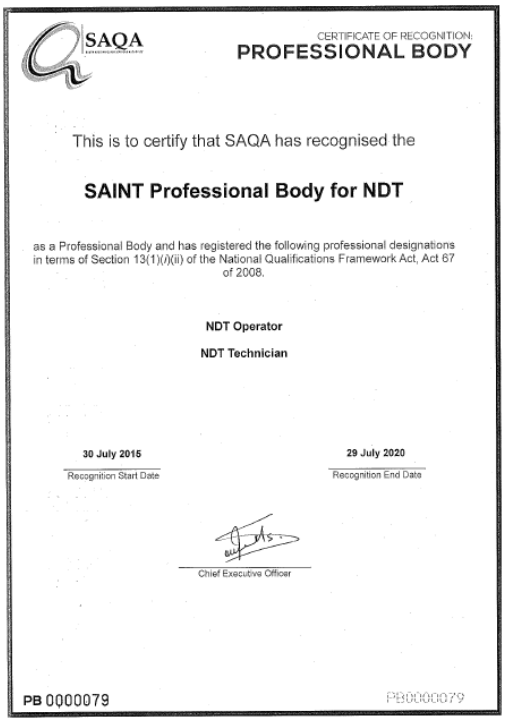
SAINT Professional Body for NDT



SAQA

CERTIFICATE OF RECOGNITION:
PROFESSIONAL BODY

This is to certify that SAQA has recognised the

SAINT Professional Body for NDT

as a Professional Body and has registered the following professional designations in terms of Section 13(1)(i)(ii) of the National Qualifications Framework Act, Act 67 of 2008.

NDT Operator

NDT Technician

30 July 2015
Recognition Start Date

29 July 2020
Recognition End Date

Chief Executive Officer

PB 0000079

PB0000079

Industrial Radiographer Personal Authority Program

SAINT Professional Body for NDT

Document No: SPBNDT/IRPAP/001/17

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Manager SAINT Professional Body for NDT

Confidential

Contents

1 Purpose of this Program

Directorate: Radiation Control has appointed the SAINT Professional Body for NDT (SPBNDT) to act on its behalf, to ascertain the radiation safety competency of all Industrial Radiographers in South Africa, using Group III electronic equipment and Group IV hazardous substances. *(Reference: Letters IR Training 3 May 2017 and Group III IR Training 26 June 2017)* signed by the Director General: Department of Health.

Industrial Radiographer refers to Industrial Radiography used for the purpose of Non-Destructive Testing. This includes industrial radiography work that utilizes X-ray and Gamma sources, both in fixed shielded facilities that have effective engineering controls and outside shielded and unshielded facilities using mobile sources (i.e. site radiography).

Industrial Radiographer means a person authorized by Radiation Control to perform industrial radiography in South Africa

This document provides guidance for persons on the recommended procedures to achieve and maintain Industrial Radiographer Personal Authority. This will facilitate registration by the Professional Body to meet Directorate of Radiation Control (DRC) requirements as an Industrial Radiographer in accordance with regulations relating to Group III (Regulation R1332, Section III.3.f and Group IV hazardous substances published under Government Notice R247 in Government Gazette 14596 of 26 February 1993.

This document represents the systematic process for the approval of NDT persons by Radiation Control, through the use of SAINT Professional Body for NDT (SPBNDT), as being competent to use electronic equipment and exposure devices emitting ionizing radiation and act as an Industrial Radiographer.

The Industrial Radiographer Personal Authority Programme (IRPAP) includes NDT Radiographic technical training, Safety classroom training, Safety practical training and issuance of a Certificate of Personal Authority (P certificate) as an Industrial Radiographer.

