UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
2100 RENAISSANCE BOULEVARD, SUITE 100
KING OF PRUSSIA, PENNSYLVANIA 19406-2713

September 16, 2013

Docket No. 03008562 License No. 06-15099-01
EA-13-184

John G. Tamburro
Vice President
Canberra Industries, Inc.
800 Research Parkway
Meriden, CT 06450

SUBJECT: NRC INSPECTION REPORT NO. 03008562/2013001, CANBERRA INDUSTRIES, INC., MERIDEN, CONNECTICUT SITE

Dear Mr. Tamburro:

On May 21-23, 2013, Todd Jackson of this office conducted a safety inspection at the above address of activities authorized by the above-listed NRC license. The inspection was an examination of your licensed activities as they relate to radiation safety and to compliance with the Commission's regulations and the license conditions. The inspection consisted of observations by the inspector, interviews with personnel, and a selective examination of representative records. Additional information provided in the email and telephone conversations between David Gelpke, Terry Schwager and Ronald Como of your organization and Todd Jackson on June 7, 10, 21, & 27, July 1, 8, 29, & 31, 2013, was also examined as part of the inspection. The findings of the inspection were discussed with Douglas Bellfy and others of your organization at the conclusion of the inspection on July 31, 2013.

Based on the results of this inspection, two apparent violations were identified and are described in Sections II and III of the enclosed report. One of the apparent violations is being considered for escalated enforcement action in accordance with the NRC Enforcement Policy. The current Enforcement Policy is included on the NRC's Web site at http://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html. The apparent violation being considered for escalated enforcement involved the failure to secure from unauthorized removal or access an americium-241/beryllium neutron calibration source stored in the calibration room (a controlled area).

The circumstances surrounding this apparent violation, the significance of the issue, and the need for lasting and effective corrective actions were discussed with Douglas Bellfy and others of your organization during the inspection exit meeting at the conclusion of the inspection. In addition, since your facility has not been the subject of an escalated enforcement action within the last 2 years, and based on our understanding of your corrective actions, a civil penalty may not be warranted in accordance with Section 2.3.4 of the Enforcement Policy. As a result, it may not be necessary to conduct a pre-decisional enforcement conference (PEC) in order to enable the NRC to make an enforcement decision. However, before the NRC makes its enforcement decision, we are providing you an opportunity to either (1) respond in writing to the apparent violations addressed in this inspection report within 30 days of the date of this letter, or (2) request a PEC.

Should you decide to participate in a PEC, the conference will afford you the opportunity to provide your perspective on the apparent violations and any other information that you believe the NRC should take into consideration before making an enforcement decision. The topics discussed during the conference may include the following: information to determine whether a violation occurred, information to determine the significance of a violation, information related to the identification of a violation, and information related to any corrective actions taken or planned to be taken. In presenting your corrective actions, you should be aware that the promptness and comprehensiveness of your actions will be considered in assessing any civil penalty for the apparent violations. If a PEC is held, it will be open for public observation and the NRC will issue a press release to announce the time and date of the conference. A PEC should be held within 30 days of the date of this letter.

If you choose to provide a written response, it should be submitted to Judith Joustra, Chief, Commercial and Research & Development Branch, Division of Nuclear Materials Safety, at the Region I address above, and be clearly marked as a "Response to Apparent Violations in Inspection Report No. 03008562/2013001, EA-13-184." Your response should include for each apparent violation: (1) the reason for the apparent violation, or, if contested, the basis for disputing the apparent violation; (2) the corrective steps that have been taken and the results achieved; (3) the corrective steps that will be taken to avoid further violations; and (4) the date when full compliance will be achieved. Your response may reference or include previously docketed correspondence, if the correspondence adequately addresses the required response. If an adequate response is not received within the time specified or an extension of time has not been granted by the NRC, the NRC will proceed with its enforcement decision.

