

Republic of the Philippines
Department of Science and Technology
PHILIPPINE NUCLEAR RESEARCH INSTITUTE
Commonwealth Avenue
Diliman, Quezon City

**LICENSES FOR INDUSTRIAL RADIOGRAPHY AND RADIATION SAFETY
REQUIREMENTS FOR RADIOGRAPHIC OPERATIONS**

CPR PART 11

I. GENERAL PROVISIONS

Section 1. Purpose and Scope.

- (a) This Part prescribes requirements for the issuance of licenses for the use of radioactive sources in industrial radiography and radiation safety requirements for persons using these radioactive sources in industrial radiography.
- (b) This Part also provides requirements for the safety and security of radioactive sources and radiographic exposure devices.
- (c) The provisions and requirements of this Part shall be applied in conjunction with the radiation safety requirements of CPR Part 3, radioactive source security requirements of CPR Part 26, and the safe transport requirements of CPR Part 4.
- (d) This Part does not relieve the licensee from complying with the applicable requirements of other responsible agencies of government.

Section 2. Definitions.

As used in this Part:

- (a) **“Act”** means Republic Act No. 2067, otherwise known as the Science Act of 1958, as amended by Republic Act No. 3589, and Republic Act No. 5207, otherwise known as the Atomic Energy Regulatory and Liability Act of 1968, as amended by Presidential Decree No. 1484;
- (b) **“ALARA”** (as low as reasonably achievable) means making every reasonable effort to maintain exposures to radiation as far below the dose limits as is practical:
 - (1) Consistent with the purpose for which the licensed activity is undertaken; and
 - (2) Taking into account the state of the technology, the economics of improvement in relation to benefits to the health and safety of the public and the radiation workers and other societal and socio-economic considerations;
- (c) **“Assistant Radiation Safety Officer”** means the individual who is identified in the license issued pursuant to this Part to perform the duties and responsibilities of the RSO in his/her absence;
- (d) **“Associated Equipment”** means equipment that is used in conjunction with a radiographic exposure device to make radiographic exposures that drives, guides, or comes in contact with

the source (e.g., guide tube, control tube, control [drive] cable, removable source stop, "J" tube and collimator when it is used as an exposure head);

- (e) **“Certification”** means written approval received from a certifying entity stating that an individual has satisfactorily met certain established radiation safety, testing, and experience criteria;
- (f) **“CPR”** or **“Code”** means the Code of PNRI Regulations;
- (g) **“Control (drive) Cable”** means the cable that is connected to the source assembly and used to drive the source to the exposure location;
- (h) **“Control Drive Mechanism”** means a device that enables the source assembly to be moved to and from the exposure device;
- (i) **“Control Tube”** means a protective sheath for guiding the control cable. The control tube connects the control drive mechanism to the radiographic exposure device;
- (j) **“Disused Source”** means a radioactive source which is no longer used, and is not intended to be used, for the practice for which a license has been granted;
- (k) **“Field Station”** means a facility authorized in the license where radioactive source may be stored or used and from which radiographic exposure device and associated equipment are dispatched;
- (l) **“Guide Tube (Projection sheath)”** means a flexible or rigid tube (i.e., "J" tube) for guiding the source assembly and the attached control cable from the exposure device to the exposure head. The guide tube may also include the connections necessary for attachment to the exposure device and to the exposure head;
- (m) **“Import”** means the physical transfer, into the Philippines or to a recipient in the Philippines and originating from an exporting State, of one or more radioactive source(s) and radiographic exposure device covered by the regulations of this Part;
- (n) **“Independent Certifying Body”** means an independent certifying organization meeting the requirements in **Appendix A (I)** of this Part;
- (o) **“Industrial Radiography”** means an examination of the structure of materials by non-destructive methods, utilizing ionizing radiation to make radiographic images;
- (p) **“Inventory”** means a campaign to physically check all sources possessed, by specifically and uniquely identifying each individual source using appropriate means such as serial numbers. For very high activity sources, radiation safety consideration may require means other than direct visual observation to perform an inventory;
- (q) **“Permanent Radiographic Installation”** means an installation or structure authorized in the license and not located at a temporary jobsite or field storage in which industrial radiography is regularly performed;
- (r) **“Practical Examination”** means a demonstration through practical application of the safety rules and principles in industrial radiography including use of all appropriate equipment and procedures;
- (s) **“PNRI”** means the Philippine Nuclear Research Institute and/or its duly authorized representative(s);

- (t) **“Qualification”** means a demonstration of the knowledge, skill, training and experience required to properly perform radiography and safety related tasks;
- (u) **“Qualified Radiographer”** means an individual who meets the requirements of Section 19 of this Part except that he is not a certified radiographer;
- (v) **“Radioactive Source”** means any radioactive material that is permanently sealed in a capsule or closely bonded, in a solid form and which is not exempt from regulatory control. It also means any radioactive material released if the radioactive source is leaking or broken but does not mean material encapsulated for disposal, or nuclear material within the nuclear fuel cycles of research or power reactor;
- (w) **“Radiographer”** means an individual who has been certified by an independent certifying body and has complied with the training and experience requirements in Section 19(a) of this Part;
- (x) **“Radiographer’s Assistant”** means an individual who works under supervision of certified personnel but who does not conduct any radiographic test independently, does not interpret test results and does not write reports of test results and may be registered as being in the process of gaining appropriate experience to establish eligibility for qualification to Level 1;
- (y) **“Radiographic Exposure Device”** (also known as camera or projector) means any instrument containing a radioactive source fastened or contained therein, in which the radioactive source or shielding thereof may be moved, or otherwise changed, from a shielded to unshielded position for purposes of making a radiographic exposure;
- (z) **“Radiographic Operations”** means all activities associated with the presence of radioactive sources in a radiographic exposure device during use of the device or transport (except when being transported by a common or contract transport), to include surveys to confirm the adequacy of boundaries, setting up equipment and any activity inside restricted area boundaries;
- (aa) **“Radiation Safety Officer”** means an individual identified in the license issued pursuant to this Part to be responsible for implementing the radiation safety program of the licensee;
- (bb) **“S-tube”** means a tube through which the radioactive source travels when inside a radiographic exposure device;
- (cc) **“Safety”** means measures intended to minimize the likelihood of accidents with radioactive sources and, should such an accident occur, to mitigate its consequences;
- (dd) **“Safety Culture”** means the assembly of characteristics and attitudes in organizations and individuals which establishes that, as an overriding priority, protection and safety issues received the attention warranted by their significance;
- (ee) **“Security”** means measures to prevent unauthorized access or damage to, and loss, theft, unauthorized transfer of radioactive sources;
- (ff) **“Security Culture”** means characteristics and attitudes in organizations and of individuals which establish that security issues receive the attention warranted by their significance;
- (gg) **“Source Assembly”** means an assembly that consists of the radioactive source and a connector that attaches the source to the control cable. The source assembly may also include a stop ball used to secure the source in the shielded position;

- (hh) **“Source Changer”** means a device designed and used for replacement of radioactive sources in radiographic exposure device including those used also for transporting and storage of radioactive sources;
- (ii) **“Storage Area”** means any location, facility or vehicle which is used to store, transport, or secure a radiographic exposure device, storage container, or radioactive source when it is not in use, and which is locked and has a physical barrier to prevent accidental exposure, tampering with, or unauthorized removal of the device, container, or source;
- (jj) **“Storage Container”** means a container in which radioactive sources are secured and stored;
- (kk) **“Temporary Jobsite”** means a location where radiographic operations are conducted and where radioactive sources maybe stored other than those location(s) of use authorized on the license; and

Note: Terms defined in the Act and in other Parts of the Code shall have the same meaning when used in this Part to the extent that such terms are not specifically defined in this Part.

Section 3. Interpretation.

Except as specifically authorized by PNRI in writing, no interpretation of the meaning of the regulations by any officer or employee of PNRI other than a written interpretation by the Director shall be recognized to be binding upon the PNRI.

Section 4. Communication.

All communication and reports concerning the regulations in this Part shall be addressed to the Director, Philippine Nuclear Research Institute, Commonwealth Avenue, Diliman, Quezon City, Metro Manila.

Section 5. Activities Requiring License.

No person shall acquire, receive, possess, own, use, transfer or import radioactive sources and radiographic exposure devices used in industrial radiography except in accordance with a license issued by PNRI pursuant to this Part.

Section 6. Application for New License and Renewal of License.

- (a) An application for a new or renewal of license pursuant to this Part shall be filed on PNRI/NRLSD Form – 011, "Application for License for Industrial Radiography and Requirements for Radiographic Operations".
- (b) Each application for a license pursuant to this Part must be duly affirmed and notarized and shall be signed by the applicant or a person duly authorized to act for and on his behalf upon submission to PNRI.
- (c) The applicant must show proof of authenticity of business name issued by the Securities and Exchange Commission and the current business permit issued by the responsible government agency.
- (d) The application shall adequately describe the necessary information required in the application form in accordance with the technical, safety, and security requirements specified in this Part

and will be accepted and processed only when PNRI has determined the completeness of the submitted information, and payment of corresponding fees prescribed in CPR Part 22 have been made.

- (e) PNRI may, at any time after the filing of the application, require further statements to enable PNRI to determine whether the license shall be granted or denied.

Section 7. Issuance of License.

PNRI shall approve an application for a license pursuant to this Part if:

- (a) The application is for a purpose authorized by the Act;
- (b) The applicant has submitted to the PNRI a description of its over-all organization responsible for implementing the radiography program, including specific delegation of authorities and responsibilities to individuals involved in the operation of the program;
- (c) The applicant's proposed equipment and facilities are adequate to protect health and minimize danger to life or property as well as to ensure the security of the radioactive sources;
- (d) The applicant has designated a Radiation Safety Officer (RSO) and Assistant Radiation Safety Officer (ARSO), who shall both consent and agree in writing, and shall ensure the effective implementation of the radiation safety and source security programs in accordance with approved procedures and the regulatory requirements;
- (e) The applicant's submitted layout and design of the permanent radiographic installation, field station and/or storage facility, when considered together with the proposed operating and control procedures, are found to be adequate and in accordance with regulatory requirements of this Part;
- (f) The applicant has submitted written operating and emergency procedures according to Section 22 of this Part;
- (g) The applicant has submitted a description of its internal inspection program that will ensure that its radiographers, radiographer's assistants, and s comply with regulatory requirements in accordance with Section 31 of this Part;
- (h) The applicant has a program for training and re-training of the RSO, ARSO, radiographers, radiographer's assistants and s;
- (i) The radiographers and radiographer's assistants listed in the application are qualified and certified by training and experience to use the radioactive source for the purpose requested;
- (j) The applicant possesses at least one (1) calibrated and operable radiation survey instrument, with a range such that 0.02 mSv/hr through 10 mSv/hr can be measured, which will be available for each radiographic operation being performed. Each portable radiation survey instrument shall be calibrated at intervals not to exceed six (6) months and after each repair. The applicant shall submit written procedures for calibration of survey instruments or the name, address and license number of the organization which will perform the calibration;
- (k) The applicant has provided each RSO, ARSO, radiographer, radiographer's assistant, and with a direct reading pocket dosimeter or similar device, alarm ratemeter, and either a film badge or a thermoluminescent dosimeter (TLD) badge, which must be worn at all times during radiographic operations;

- (l) The applicant has established and submitted to PNRI an emergency plan in accordance with the requirements of Section 17 of CPR Part 3;
- (m) The applicant has established and submitted to PNRI a Physical Protection and Source Security Plan in accordance with the requirements of CPR Part 26 for Category 2 and Security Group B radioactive sources;
- (n) The applicant has established acceptable procedures for the transport of radioactive sources in source changers and radiographic exposure devices in accordance with the requirements of Part 4 of the CPR, "Regulations for the Safe Transport of Radioactive Materials in the Philippines";
- (o) The applicant has ensured that disused sources shall be returned to the original supplier or manufacturer in the country of origin;
- (p) The applicant has submitted proof of compatibility of the radioactive source and the radiographic exposure device;
- (q) The applicant has paid the required license fee and other charges, if any, in accordance with CPR Part 22 of the Code.

Section 8. Terms and Conditions of License.

- (a) The license shall be valid for a period as may be determined by PNRI;
- (b) Each license shall be subject to the provisions of the Act, the specific conditions of the license, and to applicable rules, regulations and orders of PNRI;
- (c) Neither the license nor right granted under the license shall be transferred, assigned, or in any manner disposed of, either voluntarily or involuntarily, directly or indirectly, through transfer of control of the license to any other person unless PNRI, after securing full information:
 - (1) Finds that the proposed transfer, assignment or disposition is in accordance with the regulations of the Code and the provisions of the Act; and
 - (2) Consents in writing to the proposed transfer, assignment or disposition;
- (d) Each licensee shall confine the use, possession and storage of the radioactive sources to the locations authorized in the license;
- (e) Each licensee shall strictly comply with the requirements in this Part regarding the renewal, amendment and expiration of license;
- (f) Each licensee shall maintain and retain records as required in this Part;
- (g) Each licensee shall apply for a license amendment not later than thirty (30) days after its Radiation Safety Officer (RSO) permanently ceases to discharge his/her duties and responsibilities under the license;
- (h) Each licensee shall notify PNRI immediately in writing following the filing of a voluntary or involuntary petition for bankruptcy under existing Philippine laws; and
- (j) A copy of the existing license and applicable regulations of the Code shall be kept and made available at each authorized location and at places where radiographic operation is conducted.

Section 9. *Amendment of License.*

- (a) An application for amendment of a license shall be filed in PNRI/NRLSD Form 011A – “Application for Amendment of License”, and shall specify in what respect the licensee desires his license to be amended in accordance with Section 9(b) and the grounds for such amendment. The corresponding license amendment fee required in CPR Part 22 shall be paid upon filing of the application.
- (b) A licensee shall apply for and must receive a license amendment before:
 - (1) It permits anyone to work as Radiation Safety Officer (RSO), Assistant Radiation Safety Officer (ARSO), radiographer or radiographer’s assistant other than those previously authorized in the license;
 - (2) It replaces Radiation Safety Officer (RSO), Assistant Radiation Safety Officer (ARSO), radiographers or radiographer’s assistants;
 - (3) It possesses at any one time radioactive sources in excess of the activity authorized in the license;
 - (4) It receives and uses radioactive sources or radiographic exposure device other than what is indicated in the license;
 - (5) It relocates or modifies the storage area in the field station described in the license for the radioactive sources;
 - (6) It modifies its permanent radiographic installation; or
 - (7) It implements any major change in the approved radiation safety program.

Section 10. *Expiration of License.*

- (a) Each license shall expire at the end of the day of the expiration date stated in the license. Pending any PNRI discretion on the disposition of the license, the licensee shall keep all radioactive sources under safe and secure storage in accordance with the security plan.
- (b) If the licensee fails to file an application for the renewal of his license or fails to notify PNRI about the safe and secure disposition of the radioactive sources thirty (30) days after the expiration date, PNRI shall require the licensee to show cause why an Order to place the radioactive sources under temporary regulatory custody should not be issued.
- (c) If the license is deemed to have expired and will not be renewed, the licensee shall notify PNRI accordingly and shall cease to engage in any licensed activity involving the radioactive sources except to keep the radioactive sources under safe and secure storage until determined by PNRI.
- (d) The discontinued use of radioactive sources as a result of the expiration of the license shall not relieve the licensee of the responsibility to cause the decommissioning of the facility and termination of the license.

Section 11. *Renewal of License.*

- (a) If the licensee decides to renew the license, the licensee must formally notify PNRI at least thirty (30) days before the expiration date of license, by submitting an application for renewal of the license in accordance with Section 6 of this Part. If an application for license renewal is filed in the proper form, the existing license shall be deemed to remain valid until PNRI has taken final action on whether to renew or deny the license, but in no case shall it be more than thirty (30) days after the expiration of the existing license. The corresponding license renewal fee must be paid upon filing of the application for license renewal.

- (b) An application for license renewal that is filed less than thirty (30) days before the expiration date of the license shall be assessed a surcharge equivalent to twenty-five (25) percent of the prescribed license renewal fee. The existing license shall be deemed to remain valid until PNRI has taken final action on whether to renew or deny the license, but in no case shall it be more than thirty (30) days after the expiration date of the existing license. This does not however preclude the imposition of any regulatory action arising from the late filing of the application. The corresponding license renewal fee must be paid upon filing of the application for license renewal.

