flow credits that will be gained for each of the rehab projects. The I & I flow credits allow for new connections to the WLI System.

A plan for completion of the WLI Pipe Condition Assessment is being developed and will be presented to the Board in April.

3. **Wastewater Treatment Capacity**

The City has agreed to work together with LCA on a joint Act 537 Plan. A Memo of Understanding relating to the work associated with the 537 Study has been drafted and is expected to be executed in the near future.

The Request for Qualifications is being modified to include the necessary scope for the City work. The RFQ will be distributed to consultants within a few weeks.

Talks with Coplay-Whitehall Sewer Authority and Salisbury Townships may result in the sale and/or lease of allocation. An offer was presented to Salisbury for consideration several months ago. The Manager from Salisbury recently provided LCA with a counter offer. The offer is currently being evaluated.

4. **Northern Lehigh Wastewater System**

The project is proceeding in a number of areas:

**Wastewater Treatment Plant (on a 5 acre tract at Kids Peace)**

- a) North Whitehall Board of Supervisors have advised LCA that they want to discuss their concerns related to the proposed regional Wastewater Treatment Plant (WTP)

that was approved in the Act 537 Plan. This discussion should take place in early March.

The total cost of the WTP including soft costs and Kids-Peace acquisition costs is estimated at \$4.69 million.

Offsite Conveyance Facilities (OSCF)

- a) Wal-Mart has stopped design of the necessary conveyance facilities, which includes gravity sewers, a pump station and force main to deliver the wastewater from their proposed development and other future wastewater customers to the wastewater treatment facilities until a cost sharing agreement is reached with LCA. Wal-Mart has proposed that LCA assume the responsibility of designing, permitting and constructing the OSCF, which is a change from the previous plan where Wal-Mart had the responsibility. Ongoing cost-sharing negotiations have now been terminated as we have been advised by Wal-Mart's engineer that the construction of the store has been put on hold.

The construction cost of the conveyance facilities is estimated at \$1.354 million.

- b) An amendment to the agreement with KidsPeace is being negotiated to reflect the changed circumstances since the original agreement was signed in 2006. A recent meeting has indicated that KidsPeace is unwilling to entertain any changes to the original agreement that would decrease compensation or increase ongoing costs.

**5. Park Pump Station Improvements**

Comminutor Replacement – The comminutor procured through last year's efforts, was delivered on February 21. Contract agreements for the installation effort were executed on March 7 and a Pre-Construction Meeting held March 12. Actual installation should happen by end March.

Fuel Tank Replacement – Staff has received and is reviewing the plans for replacement of the fuel tank at the Park Pump Station. We will need to acquire additional easement area for the tank.

**6. LCA WTP- Truck Waste Receiving Station & Digester Mixer Replacement**

The project design is underway. To maintain schedule we plan to procure the 36-inch diameter digester mixers in advance of the installation contract bidding which we expect to take in April. The current schedule anticipates completion of the aforementioned improvements in the last quarter of 2012.

**7. Lynn Township Sewer System**

Settlement on this system took place on February 29, 2012. The system has approximately 49,000 ft. of gravity sewer main and a 80,000 gpd Wastewater Treatment Plant. Focus will be on I/I investigation/remediation; and Phase 1 & 2 improvements (headworks & disinfection) for the Wastewater Treatment Plant.

**WORKSHOP MEETING MINUTES**  
**March 12, 2012**

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The Workshop Meeting of the Lehigh County Authority was called to order at 12:17 p.m., on Monday, March 12, 2012, Chairman Asa Hughes presiding. Other Members present at the commencement of the meeting were: Thomas Muller, Norma Cusick, and Scott Bieber. Authority Staff present were: Aurel Arndt, Doug Young, Bradford Landon, Frank Leist, Patricia Mandes, Liesel Adam, Joseph McMahon, and Cristin Garger.

Tom Kelso of Castle Valley Consultants was also in attendance.

**Agenda Review**

Mr. Arndt stated there would be three additional items following the regular agenda items; two informational items and one action item.

He also said an Executive Session will be necessary to discuss property acquisition and potential litigation.

**APPROVAL OF MINUTES**

**January 9, 2012 Workshop Meeting Minutes**

On a motion by Ms. Cusick, seconded by Mr. Muller, the Board unanimously approved the minutes of the January 9, 2012 Workshop Meeting (4-0).

**January 23, 2012 Regular Meeting Minutes**

On a motion by Ms. Cusick, seconded by Mr. Bieber, the Board unanimously approved the minutes of the January 23, 2012 Regular Meeting (4-0).

**February 13, 2012 Workshop Meeting Minutes**

On a motion by Ms. Cusick, seconded by Mr. Bieber, the Board unanimously approved the minutes of the February 13, 2012 Workshop Meeting (4-0).

**ELECTION OF OFFICERS**

Mr. Muller, serving as the Nominating Committee, indicated he had polled the Board officers to determine if they are willing to serve in the same capacity as in 2011, to which they agreed. He also suggested splitting Mr. Nagle's position and to elect Ms. Cusick as the Assistant Secretary. He then offered the following slate of nominations for 2012:

Asa M. Hughes, Chairman	Emrich M. Stellar, Jr., Treasurer
Thomas S. Muller, Vice Chairman	Richard H. Bohner, Secretary
Brian C. Nagle, Assistant Treasurer	Norma A. Cusick, Assistant Secretary

Mr. Muller made a motion to close the nominations, which was seconded by Mr. Bieber. By a vote of 4-0, the nominations were closed and by unanimous vote of 4-0 the officers for 2012 were elected as nominated.

**Financial Guidelines Amendment** (Approval)

Mr. Arndt explained the law regarding public bidding has been amended; therefore, the Authority's financial guidelines and purchasing policies have been updated.

Mr. Landon outlined the details of the updated policy, noting that an annual inflationary process was added by the legislation. He also stated the emergency purchasing aspect of these purchasing guidelines needed to be updated to reflect the substantial 2011 update to the Authority's Emergency Response Plan.

On a motion from Mr. Muller, seconded by Ms. Cusick, the Board unanimously approved the updated Financial Guidelines Amendment (4-0).

