

Questions regarding Washington River Project Solutions Requisition # 285125 Statement of Work

Revision 0

January 18, 2016

Q: Whose Safety Program and JHA (Job Hazard Analysis) will be used to implement this work?

A: WRPS

Q: The SOW references both “tube cleaning projectiles” on section 3.3 and “waterjet tube cleaning” on 4.1.

These are two very different tube cleaning methods that utilize very different delivery equipment and operating pressures/flows. The cleaning projectiles are shot through the tubes using 400 psi water pumps or air/water guns. The waterjet tube cleaning option uses a positive displacement hydrolase pump at 10,000 – 20,000 psi.

Please clarify whether a specific process is being requested (equipment type)?

A: WRPS is looking for the vendor to select the appropriate cleaning method based upon identified fouling method, see Q &A below, and being sensitive to the fact that cleaning will be done in a congested area and all water must be controlled and captured.

Q: Please identify what the tube fouling material/debris is expected to be encountered?

A: Largely rust, and scale, and some silt build up is expected based upon recent visual examination of strainers (see attached photos). The strainers were exposed to the same Raw Water source as the condensers but on a continual basis versus the condensers which were drained after each use.

Q: Please confirm the tube material in each of the Heat Exchangers (EC1, EC2, and EC3), drawings / technical information provided indicate that all tubes are Carbon Steel?

A: EC1 has carbon steel tubes and EC2 &3 are stainless steel tubes.

Q: When was the last time the tubes for EC1, EC2, and EC3 have been cleaned? If so, were any tubes plugged and what types of plugs were used?

A: EC2 & 3 were installed approximately 10 few years ago and have never been opened or cleaned. d. EC1 was installed around the 1990 time frame and also has never been opened or cleaned.

Q: Please confirm that the site will provide open/close of the heat exchanger manways/endsbells, etc., install / modify scaffolding in order to access all tubes for cleaning and NDE testing?

A: Confirmed

Q: What will be the working clearance (in feet) / access to the tube sheets once the endbells are removed?

A: EC-1 North clearance 3', South clearance 3+', EC-2 and 3 North and South Clearance, 4+'

Q: Item 3.4 calls for Non-Destructive Examination of tubes. Since the material is carbon steel, RFT (Remote Field Technique) is the preferred method to properly assess tube condition. Please specify if any other examination technique is required?

A: The EC-1 carbon steel tubes are to be RFTed. EC-2 & 3 are stainless steel tubes

Q: Please identify what percentage of tubes is to be NDE tested in each heat exchanger to provide a satisfactory tube condition assessment?

A: 25% should be assumed for the proposal price. This percentage may increase based upon the examination results and the increase would be handled via Change Order Process.

Q: Please identify a projected commencement and completion date for the SOW?

A: Planning underway, contract award in mid February, begin work in late July, complete by Mid Sept. 2016

Q: What is the contractor's responsibility for the waste water plan?

A: None, waste water will be the responsibility of the plant.

Q: Please identify if it is expected that the contractor's equipment may, or may not, become radiologically contaminated as a result of the cleaning or testing evolution?

A: Radiological contamination of vendor equipment is not likely. The plant will make all efforts possible to prevent equipment or personnel contamination and if contamination were to occur WRPS would attempt decontamination. If this was not successful, then the vendor would be reimbursed via the Contract Change Order Process

Q: What type of plugs can be used, and what process to install the plugs would be required?

A: WRPS will rely on the vendor's recommendation to select and furnish the plugs if plugging is required.

Q: Will WRPS provide the acceptance criteria for tube replacement?

A: Since it is not anticipated that a large number of tubes have failed, there is no plan to replace failed tubes, just to plug them.

Q: What is the level of effort and schedule for the work planning portion of the SOW?

A: Subcontractor is expected to attend on site all Team Planning Meetings. Please figure 2 half day efforts.

Q: Will there be tube plugging during the cleaning process? If so, what is the expected number of tube to be plugged in each of the Heat Exchangers? If not, when will it be performed and how will it be accomplished commercially (i.e. Changer Order, separate PO, etc..)?

A: The cleaning and identification of plugged tubes that cannot be cleaned will be performed and completed prior to any tube plugging. The vendor will only be responsible for identifying and documented the failed/plugged tubes, providing a recommended plugging method and furnishing the plugs.

Q: What are the expected general area dose rates and contamination levels in the room?

A: Radiological conditions in the surrounding room and travel path to the work areas are as follows:

- Dose rates per current months survey - <0.5 mrem/hour general area. Expected dose rates inside system upon system breach – similarly low.
- Contamination per current months survey – Area posted as an RBA, can enter area with no PC's. Upon system breach, the area will initially be controlled as a Contaminated Area until surveys prove otherwise. Expected contamination levels are low (estimated <10k dpm/100 sq cm), but will not know for sure until system is breached. Expect a Contamination Area (CA) to be established to all work within the breached system.

