

course, the openings may be formed and/or employed to also permit flow of fluids outwardly therethrough from the inner diameter of the base pipe.

In situ treatment of produced fluids are of interest as they may take advantage of useful downhole conditions, facilitate fluid handling and avoid disposal of problematic materials at surface. Other downhole fluid treatments may also be of interest, for example, to address problems experienced when injected fluids downhole.

Summary

In accordance with one aspect of the present ~~disclosure~~^{invention}, there is provided a cartridge-type wellbore screen comprising: a cylindrical wall including a first end, a second end opposite the first end, an inner surface defining an inner diameter of the wellbore screen, the inner diameter being open from the first end to the second end, and an outer surface; an opening to the inner diameter through the cylindrical wall the opening extending between the outer surface and the inner surface to provide fluid access from the outer surface to the inner diameter; a fluid filtering material positioned to filter oversize particles from passing through the opening; and a fluid tracing material carried by the wellbore tubular and mounted at a mounting site spaced from the opening to the inner diameter and outwardly of the inner diameter, the mounting site being positioned such that a fluid flow path is restricted to be from the mounting site, along the outer surface and through the opening before entering the inner diameter.

In one aspect, there is provided a cartridge-type wellbore screen comprising: a cylindrical wall including a first end, a second end opposite the first end, an inner surface defining an inner diameter of the wellbore screen, the inner diameter being open from the first end to the second end, and an outer surface; an opening to the inner diameter through the cylindrical wall the opening extending between the outer surface and the inner surface to provide fluid access from the outer surface to the inner diameter; a fluid filtering material positioned to filter oversize particles from passing through the opening; and a fluid tracing material carried by the wellbore tubular and mounted at a mounting site spaced from the opening to the inner diameter and outwardly of the inner diameter, the mounting site being positioned such that a fluid flow path is restricted to be from the mounting site, along the outer surface and through the opening before entering the inner diameter, wherein the mounting site and the opening are similarly formed, except the mounting site is closed at its floor to stop fluid communication therethrough to the inner diameter.

In accordance with another broad aspect, there is provided a method for monitoring fluid production in a well, the well extending from ground surface into a formation, the method comprising: installing cartridge-type wellbore screen in the well, the cartridge-type wellbore screen including a first end, a second end opposite the first end, a cylindrical wall including an inner surface defining an inner diameter of the wellbore screen, the inner diameter being open from the first end to the second end, and an outer surface; an opening through the cylindrical wall providing access between the outer surface and the inner diameter; a fluid filtering material positioned

to filter oversize particles from passing through the opening; a fluid tracing material carried by the wellbore tubular and mounted at a mounting site spaced from the opening to the inner diameter and outwardly of the inner diameter, the mounting site being positioned such that a fluid flow path is restricted to be from the mounting site, along the outer surface and through the opening before entering the inner diameter; allowing a flow of a fluid past the fluid tracing material, along the outer surface and through the opening to the inner diameter, the fluid picking up a tracer from the fluid tracing material; allowing the fluid to move through the inner diameter to surface; and monitoring the fluid arriving at surface for the presence of the tracer.

In another aspect, there is provided a method for monitoring fluid production in a well, the well extending from ground surface into a formation, the method comprising: installing cartridge-type wellbore screen in the well, the cartridge-type wellbore screen including a first end, a second end opposite the first end, a cylindrical wall including an inner surface defining an inner diameter of the wellbore screen, the inner diameter being open from the first end to the second end, and an outer surface; an opening through the cylindrical wall providing access between the outer surface and the inner diameter; a fluid filtering material positioned to filter oversize particles from passing through the opening; a fluid tracing material carried by the wellbore tubular and mounted at a mounting site spaced from the opening to the inner diameter and outwardly of the inner diameter, wherein the mounting site and the opening are similarly formed, except the mounting site is closed at its floor to stop fluid communication therethrough to the inner diameter and the mounting site being positioned such that a fluid flow path is restricted to be from the mounting site, along the outer surface and through the opening before entering the inner diameter; allowing a flow of a fluid past the fluid tracing material, along the outer surface and through the opening to the inner diameter, the fluid picking up a tracer from the fluid tracing material; allowing the fluid to move through the inner diameter to surface; and monitoring the fluid arriving at surface for the presence of the tracer.

It is to be understood that other aspects of the present ~~disclosure~~invention will become readily apparent to those skilled in the art from the following detailed description, wherein various embodiments of the ~~disclosure~~invention are shown and described by way of illustration. As will be realized, the invention is capable for other and different embodiments and its several details are capable of modification in various other respects, all without departing from the spirit and scope of the present ~~disclosure~~invention. Accordingly the drawings and detailed description are to be regarded as illustrative in nature and not as restrictive.

Brief Description of the Drawings

Drawings are included for the purpose of illustrating certain aspects of the invention. Such drawings and the description thereof are intended to facilitate understanding and should not be considered limiting of the invention. Drawings are included, in which:

Figure 1 is a side elevation of a wellbore tubular;

Figure 2 is a section along line I-I of Figure 1;

Figure 3 is a section through a pocket containing fluid tracing material, with reference to line II-II of Figure 1 for the sectional location thereof;

Figure 4 is a section through a wellbore showing a wellbore string installed therein;