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Solicitation Addendum

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Addendum No.: 3  
Solicitation No.: 20-TA003311SAM  
Project No.: 6088380 & 6097680  
Solicitation Title: Southeast Water Reclamation Facility Reclaimed Pump  
Back Station and Arc Flash Mitigation  
Addendum Date: May 13, 2020  
Procurement Contact: Sherri Meier

**20-TA003311SAM is amended as set forth herein. Responses to questions posed by prospective bidders are provided below. This addendum is hereby incorporated in and made a part of IFBC No. 20-TA003311SAM.**

**Replace:**

**SECTION C, BID ATTACHMENT 2, TECHNICAL SPECIFICATIONS, DIVISION 13 CONTROLS AND INSTRUMENTATION, SECTION 13300 – CONTROLS AND INSTRUMENTATION GENERAL PROVISIONS, PAGE 1 THROUGH 11.**

Replace Section C, Bid Attachment 2, Technical Specifications, Division 13 Controls and Instrumentation, Section 13300 – Controls and Instrumentation General Provisions, Page 1 through 11 is hereby incorporated to this Addendum 3.

**ADVERTISEMENT, SECOND PARAGRAPH, DATE, TIME AND PLACE DUE:**

The Due Date and Time for submission of Bids in response to this IFBC is **May 27, 2020 at 3:00 P.M. ET**. Bids must be delivered to the following location: Manatee County Administration Building, 1112 Manatee Ave. W., Suite 803, Bradenton, FL 34205 prior to the Due Date and Time.

Addendum No. 3

IFBC No. 20-TA003311SAM

**CHANGE TO:**

**INFORMATION FOR PROPOSERS, FIRST PARAGRAPH OF SECTION A.02 DUE DATE AND TIME:**

The Due Date and Time for submission of Bids in response to this Invitation for Bid (IFBC) is **May 27, 2020 at 3:00 P.M. ET.** Bids must be delivered to the following location: Manatee County Administration Building, 1112 Manatee Ave. W., Suite 803, Bradenton, FL 34205 and time stamped by a Procurement representative prior to the Due Date and Time.

**CHANGE TO:**

Scheduled Item	Scheduled Date
No Solicitation Information Conference will be conducted for this solicitation.	
Question and Clarification Deadline	May 8, 2020
Final Addendum Posted	<u>May 18, 2020</u>
Bid Response Due Date and Time	<u>May 27, 2020, 3:00 PM, ET</u>
Due Diligence Review Completed	June 5, 2020
Projected Award	August, 2020

NOTE: Items that are ~~struck through~~ are deleted. Items that are underlined have been added or changed. All other terms and conditions remain as stated in the IFBC.

**END OF ADDENDUM**

**INSTRUCTIONS:**

Receipt of this addendum must be acknowledged as instructed in the solicitation document. Failure to acknowledge receipt of this Addendum may result in the response being deemed non-responsive.

