



Environmental Risk Register

Environmental hazards and control procedure

Never Stand Still

Sustainability

About this Register

This Environmental Risk Register lists environmental aspects, associated risks (pre and post control) and the environmental management controls of the University of New South Wales.

The Register captures and quantifies the key University wide environmental risks identified by staff, including senior management, as being present throughout UNSW. Environmental Risks are identified and rated across ten major categories.

This Register forms part of UNSW's Environmental Management System.

Policy Hierarchy link	Environment Policy		
Responsible Officer	Director UNSW Safety and Sustainability		
Contact Officer	Manager UNSW Sustainability		
Superseded Documents	Environmental Risk Register, V1.0 and V2.0		
File Number	TRIM file name same as title		
Associated Documents	UNSW Environment Policy UNSW Legislation Register UNSW Environmental Risk Rating Procedure		
Version	Authorised by	Approval Date	Effective Date
3.0	Vice President University Services	11 August 2016	12 August 2016

Environmental Risk Register

As at 11 August 2016. Updated version available at <www.sustainability.unsw.edu/risk>

Category	Description of Hazard/Risk	Raw Risk Assessment		Raw Risk Rating	Legislation (current version)	Standards/Codes/Guidance (current version)	University Policies/Procedures	Controls	Residual Risk Rating
		L*	C*						
1. Chemical	<ul style="list-style-type: none"> Environmental pollution due to accidental leakage, spills, emissions: <ul style="list-style-type: none"> air water soil/ground Compliance issues, breach of licenses Production of hazardous waste New chemicals arising from research with uncertain properties and subsequent environmental affects 	B	5	Very High	<ul style="list-style-type: none"> Protection of the Environment Operations Act Environmentally Hazardous Chemicals Act Dangerous Goods (Road and Rail Transport) Act Environment Protection and Biodiversity Conservation Act Poisons and Therapeutic Goods Act Contaminated Land Management Act 	<ul style="list-style-type: none"> AS/NZS 2243 Safety in laboratories AS 1940 The Storage and Handling of Flammable and Combustible Liquids. AS/NZS 2243.1 Safety in Laboratories Part 1: Planning and operational aspects AS/NZS 2243.10 Safety in Laboratories Part 10: Storage of Chemicals AS/NZS 2243.2 Safety in Laboratories Part 2: Chemical Aspects AS/NZS 4452 The Storage and handling of Toxic Substances 	<ul style="list-style-type: none"> Environmental Law Compliance Register UNSW Environmental Risk Assessment procedure UNSW Environmental Policy Green Lab Environmental Compliance Training and resources Hazardous waste removal and storage procedures Relevant documents from UNSW Health and Safety Management System 	<ul style="list-style-type: none"> Risk assessments Staff and student work specific training Green Lab Environmental Compliance training Engineering controls (fume hood) Hazardous waste is removed according to proper procedures Hazardous waste is stored in purpose built chemical stores Purpose built laboratories EPA certified waste collector and contract Environmental hazard and incident reporting systems Trade waste pit 	Low

