REGULATIONS MADE IN TERMS OF

Minerals (Prospecting and Mining) Act 33 of 1992
section 139(2)(f)

General Regulations
Government Notice 511 of 1963
(OG 2478)
came into force on date of publication: 15 May 1963

The General Regulations were originally made in terms of section 31 of the Atomic Energy Act 33 of 1948, which was repealed by the Atomic Energy Act 90 of 1967 which was subsequently repealed by the Minerals (Prospecting and Mining) Act 33 of 1992. Pursuant to section 139(2)(f) of the Minerals (Prospecting and Mining) Act 33 of 1992, the General Regulations are deemed to have been made under that Act.

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REGULATIONS IN CONNECTION WITH THE USE OF RADIOACTIVE MATERIALS FOR MEDICAL PURPOSES

Definitions

1. In these regulations, unless inconsistent with the context, the following expressions have the meanings hereby assigned to them -

“Act” means the Atomic Energy Act, 1948 (Act No. 35 of 1948), as amended;

“adequate protection” means protection against external radiations and against the intake of radioactive materials in such a manner that the radiation dose received by any person from sources external and internal to the body does not exceed the maximum permissible levels permitted by these regulations;

“adequate shielding” means, in relation to any plant or any apparatus housing sources of ionising radiations, shielding against ionising radiations by the use of lead or other suitable material as appropriate or by distance in such manner that the radiation dose at any point on the outer surface of such shielding or on the perimeter of any demarcating barrier around such plant, apparatus or source cannot exceed in 40 hours the maximum permissible weekly dose specified in these regulations;

“appointed doctor” means a person registered with the South African Medical and Dental Council as a medical practitioner, and appointed by the holder of an authority and registered with the Board to undertake the medical supervision of persons employed in the processes;

“approved” means approved in writing by the Board for the purposes of these regulations;

“beam apparatus” means the metallic shield in which a teletherapy isotope source is housed, and consists of at least three parts -

(a) a complete shielded source housing, adequate for the source in the “off” position;
(b) a collimating aperture; and

(c) a device for turning the beam remotely “on” or “off” from outside the treatment room;

“beta ray applicator” means a sealed source of radioactive material with an activity greater than fifty (50) microcuries and with a half-life longer than thirty (30) days, which emits beta rays and whose combined gamma rays and bremsstrahlung does not exceed one hundred (100) millirads per hour at any point, and prepared for medical uses other than permanent implantation into patients;

“beta rays” means electrons, positive or negative emitted during radioactive disintegrations;

“bremsstrahlung” means the X-radiation resulting from the interaction of beta-particles with the nuclear and electronic fields of target atoms;

“Board” means the Atomic Energy Board, established under section eleven of the Act;

“committee” means the committee of control over the use of radioactive materials established by the Board in terms of section fourteen of the Act;

“corpuscular radiation” means alpha particles, beta particles, electrons, positrons, protons, neutrons and heavy particles;

“external radiation” means radiation received by the body from radioactive sources external to it;

“gamma rays” means electromagnetic radiation of short wave length and correspondingly high frequency, emitted by nuclei in the course of radioactive decay;

“general authority” means an authority permitting the institution to which it is granted the use of unlimited quantities of any radioactive materials for medical or biological purposes, with the exclusion of teletherapy isotope sources;

“health register” means the register referred to in regulation 26 of these regulations;

“internal radiation” means radiation received by the body from radioactive sources within it;

“ionising radiations” means electromagnetic or corpuscular radiation capable of producing ions directly or indirectly in its passage through matter and emitted from a radioactive substance;

“leakage radiation” means all radiation coming from the source except the useful beam;

“limited authority” means an authority to hold and use such quantities of such radioactive materials as may be specified in the authority;

“loaded beam apparatus” means a beam apparatus containing a teletherapy isotope source;

“medical physicist” means a person who supplies documentary evidence to the satisfaction of the Board that he has obtained -

(a) at least a Master of Science degree or equivalent qualification in physics;
(ii) not less than one year’s experience in clinical hospital physics at a training institution or hospital approved by the Board for this purpose; or

(b) (i) at least an honours degree of Bachelor of Science or equivalent qualification in physics; and

