~~THE CLAIMS~~

~~We claim:~~

~~1. A method of performing a selected task in a tank (10) at least partially filled with an energetic substance (12, 14), the method characterized by:~~

~~sizing a mobile platform (100) to be smaller than a parallelogram shaped opening having a width no greater than 36 inches (914.4 mm) and a length no greater than 72 inches (1,828.8 mm);~~

~~configuring the mobile platform (100) to include at least:~~

~~at least one control unit (300),~~

~~at least one marker detector (306),~~

~~at least one propulsion system (400),~~

~~at least one power supply (500),~~

~~at least one spark neutralizing body (1700),~~

~~at least one enclosure (200), and~~

~~a plurality of spark generating components (1710);~~

~~configuring the mobile platform (100) to be inherently safe by positioning each of the plurality of spark generating components (1710) inside at least one of:~~

~~(i) at least one inherently safe enclosure (200), wherein the at least one inherently safe enclosure (200) prevents a spark occurring inside the at least one inherently safe enclosure (200) from passing to an exterior of the at least one inherently safe enclosure (200), wherein the spark is capable of igniting the energetic substance (12, 14), and~~

~~(ii) at least one spark neutralizing body (1700) formed of~~

~~at least one non-flammable substance, the at least one spark-neutralizing body (1700) positioned inside at least one enclosure (200), the at least one spark-neutralizing body (1700) blocking direct contact between a spark from the enclosed at least one spark-generating component (1710) and an energetic substance (1714) from occurring inside the at least one enclosure (200), wherein the spark is capable of igniting the energetic substance (1714);~~

~~positioning at least one of the plurality of spark-generating components (1710) not inside any inherently safe enclosure (200) that prevents a spark occurring inside the inherently safe enclosure (200) from passing to an exterior of the inherently safe enclosure (200), wherein the spark is capable of igniting the energetic substance (12, 14);~~

~~lowering the mobile platform (100) into the tank (10) using a deployment carrier (50, 764, 780);~~

~~at least partially submerging the mobile platform (100) in the energetic substance (12, 14);~~

~~detecting at least one marker (320; 902a,b,c,d; 910) associated with the tank (10) using the at least one marker detector (306);~~

~~generating at least one control signal (308, 310, 312) based on the at least one detected marker (320; 902a,b,c,d; 910) by using the at least one control unit (300);~~

~~moving the mobile platform (100) using a propulsion system (400) to perform the selected task, wherein the propulsion system (400) is controlled by at least one control signal (308) and uses a rotary power device (402); and~~

~~retrieving the mobile platform (100) from inside the tank (10) to outside the tank (10),~~

~~wherein no active physical carrier connects the mobile platform (100) to an object exterior of the tank (10) while the mobile platform (100) is in the tank (10).~~

~~2. The method of claim 1, further characterized in that the at least one spark-neutralizing body (1700) includes at least one of: (i) a gas, (ii) a liquid, (iii) a solid, (iv) a particulate solid, and (v) mixtures thereof.~~

~~3. The method of claim 1, further characterized in that the at least one spark-neutralizing body (1700) is a solid that completely encapsulates the at least one spark-generating component (1710).~~

~~4. The method of claim 1, further characterized in that the at least one spark-neutralizing body (1700) includes a liquid in which the at least one spark-generating component (1710) is completely immersed.~~

~~5. The method of claim 1, further characterized in that the at least one spark-neutralizing body (1700) includes a particulate solid in which the at least one spark-generating component (1710) is completely immersed.~~

~~6. The method of claim 1, further characterized in that the at least one spark-neutralizing body (1700) includes a pressurized gas preventing the portion of the energetic substance (12, 14) from entering an interior (208) of the enclosure (200) in which the at least one spark-neutralizing body is disposed.~~

~~7. The method of claim 1, further characterized in that the at least one enclosure (200) includes a plurality of enclosures (200), wherein the plurality of spark-generating components (1710) are distributed among at least two enclosures of the plurality of enclosures (200), and wherein each of the spark-generating components (1710) is enclosed by an associated spark-neutralizing body (1700).~~

