

# REQUEST AUTHORIZATION FOR MAYOR AND FINANCE OFFICER TO SIGN PROFESSIONAL SERVICES AGREEMENT OR AMENDMENT

Date: July 7, 2014

**Project Name & Number:** Water Reclamation Facility (WRF) Supervisory Control and Data Acquisition (SCADA) Improvements Investigation Phase; Project No. 14-2159 **CIP #:** 51022

**Project Description:** Investigation and evaluation of the existing SCADA and control equipment at the WRF. The existing conditions, upgrade options, and recommendations will be documented and used in development and implementation of a new WRF SCADA system.

**Consultant:** Dakota Pump, Inc.

**Original Contract Amount:** \$59,684.50 **Original Contract Date:** July 7, 2014 **Original Completion Date:** Sept. 24, 2014

**Addendum No:**

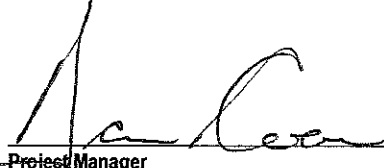
**Amendment Description:**


**Current Contract Amount:** \_\_\_\_\_ **Current Completion Date:** \_\_\_\_\_  
**Change Requested:** \_\_\_\_\_  
**New Contract Amount:** \_\_\_\_\_ \$0.00 **New Completion Date:** \_\_\_\_\_

**Funding Source This Request:**


Amount	Dept.	Line Item	Fund	Comments
\$59,684.50	833	7072	604	
		4223		
	<b>Total</b>			

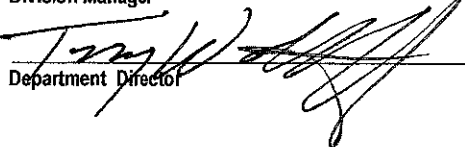
**Agreement Review & Approvals**

  
 Project Manager 6/23/14  
 Date

  
 Compliance Specialist 6/23/14  
 Date

\_\_\_\_\_  
 City Attorney Date

  
 Division Manager 6-24-14  
 Date

  
 Department Director 6-24-14  
 Date

**ROUTING INSTRUCTIONS**

Route two originals of the Agreement for review and signatures.  
 Finance Office - Retain one original  
 Project Manager - Retain second original for delivery to Consultant  
 cc: Public Works  
 Engineering  
 Project Manager

**FINANCE OFFICE USE ONLY**

(Note to Finance: Please write date of Agreement in appropriate space in the Agreement document)

	Date	Initials	Approved
Appropriation	6/24/14	JR	Y N
Cash Flow			Y N

**Agreement Between City of Rapid City and Dakota Pump, Inc.  
for Professional Services for the WRF Supervisory Control and Data Acquisition  
(SCADA) Improvements Investigation Phase, Project No. 14-2159 / CIP No. 51022**

AGREEMENT made July 7, 2014, between the City of Rapid City, SD (City) and Dakota Pump, Inc., (Contractor), located at 25524 413<sup>th</sup> Ave., Mitchell, SD 57301. City intends to obtain services for WRF Supervisory Control and Data Acquisition (SCADA) Improvements Investigation Phase, Project No. 14-2159, CIP No. 51022. The scope of services is as described in Exhibits A and B.

The City and the Contractor agree as follows:

The Contractor shall provide professional services for the City in all phases of the Project as defined in Exhibits A and B

**Section 1—Basic Services of Contractor**

**1.1 General**

1.1.1 The Contractor shall perform professional described in this agreement. Contractor intends to serve as the City's professional representative for those services as defined in this agreement and to provide advice and consultation to the City as a professional. Any opinions of probable project cost, approvals, and other decisions provided by Contractor for the City are rendered on the basis of experience and qualifications and represent Contractor's professional judgment.

1.1.2 All documents including Drawings and Specifications provided or furnished by Contractor pursuant to this Agreement are instruments of service in respect of the Project and Contractor shall retain an ownership therein. Reuse of any documents pertaining to this project by the City on extensions of this project or on any other project shall be at the City's risk. The City agrees to defend, indemnify, and hold harmless Contractor from all claims, damages, and expenses including attorney's fees arising out of such reuse of the documents by the City or by others acting through the City.

**1.2 Scope of Work**

The Contractor shall:

1.2.1 Consult with the City, other agencies, groups, consultants, and/or individuals to clarify and define requirements for the Project and review available data.