(ii) not less than 2 years’ experience in clinical hospital physics at a training institution or hospital approved by the Board for this purpose,

and is recognised as such by the Board;

“monitoring equipment” means equipment suitable for detecting and measuring the dose-rate in an occupied area, or of the dose received by a person, or of radioactive contamination of any substance;

“primary radiation” means radiation coming directly from the source including the useful beam and leakage radiation;

“processes” means any operations involving the production, emission or use of ionising radiations;

“radioactive substance” means any substance which consists of or contains any radioactive chemical element whether natural or artificial and whose specific activity exceeds 0.002 of a microcurie per gramme of parent radioactive chemical element of substance and which has a total activity of more than 0.1 microcurie;

“radiation staff” means any person or persons who are potentially exposed to radiation or any radioactive substance as a result of their occupation and are for the time being designated as such in the health register by the holder of the authority and who have been adequately trained in the work on which they are employed as radiation staff;

“radiotherapist” means a person who is registered by the South African Medical and Dental Council as a specialist radiotherapist or a specialist radiologist who supplies documentary evidence of training to the satisfaction of the Board in radiotherapy and in the therapeutic application of radioactive materials at an institution approved by the Board, and is recognised as such by the Board;

“sealed source” means a radioactive source of ionising radiations which is firmly bonded within material or sealed in a cover of sufficient mechanical strength so as to exclude the possibility of contact with the radioactive material and the dispersion of radioactive material into the environment under foreseeable conditions of use and wear;

“source housing” means the protective housing, used in teletherapy equipment to reduce leakage radiation to the specified level;

“teletherapy isotopes source” means a sealed source of radioactive material which has an activity greater than 1 curie and whose gamma ray emission is used for therapy of patients from a distance;

“unsealed source” means a radioactive source that does not comply with the specifications for a sealed source;
“useful beam” means any radiation from a sealed source that can be employed for the purpose for which the sealed source is used.

APPLICATION AND SCOPE

Application and Scope

2. These regulations shall apply to all premises, places, processes and operations in which any radioactive substance, sealed or otherwise is or is proposed to be stored, manipulated, operated or used for medical purposes.

Exemption Certificates

3. If the Board is satisfied in respect of any institution, workshop, laboratory, place or premises to which these regulations apply that by reason of exceptional circumstances therein or by reason of the limited use made therein of ionising radiations, or for any other reason, all or any of the requirements of these regulations are not necessary for the protection of the persons employed, it may by certificate in writing (which may at the discretion of the Board be revoked at any time), exempt such institution, workshop, laboratory, place or premises or any part or parts thereof, from the operation of any such requirements subject to such conditions as may be specified in the certificate.

AUTHORITIES TO ADMINISTER RADIOACTIVE MATERIALS

General Authority

4. The Board may grant to hospitals and institutions a general authority to administer radioactive materials on condition that -

   (1) the hospital or institution appoint a local committee of control over the use of radioactive materials;

   (2) it shall have at its disposal the services of a full time medical physicist;

   (3) It has at its disposal such equipment facilities and staff as the Board may deem necessary.

Limited Authority

5. Where the prescribed conditions for a general authority cannot be complied with, the Board may grant limited authorities to radiotherapists at hospitals, institutions or in private practice for the administration of radioactive materials to patients, provided -

   (1) the medical administration of the radioactive material is done under the direct control of a radiotherapist; and

   (2) that a medical physicist is available -

   (a) for consultation by the radiotherapist if required; and

   (b) for the safe handling and disposal of radioactive substances.
Authority to Radiotherapists in Private Practice under Supervision of a Local Committee of Control

6. A qualified radiotherapist in private practice may be authorised by the Board to administer radioactive materials at a hospital or institution on condition that it is done under the supervision of the local committee of control appointed at the institution or hospital in terms of subregulation (1) of regulation 4 of these regulations.

Authority for Diagnostic and Research Purposes

7. The Board may grant authority to administer limited activities of any radioactive materials to medical practitioners for diagnostic and research purposes where it has been satisfied that the applicant has had sufficient training and experience and has at his disposal the necessary equipment and accommodation facilities for the proper handling, storage, monitoring and disposal of the radioactive materials.

