DRAFT

INCH-POUND
PD-53048 DRAFT
July 21, 2004

PURCHASE DESCRIPTION

TANK, FABRIC, COLLAPSIBLE; SELF-SUPPORTING,

DRINKING WATER STORAGE, 3000 GALLONS

This purchase description has not been approved for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This purchase description covers collapsible, self-supporting, 3000 gallon drinking water tanks complete with fittings and accessories.

2. APPLICABLE DOCUMENTS

2.1. General. The documents listed in this section are specified in section 3 and 4 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements documents cited in sections 3 and 4 of this specification, whether or not they are listed.

2.2 Government documents.

2.2.1. Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DoDISS) and supplement thereto, cited in the solicitation (see 6.2).

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addresses to: U.S. Army Tank-Automotive and Armaments Command, Mobility Technology Center, ATTN: AMSTA-RBWH, Fort Belvoir, VA 22060-5843 by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A FSC 5430

Distribution Statement A. Approved for public release, distribution is unlimited.

2.2.2. Other Government documents, drawings, and publications. The following other Government documents, drawings, and publications from a part of this document to the extent specified herein. Unless otherwise specified, the issues are those cited in the solicitation.

2.3 Non- Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DoD adopted are those listed in the issue of the DoDISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DoDISS are the issues of the documents cited in the solicitation (see 6.2).

2.4 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 Description. The tank assembly shall consist of a tank complete with handles, fittings, ground cloth, cover, valve assembly, hose, packaged repair items, instruction manual, and a carrying valise. The tank assembly shall be for storage of drinking water. The tank shall be capable of storing drinking water for a minimum of five continuous years when exposed to an operating ambient temperature range of –25 °F to 130 °F without leaking. The tank assembly shall be capable of a minimum of fifteen continuous years of dry storage when exposed to a storage temperature range of –28 °F to 160 °F without damage to the assembly. The color shall be Desert Tan 686A, color number 33446 in accordance with FED-STD-595. The tank assembly shall meet or exceed all the requirements herein.

3.2. First article. Unless otherwise specified (see 6.2), a sample shall be subjected to first article inspection in accordance with 4.2.

3.3. Materials. Tanks shall be produced from materials that meet or exceed the requirements of tables I through II as well as the following.

3.3.1. Potability. The contractor shall provide certification to the following potability requirements. The finished tank shall contain no materials or substances that might leach out or deteriorate and cause the water to become non-potable. Materials shall have no adverse effect on the health of personnel when used for intended purposes. All surfaces that come in contact with, or may come in contact with, potable water shall be in accordance with the Code of Federal Regulations (CFR), Title 21 – Food and Drugs, Part 177, less sections 177,1020 through 177,1050 and 177,1480 or shall be tested or listed as approved for use with potable water by the National Sanitation Foundation (NSF), Underwriters Laboratory, or the Safe Water Additives Institute in accordance with NSF standard 61.

3.3.2. Material deterioration prevention and control. The contractor shall certify that each component of the tank assembly is fabricated from compatible materials, inherently corrosion resistant or treated to provide protection against various forms of corrosion or deterioration under conditions stated herein.

3.3.3. Recycled, recovered, or environmentally preferable materials. Recycled, recovered (see 6.5.1), or environmentally preferable materials should be used to the maximum extent possible provided that the material meets or exceeds operational and maintenance requirements, and promotes economically advantageous life cycle costs. Used, rebuilt, or re-manufactured components, pieces, and parts shall not used.

3.3.4. Tank body. The tank body shall be high-tenacity, heat and sunlight resistant, and shall be free of any imperfection affecting strength, and if applicable, coating adhesion, coating thickness. And, shall be free from blisters (see 6.5.2), holidays (see 6.5.3), or pinholes (see 6.5.4) and, if applicable, shall show no sign of coating delamination. The tank body shall meet or exceed the requirements of table I as well as all the other requirements herein.

3.3.5. Anti-sticking. The tank body material shall not adhere to itself. No foreign substances shall be applied/required to meet this requirement. This requirement applies to the entire tank assembly throughout its life.

