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UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT
WASHINGTON, D.C. 20555

AUGUST 15, 1986

IE INFORMATION NOTICE NO. 86-67: PORTABLE MOISTURE/DENSITY GAUGES: RECENT INCIDENTS AND COMMON VIOLATIONS OF REQUIREMENTS FOR USE, TRANSPORTATION, AND STORAGE

Addressees:

All NRC licensees authorized to possess, use, transport, and store sealed sources contained in portable gauges used to measure the moisture content and/or density of construction materials.

Purpose:

This notice is intended to bring to the attention of licensees the recent increase in incidents involving the use, transportation, and storage of portable gauges and the number of common violations identified during NRC inspections. It is expected that recipients will review the information for applicability to their facilities and consider actions, if appropriate, to preclude similar problems from occurring at their facilities. However, suggestions contained in this information notice do not constitute NRC requirements; therefore, no specific action or written response is required.

Description of Circumstances:

An abnormally high number of incidents have occurred recently where portable moisture/density gauges have been damaged at temporary job sites by heavy construction equipment or where the gauges have been lost or stolen from licensee vehicles during transportation. Gauges damaged at construction sites were left unattended. Gauges lost or stolen from vehicles were not secured to the vehicle or were stolen while left unattended by the users.

Inspections initiated by these incidents and routine inspections that have been preformed reveal common violations of NRC requirements. These violations include failure to:

(1) have a shipping paper in the transport vehicle

(2) transport gauges in authorized packages

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(3) maintain records of tests performed on transport cases and on sealed sources

(4) use authorized and/or qualified users

(5) use authorized storage locations

(6) conduct leak tests and physical inventories to conduct those tests and inventories within the required time interval

(7) wear film or TLD badges or estimate doses to personnel who had lost their badges or evaluate and report possible overexposures

Discussion:

The cause of these incidents, invariably, is the failure of the gauge users to secure and maintain control over the gauges.

10 CFR 20.207 requires that licensed material (in these cases the sealed sources in the gauges) must be under the constant surveillance and immediate control of the licensee or must be secured in storage when in an unrestricted area. An unre-stricted area is defined in 10 CFR 20.3(a)(17) as any area to which access is not controlled by the licensee for purposes of protection of individuals from exposure to radiation and radioactive materials and any area used for residential quarters. A construction site is usually an unrestricted area; so the licensee must constantly control access to the gauge while in storage or during use at the site.

NRC licensees transporting portable gauges are subject to 10 CFR 71. 10 CFR 71.5(a) incorporates certain regulations (49 CFR 170-189) of the Department of Transportation (DOT) to which these licensees are also subject. Licensees who transport gauges to and from temporary job sites in licensee or private vehicles are acting as private shippers and, as such, must comply with the DOT regulations governing shippers. 49 CFR 177.842(d) requires that packages containing radioactive material (i.e, the gauge in its case and containing radioactive sealed sources) must be blocked and braced to prevent movement of the package during transportation. For pickup trucks, this requirement is usually met when the gauge, in its case, is chained or tied to the bed of the truck.

Licensees are reminded that they must use, transport, and store the gauges in accordance with the conditions of their NRC license, other commitments made to the NRC, and applicable regulations. A discussion of other requirements and license conditions commonly violated is attached.

No specific action or written response is required by this notice. If you have any questions regarding this information notice, please contact the Regional Administrator of the appropriate NRC regional office or this office.

James G. Partlow, Director
Division of Inspection Programs
Office of Inspection and Enforcement

Technical Contact: J. R. Metzger, IE
(301) 492-4947

Attachments:
1. Other Common Violations
2. List of Recently Issued IE Information Notices

OTHER COMMON VIOLATIONS

49 CFR 172.201, 172.202, 172.203(d), 172.204, and 177.817(e) specify the contents of the shipping paper and the location in a vehicle where the shipping paper must be stored. Shipping papers must not be stored in or on the case containing the gauge or in the glove compartment of the vehicle.

49 CFR 173.475 requires that before each shipment the shipper ensures by examination or appropriate test that the proper shipping case or box is used, that the case is in unimpaired physical condition, and that each closure device on the case is properly installed, secured, and free of defects.