Authority to Hold and Use Beta Ray Applicators

8. Authority to hold and use a beta ray applicator may be granted to a radiologist where the Board is satisfied that the applicant possesses sufficient knowledge, training and experience in the therapeutic application and dangers associated with the use of that particular isotope, subject to the following provisions -

   (1) that each beta ray applicator shall be inspected for leakage and deterioration at least once every year by a physicist authorised thereto by the Board, and that a certificate, valid for one year, be issued, indicating the safety of the source and the integrity of the seal;

   (2) that each beta ray applicator shall be calibrated by a person or institution authorised thereto by the Board before it is issued to the applicant and every five years thereafter, and that a certificate be issued valid for five years, indicating the calibrated dose-rate at the time of calibration;

   (3) that the beta ray applicator, when not in use for therapeutic purposes, be stored in a container which will provide shielding to the satisfaction of the Board.

Authority to Hold and Use Teletherapy Isotope Sources

9. Authority to hold and use a teletherapy isotope source may be granted to a radiotherapist where the Board is satisfied that such radiotherapist possesses sufficient knowledge, training and experience in the therapeutic application of and the dangers associated with the use of that particular isotope, or to an institution which has in its service a radiotherapist, and further subject to the following provisions -

   (1) A medical physicist is available -

   [Inconsistent use of capitalisation in the Official Gazette, as reproduced above.]

      (a) for consultation by the radiotherapist if required; and

      (b) for the safe handling of the loaded beam apparatus;

   (2) the teletherapy isotope source shall be permanently placed in a beam unit of a design approved by the Board;
(3) the loaded beam unit shall be permanently housed in a treatment room of a design approved by the Board;

(4) where the installation of the teletherapy isotope source in the beam unit is undertaken in the Republic of South Africa, it shall be undertaken under the supervision of a physicist authorized thereto by the Board;

(5) when loading a beam unit, adequate protection shall be ensured and all persons associated with such loading shall wear pocket dosimeters to record the radiation received by such persons and records of the dosages received by each person, together with a full report on the loading of the beam unit, shall be forwarded to the Board;

(6) no teletherapy isotope source may be removed from its beam unit or treatment room without the prior consent of the Board and such removal shall be done under conditions which provide adequate protection to all persons.

Non-transferability of Authorities

10. All authorities granted in terms of these regulations shall be personal to the holder and shall not be transferable except with the written authority of the Board.

Cancellation of Authorities

11. Any authority issued in terms of these regulations may be cancelled by the Board -

(1) where the person or institution or any of its employees contravenes any provision of these regulations or a condition of the authority; or

(2) where owing to unforeseen circumstances or conditions the cancellation of the authority is considered by the Board to be in the public interest.

Recognition as Radiotherapist or Medical Physicist

12. The Board shall issue to every person recognised by it as a radiotherapist or medical physicist a certificate to the effect that he has been recognised as such.

LOCAL COMMITTEES OF CONTROL

Constitution

13. The local committee of control referred to in regulations 4, 5 and 6 of these regulations shall be constituted as follows -

(a) Chairman.—The head of the department of radiology or the head of the department of radiotherapy, where such departments are organised separately.

(b) Member.—A radiotherapist.

(c) Member.—A medical physicist.

(d) Member.—A pathologist.
(e) **Member.**—A physician.

The first-mentioned three members shall constitute the executive of the local committee of control, and the chairman together with any two of the other members of the committee shall form a quorum.

**Membership of a Part-time Radiotherapist**

14. With the approval of the Board a hospital or institution may nominate a radiotherapist who is in its part-time service as a member of the local committee of control.

**Alternate Members**

15. Alternates to members of local committees of control over the use of radioactive materials may be nominated for approval by the Board.