- 1.2.2 Perform the tasks described in the Scope of Services. (See Exhibits A and B.)
- 1.2.3 Conduct a survey of the Project to the extent deemed necessary to provide adequate site information.

## **Section 2—Information Provided by City**

The City will provide any information in its possession for the project at no cost to the Contractor.

## **Section 3—Notice to Proceed**

The City will issue a written notification to the Contractor to proceed with the work. The Contractor shall not start work prior to receipt of the written notice. The Contractor shall not be paid for any work performed prior to receiving the Notice to Proceed.

## **Section 4—Mutual Covenants**

### **4.1 General**

- 4.1.1 The Contractor shall not sublet or assign any part of the work under this Agreement without written authority from the City.
- 4.1.2 The City and the Contractor each binds itself and partners, successors, executors, administrators, assigns, and legal representatives to the other party to this agreement and to the partners, successors, executors, administrators, assigns, and legal representatives of such other party, regarding all covenants, agreements, and obligations of this agreement.
- 4.1.3 Nothing in this agreement shall give any rights or benefits to anyone other than the City and the Contractor.
- 4.1.4 This agreement constitutes the entire agreement between the City and the Contractor and supersedes all prior written or oral understandings. This agreement may only be amended, supplemented, modified, or canceled by a duly executed written instrument.
- 4.1.5 The Contractor shall make such revisions in plans which may already have been completed, approved, and accepted by the City, as are necessary to correct Contractor's errors or omissions in the plans,



when requested to do so by the City, without extra compensation therefore.

- 4.1.6 If the City requests that previously satisfactorily completed and accepted plans or parts thereof be revised, the Contractor shall make the revisions requested by the City. This work shall be paid for as extra work.
- 4.1.7 The City may at any time by written order make changes within the general scope of this Agreement in the work and services to be performed by the Contractor. Any changes which materially increase or reduce the cost of or the time required for the performance of the Agreement shall be deemed a change in the scope of work for which an adjustment shall be made in the Agreement price or of the time for performance, or both, and the Agreement shall be modified in writing accordingly. Additional work necessary due to the extension of project limits shall be paid for as extra work.
- 4.1.8 Extra work, as authorized by the City, will be paid for separately and be in addition to the consideration of this Section.
- 4.1.9 For those projects involving conceptual or process development services, activities often cannot be fully defined during the initial planning. As the project does progress, facts and conditions uncovered may reveal a change in direction that may alter the scope of services. Contractor will promptly inform the City in writing of such situations so that changes in this agreement can be renegotiated.
- 4.1.10 This Agreement may be terminated (a) by the City with or without cause upon seven days' written notice to the Contractor and (b) by the Contractor for cause upon seven days' written notice to the City. If the City terminates the agreement without cause, the Contractor will be paid for all services rendered and all reimbursable expenses incurred prior to the date of termination.  
  
If termination is due to the failure of the Contractor to fulfill its agreement obligations, the City may take over the work and complete it. In such case, the Contractor shall be liable to the City for any additional cost to the extent directly resulting from Contractor's action.
- 4.1.11 The City or its duly authorized representatives may examine any books, documents, papers, and records of the Contractor involving transactions related to this agreement for three years after final payment. All examinations will be performed at reasonable times,



with proper notice. Contractor's documentation will be in a format consistent with general accounting procedures.

- 4.1.12 The City shall designate a representative authorized to act on the City's behalf with respect to the Project. The City or such authorized representative shall render decisions in a timely manner pertaining to documents submitted by the Contractor in order to avoid unreasonable delay in the orderly and sequential progress of the Contractor's services.
- 4.1.13 Costs and schedule commitments shall be subject to renegotiation for delays caused by the City's failure to provide specified facilities or information or for delays caused by other parties, excluding sub-contractors and sub-consultants, unpredictable occurrences including without limitation, fires, floods, riots, strikes, unavailability of labor or materials, delays or defaults by suppliers of materials or services, process shutdowns, acts of God, or the public enemy, or acts of regulations of any governmental agency or any other conditions or circumstances beyond the control of the City or Contractor. Temporary delays of services caused by any of the above which results in additional costs beyond those outlined may require renegotiation of this agreement.
- 4.1.14 The City will give prompt written notice to the Contractor if the City becomes aware of any fault or defect in the Project or nonconformance with the Project Documents.
- 4.1.15 Unless otherwise provided in this Agreement, the Contractor and the Contractor's consultants shall have no responsibility for the discovery, presence, handling, removal or disposal of, or exposure of persons to hazardous materials in any form at the project site, including but not limited to asbestos products, polychlorinated biphenyl (PCB), or other toxic substances.
- 4.1.16 In the event asbestos or toxic materials are encountered at the jobsite, or should it become known in any way that such materials may be present at the jobsite or any adjacent areas that may affect the performance of Contractor's services, Contractor may, at their option and without liability for consequential or any other damages, suspend performance of services on the project until the City retains appropriate specialist consultant(s) or contractor(s) to identify, abate, and/or remove the asbestos or hazardous or toxic materials.
- 4.1.17 Contractor hereby represents and warrants that it does not fail or refuse to collect or remit South Dakota or City sales, use or excise tax for



