

What is claimed is:

1. A system to inspect a tank containing a flammable fluid, comprising:
 - a vehicle comprising a propeller, a battery, a control unit, an inspection device, and a ranging device;
 - the battery of the vehicle providing power to the propeller, the control unit, the inspection device, and the ranging device;
 - the control unit generating, based on data received from the ranging device, a map of the tank, and determining a first position of the vehicle on the map of the tank;
 - the propeller of the vehicle, electrically connected to the battery, moving the vehicle through the flammable fluid in the tank;
 - the inspection device, electrically connected to the battery, comprising a pulsed eddy current array for obtaining inspection data indicative of a quality of a tank wall;
 - the control unit, electrically connected to the battery, the ranging device, the propeller, and the inspection device, configured to:
 - cause the propeller to move the vehicle from the first position to a second position within the tank;
 - obtain, via the inspection device, first inspection data indicative of the quality of the tank wall at a portion of the tank at the second position within the tank; and
 - store, in a data structure in memory of the vehicle, the first inspection data corresponding to the second position within the tank.
2. The system of claim 1, wherein the first inspection data indicates the quality of the tank wall comprising a thickness of the tank wall at the second position within the tank.
3. The system of claim 1, comprising:
 - an external computing device located external to the tank, the external computing device to receive the inspection data comprising the first inspection data, and determine the quality of the tank wall based on the inspection data.
4. The system of claim 3, comprising:
 - the inspection device to obtain the inspection data for each portion of a plurality of portions of the tank; and

the external computing device to determine a separate quality metric for each portion of the plurality of portions of the tank.

5. The system of claim 4, comprising the external computing device to:
 - determine, based on the inspection data for each portion of the plurality of portions of the tank, an isolated defect at a portion of the tank; and
 - determine, based on the inspection data, a general wall loss of the tank.
6. The system of claim 1, comprising an external computing device located external to the tank to:
 - receive the inspection data comprising the first inspection data;
 - determine, based on the first inspection data, a defect diameter at the second position;and
 - identify, based on a lookup in a defect table customized for the inspection device, an amount of wall loss.
7. The system of claim 6, comprising:
 - a fiber optic tether communicatively coupling the vehicle to the external computing device.
8. The system of claim 1, comprising:
 - the inspection device configured with a liftoff distance established based on a predetermined plate thickness, wherein the inspection device is configured to generate a magnetic field established at an intensity based on the liftoff distance and the predetermined plate thickness.
9. The system of claim 8, wherein the liftoff distance is 0.5 inches and the predetermined plate thickness is at least 0.125 inches, and wherein a traveling velocity of the vehicle is based on the predetermined plate thickness.
10. The system of claim 1, wherein the pulsed eddy current array of the inspection device comprises a 7-element array with 7 inch coverage.
11. A method of inspecting a tank containing a flammable fluid, comprising:

providing a vehicle comprising a propeller, a battery, a control unit, an inspection device, and a ranging device;

providing, by the battery of the vehicle, power to the propeller, the control unit, the inspection device, and the ranging device;

generating, by the control unit based on data received from the ranging device, a map of the tank;

determining, by the control unit, a first position of the vehicle on the map of the tank;

causing, by the control unit, the propeller to move the vehicle from the first position to a second position within the tank;

obtaining, via the inspection device electrically connected to the battery and comprising a pulsed eddy current array, first inspection data indicative of a quality of a tank wall at a portion of the tank at the second position within the tank; and

storing, by the control unit, in a data structure in memory of the vehicle, the first inspection data corresponding to the second position within the tank.

12. The method of claim 11, wherein the first inspection data indicates the quality of the tank wall comprising a thickness of the tank wall at the second position within the tank.

13. The method of claim 11, comprising:

determining, by an external computing device located external to the tank, the quality of the tank wall based on the first inspection data.

14. The method of claim 13, comprising:

obtaining, by the inspection device, second inspection data for each portion of a plurality of portions of the tank; and

determining, by the external computing device, a separate quality metric for each portion of the plurality of portions of the tank.

15. The method of claim 14, comprising:

determining, by the external computing device based on the first inspection data for each portion of the plurality of portions of the tank, an isolated defect at a portion of the tank; and

determining, by the external computing device based on the first inspection data, a general wall loss of the tank.

16. The method of claim 11, comprising:

determining, an external computing device located external to the tank based on the first inspection data, a defect diameter at the second position; and

identifying, by the external computing device based on a lookup in a defect table customized for the first inspection device, an amount of wall loss.

17. The method of claim 16, comprising:

communicating data between the vehicle and the external computing device via a fiber optic tether communicatively coupled to the vehicle and the external computing device.

18. The method of claim 11, comprising:

generating, by the inspection device, a magnetic field established at an intensity based on a liftoff distance and a predetermined plate thickness, wherein the liftoff distance established based on the predetermined plate thickness.

19. The method of claim 18, wherein the liftoff distance is 0.5 inches and the predetermined plate thickness is at least 0.125 inches, and wherein a traveling velocity of the vehicle is based on the predetermined plate thickness.

20. The method of claim 11, wherein the pulsed eddy current array of the inspection device comprises a 7-element array with 7 inch coverage.