**Appointments**

16. The appointment of each member of a local committee of control shall be approved by the Board in writing.

**Responsibilities**

17. (1) Local committees of control shall -

(a) be responsible for the daily decisions in respect of the use and handling of radioactive materials the hospitals or institutions;

(b) be responsible for compliance with these regulations;

(c) satisfy themselves that any person handling a radioactive source or an instrument containing a radioactive source, with their approval, is medically fit and has adequate knowledge and experience to handle such a source or instrument;

(d) ensure that all persons working with or who are exposed to radiation whilst working with radioactive sources are fully conversant with the health and safety measures and operating instructions applicable to the radioactive sources under their control;

(e) in case of fire, floods, cyclones and similar emergencies, warn all persons engaged in salvage and protection work of the radioactive sources under their control;

(f) annually, on the 31st December, submit to the holder of the authority a report containing the following information -

(i) particulars of the radioactive sources in the possession of the institution;

(ii) particulars of the equipment and hospital facilities available;

(iii) particulars of the medical practices followed in the different therapeutic administrations the institution;
(iv) particulars of the physical practices followed, including the method of standardising equipment;

(v) a list of the members of the local committee of control.

[Inconsistent use of full stops in the Official Gazette, as reproduced above.]

A copy of such report shall forthwith be transmitted by the holder of the authority to the Board.

(2) Where no local committee of control exists, the duties named in subregulation (1) of this regulation shall be carried out by the holder of the authority.

Additional Medical Physicists

18. The Board shall have the power, where it may deem it necessary, to require the appointment of additional medical physicists or assistants before it grants or renews an authority.

FACILITIES FOR USE OF RADIOACTIVE MATERIALS

Handling, Storage and Disposal

19. Before the Board grants an authority in terms of regulations 4, 5, 6, 7, 8 and 9 of these regulations, it shall satisfy itself that the hospital or institution has at its disposal the necessary equipment and facilities for the safe and efficient handling, storage, removal or disposal of radioactive materials.

Room for Handling Small Quantities of Radioactive Materials

20. There shall be placed at the disposal of the medical physicist a room in which he can handle, store, monitor, assay or dispose of small quantities of radioactive materials. This room shall be protected against any interference from external stray radiation while small (tracer) quantities of radioactive materials, which have been administered to patients, are monitored.

Hot Laboratory

21. The medical physicist shall also be provided with a room to the satisfaction of the Board for the handling and storing of large quantities of radioactive materials.

Written Notice for Improvement

22. The Board may, where it deems it necessary for the safe and efficient use, handling, storage and removal or disposal of radioactive materials, by means of written notice of at least 30 days, require the hospital or institution to improve or enlarge its equipment and facilities.

HOSPITALISATION OF PATIENTS CONTAINING RADIOACTIVE MATERIALS

Provision of Separate Wards
23. Patients in or on whose bodies radioactive materials are contained and who record dose-rates higher than 2½ millirads per hour, at one meter from the patient, shall only be accommodated in wards reserved for such patients and other patients also undergoing treatment with either X-ray above 180 kVp or large therapeutic doses of radioactive materials.

Facilities in Wards

24. The wards mentioned in regulation 23 of these regulations shall, to the satisfaction of the Board, be equipped with facilities for the storage of clean and radioactive bedpans, bottles and other equipment, and for the handling of dirty linen and contaminated articles.

Protection of Staff

25. The wards shall provide adequate protection to staff members against external irradiation.

PROTECTION OF PERSONS AGAINST IONISING RADIATIONS

Health Register

26. A health register containing the names of all persons who are employed in the processes shall be kept in a form approved by the Board. The appointed doctor shall enter therein the dates and results of his examinations of such persons.

Preservation of Registers

27. Every register kept in pursuance of these regulations shall be preserved and kept available for inspection for at least ten years after the date of the last entry in the register and such registers shall be endorsed with this requirement.

Wilful Exposure to Ionising Radiations

28. No person shall unnecessarily place himself or be placed, without adequate protection, in a useful beam of, or in a field of a source emitting ionising radiations. In cases of emergency the work shall be so planned that no person shall receive a dose in excess of that currently recommended by the International Commission on Radiological Protection for emergency exposure.

Forbidden Use by Unauthorised Persons

29. No person shall handle a radioactive source, or handle an instrument containing a radioactive source, without the approval of the local committee of control or of the holder of the authority in charge of that source.

Safe Handling of Radioactive Sources

30. The storage of and all work associated with a source of ionising radiations shall be so arranged and conducted as to afford adequate protection to all persons.

