

WHAT IS CLAIMED IS:

1. A well screen assembly for installation in a subterranean wellbore, comprising:
 - a base pipe comprising a sidewall opening to an interior of the base pipe;
 - a filter assembly carried on the base pipe and comprising an internal passage in fluid communication with the opening, the filter assembly adapted to filter against passage of particulate from the wellbore into the opening;
 - a swell material carried in the base pipe between the filter assembly and the base pipe, the swell material adapted to expand under specified conditions and displace the filter assembly radially toward a wall of the wellbore; and
 - a flow control device in fluid communication between the internal passage of the filter assembly and the opening in the base pipe and adapted to restrict communication of fluid with the opening in the base pipe.
2. The well screen assembly of claim 1, where the swell material is adapted to expand in contact with a specified fluid.
3. The well screen assembly of claim 1, where the flow control device comprises a choke.
4. The well screen assembly of claim 1, where the flow control device comprises a valve adapted to selectively change between allowing and sealing against communication of fluid with the opening in the base pipe.
5. The well screen assembly of claim 4, where the valve comprises a check valve.
6. The well screen assembly of claim 5, where the check valve is oriented to allow flow from the interior of the base pipe towards the wellbore and to seal against flow from the wellbore towards the interior of the base pipe.

7. The well screen assembly of claim 5, where the check valve comprises a flexible annular sleeve around the base pipe and between the filter assembly and the opening, the flexible sleeve having one end sealingly affixed to a housing of the flow control device and an opposing end free and abutting the base pipe.
8. The well screen assembly of claim 4, where the valve comprises an autonomous valve that changes between allowing and restricting communication of fluid with the opening in the base pipe in response to at least one of fluid flow rate, viscosity or density.
9. The well screen assembly of claim 4, where the valve comprises a valve that is selectively changeable between allowing and sealing communication of fluid with the opening in the base pipe in response to a signal.
10. The well screen assembly of claim 1, where the flow control device comprises a dissolvable material embedded in the filter assembly, the dissolvable material adapted to dissolve when exposed to a specified fluid.
11. The well screen assembly of claim 10, where the dissolvable material comprises an acid.
12. The well screen assembly of claim 11, where the acid comprises polylactic acid or polylactic-co-glycolic acid.
13. The well screen assembly of claim 1, further comprising a hydraulic, electric or optical communication line running axially through a length of the well screen assembly.

14. A method, comprising:

in response to the presence of a specified fluid, extending a plurality of filters on a base pipe from a retracted state to a radially extended state in contact a wall of a wellbore;

with the filters, filtering against passage of particulate of a specified size and larger between the wellbore and an interior of the filters while allowing flow of fluid; and

restricting communication of the flow between the interior of the filters and a central interior bore of the base pipe.

15. The method of claim 14, where restricting flow comprises restricting the flow with a dissolvable material embedded in the filter; and

further comprising dissolving the dissolvable material in response to contacting the dissolvable material with a specified fluid.

16. The method of claim 15, where the dissolvable material comprises an acid.

17. The method of claim 14, where restricting communication of flow comprises restricting communication of flow in a first direction between the interior of the filters and the interior bore of the base pipe and allowing communication of flow in an opposing direction between the interior of the filters and the interior bore of the base pipe.

18. The method of claim 14, where restricting communication of flow comprises restricting communication of flow based on the flow rate, viscosity or density of the flowing fluid.

19. The method of claim 14, further comprising communicating a signal along a length of the base pipe.

20. A well screen assembly for installation in a subterranean wellbore, comprising:
- an elongate base pipe comprising a sidewall opening to an interior flow bore of the base pipe;
 - a filter assembly carried on the base pipe and comprising an internal passage in fluid communication with the opening, the filter assembly adapted to filter against passage of particulate from the wellbore into the opening;
 - a swell material carried in the base pipe between the filter assembly and the base pipe, the swell material adapted to expand under specified conditions and displace the filter assembly radially toward a wall of the wellbore; and
 - a communication line carried by the base pipe.
21. The well screen assembly of claim 20, where the communication line communicates between the axial ends of the well screen assembly.
22. The well screen assembly of claim 20, where the communication line comprises at least one of an electric, hydraulic, or optic communication line.
23. The well screen assembly of claim 20, where the communication line is encapsulated in polymer.
24. The well screen assembly of claim 20, where the communication line is fluidically isolated from the bore of the base pipe and well bore fluids.

