**WHAT IS CLAIMED IS:**

1. A well production and injection string for use in a wellbore, the string comprising:

a plurality of spaced apart packers each adapted to seal with a wall of the wellbore; and

a plurality of flow control devices distributed between pairs of adjacent packers, the plurality of flow control devices adapted to communicate flow between an interior and an exterior of the string with less restriction to flow from the interior to the exterior of the string than to flow from the exterior to the interior of the string.

2. The well production and injection string of claim 1, wherein the flow control devices comprise a plurality of flow passages between an interior and an exterior of the string and a subset of the passages comprise one-way passages that restrict fluid flow from the exterior to the interior of the string.

3. The well production and injection string of claim 2, wherein the one-way passages comprise check valves adapted to close the passage in response to a pressure differential between the interior and exterior of the string.

4. The well production and injection string of claim 1, wherein the flow area to flow from the interior to the exterior of the string is greater than the flow area to flow from the exterior to the interior of the string.

5. The well production and injection string of claim 1, wherein the wellbore extends from a terranean surface into a target subterranean zone and the portion of the string in the target subterranean zone defines a production/injection interval, and

wherein the packers are distributed along substantially the entire production/injection interval.

6. The well production and injection string of claim 5, wherein the flow control devices are adapted to provide substantially uniform flow of fluids between the exterior and the interior of the string along the entire production/injection interval.

7. The well production and injection string of claim 5, wherein the flow control devices are less restricting to flow between the exterior and interior of the string toward an end of the string.

8. The well production and injection string of claim 1, further comprising a plurality of particulate control screens configured to filter against passage of particulate larger than a specified size from the exterior to the interior of the string.

9. A method of accessing a subterranean zone, comprising:

sealing an annulus between a well string and a wellbore at a plurality of locations;

injecting an injection fluid from the well string into the subterranean zone between the plurality of locations through a first flow area that provides a first flow resistance; and

receiving production fluid from the subterranean zone between the plurality of locations through a second flow area that provides a second, different flow resistance.

10. The method of claim 9, further comprising reducing the first flow area to yield the second flow area.

11. The method of claim 10, wherein reducing the first flow area comprises sealing a plurality of flow passages of the first area against flow.

12. The method of claim 9, wherein the plurality of locations span between a heel and toe of a wellbore and the first flow resistance is a flow resistance profile that produces a

substantially uniform flow of fluid into the subterranean zone between the heel and the toe of the wellbore.

13. The method of claim 12, wherein the first flow resistance profile is greater at the heel of the wellbore than the toe of the wellbore.

14. The method of claim 12, wherein the first flow resistance profile is greater in locations of the subterranean zone having a higher permeability.

15. The method of claim 9, wherein the first flow area is greater than the second flow area.

16. The method of claim 9, wherein injecting an injection fluid comprises injecting at least one of acid, hydrocarbon solvent or steam for stimulating production from the subterranean zone.

17. A well system, comprising:

a wellbore extending from a terranean surface to a subterranean zone;

a well string comprising:

tubing;

a plurality of seals arranged along the tubing and each adapted to seal with a wall of the wellbore; and

a plurality of flow control devices arranged along the tubing and distributed between pairs of adjacent seals, the plurality of flow control devices adapted to communicate outflow from an interior to an exterior of the string through a first flow area and inflow from the exterior of the string to the interior of the string through a second, smaller flow area.

18. The well system of claim 17, wherein the first flow area comprises a plurality of flow passages between the interior and exterior of the string and the second flow area comprises a subset of the plurality of flow passages.

19. The well system of claim 18, wherein flow passages comprise check valves oriented to seal against inflow into the string.

20. The well system of claim 17, wherein the first flow area is arranged to provide substantially uniform flow into the subterranean zone.

CLAIMS

1. A well production and injection string for use in a wellbore, the string comprising:

a plurality of spaced apart flow control devices distributed substantially along a production/injection interval of the string within the wellbore, the wellbore extending from a terranean surface into a target subterranean zone and wherein the portion of the string in the target subterranean zone defines the production/injection interval, the plurality of flow control devices adapted to communicate flow between an interior and an exterior of the string with less restriction to flow from the interior to the exterior of the string than to flow from the exterior to the interior of the string, and

wherein the restriction to flow of the flow control devices comprises a fluid diode based valve that accounts for different fluid material properties of injection fluids and production fluids.

2. The well production and injection string of claim 1, wherein the flow control devices comprise a plurality of flow passages between an interior and an exterior of the string and a subset of the passages comprise one-way passages that restrict fluid flow from the exterior to the interior of the string.

3. The well production and injection string of claim 2, wherein the one-way passages comprise check valves adapted to close the passage in response to a pressure differential between the interior and exterior of the string.

4. The well production and injection string of claim 1, wherein the flow control devices define a first flow area available to flow from the interior to the exterior of the string, the flow control devices define a second flow area available to flow from the exterior to the interior of the string, and the first flow area is greater than the second flow area.

