



Union County
P.O. Box 430
Clayton N.M. 88415

Phone: 575-374-8896

Fax: 575-374-2763

Website: unionnm.us

County Commissioners
Justin Bennett - Chair
W. Carr Vincent
Clayton Kiesling

Brandy Thompson
County Administrator
Law Offices of Stephen C. Ross
County Attorney

Invitation to Bid
Bid #19/20-003

Union County will receive sealed bids for the purchase of one or more water tanks with a maximum capacity of 50,000 gallons until June 8, 2020 at 3:30 p.m. The water tanks will be placed at various fire departments in Union County. Specifications to be obtained at the Commissioner's Office located at the Courthouse 100 Court St. Clayton, NM (575) 374-8896 or can be obtained from the County website www.unionnm.us on the Manager's page. Bids will be publicly opened on the same date and submitted to the Board of Commissioners at the next scheduled meeting. Outer envelope shall be plainly marked "WATER STORAGE TANK BID". It is the bidder's responsibility to turn in bids at the time and date specified. Oral, faxed or digital bids will not be considered. The Board of Commissioners reserves the right to accept or reject any and all bids which is in the best interest of the county.

**UNION COUNTY VOLUNTEER FIRE DEPARTMENT
WATER STORAGE TANKS
SPECIFICATIONS**

PART 1-GENERAL

1.1 WORK INCLUDED

- A. This Section specifies the requirements to furnish requested potable water storage tanks.

1.2 RELATED WORK

- A. This section shall be used in conjunction with the individual tank data sheets and related Contract Documents to establish the total requirements for water storage tanks:
- B. CAUTION: Use of this Section without including the above listed items will result in omission of basic requirements.
- C. In the event of conflict regarding water storage tank requirements between this section and any other section, the provisions of the tank data sheet shall govern.

1.3 FURNISHED INFORMATION

- A. The tank must meet ASTM S3299 requirements.

1.4 DESIGN CRITERIA

- A. Tanks shall be designed, fabricated, and inspected in accordance with the latest issue of the following standards:
 - 1. NFPA 1142: Standard for Water Tanks for Private Fire Protection, current Edition
 - 2. ASTM D-3299, Filament-Wound Glass-Reinforced Chemical-Resistant Tanks, latest edition.
 - 3. Thermosetting Resin Chemical-Resistant Tanks.
- B. WATER STORAGE tanks shall be corrosion-resistant to the specified tank contents and shall be suitable for the intended service life.
- C. WATER STORAGE tanks shall have roofs capable of withstanding an external uniformly distributed loading of 50 pounds per square foot. Additional loads from mixers, pumps, or catwalks shall be supported externally from the tank.
- D. Dimensional Requirements-Cylindrical Vessels and Tanks: Diameters shall be measured internally. Tolerance on nominal diameter including out of roundness shall be plus or minus 1 percent. Measurements shall be taken with the tank in the

vertical position. Taper shall not exceed 0.25 percent per side. The minimum knuckle radius on formed heads shall be 1-1/2 inches unless noted otherwise on the attached data sheets.

- E. All water storage tanks shall be designed for outdoor service with direct sunlight exposure.
- F. Tanks shall be designed to meet pressure, loading or seismic criteria using strengthening ribs, unless otherwise indicated on the data sheets. Where no strengthening ribs are specified, loads shall be distributed over a uniform side shell thickness.

1.5 QUALITY ASSURANCE

A. Quality Control Program

1. The fabricator shall have a quality control program in place.
2. All phases of the tank fabrication shall be certified as passing the fabricator's quality control program.
3. A current production schedule shall be available for inspection that identifies the vessel fabrication or storage location, current status, and expected completion data for each vessel.
4. All areas of the facility where vessels are being fabricated or stored under this specification shall be available for inspection during normal working hours.
5. Prior to the start of initial manufacturing, the fabricator shall have approved shop drawings showing the fabrication procedure.

