Directorate of Environmental and Radiation Protection
and Assessment

Licence Number 17118-1-22.5

July 7, 2020

Christopher Passmore
Landauer Inc.
2 Science Road
Glenwood, IL 60425-1586

**Subject: Dosimetry Service Licence No. 17118-1-22.5**

Dear Licensee,

Please find enclosed Dosimetry Service Licence No. 17118-1-22.5 which replaces Dosimetry Service Licence No. 17118-1-22.4.

The information submitted to the Canadian Nuclear Safety Commission in support of the application for this licence complies with the *Nuclear Safety and Control Act* and pursuant regulations.

Appendix: Licence Document(s) of this dosimetry service licence contains a list of documents submitted to the Canadian Nuclear Safety Commission. These documents are conditions of the licence and, in part, define requirements for the facility

Please direct your queries as follows:

- For technical information regarding licensing requirements, please contact Sophie Rodrigue by e.mail at Sophie.Rodrigue@canada.ca.

- For licence administration and processing matters, please contact Renelle Lapensée, Licensing Administrator, at (613) 993-7786.

Yours sincerely,

Sophie Rodrigue

Sophie Rodrigue
Dosimetry Services Specialist
Radiation Protection Division

Enclosures

## I) LICENCE NUMBER: 17118-1-22.5

## II) LICENSEE

Pursuant to section 24 of the Nuclear Safety and Control Act, this licence is issued to:

Landauer Inc.
2 Science Road
Glenwood , IL
60425-1586
USA

This licence replaces licence 17118-1-22.4.

## III) LICENCE PERIOD

This licence is valid from: July 7, 2020 to May 31, 2022 unless otherwise suspended, amended, revoked or replaced.

## IV) LICENSED ACTIVITIES

This licence authorizes the licensee to:

(a) operate a dosimetry service listed in the Appendix: Dosimetry Service Type of this licence.

(b) conduct licensed activities at the location(s) specified in the Appendix: Locations of Licensed Activities of this licence.

This licence is issued for: commercial dosimetry services - external radiation (591).

## V) CONDITIONS

The contents of the appendices attached to this licence form part of the licence.

1. Operation Limitations
   Subject to any other condition of this licence and unless otherwise permitted by the prior written approval of the Commission or a person authorized by the Commission, the licensee shall carry out the licensed activities in accordance with the documents or parts thereof referred to in the Appendix: Licence Document(s).
   (2917-7)

2. Annual Compliance Report - Dosimetry Services
   The licensee shall, within 90 days after the end of each calendar year, submit to the Commission or a person authorized by the Commission a report on the operation of the licensee's dosimetry service during that calendar year, in a form specified in the Appendix: Annual Compliance Report Form for Dosimetry Services of this licence.
   (2420-4)

3. Filing Frequency – Dosimetry Services (45)

For the purposes of Section 19 of the Radiation Protection Regulations, the licensee shall file the information required by that section with the National Dose Registry not later than 45 days after the receipt of the dosimeters from its clients.
(2426-1)

4. Preliminary Unplanned Event Report – Dosimetry Services
The licensee shall make an immediate preliminary report to the Commission, or a person authorized by the Commission, on any unplanned event that affects, or has the potential to affect, the precision, accuracy and reliability of the dosimetry results obtained while carrying out the activities authorized by this licence.
(2430-2)

5. Unplanned Event Report – Dosimetry Services
The licensee shall submit a written report to the Commission, or a person authorized by the Commission, within 30 days of becoming aware of an unplanned event that affects, or has the potential to affect, the precision, accuracy and reliability of the dosimetry results obtained while carrying out the activities authorized by this licence. The report shall include details of the cause and consequences of the event, and any remedial actions taken or intended with respect to it.
(2431-1)

6. Notification of Compliance Action – Dosimetry Services
In the event that this licence is suspended, revoked, amended, or replaced by the Commission or a person authorized by the Commission as a result of non-compliance by the licensee with the Nuclear Safety and Control Act, the regulations or this licence, the Commission or authorized person shall have the right to notify the licensee's clientele or any of them of such licensing action, and give them such instructions as, in the opinion of the Commission or authorized person, the circumstances may require.
(2435-1)

7. Legal Agent – Non Canadian Licensees
The licensee shall appoint and at all times maintain a legal agent or attorney for service in Canada, and will provide the Commission with written notice of the name and address of the agent or attorney, and with written notice of any change of the agent or attorney or address within ten days of the change. In the event that the licensee makes or causes to be made any corporate registration or filing in any jurisdiction in Canada, the licensee shall promptly provide the Commission with a copy of any such registration or filing, a copy of any notice issued concerning such registration or filing, and satisfactory evidence from time to time that any such registration or filing continues in good standing.
(2455-1)

8. Rights and Obligations – Non Canadian Licensees
The licensee shall have the rights and be bound by the obligations and requirements set out in the Nuclear Safety and Control Act of Canada (the Act), the regulations made pursuant to that Act and this licence, as those documents or any of them are amended or replaced from time to time, in the same manner as if the licensee were a Canadian person or entity in Canada.
(2456-1)