**AUTHORIZED FOR RELEASE**

Addendum No. 3

IFBC No. 20-TA003311SAM

## DIVISION 13 CONTROLS AND INSTRUMENTATION

### SECTION 13300 - CONTROLS AND INSTRUMENTATION GENERAL PROVISIONS

#### PART 1 GENERAL

#### 1.01 SCOPE OF WORK

- A. Furnish all labor, materials, devices, equipment, appurtenances, and incidentals required for a complete electrical system as hereinafter specified and/or shown on the Contract Drawings. This work may necessarily include interfacing with and/or completely installing devices and/or equipment furnished under other sections of these Specifications.
- B. The Contractor shall subcontract a SYSTEMS INTEGRATOR to provide programming of any/all Programmable Logic Controllers (PLC's) directly. The SYSTEMS INTEGRATOR shall also be responsible for the radio communications from the PLC at the new SEWRF Pump Back Station to the existing Master Radio Station located at the SEWRF Administration Building. The SYSTEMS INTEGRATOR shall also be required to perform any and all modifications as required to the existing SCADA System's Human Machine Interface (HMI) screens, database, alarms, level indication, flow indication, history trending, etc. as required. The SYSTEMS INTEGRATOR shall coordinate all SCADA system work with Manatee County.
- C. The SYSTEMS INTEGRATOR shall also be responsible for any/all programming required to integrate the Biosolids Main Circuit Breaker into the existing SCADA system. Refer also to Division 16 specifications.
- D. It is the intent of these Specifications that the electrical systems required for the SCADA System's new Inputs and Outputs (I/O) be suitable in every way for the service required. All materials and all work/labor which may be reasonably implied as being incidental to the requirements of this Section shall be furnished at no additional cost to the County.
- E. All interruptions to the existing control system shall be at the County's convenience. Each interruption shall have prior approval. Request(s) for control system interruption(s) shall be made at least forty-eight (48) hours in advance.
- F. The work shall include complete testing of all electrical components, including wiring.
- G. All workmanship shall be of the highest quality. Substandard work will be rejected and it shall be replaced entirely at the Contractor's expense with no cost to the County.
- H. It shall be the responsibility of each bidder or his authorized representative to physically visit the job site in order that he may be personally acquainted with the area(s), buildings and/or structures intended for use in the installation/construction under this Specification. The submittal of a proposal/bid by a bidder shall be considered evidence that he has complied with this requirement and accepts all responsibility for a complete knowledge of all factors governing his work. Therefore, failure to comply with this requirement of the Specifications will NOT be grounds for the successful bidder (Contractor) to request approval of change orders and/or additional monetary compensation.

## **1.02 APPROVED SYSTEMS INTEGRATORS**

- A. Approved SYSTEMS INTEGRATORS for this project include:
1. BCI Technologies.
  2. Revere Control Systems.
  3. CEC Control Systems.
  4. Commerce Controls, Inc.
  5. Curry Controls Company
- B. All efforts required to supply the required Control and Instrumentation Hardware shall be provided by the SYSTEMS INTEGRATOR. Therefore, the SYSTEMS INTEGRATOR shall be responsible for any and all programming required by the specification and as shown on the Contract Drawings, as well as, supplying any and all Control and Instrumentation Hardware as specified and as shown on the Contract Drawings.

## **1.03 DIVISION OF WORK**

- A. The Electrical Contractor shall be responsible for, and his/her scope of work shall include:
1. Providing and installing all conduit, fittings, conductors, and raceways as indicated on the drawings and as defined in Division 16 Specifications.
  2. Physical installation of Hardware Supplier provided PLC Control panel. This installation shall include all conduit, fittings, conductors and structural rack(s) as required.
  3. Terminate all power wiring to supplied control panels, existing control panels and field elements. The electrical subcontractor shall mark on the record drawings the field wire numbers used for each termination point.
  4. Physical installation of Instrumentation (except where such devices shall be installed by the Mechanical Contractor). This installation shall include all conduit, fittings, conductors, structural rack(s) and sun shields as required.
  5. Providing conduit, fittings and conductors as required to accommodate the new flow meters, float switches any/all new field devices that are supplier or installed by others.
  6. Coordinating all interface requirements with mechanical and electrical system suppliers and furnish any devices that might be required in order to insure compatibility between all equipment.
- B. The Hardware Supplier shall be responsible for, and his/her scope of work shall include:
1. Provide the Pump Control Cabinet, Motor Control Cabinet, and all associated hardware as indicated on the drawings.

2. Providing accessory devices including furnishing and installation of interposing relays, surge protection devices, terminal blocks, etc. necessary to perform the intent as described by the control strategies and services necessary to achieve a fully integrated and operational system as shown on the Contract Drawings and defined in the Specifications.
  3. Terminate all control and communications wiring to supplied control panels, and field elements. The Hardware Supplier shall mark on the record drawings the field wire numbers used for each termination point.
  4. Calibrate of all field instruments.
  5. Provide all Submittals as indicated in Section 1.04 of this Specification.
  6. Provide function testing for all PLC I/O, instruments and communications.
  7. Obtaining, in writing, a final acceptance from the SYSTEMS INTEGRATOR to indicate that all conductors and their terminations, as well as, all field devices and their associated I/O are in proper working order. The Hardware Supplier shall make any and all corrections as necessary, at no charge to the County, for items identified as unsatisfactory by the SYSTEMS INTEGRATOR.
- C. The Mechanical Contractor shall be responsible for, and his/her scope of work shall include:
1. Included within the mechanical subcontractor's scope installation of any in-line instrumentation. This instrumentation shall include the new Pump Back Station Flow Meter and Level Transmitter.
- D. The SYSTEM INTEGRATOR shall be responsible for, and his/her scope of work shall include:
1. Programming of Pump Back Station PLC.
  2. Modifications as required to the SCADA System's Human Machine Interface (HMI) screens as required for the integration of the Pump Back Station.
  3. This programming shall include the operation of the Pump Back Station.
  4. Configuration, programming and testing of the new Pump Back Station radio and associated radio communications.
  5. Configuration, programming and testing of all Ethernet communication.

