



DEPARTMENT OF ENGINEERING

**RISK ASSESSMENT FORM - This is an
active document and must be maintained.**

Part 1. Personal data and details of
project/experiment/work activity

Group: Cambridge University Spaceflight	Supervisor:
Forename(s):	Location/Laboratory where activity will take place: Churchill college sports field
Contact e-mail addresses: js843@cam.ac.uk , ag611@cam.ac.uk , eam52@cam.ac.uk , icw26@cam.ac.uk	
Status: Students (Staff/Student/Academic/Technician/Clerical/Portering)	
Starting date: 30/06/2008	
Proposed finishing date: Ongoing	
Title of project/experiment/work activity: Cambridge University Spaceflight - Radiosonde balloon releases	
Brief description of project/experiment/work activity Cambridge University Spaceflight makes small radiosonde balloon launches from Churchill college to test flight systems and hardware. The aim of these launches is to help develop technology that will allow for larger balloon launches that will have to take place from more remote locations and eventually to allow the launching of a rocket from one of these balloons that will reach the edge of space at 100Km.	
<u>DEFINITIONS</u> Hazard: The potential for harm. Risk: The probability (or likelihood) of harm actually occurring and the severity of its consequences. Risk Assessment: The process of deciding on actions to be taken to reduce risk to an acceptable level by implementing control measures	

PART 2. Nature of Possible Hazards

Chemicals/Substances –

Are chemicals/substances hazardous to health to be used?

No

If YES you must complete a COSHH form available from the H.S.E. office and attach it to this assessment.

Please list chemicals/gases/substances to be used.

Biological Substances – Are biological substances to be used?

No

If YES assessments must be submitted to the Departmental Biological Officer for signature

Signature of Departmental Biological Officer:

Date:

Radiation – Are radiation sources to be used?

No

If YES assessments must be submitted to the Departmental Radiation Officer Dr G Parks for signature (gtp@eng.cam.ac.uk)

Signature of Departmental Radiation Officer:

Date:

Laser – Are lasers to be used?

No

If YES assessments must be submitted to the Departmental Laser Officer

Class 3B and 4 lasers need a separate assessment to Dr T Wilkinson for signature (tdw@eng.cam.ac.uk)

Lower power lasers - assessment to be sent to tdw for info.

Has eye-test been undertaken? YES/NO

Signature of Departmental Laser Officer:

Date:

Electrical – Is electrical equipment to be used?

No

Robotic – Is robotic equipment to be used?

No

Mechanical – Are you using mechanical, pneumatic, pressure vessels, hydraulics, motor drives, lifting gear etc?

Yes

Other hazards – Are there any other hazards which pose unusual risks, such as long periods at a computer, working at height, manual handling etc?

Yes

Please state nature of the hazard:

PART 3. Control Measures

Where you have answered 'yes' in Part 2 please provide a written 'Safe System of Work' or the control measures to be put into place for these activities.

Hazard: Handling of helium cylinders. These cylinders are very heavy and could cause serious injury if they were to fall on someone.

Persons at risk: Those handling the cylinders.

Control measures: All cylinders are delivered to the site by trained delivery men. Two people are required to move cylinders and place into gas trolley. When using or moving cylinders they should be secured in a gas trolley

Likelihood: 1, **Severity:** 2, **Risk factor :** 2, Low risk

Hazard: Untrained personnel misusing the cylinder during storage.

Persons at risk: Members of the public.

Control measures: The cylinder will only be kept in its designated storage location away from a general access area. The cylinder will be kept chained in an industry standard compressed gas cylinder trolley.

Likelihood: 1, **Severity:** 2, **Risk factor :** 2, Low risk

Hazard: Fixing of regulator to cylinder gives potential for helium leakage

Persons at risk: Those attaching the regulator.

Control measures: This must only be performed outside or in a mechanically ventilated area.

Likelihood: 1, **Severity:** 1, **Risk factor :** 1, Low risk

Hazard: Helium leakage while filling the balloon

Persons at risk: Those filling the balloon.

Control measures: This must only be performed outside.