~~8. The method of claim 7, further characterized in that at least one of the spark neutralizing bodies (1700) is formed at least partially of a nonflammable substance that is different from a nonflammable substance from which another of the spark neutralizing bodies (1700) is at least partially formed.~~

~~9. The method of claim 1, further characterized in that all spark generating components (1710) of the mobile platform (100) are not positioned inside any inherently safe enclosure (200).~~

~~10. The method of claim 1, further characterized in all spark generating components (1710) are positioned inside at least one spark neutralizing body (1700).~~

We claim:

1. A method of performing a selected task in a tank at least partially filled with an energetic substance, the method characterized by:

- sizing a mobile platform to be smaller than a parallelogram-shaped opening having a width no greater than 36 inches (914.4 mm) and a length no greater than 72 inches (1,828.8 mm);
- configuring the mobile platform to include at least:
  - at least one control unit,
  - at least one marker detector,
  - at least one propulsion system,
  - at least one power supply,
  - at least one spark-neutralizing body,
  - at least one enclosure, and
  - a plurality of spark-generating components;
- configuring the mobile platform to be inherently safe by positioning each of the plurality of spark-generating components inside at least one of:

(i) at least one inherently safe enclosure, wherein the at least one inherently safe enclosure prevents a spark occurring inside the at least one inherently safe enclosure from passing to an exterior of the at least one inherently safe enclosure, wherein the spark is capable of igniting the energetic substance, and

(ii) at least one spark-neutralizing body formed of at least one non-flammable substance, the at least one spark-neutralizing body positioned inside at least one enclosure, the at least one spark-neutralizing body blocking direct contact between a spark from the enclosed at least one spark-generating component and an energetic

substance from occurring inside the at least one enclosure, wherein the spark is capable of igniting the energetic substance;

- positioning at least one of the plurality of spark-generating components not inside any inherently safe enclosure that prevents a spark occurring inside the inherently safe enclosure from passing to an exterior of the inherently safe enclosure, wherein the spark is capable of igniting the energetic substance;

- lowering the mobile platform into the tank using a deployment carrier;

- at least partially submerging the mobile platform in the energetic substance;

- detecting at least one marker associated with the tank using the at least one marker detector;

- generating at least one control signal based on the at least one detected marker by using the at least one control unit;

- moving the mobile platform using a propulsion system to perform the selected task, wherein the propulsion system is controlled by at least one control signal and uses a rotary power device; and

- retrieving the mobile platform from inside the tank to outside the tank,

wherein no active physical carrier connects the mobile platform to an object exterior of the tank while the mobile platform is in the tank.

2. The method of claim 1, further characterized in that the at least one spark-neutralizing body includes at least one of: (i) a gas, (ii) a liquid, (iii) a solid, (iv) a particulate solid, and (v) mixtures thereof.

3. The method of claim 1, further characterized in that the at least one spark-neutralizing body is a solid that completely encapsulates the at least one spark-generating component.

4. The method of claim 1, further characterized in that the at least one spark-neutralizing body includes a liquid in which the at least one spark-generating component is completely immersed.

5. The method of claim 1, further characterized in that the at least one spark-neutralizing body includes a particulate solid in which the at least one spark-generating component is completely immersed.

6. The method of claim 1, further characterized in that the at least one enclosure includes a plurality of enclosures, wherein the plurality of spark generating components are distributed among at least two enclosures of the plurality of enclosures, and wherein each of the spark generating components is enclosed by an associated spark neutralizing body.

7. The method of claim 6, further characterized in that at least one of the spark neutralizing bodies is formed at least partially of a nonflammable substance that is different from a nonflammable substance from which another of the spark neutralizing bodies is at least partially formed.

8. The method of claim 1, further characterized in that all spark-generating components of the mobile platform are not positioned inside any inherently safe enclosure.