transactions which are taxable under the laws of the State of South Dakota.

#### **4.2 City of Rapid City NonDiscrimination Policy Statement**

In compliance with Title VI of the Civil Rights Act of 1964, Section 504 of the Rehabilitation Act of 1973, the Age Discrimination act of 1975, the Americans with Disabilities Act of 1990, and other nondiscrimination authorities it is the policy of the City of Rapid City, 300 Sixth Street, Rapid City, SD 57701-5035, to provide benefits, services, and employment to all persons without regard to race, color, national origin, sex, disabilities/handicaps, age, or income status. No distinction is made among any persons in eligibility for the reception of benefits and services provided by or through the auspices of the City of Rapid City.

Contractor will permit access to any and all records pertaining to hiring and employment and to other pertinent data and records for the purpose of enabling the Commission, its agencies or representatives, to ascertain compliance with the above provisions.

This section shall be binding on all subcontractors or suppliers.

#### **Section 5—Payments to the Contractor**

##### **5.1 Fee**

The maximum amount of the fee for the services as detailed in Section 1.2 shall not exceed \$59,684.50 unless the scope of the project is changed as outlined in Section 4. If expenses exceed the maximum amount, the Contractor shall complete the project as agreed upon here without any additional compensation.

##### **5.2 Progress Payments**

Monthly progress payments shall be processed by the City upon receipt of the claim as computed by the Contractor based on work completed during the month and approved by the City.

Net payment to the Contractor shall be due within forty-five (45) days of receipt by the City.

#### **Section 6—Completion of Services**

The Contractor shall complete services on or before September 24, 2014 based on a Notice to Proceed date of July 14, 2014.



## **Section 7—Insurance Requirements**

### **7.1 Insurance Required**

The Contractor shall secure the insurance specified below. The insurance shall be issued by insurance company(s) acceptable to the City and may be in a policy or policies of insurance, primary or excess. Certificates of all required insurance including any policy endorsements shall be provided to the City prior to or upon the execution of this Agreement.

### **7.2 Cancellation**

The Contractor will provide the City with at least 30 days' written notice of an insurer's intent to cancel or not renew any of the insurance coverage. The Contractor agrees to hold the City harmless from any liability, including additional premium due because of the Contractor's failure to maintain the coverage limits required.

### **7.3 City Acceptance of Proof**

The City's approval or acceptance of certificates of insurance does not constitute City assumption of responsibility for the validity of any insurance policies nor does the City represent that the coverages and limits described in this agreement are adequate to protect the Contractor, its consultants or subcontractors interests, and assumes no liability therefore. The Contractor will hold the City harmless from any liability, including additional premium due, because of the Contractor's failure to maintain the coverage limits required.

### **7.4 Specific Requirements**

7.4.1 Workers' compensation insurance with statutory limits required by South Dakota law. Coverage B-Employer's Liability coverage of not less than \$500,000 each accident, \$500,000 disease-policy limit, and \$500,000 disease-each employee.

7.4.2 Commercial general liability insurance providing occurrence form contractual, personal injury, bodily injury and property damage liability coverage with limits of not less than \$1,000,000 per occurrence, \$2,000,000 general aggregate, and \$2,000,000 aggregate products and completed operations. If the occurrence form is not available, claims-made coverage shall be maintained for three years after completion of the terms of this agreement. The policy shall name the City and its representatives as an additional insured.



- 7.4.3 Automobile liability insurance covering all owned, nonowned, and hired automobiles, trucks, and trailers. The coverage shall be at least as broad as that found in the standard comprehensive automobile liability policy with limits of not less than \$1,000,000 combined single limit each occurrence. The required limit may include excess liability (umbrella) coverage.