Warning Signs

31. Appropriate warning notices, which are easily intelligible by all persons, shall be displayed at the entrance to or at other appropriate places in areas where contamination with
radioactive substances is possible or where persons may be exposed to radiation from such substances.

PERSONS EMPLOYED IN THE PROCESSES

Examination of Radiation Staff

32. Any applicant for an authority or any of his employees who handles radioactive materials shall, if required by the Board, submit himself for examination by the Board or a person authorised thereto by the Board in order to determine whether or not the applicant or any of his employees possesses the necessary knowledge and experience.

Record of Previous Employment

33. (1) Any person who has been employed in the processes shall on the termination of his service with a holder of an authority be supplied with a record of service in the processes together with such remarks and annotations concerning him which may have been recorded in the health register.

(2) On re-employment in the processes such a person shall produce to the holder of the authority the record referred to in subregulation (1) of this regulation.

(3) Any person who has been employed in radiation work other than in the processes shall prior to employment in the processes furnish details of such employment to the holder of an authority.

(4) On employment in the processes, the details referred to in subregulations (2) and (3) of this regulation shall be recorded in the health register.

MEDICAL CONTROL OF RADIATION STAFF

Medical Examinations of Persons Before Employment in the Processes

34. (1) No person shall be employed in the processes unless within a period of two months immediately preceding his first employment in the processes -

(a) he has undergone a blood examination in accordance with regulation 36 of these regulations; and

(b) he has subsequent to the examination referred to in paragraph (a) of this subregulation been examined by the appointed doctor and certified fit for employment in the processes by signed entry in the health register.

(2) The expression “first employment” referred to in subregulation (1) of this regulation means first employment in the processes and also re-employment therein following any cessation of such employment for a period exceeding 12 months.

Medical Supervision and Examination of Persons Employed in the Processes

35. (1) The holder of an authority shall make arrangements for medical supervision by the appointed doctor of all persons employed in the processes, including specific arrangements for medical examinations as provided for in these regulations.
(2) The holder of an authority shall arrange for every person employed in the processes to be examined by the appointed doctor -

(a) at intervals of not more than 12 months so long as his employment in the processes continues;

(b) when accidental overexposure is suspected, or has been established; and

(c) at such other times as the appointed doctor in his discretion may determine.

(3) It shall be the duty of persons employed or about to be employed in the processes to submit themselves for examination by the appointed doctor at the appointed time.

(4) Every medical examination shall include an examination of the hands and of the blood in accordance with regulation 36 of these regulations and may at the discretion of the appointed doctor include an examination of the urine and an X-ray examination of the chest or any other special examination.

Blood Examinations

36. (1) Every blood examination for the purpose of these regulations shall be made by a laboratory or person approved by the Board and shall include a total red blood cell and white cell count, with a differential white cell count, estimation of haemoglobin in grammes per 100 cubic centimetres of whole blood and a search for and record of abnormal cells seen. Where abnormal blood counts persist, consideration should be given to bone marrow studies.

(2) The report of the blood examinations shall be sent to the appointed doctor and entered in the health register.

Worker Receiving Excess Radiation

37. Whenever a worker has received a radiation dose in excess of that permitted by these regulations the appointed doctor and the holder of the authority shall jointly examine the circumstances of the exposure and the possible effects on the worker concerned and shall jointly decide on the action to be taken.

Appointed Doctor’s Power of Suspension

38. (1) The appointed doctor shall have power, to be exercised by written certificate in the health register signed by him, to suspend from employment in the processes any worker examined by him under these regulations. The reasons for suspension shall appear on such certificate. Such action shall immediately be reported to the Board, which may confirm, vary or change the findings of the appointed doctor.

(2) No person after suspension shall be employed on work in the processes without the written sanction of the appointed doctor entered in the health register. Such action shall immediately be reported to the Board, which may confirm or vary the findings of the appointed doctor.

MAXIMUM PERMISSIBLE RADIATION

Maximum Permissible Doses of External Radiation and the Maximum Permissible Concentration of Radioactivity in Air and Water
39. The maximum permissible doses of external radiation and the maximum permissible concentrations of radioactivity in air and water to which persons may be exposed, shall not exceed the values recommended from time to time by the International Commission on Radiological Protection, details of which are obtainable on application from the Board.

