

DCS: 304581/851121
Date: November 22, 1985

PRELIMINARY NOTIFICATION OF EVENT OR UNUSUAL OCCURRENCE--PNO-I-85-89

This preliminary notification constitutes EARLY notice of events of POSSIBLE safety or public interest significance. The information is as initially received without verification or evaluation, and is basically all that is known by the Region I staff on this date.

Facility: E. I. DuPont
New England Nuclear Division
Billerica, MA
(L/N 20-00320-13)

Licensee Emergency Classification:
☐ Notification of Unusual Event
☐ Alert
☐ Site Area Emergency
☐ General Emergency
☒ Not Applicable

Subject: HAND EXPOSURE IN EXCESS OF REGULATORY LIMITS

On November 21, 1985 the licensee informed Region I that on November 18, 1985 an employee received an exposure to carbon-14 which will result in a dose of about 250 rems to the skin of one hand. The appropriate regulatory limit is 18.75 rems. The employee was working with carbon-14 labelled acetic anhydride, a highly reactive chemical, when a spill occurred and one hand became contaminated. Since the employee had selected inappropriate gloves for the task, the material rapidly penetrated the glove and became fixed to the skin. Carbon-14 is a low energy beta emitter with a half-life of 5730 years. The licensee believes that the carbon-14 will be eliminated from the skin as a result of normal processes with a biological half-life of about three days. The licensee's preliminary measurements and calculations show about 40 microcuries of carbon-14 remaining in the skin of one finger and, on this basis, the dose to a small volume of skin of the finger was calculated to be 75,000 rems, with an average dose to the skin of the hand of 250 rems. The licensee is doing more detailed measurements and calculations. The individual will be examined by the licensee's physician on November 22, 1985. A Region I health physicist has been dispatched to the site to review the circumstances of the exposure. Region I plans to retain the services of a medical consultant to review the case.

The Commonwealth of Massachusetts has been informed.

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