What is claimed is:

1. A method of monitoring a wellhead component of a wellhead system, comprising:

providing at least one magnetized area on the wellhead component, the magnetized area having a magnetic field that varies in response to loads applied to the wellhead component;

mounting at least one sensor to the wellhead component proximate to the magnetized area;

sensing with the sensor the magnetic field of the previously magnetized area;

with an information handling system linked to the sensor, identifying variations in the magnetic field that are from cyclic loads applied to the wellhead component; and

estimating fatigue damage on the wellhead system based on the cyclic loads.

2. The method of claim 1, wherein the magnetized area of the wellhead component resembles an oval shape.

3. The method of claim 2, wherein the oval shape has an elongate side oriented in a direction selected from the group consisting of parallel with an axis of the wellhead component, oblique with an axis of the wellhead component, and perpendicular with an axis of the wellhead component.

4. The method of claim 1, wherein the wellhead component is stationary after installation within the wellhead system.

5. The method of claim 1, wherein:

providing at least one magnetized area comprises providing a plurality of magnetized areas on the tubular;

mounting at least one sensor comprises affixing a plurality of sensors to the wellhead component, each of the sensors being proximate to one of the magnetized areas; and the method further comprises

connecting the sensors to each other by a sensing line.

6. The method of claim 5, wherein the sensing line comprises a line selected from the group consisting of an optical fiber, an electrical line, a cable, and combinations thereof, and the sensors comprise a magnetically sensitive element selected from the group consisting of a magneto-optic sensor, a solid state magnetic sensor, an inductive sensor, and combinations thereof.

7. The method of claim 1, wherein the variations in the magnetic field comprise changes in the magnitude of the magnetic field.

8. The method of claim 1, further comprising with the information handling system, estimating a useful operating life of the wellhead system based on the fatigue damage estimated.

9. The method of claim 1, wherein the wellhead component is selected from a group consisting of a low pressure housing, a low pressure conductor pipe; a high pressure housing, a high pressure conductor pipe, a casing hanger, a tubing hanger, a length of casing, a length of production tubing.

10. A method of monitoring a tubular of wellhead system, comprising:

a. sensing a characteristic of a magnetic field from a magnetized portion of the tubular;

b. identifying changes in the characteristic of the magnetic field that are caused by a stress in the tubular;

c. estimating real time fatigue damage to the tubular based on the identified changes in the characteristic of the magnetic field;

d. preparing a real time structural integrity analysis of the tubular; and

wherein the magnetized portion of the tubular is strategically disposed at a location selected from the group consisting of proximate a change in thickness of the tubular, proximate a weld in the tubular, and combinations thereof.

11. The method of claim 10, further comprising predicting a fatigue failure of the tubular.

12. The method of claim 10, predicting a residual life of the tubular.

13. The method of claim 10, wherein the wellhead assembly is a first wellhead assembly, the method further comprises designing a second wellhead assembly based on changes in the characteristic of the magnetic field that are caused by stresses experienced by the tubular over time.

14. The method of claim 10, further comprising providing a real time location of fatigue damage on the tubular.

15. A wellhead assembly comprising:

a stationary tubular having strategically positioned previously magnetized locations forming magnetic fields that project from the tubular;

a sensor system having sensors mounted to the tubular, disposed in the magnetic fields, and that generate signals in response to changes in the magnetic fields occurring in response to changes in stress within the tubular; and

an information handling system in communication with the sensor system for receiving the signals from the sensors.

16. The wellhead assembly of claim 15, further comprising a processor in the information handling system for correlating the changes in the magnetic fields to loads experienced by the tubular.

17. The assembly according to claim 15, further comprising:
signal lines extending between adjacent ones of the sensors for communicating the signals to the information handling system.

18. The assembly according to claim 15, wherein:

each of the magnetized locations is oval-shaped.