5. The well production and injection string of claim 1, further comprising a plurality of spaced apart packers each adapted to seal with a wall of the wellbore; and

wherein the plurality of spaced apart packers are distributed along substantially the entire production/injection interval.

6. The well production and injection string of claim 1, wherein the flow control devices are adapted to provide substantially uniform flow of fluids between the exterior and the interior of the string along the entire production/injection interval.

7. The well production and injection string of claim 1, wherein the flow control devices are less restricting to flow between the exterior and interior of the string toward an end of the string.

8. The well production and injection string of claim 1, further comprising a plurality of particulate control screens configured to filter against passage of particulate larger than a specified size from the exterior to the interior of the string.

9. A method of accessing a subterranean zone, comprising:

sealing an annulus between a well string and a wellbore at a plurality of locations;

injecting an injection fluid from the well string into the subterranean zone between the plurality of locations through a first flow area of a flow control device that provides a first flow resistance through the first flow area; and

receiving production fluid from the subterranean zone between the plurality of locations through a second flow area of the flow control device that provides a second, greater flow resistance through the second flow area; and

wherein the flow control device comprises a fluid diode based valve that accounts for different fluid material properties of the injection fluid and production fluid.

10. The method of claim 9, further comprising reducing the first flow area to yield the second flow area.

11. The method of claim 10, wherein reducing the first flow area comprises sealing a plurality of flow passages of the first area against flow.

12. The method of claim 9, wherein the plurality of locations span between a heel and toe of a wellbore and the first flow resistance is a flow resistance profile that produces a substantially uniform flow of fluid into the subterranean zone between the heel and the toe of the wellbore.

13. The method of claim 12, wherein the first flow resistance profile is greater at the heel of the wellbore than the toe of the wellbore.

14. The method of claim 12, wherein the first flow resistance profile is greater in locations of the subterranean zone having a higher permeability.

15. The method of claim 9, wherein the first flow area is greater than the second flow area.

16. The method of claim 9, wherein injecting an injection fluid comprises injecting at least one of acid, hydrocarbon solvent or steam for stimulating production from the subterranean zone.

17. A well system, comprising:

a wellbore extending from a terranean surface to a subterranean zone;

a well string disposed within the wellbore, wherein the portion of the well string in the subterranean zone defines a production/injection interval of the well string, the well string comprising:

tubing;

a plurality of seals arranged along the tubing and each adapted to seal with a wall of the wellbore; and

a plurality of flow control devices arranged along the tubing in the production/injection interval of the well string and distributed between pairs of adjacent seals, the plurality of flow control devices adapted to communicate outflow from an interior

to an exterior of the string through a first flow area and inflow from the exterior of the string to the interior of the string through a second, smaller flow area; and

wherein the plurality of flow control devices comprises fluid diode based valves that account for different fluid material properties of injection fluids and production fluids.

18. The well system of claim 17, wherein the first flow area comprises a plurality of flow passages between the interior and exterior of the string and the second flow area comprises a subset of the plurality of flow passages.

19. The well system of claim 18, wherein flow passages comprise check valves oriented to seal against inflow into the string.

20. The well system of claim 17, wherein the first flow area is arranged to provide substantially uniform flow into the subterranean zone.

21. The well production and injection string of claim 1, wherein the flow control devices are adapted to produce substantially uniform flow of fluids from the interior to the exterior of the string along the entire production/injection interval.

22. The well production and injection string of claim 1, wherein the flow control devices are adapted to produce substantially uniform flow of fluids from the exterior to the interior of the string along the entire production/injection interval.

23. The well production and injection string of claim 22, wherein the flow control devices are adapted to produce non-uniform flow of fluids from the interior to the exterior of the string along the entire production/injection interval.

24. The well production and injection string of claim 2, wherein a second subset of the passages comprises one-way passages that restrict fluid flow from the interior to the exterior of the string.

25. The well production and injection string of claim 1, wherein a first subset of the flow control devices have a lesser resistance to inflow than a second subset of the flow control devices, and the first subset of the flow control devices is provided in locations of the string adapted to be positioned in areas of a first permeability of the target subterranean zone, and the second subset of the flow control devices is provided in locations of the string adapted to be positioned in areas of a second, higher permeability of the target subterranean zone.

26. The well production and injection string of claim 5, comprising only one flow control device between pairs of adjacent packers of at least a subset of the plurality of spaced apart packers.

27. The well production and injection string of claim 5, comprising more than one flow control device between pairs of adjacent packers of at least a subset of the plurality of spaced apart packers.

28. The well production and injection string of claim 1, wherein the plurality of flow control devices comprises flow control devices having asymmetrical flow properties between inflow and outflow and flow control devices having symmetrical flow properties between inflow and outflow.

29. The well production and injection string of claim 1, wherein the restrictions to flow of the flow control devices account for different viscosities of injection fluids and production fluids.

30. The well production and injection string of claim 1, wherein the restrictions to flow of the flow control devices account for different fluid types communicated by the flow control device during production and injection.