

**INSPECTION RECORD**

**Region III**  
**License No.** 13-05737-01

**Inspection Report No.** 030-00699/2010-001  
**Docket No.** 030-00699

**Licensee (Name and Address):**

Earlham College  
801 National Road West  
Richmond, Indiana 47374-4095

**Licensee Contact:** Dr. John A. Howell – RSO  
**Telephone No.:** 765-983-1670

**Priority:** 5      **Program Code:** 22110

**Date of Last Inspection:** 9/20/06

**Date of This Inspection:** February 11, 2010 with continuing NRC in-office review through February 23, 2010. The purpose of the continuing NRC in-office review was concerning the analysis and review of leakage and/or contamination results.

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

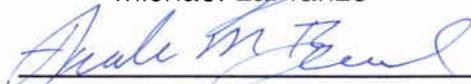
**Next Inspection Date:** 2/2015      (X) Normal      ( ) Reduced

**Summary of Findings and Actions:**

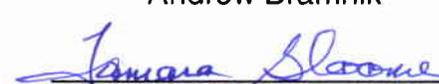
- ( ) No violations cited, clear U.S. Nuclear Regulatory Commission (NRC) Form 591 or regional letter issued
- ( ) Non-cited violations (NCVs)
- ( ) Violation(s), Form 591 issued
- (X) Violation(s), regional letter issued
- (X) Followup on previous violations

Inspector   
Michael LaFranzo

Date 2/26/10

Inspector   
Andrew Bramnik

Date 2/26/2010

Approved   
Tamara E. Bloomer, Chief, MIB

Date 3/1/10

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

**1. AMENDMENTS AND PROGRAM CHANGES:**

<u>Amendment No.</u>	<u>Date</u>	<u>Subject</u>
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No amendments were issued since the last inspection

**2. INSPECTION AND ENFORCEMENT HISTORY:**

The last routine NRC inspection was conducted on 9/20/06. A violation of NRC requirements was identified regarding the failure to conduct leak tests on a Ni-63 source. The previous inspection was conducted on October 12, 2000; no violations of NRC requirements were identified.

**3. INCIDENT/EVENT HISTORY:**

None

## **PART II - INSPECTION DOCUMENTATION**

### **1. ORGANIZATION AND SCOPE OF PROGRAM:**

Dr. Gregory Mahler – Academic Dean, Vice President for Academic Affairs  
Dr. John Howell – Radiation Safety Officer

The licensee is authorized to possess several sealed sources which are used for the training of students. The licensee is not authorized to use and/or store licensed material at field offices or temporary job sites. The licensed material was used once a year by the licensee. The RSO is the only individual authorized to independently use licensed material.

### **2. SCOPE OF INSPECTION:**

Inspection Procedure(s) Used: 87126

Focus Areas Evaluated: 03.01-03.07

### **3. INDEPENDENT AND CONFIRMATORY MEASUREMENTS:**

The inspectors performed independent radiation measurements where licensed material was used and/or stored; no abnormal radiation levels were identified. The licensee possesses instrumentation that was used to determine leakage and/or contamination for sealed sources. However, the licensee had not calibrated that instrument for a number of years. Specifics are documented in Section 4.

### **4. VIOLATIONS, NCVs, AND OTHER SAFETY ISSUES:**

- A. 10 CFR 20.1501(b) states that a licensee shall ensure that instruments and equipment used for quantitative radiation measurements are calibrated periodically for the radiation measured. However as of February 11, 2010, the licensee could not demonstrate that an NMC-PC3A gas flow proportional counter had been calibrated between January 1991 and January 2010. The equipment was used for quantitative radiation measurements to determine the presence of leakage and/or contamination of sealed sources possessed under the licensee.

Once the NRC identified that the radiation detection system to determine leakage and/or contamination regarding sealed sources had not been appropriately

calibrated and previous leakage and/or contamination analysis results may not be valid, the licensee obtained the services of a contractor to analyze for leakage and/or contamination of the sealed sources possessed under the license. The contractor reported that the no leakage and/or contamination was identified from the sources that were tested. The licensee informed the inspectors that they were not aware of the instrument calibration requirements.

Licensee's management was determining whether future leakage and/or contamination analysis should be done by an outside contractor or whether the licensee wants to spend the resources to fully implement calibration procedures for the gas flow proportional counter which included, but was not limited to, the purchase of NIST traceable radioactive sources as required by the licensee's procedures. The licensee was issued a violation for the failure to appropriately calibrate the instrument with a response required to NRC within 30 days of the licensee receiving the Notice of Violation. The licensee will inform the NRC of its decision at that time.

- B. Condition 15.C of License 13-05737-01 states, in part, that no sealed source shall be stored for a period of more than 10 years without being tested for leakage and/or contamination. However between January 1991 and January 2010, a period greater than 10 years, the licensee had not tested for leakage and/or contamination of a Co-60 source.

The licensee explained to the NRC inspectors that they were unaware of the requirement. The licensee had a contractor analyze samples for leakage and/or contamination of the sealed source; no leakage and/or contamination was identified. The licensee committed to performing leakage and/or contamination tests in the future as required.

- C. Condition 19 of License 13-05737-01 states, in part, that the licensee shall conduct a physical inventory every 6 months to account for all sources and/or devices received and possessed under the license. However since 2006, the licensee had been conducting a physical inventory every 12 months to account for all sources and/or devices received and possessed under the license.

The licensee informed the inspectors that they were unaware of the 6 month inventory requirement. The licensee committed to performing 6 month inventories for all sources under the license in the future.

The inspectors reviewed the licensee's corrective actions concerning the previous violation identified – failure to conduct leak tests of Ni-63 source, which was noted during the last inspection. Although the equipment used to analyze the tests was not calibrated in accordance with the licensee's policies and procedures, the source was leak tested at the appropriate intervals. The licensee will appropriately perform analysis of all tests in the future as stated in this section for this source and all radioactive sources possessed under the license.

5. **PARTIAL LIST OF PERSONNEL CONTACTED:**

\* Dr. Gregory Mahler – Academic Dean; Vice President for Academic Affairs  
#\*& Dr. John A. Howell – Radiation Safety Officer

Use the following identification symbols:

- # Individual(s) present at entrance meeting
- \* Individual(s) present at preliminary site exit meeting
- & Individual present during telephonic exit meeting

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