

AMENDMENT OF SOLICITATION

1. AMENDMENT NO. 003	2. EFFECTIVE DATE 1/10/2019	3. PAGE 1 OF 1
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4. ISSUED BY: **Four Rivers Nuclear Partnership, LLC**
P.O. Box 228
Kevil, KY 42053

5. NAME AND ADDRESS OF CONTRACTOR (<i>Name, street, county, state & zip code</i>)	6. AMENDMENT OF (RFQ) SOLICITATION NO. FRNP-PO-0003328
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7. The above numbered solicitation is amended as set forth in Item 8. The hour and date specified for receipt of Offers is extended. Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods:

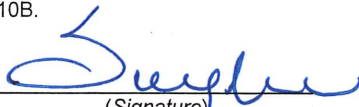
(a) By completing Items 5 and 9, and returning 1 copy of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGEMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by letter, provided the letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

8. DESCRIPTION OF AMENDMENT

Amendment to solicitation as follows:

- Revision to the Statement of Work. The revision allows prospective offerors to propose replacing the HVAC system.

Except as provided herein, all terms and conditions of the document 6 remain unchanged and in full force and effect.

9A. NAME AND TITLE OF SIGNER (<i>Type or print</i>)	10A. Four Rivers Nuclear Partnership, LLC John Snyder. Subcontract Administrator		
9B. CONTRACTOR/OFFEROR	9C. DATE SIGNED	10B.  (Signature)	10C. DATE SIGNED 1/10/2019
<hr style="border: 0; border-top: 1px solid black; margin-bottom: 5px;"/> (Signature of person authorized to sign)			

SECTION C
ATTACHMENT J-24
STATEMENT OF WORK
FOR
C-300 BUILDING HEATING AND COOLING SUPPLY REPLACEMENT



FOUR RIVERS NUCLEAR PARTNERSHIP, LLC (FRNP)

5511 Hobbs Road
Kevil, KY 42053

Name	Title	Signature	Date
Dave Rigdon	Engineer		
Andy Anderson	Project Manager		
Nate Ing	Quality Specialist		
Jarred Hall	Health and Safety		
Stacy Cook	Contract Technical Representative		

SOW REVISED 1.7.19 BY BGH TO ADD NOTES ABOUT IF SUBCONTRACTOR PROPOSES TO INSTALL ALL NEW EQUIPMENT; IT WILL NOT BE REQUIRED TO EVALUATE THE EXISTING EQUIPMENT.

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1.0 DESCRIPTION OF WORK – GENERAL

Four Rivers Nuclear Partnership, LLC, hereinafter referred to as the Contractor, located in Paducah, Kentucky, is soliciting a contract to design with the option to construct and install new C-300 Building replacement heating and cooling systems for the heating, ventilation, and air conditioning (HVAC) systems, hereinafter called the Work. The purpose of the Work is to make the facility independent of site utility services, except electrical power, natural gas (if required), and make up water. The C-300 Building HVAC systems use steam for heating, chilled water system (CWS) for cooling, and plant compressed air for operation of controls. All of these systems will be no longer available and will need to be replaced to make the building independent of these services.

To reduce surveillance and maintenance (S&M) costs during deactivation several large, plant-wide utility services will be shut down. These include the recirculating heat system (RHS), plant steam system, the CWS, and the plant compressed air system. These systems support the C-300 HVAC system as well as those of numerous other plant buildings.

The C-300 Building is the central control building for the plant. The C-300 Building was built in the 1950s. It is envisioned that this facility will be occupied throughout the deactivation phase of the plant; at least another twenty years of use. The building HVAC system is currently supported by the plant steam, chilled water and compressed air services that are scheduled to be shut down. It is desired to convert the C-300 Building HVAC systems to allow them to function with local equipment without reliance on these plant utility distribution services.

This contract will provide

- an evaluation of the existing HVAC system to provide a recommendation of replacement equipment with a detailed design, bill of materials, cost estimate and schedule for equipment/systems to replace the heating, cooling, and compressed air supplies with other local-to-the-building equipment for the C-300 Building HVAC systems to allow continued building occupancy and increased energy efficiency;
- concurrently with the design phase, an analysis of auxiliary HVAC equipment such as louvers, dampers, and ducting (sizes and configuration), if not included above, with recommendations for required or optional repairs, replacements, or modification;
- (Optional) schedule, procurement, construction, installation, test plan, testing and turnover of the new heating, cooling, and compressed air systems.

Electrical service to the building is 110 and 208 VAC. Electrical power in excess of that currently used in the C-300 Building is available but will require modifications to the plant electrical distribution system. This work is outside the scope of this contract. The conceptual and detailed design portions of this contract will require that the contractor identify the power requirements and the locations of the needed electrical tie-ins. Electrical wiring, panels, and equipment within the C-300 Building and/or new structures will be the responsibility of the subcontractor.

Natural gas should be considered as a potential for heating as well. Currently no natural gas service is available near the C-300 Building, but it may be made available if sufficient cost benefit can be shown.

New buildings and/or structures may be identified by the subcontractor as required to house new heating, cooling, and compressed air equipment. Connections for water, public address speakers, phone or other services may be required by the Contractor in any new buildings or structures which will be outside the scope of this contract.

The subcontractor, working in conjunction with the Contractor, will identify the power requirements and the locations of the needed electrical, water, natural gas, if required, or other tie-ins, allowing sufficient time for the Contractor to provide the necessary tie-ins to the equipment. These work activities will be performed both at the subcontractor's site and at the Paducah Gaseous Diffusion Plant (PGDP) site near Paducah, Kentucky.

