We claim:

1. A method of monitoring performance of a fluid driven actuator for a valve, the method comprising:

during a first time period, supplying pressurized fluid through an actuator supply line to an inlet port of the actuator to operate the actuator from a normal position to an actuated position;

measuring pressure changes in the actuator supply line during the first time period, the measured pressure changes defining a valve cycle pressure profile including a reduction in a rate of pressure increase corresponding to movement of the actuator from the normal position to the actuated position; and

analyzing the valve cycle pressure profile to identify a non-compliant condition in at least one of the valve and the actuator; and

generating an output communicating the identified non-compliant condition.

2. The method of claim 1, wherein supplying the pressurized fluid through the actuator supply line to the actuator inlet port comprises operating a pilot valve connected with the actuator supply line.

3. The method of claim 2, wherein the pressure changes are measured upstream of the pilot valve.

4. The method of claim 2, wherein the pressure changes are measured downstream of the pilot valve.

5. The method of any of claims 1-4, further comprising releasing the pressurized fluid from the actuator supply line during the first time period to return the actuator to the normal position.

6. The method of claim 5, wherein releasing the pressurized fluid from the actuator supply line during the first time period comprises retaining a non-actuating fluid pressure within the actuator supply line, wherein comparing the generated profile with the predetermined acceptable profile

comprises identifying a decrease in the pressure within the actuator supply line consistent with leakage past the actuator.

7. The method of any of claims 1-6, wherein analyzing the valve cycle pressure profile to identify a non-compliant condition in at least one of the valve and the actuator comprises identifying a decrease in the pressure within the actuator supply line consistent with leakage past the actuator.

8. The method of any of claims 1-7, wherein analyzing the valve cycle pressure profile to identify a non-compliant condition in at least one of the valve and the actuator comprises identifying a higher than normal pressure at which the actuator is actuated, consistent with increased resistance to actuation.

9. The method of claim 1, wherein analyzing the valve cycle pressure profile to identify a non-compliant condition in at least one of the valve and the actuator comprises identifying a lower than normal pressure at which the actuator is actuated, consistent with reduced resistance to actuation.

10. The method of claim 1, wherein analyzing the valve cycle pressure profile to identify a non-compliant condition in at least one of the valve and the actuator comprises identifying a valve cycle pressure profile indicative of non-actuation of the actuator.

11. The method of claim 1, wherein analyzing the valve cycle pressure profile to identify the non-compliant condition in at least one of the valve and the actuator comprises identifying deviations of the reduction in the rate of pressure increase from an expected valve cycle pressure profile corresponding to expected movement of the actuator from the normal position to the actuated position.

12. The method of claim 4, wherein the valve cycle pressure profile includes a reduction in a rate of pressure drop during actuator depressurization corresponding to movement of the actuator from the actuated position to the normal position.

13. The method of claim 12, wherein analyzing the valve cycle pressure profile to identify the non-compliant condition in at least one of the valve and the actuator comprises comparing the

reduction in the rate of pressure drop to an expected valve cycle pressure profile corresponding to expected movement of the actuator from the actuated position to the normal position.

14. An actuated valve system comprising:

a valve including a flow controlling valve element;

an actuator assembled with the valve and including a fluid driven actuator member operatively connected with the valve element and movable from a normal position to an actuated position in response to pressurization of an inlet port of the actuator;

a pilot valve connected with the actuator inlet port by an actuator supply line, the pilot valve being operable to supply pressurized fluid to the actuator supply line in a first position, and to exhaust pressurized fluid from the actuator supply line in a second position;

a sensor connected with the actuator supply line, the sensor being configured to measure pressure changes in the actuator supply line during a first time period, the measured pressure changes defining a valve cycle pressure profile including a reduction in a rate of pressure increase corresponding to movement of the actuator from the normal position to the actuated position; and

a controller in circuit communication with the sensor, the controller being configured to analyze the valve cycle pressure profile to identify a non-compliant condition in at least one of the valve and the actuator, and to generate an output communicating the identified non-compliant condition.

15. The system of claim 14, wherein the sensor is configured to measure pressure changes downstream from the pilot valve.