#### **1.04 SUBMITTALS**

- A. Furnish, as prescribed under the General Requirements, all required submittals covering the items included under this section and its associated sections of the work.
- B. Submit complete, neat, orderly, and indexed submittal packages. Handwritten diagrams are not acceptable and all documentation submittals shall be made using CADD generated utilities as specified herein.

- C. Partial submittals or submittals that do not contain sufficient information for complete review or are unclear will not be reviewed and will be returned by the ENGINEER as not approved.
- D. Provide all shop-drawing submittals on disk in AutoCad format.
- E. Design Related Submittals: Provide individual shop drawing submittals as further defined in each specification section defining the SCADA System. Provide the following additional submittals covering the complete system:
  - 1. HMI screens modifications : The SYSTEM INTEGRATOR shall submit 11" x 17" color shop drawings depicting the proposed modifications to the associated HMI screen(s) to the County for review. No screen development or modification will be allowed prior to the documented approval of all HMI shop drawings by the County.
  - 2. Loop diagrams, consisting of complete wiring and/or plumbing diagrams for each control loop showing all terminal numbers, the location of the dc power supply, surge arrestors, etc. The loop diagrams shall meet the minimum requirements of ISA S5.4 plus divide each loop diagram into four areas for identification of element locations: SCADA System I/O point(s), panel face, back-of-panel, and field, respectively. On each diagram present a tabular summary of:
    - a. The output capability of the transmitting instruments
    - b. The input impedance of each receiving instrument
  - 3. System interconnect diagram that shows all connections required between component parts of the items covered in this section and between the various other systems specified in this Contract. Number all electrical terminal blocks and field wiring. Identify each line at each termination point with the same number. Do not use this number again for any other purpose in the complete control scheme.
  - 4. Test Procedures: Submit the procedures proposed to be followed during all system testing. Procedures shall include test descriptions, forms, and check lists to be used to control and document the required tests.
- F. Instrument Installation Details Submittal
  - 1. The Electrical Contractor shall develop and submit for review, complete installation details for each field mounted device and panel furnished prior to shipment and installation. Common details may be referenced by an index showing the complete instrument tag number, service, location, and device description. Installation details shall be provided as required to adequately define the installation of the components. Drawings may be included in the Control Panel Submittal when only a few are required.
- G. System Calibration and Test Documentation Submittal
  - 1. The Electrical Contractor shall submit an example of each type of Instrument Calibration Report and Loop Functional Test Report that will be used to verify that all preliminary calibration and testing has been performed and the system is considered, by the supplier, to be ready for testing.

2. After approval of the examples, the Electrical Contractor shall prepare Loop Functional Test Report(s) for each loop and an Instrument Calibration Sheet for each active element (except simple hand switches, lights, etc.). These sheets shall be completed and submitted to the Engineer after completion of the operational availability field tests.
3. An Instrument Calibration report shall be used to certify that each instrument requiring calibration has been calibrated to its published specified accuracy shall be submitted to the Engineer. This report shall include all applicable data as listed below plus an area to identify any defects noted, corrective action required, and corrections made. This report shall include:
  - i. Facility identification (Name, location, etc.)
  - b. Loop identification (Name or function)
  - c. Scale ranges and units
  - d. Actual readings at 0, 10, 25, 50, 75, 90 and 100 percent of span
  - e. Tester's certification with name and signature
4. Upon completion of all preliminary calibration and functional testing, the Electrical Contractor, shall submit a certified report for each control panel and its associated field instruments certifying that the equipment (1) had been properly installed under his or her supervision, (2) is in accurate calibration, (3) was placed in operation, (4) has been checked, inspected, calibrated, and adjusted as necessary, (5) has been operated under maximum power variation conditions and operated satisfactorily, and (6) is fully covered under the terms of the warranty.