2.0 SCOPE OF WORK – SPECIFIC

2.1 The Work described in Articles 1.0 and 2.0 shall include, but not be limited to, the following:

Except as otherwise expressly provided herein, and/or identified as furnished and/or installed by others, subcontractor shall supply each item necessary to perform the Work. Work shall include, but not be limited to, the provision of the following:

- All adequate and competent personnel and supervision.
- All required design drawings; specifications; calculations; installation, operation, and maintenance manuals, preventive maintenance requirements, testing plan and testing requirements.
- All required equipment, tools, testing devices, materials, consumables and services.
- All required replacement parts, including fasteners and gaskets.
- (Optional Work) Required procurement, installation, construction, demolition, site clearance, manufacturing, fabrication, field erection, retrofitting, assembly, modifications, material storage, inspection, verification, validations, etc. required to complete the Work.

2.2 Subcontractor shall adhere to the requirements of the Contractor's approved specifications, drawings, instructions and other documents referred to in this SOW.

2.3 Scope Overview

The complete scope of Work is defined within this scope overview, specifications, documents, and drawings contained within this SOW and RFP.

2.3.1 Background

The C-300 Central Control Building houses the Plant Shift Superintendent offices, the Cascade Coordinator and plant operator stations, the Plant Emergency Operations Center (EOC) as well as support personnel. The C-300 facility is approximately 8300 square feet. The basic building layout is a circle approximately 98 feet in diameter with a domed ceiling. The entire C-300 facility has a basement below the ground floor. The basement houses a mechanical area containing the air handling unit for the heating and cooling in the building. The air handling unit has steam and chilled water coils and a single blower. Return air vents are located in the floor at the periphery of the main floor. There is a specialized outside air intake system that isolates automatically upon detection of dangerous gases.

Current occupancy of the C-300 Building is approximately 20 people. There are a number of instrumentation, communication, and electrical systems that add to the cooling load for the building.

2.3.2 This contract has two contract line item numbers (CLINs). CLIN 1 provides 1) an evaluation of the existing HVAC systems of the buildings, provide recommendation of changes/upgrades, and a detailed design that includes bill of materials and cost estimates for equipment/systems to replace the steam, CWS, and compressed air supplies with other local-to-the-building equipment for the C-300 Building to allow continued building occupancy and increased energy efficiency. Evaluation and design work shall include, if planned for continued use, a report of analysis of auxiliary HVAC equipment such as louvers, dampers, and ducting (sizes and configuration), if not included above, with recommendations for upgrades, repairs, and replacements. CLIN 2 is optional work to provide schedule, procurement, construction, installation, testing, and turnover of the new heating and cooling systems and structures.

- 2.3.3 The subcontractor will provide a project manager that will serve as a technical point of contact for the Work. The subcontractor is also responsible for providing a health and safety representative.
- 2.3.4 The subcontractor will be responsible for providing security escorts for this work. Assume 10 uncleared to 1 cleared escort ratio. Escort must be able to maintain visual/audible contact with uncleared individuals.
- 2.3.5 **CLIN 1** – Evaluation of existing HVAC systems; Design Basis Verification; Detailed Design, Bill of Materials, Cost Estimate and Schedule of the new heating, cooling, and compressed air systems and structures. The design shall include flow meters on plant utilities used (i.e. - potable water make-up, etc.) and for new systems installed (replacement CWS, hot water, air, etc). Electrical and/or natural gas meters, as used, are not required under this SOW.

Note: If subcontractor proposes to install all new equipment, it will not be required to evaluate the existing equipment.

For purposes of performing cost benefits analysis, the subcontractor shall use the estimated cost of \$0.055 per KWh for electrical power and \$5.3174 per mcf of natural gas. The Contractor will bring additional power, as needed, to the new systems. The installation needs to include flow meters on plant utilities used (i.e. potable water make-up, etc.) and for new systems installed (replacement CWS, air, etc). Electrical and/or natural gas meters, as used, are not required under this SOW.

The selected contractor will be responsible to:

- Supply a project schedule delineating major project milestone dates including 1) dates for when evaluation of HVAC systems and auxiliary HVAC subcomponents will be performed, 2) date when written report of evaluation will be submitted, 3) submittal of 60% Design Package, 4) submittal of 90% Design Package, 5) submittal of Certified for Construction (CFC) Design Package, 6) submittal of Software Quality Assurance (SQA) documentation, and 7) submittal of site utility demands of new systems.

Note: During the design process, the subcontractor shall submit specifications and equipment cut sheets as available. The final CFC package shall include all final specifications and equipment cut sheets as a requirement for approval.

Subcontractor may begin CLIN 2 procurement of equipment after 60% Design Package after approval from Contractor. Equipment procurement may continue throughout the design process after approval by the contractor. If subcontractor proposes to install all new equipment, it will not be required to evaluate the existing equipment.

- This scope of work includes evaluation of HVAC systems and other auxiliary HVAC subcomponents and/or subsystems. Items evaluated may include, but are not limited to, air handling units, ductwork and ductwork sizing, vents, louvers, dampers, controls, and diffusers. This scope of work will be performed concurrently with the analysis and design phases. The selected contractor will be responsible to provide a written report on the evaluation of the system, subcomponents, and subsystems evaluated, any deficiencies noted, recommended corrective actions and expected benefits with a notation whether actions are required or optional. The Contractor may optionally elect to add some or all of these items to the scope of the Work of CLIN 2.
- Using drawings and information supplied by the Contractor in addition to data and information obtained by on-site inspections, walk downs, and measurements the subcontractor will determine the expected building heating and cooling loads to

ensure that the new heating, cooling, and compressed air systems will properly work with the HVAC system(s). New systems shall be designed and installed with correct sizing to properly to heat and cool the building per industry standards with full anticipated occupancy.

