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NIST Health Physics - License # SNM -362
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Attn: Mr. Steven Courtemanche US NRC
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This report is intended to satisfy the 30 day follow up written response requirement following a report of a leaking sealed source pursuant to 10CFR31.5. The original discussions with the NRC operation center intended to clarify whether this incident constituted a reportable event occurred May 14, 2009 with a follow up fax on May 15, 2009. At that time the NIST RSO, Timothy Mengers, and NIST HP, Janna Shupe discussed the issue with Christian Einberg and Angela McIntosh of the US NRC. Per follow up instructions from Steve Courtemanche on May 20, 2009, it was concluded that this would be considered a reportable situation. The following is an account of the incident and a statement of follow up actions.

One of the research projects at NIST involves research and testing of different types of bomb detection instruments. One of the experiments required that the source be removed from one of the instruments. Prior to January 2008, Researcher 1 spoke to the RSO for Smiths Detection in Canada. They discussed the possibility of removing the 15 mCi Ni63 source from their instrument, an IonScan 400b. The Smiths RSO approved this and sent schematics to assist with the project. Researcher 1 then started planning the project with NIST Health Physics review. It was decided that Health Physics would monitor this project to confirm that there was no unanticipated exposure or contamination resulting from the operation. On January 31, 2008, Researcher 1, began the process for source removal. Work was performed in a hood, in a controlled laboratory space, with a health physicist monitoring the operation. The process of source removal was based on the manufacturer schematics. These schematics were general and not a specific instruction for source removal. No information was available at the time that clearly defined the source encapsulation barrier. After a ceramic cap was removed, the side of the source holder was wiped and contamination was detected. It is believed that the wipe may have touched some of the nickel foil. Upon observing the way the source was placed in the ceramic in addition to the contamination detected, it was decided that it was not possible to safely modify the device in the intended manner. The ceramic head was reattached and reinserted into the box. External swipes were verified to be clean. It was decided to leave the source this way while it was determined if there was anything more they could do to meet the intended research results. It is believed that the sealed source containment was breached in the experiment thereby negating the manufacture's sealed source certificate. In doing this, it became an unsealed source. The reassembly restored containment. The device was placed into secured storage.

On May 12, 2009 wipes were taken of the external portion of the ceramic head and confirmed contamination of 72 nCi. A wipe was taken at the manufactures recommended typical sealed source leak check location and was clean. The source box was collected for disposal. The hood, all items in the hood, and the floor were checked for potential contamination. They were verified to be clean.

It is believed that the action of smearing the ceramic head made contact with the nickel foil and thereby caused the contamination. All contamination was confined within the instrument as shown by confirmatory smears.

This operation was conducted with full consultation and approval of the manufacturer, and it was conducted under monitoring and controlled laboratory conditions commensurate with our licensed operations. However the monitored leakage of the source indicates the desired modification of the device could not be achieved safely. This contamination incident will not happen again because the experiment will not be repeated.