Section 12. *Specific Condition for Expired License.*

If an application for license renewal is filed after the expiration date stated in the license but not more than thirty (30) days after that date, the licensee shall immediately cease from performing any licensed activity except to keep all radioactive sources under safe and secure storage in accordance with the security plan until PNRI has determined to renew or deny the license. This does not however preclude the imposition of any regulatory action arising from the late filing of the application. The licensee shall be assessed a surcharge equivalent to fifty (50) percent of the applicable fees if the application for license is accepted by PNRI.

Section 13. *Termination of License.*

- (a) The termination of a license may be initiated at any time at the request of the licensee.
- (b) Before the license can be terminated, the licensee shall implement its decommissioning plan and shall:
 - (1) Discontinue performing all activities involving radioactive sources;
 - (2) Transfer or dispose of all licensed material which are in the licensee's possession in accordance with the regulations;
 - (3) Assure that no contamination levels in excess of the limits for supervised areas exist in the facilities; and
 - (4) Assure that the required records are complete and up-to-date.
- (c) To be relieved of the responsibility for the material and the other conditions of the license, the licensee shall submit a letter to PNRI containing:
 - (1) A certified statement that the licensee no longer has possession of any radioactive source that requires a license;
 - (2) A listing of the radioactive sources transferred or disposed of and the person(s) to whom the material was transferred and the method of disposal for each item; and
 - (3) A certified statement that the facilities are not contaminated.
- (d) When these procedures have been satisfactorily completed, PNRI will cause the termination of the license.

Section 14. *Additional Regulatory Requirements.*

PNRI may impose upon the licensee, by appropriate notification, rule, regulation, or order after due process or consultation, such requirements in addition to those established in this Part as it deems appropriate or necessary to protect the health and safety of the public or minimize danger to life or property and ensure the security of radioactive sources.

Section 15. Application for Exemptions.

PNRI may, upon application by the licensee or upon its own initiative, grant such exemptions from the regulations in this Part as it determines are authorized by law and will not result in undue hazard to life, property, and the environment.

II. ADMINISTRATIVE REQUIREMENTS

Section 16. Radiation Safety Program.

- (a) Each licensee shall develop and implement a written radiation safety program that includes provisions for keeping doses ALARA in accordance with Section 7 of CPR Part 3.
- (b) The program must include a description of functions and program of the organization, notice to workers of the program's existence, functions and responsibilities to help keep equivalent dose ALARA, a review of summaries of occupational doses, changes in radiation safety procedures and safety measures, and continuing education and training for all personnel who work with, or in the vicinity of, radioactive sources.
- (c) Each licensee shall review at least annually the content and implementation of its radiation safety program.

Section 17. Radiation Safety Officer (RSO) and Assistant Radiation Safety Officer (ARSO).

- (a) Each licensee shall designate a Radiation Safety Officer (RSO) and an assistant Radiation Safety Officer (ARSO), both of whom must be qualified radiographers. The assistant RSO shall take over the duties and responsibilities of the RSO, in the absence of the latter.
- (b) The licensee shall provide the RSO sufficient authority, organizational freedom, and management prerogative to:
 - (1) Identify radiation safety problems;
 - (2) Initiate, recommend, or provide corrective actions; and
 - (3) Verify implementation of corrective actions.
- (c) The RSO and ARSO shall ensure that radiation safety activities are being performed in accordance with approved procedures and regulatory requirements in the daily operation of the licensee's program.
- (d) Except as provided in Paragraph (d)(4), the RSO or designee shall conduct an inspection program of the job performance of each radiographer and radiographer's assistant to ensure that PNRI regulations, license requirements, and the applicant's operating and emergency procedures are followed. The inspection program must:
 - (1) Include observation of the performance of each radiographer and radiographer's assistant during an actual industrial radiographic operation, at intervals not to exceed six (6) months;
 - (2) Provide that, if a radiographer or a radiographer's assistant has not participated in an industrial radiographic operation for more than six (6) months since the last inspection, the radiographer must demonstrate knowledge of the training requirements of Section 19(a)(4) and the radiographer's assistant must re-demonstrate knowledge to use, under the personal supervision of the radiographer, the radiographic exposure devices, radioactive sources, associated equipment, and radiation survey instruments by a practical examination before these individuals can next participate in a radiographic operation;

- (3) Provide that, in those situations where the individual serves as both radiographer and RSO, the PNRI may consider alternatives; and
- (4) Provide that, in those operations where a single individual serves as both radiographer and RSO, and performs all radiographic operations, an inspection program is not required.

Section 18. Qualification and Training of RSO and ARSO.

- (a) The minimum qualification, training, and experience for RSOs and ARSOs for industrial radiography are as follows:
 - (1) Completion of the training and testing requirements of Section 19;
 - (2) 2000 hours of hands-on experience as a qualified radiographer in industrial radiographic operations; and
 - (3) Formal training in the establishment and maintenance of a radiation safety program.
- (b) The PNRI will consider alternatives when the proposed RSO and ARSO have appropriate training and/or experience in the field of ionizing radiation, and in addition, have adequate formal training with respect to the establishment and maintenance of a radiation safety protection program.
- (c) The specific duties and authorities of the RSO and ARSO include, but are not limited to:
 - (1) Serving as the licensee's liaison with the PNRI on matters affecting the safety and security of licensed activities;
 - (2) Establishing and overseeing all operating, emergency, and ALARA procedures as required by CPR Part 3, and reviewing them regularly to ensure that the procedures in use conform to current CPR Part 3 procedures, conform to other PNRI regulations and to the license conditions.
 - (3) Overseeing and approving all phases of the training program for radiographic personnel, ensuring that appropriate and effective radiation protection practices are taught;
 - (4) Ensuring that required radiation surveys and leak tests are performed and documented in accordance with the regulations, including any corrective measures when levels of radiation exceed established limits;
 - (5) Ensuring that personnel monitoring devices are calibrated and used properly by occupationally-exposed personnel, that records are kept of the monitoring results, and that timely notifications are made as required by Section 41 of this Part;
 - (6) Ensuring that operations are conducted safely and to assume control for instituting corrective actions including stopping of operations when necessary;
 - (7) Establishing and maintaining a quality assurance records system; and
 - (8) Ensuring that safety and security culture is fostered and maintained.

Section 19. Training and Experience of Radiographer.

- (a) The licensee shall not permit any individual to act as a radiographer until the individual:
 - (1) Has received training in the subjects in Paragraph (c) of this Section and is certified through a radiographer certification program by an independent certifying body in accordance with the criteria specified in Appendix A of this Part. Radiographers already authorized in a PNRI Radioactive Material License issued prior to date of effectivity of this Part will continue to be authorized radiographers and shall not be covered by the new requirement on certification by an independent certifying body.
 - (2) Has received instructions in the Regulations contained in this Part and in the applicable Sections of Part 3, Part 4 and Part 26 of the Code, the conditions of the license(s) under which the radiographer will perform radiography and the licensee's operating and emergency procedures.

- (3) Has demonstrated understanding of the licensee's license and operating and emergency procedures by successful completion of a written or oral examination covering this material.
 - (4) Has received training in the use of the licensee's radiographic exposure devices and radioactive sources, in the daily inspection of devices and associated equipment, and in the use of radiation survey instruments.
 - (5) Has demonstrated understanding of the use of radiographic exposure devices, sources, survey instruments and associated equipment described in Paragraph (a)(4) of this Section by successful completion of a practical examination covering this material.
- (b) The licensee shall not permit any individual to act as a radiographer's assistant until the individual:
- (1) Has received training in the subjects in Paragraph (c) of this Section.
 - (2) Has received instructions in the Regulations contained in this Part and in the applicable Sections of Part 3, Part 4 and Part 26 of the Code, the conditions of the license(s) under which the radiographer will perform radiography and the licensee's operating and emergency procedures.
 - (3) Has developed competence to use, under the personal supervision of the radiographer, the radiographic exposure devices, radioactive sources, associated equipment, and radiation survey instruments that the assistant will use; and
 - (4) Has demonstrated understanding of the instructions provided under Paragraph (c)(2) of this Section by successfully completing a written test on the subjects covered, and has demonstrated competence in the use of the radiographic exposure devices, radioactive sources, associated equipment, and radiation survey instruments described in Paragraph (b)(3) of this Section by successful completion of a practical examination on the use of radiographic exposure devices, radioactive sources, associated equipment, and radiation survey instruments.
- (c) The licensee shall include the following subjects required in Paragraph (a) of this Section:
- (1) Fundamentals of radiation safety including:
 - (i) Characteristics of gamma radiation;
 - (ii) Units of radiation dose and quantity of radioactivity;
 - (iii) Hazards of exposure to radiation;
 - (iv) Levels of radiation from radioactive source; and
 - (v) Methods of controlling radiation dose (time, distance, and shielding);
 - (2) Radiation detection instruments including:
 - (i) Use, operation, calibration, and limitations of radiation survey instruments;
 - (ii) Survey techniques; and
 - (iii) Use of personnel monitoring devices;
 - (3) Equipment to be used including:
 - (i) Operation and control of radiographic exposure device, remote handling tools, and storage containers, including pictures or models of source assemblies (pigtailed).
 - (ii) Storage, control, and disposal of radioactive source; and
 - (iii) Inspection and maintenance of radiographic exposure device and associated equipment;
 - (4) The requirements as stated in pertinent PNRI regulations; and
 - (5) Case histories of accidents in radiography.
- (d) Licensees shall have until December 31, 2010 to comply with the requirement on certification by an independent certifying body specified in paragraph (a)(1) of this Section.