Q: Under section 11.0 of the SOW, what are times per person to be assumed in the proposal for training, badging and other required activities? Where will the training take place?

A: As follows:

- Hanford General Employee Training (HGET) – 4 Hours at Vivid Learning on Stevens Drive
- 24 Hour Haz Waste Worker – 24 Hours at HAMMER Training Facility
- RAD II Training, assumed RAD I is completed: 24 Hours at Hammer Training Facility
- 242-A Facility specific – Computer based training – 2 Hours

Q: In addition to the training listed, will any OSHA qualifications / training be required to perform work on site?

A: WRPS expects subcontractor to be well versed on their own equipment operation. No other training beyond what is outlined within Section 11.0 of the SOW is expected to be required.

Q: What is the expected work schedule for this project (i.e. 4-10s, 5-8's, etc..)? Will any overtime be worked for the project?

A: Work schedule is expected to be 4-10 hour shifts, Monday through Thursday. No overtime is expected.

Q: In addition to 115V, 60 Hz AC outlets in the room, can 220 / 440 Volts, 3 Phase receptacle be supplied to run the cleaning equipment at the staging location within 10ft of the contractor's equipment?

A: One can be installed we will just need the amperage requirements.

Q: Can a minimum of 30 – 70 psi at 35 gpm water supply be provided at the staging location within 25ft of the contractor's equipment?

A: There is a 1 ½" potable water header in the area with a valved branch line that is plugged. A hose fitting will be needed. The pressure there is about 45 psig and it should be capable of 35 gpm.

Q: Can a minimum of 60 psi at 85 CFM air supply be provided at the staging location within 25ft of the contractor's equipment?

A: There are two station compressors that put out 100CFM @ 100 psig and there is one 125 CF receiver. Hose connections will be required.

Q: As an option to bringing in and staging the equipment on the fourth floor, can the equipment be brought in and staged on the 5th floor? Can power, water and air be supplied to that level?

A: Yes, but would have to be carried up the stairs from the 4th floor door.

Q: When is the subcontractor responsible for providing the equipment?

A: Schedule demands that equipment be brought to the facility prior to North end bell removal. Work to start on North end bell removal Tuesday July 5th.

Q: During the walkdown it was mentioned that the work needed to be completed in 3 weeks. Does that mean Heat Exchangers endbells reinstalled, operational test complete, and system is ready for operation? Please specify duration for cleaning and NDE testing within the 3 week window?

A: Two weeks for cleaning, One week for testing, One week for end bell reinstallation, one week for in place leak testing and clean up/de-mobilize. 3 weeks for S/C, 2 weeks for our forces.

Q: What is the total dose that should be expected during the project?

A: Detailed dose rates are generated for each project that is expected to exceed 200 mrem – person. Radcon expects this project to come in well below this threshold. Since dose rates upon system breach are expected to be similar to general area rates pre-breach, there should be very little change that will affect the dose to be accrued.

Q: What is the nameplate data for each condenser?

A: Attached are the three Condenser Nameplate information from the U-1 Forms.

Q: There is a limited space for tube removal that can only be accomplished for some tubes by cutting during removal. How will tube replacement be achieved in this same limited space?

A: No tube removal/replacement is expected at this time.

Q: Will another 242-A Evaporator walk-through be offered? If so, when?

A: Two walk-throughs were held.

Q: Since the number of tubes that will require plugging is not known, contract personnel will need to be on-call during this time to resume NDE testing. What should be the number of tubes assumed to require plugging be? How much delay time should be allotted for each tube plugging?

A: All tubes will be NDE'd, with failed tubes identified, prior to plugging the failed tubes

Q: What inspection results are available to show the condition of the condenser internals? Shell and tube sides?

A: There are no past inspection results available. The vendor will inspect the tube side and WRPS will attempt to inspect and possibly sample the shell side. The vendor will be asked for recommendations regarding the results of the shell side inspection.

Q: What conditions and assumptions should be made when calculating the cleaning and testing time for each tube?

While supplying the hydro-lance can be provided based upon a FFP proposal, numerous assumptions will be required to estimate the time to support site craft while they conduct the actual cleaning, such as; "How long will site craft take to clean each tube?" What time should be assumed for a FFP proposal? It would seem that this contractor support should be broken out separately as a T&M contract, or we should only provide a FFP quote for equipment, training and NDE. Everything else would be T&M.

A: We are relying on S/C industry experience to formulate their own proposal. We anticipate the cleaning to take two weeks and the NDE testing to take one week. If more time is needed, please identify in your firm/fixed proposal.

