unit reaches the desired location where it is to operate, the legs are lowered to the seabed and the hull is raised above the waterline (e.g., in an "elevated" mode), so that there is no longer a buoyancy force on the hull, creating a stable platform with a positive airgap. One of the first steps in the process of transitioning from afloat to elevated mode is commonly referred to as "going on location."

[0005] Conversely, the process of transitioning from elevated mode to afloat mode is commonly referred to as "coming off location." The self-elevating unit lowers its hull from positive air gap into the water, partially submerging the hull. The jacking system lowers the hull until the buoyancy of the hull is sufficient to extract and raise the legs. The legs of the self-elevating unit typically incorporate a footing that provides the bearing or contact surface between the seabed (and/or the soil beneath the seabed) and the unit. The legs of a self-elevating unit may have an individual footing for each leg (spudcan) or the legs may share a common footing (mat).

[0006] Analysis of units in the elevated and afloat modes is fairly well understood, and standards exist for use in the development of proper operating conditions for both modes of operation. The transition phase for self-elevating units (e.g., going on location or coming off location), however, is not as well understood.

SUMMARY

[0006a] According to a first aspect of the present disclosure, there is provided a device, including: an interface configured to receive a signal indicative of a measured motion of an offshore unit when the offshore unit is disposed in an afloat mode in which legs of the offshore unit are disposed above a seabed; a memory configured to store a set of values corresponding to acceptable motions of the offshore unit when the offshore unit is in the afloat mode; and a processor configured to: determine if the measured motion of the offshore unit indicated by the signal exceeds at least one value of the set of values; and generate an indication to begin a going on location operation by the offshore unit inclusive of transitioning the offshore unit from the afloat mode to an elevated mode of the offshore unit in which the legs of the offshore unit are coupled to the seabed when the processor determines that the measured motion of the offshore unit is less than or equal to the at least one value.

[0006b] According to a second aspect of the present disclosure, there is provided a system, including: a sensor configured to measure motions of an offshore unit when the offshore unit is disposed in an afloat mode in which legs of the offshore unit are disposed above a seabed and

generate a signal indicative of the measured motions of the offshore unit; and a control monitor configured to be coupled to the sensor, wherein the control monitor includes: an interface configured to receive the signal indicative of the measured motions of an offshore unit; a memory configured to store a set of values corresponding to acceptable motions of at least one portion of the offshore unit when the offshore unit is in the afloat mode; and a processor configured to: determine if the measured motions of at least one portion of the offshore unit indicated by the signal exceeds at least one value of the set of values; and generate an indication to begin a going on location operation by the offshore unit inclusive of transitioning the offshore unit from the afloat mode to an elevated mode of the offshore unit in which the legs of the offshore unit are coupled to the seabed when the processor determines that the measured motions of the at least one portion of the offshore unit is less than or equal to the at least one value.

[0006c] According to a third aspect of the present disclosure, there is provided a tangible non-transitory computer-readable medium having computer executable code stored thereon, the code including instructions to cause a processor to: receive a signal indicative of motion of an offshore unit when the offshore unit is disposed in an afloat mode in which legs of the offshore unit are disposed above a seabed; receive a predetermined value corresponding to acceptable motions of the offshore unit when the offshore unit is in the afloat mode; determine if the motion of the offshore unit indicated by the signal exceeds the predetermined value; and generate an indication to begin a going on location operation by the offshore unit inclusive of transitioning the offshore unit from the afloat mode to an elevated mode of the offshore unit in which the legs of the offshore unit are coupled to the seabed when the processor determines that the motion of the offshore unit is less than or equal to the at least one value.

BRIEF DESCRIPTION OF DRAWINGS

[0007] FIG. 1 illustrates a profile view of a self-elevating unit in the afloat mode;

[0008] FIG. 2 illustrate a profile view of a self-elevating unit in the elevated mode;

[0009] FIG. 3 illustrates a profile view of a self-elevating unit during the transition segment from afloat to elevated mode;

[0010] FIG. 4 illustrates a profile view of a self-elevating unit making impact with the seabed during the transition segment from afloat to elevated mode;

[0011] FIG. 5 illustrates a schematic of a control system of a self-elevating unit;

[0012] FIG. 6 illustrates a flow chart of operation of the control system of FIG. 5;

CLAIMS

1. A device, comprising:

an interface configured to receive a signal indicative of a measured motion of an offshore unit when the offshore unit is disposed in an afloat mode in which legs of the offshore unit are disposed above a seabed;

a memory configured to store a set of values corresponding to acceptable motions of the offshore unit when the offshore unit is in the afloat mode; and

a processor configured to:

determine if the measured motion of the offshore unit indicated by the signal exceeds at least one value of the set of values; and

generate an indication to begin a going on location operation by the offshore unit inclusive of transitioning the offshore unit from the afloat mode to an elevated mode of the offshore unit in which the legs of the offshore unit are coupled to the seabed when the processor determines that the measured motion of the offshore unit is less than or equal to the at least one value.