## 1.05 STANDARDS

- A The design, testing, assembly, and methods of installation of the wiring materials, electrical equipment and accessories proposed under this Contract shall conform to the National Electrical Code and to applicable state and local requirements. UL listing and labeling shall be adhered to under this Contract.
- B Any equipment that does not have a UL, FM CSA, or other approved testing laboratory label shall be furnished with a notarized letter signed by the supplier stating that the equipment furnished has been manufactured in accordance with the National Electric Code and OSHA requirements.
- C Any additional work needed resulting from any deviation from codes or local requirements shall be at no additional cost to the OWNER.
- D Instrument Society of America (ISA) and National Electrical Manufacturers Association (NEMA) standards shall be used where applicable in the design of the Control System.
- E All equipment used on this project to test and calibrate the installed equipment shall be in calibration at the time of use. Calibration shall be traceable to National Institute of Standards (NIS - formally NBS) calibration standards.

## **1.06 TESTS**

- A. The Hardware Supplier shall test all items individually and as a system for proper operation.
- B. The Hardware Supplier shall, at his expense, make all the requisite repairs, adjustments and/or alterations to correct any shortcomings found as a result of the tests performed under Item 1.03.B.7 above.
- C. A representative of the County shall be present during all testing. The County shall be notified at least five (5) days prior to any testing.

## **1.07 GUARANTEES AND WARRANTIES**

- A. All items furnished under the Electrical Specifications shall be guaranteed and/or warranted, in writing, against defects in materials, construction and workmanship as specified under Section 01740 of these Specifications.

## **PART 2 PRODUCTS**

### **2.01 GENERAL REQUIREMENTS**

- A. All SCADA System equipment shall produce or be activated by signals, which are established standards for the water and wastewater industries. Outputs of equipment that are not of the standard signals as outlined, shall have the output immediately raised and/or converted to compatible standard signals for remote transmission. No zero based signals will be allowed.
- B. All equipment and devices furnished hereunder shall be heavy-duty type, designed for continuous industrial service. The System shall contain products of a single MANUFACTURER, insofar as possible, and shall consist of equipment models that are the latest design currently in production.
- C. All equipment shall be designed to operate on a 60-Hertz alternating current power source at a normal 120 volts, plus or minus 10 percent, except where specifically noted. All regulators and power supplies required for compliance with the above shall be provided between power supply and interconnected instrument loop. Where equipment requires voltage regulation, constant voltage transformers shall be supplied.
- D. Materials and equipment used shall be U.L. approved wherever such approved equipment and materials are available.
- E. All SCADA System equipment shall be designed and constructed so that in the event of a power interruption, the equipment shall resume normal operation without manual resetting when power is restored.

### **2.02 MATERIALS**

- A. Pump Back Station Pump Control Cabinet:
  - 1. Enclosure: 48" x 36" x 16", NEMA 4X, 316 Stainless Steel enclosure powder coated white with 3-point latching system and door stop kit. Hoffman



- A48H3616SS6LP3PT. Provide Stainless Steel backpanel Hoffman A48P36SS6.
2. Cabinet Light and Switch: Provide 24V DC LED cabinet light Hoffman LED24V15. Provide custom bracket to mount fixture to backpanel if required. Remote door switch and associated door switch cable shall be Hoffman ALFSWD.
  3. Exhaust Grilles: Provide 6" x 6" Stainless Steel exhaust grilles as required. Hoffman TEP6SS.
  4. PLC Components: PLC Processor, Allen Bradley 1769-LI18ER-BB1B; Point I/O current input analog module, Allen Bradley 1734-IE4C; 24VDC Point I/O mounting base, Allen Bradley 1734-TB.
  5. Normal power fail relay: Provide Square D Class 8501, type R relay with 10A contact and 120V AC coil.
  6. Cat 6 Surge Protection Devices: Provide Phoenix Contact Part Number #2858991.
  7. Ethernet Switch: Provide Phoenix Contact Part Number #2891929.
  8. 120VAC-24VDC Power Supplies: Provide Allen Bradley 1606-XLE80E and Phoenix Contact Part Number #2866750 as indicated on the drawings.
  9. Incoming 120V AC power surge protection devices: Provide Phoenix Contact Part Number #2905228.
  10. Circuit Breakers: Provide 120V AC, single pole, 15A circuit breakers Allen Bradley 1489-M1C150.
  11. Fused terminal blocks: Provide fused terminal blocks with led indicator, 24V DC Square D AB1FUSE435U5XB. Provide fuses for terminal blocks. Each fuse shall be Bussmann 5 x 20mm GMC series. Refer to drawings for required amperages.
  12. Terminal Blocks: Provide Automation Direct Part Number DN-T10B-A or equal.
  13. Thermal Circuit Breakers: Provide thermal circuit breakers rated for 120V AC. Automation Direct DN-SUPP-2-1. Provide each breaker with an Automation Direct DN-FE EURO F series socket. Refer to drawings for amperages required.
  14. Duplex Receptacles: Provide duplex receptacles rated for 20A, 120V AC Phoenix Contact #5600525.
  15. Analog Isolator Power: Provide power terminal block MINI MCR-SL-PTB for analog isolators. Phoenix Contact Part Number #2864134. Provide din rail bus connectors as required, Phoenix Contact #2869728.
  16. Analog Isolator: Analog Isolators shall be Phoenix Contact MINI MCR-2-RPSS-I-I, Phoenix Contact Part Number #2902014. Refer to loop diagrams on drawings for wiring connections based on transmitter type.
  17. Analog surge protection devices: Provide Phoenix Contact PT 2x2-24DC-ST, Part Number #2838228 with base element PT 2x2-BE, Phoenix Contact Part Number #2839208 for each unit.

