



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

REGION III  
2443 WARRENVILLE RD. SUITE 210  
LISLE, IL 60532-4352

July 8, 2016

Mr. Timothy Priest  
Collections Manager  
Grand Rapids Public Museum  
272 Pearl Street  
Grand Rapids, MI 49504

**SUBJECT: NRC REVIEW OF SUSPECTED RADIOACTIVE ITEM – GRAND RAPIDS  
PUBLIC MUSEUM**

Dear Mr. Priest:

On March 3, 2016, with in-office-review until June 22, 2016, the U.S. Nuclear Regulatory Commission (NRC) conducted a review at your facility located in Grand Rapids, Michigan. The purpose of the review was to evaluate the report of the suspected radioactivity of a container containing a small sealed tube that was donated to the museum. The review included surveys of the item, the museum, and the donor's residence, and oversight the disposal of the item. Details of our review are documented in the enclosed report.

Ultimately, the item was removed from the site through an authorized disposal mechanism. The NRC determined that public health and safety was adequately protected while the item was secured at the museum until disposal.

In accordance with Title 10 of the *Code of Federal Regulations* (CFR) 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be made available electronically for public inspection in the NRC's Public Document Room or from the NRC's Agencywide Documents Access and Management System (ADAMS), accessible from the NRC's website at <http://www.nrc.gov/reading-rm/adams.html>.

We greatly appreciate your cooperation and patience during the NRC's review of this report of suspected radioactivity, and as we worked to ensure that the item was disposed of properly.

T. Priest

-2-

Please feel free to contact Edward Kulzer of my staff if you have any questions regarding this matter. Mr. Kulzer can be reached at 630-829-9875.

Sincerely,

*/RA/*

John B. Giessner, Director  
Division of Nuclear Materials Safety

Enclosure:  
Report GRPM/2016001(DNMS)

cc w/encl: State of Michigan

T. Priest

-2-

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Enclosure:  
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cc w/encl: State of Michigan

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**U.S. Nuclear Regulatory Commission  
Region III**

Facility: Grand Rapids Public Museum

Address: 272 Pearl Street  
Grand Rapids, Michigan

Onsite Review Dates: March 3, 2016, with continued in-office  
review until June 22, 2016

Inspector: Edward Kulzer, Health Physicist

Approved By: Aaron T. McCraw, Chief  
Materials Inspection Branch  
Division of Nuclear Materials Safety

## **EXECUTIVE SUMMARY**

### **Grand Rapids Public Museum**

The U.S. Nuclear Regulatory Commission (NRC) conducted an onsite review of a report of suspected radioactivity of an item donated to the Grand Rapids Public Museum in Grand Rapids, Michigan. On November 17, 2015, the NRC received a call from the Radiological Protection Section of the Michigan Department of Environmental Quality, indicating that they had been informed of a suspected radiological source at the museum. The item was suspected to be radioactive because the container was stamped "Colorado Radium Co." The radiation levels immediately adjacent to the container showed radiation levels greater than twice background, confirming the presence of radioactivity, but not at a level exceeding public dose limits. The item was secured in a locked room, pending further review. To ensure the adequate protection of public health and safety, an NRC inspector surveyed the item, the museum, and the donor's residence. No contamination was found. Ultimately, the device was disposed of through the NRC's Orphan Source Program, with the assistance of the Conference of Radiation Control Program Directors, Inc. (CRCPD).

## **REPORT DETAILS**

### **1 Sequence of Events**

The Grand Rapids Public Museum – located in Grand Rapids, Michigan – received a donation of an antique item from a donor who was cleaning out the relative’s house after the individual had passed. The donor suspected that the item may be radioactive and wanted the museum to safely secure the item. The item was suspected to be radioactive because the container was stamped “Colorado Radium Co.” The Grand Rapids Public Museum does not have a license to possess, use, or store radioactive material and contacted the Radiological Protection Section of the Michigan Department of Environmental Quality for assistance. Initial surveys by the State of Michigan confirmed the presence of radioactive material; however, the measured dose rate did not present an immediate hazard to public health and safety. As a precaution, the museum secured the item in a locked room, pending further evaluation and instruction.

On November 17, 2016, the State of Michigan contacted the NRC to inform them of the radioactive material at the museum. Upon notification, the NRC conducted research to try to identify the item, gain insights on the potential activity levels, and facilitate disposal of the item. The item was suspected to be radium-226 of an unknown activity. The NRC noted that the source originated from the Radium Company of Colorado circa 1921. Historic documentation from the vendor indicated that similar sources originally contained 25, 50, or 100 milligrams of radium. The actual activity could not be ascertained from the preliminary survey data.

### **2 Onsite Review**

On March 6, 2016, the NRC sent an inspector to both the museum and donor’s residence to confirm that the item was not leaking and that no contamination was present. The NRC inspector surveyed the Grand Rapids Public Museum where the inspector confirmed that the source material in question was radioactive. The inspector determined that the material was properly stored in a locked room with limited access so that members of the public, including museum workers, could not be exposed to the radiation. The inspector determined that the material was safe in its shielded container. The inspector and a museum representative contacted a representative from CRCPD to develop a disposal method for the material.

The inspector surveyed the museum storage area using a Ludlum Model 2403 survey meter, last calibrated on November 23, 2015. The inspector measured radiation levels above twice background within approximately one inch of the container surface. All other survey readings were at background. The inspector wiped the container surface and measured no residual contamination. The inspector concluded that the container and source were not leaking.

The NRC inspector went to the residence of the donating party to determine if the radioactive material found at the museum, could have contaminated the residence before it was donated to the museum. The NRC inspector surveyed the donor’s residence using a 2x2 sodium iodide crystal scintillation probe attached to a Ludlum Model 2241-3 Survey Meter, was calibrated on July 30, 2015. The inspector determined that there was no

radiation reading at the residence above background and concluded that no radiation contamination was present at the donator's residence.

The NRC inspector notified a representative from CRCPD of the results of the surveys. The CRCPD facilitated the disposal of the radioactive material at the museum.

### **3 Conclusions**

The inspector continued to coordinate with CRCPD and the museum until the source was picked up at the museum for proper disposal on May 17, 2016. No violations of regulatory requirements were identified. The NRC determined that public health and safety was adequately protected while the item was adequately secured at the museum until disposal.