


---

---

MEMORANDUM

---

---

**TO:** MAYOR JENSEN AND BOROUGH ASSEMBLY  
**FROM:** KARL HAGERMAN, UTILITY DIRECTOR   
**SUBJECT:** AWARD RECOMMENDATION – PUMP STATION 4 CONTROLS AND PANEL  
**DATE:** 11/27/2023  
**CC:** STEVE GIESBRECHT, BOROUGH MANAGER

As stated in the supplemental budget request memo, dated November 12, 2023, the wastewater department normally attempts to save time and money in our pump station projects by contracting directly with a control systems engineer that knows our system, has designed many of the controls and SCADA (supervisory control and data acquisition) integrations, and offers regional support in the event of system problems. In the past, we've hired Boreal Controls Inc. out of Juneau to provide these services and panels, but this company is no longer in business. Many of BCI's former employees are now working for RMC Engineering Services (RMC), also of Juneau, to design and support industrial control systems in our region.

The wastewater department reached out to RMC with a request for proposal to design the control system for pump station 4 and they have responded with a proposal to accomplish that work (proposal attached). RMC proposes to provide a communications site survey, electrical design review, control panel design, control panel fabrication, O&M manuals for control system, PLC (Programmable Logic Controller) programming, shop testing and onsite commissioning of the control system for a base cost of \$120,000.00.

Additional considerations include upgrading the departments standard PLC and HMI (Human-Machine Interface) to more current models that are likely to have continued support for the foreseeable future at a cost adder of \$12,000 and also to increase the sizing of the station variable frequency drives so that they match up with the VFD's at pump station 5 and provide the system with some parts redundancy, also for a cost adder of \$12,000. The wastewater department sees the long-term advantages of both options provided by RMC and recommends acceptance of these additions at the costs provided.

**To maintain project momentum, it is recommended by the wastewater department that RMC Engineering Services be awarded a professional services contract in the amount of \$144,000 to complete their proposed scope of work, including the optional items described in their proposal.**

Coincidentally, RMC has been the electrical subcontractor on the Blind Slough Hydro project and has been an excellent company to work with. They are producing high quality work and have demonstrated their skill, knowledge, and work ethic repeatedly on that project.

Thank you for your consideration.

Juneau, AK

September 21, 2023

---

<b>Client:</b> Petersburg Borough Karl Hagerman, Utility Director khagerman@petersburgak.gov (907) 772-4203	<b>Quote #:</b> <b>Prepared By:</b>	Q230913B Rob Swanson rob@rmces.com (907) 957-8367
--	--	--

---

## **Project: Petersburg Borough Pump Station 4 Controls and Integration, Revised**

---

\*Note: This is a revised quote to offer the option of increasing the size of the VFDs to match the VFDs installed at Pump Station 5. This is a request from Justin in effort to reduce the number of spares the Borough needs.

RMC is pleased to provide the following quote for the above project. The basis of the design is the former Boreal Controls, Inc. (BCI) Infinity RTU system, installed at other Petersburg Borough pump stations. The design has been around for years and the PLC and HMI are later in their respective product life cycles. Rockwell considers the product lines “Active Mature” but does not have an end-of-life date listed. Updating the panel with newer components is not required but we have included an option with updated hardware and the associated work to update the program.

### **Services**

- **Communications Site Survey:** RMC will work with the city to determine the best reliable communications method for SCADA data and alarms communication between Pump Station 4 and the SCADA system at the WWTP. The communication survey is expected to be done prior to construction. It is expected that RMC will purchase radio equipment and make a site visit to Petersburg with two staff members to determine the feasibility of radio communications.
- **Electrical Design Review:** RMC will provide input to the Borough and Design Team on electrical design aspects relating to the control system of the pump station. This includes but not limited to: VFD protection, VFD wire type, instrument wiring methods, etc.
- **Control Panel Design:** RMC will design the control panel to meet the owner’s requirements and UL 508A standard. The design will be based on the BCI Infinity RTU control panels. RMC will provide a complete set of drawings that show panel dimensions, layout, and wiring schematic with field device termination location. After construction and commissioning RMC will provide record drawings of the control panel installation.
- **O&M Manual:** RMC will develop an O&M manual for the control panel and process control. The manual will include product datasheets, process control operations directions, HMI screen shots, and commissioning record documentation.
- **Control Panel Fabrication:** RMC will construct the control panel to the UL508A standard based on the approved design.