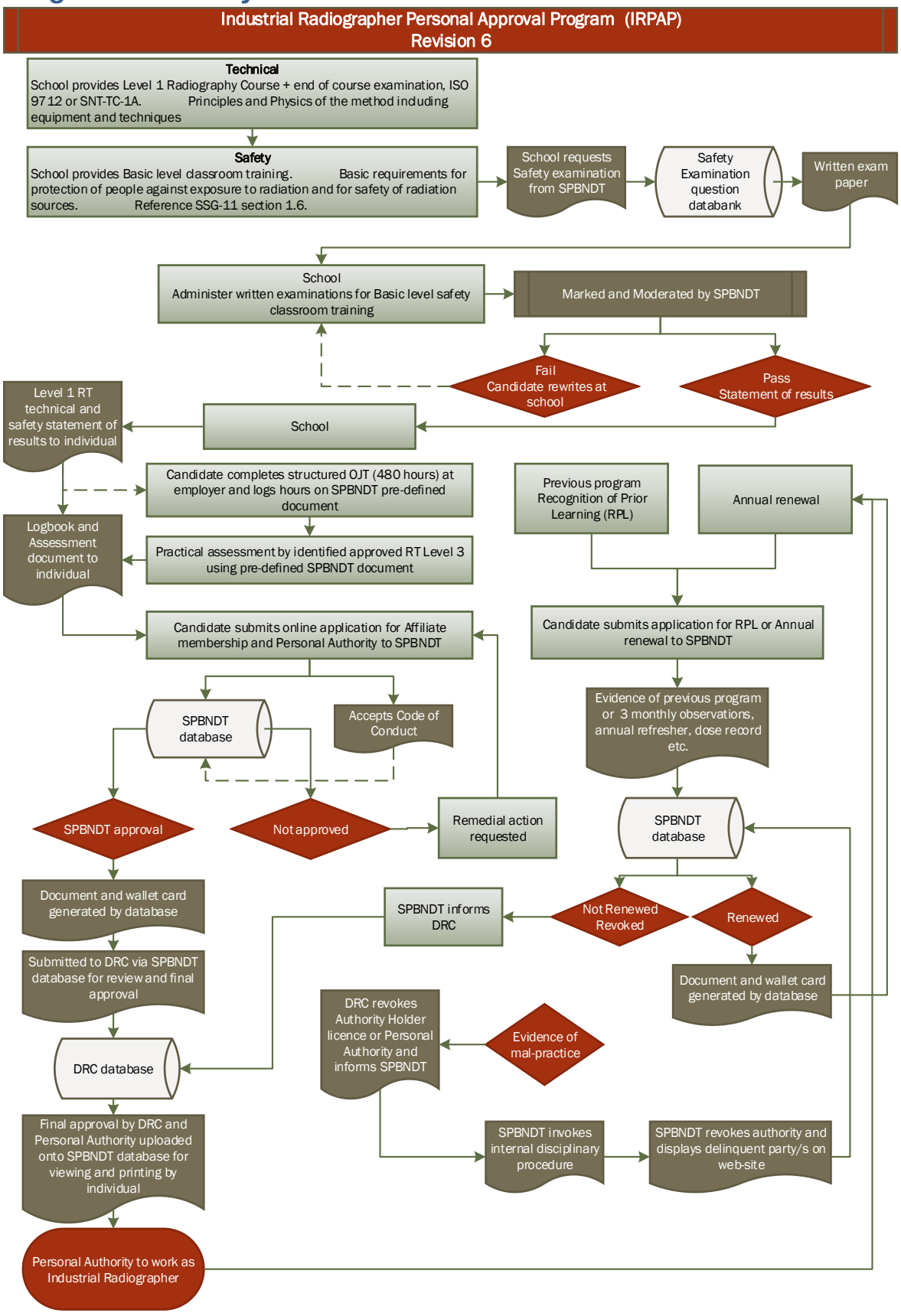
Industrial Radiographer Assistant is included in the programme; however, formal registration with the SPBNDT is not required. These persons will be monitored during inspections by SPBNDT as required by Directorate Radiation Control.