3.3.6. Chemical resistance. The tank and all its components shall be chlorine, ozone, and Sodium bisulfite resistant as well as capable of storing contents with PH in the range from 2.5 to 10.5.

3.4. Tank assembly performance.

3.4.1. Seams. All tank seams, handle patches, and fabric flanges of fittings shall conform to the requirements of table II. Measures shall be taken to prevent tank contents (potable water), including associated chemicals, from flowing in between tank body material layers, if applicable.

3.4.2. Handles. Handles shall be provided with valise (see 3.7). Handles shall also be provided for easy of handling and cleaning if required. The bonds between each handle patch assembly and the tank and/or valise fabric shall conform to the handle seam pull test requirement of table II.

3.4.3. Fittings. The tank shall be furnished with one male and one female filler/discharge fittings positioned at ground level and 180 degrees from one another. The male filler/discharge fitting shall be 2 inches with a tethered dust cap. The female filler/discharge fitting shall be 2 inches in size with a tethered dust plug. These fittings shall be quick-disconnect/cam-locking in accordance with A-A-59326.

3.4.4. Manpower requirement. Tank assembly design shall permit deployment of tank by four persons and only one person to perform all other operations once deployed. No tools shall be required.

3.4.5. Top filling. Tank design shall allow for top filling. The top portion of the tank shall be equipped with a female filler fitting. The fitting shall be 2 inches in size with a tethered dust plug. The fitting shall be quick-disconnect/cam-locking in accordance with A-A-59326.

3.4.6. Tank cleaning. Tank assembly design shall allow one person to conduct all cleaning procedures on both the exterior and interior of the tank.

3.4.7. Cleaning solution pouring capability. Tank design shall allow for pouring of cleaning solution from a five gallon bucket into the tank containing approximately 550 gallons of water and shall permit the mixing thereof. This task shall not require any tools and only one person to accomplish.

3.4.8. Air inflatable compartments. Tank assembly design shall not include any compartment or compartments which require inflation with air.

3.4.9. Capacity. The tank shall have a nominal capacity of 3000 gallons and shall not leak throughout the full range of fill (from empty to nominal capacity).

3.4.10. Cycling. The tank shall withstand continuous cycling from empty to nominal capacity, or any capacity in between.

3.4.11. Stability. The tank shall be deployable on an incline of up to 10% (10 feet per 100 feet) and shall not collapse, creep or overturn.

3.4.12. Package size. A fully packaged tank assembly shall fit in a 30 x 30 x 45 space without excessive effort and/or damage or reduction in shelf life.

3.4.13. Tank assembly weight. The tank assembly shall have a total weight of not more than 140 pounds.

3.4.14. Environmental exposure. The tank assembly shall be suitable for service in ambient temperatures ranging from 32° to 125° F with continuous exposure to direct sunlight, rain, sleet, hail, snow and sand storms in any combination thereof.

3.4.15. Long term storage. The tank assembly shall withstand folded storage at ambient temperatures ranging from –25° to 160° F and at any relative humidity without damage.

3.4.16. Sample extraction. A means shall be provided for taking water samples. Water sample taking shall not require any tools or removal of items such as tank cover, hoses, etc. The sample shall originate from the vicinity of the tank discharge port.

3.4.17. Chemical insertion. A means shall be provided for injecting chemicals, such as chlorine, and shall not require any tools or removal of items such as tank cover. The injection point shall allow the addition of chemicals at any fill height. The tank assembly design shall accommodate the mixing of the chemicals in the tank after insertion.

3.4.18. Footprint. The tank shall be deployable in an area 15 x 15 feet.

3.5. Valve assembly. One fully assembled valve assembly shall be provided with each tank. The assembly shall consist of one 2-inch valve, one 2-inch male and one 2-inch female fittings . Dust cap and plug fittings shall be tethered to their corresponding assembly. The fittings shall be quick-disconnect/cam-locking in accordance with A-A-59326.