### **Section 8—Hold Harmless**

The Contractor hereby agrees to hold the City harmless from any and all claims or liability including attorneys' fees arising out of the services furnished under this Agreement, and for bodily injury or property damage arising out of services furnished under this Agreement, providing that such claims or liability are the result of a negligent act, error or omission of the Contractor and/or its employees/agents arising out of the services described in the Agreement.

### **Section 9—Independent Business**

The parties agree that the Contractor operates an independent business and is contracting to do work according to his own methods, without being subject to the control of the City, except as to the product or the result of the work. The relationship between the City and the Contractor shall be that as between an independent contractor and the City and not as an employer-employee relationship. The payment to the Contractor is inclusive of any use, excise, income or any other tax arising out of this agreement.

### **Section 10-Controlling Law and Venue**

This Agreement shall be subject to, interpreted and enforced according to the laws of the State of South Dakota, without regard to any conflicts of law provisions. Parties agree to submit to the exclusive venue and jurisdiction of the State of South Dakota, 7<sup>th</sup> Judicial Circuit, Pennington County.

### **Section 11-Severability**

Any unenforceable provision herein shall be amended to the extent necessary to make it enforceable; if not possible, it shall be deleted and all other provisions shall remain in full force and effect.

### **Section 12—Funds Appropriation**

If funds are not budgeted or appropriated for any fiscal year for services provided by the terms of this agreement, this agreement shall impose no obligation on the City for payment. This agreement is null and void except as to annual payments herein agreed upon for which funds have been budgeted or appropriated, and no right of action or





damage shall accrue to the benefit of the Contractor, its successors or assignees, for any further payments. For future phases of this or any project, project components not identified within this contract shall not constitute an obligation by the City until funding for that component has been appropriated.

### **Section 13-Responsibility of Contractor**

**General Responsibility:** The Contractor shall furnish all transportation, ways, works, machinery, and plant, and all suitable appliances required for the safe, proper, and lawful construction, maintenance, and use thereof. The Contractor shall be fully responsible for the materials and equipment used for the work and for safeguarding the work against damage or destruction until its final acceptance by the City. The Contractor agrees to make no claims for damage to the work prior to final acceptance and will make no claims for damage to the materials except through negligence or willful act of the City.

Before the completion and acceptance of this Contract shall be made good by him, he shall be solely answerable for all damage to the City or the property of the City; to other contractors, or other employees of the City; to the neighboring premises or to any private or personal property due to improper, illegal, or negligent conduct of himself or his subcontractors; employees or agents in and about said work or in the execution of the work covered by this Contract or any extra work undertaken herein provided; or to any defect in, or the improper use of, any scaffolding, shoring, apparatus, ways, works, machinery or plant. He shall indemnify and save harmless the City and its officers and agents from all claims relating to labor, materials, and methods used in executing the work.

### **Section 14-Patents**

It is further agreed that all royalties for patents or patent infringement claims, whether such patents are for processes or devices, that might be involved in the construction or use of the work, shall be included in the Contract amount and the Contractor shall satisfy all demands that may be made at any time for such, and shall be liable for any damages or claims for patent infringements; and the Contractor shall, at his own expense, defend any and all suits or proceedings that might be instituted at any time against the City for infringement or alleged infringement of any patent or patents involved in the work; and in case of an award of damages, the said Contractor shall pay such award; final payment to the Contractor by the City will not be made while any such suits or claims remain unsettled.



### **Section 15-Indemnity**

The Contractor shall indemnify and save harmless the City from and against all losses and all claims, demands, payments, suits, actions, recoveries, and judgments of every nature and description brought or recovered against him, by reason of any act or omission of the said Contractor, his agents or employees, in the execution of the work or in the guarding of it and this shall include acts or omission of subcontractor.

The Contractor shall, and is hereby authorized to, maintain any part for such insurance, issued in the name of the City, as will protect the City from his contingent liability under this Contract, and the City's right to enforce against the Contractor any provision of this Section shall be contingent upon the full compliance by the City with the terms of applicable insurance policy or policies, a copy of which shall be deposited with the City.