- In collaboration with FRNP personnel, determine the location for required structures, components, tie-ins, excavations, and work areas.
- Develop detailed design drawings, specifications, calculations, demolition plans, material and equipment lists, instructions, and other materials as required. Hot water boiler(s) are to be employed instead of steam boilers and the design and construction shall include the modification of piping, coils, controls and other HVAC system components, as required, to incorporate the use of the hot water instead of steam for heating. Design life of the system(s) shall be a minimum of 20 years. The subcontractor shall consider both natural gas and electricity to provide heating for HVAC system. Where economical, use of renewable energy and/or high efficiency components and systems should be incorporated. Compressed air for operation of control systems will not be available without installation of a local air compressor system.
- If required, develop or assist in the development of software quality assurance (SQA) documentation in accordance to FRNP procedures for any software used in the design process. This may include design software utilized in preparation of the design package and/or software developed to be used in the operation of the system to include programmable logic controller (PLC) code.
- Design drawings, specifications, calculations, demolition plans, material and equipment lists, instructions, and other materials will be reviewed and approved by a Professional Engineer (PE).
- Electronic, AutoCad compatible copies of all demolition, design, construction, and installation drawings will be provided to the Contractor.

2.3.72.3.6 **CLIN 2 (Optional Work)** – Schedule, Procurement, Construction, Installation, Testing, and Turnover of the new heating, cooling, and compressed air systems and structures. Also, submit a test plan for method of testing for leaks and service/functionality of equipment prior to turnover.

The subcontractor will be responsible to procure, fabricate, and install equipment that allows the C-300 Complex HVAC system(s) to provide heating and cooling per industry standards without reliance on the existing plant CWS, steam, or compressed air systems. To the extent possible, the system(s) should make minimal use of plant potable water and electrical power, or natural gas if evaluated as cost beneficial.

It is anticipated that air handler units, ductwork, filters, louvers and other components of the current HVAC can be used with the new heating and cooling supply equipment. Continued use of these items will minimize exposure to ACM, evaluation for ACM, and abatement during the performance of the Work.

The subcontractor should make every effort to minimize ACM disturbance during evaluation and construction activities. Sampling and testing for the presence of ACM is the responsibility of the Contractor. The Contractor will perform any required ACM abatement. All pipe removed or replaced shall be cut to four feet or smaller lengths for waste disposition. Cutting pipe sections to four foot or fewer lengths is the responsibility of the subcontractor unless it is has ACM which will be the responsibility of the Contractor.

Minimal contact with radiological materials is anticipated in this work however Contractor will perform routine monitoring during construction activities. The Contractor will supply support for radiological surveys, decontamination and/or disposal of radiological waste per Section 5.

The selected subcontractor will be responsible to:

- Supply a project schedule delineating major project milestone dates including 1) date for when equipment siting, power and potable water tie-ins, and heating and cooling system tie-in requirements will be identified, 2) date when final electrical and natural gas (if required) tie-ins will be required to meet overall project schedule; and 3) any other date(s), such as capping old distribution lines for required Contractor actions to complete project within project schedule. To the extent possible, the schedule and installation should minimize the effect on building occupancy.
- Using drawings and information supplied by the Contractor in addition to data and information obtained by on-site inspections, walk downs, and measurements the subcontractor will determine the expected building heating and cooling loads to ensure that the new heating and cooling systems will properly work with the HVAC system(s). New systems shall be designed and installed with correct sizing to properly to heat and cool the building per industry standards with full anticipated occupancy.
- In collaboration with FRNP personnel, determine the location for required structures, components, tie-ins, excavations, and work areas.
- Provide the materials, labor, supplies and equipment for the demolition, construction, installation, testing and turnover of the reconfigured heating and cooling systems system(s).
- If required, develop or assist in the development of software quality assurance (SQA) documentation in accordance to FRNP procedures for any software used in the design process. This may include design software utilized in preparation of the design package and/or software developed to be used in the operation of the system to include programmable logic controller (PLC) code.
- Prepare As-Built design documents to reflect systems design as installed. Provide final functional testing results; operating instructions; installation, maintenance and operation manuals and/or instructions for equipment and components; software used in system; preventive maintenance requirements, design drawings, specifications, calculations, demolition plans, material and equipment lists, test plans, and other materials as requested.

2.3.82.3.7 Completion of the Project is after the above Work is completed and accepted, subcontractor's material, equipment, and waste is demobilized from the site, and closeout has occurred. See Section 15.0 for more details on acceptance of the Work.

2.3.92.3.8 Welding: Welding shall be in accordance with latest editions of applicable specifications of the American Welding Society (AWS). Welders and weld inspectors shall be AWS certified to perform welds made. A copy of welder and inspector certifications for personnel performing or inspection welds shall be provided.

2.3.102.3.9 Service interruptions shall be minimized. Subcontractor shall coordinate his execution plan with the Contractor prior to the start of Work. Subcontractor execution plan shall be integrated into the Work schedule.

2.3.112.3.10 Per the Emergency Planning and Community Right-to-Know Act (EPCRA), shall provide an inventory and quantity used of any hazardous chemicals along with

copies of Safety Data Sheets (SDS) in accordance with Attachment J-8, Subcontractor/Supplier Submittal Register.

2.4 RESERVED

2.5 Required Training — See Appendix 1 of Attachment J-1, *Special Environmental, Safety Health, and Training Matrix* for Contractor- and subcontractor-provided training.

The subcontractor shall provide a training matrix of all employees working on site, as required by the J-8, *Subcontractor/Supplier Submittal Register*. The matrix shall indicate each employee’s name and current training record. This matrix will be reviewed daily prior to the start of work to ensure employees are trained and qualified to perform their work.

The Contractor will administer site-specific training varying in length from two (2) hours to approximately forty (40) hours to subcontractor personnel performing work under this Contract. See Appendix 1 of Attachment J-1, *Special Environmental, Safety and Health Training Matrix* for Contractor- and subcontractor-provided training. The Contractor will provide site-specific training at no cost to the subcontractor; however, the subcontractor shall bear the cost of labor for its employees to attend the training.

2.6 Pay Item Descriptions

Attachment J-18, *Pay Item Description*, defines activities for which the subcontractor shall report progress and use for invoicing.