Section 20. Supervision of Radiographer's Assistant.

- (a) The radiographer must personally supervise the radiographer's assistant whenever the radiographer's assistant uses radiographic exposure devices, source changers, storage

containers, radioactive sources or related source handling tools, or conducts radiation surveys to determine that the radioactive source has returned to the shielded position after an exposure. For the purpose of safety, the radiographer must be deputized by the RSO to carry out safety measures in case of emergency.

- (b) Personal supervision must include:
 - (1) The physical presence of the radiographer at the site where the radioactive sources are being used;
 - (2) The availability of the radiographer to give immediate assistance, if required; and
 - (3) The direct observation by the radiographer of the radiographer's assistant's performance of the operations referred to in this Section.

Section 21. Retraining.

The licensee shall require the RSO, ARSO, radiographers, and radiographer's assistants to undertake a refresher course on radiation safety annually and a re-training course as determined by PNRI.

Section 22. Operating and Emergency Procedures.

- (a) The licensee's operating and emergency procedures shall, at least, include instructions in the following:
 - (1) Appropriate handling and use of radioactive sources, radiographic exposure devices, source changers, and storage containers such that no person is likely to be exposed to radiation doses in excess of the limits established in CPR Part 3;
 - (2) Methods and occasions for conducting radiation surveys, and use of radiation survey and monitoring instruments;
 - (3) Methods for controlling access to radiographic areas;
 - (4) Methods and occasions for locking and securing radiographic exposure devices, source changers, transport and storage containers and radioactive sources;
 - (5) Personnel monitoring and the use of personnel monitoring device;
 - (6) Transporting radioactive sources to field stations, including packaging and securing of radiographic exposure devices and storage containers in the vehicles, posting of vehicles and security of radioactive sources during transportation;
 - (7) The inspection, maintenance and operability checks of radiographic exposure devices, survey instruments, source changers and storage containers;
 - (8) Steps that must be taken immediately by radiography personnel in the event a pocket dosimeter is found to be off-scale or an alarm ratemeter alarms unexpectedly;
 - (9) Minimizing exposure of persons in the event of an accident;
 - (10) The procedure for notifying proper persons and authorities in the event of an accident;
 - (11) Source recovery procedure if the licensee performs source recovery;
 - (12) Maintenance of records;
 - (13) Measures to prevent theft or unauthorized access of radioactive source and/or device;
 - (14) Measures for safe and secure storage of radioactive source and device;
 - (15) Identifying and reporting of defects and noncompliance;
 - (16) Measures to comply with the incident reporting requirements in accordance with Section 42 of this Part; and
 - (17) Procedures for leak testing of radioactive sources in accordance with Section 28 of this Part.
- (b) The licensee shall maintain copies of current operating and emergency procedures and shall make them available to PNRI when requested.

Section 23. *Lease and/or Rental of Radioactive Sources and Radiographic Exposure Device(s).*

- (a) No licensee shall lease and/or rent radioactive source(s) and radiographic exposure device(s) without the prior written consent of PNRI, in accordance with Section 9(b) of this Part.
- (b) Before leasing or renting radioactive source and radiographic exposure device to a person licensed by the PNRI, the licensee/lessor shall verify that the lessee's license is valid and authorizes receipt of the type, form and quantity of radioactive sources or radiographic exposure device. The licensee/lessor shall ensure that a radiographic exposure device(s), one (1) operable and calibrated survey instrument and at least two (2) units of direct reading pocket dosimeters are made available to the lessee.
- (c) The lessor shall indicate in the request for PNRI consent of the transfer or lease the following information:
 - (1) Name, address and license number of lessee;
 - (2) Description of device, material and instruments made available to lessee; including serial numbers;
 - (3) Duration of rental or lease;
 - (4) Date when the lease agreement will be concluded; and
 - (5) Copy of lease agreement.
- (d) Within ten (10) days after the completion of each lease or rental of radioactive sources and radiographic exposure device, the licensee/lessor shall inform and submit a report to the PNRI.

Section 24. *Import and Export of Radioactive Sources.*

The licensee shall ensure that the import and export of radioactive sources are in accordance with Appendix B of this Part.

III. TECHNICAL REQUIREMENTS

A. EQUIPMENT CONTROL

Section 25. *Performance Requirements for Radiographic Exposure Device.*

- (a) Each radiographic exposure device must have attached to it a durable, legible, clearly visible label bearing the following:
 - (1) Chemical symbol and mass number of the radionuclide in the device;
 - (2) Activity and the date on which this activity was last measured;
 - (3) Model number and serial number of the radioactive source;
 - (4) Model number and serial number of radiographic exposure device;
 - (5) Manufacturer of the radioactive source; and
 - (6) Licensee's name, address, and telephone number.
- (b) Radiographic exposure devices intended for use as Type B transport containers must meet the applicable requirements of CPR Part 4.
- (c) Modification of radiographic exposure devices and associated equipment is prohibited, unless the design of any replacement component, including source holder, source assembly, controls or guide tubes would not compromise the design safety features of the system. Whenever an

approved modification is performed a detailed report of the modification must be submitted to PNRI within thirty (30) days from completion.

- (d) In addition to the requirements specified in Paragraphs (a), (b) and (c) of this Section, the following requirements apply to radiographic exposure devices, source assemblies, and associated equipment that allow the source to be moved out of the device for radiographic operations or to source changers:
- (1) The coupling between the source assembly and the control cable must be designed in such a manner that the source assembly will not become disconnected if cranked outside the guide tube. The coupling must be such that it cannot be unintentionally disconnected under normal and reasonably foreseeable abnormal conditions.
 - (2) The device must automatically secure the source assembly when it is cranked back into the fully shielded position within the device. This securing system may only be released by means of a deliberate operation on the exposure device.
 - (3) The outlet fittings, lock box, and drive cable fittings on each radiographic exposure device must be equipped with safety plugs or covers which must be installed during storage and transportation to protect the source assembly from water, mud, sand or other foreign matter.
 - (4) The guide tube must have passed the crushing tests for the control tube and a kinking resistance test that closely approximates the kinking forces likely to be encountered during use.
 - (5) Guide tubes must be used when moving the radioactive source out of the device.
 - (6) An exposure head or similar device must be attached to the end of the outermost guide tube to prevent the source assembly from passing out of the end of the guide tube during radiographic operations.
 - (7) The guide tube exposure head connection must be able to withstand the tensile test for control units.
 - (8) Source changers must provide a system for ensuring that the source will not be accidentally withdrawn from the changer when connecting to or disconnecting the drive cable from a source assembly.
- (e) The licensee must show results of any test conducted and the basis for compliance of test.

Section 26. *Limits on External Levels of Radiation from Radiographic Exposure Devices and Storage Containers.*

- (a) Radiographic exposure devices measuring less than 10 cm from the radioactive source storage position to any exterior surface of the device shall have no radiation level in excess of 0.5 mSv/hr at 15 cm. from any exterior surface of the device and 0.1 mSv/hr at 1 meter from any exterior surface.
- (b) Radiographic exposure devices measuring 10 cm or more from the radioactive source storage position to any exterior surface of the device, and all storage containers for radioactive sources or for radiographic exposure devices, shall have no radiation level in excess of 2 mSv/hr at any exterior surface and 0.1 mSv/hr at 1 meter from any exterior surface.
- (c) The radiation levels specified are with the radioactive source in the shielded (i.e., "off") position.