### **Section 16-Laws and Ordinances**

The Contractor shall keep himself fully informed of all existing and current regulations of the City, County, State, and Nation, which in any way limit or control the actions or operations of those engaged upon the work, or affecting the materials supplied to or by them. He shall at all times observe and comply with, all ordinances, laws, rules and regulations and shall protect and indemnify the City and the City's officers and agents against any claims or liability arising from or based on any violation of the same. The Contractor shall give all notices and comply with all laws, ordinances, rules, and regulations bearing on the conduct of the work. If the Contractor performs any work knowing it to be contrary to such laws, ordinances, rules, and regulations and without such notice to the City, he shall bear all costs arising therefrom. Such performance shall constitute a waiver of any and all claims associated with the work.

### **Section 17-Permits and Licenses**

Unless otherwise specified, permits and licenses of a temporary nature necessary for the prosecution of the work shall be secured and paid for by the Contractor. Permits, licenses, and easements for permanent structures or permanent changes in existing facilities shall be secured and paid for by the City, unless otherwise specified.

make, the aforesaid repairs; providing, however, that in case of an emergency, where in the judgment of the City, delay would cause serious loss or damage, repairs may be made without notice being sent to the Contractor and the Contractor shall pay the cost thereof.



IN WITNESS WHEREOF, the parties hereto have made and executed this Agreement as of the day and year first above written.

City of Rapid City:

Dakota Pump, Inc.:

\_\_\_\_\_  
MAYOR

*James A. Seibert*  
\_\_\_\_\_

DATE: \_\_\_\_\_

DATE: 06/20/2014

ATTEST:

\_\_\_\_\_  
FINANCE OFFICER

Reviewed By:

*Dan Coon*  
\_\_\_\_\_  
Dan Coon, OPERATIONS MANAGEMENT ENGINEER

DATE: 6/23/14

CITY'S DESIGNATED PROJECT  
REPRESENTATIVE

NAME: Dan Coon  
PHONE: (605) 394-4154  
EMAIL: dan.coon@rcgov.org

CONTRACTOR'S DESIGNATED  
PROJECT REPRESENTATIVE

NAME: Quinten Shultz  
PHONE: (605) 716-7505  
EMAIL: controls@dakotapump.com



# EXHIBIT A

## City of Rapid City Water Reclamation Facility (WRF) Supervisory Control and Data Acquisition (SCADA) Improvements PROJECT NO. 14-2159; CIP 51022

### Phase 1-Investigation

#### Project Description

DPI will conduct an Investigation and Evaluation of existing SCADA and control equipment at the WRF. A report of the existing conditions, upgrade options, and recommendations for equipment replacement will be compiled and submitted to the City.

The current SCADA system operating at the WRF is showing its age as evidenced by increasing cost of support and scarcity of components. The operation staff is experiencing intermittent and unexplained instances of lost or missing data at the main SCADA computer.

Given the diversity of equipment from various vendors and the varying state of documentation, a thorough investigation of existing equipment is necessary. This document will explain each task of the investigation process.

The ultimate goal of this Investigation and Evaluation process is to provide the City with quality information for use in making informed decisions regarding the next phase of the project. New agreements or amendments will be executed for future phases of the project as required. Future phases are expected to include:

- Phase 2 - Implementation
- Phase 3 - Future Assessment

#### PROJECT SCHEDULE

	Date:
Anticipated Notice to Proceed	July 14, 2014
Investigation and Evaluation	August 6, 2014
Investigation and Evaluation Report	September 5, 2014
Final Phase 1 Report	September 24, 2014
Notice to Proceed with Phase 2	To Be Determined
Final Design Submittal	" "
Installation of Equipment	" "
Training of City Personnel	" "
O&M Manuals Complete	" "
System Acceptance	" "
Support and Trouble Shooting (1 year)	" "

This schedule is based on allowing 10 working days for the City to review project submittals.

## Scope of Services

### 1. *Project Administration*

Coordination will be handled by DPI and delegated to Team Members as needed to satisfy the contract items. Items may include progress meetings, team collaboration, or conference calls.

### 2. *Project Management*

Project management will be handled by DPI and will include task scheduling, quality control and assurance, and sub consultant coordination where needed.

## Investigation Tasks

An onsite investigation will be scheduled with the City. This process will involve documenting existing conditions and will include photographic documentation where applicable. During the investigation, DPI will collect data on the devices and conditions noted in the tasks below:

### 3. *Review the existing SCADA system documentation.*

DPI will ascertain the completeness of the documentation as it relates to the transmission of process data to the PLC systems at the WRF and to the SCADA software connected to WRF controllers. Data that appears to be erroneous or missing will be noted in the report along with options for improving the way the documentation is stored and updated. The City will make available all drawings, manuals, and operating procedures as well as additional items that may arise as a result of the investigation process.

