

RESOLUTION NO. _____

A RESOLUTION WAIVING FORMAL BIDDING REQUIREMENTS AND AUTHORIZING PAYMENT TO EMERSON POWER AND WATER SOLUTIONS FOR THE PURCHASE OF THE REPLACEMENT AND INSTALLATION OF UPGRADES TO THE GOVERNOR SYSTEM OF THE MURRAY HYDROELECTRIC PLANT; AND FOR OTHER PURPOSES.

WHEREAS, Ark. Code Ann. §14-58-303 requires City purchases exceeding the amount of \$35,000 to follow statutory procedures of local advertisement and opening of sealed bids which may only be waived in exceptional situations where bidding is deemed not feasible or practical; and

WHEREAS, on September 25, 2023, the City Council adopted Resolution No. 10649, waiving formal bidding requirements and authorizing payment to Voith Hydro, Inc. for the purchase of replacing and installing upgrades to the governor system of the Murray Hydroelectric Plant; and

WHEREAS, upon discussion of the contract terms for the upgrades, the North Little Rock Electric Department (NLRED) and Voith Hydro, Inc. were unable to reach an agreement on certain necessary items; and

WHEREAS, Emerson Power and Water Solutions, 1000 Westinghouse Drive, Suite 500, Cranberry Township, Pennsylvania 16066 ("Emerson"), has been previously utilized by the NLRED and is able to meet the needs of the Hydroelectric Plant; and

WHEREAS, Emerson has proposed the replacement and installation of the upgrades to the governor system at a total cost of One Million Nine Hundred Forty Five Thousand Six Hundred Forty Five and 00/100 Dollars (\$1,945,645.00)(see Proposal attached hereto as Exhibit A); and

WHEREAS, time is of the essence, and it is in the best interests of the City and its residents to waive bidding requirements for upgrades to the governor system of the Murray Hydroelectric Plant.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF NORTH LITTLE ROCK, ARKANSAS:

SECTION 1: That formal bidding is hereby waived in connection with the purchase of the replacement and installation of upgrades to the governor system for the Murray Hydroelectric Plant.

SECTION 2: That Six Hundred Fifty Seven Thousand Eight Hundred Thirty One and 00/100 Dollars (\$657,831.00) of the cost shall be paid from the 2024 Electric Department budget. One Million Three Hundred Forty Two Thousand One Hundred Sixty Nine and 00/100 Dollars (\$1,342,169.00) shall be included in the 2025 Electric Department budget for completion of this project.

SECTION 3: That this Resolution shall be in full force and effect from and after its passage and approval.

PASSED:

APPROVED:

Mayor Terry C. Hartwick

SPONSOR:

ATTEST:

TERRY C. Hartwick
Mayor Terry C. Hartwick *by AF*

Diane Whitbey, City Clerk

APPROVED AS TO FORM:

Amy Beckman Fields
Amy Beckman Fields, City Attorney

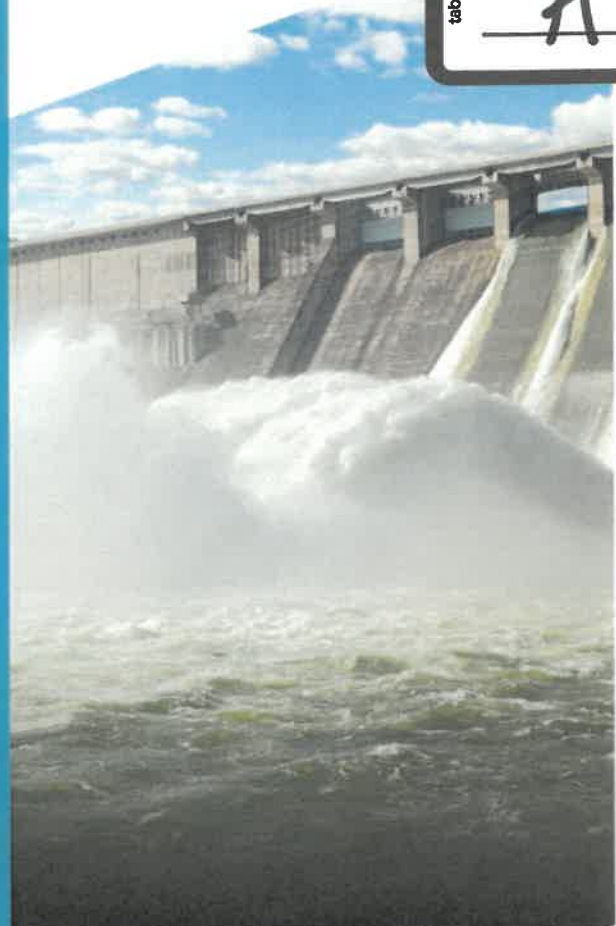
PREPARED BY THE OFFICE OF THE CITY ATTORNEY/kt

FILED	<u>8:40</u>	A.M.	_____	P.M.
By	<u>K. Trevino</u>			
DATE	<u>10.22.24</u>			
Diane Whitbey, City Clerk and Collector North Little Rock, Arkansas				
RECEIVED BY	<u>S. Issery</u>			

Offer to:
City of North Little
Rock

Murray Hydroelectric Controls Upgrade

Offer No:
PAM24040336
August 2024



Version #	Date	Description
1	8/14/2024	City of North Little Rock – Murray Hydroelectric Site Controls Retrofit



Emerson
Power and Water Solutions
1000 Westinghouse Drive
Suite 500
Cranberry Township, PA 16066
USA
www.Emerson.com

8-14-2024

City of North Little Rock
Murray Hydroelectric Site
120 Main St.,
North Little Rock, AR 72114

Attention: Jessica Stephens, Director of Power Supply

Subject: Murray Hydroelectric Site Ovation Controls retrofit
Emerson Firm Offer # PAM24040336

Dear Jessica Stephens, Director of Power Supply:

Emerson Process Management Power & Water Solutions, Inc. (Emerson), part of the Emerson family of business, is pleased to submit this offer to City of North Little Rock for the Murray Hydroelectric Site Ovation Controls retrofit. This offer is based upon the attached commercial description and the contents within this submittal.

Emerson is at the forefront of providing innovative digital transformation technology that helps our customers adapt to global market changes. We are continually evolving our automation platform by embedding innovative technologies that connect data, people, and insights to increase reliability, improve performance, and reduce operations and maintenance costs.

Emerson can help City of North Little Rock achieve its automation goals through our industry-leading technology, software, and solutions, and years of experience designing, implementing, and commissioning successful projects.

Emerson recognizes the increasing concern with security and meeting the challenges of the NERC CIP standards. Emerson adheres to a comprehensive security support policy for all projects which provides our customers with a baseline of protection against cyber threats. We also offer a wide range of products and services to further assist in this area.

With industry-specific applications, unmatched experience, and a highly skilled team of engineers, Emerson looks forward to working with City of North Little Rock to achieve the highest levels of success for this project.

Thank you for the opportunity to submit this offer. If you should have any questions or require additional information, please feel free to contact your local representative, Jason McBride at +1 (281) 879 2385, or myself at +1 (715) 347-2297.

Best regards,

Daniel J. Cichy
Proposal Engineer

Commercial Description for the City of North Little Rock, Murray Hydroelectric Site, Murray Hydroelectric Site Ovation Controls retrofit

This document defines the commercial basis under which Emerson makes this offer to City of North Little Rock for the distributed control project at Murray Hydroelectric Site.

Terms and Conditions	All purchases of the Emerson offerings described in this offer document are subject to Emerson's Standard Terms and Conditions of Sale located at https://www.emerson.com/en-us/my-account/terms-conditions (the "Terms") unless the Parties have entered into a separate signed agreement that expressly covers the purchase of the software, goods, and services set forth in this offer document. Any such separate signed agreement or the Terms (as applicable) is hereinafter referred to as the "Governing Terms". Some or all of the offerings in this Emerson offer are Software Offerings, which may include term-limited, subscription-based software licenses ("Subscription Offerings") or perpetual software licenses ("Perpetual Offerings") as indicated in this offer document. The license term for each Software Offering is as specified in this offer document ("License Term"). The License Term for Subscription Offerings may be automatically renewed in accordance with the Software License Agreement located at www.Emerson.com/Software-License-Agreement (the "Software License Agreement"). Notwithstanding anything to the contrary in any agreement between the parties, License Terms for Subscription Offerings are non-cancelable and fees paid are non-refundable. If Licensee terminates the License Term prior to the end of the License Term, all amounts that would have become due for the remainder of the License Term shall accelerate and become immediately due and payable. Emerson's provision of any software identified in a Software Offering is conditioned upon Licensee's acceptance of the Software License Agreement. Notwithstanding anything to the contrary in the Governing Terms, Customer's rights, and Emerson's (and its affiliates) obligations, regarding Emerson software are governed solely by the Software License Agreement.
Legal Name and Address for Doing Business	Please use the following legal name and address for all purchase orders and contracts: Emerson Process Management Power & Water Solutions, Inc. 2507 Lovi Rd Building 3 / 3A Freedom, PA 15042-9395 USA
Transmission of Purchase Orders and Contracts	Electronic Transmission: Purchase orders sent by email should be addressed to your local representative. Hardcopy Transmission: Hardcopy (or printed versions) of purchase orders and contracts should be mailed to: Emerson Power and Water Solutions 2507 Lovi Rd Building 3 / 3A Freedom, PA 15042 USA

Purchase Orders and Contracts Requirements	For Emerson to process the Customer's PO, the following must be included in the PO: • Purchase order number • Emerson's offer number including revision • Ship to address • Bill to address • A copy of tax certificate needed if your organization is tax exempt
Pricing	Base Price The base price for this system as offered is \$1,061,767. A credit for completion of the Front End Engineering & Design Study will be applied in the amount of \$35,000. Total Base Price with Feed Study credit applied for the system as offered is \$1,026,767. Options Pricing Optional installation services as offered is \$801,147. Autosynchronizer system as offered is \$117,731.
	Taxes are not included in the price and will be added to each invoice unless a tax certification is provided with the purchase order. Delivery shall be FOB Point of Origin. Freight and handling charges will be added to the invoice. Option prices are only valid at the time of purchase of the base scope. Any optional field service pricing included in this offer is valid up to ninety (90) days after the last major product shipment.

