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December 5, 2022

TO: All Prospective Bidders

FROM: Trent Ensley, Procurement Manager

SUBJECT: ADDENDUM NO. 3
PWC2223021 – RE-REPLACE STANDBY POWER
GENERATOR AT THE CROSS CREEK WATER
RECLAMATION FACILITY

1. The Specifications and Bid Documents are hereby modified or clarified per the attached documents.
2. The foregoing changes or clarifications shall be incorporated in the original Bid Documents and a signed copy of this Addendum No. 2 shall accompany the bid to acknowledge the bidder's receipt and familiarly with the changes and/or clarifications.

TE:tke

Acknowledgement:

Company_____

By_____

Date_____

BUILDING COMMUNITY CONNECTIONS SINCE 1905
AN EQUAL EMPLOYMENT OPPORTUNITY EMPLOYER



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December 5, 2022 Digitally signed by David A. Atkinson Jr



Date: 2022.12.05 10:38:43-05'00'

TO: Prospective Bidders
FROM: Trent Ensley, Procurement Manager
SUBJECT: ADDENDUM No. 3
PWC2223021: Replace Standby Power at the Cross Creek Water Reclamation Facility

NOTICE TO CONTRACTORS:

This Addendum shall become a part of the Contract Documents for the above projects as they apply.

Each Contractor shall be responsible for notifying their subcontractors of the contents of this addendum.

Revised or newly issued drawings contained in this addendum shall supersede and take precedence over any conflicting information in the original drawings. Modified or newly issued specifications contained in this addendum shall supersede and shall take precedence over any conflicting information in the original specifications.

Item 1: The following amends the project Technical Specifications:

Section II, replace paragraph 1.14 A with the following:

A. The Materialman shall furnish and install relays associated with each recloser, voltage and current instrument transformers, surge arrestors, fused cut-outs, and wooden poles for each of the two (2) electric utility services. Wooden poles shall be used to mount the reclosers and related appurtenances at the approximate locations shown in Appendix A. The Materialman shall install two (2) reclosers and associated bypass switches, the reclosers and bypass switches will be furnished by the Utility Company. The recloser associated with the Hoffer utility service shall be named XCR-HO, and the recloser associated with the Cape Fear utility service shall be named XCR-CF.

Section II, replace the text “pump station” in paragraph 1.14 C with the text “substation”.

Section II, delete paragraph 1.14 D in its entirety, as reclosers and bypass switches will be furnished by the Utility Company (installed by Materialman) per this addendum.

26 23 00, paragraph 2.02 A 1, add text “or UL 891 Listed” to the end of the sentence.

26 23 00, replace the entirety of paragraph 2.04 (Sequence of Operations) with the modified sequence of operations included in the attachment to this addendum.

Item 2: Questions received from Prospective bidders are addressed as follows:

Q: 1.02.11 Would Materialman be responsible for removal/disposal of the fuels/oils contained within the existing supplemental fuel tank as well as the existing generator?

A: Yes, Materialman is responsible for all fuel/oil removal for any equipment shown to be removed.

Q: 1.11.A.1 indicates concrete encasement of all conduits/raceways but 1.10.H indicates encasement only under equipment foundations. Please clarify. Also, would concrete encasement be required for the fiber optic communications raceways to reclosers XCR-HO and XCR-CF?

A: Per 26 23 00, 2.03 H, fiber optic cable shall be installed in PVC conduit that is direct buried. All other conduit that is installed underground (out in yard AND under equipment foundations) shall be concrete encased schedule 40 PVC per 1.11.

Q: 1.17.F Since the generation system is contained within the existing site fence line, is additional fencing required around the new generator and associated equipment?

A: Additional fencing is not required around new generators and associated equipment. However if existing fencing is modified or damaged by the Materialman, the damaged or modified portion shall be repaired by the Materialman.

Q: Section 26 23 00 1.02.4.a and 2.02.A.1 indicates low voltage switchgear shall comply with UL1558. Would UL891 be acceptable?

A: Per the direction in this addendum, UL 891 will be acceptable.

Q: Section 26 23 00 2.04 appears to require automatic transfer between both XCR-HO and XCR-CF but the control of the tie point between the two circuits within SS-2 is under control solely by the Utility. Please clarify the sequence of operations with respect to the transfer between the Hoffer and Cape Fear circuits. In particular section G – Auto Start/Stop Sequence – Automatic Return to a Single Utility Source. Also, would the Commission and the Utility consider moving

the normal open position within SS-2 to switch 0463 within SS-1 to allow the generators to support the entire site without intervention by the Utility?

A: See new Sequence of Operations included as an attachment to this addendum.

Q: Is the Medium Voltage cable and the fiber optic cable that will be installed underground required to be in PVC conduit and encased concrete everywhere or just under equipment foundations?

