

**INSPECTION RECORD**

**Region:** III

**Inspection Report No.** 2018001

**License No.** 21-15646-01

**Docket No.** 030-09514

**Licensee:** Road Commission for Oakland County  
R.C.O.C.  
2420 Pontiac Lake Road  
Waterford, MI 48328

**Locations Inspected:** 1) Same as above  
2) Temporary jobsite at the intersection of Maple Road and Haggerty Road in West Bloomfield, MI

**Licensee Contact:** Kenneth Ballard, Radiation Safety Officer **Telephone No.** 248-858-4864

**Program Code:** 03121 **Priority:** 5

**Type of Inspection:** ( ) Initial (X) Routine ( ) Announced  
( ) Special (X) Unannounced

**Last Inspection Date:** October 2, 2012 **Date of This Inspection:** April 17, 2018

**Next Inspection Date:** April 17, 2023 (X) Normal ( ) Reduced

**Summary of Findings and Actions:**

- ( ) No violations cited, clear U.S. Nuclear Regulatory Commission (NRC) Form 591 or regional letter issued
- ( ) Non-cited violations (NCVs)
- ( ) Violation(s), Form 591 issued
- (X) Violation(s), regional letter issued
- (X) Followup on previous violations

**Inspector:** Robert G. Gattone, Jr., Senior Health Physicist

**/RA Deborah Piskura Acting for/**  
*Signature*

**Date** 5/16/2018

**Approved:** Aaron T. McCraw, Chief, MIB

**/RA John Giessner Acting for/**  
*Signature*

**Date** 5/16/2018

## **PART I – LICENSE, INSPECTION, INCIDENT/EVENT AND ENFORCEMENT HISTORY**

### 1. AMENDMENTS AND PROGRAM CHANGES SINCE LAST INSPECTION:

<u>AMENDMENT #</u>	<u>DATE</u>	<u>SUBJECT</u>
10	2/11/16	Renewal

### 2. INSPECTION AND ENFORCEMENT HISTORY:

The last inspection of this licensee was on 10/2/12. As a result of the last inspection, two violations of NRC requirements were identified (i.e., 10 CFR 71.5 and 49 CFR 177.817(a) for failure to use shipping papers and 10 CFR 20.1101 for failure to do annual audits). Both violations were Severity Level IV. The licensee's corrective actions for the previous violations were successful to prevent similar violations. As such, the previous violations were closed.

### 3. INCIDENT/EVENT HISTORY:

There were no reported events, accidents, fires, floods, or damage regarding the gauges since the last inspection.

## **PART II – INSPECTION DOCUMENTATION**

### 1. ORGANIZATION AND SCOPE OF PROGRAM:

Road Commission for Oakland County is authorized under NRC Materials License No. 21-15646-01 to use licensed material for measuring physical properties of materials with nuclear gauging devices. Licensed material is authorized to be used anywhere in the United States in areas of NRC jurisdiction. The licensee uses the gauges on a daily basis for construction engineering projects anywhere in the United States in areas of NRC jurisdiction. The licensee uses Troxler Model 3440 Series gauges (Serial Nos. 24060, 32829, 34540, and 34718). The radiation safety officer (RSO) reported to the construction head, who reported to the engineering head, who reported to the head engineer. The licensee had six authorized users (AUs).

### 2. SCOPE OF INSPECTION:

Inspection Procedure(s) Used: 87124

Focus Areas Evaluated: All

At the licensee's permanent storage facility, the inspector observed that the gauges were adequately secured with at least two independent physical controls when not under the control and constant surveillance of the licensee. The inspector noted that the area where the gauges were stored was posted with a "Caution – Radioactive Material" sign, as well as an NRC Form 3. The inspector interviewed the RSO and determined that the licensee sent its gauges to Troxler for repairs. However, the licensee's RSO cleaned the gauges and checked the source shutters in accordance with the manufacturer's instructions. The inspector noted that the RSO audited the licensee's radiation protection program annually since the last inspection. The inspector reviewed a

selection of licensee records, including: (1) annual safety training; (2) timely HAZMAT training; (3) initial authorized user training; (4) dosimetry records; (5) physical inventories; and (6) leak tests, with no issues noted.

At the temporary jobsite, the inspector observed that the gauge was in its case inside of a van. The gauge user described the method for securing the device with at least two independent physical controls when the van was unattended. The inspector observed that the gauge's source rod was locked in the shielded position. The authorized user successfully demonstrated how he would respond to an emergency involving a damaged gauge event that occurred at a temporary jobsite based on a scenario posed by the inspector. The inspector noted that the licensee used shipping papers when transporting the gauges on public highways. The inspector identified several violations of DOT shipping requirements noted in Section 4 below.

