

Projects Involving Ionising Radiation

Supplement to the University of Sydney Research Proposal Clearance Form

Please complete each section by ticking boxes and adding notes in the space provided as appropriate. Attach the completed form to the Research Proposal Clearance Form (RPCF) and submit to the Research Office. Completion of this form assists researchers to assess and control the risks associated with research. This is a requirement of the Granting bodies and the University's ohsrm Program ¹. It is also a prerequisite for the release of research funding.

Project title (exactly as it appears on RPCF):

Location of project (building and room numbers):

Chief Investigator (name and contact number):

Name and type of radiation eg. ¹²⁵Iodine, X-ray:

Note: A licence from NSW EPA is required to use irradiating apparatus and some radioactive substances. Refer to the Radiation Control Act ² and Regulation ³. Premises where radioactive substances are used, irradiating apparatus and sealed source devices are required to be registered with the EPA.

The project involves:

- Radioactive substance that requires a licence to possess, use or sell.
- Radioactivity below the scheduled limit for licensing.
- Premises that requires registration for work with radioactive materials.
- Irradiating equipment that requires registration.

RISK ASSESSMENT

The hazard – ionising radiation.

- External radiation hazard Type of emission eg. γ
- Internal radiation hazard Route(s) of exposure:

- Inhalation
- Ingestion
- Skin absorption

Unsealed Source details:

Radionuclide	Physical form	Chemical form	Total activity Bq	Activity used Bq	Half Life

Sealed Source or Irradiating Apparatus details:

Type of equipment	Make & model	Sealed source activity, date	Energy of irradiating apparatus, kV

Typical processes eg. radio-labeling,

X-ray imaging etc.

Hazardous waste generated: Liquid Solid Gaseous/airborne

Description:

Work Environment

Please describe the suitability of the environment for the proposed work, including any shortcomings.

Space provided:

Bench & floor surfaces:

Traffic:

Temperature & ventilation:

Lighting: _____
 Housekeeping: _____
 Security of facility: _____

Individuals involved

Consider each project team member (where they are known) and their capacity to do the work safely and effectively.

Name	Role in team eg research assistant	Experience & training	Characteristics that increase risk

Physical activities

- Describe activity
- Repetitive actions or long duration of task _____
 - Physical exertion _____
 - Bending, reaching or twisting _____
 - Sustained or uncomfortable posture(s) _____

RISK CONTROLS

The following list mirrors the hierarchy of hazard control. Tick relevant risk controls that will apply and provide brief details where relevant eg, for restricted access, details may be "door locked when unattended".

- | | | Details |
|--------------|---|--|
| Elimination | <input type="checkbox"/> The benefit to be derived outweighs the risk from using radiation | _____
_____ |
| Substitution | <input type="checkbox"/> A less radio-toxic substance is not available as an alternative
<input type="checkbox"/> A safer, non-radioactive methodology is not available | _____
_____ |
| Isolation | <input type="checkbox"/> Secure facility with only authorized access
<input type="checkbox"/> Designated work area within facility
<input type="checkbox"/> Designated and secure storage for radioisotopes
<input type="checkbox"/> Spill tray and/or absorbent bench coat for bench work
<input type="checkbox"/> Containers capped
<input type="checkbox"/> Secondary containment for any transport outside facility
<input type="checkbox"/> Effective shielding of sources in storage and wastes awaiting disposal
<input type="checkbox"/> Remote activation of apparatus
<input type="checkbox"/> Effective shielding of operator and facility perimeter | _____

_____ |
| Minimisation | <input type="checkbox"/> Lowest possible activity and energy levels
<input type="checkbox"/> Maximum distance between radiation and users/public
<input type="checkbox"/> Shortest duration of task/exposure | _____

_____ |
| Engineering | <input type="checkbox"/> Automated processes
<input type="checkbox"/> Interlock between apparatus and door into facility | _____ |

- Area contamination or dose rate meter
 - Fume cupboard or fume/dust extraction system
 - Proper maintenance of equipment
- Administration
- Restricted access
 - List of authorized personnel
 - Radiation safety training for project personnel
 - Local induction training and orientation
 - Records kept of project team training
 - Hazard signposting at entry to facility (Uni standard)
 - Proper labeling of containers, including decanted
 - Radiation used only during normal business hours
 - Records kept of radiation usage
- Procedures
- Safe, standard operating procedures ³
 - Work surfaces cleaned and decontaminated after use
 - Spill clean-up kit and procedures
 - First aid for known exposures
 - Removal of lab coat & gloves before exiting facility
 - Hand washing before exiting facility
 - Separation of "hot" waste
 - Radioactive waste properly collected & disposed of ⁴
 - Work benches, under benches and passageways clear of clutter
- PPE - Personal Protective Equipment
- Laboratory coat or gown, closed at the front
 - Closed footwear
 - Disposable, impervious gloves
 - Respiratory protection
 - Eye or face protection
 - Eye wash and safety shower
 - Personal dosimeters worn & regularly serviced

Other risk controls: _____

RISK SUMMARY & CONCLUSION

Conclude by considering the risk assessment and choice of risk controls. Tick one only.

- The risk posed is insignificant and unlikely to increase during the course of the project.
- The risk is significant, but will be effectively controlled.
- There is uncertainty about the level of risk.
- The risk is significant and cannot be effectively controlled.

Comments: _____

RISK EVALUATION

The project is to be reviewed annually, or whenever there is an incident or any significant change eg. new equipment, personnel etc. This is to check that risk controls are still in place and working effectively.

Review dates: _____
 Name of reviewer: _____

DECLARATION - FOR SUCCESSFUL GRANT APPLICATIONS

To be completed only if the project has been successful in attracting funding (Research Office will prompt).

- The physical facilities and work environment are suitable for the project, or
- The facilities and environment will be made suitable prior to the commencement of work with ionising radiation.
- The risk control measures listed above have been established, or
- The control measures will have been implemented prior to the commencement of work with ionising radiation.
- A licence to use radiation is held and a copy of the licence is attached.
- The irradiating apparatus has been registered and a copy of the registration certificate is attached.
- The premises where radiation work will be carried out is registered and a copy of the registration certificate is attached.
- A copy of the safe, standard operating procedures is attached.
- A copy of the emergency procedures dealing with spills, first aid etc. is attached.

	Chief Investigator	Head of Department
Name (please print):	_____	_____
Signature:	_____	_____

REFERENCES

1. ohsrm Program – the University’s occupational health and safety risk management system, documents are available on-line from: http://www.usyd.edu.au/risk/ohs_manual/ohsrm.shtml
 2. NSW Radiation Control Act 1990, Amended August 2002
<http://www.legislation.nsw.gov.au/viewtop/inforce/act+13+1990+first+0+N>
 3. NSW Radiation Control Regulation 2003
<http://www.legislation.nsw.gov.au/viewtop/inforce/subordleg+615+2003+first+0+N>
 4. Guidelines for Working with Hazardous Substances
 5. Hazardous Waste Disposal Guidelines
- 4 & 5 are available on-line from http://www.usyd.edu.au/risk/ohs_manual/haz-subst/index.shtml*