CLAIMS

1. A wet mate connection for use in a subterranean well, the connection comprising:

first and second connector assemblies,

the first connector assembly including at least one first connector and a first protective barrier, the first protective barrier being displaceable between closed and open positions, and

the second connector assembly including a first engagement device that displaces the first protective barrier from the closed position to the open position in response to engagement between the first and second connector assemblies.

2. The wet mate connection of claim 1, in which the first connector assembly includes a seal bore that sealingly receives therein a seal mandrel of the second connector assembly when the first and second connector assemblies are engaged.

3. The wet mate connection of claim 1, in which the second connector assembly includes at least one second connector and a second protective barrier, the second protective barrier being displaceable between closed and open positions, and

the first connector assembly includes a second engagement device that displaces the second protective barrier from the closed position to the open position in response to the engagement between the first and second connector assemblies.

4. The wet mate connection of claim 1, in which the second connector assembly includes a tubing contraction joint that permits longitudinal compression

of the second connector assembly between a packer and a connector housing of the second connector assembly.

5. The wet mate connection of claim 1, in which the first protective barrier comprises a flexible member which slides within a curved track formed on the first connector assembly.

6. The wet mate connection of claim 1, in which the first protective barrier includes a recess configured for engagement with the first engagement device.

7. The wet mate connection of claim 1, in which the first connector comprises an optical connector.

8. A method of making a connection between lines in a subterranean well, the method comprising:

installing a first connector assembly in the well, the first connector assembly comprising a first connector and a first alignment profile;

then installing a second connector assembly in the well, the second connector assembly comprising a second connector and a second alignment profile; and

then axially engaging the first and second connector assemblies, thereby:

a) opening first and second protective barriers for the respective first and second connectors,

b) operatively connecting the first and second connectors, and

c) engaging the first and second alignment profiles, thereby preventing rotational misalignment between the first and second connectors.

9. The method of claim 8, in which the operatively connecting is performed after the first and second protective barriers opening.

10. The method of claim 8, in which the first and second protective barriers opening comprises displacing the first protective barrier with the second connector assembly, and displacing the second protective barrier with the first connector assembly.

11. The method of claim 8, in which the first and second protective barriers each comprise a flexible member which slides within a curved track formed respectively on the first and second connector assemblies.

12. The method of claim 11, in which the first and second protective barrier opening comprises engaging a first engagement device with a first recess formed on the first protective barrier, and engaging a second engagement device with a second recess formed on the second protective barrier.

13. The method of claim 8, further comprising axially separating the first and second connector assemblies, thereby closing the first and second protective barriers for the respective first and second connectors.

14. The method of claim 8, in which the operatively connecting permits optical communication between the first and second connectors.

15. A system for use with a subterranean well, the system comprising:

a first completion string comprising a first optical connector assembly, the first optical connector assembly including at least one first optical connector, a first packer and a seal bore; and

a second completion string comprising a second optical connector assembly, the second optical connector assembly including at least one second optical connector, a second packer and a seal mandrel sealingly engaged in the seal bore,

the first and second optical connectors being operatively engaged between the first and second packers.

16. The system of claim 15, in which the first optical connector assembly includes a first protective barrier and the second optical connector assembly includes a second protective barrier, the first and second protective barriers each comprising a flexible member which slides within a curved track formed respectively on the first and second connector assemblies.

17. The system of claim 16, in which the first protective barrier is displaceable between closed and open positions, and

the second optical connector assembly includes a first engagement device that displaces the first protective barrier from the closed position to the open position in response to engagement between the first and second optical connector assemblies.

18. The system of claim 16, in which the second protective barrier is displaceable between closed and open positions, and

the first optical connector assembly includes a second engagement device that displaces the second protective barrier from the closed position to the open position in response to the engagement between the first and second optical connector assemblies.

19. The system of claim 17 or 18, in which:

(a) when dependent on claim 17, the first protective barrier includes a first recess configured for engagement with the first engagement device; or

(b) when dependent on claim 18, the second protective barrier includes a second recess configured for engagement with the second engagement device.

20. The system of claim 15, in which the second optical connector assembly includes a tubing contraction joint that permits longitudinal compression of the second completion string between the second packer and the second optical connector assembly.