**Maximum Permissible Levels of Contamination**

40. The radioactive contamination that may be allowed on surfaces shall not exceed the values specified in the following table -

<table>
<thead>
<tr>
<th>Radioisotope</th>
<th>Parts of body; personal clothing; hospital bedding; inactive areas</th>
<th>Protective clothing; “active” laboratories; glassware; tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radium and plutonium</td>
<td>$10^{-5}$ microcuries per square centimetre</td>
<td>$10^{-4}$ microcuries per square centimetre</td>
</tr>
<tr>
<td>Other radioisotopes</td>
<td>$10^{-4}$ microcuries per square centimetre</td>
<td>$10^{-3}$ microcuries per square centimetre</td>
</tr>
</tbody>
</table>

**MONITORING EQUIPMENT**

**Provision of Monitoring Equipment**

41. All persons employed in the processes shall be provided by the holder of an authority with the appropriate monitoring equipment prescribed by these regulations.

**Testing of Monitoring Equipment**

42. Such survey instruments and dosimeters as the Board may direct shall be tested and calibrated before being brought into use and after any repairs thereto, and thereafter restested in every period of 24 months by the person or institution authorised thereto by the Board.

**Issue of Calibration Certificates**

43. The calibrating or testing officer or institution shall issue to the holder of an authority whose instruments have been tested or calibrated a certificate whereon the survey instruments and dosimeters which have been calibrated or tested are shown as well as the date of calibration or test.

**PERSONNEL MONITORING**

**Film Badges**

44. All persons employed in the processes shall, except with written exemption from the Board, wear film badges. The holder of the authority shall obtain the film badges from a laboratory approved by the Board and shall arrange with said laboratory to examine the badges identified with reference to the particular wearer and for the issue to the holder of the authority by the laboratory of certificates as to the dose represented by the results of the examination of each film badge. The certificates shall be inserted in the health register.
Pocket Dosimeters

45. (1) Pocket dosimeters having full scale deflections of not more than 250 millirads shall be worn by all persons when handling radioactive sources of gamma emitters, where workers are liable to be exposed to radiation in excess of 20 millirads during any one day.

(2) Pocket dosimeters shall be read at suitable intervals during use in order to determine the rate at which the permitted maximum dose is approached.

(3) The doses of radiation received by personnel as recorded by pocket dosimeters, shall be entered in the health register.

Internal Monitoring

46. Persons suspected of having inhaled or ingested radioactive material, or having been internally contaminated by other means, shall undergo such tests for internal contamination as the Board may direct. Such tests shall be carried out by an institution approved by the Board, and the results of the tests shall be entered in the health register.

Monitoring for Contamination

47. (1) No person shall leave a workplace where unsealed sources of radioactive substances are produced, prepared or used, without undergoing adequate tests to establish that his clothes and body are free from radioactive contamination.

(2) Monitoring for contamination shall be undertaken by means of suitable Geiger-Müller counters or scintillation detectors.

(3) Whenever a person is found to be radioactively contaminated, the results of the monitoring tests carried out, as well as the steps taken to decontaminate such person, shall be recorded in the health register.

AREA MONITORING

Radiation from External Sources

48. (1) A suitable type of ionisation chamber dose-ratemeter shall be used to determine -

(a) the dose-rate to which a user is exposed when approaching a radioactive source; and

(b) the distance from the source beyond which the maximum permissible radiation dose-rate is not exceeded.

(2) In the case of sealed sources, or sources permanently built into apparatus, where the dose-rate at the surface exceeds 20 millirads per hour, the distance referred to in paragraph (b) of subregulation (1) of this regulation shall be indicated on the housing container of the source.

Contamination of Water
49. Where the Board deems it necessary, it may direct a person or institution to monitor the radioactive contamination of waters or liquids before releasing it into public sewers.

Contamination of Surfaces of Rooms or Equipment

50. (1) Any area or room within which unsealed radioactive materials are being used, shall be monitored at suitable intervals during the operation to determine the extent of contamination.

(2) All protective garments shall be monitored before being tendered for laundering and shall not be laundered with normal clothing if found to be contaminated.