**Strategic Plan Update** (Approval)

Mr. Arndt explained that some comments were received from outside sources during the update process, all of which were supportive. He stated that under "Facilities and Capacity", the word "groundwater" was added in point (a.) and that it should read "absent the highest groundwater source...". Because the interconnection with the City of Allentown will provide a large supply of water from a single source, this objective would never be met without adding the word "groundwater. Some discussion followed.

On a motion from Mr. Muller, seconded by Ms. Cusick, the Board unanimously approved 2012 Strategic Plan Update (4-0).

**Water Rates** (Approval)

Mr. Arndt stated that the water rate increase as a result of the study presented to the Board in January is ready for adoption. He explained that there are slight increases in volumetric charges and meter rates, both reflective of current costs. Mr. Arndt stated the rates would take effect on April 1, 2012.

On a motion from Ms. Cusick, seconded by Mr. Bieber, the Board unanimously approved the updated Water Schedule of Rates and Charges (4-0).

**Budget Amendments** (Approval)

Mr. Young explained that a budget amendment is needed regarding the 2011 water refinancing, as it was not planned at the time of the 2011 Budget adoption. He also noted there were unplanned items in the wastewater budget regarding the Lynn Township Sewer acquisition and clean up items from the Flow Equalization Basin.

On a motion from Mr. Bieber, seconded by Mr. Muller, the Board unanimously approved two Budget Amendments for 2011, one each for water and wastewater (4-0).

**Groundwater Monitoring Executive Summary**

Mr. Arndt distributed copies of the Executive Summary of the Groundwater monitoring reports prepared by ARRO for the Capece Tract wells and WL-8R and 12R in Lower Macungie Township. He noted that the report recommends termination of monitoring the Capece Tract wells because no problems have been found; however, the monitoring would continue at Wells 8 and 12 because there has not been enough time to capture sufficient data to determine whether monitoring is warranted or not. Mr. Arndt explained that this information has been shared with Lower Macungie Township and meetings to review the reports in detail have been scheduled with their Environmental Advisory Group, Planning Commission, and Supervisors.



**City of Allentown Joint Act 537 Plan**

Mr. Arndt stated that a meeting was held with the City last week regarding a joint 537 Plan in which the City agreed to cooperate in developing the plan. A Memorandum of Understanding (MOU) between the Authority and City has been drafted to move forward with a joint plan. He stated the MOU is very broad and will probably be executed administratively. Some discussion followed.

**Executive Session**

The Chairman called for an Executive Session at 1:05 p.m. to discuss possible litigation and property acquisition.

Tom Kelso left the meeting at 1:53 p.m.

The Session ended at 2:21 p.m.

There being no further business, the Chairman adjourned the meeting at 2:22 p.m.

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Norma A. Cusick  
Assistant Secretary

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## MEMORANDUM

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**Date:** March 16, 2012

**To:** Authority Board  
**From:** Edward Hoyle, Frank Leist  
**Subject:** Arcadia West Pumping Station Modifications & Community Water System Permitting Project  
SCADA - Capital Project Authorization Amendment and Professional Services Authorization

**MOTIONS / APPROVALS REQUESTED:**

No.	Item	Amount
1	Capital Project Authorization Amendment No. 1, Design Phase	\$34,560
2	Professional Services Authorization - Aptus Control Systems, Inc. (1)	\$34,560

*(1) Included in the Capital Project Authorization Amendment No. 1.*

**PROJECT OVERVIEW:** A Capital Project Authorization (CPA) was approved on December 7, 2011 in the amount of \$139,440.00 for the Design Phase of a project to modify the Arcadia West Pumping Station in Weisenberg Township, Lehigh County that would include re-piping the station, installing larger distribution pumps with variable frequency drives (VFD), an emergency power generator, metering, SCADA control, corrosion control, a redundant fire pump, minor building expansion (if required), paving, and a pump in well PW-1. Any electrical deficiencies and code violations would be addressed by the design. The station would maintain service during construction.

The memo for the initial authorization for this project in November 2011 stated that a Professional Services Authorization for SCADA services would be presented to the Board at a later date. As such we have solicited SCADA firms to submit proposals to design, furnish and implement a SCADA system that will control and monitor station operation, including an upgrade of hardware and software components at the LCA central office. The SCADA cabinet, and conduit and wiring to field devices, will be installed by the electrical contractor.

**SCADA FIRM SELECTION PROCESS:** The attached "SCADA Proposal Requirements" dated February 7, 2012 was sent out to seven firms. The three firms listed in Table 1 responded to the invitation and attended a mandatory open house at the station and LCA central office where their questions were answered. Each of these firms submitted a proposal. A cost summary of their proposals is shown in Table 1.

<b>Table 1</b>	
<b>Firms Attending Station Open House and Submitting a Proposal</b>	
<b>Firm</b>	<b>Cost</b>
<b>Aptus Control Systems, Inc.</b>	<b>\$34,559.82</b>
Keystone Engineering Group, Inc.	\$59,900.00
Automated Control Concepts, Inc.	\$79,900.00

Based upon our review of the proposals submitted by the three firms, we recommend award of the SCADA phase services of the project to Aptus Control Systems, Inc.

Aptus Control Systems, Inc. would perform the services outlined in LCA's "SCADA Proposal Requirements" and open-house Response to Questions issued on February 17, 2012 under the terms of a Professional Services Authorization (attached).

**APTUS CONTROL SYSTEMS, INC. COMPANY INFORMATION & REFERENCE CHECK:** Aptus Control Systems, Inc. is owned and operated by Mr. Brian K. Hibshman, P.E., and is located in Palmyra in central Pennsylvania. Mr. Hibshman is a licensed professional electrical engineer (PA) who has had over 17 years of experience working with industrial control systems at Science Applications International Corporation (SAIC), a firm that provided SCADA services to LCA for many years prior to 2005. About two years ago Mr. Hibshman formed his own company.

Mr. Hibshman has experience working in the water resources field among many others, and has supported systems from the conceptual stage through design and installation to system commissioning and ongoing operations and maintenance. He is experienced working with remote telemetry, such as radio, fiber optics, satellite, cellular, and high speed internet, field instrumentation and connection to equipment, such as motor controls and variable frequency drives, controllers (PLCs) and operator interfaces such as PC based HMI (Human Machine Interface) and hardware based graphical OITs (operator interfaces).

