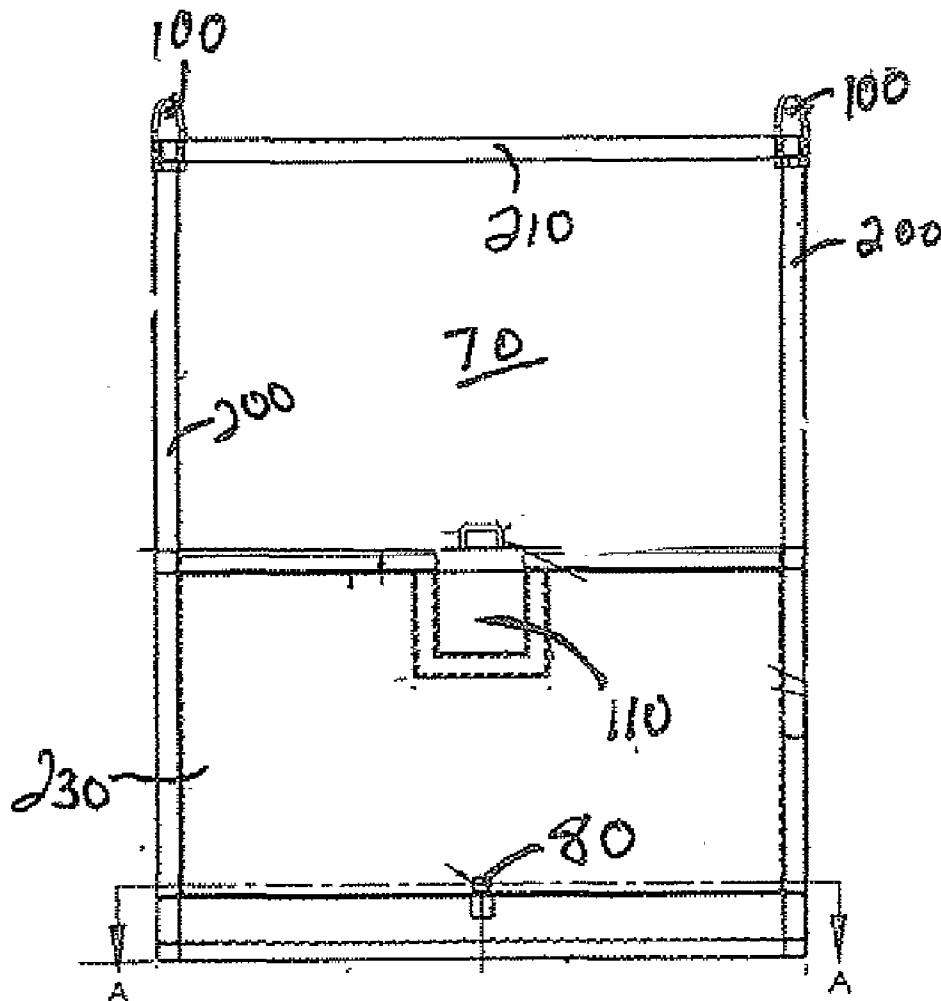




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Guarisco, JR.(10) **Pub. No.: US 2014/0373923 A1**(43) **Pub. Date: Dec. 25, 2014**(54) **METHOD AND APPARATUS FOR
TRANSPORTING CHEMICAL TANKS****Publication Classification**(71) Applicant: **Leonard J. Guarisco, JR.**, Morgan City,
LA (US)(72) Inventor: **Leonard J. Guarisco, JR.**, Morgan City,
LA (US)(21) Appl. No.: **14/311,673**(22) Filed: **Jun. 23, 2014****Related U.S. Application Data**(60) Provisional application No. 61/838,020, filed on Jun.
21, 2013.(51) **Int. Cl.**
B65D 90/24 (2006.01)(52) **U.S. Cl.**
CPC **B65D 90/24** (2013.01)
USPC **137/1; 137/312**(57) **ABSTRACT**

A system for transporting chemical tanks and preventing chemical spills with secondary containment frame having a chemical containment area. Chemical tanks may be secured within the secondary containment frame and any leaks from the chemical tanks may be contained by the chemical containment area. Tanks may be secured to tank racks prior to placing the tanks and tank racks into the secondary containment frame. The secondary containment frame may be placed upon a vehicle for vessel for transport.