2. Biological Research and activities	<ul style="list-style-type: none"> ● Production of hazardous biological waste ● Environmental pollution due to accidental leakage, spills, emissions: <ul style="list-style-type: none"> ○ air ○ water ○ soil/ground ● compliance issues, breach of licenses ● threat to genetic biodiversity from gene manipulation 	B	5	Very High	<ul style="list-style-type: none"> ● Protection of the Environment Operations Act ● Dangerous Goods (Road and Rail Transport) Act ● Environment Protection and Biodiversity Conservation Act 	<ul style="list-style-type: none"> ● AS 2252.1 Biosafety cabinets: Class 1 for personnel and environment protection. ● AS 2252.2 Biosafety cabinets: Class II for personnel, environment and product protection. ● Office of the Gene Technology Regulator Australia Guidelines. 	<ul style="list-style-type: none"> ● Environmental Law Compliance Register ● UNSW Environmental Risk Assessment procedure ● UNSW Environment Policy ● Green Lab Environmental Compliance Training and resources ● Biological waste removal and storage procedures ● Relevant documents from UNSW Health and Safety Management System 	<ul style="list-style-type: none"> ● Risk assessments ● Staff and student work specific training ● Engineering controls (Biosafety cabinets) ● OGTR certified facilities ● Quarantine approved premises ● Appropriate quarantine permits ● Biological waste is removed according to proper procedures ● Biological waste is stored in purpose built Biological waste stores ● Purpose built laboratories ● EPA certified waste collector and contract ● Environmental hazard and incident reporting systems ● Trade waste pit 	Low
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3. Radiation	<ul style="list-style-type: none"> ● Production of hazardous radiological waste ● Environmental pollution or contamination due to accidental leakage, spills, emissions: <ul style="list-style-type: none"> ○ air ○ water ○ soil/ground ● compliance issues, breach of licenses 	B	5	Very High	<ul style="list-style-type: none"> ● Radiation Control Act ● Protection of the Environment Operations Act ● Dangerous Goods (Road and rail) Act ● Environment Protection and Biodiversity Conservation Act ● Contaminated Land Management Act 	<ul style="list-style-type: none"> ● AS 2243.4 Safety in Laboratories – Ionizing Radiations ● HB 9 Occupational Personal Protection ● Recommendations for Limiting Exposure to Ionizing Radiation and National Standard for Limiting Occupational Exposure to Ionizing Radiation (Commonwealth) 	<ul style="list-style-type: none"> ● Environmental Law Compliance Register ● UNSW Environmental Risk Assessment procedure ● UNSW Environmental Policy ● Green Lab Environmental Compliance Training and resources ● Radioactive waste removal and storage procedure ● Relevant documents from UNSW Health and Safety Management System 	<ul style="list-style-type: none"> ● Risk assessments ● UNSW Radiation Safety Officer ● Radiation Safety Committee ● Staff and student work specific training ● Engineering controls (e.g. Fume hood) ● Radiological waste is removed according to proper procedures ● Radiological waste is stored in purpose built Radiation waste stores ● Purpose built laboratories ● EPA certified waste collector and contract ● Environmental hazard and incident reporting systems ● Trade waste pit 	Low
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4. Laboratories	<ul style="list-style-type: none"> • Environmental pollution due to accidental leakage, spills, emissions: <ul style="list-style-type: none"> ◦ air ◦ water ◦ soil/ground • Compliance issues, breach of licenses • Production of hazardous waste • New chemicals with uncertain properties arising from research and subsequent environmental affects • GHG and/or ODS emissions • Compliance and reporting issues e.g. NGERs reporting 	B	5	Very High	<ul style="list-style-type: none"> • Environmentally Hazardous Chemicals Act • Protection of the Environment Operations Act • Dangerous Goods (Road and Rail) Act • Environment Protection and Biodiversity Conservation Act • Poisons & Therapeutic Goods Act • Explosives Act • Energy Efficiency Opportunities Act • Environmental Planning and Assessment Act • National Greenhouse and Energy Reporting Act • Clean Energy Act • Ozone Protection and Synthetic Greenhouse Gas Management Act 	<ul style="list-style-type: none"> • AS/NZS 2243.1 Safety in Laboratories Part1 Planning and operational aspects • AS/NZS 2243.6 Safety in Laboratories Part 6 Mechanical aspects • AS/NZS 2243.7 Safety in Laboratories Part 7 Electrical Aspects • AS/NZS 2243.8 Safety in Laboratories Part 8 Fume Cupboards 	<ul style="list-style-type: none"> • Environmental Law Compliance Register • UNSW Environmental Risk Assessment procedure • UNSW Environment Policy • Green Lab Environmental Compliance Training and resources • UNSW Laboratory Hazardous Waste Disposal Procedure • Relevant documents from UNSW Health and Safety Management System 	<ul style="list-style-type: none"> • Risk assessments • Staff and student work specific training • Green Lab Environmental Compliance training and audits <p>See the specific hazard categories</p>	Low
5. Noise	<ul style="list-style-type: none"> • Noise pollution • Compliance issues, breach of licenses • Loss of biodiversity 	C	4	High	<ul style="list-style-type: none"> • Protection of the Environment Operations Act • Work Health and Safety Act 	<ul style="list-style-type: none"> • AS 1055 (series) Acoustics – Description and Measurement Of Environmental Noise • AS/NZS 1269 (series) Occupational Noise Management 	<ul style="list-style-type: none"> • Environmental Law Compliance Register • UNSW Environmental Risk Assessment procedure • UNSW Environment Policy • PPE procedure • Relevant documents from UNSW Health and Safety Management System 	<ul style="list-style-type: none"> • Risk assessment • Works approval process • Contractors, staff and student work specific training • Environmental hazard and incident reporting systems 	Low

