CLAIMS

1. A method of enabling communication between components of a hydrocarbon extraction plant, the plant having an underwater hydrocarbon extraction installation including at least one hydrocarbon extraction well with an associated tree, comprising the step of:

a) providing a plurality of RF communication means at respective components of the installation.

2. A hydrocarbon extraction plant having an underwater hydrocarbon extraction installation including at least one hydrocarbon extraction well with an associated tree, comprising a plurality of RF communication means provided at respective components of the installation.

3. A method according to claim 1 or plant according to claim 2, wherein one of said components comprises a Subsea Control Module.

4. A method or plant according to any preceding claim, wherein one of said components comprises a manifold.

5. A method or plant according to any preceding claim, wherein one of said components comprises a sensor located at the installation.

6. A method or plant according to claim 5, wherein the sensor is located at a well tree.

7. A method or plant according to claim 5, wherein the sensor is located at a manifold.

8. A method or plant according to claim 5, wherein the sensor measures seismic activity.

9. A method or plant according to any preceding claim, wherein one of said components comprises a downhole device located in a well.

10. A method or plant according to claim 9, wherein the downhole device comprises a sensor.

11. A method or plant according to claim 9, wherein the downhole device comprises a choke.

12. A method or plant according to any preceding claim, wherein one of said components comprises a remote operation vehicle.

13. A method or plant according to any preceding claim, wherein one of said components comprises a topside facility.

14. A method according to claim 13, which further includes the step of:

b) providing a repeater between the topside facility and the installation.

15. A method according to claim 14, wherein step b) includes providing a line between the topside facility and the installation, and mounting a repeater on the line.

16. A plant according to claim 13, comprising a repeater mounted on a line between the topside facility and the installation.

17. A method according to claim 15 or plant according to claim 16, wherein the repeater draws power from the line.

18. A method according to claim 15 or plant according to claim 16, wherein the repeater is powered by an associated battery.

19. A method or plant according to any preceding claim, wherein the or each RF communication means comprises an associated battery.

20. A Subsea Control Module for use in the plant of claim 3, comprising RF communication means.

21. A Remote Operation Vehicle for use in the plant of claim 12, comprising RF communication means.

22. A sensor for use in the plant of any of claims 5-8 or 10, comprising RF communication means.

23. A manifold for use in the plant of claim 4, comprising RF communication means.

24. A choke for use in the plant of claim 11, comprising RF communication means.

What is claimed is:

1. A method of enabling communication between components of a hydrocarbon extraction plant through establishment of a radio frequency (RF) communication arrangement, the plant having an underwater hydrocarbon extraction installation including at least one hydrocarbon extraction well with an associated well tree, the method comprising the steps of:

providing a plurality of RF communication devices at a respective plurality of components of the installation, wherein said components comprise a subsea control module (SCM) at the tree, a sensor at the tree, a topside facility, and a remote operation vehicle;

providing an RF antenna at the SCM;

providing an RF antenna at the sensor;

providing an RF antenna at the topside facility; and

providing an RF antenna at the remote operation vehicle, the RF communication arrangement providing for communication of the topside facility with the SCM, communication of the sensor with the SCM, and communication of the remote operation vehicle with the SCM or the sensor.

2. A method according to claim 1, wherein said components of the installation comprise each of the following: the SCM at the tree, a manifold to couple output of a plurality of wells, the sensor located at the tree, a downhole device located in the installation, the remote operation vehicle, and the topside facility.

3. A method according to claim 1, wherein one of said components of the installation further comprise a sensor located at a manifold provided to couple output of a plurality of wells.

4. A method according to claim 1, wherein one of said components of the installation comprises a sensor located at the installation, and wherein the sensor measures seismic activity.

5. A method according to claim 1, wherein one of said components of the installation comprises a downhole device located in the installation, and wherein the downhole device comprises a choke.

6. A method according to claim 1, further comprising: providing a line between the topside facility and the installation, and mounting a repeater on the line.

7. A method according to claim 6, wherein the repeater draws power from the line between the upside facility and the installation.

8. A method according to claim 6, wherein the repeater draws power from an associated battery.

9. A method according to claim 1, wherein each of the plurality of RF communication devices comprises an associated battery.

10. A hydrocarbon extraction plant having an underwater hydrocarbon extraction installation including at least one hydrocarbon extraction well with an associated tree, the plant comprising a radio frequency (RF) communication arrangement, comprising:

a plurality of RF communication devices provided at respective components of the installation, the components of the installation comprising:

a subsea control module (SCM) at the tree

a sensor at the tree;

a topside facility; and

a remote operation vehicle, the plurality of RF communication devices comprising:

an RF antenna at the SCM;

an RF antenna at the sensor;

an RF antenna at the topside facility; and

an RF antenna at the remote operation vehicle, the RF communication arrangement providing for communication of the topside facility with the SCM, communication of the sensor with the SCM, and communication of the remote operation vehicle with the SCM or the sensor.

11. A plant according to claim 10, wherein said components of the installation comprise each of the following: the SCM at the tree, a manifold to couple output of a plurality of wells, the sensor located at the tree, a downhole device located in the installation, the remote operation vehicle, and the topside facility.

12. A plant according to claim 11, wherein one of said components of the installation comprises a sensor located at a manifold to couple output of a plurality of wells.

13. A plant according to claim 11, wherein one of said components of the installation comprises a sensor located at the installation, and wherein the sensor measures seismic activity.

14. A plant according to claim 11, wherein one of said components of the installation comprises a downhole device located in the installation, and wherein the downhole device comprises a choke.

15. A plant according to claim 11, wherein each of the RF communication devices comprises an associated battery.

16. A method according to claim 6, wherein one of said components of the installation comprises the remote operation vehicle (ROV), and wherein the ROV is configured to provide higher data rates than can be provided using the repeater, thereby providing for one or more of the following: software updates and emergency well control using the ROV.

17. A plant according to claim 10, further comprising:
a line positioned between the topside facility and the installation, and
a repeater mounted on the line.

18. A plant according to claim 17, wherein the repeater and the line between the topside facility and the installation are configured so that the repeater draws power from the line.

19. A plant according to claim 17, wherein the plurality of RF communication devices comprise a battery associated with the repeater, the repeater configured to draw power from the associated battery.