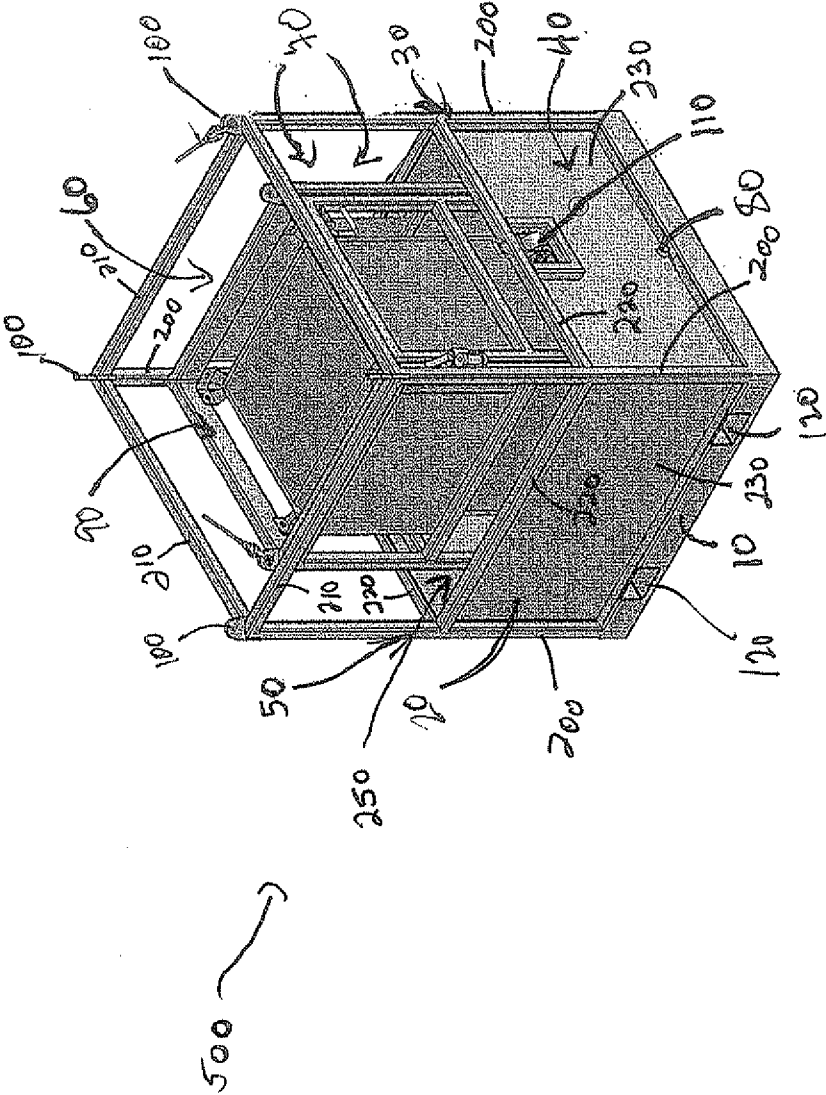
