



Technical Guide



Requirements of Qualified Experts in Radiation Protection and Safety


HSRA-ADM-TD-10



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REQUIREMENTS OF QUALIFIED EXPERTS IN RADIATION PROTECTION & SAFETY				

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1. 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.

Corporate entities, facilities and individuals may also use this document as a guide for selecting qualified experts for their organizations or activities involving the use of ionizing radiation sources.

2. Abbreviation

HSRA – Hazardous Substances Regulatory Authority

IAEA – International Atomic Energy Agency

IRPA – International Radiation Protection Association

NSRP – Nuclear Safety and Radiation Protection

NRA – Nuclear Regulatory Authority


RSO – Radiation Safety Officer

3. Qualified Expert

A Radiation Protection Qualified Expert is a person:

- i. having education and/or experience equivalent to a graduate or master's degree from an accredited college or university in radiation protection, radiation safety, biology, chemistry, engineering, physics or a closely related physical or biological science;

and
- ii. has acquired competence in radiation protection, by virtue of special studies, training and practical experience. Such special studies and training must have been sufficient in the above sciences to provide the understanding, ability and competency to:
 - anticipate and recognize the interactions of radiation with matter;
 - understand the effects of radiation on people, animals and the environment;
 - evaluate, on the basis of training and experience and with the aid of quantitative measurement techniques, the magnitude of radiological factors in

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terms of their ability to impair human health and well-being and damage to the environment;

- 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. General Qualifications of the Expert

In accordance with Regulations 24(2) of the Nuclear Safety and Radiation Protection Regulations, 2019, *the qualification of qualified experts in radiation safety shall have 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.*

The details below set out the **minimum** standards for registration of qualified experts/ consultants and organizations in radiation protection, safety and security:

The prospective Qualified Expert must have any of these qualifications:

- At least a Master of Science degree in radiation protection, health physics, medical physics, radiation biophysics or related fields plus at least 5 years post qualification experience in a related field.

OR


- At least a first degree or higher national diploma in science, radiography or engineering plus a post-graduate diploma/certificate in radiation protection and at least 10 years' equivalent experience in the area to give advice.

OR

- Doctorate degree in nuclear physics, nuclear engineering, nuclear/radiation chemistry or biology, plus evidence of having a practical training in radiation protection and evidence of equivalent experience in the field.

OR

- Doctorate degree in other sciences or engineering plus a postgraduate diploma/certificate in radiation protection, safety and security with at least two years' experience in the relevant area.

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5. Professional Experience of the Qualified Expert

The Qualified Expert should;

- be experienced in matters of radiation protection, safety and security (whichever is applicable);
- have theoretical training which covers the necessary knowledge of the properties of radiation and its effects on humans and the environment;
- have a thorough understanding of hazards of radiation, working practices of the area he/she wishes to advise on;
- have detailed working knowledge of regulatory provisions, relevant codes of practice/guidance documents issued by the HSRA and radiation protection standards;
- have good communication skills and willingness to keep up-to-date with developments in the area of radiation protection, safety and security.

6. Consulting Organizations or Institutions

- An institution wishing to serve as Corporate Expert must have at least three (3) persons with the qualifications and experience of an expert.
- For corporate experts, an officer with the relevant qualification and experience approved by the HSRA must be designated as Representative Expert for the purpose of discharging the duties that are expected by the HSRA.


7. Types of Experts

I. Medical Physicist:

Qualifications:

- Required to have at minimum a master's degree in health physics or medical physics from an internationally recognized.

Or

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- Professional qualifications (certifications in area of specialty) or in exceptional cases have equivalent training and have been engaged in some form of radiation protection activities for at least three (3) years.

Experience

- Medical physicists who specialize in the imaging and/or therapy modalities approved on the license. Such experience can also be invaluable and is acceptable for facility designing and shielding; instrument calibration, acceptance testing, and quality control; and optimization of patient dose.
- Experience in radiation safety for use of material for at least 3 years.
- Be regularly engaged in one or more appropriate aspects of radiation protection at the time of their application for registration.

II. Radiation Safety Officers (RSO):

Qualifications:

- See HSRA RSO Qualification Guide.


Experience:

- Experts** are required to have at minimum **five (5) years' experience** in their prescribed field.
- Be regularly engaged in one or more appropriate aspects of radiation protection at the time of their application.

III. Physicist:

Qualifications:

- Must have a PhD in Physics. Studies should include courses involving:
 - Radiation Biology
 - Radiation Physics
 - Radioactive waste control

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Experience:

- Experience in radiation safety for similar types of use of material for which approval is being sought.
- Be regularly engaged in one or more appropriate aspects of radiation protection at the time of their application.

IV. Engineers

Qualifications:

- Must have at minimum a master's degree in Physics or Engineering or Mathematics. Where the prospective expert holds a master's degree is in Mathematics, a diploma in physics is also required along with additional studies including the following courses:
 - a. Radiation Biology
 - b. Radiation physics or Health Physics
- Must have relevant certification for prescribed activities or services for which the expert is seeking approval
- Must have an intimate knowledge of the current legislations and regulatory issues particularly the NSRP Act, 2015 and attendant Regulations.


Experience:

- At minimum five (5) years of experience in prescribed field for which approval is being sought.
- Be regularly engaged in the technical activities regarding prescribed equipment or more appropriate aspects of radiation protection at the time of their application.

V. Service Providers:

Qualification:

- At minimum Master's degree in natural sciences, preferably radiation physics, health physics, medical physics or engineering and relevant certification in technical services of prescribed equipment. Certification must be valid at time of application.

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- Service providers must meet the organizational requirements as determined by the Authority.
- Where service providers are international organizations, they must be authorized in their country as service providers by the equivalent competent authorities and have certifications from relevant institutions and certifying bodies. Certification should be valid at time of application.
- Workers should have at minimum of five (5) years of experience in the prescribed field.
- Be regularly engaged in one or more appropriate aspects of radiation protection at the time of their application.
- Must have an intimate knowledge of the current legislations and regulatory issues particularly the NSRP Act, 2015, attendant Regulations and relevant Code of Conduct of the IAEA.


VI. Nuclear Engineers:

Qualifications:

- Should have at minimum a master degree in Nuclear Engineering from an accredited 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

Experience:

- At least five (5) years of experience in the prescribed field

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- Be regularly engaged in one or more appropriate aspects of radiation protection at the time of their application for registration.

VII. Certified Medical practitioners

Qualifications:

- Must be a licenced medial practitioner
- Must possess a Master's in prescribed specialty or participated in a fellowship of at least one year
- Must have an intimate knowledge of the current legislations and regulatory issues particularly the NSRP Act, 2015 and attendant Regulations.

Experience:

- At minimum of five (5) years of experience in the prescribed field.
- Be regularly engaged in one or more appropriate aspects of radiation protection at the time of their application for registration.

8. 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. It is therefore essential that acceptable criteria are formalized and established by the HSRA which has been designated as the competent regulatory authority.

9. References

1. Nuclear Safety and Radiation Protection Regulations, 2019
2. IAEA Safety Standard Series Radiological Protection for Medical Exposure to Ionizing Radiation. RS-G-1.5
3. NRA Requirements for Technical Support
4. IRPA Guidance on Certification of a Radiation Protection Expert