The references provided to us were contacted and reported that Aptus Control Systems, Inc. was competent in completing the design, panel fabrication, programming and operating tasks associated with its contracts. Work was completed on time and within budgetary constraints. Mr. Hibshman was responsive to their needs, trustworthy and able to offer solutions to complicated problems.

**PROJECT SCHEDULE:** Aptus Control Systems, Inc. will follow the schedule established for the overall project in the Design Phase authorization.

**FUTURE AUTHORIZATIONS:**

Additional design phase authorization will be needed from the Board for security features added by LCA's security consultant, Monks Security Systems (Monks). The design work previously authorized must be further advanced for Monks to submit a proposal for their work.

Authorization for construction phase services is not requested at this time. A CPA Amendment for the Construction Phase of the project will be presented to the Board at a later date, which will include the general and electrical construction contracts, as well as for construction engineering

services, staff costs, and a construction manager. We will know at that time if certain elements investigated during the design phase, such as rehabilitation or replacement of the existing storage tank and/or well supply lines, and any code violation fixes must be included in the construction contracts.

# CAPITAL PROJECT AUTHORIZATION

## Amendment No. 1

<b>PROJECT NO.:</b>	W-11-3	<b>BUDGET FUND:</b>	Water\Capital\AW\
<b>PROJECT TITLE:</b>	<b>Arcadia West Pumping Station Modifications &amp; Community Water System Permitting Project-SCADA</b>		<b>PROJECT TYPE:</b>
<b>THIS AUTHORIZATION:</b>	<b>\$34,560</b>	<input checked="" type="checkbox"/>	Construction
<b>TO DATE:</b>	\$174,000	<input type="checkbox"/>	Engineering Study
		<input type="checkbox"/>	Equipment Purchase
		<input checked="" type="checkbox"/>	Amendment

**DESCRIPTION AND BENEFITS:**

This amendment requests authorization for SCADA services estimated to be \$34,560.

On December 7, 2011, the Board took action to authorize the design phase of the Project. A brief summary of the project follows:

The project includes re-piping the station, installing larger distribution pumps with variable frequency drives (VFD), emergency generator, metering, SCADA control, PH adjustment system, a redundant fire pump and a third well (pump only) to meet future needs. The adequacy of the size of the water storage tank will be evaluated, and the storage tank and well supply lines will be inspected to determine if they must be rehabilitated or replaced. In addition, a public water supply permit application will be made to permit the system as a Community Water System. Currently, the system is operated under a Brief Description Form which limits the number of residential connections and/or population served. The pump station was designed to serve only the Arcadia West Industrial Park.

The proposed improvements will provide increased reliability of fire protection, service to proposed developments, increased pumping efficiency, increased security, SCADA control, and control of corrosion in the station caused by well water having a low pH.

Please reference the cover Memo for additional information.

**Authorization Status:**

<b>Previous Authorizations</b>	
Design Phase ( <i>exclusive of SCADA</i> )	\$139,440
<b>Requested This Authorization</b>	
<b>Design Phase - SCADA Services</b>	<b>\$34,560</b>
Total Design Phase	\$174,000
<b>Future Authorization</b>	
<i>Construction Phase</i>	<i>\$505,000</i>
Total Estimated Project	\$679,000

**REVIEW AND APPROVALS:**

Project Manager	Date	General Manager	Date
Capital Works Manager	Date	Chairman	Date



Lehigh County Authority

1053 Spruce Street \* P.O. Box 3348 \* Allentown, PA 18106-0348  
(610)398-2503 \* FAX (610)398-8413

**PROFESSIONAL SERVICES AUTHORIZATION**

(To be signed by Professional and returned to the Authority)

**Professional:** Aptus Control Systems, Inc.  
332 East Oak Street  
Palmyra, PA 17078

**Date:** March 16, 2012

**Requested By:** Edward Hoyle, Jr.

**Approvals**  
**Department Head:** \_\_\_\_\_  
**General Manager:** \_\_\_\_\_

**Description of Services** (Work Scope, Steps, Check Points, etc.):

Provide SCADA services for the "Arcadia West Pumping Station Project" in Weisenberg Township, Lehigh County, PA, as identified in the attached Proposal by Aptus Control Systems, Inc. dated March 1, 2012, which is based upon the attached "SCADA Proposal Requirements" issued by the Authority on February 7, 2012 and open-house Response to Questions issued by the Authority on February 17, 2012. Aptus Control Systems, Inc.'s Standard Terms and Conditions is also attached.

**Cost Estimate: \$34,559.82** (not to be exceeded without further authorization):

The estimated cost to perform the SCADA services is summarized in the Aptus Control Systems, Inc. Proposal dated March 1, 2012. Services will be paid for based on the Payment Terms contained in the Authority's "SCADA Proposal Requirements." These services shall be provided for a total not-to-exceed price as stated above. Three days of startup assistance are provided in the Proposal per the Authority's request. Additional time may be needed due to the fact that the pump station must remain operational during the improvements project and all equipment cannot be installed and started simultaneously.

**Timetable and Completion Deadline** (either party may terminate upon thirty days written notice):

The Authority's "SCADA Proposal Requirements" included an estimate by T&M Associates, the design firm, of the proposed project schedule. Aptus Control Systems, Inc. will not be due any additional compensation if the proposed timeline is extended. Aptus Control Systems, Inc. agrees to conduct its work in a manner that will not cause delays in the schedules of the other project participants, including the design firm and contractors to be hired by the Authority, whose schedules shall be provided to Aptus Control Systems, Inc. upon request.

I am or represent the Professional indicated above, and as such I am authorized to:

- Accept the terms of the professional authorization set forth above; and
- Agree to indemnify, hold harmless and defend the Authority, its employees, agents, officials, successors and assigns (hereinafter all jointly referred to as "Authority"), from any and all loss and liability for claims, demands, suits or causes of action at law or in equity for damages and injuries (including death of every kind and nature) to persons (including employees of the Professional) and property arising out of error, omission or negligent act of Professional, or any person under contract to it, in rendering professional services under this authorization. The indemnification shall include, but not be limited to, payment of reasonable attorney fees and reasonable incidental litigation expenses of the Authority. Professional shall not, however, be liable for any portion of a judgment nor associated litigation expenses, including attorney's fees, ultimately determined to be the result of the negligence of the Authority.

