

WASTE TREATMENT PLANT PROJECT REQUEST FOR INTEREST

Steam Plant Burner Retrofit

Requisition Number: **TBD**
Submit Interest By: **6/9/2022**
Quality Level: **CM**
Award Type: **Time and Materials**

ESTIMATED SCHEDULE

Issue Request for Proposal: **TBD**
Award and Notice to Proceed: **TBD**

PROJECT DESCRIPTION AND LOCATION

The Hanford Tank Waste Treatment and Immobilization Plant (WTP) is a complex of radioactive waste treatment processing facilities designed and constructed by Bechtel National, Inc. for the Department of Energy (DOE). The facility will process the Hanford Site tank waste and convert the waste into a stable glass form.

The Project site is located in the 200 East Area of the Hanford Reservation near Richland, Washington, along the Columbia River. The site elevation varies from 662 to 684 feet above mean sea level. Ambient temperature range is -23 degrees F minimum to 113 degrees F maximum, with relative humidity of 5% minimum to 100% maximum. The project design life is 40 years.

Scope of Work:

SUBCONTRACTOR performs all the work necessary to provide the following:

- New retrofit burners, combustion control system, fuel train elements and air supply/exhaust recirculation system elements compatible with new system components to support boiler function.
- The Steam Plant Facility currently consists of six (6) fire tube packages, one (1) deaerator package, three (3) boiler feed pumps, boiler blowdown package, one (1) condensate surge tank, three (3) transfer pumps, two (2) diesel fuel oil booster pumps, chemical injection package and control system hardware.
- A fully operational facility capable of supplying Steam Demand required for DFLAW Operations, between a minimum supply of 6,546 lbs./hr. and a maximum steam demand of 46,571 lbs./hr. This is currently accomplished using three diesel fired boilers.
- The SUBCONTRACTOR has latitude in the means of steam production. The final system may be composed of as much or as little of the existing system as needed to supply the steam.
- The proposal will have to include intended final resolution of unused existing equipment.
- The existing fuel is #2 Diesel. Other fuel options will be considered but their method of supply will have to be included in the proposal.

Emissions requirements:

NO_x (N) Emissions:
N < 70PPM / 0.09 lb/MMBtu

Particulate (P) Emissions:
P < 47PPM / 0.02 lb/MMBTU

Seismic Category Ratings:

SC-IV

Requirements for New Equipment:

All new equipment, where appropriate, must possess NRTL listing and/or Labeling.

Existing installation information (one (1) boiler):

- Cleaver Brooks Boiler Model number: CBL-100-1200
- Burner Model: NTS Profire
- Burner model number: NTS504LDSL
- #2 diesel fuel oil
- Rated Boiler Horsepower: 1200
- 4-pass waterback design
- Heating surface (waterside): 6000 sq. ft
- Steam volume: 300 cu. ft
- Steam disengaging area: 200.7 sq. ft
- Rated capacity per boiler: 41,400 lbs./hr.
- BTU output per boiler: 40,170 MMBtu/hr.
- Furnace Dimensions: 214" Long / 56" Diameter
- Furnace pressure: 3.6" WC
- Refractory/Dry Oven: 46" Diameter, 8" insertion depth
- Line Voltage: 480/3/60
- Control Voltage: 120/1/60
- Boiler Operating conditions: 135 psig
- Refractory replacement to accommodate a new design is acceptable.

Work Included:

SUBCONTRACTOR for the WTP Steam Plant Facility HPS/SCW System Technical Support Subcontract will complete or support the following work elements:

- Task Order 1 – Engineering Technical Document review and Design Proposal Report
- Task Order 2 – Removal of equipment not fit for new design
- Task Order 3 – Procurement of new equipment
- Task Order 4 -- Production of documentation associated with new design.
- Task Order 5 – Installation and Startup of new Equipment
- Task Order 6 – Training and Maintenance: Onsite Training
- Task Order 7 – Testing and System Validation
- Task Order 8 – Environmental Emission: Regulatory Emissions Support

Work Excluded:

No work shall be performed by SUBCONTRACTOR that is not identified in this Scope of Work, or subsequent revisions thereof.

1. Modification of CONTRACTOR Design Documentation.

Site Evaluation Meeting:

Coordination of a site visit can be arranged for those SUBCONTRACTORS interested in proposing on this subcontract.

