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ABSTRACT

TITLE:- COMPOSITE DOUBLE-WALL UNDERGROUND TANK
STRUCTURE AND METHOD FOR MAKING SAME

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A composite double-wall underground tank comprises an internal rotatable metal mandrel tank frame structure surmounted by two individual concentric corrugated cylindrical nonmetallic pressure vessels having hemispherical ends. The metal tank frame structure provides the buckling resistance and compression strength to resist soil loads when the tank is buried. The pressure vessels are made of identical materials and include an internal primary container enclosed by an external secondary container of equal tensile strength and corrosion-resistance. The composite double-wall underground tank is a substantial improvement over conventional steel and fiberglass tanks, and provides a more reliable method of protecting the environment by preventing the release of contaminating hazardous liquids stored in the tank. Each of the two pressure vessels is made from a multiple ply composite laminate having a unique arrangement of fabrics containing filament reinforcements impregnated with a thermosetting polymeric matrix. The hemispherical ends have sealable axle access openings. The top tank fitting outlets include non-corrugated portions of the

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cylindrical laminate structures bonded together and sandwiched between bolted metal plates that are structurally connected to the tank frame and sealed with an overlapping laminate structure.

Figure 1 of the drawings should accompany the abstract when published

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