3.6. Hose assembly. A 2-inch (ID), ten-foot length of hose shall be provided with a 2-inch male fitting at one end and a 2-inch female fitting at the other. Dust cap and plug fittings shall be tethered to their corresponding assembly. The fittings shall be quick-disconnect/cam-locking in accordance with A-A-59326. The hose assembly shall be provided fully assembled.

3.7. Storage/carrying valise. The tank shall be furnished with a valise. The valise shall be used to carry the tank, repair kit, protective cover, ground cloth, valve assemblies, and instruction manual. The materials used to fabricate the valise shall conform to the requirements of table I. The valise shall be provided with the handles to permit a four-soldier carry.

3.7.1 Drop. A fully packed valise shall be capable of being dropped from a height of 60 inches.

3.8. Taste and odor. The materials of the tank, cover, that contact drinking water shall conform to APHA Standards and Methods for Examination of Water and Waste Water, parts for Taste (211B) and Odor (207). The material shall not impart odor to chlorinated water such that the threshold odor number exceeds 2. The material shall not impart taste to chlorinated water such that the taste rating scale exceeds 4.

3.9 Repair kit. A repair kit in accordance with ATPD 2263, Type II shall be provided with the tank.

3.10 Protective cover. If a removable cover is provided it shall meet the following requirements. The material used to fabricate the cover shall conform to table I. The cover shall be supported to prevent the accumulation of rainwater on top of the cover when tank and cover are

deployed. The cover shall not incorporate any compartment that requires inflation with air. The cover shall attach to the tank and create a closed continuous seal between cover and tank at all levels of fill (see 4.5.1.22). The seal between the protective cover and tank shall be capable of preventing driving rain or debris from entering the tank at all levels of fill. The sealing mechanism effectiveness shall not deteriorate with exposure to the environment and shall not require any maintenance.

3.11. Ground cloth. A ground cloth shall be provided with each tank. The ground cloth shall be constructed of a material which meets the puncture resistance requirement of table I. All cut edges shall be sealed or hemmed. The ground cloth shall extend a minimum of 12-inches beyond the tank at all levels of fill.

3.12. Identification marking. The tank shall have the following permanent markings:

3.12.1. Nameplate. The tank shall have an identification nameplate marking that includes all the information in figure 1. The valise shall have the same marking visible when fully packed. The label shall be printed in 0.5 inch high, minimum, lettering of a contrasting color to the background, on the tank.

3.12.2. Use marking. The tank shall be marked "DRINKING WATER ONLY" in 4.0 inch high, uppercase lettering.

3.12.3. Max fill marking. The tank shall have a max fill (nominal capacity) marking that is clearly visible from the entire perimeter of the tank.

TABLE I. Characteristics of tank body.

Item	Test Property	Requirements	Test Methods		
			ASTM	AATCC	Para
1.	Tearing strength: (all directions)	> 4X*	D 751 Proc B		4.5.1.10
2.	Breaking Strength: (all directions)	> 4X*	D 751		4.5.1.10
3.	Puncture resistance: (lb, min)	125	D 751		4.5.1.11
4.	Weather resistance: After 500 hr exposure & 5% elongation (all directions): Breaking strength retention	80% (min)	D 2565[1]	III Option A	
5.	Low temperature crease resistance (Appearing after unfolding)	No cracking, peeling or delamination			4.5.1.12
6.	Blocking:	Separation to occur within 5 sec			4.5.1.13
8.	Ozone resistance	No cracks under 7x lens	D 1149		4.5.1.21
9.	Fungus resistance	Visual inspection: No cracking, blistering or delamination. Retention of breaking strength 90% minimum of initial.	G 21		

Notes:
* X refers to the greatest force on the tank body at max fill. The value of which is to be determined or calculated by the contractor. The contractor shall make this value and justification thereof available to the contracting officer upon request.
** Xenon light, procedure A, inner and outer borosillcate filters, deionized water (68 ±5° F); 690 minutes light exposure, 30 minutes light and gray, block panel temperature (145 ±5° F); relative humidity (45 ±5%). Specimens shall have exterior surface (outside of tank) facing the light. ???

TABLE II. Characteristics of seams.