Planning Meeting:

Two weeks after award SUBCONTRACTOR will attend a kickoff meeting held at the CONTRACTOR's site to discuss problems and experience to-date with Steam Plant Facility. During the visit SUBCONTRACTOR will also perform a walkdown with CONTRACTOR of the Steam Plant Facility to discuss the current detail design, Discussions will include configuration of the existing systems and an overview of historical or current issues discovered requiring technical support.

Design Changes:

Design of replacement equipment and any recommended new equipment and appurtenances, including details for interface with existing equipment that will not be replaced, is expected by CONTRACTOR. Proposed designs will be communicated by the SUBCONTRACTOR in accordance with Task Orders for review and acceptance by CONTRACTOR. Task Orders will specify the design work to be accomplished. Task orders will also specify the required submittals and quality records necessary for approval, completion, and acceptance of designs.

SUBCONTRACTOR is expected to provide a coherent final design that incorporates properly the new and replacement equipment being supplied and installed by the SUBCONTRACTOR. Any recommendations for modifications to CONTRACTOR's interfacing design shall be provided to the CONTRACTOR by the SUBCONTRACTOR, CONTRACTOR will then evaluate the proposed modification and accept, accept with modifications, or reject the proposed changes and provide a justification to the SUBCONTRACTOR. Additional task orders may be generated by the CONTRACTOR with the acceptance of SUBCONTRACTOR to accomplish any additional proposed modifications to the CONTRACTOR's design and equipment installation.

Work Location:

Work is to be completed at both SUBCONTRACTOR and CONTRACTOR'S location. When access to the WTP construction site is necessary, SUBCONTRACTOR shall comply with Project Security Program requirements. Any requested access must be coordinated through CONTRACTOR.

SUBCONTRACTOR FACILITIES:

- Research and review of documentation to support troubleshooting and recommendations for repair and/or replacement of equipment, associated components, including instrumentation and controls will be performed at SUBCONTRACTOR offices, either on or offsite.

CONTRACTOR'S FACILITIES: – WTP CONSTRUCTION SITE:

- Site support work is to be completed at CONTRACTOR's Construction site on the Hanford Department of Energy site in Richland, WA. SUBCONTRACTOR shall comply with Project Security Program requirements and must obtain project badges or may maintain existing project badges, if applicable, for access the government site. Any requested access must be coordinated through CONTRACTOR. Access is typically limited to US citizens unless advance authorization is obtained for non-US citizens with a right to work in the US.
- SUBCONTRACTOR will be integrated into and provided with access to site work procedures and work scheduling tools to aid in integration with Plant Operations and Plant Maintenance activities.

Work Schedule:

SUBCONTRACTOR work at the WTP construction site shall be performed within the CONTRACTOR work schedule, which shall be coordinated with the CONTRACTOR after subcontract award. SUBCONTRACTOR work at the SUBCONTRACTOR facility shall be performed within the SUBCONTRACTOR work schedule.

Technical Support:

On-site Support – When remote off-site support is not able to resolve problems, SUBCONTRACTOR will be requested to provide on-site support at the WTP construction site. A SUBCONTRACTOR authorized representative shall be provided on the WTP construction site within two (2) days, or at a mutually agreed upon time, from

notification by the CONTRACTOR that technical support is necessary. SUBCONTRACTOR work on the WTP construction site shall be flexible on duration to ensure that tasks are resolved in order to meet WTP project needs.

SUBCONTRACTOR needing to be on the WTP construction site. SUBCONTRACTOR is to provide on-call technical support to the CONTRACTOR.

Remote Off-site Support - SUBCONTRACTOR work, when appropriate, may be by conference calls in support of troubleshooting from the SUBCONTRACTOR's offices. SUBCONTRACTOR authorized representative(s) proficient with performing this scope of work, such as the OEM, shall be available to communicate via phone, e-mail, or video conference with the CONTRACTOR on an as-needed basis when requested by the CONTRACTOR. Services performed on the SUBCONTRACTOR site are utilized for tasks that can be accomplished without access to the existing equipment or premises.