Please contact Ms. Judith Joustra of my staff at 610-337-5355, within 10 days of the date of this letter, to provide your decision on the matter, or if you have any questions. In addition, please be advised that the number and characterization of apparent violations described in the enclosed inspection report may change as a result of further NRC review. You will be advised by separate correspondence of the results of our deliberations on this matter.

Current NRC regulations and guidance are included on the NRC's website at www.nrc.gov; select **Nuclear Materials; Med, Ind, & Academic Uses;** then **Regulations, Guidance and Communications.** The current Enforcement Policy is included on the NRC's website at www.nrc.gov; select **About NRC, Organizations & Functions; Office of Enforcement; Enforcement documents;** then **Enforcement Policy (Under 'Related Information').** You may also obtain these documents by contacting the Government Printing Office (GPO) toll-free at
1-866-512-1800. The GPO is open from 8:00 a.m. to 5:30 p.m. EST, Monday through Friday (except Federal holidays). To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be placed in the PDR without redaction.

The NRC's Safety Culture Policy Statement became effective in June 2011. While a policy statement and not a regulation, it sets forth the agency's *expectations* for individuals and organizations to establish and maintain a positive safety culture. You can access the policy statement and supporting material that may benefit your organization on NRC's safety culture Web site at http://www.nrc.gov/about-nrc/regulatory/enforcement/safety-culture.html. We strongly encourage you to review this material and adapt it to your particular needs in order to develop and maintain a positive safety culture as you engage in NRC-regulated activities.

Sincerely,

/RA/

James W. Clifford, Director
Division of Nuclear Materials Safety

Enclosure:
Inspection Report No. 03008562/2013001

cc w/enclosure:
Ronald Como, Radiation Safety Officer
State of Connecticut

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James W. Clifford, Director
Division of Nuclear Materials Safety

Enclosure:
Inspection Report No. 03008562/2013001

cc w/enclosure:
Ronald Como, Radiation Safety Officer
State of Connecticut

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U.S. NUCLEAR REGULATORY COMMISSION
REGION I

INSPECTION REPORT

EA No.	EA-13-184
Inspection No.	03008562/2013001
Docket No.	03008562
License No.	06-15099-01
Licensee:	Canberra Industries, Inc.
Location:	800 Research Parkway, Meriden, Connecticut 06450
Inspection Dates:	May 21-23, 2013, and continuing in-office June 7, 10, 21, and 27, July 1, 8, 29 and 31, 2013

Inspector: ***/RA/*** ***09/09/13***

Todd J. Jackson, CHP
Senior Health Physicist
Commercial and R&D Branch
Division of Nuclear Materials Safety

Approved By: ***/RA/*** ***09/10/13***

Judith A. Joustra, Chief
Commercial and R&D Branch
Division of Nuclear Materials Safety

EXECUTIVE SUMMARY

Canberra Industries, Inc.
NRC Inspection Report No. 03008562/2013001

This was a routine, unannounced inspection of the licensee's radiation safety program. The inspection consisted of observation of activities and facilities, interviews of personnel, and review of selected records related to the program. The licensee uses a variety of licensed materials for research and development activities, and for calibration of radiation measuring instruments and equipment.

Two apparent violations of NRC requirements were identified during the inspection: failure to secure an americium-241 source stored in a controlled or unrestricted area from unauthorized removal or access, and failure to limit possession of uranium-235 to the quantity specified in NRC License 06-15099-01, Amendment 32.

The inspector discussed the detailed findings, including the two apparent violations, with the licensee during an exit meeting conducted by telephone on July 31, 2013.

REPORT DETAILS

I. Organization and Scope of the Program

a. Inspection Scope

The organizational structure, scope, and management of the radiation safety program were reviewed. NRC Temporary Instruction 2600/017, "Review of the Implementation of the Decommissioning Planning Rule," was also reviewed.

b. Observations and Findings

The licensee designs and manufactures instruments and components for radiation detection and analysis. Approximately 350 employees work at the main office where this inspection was conducted. Approximately 107 personnel are designated as authorized users, who are trained and qualified to use licensed materials for calibration services. The Company's Radiation Safety Committee (RSC) has eight members, is chaired by the Company Vice President, and meets quarterly. Training is conducted routinely for all personnel using licensed material.