Subcontractor shall submit a value for each pay item; the value shall correspond to each Pay Item Description (including profit, overhead, insurance, additional training, submittal documents, subcontractor and all other not specifically listed as a pay item) and shall be proportional to each item’s value.

The Contractor will review each pay item value to ensure that the value is consistent with the Work performed. Pay item values not found acceptable shall be revised and resubmitted. Payments cannot be made until the Contractor approves the pay item values.

3.0 SPECIFICATIONS, DRAWINGS, AND ATTACHMENTS

3.1 All Work shall be performed in strict accordance with the following specifications, drawings and reference documents, which by this reference are made a part hereof. Subcontractor shall submit in writing suggested alternatives or conflicts identified between various drawings, supporting documents, specifications, latest edition codes, industry standards, inclusive of all addenda, amendments, references and any governing regulations, etc.

3.2 Subcontractor shall be responsible for complete conformance to documents, which by this reference, are made part of the quality of materials, installation, workmanship, performance, and achievement of specified requirements. It is the subcontractor’s responsibility to ensure that the fabrication, installation, and testing requirements meet the latest applicable codes and industry standards inclusive of all addenda, amendments and references. The subcontractor shall comply with the equipment manufacturer’s instructions, specifications and recommendations.

3.3 Reference Drawings (Provided in Exhibit 1)

Drawing No.	Rev.	Title
D1-101 M	3	HEATING VENTILATING AND AIR CONDITIONING BASEMENT PLAN
D1-102 M	1	HEATING VENTILATING AND AIR CONDITIONING FIRST FLOOR PLAN

Drawing No.	Rev.	Title
I5E-17792-D00	A	EOC MODIFICATIONS VENTILATION CONTROL SYSTEM WIRING DIAGRAM
I5E-17792-E00	A	EOC MODIFICATIONS VENTILATION CONTROL SYSTEM PARTIAL PLAN
I5E-17792-F00	A	EOC MODIFICATIONS VENTILATION CONTROL SYSTEM CABINET ASSEMBLY and DETAIL
I5E-17792-G00	0	EOC MODIFICATIONS VENTILATION CONTROL SYSTEM STATUS PANEL ASSEMBLY and DETAILS

Drawings are available at this link, <https://fourriversnuclearpartnership.com/package/300/hvac-upgrade-project>, using, C300HV@Cproject, as the password. More drawings will be available upon request to the awarded subcontractor. Drawings can be converted from PDF format to TIFF format for the awarded subcontractor to perform revisions, as required.

3.4 Codes and Standards

Subcontractor’s Work scope shall adhere to all applicable industry standards, national, state, local, and Contractor’s codes/standards and all addenda, including but not limited to the following:

Code/Standard	Title
29 Code of Federal Regulations (CFR) 1926	Occupational Health & Safety Administration (OSHA) Safety and Health Regulations for Construction
29 CFR 1904	Recording and Reporting Occupational Injuries and Illnesses
10 CFR 851	Worker Safety and Health Program
DOE Guide 414.1-4	Safety Software Guide for Use with 10CFR830 Subpart A, Quality Assurance Requirements, and DOE O 414.1D, Quality Assurance
DOE Order 414.1D, Admin Change 1	Quality Assurance
Environmental Protection Agency (EPA) Regulations, Clean Air Act (CAA), Section 608	Stationary Refrigeration and Air Conditioning
ASME BPVC	ASME Boiler and Pressure Vessel Code
Executive Order 13693	Planning for Federal Sustainability in the Next Decade
DOE O 420.1C	Facility Safety

IBC	<i>International Building Code</i>
AWS D1.1	<i>Structural Welding Code – Steel</i>

3.5 Attachments

Refer to Section J of the contract for Attachments.

3.6 Exhibits

Exhibit No.	Title
1	Design Drawings

4.0 SUBCONTRACTOR’S WORK PACKAGE(S)

All subcontractor work scopes shall be planned and executed according to the requirements of Attachment J-17, *Subcontractor Work Planning and Execution*. The subcontractor may submit the work packages with sections on each task or a series of work packages evolving with the work phases. Reference Attachment J-8 for submittal information. No work control is necessary for the design phase of this project.

Note: The subcontractor’s chosen representative, whether it be the Project Manager, Construction Manager, Safety, Industrial Hygienist, Supervisor, Workers, etc. or a combination thereof will be required to work directly with the Contractor’s work planning team to refine and finalize their work package.

5.0 MATERIAL, EQUIPMENT, OR SERVICES FURNISHED BY THE CONTRACTOR

The Contractor will furnish or cause to be furnished to subcontractor, without cost to subcontractor, the following items for or in connection with performance of the Work:

5.1 Items and Services:

5.1.1 Radiological inbound and outbound surveys, as required.

Subcontractor shall notify the CTR at least five (5) days to schedule outbound surveys of tools, equipment, etc. (reference Attachment J-1, Section 2.6.3). Subcontractor will not be permitted to remove applicable items from the site until offsite release approval has been obtained.

5.1.2 Radiological waste disposition

5.1.3 Waste handling and containment including ACM

5.1.4 Coordination of inspections required by government/regulatory agencies. Subcontractor shall request such inspection through the Contractor only after the Work is ready for inspection

5.1.5 Contractor-required training (see Attachment J-1, Appendix 1)

5.1.6 Badging

5.1.7 Dosimetry (e.g., TLDs, PNADs), where required

5.1.8 Site-specific PPE

5.1.9 Inbound equipment safety inspections, as required

5.1.10 Permits: Notwithstanding the Article entitled the "Permits, Applications and Licenses" in Section H, the Contractor will furnish the following permits, as required:

- A. Lock Out/Tag Out (LOTO)
- B. Confined Space
- C. Trenching/Excavation/Penetration
- D. Welding/Hot Work
- E. Radiological Work Permits (RWP), where applicable

6.0 FURNISHED BY THE SUBCONTRACTOR

6.1 Temporary Construction Facilities and Utilities

The supply, installation, provision, maintenance, repair, and final removal of all temporary facilities and utilities, necessary for full and complete performance of the Work, is the sole responsibility of subcontractor.

Note: Subcontractor may consider using available site facilities provided by the Contractor for restrooms, breaks areas, etc. Subcontractor can walk down these areas during the pre-bid meeting and determine if the facilities are acceptable. If the subcontractor chooses to use Contractor-provided facilities, then the subcontractor will be responsible for the upkeep (housekeeping, etc.) of those areas.

If the subcontractor chooses not to use Contractor-provided facilities and wants to bring their own facilities on site, then the subcontractor shall abide by the following requirements:

- 6.1.1 Subcontractor has the sole responsibility to identify and provide all required temporary facilities and utilities to perform the Work. The type of facilities, move-in and move-out dates, and locations on the work site shall be subject to and in accordance with the review and approval of the CTR, who also reserves the right to inspect and approve the subcontractor's installation prior to occupancy.

Subcontractor shall provide maintenance of his lay down, storage and work areas and roads within such areas.

It is the subcontractor's sole responsibility to ensure that these temporary buildings are provided, operated, maintained, and disposed of in accordance with all applicable laws and regulations.

Upon demobilization, the area previously occupied by subcontractor's temporary facilities and lay-down area shall be returned to its pre-construction condition or better. This requirement shall also apply to all temporary roads, parking, lay-down areas and temporary utilities.

- 6.1.2 Smoking and Break Areas

Smoking is not allowed inside any of the buildings. Only designated outside smoking areas may be utilized along with proper disposal of cigarette butts.

- 6.1.3 Storage Compounds

Provide adequate weather-tight storage for storage of materials, tools, and equipment which are subject to damage by weather. The location of storage compounds must be agreed to by the CTR before storage of materials commences. Such compounds shall be maintained for the storage of the approved materials and for no other purpose.

- 6.1.4 Construction Power/Temporary Facility Area Power

- A. Includes connections to and disconnections from construction power supply, transforming to lower voltage and distribution. Subcontractor shall request a

Lockout/Tagout Permit five (5) work days prior to performing the activity and coordinate this with the CTR.

- B. Before subcontractor plugs in any electrical appliance to any plug socket, it shall ensure that the appliance is in good condition and is fitted with a suitable cable, including fully rated and insulated neutral conductor and protective ground conductor.
- C. On-site generation of power is allowed providing that such power is obtained through the use of properly installed, acoustically insulated diesel or gas electric generating unit and approved by the CTR.
- D. Subcontractor's distribution system, lighting systems, and wiring shall be installed in accordance with the National Fire Protection Association (NFPA) and the National Electric Code® (NEC) and maintained in a satisfactory condition.
- E. Subcontractor will be responsible for maintaining and removing any equipment or devices installed.

6.1.5 Material Transportation and Storage

Subcontractor shall provide all necessary resources to transport, receive, stage, store, and maintain Contractor- and subcontractor-supplied materials in accordance with the manufacturer's requirements and instructions provided in the Contract and SOW.

6.1.6 Fuels and Lubricants

- A. Oils, greases, and similar materials must be stored in nonflammable bins/cabinets or buildings or in a fenced compound remote from other combustible materials in accordance with NFPA and as approved by the CTR.
- B. "No smoking" signs shall be provided by the subcontractor and prominently displayed in areas where flammable materials are stored. Additionally, the subcontractor shall provide and maintain suitable fire extinguishers in such areas.
- C. Subcontractor shall provide all fuel for heating and ventilation of temporary facilities.
- D. Subcontractor shall provide all fuel required for the performance of the Work.
- E. Transfer and fueling of mobile vehicle/equipment shall be performed over drip pads/pans to the extent practical.
- F. When practical or necessary, equipment (e.g., generators, pumps, light plants, etc.) with holding capacity equal to or greater than 55 gallons of fuel and or oil must be equipped with a double-walled fuel tank to the extent practical. If a double-walled fuel tank is not available, then the equipment must be placed in an acceptable secondary containment device as approved by Safety, Environmental and the CTR.
- G. For equipment requiring secondary containment that will be stored outdoors, the containment area must provide for accumulated precipitation, and as such, be sized to 110% of the largest tank volume within that containment. The secondary containment's material(s) of construction shall be impervious to and compatible with the liquid to be contained. Any spills within or outside of the containment area shall be reported immediately to the CTR. Provisions shall be made for draining off accumulations of water.
- H. The subcontractor shall ensure that any drain valves remain closed except when draining. The equipment and all secondary containment areas must be inspected and maintained daily. The subcontractor shall ensure documentation of these inspections is recorded daily on Attachment J-9, *Subcontractor Daily Report*. Temporary Electric Generators greater than 25kW will require grounding per OSHA 29 CFR 1926 (F)(3)(i).

6.1.7 Communication

- A. Subcontractor shall coordinate with CTR to receive a minimum of one (1) plant radio for the purpose of enabling the subcontractor to access plant Emergency frequencies and monitor site conditions. Subcontractor will request additional radios as needed and coordinate with the CTR for instructions on the proper use and channels of the radio to monitor
- B. Subcontractor will provide and operate all other means of communication which shall be approved by the CTR through the Cyber Security department.
- C. All emergency incidents (i.e., fire, injured or ill employees, chemical spills, etc.) shall be reported by calling 6211 or calling the Plant Shift Superintendent on radio Emergency Channel 16 to initiate emergency response from plant site emergency responders.
- D. Personally-owned devices capable of audio or visual recording and cellular transmissions are not allowed inside the Limited Area fence.
- E. Items using Bluetooth or WiFi (such as Bluetooth-enabled vehicles) are not allowed inside the Limited Area fence.