Section 27. *Locking of Radiographic Exposure Devices, Storage Containers and Source Changers.*

- (a) Each radiographic exposure device must have a lock or outer locked container designed to prevent unauthorized or accidental removal of the radioactive source from its shielded position.

The exposure device or its container shall be kept locked when not under the direct surveillance of a radiographer. If a keyed-lock is used, the key must be removed at all times after locking. In addition, during radiographic operations the radioactive source assembly must be secured in the shielded position each time the source is returned to that position.

- (b) Each radioactive source storage container and source changer must have a lock or outer locked container designed to prevent unauthorized or accidental removal of the radioactive source from its shielded position. Storage containers and source changers must be kept locked when containing radioactive sources except when under the direct surveillance of a radiographer. If a keyed-lock is used, the key must be removed at all times after locking. Source changers must be provided with a system for assuring that the source will not be accidentally withdrawn from the changer when connecting or disconnecting the drive cable to or from a source assembly.

Section 28. Leak Testing, Repair, Tagging, Opening, Modification and Replacement of Radioactive Sources.

- (a) The replacement of any radioactive source fastened to or contained in a radiographic exposure device, leak testing, repair, tagging, opening or any other modification of any radioactive source shall be performed only by persons specifically authorized to do so by PNRI.
- (b) Each radioactive source shall be tested for leakage at intervals not to exceed six (6) months. If a leak test compliance certificate is not provided by a transferor, which will show that a test had been conducted within the six (6) months prior to the transfer, the radioactive source shall be leak tested before using. Radioactive sources that are in storage and not in use do not require leak testing, but must be leak tested before use or transfer to another person if the interval of storage exceeds six (6) months.
- (c) The procedure for leak testing of the radioactive source must be approved by PNRI. The wipe sample should be taken from the nearest accessible point to the radioactive source at storage position, where contamination might accumulate. The radioactive contamination analysis of the wipe sample must be capable of detecting the presence of 185 Bq of removable contamination on the radioactive source. Records of leak test results shall be kept and made available for inspection by PNRI for six (6) months after the next required leak test is performed or until the radioactive source is transferred or disposed of.
- (d) Any test conducted pursuant to Paragraphs (b) and (c) of this Section which reveals the presence of 185 Bq or more of removable contamination on the radioactive sources must be considered an evidence that the radioactive source is leaking. The licensee shall immediately discontinue the use of the radiographic exposure device and shall cause it to be decontaminated and repaired or to be disposed of, in accordance with PNRI regulations. A report must be filed with PNRI within five (5) days of the test describing the radiographic exposure device involved, the test results and the corrective action taken.
- (e) Each source assembly must have attached to it or engraved in it, a durable, legible, visible label with the words: "DANGER - RADIOACTIVE". The label must not interfere with the safe operation of the radiographic exposure device or associated equipment.
- (f) Each radiographic exposure device using depleted uranium (DU) shielding and an "S-tube" configuration shall be tested for DU contamination at intervals not to exceed twelve (12) months. The analysis must be capable of detecting the presence of 185 Bq of radioactive sources on the test sample and must be performed by a person specifically authorized by the PNRI. Should such testing reveal the 185 Bq or more of removable DU contamination, the exposure device must be removed from use until evaluation of the wear on the S-tube has been made. Should the evaluation reveal that the S-tube is worn through, the device may not be used again. DU shielded devices do not have to be tested for DU contamination while in storage and

not in use. Before using or transferring such device however, the device must be tested for DU contamination if the interval of storage exceeds twelve (12) months. A record of the DU leak-test must be made available for inspection by the PNRI. Each record shall be retained for three (3) years after it is made or until the source in storage is removed.

- (g) Before conducting a leak testing of radioactive sources or exposure devices containing depleted uranium (DU) shielding, the licensee shall submit to PNRI the following:
 - (1) Qualification of the person(s) authorized to do the leak testing;
 - (2) The description of the leak testing procedure and method of test, e.g., points on radiographic exposure device to be wiped and method of taking wipe samples;
 - (3) Instrumentation to be used; and
 - (4) Relevant experience of the person(s) who will perform the test;

Section 29. *Inspection and Maintenance of Radiographic Exposure Devices, Transport and Storage Containers, Associated Equipment, Source Changers and Survey Instruments.*

- (a) The licensee shall perform visual and operability checks on survey instruments, radiographic exposure devices, transport and storage containers, associated equipment and source changers before use on each day the radiographic exposure device is to be used to ensure that the radiographic exposure device is in good working condition, that the sources are adequately shielded, and that required labeling is present. Survey instrument operability must be performed using check sources or other appropriate means. If problems in the radiographic exposure device are found, it must be removed from service until repaired. A checklist must be used to accomplish the required visual and operability checks accordingly. Records of such checklist shall be maintained until determined by PNRI inspectors.
- (b) Each licensee shall have written procedures for:
 - (1) Inspection and routine maintenance of radiographic exposure devices, source changers, associated equipment, transport and storage containers, and survey instruments at intervals not to exceed three (3) months or before the first use thereafter to ensure the proper functioning of components important to safety. Replacement components shall meet design specifications. If problems in the radiographic exposure device are found, it must be removed from service until repaired.
 - (2) Inspection and maintenance necessary to maintain the Type B packaging used to transport radioactive sources. The inspection and maintenance program must include procedures to assure that Type B packages are shipped and maintained in accordance with the certificate of compliance or the requirements of CPR Part 4.
- (c) Each record of radiographic exposure device problems and of any maintenance performed under Paragraphs (a) and (b) of this Section must be retained for five (5) years after it is made. The record must include the date of check or inspection, name of inspector, equipment involved, any problems found, and what repair and/or maintenance, if any, was done.
- (d) Each radiographic exposure device shall be revalidated every five years.

Section 30. *Permanent Radiographic Installations.*

- (a) Each high radiation area in the permanent radiographic installations shall be conspicuously posted with a sign or signs bearing the radiation caution symbol and the words: "CAUTION HIGH RADIATION AREA" in accordance with Section 13.6 of CPR Part 3.
- (b) Each entrance or personnel access point to the high radiation area shall be:

- (1) Equipped with a control device which shall cause the level of radiation to be reduced below that at which an individual might receive a dose of 1 mSv in 1 hour upon entry into the area; or
 - (2) Equipped with a control device which shall energize a conspicuous visible or audible warning signal to warn of the presence of radiation. The visible signal shall be actuated by radiation whenever the source is exposed. The audible signal shall be actuated when an attempt is made to enter the installation while the source is being exposed; or
 - (3) Maintained locked except when access to the area is required and authorized, with positive control over each individual entry.
- (c) The control devices required by Subsections (b)(1) and (b)(2) above shall be tested prior to the first use of the source in the installation and at intervals not to exceed three months thereafter. Records of the tests shall be kept for two years.
- (d) In the case of a radiographic installation where high radiation area is established for a period of thirty days or less, direct surveillance to prevent unauthorized entry may be substituted for the controls required by Paragraph (b) of this Section.

Section 31. Industrial Radiographic Operation at Field Stations or Temporary Jobsites.

- (a) Whenever radiography is performed at field stations or temporary jobsites, the radiography team must at least be composed of a radiographer and a radiographer's assistant. The radiographer shall also observe the operations in accordance with Section 22 of this Part and shall be capable of providing immediate assistance to prevent unauthorized entry. Radiography shall not be allowed if only one qualified individual is present.
- (b) Transport of radiographic exposure device and associated equipment to and from a field station or temporary jobsite must be in accordance with approved transport procedures and the requirements of CPR Part 4 and CPR Part 26.
- (c) The licensee shall ensure the safety and security of radioactive sources stored or located at the field station or temporary jobsite.
- (d) When a vehicle is used as storage for radioactive sources, the necessary protective measures to secure the radioactive sources must meet the specific requirements of CPR Part 26.

Section 32. Internal Inspection Program.

Each licensee shall submit to PNRI a description of its internal inspection program adequate to ensure that its radiographers and radiographer's assistants comply with regulatory requirements and the licensee's operating and emergency procedures. The program shall:

- (a) Include observation of the performance of each radiographer and radiographer's assistant during an actual radiographic operation at intervals not to exceed three (3) months;
- (b) Provide that, if a radiographer or a radiographer's assistant has not participated in a radiographic operation for more than three (3) months since the last inspection, that individual's performance on his/her next participation in the radiographic operations must be closely monitored and observed; and
- (c) Include the retention of inspection records on the performance of radiographers or radiographer's assistants for three (3) years.

