

What is claimed is:

1. A well system having a fluid flow path for the inflow of production fluid, the well system comprising:

an inflow control device disposed within the fluid flow path, the inflow control device having at least first and second fluid passageways;

a first plug disposed within the first fluid passageway and operable to restrict fluid flow therethrough, the first plug operably removable from the first fluid passageway responsive to a first stimulus; and

a second plug disposed within the second fluid passageway and operable to restrict fluid flow therethrough, the second plug operably removable from the second fluid passageway responsive to a second stimulus;

wherein, the first stimulus is different from the second stimulus.

2. The well system as recited in claim 1 wherein the first plug further comprises a first material and the second plug further comprises a second material, wherein the first material is different from the second material.

3. The well system as recited in claim 1 wherein the first plug further comprises a first material and the second plug further comprises the first material and a second material operable to protect the first material of the second plug from the first stimulus when the second plug is disposed within the second fluid passageway.

4. The well system as recited in claim 1 wherein the first stimulus is at least one fluid treatment selected from the group consisting of acids, carboxylic acids, sulfonic acids, organic acids, sulfuric acids, hydrochloric acids, nitric acids, inorganic acids, ammonium, Lewis acids, bases, hydroxides, potassium hydroxide, sodium hydroxide, strong bases, acetone, Lewis bases, gasolines, hydrocarbons, alcohols, water and chlorides.

5. The well system as recited in claim 1 wherein the second stimulus is at least one fluid treatment selected from the group consisting of acids, carboxylic acids, sulfonic acids, organic acids, sulfuric acids, hydrochloric acids, nitric acids, inorganic acids, ammonium, Lewis acids, bases, hydroxides, potassium hydroxide, sodium hydroxide, strong bases, acetone, Lewis bases, gasolines, hydrocarbons, alcohols, water and chlorides.

6. The well system as recited in claim 1 wherein the first plug further comprises a plug member having a first length and the second plug further comprises a plug member having a second length, wherein the first length is less than the second length.

7. The well system as recited in claim 6 wherein the first stimulus is a fluid treatment of a first duration and wherein the second stimulus further comprises the fluid treatment of the first duration and a second fluid treatment.

8. The well system as recited in claim 1 wherein removing the first plug reduces the flow resistance through the inflow control device and wherein removing the second plug further reduces the flow resistance through the inflow control device.

9. A well system having a first fluid flow path associated with a first zone and a second fluid flow path associated with a second zone, the well system comprising:

a first flow control device disposed within the first fluid flow path, the first flow control device having a first fluid passageway with a first plug disposed therein and operable to restrict fluid flow therethrough, the first plug operably removable from the first fluid passageway responsive to a first stimulus; and

a second flow control device disposed within the second fluid flow path, the second flow control device having a second fluid passageway with a second plug disposed therein and operable to restrict fluid flow therethrough, the second plug operably removable from the second fluid passageway responsive to a second stimulus;

wherein, the first stimulus is different from the second stimulus.

10. The well system as recited in claim 9 wherein the first plug further comprises a first material and the second plug further comprises a second material, wherein the first material is different from the second material.

11. The well system as recited in claim 9 wherein the first plug further comprises a first material and the second plug further comprises the first material and a second material operable to protect the first material of the second plug from the first stimulus when the second plug is disposed within the second fluid passageway.

12. The well system as recited in claim 11 wherein the first stimulus is at least one fluid treatment selected from the group consisting of acids, carboxylic acids, sulfonic acids, organic acids, sulfuric acids, hydrochloric acids, nitric acids, inorganic acids, ammonium, Lewis acids, bases, hydroxides, potassium hydroxide, sodium hydroxide, strong bases, acetone, Lewis bases, gasolines, hydrocarbons, alcohols, water and chlorides.

