

Date: Thu, 08 Jul 1999 10:57:00 -0600  
From: Meredith Brown <racer@lanl.gov>  
Subject: Blue Alert: Fluorescent Tubes and Ballast Ratings

**Title: Fluorescent Tubes and Their Ballasts Should be Rated the Same**

Date: June 29, 1999 Identifier: 1999-RL-HNF-0025

**Lessons Learned Statement:** Using energy-saving 34 watt (T8) fluorescent tubes with standard 40 watt (T12) ballasts may nullify any energy savings because of shortened tube life. The ends of the tube turn black as arc swirling scours the fluorescent material from the inside tube surface, causing the tube to flicker. Overheated fixtures may create a potential fire hazard. The 40-watt ballast overdrives the tube by providing more current than is needed thus causing the fixture to overheat.

**Discussion of Activities:** Some facilities at other DOE sites have replaced common 40 watt fluorescent tubes with 34 watt tubes under energy saving programs. They did not, however, replace the ballasts with ones of the correct rating. Some of the light fixtures subsequently overheated. No confirmed fires have been caused by the mismatch.

**Analysis:** Information from Underwriters Laboratory, GE Lighting Technology, and other DOE sites does not confirm a fire hazard but does indicate that tube life may be shortened and the tube ends blackened by arc swirling. Only 34-watt ballasts should be used with energy-saving 34-watt lamps.

The information presented here directly supports ISMS core function: Analyze Hazards and Implement Controls. Individual workers assist in the work planning and hazard identification and analysis process. Work planning teams, such as the Hanford Workplace Electrical Safety Board develop and document an agreed-upon set of controls adequate to mitigate the identified hazard(s) and environmental impacts.

**Recommended Actions:** Facility managers should ensure that ballasts are replaced when switching to energy-saver tubes to prevent arc-scouring, overheating, and potential fire hazards.

Priority Descriptor: BLUE/Information

Functional Categories (DOE): Energy Conservation

Functional Categories (Hanford specific): Electrical

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References: HWESB Minutes, June 3, 1999