Terms of Payment	Emerson's offer is based exclusively upon the payment schedule below. Invoices will be issued for each of the following deliverable line items below. The amount of each invoice shall be calculated by applying the percentages (%) shown below against the total order price including any changes. For pro rata deliverables, Emerson reserves the right to submit multiple partial invoices proportionate to work completed associated with individual phases or deliveries. 10% Upon Contract Award 20% Upon Initial DCS Hardware Drawings Submittal 20% Upon Initial Functional Control Drawings Submittal 10% Upon DCS Hardware Complete on Test Floor 20% Upon System Shipment (on pro rata basis) 10% Upon Terminations Substantially Complete, but no later than ninety (90) days after last major DCS System Shipment 10% Upon Unit Online, but no later than thirty (30) days after Terminations Substantially Complete
Delivery	Emerson will deliver the offered system 15 weeks after the formation of a contract for the purchase of the Emerson offerings. The License Term begins on the earlier of (a) the date the Software and (if applicable) the license key is made available to Licensee or (b) the date the Software is first used (by Emerson or a third party) for the benefit of the Licensee. The License Term is estimated to begin 30 weeks after the formation of a contract for the purchase of the Emerson offerings. Delivery is based on current availability and will be confirmed after the formation of a contract for the purchase of the Emerson offerings. Emerson is committed to meeting the project schedule. However, in light of the current global electronic component shortage, some items in the bill of material may be substituted and/or the schedule may be impacted. Emerson will discuss these changes with City of North Little Rock prior to implementation. If, after the project has started, City of North Little Rock requests a delay in delivery, installation, or acceptance testing of any of the products or services purchased under this offer, then Emerson reserves the right to invoice for payment for all goods and services provided to date, and close out the project. Upon Emerson's request, City of North Little Rock will issue a new purchase order for any remaining scope of supply using the previously offered pricing.
Services	Installation design services included in this offer are defined in Section 12 page 20 of this offer. Commissioning services included in this offer are defined in Section 13 page 21 of this offer.
Bid Validity	This offer shall remain valid for sixty (60) days from the date of this letter, unless otherwise extended, modified, or withdrawn in writing by Emerson. The return of a purchase order acceptable to Emerson during such validity period will be sufficient to form an agreement based exclusively on the terms and conditions of this offer.

Proprietary and Confidential Information	This offer and any subsequent communications relative to this offer are considered to be proprietary and confidential information of Emerson. Accordingly, such proprietary and confidential information shall not be published, used, reproduced, transmitted or disclosed to others outside your organization without prior written consent by Emerson.
Proposal Quality	How can we improve our proposals? We would appreciate your feedback. If there are questions or comments regarding the quality of this proposal, please contact PWS.ProposalsQuality@Emerson.com or 412-963-4015. Please include the offer number in any correspondence.



OFFER TO

City of North Little Rock

FOR THE

Murray Hydroelectric Site

**OVATION™ AUTOMATION TECHNOLOGY
BILL OF MATERIALS**

PROPOSAL NO. PAM24040336 REVISION 0

DATE: 08/14/2024

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1.0 PROJECT OVERVIEW

Emerson Process Management Power & Water Solutions, Inc. (Emerson), part of the Emerson Automation Solutions family of business units, makes this offer to City of North Little Rock for supply of services, software, equipment, and materials for the distributed control system (DCS) project at Murray Hydroelectric Site.

Major services and components included in this project are:

- Implement process control
- Detailed project engineering and project management
- Control strategy implementation
- System testing
- System start-up
- On-going support
- Ovation Governor Controls
- Integration of Annunciator Panel

Emerson will complete the engineering and implementation in a timely manner, according to the mutually agreed upon project schedule.

Emerson is committed to meeting the project schedule. However, in light of the current global electronic component shortage, some items in the bill of material may be substituted and/or the schedule may be impacted. Should this situation occur, Emerson will discuss these changes with City of North Little Rock prior to implementation.

Unless explicitly stated and defined elsewhere in the offer, demo/installation (including craft labor) is not included.

Please review the scope of supply in this bill of materials carefully. If you have any questions, please contact us, as we would be happy to perform a thorough review with you. The intent of this bill of materials is for it to be included in the contract.

1.1 BASIS FOR PROPOSAL

This proposal is based on the "Front End Engineering and Design Study" developed by Emerson for the Murray Hydroelectric Plant.

2.0 GOVERNOR SYSTEM

2.1 Governor System Proposed Solution

2.1.1 Digital Governor Cabinet

The existing governor cabinet (VGC) will be turned into a marshalling cabinet.

A new Ovation cabinet will be designed and installed next to the VGC cabinet for the new turbine governor controls. This cabinet will be (maximum) of same height of the existing governor cabinets, so it does not interfere with equipment handling in the area. New Ovation cabinet will be NEMA 12/ Vented Steel cabinet.

The cabinet will feature an Ovation Remote Node Interface ("RNI") that communicates with the Controller located in the control room via a Multi-Mode fiber optic network.

An electrical conduit connecting both cabinets will be installed, to serve as cable path. The existing 120VAC and 125VDC feeders available in the VGC will be looped to the new cabinet. The Ovation equipment (RNI, I/O modules, etc.) will be powered by new redundant power supplies.

Existing governor components, except for the terminal blocks, will be de-terminated and removed. The existing VGC HMI and Emergency pushbutton will be removed, and the holes left on the door will be covered by new plates that match the existing cabinet color as much as possible. New cables will be installed between the VGC terminal blocks and the new Ovation I/O modules.

Ovation controller's digital inputs will be wet with 24VDC, where possible. Analog signals will be wired directly to the I/O cards, without the use of buffer amplifiers, unless there is a need for signal conversion.

The new Governor cabinet will feature an industrial panel-mount PC of 15", installed on the front door, to allow for local operation and maintenance of the system. An emergency pushbutton will also be available on the new cabinet.

2.1.2 Governor Control

The existing Governor can be operated either from the Governor Control cabinet (local automatic or manual operation) or from Station in the control room (automatic mode).

The following control modes are available:

- o Speed Control Isolated
- o Speed Control Network (large grid)
- o Gate Position Control

No power/load control is used. An electronic gate limit is also available and active in all control modes. All existing control modes will be made available in the new Ovation system.

2.1.3 Speed Measurement System

The speed probes and their cables will be retained, as well as the PT signal.

Each one of the speed signals currently going to the VGC PLC will be wired now to a dedicated Ovation speed detector card, totaling 3 cards. This approach will increase speed signal availability to the system.

The optocoupler used by the existing system to read the PT signal will be removed. The PT signal will be wired directly to the speed card, thus reducing number of intermediate components between signal source and controller.

The independent speed sensing device (Jaquet) will be retained and relocated to the new Ovation cabinet.

Special consideration will be given to the programming tools necessary to configure the Jaquet overspeed device (Windows and Java version should be checked).

Plant indicated that they do have a spare Jaquet available – The spare Jaquet will be checked during the installation/commissioning of the DCS upgrade project.

2.1.4 Gate Position Feedback Sensor

The existing transducer will be kept and used with the new Ovation system.

2.1.5 Blade Position Feedback Sensor

The existing transducer will be kept and used with the new Ovation system.

2.1.6 Governor Controls

Due to parts obsolescence and reliability concerns, both the wicket gate and runner blade manifold blocks will be replaced. The replacement Ovation controls will include:

- A New manifold block.
- A duplex filter, 5 µm, with manual switchover capabilities, and differential pressure switch indication. The new duplex filter will be a separate assembly from the main manifold block.
- Proportional valve.
- Shutdown solenoid.
- Pressure switch for monitoring of shutdown conditions.

Proportional valve sizes will be verified during design phase. Station has reported some controls problem that may be associated with the current valve specification.

The existing junction boxes connecting the manifold instrumentation to the governor control cabinets will be repurposed. New cable will be installed to connect the new manifolds directly to the Ovation cabinets.

The main distributing valves' feedback will be rewired to RSR modules installed on the Ovation remote IO rack. External position driver cards (VCA3) will be demolished: the inner and outer loops of the position control loop will be performed by the Ovation I/O cards and controller logic, integrating this critical part of the governor control in an open system that is tuned from a computer.

2.1.7 Governor Sump

No additional instrumentation on the sump is included as part of the system upgrade.

2.1.8 Governor Oil Pump Control

The governor oil pump control system is based on hardwire controls. The system will be retained as it is.

2.1.9 Governor Air Admission System

Existing system to be retained as it is.

2.1.10 Air Brake System

Existing system to be retained as it is.

2.1.11 Main Distributing Valves Position Feedback

The transducers for both gate and blade main distributing valves will be retained for use with the new Ovation system.

3.0 UNIT & PLANT CONTROL

3.1 Unit & Plant Control Proposed Solution

The proposed solution for the Murray's control operation will integrate the different visualization and control systems into a single Ovation Platform. Additionally, substitute the relay logic by incorporating in the Ovation system the necessary signals to automate the unit start and stop sequence.

3.1.1 Unit and Plant Annunciators

Three 21" HMIs will replace the existing unit and Plant annunciators, located on the front cabinet lineup. The HMIs will be installed in the same location of the existing annunciators. The process signals currently wired to the annunciators will be brought into digital input cards of the specific Ovation unit controller.

The height of the new HMIs will be carefully defined during the project design phase since the annunciators are located at the very top of the existing control room cabinets.

The DCS system will feature Graphics that replicates the annunciator "look and feel" to facilitate the transition to the new system for the operators.

Depending on HMI location and final dimensions, cover plates will be used to patch the control panels, after removal of the existing annunciators.

3.1.2 Unit Control Switches / Lights

All existing lights, gauges, push buttons and control switches currently installed on the unit control board will be retained.

If a switch / button is activating a relay logic that will be moved into the controller, the switch / button contact will be brought into digital inputs of the controllers, so the system can continue to operate via those matters.

Any switch / button that will no longer be required for operation, will be de-terminated (to the first terminal strip) and removed. New cover plates will be installed where those devices were previously located.

3.1.3 Temperature Measurement System

The temperature measurement system will be incorporated into the Ovation system. The existing RTD signals, wired to the SEL relay modules, will be rewired to dedicated RTD input modules installed on the new unit and plant controllers. The Digital outputs wired to the SEL 2505 will also be removed and replaced by Ovation Digital Output cards.

Remaining wires of the existing temperature system modules will be de-terminated and removed (to the nearest terminal strip). SEL modules will be removed during installation of the new system.

3.1.4 Seal Water Cooling Flow System

The seal cooling water flow system PLC will be integrated into the Ovation Plant Controller. The wires currently landing at the existing PLC will be rerouted to the new Ovation I/O's. Logics and graphics of the existing system will be replicated in Ovation.

3.1.5 Datalink

The Plant Controller will be equipped with an Ethernet Link Module (ELC) to communicate with the existing Protection System RTAC. It's assumed that the current protocol of the RTAC available to communicate with the new DCS is the Modbus TCP/IP. Eventual changes needed to the RTAC modules are **not included** as part of this DCS upgrade proposal.