A: Medium voltage cable shall be installed in conduit and be concrete encased as required by 1.11 in Section II. Per 26 23 00, 2.03 H, fiber optic cable shall be installed in PVC conduit that is direct buried.

Q: Is direct burial for MV cable allowed?

A: Direct burial for MV cable that is furnished and installed under this contract is not permitted.

Q: Is direct burial in HDPE innerduct for fiber optics allowed?

A: Per 26 23 00, 2.03 H, fiber optic cable shall be installed in PVC conduit that is direct buried.

Q: Is there any fiber optic networks available near the incoming utilities(Hoffer and Cape Fear) that could be used to connect the recloser controls?

A: There are not any other fiber optic networks available that can be used to connect to the recloser controls.

Q: It appears the Hoffer incoming utility feed already has a recloser. Does this stay in service, and can it be reused versus buying new and installing a new pole with the same apparatus?

A: The existing recloser will stay in service and be operated by the Utility Company. New poles, reclosers, and related appurtenances must be furnished and installed by Materialman per the RFP.

Q: On the single line drawing it shows connecting the new and old generator on the same termination point (H4) in switch in SS-3. Can the spare termination point (H3) shown on the S/L in SS-3 be utilized so testing of the new cable and generator can be performed independently and keep the existing generator in service as long as possible?

A: Upon notice to proceed, the Materialman shall investigate to verify that the termination point H3 is still in fact a spare. If it is a spare, it may be utilized for the new step-up transformer, and termination point H4 would become the eventual spare.

Q: Please confirm the existing/spare conduit sizes entering the foundation for SS3.

A: It is not known if there are any existing spare conduits entering the foundation for SS3.

Q: Does the underground cable going from the existing generator to SS3 require removal or abandoned in place?

A: All existing cable shall be removed. However, where conduit is present, the conduit may remain in place for future use.

Q: Where is the SCADA interconnection location on the site?

A: Reference the Overall Area Site Plan. The small building between the two large circular tanks just south of the existing standby power equipment will be the SCADA interconnection location.

Q: What is the peak load of this facility?

A: The maximum peak KW usage recorded to date is 1983kW for the entire treatment plant.

ADDENDUM 3 ATTACHMENT

2.04 SEQUENCE OF OPERATIONS

- A. The normal switchgear mode of operation shall be as follows:
1. Utility present. Main circuit breaker open.
 2. All generator circuit breakers open.
 3. All generators off.
- B. The treatment plant currently operates with loads split between the two electric utility sources named Cape Fear and Hoffer. A manually operated tie switch is located in Sectionalizing Switch #2, (SS-2) and that tie switch is only operated by the Utility Company, and only when one of the two sources is unavailable. The opening/closing of reclosers, sectionalizing switches, and circuit breakers associated with the two electric utility sources is controlled by the Utility Company and is not controlled by treatment plant operations staff. The opened and closed status of the SS-2 tie switch is available at SS-2 and shall be wired into the logic used by the Materialman to meet the requirements herein.
- C. After the start of this Contact, the normal operation of the plant electrical sources will be modified. The utility power source associated with Recloser XCR-CF (Cape Fear) will be the preferred source that supplies the treatment plant. The utility power source associated with Recloser XCR-HO (Hoffer) will be the alternate power source the supplies the treatment plant if the preferred source is not available. Recloser XCR-CF shall be normally closed and recloser XCR-HO shall be normally open. Switch 0424 at SS-2 is a tie switch that will be normally closed. The opening/closing of all reclosers and/or circuit breakers upstream of reclosers XCR-CF and XCR-HO and Switch 0424 at SS-2 will be controlled by the Utility Company and will not be controlled by treatment plant operations staff. Reclosers XCR-CF and XCR-HO opening and closing shall be directly controlled by the controls specified herein, and not controlled at all by the Utility Company.
- D. Reclosers XCR-CF and XCR-HO shall be interlocked with each other and with the tie switch at SS-2 such that if the tie switch is closed, only one of XCR-CF or XCR-HO may be closed. This interlock is to prevent the inadvertent connection of the Cape Fear and Hoffer sources together.
- E. Loss of Cape Fear Utility Source
1. If the Cape Fear utility source is lost, recloser XCR-CF shall open, but the engine-generators shall not be started. The Utility Company will attempt to supply the entire plant from the Hoffer utility source through a Utility Company recloser. When the Hoffer source is available, recloser XCR-HO shall close. When the Cape Fear utility source returns and remains stable for more than 60 seconds (adjustable), recloser XCR-CF shall close and recloser XCR-HO shall open.