PROCEDURE IN CASE OF ACCIDENTS

Reporting of Accidents

51. (1) All accidents involving radioactive spillage, contamination or possible overexposure shall be reported forthwith to the responsible person named in the authority.

(2) If any person has been accidentally overexposed or is likely to have been overexposed, the occurrence shall forthwith be reported to the Board.

(3) Breakage of any sealed source shall be reported forthwith to the Board.

Removal and Treatment of Personnel

52. In the event of radioactive spillage, persons in the vicinity, liable to contamination or overexposure, shall be evacuated immediately to safe areas and monitored for contamination.

Control of Contaminated Areas

53. All contaminated areas, as well as areas suspected of having been contaminated, shall be demarcated and posted with warning signs. Such areas shall also be monitored to determine the extent of the contamination and all possible steps must be taken to prevent the possible further spreading of the contamination.

Report on an Accident

54. A detailed report shall be prepared and entered in the health register referred to in regulation 26 of these regulations, stating -

(a) the cause of the accident;

(b) steps taken to prevent recurrence;

(c) steps taken to comply with regulations 51 to 53 of these regulations; and

(d) the quantity of radiation received by each affected individual.

Accident Equipment
55. Where the Board deems it necessary, it may prescribe special equipment and facilities to be kept available to deal with casualties in cases of emergency.

USE OF UNSEALED RADIOACTIVE SOURCES

Prevention against Contamination

56. Since wherever unsealed radioactive substances are handled, danger of contamination and of poisoning by ingestion, inhalation, or injection exists, meticulous care shall be taken by the persons working with those substances to avoid contamination of any part of the body, and of rooms, floors, fixtures, tools and clothing. Adequate methods of protection and of control shall be used to prevent contamination and the check whether or not contamination has occurred.

Protective Garments

57. Whenever contamination of clothing or hands with radioactive substances is possible, suitable protective garments such as laboratory coats, overalls and gloves shall be worn by the persons working with these substances. Protective garments must be taken off before leaving the area in which contamination with radioactive substances is possible.

Forbidden Practices

58. (1) Eating or smoking, and the storing, preparing or handling of food, drugs, smoking utensils and materials, and cosmetics, are forbidden in any area where contamination with radioactive substances is possible.

(2) The pipetting by mouth of any solution containing radioactive substances is forbidden.

Waste Disposal

59. Meticulous care shall be taken by the holder of the authority in the disposal of waste containing any radioactive substance, and such disposal shall be made only in a manner from time to time approved by the Board, either generally or in any particular case.

Ventilation Requirements

60. No person shall work with radioactive substances in any room which is not adequately ventilated.

Permissible Radioactivity in Air

61. (1) Subject to subregulation (2) of this regulation no person shall occupy any room in which the concentration of any radioactive material in the air exceeds the maximum permissible concentration stipulated from time to time for the particular isotope by the International Commission on Radiological Protection, referred to in regulation 39 of these regulations.

(2) An approved respirator, combat mask or air-line hood shall be worn by persons working with any radioactive substance in any location where the concentration of air-borne substances emitting ionising radiations may be greater than the maximum permissible concentrations permitted by these regulations. Such respirators, combat masks or air-line hoods
shall be inspected and monitored after each use and at two-monthly intervals when not in use, and they shall be cleaned and decontaminated whenever they are found to be contaminated.

SUPERVISION AND MAINTENANCE OF SEALED RADIOACTIVE SOURCES

Register of Sealed Sources (Including Teletherapy Isotope Sources)

62. (1) A register shall be kept showing the following particulars in respect of every sealed source, namely -

(a) the certificate number or other particulars sufficient to identify the sealed source;
(b) the nature of and the maximum radioactive strength of the radioactive substance in the sealed source on a specific date;
(c) the date of receipt of the sealed source into the control of the holder of the authority; and
(d) the date and manner of disposal of the sealed source when it leaves the control of the holder of the authority.

(2) At least once in every working day the holder of the authority or a person appointed for the purpose in writing by the holder shall satisfy himself that each movable sealed source is satisfactorily accounted for.

Damage to Sealed Sources

63. Where any sealed source is corroded or damaged or where there are other reasonable grounds for believing that it is leaking or is likely to leak, it shall be sealed in an air-tight container forthwith and shall not be brought into use again until it has been affectively repaired and tested and certified as in order by a person or institution authorised thereto by the Board.

