



July 13, 2006

Director of Nuclear Material Safety and Safeguards  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

ATTN: GLTS

RE: Reportable Event Involving a Generally Licensed Device Pursuant to 10 CFR  
31.5, Beckman Coulter, Inc.

Dear Sir or Madam:

This report is being prepared pursuant to the requirements of 10 CFR 31.5 (c)(5).

**Device Involved**

The device involved in this event is a Beckman Coulter LS 3801 liquid scintillation counter(LSC). This device contained at the time of this incident a cesium-137 sealed source with an activity of 18.88 microcuries. This device is designed and manufactured for the purposes of detecting and measuring radiation and is generally licensed pursuant to 10 CFR 31.5 (a). Beckman Coulter is authorized to service this device in a specific license issued by the California Department of Health Services (license number 0441-30, condition 27) and the general license described in 10 CFR 31.6.

**Description of Event**

On June 13, 2006 a Field Service Engineer (FSE) for Beckman Coulter, Inc. performed a service call on a LSC 3801 at Wayne State University in Detroit, MI. At the time the service was performed, the FSE noted damage in the source holder for the cesium-137 source. The FSE, believing the source to be in the source holder, sent the source back to Beckman Coulter's Fullerton, CA facility for purposes of failure investigation. On June 28, 2006 the source holder arrived in Fullerton. The following day, June 29, 2006, the source holder was examined and it was noted that the source was missing. That same day the Radiation Safety Officer for Beckman Coulter started an investigation into the possible disposition of the source.

The investigation revealed that when the FSE was servicing the LSC, he discovered elevated radiation readings by a floor drain adjacent to the LSC. The FSE attempted to decontaminate this area and removed contaminated items from LSC and associated decontamination effort from the Wayne State facility. These contaminated items were

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then shipped to Beckman Coulter's Fullerton, CA facility for further examination on June 26, 2006. These items arrived on June 30, 2006 and were also examined for failure analysis. An examination of these items revealed the presence of approximately 1 microcurie of cesium-137 contamination. Further investigation revealed that approximately 0.01 microcuries of contamination is still present on parts of a floor drain near where the LSC was located and serviced.

#### **Likely Disposition of the Material**

The source at this time has yet to be located. Given that the source holder had physical damage, it is possible that the source could have become dislodged and fallen into the floor drain. A sampling of the water in this drain did not reveal any elevated cesium-137 concentration.

A health physics consulting company was hired by Beckman Coulter to conduct extensive surveys of Wayne State University, the FSE's car and residence. These surveys were conducted from July 11-13, 2006. A bioassay of the FSE performed by the staff of Wayne State University revealed no uptake of cesium-137. Surveys of the FSE's car and residence did not reveal any cesium-137 contamination.

#### **Root Cause Analysis**

The root cause of the spread of the contamination resulted from the damage to the source holder and possibly the source itself. While the exact disposition of the material is unknown, we speculate that the source fell from the source holder and therefore spread contamination to surrounding surfaces that may have come in contact with it. These surfaces would include some of the parts of the LSC and the floor drain area of the lab where the LSC was located. Additionally the decontamination attempt by the FSE could have also been a source for some contamination.

#### **Efforts Taken to Prevent a Recurrence of this Event**

In order to prevent a recurrence of this event, Field Service Engineers have been informed that they are to immediately notify Beckman Coulter's Radiation Safety Officer in the event that they discover a damaged source holder while servicing an LSC. Additionally, the FSE involved on this service call will be retrained in the proper techniques for handling damaged sources and contaminated items. Beckman Coulter's FSEs are trained not to take any contaminated items from a customer site with them.

#### **Efforts Taken to Ensure Premises and Environs are Acceptable for Unrestricted Use**

Given that surveys of the FSE's residence, car and other areas of the Wayne State Lab with the exception of the drain area reveal no contamination, we believe that at this time, levels of contamination present at Wayne State University generated as a result of this

incident would not result in a dose to an individual in excess of the 25 mrem/year threshold established in 10 CFR 20.1402 were this area released for unrestricted use. The contaminated drain sections have been placed into Wayne State's radioactive waste area. The final report from the health physics consultant is still pending at this time and we will keep the Commission informed of any additional information regarding this event as it becomes available.

If there are any questions concerning this report, please contact me at (714) 773-8355.

Sincerely,

A handwritten signature in black ink, appearing to read "Toli Mikell". The signature is fluid and cursive, with the first name "Toli" and last name "Mikell" clearly distinguishable.

Toli P. Mikell  
Radiation Safety Officer  
Beckman Coulter, Inc.