The Plant Controller will be able to acquire protection information related to both units and the plant protection system and distribute specific messages to controllers of units 1 and 2, for alarm list consolidation purposes.

4.0 NEW GOVERNOR SYSTEM – PROPOSED SOLUTION - BILL OF MATERIALS SUMMARY

4.1 Governor Mechanicals

Item	Module Type	Unit 1	Unit 2
A	Wicket gate manifold block - Manifold - Duplex filter - Proportional valve - Shutdown solenoid - Pressure switch. - Tubing	1	1
B	Runner blade manifold block - Manifold - Duplex filter - Proportional valve - Shutdown solenoid - Pressure switch. - Tubing	1	1
C	Wicket gate Main Distributing Valve position feedback	1 (reused)	1 (reused)
D	Runner Blade Main Distributing Valve position feedback	1 (reused)	1 (reused)
E	Wicket gate position feedback	1 (reused)	1 (reused)
F	Runner Blade position feedback	1 (reused)	1 (reused)
G	Speed pick-up probes	3 (reused)	3 (reused)

4.2 Governor Controller Cabinet

Item	Module Type	Unit 1	Unit 2
A	Ovation Remote Node Cabinet, NEMA 12/ Vented Steel cabinet. 36.5" (w) x 71" (h) x 18" (d).	1	1
B	Cabinet Heating / Fan system	1	1
C	Industrial Panel Mount PC 1 – Computer 1 – 15.6" touch display 1 – 2x Ethernet Ports Installed on the new Ovation Cabinet	1	1
D	Patch panel for Multimode fiber cable	1	1
E	Copper to Fiber Media Converter	2	2
F	Emergency Push Button	1	1
G	Miscellaneous Relays for Shutdown Circuit	1 set	1 set
H	Independent Overspeed Relay (Jaquet)	1 (reused)	1 (reused)

4.3 Governor Controller Cabinet – I/O's

The following table lists the quantities of local Ovation I/O modules that will be installed in the new Ovation governor control cabinet.

The I/O quantities are based on the evaluation of the existing governor electrical schematics (Voith drawing 2642-0870) and 20% spare.

Item	Module Type	Unit 1	Unit 2
A	Analog input (8pt/module, 4-20mA, field or locally powered)	1	1
B	Analog output (4pt/module, 4-20mA)	1	1
C	Digital input (16pt/module, 24/48VDC single ended)	1	1
D	Digital input (16pt/module, 125VDC differential & field powered)	1	1
D	Relay output (12pt/module, 10A@250VAC/10A@150VDC, 1 Form-X contact)	2	2
E	Speed detector (1 Sinusoidal or Pulse Train Input and 2 Form C Relay Outputs)	3	3
F	Servo Drive ($\pm$ 16V DC to DC LVDT)	2	2

4.4 Existing Governor Controller Cabinet – Miscellaneous

Item	Module Type	Unit 1	Unit 2
A	Cover plates for existing Governor HMI and Emergency Push button	1 set	1 set

5.0 NEW UNIT & PLANT SYSTEM – PROPOSED SOLUTION - BILL OF MATERIALS SUMMARY**5.1 Unit Controller**

Item	Module Type	Unit 1	Unit 2
A	Ovation OCR3000—Controllers, I/O modules, preassembled on a mounting plate. Dimensions to be determined during project execution as per final install location and number of I/O's.	1	1
B	Relays for Start/Stop logic (contact multiplication relays)	8	8

5.2 Plant Controller

Item	Module Type	Plant
A	Ovation OCR3000—Controllers, I/O modules, preassembled on a mounting plate. Dimensions to be determined during project execution as per final install location and number of I/O's.	1

5.3 Unit & Plant Controller – I/O's

The following table lists the quantities of I/O modules that will be supplied with the with the new Ovation Controller. 20% spare I/O were considered in the I/O list evaluation.

Item	Module Type	SUMMARY			DETAILED VIEW									
		QUANTITY			Start / Stop Logic		SEL RTD			Annunciator			Seal Water	
		U1	U2	P	U1	U2	U1	U2	P	U1	U2	P	P	
A	Analog input (8pt/module, RTD module)	2	2	1	-	-	2	2	1	-	-	-	-	
B	Analog input (8pt/module, 4-20mA, field or locally powered)	1	1	2	1	1	-	-	-	-	-	-	2	
C	Analog output (4pt/module, 4-20mA)	1	1	2	-	-	-	-	-	-	-	-	2	
D	Digital input (16pt/module, 24/48VDC single ended)	4	4	-	4	4	-	-	-	-	-	-	-	
E	Digital input (16pt/module, 125VDC differential & field powered)	6	6	5	-	-	-	-	-	6	6	4	1	
F	Relay output (12pt/module, 10A@250VAC/10A@150VDC, 1 Form-X)	2	2	1	2	2	-	-	-	-	-	-	1	
G	Ethernet link controller (1 RJ45 Port for TCP/IP Interface and 1 RS232 Terminal for Serial Interface)	-	-	1	-	-	-	-	-	-	-	1	-	

Note: P refers to Plant Control (Common System)

5.4 Control Room Cabinet – Miscellaneous

Item	Module Type	Unit 1	Unit 2	Plant
A	Cover plates for existing Annunciator	1 set	1 set	1 set
B	Cover plate for existing HMI (water seal system)	-	-	1 set

5.5 New Ovation User Interface Equipment – Bill of Materials

Item	Description	Qty
A	Network / Server cabinet. 23.8" (w) x 80.3" (h) x 43.8" (d). Final dimensions to be defined during project execution	1
B	Cisco Ethernet Root Network Switch (24 ports)	2
C	Remote desktop Client Workstation with: 1 – Dell rack-mount computer with 3 NIC connections 1 – Optical mouse & QWERTY keyboard 2 – 21" LCD monitor 1 – Internal DVD +/- RW drive 1 – Internal 500 GB Hard drive 1 – KVM extender	1
D	Rack mount Engineering Station / Domain Controller / Database Server / Process Historian with: 1 – Dell rack-mount computer with 4 NIC connections 1 – Optical mouse & QWERTY keyboard 1 – 21" LCD monitor 1 – Internal DVD +/- RW drive 1 – Internal 500 GB Hard drive 1 – KVM extender	1
E	Industrial Panel Mount PC 1 – Computer 1 – 21" touch display 1 – 2x Ethernet Ports To be installed on the Existing cabinet lineup	3
F	Cisco Ethernet Fan out network switches	4
G	Copper to Fiber Media Converter	2
H	Patch panel for Multimode fiber cable	2

5.6 Optional: Auto Synchronizer and Sync Check Relay – Recommended Bill of Materials – Summary

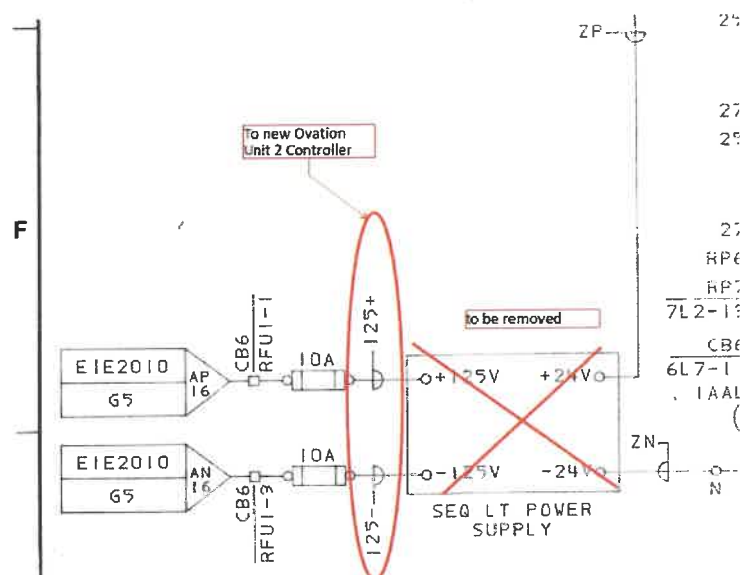
To replace the obsolete Beckwith synchronization devices, the **optional** solution is the use of SEL 700G relays for the Autosynchronizer and Sync check functions. The devices should be installed on same location as the existing sync devices are.

The following table lists the quantities of recommended devices to be supplied and installed:

Item	Module Type	Unit 1	Unit 2
A	SEL-700G-0,-1,-T,-W Generator and Intertie Protection Relay)	2	2
B	Cover plates for Existing Beckwith synchronization devices	1 set	1 set

6.0 POWER FEEDERS FOR THE NEW OVATION CABINETS

It is recommended that the new unit controllers to be powered by the existing Annunciator DC feeds. The annunciators 125/24VDC power supplies will be disconnected and removed, and new cables will be installed from the downstream fuses back to the Ovation mounting plates.



U2 – Annunciator Feeder (reroute to U2 Ovation)

A new AC feeder connecting to the existing uninterruptible power supply system of the control room will be used.

7.0 OVATION SYSTEM CONFIGURATION AND HARDWARE

7.1 Perpetual Software

Unless noted elsewhere in this offer, the Ovation system software is licensed on a perpetual basis.

8.0 OVATION CONNECTIVITY SOFTWARE AND DATALINKS

8.1 Ovation DCS Connectivity Software

N/A

8.2 Data Link Interfaces

The following table defines the type and quantities of foreign devices being provided along with the required engineering. City of North Little Rock is to supply the list of points and necessary configuration details (register identification, IP addressing scheme, etc.) to be configured and transmitted through these links. Any modification to the existing controllers/relay configuration is the responsibility of the customer.

TABLE 4.2 DATA LINK INTERFACES

Item	Qty	Redundancy	Points	Interface Type	Description
A	1	NO	Up to 180	ELC	Ethernet TCP/IP <MODBUS> protocol from DCS to SEL RTAC

Notes:

1. The Ethernet data links are brought into an Ethernet Link Controller (ELC) located in one of the branches of the new Plant Controller.

9.0 OVATION SYSTEM CONFIGURATION

9.1 System Configuration

The following table provides information on the system application and configuration software.

TABLE 5.1 APPLICATION AND CONFIGURATION SOFTWARE

Item	Description	Qty
A	Implementation & testing of database points Using Microsoft® Access® or Excel®, Emerson will provide the initial I/O database with the assistance of the City of North Little Rock, which will include all required attributes (point name, description, signal type, sensor type, sensor range, etc.). After database review with the City North Little Rock, Emerson will supplement the data with information gathered during the field verification, and add module	As defined in the Project's FEED Study, Rev1.