### 4. *Software Investigation.*

The current Plantscape® software has reached the end of its useful life but is still functioning. The investigation will include a review of the current system's capabilities through collaboration with the operations staff. DPI will make note of any items the staff sees as needing for improved or expanded functionality. Software components to be investigated include:

- a. Graphics. SCADA Graphical screens and displayed data. (e.g. Flow, Pressure, Level, Temperature, On/Off Status, etc.).
- b. Alarms. Alarm functionality relating to display, acknowledgment, notification and reset functions. This investigation into the alarms will be confined to the current software. Alarm functions as they reside in the PLC logic will be addressed in Task 5.
- c. Historical data collection and storage. DPI will review and take note of data that is currently recorded and stored. This information will be used later in deploying the new SCADA software and configuring its historical database. At this time, any new data points desired by the operation staff will be noted.
- d. Reporting. Review of existing capabilities with focus on quality of data, data sampling rates, and data output formatting. Input from the operations staff will provide insight into any desired changes or additions to data that is presently included in the reports run by the City.
- e. SCADA Software. DPI will research and compare three separate SCADA software solutions. Focus will be on initial software costs, ongoing support costs (yearly licensing), deployment cost estimates, and over all suitability to the City's needs. Three software packages will be investigated and presented to the City:
  1. Trihedral Engineering – VT SCADA®
  2. Rockwell Automation – Factory Talk SE®

3. Invensys (Schneider Electric) – Wonderware In Touch®
- f. SCADA System Redundancy. The current SCADA Software resides on two separate computers at the WRF. Various options including offsite or “Cloud” backup are available from each of the software vendors mentioned above for achieving the same or increased levels of redundancy. DPI will investigate these options and their associated costs along with advantages and disadvantages of each configuration.
- g. SCADA Software PC requirements. Each SCADA software solution requires a different configuration of PC hardware and operating system which directly affects the deployment and maintenance cost of each solution. DPI will investigate and evaluate the specific PC needs of each software vendor along with the associated costs.

#### 5. **PLC Hardware.**

A physical inspection of each PLC control cabinet will be performed. Below are the items included in the investigation.

- a. Overall Appearance. This pertains to both the inside and outside of the panel enclosure. DPI will record observed conditions such as corrosion, missing wire way covers, damaged or abandoned components, etc.
- b. Location Suitability. Focus will be on the environment in which the PLC is installed and the NEMA rating of its enclosure. Example: excess heat can cause processor faults, excess moisture or caustic gasses can corrode terminals and printed circuits.
- c. Expansion and Migration. The PLC hardware at the WRF is nearing the point of loss of manufacturer support. While this is not an immediate threat to normal operation of the WRF, DPI’s investigation will include selecting possible replacement PLC equipment and the associated cost.
- d. PLC Communication. The majority of the PLC’s at the WRF communicate using Allen Bradley Ethernet I/P communications. This being the preferred method now and in the foreseeable future, attention will be given to the locations that are using older, less efficient serial network protocols such as DH+. These locations will be identified and analyzed as to whether they pose any risks to WRF operations now or in the near future.
- e. Operator Interface Terminals (OIT). Various OIT’s exist throughout the WRF. These terminals are of various makes and models and display data limited to a particular process only. An investigation of these terminals and discussion with operation staff will indicate if OIT’s should be added, modified, or replaced and what data and functionality they should include.
- f. PLC Logic Programming. It is NOT anticipated that DPI will need to make any fundamental changes to the PLC’s related to each process and how the process functions. Due to the differences in programming styles from one equipment supplier to another, the programs will have to be reviewed so that DPI understands how the data flows from one point at the WRF to another. This information will be used during the implementation of the new SCADA Software. At this time DPI will determine the extent and quality of the program documentation and record our observations. The City will make available all programs for PLC’s at the WRF. Programs not on record with the City will be uploaded by DPI from the PLC itself.