Testing of Sealed Sources

64. Every sealed source shall be examined for leakage at least once in every two years by a competent person or institution recognised by the Board. Records of such tests shall be entered in the health register and shall be made available to the Board’s inspecting physicists or other persons authorised by the Board to call for such records.

Loss of Sealed Sources

65. If any person has reasonable grounds for believing that he has lost or mislaid a sealed source or any other radioactive substance, he shall notify the holder of the authority and the occupier of the premises, workplace or laboratory forthwith, who, after having satisfied himself that the source or radioactive substance has been lost, shall immediately notify the Board.

Storage of Sealed Sources

66. (1) Where sealed sources are liable to release a radioactive gas their place of storage shall be efficiently ventilated to the open air by mechanical means before they are opened.
(2) Sealed sources shall be removed from their place of storage or storage container only by a person authorised in writing by the holder of an authority.

Alterations to Existing Facilities

67. The holder of an authority in terms of these regulations shall give not less than one month’s notice in writing to the Board of his intention to carry out extensions or modifications to apparatus, plant or sources emitting ionising radiations or measures protecting persons against such radiations, which may increase the radiological hazard. Such alterations shall not be effected without the written permission of the Board.

HANDLING OF CADAVERS CONTAINING RADIOACTIVE MATERIALS

Responsibility

68. The identification of a particular patient as radioactive shall be the responsibility of the medical practitioner in charge of the case or his designated representative. If such a patient dies in a hospital, the doctor who pronounces him dead shall notify the medical practitioner in charge of the case or his designated representative at once.

Autopsies

69. When an autopsy is desired on a body containing radioactivity, the medical practitioner in charge of the case shall give formal written notice to the responsible pathologist.

Report

70. A radioactive report on every cadaver containing more than five millicuries of radioactivity shall be completed by the medical physicist or the medical practitioner responsible for the administration of the radioactive material or their designated representatives, in a form approved by the Board. This report shall accompany the body (whether autopsied or not) when it is surrendered to the funeral director.

TRANSPORT OF RADIOACTIVE MATERIALS

Transportation Inside and Between Approved Premises

71. Transportation of radioactive materials may only take place inside an authorised institution, or between premises specifically approved by the Board.

Packing, Shielding and Marking

72. No radioactive material shall be offered for transportation by rail, ship or aircraft or any other road vehicle, unless the radioactive material is packed, shielded, marked and labelled in accordance with the regulations for the Safe Transport of Radioactive Materials, as drawn up from time to time by the International Atomic Energy Agency - details of which are obtainable on application from the Board - or in a manner approved by the Board, either in general or in any particular case.
73. Notwithstanding anything contained in these regulations, any container of radioactive substances imported from recognised foreign suppliers of such substances shall be deemed to comply with the provisions of these regulations relating to the packing, marking and labelling of radioactive substances if it is packed, marked and labelled in accordance with the law in that connection in force for the time being in the country of origin.

INSPECTIONS

Appointment of Inspectors

74. The Board shall as prescribed by section fifteen of the Act appoint suitably qualified persons to carry out inspections of the premises and equipment of applicants for and holders of authorities to hold and use radioactive materials in order to determine whether or not the equipment, facilities and premises comply with the provisions of these regulations and generally, whether or not the holders are competent to hold and use radioactive materials and whether or not they are properly equipped for the safe handling and storing of radioactive materials.

Powers of Inspectors

75. The inspectors referred to in regulation 74 of these regulations shall have the right at all reasonable times to enter the premises of applicants for or holders of authorities in order to determine whether or not the accommodation facilities are suitable, the equipment suitable and efficient as well as to observe whether or not the practice employed in the use of radioactive materials complies with the provisions of these regulations, generally whether or not the holders comply with requirements of these regulations.

DELEGATION OF POWERS BY THE BOARD

76. The Board may from time to time delegate to a committee established under section fourteen of the Act or to any member of such a committee or officer of the Board, such of its powers as it may deem fit, but shall not be divested of any power so delegated, and may amend or repeal any decision by any such committee or member or officer.