6. General	<ul style="list-style-type: none"> Introducing new or uncontrolled hazards into the workplace. Introducing new and/or uncontrolled wastes Carbon emissions Resource depletion 	C	4	High	<ul style="list-style-type: none"> Waste Avoidance and Resource Recovery Act Environmentally Hazardous Chemicals Act Protection of the Environment Operations Act Clean Energy Act 	<ul style="list-style-type: none"> Refer to specific hazard classification for Standards/Codes/ Guidance 	<ul style="list-style-type: none"> UNSW Environmental Risk Assessment procedure Refer to specific hazard classification for relevant procedures 	<ul style="list-style-type: none"> Risk assessment Works approval process Work specific training Environmental Awareness training for staff Environmental hazard and incident reporting systems 	Low
7. Water	<ul style="list-style-type: none"> Wastage of water Water pollution Resources depletion Ground Maintenance Compliance issues, breach of licenses/contracts 	C	4	High	<ul style="list-style-type: none"> Water Management Act Water Act Protection of the Environment Operations Act Waste Avoidance and Resource Recovery Act 	<ul style="list-style-type: none"> NSW water efficiency guidelines 	<ul style="list-style-type: none"> Risk Assessment procedure UNSW water conservation policy UNSW Water saving action plan Storm water Management Plan Ground maintenance contract review meetings 	<ul style="list-style-type: none"> Risk assessment process Works approval process Work specific training Storm water pollution prevention program Environmental Awareness training for staff Green Lab Environmental Compliance training and audits Environmental hazard and incident reporting systems Trade waste pit 	Low
8. Air	<ul style="list-style-type: none"> Chemical emissions into atmosphere. GHG and/or ODS emissions Smell or fumes emission Indoor air pollution Compliance issues, breach of licenses 	C	4	High	<ul style="list-style-type: none"> Protection of the Environment Operations Act Work Health and Safety Act Ozone Protection and Synthetic Greenhouse Gas Management Act 	<ul style="list-style-type: none"> Refer to specific hazard classification for Standards/Codes/ Guidance 	<ul style="list-style-type: none"> Risk Assessment procedure Thermal Comfort Policy 	<ul style="list-style-type: none"> Risk assessments Contractor, staff and student work specific training Use of fume cupboards or dust extractors Works approval process Hazardous waste is removed according to proper procedures Hazardous waste is stored in designated special facilities Environmental Awareness training for staff Environmental hazard and incident reporting systems 	Low

9. Energy /Electricity	<ul style="list-style-type: none"> • Breach of threshold Greenhouse gases emission • Compliance and reporting issues e.g. NGERs reporting 	C	4	High	<ul style="list-style-type: none"> • Energy Efficiency opportunities Act • Environmental Planning and Assessment Act • Protection of the Environment Operations Act • National Greenhouse and Energy Reporting Act 	<ul style="list-style-type: none"> • NSW energy efficiency guidelines • Guidelines for energy saving action plan 	<ul style="list-style-type: none"> • Environmental Law Compliance Register • UNSW Environmental Risk Assessment procedure • UNSW Environment Policy • UNSW Energy saving action plan 	<ul style="list-style-type: none"> • Risk assessment • Energy and Water Strategy • Environmental Awareness training for staff • Sustainable procurement policy and procedure • Green Lab Training • Environmental hazard and incident reporting systems 	Low
10. Travels and off campus activities	<ul style="list-style-type: none"> • Greenhouse gases emission • Compliance and reporting issues e.g. NGERs reporting • Environmental impact 	C	4	High	<ul style="list-style-type: none"> • Ozone Protection and Synthetic Greenhouse Gas Management Act • Protection of the Environment Operations Act • National Greenhouse and Energy Reporting Act 	Refer to specific hazard classification for Standards/Codes/ Guidance	<ul style="list-style-type: none"> • UNSW Travel Procedure • Risk Assessment 	<ul style="list-style-type: none"> • Frequent and convenient public transport • On campus student accommodation • Go Get, Car pooling and other car share services • Bicycle pathways and Bike Hub • Online teaching and tutorials • Approval process of off campus work 	Low

Key to the Raw Risk Assessment: From the UNSW Environmental Risk Rating Procedure

*L: Likelihood

*C: Consequences

*R: Risk

Definitions

Key terms used are defined in the Environmental Risk Rating Procedure including the following:

Environmental Risk: A risk that arises from the relationship between human activities and the environment. Environmental risks include: a risk to the environment; and/or a risk to the University from environment-related issues, including the risk of non-compliance with legislative and other criteria.

Environmental Hazard: Is a source or situation with the potential for harm to the natural environment.

