



Do you process wastewater containing AFFF?

Would you like to improve this process in the following areas?

- **Meet environmental compliance regulations.** Meet installation wastewater treatment plant pretreatment requirements by preventing the discharge of wastewater containing Aqueous Film Forming Foam (AFFF) into treatment systems. Eliminate notices of violation caused by treatment plant upsets.
- **Improve workers' safety and health.** No change to current operations.
- **Increase productivity.** No change to current operations.
- **Save money.** Eliminate cost of recovery from treatment plant upsets.



AFFF Sensor System

When Navy ships come into port, they often discharge their bilge water to shore-side plants for treatment. Sometimes this bilge water contains aqueous film forming foam (AFFF), a chemical mixed with water to fight fires aboard ship. AFFF produces large amounts of dense foam that helps to cool and smother fires. AFFF is not considered hazardous to humans, but can kill the bacterial cultures in wastewater treatment plants. Also, the large amounts of foam produced by AFFF can result in false signals from process level sensors, resulting in poor plant performance and damaged equipment. A sensor is now available that can detect the presence of AFFF in wastewater at concentrations of 15 ppm or greater. Detection time is less than a minute. The signal from the AFFF sensor can be used in several ways. First, it can alert public works personnel to take action such as stopping the ship from pumping wastewater. Arrangements can then be made to divert the wastewater to tank trucks for off-site disposal. Alternatively, the signal from the sensor can be used to divert the wastewater stream to a specialized treatment system, such as the air sparged hydrocyclone, that can remove AFFF. **This technology has been demonstrated at Naval Station Mayport, Florida.**

How can you achieve these improvements?

Use an AFFF sensor upstream of the wastewater treatment plant.

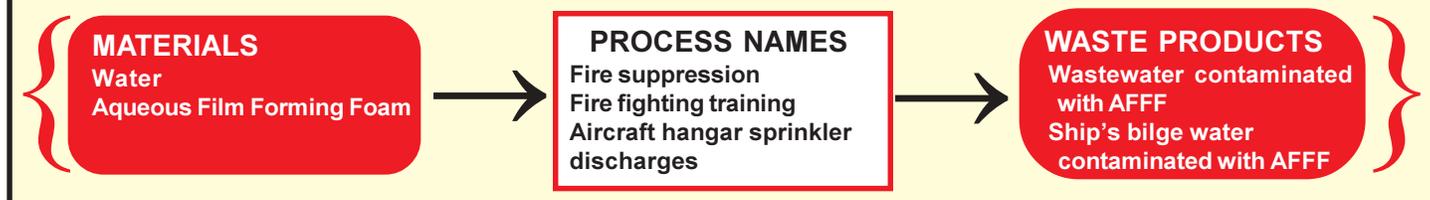
How does this system work?

The sensor measures the amount of AFFF in a wastewater sample by aerating the sample and electronically measuring the height of the foam column produced.

How will this system save you money?

The sensor can prevent costly upsets in Navy owned sanitary wastewater treatment plants. Typical unit cost is approximately \$5,500, plus cost of installation.

Typical Process Flow Diagram



How can this technology eliminate or reduce pollution?

This equipment can detect the presence of AFFF in wastewater streams. By doing so, it can prevent disruption of wastewater treatment systems. Use will result in the following pollution reduction:

- Reduction in volume of wastewater contaminated with AFFF discharged to WWTPs.

Which activities can benefit most from this technology?

This technology can be used to test the influent wastewater to a treatment plant for the presence of AFFF. Activities that would most benefit from this technology include:

- Public works centers
- Wastewater treatment plants

How can this technology reduce regulatory compliance concerns?

This equipment can identify AFFF contamination in wastewater and prevent treatment plant upsets. Implementation of this technology will result in the following regulatory compliance benefits:

- Helps activities meet pretreatment standards for discharges of wastewater into a WWTP (40 CFR 403).
- Helps activities meet the pretreatment and effluent limits of their NPDES permit (40 CFR 122).
- Eliminates notices of violation (NOVs) by reducing the potential for treatment plant upsets.



Achieving Environmental Compliance Through Pollution Prevention

Every day the Navy faces the challenge of operating and maintaining the fleet while complying with environmental regulations. This burden can be reduced by using pollution prevention technologies and methods to reduce compliance requirements. This fact sheet is one in a series designed to encourage activities to use pollution prevention technologies and methods. The overall goal of this series is to promote sustained environmental compliance at the lowest life-cycle cost.

For additional information, contact:

Naval Facilities Engineering Service Center (NFESC) Technical Report, *Sensor to Detect AFFF in Ship Bilgewater: Construction and Installation*, NFESC TR-2190-ENV, December 2001. (Web: <http://toolbox.nfesc.navy.mil/files/TR-2190-ENV.pdf>)

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