F. Auto Start/Stop Sequence – Automatic Transfer Upon Failure of both Utility Sources

1. Initiate start sequence automatically when both utility sources fail, and the generator system control switch (SCS) is in the “Auto” position. Generator start sequence shall be automatically initiated if any of the following conditions are detected:
 - a. Voltage on any phase of the utility source in service drops below 85 percent of nominal voltage or increases above 115 percent of nominal voltage.
 - b. Frequency drops below 90 percent or increases above 110 percent of 60Hz.
 - c. Voltage phase sequence imbalance (negative sequence) increases up to or above 5% percent.
2. The system shall have an adjustable start sequence time delay function of 0-999 seconds (initially set at sixty (60) seconds).
3. After the start sequence time delay function has timed out, the generator control system shall start all available generators and open both XCR-CF and XCR-HO (if closed).
4. When the first generator voltage and frequency are within acceptable limits, close its respective generator circuit breaker and connect to the switchgear bus. The generator control system shall synchronize the remaining available generators with the bus and close the respective generator circuit breakers when generator voltage and frequency are within acceptable limits.
5. After a minimum of 2,500kw of available generators are connected to the bus, close the main circuit breaker. The remaining available generator(s) shall continue to synchronize and connect to the bus when their voltage and frequency are within acceptable limits.
6. All available generator sets supply the plant load as required.

G. Auto Start/Stop Sequence – Automatic Return to Utility Source

1. When a utility source return is detected, the generator control system shall transfer to that utility source when the voltage, phase voltage balance, and frequency are within acceptable limits and after an adjustable time delay function of 0-120 minutes (initially set at 15 minutes).
2. The generator control system shall synchronize the operating generators with the Cape Fear utility source (if available), close the associated recloser, and operate the generators in parallel with that source. If the Cape Fear utility source is not available, the generator control system shall synchronize the operating generators with the Hoffer utility source), close the associated recloser, and operate the generators in parallel with that source.

3. The system shall softly unload the generators and open the main circuit breaker when only 100kW (adjustable) of the plant load is being served by the generators, and the remaining is being served by the utility source.
 4. Open the operating generator circuit breakers and run the generators in an unloaded cool down mode for an adjustable time period.
 5. When the cool down period is complete, the generator control system shall stop the generators.
- H. Auto Start/Stop Sequence – Manually Initiated Transfer to Generator Source (From Either Utility Source)
1. The Operator initiates transfer to the generator source at the plant PLC Terminal when the SCS is in the “Auto” mode. The Operator can also initiate the transfer to generator source by placing the SCS in the “Hand” position and pressing the “Initiate Transfer to Generator” pushbutton.
 2. The generator control system shall close the main circuit breaker and start all available generators.
 3. The generator control system shall synchronize the operating generators with the switchgear bus and close the respective generator circuit breakers when generator voltage and frequency are within acceptable limits.
 4. The system shall softly unload the utility source that is serving the plant at the time and open the respective recloser after 95% (adjustable) of the plant load has been transferred to the generator source.
 5. All available generator sets shall supply the plant load as required.
- I. Auto Start/Stop Sequence – Manually Initiated Return to Utility Source
1. The Operator initiates transfer to the utility power source at the plant PLC Terminal when the SCS is in the “Auto” mode. The operator can also initiate the transfer to normal source by placing the SCS in the “Hand” position and pressing the “Initiate Transfer To Utility” pushbutton.
 2. The generator control system shall synchronize the operating generators with the Cape Fear utility source (if available), close the associated recloser, and operate the generators in parallel with that utility source. If the Cape Fear utility source is not available, the generator control system shall synchronize the operating generators with the Hoffer utility source and operate the generators in parallel with that utility source.
 3. The system shall softly unload the generators and open the main circuit breaker when only 100kW (adjustable) of the plant load is being served by the generators, and the remaining is being served by the utility source.

4. Open the operating generator circuit breakers and run the generators in an unloaded cool down mode for an adjustable time period.
5. When the cool down period is complete, the generator control system shall stop the generators.

J. Auto/Start Stop Sequence – Extended Parallel Mode (BASE BID)

1. For the base bid, all of the extended parallel mode functions, interlocks, and hardware as specified herein shall be provided and initially set up for use with the future generator only. The selection of which generator or generators are capable of being controlled by this extended parallel mode shall be programmable and modifiable only with an administrator password for the system.
2. The Operator initiates transfer to the generator source at the plant PLC Terminal when the SCS is in the “Auto” mode. The Operator can also initiate the transfer to generator source by placing the SCS in the “Hand” position and pressing the “Initiate Transfer to Generator” pushbutton.
3. The generator control system shall close the main circuit breaker and start the selected generator(s).
4. The generator control system shall synchronize the selected generator(s) with the switchgear bus and close the respective generator circuit breakers when generator voltage and frequency are within acceptable limits.
5. The system shall softly unload the utility source until only 100kW (minimum) of power is imported from the utility. The system shall adjust the selected generator(s) as required to serve all but this last remaining portion of load, which shall be required to be imported at all times.
 - a. If at any time the level of imported power drops below this minimum, the main circuit breaker shall open immediately and isolate the switchgear bus from the electrical distribution system.
 - b. If at any time the power flows from the plant through either recloser (XCR-CF or XCR-HO) in the reverse direction (exporting to utility grid), the associated recloser shall open immediately and isolate that portion of the treatment plant from the utility grid.
6. All selected generator sets shall supply the plant load as required.