B. Testing, Inspection:

1. Tanks shall be tested and inspected at the point of manufacture with the written documentation of the test result supplied to the Contractor. The Contractor shall be notified a minimum of 2 weeks prior to all scheduled testing of tanks at the manufacturer's site. Tests shall include, but are not limited to the following:
 - a. Resin cure development test (gel test) shall be performed on each tank exterior resin mix.
 - b. Acetone test at equally spaced external locations, as described in 1.4.A.1b above, to detect inadequate cure. Acetone tests will be conducted as follows:
 - 1) Saturate a clean, lint-free rag with commercial grade acetone.
 - 2) Wipe the rag to wet a 6-inch diameter circle.
 - 3) Allow wet circle to dry for 5 to 10 minutes.
 - 4) Touch the circle. If the surface is tacky, the cure is inadequate and additional curing (possibly at elevated temperature) or other approved remedial action is required.
 - 5) Acetone test shall be done with the tank well ventilated.
 - c. Compliance check of tank and accessory dimension per vendor drawings.

2. The Contractor may inspect tanks at any time during tank fabrication, testing, or preparation for shipping. Notify the Contractor at least 24 hours prior to loading tanks for shipping.
3. Tanks shall not be shipped without approval from the Contractor. A clearance for shipment shall not relieve the fabricator's responsibility as to performance guarantees, quality of materials and workmanship, and dimensional conformity with the drawings.

1.6 DELIVERY AND HANDLING

A. Preparation for Shipment:

1. In addition to any special requirements for shipping, handling, storage, and protection provided in this specification, the tanks shall be prepared and protected for shipment and shipped as specified in ASTM D-3299.
2. Prior to inspection and loading, all dirt and extraneous materials shall be removed from the tank interior. All exterior surface markings, coatings, or contaminants shall be removed prior to shipment.
3. Tanks designed for high-purity potable water service shall be internally pressure washed. Non high-purity tanks shall be rinsed with potable water.

B. Packing and Loading

1. All materials fabricated to this Specification shall be packaged, crated, or protected in such a manner as to prevent damage in handling and while in transit.
2. No components or other pieces shall be shipped loose inside the tanks.
3. Regardless of the mode of transportation, all components shipped shall be firmly fastened and padded to prevent shifting of the load or flexing of components while in transit.
4. The fabricator shall deliver undamaged tanks meeting all specifications and standards to the job site.
5. Pipe, tubing, fittings, gaskets and bolts to any other small miscellaneous parts and accessories shall be padded and packaged in a crate or box and shall be shipped separately. Ladders do not need to be crated.

1.7 SUBMITTALS

A. Provide the following in addition to the standard requirements with bid:

1. Detailed description of the laminate and the type of reinforcing to be used in construction for each layer, including:
 - a. Resin blend.
 - b. Catalyst/promoter/accelerator.
 - c. Structural reinforcement materials and sizes.
 - d. Interior surface veil thickness and composition.

B. Shop drawings shall be submitted within 2 weeks of subcontract for review, including:

1. Tank warranty.

2. Detailed shop drawings showing dimensions of equipment, all nozzles and manways, and construction materials.
- C. The fabricator can provide updated shop drawings showing as-built fabrication information.

PART 2-PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers:

Any vendor that can furnish at least a 50,000 gallon water tank that conforms to *NFPA 1142 Standard for Water Tank for Private Fire Protection.*