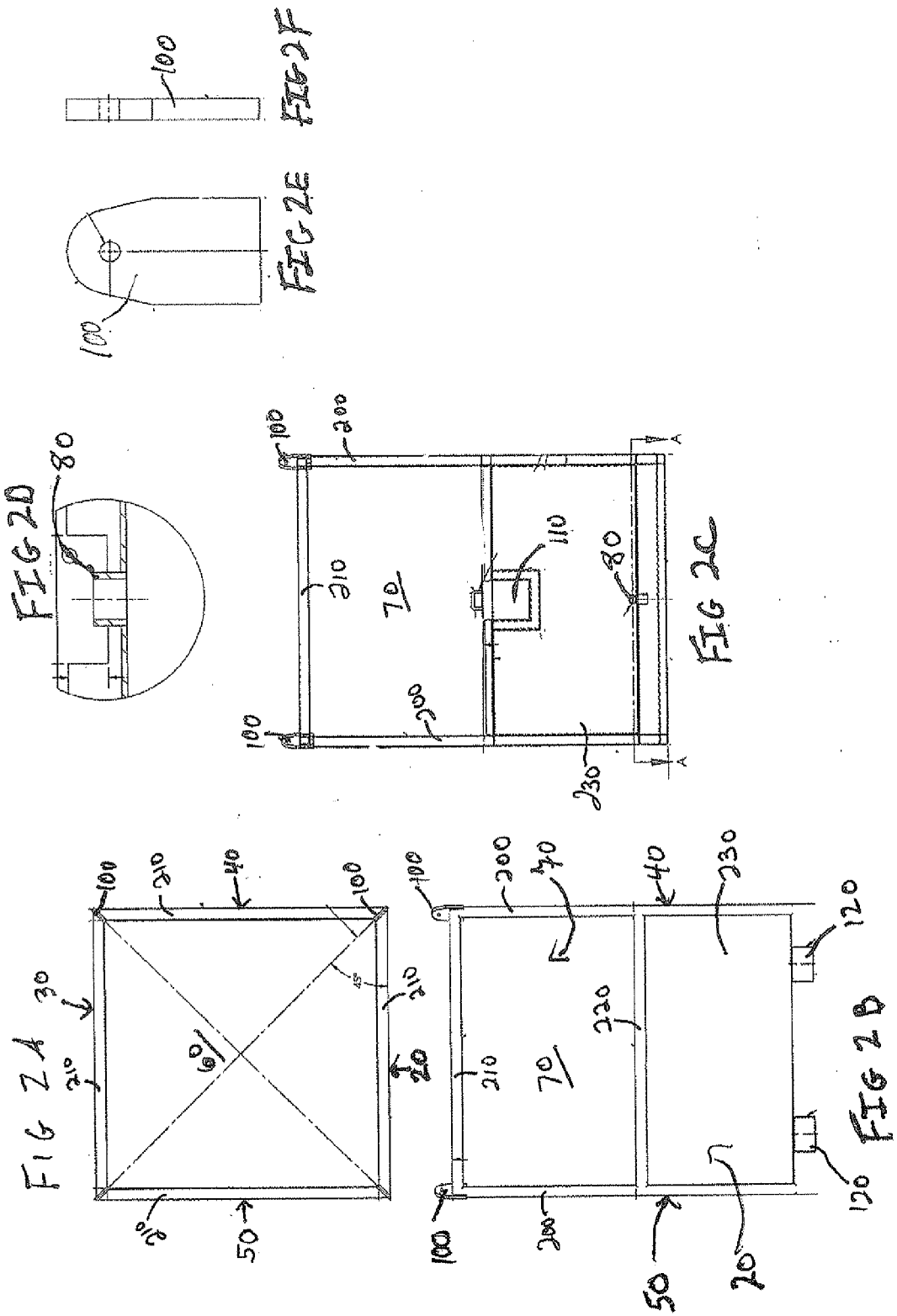