B. SECURITY OF RADIOACTIVE SOURCES

Section 33. Security Requirements.

The licensee shall ensure the security of radiography sources and radiographic exposure devices in accordance with the requirements of CPR Part 26, "Security of Radioactive Sources", for Security Group B/Source Category 2 radioactive sources.

Section 34. Security Awareness Training.

The licensee shall require each individual who is authorized to handle radioactive sources to have completed a training on security awareness.

C. PRECAUTIONARY PROCEDURES IN RADIOGRAPHIC OPERATIONS

Section 35. Posting.

All areas in which radiography is being performed shall be conspicuously posted with signs bearing the radiation symbols and the words: "CAUTION (or DANGER) RADIATION AREA" and those which are high radiation areas shall be conspicuously posted with signs having the radiation caution symbol and the words: "CAUTION (or DANGER) HIGH RADIATION AREA".

Section 36. Radiation Survey Instruments.

- (a) At least one calibrated and operable radiation survey instrument capable of measuring a range of 0.02 mSv/hr through 10 mSv/hr must be available at each location where radiographic operations are being performed, and at the storage area, whenever a radiographic exposure device, a storage container, or source is being placed in storage;
- (b) Each survey instrument must be calibrated and operable to perform physical radiation surveys required by this Part and CPR Part 3.
- (c) Each radiation survey instrument must be calibrated at intervals not to exceed six (6) months and after each repair and maintenance of the instrument or as may be determined by PNRI. Records of the results of each instrument calibration shall be maintained for two years after the date of calibration.

Section 37. Radiation Surveys.

The licensee shall ensure that:

- (a) A survey with a calibrated and operable radiation survey instrument is made after each radiographic exposure to determine that the radioactive source has been returned to its shielded position. The entire circumference of the radiographic exposure device must be surveyed. If the radiographic device has a source guide tube, the survey must include the guide tube;
- (b) A survey with a calibrated and operable radiation survey instrument is made at any time a radiographic exposure device is placed in a storage area, to determine that the radioactive

source is in its shielded position. The entire circumference of the radiographic exposure device must be surveyed;

- (c) A record of the storage survey required in Paragraph (b) of this Section is made and is retained for three years when that storage survey is the last one performed in the work day; and
- (d) A survey with a calibrated and operable radiation survey instruments is made at any time a radiographic exposure device is being transported to determine that the radioactive source is in its proper position. The entire circumference of the radiographic exposure device must be surveyed.

Section 38. Personnel Monitoring and Alarm Ratemeter.

- (a) The licensee shall not permit any individual to act as a RSO, ARSO, radiographer, or radiographer's assistant at all times during radiographic operations, unless each individual wears on the trunk of the body a direct reading pocket dosimeter or similar device, alarm ratemeter and either a film badge or a thermoluminescent dosimeter (TLD). Direct reading dosimeters shall have a range from zero to at most 2 mSv and shall be recharged at the start of each shift. Each film badge and TLD badge shall be assigned to and worn by only one individual for the monitoring period the film badge or TLD was issued.
- (b) Direct reading dosimeters such as pocket dosimeters or electronic personal dosimeters must be read and the exposures recorded at the beginning and end of each use by the particular individual. Records of daily pocket dosimeter readings shall be kept for two (2) years. Pocket dosimeters or electronic personal dosimeters shall be checked and calibrated for correct response to radiation at periods not to exceed one (1) year. Acceptable dosimeters must read within plus or minus 20 percent of the true radiation exposure.
- (c) If an individual's direct reading dosimeter is off-scale and the possibility of an overexposure might have occurred, his/her film badge or TLD badge must be immediately sent for processing to an authorized service provider.
- (d) Records of the personnel monitoring devices shall be kept for inspection until the PNRI authorizes their disposal.
- (e) Each alarm ratemeter must:
 - (1) Be checked to ensure that the alarm functions properly (sounds) prior to use at the start of each shift;
 - (2) Be set to give an alarm signal at a preset dose rate of 5mSv/hr with an accuracy of +/- 20% of the true radiation dose rate;
 - (3) Require special means to change the preset alarm function; and
 - (4) Be calibrated at periods not to exceed one (1) year. Acceptable ratemeters must alarm within plus or minus 20 percent of the true radiation dose rate.

IV. WASTE MANAGEMENT AND DISPOSAL OF DISUSED SOURCES

Section 39. General Requirements.

Each licensee shall dispose of disused radioactive sources only:

- (a) By transfer to a recipient authorized by PNRI;

- (b) By disposal as radioactive waste in accordance with an approved radioactive waste management program; or
- (c) By return of disused source to the original supplier or manufacturer in the country of origin.

Section 40. Return of Disused Radioactive Sources to the Original Supplier or Manufacturer.

- (a) Each licensee shall keep current its special agreement with the supplier of the source for the return of disused sources to the original supplier or manufacturer of the source in the country of origin. A copy of such agreement including any updates or amendments shall be submitted to PNRI.
- (b) The disused radioactive sources shall be shipped in accordance with the packaging and shipping requirements specified in CPR Part 4 entitled “Regulations for the Safe Transport of Radioactive Materials in the Philippines”.
- (c) The licensee shall return the disused radioactive sources to the original supplier or manufacturer in accordance with Appendix B, “Requirements on the Import and Export of Radioactive Sources”, of this Part.

V. REPORTS, RECORDS AND NOTIFICATIONS

Section 41. Reports of Personnel Exposure.

- (a) The licensee shall furnish a report referring to employee’s total radiation exposure during the period of employment or work assignment in the licensee’s facility whenever termination of employment has made. Such report shall be furnished within thirty (30) days after the exposure of the employee has been determined by the licensee or ninety (90) days after the date of termination of employment or work assignment.
- (b) At the request of an employee, each licensee shall furnish to that employee a report of that employee’s total exposure to radiation as shown in records maintained by the licensee.

Section 42. Incident Reporting Requirements.

- (a) Each licensee shall provide an immediate report within twenty-four (24) hours followed by a detailed written report within thirty (30) days to the PNRI of the occurrence of any of the following incidents involving radiographic operations:
 - (1) Unintentional disconnection of the source assembly from the control cable;
 - (2) Inability to retract the source assembly to its fully shielded position and secure it in this position;
 - (3) Failure of any component (critical to safe operation of the device) to properly perform its intended function;
 - (4) Overexposure of personnel;
 - (5) Occurrence of fire during radiographic operation; and
 - (6) Failure or malfunction of survey instruments during radiographic operation.
- (b) The licensee shall include the following information for each immediate report submitted under Paragraph (a) of this Section:
 - (1) A description of the incident;

Note: Include the readings from the survey instruments or pocket dosimeters.

- (2) Cause of incident, if known;
- (3) Manufacturer and model number of radiographic exposure device involved in the incident;
- (4) Place, time and date of incident;
- (5) Actions taken to establish normal operations;
- (6) Corrective actions taken or planned to prevent recurrence;
- (7) Qualifications of personnel involved in the incident; and
- (8) Reports of overexposure.

Section 43. Report of Theft or Loss of Radioactive Sources.

- (a) Each licensee shall immediately notify PNRI by telephone or by any other fast means of communication within twenty-four (24) hours, of any lost, stolen, or missing radioactive sources.
- (b) In addition to this notification required in this Section, each licensee shall, within thirty (30) days after the occurrence of the incident, make a report in writing to PNRI that shall include the following information:
 - (1) Description of the radioactive sources involved (i.e., isotope, quantity, chemical, and physical forms);
 - (2) Description of the circumstances under which the loss or theft occurred;
 - (3) A statement of disposition or probable disposition of the radioactive sources involved;
 - (4) Any report filed with PNRI pursuant to this Section shall identify the individuals who may have exposed to radiation or may be involved in the incident.
 - (5) Actions which have been, taken or will be taken, to recover the radioactive source; and
 - (6) Procedures/Measures to be adopted to prevent recurrence of the circumstances which led to the loss or theft of the radioactive source.
- (c) Subsequent to filing the written report, the licensee shall also report immediately to PNRI any additional information which becomes available to the licensee.

Section 44. Recordkeeping Requirements.

