# Radiation Risk Assessment (blank)

Before commencing a new activity involving work with ionising radiation in respect of which no risk assessment has been made, Regulation 8 of the Ionising Radiations Regulations 2017 (IRR17) requires that the University must make a suitable and sufficient assessment of the risk to any employee and other person. The purpose is to identify the measures the University needs to take to restrict the exposure of that employee or other person to ionising radiation.

The IRR17 Approved Code of Practice (ACoP) can be viewed here: <http://www.hse.gov.uk/pUbns/priced/l121.pdf>.

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| **Project title** | | | **Project Reference** |
|  | | |  |
| **Author (Project Proposer)** | | | |
| Name & position | Date | Signature | |
|  |  |  | |
| **Reviewer (Radiation Protection Supervisor (RPS), Academic Supervisor or Principal Investigator)** | | | |
| Name & position | Date | Signature | |
|  |  |  | |
| **Approver\* (Senior Radiation Protection Supervisor, or Head of Department)** \*This is the approver of the proposal before submission to the H&S Dept. (not the authorisation for work to proceed) | | | |
| Name & position: | Date: | Signature: | |
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| **Description of work and scope of this assessment** | | | |
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Where the University is required to carry out a radiation risk assessment, the following matters should be considered, where they are relevant. These are stated in Paragraph 70 of the IRR17 ACoP.

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| **Nature of the source(s)** |
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| **Estimated dose rates (and dose) to which anyone can be exposed** |
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| **Likelihood of contamination arising and being spread** |
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| **Results of previous personal dosimetry and area monitoring** |
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| **Advice from manufacturers or suppliers about equipment about its safe use and maintenance** |
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| **Engineering control measures or design features already in place or planned** |
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| **Planned systems of work** |
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| **Estimated airborne and surface contamination levels** |
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| **Effectiveness and suitability of PPE** |
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| **Unrestricted access to significant dose rates** |
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| **Possible accident situation** | **Severity & potential likelihood** | **Consequences of failure of control measures** | **Steps taken to prevent accidents, or limit their consequences** | **Risk** |
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### Severity, likelihood and risk level guide

1. The risk rating is assessed for each identified task hazard. The risk rating is the product of the likelihood and severity defined below. Proposed actions are identified, which mitigate each task hazard. The risk rating is then re-evaluated, assuming implementation of the control measure.
2. The risk assessment uses a 4 x 4 matrix of severity and likelihood. The combinations of the four levels of severity and four levels of likelihood give rise to six levels of risk.
3. The four levels of severity are defined as:

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| **Harmless** | Not known to cause any harm.  Dose of ionising radiation: 10 µSv or less whole body; or 100 μSv or less extremity |
| **Slightly Harmful** | Superficial injuries, dust irritation, temporary discomfort.  Dose of ionising radiation: 10 μSv to 0.3 mSv whole body; or 100 μSv to 3 mSv extremity |
| **Harmful** | Lacerations, burns, concussion, sprains, RIDDOR reportable.  Dose of ionising radiation: 0.3 mSv to 20 mSv whole body; or 3 mSv to 200 mSv extremity |
| **Extremely Harmful** | Amputations, major fractures, fatal injuries.  Dose of ionising radiation: 20 mSv or more whole body; or 200 mSv or more extremity |

1. The four levels of likelihood are:

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| **Extremely Unlikely** | Not known to have happened at work. The frequency of occurrence is much less than once every ten years. |
| **Highly Unlikely** | The frequency of occurrence is less than once every ten years. |
| **Unlikely** | Has happened before and/or is likely to occur within the next ten years. |
| **Likely** | Event to be expected within the next twelve months. |

1. The matrix of severity and likelihood to determine the risk is:

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|  | **Extremely Unlikely** | **Highly Unlikely** | **Unlikely** | **Likely** |
| **Harmless** | No Risk | Trivial | Trivial | Tolerable |
| **Slightly Harmful** | Trivial | Trivial | Tolerable | Moderate |
| **Harmful** | Trivial | Tolerable | Moderate | Substantial |
| **Extremely Harmful** | Tolerable | Moderate | Substantial | Intolerable |

1. The definitions for the risk ratings are:

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| **No Risk** | No action required and no documentary records need to be kept other than risk assessments. |
| **Trivial** | No action required and no documentary records need to be kept other than risk assessments. |
| **Tolerable** | No additional controls are required. Consideration may be given to a more cost-effective solution or improvement that imposes no additional cost burden. Monitoring is required to ensure that the controls are maintained. |
| **Moderate** | Efforts should be made to reduce the risk, but costs of prevention should be carefully measured and limited. Risk reduction measures should be implemented within a defined time period. Where the moderate risk is associated with extremely harmful consequences, further assessment may be necessary to establish more precisely the likelihood of harm as a basis for determining the need for improved control measures. |
| **Substantial** | Work should not be started until the risk has been reduced. Considerable resources may have to be allocated to reduce the risk. Where the risk involves work in progress, urgent action should be taken. |
| **Intolerable** | Work should not be started or continued until the risk has been reduced. If it is not possible to reduce the risk even with unlimited resources, work has to remain prohibited. |

This radiation risk assessment should help the University decide on the following matters: These are stated in Paragraph 71 of the IRR17 Approved Code of Practice. Guidance is included in italics.

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| **Actions needed to keep exposures As Low As Reasonably Practicable (ALARP)** |
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| **What engineering controls, warning signals, other safety systems are necessary** |
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| **Whether PPE is appropriate and if so, what type is adequate and suitable** |
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| **Dose constraints** |
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| **Protection of those who declare themselves pregnant and / or breastfeeding** |
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| **Dose investigation level** |
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| **Maintenance and testing schedules** |
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| **Contingency plans** |
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| **Training needs** |
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| **Designation of areas and local rules** |
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| **Access restrictions and other precautions for designated areas** |
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| **Classified persons** |
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| **Dose assessment programme** |
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| **Requirements for leak testing** |
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| **Responsibilities of managers and workers** |
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| **Monitoring and auditing programme** |
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