



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

APR 18 1978

MEMORANDUM FOR: Reactor Safeguards Licensing Branch

FROM: R. A. Clark, Chief  
Reactor Safeguards Licensing Branch

SUBJECT: SEARCHING FOR EXPLOSIVES -  
REVIEW GUIDELINE NUMBER 20,  
REVISION 1

Background

Paragraph (d)(1) of 10 CFR 73.55 states that "the search for detection of firearms, explosives, and incendiary devices shall be conducted either by physical search or by use of equipment capable of detecting such devices."

The amendment to 73.55(d)(1) published in the September 30, 1977 Federal Register provides interim relief from having to pat-down search regular plant employees entering nuclear power plants provided that equipment designed for detection of weapons and explosive material is utilized to perform the search function on regular plant employees. A copy of the September 30, 1977 Federal Register notice was transmitted as an enclosure to a letter from Edson G. Case to all licensees (11/23/77). Also included was an enclosure "NRR Supplemental Staff Position on Personnel Search Requirements", which further clarified the staff position on personnel searches. This position paper recognized that not all licensees possessed the necessary equipment to conduct the searches on regular employees and therefore provided an alternative (random search procedures) to the use of such equipment. It was never intended however, that these random search procedures be substituted indefinitely for the weapons and explosives detecting equipment. In fact, the staff position paper made it explicitly clear that acceptable metal detectors and explosive searching devices of the types currently available are deemed capable of detecting firearms, explosives and incendiary devices for regular employees of the licensee at the site and that such equipment, if not currently in operation, must be purchased and made operational as soon as possible if the licensee is to be in compliance with the performance requirement of 10 CFR 73.55.

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The staff is not presently aware of any additional information or factors that will result in a change to the position that use of explosive and metal detecting equipment will satisfy the search requirement for regular plant employees.

It is recognized that currently available explosive detection devices (1) are not capable of detecting all types of available explosives and (2) generally operate on principles (vapor detection) that allow for straightforward avoidance techniques by knowledgeable individuals.

Performance Requirements

An explosives detector, or system of components and/or procedures, deemed appropriate for the detection of explosives shall meet or exceed the following performance characteristics:

1. Detection of generally available types of high explosives (i.e., detonatable compositions) of U. S. or foreign manufacture including but not limited to compounds containing: Nitroglycerin, TNT (e.g., 40% dynamite).
2. The device or system provides high assurance of detection (probability of detection of at least 0.95) of high explosives (HE).
3. The minimum quantity of HE for which the required probability must be demonstrated must be no greater than 0.5 kg. The minimum quantity of HE must be detected with required probability when concealed on a person or in hand carried garments or packages.

CURRENTLY AVAILABLE EXPLOSIVE DETECTORS\*

<u>Model</u>	<u>Manufacture/Distributor</u>
EXD-2	Elscint, Inc. 138-160 Johnson Avenue P. O. Box 832 Hackensack, New Jersey 07602
Model-70	Ion Track Instruments, Inc. Three "A" Street Burlington, Massachusetts 01803

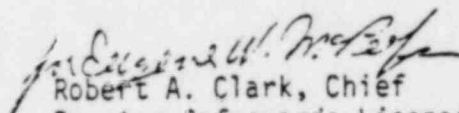
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<u>Model</u>	<u>Manufacture/Distributor</u>
S-201 S-301	Leigh-Marsland Engineering, Ltd. 350 Weber Street, North Waterloo, Ontario, Canada N2J4E3  Contact: Security Products Marketing Office
Pye Dynamics	X-Ray Industrial Distributors, Inc. Representatives for Pye Dynamics 338 Delawanna Avenue Clifton, New Jersey 07014

\*These models have been tested by other agencies for detection of HE on personnel. Additional information may be found in Chapter 6 of Sandia "Entry Control Systems Handbook" SAND77-1033.

These models and others are acceptable if they meet or exceed the above Performance Requirements.

Review Guideline Number 20, dated April 10, 1978, is superseded by this revision.

  
Robert A. Clark, Chief  
Reactor Safeguards Licensing Branch  
Division of Operating Reactors