# Major or Standard Events - Risk Assessment Form

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| **Event Name** | Leeds Festival of Science Roadshows 2020<br>How do we use DNA? (Gel Electrophoresis) | **Event organiser** | Name(s): Natalie Duffield-Moore<br>Faculty/Service: Educational Engagement<br>Tel: 0113 3431062<br>Email: n.duffield-moore@leeds.ac.uk |
| **Date (period) and time of Event** | From 9 March 2020 | **Location/site/premises** | Off campus – various schools |
| **Description of Event** | Outreach activity for school pupils, learning about the process of agarose gel electrophoresis and loading their own gel with pre-made dyes or markers. | | |

| Hazard type | How might the hazard cause harm? | Who may be harmed? | Control measures already in place | Is residual risk now acceptable ? (Yes/No) | If not acceptable , list additional control measures | Risk Rating (L x S)* | Action by whom |
|---|---|---|---|---|---|---|---|
| Electric Shock from visual presenter/ microphone/ screens 9if available in schools) | Electric Shock | Staff | School staff completed training around how to use equipment safely. | Yes | | 1 x 2<br>**2** | |
| Chemical Spillages | Skin and Eye Irritation | Staff &<br>students | Wear protective gloves, clean body-covering clothing and goggles while handling.<br>Overall supervision (from Education Outreach Fellows and school staff).<br>COSHH form completed. Pupils do not move the gel tanks. | Yes | | 1 x 2<br>**2** | |
| Chemical Disposal | Skin and Eye Irritation | Staff | Wear protective gloves, clean body-covering clothing and goggles while handling<br>Very small amounts used.<br>Overall supervision (from Education Outreach Fellows and school staff).<br>COSHH form completed.<br>Staff and/ technicians to adequately dispose | Yes | | 1 x 2<br>**2** | |

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|---|---|---|---|---|---|---|---|
| | | | of running buffer and gels as reported below:<br><br>- Running buffer (contains 50x Tris-Acetate EDTA) can be disposed of with household waste, according to MSDS, when Tris-Acetate EDTA is present in small quantities. In our case we have an overall amount of 120 mL, diluted in 5880 mL distilled water. This volume will be disposed of in the sink flushing with plenty of water.<br><br>- Agarose gels (contains 50x Tris-Acetate EDTA) will be disposed of using the clinical waste route (yellow bags) | | | | |
| Trips and Falls | Bruising, Swelling, Broken Limbs, Bleeding | Staff &<br><br>students | Ensure compliance to general lab safety rules (e.g. no running) as set out in lab/ classroom briefing at start of session<br><br>Keep lab/ classroom clear of obstructions/obstacles.<br><br>Check lab/ classroom floor clean and clear from cables, and any other items.<br><br>Monitoring behavior is the responsibility of | Yes | | 1 x 3<br><br>**3** | |

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| | | | school staff. | | | | |
| Cuts from broken/ contaminated glassware, e.g. pipettes. | Cuts, bleeding, burns | Staff &<br><br>Students | Glass lab ware to be replaced with plastic.<br><br>In cases where glass is used, glass to be collected by EoFs and/ school staff and put in glass bins<br><br>EoFs/ school staff to carry out handling broken glassware. | Yes | | 1 x 2<br><br>**2** | |
| Cuts or injury from general lab apparatus and consumables- accidental harm (e.g, pipette tips, etc. | Cuts, bleeding | Staff &<br><br>students | Glass lab ware to be replaced with plastic.<br><br>In cases where glass is used, glass to be collected by EoFs/ school staff and put in glass bins<br><br>EoFs/ school staff to carry out handling broken glassware. | Yes | | 1 x 3<br><br>**3** | |
| 50-fold concentrated Tris-Acetate EDTA buffer (TAE), pH 7.8-8<br><br><u>Contains:</u> | Can be harmful if swallowed or inhaled.<br><br>Can causes irritation to skin, eyes and respiratory tract. | Staff & students | EoF and school staff supervision of students is required while using.<br><br>Very small amounts used.<br><br>Wear protective gloves and clean, body-covering clothing. | Yes | | 1 x 2<br><br>**2** | |

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| • 20 mM<br>• Tris, 6 mM sodium<br>• acetate, 1 mM disodium<br>• ethylenediamine<br>• tetraacetic acid | | | Use chemical safety goggles when handling.<br>In case of skin/eye contact: wash with plenty of water<br>In case of spillage: remove any source of excessive heat and incompatibilities.<br>Ventilate area of leak or spill.<br>COSHH form completed. | | | | |

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| **Event Organiser** | Name: Natalie Duffield-Moore<br>Signature: Natalie Duffield-Moore<br>Position: Educational Engagement Lead Officer STEM<br>Date: 10/03/2020 | **Approver of Risk Assessment** ***(refer to process map for level of approval required)*** | Name: Steve Gleadall<br>Signature: S Gleadall<br>Position: EE Manager<br>Date: 10.03.2020 |

*Refer to following tables for clarification.

## Risk Matrix

| Severity / Likelihood | Insignificant (1) | Minor (2) | Moderate (3) | Serious (4) | Critical (5) |
|---|---|---|---|---|---|
| Almost Certain (5) | Moderate (5) | Substantial (10) | Substantial (15) | Intolerable (20) | Intolerable (25) |
| Likely (4) | Tolerable (4) | Moderate (8) | Substantial (12) | Intolerable (16) | Intolerable (20) |
| Possible (3) | Tolerable (3) | Moderate (6) | Moderate (9) | Substantial (12) | Substantial (15) |
| Unlikely (2) | Tolerable (2) | Tolerable (4) | Moderate (6) | Moderate (8) | Substantial (10) |
| Rare (1) | Tolerable (1) | Tolerable (2) | Tolerable (3) | Tolerable (4) | Moderate (5) |

| Risk Rating | The level of risk for an activity is obtained by matching the likelihood of an accident occurring against the severity of the outcome if that accident occurred (i.e. likelihood multiplied by severity). |
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| | General Risk Rating |
| Tolerable (1 to 4) | 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 controls are maintained. |
| Moderate 5 to 9 | Efforts should be made to reduce the risk, but the costs of prevention should be carefully measured and limited. Risk reduction measures should be implemented within a defined time period.<br>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 10 to 15 | 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.<br>Fire Risk Rating<br>If the building is unoccupied, it should not be occupied until the risk has been reduced. If the building is occupied then urgent action should be taken. |
| Intolerable 16 to 25 | Work must 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.<br>Fire Risk Rating<br>Building (or relevant area) should not be occupied until the risk is reduced. |