



330

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NUCLEAR REGULATORY COMMISSION

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MEMORANDUM TO: James H. Joyner, Chief, FRSS, DRSS, Region I
William E. Cline, Chief, RPEP, DRSS, Region II
Roy Caniano, Chief, RPB, DRSS, Region III
Blaine Murray, Chief, FIPB, DRSS Region IV

FROM: Charles L. Miller, Chief *Charles L. Miller*
Emergency Preparedness and
Radiation Protection Branch
Division of Technical Support
Office of Nuclear Reactor Regulation

SUBJECT: HEALTH PHYSICS POSITION: LABELING OF RADIOACTIVE MATERIALS
STORED UNDER WATER

The enclosed subject position is issued in response to several regional questions identified during a counterpart meeting concerning the labeling of radioactive materials stored under water at nuclear power plants. This position has had the benefit of regional and RES review. The position incorporates their comments and OGC has no legal objections to this position.

If you have any questions on this position, please contact Dan Carter
(301)415-1848 or Rich Emch (301)415-1068.

Attachment: HP Position Paper

CONTACT: Dan Carter, TERB/NRR
301-415-1848

HEALTH PHYSICS POSITION

LABELING OF RADIOACTIVE MATERIALS STORED UNDERWATER.

Specific Question:

10 CFR 20.1904 requires that each container of licensed material bear a durable, clearly visible label. Is it necessary that the container itself be labeled, or may the label be attached to a rod or line that is directly and continuously attached to the container (e.g., when a container is suspended under water)?

Background:

10 CFR 20.1904 "Labeling containers" requires that each licensee ensure that each container of licensed material bears a durable, clearly visible label bearing the radiation symbol and the words "CAUTION, RADIOACTIVE MATERIAL" or "DANGER, RADIOACTIVE MATERIAL". The label must also provide sufficient information to permit individuals handling or using the container to take precautions to avoid or minimize exposures.

10 CFR 20.1905(e) "Exemptions to labeling requirements" states that a licensee is not required to label "Containers that are accessible only to individuals authorized to handle or use them, or to work in the vicinity of the containers, if the contents are identified to these individuals by a readily available written record (examples of containers of this type are containers in locations such as water-filled canals, storage vaults or hot cells). The record must be retained as long as the containers are in use for the purpose indicated on the record." This specific exemption is one of many allowed under 10 CFR 20.1905, but is the option most often used.

Discussion:

As provided in 20.1905(e), a container stored under water for the purpose of shielding or storage of licensed material need not physically bear a warning label required by 10 CFR 20.1904 as long as the container is accessible only to individuals authorized to handle or use them, or to work in the vicinity of the container, if the contents are made known to these individuals by means of a readily available written record. The licensee may choose to attach the written record in the form of a label to the container via a rod or a line continuously attached to the container. This label shall be clearly visible and contain all of the required markings and information required by 10 CFR 20.1904(a) (i.e., bear the radiation symbol and the words "CAUTION, RADIOACTIVE MATERIAL" or "DANGER, RADIOACTIVE MATERIAL"), and must also provide sufficient information to permit individuals to take precautions to avoid or minimize exposures. The label must be securely affixed to the containers suspending device and be conspicuous to preclude inadvertent raising of the container toward the surface of the water. The NRC staff believes that this labeling option provides needed licensee flexibility and effectively provides for worker protection intended by 10 CFR 20.1904.

Further, if a container is stored under water without being attached to a suspending device the container must bear a durable, clearly visible label as required by 20.1904 or the licensee must comply with the exemption requirements of 10 CFR 20.1905(e). Note that all requirements of 20.1905(e) validating the exemption must be complied with at the time the material is placed in storage or at the time the labeling required by 10 CFR 20.1904 is removed in accordance with the exemption (i.e., the exemption can not be implemented retroactively.)

Further guidance on the subject of underwater storage can be found in Regulatory Guide 8.38 "Control of Access to High and Very High Radiation Areas in Nuclear Power Plants." Regulatory Guide 8.38 states that any radioactive material stored underwater which if raised, would produce radiation levels in excess of 0.1 rem in 1 hour at 30 centimeters from the radiation source, should also have control measures implemented to ensure that the radioactive materials are not inadvertently raised above or brought near the surface of the pool. [Also see HPP0S-245]

333

RECORD #333

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UNDER WATER

333