

General Health & Safety Risk Assessment Template

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| **Work activity / task** | Talk to Us Centre for Biological Sciences sub project session |

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| **Assessor(s)** | Lindsay Wager | **Responsible Manager** |  | **Date** | 3rd July 2012 |

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| **Faculty / Service** | Education | **Academic Unit / Team** | CfBS/ Edu | **Location** | MSLC, B85 Teaching Labs/ observatory |

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| **Brief description of activity / task** | Electrophoresis of recombinant DNAl |

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| **Additional notes  (eg, references, persons at risk, risk factors, etc)  [optional]** |  |

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| **Declaration by responsible manager:** I confirm that this is a suitable & sufficient risk assessment for the above work activity / task. | | | | | |
| **Signed** |  | **Print name** |  | **Date** |  |

Version 1.11, 05 June 2013

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| **Declaration by users:** I confirm that I have read this risk assessment, will implement the controls outlined herein, and will report to the responsible manager any incidents that occur or any shortcomings I find in this assessment. | | | | | |
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Health & safety risk assessment: A basic guide

1. **Identify all hazards, hazard events, and reasonably foreseeable worst case consequences.**  
   A ‘hazard’ is something with the potential to cause harm (ie, injury or ill-health). A ‘hazard event’ is the incident where the harm from the hazard occurs. A ‘hazard consequence’ is the nature and extent of the harm caused.

**‘Reasonably foreseeable worst case consequence’:** ‘Worst case’ means it is not necessarily the most likely consequence that should be considered, but, ‘reasonably foreseeable worst case’ means that far-fetched, improbable hazards and consequences need not be considered.

1. **Estimate inherent risk for each hazard.** ‘Inherent’ risk is that without any controls applied.

**Risk:** Is likelihood of the hazard event and the reasonably foreseeable worst case consequence combined.

In estimating risk, also consider factors that could exacerbate risk, such as reasonably foreseeable emergencies,  
inexperience, lone work, new & expectant mothers, waste disposal, potential effects on others such as contractors or visitors, etc. A separate ‘row’ for a particular hazard / event / consequence may be needed to account for these.

Estimate risk using the matrix on the next page, and place an X in the appropriate box.

‘High’ risks must be reduced before activity / task can commence or continue.  
‘Medium’ risks must be reduced as much and as soon as is reasonably practicable.

1. **Devise controls for each hazard.** A ‘control’ is a measure taken to reduce risk.

**Controls:** As a general principle, the ‘hierarchy’ of control that is to be applied (from most to least preferable) is: avoid the risk; substitute something less hazardous that gives same or similar outcomes; ‘engineering controls’  
(ie, equipment and articles that mitigate or contain a hazard); ‘safe system of work’ (ie, a prescribed work method); and ‘personal protective equipment’ (‘PPE’, eg, gloves, safety glasses, respirator, boots, etc). So, PPE is a last resort.

Other controls that should be considered: training, supervision, planning for reasonably foreseeable emergencies,  
health surveillance, validation and maintenance of any engineering controls, and correct specification of any PPE.

‘Low’ risks, by definition, do not require controls.

1. **Estimate residual risk for each hazard.** ‘Residual’ risk is that with controls applied.

Residual risk is estimated as above, and the objective is for all risks to be low so far as is reasonably practicable.

1. **The responsible manager, supervisor, research leader, principal investigator or project leader must sign the Declaration on the front page.**

* Health & safety risk assessments must be ‘suitable and sufficient’,  
  ie, cover all relevant issues and include enough detail.
* It is activities / tasks that should be risk assessed, and not, as such, substances  
  (but rather use of substances), or equipment (but rather use of equipment),  
  or locations (but rather activities therein), or people (but rather what they do).
* This template is for ‘general’ health & safety risk assessment, suitable for most hazards,  
  but certain hazards do require additional regulatory and technical detail (eg, ionising radiations,  
  biological agents, genetic modification, noise, hazardous chemicals, etc).
* Health & safety risk assessments can be generic, provided they remain ‘suitable and sufficient’.
* Health & safety risk assessments need to be reviewed periodically (at least every two years or  
  sooner if inherent risk is high), and also after incidents, after significant changes to the activity / task,  
  if staff raise any concerns, if there is a relevant change to the law or to other relevant standards,  
  or if there is anything to suggest the assessment is not suitable or sufficient.
* You may remove pages 3 and 4 from the final assessment.



