VALVE INSERT SYSTEM

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims the benefit of U.S. Provisional Patent Application No. 62/073,739, filed October 31, 2014, entitled "VALVE INSERT SYSTEM," which is incorporated by reference herein in its entirety.

BACKGROUND

[0002] This section is intended to introduce the reader to various aspects of art that may be related to various aspects of the present invention, which are described and/or claimed below. This discussion is believed to be helpful in providing the reader with background information to facilitate a better understanding of the various aspects of the present invention. Accordingly, it should be understood that these statements are to be read in this light, and not as admissions of prior art.

[0003] Valves are used in a variety of applications to manage and transmit flows of materials. Valves generally can be placed in an open position that enables fluid flow through a primary flow path and a closed position that reduces or completely shuts off that flow path. However, when transporting a proppant containing fluid (e.g., frac fluid), proppant may enter crevices or affect interfaces of the valve, causing undesirable wear and/or a reduction in the useful life of the valve.

SUMMARY

[0003A] According to a first aspect, there is provided a system, comprising: a valve, comprising: a valve body having an interior volume and a bore along a first axis; a stem extending along a second axis; and a flow control element coupled to the stem, wherein the stem is configured to selectively move the flow control element through the interior volume between a closed position and an open

position relative to the bore; and a valve insert system configured reduce a size of the interior volume and to guide a lubricant to reduce wear on the flow control element.

[0003B] According to a second aspect, there is provided a system, comprising: a valve insert system configured to rest within a valve, wherein the valve insert system comprises: a first valve insert configured to rest within a first chamber of the valve to reduce a first volume of the first chamber, wherein the first valve insert comprises a first groove configured to guide a lubricant through the first chamber; and a second valve insert configured to rest within a second chamber of the valve to reduce a second volume of the second chamber, wherein the second insert comprises a second groove configured to guide the lubricant through the second chamber.

[0003C] According to a third aspect, there is provided a system, comprising: a frac system configured to flow a proppant laden fluid, comprising: a valve, comprising: a valve body having an interior volume and a bore along a first axis; a stem extending along a second axis; and a flow control element coupled to the stem, wherein the stem is configured to selectively move the flow control element through the interior volume between a closed position and an open position relative to the bore; and a valve insert system configured reduce a size of the interior volume and to guide a lubricant to reduce wear on the flow control element from the proppant laden fluid.

BRIEF DESCRIPTION OF THE DRAWINGS

[0004] Various features, aspects, and advantages of the present invention will become better understood when the following detailed description is read with reference to the accompanying figures in which like characters represent like parts throughout the figures, wherein:

[0005] FIG. 1 is a schematic view of a frac system;