Ministry of Industry
Investment & Commerce

Jamaica's **Business** Ministry

REGULATORY GUIDE – REQUIREMENTS FOR TECHNICAL SUPPORT SERVICE PROVIDERS – PERSONAL DOSIMETRY

HSRA/AUT/RG/04

HAZARDOUS SUBSTANCES REGULATORY AUTHORITY
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Table of Contents

1.0 INTRODUCTION

Technical Support Services are needed to complement the work of authorized facilities and activities. The facilities and activities are governed by the following basic requirements:

1. The management system for Service Providers in radiation protection and safety shall be graded to the scope of their activities compatible with relevant international standards (e.g. ISO 9001; ISO 13485 etc.).
2. The Service Provider shall document its management system, which may include policies, processes, procedures and instructions as well as external documents (e.g. manuals, data sheets etc.) relevant to any equipment/devices used in carrying out activities
3. The management system should be documented to the extent necessary to ensure the quality of the service(s) provided.
4. A Service Provider shall establish safety culture by:
    a. Promoting the knowledge of relevant safety standards within the organization;
    b. Carrying out a risk analysis of the procedures applied;
    c. Establishing proper rules and procedures and observing regulatory requirements to keep risk at a minimum;
    d. Periodically evaluate the observance of these rules and procedures;
    e. Periodically train the staff according to an established programme to follow the rules and procedures correctly;
    f. Ensuring collective commitment to safety at the policy, management and individual levels of the organization; and
    g. Effective communication of the established programme at all levels of the organization
5. All Service Providers shall consider issues such as staffing levels, education, training, experience, qualifications and periodic performance reviews when considering human resources for effective implementation of planned activities.
6. Facilitate unannounced and announced inspections of facilities and activities (where applicable) by the HSRA to ensure compliance with regulatory requirements including the terms and conditions of the authorization.
7. Appoint a Radiation Safety Officer (RSO) approved by the HSRA who has the necessary technical knowledge and skills in radiation protection and safety and understands the regulatory requirements for practices involving radiation emitting device and radioactive materials to ensure that regulatory requirements are met.
8. Appoint a Qualified Expert (QE) (where applicable) approved by the HSRA to offer advice on radiation protection and safety, purchase of equipment and quality management system related to the operation of the facility and activities where appropriate.
9. Proposed and continuing Technical Service Providers are required to complete and submit the Nuclear Safety and Radiation Protection Application Form along with supporting documents to facilitate the timely review and processing of application for an authorization by the HSRA.

2.0 PURPOSE

Commented [RP1]: This information in this section seems to be better placed under the General Requirements.

The Introduction should provide brief context/background to the purpose of the document and the activities of service providers.

Commented [RP2]: Do confirm if feasible

The purpose of this guide is to provide a comprehensive overview of all the supporting documents/ details that the HSRA considers necessary to determine the application, (Section 38(3) of NSRP Act, 2015) for Dosimetry Service Providers.

3.0 SCOPE

This guide is applicable to Dosimetry Service Providers (DSP) or aspiring DSPs for which an Authorization is required in the form of a Licence, as defined in the Second Schedule of the Nuclear Safety and Radiation Protection Act, 2015 (NSRP Act, 2015).

4.0 TERMS AND DEFINITIONS

Term/Abbreviation	Definition
DSP	Dosimetry Service Provider
HSRA	Hazardous Substances Regulatory Authority
IAEA	International Atomic Energy Agency
IEC	International Electrotechnical Commission
ISO	International Organization for Standardization
NSRP	Nuclear Safety and Radiation Protection
Quality Assurance	All planned and systematic actions, including quality control, necessary to provide adequate assurance that a radiation source, a facility, equipment, a system or component or a procedure will perform satisfactorily in compliance with agreed standards.
Service Provider	A company or individual whose primary use of radiation sources includes installation, quality assurance , alteration, or acceptance/performance testing. The use does not include application.

5.0 REQUIREMENTS FOR DOSIMETRY SERVICE PROVIDERS

5.1 GENERAL REQUIREMENTS

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The following general information should be provided with the completed NSRP Application:

1. An overview of the Dosimetry Service capabilities, such as:
    a. the type and capacity of the service for which authorization is sought,
    b. the particular radiations to be measured and doses assessed,
    c. the type and model/type number of dosimeters that is intended to be used,

d. Relevant Certification or Standards certificates for Dosimetry Equipment.

2. An overview of the service showing how it satisfies the following:
   a. the maximum and the normal throughput of the service in terms of the rate at which dosimeters can be and are being processed and the likely number of occupationally exposed workers for whom the service will be provided;
   b. an outline description of the following:
      - administrative functions,
      - laboratory facilities,
      - arrangements for storage, dispatch, reception, handling and processing of dosimeters, and,
      - procedure for communicating doses evaluated to the client.
   c. details of the management systems for ensuring that these arrangements are followed so that the service produces a reasonable degree of accuracy, is highly reliable and communicates accurate information within the timescales required;
   d. the names, qualifications and the relevant working experience of staff at the facility.
   e. details of the training for existing staff and new staff about the procedures and processes used for dose evaluation and associated protection and safety information and instructions.

5.2 QUALITY ASSURANCE AND QUALITY CONTROL REQUIREMENTS

An overview of the quality assurance and quality control procedures required for monitoring and evaluating performance with detailed supporting documents. The overview should include information on the standards to which any software has been designed and the procedures for making changes to that software.