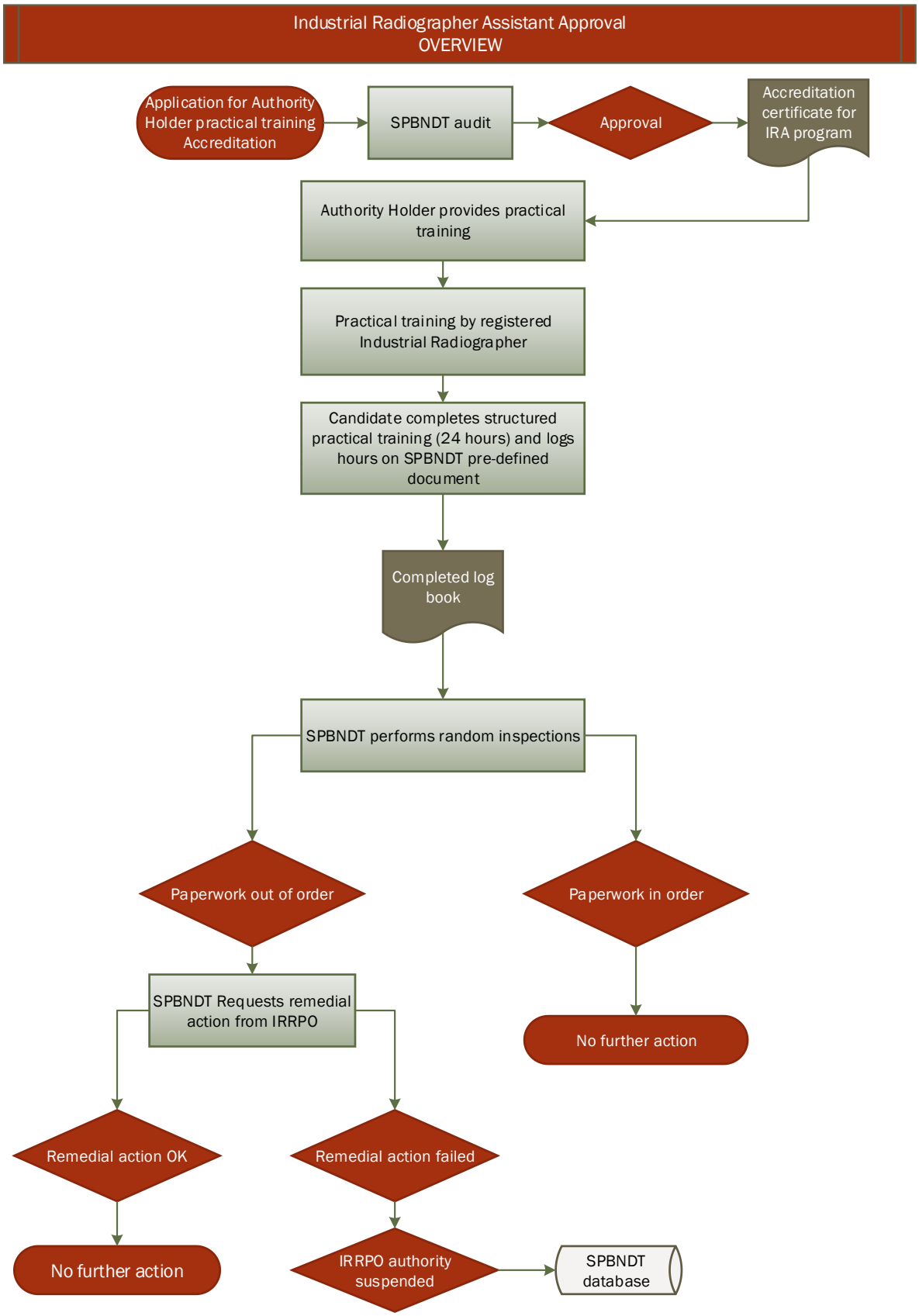
Compliance with these registration and re-registration processes provides evidence that the individual meets the minimum competence for knowledge, skills and abilities to be registered as an Industrial Radiographer with Radiation Control . The process is consistent with International Atomic Energy Agency (IAEA) industry-accepted safety standards, regulatory expectations and legal recommendations.

