

WHAT IS CLAIMED

1. A completion deflector assembly for use with a wellbore having at least one lateral branch, comprising:

a completion deflector having a generally tubular body formed by a wall extending along an axis, a hollow interior, an exterior surface, an uphole end, and a downhole end, said uphole and downhole ends being open to said interior, said uphole end having an inclined surface with respect to said axis; and

a first hydraulic communication line segment extending between said uphole end and said downhole end, said first communication line segment being located completely outside of said interior of said completion deflector;

a main leg connector located at said uphole end of said completion deflector;

said main leg connector including an opening formed therethrough that is in fluid communication with said interior of said completion deflector;

said first communication line segment extending between said main leg connector and said downhole end of said completion deflector;

said main leg connector including a flow channel extending within the wall of the main leg connector and said flow channel having an upstream end and a downstream end, and said first communication line segment being connected to said upstream end of said flow channel;

said completion deflector including a flow channel extending within the wall of the completion deflector and said flow channel having an upstream end and a downstream end, and said first communication line segment being connected to said downstream end of said flow channel;

the respective flow channels of said main leg connector and said completion deflector being in fluid communication, so that fluid flowing through said first communication line segment of said main leg connector flows through the flow channel of said main leg connector and into and through said flow channel of said completion deflector and into said first communication line segment of said completion deflector.

2. The completion deflector assembly of claim 1 further comprising:

a first longitudinal groove formed along said exterior surface of said completion deflector, said first communication line segment being at least partially disposed within said first longitudinal groove.

3. The completion deflector assembly of claim 1 or 2 further comprising:

a second communication line segment extending between said main leg connector and said downhole end of said completion deflector, said second communication line segment being at least partially disposed within said first longitudinal groove or a second longitudinal groove formed along said exterior surface of said completion deflector.

4. The completion deflector assembly of claim 3 further comprising:

first and second communication line connection points defined by said main leg connector;

said main leg connector arranged to connect said first and second communication line segments at said first and second communication line connection points, respectively.

5. The completion deflector assembly of claim 4 wherein:

said main leg connector arranged for connection to a junction fitting; and

said main leg connector arranged to connect said first and second communication line segments at said first and second communication line connection points, respectively, to a third communication line segment and a fourth communication line segment carried by said junction fitting.

6. The completion deflector assembly of claim 4 wherein:

said first and second communication line connection points are located at differing first and second axial locations with respect to said main leg connector.

7. The completion deflector assembly of claim 3 wherein:

each of said first and second communication line segments is a type from the group consisting of a hydraulic communication line segment, an electric communication line segment, and a fiber optic communication line segment.

8. The completion deflector assembly of claim 1 wherein:

said main leg connector is a receptacle connector.

9. The completion deflector assembly of claim 4 wherein:

said first and second communication line segments are hydraulic communication line segments;

said main leg connector includes a socket; and

said first and second communication line connection points are located on an interior surface of said socket at first and second axial locations of said interior surface of said socket.

10. A well system for use within a well having a main wellbore and a lateral wellbore, comprising:

a completion deflector having generally tubular body formed by a wall extending along an axis, a hollow interior, an exterior surface, an uphole end, and a downhole end, said uphole and downhole ends being open to said interior, said uphole end having an inclined surface with respect to said axis;

a main completion string coupled to said downhole end of said completion deflector, said main completion string defining an interior that is fluidly coupled with said interior of said completion deflector;

a tubing string coupled to said uphole end of said completion deflector, said tubing string defining an interior that is fluidly coupled with said interior of said completion deflector; and

a first communication line extending between said tubing string and said main completion string, said first communication line being located completely outside of said interior of said completion deflector;

said completion deflector including a flow channel extending within the wall of the completion deflector and said flow channel having an upstream end and a downstream end, and said first communication line segment being connected to said downstream end of said flow channel.

11. The well system of claim 10 wherein:

said completion deflector in proximity to an intersection of said main wellbore and said lateral wellbore;

said main completion string is disposed in said main wellbore downhole of said completion deflector; and

said tubing string is disposed in said main wellbore uphole of said completion deflector.

12. The well system of claim 10 further comprising:

a first longitudinal groove formed along said exterior surface of said completion deflector, a lower portion of said first communication line located within said first longitudinal groove.

13. The well system of claim 10 further comprising:

a junction fitting having a generally wye-shaped tubular body defining an interior, an uphole end, a downhole main end, and a downhole lateral end, said uphole end of said junction fitting coupled to said tubing string, a mid portion of said first communication line carried by said junction fitting; and

a main leg connector pair connecting the downhole main end of said junction fitting to the uphole end of said completion deflector, said main leg connector pair coupling said interior of said junction fitting with said interior of said completion deflector and said mid portion of said first communication line with said lower portion of said first communication line.