\_\_\_\_\_  
Name (Signature)

\_\_\_\_\_  
Name (printed):

Title: \_\_\_\_\_

**(For Authority Use Only)**

**Authorization Completion:**

**Approval:** \_\_\_\_\_ **Actual Cost:** \_\_\_\_\_ **Date:** \_\_\_\_\_

Document: SCADA Proposal Requirements  
Date: February 7, 2012

Owner

Lehigh County Authority (LCA)  
1053 Spruce Street  
PO Box 3348  
Allentown, PA 18106-0348  
Attn: Mr. Edward L. Hoyle, Jr.

Project

Arcadia West Pumping Station  
Weisenberg Township, Lehigh County, PA  
New SCADA System

Introduction

The SCADA firm will design, furnish and perform limited installation of a SCADA system that will control and monitor station operation. You will be responsible for additional hardware and software upgrades at the LCA central office and a new PLC at the Arcadia West pumping station. Your proposal will be based on the information contained herein and your inspection of the Arcadia West pumping station site and the LCA central office. Sample reports that must be extracted from the SCADA system are available upon request. **A mandatory open house will be held on February 15, 2012. We will meet at the pump station at 9:00 AM and conclude at the LCA central office.**

Proposal Due Date

**Submit three copies of your written proposals to the attention of Edward Hoyle, Jr. at the LCA office listed above by 3:00 PM on March 2, 2012.** Proposals shall be clearly marked "Lehigh County Authority, Arcadia West Pumping Station, SCADA System". The name of the firm shall be clearly labeled. Proposals that are received after the date and time stated above will not be considered.

Proposals shall include the company name, address, telephone number, fax number, e-mail address, name of contact person and date. Proposals shall state if any of the work will be subcontracted.

Duration of Work

Work on the SCADA contract shall begin with the execution of a Professional Services Authorization with LCA. T&M Associates estimates that the design, permitting and bidding phase of the pump station modifications project will last seven to eight months, and the construction phase will last five months. No additional compensation will be due the SCADA firm if this proposed timeline is extended.

Coordination of Work

You will coordinate your work so as not to cause delays in the other aspects of the work. LCA has hired T&M Associates to design certain improvements to the pump station and to participate in the bidding and construction oversight of contracts to be executed with a general and an electrical contractor.

The SCADA firm will prepare tables for input and output process connections and the control system operation. The design engineer will include various aspects of the SCADA work in the contract documents so that the general and electrical contractors will be aware of your activities and can accommodate your specific needs. The SCADA firm will install the remote SCADA cabinet in a metal enclosure. The LCA electrical contractor will run conduit and wire from the SCADA cabinet to field devices, and make all connections. The LCA electrical contractor will also install the radio antenna and make all connections for the radio signal and power to the SCADA cabinet. The SCADA firm will coordinate station start-up with the general and electrical contractors.

Brief Description of SCADA hardware & software

At the LCA central office is:

Primary and Secondary SCADA HMI’s (2 machines)  
 GE Proficy HMI Scada iFix 5.1. 2600 Service Pack 3 Build 2600

Scada Server:  
 GE Proficy Historian 4.5  
 Client version 4.5.149.0  
 Server Version 4.5.149.0  
 SDK Version 4.5.149.0

The central PLC is a Modicon Quantum which can be programmed using ProWorx 32 software.

Remote PLC Hardware and software requirements:

Modicon M340 automation platform. Need Unity Pro programming software.

A color graphical OIT display will be installed in the door of the SCADA cabinet at the pumping station for local annunciation and control. Your proposal will be based upon adding a new sub-panel inside a new control enclosure. This approach will enable the system to be pre-wired and tested before being installed in the pumping station control panel. Primary control will reside on the remote PLC. LCA must have the ability to change set points/parameters at the central office.

Materials

The SCADA firm will provide a list of materials to be provided with its proposal. At a minimum we believe that the following materials are required. The SCADA firm shall provide all materials and labor needed per their design to provide a complete installation.

QTY	DESCRIPTION	VENDOR	PART NO.
1	48" x 36" x 12" NEMA 12 Painted Steel Enclosure	Hoffman	A483612LP
1	44" x 33" Subpanel, 12 Gauge Steel	Hoffman	A48P36
1	Touch Panel Screen 5.7" Color	Magelis STU	HMISTU855 69108
1	USB Grounded Cable 1.8M	Magelis STU	BMXXCAUSBH018 68174
1	CPU for M340 PLC advanced level 2 4MB ram, USB port, 2-comm ports: Modbus/Serial and Ether net –Modbus/TCP, Includes 8MB memory card	Modicon	BMXP342020 47654
1	Power Supply for M340 PLC 115/240 Vac, 20W	Modicon	BMXCPS2000 79510
1	M340 12-Slot Backplane One slot for Power supply + 12 Slots for single width modules & CPU. Not din rail mountable	Modicon	BMXXBP1200 47696