6.1.8 Temporary Roads, Parking, and Traffic Control

- A. Subcontractor shall comply with load restrictions in all buildings and all roads and bridges.
- B. Maintenance of Traffic: The subcontractor shall provide flagmen, safety cones, barricades, signage, etc., as necessary to maintain safe traffic flow on plant streets. Street closure or reduction from two-lane traffic to one-lane traffic shall be minimized. Subcontractor will use their employees for flagman to control traffic.
- C. The subcontractor shall furnish, erect, and maintain during the progress of construction, substantial barricades, bridging, ramps, sidewalks, cones, barrels, guard rails, and signage; furnish, place and maintain adequate lights and warning signals, provide flagmen and watchmen; and provide other safeguards as directed by the CTR where such may be necessary to protect pedestrian and vehicular traffic inside or outside of facilities.
- D. Barriers and barricades are used whenever work conditions cause potential hazards to fellow employees. No plant streets or roadways shall be barricaded without coordination with the CTR. Subcontractor work area barriers shall have designated entrance location(s); each location shall have a sign identifying the project name, contract number, subcontractor name and phone number, and CTR contact and phone number to notify for entry.
- E. All barricades, temporary bridging, and other temporary construction shall be removed by the subcontractor with coordination of the CTR upon completion of work requiring such safeguards.

6.1.9 Material Handling and Rigging

- A. Construction activities, material deliveries, and off-loading operations shall be conducted to minimize interruptions to normal operations.
- B. Subcontractor shall provide and operate all equipment (i.e., fork trucks, telehandlers etc.) for handling, hauling, unloading, and receiving subcontractor-supplied materials, tools, and equipment. Maintenance and inspections logs of equipment such as, but not limited to, forklifts, aerial lifts and cranes shall be submitted in accordance with Attachment J-8, *Subcontractor/Supplier Submittal Register*, as applicable.

Note: The subcontractor shall provide all hoisting and rigging services.

6.1.10 Small tools

- A. The subcontractor is to perform a daily inspection of all tools and equipment per *Environmental, Health, and Safety Requirements for On-Site Work* (e.g., Attachment J-1, Sections 1.52, 1.53) being used that day to assure safe working condition and OSHA compliance. Daily inspection of tools/equipment shall be noted on Attachment J-9, *Subcontractor Daily Report*.
- B. Documentation of inspections must be made available for the Contractor's review. Equipment that does not meet the manufacture's OSHA requirements for safe use shall be taken out of service. Prior to reinstating tools and equipment previously taken out of service for site use, it must be inspected.

6.1.11 Electric Power Tools and Equipment

- A. All electric power tools, devices and equipment shall be protected with a Ground Fault Circuit Interrupter (GFCI). The GFCI must be plugged in at the power source and shall be inspected and tested daily or prior to use.
- B. Power tool cords and extension cords must be kept in good condition and out of the way of traffic. Electrical cords shall be routed safely to prevent a tripping hazard and damage to the cord. Faulty or damaged cords must be properly disposed of or removed from site. Faulty or damaged cords on electrical hand tools must be repaired by a qualified electrician or removed from site

6.1.12 Temporary lighting shall have provision and operation to allow the Work to be performed in a safe manner regardless of ambient lighting conditions. Minimum illumination requirements shall be per 29 *CFR* 1926.56(a) Table D-3, "Minimum Illumination Intensities in Foot-Candles," while any Work is in progress.

6.1.13 Location and construction of temporary fencing and barricades to secure work areas, temporary facilities, materials and equipment storage areas shall be coordinated with the CTR.

6.1.14 Project signs for traffic control and direction, smoking areas, and for identifying project areas shall be based on International signage standards and conventions.

6.1.15 Only subcontractor's company vehicles, as approved by CTR, will be allowed inside the Limited Area with appropriate vehicles passes displayed in the windshields.

6.1.16 Subcontractor shall be responsible for disposing of any clean construction waste and debris generated during the execution of the project.

6.2 Environmental Protection

6.2.1 Environmental Compliance shall be notified prior to beginning work.

6.2.2 Vehicles, equipment, or liquid storage containers shall not be stored in areas where spillage or leakage of materials would enter the plant's drainage system.

6.2.3 The subcontractor shall immediately notify the CTR of any spills or leaking equipment regardless of the quantity, type, or location. Spill cleanup will be coordinated through the CTR; if possible, the subcontractor will provide clean up services. All cost associated with any spills resulting from negligence by the subcontractor will be the sole responsibility of the subcontractor.

6.2.4 All products or hazardous materials brought on-site by the subcontractor shall be maintained under the control of the subcontractor. No excess products or hazardous materials are to remain onsite after the project is complete. Subcontractor shall submit SDS for review and approval prior to bringing such items on-site (see Attachment J-8, *Subcontractor/Supplier Submittal Register*). The subcontractor shall submit an inventory

including quantities of each chemical brought on site, maximum storage quantities, and quantities used during performance of Work, as well as any other information necessary to support Emergency Planning and Community Right-to Know Act (EPCRA) reporting.

6.2.5 The subcontractor shall use environmentally sustainable products/materials when available. Environmentally preferred/sustainable products are defined in Executive Orders 13423 and 13514 to include, but are not limited to, Alternative Fueled Vehicles and Alternative Fuels, USDA Designated Bio-based Content Products, Energy Efficient Products, Non-Ozone Depleting Alternative Products, EPA Designated Recycled Content Products, and Water Efficient Products (EPA WaterSense Labeled Products).

6.2.6 Environmental Emissions Consideration:

- A. Stationary fuel-burning equipment including internal-combustion engines that are used either in a fixed application, or in a portable (or transportable) application in which the engine will stay at a single site for at least a full year must be added to the current Title V air permit prior to being installed on-site, unless exempted. Stationary equipment will meet current standards in place at the time of installation.
- B. Mobile fuel-burning equipment including, but not limited to, cranes, bulldozers, earthmovers, welders, generators, compressors, pumps, and light plants must meet current State and Federal regulatory requirements.
- C. Fuel Requirements: To the extent practicable, construction equipment with engine horsepower (hp) ratings of 50 hp or more shall utilize Ultra-Low Sulfur Diesel (ULSD) fuel.

6.2.7 Trenching/Excavation/Penetration

A permit is required when breaching or penetrating any building surface more than 1-1/4 inches, any blacktop or concrete pavement surface more than three (3) inches, or the earth's surface more than twelve (12) inches by any means other than those considered excavation or trenching. These methods include, but are not limited to, augering, drilling, driving, coring, or penetrating.

7.0 PERFORMANCE SCHEDULE AND SEQUENCE OF WORK

7.1 Subcontractor shall commence performance of the Work at the jobsite after receiving Notice to Proceed (NTP) from the Contractor after all pre-mobilization requirements have been met.

7.2 No dates for the specific milestones set forth below are provided. The subcontractor should provide dates for completion of these milestones. The Contractor is interested in completing the Work in as short a time as possible so the dates provided should be as aggressive as realistically possible.

CLIN	Deliverable	Milestone
1	CLIN 1 Schedule	* *
	Report on evaluation of systems, subcomponents, and subsystems (Items evaluated may include, but are not limited to, air handling units, ductwork and ductwork sizing, vents, louvers, dampers, controls, and diffusers) Note: If subcontractor proposes to install all new equipment, it will not be required to evaluate the existing equipment.	* *
	Submittal of Utility demands needed for new systems	* *
	60% design package (Design Basis Verification, Detailed Design, Bill of Materials, and Cost Estimate of the new heating, cooling, compressed air systems and structures,	* *

	and schedule changes, as necessary) Include specifications and cut sheets, as available Subcontractor may procure equipment after approval of Contractor	
	90% design package (Updated Design Basis Verification, Detailed Design, Bill of Materials, and Cost Estimate of the new heating, cooling, compressed air systems and structures, and schedule changes, as necessary) Include specifications and cut sheets, as available Subcontractor may procure equipment after approval of Contractor	**
	CFC design package (CFC Design Basis Verification, Detailed Design, Bill of Materials, and Cost Estimate of the new heating, cooling, compressed air systems and structures, and schedule changes, as necessary) Include specifications and cut sheets of final design Subcontractor may procure equipment after approval of Contractor	**
	Software QA documentation or information (as required)	**
2 (Optional)	CLIN 2 Schedule	**
	Test Plan (Operational, Connections, Functionality)	**
	Procurement of new heating, cooling, air equipment, and other equipment complete Equipment manuals must be provided, U-1A forms must be provided for pressure vessels	**
	Construction complete	**
	Installation complete	**
	Final ties complete (performed by Contractor)	**
	Testing & Commissioning complete	**
	Software QA documentation or information (as required)	**
	As-built and Turnover package complete	**

7.3 General scheduling, reporting and coordination requirements shall be described in Section H - *Special Contract Requirements*.

7.4 Subcontractor shall submit the detailed schedule required by Section H - *Special Contract Requirements*.

7.5 The initial subcontractor Project Schedule, once approved by the Contractor, will be known as the Contractor Baseline Schedule (may include approved modifications). This schedule will be used for comparison with subsequent project schedule updates. The project schedule, which shall be updated weekly, shall meet the following requirements:

- Actual or projected start and finish dates
- Activity progress and remaining duration
- Percent complete for each activity (summarized/listed in the Pay Item section of the subcontractor Project Schedule and shall be the basis for the amount invoiced for that Pay Item)

7.6 Work Hours, Deliveries and Overtime

7.6.1 Normal site work hours are four days per week, Monday through Thursday, ten hours per day (6:00 am – 4:30 pm). Subcontractor shall submit his schedule to perform the Work and meet the milestone schedule in Exhibit 1. Once the schedule and work times are approved by the Contractor, the subcontractor shall meet that schedule and, if necessary,

subcontractor shall work the necessary additional hours and days as mutually agreed by subcontractor and Contractor to maintain schedule adherence.

- 7.6.2 Material and equipment deliveries shall be permitted Monday through Thursday, 8:00 AM-3:00 PM Central Time. Deliveries outside of these times must be coordinated with the CTR at least two (2) working days in advance.
- 7.6.3 Requests for scheduled overtime, weekend, or holiday work during normal situations shall be made to the CTR at least two (2) working days before the start of these shifts.
- 7.6.4 Requests for non-scheduled extended work hours in emergency situations shall be made to the CTR at least three (3) hours in advance for overtime during the normal work week and at least by noon of the last regular workday.
- 7.6.5 For Work being performed outside the normal work schedule, the subcontractor shall coordinate with the CTR for any special arrangements for security, safety/IH, radiological, and all other Contractor-provided resources. The subcontractor shall be advised that plant entry and exit requirements may change when working outside of the normal work schedule.

8.0 REPORTING REQUIREMENTS AND COORDINATION MEETINGS

Subcontractor shall promptly submit the documents, schedules and reports set forth in Attachment J-8, *Subcontractor/ Supplier Submittal Register*.

8.1 Daily Reports (not applicable during design phase)

Subcontractor shall deliver daily reports (Attachment J-9, *Subcontractor Daily Report*) to the CTR by 10:00 am each morning for the preceding day for their review, input and signature.

8.2 Weekly Progress Meetings, as applicable

The subcontractor shall attend weekly progress meetings. The subcontractor shall be prepared to discuss scheduled progress versus actual progress giving details of Work completed in relation to the approved schedule, together with a four (4) week "look ahead" which provides details of how the Work will be completed.

The person or persons designated by the subcontractor to attend the meetings shall have all the required authority to make decisions and commit the subcontractor to solutions agreed upon during any meetings.

9.0 CORRESPONDENCE, SUBMITTALS AND COMMUNICATION

9.1 Correspondence, submittals and communication with the Contractor shall be in accordance with Attachment J-6, *Correspondence and Submittal Process*.

