UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION
WASHINGTON, D.C. 20555-0001

July 10, 2006

NRC INFORMATION NOTICE 2006-14: POTENTIALLY DEFECTIVE EXTERNAL LEAD-WIRE CONNECTIONS IN BARTON PRESSURE TRANSMITTERS

ADDRESSEES

All holders of operating licenses for nuclear power reactors, except those who have permanently ceased operations and have certified that fuel has been permanently removed from the reactor.

PURPOSE

The U.S. Nuclear Regulatory Commission (NRC) is issuing this Information Notice to inform addressees that ITT Barton Model 763 and 763A gage pressure transmitters and Model 764 differential pressure transmitters may have defective external lead-wire connectors that could adversely affect the performance of the instruments during an accident. It is expected that recipients will review the information for applicability to their facilities and consider actions, as appropriate, to avoid similar problems. However, suggestions contained in this information notice are not NRC requirements; therefore, no specific action or written response is required.

DESCRIPTION OF CIRCUMSTANCES

On June 21, 2006, the Callaway nuclear power plant licensee submitted a Title 10 of the *Code of Federal Regulations* Part 21 notification to the NRC that certain Barton pressure transmitters may have defective external lead-wire connections (Event Notification 42658, Agencywide Documents Access and Management System (ADAMS) Accession No. ML061770354). Prime Measurement Products (Prime), formerly known as Barton Instruments or ITT Barton, currently supplies these transmitters to the commercial nuclear power industry. The subject transmitters are Barton Model 763 and 763A gage pressure transmitters and Barton Model 764 pressure differential transmitters manufactured after May 1982 and shipped from the Prime factory prior to April 1, 2006.

The external lead wires are soldered to the glass-sealed pins of the hermetic seal. Epoxy potting is used to structurally support the soldered wire connections and seal the solder connections against potential shorting in an electrically conductive accident environment. The defect is that the insulated portions of the wires in the connectors manufactured after May 1982 and shipped from the Prime factory prior to April 1, 2006, may not be embedded deeply enough into the epoxy potting to provide such protection. Prime believes that the insulation was pulled from the epoxy potting, leaving the conductors exposed directly to the environment because of stress during either: (1) the normal manufacturing process; or (2) the installation of the transmitters in the field.

During cleaning activities before shipping transmitters to a customer, Prime observed that one transmitter had a severed lead. Prime inspected connector assemblies in the factory inventory and identified some connectors with an exposed wire. Prime stopped shipment of all pressure transmitters until the connector manufacturing process was modified and acceptable connector assemblies became available. Prime instituted corrective actions, including improved connector assembly manufacturing and inspection processes. These processes involve the use of enhanced manufacturing fixtures and detailed assembly instructions.

DISCUSSION

On May 18, 2006, Prime recommended in an advisory letter to all affected licensees, including the Callaway nuclear power plant that all connectors in transmitters manufactured after May 1982 and shipped from the Prime factory prior to April 1, 2006, be inspected for exposure of the external lead-wire conductors at the surface of the connector (instructions recommended by Prime with illustrations are available at ADAMS Accession No. ML061860324). Prime stated that gauge pressure and differential pressure transmitters manufactured before June 1982 were assembled with heat shrink tubing on the external lead wires at the location where they were embedded into the epoxy potting. This configuration is not subject to the concerns of the Prime advisory letter. Any connector assembly having heat shrink tubing individually applied to each wire entering the epoxy potting is not considered susceptible to the condition described herein.

The Callaway licensee identified 39 gauge pressure and differential pressure transmitters of the types described above as being installed in the plant and an additional 30 pressure transmitters in its warehouse stock. Of these 30 pressure transmitters inspected from its spare parts inventory, three connector assemblies were found to have one or more exposed conductors external to the seal. One connector assembly had this defect on one of the two lead wires and two connector assemblies had this defect on both lead wires. The licensee plans to inspect the 39 installed transmitters as conditions permit.

CONTACT

This information notice requires no specific action or written response. Please direct any questions about this matter to one of the technical contacts listed below.

/RA/
Ho K. Nieh, Acting Director
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

Technical Contacts: Chuck Paulk R-IV/DRS
817-860-8236
E-mail: cjp@nrc.gov

Kamalakar Naidu, NRR/DE
301-415-2980
E-mail: krn@nrc.gov

Vernon Hodge, NRR/DIRS
301-415-1861
E-mail: cvh@nrc.gov

Hukum Garg, NRR/DE
301-415-2929
E-mail: hcg@nrc.gov