18. Uninterruptible Power Supply (UPS): Provide APC Pro 700, 120V AC output, 700VA available power. APC BR700G.
19. Radio: Provide ECR Orbit 900 Mhz radio, GE DSECRU91NNNNNS1S1USUNNN.
20. Coaxial Cable Protection: Provide 698-2700 Mhz coaxial cable protection ipolyphaser tsx-nff. Include single barrel one-hole copper grounding lug, Panduit HL1-25-X. Provide custom 2"W X 5"L x 1/4"D copper grounding plate.
21. Equipment Ground Bar System: Provide Panduit UGB2/0-414-18. Provide with bonding standoffs, Panduit UGB-B-S0.
22. Signal Ground Bar System: Provide Panduit UGB2/0-414-12. Provide with isolation standoffs, Panduit UGB-IN-S0.
23. Wiring Duct: Provide 2" x 3" slotted wiring duct Panduit G2X3LG6.

B. Antenna Subsystem

1. The contractor shall provide a radio survey to obtain the required gain, direction and height of the antenna at the new Pump Back Station. The Master Radio Station is located at the SEWRF Administration Building. The antenna shall be used to transmit and receive data from the associated Pump Back Station to the Master Radio Station.
2. The antenna shall be supported on a mast/pole and have DC grounding for lightning protection. The antenna mast/pole shall be hot dipped galvanized for corrosion protection. All mounting hardware shall be made of stainless steel. The mast shall meet or exceed the quality and reliability of units manufactured by Rohn (height to be determined by the Contractor). The coax cable shall be the type that utilizes an inert semi-liquid compound to flood the copper braid. The coax cable shall meet or exceed the quality, reliability and performance of VB-8 manufactured by DB Products, Inc. of Dallas, Texas. Type N connectors shall be utilized at both ends of the coax. The Type N connectors shall be sealed with 3 inch sections of Alpha FIT321-1-0 sealant shrink tubing. The coax cable shall be secured to the mast/pole with E.V.A.-coated 316 stainless steel cable ties. The cable ties shall meet or exceed the quality, reliability and performance of AE112 cable ties manufactured by Band-It. The antenna shall be constructed with heavy-wall tubing elements and large, rugged-machined aluminum blocks for the boom-to-element junctions. The antennas shall meet or exceed the quality, reliability and performance of the PLC-4510N manufactured by Cushcraft/Signals of Manchester, New Hampshire. The antenna/tower shall be designed to meet 150 MPH wind loading without damage. Sealed engineering drawings from a Florida professional engineer shall be submitted to the Engineer to verify the design. The contractor shall coordinate all grounding requirements with the supplier.