## **6. Communications.**

The communication network at the WRF is an 802.11 (WiFi) type Ethernet radio system. The communication network must be solid and reliable, making this a key point in the investigation process. Items to be investigated are as follows:

- a. Site Specific Bandwidth. Communication platforms have a bandwidth consumption limit. At or beyond that limit, the quality of the data from the endpoint devices begins to degrade. DPI will focus on the present bandwidth consumption at each remote location at the WRF with future expansion in mind. This process will involve use of network traffic monitoring software and will produce data that can be used to select new communication equipment and aid in the design of a new network structure.
- b. Current Radio System. The current radio system has become obsolete and must be replaced. DPI's investigation will include:
  1. Antenna components and whether they must be replaced or if they can be reused with a new radio system. Components would include the antenna elements, transmission cable, lightning arrestors, and cable connectors.
  2. Existing installation quality related to cable routing, weatherproofing, and proper grounding.
- c. New Radio Hardware. Based on bandwidth requirements, an investigation into radio equipment will be done and will include options for equipment, installation, support, and associated costs.
- d. Network Alternatives. Fiber Optic connections exist in various locations throughout the WRF, these connections will be investigated and evaluated. DPI's investigation will include looking at the practicality and cost effectiveness of eliminating some or all radio links at the WRF in lieu of using new fiber. The City has expressed concerns regarding buried fiber at the WRF; these concerns will be taken into account and discussed with operations staff.
- e. City Network. The New SCADA system may or may not be connected to the City Network. DPI's investigation will explore the benefits or drawbacks in either case. We anticipate discussions with the City IT staff as well as with WRF operations personnel. Based on findings and input, DPI will present options as follows:
  1. How best to securely access the WRF SCADA system remotely.
  2. Configuration of remote alarm notification by phone, text, or email.
  3. Physical Location of any redundant SCADA servers.

## **7. Alarm Functions.**

This item is related to how alarms are handled and reset at their specific location and is separate from SCADA software alarming investigation. Through discussion with operation staff, DPI will determine which alarms must be reset locally and which alarms can be reset from the SCADA screen. If interlocked alarms are desired in some places and not others, DPI's report will include options for making any desired changes.

## **8. Extended Improvements and additions**

- a. Facility Security. Through discussions with operation staff, DPI will identify key locations for entry notification and alarming for overhead and walkway doors, gates, access hatches, etc. Focus will be on sensor type, location, alarm severity, and notification options.

- b. Building HVAC Monitoring. This investigation will involve collaboration with the HVAC control provider currently used by the City for the WRF. Focus will be on feasibility and cost of integrating the proprietary HVAC control equipment into the new SCADA software system. DPI will investigate what data is available and how it can be used to improve the operation and alarm notification.
- c. Operations Management System. DPI will investigate data currently collected from the SCADA system and manually entered into reports to governing agencies. DPI will propose an operations management software solution that will be able to provide increased automation of the WRF reporting process in conjunction with the incorporation of historical data on routine staff activities, repairs, maintenance, deliveries, etc. This investigation will also include a review of data collected as part of in house lab testing and feasibility of including this data in a single management software package.
- d. Mobile Ammonia Recording. In anticipation of more stringent limits on ammonia, DPI will investigate solutions for an ammonia sensing and analyzing system that can be portable enough to be moved from one place to another and interfaced with the SCADA system, recorded, displayed, and reported on. A proposed solution will include sensor technology, communication options, and budgetary costs.

**9. Evaluation.**

After finalizing the investigation as noted above, a preliminary report will be generated for all items in Sections 3-8. Based on feedback from the City, the report will be revised as needed. The report will contain the following content:

- a. Description of the issue or item investigated.
- b. List of observations for the investigated item. This will include details regarding equipment manufacturer, part or model numbers, and physical appearance. Diagrams and photographs will be used to support and convey observations.
- c. Recommendations will be made for all investigative tasks and presented options above. Recommendations will be based on professional opinion, industry trends, and specific input from the City as to need or preference.
- d. Solution alternatives with budgetary costs for consulting, deployment options, and action items outlined in the tasks above.
- e. Report Revisions as needed upon City review and input. Revisions may include content, format, or additional information requested by the City.