2.2 MATERIALS

A. Resin:

1. The equipment shall be fabricated using the corrosion-resistant resin specified below. Unless otherwise specified, the resin shall be used throughout all laminates.
2. Catalyst/promoter/accelerators shall be commercial grade cobalt naphthenate with dimethyl aniline, benzoyl peroxide, and methyl ethyl ketone peroxide appropriate to the resin blend, enforcement and manufacturer's equipment. Positive measurement control of catalysts, promoters, and resins shall be maintained at all times.
3. No fillers, additives, or pigments shall be employed in the resin, except as specified below. A thixotropic agent for viscosity control may be used as recommended by the resin manufacturer. No thixotropic agent is to be used in the corrosion liner or on surfaces to be in contact with the corrosive environment. Use of this additive is subject to the approval of the Contractor.
4. Resin putty shall be made using the same resin as was used in the component laminates. Resin putty shall contain a minimum 15 percent by weight of milled glass fibers. The use of silica flour, grinding dust or other fillers is not allowed.
5. Resin: acceptable commercial-grade vinyl-ester resins, including Co-Rezyn 8300, Derakane 411, and Hetron 922. The manufacturer shall confirm the recommended resin and corrosion barrier is appropriate for the specified contents. All corrosion barrier surfaces must be fabricated from the same resin blend.
6. Resin must meet NSF 61 approved resins with UV inhibitors.

B. Reinforcement:

1. Type and sequence of reinforcement to be used shall be as designed in Section 2.3.
2. All glass fiber reinforcing shall have epoxy compatible with silane-type surface finish and binder that is recommended by the glass manufacturer for the particular resin system to be used.
3. Surfacing veils on interior surfaces shall be 10-mil Nexus® veil or Type C- glass veil as specified on the tank datasheets.

4. Surfacing veil used on the tank exterior (if requested) surfaces shall be 10- mil Type C-glass veil.
5. Mat shall be type E glass, 1 Y, ounces or % ounce per square foot as specified in the laminate sequence charts with nominal fiber length of 1.25 plus or minus 0.75 inch.
6. Continuous roving used in chopper gun for spray up shall be Type E glass.
7. Woven roving shall be Type E glass, nominal 24 ounces per square yard, 4 by 5 weave with silane-type finish.
8. Continuous roving used for filament winding shall be Type E glass with a silane-type finish with a nominal yield of 110 yards or more per pound.

2.3 FABRICATION

- A. All tanks shall be filament/chop-hoop shell construction wound in accordance with ASTM D-3299, Type I or Type II, as applicable, with continuously supported flat bottoms and straight sides.
- B. Corrosion barrier construction (number of veil and mat layers) and minimum thickness shall be as specified on the tank data sheets. The corrosion barrier strength shall not be included in tank structural calculations.
- C. Post-curing of the water storage tank laminate (if necessary) shall consist of a cure temperature of at least 180-degree F for a minimum of 4 hours. Where steam is used in the curing process, care shall be taken that no steam impinges on the interior surface or the inside of any nozzle. For this purpose, a steam spurge pipe projecting at least 12 inches beyond the interior surface of the nozzle and 12 inches from any wall is recommended. During steam post curing, the tank shall be maintained at atmospheric pressure.
- D. Lifting Lugs: Closed-top tanks shall be provided with at least two lifting lugs equally spaced and located appropriately. Lifting lugs shall be designed to limit flexing when used to lift the tank vertically or horizontally. Lifting lugs shall be of manufacturer's design using galvanized steel. Eyebolts shall be commercially available steel eyebolts suitable for supporting the tank at any angle during unloading and installation. Follow fabricator's handling recommendations.
- E. Nozzles and manways shall be fabricated per ASTM D3299 and in compliance with ANSI B. 16.5 for 150-pound drilling. All nozzles shall be single-piece construction, contact molded by hand Jay-up. No slip-on flanges are permitted. Machine facing of the back of the flanges is not permitted. All nozzles and flanges shall have a minimum thickness as specified by ASTM D4097-881. Compression-molded and filament-wound flanges are not acceptable. Nozzle boltholes shall straddle tank vertical centerline or radial centerlines on tank tops. Tolerance in bolthole locations and bolt circle diameter shall be with Y. inch. Boltholes shall be spot faced for SAE washers. Bolt/nuts for manways and blind flanges shall be a

minimum of zinc plated steel unless otherwise specified on tank data sheets.