FIG. 1



METHOD AND APPARATUS FOR TRANSPORTING CHEMICAL TANKS

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims benefit of U.S. Provisional Application 61/838,020 filed Jun. 21, 2014 which is incorporated herein by reference.

FIELD

[0002] The present invention relates generally to an apparatus and method for containing leakage or overflow from tanks and, more particularly, to an apparatus for and a method of providing a secondary containment frame for bulk container tanks attached to racks.

BACKGROUND

[0003] Container tanks, such as intermediate bulk container (IBC) tanks, commonly called "tote" tanks, are often used in the transfer and/or shipment of materials. The tote tanks may pass through various platforms and rigs during transportation. The IBC tanks often may contain chemicals that are dangerous or otherwise pose an environmental risk if the chemicals were to leak from the IBC tanks. IBC tanks may be secured to and transported in tote tank racks to provide stability and/or ease of manipulation of the tote tanks during transportation. However, there still remains the possibility that a tote tank may begin to leak, presenting a risk to those in the vicinity and/or to the environment. Accordingly, there is a need for a secondary containment frame apparatus that can contain leakage from a tote tank and preferably allow manipulation of the tote tank via a tote tank rack or similar frame.

SUMMARY

[0004] In an exemplary embodiment of the present invention, a secondary containment frame is provided, including: a bottom, a front, a back substantially parallel to the front, a first side substantially perpendicular to the front and back, a second side substantially parallel to the first side, and an open top portion. The bottom and at least portions of the front, back, first side, and second side form a chemical containment area. The secondary containment frame is configured to contain a chemical tank.

[0005] The secondary containment frame may include a plurality of corner bars extending vertically from the bottom. The corner bars may be joined by a plurality of upper bars. The upper bars may form the open top portion. The secondary containment frame may include a plurality of secondary support bars extending between adjacent corner bars and located between the bottom and the upper bars. The secondary containment frame may include a plurality of containment walls disposed between lower portions of adjacent corner bars, the bottom, and the secondary support bars. The secondary containment frame may include a drain connected to the chemical containment area. The secondary containment frame may include a plurality of lift lugs. The secondary containment frame may include lift apertures disposed within the bottom. The secondary containment frame may include a ratchet strap.

[0006] In an exemplary embodiment of the present invention, a system for transporting chemical tanks is provided, including: a chemical tank, at least one of a vessel and a

vehicle, a secondary containment frame, having a bottom, a front, a back substantially parallel to the front, a first side substantially perpendicular to the front and back, a second side substantially parallel to the first side, and an open top portion. The chemical tank is transported via the at least one of a vessel and a vehicle. The bottom and at least portions of the front, back, first side, and second side form a chemical containment area. The secondary containment frame is configured to secure the chemical tank within the secondary containment frame. The secondary containment frame is placed onto the at least one of a vessel and a vehicle.

[0007] The system may include a tank rack. The chemical tank may be first secured within the tank rack and the chemical tank may be secured within the secondary containment frame via securing the tank rack within the secondary containment frame. The system may include a drain connected to the chemical containment area. The system may include containing leaked chemical from the chemical tank with the chemical containment area. The system may include disposing of the leaked chemical via the drain.

[0008] In an exemplary embodiment of the present invention, a method of transporting chemical tanks is provided, including: securing a chemical tank within a secondary containment frame having a chemical containment area; and transporting the secondary containment frame. The chemical containment area is configured to contain a leak from the chemical tank. The method may include securing the chemical tank within a tank rack before securing the chemical tank within the secondary containment frame. The tank rack may be used for manipulating the chemical tank into the secondary containment frame.

DESCRIPTION OF DRAWINGS

[0009] FIG. 1 is an isometric view of a secondary containment frame containing a tote tank rack according to an exemplary embodiment of the present invention.

[0010] FIG. 2A is a top view of a secondary containment frame according to an exemplary embodiment of the present invention.

[0011] FIG. 2B is a front view of the secondary containment frame shown in FIG. 2A.

[0012] FIG. 2C is a side view of the secondary containment frame shown in FIG. 2A.

[0013] FIG. 2D is an enlarged view of a portion of section A-A shown in FIG. 2C.

[0014] FIG. 2E is a front view of a lift lug according to an exemplary embodiment of the present invention.

[0015] FIG. 2F is a side view of the lift lug shown in FIG. 2E.

DETAILED DESCRIPTION

[0016] Embodiments of the present invention provide a secondary containment frame which may be used to transport tanks or combinations of tanks and tank racks. Embodiments of the present invention provide the ability to contain a leak from a tank that is transported within the embodiments. Embodiments of the present invention may be configured such that a tank may be securely placed within the secondary containment frame. In certain embodiments of the present invention, a tank may be securely placed within the secondary containment frame while still attached to a rack, allowing for enhanced manipulation of the tank. Further embodiments of the present invention provide for an improved method of

transporting tanks or similar containers that may contain chemicals. Embodiments of the present invention provide a chemical containment area configured to contain leakage or overflow from a tank placed within the present invention. The chemical containment area may include a drain configured to allow chemical leakage contained by the present invention to be drained into an appropriate container for further processing and/or disposal. Embodiments of the present invention provide a method of preventing or reducing chemical leakage and/or environmental harm in the transportation of chemicals contained in tanks.