- (a) The licensee shall maintain and retain records specified in this Part or as may be required by PNRI.
- (b) Each licensee shall maintain a copy of its license, license conditions, documents incorporated by reference, and amendments to each of these items until superseded by new documents approved by PNRI, or until PNRI terminates the license.
- (c) Each licensee shall maintain and retain records showing the receipts and transfers of radioactive sources and devices record for three (3) years after it is made. These records must include the date, the name of the individual making the record, radionuclide, number of becquerels or mass (for DU), and manufacturer, model, and serial number of each radioactive source and/or device, as appropriate.
- (d) Each licensee shall maintain records of the calibrations of its radiation survey instruments and retain each record for three (3) years after it is made.
- (e) Each licensee shall maintain records of leak test results for radioactive sources and for devices containing DU. The licensee shall retain each record for three (3) years after it is made or until the source in storage is removed.

- (f) Each licensee shall maintain records of the quarterly inventory of radioactive sources and of devices containing depleted uranium retain each record for three (3) years after it is made. The record must include the date of the inventory, name of the individual conducting the inventory, radionuclide, number of becquerels or mass (for DU) in each device, location of radioactive source and/or devices, and manufacturer, model, and serial number of each radioactive source and/or device, as appropriate.
- (g) Each licensee shall maintain records of radiographic exposure device problems found in daily checks and quarterly inspections of radiographic exposure devices, transport and storage containers, associated equipment, source changers, and survey instruments; and retain each record for three (3) years after it is made. The record must include the date of check or inspection, name of inspector, radiographic exposure device involved, any problems found, and what repair and/or maintenance, if any, was done.
- (h) Each licensee shall maintain the following records of training and certification for three (3) years after the record is made:
 - (1) Records of training of each radiographer and each radiographer's assistant. The record must include radiographer certification documents and verification of certification status, copies of written tests and dates of oral or practical examinations; and
 - (2) Records of refresher training and internal inspections of job performance for each radiographer and each radiographer's assistant. The records must list the topics discussed during the refresher safety training, the dates the annual refresher safety training was conducted, and names of the instructors and attendees. For inspections of job performance, the records must also include a list showing the items checked and non-compliances observed by the RSO.
- (i) Each licensee shall maintain a copy of current operating and emergency procedures until PNRI terminates the license. Superseded material must be retained for three (3) years after the change is made.
- (j) Each licensee shall maintain a record of each exposure device survey conducted before the device is placed in storage as specified in Section 43(c), if that survey is the last one performed in the workday. Each record must be maintained for three (3) years after it is made.
- (k) The licensee shall retain each individual employee's record of exposure for three (3) years after the record was made and shall be made available for inspection by PNRI.

Section 45. Utilization Logs.

- (a) Each licensee shall maintain current logs, showing for each radioactive source the following information:
 - (1) A description, including the make model number and serial number of the radiographic exposure device or storage container in which the radioactive source is contained;
 - (2) The identity and signature of the RSO, ARSO or radiographer to whom assigned; and
 - (3) The jobsite or location where used and dates of use, including the dates when the source is removed and returned to storage.
- (b) The logs required by this Section shall be kept available for two (2) years from date of the recorded event, for inspection by the PNRI at the address specified in the license.

Section 46. Notification on Change in Name and Mailing Address.

- (a) The licensee shall notify PNRI immediately by telephone and in writing within thirty (30) days if there is a change in the licensee's name or mailing address.

- (b) The notice, together with the relevant supporting documents, shall be sent to:

The Director
Philippine Nuclear Research Institute
Commonwealth Avenue, Diliman, Quezon City, Metro Manila

VI. INSPECTION AND ENFORCEMENT

Section 47. Inspections.

- (a) Each licensee shall allow authorized PNRI inspectors to enter its premises at all reasonable times and perform such inspections as may be necessary, announced or unannounced, of the radioactive sources in his/her possession and the premises, equipment and facilities where radioactive sources are used or stored.
- (b) During such inspections, the licensee shall make available to PNRI inspectors all relevant records kept pursuant to these rules and regulations at the location specified in the license.

Section 48. Violations.

A notice of violation shall be issued if the licensee is found to have violated any rule, regulation, or order issued by PNRI; or any term, condition, or limitation of any license issued thereunder.

Section 49. Modification and Revocation of License.

- (a) The terms and conditions of each license issued pursuant to the regulations in this Part shall be subject to amendment, revision or modification by reason of amendments to these regulations and the Act, or by reason of rules, regulations and orders issued by the PNRI in accordance with the terms of the Act.
- (b) Any license may be revoked, suspended or modified, in whole or in part, for any material false statement in the application, or for violation of, or failure by the licensee to observe, any of the terms and conditions of the license or any of the provisions of the Act, or any of the rule, regulation or order of the PNRI.
- (c) Except in cases of willful violation or where immediate action is required in order to protect public health and safety or the security of the source, no order for the suspension, modification or revocation of license shall become effective until the licensee shall have been afforded the opportunity be heard.
- (d) A license maybe modified by PNRI, or upon the request of the licensee, when:
- (1) The licensee decides to discontinue any specific licensed activity authorized in the license or requests for another authorization to undertake another licensed activity prescribed in this Part;
 - (2) PNRI determines that the licensee can no longer perform the specific licensed activity authorized in the license; or
 - (3) The licensee has ceased to perform a principal licensed activity during a two (2) year period.

- (e) Any person who willfully violates, attempts to violate or conspires to violate any rule or regulation or order issued hereunder, may be guilty of a crime, and upon conviction, may be punished by a fine or imprisonment or both as provided by Sections 64 and 65 of Republic Act No. 5207, as amended.

Section 50. Right to Take Temporary Custody of Radioactive Source.

PNRI may, if necessary to protect public health and safety or the national interest, take temporary custody of any radioactive source held by the licensee pending its appropriate and lawful disposition by or for the licensee.

VII. EFFECTIVITY

Section 51. Effective Date.

The regulations in this Part shall take effect fifteen (15) days following the publication in the **Official Gazette** or in a newspaper of general circulation.

Approved:



ALUMANDA M. DELA ROSA, Ph.D.

December 4, 2009
Date

APPENDIX A

RADIOGRAPHER CERTIFICATION

I. Requirements for an Independent Certifying Body

An independent certifying body shall:

1. Be an organization such as a society or association, whose members participate in, or have an interest in, the fields of industrial radiography;
2. Make its membership available to the general public nationwide that is not restricted because of race, color, religion, sex, age, national origin or disability;
3. Have a certification program open to nonmembers, as well as members;
4. Be an incorporated, nationally recognized organization, that is involved in setting national standards of practice within its fields of expertise;
5. Have an adequate staff, a viable system for financing its operations, and a policy-and decision-making review board;
6. Have a set of written organizational by-laws and policies that provide adequate assurance of lack of conflict of interest and a system for monitoring and enforcing those by-laws and policies;
7. Have a committee, whose members can carry out their responsibilities impartially, to review and approve the certification guidelines and procedures, and to advise the organization's staff in implementing the certification program;
8. Have a committee, whose members can carry out their responsibilities impartially, to review complaints against certified individuals and to determine appropriate sanctions;
9. Have written procedures describing all aspects of its certification program, maintain records of the current status of each individual's certification and the administration of its certification program;
10. Have procedures to ensure that certified individuals are provided due process with respect to the administration of its certification program, including the process of becoming certified and any sanctions imposed against certified individuals;
11. Have procedures for proctoring examinations, including qualifications for proctors. These procedures must ensure that the individuals proctoring each examination are not employed by the same company or corporation (or a wholly-owned subsidiary of such company or corporation) as any of the examinees;
12. Exchange information about certified individuals with the PNRI and other independent certifying organizations and allow periodic review of its certification program and related records; and
13. Provide a description to the PNRI of its procedures for choosing examination sites and for providing an appropriate examination environment.

II. Requirements for Certification Programs

All certification programs must:

1. Require applicants for certification to (a) receive training in the topics set forth in Section 19(c), and (b) satisfactorily complete a written examination covering these topics;
2. Require applicants for certification to provide documentation that demonstrates that the applicant has: (a) received training in the topics set forth in Section 19 (c) or equivalent , and (b) satisfactorily completed a written examination covering these topics;
3. Include procedures to ensure that all examination questions are protected from disclosure;
4. Include procedures for denying an application, revoking, suspending, and reinstating a certificate;
5. Provide a certification period of not less than 3 years nor more than 5 years;
6. Include procedures for renewing certifications and, if the procedures allow renewals without examination, require evidence of recent full-time employment and annual refresher training; and
7. Provide a timely response to inquiries, by telephone or letter, from members of the public, about an individual's certification status.

