

TIRE & UNDERCARRIAGE WASH SYSTEM PERFORMANCE SPECIFICATION

1.1 GENERAL

A. All provisions of the Contract, including General and Supplementary Conditions apply to the work specified in this contract.

1.2 RELATED WORK

Site work

Concrete or Paving

Mechanical

Electrical

1.3 QUALITY ASSURANCE

1.3.1 The system shall be produced by a manufacturer of established reputation with a minimum of five (5) years experience manufacturing specified equipment in identical applications to this tender. A minimum of 15 references must be supplied to the owner/buyer 10 days prior to bid opening.

1.3.2. Installation: Provide a qualified manufacturer's representative to supervise work related to equipment installation, check out and start-up. This same supervisor must submit 10 references , 10 days prior to bid open .

1.3.3. Training: Provide technical representative to train Owner's maintenance personnel in operation and maintenance of specified equipment. A video DVD of this training session must be made a presented to owner/buyer 14 days after start up date.

SUBMITTALS

Product Data

A. Submit Product Data in accordance with requirements of these specifications.

B. The bidders shall include with their bid packages the items below marked with an (*) asterisk . All aspects of the submitted data below should clearly identify responsibilities of all the trades that required to complete such disciplines of work including the owners/responsibilities if any. A Narrative of the project's aspects must also be submitted 10 days prior to the bid open. Any items below not marked with an asterisk (custom design items) must be submitted 21 days after notice of award or after design approval of owner or owners representative. These custom design items must be approved by owner or owners' representative.

1.4.1. System layout in isometric or 3D view *

1.4.2. Equipment general layout plan view *

1.4.3. Electrical layout with all conduit and wire sized including multi motor full load amp calculation sheet

1.4.4. Equipment Bill of Materials *

1.4.5. Piping in isometric or 3-D view

1.4.6. Concrete work and pit design. Include all engineering calculations (structural, hydraulics)

1.4.7. Mechanical and plumbing layout

1.4.8. UL compliance statement that all designed and manufactured control panels are UL approved.

1.4.9. Provide UL listing card or equivalent document of Nationally Recognized Testing Laboratories from the company building the electrical panel(s) and attach with the electrical drawings indicating that the electrical panels will be built to the required standards

1.4.10. Provide the Owner with Sepias for as-built drawings. 30 Days after start up

1.4.11 Detailed Warranty statement *

1.4.12 A.W.S. Certifications, submit certs that indicate the steel work practices prior to welding and during welding meets all latest AWS standards. Submit latest AWS certs for welders.

1.4.13 A.S.T.M. Certifications, submit industry standard certs for all materials , steel, steel origin, ,

1.4.14 H.I. Hydraulic Institute Certifications, Submit all data and test results including bench test and independent testing agency that all pumps are manufactures to HI standards. Submit also all data showing all water vessels including piping, channels, and closed waterways adhere to all HI standards of design.

1.4.15 A.N.S.I. , N.E.M.A. A.S.S.H.T.O. A.G.A. Submit all data necessary to prove that all standards of pump design, electrical components, traffic bearing surfaces, and galvanizing standards are of a manufactured standard quality of the three listed standards.

This is a performance specification, the owner/buyer and owners representative do not suggest that any equipment supplied must meet any size benchmarks including PSI ratings GPM ratings, etc... It is the suppliers responsibility to provide a system that will meet the performance criteria of this bid.

Manufacturer's Qualifications

1.4.14. The manufacturer of equipment that is bidding in this specification must have a minimum of 15 operating systems of the same design. Manufacturer must submit attached questionnaire 10 days prior to this bid open.

1.4.15 the wash system, high pressure cleaning systems, pumping stations and all electrical controls shall be designed and supplied by one supplier.

1.4.16. Supplier shall have been regularly engaged in the design, manufacturer and supply of the type of equipment specified herein, for a period of not less than five years. All similar items shall be the products of one manufacturer. The equipment offered shall be the latest standard product.