13. The well system as recited in claim 11 wherein the second stimulus is at least one fluid treatment selected from the group consisting of acids, carboxylic acids, sulfonic acids, organic acids, sulfuric acids, hydrochloric acids, nitric acids, inorganic acids, ammonium, Lewis acids, bases, hydroxides, potassium hydroxide, sodium hydroxide, strong bases, acetone, Lewis bases, gasolines, hydrocarbons, alcohols, water and chlorides.

14. The well system as recited in claim 9 wherein the first plug further comprises a plug member having a first length and the second plug further comprises a plug member having a second length, wherein the first length is less than the second length.

15. The well system as recited in claim 14 wherein the first stimulus is a fluid treatment of a first duration and wherein the second stimulus further comprises the fluid treatment of the first duration and a second fluid treatment.

16. The well system as recited in claim 9 wherein removing the first plug reduces the flow resistance through the first flow control device and wherein removing the second plug reduces the flow resistance through the second flow control device.

17. A flow control screen assembly having a fluid flow path between a filter medium and an interior of a base pipe, the flow control screen comprising:

an inflow control device disposed within the fluid flow path, the inflow control device having at least first and second fluid passageways;

a first plug disposed within the first fluid passageway and operable to restrict fluid flow therethrough, the first plug having a shaft formed from a first material that is operably removable from the first fluid passageway responsive to a first stimulus; and

a second plug disposed within the second fluid passageway and operable to restrict fluid flow therethrough, the second plug having a shaft partially formed from the first material and partially formed from a second material operable to protect the first material from the first stimulus when the second plug is disposed within the second fluid passageway, the second material operably removable from the second fluid passageway responsive to a second stimulus;

wherein, the first stimulus is different from the second stimulus.

18. The flow control screen assembly as recited in claim 17 wherein the first stimulus and the second stimulus are each at least one fluid treatments selected from the group consisting of acids, carboxylic acids, sulfonic acids, organic acids, sulfuric acids, hydrochloric acids, nitric acids, inorganic acids, ammonium, Lewis acids, bases, hydroxides, potassium hydroxide, sodium hydroxide, strong bases, acetone, Lewis bases, gasolines, hydrocarbons, alcohols, water and chlorides.

19. The flow control screen assembly as recited in claim 17 wherein removing the first plug reduces the flow resistance through the inflow control device and wherein removing the second plug further reduces the flow resistance through the inflow control device.

20. The flow control screen assembly as recited in claim 17 wherein the first material is a metal and wherein the second material is a paint.

CLAIMS

What is claimed is:

1. A well system comprising:

a base pipe with an axially extending internal passageway, a blank pipe section and a perforated section;

a filter medium positioned around the blank pipe section of the base pipe;

a housing positioned around the base pipe defining a fluid flow path between the filter medium and the internal passageway;

an inflow control device disposed within the fluid flow path, the inflow control device having at least first and second axially extending fluid passageways;

a first axially extending plug disposed within the first fluid passageway and operable to restrict fluid flow therethrough, the first plug operably removable from the first fluid passageway responsive to a first fluid treatment; and

a second axially extending plug disposed within the second fluid passageway and operable to restrict fluid flow therethrough, the second plug operably removable from the second fluid passageway responsive to a second fluid treatment; wherein, the first fluid treatment is different from the second fluid treatment; wherein, the first plug comprises a first material;

wherein the second plug comprises a head, a shaft, and a plurality of seal grooves that are operable to receive seals;

wherein the shaft of the second plug comprises a first portion, a second portion, a third portion, and a fourth portion sequenced relative to each other; and

wherein the first portion and the third portion are comprised of the first material and the second portion and the fourth portion are comprised of a second material operable to protect the first material of the second plug from the first fluid treatment when the second plug is disposed within the second fluid passageway.

2. The well system as recited in claim 1 wherein the first fluid treatment is selected from

the group consisting of acids, bases, hydrocarbons, alcohols, and water.

3. The well system as recited in claim 1 wherein the second fluid treatment is selected from the group consisting of acids, bases, hydrocarbons, alcohols, and water.

