DEFLECTOR ASSEMBLY FOR A LATERAL WELLBORE

BACKGROUND

[0001] The present disclosure relates generally to a wellbore selector assembly and, more particularly, to a multi-deflector assembly for guiding a bullnose assembly into a selected borehole within a wellbore.

[0002] Hydrocarbons can be produced through relatively complex wellbores traversing a subterranean formation. Some wellbores include one or more lateral wellbores that extend at an angle from a parent or main wellbore. Such wellbores are commonly called multilateral wellbores. Various devices and downhole tools can be installed in a multilateral wellbore in order to direct assemblies towards a particular lateral wellbore. A deflector, for example, is a device that can be positioned in the main wellbore at a junction and configured to direct a bullnose assembly conveyed downhole toward a lateral wellbore. Depending on various parameters of the bullnose assembly, some deflectors also allow the bullnose assembly to remain within the main wellbore and otherwise bypass the junction without being directed into the lateral wellbore.

[0003] Accurately directing the bullnose assembly into the main wellbore or the lateral wellbore can often be a difficult undertaking. For instance, accurate selection between wellbores commonly requires that both the deflector *and* the bullnose assembly be correctly orientated within the well. Even with correct orientation, however, causing the bullnose assembly to be deflected or directed toward the proper bore can further be challenging since typical deflectors require a diameter reduction before being able to pass into lower portions of a stacked multilateral well system.

SUMMARY

[0003a] In a first aspect of the present invention, there is provided a deflector assembly, comprising an upper deflector arranged within a main bore of a wellbore and defining first and second channels that extend longitudinally through the upper deflector, wherein the second channel exhibits a width greater than a width of the first channel; and

a lower deflector arranged within the main bore and spaced from the upper deflector by a predetermined distance, the lower deflector defining a first conduit that communicates with a lower portion of the main bore and a second conduit that communicates with a lateral bore,

wherein the upper and lower deflectors are configured to direct a bullnose assembly into either the lateral bore or the lower portion of the main bore based on a length of a bullnose tip of the bullnose assembly as compared to the predetermined distance.

[0003b] In a second aspect of the present invention, there is provided a method comprising:

introducing a bullnose assembly into a main bore of a wellbore, the bullnose assembly including a body and a bullnose tip arranged at a distal end of the body and exhibiting a length;

directing the bullnose assembly through an upper deflector arranged within the main bore, the upper deflector defining first and second channels that extend longitudinally therethrough, wherein the second channel exhibits a width greater than a width of the first channel;

advancing the bullnose assembly to a lower deflector arranged within the main bore and spaced from the upper deflector by a predetermined distance, the lower deflector defining a first conduit that communicates with a lower portion of the main bore and a second conduit that communicates with a lateral bore; and

directing the bullnose assembly into either the lateral bore or the lower portion of the main bore based on the length of the bullnose tip as compared to the predetermined distance.

[0003c] In a third aspect of the present invention, there is provided a multilateral wellbore system, comprising:

a main bore having a first junction and a second junction spaced downhole from the first junction;

a first deflector assembly arranged at the first junction and comprising a first upper deflector and a first lower deflector spaced from the first upper deflector by a first predetermined distance, the first lower deflector defining a first conduit that communicates with a first lower portion of the main bore and a second conduit that communicates with a first lateral bore;

a second deflector assembly arranged at the second junction and comprising a second upper deflector and a second lower deflector spaced from the second upper deflector by a second predetermined distance that is shorter

than the first predetermined distance, the second lower deflector defining a third conduit that communicates with a second lower portion of the main bore and a fourth conduit that communicates with a second lateral bore; and

a bullnose assembly including a body and a bullnose tip arranged at a distal end of the body and exhibiting a length,

wherein the first and second deflector assemblies are configured to direct the bullnose assembly into either the first and second lateral bores or the first and second lower portions of the main bore based on the length of the bullnose tip as compared to the first and second predetermined distances.

BRIEF DESCRIPTION OF THE DRAWINGS

[0004] The following figures are included to illustrate certain aspects of the present disclosure, and should not be viewed as exclusive embodiments. The subject matter disclosed is capable of considerable modifications, alterations, combinations, and equivalents in form and function, without departing from the scope of this disclosure.

[0005] FIG. 1 depicts an isometric view of an exemplary deflector assembly, according to one or more embodiments of the disclosure.