2. **Warranty**

The manufacturer's warranty shall be for Five (5) years from substantial completion against defects in materials, labor and workmanship.

Defects shall include, but not be limited to:

- 2.1. Design & Operation; as stated in performance criteria
- 2.2. Parts; Damaged and or missing parts
- 2.3. Finish; Premature breakdown

3. **SCOPE OF WORK**

3.1. To furnish a completely automatic, touch less heavy-duty Tire and Undercarriage Wash and water reclamation system. All vehicles stated in performance criteria will use the wash station.

3.2. To prepare all required documentation and engineering work required.

4. **WASH SYSTEM PERFORMANCE**

4.1. Operation: The vehicle washer shall be actuated by vehicles driven in a fixed path between tire guides at a crawl speed regulated by the Tire Wash system. All washing operations and related water recycling operations shall be automatically activate by the vehicle's presence and movement. The owner /buyer and owners' representative assume no responsibility in regulating truck speed through the wash. It is responsibility of the manufacturer of the Undercarriage & Tire Wash system to remove all dirt from the tires and tire-grooves, wheel wells and undercarriages of the design vehicles stated in the performance criteria and to employ proven devices to regulate the truck speed of the design vehicles. The system has met the performance criteria when there is no mud on the paved exit of the Tire Wash. If the paved exit has any mud or debris on it, it may be determined by the owner, owners representative and peer bidders that the system has not met the performance criteria.

4.2 The manufacturer is solely responsible for the equipment performance. Should the equipment not perform as expected, including slowing the truck travel down to a necessary speed determined by the manufacturer, the manufacturer shall modify, add and/or alter the equipment supplied at his/her own expense until the system operation has met the performance criteria. The

owner will be in a position to judge whether the alterations will improve the system's performance and can at any time halt the further changes of the manufacturer. Should the performance criteria not be met after the approved changes, the supplier shall remove the system at no cost to the owner, and pay for interim street sweeping contract deemed fair by the owner/buyer. Additionally, the manufacturer must compensate the owner/buyer for any and all cost attributed to failed system's performance as deemed a loss by the owner, and shall pay the owner the cost to install another Undercarriage & Tire Wash system selected by the owner/buyer.

5. WATER RECLAMATION PERFORMANCE

5.1. The water reclamation system shall be capable of reclaiming water from the vehicle washer and process it by means of settling pits and in-line filters.

5.2. The system must be able to continuously supply adequate amount of water for high-pressure pump regardless of traffic volume through the washer.

5.3. Prior to final acceptance of the system by the owner, the supplier shall demonstrate the continuous operating capacity of the reclamation system in relation to the truck wash system by running (on manual override) both the high-pressure wash system and the water reclamation system for a period of 4 hours (without a pause). During the test no manual adjustments or overrides are allowed and no solenoid shall be allowed to fill the reclamation tank with fresh water.

5.4. The equipment manufacturer explicitly assumes the responsibility to design the water reclamation system for the intended purpose and has made himself/herself familiar with all performance requirements prior to bidding.

5.5. A guarantee that the system is built to control odors must remain valid after the final acceptance for the period of three years. Algae build-up in wash water that will results in objectionable odors is not acceptable to the Owner. It is the owner's option to employ chemical disinfection measures if they so desire after the wash system start up. Air compressors used in any tire wash system shall be 2 stage compressor and shall have a capacity of 160 % of the total requirements of the system utilized. The

compressor as well as all components of the wash system shall be 5 years.

6. INTERCONNECTING PIPING

6.1. All field plumbing and mechanical work will be done by others if it is so desired by the owner, including all water utilities up to and connecting to the equipment and interconnecting piping between the pumps and the equipment located in the wash bay. The owner must be able to estimate the cost of such work based on the drawings submitted by the bidder as part of the bid package.