Environmental Aspects: Those elements of the University's activities, which can interact with the environment, for example energy consumption, hazardous waste production.

Review

This procedure shall be reviewed at regular intervals and to reflect changes or updates in associated standards or regulatory requirements.

Appendix A: History

Version	Authorised by	Approval Date	Effective Date	Sections modified
1.0	Level 1 OHS and Environment Committee	6 March 2013	6 March 2013	New document
2.0	Director Safety and Sustainability	28 May 2014	29 May 2014	Risk ratings revised based on new risk matrix
3.0	Director Safety and Sustainability	11 August 2016	12 August 2016	Risk ratings (based on new risk rating matrix), controls, legislations and standards revised

Appendix B: Risk Matrix

RISK RATING METHODOLOGY AND MATRIX																																															
Consider the Consequences	Consider the Likelihood	Calculate the Risk																																													
Consider: What type of harm could occur (minor, serious, death)? Is there anything that will influence the severity (e.g. proximity to hazard, person involved in task etc.). How many people are exposed to the hazard? Could one failure lead to other failures? Could a small event escalate?	Consider: How often is the task done? Has an accident happened before (here or at another workplace)? How long are people exposed? How effective are the control measures? Does the environment affect it (e.g. lighting/temperature/pace)? What are people's behaviours (e.g. stress, panic, deadlines) What people are exposed (e.g. disabled, young workers etc.)?	1. Take the consequences rating and select the correct column 2. Take the likelihood rating and select the correct row 3. Select the risk rating where the two ratings cross on the matrix below. VH = Very high, H = High, M = Medium, L = Low																																													
<p>5. Severe: death or permanent disability to one or more persons; major environmental damage, fines and prosecution likely</p> <p>4. Major: hospital admission required; environmental damage resulting in minor penalties</p> <p>3. Moderate: medical treatment required; environmental damage requiring notification to authorities</p> <p>2. Minor: first aid required; minor environmental impact managed within operating budgets</p> <p>1. Insignificant: injuries not requiring first aid; little or no environmental harm</p>	<p>A. Almost certain: expected to occur in most circumstances</p> <p>B. Likely: will probably occur in most circumstances</p> <p>C. Possible: might occur occasionally</p> <p>D. Unlikely: could happen at some time</p> <p>E. Rare: may happen only in exceptional circumstances</p>	<table border="1"> <thead> <tr> <th colspan="2"></th> <th colspan="5">CONSEQUENCES</th> </tr> <tr> <th colspan="2"></th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>5</th> </tr> </thead> <tbody> <tr> <th rowspan="5">LIKELIHOOD</th> <th>A</th> <td>M</td> <td>H</td> <td>H</td> <td>VH</td> <td>VH</td> </tr> <tr> <th>B</th> <td>M</td> <td>M</td> <td>H</td> <td>H</td> <td>VH</td> </tr> <tr> <th>C</th> <td>L</td> <td>M</td> <td>H</td> <td>H</td> <td>VH</td> </tr> <tr> <th>D</th> <td>L</td> <td>L</td> <td>M</td> <td>M</td> <td>H</td> </tr> <tr> <th>E</th> <td>L</td> <td>L</td> <td>M</td> <td>M</td> <td>M</td> </tr> </tbody> </table>			CONSEQUENCES							1	2	3	4	5	LIKELIHOOD	A	M	H	H	VH	VH	B	M	M	H	H	VH	C	L	M	H	H	VH	D	L	L	M	M	H	E	L	L	M	M	M
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Risk level	Required action
Very high	Act immediately: The proposed task or process activity must not proceed. Steps must be taken to lower the risk level to as low as reasonably practicable using the hierarchy of risk controls
High	Act today: The proposed activity can only proceed, provided that: (i) the risk level has been reduced to as low as reasonably practicable using the hierarchy of risk controls and (ii) the risk controls must include those identified in legislation, Australian Standards, Codes of Practice etc. and (iii) the document has been reviewed and approved by the Supervisor and (iv) a Safe Working Procedure or Safe Work Method has been prepared and (v) the supervisor must review and document the effectiveness of the implemented risk controls
Medium	Act this week: The proposed task or process can proceed, provided that: (i) the risk level has been reduced to as low as reasonably practicable using the hierarchy of controls and (ii) the document has been reviewed and approved by the Supervisor and (iii) a Safe Working Procedure or Safe Work Method has been prepared.
Low	Act this month: Managed by local documented routine procedures which must include application of the hierarchy of controls.