



REQUIREMENTS DOCUMENT

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1. RADIATION PROTECTION FUNCTION

1.1 A radiation protection capability shall be maintained which is able to:

- recognize and quantify all potential and actual radiation hazards during normal operations,
- prospectively implement control measures to ensure compliance with the dose limitation system applicable to employees and members of the public as a result of normal operations,
- recognize and quantify radiation hazards associated with abnormal situations and implement appropriate radiation protection control measures,
- assess the need for, and formulate, mitigatory actions in the event of accidents,
- assess the impact of any modification or procedural changes in terms of potential radiation dose to workers arising from occupational exposure, or to members of the public as a result of effluent discharges, waste disposal or transport of radioactive material,
- ensure, on an ongoing basis and separate from day to day operational activities, that the objectives of the organization are being met.

1.2 Adequate competent, qualified and trained staff shall be available to execute the radiation protection function. The staff shall be sufficiently independent to ensure that conflict of interests does not prejudice the proper execution of their responsibilities and they must be invited to make an input into all decisions which may potentially impact on radiation safety.

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1.3 The National Nuclear Regulator (NNR) shall be provided with a submission that will demonstrate how the radiation protection function will meet the requirements of the NNR. Proposed changes to the function shall likewise be motivated and be submitted at least two months prior to the required date of implementation.

2. OCCUPATIONALLY EXPOSED PERSONS HEALTH REGISTER

2.1 A Health Register shall be maintained in a form approved by the NNR. Entries in the Health Register certifying the medical fitness of each occupationally exposed person shall be certified by an Appointed Medical Practitioner. This register shall be retained by the Holder for a period of fifty years from the date of the last entry, unless otherwise directed by the NNR.

3. RADIATION DOSE REGISTER

3.1 A Radiation Dose Register which records the dose to occupationally exposed persons shall be maintained in a form approved by the NNR. This register shall be maintained by the Holder for a period of fifty years from the date of the last entry, unless otherwise directed by the NNR.

4. CLASSIFICATION OF AREAS

4.1 Areas where potential radiation hazards exist shall be controlled in such a manner that access is permitted only to authorized personnel.

4.2 Areas shall be classified in accordance with the potential radiation hazards prevailing in respect of both radiation and radioactive contamination. The system of classification shall be approved by the NNR.

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- 4.3 Areas so classified, and zones within the areas, shall be clearly demarcated and signposted.
- 4.4 Provision may be made for localized areas to exceed the zone limits in accordance with procedures approved by the NNR.
- 4.5 Access to classified areas shall be under conditions authorized by the head of the radiation protection function. All activities within such areas must be assessed and the required radiation safety provisions and instructions specified. Persons entering such areas shall be familiar with the requirements and instructions and implement them accordingly.
- 4.6 A formal, approved respiratory programme must be laid down for use when specified.
- 4.7 Procedures, approved by the NNR, shall be in place to ensure that personnel upon exiting classified areas are monitored for contamination as appropriate and that any direct reading dosimeters required for access to the area in question are read out and the dose accrued is recorded.
- 4.8 Any material or equipment that is removed from a classified area shall be monitored for contamination as appropriate and be subject to controls in accordance with procedures approved by the NNR.
- 4.9 The levels to which skin or personal clothing contamination must be routinely reduced before leaving a classified area are:
- alpha emitters: 0.04 Bq.cm⁻²,
beta and gamma emitters: 0.4 Bq.cm⁻²
- (averaging over 300 cm² is permitted when monitoring for such contamination).

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4.10 The levels of contamination for material and equipment released from the Authorised site must not exceed the following:

- Alpha emitters: 0.04 Bq.cm⁻²,
- Beta and gamma emitters: 0.4 Bq.cm⁻²,
- Measured radiation dose rate of less than 0.5 μSv. hr⁻¹

except:

4.10.1 In the case of scrap metal being released for melting, where the NNR has approved that compliance with the following requirements can be demonstrated:

4.10.1.1 The party to which the scrap metal is released, is Authorised to carry out activities with this scrap metal.

4.10.1.2 Items on the Prohibited List of the Holder as approved by the NNR shall be stored on the Authorised site.

4.10.1.3 The Holder shall reasonably demonstrate that the activity concentration of scrap metal prior to washing is less than 10 Bq total activity per gram of scrap metal and contaminant.