New equipment proposed to replace existing equipment, or to be added to the existing design, recommended by SUBCONTRACTOR must be approved by CONTRACTOR. When SUBCONTRACTOR proposes replacements or additions, the basis for recommendations shall be provided and include replacement make/model, part number, and other pertinent information needed to justify the basis and technical acceptability (e.g., compliance with codes, standard, technical specifications, and interface with existing equipment not being replaced).

SUBCONTRACTOR shall repair, modify, or replace Steam Plant system equipment with like-for like components and/or parts as defined by the Steam Plant design summary and Task Orders as approved by CONTRACTOR.

Technical Capability:

SUBCONTRACTOR work is expected to meet recognized industry standards of quality for professional work of a similar nature.

Technical Specifications:

The system specifications for these systems are provided by Task Orders as they are added for specific design modifications as they are required.

Technical Drawings and Datasheets:

Technical drawings for maintenance of Steam Plant systems is summarized in Task Orders as required and appropriate will be provided on component datasheets and vendor product information for make and model.

Technical Approach:

Work is expected to meet recognized industry standards of quality for professional work for Boiler system maintenance as stated and referenced in this Scope of Work.

Task Order 1: Engineering: Technical Document Review and Technical Engineering Report

Review the technical requirements of the Steam Plant Facility instruments and equipment and the requirements of this subcontract. Then, provide a report recommending best replacement technology and appurtenances to meet technical specifications, including any recommended options to optimize performance and equipment reliability.

1. Review CONTRACTOR provided drawings.
2. Review WTP control system logic drawings.
3. Review the documentation submittal requirements of this Scope of Work (to be provided in RFP)
4. Review WTP Piping and Instrumentation Drawings (P&IDs) and Test Matrices.
5. Determine needs for new equipment to support installation of new boilers.
6. Perform a technical assessment of the current physical plant, equipment, and the control system requirements.
7. Provide Technical Engineering Report recommending best replacement technology and appurtenances to meet technical specifications, including any recommended options to optimize performance and equipment reliability.
 - a. Technical Engineering Report Shall contain the following information:

- i. Recommendation for new Steam Plant Facility Design
- ii. Plan and schedule for integration of new facility design.
- iii. Assessment of existing equipment fit for incorporation into new design
- iv. Cost estimate for new proposed design
- v. Technical Justification for Proposed Design
- vi. Schedule for execution of new proposed design

Task Order 2: Disposition of equipment not fit for new design

Propose and execute the disposition of equipment not used in the replacement system.

Task Order 3: Procurement of new equipment

Procurement activities would be required to support the new scope of work and would include but not be limited to: burners, burner management / combustion control systems, Control Panels, instrumentation, dampers, motor controllers, and specialty equipment that may be required by a new design.

Task Order 4: Production of documentation associated with new design

SUBCONTRACTOR shall produce at the direction of CONTRACTOR, the following documentation necessary to update and validate new Steam Plant System design.

- a. Developed Control Narratives
- b. Logic Diagrams
- c. Instrument Datasheets for replaced equipment
- d. Test Plans (ITPs)
- e. Test Reports (QVRPs)
- f. Manuals
 - i. Equipment Installation/Operation/Maintenance
 - ii. Training Materials

Task Order 5: Installation and Startup of new Equipment

SUBCONTRACTOR shall perform installation of procured equipment to meet new design criteria. Following installation of equipment with approval of CONTRACTOR, the SUBCONTRACTOR shall start-up the system and validate the installation conforms to the accepted design.

Task Order 6: Maintenance and Operations training

On-Site Training and Maintenance Documentation

Provide on-site training of CONTRACTOR'S operations and maintenance staff on how to safely operate and maintain the new equipment in the facility. Tentatively 3 weeks of interactive field training and OJT as well as one week of support for classroom training development).

NOTE: Training to commence upon successful completion of the first boiler to be tuned.

- Provide group specific training for shift managers.
- Provide group specific training for shift technical advisors and cognizant system engineers.
- Provide group specific training for commissioning techs.
- Provide group specific training for training personnel.
- Provide group specific training for procedure writers.
- Provide group specific training for maintenance personnel. Training manuals will be submitted for acceptance prior to use.
- Provide updated Operation and Maintenance manuals upon completion of startup and commissioning.
- Provide updated spare parts list.

NOTE: SUBCONTRACTOR will assemble industry standard composite crews to support the training activities needed for successful operations. In addition, SUBCONTRACTOR to provide upon request of CONTRACTOR, additional composite crews for additional training as identified.

Task Order 7: Testing and System Validation

SUBCONTRACTOR shall perform where appropriate the required testing on system performance to validate compliance of the new design with design specifications.

1. SUBCONTRACTOR shall submit an Inspection and Test Plan (ITP) for each activity performed, when installing or providing a service on permanent plant materials or equipment.
2. The ITPs identify the items, materials, and work to be inspected or tested; by whom, and at what stage or frequency; as well as "Hold" and "Witness" points, and referenced to relevant standards, acceptance criteria, and level of documentation to be recorded to comply with subcontract as defined during ITP formation.
3. SUBCONTRACTOR shall prepare and submit appropriate ITPs, in sufficient detail to show all activities that require inspection, along with the frequency of inspection, type of inspection, acceptance criteria, and level of documentation to be recorded to comply with subcontract.
4. SUBCONTRACTOR shall assign appropriate "Witness" and "Hold" points in the ITP, e.g., at the direction of the CONTRACTOR. SUBCONTRACTOR is not to bypass any "Witness" or "Hold" point without documented approval from CONTRACTOR. SUBCONTRACTOR may proceed with Work beyond "Witness" points (by prior written agreement from CONTRACTOR that is documented on the ITP form and/or SUBCONTRACTOR'S Inspection Records [IRs]) if the required attendees are not able to attend the inspection at the specified time, unless otherwise noted on the ITP.

Task Order 8: Environmental emissions: Regulatory Support

A 3rd Party Subcontract with BNI will be utilized to meet the WTP and Department of Ecology's regulatory emissions requirements in preparation for operation of exhaust systems of SPF on site. SUBCONTRACTOR will support CONTRACTOR in this activity.

Safety:

SUBCONTRACTOR may be required to utilize CONTRACTOR-provided scaffolding and/or personnel lifts during maintenance of fire protection systems. SUBCONTRACTOR will be trained on WTP site safety requirements and comply with all safety requirements for work activities while on site and during elevated work which includes use of lanyards on all tools. SUBCONTRACTOR will meet all applicable safety requirements as defined in Exhibit B. CONTRACTOR will provide lock-out/tag-out (LOTO) for maintenance of fire protection systems.

QUALITY ASSURANCE (QA) REQUIREMENTS

Programmatic Quality Assurance (QA) requirements for subcontracts or purchase orders performed in the WTP Jobsite will be:

| | |
|-------------------------------------|--|
| <input type="checkbox"/> | Non-Permanent or Temporary Work - Generally no QA program required |
| <input checked="" type="checkbox"/> | Commercial Quality - Based on DOE Order 414.1C |
| <input type="checkbox"/> | Nuclear Level Quality - Based on ASME NQA-1 2000 |

Bechtel may require, as an element of bidder pre-qualification, submission of a representative sample QA Program or Table of Contents copy. For Nuclear Level Quality subcontracts, the successful bidder's QA Program must be approved prior to award of the subcontract or purchase order.

CODES

- National Fire Protection Association (NFPA) 101, Life Safety Code
- NFPA 30, Flammable and Combustible Liquids Code
- NFPA 70, National Electrical Code
- ASME Section 1 BPVC
- Uniform Mechanical Code (UMC)
- Uniform Plumbing Code (UPC)

STANDARDS

- Underwriters Laboratories, Inc (UL)
- National Electrical Manufacturers Association (NEMA) Standards

BIDDER REGISTRATION AND PRE-QUALIFICATION

The BNI Acquisition Services Subcontracts/Purchasing group is responsible for collection, evaluation, and internal publication of potential bidders' information for the purpose of pre-qualifying them to bid on any particular subcontract or purchase order.

As part of this process, BNI requires all potential offerors to register at the Supplier and Contractor Portal at: <https://www.Bechtel.com/supplier/>

If your company has registered previously, then only supplemental information should be sent to the Bechtel National, Inc. representative noted below.

Information to be provided by potential bidders must include:

- Dun and Bradstreet Number
- Company Name
- Company Address
- Contact Phone Number
- Contact Person
- Email Address
- Safety Data and Information
- Applicable Work Experience and Projects
- Size of Business (Small, Large)

WTP BACKGROUND

Information about the WTP Project can be found on <http://www.hanfordvitplant.com>

CONTACT

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