3	M340 Discrete DC Input, (16) 24Vdc, Sink (positive logic), IEC Type 3, 20 points terminal block	Modicon	MBXDDI1602 78692
1	M340 Discrete DC Output (16) Transistor Outputs, 24Vdc, 0.5 Amp, (Source logic) , diagnostics and protection per channel, 20 points terminal block	Modicon	BMXDDO1602 60804
4	M340 Analog Input Module, (4) multi-range channels (+10v, 0-10v, 0-5v/0-20ma, 1-5v/4-20ma, +5v/+20ma) high level fast inputs, high speed, 16-bit resolution, isolated channels 20 point terminal block.	Modicon	MBXAMI0410 79609
1	M340 Output Module (4) Multi-Range channels	Modicon	BMXAMO0410
9	Screw terminal block (20 points), square washer, connection accessory for Modicon M340	Modicon	BMXFTB2010 68117
1	15 Amp Single Pole Circuit Breaker	Square D	QOU115
A/R	Double Tier Terminal Blocks	Entelec	115 271.22
A/R	Double Tier Terminal Block Barrier	Entelec	118 499.23
A/R	Single Tier Terminal Blocks	Entelec	115 116.07
A/R	Single Tier Terminal Block Barrier	Entelec	115 486.03
A/R	Triple Tier Terminal Blocks	Entelec	115 541.11
A/R	Triple Tier Terminal Block Barrier	Entelec	116 771.20
A/R	Blown Indication AC Fuse Holder	Entelec	115 661.21
A/R	Blown Indication DC Fuse Holder	Entelec	115 663.23
A/R	Fuse Block Barrier	Entelec	116 951.15
A/R	35MM DIN Rail	Entelec	TS-35
A/R	DIN Rail End Clamp	Entelec	103 002.26
1	Relay	Idec	RY4BU-120
16	Surge Protection Barrier	M-systems	MDK-24
48	MOV	Harris	V130LA20B
1	UPS, 120 VAC, 650 VA	APC	BE650G
1	Radio	GE MDS	(SD4 Series)
1	240 Watt, 24 VDC Power Supply	Altec	SPD242401
1	120 Watt, 12 VDC Power Supply	Altec	SPD12301
A/R	2"W x 4"H Plastic Wireway with Cover	-	-
16	Single pole, 24 VDC Relays	Square D	TBD
1	SWTC-SPIDER5TX	Hirshman	Ethernet Switch
1	Surge Suppressor	Levitton	51020-WM
1	Ground Bar Kit	Square D	PK9GTA
1	Duplex Receptacle	-	-

## Engineering/Installation

The SCADA firm will provide engineering and installation services for the following tasks. The SCADA firm shall describe the exact number of the various inputs and outputs needed and incorporate them into its proposal.

- Programming of the following I/O we have identified at the new PLC (Total I/O= 16 Analog In, 3 Analog Out, 30 Digital In, 12 Digital Out):
  - New Digital Inputs
    - Well WL-21 Fault
    - Well WL-22 Fault
    - Well WL-21 Run Status
    - Well WL-22 Run Status
    - Distribution Pump #1 VFD Fault
    - Distribution Pump #2 VFD Fault
    - Distribution Pump #3 VFD Fault
    - Distribution Pump #1 Run
    - Distribution Pump #2 Run
    - Distribution Pump #3 Run
    - Fire Pump #1 Fault
    - Fire Pump #2 Fault
    - Fire Pump #1 Run Status
    - Fire Pump #2 Run Status
    - Fire Pump #1 GA Valve Open
    - Fire Pump #1 GA Valve Closed
    - Fire Pump #2 GA Valve Open
    - Fire Pump #2 GA Valve Closed
    - PR/SV Fault
    - Generator Run Status
    - Generator Fail Alarm
    - ATS in Emergency Position
    - Low Suction Pressure
    - Station Power Fail Alarm
    - Station Power Quality Alarm
    - Security Intrusion Alarm
    - Fire Alarm
    - Pump Room Flood Alarm
    - Chlorine Room Flood Alarm
    - PR/SV Position (Open/Closed)
  - New Analog Inputs
    - Distribution Pump #1 VFD Speed
    - Distribution Pump #2 VFD Speed
    - Distribution Pump #3 VFD Speed
    - Well Flow Rate
    - Distribution (Station) Flow Rate
    - Chlorine Residual
    - Chlorine Tank Level
    - pH Level
    - Caustic Tank Level
    - Turbidity Level
    - Pump Suction Pressure
    - Station Pressure
    - Distribution System Pressure
    - Reservoir Level
    - Fire Pump #1 Fuel Level
    - Generator Fuel Level

- New Digital Outputs
  - Distribution Pump #1, Run Command
  - Distribution Pump #2, Run Command
  - Distribution Pump #3, Run Command
  - Fire Pump #1 Run Command
  - Fire Pump #2 Run Command
  - Fire Pump #1 GA Valve Open
  - Fire Pump #2 GA Valve Open
  - Fire Pump #1 GA Valve Close
  - Fire Pump #2 GA Valve Close
  - Well Pumps Run Enable Start/Stop (Based on Reservoir Level)
  - Chlorine Pump Start/Stop (Enabled when well pumps On/Off)
  - Caustic Pump Start/Stop (Enabled when well pumps On/Off)
- New Analog Outputs
  - Distribution Pump #1 Speed
  - Distribution Pump #2 Speed
  - Distribution Pump #3 Speed
- Programming of pump station PLC code to input set points and control pump sequencing logic as per operational description provided by LCA
- Programming of pump station PLC code to implement hardwired relay and timer logic in the PLC
- Install Quickpanel in the door of the SCADA cabinet and configure the operator screens
- Update iFIX Screens and Database at the LCA Operations Center including updating 2 SCADA servers, historian server and terminal server (remote access via laptops).
- Make PLC modifications at the LCA Operations Center
- Create new daily use reports (similar to existing reports) for the water system division using the new data collection points
- Coordination with engineering firm regarding installation and instrumentation
- Modifications to alarm dialer to accommodate alarms from new instrumentation (Win911 alarm software)
- Documentation (Drawings will be submitted during the project design phase as shop drawings):
  - Create control panel arrangement drawings (with new PLC) in AutoCAD showing the new components
  - Loop sheets for new field devices
  - Ladder logic printout with descriptors
- Startup assistance/testing-including verification of system I/O, alarms, and control logic - 3 days shall be included
- Provide new sub-panel (prewired and tested) with new components
- Install new sub-panel in new steel enclosure
- LCA's electrical contractor will run conduit and wiring and terminate wires in SCADA cabinet and at field devices
- LCA's electrical contractor will install radio antenna and connect antenna to the SCADA cabinet
- LCA's electrical contractor will connect the SCADA cabinet to the building's electrical service, and ensure the cabinet is properly grounded
- Freight shall be included in proposal

Payment Terms- Payments due net 30 days from date of invoice:

- 30% on receipt of order
- 30% on submittal of final design documents
- 30% on delivery of system
- 10% on completion of system start-up

Prices per your proposal shall be valid for 90 days from the date of proposal opening. Attach engineering rates that are valid throughout the expected duration of the contract. A Professional

Services Authorization will be presented to the selected firm for execution within 90 days of the proposal opening date.

Freight: Include in proposal.

Travel and Living Expenses: Travel and living expenses for meetings and on-site startup shall be included in the proposal.