5.3 DOSIMETRY SYSTEM REQUIREMENTS

An outline description of the dosimetry system proposed/used with details and supporting documents where appropriate, including:

a) design, type and model of dosimeter including any holder, inserts, filters and absorbers
b) means of dosimeter identification, and of relating the evaluated dose to the individual wearer and to the period of issue
c) the range of doses to be covered by the dosimeter
d) dose response characteristics of the dosimeter for each radiation type to be measured
e) response of dosimeter to types of radiation (including non-ionising radiation) other than those intended to be measured
f) dose rate dependence, if any, for each type of radiation to be measured;
g) energy dependence for each type of radiation to be measured;
h) energy range (minimum and maximum) for each type of radiation to be measured;
i) angular dependence for each type of radiation to be measured
j) susceptibility to environmental influences e.g. temperature, humidity, light, shock, chemical contamination, electro-magnetic fields, etc.
k) stability of latent signal

l) method used routinely to detect any radioactive contamination present on the dosimeter
m) ability of dosimeter to distinguish between surface contamination of the holder from external radiation
n) overall accuracy and precision of dose measurements with the proposed dosimeter
o) the dosimeter processing equipment (if appropriate)
p) the assessment of the appropriate dose quantity for the relevant monitoring period

5.4 CONSISTENT LEVEL OF PERFORMANCE

Justification for the range of doses to be covered by the dosimeter and its energy response to show that these are adequate in the radiation fields and ambient conditions likely to be encountered and that this level of performance will be consistently maintained for any individual dosimeter of the type supplied by the service provider.

5.5 CALIBRATION AND NORMALIZATION OF THE DOSIMETRY SYSTEM

A description of the method, extent and frequency of calibration of the components of the dosimetry system which is traceable to National/International Standards.

5.6 DOSE ASSESSMENT

Details of any procedure(s) used including formulae used and quality factor, conversion factor and correction factor applied (if relevant) to assess the appropriate dose quantity.

5.7 RE-ASSESSMENT AND RE-EVALUATION OF DOSE

5.7.1 Procedure for preserving and retaining records of measurements and assessments of customers, the retention period of which should be until age 75.

5.7.2 Procedure for investigation and reassessment or re-evaluation of doses of any abnormal dosimetric results (such as assessed doses in excess of investigation levels or dose limits or unusual ratios of body/skin dose).

5.8 RELIABILITY OF THE LEVEL OF SERVICE

A description of the arrangements for ensuring timely dispatch of dosimeters or other devices and for ensuring that sufficient and suitable processing equipment is available where appropriate so that dose evaluations can be made and reported within expected timescales.

5.9 GUIDANCE MADE AVAILABLE TO CLIENTS

Details of any guidelines given to clients e.g. about the storage and security of dosimeters and the position on the body where they should be worn.

5.10 REPORTING RESULTS TO HSRA

Service Providers should have a policy and procedure for reporting dosimetry results to the HSRA.

NOTE: At the request of the Authority, dosimetry service providers must make available any dose records that may be required or requested.

The HSRA must be notified within **ten (10) business days**, when the DSP has identified an individual whose recorded dose in any calendar year has exceed any relevant limit on effective dose (from external and internal radiation) or a relevant limit on equivalent dose, which are stipulated in the 9th Schedule of the NSRP Regulations, 2019. The following information should be included in the notification to the HSRA:

a) The full name of the individual
b) The name and address of the individual's employer
c) The nature of the overexposure including dose quantity in mSv
d) A copy of the individual's dose summary for that calendar year
e) Any other information the HSRA considers relevant.

5.11 REPORTING DOSE ASSESSMENTS IN THE EVENT OF AN ACCIDENT, INCIDENT OR OCCURRENCE AND SPECIAL APPROVAL FOR ANTICIPATED DOSES

A description of the arrangements for reporting doses greater than the dose limits stipulated in the 9th schedule of the NSRP Act, 2015 by the service provider and arrangements to mitigate the possible health and safety consequences.

5.12 LATE RETURN, DAMAGE OR LOSS OF DOSIMETERS ETC.

A general description of default arrangements for dealing with late, lost or damaged dosimeters.

5.13 PERIODIC PERFORMANCE TESTS AND INTER-COMPARISON EXERCISES

Details of arrangements for undertaking these tests as appropriate and details of any correction factors specifically applied to performance tests together with an explanation.

5.14 TRANSFER OF RECORDS TO THE HSRA

Details of the arrangement for the transfer of the records of occupational exposure to the HSRA, should provider cease to continue operations or where the duration of storage of records has expired, the provider must make available all records to the HSRA for archive.

6.0 CONCLUSION

Dosimetry Service Providers are recognized as invaluable stakeholders, as their services facilitate end-users of ionizing radiation sources to be complaint with regulatory requirements and ensure

radiation protection and safety. It is therefore imperative that all dosimetry service providers meet specifications of this document created to safeguard providers in offering reliable, standardized services to end-users.

7.0 REFERENCES

Author/Source	Title (Year)
Government of Jamaica	Nuclear Safety and Radiation Protection Act (2015)
Government of Jamaica	Nuclear Safety and Radiation Protection Regulations (2019)
IAEA	Safety Standard Series Radiological Protection for Medical Exposure to Ionizing Radiation. RS-G-1.5

DOCUMENT END

(Template reference: HSRA/ADM/TMP/02 Manual Template)