7. ELECTRICAL INTERCONNECTING WIRING

7.1. All field electrical work will be done by others if so desired by the owner, including all electrical services connecting to the equipment panel and interconnecting wiring between the pumps and the equipment located in the wash bay. The owner must be able to estimate the cost of such work based on the drawings submitted by the bidder as part of the bid package.

8. WASH SYSTEM TECHNICAL DESIGN DEMANDS

8.1 Wash System Rolling Surface

8.1.1. The Tire Wash rolling surfaces should be long enough as the manufacturer deems fit to meet the performance criteria of this spec and shall meet a standard of H-20 loading for trucks of 80,000 lbs and H-25 for trucks over 80,000 lbs. The rolling surface material or coatings of, shall be provided as an option to the owner/ buyer to choose their selection, such as painted steel, galvanized steel, or stainless steel. All surface designs and their calculations showing axle loads distribution, concentrated loads calculations, proving H-20 or 25 capability shall be submitted with bid. All design tests' and their accelerated wear calculations must be also submitted with bid. Accelerated test results must show all rolling surfaces must last for 25 years in the washing application of a tire wash system.

8.1.2. The tire wash rolling surface must be designed so that the truck tires are cleaned per the performance criteria. The spray nozzles can be aimed at the tires at any angle the manufacturer deems fit to meet performance criteria. If it is the design of the manufacturer to use perpendicular straight edges (angles or square tubing) as a rolling surface for the tires, a statement

from 3 major truck tire manufacturers must be submitted that illustrates these sharp edges and their continued use of them, causes no harm to the tires that use them as a rolling surface. The statement should also include language that insures the tires' warranty from the tire manufacturer will not be compromised when using straight edge rolling surfaces.

8.1.3. Tire wash nozzle material must be stainless steel and must be capable of being easily replaced due to excessive wear from reclaimed sandy water flows. Nozzles must carry a 5 year warranty.

8.1.4. The system must have as many pumps as the manufacturer deems necessary to meet the performance criteria. It will not be the burden of the owner or the owners representative to suggest what size pumps or how many shall be used.

8.1.5. Bottom and/or Side spray nozzles assemblies shall cover the entire circumference of the rotating tires. The supplier shall show in his drawings that the entire truck tire tread area is completely covered with sprays.

8.1.6. The tire wash system must be equipped on both sides with a tire guard rail. The design must be that of a rail that no damages can be caused to the wash system, or the trucks themselves.

8.2. Side Walls if selected for use by the owner shall be galvanized steel or stainless steel. This bid shall offer them as an option for use by the owner. Side walls height shall be 6 ' high for low pressure systems (30 to 50 psi) and 1 foot higher for every 10 pounds of pressure after 50 psi.

8.3 Pumps

8.3. The pumps shall be the selection of the manufacturer that claims they can meet the performance specification. All pump data including curves shall be submitted at time of bid along with a list and phone numbers of 10 wash system users of the same pumps.

8.3.1. It is the burden of the manufacturer to determine the pump quantity, size, performance, and maker. Pumps when installed shall be easily accessible for system trouble shooting. Systems that employ debris screens below the water surface as their main debris catching screen shall not be utilized even if it has a below the

water surface cleaning mechanism. All debris screens shall be easily accessed from above ground.

9. Electric Motors

9.1 The electric motors shall be of the squirrel cage induction type suitable for across the line starting. Motor shall operate on 230 /460 Volt, 3-phase, 60 cycle and be WP1 or TEFC with a 1.15 service factor. 460 volt Motors shall not be used that are immersed in water.

9.2. The motors shall be sized so as not to exceed the nameplate horsepower during operation.

9.3. The wash system manufacturer shall certify that the motors used with their respective across the line starters or soft starters can provide as many starts per hour as the site will need to wash the demand flow of trucks, including a strong heavy usage per hour in the mornings and at other peak traffic hours.