4.10.1.4 All scrap metal shall be washed to ensure that all readily removable contamination has been removed.

or

4.10.2 In all other cases, where such release has been approved by the NNR.

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5. RADIATION SURVEILLANCE

- 5.1 A radiation surveillance programme approved by the NNR shall be implemented. The programme shall ensure quantification of direct radiation dose rates, surface contamination levels and airborne contamination levels.
- 5.2 The programme must be formally documented and must ensure that correct instrumentation is utilized and that exposures received by personnel in the execution of the programme are kept as low as reasonably achievable. The programme must make provision for routine and operational monitoring and the capability for special monitoring must be available.
- 5.3 The frequency of surveys must be related to the magnitude and nature of potential radiation hazards, the activities to be conducted in particular areas, associated occupancy factors, and the potential for variation in radiation conditions.
- 5.4 The surveillance programme must include all classified areas within the Authorised site together with other areas, in particular waste dumps, storage areas and eating areas.
- 5.5 A formalized shield verification programme must be established for any new shielding that is brought into use.
- 5.6 Action levels must be laid down for investigation and intervention initiation.
- 5.7 Records of the results of the radiation surveillance programme must be maintained.

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6. RADIATION MONITORING INSTRUMENTATION

- 6.1 All instrumentation which is utilized in the radiation surveillance programme together with all radiation monitoring instrumentation shall be subject to a control programme approved by the NNR.
- 6.2 All instrumentation must be calibrated prior to initial use and thereafter at a minimum frequency of once per year at a period of no greater than fourteen months, and following repair. Such calibrations must be against standards traceable to the National Standards maintained by the National Calibration Service.
- 6.3 Operability of portable instrumentation must be verified prior to use.
- 6.4 A surveillance programme must be carried out on installed instrumentation which includes operability checks, source checks, functional tests and calibration.
- 6.5 Alarm and trip set points must be laid down for installed instrumentation.
- 6.6 Records shall be maintained detailing the inventory of instrumentation together with a maintenance and calibration history.

7. REQUIREMENTS FOR PERSONNEL AUTHORIZED TO ENTER CLASSIFIED AREAS

- 7.1 Personnel whose duties require access to classified areas shall be designated as occupationally exposed persons. Such personnel shall:
- be eighteen years of age or older,
 - have completed a training course, approved by the NNR and been given instructions in the nature of radiation hazards, the principles of radiation protection and appropriate authorised facility procedures controlling radiation hazards under normal and accident conditions,
 - be medically examined in accordance with a laid down protocol and declared fit for employment in the conditions of work proposed for each individual,

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- have their personal radiation doses monitored and recorded in accordance with procedures approved by the NNR.
- 7.2 Under exceptional circumstances and for reasons approved by the Manager or his deputy, personnel who do not meet all the requirements specified above may be allowed access to classified areas provided that in any such case:
- the person is eighteen years of age or older,
 - a review of the person's radiation exposure history is performed to ensure that access by that person to a classified area will not result in the dose limit appropriate for him or her being exceeded,
 - the person is issued with suitable personal dosimetry,
 - a discrete authorization is issued and signed by the Manager or his deputy and the authorization is entered into a log maintained for this purpose,
 - the person shall be continuously escorted by a person designated as occupationally exposed whilst inside the classified area.
- 7.3 Personnel working on or visiting the authorised facility who do not fall into the above categories shall not be allowed access to classified areas.

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8. RADIATION DOSIMETRY

- 8.1 Monitoring of individual radiation doses shall be carried out by dosimetry systems approved by the NNR.
- 8.2 Extremity dosimeters shall be issued whenever contact dose rates exceed ambient dose rates by a factor of five and such dose rates are in excess of 1 mSv.h^{-1} or contact dose rates exceed 4 mSv.h^{-1} . Such dosimeters shall be processed as soon as possible after use.
- 8.3 An internal dosimetry programme approved by the NNR shall be implemented.
- 8.4 A set of derived levels approved by the NNR shall be laid down for all modes of exposure both, external and internal, at which:
- radiation doses accrued shall be recorded,
 - the circumstances giving rise to the dose will be investigated to ensure that the radiation protection measures controlling the activity in question are adequate and functional,
 - the activity giving rise to the exposure shall be suspended pending re-assessment of the required radiation protection provisions.
- 8.5 An annual report shall be made to the NNR summarizing and interpreting the information recorded in terms of the above paragraphs for the period in question.

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