## EXHIBIT B

### Fee Proposal

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### SUMMARY OF TASKS

**PROFESSIONAL SERVICES**  
 for Water Reclamation Facility  
 Supervisory Control and Data Acquisition Improvements  
 City of Rapid City Project No. 14-2159  
 CIP 51022  
 Dakota Pump Inc.  
**TASK SCHEDULE**  
 June 19, 2014

PHASE 1 - INVESTIGATION		Task Cost
1	<b>Project Administration</b>	\$ 6,574.00
2	<b>Project Management</b>	\$ 6,928.00
	<b>Investigation Tasks</b>	
3	<b>Review the existing SCADA Documentation</b>	\$ 7,272.00
4	<b>Software Investigation</b>	
	a. Graphics	\$ 735.00
	b. Alarms	\$ 2,127.00
	c. Historical Data Collection	\$ 1,958.00
	d. Reporting	\$ 810.00
	e. SCADA Software Options	\$ 2,400.00
	f. Redundancy	\$ 890.00
	g. SCADA Software PC Requirements	\$ 480.00
5	<b>PLC Hardware</b>	\$ 1,882.00
6	<b>Communications</b>	
	a. Site Specific Bandwidth	\$ 1,165.00
	b. Current Radio System (transmission components)	\$ 445.00
	c. Radio System Hardware	\$ 805.00
	d. Network Alternatives	\$ 2,436.00
	e. City Network	\$ 390.00
7	<b>Alarm Functions</b>	\$ 2,495.00
8	<b>Extended Improvements and Additions</b>	
	a. Facility Security	\$ 2,240.00
	b. Building HVAC Monitoring	\$ 2,000.00
	c. Operations Management System	\$ 1,492.00
	d. Mobile Ammonia Recording	\$ 992.00
9	<b>Evaluation</b>	\$ 10,623.50
	Labor Total	\$ 57,139.50
	Expense Total	\$ 2,545.00

<b>TOTAL ESTIMATED FEES - PHASE 1</b>	<b>\$ 59,684.50</b>
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**EXHIBIT C**

**Water Reclamation Facility  
Supervisory Control and Data Acquisition Improvements  
Project No. 14-2159, CIP No. 51022**

**Dakota Pump, Inc.**

Licensed Mechanical Engineer.....\$130/hr.  
I & C Engineer.....\$120/hr.  
Mechanical Engineer.....\$110/hr.  
I & C Technician / Programmer.....\$110/hr.  
Drafting / CAD Technician.....\$75/hr.  
Administrative.....\$55/hr.  
Sub-Consultants ..... Cost + %10

**Reimbursable Expenses**

Project Travel..... \$0.65/mile

**CETEC Engineering Services, Inc.**

Principal	\$175.00/hr.
Project Manager / Engineer	\$116.00/hr.
CADD Technician	\$80.00/hr.
Administrative	\$55.00/hr.

**Reimbursable Expenses**

Project Travel..... \$0.65/mile

EXHIBIT C (continued)

**ADVANCED ENGINEERING AND ENVIRONMENTAL SERVICES, INC.**  
**2014 HOURLY FEE AND EXPENSE SCHEDULE**

**Labor Rates**

Engineer I	\$96.00
Engineer II	\$112.00
Engineer III	\$136.00
Engineer IV	\$155.00
Engineer V	\$171.00
Engineer VI	\$195.00
Engineer VII	\$205.00
Engineer VIII	\$213.00
Land Surveyor I	\$86.00
Land Surveyor II	\$105.00
Land Surveyor III	\$112.00
Land Surveyor IV	\$128.00
Land Surveyor V	\$140.00
Land Surveyor VI	\$154.00
Engineering Technician I	\$58.00
Engineering Technician II	\$75.00
Engineering Technician III	\$89.00
Engineering Technician IV	\$104.00
Engineering Technician V	\$119.00
Engineering Technician VI	\$133.00
Engineering Technician VII	\$145.00
GIS Specialist I	\$74.00
GIS Specialist II	\$93.00
GIS Specialist III	\$109.00
GIS Specialist IV	\$124.00
GIS Specialist V	\$142.00
GIS Specialist VI	\$160.00
Financial Analyst V	\$137.00
Financial Analyst VI	\$156.00
Financial Analyst VII	\$171.00
Financial Analyst VIII	\$187.00
Administrative I	\$52.00
Administrative II	\$64.00
Administrative III	\$75.00
Administrative IV	\$87.00
Administrative V	\$96.00
Administrative VI	\$105.00

**Reimbursable Expense Rates**

Transportation	\$0.65/mile
Survey Vehicle	\$0.70/mile
Service Vehicle - 1 Ton	\$1.00/mile
Air Transportation	\$1,600/hour
Photocopies 8½" x11"	\$0.10/copy
Legal Services Reimbursement	\$190.00/hour
Outside Services**	cost *1.15
Out of Pocket Expenses***	cost*1.15
Rental Car	cost*1.20

*These rates are subject to adjustment each year on January 1.*