Terms and Conditions: SCADA firm's Standard Terms and Conditions will apply, except as modified by LCA in consultation with the firm.

If you have any questions, please feel free to contact Ed Hoyle at (610) 398-2503 or e-mail him at [edhoyle@lehighcountyauthority.org](mailto:edhoyle@lehighcountyauthority.org).

Please attach the following to your proposal:

Attachment I - Terms and Conditions

Attachment II - Engineering Service Agreement

Attachment III - A summary of a minimum of three projects of a similar nature, completed in the past three years, including a worksheet identifying project name, description of the work performed, date, contract costs, change order costs (excluding those requested by the owner), contact names and telephone numbers.

Lehigh County Authority (LCA)  
Arcadia West Pumping Station  
New SCADA System  
Mandatory Open House  
Response to Questions  
Response Date: 2/17/12

The following response is intended to address questions asked during the open house held on February 15, 2012. Please reply to me if you have any additional questions.

1. The SCADA firm will not make connections to equipment in the station. This work will be incorporated into the general and electrical contracts that LCA will bid separately, which will include providing equipment such as pressure transmitters, flow transmitters, radio antenna, etc. The SCADA firm will not provide any equipment outside of the SCADA subpanel enclosure, nor be responsible to set up any equipment outside of the SCADA enclosure.
2. All domestic and fire pumps will be controlled by SCADA through the PLC. SCADA control will also extend to a GA Valve on each fire pump. The SCADA firm will develop a sequence of pump operation. Preliminarily, the start-up sequence will be:
  - Jockey pump
  - Booster pump #1
  - Booster pump #2
  - Electric fire pump, with the diesel fire pump as backup.

Set points will be based on local pressure.

3. The current Telog System will be removed from the station.
4. The domestic VFD's will maintain constant pressure.
5. Various touch screen and SCADA screens from existing facilities are attached for your information. To be clear, alarm set points will be incorporated into the programming and will allow for screen set up. Reference the screens for examples of how we currently use alarm settings.
6. Sample live data and reporting forms were distributed during the open house.
7. Modicon and radio equipment cannot be substituted.
8. The UPS will be located inside the SCADA subpanel.
9. In addition to three days of startup assistance, the SCADA firm shall budget to attend one design project kickoff meeting, and one design review meeting.
10. A 10" color Touch Panel Screen will be used instead of the current 5.7" screen.

11. We need the programming logic inside of the OIT with descriptors.

12. New items added after the open house:

- SCADA firms shall attach a list of proposed equipment substitutions to their proposal.
- The SCADA firm shall prepare a Standard Operating Procedure (SOP) describing the components, setup, monitoring and control of the station through the SCADA system.
- Add an option to switch into a manual operating (local) mode on the HMI screen. This allows someone to change settings at the station for various reasons. The manual mode will automatically switch back to Auto mode (settings from central PLC) after a given time period. This is a failsafe in the event the switch is forgotten.

Proposals are due no later than 3:00 PM on Friday, March 2, 2012.

Edward L. Hoyle, Jr., P.E.  
Project Engineer



# Aptus Control Systems, Inc.

Brian K. Hibshman, P.E.  
332 East Oak St  
Palmyra, PA 17078

March 1, 2012

Mr. Edward L. Hoyle Jr.  
Lehigh County Authority  
1053 Spruce Street  
P.O. Box 3348  
Allentown, PA 18106-0348

Re: Arcadia West Pumping Station, SCADA System Proposal Rev. 0

Dear Mr. Hoyle:

Aptus Control Systems, Inc is pleased to provide you with this proposal to provide a custom control panel and SCADA system integration services in support of your Arcadia West Pumping Station Upgrade project. The project itself consists of an upgrade to the pump station which will be designed by T&M Associates. The design is anticipated to include three new distribution pumps and drives, two fire pumps (one new and the existing pump), two chemical feed pumps, two well pumps and an upgraded generator, controls and switchgear. Many new instruments will be part of this project and at the conclusion of the project the existing remote monitoring system will no longer be in service.

The SCADA RFP calls for provision of a Modicon M340 PLC based custom control panel equipped with a radio interface to be integrated into LCA's SCADA system, with master radio and PLC at LCA's operation center. The custom control panel will be equipped to monitor and control the inputs and outputs listed in your SCADA Proposal Requirements document dated February 7, 2012 (Qty (30) 24 VDC Digital Inputs, Qty (16) Analog Inputs, Qty (13) Digital Outputs, and Qty (3) Analog Outputs). The panel will provide for control of two well pumps, three VFD controlled booster pumps, two fire pumps, two fire pump valves, and two chemical feed pumps. Control will be as described by LCA (Lehigh County Authority) and based upon the listed inputs as well as the operators input via local and remote operator interfaces. In general, operator input from the remote HMI will take precedence over input from the local OIT.

The control panel itself will be equipped with an MDS radio to accommodate communications with the Master PLC. The antenna and field wiring will be provided and installed by others. Field Instrumentation and drives will be provided and configured by others. The control panel itself will be installed and wired by others and all of this work will be completed prior to Aptus arriving on site to perform the start up.

In addition to the work at the pump station, the master PLC and HMI will require programming changes, to provide for remote operator interfacing and data logging and reporting. The master PLC is a Modicon Quantum which is programmed using ProWorx 32 software, and the HMI is

GE Proficy HMI SCADA iFix 5.1 2600. Additionally The SCADA server runs GE Proficy Historian 4.5, Client Version 4.5.149.0, Server Version 4.5.149.0 and SDK version 4.5.149.0. Aptus will provide programming of these packages in order to provide a custom graphical interface pertinent to this pumping station which is very similar in look and functionality to the screen capture provide by LCA in email from Ed Hoyle dated February 17<sup>th</sup> 2012. Likewise programming will be provided to permit data logging and reporting which is analogous to the reporting currently in use for other well pumps and booster pumps, as demonstrated on the reports provided by LCA at the SCADA Pre-Bid meeting on February 15<sup>th</sup> 2012.

Aptus Control Systems, Inc. will provide detailed design drawings for the control panel in support of the project. LCA's RFP mentioned time and travel costs in support of meetings with the design firm. After further discussion with LCA, it would appear that other than the pre-bid meeting for the construction project, no design meeting attendance will be required of the SCADA firm. What coordination will be required is anticipated to be performed via phone and email communications. With this in mind, this proposal includes one day on site for a construction pre-bid meeting.

Three days have been requested for startup assistance and this proposal includes three days of startup assistance. Aptus would feel comfortable with this time table if everything were installed and started simultaneously; however, due to the fact that the pump station will need to remain operational, Aptus suspects a carefully coordinated phased change over may prove to be necessary. If the design engineer determines this to be necessary, three days for startup may prove to be insufficient.

**Pricing:**

**Base Estimate:** Design and provision of new custom control panel in accordance with details provided in LCA's SCADA Proposal Requirements, dated February 7, 2012. Provision of local PLC programming, Master PLC programming to accommodate the Arcadia West pump station, and iFix HMI programming to accommodate the Arcadia West Pump Station. Three man days of system commissioning support services. **\$34,559.82**

Additional services, can be quoted upon request, or provided on a time and materials basis.

Payment Terms shall be as per LCA's SCADA Proposal Requirements:

- 30% upon Receipt of Order
- 30% on submittal of final design documents
- 30% on delivery of system
- 10% on completion of system start-up



**Subcontracted Services:**

Aptus Control Systems, Inc. will take overall responsibility for the work and will directly perform the bulk of the work. However, it is our intention to subcontract Next Control (Mr. Eric Bryla) for a couple days to assist with the iFix HMI modifications.

**Synopsis:**

Aptus Control Systems appreciates the opportunity to submit this proposal and looks forward to your favorable review. If you agree with the content of this Proposal and the attached Standard Terms and Conditions (attachment I), please sign below and return an executed copy to me. If you have any questions or require additional information, please feel free to contact me.

Sincerely,



Brian K. Hibshman, P.E.  
President

**ACCEPTED AND AGREED**

as of this \_\_\_\_ day of \_\_\_\_\_, 2011

Lehigh County Authority

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

## STANDARD TERMS AND CONDITIONS

1. **Agreement:** These Standard Terms and Conditions and the Aptus Control Systems, Inc. ("Aptus") Proposal (the "Proposal") to which these terms are attached constitute the final, complete and exclusive written expressions of the agreement between Aptus and Customer as to either the sale of the products or the provision of services (collectively, the "Services") set forth on the Proposal (collectively, the "Agreement"), and supersede all prior oral or written agreements with respect to the same. Any attempted modification of this Agreement by Customer, and any additional or different terms included in any purchase order, in any other document responding to any offer, or in subsequent documents, purchase orders or acknowledgment requests are hereby objected to unless conspicuously and expressly assented to in writing by both parties. Finally, Customer acknowledges and agrees that it has not been induced to enter into this Agreement by any oral or written representation, guaranty or warranty made by Aptus, its employees, agents or representatives other than as expressly set out in this Agreement.

2. **Effective Date:** Term. This Agreement shall be effective as of the acceptance date set forth on the Proposal and shall continue until the Services have been completed or the Agreement has been terminated, whichever first occurs.

3. **Price and Payment Terms:** If Aptus does not receive payment for the total amount of an invoice within thirty (30) days of the date of such invoice, interest compounded at one and one half percent (1.5%) per month shall thereafter be added to all amounts unpaid and outstanding. Aptus Control Systems shall have the right to cease further work, to retain or repossess any and all deliverables contemplated by the Proposal (a "Deliverable"), and shall have a lien upon the Deliverables. Customer agrees that if legal proceedings are filed to collect any unpaid invoice(s), Customer shall also pay all costs of collection, including attorneys' fees.

4. **Confidentiality:** All information provided by one party marked as confidential, proprietary or trade secret shall be maintained as such by the other party, and will not be disclosed to any outside person or entity. If the party receiving such information is served with a subpoena or other legal process seeking the disclosure of such information, the party being served with the subpoena, etc., will immediately notify the party providing such information, which party shall have the sole right to oppose such disclosure to the party seeking such disclosure. Nothing in this Agreement restricts or prohibits Aptus from providing similar services to others, but Aptus shall keep confidential any Customer confidential, proprietary or trade secret information so marked.

5. **Intellectual Property:** Customer and Aptus shall each retain ownership of their respective pre-existing Intellectual Property, and no license therein, whether express or implied, is granted by this Agreement or as a result of the Services performed hereunder; Aptus shall retain ownership of and unrestricted right to use any Intellectual Property that includes inventions (whether or not patentable), works of authorship, trade secrets, techniques, know-how, ideas, concepts, algorithms, and other intellectual property incorporated into any Deliverable and first created or developed by Aptus in providing the Services.

6. **Limited Warranty:** Aptus will make all reasonable attempts to pass on to Customer equipment warranties as offered by a manufacturer (Aptus' labor and expenses excluded). **APTUS WARRANTS ONLY THAT WORK UNDER THIS CONTRACT WILL BE PERFORMED USING PROFESSIONAL JUDGMENT, AND EXPRESSLY DISCLAIMS, AND CUSTOMER HEREBY WAIVES, ANY AND ALL OTHER EXPRESS OR IMPLIED STANDARDS, GUARANTEES, OR WARRANTIES, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR USE.**

7. **Indemnification and Limitation of Liability:** (a) Customer acknowledges and agrees that Aptus has not contributed to the presence of hazardous substances, hazardous wastes, petroleum products, asbestos, chemicals, pollutants, contaminants, or any other hazardous or toxic materials (hereinafter "Hazardous Materials") that may exist or be