The licensee stated there have been no spills or incidents involving licensed materials that could impact future decommissioning, and therefore no issues were identified regarding NRC Temporary Instruction 2600/017 and implementation of the decommissioning planning rule. The licensee maintains its inventory of licensed materials in order to assure possessed material does not exceed the threshold that would require financial assurance. Other records reviewed included material inventory, leak tests, RSC meeting minutes, personnel dosimetry, and periodic program reviews. There were no effluents or releases of licensed materials, and essentially no radioactive waste produced.

c. Conclusions

No concerns or violations were identified in this area.

II. Management Oversight of the Program

a. Inspection Scope

Implementation of the radiation safety program, including management involvement and oversight, were reviewed. This inspection included review of the licensee's use of the NRC National Source Tracking System (NSTS) and the Nuclear Materials Management and Safeguards System (NMMSS).

b. Observations and Findings

The current Radiation Safety Officer (RSO) became the RSO within the last year. Duties that had previously been assigned to several individuals were consolidated into the newly created full-time RSO position. The transition of responsibilities to the RSO was ongoing, with other individuals still responsible for some functions. For example, the licensee's custodian of data for the NMMSS had not yet transferred responsibility to the RSO.

The inspector noted a discrepancy between the activity contained in a source possessed by the licensee and the amount authorized on the current NRC license, Amendment 32, issued March 25, 2013. License Subitem 6.Y in Amendment 31 stated authorization for uranium-235 (U-235) in a New Brunswick Lab Model CRM 969 source set up to a maximum of 1,000 grams (g). The license was renewed via Amendment 32, dated March 25, 2013, which changed the limit in Subitem 6.W for possession of U-235 in the New Brunswick Lab Model CRM 969 source set to a maximum of 10.4 grams. This change was made to accurately reflect the actual total U-235 isotopic mass in the 1,000 g source set. The licensee had submitted information in a December 6, 2012, letter to NRC stating the quantity of U-235 in the source set was 10.4 g. The inspector reviewed the source certificate issued by the National Bureau of Standards on June 27, 1985, and revised on October 15, 1985, and noted that the total mass of U-235 in the source set appeared to be greater than the 10.4 g authorized. The licensee evaluated the source and calculated that U-235 in the source set was actually 17.615 g, which is more than possession limit authorized by Amendment 32. The licensee determined that the previous calculation supporting the 10.4 g limit in Amendment 32 had been incorrect. The licensee submitted a license amendment request by letter dated June 25, 2013, to correct the possession limit and Amendment 33 was issued by the NRC, effective July 29, 2013, with a possession limit of 17.6 g.

The inspector also reviewed the licensee's inventory as listed in the NMMSS. The inventory showed 1001 g element weight and 851 g isotope weight for material type E4 (the element is uranium and isotope weight is for U-235). The licensee stated that the NMMSS inventory is solely attributable to the same New Brunswick Lab Model CRM 969 reference source set which contains 1,000 g elemental weight of uranium and 17.6 g of U-235 as discussed above. Based on the licensee's explanation of the data on the uranium source set the inspector concluded that the data in NMMSS was also incorrect and required correction by the licensee. On July 29, 2013, the licensee reported to the inspector that the NMMSS database had been corrected to accurately reflect the material possessed. The inspector confirmed with the NMMSS administrator that the data correctly lists the data for the source in question. No other issues were identified.