Development of this document is to assist the following groups:

- Industrial Radiographer Trainee; (hereafter referred to as IRT);
- Industrial Radiographer; (hereafter referred to as IR);
- Industrial Radiographer Assistant; (hereafter referred to as IRA);
- Industrial Radiographer Radiation Protection Officer; (hereafter referred to as IRRPO)
- Radiation Protection Advisors. (Normally a person with a formal qualification in Radiation Protection and Safety);
- Training institutions and other organizations that design or offer vocational NDT training including safety training programs for IR candidates;
- Authority Holders and other organizations that offer practical training for IRTs;
- Directorate Radiation Control

2 Program Summary





3 About this Approval

One of the conditions stipulated by Directorate Radiation Control is that SPBNDT keep a database, populated with detailed information of all qualified industrial radiographers and radiation protection officers, using group III and group IV hazardous substances therefore they are required to be Affiliate members of SPBNDT and to obtain an Industrial Radiographic Authority that is renewable annually.

In keeping with the Directorate Radiation Control, Code of Practice for Industrial Radiography, Gamma and X-ray, periodic training of all radiation workers is required at least once a year therefore the need for annual renewal. From this, it is necessary for all industrial radiographers to register with SPBNDT and hold Industrial Radiographer personal authority.

The registration of previously Department of Health authorized persons will be through a Recognition of Prior Learning (RPL).All industrial radiographers will need a personal authority to practice in South Africa.

The SPBNDT has used IAEA reference document SSG-11 to develop the training in radiation protection and the safe use of radiation sources used in the Non-Destructive Testing (NDT) industry.

- SSG-11 IAEA Specific Safety Guide Radiation Safety in Industrial Radiography;

This should ensure the competency of, and continued competency of persons, for the safety and security of persons and devices when working with authorized exposure devices used in the NDT.

The level of training will be restricted to the following:

- Worker occupationally exposed - Industrial Radiographer Assistant;
- Basic level (Classroom) - Industrial Radiographer Trainee
- Basic level (Practical) - Industrial Radiographer Trainee

Authorized individuals will have the demonstrated ability to safely and securely handle, transport, store and operate these exposure devices and any accessories to the devices, properly utilize radiation detection and monitoring equipment, and have an understanding of and an obligation to comply with all relevant regulatory requirements.

The approval program is for individuals and organizations operating and/or providing training and outlines the requirements to obtain this approval. Earning the Industrial Radiographer Authorization will indicate that the candidate possesses the knowledge, skills and abilities necessary to safely operate industrial radiography exposure devices in South Africa.

IRs will be required to apply for re-approval at a one yearly interval after periodic training to ensure they remain up-to-date, including but not limited to: regulation changes, technical developments and industry changes. (Code of practice for industrial radiography X-ray section 5.3 and Gamma section 6.3.)

The SPBNDT will maintain a database of IRs authorized to operate and control industrial radiography exposure devices in South Africa. This database will be accessible to the Regulator and Authority Holders as necessary.

4 Types of Training

The types of training, which will make up the total program, are:

- Technical - School provides Level 1 Radiography Course + end of course examination, ISO 9712 or SNT-TC-1A. Principles and Physics of the method including equipment and techniques
- Safety Basic Level - School provides Basic level classroom training. Basic requirements for protection of people against exposure to radiation and for safety of radiation sources. Reference SSG-11 section 1.6.;
- Practical Basic Level - Candidate completes structured OJT (480 hours) at employer and logs hours on SPBNDT pre-defined document including practical assessment.
  Practical assessment by identified approved RT Level 3 using pre-defined SPBNDT document
- Radiographer's Assistant - Training in basic principles that provides familiarity in protection and safety.
- Periodic training - Training and assessment provided at yearly intervals to ensure maintenance of competence.

5 Training Methods

5.1 Safety Basic Level

5.1.1 Classroom training

Classroom based training by an SPBNDT accredited school will be used as means of training provision for basic level safety training. This classroom-based course will consist of a series of lectures on topics from a syllabus, interspersed with practical exercises, group discussion and case studies designed to reinforce the lecture content.

5.1.2 Curriculum for Classroom Training

The curriculum of the one (1) week classroom training (Safety Basic level) training has been developed by SPBNDT in collaboration with the South African Nuclear Energy Corporation (NECSA).

5.1.3 Practical Training

The participant works in his or her normal place of work or other suitable training site under the direct supervision of an experienced IR.

