

Risk Assessment Record

Department	Centre for Biological Engineering		
Item Description	Use and Maintenance of the Nikon Biostation CT imaging cell imaging incubator		
Location	H-30, Centre for Biological Engineering		
Date	20 January 2014		
Highest Risk Rating	Medium Risk		
Review Date	20 January 2016		
Assessor	A. Chandra		
Comments	The Biostation CT allows for continuous observation of cells when they are in culture by incorporating an incubator along with a microscope. The cells grow in flasks and plates and sit in a hotel. A robot arm picks and places them into a microscope.		
Signature		Date	
Supervisor	P. Hourd, CBE Quality Manager		
Comments			
Signature		Date	
Safety Officer	R.I. Temple		
Comments			
Signature	<i>R.I. Temple</i>	Date	06/01/2014

Personnel at Risk

The Health & Safety at Work Act requires that you ensure, so far as is reasonably practicable, the health and safety of yourself and others who may be affected by what you do or fail to do. Indicate using the groups listed below the individuals (restricted high-risk users) and numbers of people (e.g. with restricted user privileges or unrestricted access) who may be at risk from the hazards. Classify the *maximum* level of activity/exposure to the equipment to be permitted for each group/individual using the categories indicated below.

Activity/Exposure Categories

- | | |
|------------------------------------|-------------------------------|
| 1. Reconfiguration (high exposure) | 5. Supervised reconfiguration |
| 2. Maintenance | 6. Supervised normal use |
| 3. Normal use | 7. Supervised observation |
| 4. Unsupervised observation | 8. Prohibited (no exposure) |

Personnel Groups

Group	Individuals/Numbers	Activity/Exposure
<input type="checkbox"/> + <input type="checkbox"/> - Academic Staff	All authorised CBE staff	Normal use
<input type="checkbox"/> + <input type="checkbox"/> - Technical Staff	All authorised CBE staff	Normal use
<input type="checkbox"/> + <input type="checkbox"/> - Research Staff	All authorised CBE staff	Normal use
<input type="checkbox"/> + <input type="checkbox"/> - Project Students	All authorised CBE students	Normal use
Others	Nikon contractors including trainers	Supervised normal use

Hazard Checklist

Indicate below whether or not a hazard is present for *each* type listed.

Category 1: Machinery & Work Equipment: Mechanical Hazards

Type	Yes	No
Crushing	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Shearing	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Cutting/severing	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Entanglement.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Drawing-in/Trapping.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Type	Yes	No
Impact.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Stabbing/puncture.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Friction/abrasion.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other mechanical hazard(s).....	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Category 1: Machinery & Work Equipment: Electrical Hazards

Type	Yes	No
Direct contact	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Indirect contact.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Electrostatic phenomena	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Short circuit/overload.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Type	Yes	No
Source of ignition	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Electrical test labels current.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Other electrical hazard(s).....	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Category 2: Workplace

Type	Yes	No
Slips/trips/falls on a level	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Falls from a height	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Falling/moving objects/materials	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Striking objects.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Localised hot surfaces	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Type	Yes	No
Localised cold surfaces.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Storage and stacking.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Confined work area (knocks).....	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Confined space/lack of oxygen.....	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Other workplace hazard(s).....	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Category 3: Hazardous Substances

Type	Yes	No
Toxic fluids	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Toxic gas/mist/fumes/dust.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Flammable liquids.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Flammable gas/mist/fumes/dust.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>
High pressure gas/fluid.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>
High pressure fluid injection	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Type	Yes	No
Corrosive substances	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Irritants/sensitising substances.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Oxidising substances	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Explosive substances	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Biological substances (infection).....	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Other substance hazard(s).....	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Category 4: Work Activity

Type	Yes	No
Highly repetitive actions	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Stressful posture	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Awkward/heavy lifting/handling.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Mental overload/stress.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Type	Yes	No
Visual fatigue (e.g. >3 hours VDU)...	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Poor workplace design.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Use of hand tools	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other work activity hazard(s)	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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Category 5: Work Organisation

Type	Yes	No
Contractors/service.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Type	Yes	No
Other work organisation hazard(s)	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Category 6: Work Environment

Type	Yes	No
Significant noise.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Significant vibration.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Poor/excessive lighting	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Type	Yes	No
Hot/cold ambient temperature	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Poor ventilation	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other work environment hazard(s)....	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Category 7: Other Hazard Types

Type	Yes	No
Violence	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Stress	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Drugs.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Type	Yes	No
Substance abuse.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other hazard(s).....	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Category 8: Outdoor Work

Type	Yes	No
Outdoors on campus.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Outdoors off campus	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Overseas fieldwork.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Type	Yes	No
Site visit: construction	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Site visit: non-construction.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other hazard(s).....	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Other Hazards: Radiation

Type	Yes	No
Radiation: Lasers.....	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Radiation: Electromagnetic effects ...	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Type	Yes	No
Radiation: Ionising/non-ionising	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other radiation hazard(s).....	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Hazard Assessment

Describe the hazards identified above on the following pages. For each hazard assess the risk to health and safety using the risk rating formula and categories indicated below.