10. Electric Control Panel and Components

10.1. The Industrial Control Panel shall be manufactured so they meet Underwriters Laboratories, Inc. (UL) standard 508A (Industrial Control Panels). In addition, the panel shall be evaluated for high-capacity short circuit withstand and shall bear the appropriate UL marks including the short circuit withstand value mark as part of the official UL label. The shop assembling the panel must be inspected annually by UL inspectors and shall pass such inspections. Manufacturer is required to submit these inspection report 21 days after award notice.

10.2. The industrial Control Panel shall be designed for operation on a 230/ 460 Volt, 3 phase, 60 Hertz system, with a short circuit capacity of 25,000 amperes RMS Symm. Available at the incoming line terminals of the control panel.

10.3. The Industrial Control Panel shall be designed to meet the requirements of the National Electric Code (NEC) Articles 430 and 670, also the National Fire Protections Association (NFPA) Standard 79 (Industrial Machinery). All components used shall be NEMA standard.

10.4 Electric Panels that are not UL approved are not acceptable.

10.5. The activation switches shall be designed to be activated by all fleet vehicles used by the owner. Each activator shall be pre-

mounted and wired to a watertight junction box equipped with built-in drainage holes.

10.6. All motors over 20 HP must have electronic soft start system.

11. WATER RECLAMATION SYSTEM

11.1 Aeration Systems (OPTIONAL)

11.1.1 Aeration system shall provide air into the trench pit to prevent algae and odor build-up. Aerated water shall be evenly distributed throughout the pit when the wash system is in operation and out of operation.

11.1.2. Aeration system shall use a recirculation pumping, air pumping/injection and dissolved oxygen distribution system.

12 INSTALLATION, START-UP, TRAINING AND SERVICE

12.1. Install equipment in accordance with manufacturers' supplied installation drawings as well as project prints approved by owner and owners' representative.

12.2. Equipment manufacturer shall undertake the commissioning of the system and make all required adjustments to ensure proper operation.

12.3. The equipment manufacturer shall start-up the system. The owner shall have all operating personnel present during the start-up and equipment training. A DVD training video must be made of the start up session and provided to the owner 14 days after the start up.

13 Performance Criteria

13.1. It is the express intent of the owner/buyer to have the manufacturer be fully responsible for all aspects of the provided wash system including but not limited to,

- The horsepower sizing
- Quantity and type of pumps
- Length of wash rack rolling surface
- Rolling surface details of construction
- Technique of spraying tires
- Technique of debris straining
- Speed of the trucks traveling through the wash

13.2 It is the intent of the owner / buyer to request that the manufactured system have all met the most recent standards of manufacturing detailed by the following standards organizations, AWS – AGA- ASTM –ASSHTO –ANSI- NEMA -UL

13.3. The owner/ buyer requires that the provided system successfully remove all amounts of mud and debris from the truck tires within the confines of the wash system. No mud or debris shall be left on the vehicles tires once it emerges from the wash. If there is loosened wet mud on the vehicles undercarriages and vehicles tires after the wash, it will be deemed a failed system and shall be removed. The system after it has been removed shall be replaced with a newly selected system of the owners choice at the manufacturers cost. Manufacturer shall pay for all interim street sweeping cost borne by the buyer.

It is not the intent of the buyer to trial and error with wash systems until it finds one that will suffice. It is suggested that the manufacturer employ a reputable independent testing agency(local to the site) to concur with the manufacturers claims and to provide reports of the systems' quality once it is running.

The test that is required by the owner if the owner requests it, is,

That no visible mud, dried or wet, be present on the exit apron of the tire wash system.

That no visible mud ,wet or dried, be visible on the exit haul road after the wash system of up to 1/4 mile after the wash systems exit.

That no visible mud be found on the truck tires or the undercarriage of the trucks after the wash system.

Any mud or debris found on this haul road after the wash shall be removed prior to it becoming fugitive dust emissions.

A performance bond shall be submitted with the bid in the amount of the submitted bid.