The duration of the training is aligned to the ***480 effective working hours*** required by the Directorate Radiation Control regulations.

SPBNDT in collaboration with industry RT Level 3's has developed the training curriculum.

Pre-defined SPBNDT checklist (logbook) of topics and tasks must be used to record the participant's progress and achievements. The logbook format is available on the SPBNDT website. A staged approach will ensure that the participant's progress from observing the task being performed by others to assisting in and finally carrying out the task themselves.

On completion of the training, the company RPO and Authority Holder's accountable manager will ratify the logbook describing the areas of competence gained. It will be used as objective evidence of the practical training.

5.2 Assistant Level

5.2.1 Practical Training

Practical training by an SPBNDT registered IR is used as means of training provision for assistants. This will consist of a series of explanations and demonstrations contained in a training plan, interspersed with practical exercises.

5.2.2 Practical Training Plan for Assistant

The three (3) day training plan is being developed by SPBNDT in collaboration with Industry representatives.

5.3 Periodic Training

All IRs must be given periodic training in radiation safety aspects relating to their work at least once a year. The training must ensure, in particular, that workers have a thorough knowledge of the procedural documents (Codes of practice and local rules). Such training must include an evaluation of the workers knowledge and understanding of the training material.

This training will reflect as Continues Professional Development (CPD) points in the SPBNDT database. It will be combination of the organisations training and web based training and is mandated for the annual renewal process.

5.4 Observations

All IRs must be have their performance regularly observed by the IRRPO during actual radiographic operations, in order to establish whether correct operating procedures and internal rules are being adhered to. Observation of each worker is required at least every 3 months. Evidence of this is required and this will be captured on the SPBNDT database and is mandated for the annual renewal process.

5.5 Examinations

5.5.1 Written Examination

The vocational training institute at the end of the safety basic level training will administer an independent written examination, compiled and marked by the SPBNDT.

As part of the authorization process, the SPBNDT requires candidates to submit evidence of the successful completion of this examination.

Two (2) re-exam attempts are permitted should the first written examination attempt be unsuccessful. Candidates, who fail three consecutive written examination attempts, must repeat the vocational training program.

The written examination is the property of the SPBNDT. Any appeal to an examination result must be submitted to the SPBNDT in writing through the vocational training institute that administered the examination.

5.5.2 Practical Assessment

The SPBNDT requires candidates to pass a practical assessment by a SPBNDT registered RT Level 3 who themselves have a valid Personal Authority (IR or IRRPO) and has hands-on experience with the device being used in the testing. The purpose of the practical assessment is to determine whether candidates have acquired or maintained the knowledge, skills and abilities to operate an exposure device in a safe and secure manner.

Candidate must submit a copy of the assessment documentation at the registration process.

The SPBNDT is responsible for ensuring that the person who administers the practical assessment meets the minimum requirements, therefore these persons require RT designation and must be registered in the SPBNDT database.

5.5.3 Examination Administration and Scheduling

Training institutes will be responsible for scheduling training and administration of examinations. Examination papers must be requested from the SPBNDT office at least 4 days prior to the examination.

5.5.4 Examination Language

English is the language used for all examinations.

5.5.5 Examination Special Accommodation

The administration of the written examination may be modified to accommodate special needs at the request of a candidate. Supporting documentation must be submitted with the application for a paper.

6 Written Examination Preparation and Completion

6.1 General Description

The SPBNDT will maintain a databank of examination questions, agreed by a working group of RT Level 3's and the Regulator as necessary. Questions are categorized to ensure the required body of knowledge is covered.

The SPBNDT written approval examination consists of 40 multiple- choice questions. Examination questions have only one correct answer. Each examination question is independent and does not rely on the correct answer to any other questions.

The SPBNDT may include up to five (5) additional questions in the examination for statistical evaluation of future examination questions. These additional questions are not included as part of the examination score. These questions will not be identified in the exam, so it is important that the candidate answer every question completely. The candidate's grade is based on the number of scored items answered correctly.

The candidate will have one and a half (1.5) hours to complete the examination. Examinations are closed book.