[0017] Referring now to the drawings, and in particular to FIG. 1, there is shown a secondary containment frame **500** having a bottom **10**, which may be substantially square, a front **20**, a back **30**, a first side **40** and a second side **50**. Front **20** and back **30** may be substantially parallel to each other and substantially perpendicular to first side **40** and second side **50**. Secondary containment frame **500** may have an open top portion **60**. Bottom **10** and at least portions of front **20**, back **30**, first side **40** and second side **50** form a chemical containment area **250** at a lower portion of secondary containment frame **500**. Front **20**, back **30**, first side **40** and second side **50** may each have substantial openings **70** which may allow for access to the interior contents of the frame.

[0018] As shown in FIG. 1, secondary containment frame **500** may include a plurality of frame members joined together. Corner bars **200** may extend vertically from the corners of bottom **10**. At ends distal from bottom **10**, corner bars **200** may be joined by upper bars **210**. Upper bars **210** form a square approximately the same size as bottom **10**.

[0019] The inner space formed by upper bars **210** provides open top portion **60**. Corner bars **200** may also be joined by secondary support bars **220**. Secondary support bars **220** extend between adjacent corner bars **200** and may be located at a position between bottom **10** and the upper bar **210** connected to the same adjacent corner bars **200**.

[0020] Containment walls **230** may be disposed between each secondary support bar **220** and bottom **10**. Containment walls **230** may form portions of front **20**, back **30**, first side **40** and second side **50**, including the chemical containment area **250**. The secondary containment frame **500** may include drain **80** connected to the chemical containment area, which may provide the ability to drain any chemicals caught in the chemical containment area **250** after a tank leak. Spaces above secondary support bars **220** may be left open and may provide access to a tote tank and/or tote tank rack placed within the secondary containment frame **500**.

[0021] As shown in FIG. 1, a tote tank rack **90** containing a tote tank may be placed within the secondary containment frame **500**. The secondary containment frame **500** provides the advantage of leaving the tote tank secured to a tote tank rack when it is placed within the present invention, enhancing the ability to manipulate the tote tank in and out of the secondary containment frame. The secondary containment frame **500** may include a plurality of lift lugs **100** which provide the ability to lift the entire frame. The secondary containment frame **500** may incorporate one or more ratchet straps **110**, which may be engaged to secure the tote tank rack **90** or a tank within the frame. The secondary containment frame **500** may further incorporate forklift apertures **120**, allowing for manipulation of the secondary containment frame **500** with a forklift.

[0022] FIGS. 2A and 2B provide a top view and a front view of the present invention according to an exemplary embodi-

ment. As shown in these figures, no tank or rack system has been placed within the secondary containment frame. FIGS. 2C and 2D provide a side view of the secondary containment frame and an expanded view a portion of section A-A of the secondary containment frame. FIGS. 2E and 2F provide views of lift lug **100**.

[0023] Embodiments of the present invention may be configured to permit insertion of a tank. The tank may be secured to a tote tank rack prior to installation. The tote tank and tote tank rack may be lifted via lift connections on the tote tank rack and placed within the secondary containment frame. The secondary containment frame may be then lifted upon a vessel or other transportation vehicle. Alternatively, the tote tank rack and tote tank may be placed within the secondary containment frame wherein the secondary containment frame is already on a vessel or transportation vehicle. The secondary containment frame may provide protection to personnel and other equipment on a vessel when a tank rack and tank are lifted from the vessel and onto a platform. Embodiments of the secondary containment frame provide additional protection against leaks from chemical tanks of different types.

[0024] In exemplary embodiments, a method of transporting chemical containing tanks is provided. Embodiments include attaching the tote tank to a rack and placing the combination of tote tank and tote tank rack within a secondary containment frame. In certain embodiments, the secondary containment frame may be first placed upon a vessel or may be lifted upon a vessel after the combination of tote tank and tote tank rack are secured to the secondary containment frame. In exemplary embodiments, a leaking tote tank may be placed within a secondary containment frame without first having to remove the tote tank from a tote tank rack, which may then contain the leak within the secondary containment frame. Accordingly, embodiments allow for faster responses to leaks and reduced threats to the environment.

