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USNRC  
Materials Inspection Branch  
Division of Nuclear Materials Safety  
U.S. Nuclear Regulatory Commission Region III  
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Dear Sir/Madam,

This correspondence is the formal written response required by 10 CFR 20.2201(b) as a follow up to the telephone report, filed with the NRC Operations Center on February 8, 2019 at 0946 Eastern time, Reference Number 53865, reporting 1 missing nickel-63 electron capture detector (ECD), from MRIGlobal 425 Volker Boulevard, Kansas City, Missouri 64110, possessing NRC License number 24-02564-02. MRIGlobal is a contract research organization (CRO), headquartered in Kansas City, Missouri.

**Description Of Lost Or Missing Sources:**

Agilent Technologies Model G2397-65505 ECD serial number U2802 in a gas chromatograph (GC). The activity of the nickel-63 source was 15 mCi as of manufacturing date of April 23, 2001.

**A Description Of The Circumstances Under Which The Loss Was Discovered:**

An MRIGlobal employee that was responsible for conducting the leak tests and inventory left MRIGlobal employment in March 2018. The leak tests were thought to be current at that time and no further actions were taken.

In 2015, as recorded in a laboratory notebook, the ECD U2802 was documented as taken out of service and given to the Environment, Safety and Health Office (ESH) to be stored in a secured room. No records were found with ESH that the ECD was received for storage.

It was noted in the laboratory notebook that the ECD and instrument were removed from service after the 6 month interval leak test. During the interim time, the laboratory purchased another GC with an ECD. The former employee did not check serial numbers of the ECD's and therefore expected 2 GC instruments to be located within the laboratory. The former employee continued with leak tests on the two instruments and, without checking the serial numbers, continued to list U2802 being present in the laboratory.

An inventory was conducted in September 2018 by MRIGlobal's Senior Industrial Hygienist. This was in anticipation of sending all ECD's in storage back to the manufacturer. The U2802 source was noted to be missing during the audit. The Senior Industrial Hygienist then brought the missing source to the attention of the Radiation Safety Officer.

**Actions Taken To Determine The Location Of The Missing Source:**

ESH staff took a concerted effort to locate the missing source. This included interviews with the former employee, laboratory staff and a search of the laboratory, extending outward. The laboratory, ESH secure storage, and other laboratories were thoroughly examined.

Further actions were reviewing purchasing and disposal records, Radiation Safety records, emails and contacting the manufacturer, Agilent Technologies, to review their records for receipt of the missing source.

**Disposition Or Probable Disposition Of The Radioactive Source:**

MRIGlobal has remodeled several laboratory spaces and made a concerted effort to dispose of excess inventory. The two most probable results are that the source was moved to a different location that has not been determined or that the source was disposed of during laboratory inventory reduction.

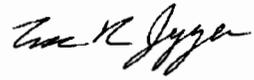
**Exposures of Individuals To Radiation, Circumstances Under Which The Exposures Occurred, And The Possible Total Effective Dose Equivalent To the Persons in Unrestricted Areas:**

The ECD was still housed in the source holder, and therefore, the dose rate from the sources would not have been above background levels. Similar ECD's were checked with Ludlum Model 3 Geiger dose rate counters. In addition, the last confirmed leak test indicated no leaks from the source holder. MRIGlobal has no reason to believe that any person has been exposed to radioactivity due to this missing source.

**Procedures Or Measures That Have Been, Or Will Be, Adopted To Ensure Against A Recurrence Of The Loss Or Theft Of Licensed Material.**

The inventory has been verified, current and up-to-date for all radioactive materials unsealed and sealed, at MRIGlobal. All unwanted or unneeded sealed sources have been returned to the manufacturer during the Fall of 2018. At this time MRIGlobal, has a total of three sealed sources, two in active use and one being stored temporarily.

During all required leak tests, serial numbers will be verified and matched to inventory.



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