6.2 Pass Fail Standard

The pass mark is 70%.

6.3 Examination General Instructions

During the examination, the proctor will be responsible for supervising the examination in such a way as to ensure that examination security is maintained. As such, all candidates are expected to adhere to authorized proctor guidelines during the test sessions.

The exam is a closed book exam. Reference materials, electronics, personal items and phones, will not be permitted in the exam room. Only a non-programmable calculator is permitted in the exam room. The exam center will provide specific instructions to the candidate when the exam is scheduled.

A candidate's participation in any irregularities occurring during the examination, such as giving or obtaining unauthorized information or cheating, will be sufficient cause to terminate participation, invalidate the results of the examination, or other appropriate remedy.

6.4 Examination Environment

Examination room temperature can be unpredictable; therefore, it is suggested that the candidate bring appropriate clothing (e.g. sweater or sweatshirt without pockets) to help to adapt to a cooler or warmer climate in the examination room. The candidate should bring earplugs if he/she is sensitive to noise.

6.5 Examination Security to Ensure Validity.

Examination papers will be supplied to the examination destination sealed in an envelope that the candidate will open himself or herself to access the instructions, paper and additional unsealed envelope. After completing the examination, the candidate must place the paper in the extra envelope, seal it and place their signature across the seal before returning to the proctor. The training school will also stamp across the seal with their official stamp. The sealed envelopes is then returned to the SPBNDT registrar by the means agreed between the school and SPBNDT.

It is important that access to examination questions be carefully controlled to ensure that examination results are valid and that no person taking the examination has an unfair advantage. Accordingly, those entrusted with their possession including the SPBNDT Committees protect questions and answers. Measures will be taken to eliminate the possible inappropriate retention or copying of questions at all times. Such measure include a variety of restrictions imposed on those wishing to take the examination and anyone not agreeing to such restrictions will be prohibited from taking the examination. Anyone found breaching any of the restrictions could face sanctions up to and including a decision not to grant an approval as an IR or IRRPO.

All certification examination content and wording of examination questions constitute confidential information protected by copyright law. Any unauthorized receipt, possession, or transmission of examination questions, content, or copying of question by electronic means is strictly forbidden. Candidates must take no action to compromise the integrity or confidential nature of the exam and its contents.

The use of the official IR examination materials for the purpose of examination preparation or training is also forbidden.
SPBNDT reserves the right to take whatever measures are necessary to protect the integrity of its examinations. Violation of the SPBNDT examination agreement and/or non-disclosure agreement, or the giving or receiving of aid in any examination as evidenced either by observation at the time of the examination or by statistical analysis, or engaging in other conduct that subverts or attempts to subvert the examination or the certification process, is sufficient cause for the SPBNDT to:

- Bar an examination centre from administering examinations;
- Bar an individual from the examination;
- Terminate participation in the examination;
- Withhold and/or invalidate the results of the examination;
- Withhold an approval;
- Revoke an approval; or
- Take appropriate other action.

6.6 Examination Results Notification

The candidate will receive official notification of the examination result from the institute administering the examination. Candidates passing the examination and fulfilling all program requirements can then submit a completed IR Personal Authority application to the SPBNDT.

7 Approval of Training Schools

7.1 Approval Process

Training schools will have an initial audit by SPBNDT using a pre-defined checklist and then monitored by random audits. Applicants are required to perform a self-audit using the pre-defined checklist prior to the SPBNDT audit.

An approval certificate will be issued to successful applicants.

7.2 Qualification of Lectures

Lectures shall have as minimum one or more of the following qualification:

a. Possess a current NDT Level 3 radiography certification from a recognised certification body (i.e. ASNT, ISO 9712, EN 4179).

b. Have academic credentials at least equivalent to a B degree in engineering, physical science, or technology, and two or more years of experience as an NDT Level 2 in the NDT radiography.

c. Be a graduate of two-year school of science, engineering, or NDT and have five or more years of experience as an NDT Level 2 in the NDT radiography.

d. Have 10 or more years of experience as an NDT Level 2 radiographer.