discovered in the future at the site at which the Services shall be provided and that Aptus does not assume any liability for the known or unknown presence of Hazardous Materials; (b) Customer shall to the fullest extent permitted by law indemnify and hold harmless Aptus and its employees, agents, officers, directors, and subcontractors from and against all suits, actions, legal or administrative proceedings, damages, costs, expenses, and liabilities (hereinafter collectively, the "Liabilities") brought or incurred by Customer, third parties, or employees of Customer, including but not limited to attorneys' fees and court costs, that are caused by or related to any negligent act or omission of Customer or third party arising from or related to the Agreement or Services provided; (c) Customer's obligation to indemnify Aptus includes Liabilities that: (1) are directly or indirectly caused by or incident to Hazardous Materials; (2) arise out of any State or Federal statute relating to Hazardous Materials; and/or (3) arise directly or indirectly from any professional services, report, data, or assessment furnished by Aptus its employees, agents, or subcontractors under this contract; this additional indemnification obligation shall not apply to Liabilities resulting from the gross negligence or willful misconduct of Aptus its employees, agents, and subcontractors; (d) Customer's exclusive remedy for any cause of action arising in connection with this Agreement is expressly limited to replacement of or repayment of the price paid for the Services. Aptus and its employees', agents', officers', directors', and subcontractors' total liability to Customer, third parties, or employees of Customer for any and all Liabilities, claims or damages arising out of or relating to this Agreement, howsoever caused and regardless of the legal theory asserted, including breach of contract, warranty, tort, strict liability, statutory liability or otherwise, shall not, in the aggregate, exceed the amount actually paid to Aptus under this Agreement. All such claims not brought within ninety (90) days of delivery or completion of Services, as determined solely by Aptus, shall be deemed waived; (e) In no event shall either Aptus or Customer be liable to the other for any punitive, exemplary, special, indirect, incidental or consequential damages (including, but not limited to, lost profits, lost business opportunities, loss of use or equipment down time, and loss of or corruption to data) arising out of or relating to this Agreement, regardless of the legal theory under which such damages are sought, and even if the parties have been advised of the possibility of such damages or loss.

8. **Severability:** If any term or condition in this Agreement is invalid in whole or in part, it shall be severed from this Agreement and the remaining terms and conditions shall continue in force and effect.

9. **Force Majeure:** Neither party shall be liable for performance failures (except for payment) due to acts of God, acts of a public enemy, fires, floods, power outages, wars, civil disturbances, sabotage, terrorism, accidents, insurrections, blockades, embargoes, storms, explosions, labor disputes, failure of common carriers, Internet Service Providers, or other communication devices, acts of cyber criminals, terrorists or other criminals, acts of any governmental body, failure or delay of third parties or governmental bodies from whom an approval must be obtained, authorizations, licenses, franchises or permits, inability to obtain labor, materials, power, equipment, or transportation, or other circumstances beyond its reasonable control (collectively referred to herein as "Force Majeure Occurrences").

10. **Survival.** Sections 1,, 3, 4, 5, 6 and 7 shall survive the termination or expiration of this Agreement.

11. The parties hereto agree that this Agreement shall be governed by the laws of the State of Pennsylvania, and that any actions between the parties arising from this Agreement shall be filed in the applicable circuit court or district court in Pennsylvania.

## **Attachment I & II Clarifications**

It is our understanding from a phone conversation with Ed Hoyle that the structure of our proposal with signature page and attached Terms and Conditions, should serve the purposes of the intention of the LCA requested Attachment I and II so they are effectively incorporated in our base document and only Attachment III will appear.

## **Attachment III References**

Aptus Control Systems, Inc. is owned and operated by Mr. Brian Hibshman. With his former employer, Mr. Hibshman was involved with the original Lehigh County Authority SCADA installation project as well as some of the subsequent pump and valve station additions.

Mr. Hibshman has over 19 years of experience working in the field of control system integration and SCADA. Aptus Control Systems, Inc. itself is in its second year of operation. Pursuant to your request, below is a list of projects performed in the past two years as well as references for those projects. If additional references are desired, they can be provided upon request.

**Project:** Energetic Hazard Demolition System

**Customer:** ARA Incorporated

**Customer Contact:**

Mr. John Coughlin

Title: Director, Engineering & Sciences

Phone: 443-609-4048

**Project Value:** \$224,000.00

**Period of Performance:** October 2010 thru August 2012

**Project Description:** Design and provision of control system for operation of 6 ovens specially designed for the controlled destruction of munitions which were disposed at sea. Project was an applied R&D project to prove this new technology for destruction of munitions at sea. Equipment was installed on board a large barge, with 4 remote control panels controlling the operation of the ovens, interfaced to a main/master control panel and HMI housed in a safe room. Communications between the master control panel and remote panels were Ethernet via fiber optic links. Remote access to the site was an addition to the project. A locally mounted cellular modem configured for VPN (Virtual Private Network) communications, permitted secure remote access from anywhere in the world via the internet. This was particularly helpful for me to support the project from PA, while it was operating off the coast of Oahu, Hawaii.

**Change Orders:** No change orders were involved in the base FFP project (once involved in the project, Aptus suggested the remote cellular access as a very beneficial addition to the project and the customer requested this addition).

**Project: Holston Army Ammunition Plant Bi-Metal Pilot System**

**Customer: The Benham Companies, LLC**

**Customer Contact:**

Mr. Tom Galatro

Title: Senior Engineer/Project Manager

Phone: 717-901-8871

**Project Value: \$43,031.91**

**Period of Performance: August 2010 thru June 2011**

**Project Description: Provide PLC and HMI programming services, as well as control system commissioning services, for this applied R&D Bi-Metal treatment system for the destruction of energetic materials entrained in an industrial wastewater stream.**

**Change Orders: No change orders**

**Project: Vineland Chemical Company Superfund Site Old Control Panel  
Decommissioning**

**Customer: Severson Environmental Services, Inc.**

**Customer Contact:**

Mr. Steve Gillespie

Title: Project Manager

Phone: 856-690-1758 X-101

**Project Value: \$24,939.50**

**Period of Performance: July 2010 thru October 2010**

**Project Description: 10 years ago, Mr. Hibshman was involved with this plants \$750,000.00 control system upgrade. The new controllers required a far smaller footprint than the original controls. The original control panels were roughly 2' deep, 24' long, 7' tall, and installed in four connected 6' sections. The new controls were installed in the first section, and the bottom third of the remaining 3 sections; however, the old controls and wiring were still in place throughout the enclosure. The project involved the removal of the old controls, and associated wiring, and the physical removal of the top 2/3's of the three unused control panel sections and its replacement with a custom fitted stainless steel counter top to serve as a table/desk. This work needed to be performed carefully without disrupting ongoing plant operations of the new control system which shared the first section and lower portion of the remaining three sections.**

**Change Orders: No change orders**