Health & safety risk estimation matrix

**High risk**  – requires controls to reduce risk before activity / task can commence (or continue).

**Medium risk**  – requires controls to reduce risk as much and as soon as is reasonably practicable.

**Low risk**  – all risk should be reduced to this tolerable level, so far as is reasonably practicable.

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| **Reasonably foreseeable worst case consequence**  **Likelihood 3 of hazard event** | **Minor** superficial injury;  or slight and temporary health effect | **Moderate** significant injury or illness 1;  or temporary minor disability x | **Major** serious injury or illness 2;  or significant or permanent disability | **Critical** fatal injury or illness;  or substantial and permanent disability | **Catastrophic** fatal injury or illness for multiple persons  x |
| **Likely** high probability,  1 in 10 chance or higher,   once in two weeks or longer for activities on a daily basis | **medium risk** | **high risk** | **high risk** | **high risk** | **high risk** |
| **Possible** significant probability,  1 in 100 chance or higher,  once in six months or longer for activities on a daily basis | **low risk** | **medium risk** | **high risk** | **high risk** | **high risk** |
| **Unlikely** low probability,  1 in 1,000 chance or higher,  once in four years or longer for activities on a daily basis | **low risk** | **low risk** | **medium risk** | **high risk** | **high risk** |
| **Rare** very low probability,  1 in 10,000 chance or higher,  once in a decade or longer for activities on a daily basis | **low risk** | **low risk** | **low risk** | **medium risk** | **high risk** |
| **Almost never** extremely low probability,  less than 1 in 100,000 chance,  once in a century or longer for activities on a daily basis | **low risk** | **low risk** | **low risk** | **low risk** | **medium risk** |

1 ‘Significant injury’ could include, for example, laceration, burn, concussion, serious sprain, minor fracture, etc.  
‘Significant illness’ could include, for example, dermatitis, minor work-related musculoskeletal conditions, partial hearing loss, etc.

2 ‘Serious injury’ could include fracture or dislocation (other than digits), amputation, loss of sight, penetration or burn to eye, electric shock, asphyxia, or any injury leading to unconsciousness or requiring resuscitation or admittance to hospital for more than twenty-four hours. ‘Serious illness’ could include, for example, requiring medical treatment after chemical, biological or radiological exposure,  
severe debilitating musculoskeletal conditions, severe dermatitis, asthma, etc.

3 For likelihoods in between the listed values, use the higher likelihood to estimate risk. These probability definitions are only a guide.

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| **Hazards, hazard events, and reasonably foreseeable worst case consequences** | **Inherent risk (no controls)  from matrix  (mark with X)** | | **Controls  (measures to reduce risk)** | **Residual risk (with controls)  from matrix  (mark with X)** | |
| Electrical Shock obtained from use of mains powered electrical equipment for electrophoresis. | **High** |  | All electrical equipment is PAT tested as per HSE & University Safety Regulations | **High** |  |
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| **Medium** | **X** | **Medium** |  |
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| **Low** |  | **Low** | **x** |
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| Handling molten agarose gel (65OC) | **High** |  | Wearing lab coats, gloves and goggles to protect from burns | **High** |  |
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| **Medium** | **x** | **Medium** |  |
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| **Low** |  | **Low** | **x** |
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| Use of undergraduate teaching laboratories and equipment | **High** |  | Safety talk will be given to the pupils before entering the laboratory. High adult to pupil ratio (researchers present to assist as well as school teachers and activity leaders). Care should be taken to follow University BLP guide lines. Lab coats should be worn but can be removed if wearing recording electrodes. Bags and coats should be placed in lockers or left in trolley bin at front of lab. No eating or drinking at any time | **High** |  |
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| **Medium** | **x** | **Medium** |  |
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| **Low** |  | **Low** | **x** |
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