Juneau, AK

September 21, 2023

- 
- **PLC Programming:** If the original BCI Infinity RTU option is selected, RMC will load and configure the Infinity RTU program for the Pump Station 4 project. If the newer hardware option is selected, RMC will convert the Infinity RTU program to work with the new hardware. RMC will update the HMI application for the Pump Station 4 Project.
  - **Shop Testing:** RMC will thoroughly test the control panel to verify individual component and full control panel operation before shipping. RMC will also shop test the VFDs with limited VFD output power. Shop testing of the VFDs includes: module installation, module operational tests, parameter configuration, and low power output test. RMC does not have the capacity to test the VFDs with a 30 HP motor load.
  - **On-Site Commissioning:** RMC expects commissioning to be one(1) trip for a duration of three(3) days / two(2) nights. On-site commissioning services include: installation inspection, VFD commissioning, process commissioning, SCADA integration, alarm testing, and operator training.

## Equipment

### Pump Station Control Panel (QTY: 1)

- Hoffman NEMA 4/12 Concept Enclosure
- Allen-Bradley PLC & IO Modules
  - o Original Design: MicroLogix 1400
  - o Newer Hardware: CompactLogix and Flex I/O
- Human Machine Interface (HMI)
  - o Original Design: Allen-Bradley PanelView Plus Standard 6"
  - o Newer Hardware: OnLogic Panel PC and Ignition Edge Software
- Door mounted pushbuttons, selection switches, potentiometers and pilot lights.
- Enclosure Heater
- Terminal blocks, circuit breakers, wire duct, wire labels, and other equipment required to construct a complete, professional, and operational control panel
- **Excluded:** Flygt Minicas relays (QTY: 3). Expected to be furnished by the Owner or Contractor to RMC for installation into the pump station control panel.

### Pump Station Wetwell Pump VFDs & Appurtenances (QTY: 3)

- Allen-Bradley PowerFlex 753 VFDs
  - o 30 HP Heavy Duty Rated, 40 HP Normal Duty Rated, Option for 60 HP Normal Duty
  - o Human Interface Module (HIM)
  - o Control Input/Output Module
  - o Ethernet/IP Communication Module
- MTE 3% Line Reactors

### Instrument Package

- Dwyer Submersible Pressure Transmitter (QTY: 1)
  - o Range 0-10 PSI, 4-20 mA, Intrinsically Safe
- Dwyer Float Switch (QTY: 1)

## Exclusions

- Any services or equipment not explicitly listed in this quote.
- No spare equipment or hardware is included in this quote.
- Installation of control panel or equipment.

## Fee Schedule

Invoices will be submitted at appropriate project milestones. Projects that require a full or partial payment upon order entry or release will be conditional on the following terms: amounts billed are due no later than thirty (30) days following billing. Late payments will be charged interest at a rate of 18% per annum, compounded monthly.

## Shipping

Equipment is FOB Petersburg, AK.

## Cost

The cost for Base Design (AB MicroLogix Design) is	<b>\$120,000.00</b>
PLC & HMI Update Option	<b>+\$12,000.00</b>
Increase VFD Size to Match PS5 (77 Amp, 60 HP ND)	<b>+\$12,000.00</b>

## Warranty

RMC stands by its work, and provides a warranty for all work for up to one year after project completion. While very little warranty work is anticipated, RMC will provide prompt service for any such requests. Additionally, due to RMC's close proximity to these sites, RMC can quickly address any issues that may arise, resulting in minimal down time and reductions in operational status.