Q: Does this solicitation likewise necessitate said prevailing wage? Generally NDE does not since it is considered specialized services, is this the case for you as well?

A: As noted in the solicitation, this work is subject to the requirements of the Service Contract Act (SCA). The SCA wage rate determination will be incorporated into any resultant subcontract.

Q: Do you want 100% of tubes tested? Since these are carbon steel tubes they will need to be inspected via RFT which is a much slower process than ECT. Oftentimes a 10% baseline for defects is performed, we can readily do both but wanted some clarification on that.

A: The vendor should assume a representative 25% of the tubes are tested.





FORM U-1 MANUFACTURERS' DATA REPORT FOR PRESSURE VESSELS

501-242-3

As required by the Provisions of the ASME Code Rules, Section VIII, Division I

SPACE #1

1. Manufactured by STRUTHERS WELLS CORPORATION, WARREN, PA.
(Name and address of Manufacturer)

2. Manufactured for United States Atomic Energy Commission
SPACE Surface
(Name and address of Purchaser) 1-72-04-31273

3. Type Horiz. Kind Condenser Vessel No. (Mfrs. Serial) () (State & State No.) 13643 Yr. Built 1972
(Horiz. or Vert.) (Tank, Jacketed, Heat Exch.)

Items 4-9 incl. to be completed for single wall vessels (such as air tanks), jackets of jacketed vessels, or shells of heat exchangers.

4. SHELL: Material PVQ Stl. SA-285-C T.S. 55,000 Nominal Thickness 1/2 In. Corrosion Allowance 1/16 In. Diam. 7 Ft. 11 In. Length 11 Ft. 11-3/4 In.
(Kind and Spec. No.) (Fig. or F.B. & Spec. Min. T.S.)

5. SEAMS: Long Weld Dbl. Butt H.T. No R.T. Spot Sectioned No Efficiency 85 %
(Welded, Dbl., Single, Lap, Butt) (Yes or No)¹ (Spot or Complete) (Yes or No)
Girth Weld Dbl. Butt H.T. No R.T. No Sectioned No No. of Courses 1

If riveted describe seams fully on reverse side of form.

6. HEADS (a) Material SA-285-C T.S. 55,000 (b) Material SA-285-C T.S. 55,000
Location (Top, bottom, ends) Thickness 3/8 Crown Radius 84 Knuckle Radius 5-1/8 Elliptical Ratio None Conical Apex Angle None Hemispherical Radius None Flat Diameter None Side to Pressure (Convex or Concave) Concave
(a) XXXXXX
(b) Channel
(c) Floating

If removable, bolts used SA-193-B7-125,000-88-3/4 Other fastening None
(Material, Spec. No., T.S., Size, Number) (Describe or Attach Sketch)

7. STAYBOLTS: None If hollow None Attachment None Pitch None X None Diam. None
(Material) (Size of Hole) (Threaded, Welded) (Horiz.) (Vert.) (Nominal)

8. JACKET CLOSURE: None
(Describe as ogee & weld, bar, etc. If bar, give dimensions, if bolted, describe or sketch)

9. Constructed for max. allowable working press² Full Vac. psi at max. temp. 150 °F. Min. Temp. (when less than -20°) None °F. Hydrostatic Pneumatic or Combination Test Press 25 psi.

Items 10 and 11 to be completed for tube sections.

10. TUBE SHEETS: Stationary. Material PV Steel SA-515-70 Diam. 100 In. Thickness 2-7/16 Attachment Welded
(Kind & Spec. No.) (Subject to Pressure) (Welded, Bolted)

11. TUBES: Material Welded Stl. SA-214 O.D. 3/4 In. Thickness 16 BWG Inches or Gage Number 2950 Type Straight
(Kind & Spec. No.) (Straight or U)

Items 12-15 incl. to be completed for inner chambers of jacketed vessels, or channels of heat exchangers.

12. SHELL Material PV Stl. SA-285-C T.S. 55,000 Nominal Thickness 7/8 In. Corrosion Allowance 1/16 In. Diam. 7 Ft. 11 In. Length 11 Ft. 11-3/4 In.
(Kind and Spec. No.) (Fig. or F.B. & Spec. Min. T.S.)

13. SEAMS: Long Weld Dbl. Butt H.T. No R.T. Spot Sectioned No Efficiency 85 %
(Welded, Dbl., Single, Lap, Butt) (Yes or No)¹ (Spot or Complete) (Yes or No)
Girth Weld Dbl. Butt H.T. No R.T. Spot Sectioned No No. of courses 1

If riveted describe seams fully on reverse side of form.

