of the timer. The control unit can identify an uninspected portion of the tank based on the generated map. The control unit can cause a propeller of the vehicle to move the vehicle towards the identified uninspected portion of the tank.

[0048] The control unit can identify an absence of any uninspected portions of the floor of the tank based on the generated map. The control unit can provide, responsive to identifying the absence, an indication that the tank inspection process is complete. The indication that the tank inspection process is complete can include a wireless signal or an acoustic signal.

[0049] The winch can unreel the cable to lower the vehicle into the tank. The winch can reel the cable subsequent to disengaging the cable from the vehicle to remove the cable from within the tank. The winch can unreel, upon completion of a tank inspection process comprising generating the map of the tank and storing a plurality of indications of the quality metric for the at least one portion of the tank, the cable into the tank. The winch can reel, upon the cable re-engaging the vehicle, the cable to remove the vehicle from within the tank.

[0050] At least one aspect is directed to a system for inspecting a tank containing a flammable fluid. The system can comprise a vehicle including a propeller, a battery, a control unit, an inspection device, and a ranging device. The system can comprise the battery of the vehicle providing power to the propeller, the control unit, the inspection device, and the ranging device. The system can comprise 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 system can comprise the propeller of the vehicle, electrically connected to the battery, moving the vehicle through the flammable fluid in the tank. The system can comprise the inspection device, electrically connected to the battery, for obtaining inspection data indicative of a quality of a tank wall. The system can comprise the control unit, electrically connected to the battery, the ranging device, the propeller, and the inspection device. The control unit can be configurd to cause the propeller to move the vehicle from the first position to a second position within the tank. The control unit can be configured to 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. The control unit can be configured to store, in a data structure in memory

of the vehicle, the first inspection data corresponding to the second position within the tank. The system can comprise an external computing device located external to the tank. The external computing device can be configured to receive the inspection data comprising the first inspection data, determine, based on the first inspection data, a defect diameter at the second position, perform a lookup in a defect table customized for the inspection device to identify an amount of wall loss associated with the defect diameter at the second position. The amount of wall loss can comprise a quality metric for the portion of the tank at the second position within the tank. The external computing device can be further configured to determine, using a model and based on the quality metric, a future period of time to perform one or more repairs to the tank.

[0051] The system can include 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. The system can include the inspection device to obtain the inspection data for each portion of a plurality of portions of the tank. The system can include the external computing device to determine a separate quality metric for each portion of the plurality of portions of the tank. The system can include 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. The system can include the external computing device to determine, based on the inspection data, a general wall loss of the tank.

[0052] The system can include an external computing device located external to the tank to receive the inspection data comprising the first inspection data. The system can include the external computing device to determine, based on the first inspection data, a defect diameter at the second position. The system can include the external computing device to identify, based on a lookup in a defect table customized for the inspection device, an amount of wall loss. The system can include a fiber optic tether communicatively coupling the vehicle to the external computing device. The system can include 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.

[0053] At least one aspect is directed to a method for inspecting a tank containing a flammable fluid. The method can comprise providing a vehicle including a propeller, a battery, a control unit, an inspection device, and a ranging device. The method can comprise providing, by the battery of the vehicle, power to the propeller, the control unit, the inspection device, and the ranging device. The method can comprise generating, by the control unit based on data received from the ranging device, a map of the tank. The method can comprise determining, by the control unit, a first position of the vehicle on the map of the tank. The method can comprise causing, by the control unit, the propeller to move the vehicle from the first position to a second position within the tank. The method can comprise obtaining, via the inspection device electrically connected to the battery, first inspection data indicative of a quality of a tank wall at the portion of the tank at the second position within the tank. The method can comprise 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. The method can comprise determining, by an external computing device located external to the tank based on the first inspection data, a defect diameter at the second position. The method can comprise performing, by the external computing device, a lookup in a defect table customized for the first inspection device to identify an amount of wall loss associated with the defect diameter at the second position. The amount of wall loss can comprise a quality metric for the portion of the tank at the second position within the tank. The method can comprise determining, using a model and based on the quality metric, a future period to perform one or more repairs to the tank.

