



Navy Environmental Quality Fact Sheet



Do you want to reduce energy consumption and air emissions?

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

- **Meet environmental compliance regulations.** Reduce air emissions and improve energy efficiency. Media area programs are water and air.
- **Improve workers' safety and health.** Improved air quality for workers.
- **Increase productivity.** No change from current operations.
- **Save money.** Reduce energy utility costs.



Tankless Water Heater

Water heating can account for 15 to 20% of facility energy consumption. Water heaters consume much of their energy just to keep a supply of hot water ready and waiting in the tank. Water heaters that are more than ten years old probably have an efficiency no higher than 50% and will likely fail in the next 1 to 3 years. Methods to improve water heater energy efficiency include using tankless pilotless water heaters, insulating the heater to minimize heat loss and lowering the thermostat on water heaters to 120°F. In addition, a standard 40-gallon 40,000 Btuh water heater with a conventional burner emits approximately 1,650 grams of nitrogen oxides (or NO_x) annually. New gas burners are now available that can reduce NO_x emissions by 30%. Using these reduced emission burners in every gas-fired water heater in the country would have the equivalent effect of removing 400,000 cars from the nation's highways!

How can you achieve these improvements?

Use tankless water heaters or low energy water heaters with reduced emission burners.

How does this system work?

Tankless water heaters have a heating device that is activated by the flow of water when the hot water valve is opened, thus providing hot water only as it is used, or on demand. High efficiency water heaters with reduced emission burners reduce energy consumption and emissions of oxides of nitrogen (NO_x).

How will this system save you money?

Reduce facility energy utility costs related to water heating.

How can this technology eliminate or reduce pollution?

Low energy water heaters with reduced emission burners conserve energy and reduce NO_x emissions. Implementation of this technology will result in the following pollution reductions:

- Reduce energy consumption related to water heating.
- Reduce NO_x emissions.

Which locations can benefit most from this technology?

Low energy water heaters can be installed in facilities at all Navy shore installations.

How can this technology reduce regulatory compliance concerns?

Tankless water heaters or low energy water heaters with reduced emission burners reduce air emissions and improve energy efficiency. Implementation will result in the following regulatory compliance benefits:

- Helps facilities comply with Executive Order 13123 (*Greening the Government through Efficient Energy Management*) requiring agencies, by 2010, to reduce energy consumption in federal buildings by 35% (based on 1985 usage levels).
- Helps facilities meet federal, state and local air emission reduction goals.



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:

Information on water heater features can be found on the Department of Energy – Consumer Energy Information: EREC Fact Sheet – Selecting a New Water Heater. (Web: <http://www.eren.doe.gov/erec/factsheets/watheath.html>).

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