K. Auto/Start Stop Sequence – Extended Parallel Mode (ALTERNATE BID)

1. If an alternate bid is provided, all of the extended parallel mode functions, interlocks, and hardware as specified herein shall be provided and set up for use with all generators provided under this Contract.
2. The Operator initiates transfer to the generator source at the plant PLC Terminal when the SCS is in the “Auto” mode. The Operator can also initiate the transfer to

generator source by placing the SCS in the “Hand” position and pressing the “Initiate Transfer to Generator” pushbutton.

3. The generator control system shall close the main circuit breaker and start all available generators.
 4. The generator control system shall synchronize the operating generators with the switchgear bus and close the respective generator circuit breakers when generator voltage and frequency are within acceptable limits.
 5. The system shall softly unload the utility source until only 100kW (minimum) of power is imported from the utility. The system shall adjust the generators as required to serve all but this last remaining portion of load, which shall be required to be imported at all times.
 - a. If at any time the level of imported power drops below this minimum, the main circuit breaker shall open immediately and isolate the switchgear bus from the electrical distribution system.
 - b. If at any time the power flows from the plant through either recloser (XCR-CF or XCR-HO) in the reverse direction (exporting to utility grid), the associated recloser shall open immediately and isolate that portion of the treatment plant from the utility grid.
 6. All available generator sets shall supply the plant load as required.
- L. The following manual start/stop sequences shall be capable of being carried out by plant operations staff. Provide all hardware and interlocks necessary to perform the following manual functions:
1. Manual Start/Stop Sequence – Manual Transfer to Generator Source
 - a. Place the SCS in the “Manual” position. In “Manual” mode, all automatic transfer controls, synchronizing controls, and load sharing controls shall be disabled.
 - b. Open reclosers XCR-CF and XCR-HO.
 - c. Manually open the generator circuit breakers (if closed) and open the main circuit breaker (if closed).
 - d. Start all available generators by placing the respective engine control switch (ECS) in the “Hand” position.
 - e. Place the manual synchronizing switch for one of the generators in the “On” position using the removable T-handle and adjust the frequency and voltage using the voltage and frequency potentiometers. Manually close the generator circuit breaker once the voltage and frequency are within acceptable limits. Place the manual synchronizing switch to the “Off” position and remove the T-handle. Repeat for all operating generators.

- f. Close the main circuit breaker after the generators are synchronized to supply the plant load as required.
2. Manual Start/Stop Sequence – Manual Transfer to Utility Source
 - a. Place the SCS in the “Manual” position. In “Manual” mode, all automatic transfer controls, synchronizing controls, and load sharing controls shall be disabled.
 - b. Manually open the generator circuit breakers. Operate generators in an unloaded cool down mode and manually stop all operating generators at the end of the cool down period.
 - c. Manually open the main circuit breaker. Close recloser XCR-CF if utility voltage is present on the Cape Fear source. If Cape Fear source is not present, close recloser XCR-HO if utility voltage is present on the Hoffer source.

M. Automatic Generator Load Management Program

1. With the SCS in the “Automatic” position, and the Automatic Generator Load Management Program selector switch in the “ON” position, the generator controls shall stop running generators as follows:
 - a. If the load on all running generators is less than 25% (adjustable) of the generators full load rating and after an adjustable time delay (0-120 minutes, initially set at 15 minutes), disconnect the generator with the highest cumulative run time and initiate cool down cycle.
 - b. After the first generator has disconnected and after an adjustable time delay (0-120 minutes), if the load on all running generators is less than 30% (adjustable) of the generators full load rating and after an adjustable time delay (0-120 minutes, initially set at 15 minutes), disconnect another generator and initiate cool down cycle.
 - c. If a “Disable Generator Load Management Program” signal is received from the Plant Control System, the generator controls shall start all available generators and shall disable the Generator Load Management Program until the “Disable Generator Load Management Program” signal is removed.
 - d. In the event any generator alarms occur and the alarm is critical to the generator’s operation (i.e. low coolant, over-temperature, etc) or generator shutdown occurs, the Generator Load Management Program shall be automatically disabled and all available generators shall start and synchronize to the generator bus.

N. Utility Outage Simulation

1. When the selector switch is used to simulate a loss of voltage on both electric utility services, the appropriate automatic transfer sequence specified above shall be initiated.