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RECORD #70

TITLE: Requested Clarification of 10 CFR 20 Appendix A, Note i

FICHE: 67473-352



J. Wingerd

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

AUG 10 1984

MEMORANDUM FOR: Mohamed M. Shanbaky, Chief
Facilities Radiation Protection Section
Division of Engineering and Technical Programs
Region I

FROM: Dennis P. Allison, Chief, Section B
Engineering and Generic
Communications Branch
Division of Emergency Preparedness
and Engineering Response
Office of Inspection and Enforcement

SUBJECT: REQUESTED CLARIFICATION OF 10 CFR 20 APPENDIX A, NOTE i

In response to your April 11, 1984 memorandum (copy enclosed) requesting clarification on the above respiratory regulatory requirement, we have reviewed your request and provide the following guidance. We have co-ordinated our response with Lynnette Hendricks (IE). ELD has no legal objections with our guidance.

Note "i" to 10 CFR 20's Appendix A, "Protection Factors for Respirators" states, in part, "There shall be a standby rescue person equipped with self-contained breathing apparatus and communications equipment whenever supplied-air suits are used." An insight to the original intent of this requirement is gained from NUREG-0041, Section 5.1.3, SUITS:

"The need for an adequate continuous supply of respirable air to such suits is more important than with other air-line respirators. Such need stems from the potential lack of adequate warning in case of loss of air supply and the difficulties that would be encountered by the wearer in extricating himself from the suit while carbon dioxide, moisture, and heat build up, and oxygen becomes deficient inside the suit. A loss of a continuous air supply and a consequent deficiency of oxygen as a result of rebreathing can cause rapid onset of unconsciousness and death (Ref. 16).

For this reason, and because circumstances in which rescue is required might include extreme respiratory hazards, a second individual equipped with self-contained breathing apparatus shall be stationed in respirable air outside the contaminated area. This individual shall be prepared and trained to render emergency assistance to the individual in the suit in case of failure of the air supply. He shall be in visual, voice, or signal line communication at all times."

As you know, air-supplied respirators such as suits, hoods, etc., are not allowed to be used in areas of immediately dangerous to life and health (IDLH).

Thus, the original intent of requiring the rescuer be equipped with a SCBA was probably to ensure that this rescuer could successfully accomplish the rescue mission in case the work space should rapidly deteriorate.

In the case you cited in Region I, we agree that the licensee had adequately evaluated the situation, and provided for effective rescue capability. Accordingly we recommend closing the unresolved item with no further enforcement action.

In general, we believe this SCBA requirement, as discussed above, is too inflexible. By separate correspondence we will forward to RES our recommendation to change this requirement to make it less prescriptive. However, when workers are using air-supplied suits, the licensee must carefully evaluate the hazards of the normal workers' environment; and, further postulate emergency scenarios that could reasonably lead to a deterioration of the worker/rescuer environment. The licensee then must decide what level of respiratory protection must be readily available for use by the rescuer.

Other collateral rescue provisions (communication, etc.) mentioned in the rule/NUREG seem reasonable and should be fully implemented by the licensee. As a reminder, OSHA regulations [29 CFR 1910.134(e)(3)] explicitly covers proper use of respirators for workers in dangerous atmospheres. If you have any further questions regarding this matter, please call Jim Wigginton or myself.

Dennis P. Allison, Chief, Section B
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Enclosure: As stated

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APR 11 1984

MEMORANDUM FOR: D. P. Allison, Section Chief, D/DEPER
FROM: M. M. Shanbaky, Section Chief, FRPS, RPB, DETP, RI
SUBJECT: CLARIFICATION OF 10 CFR 20 APPENDIX A, NOTE i REQUIREMENT

During a recent inspection of Vermont Yankee Nuclear Power Station, the licensee was using an individual equipped with an air-purifying respirator as the "standby rescue person" during a decontamination operation employing an air-supplied suit. Note i of 10 CFR Appendix A requires a self-contained breathing apparatus for the rescue person whenever air-supplied suits are used. However, clarification of this requirement is needed for this instance.

The licensee was decontaminating scrap steel with iron oxide "sandblasting" equipment in a confinement tent. The "sandblast" operator wore an unlisted air-supplied suit. Contamination levels for the steel ranged up to 25K dpm/60cm². Measurements of airborne radioactivity in the tent made by the licensee at the beginning of the operation showed a maximum of 7.6 times the maximum permissible concentrations for cobalt-60. Lesser amounts of other contaminants were present bringing the total concentration present to less than 8.5 times the summation maximum permissible concentration. The tent was supplied with 4000 CFM of fresh air flow.

The licensee stated that his evaluation of the hazards indicated that an air-purifying respirator provided adequate protection for the "standby rescue person. This position was supported by (1) the atmosphere wasn't immediately hazardous to life; (2) the protection factor afforded by the air-purifying respirator was sufficient for the airborne radioactivity involved; and (3) rescue of the individual in the air-supplied suit could be safely accomplished without respiratory protection due to the low concentration and short times needed to recover an individual.

In view of these circumstances, clarification of the requirement for self-contained breathing apparatus is needed. If rescue of the individual in the air-supplied suit can be safely completed without employing a self-contained breathing apparatus, is it permissible to employ an air-purifying respirator? This item was left as an unresolved item during our recent inspection at Vermont Yankee (Report No. 50-271/84-06) pending clarification of the 10 CFR Appendix A, note i requirement.

M. Shanbaky

M. Shanbaky, Chief
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cc:

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