CLAIMS

What is claimed is:

1. A method for monitoring downhole, comprising:

routing a hydraulic control line to a downhole tool to enable hydraulic actuation of the downhole tool;

connecting a downhole pressure gauge to the hydraulic control line at a downhole location such that the downhole pressure gauge is less than 30.5 meters (100 feet) from the downhole tool;

determining a baseline pressure profile with respect to operation of the downhole tool by measuring pressure in the hydraulic control line during testing or initial operation of the downhole tool, wherein the baseline pressure profile is provided by normal operation of the downhole tool at a given position; and

using data from the downhole pressure gauge in comparison with the baseline pressure profile to identify deviations from the baseline pressure profile and determine operational characteristics of the downhole tool and an indication of health of the tool.

2. The method as recited in claim 1, wherein using data from the downhole pressure gauge comprises using the data to determine a malfunction of the downhole tool.

3. The method as recited in claim 1, wherein using data from the downhole pressure gauge comprises using the data to monitor operational positions of the downhole tool.

4. The method as recited in claim 1, wherein using data from the downhole pressure gauge comprises using the data to determine health of the downhole tool.

5. The method as recited in claim 1, wherein using data from the downhole pressure gauge comprises using the data to determine hydraulic control line leaks.

6. The method as recited in claim 1, wherein using data from the downhole pressure gauge comprises using the data to determine buildup of precipitate on the downhole tool in a manner which resists operation of the downhole tool.

7. The method as recited in claim 1, wherein routing comprises routing the hydraulic control line to a downhole valve.

8. The method as recited in claim 1, wherein routing comprises routing the hydraulic control line to a flow control valve.

9. The method as recited in claim 1, wherein routing comprises routing a plurality of hydraulic control lines to the downhole tool.

10. A system for monitoring, comprising:

a well string deployed in a borehole, the well string comprising:

a tool coupled with a hydraulic control line and operated via hydraulic inputs delivered through the hydraulic control line;

a sensor coupled to the hydraulic control line to monitor pressure in the hydraulic control line, the sensor being located permanently downhole proximate the tool; and

a control module, the control module being configured to collect data from the sensor and to compare the data to a baseline pressure profile, obtained by measuring pressure in the hydraulic control line during testing or initial operation of the downhole tool, wherein the baseline pressure profile is provided by normal operation of the downhole tool at a given position, the control module outputting indications of pressure deviation relative to the baseline pressure profile and an indication of health of the tool.

11. The system as recited in claim 10, wherein the hydraulic control line comprises a plurality of hydraulic control lines.

12. The system as recited in claim 11, wherein the sensor comprises a plurality of sensors.

13. The system as recited in claim 10, wherein the sensor comprises a downhole pressure or temperature gauge.

14. The system as recited in claim 10, wherein the tool comprises a valve.

15. The system as recited in claim 10, wherein the control module is a surface control module.

16. The system as recited in claim 10, wherein the control module outputs an indication of a problem with respect to actuation of the tool.

17. The system as recited in claim 10, wherein the control module outputs an indication of precipitate buildup based on the pressure deviation.