9.2 When required by the Contract, subcontractor shall transmit to the Contractor technical submittals, reports, specification, samples, including supporting catalog cut sheets, files, vendor data, engineering data, QA/QC inspection/testing data check sheets, forms, resumes, Operation and Maintenance (O&M) manuals, training records, photos, certifications, manufacturer's literature, sketches or drawings, calculations, insurance and bond, electronic copy of programs and other pertinent data, etc. Documents shall be transmitted to the Contractor under cover of formal contract correspondence. Subcontractor shall provide all submittals listed on Attachment J-8 and/or others not listed on attachment J-8, *Subcontractor/Supplier Submittal Register*. Subcontractor submittals shall be complete and comprehensive and shall be detailed to a level consistent with industry standard.

9.3 Subcontractor is responsible for all required submittals contained within the Contractor's specifications, drawings, contract, SOW, etc. that may or may not be captured in Attachment J-8.

- 9.4 Refer to the review period column within Attachment J-8 for the Contractor-required review period of data submitted by subcontractor.
- 9.5 Each submittal of subcontractor's data shall be signed by subcontractor and accompanied by a submittal cover sheet containing the date of submittal, Contract number, and all pertinent information required for identifying and processing submittals.
- 9.6 One (1) reproducible and two (2) prints shall be submitted for each drawing and any other documents larger than 11"x17". Please provide size ARCH E (36" x 48") drawings and electronic copies in AutoCAD format are acceptable as a reproducible copy.
- 9.7 Two (2) prints shall be submitted for documents which are 11"x17" and smaller, and documents such as procedures and calculations shall be 8 1/2" x 11".
- 9.8 Although Work may proceed on receipt of data given a "B" status, subcontractor must incorporate the changes indicated, resubmit for final approval of an "A" status before release of materials or equipment for shipment can be approved by Contractor. Returned copies of data with a "B" or "C" status shall be resubmitted no later than ten (10) days after the date of transmittal by Company of copies of such data.

10.0 CLEAN-UP, SAFETY, WORK RULES, AND REGULATIONS

- 10.1 Subcontractor shall perform the Work in a safe manner and keep the work site in a clean condition in accordance with Attachment J-1, *Environmental, Health & Safety Requirements for Onsite Work*, and shall comply with all work rules and regulations.
- 10.2 The Contractor is emphasizing control of heat stress and working safely in hot environments. The subcontractor shall provide Contractor-approved heart rate monitors for its workers in order to monitor heat stress and to prevent excessive work/rest regimens that will be required for un-monitored workers.

11.0 WASTE MANAGEMENT

- 11.1 Waste shall be managed and containerized before the end of each work day. Subcontractor shall not collect, pile, or store debris. When debris piles are necessary for Work and approved by the CTR, the subcontractor shall maintain the piles. This includes minimizing the volume and hazards associated with the material.
- 11.2 Subcontractor is responsible for dispositioning of all excess material.
- 11.3 Construction debris generated by the subcontractor shall be removed from site by the subcontractor.
- 11.4 The subcontractor must ensure all packaging materials and/or scrap material (e.g., dunnage, protective wrap, etc.) brought to the site by the subcontractor shall be taken off-site and disposed of by the subcontractor to minimize the amount of waste generated at the work site.

12.0 QUALITY ASSURANCE

Subcontractor shall be responsible for the performance of all Quality Assurance program criteria, as well as compliance and acceptance as specified in Attachment J-5, *Quality Assurance Requirements*. Per the J-5, the subcontractor will use the FRNP Quality Assurance Program Description (included with the solicitation) to implement the criteria as appropriate for QL-3 and QL-4 items and services. The subcontractor shall submit a letter on Company letterhead confirming the understanding and acceptance of FRNP's program to include the requirements of J-5. Pertinent inspection and other procedures required to perform the Work will be submitted in accordance with Attachment J-8. When required, subcontractor shall submit Certificate of Compliance documentation as part of their task completion certifying that work and testing has been completed and compliant with the specified applicable codes and industry standards

inclusive of all addenda amendments, references and regulatory requirements governing this Work.

13.0 MATERIALS

13.1 All electrical equipment and components shall be Nationally Recognized Testing Laboratories (NRTL) compliant and shall not be manufactured with “counterfeit parts.” Subcontractor shall submit documentation ensuring that all electrical components and materials are NRTL compliant and not manufactured with “counterfeit parts.”

13.2 All construction materials shall be new, suitable for their application/intended use, and shall be NRTL compliant. Construction materials that will be removed by subcontractor at the completion of the project may be re-used materials (e.g., construction forms).

14.0 CONSTRUCTION

14.1 Subcontractor shall perform the Work in accordance with this contract.

14.2 Any proposed field deviation (inclusive of materials, scope, design, method, work plan, etc.) from pre-approved contract documents must be formally submitted for review and approval by the Contractor in writing prior to the change. It is the subcontractor’s responsibility to determine and document all proposed changes and then submit the proposed changes to the Contractor for review and approval prior to implementation.

14.3 Subcontractor shall perform the Work with as little impact to site operations as possible.

14.4 Subcontractor’s supervisor shall ensure work area walk down is completed prior to beginning Work each day or shift to ensure conditions are as described in work documents/permits. Additional briefings are required when any work document is revised or conditions have changed.

15.0 ACCEPTANCE OF THE WORK

15.1 In conjunction with Contract Clause H.48, *Notice of Completion and Final Acceptance*, the subcontractor shall coordinate a final acceptance walk down of the Work with the CTR, as required, to verify completion of the Work and identify discrepancies. The Contractor will document discrepancies on a punch list and these discrepancies shall be resolved by the subcontractor prior to acceptance. Completion of the punch list shall be executed within the subcontractor’s project schedule for work completion.

15.2 The Contractor will verify and document that all deliverables, submittals of testing reports, redline drawings, etc. have been received and that all requirements have been satisfied. Any nonconformance shall be just cause for rejection of the service provided and delayed payment until the subcontractor complies with the contract requirements.