14. The well system of claims 12 further comprising:

a second communication line extending between said tubing string and said main completion string, a lower portion of said second communication line located within said first longitudinal groove or a second longitudinal groove formed within said exterior surface of said completion deflector.

15. The well system of claim 14 further comprising:

first and second communication line connection points defined by said main leg connector pair;

said main leg connector pair arranged to connect said lower portions of said first and second communication lines to said mid portions of said first and second communication lines at said first and second communication line connection points, respectively.

16. The well system of claim 17 wherein:

said first and second communication line connection points are located at differing first and second axial locations with respect to said main leg connector pair.

17. The well system of claim 14 wherein:

each of said first and second communication lines is a type from the group consisting of a hydraulic communication line, an electric communication line, and a fiber optic communication line.

18. The well system of claim 13 wherein:

said main leg connector pair includes a receptacle connector located at said uphole end of said completion deflector and a stinger connector located at said downhole main end of said junction fitting.

19. The well system of claim 18 wherein:

at least one of said first and second communication lines is a hydraulic communication line;

said receptacle connector of said main leg connector pair has a socket;

a downhole hydraulic communication line connection point is located at an axial location on an interior surface of said socket that is in fluid communication with said hydraulic communication line;

said stinger connector of said main leg connector pair has a cylindrical probe; and an uphole hydraulic communication line connection point is located at an axial location on an exterior surface of said probe that is in fluid communication with said hydraulic communication line.

20. A method for installing a completion system in a well having a main wellbore and a lateral wellbore, the method comprising:

disposing a main completion string in said main wellbore at an elevation downhole of an intersection of said lateral wellbore and said main wellbore, said main completion string carrying a lower portion of a first communication line; and

coupling a completion deflector to said main completion string so that an interior of said completion deflector is in fluid communication with an interior of said main completion string, said completion deflector including a flow channel extending within the wall of the completion deflector and said flow channel having an upstream end and a downstream end, and so that a lower portion of said first communication line carried by said completion deflector completely outside of the interior of said completion deflector is connected to said upstream end of said flow channel and the lower portion of said first communication line carried by said main completion string is connected to said downstream end of said flow channel.

21. The method of claim 20 further comprising:

locating said completion deflector so that said an uphole inclined surface is positioned in proximity to an intersection of said lateral wellbore with said main wellbore;

lowering a lateral completion string in said main wellbore uphole of said completion deflector; and

deflecting said lateral completion string by said inclined surface of said completion deflector so that the lateral completion string is guided into said lateral wellbore.

22. The method of claim 21 further comprising:

lowering a junction fitting into the main wellbore;

deflecting a downhole lateral end of said junction fitting by said inclined surface of said completion deflector so that the downhole lateral end of said junction fitting is guided into said lateral wellbore;

coupling the downhole lateral end of said junction fitting to said lateral completion string so that an interior of said junction fitting is in fluid communication with an interior of said lateral completion string and so that a mid portion of a second communication line carried by said junction fitting is connected to a lower portion of said second communication line carried by said lateral completion string; and

coupling a downhole main end of said junction fitting to said completion deflector so that said interior of said junction fitting is in fluid communication with said interior of said completion deflector and so that a mid portion of said first communication line carried by said junction fitting is connected to said lower portion of said first communication line carried by said completion deflector.

23. The method of claim 22 wherein:

said mid portions of said first and second communication lines carried by said junction fitting are located completely outside of the interior of said junction fitting.

24. The method of claim 20 further comprising:

locating said completion deflector so that said an uphole inclined surface is positioned in proximity to an intersection of said lateral wellbore with said main wellbore; securing a downhole lateral end of a junction fitting to an upper end of a lateral completion string so that an interior of said junction fitting is in fluid communication with an interior of said lateral completion string and so that a mid portion of a second communication line carried by said junction fitting is connected to a lower portion of said second communication line carried by said lateral completion string; then

lowering said junction fitting and lateral completion string in said main wellbore uphole of said completion deflector;

deflecting said lateral completion string by said inclined surface of said completion deflector so that the lateral completion string is guided into said lateral wellbore; and

coupling a downhole main end of said junction fitting to said completion deflector so that said interior of said junction fitting is in fluid communication with said interior of said completion deflector and so that a mid portion of said first communication line carried by said junction fitting is connected to said lower portion of said first communication line carried by said completion deflector.

25. The method of claim 24 wherein:

said mid portions of said first and second communication lines carried by said junction fitting are located completely outside of the interior of said junction fitting.

26. The method of claim 20 further comprising:

providing a first longitudinal groove along an exterior surface of said completion deflector; and

housing said lower portion of said first communication line carried by said completion deflector within said first longitudinal groove.