9. On-site Compliance Verification – Non Canadian Licensees
In order to verify the licensee's compliance with the documents referred to in Appendix A: Licence Documents, or with any order or decision made under the Act, and to verify if the licensee is qualified to carry on the activity authorized by the licence, the licensee shall grant access at all reasonable times to its premises, operations, facilities and records to inspectors of the Commission and to other persons authorized by the Commission, in the same

manner as if the licensee were a Canadian person or entity in Canada.
(2457-4)

10. Request for Information – Dosimetry Services
The licensee, on request from time to time by the Commission or a person authorized by the Commission, shall provide for compliance purposes a current list of the licensee's clientele and mailing addresses, to be retained in confidence by the Commission.
(2460-1)

11. Inaccuracies Notification
The licensee shall report to the Commission or a person authorized by the Commission, as soon as is practicable, the discovery of any inaccuracy or incompleteness in the documents referred to in the Appendix: Licence Document(s).
(2920-6)

Designated Officer pursuant to paragraph 37(2)(c) of the Nuclear Safety and Control Act

**Appendix: Dosimetry Service Type**

**Landauer Inc.**

| ITEM | TYPE | DESCRIPTION |
|---|---|---|
| 1 | External | Luxel + Model Pa, Ja and Ta |
| 2 | Extremity | TLD-100 Model S (Saturn) |
| 3 | Neutron | CR - 39 Model E and N |
| 4 | Neutron | Luxel + Model Ja and Ta |

**end of appendix**

**Appendix: Location(s) of Licensed Activities**

**Landauer Inc.**

2 Science Road
Glenwood Illinois
60425-1586
USA

**end of appendix**

**Appendix: Licence Document(s)**

**LICENCE DOCUMENTS**

[A1] CNSC Regulatory Standards S-106 Revision 1, Technical and Quality Assurance Requirements for Dosimetry Services, 2006.

[A2] General description and Lower Limit of Detection of dosimeters on pages 4-7 and page 19 of Application for Dosimetry Services in Canada using the Luxel+ Dosimetry Service, February 16, 2006 (CNSC Document Number 1310342).

[A3] Quality Assurance Manual, M001, Revision 12. CNSC Document Number 6318710

[A4] Landauer Luxel+ PA Dosimeter Characterization and Uncertainty Analysis, 03 February 2020, Rev 02002-01 (CNSC Document Number 6243393)

[A5] Canadian Application: Dosimetry Services for External Neutron Radiation, Revision 0.02, November 6, 2007 (CNSC Document Number 3902302).

[A6] Periodic Performance Assessment Program for Dosimetry Monitoring Systems, Revision 12 (CNSC Document Number 6241838)

[A7] Email from C. Passmore to T. Barr: Legal Agent Change, May 10, 2012 (CNSC Document Number 3935203).

[A8] Uncertainty Analysis for Ring Dosimeter – Model S Saturn Design, Landauer, Revision 03402-6, 17 January 2020 (CNSC Document Number 6243391)

[A9] Supporting documentation. CNSC Document Number 6318734

**end of appendix**

**APPENDIX: ANNUAL COMPLIANCE REPORT FORM**
**FOR**
**DOSIMETRY SERVICES**

***PART A***

Facility: Licence No.:

Owner: Reporting period:

Signing Authority: Title:
(type or print)

Address:

Phone Number: Fax Number:

***PART B***

For the reporting period, where applicable please provide:

1. the principal activities completed;
2. the results of the quality assurance program carried out in accordance with the documents listed in Appendix: Licence Document(s);
3. a summary description of events reported to the Commission pursuant to section 29 of the General Nuclear Safety and Control Regulations, and pursuant to the conditions of this licence;
4. a summary description of any changes in the organizational structure of the licensee and in the methods, procedures and equipment used to carry on the licensed activities;
5. a summary of the routine and any special performance test results performed during the year;
6. brief description of any non-conformance and subsequent corrective actions;
7. a summary of any changes in key technical and quality assurance dosimetry service personnel, including management;
8. a summary of pertinent training given to dosimetry service personnel;
9. the number of dose records for which incomplete information has been provided by the users during the year, as well as the current total, and a summary of efforts towards reducing that number, i.e., provide a report which

illustrates the monthly trend in rejected records and the effort taken by the dosimetry service to reduce the number of rejected records;

10. a list of major dosimetry service equipment either brought into or out of service during the year;

11. the approximate number of dosimeters in service;

12. the number and type of in-vitro bioassay samples analyzed;

13. the number and type of in-vivo counts carried out;

14. the number and type of non-routine in-vivo and/or in-vitro bioassay analyses performed;

15. the number of personal alpha dosimeters for radon progeny and long-lived radioactive dust;

16. a summary of your performance in the independent tests and information on new Quality Assurance initiatives, i.e. results of new, different tests of the dosimetry process.

***PART C***

I hereby certify that I have reviewed the documents referred to in the Appendix: Licence Document(s) of the licence and the facility has been operating in compliance with the licence except as noted here:

Signature: Date:

Name:
(type or print)

Title:

Address:

Phone Number: Fax Number: