



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

July 5, 2019

EA-19-011

Kim Robinson, Director  
Experience Fulfillment  
Air Zoo Aerospace &  
Science Museum  
6151 Portage Road  
Portage, MI 49002

SUBJECT: AIR ZOO AEROSPACE & SCIENCE MUSEUM — RESULTS OF THE  
U.S. NUCLEAR REGULATORY COMMISSION'S INITIAL SITE VISIT AND  
CONFIRMATION OF VOLUNTARY CONTROLS

Dear Ms. Robinson:

I am writing to provide the results of the U.S. Nuclear Regulatory Commission (NRC) staff's initial site visit to Air Zoo Aerospace & Science Museum's properties at 6151 Portage Road and 3101 East Milham Road in Portage, Michigan, on December 4-5, 2018. The results are summarized below and are discussed in further detail in the enclosed report. This letter also proposes a path forward for resolving regulatory issues identified during the visit. NRC performed the initial site visit using the guidance contained within Temporary Instruction 2800/043 (TI), Revision 2, "Inspection of Facilities Potentially Contaminated with Discrete Radium-226 Sources" (ML17297B921).

The objectives of this initial site visit were to locate the number of discrete sources of radium-226 (Ra-226) and determine the magnitude of associated contamination. The initial site visit was conducted following a preliminary visit by NRC staff on October 24, 2018. During the initial site visit, NRC staff and contractors conducted radiation surveys in the Main Campus area, located on Portage Road, and the East Campus area, located on East Milham Road, which are separate buildings on two properties separated by a road. The radiation surveys were conducted in the exhibit areas, including aircrafts that are accessible to members of the public.

As discussed with you at the conclusion of the initial site visit, the NRC staff found elevated levels of radiation on Ra-226 bearing luminous items not installed in aircraft, which were in the storage area in the East Campus and in the archive area of the Main Campus. Areas where these luminous items were identified are not normally accessible to the public. Our survey results from our initial site visit indicate that, even with conservative assumptions, a member of Air Zoo's staff working in these areas would not receive an annual dose in excess of 100 millirem per year, the public dose limit. Based on the results of the initial site visit, the NRC staff concludes that there are no immediate health and safety concerns at this site. Prior to our initial site visit, during the preliminary visit on October 24, 2018, several boxes of Ra-226 gauges and

devices were moved away from workstations in the East Campus area to a storage area in the Archive Room. Moving these boxes to storage areas ensures that the exposure levels from the items did not exceed the action level described in the TI.

During the preliminary visit by NRC staff on October 24, 2018 and during the subsequent initial site visit on December 4-5, 2018, the NRC identified a number of broken radium gauges in the storage and archive areas. During the initial site visit, NRC staff and contractors conducted additional measurements to test for removable contamination on the items and, having found removable contamination on several items, worked with Air Zoo personnel to store these items away from work locations. In addition, you, on behalf of Air Zoo, committed to comply with voluntary controls to limit routine access to the areas where the damaged Ra-226 gauges and other items are stored to prevent the possible spread of contamination and limit doses received by Air Zoo staff.

During the initial site visit, the NRC staff identified that Air Zoo possessed more than 100 gauges and other luminous products containing Ra-226 that were not installed in aircraft in both the East Campus building and in the Main Campus building. In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR), Section 31.12(a)(4), up to 100 luminous products (e.g., gauges) may be used or stored at one location at any one time. Therefore, Air Zoo needs to either obtain a specific license consistent with 10 CFR 30.3, *Activities requiring license*, or reduce the number of Ra-226 gauges and other luminous products that are not installed in an aircraft to be considered a General Licensee under 10 CFR 31.12(a)(4).

Note: gauges and other luminous items that contain Ra-226 that are installed in aircraft at the Museum are generally licensed by our regulations in 10 CFR 31.12(a)(3), the Museum is considered a General Licensee for the possession of those items. Under this regulation, there is no limit on the quantity of luminous products installed in aircraft that may be possessed.

Based on discussions with Air Zoo representatives and a subsequent conversation with you on January 10, 2019, the NRC staff understands that Air Zoo intends to reduce the number of gauges and other luminous products they possess that are not installed in aircraft to no more than 100 total. Typically, the NRC provides oversight of the possession of this radiological material and subsequent disposal of gauges through the owner obtaining an NRC specific license. However, the NRC is adopting an alternative licensing approach since you have agreed to the timely disposal of excess gauges through the following terms and conditions:

- Continue to maintain the gauges within the storage areas to prevent dispersion of radiological material and restrict access to the gauges to ensure no exceedance of the public dose limit of 100 millirem per year.
- Provide a schedule to the NRC for disposal of the excess number of gauges and other items (i.e., gauges and other items over the general license limit of 100 and not installed in vehicles).
- Notify NRC in writing when you have reduced the number of gauges and other items to general license limits.
- The NRC will periodically inspect, at the NRC's discretion, the site to ensure maintenance of voluntary controls consistent with 10 CFR 31.2 and 10 CFR 30.52.
- Because disposal of gauges and other items will require the handling of radiological material, an NRC or Agreement-State-licensed service provider must perform these activities.

- Complete disposal of luminous products not installed in aircrafts under 10 CFR 31.12 (a)(4) within 12 months.
- Comply with the requirements under 10 CFR 31.12(c), which states that a general licensee:
  1. Shall notify the NRC should there be any indication of possible damage, including additional damage, to the product so that it appears it could result in a loss of the radioactive materials. A report containing a brief description of the event, and the remedial action taken, must be furnished to the Director of the Office of Nuclear Material Safety and Safeguards (NMSS), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001 within 30 days.
  2. Must not abandon products containing radium-226. The product, and any radioactive material from the product, may only be disposed of in accordance with 10 CFR 20.2008, *Disposal of certain byproduct material*, or by transfer to a person authorized by a specific license to receive the radium-226 in the product or as otherwise approved by the NRC.
  3. Must not export (i.e., transfer to a person or an international organization in a foreign country) products containing radium-226 except in accordance with 10 CFR Part 110, *Export and Import of Nuclear Equipment and Material*.
  4. Must dispose of products containing radium-226 only at a disposal facility authorized to dispose of radioactive material in accordance with any Federal or State solid or hazardous waste law, including the Solid Waste Disposal Act, as authorized under the Energy Policy Act of 2005, by transfer to a person authorized to receive radium-226 by a specific license issued under 10 CFR Part 30, *Rules of General Applicability to Domestic Licensing of Byproduct Material*, or equivalent regulations of an Agreement State, or as otherwise approved by the NRC.
  5. Must respond to written requests (including this request) from the NRC to provide information relating to the general license within 30 calendar days of the date of the request, or other time specified in the request. If you cannot provide the requested information within the allotted time, you must, within that same time period, request a longer period to supply the information. A written justification for the request must be provided to the Director of NMSS by means of an appropriate method listed in 10 CFR 30.6(a).

As discussed earlier, as you undertake transfer or disposal (i.e., remediation) efforts to reduce the number of radioactive items in your possession, consult with an NRC or Agreement State-licensed service provider to ensure that adequate measures are taken to limit the potential spread of radiological contamination. Please note that any potential reduction in the number of gauges and other items is the financial responsibility of the site owner.

The NRC will revisit the terms of this letter periodically to verify that continuous, measurable progress toward remediation is being made; the NRC may also revise these terms, as necessary, to ensure adequate protection of public health and safety. Future NRC reviews and visits will focus on ensuring controls to the radium gauges that are in boxes and moved to storage areas remain in place.

NRC staff is requesting a response within 30 days that you agree to abide by the terms and conditions of this letter.

In accordance with 10 CFR 2.390 of the NRC's "Agency Rules of Practice and Procedure," a copy of this letter will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records component of NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

We will be contacting you in the near future to discuss this letter and report. Please contact Mr. Stephen Koenick, Chief, Low-Level Waste and Projects Branch, Division of Decommissioning, Uranium Recovery and Waste Programs, NMSS, at (301) 415-6631, or Mr. Richard Chang, Project Manager, at (301) 415-5888, should you have any questions in the interim.

Sincerely,

*//RA//*

John R. Tappert, Director  
Division of Decommissioning, Uranium Recovery  
and Waste Programs  
Office of Nuclear Material Safety  
and Safeguards

Docket No.: 03039055

Enclosures:

1. Site Status Report for Air Zoo
2. Copy of Applicable NRC Regulations

REGISTERED LETTER – RETURN RECEIPT REQUESTED

SUBJECT: AIR ZOO AEROSPACE & SCIENCE MUSEUM — RESULTS OF THE U.S.  
 NUCLEAR REGULATORY COMMISSION'S INITIAL SITE VISIT AND  
 REQUEST FOR CONFIRMATION OF VOLUNTARY CONTROLS  
**DATE: July 5, 2019**

**DISTRIBUTION:**

RidsRgn3MailCenter B. Lin, RIII M. Burgess, NMSS L. Sreenivas, OE

J. Peralta, OE T.Marechin, OE

**ADAMS Accession No.: ML19066A369**

**\*via e-mail**

<b>OFFICE</b>	DUWP/MDB/PM	DUWP/LA	DUWP/LLPB	DUWP/LLPB	RIII/DNMS/BC
<b>NAME</b>	RChang	CHolston	RNelson*	ASchwartzman	MKunowski*
<b>DATE</b>	3/11/19	3/13/19	3/20/19	3/18/19	4/1/19
<b>OFFICE</b>	DUWP/MDB/BC	NMSS EC	OE/EB	OGC (NLO)	DUWP
<b>NAME</b>	SKoenick	MBurgess	JPeralta	Ilrvin*	JTappert
<b>DATE</b>	4/8/19	4/30/19	4/30/19	6/14/19	7/5/2019