APPENDIX B

REQUIREMENTS ON THE IMPORT AND EXPORT OF RADIOACTIVE SOURCES

These requirements on the import and export of Categories 1 and 2 radioactive sources are in conformance with the import and export provisions in Parts 4 and 26 of the Code of PNRI Regulations (CPR), the IAEA Code of Conduct on the Safety and Security of Radioactive Sources and the IAEA Guidance Document on the Import and Export of Radioactive Sources. These requirements do not apply to radioactive sources within military or defense programs.

I. Import of Radioactive Sources.

- (a) Licensees intending to import radioactive sources in Categories 1 and 2 of Table 1 shall apply to PNRI for an authorization and must receive such authorization prior to import.
- (b) The application shall include the following information:
 - (1) name of the exporter and photocopy of exporter's valid license issued by the competent authority of the exporting country;
 - (2) exporter location and legal address or principal place of business;
 - (3) radionuclide data, activity, and uses of the radioactive source(s);
 - (4) name of licensed local distributor and photocopy of distributor's valid license issued by PNRI; and
 - (5) the provisions for return or disposal of the radioactive source once it becomes disused, including copies of any contracts with distributor and exporter to re-export for return and proper management of the source.
- (c) Licensees shall ensure that the exporter of the radioactive sources is authorized by the Competent Authority of the exporting country to export such sources to the Philippines in accordance with laws and regulations of that country.
- (d) Licensees shall provide the Competent Authority of the exporting country with the following information in writing:
 - (1) name of the recipient;
 - (2) recipient location and legal address or principal place of business;
 - (3) radionuclide data, activity and reference date;
 - (4) intended purpose and proposed use(s) of the radioactive source; and
 - (5) a suggested timeframe for a decision on the request to import.
- (e) A licensee who is only authorized by PNRI to import, sell or distribute radioactive sources shall import these sources only if the recipient or consignee in the Philippines has a valid PNRI license to receive the source and is capable to manage the source consistent with Section 11 of CPR Part 26.
- (f) Licensees shall ensure that the Exporting Country allows the re-entry of spent or disused sources if, in the framework of that Country's national laws, it has approved that spent or disused sources be returned to a manufacturer authorized to manage the spent or disused sources.
- (g) Licensees shall secure from the PNRI:
 - (1) A request for release which is submitted to the Bureau of Customs Officer to allow the release of the radioactive source shipment from the customs cargo hold area; and

- (2) An Authority to Transport Certificate wherein PNRI gives approval to transport the radioactive source shipment to the recipient location.
- (h) Licensees shall ensure that the import of radioactive sources is in accordance with CPR Part 4, "Regulations for the Safe Transport of Radioactive Materials in the Philippines".

II. Export of Radioactive Sources.

- (a) Licensees intending to export radioactive sources in Categories 1 and 2, particularly disused or spent sources, shall apply to PNRI for an authorization and must receive such authorization prior to exportation.
- (b) The application for export shall include:
 - (1) copies of agreements or contracts to re-import the source once it becomes disused;
 - (2) confirmation letter from the Competent Authority of the importing country that the recipient is authorized to receive and possess the radioactive source or sources to be exported in accordance with its laws and regulations; and
 - (3) a copy of the recipient's valid authorization issued by the Competent Authority of the importing country.
- (c) Licensees involved in the export of radioactive sources in Categories 1 and 2 of Table 1 shall ensure that the importing country has the appropriate technical and administrative capability, resources and regulatory infrastructure needed for the management of the radioactive sources.
- (d) Licensees shall take into consideration the risk of diversion or malicious acts involving radioactive sources by verification of the following information:
 - (1) whether the recipient has been engaged in illegal procurement of radioactive materials;
 - (2) whether an import or export authorization for radioactive sources has been denied to the recipient or importing country; or
 - (3) whether the recipient or importing country has diverted, for purposes inconsistent with the Code of PNRI Regulations, any import or export of radioactive sources previously authorized.
- (e) Licensees intending to export Category 1 and 2 sources shall notify the Competent Authority of the importing country, and should receive confirmation of such notification at least 7 days in advance of each shipment.
- (f) Licensees shall notify the Competent Authority of the importing country with the following information in advance, as applicable:
 - (1) estimated date of export,
 - (2) name and address of the exporting facility,
 - (3) name and address of the recipient,
 - (4) radionuclide, activity, and reference date,
 - (5) aggregate activity level, and
 - (6) number of radioactive sources and their unique identifiers (e.g., physical and chemical form).
- (g) Licensees shall provide PNRI with a copy of the above notification and secure from PNRI a written authorization to transport the radioactive source(s).
- (h) Licensees shall show proof to PNRI that the exported radioactive sources have been received by the authorized recipient.

III. Transfer of Radioactive Sources.

Licensees involved in the import and export of radioactive sources shall ensure that transfers are undertaken with a valid written authorization from PNRI.

IV. Transport of Radioactive Sources.

- (a) Licensees involved in the import or export of radioactive sources shall ensure that the transport of radioactive sources, either domestically or internationally, is in compliance with the requirements of CPR Part 4, "Regulations for the Safe Transport of Radioactive Materials in the Philippines", and all applicable national and international governmental regulations.
- (b) Licensees shall ensure that the import or export of radioactive sources is conducted in a manner consistent with existing relevant international standards relating to the transport of radioactive materials.
- (c) Licensees shall ensure that the transport of radioactive sources through the territory of a transit or transshipment country is conducted in a manner consistent with existing relevant international standards relating to the transport of radioactive materials, in particular paying careful attention to maintaining continuity of control during international transport.
- (d) If the conditions in II(c) with respect to a particular export cannot be satisfied, that export may be authorized by PNRI in exceptional circumstances if an alternative arrangement has been made to ensure the source will be managed in a safe and secure manner.

TABLE 1. ACTIVITIES CORRESPONDING TO THRESHOLDS OF CATEGORIES***

Radionuclide	Category 1* 1000 x D		Category 2** 10 x D	
	(TBq)	(Ci)	(TBq)	(Ci)
Am-241	6.0E+01	2.0E+03	6.0E-01	2.0E+01
Am-241/Be	6.0E+01	2.0E+03	6.0E-01	2.0E+01
Cf-252	2.0E+01	5.0E+02	2.0E-01	5.0E-00
Cm-244	5.0E+01	1.0E+03	5.0E-01	1.0E+01
Co-60	3.0E+01	8.0E+02	3.0E-01	8.0E+00
Cs-137	1.0E+02	3.0E+03	1.0E+00	3.0E+01
Gd-153	1.0E+03	3.0E+04	1.0E+01	3.0E+02
Ir-192	8.0E+01	2.0E+03	8.0E-01	2.0E+01
Pm-147	4.0E+04	1.0E+06	4.0E+02	1.0E+04
Pu-238	6.0E+01	2.0E+03	6.0E-01	2.0E+01
Pu-239b/Be	6.0E+01	2.0E+03	6.0E-01	2.0E+01
Ra-226	4.0E+01	1.0E+03	4.0E-01	1.0E+01
Se-75	2.0E+02	5.0E+03	2.0E+00	5.0E+01
Sr-90 (Y-90)	1.0E+03	3.0E+04	1.0E+01	3.0E+02
Tm-170	2.0E+04	5.0E+05	2.0E+02	5.0E+03
Yb-169	3.0E+02	8.0E+03	3.0E+00	8.0E+01

* “**Category 1 sources**”, if not safely managed or securely protected, would be likely to cause permanent injury to a person who handled them, or were otherwise in contact with them, for more than a few minutes. It would probably be fatal to be close to this amount of unshielded radioactive material for a period of a few minutes to an hour. These sources are typically used in practices such as Co-60 irradiators and teletherapy.

** “**Category 2 sources**”, if not safely managed or securely protected, could cause permanent injury to a person who handled them, or were otherwise in contact with them, for a short time (minutes to hours). It could possibly be fatal to be close to this amount of unshielded radioactive material for a period of hours to days. These sources are typically used in practices such as industrial gamma radiography, high dose rate brachytherapy and medium dose rate brachytherapy.

*** **Categorization** is provided by activity levels for radionuclides that are commonly used. These are based on D-values which define a dangerous source i.e., a source that could, if not under control, give rise to exposure sufficient to cause severe deterministic effects. A more complete listing of radionuclides and associated activity levels corresponding to each category, and a fuller explanation of the derivation of the D-values, may be found in Appendix I of CPR Part 26.