14. HEADS (a) Material PV Steel SA-285-C T.S. 55,000 (b) Material SA-285-C T.S. 55,000 (c) Material SA-285-C T.S. 55,000
Location (Top, bottom, ends) Thickness 3/8 Crown Radius 84 Knuckle Radius 5-1/8 Elliptical Ratio None Conical Apex Angle None Hemispherical Radius None Flat Diameter None Side to Pressure (Convex or Concave) Concave
(a) XXXXXX
(b) Channel
(c) Floating

If removable, bolts used (a) SA-193-B7-125,000-88-3/4 (b) None
(Material, Spec. No., T.S., Size, Number)

(c) None Other fastening None
(Describe or Attach Sketch)

15. Constructed for max. allowable working press² 100 psi at max. temp. 150 °F. Min. temp. (when less than -20°) None °F. Hydrostatic Pneumatic or Combination Test Press 150 psi.

Items below to be completed for all vessels where applicable.

16. SAFETY VALVE OUTLETS: Number None Size None Location None

17. NOZZLES

Purpose (Inlet, Outlet, Drain)	Number	Diam. or Size	Type	Material	Thickness	Reinforcement Material	How Attached
Shell Inlet	1	42"	175# Slip On	Fgd. Stl.	0.375	SA-285-C	Fus. Welded
Shell Outlet	2	6"	150# Slip On	Fgd. Stl.	0.280	SA-285-C	Fus. Welded
Shell Sump	1	20"	150# Slip On	Fgd. Stl.	0.375	SA-285-C	Fus. Welded
Shell Sump Drain	1	4"	150# Slip On	Fgd. Stl.	0.237	SA-285-C	Fus. Welded
Make Up	1	4"	150# Slip On	Fgd. Stl.	0.237	SA-285-C	Fus. Welded
Chan. In & Out	2	12"	150# Slip On	Fgd. Stl.	0.500	SA-285-C	Fus. Welded
Temp. Indicator	1	1"	150# Slip On	Fgd. Stl.	0.179	SA-285-C	Fus. Welded
	1	3/4" x 3000#	Cplg.	Fgd. Stl.		SA-285-C	Fus. Welded

¹ If postweld heat-treated. ² List under remarks other internal or external pressures with coincident temperature when applicable.
(Over)

FORM U-1 (back)

18. INSPECTION Manholes, No. _____ Size _____ Location _____
 OPENINGS: Handholes, No. _____ Size _____ Location _____
 Threaded, No. _____ Size _____ Location _____
 19. SUPPORTS: Skirt No Lugs _____ Legs _____ Other Saddle Attached Welded to
 (Yes or No) (Number) (Number) (Describe) (Where & How) Sh

20. REMARKS: _____

(Brief description of purpose of the vessel, as Air Tank, After Cooler, Jacketed Cooker, etc. State contents of each part.)

We certify that the statements made in this report are correct and that all details of design, material, construction, and workmanship of this vessel conform to the ASME Code for Pressure Vessels, Section VIII, Division 1.

Date November 28 19 72 Signed Struthers Wells Corp. By Charles R. Decker
 (Manufacturer)

Certificate of Authorization No. 10679 Expires October 19, 1975

CERTIFICATE OF SHOP INSPECTION

VESSEL MADE BY Struthers Wells Corp. at Warren, Pennsylvania

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province _____ and employed by Hartford Steam Boiler Insp. & Ins. Co. of Hartford, Conn. have inspected the pressure vessel described in this manufacturer's data report on Nov 30 1972 and state that to the best of my knowledge and belief, the manufacturer has constructed this pressure vessel in accordance with the applicable sections of the ASME Boiler and Pressure Vessel Code.

By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the pressure vessel described in this manufacturer's data report. Furthermore, neither the Inspector nor his employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.

Date Nov 30 19 72

James Burke Commissions 3760
 Inspector's Signature Nat'l Board, State, Province and No.

CERTIFICATE OF FIELD ASSEMBLY INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province _____ and employed by _____ of _____ have compared the statements in this manufacturer's data report with the described pressure vessel and state that parts referred to as data items _____, not included in the certificate of shop inspection have been inspected by me and that to the best of my knowledge and belief the manufacturer has constructed and assembled this pressure vessel in accordance with the applicable sections of the ASME Boiler and Pressure Vessel Code. The described vessel was inspected and subjected to a hydrostatic test of _____ psi.

By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the pressure vessel described in this manufacturer's data report. Furthermore, neither the Inspector nor his employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.

Date _____ 19 _____

 Inspector's Signature Commissions _____ Nat'l Board, State, Province and No.

This Form (E21) is obtainable from the ASME Order Dept., 345 E. 47th St., New York, N.Y. 10017