We claim:

1. A method of making a lined pipe for reel-lay operations, comprising:

determining a weld overlay length for a first end and a second end of a first pipe joint based on bending properties of the first pipe joint, the weld overlay length configured to prevent wrinkle formation of the lined pipe;

positioning the first pipe joint for liner operations, the first pipe joint comprising the first end opposite of the second end of the first pipe joint, a central opening, and an inner surface;

disposing a first section of alloy in the central opening of the first pipe joint;

mechanically lining the inner surface of the first pipe joint with the first section of alloy;

weld overlaying a second section of alloy to the inner surface of the first end of the first pipe joint along a first length that is greater than or equal to the determined weld overlay length of the first end of the first pipe joint; and

weld overlaying a third section of alloy to the inner surface of the second end of the first pipe joint along a second length that is greater than or equal to the determined weld overlay length of the second end of the first pipe joint.

2. The method of claim 1, further comprising welding the first end of the first pipe joint to a second end of a second pipe joint.

3. The method of claim 2, further comprising reeling the first pipe joint and the second pipe joint onto a spool.

4. The method of claim 1, wherein the first section of alloy, the second section of alloy, and the third section of alloy each comprises a corrosion resistant alloy.

5. The method of claim 4, wherein the corrosion resistant alloy comprises one or more of stainless steel, nickel, chromium, cobalt, titanium, iron, molybdenum, copper, niobium, tantalum, carbon, manganese, silicon, phosphorus, sulfur, or aluminum.

6. The method of claim 1, wherein the bending properties and a behavior of the first pipe joint are determined by simulating the bending of the first pipe joint uses finite element analysis (FEA) software.

7. The method of claim 6, wherein the simulating the bending of the first pipe joint is based on one or more parameters, and the one or more parameters include one or more of a spool diameter, a pipe inner diameter, a pipe outer diameter, a pipe length, a pipe material property, a liner material property, a straightener setting, a reeling tension, a reel back tension, a mechanical liner thickness, a mechanical liner length, or a weld overlay thickness, or a weld overlay length.

8. The method of claim 6, wherein the simulating the bending of the first pipe joint comprises simulating a resultant deformation of the first pipe joint, and the determining the weld overlay length further comprises comparing the resultant deformation to a threshold deformation.

9. The method of claim 8, wherein the weld overlay length of the first end and the second end are each a weld overlay length at which the resultant deformation is equal to or lesser than the threshold deformation.

10. A hybrid mechanically lined pipe apparatus, comprising:

a spool; and

a pipeline reeled onto the spool, the pipeline comprising one or more pipe joints, each respective pipe joint of the one or more pipe joints comprising:

a first end opposite a second end of the respective pipe joint, a central opening, and an inner surface;

a first section of alloy in the central opening of the respective pipe joint, the inner surface of the respective pipe joint lined with the first section of alloy;

a second section of alloy welded to the inner surface of the first end of the respective pipe joint along a first length that is greater than or equal to a weld overlay length of the first end of the respective pipe joint; and

a third section of alloy welded to the inner surface of the second end of the respective pipe joint along a second length that is greater than or equal to the weld overlay length to reduce or prevent wrinkling of the pipeline.

11. The hybrid mechanically lined pipe apparatus of claim 10, wherein each of the first section of alloy, the second section of alloy, and the third section of alloy comprises a corrosion resistant alloy.

12. The hybrid mechanically lined pipe apparatus of claim 11, wherein the corrosion resistant alloy comprises one or more of nickel, chromium, cobalt, titanium, iron, molybdenum, copper, niobium, tantalum, carbon, manganese, silicon, phosphorus, sulfur, or aluminum.

13. The hybrid mechanically lined pipe apparatus of claim 10, wherein the weld overlay length is greater than 300 mm.

14. The hybrid mechanically lined pipe apparatus of claim 10, wherein the spool and the pipeline reeled onto the spool are disposed on a pipelay vessel.

15. A pipe, comprising:

a pipe joint, the pipe joint comprising:

a first end opposite a second end of the respective pipe joint, a central opening, and an inner surface;

a first section of alloy in the central opening of the respective pipe joint, the inner surface of the respective pipe joint lined with the first section of alloy;

a second section of alloy welded to the inner surface of the first end of the respective pipe joint along a first length that is greater than or equal to a weld overlay length of the first end of the respective pipe joint; and

a third section of alloy welded to the inner surface of the second end of the respective pipe joint along a second length that is greater than or equal to the weld overlay length to prevent wrinkling of the pipe.

16. The pipe of claim 15, wherein the first section of alloy comprises a corrosion resistant alloy.

17. The pipe of claim 16, wherein the corrosion resistant alloy comprises one or more of nickel, chromium, cobalt, titanium, iron, molybdenum, copper, niobium, tantalum, carbon, manganese, silicon, phosphorus, sulfur, or aluminum.

18. The pipe of claim 15, wherein the weld overlay length is greater than 300 mm.