CLAIMS

1. A system for underwater inspection, comprising an inspection crawler having:

a housing having a first side and an opposing second side, a power source, and a controller;

at least one inspection tool operatively connected to the housing;

at least two pairs of driving wheels attached to a bottom portion of the housing and being configured to propel the inspection crawler across a surface of a pipeline; and

a moveable centre of gravity, in which the centre of gravity configured to selectively move along a sliding rail positioned within the housing during traverse across an obstacle on the surface of the pipeline.

2. A system according to Claim 1, further comprising:

at least one remotely operated vehicle (ROV), in which the inspection crawler is configured to operate as a docking station for the ROV, and in which the ROV is configured to assist the inspection crawler in underwater navigation when the ROV is docked in the inspection crawler.

3. A system according to Claim 1, further comprising:

at least one communication unit located on top of the surface of the water and operatively connected to the at least one inspection crawler, the at least one communication unit being configured to communicate aerially with one or more remote devices and communicate with the at least one inspection crawler via a tether; and

at least one sea surface unit operatively connected to the at least one communication unit.

4. A system according to Claim 3, in which at least one communication unit is configured to float on the surface of the water.

5. A system according to Claim 3, in which the at least one sea surface unit is configured to control operations of the at least one inspection crawler via control signals.

6. A system according to Claim 3, in which each of the inspection crawler, communication unit, and sea surface unit comprise at least one transmitter and at least one receiver, and in

which the transmitters and receivers are configured to transmit and receive respectively, data and control signals.

7. A system according to Claim 1, in which the moveable centre of gravity comprises internal components of the inspection crawler.

8. A method for traversing a weld joint along a surface of an underwater pipeline with an inspection crawler having a housing comprising a first end and a second end, a sliding rail located along the length of the housing from the first end to the second end, a moving mass configured to slide along the sliding rail to change the centre of gravity of the inspection crawler, and at least two pairs of wheels operatively attached to a bottom surface of the inspection crawler, the method comprising:

parking the inspection crawler at a location proximate to the weld joint;

sliding the mass along the slide rail to a position that is substantially at the second end of the inspection crawler, in which the second end of the inspection crawler is distal to the weld joint relative to the first end of the inspection crawler;

propelling the first end of the inspection crawler over the weld joint;

sliding the mass along the sliding rail to a position that is substantially in the centre of the inspection crawler;

propelling a centre portion of the inspection crawler over the weld joint;

sliding the mass along the sliding rail to a position that is substantially at the first end of the inspection crawler; and

propelling the second end of the inspection crawler over the weld joint.

9. A system for inspection of an underwater pipeline, comprising:

at least one inspection crawler, the at least one inspection crawler comprising a housing, a power source, a controller, at least one inspection tool, at least two pairs of latching arms each having a rolling element, and at least two pairs of driving wheels, in which the at least one inspection crawler is configured to move along the underwater pipeline and traverse weld joints connecting portions of the underwater pipeline;

at least one communication unit located on top of the surface of the water and operatively connected to the at least one inspection crawler, the at least one

communication unit being configured to communicate aerially with one or more remote devices and communicate with the at least one inspection crawler via a tether;

at least one sea surface unit operatively connected to the at least one communication unit; and

at least one remotely operated vehicle (ROV), in which the inspection crawler is configured to operate as a docking station for the ROV, and in which the ROV is configured to assist the inspection crawler in underwater navigation when the ROV is docked in the inspection crawler.

10. A system according to Claim 9, in which at least one communication unit is configured to float on the surface of the water.

11. A system according to Claim 9, in which the at least one sea surface unit is configured to control operations of the at least one inspection crawler via control signals.

12. A system according to Claim 9, in which each of the inspection crawler, communication unit, and sea surface unit comprise at least one transmitter and at least one receiver, and in which the transmitters and receivers are configured to transmit and receive respectively, data and control signals.

13. A system according to Claim 9, in which the rolling elements are omni-wheels.

14. A system according to Claim 9, in which the housing of the inspection crawler further comprises a front portion and a back portion and a connecting structure connecting the front portion and the back portion, in which the connecting structure comprises an extendable and contractable member that is operable to elongate and shorten, respectively, the length of the inspection crawler.

15. A system according to Claim 9, in which the at least two pairs of latching arms each comprise a joint that divides each latching arm into an upper segment and a lower segment, in which the joints enables the latching arms to accommodate pipelines of varying diameters.

16. A system according to Claim 9, in which the at least one inspection crawler further comprises:
a pneumatic actuator operatively connected to the housing and the latching arms, in which the pneumatic actuator configures the latching arms to selectively hug the surface of the pipeline.

17. A system according to Claim 9, in which the at least one inspection crawler further comprises:

an electric actuation mechanism operatively connect to the housing and the latching arms, in which the electric actuation mechanism configures the latching arms to selectively hug the surface of the pipeline.