4. The well system as recited in claim 1 wherein the first material is a metal and wherein the second material is a plastic.

5. The well system as recited in claim 1 wherein removing the first plug reduces the flow resistance through the inflow control device and wherein removing the second plug further reduces the flow resistance through the inflow control device.

6. A well system having a first flow control screen associated with a first zone and a second flow control screen associated with a second zone, the well system comprising:

the first flow control screen includes a first base pipe with a first axially extending internal passageway, a first blank pipe section and a first perforated section, a first filter medium positioned around the first blank pipe section of the first base pipe and a first housing positioned around the first base pipe defining a first fluid flow path between the first filter medium and the first internal passageway;

a first flow control device disposed within the first fluid flow path, the first flow control device having a first axially extending fluid passageway with a first axially extending plug disposed therein and operable to restrict fluid flow therethrough, the first plug operably removable from the first fluid passageway responsive to a first fluid treatment;

the second flow control screen includes a second base pipe with a second axially extending internal passageway, a second blank pipe section and a second perforated section, a second filter medium positioned around the second blank pipe section and a second housing positioned around the second base pipe defining a second fluid flow path between the second filter medium and the second internal passageway; and

a second flow control device disposed within the second fluid flow path, the second flow control device having a second axially extending fluid passageway with a second axially extending plug disposed therein and operable to restrict fluid flow therethrough, the second plug operably removable from the second fluid passageway responsive to a second fluid treatment;

wherein, the first fluid treatment is different from the second fluid treatment; wherein the first plug comprises a first material;

wherein the second plug comprises a head, a shaft, and a plurality of seal grooves that are operable to receive seals;

wherein the shaft of the second plug comprises a first portion, a second portion, a third portion, and a fourth portion sequenced relative to each other; and

wherein the first portion and the third portion are comprised of the first material and the second portion and the fourth portion are comprised of a second material operable to protect the first material of the second plug from the first fluid treatment when the second plug is disposed within the second fluid passageway.

7. The well system as recited in claim 6 wherein the first fluid treatment is selected from the group consisting of acids, bases, hydrocarbons, alcohols, and water.

8. The well system as recited in claim 6 wherein the second fluid treatment is selected from the group consisting of acids, bases, hydrocarbons, alcohols, and water.

9. The well system as recited in claim 6 wherein the first material is a metal and wherein the second material is a plastic.

10. The well system as recited in claim 6 wherein removing the first plug reduces the flow resistance through the first flow control device and wherein removing the second plug reduces the flow resistance through the second flow control device.

11. A flow control screen assembly having a fluid flow path between a filter medium and an axially extending internal passageway of a base pipe, the flow control screen comprising:

an inflow control device disposed within the fluid flow path, the inflow control device having at least first and second axially extending fluid passageways;

a first axially extending plug disposed within the first fluid passageway and operable to restrict fluid flow therethrough, the first plug having a shaft formed from a first material that is operably removable from the first fluid passageway responsive to a first fluid treatment; and

a second axially extending plug disposed within the second fluid passageway and operable to restrict fluid flow therethrough, the second plug having a shaft, a head, and a plurality of seal grooves that are operable to receive seals, the shafting having a first portion, a second portion, a third portion, and a fourth portion sequenced relative to each other, and wherein the first portion and the third portion are formed from the first material and the second portion and the fourth portion are formed from a second material operable to protect the first material from the first fluid treatment when the second plug is disposed within the second fluid passageway, the second material operably removable from the second fluid passageway responsive to a second fluid treatment;

wherein, the first fluid treatment is different from the second fluid treatment.

12. The flow control screen assembly as recited in claim 11 wherein the first fluid treatment and the second fluid treatment are each selected from the group consisting of acids, bases, hydrocarbons, alcohols, and water.

13. The flow control screen assembly as recited in claim 11 wherein removing the first plug reduces the flow resistance through the inflow control device and wherein removing the second plug further reduces the flow resistance through the inflow control device.