Item	Description	Qty
	types, module locations, channel assignments on specific modules, etc., and then return to City of North Little Rock for final review. The addition of optional software-related attributes (alarm limit, priority, characteristics, etc.) will be developed in collaboration with City of North Little Rock . After all of the desired attributes are complete, Emerson will create the controller database.	
B	Termination list Using the populated database, Emerson will generate a termination list, which defines where the field I/O will wire into the Ovation hardware. Installation drawings/instructions will be created to allow for system installation.	1 List
C	Control implementation For each control function, City of North Little Rock will provide any functional description and operating descriptions available. Any P&ID drawings and/or electrical control schematics should be made available. Emerson will provide detailed functional control and logic diagrams. Emerson will provide submittals of the logics in two passes. The first pass will contain samples of the control logic sheets with devices grouped by similar function. Upon receipt of the approval, the final submittal will be generated and will contain control logic sheets for every device in that particular set.	1 Lot
D	Alarm management City of North Little Rock will provide input into the alarm management strategy. This will involve defining alarm priorities and alarm cutout information, as well as filtering and grouping of alarms by plant area. Emerson will program the Ovation system with this information to minimize alarms (i.e., low oil alarm when pumps aren't running).	1 Lot
E	Process graphics (based on standard designs) City of North Little Rock shall provide sketches for all required graphic displays, text displays, and faceplate displays. All process variable point-names shall be indicated on the sketches, along with comprehensive descriptions of dynamic actions, such as color changes, shape changes, alarm messages, pop-up windows, navigation, etc. Emerson will implement the graphics according to Emerson's standard graphics design specification. The process graphics will be built using standard shapes from the Emerson library. The unique custom dynamic graphic displays will have the following features: ▪ Be based on Emerson standard conditionals for status indication of valves, pumps, fans, etc. ▪ Be based on Emerson standard shapes and colors for valves, pumps, fans, etc. ▪ Have an average of 50 point value updates or attributes	Up to 10 Originals and 8 Duplicates
F	Third-party interface graphics	(Not applicable)
G	Unique faceplate displays with the following features: ▪ Up to 8 stations per diagram ▪ Based on Emerson standard control stations for analog and digital control	Included in Item E above
H	Text display windows with the following features: ▪ Any required permissive or first out window will be based on standard Ovation diagnostic window algorithms. ▪ Based on standard Ovation diagnostic window algorithm sizes and colors	Included in Item E above

Item	Description	Qty
I	Trend displays (based on standard designs with 8 points per display)	1 per unit, 1 for Plant
J	Historian & reporting system City of North Little Rock shall define the points that are to be retained by the Ovation Process Historian. Reports/logs shall utilize standard Emerson formats, which includes up to 80 points per report/log. City of North Little Rock will identify the points required for each report/log. The following list defines the quantities of reports/logs included in the offer: ▪ Operator reports (shift, daily, monthly logs) ▪ Post trip review report ▪ SOE reports	Up to 3 1 1

10.0 PROJECT MANAGEMENT

A key factor in the success of any project is experienced project management. For the Murray Hydroelectric Site, Emerson has included time for an experienced person to plan, control, monitor, and report the status of the overall project.

During the kickoff meeting, the project schedule will be finalized, and the system hardware and application software freeze dates will be established. Any hardware and/or software change, requested after the applicable freeze date, may represent additional scope of supply, and result in a contractual change (delivery schedule and/or price).

Emerson will perform the following project management functions:

TABLE 6.0 PROJECT MANAGEMENT FUNCTIONS

Item	Description
A	Project kickoff meeting The Emerson project manager will conduct a virtual project kickoff meeting with City of North Little Rock, within one month after receiving the purchase order. Subjects to be covered in the meeting include: ▪ Project plan ▪ Commercial issues ▪ Project schedule ▪ System hardware and application software ▪ Drawings and documentation
B	System configuration and hardware manufacturing schedule The proposed system configuration and project schedule included in the offer will be finalized during the kickoff meeting. Emerson will perform the system manufacturing according to the hardware manufacturing schedule.
C	Project schedule With City of North Little Rock input, the Emerson project engineer will develop a detailed project schedule and keep it updated as a tool for management and tracking. Project reporting will

	originate from the project engineer. Progress reports will be provided monthly through the project. The reports will address the status of the project development against milestones as defined in the project schedule. All changes in project scope, schedule, and/or status will be documented at this time.
D	Control design meetings Emerson's engineer will attend one design review meetings, held virtually
E	Contract administration and monthly status reports
F	Initialization and verification of the system hardware at the Emerson factory
G	Factory Acceptance Tests – Up to one week of factory testing at Emerson facilities are included in this offer. Emerson's engineers and technicians will perform the following factory acceptance tests with the City of North Little Rock project team at our US facilities. Hardware Factory Acceptance Test ▪ Controller and I/O cabinet test - A Signature Test will be conducted at our facilities in St. Louis, MO. ○ Signature Test – Ovation cabinets will be individually tested utilizing the Ovation signature test cell. The signature test provides a semi-automated check of Ovation cabinet configuration and operation. Point-by-point I/O testing is <u>not</u> performed. Software Factory Acceptance Test ▪ Application software will be verified on virtual controllers using the Ovation Project Virtual Environment (OPVE). Emerson's engineers will perform the software factory testing on the OPVE with the City of North Little Rock project team at our facilities in Pittsburgh, PA. City of North Little Rock engineers are responsible for their travel and living expenses.
H	Overall project follow-up The Emerson project engineer will provide overall project follow up to ensure that the project is executed according to the agreed upon scope and schedule, and that the highest possible level of satisfaction for Murray Hydroelectric Site is achieved.

11.0 DOCUMENTATION

11.1 Ovation Documentation

Engineering Drawings

A CD containing a single set of engineering drawings in PDF format will be provided with the project. Included in the drawings will be both standard system drawings and project specific drawings. The types of drawings are generally as follows: system layout, system cables, controller and I/O cabinet assemblies, controller and I/O cabinet components, Ovation add-on kits, workstations, workstation additions, Emerson kit drawings, and network equipment.

User Manuals

The CD library of User Manuals provides manuals in PDF format for easy searching and electronic viewing, as well as for download and print.

In addition, Emerson provides free access to the online User Manual library, a comprehensive library of all Power & Water Solutions' user documentation, including the most up-to-date manual releases and updates. The online User Manual library provides manuals in html and PDF formats and offers an online ordering capability so you can order hard copy versions of a manual.

Documentation Media

One (1) sets of electronic documentation will be provided, which includes the following:

- System layout drawing – block diagram of the Ovation equipment, data highway & Ethernet cabling, power cabling, ground cabling and peripheral cabling
- Standard hardware drawings – Ovation cabinet, power distribution diagram
- Hardware configuration – bill of materials
- Ovation reference manuals

Hard copy sets of the documentation are not included.

Third-party Equipment – Any third-party vendor documentation received with the equipment will be shipped to you with the original third-party packaging.

11.2 Emerson Mechanical Solutions Documentation

This offer includes mechanical scope, and the project deliverables will include the following documentation (as applicable):

- System Bill of Material: A top-level bill of material that itemizes major components and parts supplied by Emerson for the system.
- System Hydraulic Schematic: A hydraulic schematic illustrating the new Emerson components in a hydraulic schematic format showing how the components are interconnected. This drawing includes recommended line sizes, equipment connection port sizes, and a hydraulic symbol legend.
- Control Oil Diagram: The customer's original control oil diagram (if available) is referenced to illustrate items removed and the connection of new equipment to the existing system.
- Operation and Maintenance Manuals (O&M): These manuals are issued for standard Emerson Mechanical Solutions (EMS) products and job specific equipment. They contain information necessary for the operation and maintenance of the equipment, drawings and, other information to aid in the installation of the equipment.
- Job-Specific Drawings: These drawings are created for equipment that is not described in a standard O&M manual. The drawings include installation drawings, assembly & bill of material drawings, hydraulic schematics and wiring diagrams (when applicable).

Drawings and O&M manuals are issued in .pdf format. Drawings and O&M manuals are issued for information only during the course of project, according to the project schedule. As-built drawings are revised after shipment or installation to capture changes made during the course of the project.

This offer includes the following additional documentation associated with the installation scope of the project:

- Detailed Installation Engineering Package

12.0 INSTALLATION DESIGN SERVICES

The following describes Emerson scope of supply related to the the Installation Engineering Design Services. Emerson will gather the site information, complete site verification and audits, generate and maintain the I/O database, prepare an Installation Scope of Work document (SOW), develop an installation drawing package, and support the installation at site for any installation design related activities.

12.1 Deliverables

- I/O Point Database (Microsoft Access format)
- New Cable List
- Cabinet/Room Layout Drawings (AutoCAD, to show location of new Ovation equipment)
- Ovation System Layout Drawing (AutoCAD)
- Ovation Termination Drawings (AutoCAD)
- Ovation Elementary Diagrams (AutoCAD)
- Revised Schematics Diagrams (red-lines only) . City of North Little Rock will be responsible for electronic update of Schematic Diagrams
- Marshalling Cabinet/Panel Drawings (AutoCAD, for new panels only)
- Equipment/Cable Demolition drawings (red-lines only)

12.2 Exclusions

- Revisions to other existing plant drawings which are not required for installation of Ovation system, i.e., loop diagrams, P&ID's, etc.

- Loop Drawings (field device to the control system terminal) are not included in the proposal.
- Engineered cable tray/conduit layout design is not included. All new conduit and/or cable trays will be field routed by Electrical contractor with input from and approval by City of North Little Rock.
- PE stamp not provided on standard Emerson DCS drawings / documents. If specific documents are identified by City of North Little Rock as requiring a stamp, then Emerson will include additional costs for engaging a PE to provide stamping to City of North Little Rock's requirements.
- No provisions have been included for costs associated with acquisition of Federal, State, and/or Local permits.
- This proposal excludes any new field cables, field instrumentation, field equipment, or field modifications required to add I/O to satisfy industry standards such as NFPA 85 or to otherwise enhance plant performance.
- This proposal excludes any additional design or engineering required due to insufficient drawings or specifications, if needed. It is the responsibility of City of North Little Rock's design engineer to provide complete and accurate documents for installation. Emerson is driving sustainable change in the world. In support of sustainability, electronic versions of customer documents are requested.

12.3 Assumptions

- This offer assumes that there is accurate termination, wiring, schematic, elementary and functional drawings available. Emerson will field verify the control system side of the I/O wiring against the existing termination drawings and will inform City of North Little Rock of anomalies for resolution by City of North Little Rock.
- No power distribution design is required. All power feeds will originate from existing breaker panels, from existing cabinets or from new breaker panels provided by the plant. City of North Little Rock shall provide two (2) separate power distribution panels (PDP) for primary and secondary power feeds, within 100 ft. of Ovation equipment.
- This offer is based on being able to use the existing cable tray for the support of new tray cables. No new cable tray/conduit is included in this offer (except indicated otherwise)
- Demolition of existing cable to make room for new cables is not included.