2. The device of claim 1, wherein the processor is configured to generate a second indication that going on location by the offshore unit should not be undertaken when the processor determines that the measured motion of the offshore unit is greater than the at least one value.

3. The device of claim 1, wherein the interface is configured to receive the set of values as a predetermined set of values corresponding to at least one physical characteristic of the offshore unit.

4. The device of claim 1, wherein the interface is configured to receive the set of values as a predetermined set of values corresponding to environmental conditions.

5. The device of claim 1, wherein the processor is configured to determine the measured motion of the offshore unit based on the signal.

6. The device of claim 1, comprising a display configured to display a graphical user interface (GUI), wherein the processor is configured to transmit the indication to the display for display thereon in conjunction with the GUI.

7. The device of claim 1, wherein the indication is configured to initiate control of an automated implementation of the going on location operation.

8. A system, comprising:

a sensor configured to measure motions of an offshore unit when the offshore unit is disposed in an afloat mode in which legs of the offshore unit are disposed above a seabed and generate a signal indicative of the measured motions of the offshore unit; and

a control monitor configured to be coupled to the sensor,

wherein the control monitor comprises:

an interface configured to receive the signal indicative of the measured motions of an offshore unit;

a memory configured to store a set of values corresponding to acceptable motions of at least one portion of the offshore unit when the offshore unit is in the afloat mode; and

a processor configured to:

determine if the measured motions of at least one portion of the offshore unit indicated by the signal exceeds at least one value of the set of values; and

generate an indication to begin a going on location operation by the offshore unit inclusive of transitioning the offshore unit from the afloat mode to an elevated mode of the offshore unit in which the legs of the offshore unit are coupled to the seabed when the processor determines that the measured motions of the at least one portion of the offshore unit is less than or equal to the at least one value.

9. The system of claim 8, wherein the processor is configured to determine the motion of the at least one portion of the offshore unit as motion of a hull of the offshore unit based on the signal.

10. The system of claim 8, wherein the processor is configured to determine the motion of the at least one portion of the offshore unit as motion of a leg of the offshore unit based on the signal.

11. The system of claim 8, wherein the processor is configured to determine the motion of the at least one portion of the offshore unit as motion of a footing of the offshore unit based on the signal.

12. The system of claim 8, wherein the processor is configured to generate an indication that going on location by the offshore unit should not be undertaken when the processor determines that the motion of the offshore unit is greater than the at least one value.

13. The system of claim 8, wherein the control monitor is configured to transmit a control signal or a start signal to a jacking system of the offshore unit in response to generation of the indication to control an aspect of operation of the jacking system or initiate operation of the jacking system.

14. The system of claim 8, comprising a display separate from and coupled to the control monitor and configured to display a graphical user interface (GUI), wherein the display is configured to receive the indication for display thereon in conjunction with the GUI.

15. The system of claim 8, wherein the control monitor comprises a display configured to display a GUI, wherein the processor is configured to transmit the indication to the display for display thereon in conjunction with the GUI.

16. A tangible non-transitory computer-readable medium having computer executable code stored thereon, the code comprising instructions to cause a processor to:

receive a signal indicative of motion of an offshore unit when the offshore unit is disposed in an afloat mode in which legs of the offshore unit are disposed above a seabed;

receive a predetermined value corresponding to acceptable motions of the offshore unit when the offshore unit is in the afloat mode;

determine if the motion of the offshore unit indicated by the signal exceeds the predetermined value; and

generate an indication to begin a going on location operation by the offshore unit inclusive of transitioning the offshore unit from the afloat mode to an elevated mode of the offshore unit in which the legs of the offshore unit are coupled to the seabed when the processor determines that the motion of the offshore unit is less than or equal to the at least one value.

17. The tangible non-transitory computer-readable medium of claim 16, wherein the code comprises instructions to generate a graphical user interface (GUI) to be displayed on the display.

18. The tangible non-transitory computer-readable medium of claim 17, wherein the code comprises instructions to generate a status indicator in conjunction with the GUI, wherein the status indicator represents the generated indication that going on location by the offshore unit can be undertaken.

19. The tangible non-transitory computer-readable medium of claim 17, wherein the code comprises instructions to receive user input via in conjunction with the GUI, wherein the user input is related to at least one condition of the offshore unit or at least one environmental condition.

20. The tangible non-transitory computer-readable medium of claim 17, wherein the code comprises instructions to generate a representation of the motion of the offshore unit in conjunction with the GUI.