14. The flow control screen assembly as recited in claim 11 wherein the first material is a metal and wherein the second material is a plastic.

15. A well system comprising:

a base pipe with an axially extending internal passageway, a blank pipe section and a perforated section; a filter medium positioned around the blank pipe section of the base pipe;

a housing positioned around the base pipe defining a fluid flow path between the filter medium and the internal passageway;

an inflow control device disposed within the fluid flow path, the inflow control device having at least first and second axially extending fluid passageways;

a first axially extending plug disposed within the first fluid passageway and operable to restrict fluid flow therethrough, the first plug operably removable from the first fluid passageway responsive to a first fluid treatment; and

a second axially extending plug disposed within the second fluid passageway and operable to restrict fluid flow therethrough, the second plug operably removable from the second fluid passageway responsive to a second fluid treatment;

wherein, the first fluid treatment is different from the second fluid treatment;

wherein the first plug comprises a plug member having a first axial length and the second plug comprises a plug member having a second axial length, wherein the first axial length is less than the second axial length;

wherein the first plug is formed from a first single material; and wherein the second plug is formed from a second single material that is different from the first single material.

16. The well system as recited in claim 15 wherein the first fluid treatment and the second fluid treatment are each selected from the group consisting of acids, bases, hydrocarbons, alcohols, and water.

17. The well system as recited in claim 15 wherein the first stimulus is a fluid treatment of a first duration and wherein the second stimulus further comprises the fluid treatment of the first duration and a second fluid treatment.

18. The well system as recited in claim 15 wherein removing the first plug reduces the flow resistance through the inflow control device and wherein removing the second plug further reduces the flow resistance through the inflow control device.

19. The well system as recited in claim 15, wherein the first single material is a metal and wherein the second single material is a plastic.

20. A well system having a first flow control screen associated with a first zone and a second flow control screen associated with a second zone, the well system comprising:

the first flow control screen includes a first base pipe with a first axially extending internal passageway, a first blank pipe section and a first perforated section, a first filter medium positioned around the first blank pipe section of the first base pipe and a first housing positioned around the first base pipe defining a first fluid flow path between the first filter medium and the first internal passageway;

a first flow control device disposed within the first fluid flow path, the first flow control device having a first axially extending fluid passageway with a first axially extending plug disposed therein and operable to restrict fluid flow therethrough, the first plug operably removable from the first fluid passageway responsive to a first fluid treatment;

the second flow control screen includes a second base pipe with a second axially extending internal passageway, a second blank pipe section and a second perforated section, a second filter medium positioned around the second blank pipe section and a second housing positioned around the second base pipe defining a second fluid flow path between the second filter medium and the second internal passageway; and

a second flow control device disposed within the second fluid flow path, the second flow control device having a second axially extending fluid passageway with a second axially extending plug disposed therein and operable to restrict fluid flow therethrough, the second plug operably removable from the second fluid passageway responsive to a second fluid treatment;

wherein, the first fluid treatment is different from the second fluid treatment;

wherein, the first plug comprises a plug member having a first axial length and the second plug comprises a plug member having a second axial length, wherein the first axial length is less than the second axial length; wherein the first plug is formed from a first single material; and

wherein the second plug is formed from a second single material that is different from the first single material.

21. The well system as recited in claim 20 wherein the first fluid treatment and the second fluid treatment are each selected from the group consisting of acids, bases, hydrocarbons, alcohols, and water.

22. The well system as recited in claim 20 wherein the first stimulus is a fluid treatment of a first duration and wherein the second stimulus further comprises the fluid treatment of the first duration and a second fluid treatment.

23. The well system as recited in claim 20 wherein removing the first plug reduces the flow resistance through the first flow control device and wherein removing the second plug reduces the flow resistance through the second flow control device.

24. The well system as recited in claim 20, wherein the first single material is a metal and wherein the second single material is a plastic.