13.0 COMMISSIONING & START-UP

Emerson has included the following commissioning and start-up services in this offer: Loop checks, DCS field service support, data link commissioning, functional testing support, and tuning. Descriptions of these services are provided below.

A total of twenty-four (24) days are included for commissioning support, **with up to three (3) round trip airfare**, and travel and living expenses for Emerson field engineers. Dedicated site safety personnel will not be provided.

The bank of days is calculated using weekday rates; no Sundays or holidays are included. If additional trips are required, days will be charged to the bank of days / billed.

Field service engineering days can be used to support the following activities:

- Site meetings
- Post-shipment configuration changes
- Power & grounding check
- Installation oversight
- Project start-up

- Load Ovation software from the virtual environment
- Process control tuning
- Site orientation & safety training (supplied by others)
- Progress reports
- Technical support

Charges against the bank of days shall be as follows on a per field service engineer basis (no night shift differential will be charged):

Weekdays

First 10 hours that day @ 1 hour worked = 1 hour charged Additional hours that day @ 1 hour worked = 1.5 hours charged

Saturdays

All hours that day @ 1 hour worked = 1.5 hours charged

Sundays & Holidays

All hours that day @ 1 hour worked = 2 hours charged

13.1 Deliverables

The following field commissioning and start-up engineering services are included in this offer (as a bank of days, as per item 13.0 COMMISSIONING & START-UP description).

Commissioning efforts are estimated based on the base scope of work this proposal. Details of the estimates can be verified in the **Commissioning Schedule (Estimate)** attached.

- **Loop Checks** – Emerson will manage and conduct the loop checks with City of North Little Rock's support. To aid in a smoother startup, all loop checks will be performed from the field device to the farthest point practical. At a minimum:
 - Loop checks will be performed from the Ovation DCS to the field devices for I/O where the field cable has been de-terminated.
 - Loop checks will be performed from the Ovation DCS to the marshalling point for I/O that is landed on marshalling terminal blocks (where the field wiring termination will not be disturbed).
 - For Digital Signals (DI, DO), depending on the shelf state of the contact, the loop checks will be performed by an open-close-open or close-open-close sequence.
 - For Analog Signals (AI, TC, RTD, AO), the loop checks will be performed by simulating the field device at 0%, 50%, and 100% span.

- City of North Little Rock will identify the location for performing field side of loop checks prior and during the outage. (plant personnel to be made available to help identify device locations)
 - City of North Little Rock will provide sufficient qualified I&C technicians for the field side of loop checks so that loop checks can be completed in a timely manner to meet the schedule requirements.
 - City of North Little Rock will provide certified test equipment for loop checks.
 - This proposal was developed under the assumption that drawings exist to locate field devices, junction boxes, wiring in junction boxes, and that these drawings are accurate. Emerson will perform the loop check site survey and provide an execution plan prior to the outage.
- **DCS Field Service Support** – A qualified field service engineer will support the commissioning activities.
 - **Data Link Commissioning** – Emerson will provide field service engineers to conduct the data link interface commissioning. City of North Little Rock will supply support for testing at the foreign-device-side.
 - **Functional Testing Support** – Emerson will collaborate with City of North Little Rock to perform the functional testing prior to startup. City of North Little Rock will provide operational support for the functional checks.
 - **Startup & Tuning** – Emerson will provide the field service tuning experts to tune the system processes. The tuning schedule and activities will be coordinated with City of North Little Rock.

13.2 Clarifications and Assumptions

- City of North Little Rock to deliver a list of inoperable field devices, equipment to be replaced or upgraded by others, and associated DCS I/O prior to the outage. Emerson will not repair or replace inoperable field equipment.
- Standby time and/or work stoppage due to plant operations or owner's direction shall be billed to the buyer's account on a cost reimbursable basis. City of North Little Rock shall notify Emerson on the corrective actions, assuming the work will not be stopped longer than 24 hours. Emerson will evaluate the commercial and schedule impacts of an outage delay.
- We assume Emerson and its subcontractors will have complete access to plant areas and systems, as needed, to avoid interruption of the work Emerson and its subcontractors will be doing at site.
- City of North Little Rock shall be responsible for all LOTO required for Emerson to perform commissioning activities.

14.0 OPTIONAL INSTALLATION

This offer includes the option for demolition and installation work necessary to install the new Ovation system described in this proposal. The electrical and mechanical work will be subcontracted by Emerson to a pre-qualified installation contractor (hereafter referred to as "Contractor"), working under direct supervision of Emerson.

Site Management – Emerson will supply site management for the duration of the outage. Emerson will be responsible for all automation-related activities, including developing resource and staffing plans, ensuring that the site safety and security requirements are met, overseeing the installation contractor, and coordinating the Emerson commissioning team. Dedicated site safety personnel will not be provided.

14.1 General Requirements

- Demolition will begin when LOTO's are put in place by City of North Little Rock and Contractor has signed on.
- Contractor shall be responsible for demolition and removal of all decommissioned equipment to an area of the jobsite designated by City of North Little Rock.
- Contractor shall demo existing equipment and devices as required to install any new Emerson supplied equipment. Circuit wiring shall be removed along with the device, back to the nearest terminal block; in the case of cables that are directly routed from a cable tray, the ends of the wires shall be taped, and the cables will be abandoned in place in the cable tray. These circuits shall be deemed 'out of service'. Emerson shall not be responsible for the resolution of the remainder of the now 'out the service' circuits. Any existing devices, cables, or wiring not associated with project scope shall be the responsibility of the Owner to remove or identify as spare.
- Contractor shall provide all tools and equipment to perform the work (including all permits required) and all such tools shall have an identifying mark. Contractor shall furnish equipment such as off-loader and labor to off-load all equipment furnished by Emerson from the truck to the required locations in the plant.
- Contractor shall train its personnel in the identification of asbestos and other hazardous materials. Contractor shall immediately notify Emerson when it has identified materials which may contain asbestos and shall not perform any work on such material until verification of its content is confirmed. Removal of any asbestos and/or hazardous material shall be by City of North Little Rock.
- Contractor shall furnish and install all mounting hardware, conduit, cable tray/raceways, and other necessary materials and equipment required for installation. Contractor may re-use existing cable tray/raceways where capacity is available. Contractor shall be responsible to work with City of North Little Rock to determine best routing for all newly installed cables, conduit, and cable tray/raceways.
- Cable used outside enclosed cabinets shall be non-PVC and use a fire-retardant insulation. Minimum cable size shall be #16AWG shielded for analog circuits and #14AWG for control circuits.
- The Contractor shall furnish and install required material to reseal all cable penetrations affected by the work following all demolition and installation.

14.2 Installation Scope of Work

At the onset of the project, Contractor will complete all required site-specific training available on-line as required. Contractor personnel will complete all site-specific orientation and training as required during the initial mobilization. Contractor will participate in safety meetings, daily tailboard meetings, and provide daily reports to the Emerson Site Manager as required.

14.2.1 Pre-Outage

- Contractor will mobilize a team to the site in order to set up the temporary office and stage tools and equipment. Equipment required for unloading tools and material will be provided and operated by Contractor personnel. Tasks that could be completed with the generating units available would be planned and discussed with the City of North Little Rock. This work would include the following:
 - Confirm layouts, floor spacing, conduit and cable tray paths with drawings provided by Emerson, Contractor and City of North Little Rock
 - Confirm local accounts are set up and available for additional material and/or machining/fabrication that may be needed during the project.
 - Install new governor cabinets at U1 and U2 (less connecting conduits to existing Voith cabinets)
 - Install new conduits and pull new armored 24 strand multi-mode fiber optic cabling from each U1&2 Ovation Governor Cabinet to the respective Units 1&2 control panel in the control room, terminate and test all fiber cables.
 - Install new network and console workstation cabinets in the control room provided by Emerson, interconnection cabling and grounding not requiring a LOTO.

14.2.2 Unit Outage

- As units are made available, LOTO's placed and verified, work tasks will include but not be limited to the following steps:
 - Contractor assumes that both units, 1&2, will be made available at the beginning of the outage, allowing work to take place under LOTO, including associated BoP. Work will be planned to accomplish demo and installation on only one unit (with associated BoP) at a time, with the second unit also under LOTO, so resources can be re-directed to the second unit in the event it is necessary to address any potential issues. This approach allows the most productive use of resources.
- Contractor crews will begin work tasks to confirm the absence of AC and DC voltages in each existing cabinet with calibrated instruments using the Live-Dead-Live methods as verification.
- Contractor crews will verify drawings for cabinet layouts, terminations, etc., prior to disconnecting any field wiring, a report of any anomalies found will be immediately provided to the Emerson Site Manager for resolution.

- Contractor crews will determinate existing relay wiring in the unit control panels and remove equipment/relaying no longer used per the demo drawings; wiring will be removed back to the first terminal block.
- Contractor crews will demo all relays and wiring for identified BoP equipment from the control panels; wiring will be removed back to the first terminal block.
- Contractor crews will remove all existing hardware and equipment, as identified by Emerson, in the existing Voith governor cabinet, properly label, protect, and securely store it in locations provided by the Owner for future disposal. Conduits for power and control circuits will be installed between the new Ovation cabinets and the existing Voith governor control cabinet.
- Contractor crews will relocate the speed sensing device to the new Ovation governor cabinet, and run required interconnection wiring and cables between the Voith governor cabinet, (now a marshalling cabinet), and the new Ovation governor cabinets, terminate all control wiring.
- Contractor crews will mark, and document areas observed on the HPU's to have leakage from gaskets, seals, fittings, etc., prior to any component removal, discuss findings with the Emerson site manager. After agreement is confirmed, Contractor will proceed with the removal of existing wiring and hardware on the hydraulic power units, including manifolds, valves, solenoids, tubing, etc., per the demo drawings.
- Contractor crews will install new HPU control devices, hardware, equipment, stainless steel tubing, flexible metal conduit, cabling, and wiring as required to connect the new HPU control devices to the Ovation governor cabinets.
- Contractor crews will perform measurements on the existing equipment grounding systems and components located in each cabinet along with the control panels in the control room, install new insulated grounds per Emerson specifications. A report will be immediately provided to the Emerson Site Manager for approval to proceed per the design specification.
- Contractor crews will install new hardware, equipment, interconnection cables, wiring, synchronization relays, and relocated equipment as required in the U1, U2 and BoP control panels.
- Contractor's installation crew will then provide assistance to Emerson Field Engineering team to complete all pre-energized wiring and elementary checks for all equipment (loop checks). Contractor will also provide assistance for pressurization and operational testing of the new hydraulic systems components.
- As startup and commissioning begins on the first unit, Contractor crews will begin/continue work on the second unit.
- Contractor will provide a project summary after each successful startup and commissioning of equipment to the Emerson Site Manager.

15.0 OPTION – PRODUCT SUPPORT

15.1 Post-Commissioning - Product Support

The new equipment will be added to the existing maintenance contract until its expiration (not to exceed one year after installation). If there isn't an existing maintenance contract, the initial installation at a new site will receive a one-year maintenance contract. This support commences once system commissioning is complete.

Item	Description	Quantity
A	Expert Telephone Support – Telephone support is available through the Global Service Center, 24 hours a day, 7 days a week. Guardian Portal Access – Instant access to proprietary information and priority e-mail response to technical questions Remote Diagnostics – Capability for support experts to remote connect via customer permitted access allowing deeper investigation and faster diagnosis. Software Updates – includes incremental Ovation sub releases and antivirus signature releases. Excludes VMware patches.	1 Lot

16.0 OPTION – TRAINING

Emerson's Ovation training is conducted in a structured environment, balancing hands-on with lecture, regardless of where the training is conducted – in Pittsburgh (in-house) or at your location (on-site). The training requires the use of Ovation hardware systems.

- Training included within this offer is available for up to 3 months after complete system shipment. Training not scheduled during this timeframe will expire and become unavailable. Please contact the Emerson training registrar (at the phone number listed below) for student registration.
- All on-site training is conducted 7:30 a.m. to 3:30 p.m. local time, Monday through Friday.
- Training may warrant the use of Ovation training rental equipment with a maximum of two students per rental station.
- Video recording of the training session is not permitted.
- Training contact information:
 - Please contact the Emerson training registrar at 800-445-9723, option 5, with any questions.
 - Course descriptions and schedules can be mailed, emailed, or browsed at www.ovationusers.com.
 - Please provide the registrar your project number when enrolling.

16.1 Option - In-House Training

A total of zero (0) course weeks of in-house training tuition are offered and will be conducted at Emerson's Training Center in Pittsburgh, PA. Attending scheduled Ovation courses at one of Emerson's regional locations (such as Charlotte, Chicago, Houston, Orlando, or Riverside) is also an option.

Typical course progression is shown below. Advanced or specialized courses are also available. These courses are applicable for various plant personnel such as plant managers, plant operators, engineers, and I&C technicians. Please contact the training manager at Emerson to discuss the best course selection necessary to support your site's responsibilities.

Item	Description
A	OV100 – Starting with Data Acquisition
B	OV200 – Building and Maintaining Ovation Control
C	OV210 – Building Ovation Graphics
D	OV300 – Ovation Troubleshooting

16.2 On-Site Training

A total of zero (0) weeks of on-site standard training courses are offered and will be performed on the City of North Little Rock system. The travel and living expenses of Emerson's training instructor are/are not included.

Item	Description
A	OV010 – Ovation Operator

- OV010 is a standard on-site operator training course that consists of two identical 2-½ day sessions conducted consecutively, in the same week.
- Each session accommodates up to a maximum of eight students.
- This assumes that the supplied system is available for exclusive training purposes. Ovation hardware can be supplied to support this training. Please contact Emerson Educational Services for a quote.
- Plant-specific courses are available and should be addressed at the time of project kickoff.

OR

A total of zero (0) weeks of on-site training custom courses are offered and will be performed on Ovation training rental equipment at the City of North Little Rock site. The travel and living expenses of Emerson's training instructor are/are not included.

Item	Description
A	Custom I & C Course

- Custom I&C training can include combining course content into a condensed custom course. A custom course can be created by topics from up to three courses: Building and Modification of the System Database (OV100-WIN), Building Ovation Control (OV200-WIN), and Building Ovation Graphics (OV210-WIN).
- Each session accommodates up to a maximum of eight students.

Custom courses need to be confirmed with Emerson's Training Manager 1-800-445-9723, option #5.

16.3 Option - Ovation Training Hardware Systems (Operator Only)

The following Ovation training hardware rental systems are not included in this offer but are available as an option at additional cost:

Item	Description	Qty	Consecutive Weeks
A	Workstation with virtual simulation	0	0

- Ovation training rental equipment is loaded with Emerson training department's base software system and tie-back controller simulation.
- Equipment is especially appropriate for operator training and accommodates up to 2 students per rental station.

16.4 Option - Ovation Training Hardware Systems

Item	Description	Qty	Consecutive Weeks
A	Ovation training hardware system (controller & workstation)	0	0

- Ovation training rental equipment is loaded with Emerson training department's base software system.
- Equipment is especially appropriate for I&C training and accommodates up to 2 students per rental station.

17.0 ATTACHMENTS

Ovation Field Engineering Rates pl21-040 – Domestic
 Ovation Software License Agreement
 PWS_010583 R2 - TQS US & International

Field Engineering Services for Ovation™ Systems

When included in the scope of Emerson Process Management Power & Water Solutions, Inc., (Emerson) supply, Emerson shall, as specified below, furnish the services of field service personnel for technical assistance including: system upgrades, on-site maintenance, methods and procedures for the installation and start-up of the Product covered by the Agreement, or other engineering services. Unless otherwise agreed upon by Emerson such services shall be subject to the terms and conditions stated in Emerson's Terms of Quotation and Sale – Goods & Services Form TQS-GIS/USA-Edn. 10/18

Classifications of Field Engineering

Class A — Class A Field Engineering Services are those provided for current and non-current systems and instrumentation. Specific services provided include system installation assistance, start-up, maintenance, and technical assistance.

Class S — Class S Field Engineering Services are those provided for cybersecurity consulting, design and implementation services. Specific services provided include cybersecurity assessments, scheduled cybersecurity services, Security Center installation services, and other cybersecurity related services. Class S also covers the services of networking specialists for the design, configuration, installation and testing of complex or non-standard networking solutions.

Class B — Class B Field Engineering Services are those provided for utility and industrial process control system tuning, consulting and field design work. Class B also covers the services of product application specialists for current and non-current products and systems.

Billing

- **Straight Time** — The minimum straight time billing will be for one-half day's time. Billing will be made in one-half day increments.
- **Overtime** — Overtime will be billed on an hourly basis but a minimum of four (4) hours will be billed for Saturdays, Sundays and holidays.

Service Rate Definitions

- **Straight Time Rates** will apply to all time worked or traveled during a normal eight (8) hour workday. The normal 8-hour workday as herein used is defined as the hours between 8:00 a.m. and 5:00 p.m. with one hour for lunch, Monday through Friday, except legal holidays.
- **Overtime Rates** will apply to all hours worked or traveled in excess of eight (8) hours on weekdays and all time worked or traveled on Saturdays, Sundays and holidays.

Traveling Time and Expenses²

Traveling time and expenses for engineers will begin when each leaves their headquarters and will terminate when each returns. Private automobile travel will be priced at the current IRS mileage rate. All traveling and living expenses will be billed at cost. Field engineers will be allowed an interim trip home every two weeks. Round trip travel expenses will be billed at those times in lieu of local living expenses.

Other Charges

The following charges will be in addition to the service rates and travel and living expenses outlined above.

1. Materials and services furnished by other affiliates of Emerson and used on the job will be billed at current list prices.
2. Services and materials purchased from other vendors or subcontractors required for the job will be billed at cost plus applicable markup.

Insurance Coverage

Insurance coverage includes:

- Workman's Compensation - Statutory limits
- Comprehensive and General Liability - \$1,000,000
- Automobile Liability - \$1,000,000 bodily injury and property damage combined

Field Engineering Rates

Categories:	Class A ¹	Class S ¹	Class B ¹
Straight Time	\$3,217 / Man Day	\$3,776 / Man Day	\$4,376 / Man Day
Overtime (Weekdays and Saturdays)	\$603 / Hour	\$708 / Hour	\$820 / Hour
Overtime (Sundays and Holidays)	\$804 / Hour	\$944 / Hour	\$1,094 / Hour

¹ Rates apply in the continental U.S.A. but not in the states of Alaska and Hawaii.

For standard terms and conditions of sale, refer to Emerson's Terms of Quotation and Sale – Goods & Services Form TQS-GIS/USA-Edn. 10/18

² Receipts for travel and living expenses are not provided. At customer's request, a copy of Emerson travel receipts can be provided at a 5% charge added to all travel and living costs to cover administrative costs.

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For purposes of this Agreement, (a) the words "include," "includes," and "including" shall be deemed to be followed by the words "without limitation"; (b) the word "or" is not exclusive; and (c) the words "herein," "hereof," "hereby," "hereto," and "hereunder" refer to this Agreement as a whole. Unless the context otherwise requires, references herein: (x) to Sections, Annexes, Schedules, and Exhibits refer to the Sections of, and Annexes, Schedules, and Exhibits attached to, this Agreement; (y) to an agreement, instrument, or other document means such agreement, instrument, or other document as amended, supplemented, and modified from time to time to the extent permitted by the provisions thereof and (z) to a statute means such statute as amended from time to time and includes any successor legislation thereto and any regulations promulgated thereunder. This Agreement shall be construed without regard to any presumption or rule requiring construction or interpretation against the party drafting an instrument or causing any instrument to be drafted. The headings in this Agreement are for reference only and do not affect the interpretation of this Agreement.

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Terms of Quotation and Sale - Goods & Services

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1. Quotation & Contract

- 1.1 Emerson's quotation is valid for acceptance for 30 Days after its date unless Emerson has stated a different period or withdraws it earlier.
- 1.2 The PO must be in writing and has no effect until Acknowledgement. Emerson is not obliged to accept any PO.
- 1.3 If there are any conflicts, discrepancies or ambiguities, the following order of priority applies: (1) the Acknowledgment, (2) these Terms, (3) the PO and (4) Emerson's quotation. Clauses 5 and 16 of these Terms take priority over the rest of these Terms.
- 1.4 All communications about the Contract must be in English and state the Customer PO number and Emerson order number.

