



CITY OF ORLANDO

MEMORANDUM

Date: October 5th, 2015
To: David M. Billingsley, Chief Procurement Officer
Through: Victor Godlewski, P.E., Division Manager – Wastewater
From: Guy Mecabe, Industrial Automation Manager - Wastewater
Subject: Ignition Software Purchase

Introduction

The Industrial Automation Group (IAG) is responsible for all of Wastewater's automation software development. This complete hardware/software automation product is known as a **SCADA** System, **Supervisory Control And Data Acquisition**. Our SCADA System enables a minimal staff to completely control and monitor our 3 Wastewater Reclamation Facilities and over 200 Pump Stations around Orlando, all through an in-house developed web interface. For the last 12 years we have been using a SCADA development package from Siemens called WinCC to create our Human Machine Interface (HMI). WinCC has worked very well for us until about 4 years ago when we started experiencing many "glitches" in the software. These problems have been compounded recently after performing several upgrades which introduced major bugs into our environment. As a result of these bugs, the plants and lift stations experienced a great deal of SCADA "downtime", much more than we would consider reasonable. Our issues have been brought to the attention of our Siemens representatives, but to date a satisfactory resolution has not been delivered. When the software that runs our equipment is not working or not working properly, it impairs our ability to efficiently manage our facilities and meet our mandated permit requirements.. This combined with a lack of direction regarding the mobile device market led us to start looking for another SCADA development solution.

We started researching alternative solutions in 2013, and after demonstrating products from several different manufacturers, quickly focused our attention on a company called Inductive Automation. They manufacture a SCADA software development package called Ignition. We have been testing Ignition in our environment for about 2 years. We have visited and spoken with other municipalities and integrators who use the software and worked closely with Inductive Automation. Software updates have been seamless with no trouble areas. In January 2015, we made the decision to purchase a license and have been slowly developing Wastewater's new Discharge Monitoring Report (DMR) ever since. The IAG was formally trained on the Ignition platform in April 2015. Today, we are confident that the Ignition software, being far more advanced and reliable than Siemen's WinCC platform, is the direction forward for the Wastewater Division.

As part of our research, we were able to determine that St. Lucie West Services District (a Public Utility located in Port St. Lucie, FL) has already established a contract with Inductive Automation for the purchase of the Ignition product line. It is our intent, with your approval, to "piggy back" this contract for our use in purchasing from the same product line.



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Testing Performed

The following HMI features were tested and met all of our requirements:

- Installed ignition software on virtual machines
- Connected to Siemens PLC's, Modbus devices
- Entered 20,000 tags including UDTs
- Designed simple mobile screen for status and control of IB MPS VFDs & Softstarts
- Designed full desktop version of IB Master Pump SCADA
- Designed fill able form screens for mobile use to enter/archive zone sheet data
- Designed object templates to display device state, analog values
- Designed popup templates for status/control
- Designed template for process area menus
- Tested active directory integration into project
- Tested backup/restore of project and gateways
- Tested several architectures (central archive server, databases, redundancy)
- Tested connectivity to SQL, Mysql databases and brought in table data (Lab, CMMS)
- Tested notification system (based on alarms to replace win911)
- Tested alarming, tag history, auditing
- Tested many built in components (trending, table data, buttons, indicators, form fields, ip camera viewer, PDF viewer, tag browser, calendaring, alarming, etc.)
- Tested cross platform usability
- Tested security features to lock buttons, setpoints, etc.
- Tested use of transaction groups for storing remote SQL data, etc.
- Tested database write of 10,000 tags at 1 second write until reached 1 million records
- Tested redundancy utilizing 2 servers, client failover
- Tested tag splitter module to archive tags centrally
- Installed upgrade under 5 minutes, no need to update clients
- Designer was found to be development friendly and a huge upgrade from WinCC
- Tech Support is readily available and knowledgeable
- Open database architecture offers greater flexibility in reporting, etc.



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Proposed Implementation Schedule

With 4 individual implementations to accomplish, we decided on Conserv II first for the following reasons:

- Of the 4, Conserv II has the most complete set of standardized PLC code
- While we are short a PLC programmer right now, Carlos Neto is our most experienced automation developer and he works out of Conserv II full time.
- The staff is very adaptable to changes in technology

Assuming we have all of the necessary licensing by November 2015:

Nov 2015 to Oct 2016

- Expect to have Ignition fully deployed at Conserv II by 10/2016
- A development server has been deployed
- Currently developing the Navigation and Menu system

Nov 2016 - we are budgeted to purchase for another facility (Con I or Iron Bridge)

Nov 2016 to Oct 2017 – Expect to have another facility complete (Con I or Iron Bridge)

Nov 2017 - Purchase remaining licensing

Nov 2017 to Oct 2018 – Convert last plant (Con I or Iron Bridge) and Liftstations

Cost Estimates

- \$32,242.50 per facility for software – includes 1 year of support and maintenance
- Once all facilities are installed, estimate \$27,116.40 annually for support and maintenance (\$6779.10 per facility)
- We estimate 1000 man hours for Conserv II (based on avg of 4 hours per day from Nov to Oct)
- It is difficult to estimate other facilities because:
 - Leo is our new HMI Developer and we don't know his pace yet
 - We don't know what objects/screens can be reused from Conserv II
 - We have new employees starting that will require training
 - We haven't finished an installation yet to be able to gauge this
- We will save \$75K in physical server replacement over 7 years because Ignition allows us to take advantage of our virtual technology.
- Huge savings in labor in the long term maintenance of the product as a result of simpler development.

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If you need further information, please feel free to contact me directly. Thanks.

CC: Sonia Flores, Wastewater Systems Manager – Wastewater
Maria Lachney, Asset/ Billing Manager – Wastewater
Angela L. Thomas, MBA, CPPB, FCCM, Purchasing Agent III - Procurement and Contracts Division