Likelihood: 1, **Severity:** 1, **Risk factor :** 1, Low risk

Hazard: Flailing of the balloon while filling

Persons at risk: Those around the balloon as it is being filled.

Control measures: The balloon should be securely tethered to the ground during the filling. Anyone not involved in the filling should be kept at least 1.5 times the length of the tether away from the balloon. Balloon launches should only take place on days with low winds.

Likelihood: 2, **Severity:** 1, **Risk factor :** 2, Low risk

Hazard: Balloon bursting while filling

Persons at risk: Those filling the balloon and in the immediate area.

Control measures: The balloon is not to be filled beyond the manufacturer's recommended level. Anyone not involved in the filling should be kept at least 1.5 times the length of the tether away from the balloon.

Likelihood: 1, **Severity:** 1, **Risk factor :** 1, Low risk

Hazard: Releasing of balloon in a direction which contains obstructions

Persons at risk: Anyone in the path of the balloon.

Control measures: The balloon should only be released in such a way that given the present winds it has sufficient space to rise above any surrounding buildings or other obstacles.

Likelihood: 2, **Severity:** 1, **Risk factor :** 2, Low risk

Hazard: Balloon endangering aircraft once released.

Persons at risk: Those flying in the Cambridge area unaware of the launch.

Control measures: Pilots notified of the launch via a NOTAM. Contact to be made with air traffic control 24 hours before the launch and again 5 minutes before.

Likelihood: 1, **Severity:** 3, **Risk factor :** 3, Low risk

Hazard: Under-age children on site around potentially dangerous equipment (applies when children are on site **only**).

Persons at risk: Children attending the launch or otherwise involved in on-site activities.

Control measures: Parental permission is required for all persons aged 16 or under. Untrained people will not be permitted to use any equipment, and will remain at a safe distance.

Likelihood: 1, Severity: 3, Risk factor : 3, Low risk

Hazard: Injuries resulting from use of equipment in the dark (applies to night launches **only**).

Persons at risk: All persons involved in night-time launches.

Control measures: All persons using equipment must ensure they are doing so in adequate lighting. Torches and general lighting must be provided and on-site.

Likelihood: 1, Severity: 3, Risk factor : 3, Low risk

How to analyse risk

Hazards identified: List all potential hazards, e.g. those that may arise from substances, electricity, equipment or machines and the ways in which people use or misuse those items etc.

Identify persons at risk: The risk may be different for the person performing the experiment from someone who knows nothing about it (eg cleaners, technicians, maintenance staff, visitors).

Control measures: These are things you will be putting in place to reduce risks to their lowest level

Likelihood: This should be assessed on a scale of 1 - 3 as follows:

1 = Unlikely If control measures do not break down.

2 = Likely If the control measures depend on an individual using them or adjusting them.

3 = Certain/imminent Exposure to the hazard is continuous

Severity: Assessed on a scale of 1 - 3 as follows:

1 = Minor injury / lost time/illness 2 = Serious injury / disablement 3 = Death / fire / explosion

Calculation of risk: **Likelihood x Severity = Risk rating**

Risk rating: **Please specify the risk rating by completing the above calculation and indicating below:**
1 to 3 = Low Risk 4 to 6 = Moderate Risk 7 to 9 = High Risk

PART 4. General Safety Information

Personal Protection	Lab Coat Gloves Face Mask Ear Defenders Eye Protection Foot Protection (delete where appropriate)	No No No No No No	Coveralls + Hood No
Special Monitoring (Hearing test, Eye test, Dust exposure etc).	Is special monitoring required? No Details:		
Waste Disposal Substances hazardous to health Information from MSDS as to disposal requirements	Is Hazardous waste likely? No Waste Disposal Procedures:		
First Aid (Special antidote requirements for using HF, cyanide, etc).	First aid procedures in event of accident Go to Churchill Porters Lodge if assistance is necessary.		
Action required in the event of Equipment Failure (Any special notification needed).	Deal with the failure and carry out a review to determine the cause and what can be done to avoid it happening again.		
Out of Hours Emergency Shut Down Procedure (Any special procedural document <u>must</u> be kept near to experimental rig).	-		
Sources of information (manuals, etc)	-		