In addition, they should have the following:

a. Evidence that they have demonstrated the ability to instruct and demonstrate relevant practical applications.

b. Evidence that they have demonstrated the ability to interact with students.

Formal appointment by the school as a NDT Radiographer lecturer is required. Appointment of contract lecturers must be by a formal written contract.

8 Pre-Requisites for Personal Authority

8.1 IR Candidate

IR candidates must have successfully completed as a minimum the following:

- Level 1, Level 2 or Level 3 industrial radiography course from a recognized training institute;
- Basic Level Radiation Safety training certificate;
- Basic Level Radiation Safety practical logbook demonstrating the required 480 hours;
- RT Level 3 assessment result.
- Pre-Employment medical evaluation

8.2 Membership of SPBNDT

SPBNDT Affiliate membership and Authorization is required for both IR Personal Authority to practice as an Industrial Radiographer in South Africa. There is a requirement from the Directorate Radiation Control for SPBNDT to keep a database of all Personal Authorities, therefore the need for registration as a user of the SPBNDT system, Affiliate membership and Personal Authority.

8.3 Prerequisite Equivalencies

Upon the discretion of the SPBNDT, and if necessary in consultation with the Regulator, a candidate may demonstrate knowledge and experience to satisfy the training, examination, skills and experience requirements as outlined above, RPL (Recognition of Prior Learning).

This includes however is not restricted to the following:

- Registered under previous scheme with documentary evidence;
- Other equivalent scheme or scheme from another country, etc.

9 Registration

Application for registration as an IR to Radiation Control is made electronically on the SPBNDT web site. Instructions are included on the registration page.

The application process is included on the SPBNDT web-site under the “How to register” tab.

Documentation required applying for registration and renewal are as follows;

IR - Documents requested for Affiliate membership

- ID Photo
- Copy of ID OR passport
- Abbreviated CV
- Proof of payment

Documents requested for Personal Authority

- RT Training record (Level 1, 2 or 3 RT certificate)
- RT Examination result (if included on the training cert use this document)
- Basic Level Radiation Safety training certificate
- Basic level Practical logbook
- Practical assessment report
- Pre-Employment radiation worker medical evaluation (Copy included on the web-site)
- IR Proof of payment
- SABS BIN. number
- SABS Dose record for the previous or current year.
- Three (3) monthly observation of performance records.
- Application to Register as an Industrial Radiographer, RN 778

The SPBNDT Designation Committee performs review of submitted documentation and if the application is successful pre-approves the application and forwards such to Radiation Control for final approval. Following Radiation Control approval the approval document (P certificate) is uploaded onto the individuals SPBNDT profile.

9.1 Renewal of Personal Authority

Personal Authority will expire every year to allow the control of the periodic training required by Radiation Control.

The following additional documents are required for renewal:

- Documentation of Periodic training and three (3) monthly observations.
- Providing an individual's dose records for the previous year of work as an industrial radiographer. (*This information will be used to monitor the training program and make necessary adjustment when required).*

The SPBNDT Designation Committee performs review of submitted documentation and if the application is successful pre-approves the application and forwards such to Radiation Control for final approval. Following Radiation Control approval, the approval document (P certificate) is uploaded onto the individuals SPBNDT profile.

9.2 Exclusions to the Approvals

The approval program outlined in this document ***DOES NOT*** qualify the IR to maintain and repair industrial radiography exposure devices and/or survey monitors.

The above will require additional training and approval from the relevant certification scheme or the Regulator.

9.3 Certificate Issuance

Each successful candidate will be issued with a P certificate indicating the expiration date of the Personal Authority.

10 Regulatory Compliance and Enforcement

SPBNDT is required to assist the Directorate Radiation Control to perform inspections on any aspect of the Programme.

IRs must comply with the regulatory requirements that have been established under the Directorate of Radiation Control and other legally binding instruments, such as regulations, licenses and approvals that relate to the possession or use of exposure devices.

IRs are required to adhere to the SPBNDT Code of Practice.

Non-compliance may result in the SPBNDT in conjunction with the Radiation Control Inspectorate, the issuance of stop work embargo, disapproval.