2. Customer Responsibilities

- 2.1 Customer must in a timely manner supply the information, documents and instructions Emerson reasonably needs to proceed with its Contract duties.
- 2.2 Customer is responsible for the accuracy and completeness of all information it supplies.
- 2.3 If Emerson performs Services at Site, Customer will not ask Emerson or Emerson Personnel to enter any agreement which imposes, waives, releases, indemnifies or otherwise limits or expands any rights or obligations in respect of Emerson or Emerson Personnel. Any such agreement is void.
- 2.4 If the acts or omissions of Customer, Customer Personnel or Customer's other contractors delay or prevent Emerson from performing a Contract duty or increase Emerson's costs, time will be extended and Customer will compensate Emerson accordingly.
- 2.5 Unless otherwise agreed, Customer is solely responsible for use of the Goods and Services in accordance with all applicable local, state and federal laws pertaining to data privacy, security and transfer including but not limited to the General Data Protection Regulation (GDPR) and the California Consumer Privacy Act (CCPA). As such, Customer is solely responsible for maintaining the integrity of its own network and internal security.
- 2.6 Emerson will perform Services but only to the extent they do not violate any Laws and only to the extent Services can be performed safely and would not present a risk of harm to any Personnel. Emerson reserves the right to remove its Personnel if it deems Site unsafe.

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3.1 Delivery and Performance Periods.

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3.2 Delivery Terms.

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4. Title & Risk

Even if the Contract says otherwise and except as stated in Clauses 3.4 and 5:

- a) for any Goods and Documentation which Emerson or its Affiliate exports from the United States, title and risk of loss will pass to Customer when they pass the territorial limits of the United States.
- b) for all other Goods and Documentation, title will pass to the Customer on delivery and risk of loss will pass to Customer under the Incoterms® rule stated in the Contract.

5. Documentation, Software, Firmware and Intellectual Property

- 5.1 Emerson and other owners will each keep all rights, interest and title in their respective Documentation, Software, and Firmware and all copies thereof.
- 5.2 Customer's use of Software and Firmware is governed exclusively by the Software License Agreement with Emerson (or its Affiliate) if there is one or, in any other case, by the license terms of the owner.
- 5.3 If Software or Firmware is not governed by a separate Software License Agreement, Customer is granted a non-exclusive, royalty-free license to use that:
 - a) Software only in conjunction with the Goods; and
 - b) Firmware in the Goods, only as incorporated in the Goods.In both cases, the license applies only at the Site where the Goods are first used.
- 5.4 Customer may only copy Documentation (with its copyright notices unchanged) as needed to install, operate, re-calibrate, de-install, maintain and repair the Goods for its reasonable internal business purposes.
- 5.5 Unless the Contract says otherwise, Documentation will consist of one copy only of Emerson's, its Affiliates', or the manufacturer's standard documents in English. Emerson is only required to supply third party documents if authorized to do so by the third party. Emerson may choose to supply Documentation by hard copy, by CD-ROM or other suitable media, or by download from a website.

6. Compensation

6.1 Prices/Rates.

Unless the Contract says otherwise, the prices, Software license fees and rates:

- a) are fixed for Goods, Documentation and Software licenses delivered and for Services performed within the period(s) stated in the Contract;
- b) exclude all taxes (such as sales, use, value added and similar taxes), duties, levies and similar charges. Emerson will invoice all these taxes, duties, levies and charges as a separate line item on the invoice unless it has received an appropriate exemption from Customer;
- c) exclude freight, packing and handling; and
- d) exclude the storage, installation, start-up and maintenance of the Goods and Software.

6.2 Payment Terms.

- a) Unless the Contract says otherwise, Customer will pay Emerson:
 - (i) in full without set-off, counterclaim or withholding (except deductions required by Law);
 - (ii) in the currency of Emerson's quotation; and
 - (iii) full payment, or milestone payments in advance of shipment or within 30 days of the invoice date, subject to the approval of Emerson's credit department.
- b) Unless the Contract says otherwise, Emerson will invoice:
 - (i) Goods (including part shipments), Documentation and Software license fees: on delivery.
 - (ii) Services upon completion.
 - (iii) Storage costs under Clause 3.4: monthly in arrears.

- c) Customer will pay Emerson by check or direct bank transfer to the Emerson bank account stated in the Contract or invoice, paid in either case from Customer's account with a bank in Customer's country. Emerson may reject payment by any other method.
- d) Customer waives the right to dispute any invoiced amount unless Customer tells Emerson of the dispute (with detailed reasons) within 10 Days from the invoice date. All undisputed amounts are payable as set out in Clause 6.2(c).
- e) Emerson may end the Contract or suspend performance (including withholding shipment and suspending performance of Services) if Customer fails or, in Emerson's reasonable opinion, appears likely to fail to make payment when due under the Contract or any other contract. This action will not subject Emerson to any penalty or affect its other rights.
- f) Emerson may at any time demand such security for payment as Emerson may think reasonable, and Customer will provide the security within 10 Days after the request. This action will not affect any other right of Emerson.
- g) Customer must pay all expenses (including attorneys' fees) incurred by Emerson in collecting late payments, up to the maximum amounts permitted by Law.

7. Warranties

Emerson warrants that:

- a) Emerson will transfer title to the Goods (excluding Software and Firmware) to Customer under Clause 4;
- b) Goods, Documentation and Services will conform with the Specification;
- c) Goods made by Emerson or its Affiliates will, under normal use and care, be free from defects in materials or workmanship; and
- d) Emerson and its Affiliates' Personnel delivering Services are trained and will use reasonable skill and care.

7.2 Warranty Periods. Unless otherwise specified by Emerson, the warranties in Clause 7.1 apply as follows:

- a) **Goods:** until the earlier of 12 months from the first installation or 18 months from delivery (90 days from delivery in the case of consumables and PolyOil® products).
- b) **Services:** for 90 days from completion of the Services.
- c) **Goods repaired, replacement items and Services re-performed:** from delivery of the replacement or completion of the repair or re-performance, for 90 days or until the end of the original warranty period (if later).

7.3 Warranty Procedure. Clause 7.3 applies if, within the warranty period, Customer discovers any non-conformity with a warranty in Clause 7.1, tells Emerson in writing and, in the case of Goods, returns the non-conforming items at Customer's cost, freight and insurance pre-paid, to the repair facility chosen by Emerson. Where this Clause applies, Emerson will, at its sole option, either:

- a) correct any non-conforming Documents and Services; or
- b) repair or replace non-conforming Goods FCA (Incoterms® latest version) at the repair location; or
- c) instead refund the price of the non-conforming item.

7.4 Exclusions from Warranty.

- a) The warranties in Clause 7.1(b), (c) and (d) exclude and Customer will pay the cost of all repairs and replacements caused by any of the following: normal wear and use; inadequate maintenance; unsuitable power sources or environmental conditions; improper handling, storage, installation, or operation; misuse or accident caused by anybody except Emerson; a modification or repair not approved by Emerson in writing; materials or workmanship made, provided or specified by Customer; contamination; the use of unapproved parts, firmware or software; Cyber Attack; any other cause not the fault of Emerson.
- b) Emerson will not pay any costs relating to non-compliance with a warranty in Clause 7.1, except when agreed in writing in advance. Unless accepted in writing by Emerson, Customer will pay:
 - (i) all costs of dismantling, freight, reinstallation and the time and expenses of Emerson Personnel for travel under Clause 7; and
 - (ii) all costs incurred by Emerson in correcting nonconformities for which Emerson is not responsible under Clause 7 and in examining items that comply with the warranties in Clause 7.1.
- c) If Emerson relies on wrong or incomplete information supplied by Customer, all warranties are void unless Emerson agrees otherwise in writing.
- d) Customer alone is responsible for the selection, maintenance and use of the Goods.
- e) Resale Products carry only the warranty given by the original manufacturer. Emerson has no liability for Resale Products beyond making a reasonable commercial effort to arrange procurement and shipping of the Resale Products.

7.5 Disclaimer. The limited warranties set out in this Clause 7 are the only warranties made by Emerson and can be changed only with Emerson's signed written agreement. THE WARRANTIES AND REMEDIES IN CLAUSE 7 ARE EXCLUSIVE. THERE ARE NO REPRESENTATIONS OR WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, ABOUT MERCHANTABILITY, FITNESS FOR PARTICULAR PURPOSE OR ANYTHING ELSE FOR ANY OF THE GOODS, DOCUMENTATION OR SERVICES.

8. Changes

No change to the Contract applies unless agreed in writing by Emerson and the Customer.

9. Termination

9.1 Termination for Default and Insolvency.

- a) Either party (Injured Party) may end the Contract wholly or partly by written notice to the other (Defaulting Party) if an Insolvency Event or Default Event affects the Defaulting Party. Termination under Clause 9.1 will not affect other rights of the Injured Party.
- b) A **Default Event** occurs if all the following conditions are met:
 - (i) Defaulting Party breaches a material duty under the Contract;
 - (ii) Injured Party sends Defaulting Party a notice identifying the breach in sufficient detail;
 - (iii) 10 Days after receiving the notice, Defaulting Party has not corrected the breach; and
 - (iv) if the breach cannot reasonably be corrected in 10 Days, Defaulting Party has not acted diligently to fix the breach.
- c) An **Insolvency Event** means any of the following:
 - (i) a meeting of creditors of Defaulting Party;
 - (ii) a proposal for an arrangement or composition with or for the benefit of creditors of Defaulting Party;
 - (iii) a chargeholder, receiver, administrative receiver or similar person is appointed over or takes possession of material assets of Defaulting Party;
 - (iv) a legal enforcement process is taken (and not discharged within 5 Days) against material assets of Defaulting Party;
 - (v) Defaulting Party stops trading or cannot pay its debts;
 - (vi) anyone gives notice of intention to appoint an administrator, or applies to court to appoint an administrator, in relation to Defaulting Party;
 - (vii) a petition is presented (and not discharged within 20 Days) or a resolution is passed or an order made for winding-up, bankruptcy or dissolution of Defaulting Party.