What is claimed is:

1. A system (100) to inspect a tank containing a flammable fluid, comprising:

a vehicle (101) comprising a propeller (118), a battery (114), a control unit (104), an inspection device (122), and a ranging device (120);

the battery (114) of the vehicle (101) providing power to the propeller (118), the control unit (104), the inspection device (122), and the ranging device (120);

the control unit (104) generating, based on data received from the ranging device (120), a map of the tank, and determining a first position of the vehicle (101) on the map of the tank;

the propeller (118) of the vehicle (101), electrically connected to the battery (114), moving the vehicle (101) through the flammable fluid in the tank;

the inspection device (122), electrically connected to the battery (114), for obtaining inspection data indicative of a quality of a tank wall;

the control unit (104), electrically connected to the battery (114), the ranging device (120), the propeller (118), and the inspection device (122), configured to:

cause the propeller (118) to move the vehicle (101) from the first position to a second position within the tank;

obtain, via the inspection device (122), 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 a memory of the vehicle (101), the first inspection data corresponding to the second position within the tank;

an external computing device located external to the tank and configured to:

receive the inspection data comprising the first inspection data;

determine, based on the first inspection data, a defect diameter at the second position;

perform a lookup in a defect table customized for the inspection device to identify an amount of wall loss associated with the defect diameter at the second position, wherein the amount of wall loss comprises a quality metric for the portion of the tank at the second position within the tank; and

determine, using a model and based on the quality metric, a future period of time to perform one or more repairs to the tank.

2. The system (100) 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 (100) of claim 1, wherein:

the external computing device located external to the tank is further configured to determine the quality of the tank wall based on the inspection data.

4. The system (100) of claim 3, wherein the system (100) further comprises:

the inspection device (122) 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 (100) of claim 4, wherein the system (100) comprises 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 (100) of claim 1, further comprising:

a fiber optic tether communicatively coupling the vehicle (101) to the external computing device.

7. The system (100) of claim 1, comprising:

the inspection device (122) configured with a liftoff distance established based on a predetermined plate thickness, wherein the inspection device (122) is calibrated based on the liftoff distance and the predetermined plate thickness.

8. The system (100) of claim 7, wherein the liftoff distance is 0.013 metres (0.5 inches) and the predetermined plate thickness is at least 0.003 metres (0.125 inches), and wherein a traveling velocity of the vehicle (101) is based on the predetermined plate thickness.

9. The system (100) of claim 1, wherein the inspection device (122) comprises a pulsed eddy current array.

10. A method of inspecting a tank containing a flammable fluid, comprising:

providing a vehicle (101) comprising a propeller (118), a battery (114), a control unit (104), an inspection device (122), and a ranging device (120);

providing, by the battery (114) of the vehicle (101), power to the propeller (118), the control unit (104), the inspection device (122), and the ranging device (120);

generating, by the control unit (104) based on data received from the ranging device (120), 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 (104), the propeller to move the vehicle (101) from the first position to a second position within the tank;

obtaining, via the inspection device (122) electrically connected to the battery (114), first inspection data indicative of a quality of a tank wall at a portion of the tank at the second position within the tank;

storing, by the control unit (104), in a data structure in memory of the vehicle (101), the first inspection data corresponding to the second position within the tank;

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

performing, by the external computing device, a lookup in a defect table customized for the first inspection device to identify an amount of wall loss associated with the defect diameter at the second position, wherein the amount of wall loss comprises a quality metric for the portion of the tank at the second position within the tank; and

determining, using a model and based on the quality metric, a future period to perform one or more repairs to the tank.

11. The method of claim 10, 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.

12. The method of claim 10, comprising:

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

13. The method of claim 12, comprising:

obtaining, by the inspection device (122), 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.

14. The method of claim 13, wherein the method comprises:

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.

15. The method of claim 10, comprising:

communicating data between the vehicle (101) and the external computing device via a fiber optic tether communicatively coupled to the vehicle (101) and the external computing device.

16. The method of claim 10, comprising:

generating, by the inspection device (122), 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.

17. The method of claim 16, wherein the liftoff distance is 12.7 millimetres (0.5 inches) and the predetermined plate thickness is at least 3.2 millimetres (0.125 inches), and wherein a traveling velocity of the vehicle is based on the predetermined plate thickness.

18. The method of claim 10, wherein the inspection device (122) comprises a pulsed eddy current array.