SUMMARY

In this disclosure, systems and methods are provided which may bring improvements to the arts of constructing and operating well completion systems. One example is described below in which a variable flow restricting device is configured to receive fluid which flows through a well screen. Another example is described below in which an optical waveguide is positioned external to a completion string, and one or more pressure sensors sense pressure internal and/or external to the completion string.

~~A~~ According to a first aspect of the present invention, there is provided a system for use with a subterranean well having multiple earth formation zones, ~~is provided to the art by the disclosure below. In one example,~~ the system ~~can~~ includeing multiple well screens which filter fluid flowing between a completion string in the well and respective ones of the multiple zones, at least one optical waveguide which senses at least one property of the fluid as it flows between the completion string and at least one of the zones, multiple flow control devices which variably restrict flow of the fluid through respective ones of the multiple well screens, and multiple pressure sensors which sense pressure of the fluid which flows through respective ones of the multiple well screens.

~~A completion string for use in a subterranean well is also described below. In one example, the completion string can include at least one well screen, at least one flow control device which selectively prevents and permits substantially unrestricted flow through the well screen, and at least one other flow control device which is remotely operable, and which variably restricts flow through the well screen.~~

According to a second aspect of the present invention, there is provided a completion string for use in a subterranean well, the completion string comprising: at least one well screen; at least one first flow control device; and at least one second flow control device, the second flow control device being remotely operable, wherein the first flow control device selectively prevents and permits substantially unrestricted flow through the well screen, and the second flow control device variably restricts flow through the well screen.

~~Also described below is~~According to a third aspect of the present invention, there is provided a method of operating a completion string in a subterranean well~~.~~, ~~In one example,~~ the method ~~comprises~~comprising: a) closing all of multiple flow control devices connected in the completion string, the completion string including multiple well screens which filter fluid flowing between the completion string and respective ones of multiple earth formation zones, at least one optical waveguide which senses at least one property of the fluid as it flows between the completion string and at least one of the zones, the multiple flow control devices which variably restrict flow of the fluid through respective ones of the multiple well screens, and multiple pressure sensors which sense pressure of the fluid which flows through respective ones of the multiple well screens; b) at least partially opening a selected one of the flow control devices; and c) measuring a change in the property sensed by the optical waveguide and a first change in the pressure of the fluid as a result of the opening of the first selected one of the flow control devices.

These and other features, advantages and benefits will become apparent to one of ordinary skill in the art upon careful consideration of the detailed description of representative embodiments of the disclosure hereinbelow and the accompanying drawings, in which similar elements are indicated in the various figures using the same reference numbers.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a representative partially cross-sectional view of a well system and associated method which can embody principles of this disclosure.