



# Arkansas Department of Health

Radioactive Materials Program  
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## ARKANSAS INFORMATION NOTICE 11-04

To: All Specific and General Fixed Gauge Licensees

From: Jared Thompson, Program Manager  
Radioactive Materials Program 

Date: June 28, 2011

Subject: Fixed Gauge Shutter Failures Due to Operating in Harsh Working Environments

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### **PURPOSE**

The Arkansas Department of Health, Radioactive Materials Program is issuing this Information Notice (IN) to specific and general fixed gauge licensees concerning potential failure of shutter closure mechanisms due to fixed gauges operating in harsh working environments. Licensees should review this information and consider actions, as appropriate, to avoid similar incidents. Recommendations contained in this IN are not new Arkansas Department of Health requirements; therefore; neither specific action nor written response is required.

### **DESCRIPTION OF CIRCUMSTANCES**

On February 6, 2009, the Department issued IN 09-01, "Performance of Required Shutter Checks and Reporting of Shutter Failures for Fixed Gauges." Since the Nuclear Regulatory Commission (NRC) issued its equivalent IN on September 18, 2009, the NRC has received an increase in reports of fixed gauge shutter failures that occurred during shutter closure checks performed by licensees. The NRC has received twenty (20) reported events involving the shutters being stuck in the open position and unable to close as a result of the environment the gauges were used in. Causes for the stuck shutter include corrosion, rust, or debris. The reports of stuck shutters are not specific to any vendor or model, but specific to the environment where the gauges are located.

Please refer to Information Notice 09-01 and RH-1502.f.2. and RH-403.b.3.E of the ASBH Rules and Regulations for Control of Sources of Ionizing Radiation for more discussion on the reporting of fixed gauge shutter failures.

### **DISCUSSION**

Fixed gauges containing licensed radioactive materials are used by specific and general licensees in a wide variety of environments. Fixed gauges routinely operate in a continuous mode with the shutter open, exposing the radioactive source inside. This increases the chances for corrosion, the buildup of rust, or debris to affect the ability of the shutter to close.

Licensees who possess fixed gauges with shutters are required to test their shutters to ensure that they can be closed when needed. The shutter check requirement for specific fixed gauge licensees is imposed by license condition or by license commitment. The requirement for general fixed gauge licensees to conduct these checks are found in RH-402.b.3.B. of the ASBH Rules and Regulations for Control of Sources of Ionizing Radiation. The typical timeframe for conducting a shutter check is every six (6) months, which is acceptable for most applications where fixed gauges are used. The specific frequency at which the check is required is dictated by the Sealed Source and Device Registry.

Based on the reports of shutters stuck in the open position due to debris or corrosion, the Department is suggesting that licensees with fixed gauges used in environments where the gauges may be subjected to corrosives, water buildup, or debris consider performing shutter checks on a more frequent basis than required by their license. The Department understands that since many fixed gauges are frequently in continuous use, licensees should look for time during planned or unplanned outages to conduct checks of fixed gauge shutters. In considering increased shutter checks, licensees should take into account factors like the accessibility of the gauge (i.e. the gauge is mounted 100 feet above the ground) and the potential for employees to be exposed should a shutter get stuck in the open position. In cases where such considerations do not warrant routine increased inspection of the gauges, licensees should consider such inspections when other work is planned in the area near the gauge.

The concern with shutters that are stuck in the open position is that when the process or line is stopped, workers performing maintenance or other work in the area could receive exposures. For non-radiation workers, under certain circumstances, it would not take long to exceed the applicable regulatory limits for radiation exposure.

Fixed gauge users should refer to the operators' manuals for proper maintenance of their gauges, and if there are any indications that a shutter may have a buildup or debris, or if any components are beginning to corrode.

**This information is provided as a result of the NRC IN 2011-09, "Fixed Gauge Shutter Failures Due to Operating in Harsh Working Environments." A copy of this IN is available for your review upon request.**

This IN requires no specific action or written response. If you have any questions regarding this notice, please contact the Radioactive Materials Staff at (501) 661-2173.