CLAIMS

What is claimed is:

1. A structure-assisted Jackup system, comprising:

a main deck structure;

a plurality of legs movably coupled with the main deck structure, wherein after the structure-assisted Jackup system is assembled, one or more legs provide support (supporting legs) and the remaining legs do not provide support (non-supporting legs);

a cantilever disposed upon the main deck structure;

a derrick disposed upon the cantilever; wherein the main deck structure, the plurality of legs, the cantilever and the derrick form a Jackup drilling unit;

one or more support base structures disposed on seabed; and

a plurality of movable supports, wherein each of the plurality of movable supports is securely coupled with either the main deck structure or the one or more support base structure;

so that during the process of the structure-assisted Jackup system is being assembled, the plurality of movable supports is being moved to a position between the main deck structure and the one or more support base structures while the plurality of legs provide support for the Jackup drilling unit, and when the structure-assisted Jackup system is assembled, the one or more support base structures via the movable structure and the supporting legs in combination provide support for the Jackup drilling unit, and the non-supporting legs are retracted into a position out of water.

2. The structure-assisted Jackup system of claim 1, wherein the support base structure is an ice resistant structure.

3. The structure-assisted Jackup system of claim 2, wherein the ice resistant structure is a caisson.

4. The structure-assisted Jackup system of claim 1, wherein the movable supports are securely coupled to the support base structure.

5. The structure-assisted Jackup system of claim 1, wherein the movable supports are securely coupled to the main deck structure and extend from the main deck structure to a location near the top of the support base structure.

6. A process for assembling a structure-assisted Jackup system, said process comprising:

providing one or more support base structures disposed on seabed;

moving a Jackup drilling unit into a position alongside the one or more support base structures, wherein the Jackup drilling unit comprises

a main deck structure;

a plurality of legs movably coupled with the main deck structure, wherein after the structure-assisted Jackup system is assembled, one or more legs provide support (supporting legs) and the remaining legs do not provide support (non-supporting legs);

a cantilever disposed upon the main deck structure; and

a derrick disposed upon the cantilever;

lowering the plurality of legs into the seabed;

lifting the Jackup drilling unit out of the water using the plurality of legs;

providing a movable support between the support base structure and the main deck structure so that the movable support provides support to the Jackup drilling unit; and

retracting the non-supporting legs out of water.

7. The process of claim 6, wherein the support base structure is an ice resistant structure.

8. The process of claim 7, wherein the ice resistant structure is a caisson.

9. The process of claim 6, wherein the movable supports are securely coupled to the support base structure.

10. The process of claim 6, wherein the movable supports are securely coupled to the main deck structure and extend from the main deck structure to the top of the support base structure.

CLAIMS

1. A structure-assisted jackup system, comprising:

a main deck structure;

a plurality of legs movably coupled with the main deck structure, wherein during the initial assembly of the structure-assisted jackup system, the plurality of legs are lowered to the seabed so as to lift the main deck structure to a required elevation;

a cantilever disposed upon the main deck structure;

a derrick disposed upon the cantilever; wherein the main deck structure, the plurality of legs, the cantilever and the derrick form a jackup drilling unit;

one or more support base structures disposed on seabed; and

a plurality of movable supports, wherein each of the plurality of movable supports is securely coupled with the main deck structure;

wherein during the assembly process of the structure-assisted jackup system the plurality of movable supports extend from the main deck structure to the one or more support base structures so as to allow the one or more support base structures to provide support for the weight of the main deck structure in replacement of one or more of the plurality of legs; wherein the one or more of the plurality of legs replaced by the one or more support base structures are designated as non-weight supporting legs, and the remaining of the plurality of legs not being replaced by the one or more support base structures as weight supporting legs; and wherein after the structure-assisted jackup system is assembled, the non-weight supporting legs are retracted into a position out of water, and the weight supporting legs together with the one or more support base structures via the moveable supports support the main deck structure.

2. The structure-assisted jackup system of claim 1, wherein the one or more support base structures are an ice resistant structure.

3. The structure-assisted jackup system of claim 2, wherein the ice resistant structure is a caisson.

4. The structure-assisted jackup system of claim 1, wherein the movable supports are securely coupled to the one or more support base structures.

5. The structure-assisted jackup system of claim 1, wherein the movable supports are securely coupled to the main deck structure and extend from the main deck structure to a location near the top of the one or more support base structures.

6. A process for assembling a structure-assisted jackup system, said process comprising:

providing one or more support base structures disposed on seabed;

moving a jackup drilling unit into a position alongside the one or more support base structures, wherein the jackup drilling unit comprises

a main deck structure;

a plurality of legs movably coupled with the main deck structure;

a cantilever disposed upon the main deck structure; and

a derrick disposed upon the cantilever;

lowering the plurality of legs into the seabed;

lifting the jackup drilling unit out of the water using the plurality of legs;

providing a movable support being securely coupled with the main deck structure between the one or more support base structures and the main deck structure so that the one or more support base structures provide support for the weight of the jackup drilling unit in replacement of one or more of the plurality of legs; wherein the one or more of the plurality of legs replaced by the one or more support base structures are designated as non-weight supporting legs, and the remaining of the plurality of legs not being replaced by the one or more support base structures as weight supporting legs; and

retracting the non-weight supporting legs out of water.

7. The process of claim 6, wherein the one or more support base structures are an ice resistant structure.

8. The process of claim 7, wherein the ice resistant structure is a caisson.

9. The process of claim 6, wherein the movable supports are securely coupled to the one or more support base structures.

10. The process of claim 6, wherein the movable supports are securely coupled to the main deck structure and extend from the main deck structure to the top of the one or more support base structures.