Test Property	Requirements	Test Method	
		ASTM	Para
Breaking strength: Initial,	> 4X*	D 751	4.5.1.15
Breaking strength at 73 ± 5° F After immersion in distilled water at 160 ± 2° F for:		D 471 (15)	
14 days, (lb/in, min) 42 days, (lb/in, min)	> 4X* > 4X*		
Dead load shear resistance under 50 lb/in stress at 160 ± 2°Ffor 8 hr:	0.1 in slippage (max)??		4.5.1.16
Seam peel adhesion: Initial, (lb/in, min)	20??	D 413 machine method	4.5.1.15
After immersion in water at 160° F for:		D 413 machine method	
14 days, (lb/in, min) 42 days, (lb/in, min)	15?? 12??		
Handle seams pull test***	> 2Y**		4.5.1.6

Notes:
* X refers to the greatest force on the tank body at max fill. The value of which is to be determined or calculated by the contractor. The contractor shall make this value and justification thereof available to the contracting officer upon request.
** Y refers to the tank weight.
*** Applies to seams between handles and tank, and handles and valise.

4. VERIFICATION

4.1 This section intentionally left blank under this draft version.

5. PACKING

5.1. Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When actual packaging of material is to be performed by DoD personnel, these personnel need to contact the responsible packaging activity to ascertain requisite packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Department or Defense Agency, or within the Military Department's System Command. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

6. NOTES

6.1 Intended use. The tanks are intended for use as a potable water storage container when quick storage facilities are needed and where permanent potable water storage facilities are not available, or when the storage of potable water is only on a temporary basis.

6.2 Acquisition requirements. Acquisition documents will specify the following:

a. Title, number, and date of this publication
b. Issue of DoDISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.2 and 2.3)
c. When a first article is not required or the time frame for submission of the first article (see 3.2 and 4.2)
d. Color when other than as specified (see 3.1)
e. When samples shall not be taken from the coated fabric used in the construction of the tank wall (see 4.5.1.10)
f. Level of packing required (see Section 5)

6.3. Date Requirements. The contracting officer should include requirements for such data as technical publications, instructional materials, illustrated parts lists, and the contractor's maintenance and operation manuals to be furnished with each tank.

6.4 First article. When a first article inspection is required, the items(s) should be initial production models. The first article should consist of two units, one which will be used in destructive testing. The contracting officer should include specific instructions in acquisition documents regarding arrangements for examinations, approval of the first article test results and disposition of the first articles. Solicitations should provide that the Government reserves the right to waive the requirement for first article inspection to those bidders offering a product that has been previously acquired or tested by the Government; and that bidders offering such products, who wish to rely on such a production or test, must furnish evidence with the bid or proposal that prior Government approval is presently appropriate for the pending contract. Bidders should not submit alternative bids unless specifically requested to do so in the solicitation.

6.5 Definitions. The following definitions apply for this specification.

6.5.1. Recovered materials. Recovered materials are those that have been collected from solid waste and reprocessed to become a source of raw materials, as distinguished from virgin raw materials.

6.5.2. Blister. A blister is a void or hole causing a protrusion on the coated fabric surface when hot. It may not show when cold, and may be covered when open.

6.5.3. Holiday. A holiday is an area in the coated fabric not covered by coating compound.

6.5.4. Pinhole. A pinhole is a minute, circular void or a solvent blow hole.

6.6. Subject term (key word) listing.

Bag
Bladder
Container
Potable water

TANK, FABRIC, SELF-SUPPORTING
3000 US GALLONS, WATER
NSN: (Specify)
SERIAL NO: (Specify)
MFR: (manufacturer's name and location of plant)
WEIGHT EMPTY: (Specify number of pounds)
CONTRACT OR ORDER NO: (Specify)
LOT: (Specify)
DATE OF MANUFACTURE: (Specify month and year)

FIGURE 1. Tank and valise identification marking information

Preparing activity for this performance specification is: The U.S. Army Tank-Automotive and Armaments Command, Mobility Technology Center, Fort Belvoir, VA 22060-5843.

Custodian:

Army – TA

Navy - YD

Preparing activity:

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