- F. All flanges 12" and under shall be reinforced with 3/8-inch minimum thickness flat plate gussets, except for drain nozzles, which require specially designed reinforcing. Nozzles shall include four plate gussets each. Gusset locations shall not interfere with flange bolting. Gussets shall continuously contact the nozzle exterior surface and the tank wall (or top). Gusset contact length at tank wall and nozzle shall be equal.
- G. Gaskets: The manway and blind flange nozzles shall be provided with the gaskets specified in the tank data sheets.
- H. All cured resin surfaces to be joined shall be roughened by sanding or grinding extending beyond the work area. Surfaces shall be clean and dry prior to lay-up prior or winding. The entire sanded surface shall be resin coated when the joint is made.

2.4 ACCESSORIES

- A. Tank tops: If requested, the top surface of all tanks shall be provided with a full non slip surface created by a heavy sprinkling of sand into the final surface resin coating.
- B. Ladders: Ladders will be attached to the tank brackets with zinc-plated bolts, nuts, and double washers.
- C. Ladder Fabrication Requirements:
 - 1. Shall meet all regulatory requirements.
 - 2. Bottom rung shall be no higher than 8 inches *above* the tank bottom.
 - 3. Rungs shall be *evenly* spaced not more than 12 inches on center.
 - 4. Top rungs shall be flush with landing surface.
 - 5. Clear Rung Width: 16 inches min.
 - 6. Rungs shall be 7 inches from centerline of rungs to surfaces behind the ladder.
 - 7. Standoff clips shall be *evenly* spaced but not more than 8 feet on center at each side rail.
 - 8. Top standoff clips shall be 6 inches below landing surface.
 - 9. Side rails shall extend 42 inches *above* landing surface.
 - 10. Safety cages shall be provided with all ladders *over* 20 feet in height.
- D. Nameplates: Attach a permanent weatherproof equipment identification label to each tank. The label shall state the following information:
 - 1. Equipment identification number.
 - 2. Capacity in U.S. gallons
 - 3. Name of manufacturer.
 - 4. Manufacturer serial number.
 - 5. Year built.

6. Purchase order number.
7. Resin blend and catalyst/promoters system.
8. Surface *veil*.
9. Liner material.
10. Design temperature and pressure.
11. Tank dimensions.
12. Tank weight (empty).
13. Tank weight (full of water).

The label shall be clear coated to prevent chemical corrosion steel.

PART 3 - EXECUTION

- A. During installation of the tanks, care shall be taken to prevent contamination of the interior of the tank. Nozzles and manways shall be *covered* except when work is being done on the tank. At least one nozzle shall remain open to prevent pressure buildup in the tank.
- B. Entry into tanks shall be minimized. When working in the tanks, care shall be taken not to damage the interior surfaces. If ladders are placed in the tank, protection shall be provided between the tank surface and the ladder.
- C. Tanks are considered a confined space. A confined space entry permit shall be obtained, and all contractor confined space entry procedures shall be followed.
- D. After hydrostatic testing, tanks shall be thoroughly rinsed, drained, and dried. Tanks for high-purity services shall be dried within 24 hours of testing.
- E. The tank shall be inspected by the Contractor after completion of field assembly and testing and prior to field cleaning.

End of Section

Specifications for Rabbit Ear Fire Department Water Storage Tanks

Company	
Model	
Fiberglass	
Roof Type	
Diameter	
Height	
Gross Tank Capacity - Maximum 50,000 gals	
Fittings & Accessories	
Tank- NFPA 1142 Standard for Water Tank for Private Fire protection	
Exterior Liner-	
Corrosion Liner-	
Exterior Color	
Pressure - Atmospheric	
Design Temp - Ambient	
Construction - ASTM D3299	
Capacity-	
Service - Storage Water	
Nozzle Schedule:	
24" manway	
2" inlet	
6" outlet	
3" overflow	
Field/site gauge with clips & fittings	

Price should include installation at site. Delivery charge per mile

VENDOR

_____	TANK \$ _____
_____	Additional Tank \$ _____
_____	Travel \$ _____
_____	TOTAL \$ _____