Ministry of Industry Investment & Commerce

Jamaica's Business Ministry

HSRA

REGULATORY GUIDE – REQUIREMENTS FOR QUALIFIED EXPERTS IN RADIATION PROTECTION & SAFETY

HSRA/AUT/RG/05

HAZARDOUS SUBSTANCES REGULATORY AUTHORITY

AN AGENCY OF THE MINISTRY OF INDUSTRY INVESTMENT AND COMMERCE

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1.0 INTRODUCTION AND PURPOSE

The use and guidance on the use of ionizing radiation equipment and or radiation protection and safety matters requires qualified experienced personnel to assess the safety of exposed individuals and the environment. Section 24(1) of the Nuclear Safety and Radiation Protection (NSRP) Regulations, 2019, states that 'an authorization holder shall arrange for qualified experts to be identified and made available for the purpose of providing advice on the observance of the Regulations, when so required by the Authority'. Section 24 (2) further states 'The qualifications of qualified experts in radiation safety shall include a level of academic knowledge and of professional experience compatible with the levels of risk associated with the authorized practices and sources within the practice.

This guide has been compiled after reviewing international standards and has been updated in accordance with the requirements of the NSRP Act, 2015 and attendant Regulations, 2019. The reviewed standards by which the Authority is guided include the following: U.S.NRC 10 CFR 35.51, IAEA Safety Standard Series Radiological Protection for Medical Exposure to Ionizing Radiation, RS-G-1.5, and IRPA Guidance on Certification of a Radiation Protection Expert, Edition 2016.

2.0 SCOPE

This document serves as a guide for the assessment of Qualified Experts in the field of Radiation Protection and Safety. It focuses on providing guidance to all companies and individuals desirous of becoming qualified experts in the field of radiation science, particularly in relation to the governing legislation for ionizing radiation sources in Jamaica.

3.0 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.

4.0 TYPES OF EXPERTS

4.1 MEDICAL PHYSICIST

4.1.1 Qualifications and experience:

a) Master's degree in Health Physics or Medical Physics from an accredited college or university plus minimum three years' experience, with at least one-year's supervision by a qualified health/medical physicist.

OR

b) A first degree (Bachelor of Science) in a related science, radiation biophysics, radiography or engineering plus a post-graduate diploma/certificate in radiation protection and at least six years' experience with at minimum three years of supervised experience by a qualified health/medical physicist;

OR

c) A professional diploma in a related science, radiography or engineering plus ten years' experience with at least five years supervision by qualified health/medical physicist in the specified area.

AND

4.1.2 Demonstrable competence in radiation protection to:

a) anticipate and recognize the interactions of radiation with matter;
b) understand the effects of radiation on people, animals and the environment;
c) evaluate, on the basis of training and experience and with the aid of quantitative measurement techniques, the magnitude of radiological factors in terms of their ability to impair human health and well-being and damage to the environment;
d) develop and implement, on the basis of training and experience, methods to prevent, eliminate, control, or reduce radiation exposure to workers, patients, the public and the environment.

4.1.3 Experience shall extend to:

a) facility design and shielding, acceptance testing, commissioning and quality control, workplace and occupational safety, optimization of patient dose and use of radiation equipment or radioactive material;
b) regular engagement in one or more appropriate aspects of radiation protection at the time of their application for registration.

4.2 PHYSICIST

4.2.1 Qualifications:

a) Master's degree in Physics from an accredited college or university plus three years' experience, with at least one-year's supervision by a qualified health/medical physicist. There should be general awareness (and as, applicable, verifiable training) in courses involving:
   - Radiation Protection
   - Radiation Biology
   - Radiation Physics/ Radioactive waste control Experience:

b) At least two years' experience in radiation safety for similar types of use of material for which QE approval is being sought.
c) Be regularly engaged in one or more appropriate aspect of radiation protection at the time of application.

4.3 NUCLEAR ENGINEERS

4.3.1 Qualifications

a) Master's degree in Nuclear Engineering from an accredited college or University which covers the following courses:
- Nuclear Fuel Management
- Transport Fundamentals
- Plasma Physics
- Radiological Safety
- Reactor Physics
- Advanced Nuclear Engineering Design
- Design Principles Of Reactor Systems
- Radiation Physics
- Radioactive Waste Control
- Reactor Engineering

4.3.2 Experience:

a) At least three years of experience in the prescribed field with a minimum of one year's supervision by a qualified nuclear engineer;
b) Be regularly engaged in one or more appropriate aspect of radiation protection at the time of their application for registration.

5.0 CONSULTING ORGANIZATIONS OR INSTITUTIONS

5.1 GENERAL

An institution wishing to serve as a Corporate Expert must provide documented evidence of the company as well as qualifications for specialty areas of each listed expert in accordance with the requirements of this document. Each expert will be assessed individually.

6.0 PROFESSIONAL EXPERIENCE OF THE QUALIFIED EXPERT

6.1 GENERAL

6.1.1 The Qualified Expert shall have:

a) A thorough understanding of hazards of radiation and working practices of the area he/she wishes to advise on;

b) Detailed working knowledge of regulatory provisions, relevant codes of practice/guidance documents issued by the HSRA and radiation protection standards;
c) Good communication skills and willingness to keep up-to-date with developments in the area of radiation protection, safety and security.

7.0 CONCLUSION

Qualified experts are recognized as invaluable stakeholders in achieving radiation protection and safety for all end-users of ionizing radiation sources, the public, and the environment. The level of qualification, training and professional experience must be commensurate with the complexity of the radiation application and the associated risks.

8.0 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
IRPA	IRPA Guidance on Certification of a Radiation Protection Expert, Edition 2016
USNRC	10 CFR 35.51

DOCUMENT END

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