

Process Control Systems Upgrades Study Project No. SP-196

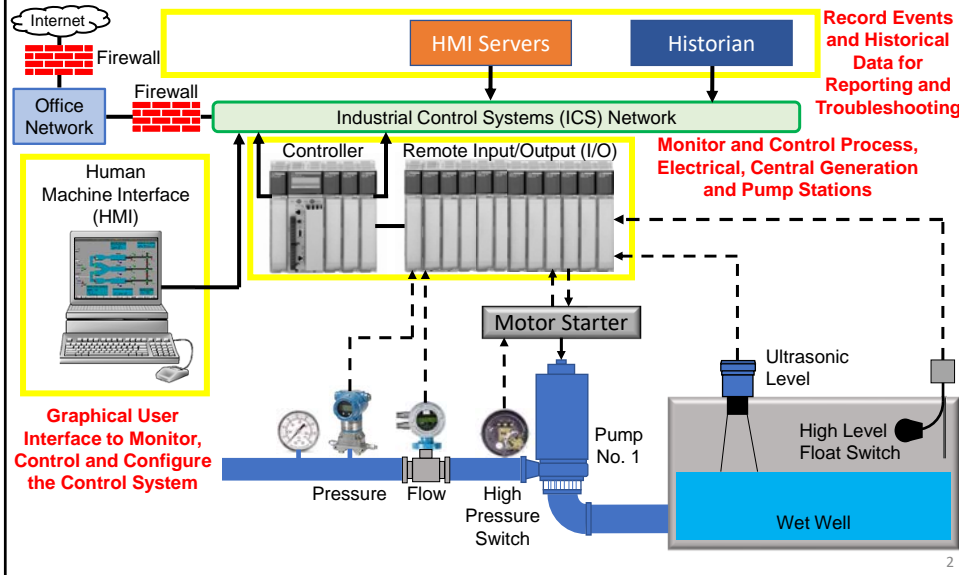
Presented by:
Mike Dorman
Engineering
Manager
Operations
Committee
July 7, 2021

Master Service Agreement

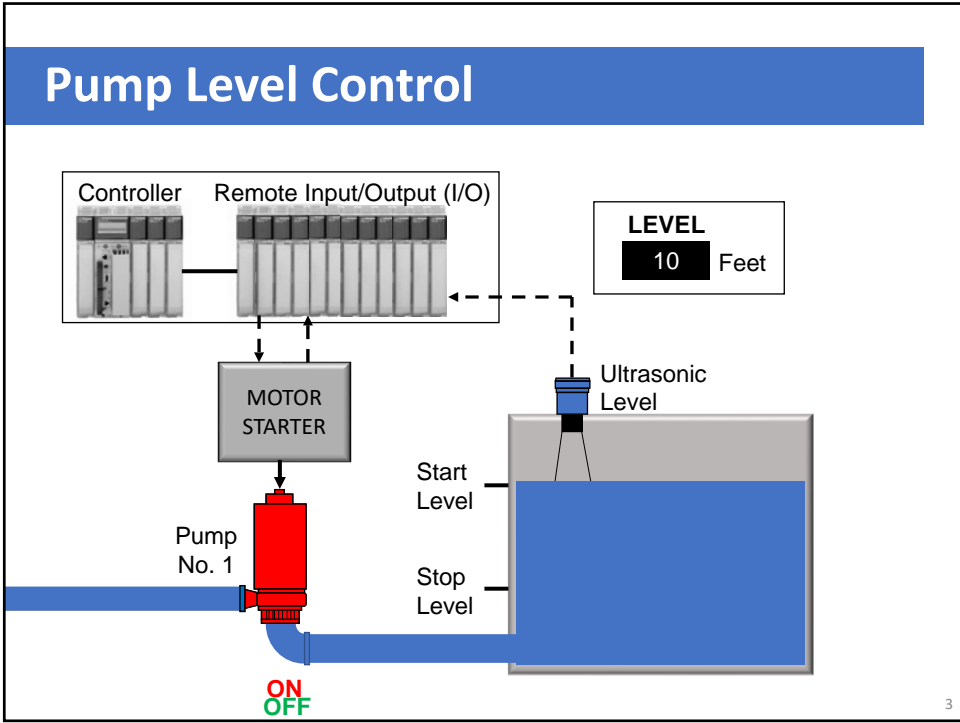


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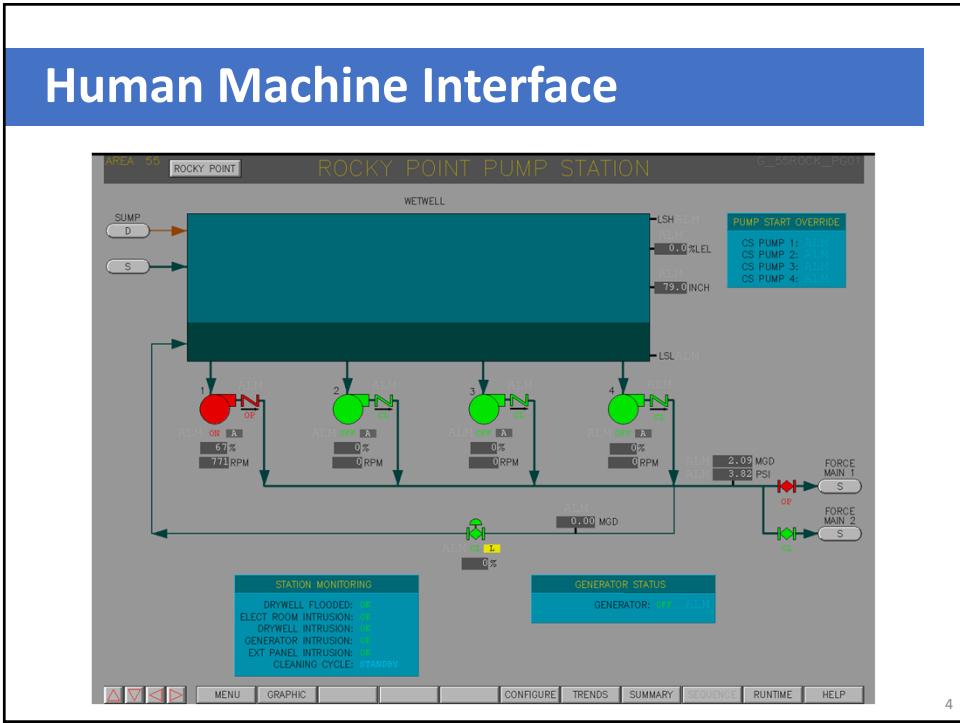
Supervisory Control and Data Acquisition (SCADA)



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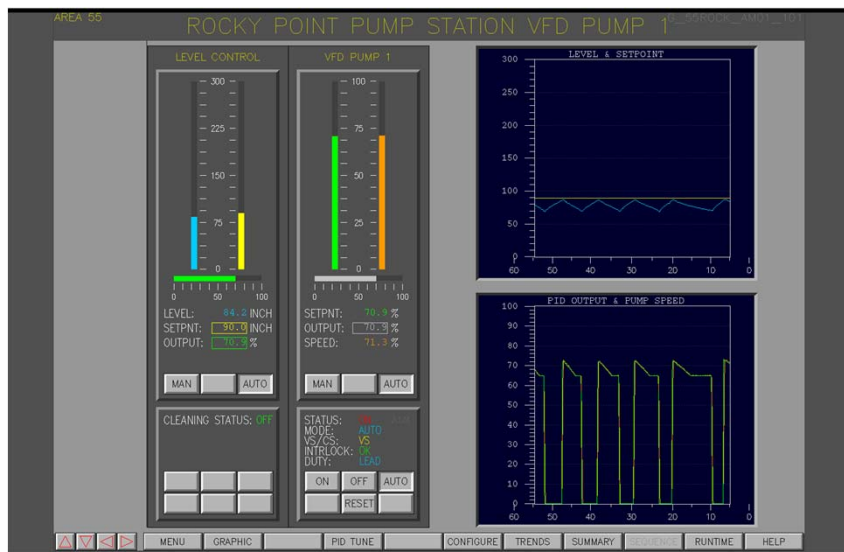


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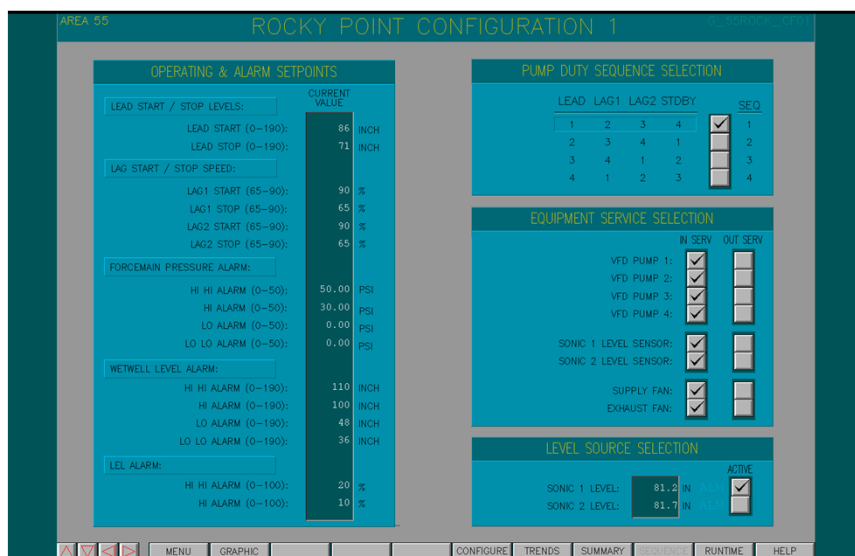
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Human Machine Interface



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Human Machine Interface



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Plant 1 Control Center

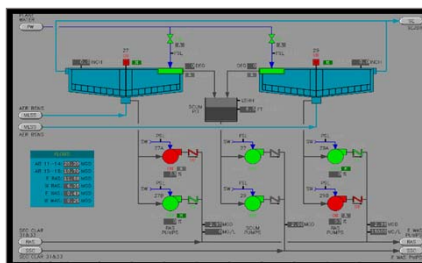


SCADA system allows 24-hour operation from 1 location at each plant

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Why Replace the Human Machine Interface (HMI)?

- HMI System – CRISP (Process, electrical and pump stations)
 - >27 years old
 - No longer commercially supported
 - 3rd party CRISP programmers are reaching retirement age
- HMI System – Wonderware (Central Generation and Load Shedding)
 - Replace to have one system



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Why Select New Programmable Logic Controllers (PLC)?

- PLCs – Modicon Quantum
 - >23 Years Old
 - No longer manufactured



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SCADA System Replacement Plan

- HMI: Replace now under Project No. J-120
- PLC/Controllers: Replace as part of future CIP projects over the next +25 years

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Competitive Procurement

Competed Human Machine Interface (HMI) and Programmable Logic Controllers (PLC) versus Distributed Control System (DCS)

	HMI/PLC System	DCS System
HMI Software	HMI Vendor	DCS Vendor
Controller	PLC Vendor	DCS Vendor
Training	HMI and PLC Vendor	DCS Vendor
Control Panel	Panel Fabricator	Panel Fabricator/DCS Vendor
Programming	In-House / Systems Integrator	In-House / DCS Vendor / System Integrator

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Study and Procurement

← PLANNING AND CONSULTANT SELECTION

OC SAN AND CONSULTANT →

Jan 2017 – Feb 2018

Fact Finding

Vendor Outreach and Testing

- Tested vendor HMI with sample PLC logic

Consultant RFP and Selection of Stantec

Feb 2018 – Feb 2019

SCADA Requirements

- Workshops
- Determined features
- Procurement process

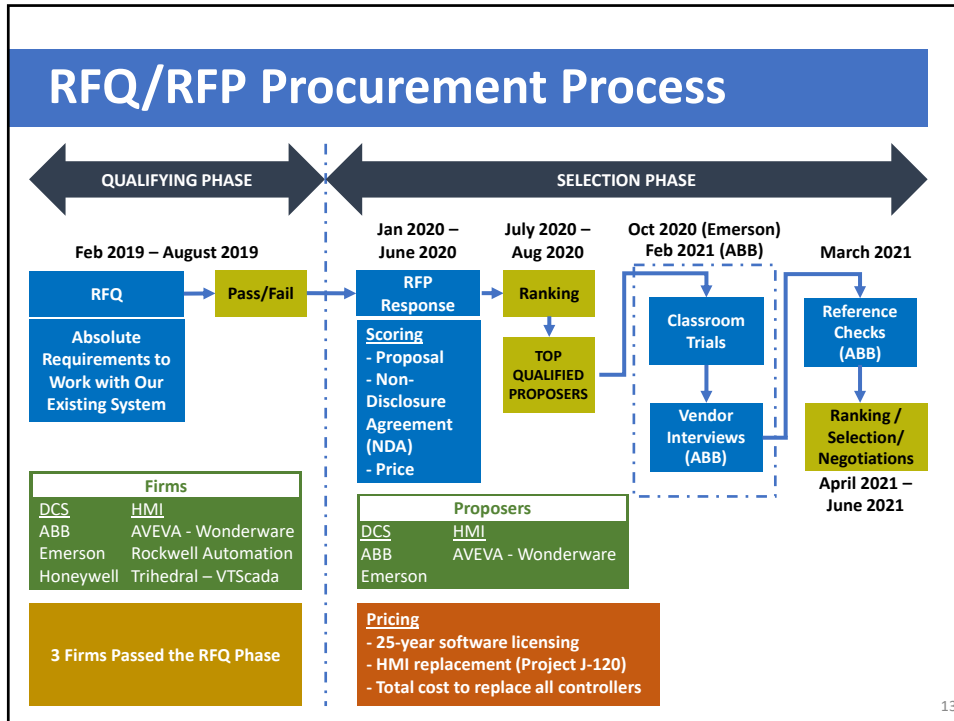
Procurement Documents

- Request for Qualifications (RFQ)
- Request for Proposals (RFP)
- Master Services Agreement (MSA)
- HMI Scope

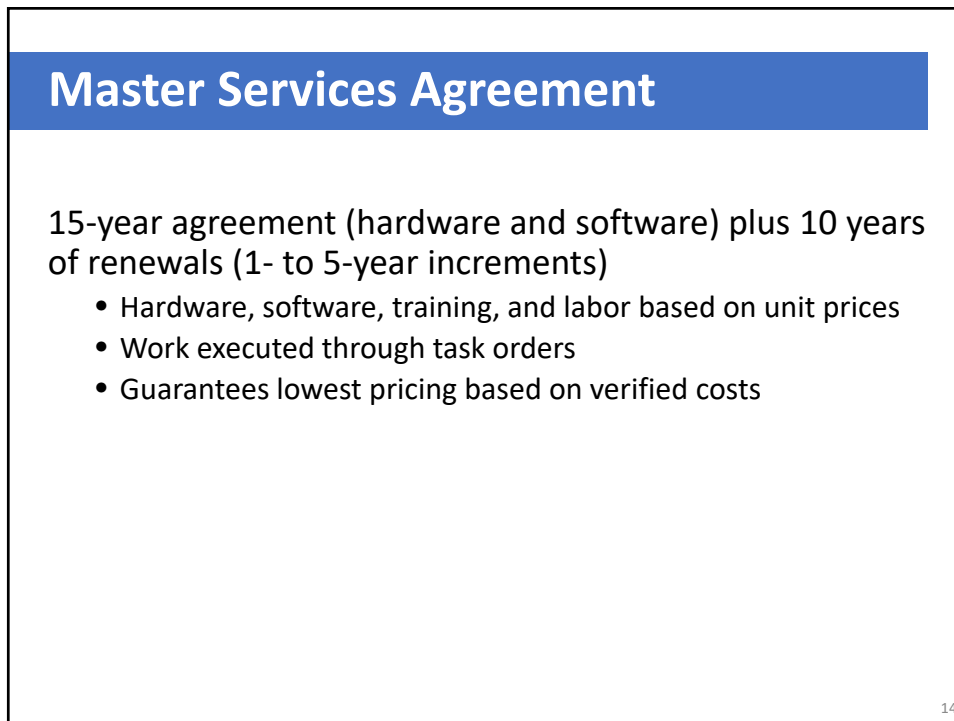
Issued RFQ

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Three Task Order Types

Type 1 – Product and Services Task Order

- Supply hardware and software products to OC San
- Provide hourly services to support OC San

Type 2 – Project-based Task Order

- Implement OC San project scope of work for hardware, software and engineering/programming services

Type 3 – Project-based Task Order assigned to Other Contractors

- Provide field-side hardware and/or field services to CIP Contractors

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Task Orders

- Task Order No. 1: Replace existing HMI software through Project No. J-120 (price included in proposal)
- Future Task Orders
 - Perform HMI and/or controller programming on future projects
 - Add system features
 - Enhanced alarming
 - Predictive maintenance
 - Integrate Standard Operating Procedures
 - Simulation system for training

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RFP Scoring

Proposer	Non-Disclosure Agreement Response (Pass/Fail)	Price Proposals (Max.40 Points)	Project Delivery Response (Max. 10 Points)	Technology Response (Max. 50 Points)	Total Score (Max. 100 Points)
ABB	Pass	40	7	32	79
AVEVA	Pass	25	6	34	65

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RFP Evaluated Pricing

	ABB	AVEVA
J-120 HMI Replacement		
J-120 Labor and Training	\$5.6M	\$42.9M
J-120 Licensing and Components	\$2.8M	\$3.2M
J-120 Total	\$8.4M	\$46.1M
Complete PLC Hardware Replacement	\$30.2M	\$11.2M
Licensing (25 years)	\$9.3M	\$20.9M
Graphics Upgrade	\$0.5M	\$0.7M
Additional Commercial Items	\$0.0M	\$0.1M
Total Evaluated Price	\$48.4M	\$79.0M

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SP-196 Recommended Action

Recommend to the Board of Directors to:

- A. Award a Master Services Agreement with ABB Inc. for the design, installation, implementation, and maintenance of a process control system; and
- B. Authorize staff to specify ABB Inc. as the sole source provider for equipment, materials, software and services for control systems on current and future projects; and
- C. Ratify the addition of ABB Inc. to the list of pre-approved Original Equipment Manufacturers for procurements under \$100,000 for equipment, materials, software and services for control systems.

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Questions



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