



U.S. Nuclear Regulatory Commission
Region III
Materials Licensing Section
2443 Warrenville Road, Suite 210
Lisle, IL 60532-4352

November 20, 2009

This letter is a report of a sealed source for which a wipe test taken on October 29, 2009 showed more than 0.005 microcuries of contamination during a wipe test. This report is required per license condition 12E of The Dow Chemical Company's radioactive materials license, 21-00265-06. Following is a summary of information relevant to this event, based on the reporting requirements in 10 CFR 30.50(c)(2).

(i) Description of the event

On October 29, 2009, a routine wipe test of an NRD Model P-2031 anti-static device (Serial Number A2GT573) was collected. The analysis of the wipe test was completed on November 2, 2009, and showed contamination levels of 3800 dpm (0.0017 μCi). Subsequent wipe tests in the laboratory showed contamination levels of up to 35,000 dpm (0.016 μCi) in a limited number of areas.

The probable cause of this incident is that the source was being used to remove static from a stream of particulate material, Amical-48. Periodically, the source was washed out with water to remove residual dust from the inside of the source. After the contamination was discovered, the pH of a 10% Amical 48-water solution was measured and determined to be slightly acidic (pH = 3.7). Therefore, it appears that the cleaning technique led to the erosion of the radioactive material from the inside surface of the source, allowing it to be released.

(ii) Exact location of the event

This event occurred in the 1803 Building of The Dow Chemical Company's Michigan Operations site in Midland, Michigan. The source was used in applications in three laboratories in the building, laboratories 212, 215, and 222.

In laboratories 212 and 222, the use of the source was as part of an enclosed system used to generate airborne concentrations of test materials. The systems were located within ventilated enclosures. In laboratory 215, the source was cleaned in a sink that was located inside a laboratory fume hood. Water was used to rinse out the source, and a tub was used

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to collect rinse water to avoid releasing the chemicals being used in the experiments to the sewer.

(iii) Isotopes, quantities, and chemical and physical form of the licensed material involved

The source involved in this incident contained Po-210 in solid form that was plated on the inner surface of a cylindrical tube through which air could flow. The source had a manufactured activity of 20 mCi as of June 1, 2009, so the activity at the time of the incident was approximately 9 mCi.

Based on the results of wipe testing in the laboratory, it is believed that approximately 414,000 dpm (0.187 μ Ci) of Po-210 was released from the source.

(iv) Date and time of the event

The initial wipe test was collected on the afternoon of October 29, 2009, and the wipe test results were received on November 2, 2009. Based on the limited extent of contamination found, it is believed that the source had not been leaking for a long period of time prior to the wipe test. The last wipe test that returned clean results was collected on July 31, 2009.

(v) Corrective actions taken

Extensive wipe testing has been conducted on the equipment used in the experiments and the laboratories in which the source has been used. Limited amounts of contamination were identified and decontaminated, or materials were collected for disposal as radioactive waste. All decontamination materials were collected for disposal as radioactive waste.

The source has been isolated and bagged in multiple bags to prevent any further release of radioactive contamination. The source manufacturer has been contacted and the source will be shipped back to the manufacturer for disposal.

Based on conversations with the manufacturer, they do not recommend having solid materials or liquids flowing through these types of sources. Therefore, this type of experiment will be discontinued to prevent a similar incident from recurring.

(vi) Extent of exposure of individuals to radiation or to radioactive materials

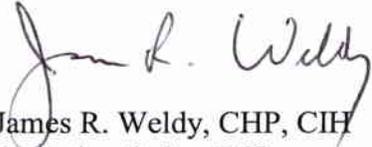
All work with the source in laboratories 212 and 222 occurred within a sealed system. Wipe tests of equipment downstream indicated that the spread of contamination was limited. No contamination was found outside of the closed equipment. Therefore, it is concluded that there was no significant radiation exposure to personnel involved in these experiments. The exhaust from these systems was filtered through a HEPA filtration system, so it is not expected that any significant amount of radioactive material was

potentially contaminated were either cleaned and rewiped to confirm that they were free of radioactive contamination or collected for disposal as radioactive waste.

In laboratory 215, all handling of the source was performed inside of a laboratory fume hood. All radioactive contamination that was found was within this laboratory fume hood, and all workers handling this source wore chemical-resistant gloves to prevent skin contact with the Amical-48. Gloves were disposed of in a waste container at the conclusion of the cleaning work. Therefore, it is concluded that there was no significant radiation exposure to personnel involved in these experiments. Small quantities (76 dpm) of radioactive contamination were found in the sink trap below the sink in the fume hood during wipe testing. Based on this, it is assumed that a small quantity of Po-210 was released down the sink to the site waste water treatment plant. This is an on-site waste handling facility that processes millions of gallons of water each day. Any environmental releases would be many orders of magnitude below limits for effluent releases in water in 10 CFR 20, Appendix B. All materials that were found to be contamination or potentially contaminated were either cleaned and rewiped to confirm that they were free of radioactive contamination or collected for disposal as radioactive waste.

Please contact me if you have any questions about this incident.

Sincerely,



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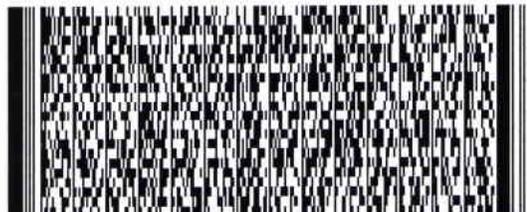
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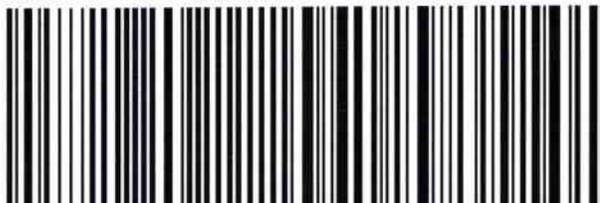
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