NSTS records were reviewed with the licensee and were found to be current, with no issues identified.

c. Conclusions

One apparent violation of NRC requirements was identified by the inspector. License 06-15099-01 authorizes the licensee to receive, acquire, possess and transfer byproduct, source and special nuclear material designated in the license. Subitem 6.W

of License 06-15099-01, Amendment 32 limits possession to 10.4 g of U-235 (special nuclear material). Contrary to this requirement, on May 22, 2013, the licensee failed to limit possession to 10.4 g of U-235. Specifically, the licensee possessed a source set containing 17.615 g of U-235, which exceeded the possession limit.

III. Material Receipt, Use, Transfer, and Control

a. Inspection Scope

Implementation of regulatory requirements for handling and control of licensed material was reviewed.

b. Observations and Findings

Licensed material is primarily used for calibration of instruments during manufacturing and service activities. Most radioactive sources are kept in storage lockers when not in use, under the control of designated custodians, who verify current qualifications of authorized users requesting use of sources. The licensee possesses and uses a large number of calibration sources throughout its manufacturing and production facilities. The inspector reviewed the licensee's program for securing and controlling these calibration sources and observed rigorous and effective controls in use at the source storage facilities toured, with the exception of one americium-241 source.

10 CFR 20.1801 requires the licensee secure from unauthorized removal or access licensed materials that are stored in controlled or unrestricted areas. The licensee did not secure from unauthorized removal or access licensed materials, specifically a 10 curie americium-241/beryllium neutron calibration source in the calibration room, located within a controlled area. The calibration room door was locked; however there was a large pass-through window into the calibration room which was open and accessible. This opening could have allowed someone access to the room by climbing through, and the door to the outer room surrounding the neutron calibration room was not maintained locked. The americium-241 source was stored in a shielded drum within the calibration room, and was part of a mechanical device with electric motor used to raise and expose the source during calibrations. The storage drum within the calibration room was not secured to the floor, and the motorized device to expose the source was operated by manipulating a switch with no lock that was located outside the calibration room. The inspector informed the licensee that failure to secure this source was an apparent violation of 10 CFR 20.1801.

On May 23, 2013, the licensee initiated immediate corrective action to secure the americium-241 source by locking and controlling access to the outer door to the area enclosing the neutron calibration room. On May 28, 2013, the licensee reported completion of work to install a wire mesh barrier covering the pass-through window opening, which secured the calibration room. Additionally, the switch to operate the device to expose the source was moved into the locked calibration room at the time the wire barrier was installed. On June 10, 2013, the licensee reported installation of a locking mechanism on the switch and returned it to the position of use outside the locked neutron calibration room. The licensee is not aware of any attempts to access or

remove the source by unauthorized personnel while the room was accessible.

c. Conclusions

One apparent violation was identified by the inspector. 10 CFR 20.1801 requires the licensee shall secure from unauthorized removal or access licensed materials that are stored in controlled or unrestricted areas. Contrary to the above, the licensee did not secure from unauthorized removal or access, a 10 curie americium-241/beryllium neutron calibration source stored in the calibration room (a controlled area). Specifically, although the calibration room door was locked, there was a large pass-through window into the room which was open and accessible, and the door to the outer room surrounding the neutron calibration room was not maintained locked.

IV. Exit Meeting

A preliminary exit meeting was conducted at the licensee's facility on May 22, 2013. A final exit meeting was conducted by telephone on July 31, 2013. The apparent violations were discussed with the licensee at the final exit meeting.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

David Gelpke, Safety and Facility Manager #* **
Ronald Como, RSO #* **
Terrence Schwager #* **
John Tamburro, Vice President *
Douglas Bellfy, General Manager **

Individual(s) present at entrance meeting
* Individual(s) present at site exit meeting
** Individuals present at final exit telephone meeting

INSPECTION PROCEDURES USED

Inspection Procedure 87126, "Industrial/Academic/Research Programs"

LIST OF ACRONYMS USED

Am – americium
Be – beryllium
g - grams
NMMSS - Nuclear Materials Management and Safeguards System
NSTS - National Source Tracking System
RSC – Radiation Safety Committee
RSO – Radiation Safety Officer
U – uranium