



Australian Government

PSPRAD011 Work safely with radiation-unsealed source equipment

Release: 1

PSPRAD011 Work safely with radiation-unsealed source equipment

Modification History

Release	Comments
1	This unit was released in PSP Public Sector Training Package release 1.0 and meets the Standards for Training Packages.

Application

This unit describes the skills required to work safely with unsealed radioactive source and radioactive substance that emit ionising radiation. This involves assessing risks before conducting the assigned work tasks, using recommended controls, applying safe working rules and emergency response procedures, monitoring radiation levels and completing required documentation.

This unit applies to authorised personnel who work at university, hospital, medical, veterinary, mining, analytical and research sites and are required to undertake tasks using an unsealed radioactive source and/or radioactive substance.

The tasks may take place:

- at a mine or plant that processes radioactive ore and minerals
- with instruments that emit ionising radiation at geotechnical , construction, mining and manufacturing sites
- in a laboratory, analytical or research facility or licensed facility that handles radioactive materials or has radiation-emitting apparatus
- in a nuclear facility

This unit applies to those undertaking radiation-related work activities, including:

- extracting, milling, processing and packing radioactive ores
- decontaminating and servicing equipment that has been in contact with radioactive materials
- collecting, preparing and testing samples containing radioactive materials
- using radionuclides in a laboratory

The skills and knowledge described in this unit must be applied within the legislative, regulatory and policy environment in which they are carried out. Organisational policies and procedures must be consulted and adhered to.

Those undertaking this unit would work under the authorisation of a responsible person and with the advice of a radiation safety professional, such as a radiation safety officer.

No licensing, legislative or certification requirements apply to unit at the time of publication.

Competency Field

Radiation Safety

Elements and Performance Criteria

ELEMENTS	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the range of conditions section.
1. Prepare for assigned tasks	1.1 Apply radiation management plans concerning hazards, monitoring equipment and safe working rules. 1.2 Liaise with site management to arrange access and confirm the nature and likely duration of assigned tasks. 1.3 Check that equipment required for assigned tasks is present and fit for purpose. 1.4 Record movement of unsealed radioactive source and radioactive substance. 1.5 Stow unsealed radioactive source and radioactive substance, and monitoring equipment to prevent damage and to ensure safe, secure transport to the site and within the boundaries of the site. 1.6 Check that transport vehicle is fit for purpose and has the required signage.
2. Perform assigned tasks safely	2.1 Assess hazards at the site or prior to commencing assigned tasks, and seek advice if necessary. 2.2 Establish, or activate existing, boundaries and signage to control access to work area. 2.3 Perform pre-use and safety checks of unsealed radioactive source and radioactive substance, and monitoring equipment. 2.4 Apply safe working rules and any other site control measures to minimise exposure to personnel and/or members of the public during assigned tasks. 2.5 Perform assigned tasks in the minimum safe time. 2.6 Verify that radiation measurements are below specified levels throughout assigned tasks. 2.7 Seek advice to deal with any situation beyond own technical competence. 2.8 Record required data and note any atypical site conditions or

	problems encountered and the actions taken.
3. Complete assigned tasks	3.1 Confirm that all ionizing radiation has been returned to the fully shielded position within its container. 3.2 Check for contamination and if necessary perform personal decontamination in accordance with radiation management plan. 3.3 Re-stow unsealed radioactive source and radioactive substance, and monitoring equipment to prevent damage and to ensure safe, secure transport from the site and within the boundaries of the site. 3.4 Record use of unsealed radioactive source and radioactive substance, and monitoring equipment in accordance with radiation management plans. 3.5 Check the condition of all equipment before storing it. 3.6 Manage waste. 3.7 Survey the work area prior to leaving the site.
4. Report findings and outcomes	4.1 Record monitoring data in accordance with requirements. 4.2 Compare monitoring results with relevant radiation limits and note any significant differences or atypical results. 4.3 Identify potential or actual radiation protection or safety issues revealed during monitoring of assigned tasks. 4.4 Identify potential improvements that could be made to monitoring or work practices at the site. 4.5 Report findings and outcomes of assigned tasks. 4.6 Maintain required records that are complete, accurate, legible and secure.
5. Respond to potential or actual radiation incidents	5.1 Recognise unusual situations, unexpected hazards, and potential or actual emergency radiation incidents. 5.2 Inform relevant personnel about the situation, hazard or incident and seek their advice. 5.3 Initiate appropriate workplace emergency first response.

Foundation Skills

Foundation skills are embedded within the elements and performance criteria of this unit.

Unit Mapping Information

No equivalent unit.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=bebbece7-ff48-4d2c-8876-405679019623>

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Assessment Requirements for PSPRAD011 Work safely with radiation-unsealed source equipment

Modification History

Release	Comments
1	These Assessment Requirements were released in PSP Public Sector Training Package release 1.0 and meet the Standards for Training Packages.

Performance Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the candidate must demonstrate evidence of performance of the following on at least one occasion.

- using relevant information sources to locate and interpret information about unsealed radioactive source and radioactive substance
- conducting pre-use checks, for radiation instruments and monitoring equipment used in task
- interpreting manuals for unsealed radioactive source and radioactive substance and monitoring equipment used in job role
- processing data and verifying results
- regularly assessing and reassessing risks and hazards and taking appropriate protective measures
- handling unsealed radiation sources/substances and monitoring equipment used in task to obtain reliable data
- using and caring for personal protective equipment (PPE) and personal monitoring equipment required in job role

Knowledge Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the depth of knowledge demonstrated must be appropriate to the job context of the candidate.

- ionising radiation, radioactivity, radioactive material, contamination, contamination controls, concentration, shielding, half-life, radionuclide, and safe distance
- types and properties of ionising radiation, sources and shielding methods
- definitions of radiation quantities, including exposure, dose, effective dose, dose rate, dose equivalent, and dose limits
- exposure pathways and protective measures
- signs and symptoms of radiation exposure, radiation health effects, and deterministic and stochastic effects

- international system (SI) of units for radiation quantities
- function of key components, set-up checks and operating principles of monitoring equipment used in task
- guidelines and safety procedures for working with radiation sources, based on principles of time, distance and shielding
- principles of optimising work practices to minimise exposure
- health, safety and workplace emergency response procedures, safe working rules, personal hygiene requirements and safe operating procedures for equipment relevant to job role
- PPE and monitoring equipment relevant to job role and task
- principles and techniques for decontamination of personnel in the field
- techniques for assessing radiation hazards likely to be encountered in task
- techniques for conducting monitoring relevant to task
- techniques for control, containment and/or confinement of unsealed radiation sources/substances consistent with capabilities and required in task

Assessment Conditions

This unit contains no specific industry-mandated assessment conditions. Guidance on suggested and recommended conditions and methods can be found in the Implementation Guide.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

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