CLAIMS:

1. A well screen assembly for installation in a subterranean wellbore, comprising:
 - a base pipe comprising a sidewall opening to an interior of the base pipe;
 - a filter assembly carried on the base pipe and comprising an internal passage in fluid communication with the opening, the filter assembly adapted to filter against passage of particulate from the wellbore into the opening;
 - a swell material carried in the base pipe between the filter assembly and the base pipe, the swell material adapted to expand under specified conditions and displace the filter assembly radially toward a wall of the wellbore; and
 - a flow control device in fluid communication between the internal passage of the filter assembly and the opening in the base pipe and adapted to restrict communication of fluid with the opening in the base pipe, the flow control device comprising a valve adapted to selectively change between allowing and sealing against communication of fluid with the opening in the base pipe, the valve comprising a check valve comprising a flexible annular sleeve around the base pipe and between the filter assembly and the opening, the flexible sleeve having one end sealingly affixed to a housing of the flow control device and an opposing end free and abutting the base pipe.
2. The well screen assembly of claim 1, where the swell material is adapted to expand in contact with a specified fluid.
3. The well screen assembly of claim 1 or claim 2, where the flow control device further comprises a choke.
4. The well screen assembly of any one of claims 1 to 3, where the check valve is oriented to allow flow from the interior of the base pipe towards the wellbore and to seal against flow from the wellbore towards the interior of the base pipe.

5. The well screen assembly of any one of claims 1 to 4, where the valve comprises an autonomous valve that changes between allowing and restricting communication of fluid with the opening in the base pipe in response to at least one of fluid flow rate, viscosity or density.
6. The well screen assembly of any one of claims 1 to 4, where the valve comprises a valve that is selectively changeable between allowing and sealing communication of fluid with the opening in the base pipe in response to a signal.
7. The well screen assembly of any one of claims 1 to 6, where the flow control device further comprises a dissolvable material embedded in the filter assembly, the dissolvable material adapted to dissolve when exposed to a specified fluid.
8. The well screen assembly of claim 7, where the dissolvable material comprises an acid.
9. The well screen assembly of claim 8, where the acid comprises polylactic acid or polylactic-co-glycolic acid.
10. The well screen assembly of any one of claims 1 to 9, further comprising a hydraulic, electric or optical communication line running axially through a length of the well screen assembly.
11. The well screen assembly of claim 10, where the communication line communicates between the axial ends of the well screen assembly
12. The well screen assembly of claim 10 or 11, where the communication line is encapsulated in polymer.

13. The well screen assembly of any one of claims 10 to 12, where the communication line is fluidically isolated from a bore of the base pipe and well bore fluids.

14. A method comprising:

in response to the presence of a specified fluid, extending a plurality of filters on a base pipe from a retracted state to a radially extended state in contact a wall of a wellbore;

with the filters, filtering against passage of particulate of a specified size and larger between the wellbore and an interior of the filters while allowing flow of fluid; and;

restricting, with a flow control device, communication of the flow between the interior of the filters and a central interior bore of the base pipe, the flow control device comprising a valve adapted to selectively change between allowing and sealing against communication of fluid with the central interior bore of the base pipe, the valve comprising a check valve comprising a flexible annular sleeve around the base pipe and between the plurality of filters and the central interior bore, the flexible sleeve having one end sealingly affixed to a housing of the flow control device and an opposing end free and abutting the base pipe.

15. The method of claim 14, where restricting communication of flow further comprises restricting the flow with a dissolvable material embedded in the filter; and further comprising dissolving the dissolvable material in response to contacting the dissolvable material with a specified fluid.

16. The method of claim 15, where the dissolvable material comprises an acid.

17. The method of any one of claims 14 to 16, where restricting communication of flow further comprises restricting communication of flow, with the flow control device, in a first direction between the interior of the filters and the interior bore of the base pipe and allowing communication of flow in an opposing direction between the interior of the filters and the interior bore of the base pipe.

18. The method of any one of claims 14 to 17, where restricting communication of flow further comprises restricting communication of flow based on the flow rate, viscosity or density of the flowing fluid.

19. The method of any one of claims 14 to 18, further comprising communicating a signal along a length of the base pipe.