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- (viii) an event similar to any of (i) to (vii) in a jurisdiction where Defaulting Party is incorporated or resides or carries on business or has assets.
- d) On termination under Clause 9.1(a), Customer will pay Emerson the price of Goods, Software, Documentation and Services already delivered. If Emerson was the Injured Party, Customer will also pay Emerson for work in progress under Emerson's then current policies and cancellation charges.
- 9.2 **Termination for Customer Convenience.** Customer may end the Contract in whole or in part for its own convenience only with Emerson's written agreement and following Emerson's then current policies and cancellation charges.
- 9.3 **Termination after 90 Days' Force Majeure.** Either party may end the Contract without liability by written notice to the other if performance of the Contract is delayed or prevented by a cause listed in Clause 12 for 90 Days. Unless prevented by a cause listed in Clause 12, Customer will pay Emerson for all Goods, Documentation, Software licenses and Services delivered before the notice was given and for work in progress.
10. **Customer Information**
Emerson may use and share Customer Information in accordance with data protection Law, as necessary to fulfill the Contract and to communicate with Customer for marketing purposes, including sharing:
a) Customer Information to its suppliers, for use in product registration and support and to comply with import and export control Law;
b) Customer Information and copies of the Contract to its agents and sales representatives, as necessary to fulfill the Contract.
Customer has sole responsibility for obtaining all consents and permissions (including providing notices to Customer Data Subjects or third parties) and satisfying all requirements necessary to permit Emerson and its affiliates' use of Customer Information in connection with this Agreement. Customer is solely responsible for compliance with all applicable local, state, federal, and foreign data privacy and sovereignty laws, regulations, rules and restrictions as the same relate to the collection, movement, and use of data provided by Customer or generated by the Goods and to Customer's use of the Goods. With regard to the collection processing and use of personal data (if any) by Emerson, please refer to Emerson's Privacy Notice, which is available at <https://www.emerson.com/en-us/privacy-notice>.
11. **Intellectual Property Claims**
11.1 In Clause 11, an **Intellectual Property Claim** is a claim that Goods made or Documentation produced by Emerson infringe a valid intellectual property right (including patent, copyright, design right and trademark) of the United States or of a country where the Contract states the Goods will be used.
11.2 Clause 11 applies only while Customer does all the following:
a) promptly tells Emerson in writing that an Intellectual Property Claim has been threatened or filed;
b) allows Emerson complete control of the defense and settlement of the claim; and
c) gives all reasonable help and cooperation requested by Emerson for the defense.
11.3 Subject to the provisions herein, Emerson will indemnify and defend Customer against any Intellectual Property Claim brought by legal action.
11.4 Emerson will only pay any final judgment or settlement resulting from the action. If the action results in an injunction against the use of any Goods or Documentation, Emerson will, at its sole option and expense, provide a commercially reasonable alternative. This may include procuring for Customer the right to continue using the Goods or Documentation or replacing them with a non-infringing item or changing them to become non-infringing or refunding their price.
11.5 Emerson will not be liable for infringement, and Customer will indemnify Emerson, in each of these cases:
a) the infringement relates to goods not made by Emerson.
b) Emerson did not design the Goods or Documentation, or Emerson did not design them for use in the way or for the purpose that infringed intellectual property rights.
c) the Customer caused the Goods or Documentation to become infringing.
12. **Force Majeure**
Neither party is liable for non-performance or delay due to circumstances or causes beyond its reasonable control, including but not limited to acts of God; war; armed conflict; terrorism; fire; flood; accident; weather; failure or interruption of public and private computer or telecommunication systems, networks, and infrastructure; Cyber Attacks; sabotage; strikes or labor disputes; civil disturbances or riots; epidemics or pandemics; governmental decisions, requests, restrictions, Law (including the denial, failure to issue or loss of export or re-export licenses); unavailability of or delays in transport; or shortage of materials or parts.
13. **Export Controls and Compliance**
13.1 Customer and Emerson will comply with all:
a) export, import and other trade compliance Laws of the territories in which Customer and Emerson are established, from which the Goods, Firmware, Software, Services and any technical data are supplied or shipped, and to which the Goods, Firmware, Software, Services and any technical data will be taken or eventually used; and
b) Laws against bribery, corruption and money-laundering.
13.2 Customer agrees not to use, transfer, release, export or re-export any Goods, Firmware, Software, Services or Emerson-supplied technical data contrary to trade compliance Law or to any license or required government authorization.
13.3 Customer will give Emerson:
a) details of financial institutions and other parties involved in the transaction;
b) details of the end-destination, end-user and end-use of the Goods, Firmware, Software, Documentation and Services;
c) all information needed by Emerson to:
(i) apply for necessary export and import licenses and government authorizations and
(ii) comply with Laws against bribery, corruption and money-laundering and Emerson's policies on them; and
d) any trade compliance certification or letter of assurance requested by Emerson in relation to trade compliance Law.
13.4 Neither Emerson nor Customer will engage in any activity that exposes the other party or an Affiliate to a risk of penalties under Laws forbidding corruption, bribery and improper payments. Emerson strictly adheres to its environmental social governance standards and code of ethics found at <https://www.emerson.com>.
14. **Laws and Regulations**
14.1 Both parties will comply with all Laws, except to the extent a party is prohibited from doing so based upon a conflict of Laws.
14.2 The Contract does not require Emerson to collect, treat, recover or dispose of anything Law treats as 'waste'. If the Law on waste requires Emerson to dispose of something it supplied, Customer will, if allowed by Law, pay Emerson to dispose of it at Emerson's standard charge. If Emerson has no standard charge, and if allowed by Law, Customer will pay Emerson's costs incurred in the disposal (including handling, transport and a reasonable mark-up for overhead).
14.3 Each party must ensure that its Personnel will, while on the premises of the other party, comply with the other party's reasonable site rules on HSSE that are communicated in writing to the visitor before its arrival, and with the other party's reasonable instructions relating to HSSE.
14.5 Emerson objects and does not agree to the application of any governmental procurement provision to the Contract.
15. **Nuclear and Medical End-use**
GOODS, FIRMWARE, SOFTWARE, DOCUMENTATION, SERVICES AND THE PRODUCTS OF SERVICES SUPPLIED UNDER THE CONTRACT MUST NOT BE USED IN CONNECTION WITH ANY MEDICAL, LIFE-SUPPORT OR RELATED APPLICATIONS UNLESS OTHERWISE AGREED IN WRITING BY BOTH PARTIES. ALL NUCLEAR OR NUCLEAR-RELATED APPLICATIONS MUST BE SUPPORTED BY A NUCLEAR DEFENSE & INDEMNIFICATION AGREEMENT EXECUTED BY THE END-USER. Regardless of whether Customer is the owner/operator of the nuclear, medical or other facility, Customer:
a) accepts all Goods, Software, Documentation, Services and products of Services with these restrictions;
b) agrees to communicate these restrictions in writing to all later buyers or users; and
c) agrees to defend and indemnify Emerson and Emerson Affiliates from all claims arising from such use of Goods, Firmware, Software, Documentation, Services and products of Services.
This indemnity covers every sort of claim, including allegations of negligence, strict liability or product liability.
16. **Limitation of Liability**
16.1 EMERSON AND ITS AFFILIATES WILL NOT BE LIABLE FOR DAMAGES CAUSED BY DELAY IN PERFORMANCE. THE REMEDIES OF CUSTOMER STATED IN THIS CONTRACT ARE EXCLUSIVE. REGARDLESS OF THE TYPE OF THE CLAIM (WHETHER BASED IN CONTRACT, INFRINGEMENT, NEGLIGENCE, STRICT LIABILITY, OTHER TORT OR OTHERWISE), EMERSON'S AND ITS AFFILIATES' LIABILITY TO CUSTOMER AND ITS AFFILIATES WILL NEVER EXCEED THE CONTRACT PRICE.
16.2 NEITHER PARTY WILL EVER BE LIABLE FOR (A) DAMAGES FOR LOSS OR CORRUPTION OF DATA OR CYBER ATTACKS, OR (B) INCIDENTAL, CONSEQUENTIAL OR PUNITIVE DAMAGES. "CONSEQUENTIAL DAMAGES" INCLUDE BUT ARE NOT LIMITED TO LOSS OF ANTICIPATED PROFITS, REVENUE, PRODUCTION OR USE AND COSTS INCURRED INCLUDING WITHOUT LIMITATION FOR CAPITAL, FUEL AND POWER, REPLACEMENT PRODUCT AND CLAIMS OF EACH PARTY'S AFFILIATES.
16.3 No action, regardless of form, relating to this Contract, may be brought more than 2 years after the claim arose.
17. **Applicable Law, Disputes, Notices**
17.1 Missouri law governs the Contract and its interpretation. The parties agree to exclude any effect on that law of the 1980 United Nations' Convention on Contracts for the International Sale of Goods and, so far as legally possible, any rules which might apply the laws of another jurisdiction.
17.2 The State of Missouri's courts or the U.S. federal district courts in Missouri have exclusive jurisdiction over all disputes arising out of the Contract.
17.3 All notices and claims connected with the Contract must be in writing.
17.4 If any provision of the Contract is invalid under any Law, such provision, to that extent only, shall be deemed to be omitted without affecting the validity of the remainder of the Contract.
18. **Entire Agreement**
The Contract is the exclusive and entire agreement between the parties on its subject matter. At Acknowledgment, the Contract supersedes all previous or existing agreements, negotiations, representations and proposals, whether written, oral, express or implied, on that subject matter.
19. **Definitions**
In these Terms:
Acknowledgement is Emerson's written acceptance of the PO by means of Emerson's standard order acknowledgement form, including all text on the form and its attachments.
Affiliate of an entity is any body that entity controls, is controlled by or is under common control with. "Control" of an entity means the direct or indirect beneficial ownership of more than half the shares, or other participating interest with the right to vote or to receive profits of that entity.
Contract is the agreement between Customer and Emerson for the supply of the Goods and any Documentation, Software and Services. The Contract consists of: Emerson's quotation, the PO, the Acknowledgement, these Terms, and all other documents contained or referred to in the agreement. (See Clause 1.3 for the order of priority of these documents.)
Contract Price is the total price the Customer must pay Emerson for the Goods, Documentation, Services and Software licenses.
Customer is the buyer of the Goods, Documentation, Services and Software licenses.
Customer Information is:
a) Customer's name, address, phone number, ship-to recipient and address;
b) similar details for the end-user (if that is not the Customer); and
c) Customer's primary contact's name, address, phone number, and email address.
Cyber Attack means cyber attack, intrusion attempt, unauthorized third-party access, and other malicious activity.
Day is any day except Saturdays, Sundays and public holidays at Emerson's office named in the Contract.
Documentation means any manuals, drawings and other documents Emerson must supply with the Goods, Software and Services.
Emerson is the Emerson company which issues the Acknowledgement.
Firmware is any firmware incorporated into Goods Emerson must supply under the Contract.
Goods are the goods Emerson must supply under the Contract.
HSSE is health, safety, security and the environment.
Law is applicable law, including statutory rules and regulations, decrees, directives, orders, by-laws and ordinances having the force of law.
Personnel is anyone who works for a party (or for an Affiliate or subcontractor of that party). It includes both employees and contract staff.
PO is Customer's purchase order or acceptance of Emerson's quotation, for the supply of the Goods, Software, Documentation and Services.
Resale Products are Goods Emerson buys from anyone except an Emerson Affiliate for resale to Customer.
Services are any services Emerson must perform under the Contract.
Site means the places not belonging to Emerson or to an Emerson Affiliate, which are identified in the Contract as where the Goods are to be installed, and the Services performed.
Software is any software Emerson must supply under the Contract.
Specification is the agreed specification of the Goods, Documentation and Services identified in the Contract or, if none is identified, Emerson's standard published specification.