49 CFR 172.301, 172.304, 172,308, 172.310, 172.403, and 178.350 specify the labeling and marking of the case used for shipping. Vehicles transporting one or more gauges usually do not require placards (49 CFR 172.504, Table 1).

49 CFR 173.415(a) and 173.476(a) require that shippers maintain on file results of tests conducted on shipping cases and on the sealed sources contained in the gauges. Licensees can usually obtain these test results from the manufacturer of the gauges.

Gauges must be used only by properly authorized and trained individuals. A common license condition usually names individuals who are authorized to use the gauges or who must be physically present to supervise their use. Occasionally, licensees are allowed by a license condition to name authorized users. Authorized users must have successfully completed an approved training course given by the manufacturer or a consulting firm. Certain licensees are authorized to provide in-house training. The Radiation Protection Officer (RPO) also may be named on the license, but is always specified in documents submitted to the NRC. When this individual is no longer employed as RPO, the licensee must request an amendment to the license to name a replacement.

A specific license condition or statement in a submitted document specifies the temporary and permanent storage facilities for the gauges. Private residences (including basements and garages) are usually not allowed as storage facilities. Vehicles used to temporarily store gauges overnight at private residences must not be used by individuals who are not authorized users for purposes other than those authorized on the license. For example, friends or relatives of an authorized user must not use a vehicle containing a gauge unless those individuals are performing a purpose authorized on the license as authorized users.

A specific license condition will specify the interval between leak tests. This interval is usually 6 months and may be greater on some licenses for gauges that are stored and not being used. Many licensees also are required by license condition to conduct a physical inventory at 6-month intervals.

Licensees are usually committed by a referenced document to wear film or TLD badges when using or transporting the gauges. When not worn by the users, the badges must not be stored near or on the gauges. For lost badges, the licensee is required by 10 CFR 20.201 to estimate the user's dose for the period for which the badge was lost. For film or TLD badge reports indicating that doses greater than the limit in 10 CFR 20.101 may have been received, the licensee must evaluate the reading (10 CFR 20.201) to determine if it has been caused by an actual exposure to the user. This evaluation includes, at a minimum, questioning the user about the use of the gauge and badge and having the film or TLD badge processor reexamine the badge. Although, true overexposures of gauge users are rare, the occurrences must be reported to the NRC as required by 10 CFR 20.405.

Attachment 2
IN 86-67
August 15, 1986

LIST OF RECENTLY ISSUED IE INFORMATION NOTICES

Information Notice No.	Subject	Date of Issue	Issued to
86-66	Potential For Failure Of Replacement AC Coils Supplied By The Westinghouse Electric Corporation For Use In Class 1E Motor Starters And Contractors	8/15/86	All power reactor facilities holding an OL or CP
86-65	Malfunctions Of ITT Barton Model 580 Series Switches During Requalification Testing	8/14/86	All power reactor facilities holding an OL or CP
86-64	Deficiencies In Upgrade Programs For Plant Emergency Operating Procedures	8/14/86	All power reactor facilities holding an OL or CP
86-63	Loss Of Safety Injection Capability	8/6/86	All PWR facilities holding an OL or CP
86-62	Potential Problems In Westinghouse Molded Case Circuit Breakers Equipped With A Shunt Trip	7/31/86	All power reactor facilities holding an OL or CP
86-61	Failure Of Auxiliary Feedwater Manual Isolated Valve	7/28/86	All power reactor facilities holding a CP
86-60	Unanalyzed Post-LOCA Release Paths	7/28/86	All power reactor facilities holding an OL or CP
86-31 Sup. 1	Unauthorized Transfer And Loss Of Control Of Industrial Nuclear Gauges	7/14/86	All NRC general licensees that possess and use industrial nuclear gauges
86-59	Increased Monitoring Of Certain Patients With Implanted Coratomic, Inc. Model C-100 and C-101 Nuclear-Powered Cardiac Pacemakers	7/14/86	All NRC licensees authorized to use nuclear-powered cardiac pacemakers

OL = Operating License
CP = Construction Permit