Risk Calculation

<p>Severity</p> <p>Major = 3 (e.g. death, major injury as per RIDDOR, irreversible health damage)</p> <p>Serious = 2 (e.g. injuries causing >3 days absence or reversible health damage)</p> <p>Minor = 1 (e.g. first aid treatments and other lost time)</p>	×	<p>Probability</p> <p>High = 3 (where certain or near certain harm will occur)</p> <p>Medium = 2 (where harm will frequently occur)</p> <p>Low = 1 (where harm will seldom occur)</p>	=	<p>Risk</p> <p>High = 6,9</p> <p>Medium = 2,3,4</p> <p>Low = 1</p>
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Hazard Risk Rating

Activity	Groups at risk	Hazard Description	Controls in place	Severity	Probability	Risk	Action needed? Yes No
Normal use	All users	Machinery and Work Equipment. Mechanical Hazards There is a risk of pinching hands at the access gate of the culture chamber.	All users will be trained to ensure that hands are kept out of the culture chamber during operation to avoid the risk of pinching fingers in movable parts inside the culture chamber. This will be captured in CBE/SOP/150.	Serious	Low	Medium	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Normal use	All users	Machinery and Work Equipment. Electrical Hazards Risk of electrical shock as high voltage is applied to areas including the breaker terminals and wires.	Machine will be regularly PAT tested and on the University asset register. PAT test will include doing the following tests on the cable: Visual Earth Bond Insulation Polarity The following tests will be carried out on the UPS: Visual Earth Bond Earth Leakage CBE users will not be allowed to operate parts marked with the high voltage warning symbol.	Serious	Low	Medium	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Hazard Risk Rating

Activity	Groups at risk	Hazard Description	Controls in place	Severity	Probability	Risk	Action needed?	
							Yes	No
Normal use	All users	Category 2: Workplace Localised hot surfaces as the main glass door of the culture chamber may become hot during operation	To prevent burns and risk of fire, CBE users will be trained not to put body parts or flammable material near the parts of the Biostation marked with the heat symbol. This will be captured in CBE/SOP/150.	Serious	Low	Medium	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Normal use	All users	Category 2: Workplace Confined space - lack of oxygen in case of a leak in the carbon dioxide gas.	The room has sufficient air changes that a slow leak will not affect users in the room. Also an oxygen depletion sensor will warn users in case of a failure allowing users to evacuate.	Minor	Low	Low	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Normal use	All users	Hazardous substance: Biological activity. The Biostation CT will be used with Hazard Group 2 cells for imaging purposes.	All biological agents will be separately risk assessed.	Minor	Low	Low	<input checked="" type="checkbox"/>	<input type="checkbox"/>
							Add Row	Delete Row

Risk Reduction

Physical

Determine whether the risk to health and safety can be reduced by modifications to the equipment or workspace, especially for those hazards identified as having medium to high risk. List planned action and completion dates below.

Hazard	Action to be taken	Responsible Personnel	Completion Date
	Write CBE/SOP/150 "Use and maintenance of the Nikon Biostation CT"	AC	28 February 2014
	Write biological risk assessments for biological activity to be performed in the Biostation CT	All users	When required.
	Arrange for PAT test of the Biostation CT	AC	31 January 2014

Add Row

Delete Row

Procedural

Determine and indicate below whether acceptable levels of risk to health and safety can only be achieved when equipment use must follow prescribed procedures, and/or where use must be restricted to specified personnel. Prepare and attach user guides, user restriction and other HSE documents as appropriate. Contact the Department Safety Officer for guidance/assistance as necessary.

Item	Yes	No
Does the equipment/process need an operating procedure document?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
• If yes, has one been prepared and appended to this form?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Must protective equipment be worn to use the equipment/process safely? (cf. Personal Protective Equipment (PPE) regulations)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
• If yes, have the users been adequately notified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
• If yes, is suitable protective equipment available for all potential users/observers?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Should the use of this equipment be restricted to certain qualified personnel?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
• If yes, has a list of permitted users been prepared, appended to this form and displayed near the equipment?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Is training required to use the equipment/process safely?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
• If yes, have all identified users been adequately trained?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Does the equipment have a CE mark?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
• If not, does the equipment need a separate Machinery Risk Assessment?	<input type="checkbox"/>	<input type="checkbox"/>
• If yes, has one been prepared and appended to this form?	<input type="checkbox"/>	<input type="checkbox"/>
If a lifting hazard has been identified is a manual handling assessment required?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• If yes, has one been prepared and appended to this form?	<input type="checkbox"/>	<input type="checkbox"/>
If hazardous substances will be in use, is a COSHH form required?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• If yes, has one been prepared and appended to this form?	<input type="checkbox"/>	<input type="checkbox"/>
Does the equipment involve the use of lasers?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• If yes, has a laser description form been completed and appended to this form?	<input type="checkbox"/>	<input type="checkbox"/>