3. INDEPENDENT AND CONFIRMATORY MEASUREMENTS:

Using an NRC-owned, calibrated RadEye G survey meter, the inspector conducted independent surveys at selected surfaces of a selected gauge and the maximum result was 0.7 milliRoentgen per hour (mR/hr). In addition, the inspector conducted a comparative survey at the location of the previous reading of 0.7 mR/hr and the licensee used its calibrated TroxlerAlert survey meter to measure the same spot and got 0.12 mR/hr. In addition, the inspector conducted an independent survey of the gauge that was at the temporary jobsite and measured 7.3 mR/hr at the surface of the cesium-137 source shutter and that measurement was below the reading in the Seal Source Device Registry document for the Troxler Model 3440 gauge.

4. VIOLATIONS, NCVs, AND OTHER SAFETY ISSUES:

The inspector identified three Severity Level IV violations during the inspection:

Title 10 CFR 71.5(a) requires that a licensee who transports licensed material outside of the site of usage, as specified in the NRC license, or where transport is on public highways, or who delivers licensed material to a carrier for transport, comply with the applicable requirements of the regulations appropriate to the mode of transport of the Department of Transportation (DOT) in 49 CFR Parts 107, 171-180, and 390-397.

1. Title 49 CFR 172.403(b) requires that the label to be affixed to a package is based on the radiation level at the surface of the package and the transport index. The label to be applied must be the highest category required for either of the two determining conditions of the package. Title 49 CFR 172.403(c) defines the categories of labels to be applied to radioactive materials packages and requires, in part, that: (1) packages with surface radiation levels of less than or equal to 0.005 millisievert (mSv) per hour (0.5 millirem (mrem) per hour) be labeled "White-I," (2) packages with surface radiation levels greater than 0.005 mSv/h (0.5 mrem/h) but less than or equal to 0.5 mSv/h (50 mrem/h) be labeled "Yellow-II," and (3) packages with surface radiation levels greater than 0.5 mSv/h (50 mrem/h) be labeled "Yellow-III."

Contrary to the above, on April 11 and 17, 2018, the licensee transported, on public highway, a Troxler Model 3440 portable gauge containing 8 millicuries (mCi) of cesium-137 (Cs-137) and 40 mCi of americium-241 (Am-241) in a package that had

surface radiation levels greater than 0.005 mSv/h but less than or equal to 0.5 mSv/h and there were no Yellow-II labels on the package.

The inspector determined that the root cause of this violation was that the RSO did not notice that the gauge case did not have Yellow II labels and there were no Yellow II labels in stock. As corrective actions to restore compliance and to prevent recurrence, the licensee committed to obtain extra Yellow II labels so that when Yellow II labels become worn the licensee will have enough labels to replace the worn out labels.

2. Title 49 CFR 172.202(a) and (b) require in part, with exceptions not applicable here, that the shipping description of a hazardous material on the shipping paper include, in the following sequence: (1) the proper shipping name prescribed for the material in 172.101, (2) the hazard class prescribed for the material as shown in Column 3 of the 172.101 Table, and (3) the identification number prescribed for the material as shown in Column 4 of the 172.101 Table. Pursuant to 49 CFR 172.101, radioactive material is classified as hazardous material.

Contrary to the above, on several occasions including April 17, 2018, the licensee transported, on public highway, a Troxler Model 3440 portable gauge containing 8 mCi of Cs-137 and 40 mCi of Am-241, and the shipping description on the shipping papers that accompanied the shipment did not include the identification number prescribed for the material as shown in Column 4 of the 172.101 Table.

The inspector determined that the root cause of the violation was that the RSO was unaware that the applicable identification number was changed from "UN2974" to "UN3332" years ago. As corrective action, the RSO revised the shipping papers to include "UN3332" instead of "UN2974" during the onsite inspection.

3. Title 49 CFR 172.203(d) requires, in part, that the description for a shipment of radioactive material include: (1) the name or abbreviation (e.g., Mo-99) of each radionuclide that is in the radioactive material and is listed in 49 CFR 173.435, or for mixtures of radionuclides, those nuclides determined in accordance with the provisions of 49 CFR 173.433(f); (2) the physical and chemical form of the material (if not special form); (3) the activity contained in each package of the shipment in terms of the appropriate SI units (e.g., Becquerel, Terabecquerel etc...), or in terms of appropriate SI units followed by customary units (e.g., curies, mCi, or microcuries); (4) the category of label applied to each package (e.g., RADIOACTIVE WHITE-I), and (5) the transport index assigned to each package in the shipment bearing RADIOACTIVE YELLOW-II OR YELLOW-III labels.

Contrary to the above, on several occasions including April 17, 2018, the licensee transported, on public highway, a Troxler Model 3440 portable gauge containing 8 mCi of Cs-137 and 40 mCi of Am-241, and the description on the shipping papers that accompanied the shipments did not include the transport index assigned to each package in the shipment bearing RADIOACTIVE YELLOW-II labels.

The inspector determined that the root cause of the violation was oversight regarding the requirement for having the transport index on shipping papers. As corrective action, the RSO added the transport index to the shipping papers during the onsite inspection.

5. PERSONNEL CONTACTED:

- # Kenneth Ballard, RSO
- David James, AU
- # Telephonic exit meeting on April 26, 2018

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