Claims

1. A method for adjusting the metal loss rate of a metal loss sensor installed adjacent a pressure containment boundary in piping that is exposed to a fluid flow of a corrosive fluid comprising:

measuring the corrosion rate of the metal loss sensor installed at a specific depth in the piping from the pressure containment boundary ;

relating the corrosion rate at the metal loss sensor to the corrosion rate at the pressure containment boundary; and

adjusting the insertion depth of the metal loss sensor in the piping relative to the pressure containment boundary to change the corrosion rate measured at the sensor to achieve a desired relationship between the corrosion rate measured at the metal loss sensor and the pressure containment boundary.

2. The method of claim 1 wherein the relating the corrosion rates is accomplished by determining the wall shear stress associated with the flow turbulence.

3. The method of claim 1 wherein the relating the corrosion rates is accomplished by a direct measurement of the corrosion rate at the pressure containment boundary.

4. The method of claim 2 wherein the wall shear stress is determined using computational fluid dynamics.

5. The method of claim 3 wherein the direct measurement of the pressure containment boundary is made using coupons fixed to the pressure containment boundary.

6. The method according to anyone of the preceding claims, wherein said metal loss sensor is a mechanical oscillator.

7. The method according to anyone of the preceding claims wherein the rotational position of the metal loss sensor relative to the flow of the process fluid is also adjusted to achieve the desired relationship between the corrosion rate at the metal loss sensor and the pressure containment boundary.

What is claimed is:

1. A method for adjusting the metal loss rate of a metal loss sensor installed adjacent a pressure containment boundary in one of a piping and a process unit that is exposed to a fluid flow of a corrosive fluid comprising:

measuring the corrosion rate of the metal loss sensor installed adjacent the pressure containment boundary;

relating the corrosion rate at the metal loss sensor to the corrosion rate at the pressure containment boundary; and

adjusting the position of the metal loss sensor with respect to the fluid to achieve a desired relationship between the corrosion rate at the metal loss sensor and the pressure containment boundary, wherein the adjustment of the metal loss sensor is determined by the relating the corrosion rate at the metal loss sensor to the corrosion rate at the pressure containment boundary.

2. A method for adjusting the metal loss rate of a metal loss sensor installed adjacent a pressure containment boundary in one of a piping and a process unit that is exposed to a fluid flow of a corrosive fluid comprising:

measuring the corrosion rate of the metal loss sensor installed adjacent the pressure containment boundary;

relating the corrosion rate at the metal loss sensor to the corrosion rate at the pressure containment boundary, wherein the relating the corrosion rates is accomplished by determining the wall shear stress associated with the flow turbulence; and

adjusting the position of the metal loss sensor with respect to the fluid to achieve a desired relationship between the corrosion rate at the metal loss sensor and the pressure containment boundary.

3. The method of claim 1 wherein the relating the corrosion rates is accomplished by a direct measurement of the corrosion rate at the pressure containment boundary.

4. The method of claim 2 wherein the wall shear stress is determined using computational fluid dynamics.

5. The method of claim 3 wherein the direct measurement of the pressure containment boundary is made using nondestructive testing.

6. The method of claim 3 wherein the direct measurement of the pressure containment boundary is made using coupons fixed to the pressure containment boundary.

7. The method according to claim 1, wherein said metal loss sensor is a mechanical oscillator.

8. The method according to claim 1, wherein the fluid flow is stagnant.