## **PART 3 EXECUTION**

### **3.01. PRODUCT HANDLING**

- A. Store and protect equipment until installation following the storage and handling instructions recommended by the equipment manufacturers. Place special emphasis on proper anti-static protection of sensitive equipment.
- B. Protection During Construction: Throughout this Contract, provide protection for materials and equipment against loss or damage and from the effects of weather. Prior to installation, store items in indoor, dry locations. Provide heating in storage areas for items subject to corrosion under damp conditions. Provide covers for panels and other elements that may be exposed to dusty construction environments.
- C. Corrosion Protection: Protect all consoles, panels, enclosures, and other equipment containing electrical or instrumentation and control devices, including spare parts, from corrosion through the use of corrosion-inhibiting vapor capsules. Prior to shipment, include capsules in the shipping containers, and equipment as recommended by the capsule manufacturer. During the construction period, periodically replace the capsules in accordance with the capsule manufacturer's recommendations. Replace all capsules just prior to Final Acceptance.
- D. ESD Protection: Provide for the proper handling, storage, and environmental conditions required for the components deemed static sensitive by the equipment manufacturer. The components of the SCADA System shall be protected in particular. Utilize anti-stat wrist straps and matting during installation of these items to prevent component degradation.
- E. Adequately pack manufactured material to prevent damage during shipping, handling, storage and erection. Pack all material shipped to the project site in a container properly marked for identification. Use blocks and padding to prevent movement.
- F. Ship materials that must be handled with the aid of mechanical tools in wood-framed crates.
- G. Ship all materials to the project site with at least one layer of plastic wrapping or other approved means to make it weatherproof. Anti-stat protection shall be provided for all sensitive equipment.
- H. Inspect the material prior to removing it from the carrier. Do not unwrap equipment until it is ready to be installed. If any damage is observed, immediately notify the carrier so that a claim can be made. If no such notice is given, the material shall be assumed to be in undamaged condition, and any subsequent damage that is discovered shall be repaired and replaced at no additional expense to the OWNER.
- I. The Contractor shall be responsible for any damage charges resulting from the handling of the materials.

### **3.02. INSTALLATION**

- A. Install materials and equipment in a workmanlike manner utilizing craftsmen skilled in the particular trade. Provide work, which has a neat and finished appearance. Coordinate

work with the OWNER and work of other trades to avoid conflicts, errors, delays, and unnecessary interference with operation of the existing plant during construction.

- B. Provide finish on instruments and accessories that protects against corrosion by the elements in the environment in which they are to be installed. Finish both the interior and exterior of enclosures. Provide extra paint of each color used in the material from the manufacturer for touch-up purposes.
- C. Ground each analog signal shield on one end at the receiver end only. Properly ground all surge and transient protection devices. Coordinate grounding system with Division 16, Electrical.
- D. For the purposes of uniformity and conformance to industry standard, provide analog signal transmission modes of electronic 4-20 ma DC. No other signal characteristics are acceptable.
- E. Fully isolate outputs for transmitted electronic signals between transmitters and receivers, equipment of different manufacturers and between control panels to conform to ISA Standard S 50. 1.
- F. Discrete signal are two-state logic signals. Use 120V ac sources on all discrete signals unless otherwise noted or shown.
- G. Surge Protection: Provide appropriately sized electrical transient protection devices for all electrical elements of the system to protect the SCADA System equipment and equipment which interfaces with the SCADA System from transient surges in power and signal wiring (from lightning and other ground potential differences). Locate and properly ground surge suppressors at: any connection between power sources and electrical equipment including panels, assemblies, and field devices; and at both ends of all analog signal circuits.

### **3.03. TESTING**

- A. All elements of the SCADA System shall be tested to demonstrate that the total system satisfies all of the requirements of the Contract Documents
- B. As a minimum, the testing shall include shop tests, operational check-out tests, and Demonstration Tests.
- C. Each test shall be in the cause and effect format. The person conducting the test shall initiate an input (cause) and, upon the system producing the correct result (effect), the specific test requirements will have been satisfied.
- D. All tests shall be conducted in accordance with, and documented on, prior approved procedures, forms, and checklists. Each specific test to be performed shall be described and a space provided after it for signoff by the appropriate party after its satisfactory completion. Copies of these signoff test procedures, forms, and checklists will constitute the required test documentation.
- E. Provide all special testing materials and equipment. Wherever possible, perform tests using actual process variables, equipment, and data. Where it is not practical to test with

real process variables, equipment, and data, provide suitable means of simulation. Define these simulation techniques in the test procedures.

- F. The Electrical Contractor shall coordinate all of their testing with the SYSTEMS INTEGRATOR, the ENGINEER, all affected suppliers, and the OWNER.
- G. The SYSTEMS INTEGRATOR shall reserve the right to test or retest any and all specified functions whether or not explicitly stated in the approved test procedures. The SYSTEM INTEGRATOR's decision shall be final regarding the acceptability and completeness of all testing.

**END OF SECTION**