Statement of Work for Recertification of D.O.T. Trailers NA00566T (ECN 2266973) and NA00586T (ECN 2206639)

Line Item 1: Recertification

Perform DOT quinquennial recertification and painting of two (2) Government-owned **gaseous hydrogen** tube trailer in accordance with the current regulations and the following specifications. Price shall include pick-up and delivery to NASA Langley Research Center, Hampton, VA.

Description of Trailer

Trailer License No: NA00566T (ECN 2266973) and NA00586T (ECN 2206639)
Type of Gas: Hydrogen
Semi-Trailer, Compressed Gas, Cylinder, Type: MH-1
Gas Cylinder Type: MIL-S-4972A
Overall Trailer Length: 300 inch
Overall Trailer Width: 96 inch
Overall Trailer Height: 107 inch
Type of Cylinders: ICC 3AA-2400
Manufacturer: Standard Steel Works, North Kansas City, MO
Approx. water volume of each cylinder @ 70^{o} F: 9cu. Ft.
DOT Re-Test Due Date: June 2015 and November 2012

Requirements

All procedures shall be performed in accordance with DOT and CGA regulations

Price shall include pick-up and delivery to NASA Langley Research Center, Hampton, VA. The government will ensure that the trailers are road worthy and will be empty except that the bottles will be pressurized to 10 to 25 PSIG with hydrogen to prevent in leaking of contamination gases. Placards and labels will be covered with transport tape indicating trailers are empty.

Procedure

1. The Contractor shall disassemble the subject tube trailer and hydrostatically test the cylinders, manifolds and connected plumbing.
2. The Contractor shall inspect all valves and pressure relieve devices (PDR's) and replace or refurbish any that are damaged. The contractor shall replace valves and PDR's with damage to NGT and NPT threads that would reduce the integrity of connections. The contractor shall replace front and rear safety devices on the trailers.
3. The Contractor shall inspect the internals of the cylinders and remove all deleterious material including rust, Teflon tape, and any other foreign material that could block flow through valves and connected plumbing.
4. The Contractor shall paint, reassemble, and leak check cylinders in accordance with DOT and CGA regulations. The contractor shall take care when using Teflon tape to ensure that excess material is not released into the cylinders or connected plumbing.

5. The Contractor shall leak test the re-assembled cylinders in accordance with CGA requirements and eliminate all leaks.
6. Prior to reassembly of the trailer, the Contractor shall:
    a. Remove all rust, dirt, and loose paint from the exterior of each of the gas cylinders and other trailer parts. If sand blasting is to be performed, all other parts of the trailer that could be damaged by the sand blasting shall be protected.
    b. Apply one coat of zinc chromate primer, Federal Spec. TT-P-645 or equal, and two coats of Spatz White Enamel, No. 2109 or equal, to each of the gas cylinders.
    c. Paint other trailer parts with one coat of epoxy primer or equal, and two finish coats of exterior enamel yellow paint.
    d. Apply identifications and markings to trailers in accordance with the latest edition of the applicable DOT regulations.
7. Following completion of hydrostatic testing, painting, cleaning, and reassembly, the Contractor shall pressurize and leak test trailer, including all cylinders, manifolds and connected plumbing.
    a. Pressurize with nitrogen or other suitable gas the cylinders to 2400 psig. Test gas shall have at least 99.5% purity. Perform a leak test using the soap bubble test method. Repair and re-test until all leaks are eliminated.
    b. Verify the performance of all cylinder valves by filling the cylinders to nominal full trailer pressure, closing all cylinder valves, venting the manifolds to atmosphere, closing the main manifold valves, and observing that the manifold pressures do not increase due to leaking of cylinder valves.
8. The contractor shall deliver the trailer fill with 99.9% pure hydrogen and in a leak free condition to NASA Langley Research Center.

Pick-up and Delivery

The Contractor shall pick up the tube trailer at Building 1199, 2 East Ames Street, NASA Langley Research Center, Hampton, Virginia with Contractor-furnished equipment, and deliver the trailer to the Contractor's plant. Upon completion of the all the requirements herein, the Contractor shall return the trailer to Bldg. 1221C, 12C Langley Blvd., NASA Langley Research Center, Hampton, Virginia.

The Contractor shall arrange for pickup of the trailer with Mr. Barry Lawhorne at (757) 864-6318 or MR. Michael Raiford at (757) 864-7197. The government may require up to five days advance notice of pickup to ensure that the trailers are prepared and road worthy.

Certification

The Contractor shall furnish the Government with certification papers stating that the tube trailer has met all the current requirements of the US Department of Transportation governing hydrogen trailers. A schematic of the physical layout of the bottles in the trailer, including the bottles' serial numbers, shall be included with the certification papers.