[0025] In exemplary embodiments, a system of transporting chemical tanks is provided. A chemical tank is placed into a secondary containment frame of the present invention and secured for transport. The chemical tank may be placed directly into the secondary containment frame or it may be first attached to a tank rack. When the chemical tank is first attached to the tank rack, the tank rack may be used to manipulate the chemical tank and to place the combination of the tank rack and the chemical tank into the secondary containment frame. The chemical tank may be secured directly to the secondary containment frame, the tank rack may be secured directly to the secondary containment frame, or any combination thereof. Securing the tank within the secondary containment frame may include a ratchet strap. Once secured within the secondary containment frame, the chemical tank may be transported via vessel or vehicle. If the secondary containment frame is not on a vehicle or vessel, the secondary containment frame may be placed upon a vehicle or vessel via a plurality of lift lugs and/or forklift apertures. By placing the chemical tank into the secondary containment frame for transport, whether or not the chemical tank is attached to a tank rack, risks of a spill during transportation of the chemical tank are substantially reduced. In the event of a leak from the tank, the secondary containment frame will contain the leaked chemical within the chemical containment area, allowing for proper disposal of the leaked chemical.

[0026] While the embodiments are described with reference to various implementations and exploitations, it will be understood that these embodiments are illustrative and that

the scope of the inventions is not limited to them. Many variations, modifications, additions, and improvements are possible. Support for the present invention may be found in the attached documents and figures, all of which are expressly incorporated herein in their entirety by reference hereto.

What is claimed is:

1. A secondary containment frame, comprising:
 - a bottom,
 - a front,
 - a back substantially parallel to the front,
 - a first side substantially perpendicular to the front and back,
 - a second side substantially parallel to the first side, and
 - an open top portion,
 - wherein the bottom and at least portions of the front, back, first side, and second side form a chemical containment area; and
 - wherein the secondary containment frame is configured to contain a chemical tank.
2. The secondary containment frame of claim 1, further comprising:
 - a plurality of corner bars extending vertically from the bottom,
 - wherein the corner bars are joined by a plurality of upper bars, and
 - wherein the upper bars form the open top portion.
3. The secondary containment frame of claim 2, further comprising:
 - a plurality of secondary support bars extending between adjacent corner bars and located between the bottom and the upper bars.
4. The secondary containment frame of claim 3, further comprising:
 - a plurality of containment walls disposed between lower portions of adjacent corner bars, the bottom, and the secondary support bars.
5. The secondary containment frame of claim 1, further comprising:
 - a drain connected to the chemical containment area.
6. The secondary containment frame of claim 1, further comprising:
 - a plurality of lift lugs.
7. The secondary containment frame of claim 1, further comprising:
 - lift apertures disposed within the bottom.
8. The secondary containment frame of claim 1, further comprising:
 - a ratchet strap.

9. A system for transporting chemical tanks, comprising:
 - a chemical tank,
 - at least one of a vessel and a vehicle,
 - a secondary containment frame, comprising:
 - a bottom,
 - a front,
 - a back substantially parallel to the front,
 - a first side substantially perpendicular to the front and back,
 - a second side substantially parallel to the first side, and
 - an open top portion,
 - transporting the chemical tank within the secondary containment frame via the at least one of a vessel and a vehicle;
 - wherein the bottom and at least portions of the front, back, first side, and second side of the secondary containment frame form a chemical containment area;
 - wherein the secondary containment frame is configured to secure the chemical tank within the secondary containment frame; and
 - wherein the secondary containment frame is placed onto the at least one of a vessel and a vehicle.
10. The system of claim 9, further comprising:
 - a tank rack;
 - wherein the chemical tank is first secured within the tank rack and the chemical tank is secured within the secondary containment frame via securing the tank rack within the secondary containment frame.
11. The system of claim 9, further comprising:
 - a drain connected to the chemical containment area.
12. The system of claim 9, further comprising:
 - containing leaked chemical from the chemical tank within the chemical containment area.
13. The system of claim 12, further comprising: disposing of the leaked chemical via the drain.
14. A method of transporting chemical tanks, comprising:
 - securing a chemical tank within a secondary containment frame having a chemical containment area; and
 - transporting the secondary containment frame;
 - wherein the chemical containment area is configured to contain a leak from the chemical tank.
15. The method of claim 12, further comprising:
 - securing the chemical tank within a tank rack before securing the chemical tank within the secondary containment frame;
 - wherein the tank rack is used for manipulating the chemical tank into the secondary containment frame.

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