

Leeds University Union Caving Society
University of Leeds Speleological Association



Caving and Single Rope Techniques Training Risk Assessment

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Foreword

This Risk Assessment has been developed for the activities undertaken by members of the University of Leeds Speleological Association (ULSA) and the Leeds University Union Caving Society (LUUCaS) during the caving and Single Rope Technique (SRT) training sessions held at the EDGE sports centre climbing wall.

It should be noted that LUUCaS members are also ULSA members under the ULSA Constitution and therefore, from this point forward, the pre-fix “ULSA” will be used to identify all members of ULSA and LUUCaS.

Document Development and Distribution

Version	Authors	Distribution	Date	Notes
V1_2006	Sam Allshorn	Leeds University Union ULSA Virtual Library	2006	N/A
V2_2014	Matthew Day Holly Bradley	Leeds University Union EDGE Sports Centre ULSA Virtual Library	September 2014	N/A
V3_2019	Michael Brigham	Leeds University Union	22/01/19	Checked over and reformatted

Introduction

The University of Leeds Speleological Association (ULSA), of which members of the Leeds University Union Caving Society (LUUCaS) are also members, provides training to all members to enable them to cave safely underground. This includes the delivery of technical caving techniques to include ladders and rope work, as well as providing an understanding of basic underground safety such as preventing hypothermia.

This risk assessment identifies and assesses the risks that could occur whilst undertaking these training sessions and includes measures and precautions that will be implemented to deliver the training in the safest way possible.

Currently these sessions are held in the EDGE climbing wall facility using LUUCaS equipment. It should be noted that this risk assessment is solely for the identification and mitigation of potential risks associated with these activities undertaken during these training sessions. This does not provide any form of instruction of how to carry out these activities.

This risk assessment will be used to ensure all training sessions are carried out in a safe manner. Procedures for implementing safe practices for training at the EDGE climbing wall are provided in the following documents:

- EDGE Climbing Wall Induction
- ULSA Caving and SRT Climbing Wall Induction
- ULSA Training Guide [*Undergoing development at the time of writing*]
- ULSA Equipment Check Guide [*Undergoing development at the time of writing*]

For the purposes of this risk assessment the word 'Trainer' has been used to describe anyone teaching or assisting with teaching a specific speleological technique, who is competent in that technique. The word 'Trainee' has been used to describe those learning and practicing the techniques. Where 'Personnel' has been used, this refers to all parties using the wall.

Trainers will ensure the safety of the Trainees during the training sessions associated with the techniques and practices discussed. However, all individuals are responsible for their own safety and will be expected to conduct all activities within the guidelines of this Risk Assessment and the Inductions. A level of common sense is expected of all participants and all individuals involved must deliver a duty of care to each other.

A list of all those ULSA members deemed competent to provide supervision and support during training sessions will be provided to the EDGE sports centre and Leeds University Union by the LUUCaS committee. It is necessary that these people are able to access the facility during designated training sessions to ensure the safety of those participating in the session. At the time of writing, these training sessions take place at the EDGE climbing wall on Tuesdays and Friday 8pm to 10pm.

Risk Rating and Classification

This methodology takes into account the University of Leeds guidance on developing Risk Assessments: <http://www.leeds.ac.uk/safety/risk/guidance.htm>

For each risk identified, an assessment has been carried out to identify a Risk Score, which then relates to whether the risk is Low, Medium or High. The risk score is based on assessing the consequence of a risk against the probability of it occurring. The table below identifies the Consequence Levels used, a definition of each level and the associated score.

Consequence Scoring Guide		
Level	Definition of the hazard using the greatest potential consequence	Score
Nil	Very minor injuries not requiring first aid, such as bruises.	1
Slight	Minor injury which requires first aid, such as loss of blood from a cut.	2
Moderate	Injury is not life-threatening, however personnel requires a visit to hospital in addition to first aid.	3
High	Major injury which results in long-term damage or death.	4
Very High	Multiple deaths.	5

The table below identifies the Probability Level used, a description of the chance of each level occurring and the associated score.

Probability Scoring Guide		
Level	The chance of the hazard being involved in an occurrence, resulting in its greatest potential consequence	Score
Highly Unlikely	Does not occur in this type of activity. It would require an extraordinary unplanned, unforeseeable event(s) for any chance of occurrence.	1
Unlikely	This incident may occur.	2
Possible	An occurrence may occur if additional factors precipitate it, but it is unlikely to occur without them.	3
Highly Likely	An occurrence will happen, which may be effected by additional factors, but is still likely to occur without them.	4
Inevitable	Certainty that an incident will occur.	5

The Risk Score is calculated by multiplying the Consequence Score and the Probability Score together. The resulting Risk Score is then given a Risk Rating of Low, Medium or High Risk, as shown by the table below.

Risk Score and Risk Rating Assessment									
Consequence Score	5	5	10	15	20	25		Risk Score	Risk Rating
	4	4	8	12	16	20		1 to 5	Acceptable
	3	3	6	9	12	15		6 to 10	Moderate
	2	2	4	6	8	10		11 to 15	High
	1	1	2	3	4	5		16 to 25	Unacceptable
		1	2	3	4	5			
	Probability Score								

The risk assessment has been carried out using the method discussed above. Firstly an initial Risk Score is evaluated which considers the activities being carried out without any precautions or control measures in place to provide a worst case scenario. The precautions and control measures that will be implemented are then identified and the Risk Score is re-evaluated to demonstrate the importance and effectiveness of the precautions and control measures used.

Should the final Risk Rating for any risks be identified as High or Unacceptable, then the associated activity will not take place until appropriate precautions/control measures have been identified and implemented.

Risk assessment

Risk	Description of Potential Harm or Injury	Pre-Mitigation Risk				Mitigation, Precautions and Control Measures to Reduce the Potential Risk	Residual Risk				Comments
		Consequence	Probability	Risk Score	Potential Risk		Consequence	Probability	Risk Score	Potential Risk	
Personnel falling from height whilst climbing on the wall	Broken/fractured bones, knocked unconscious from fall.	3	4	12	High	<p>Only Trainers requiring access to the platform/ needing a better view for teaching will use the climbing wall. Climbing on the wall without protection will not exceed the height specified in the Edge Climbing Wall Induction.</p> <p>Trainers will ensure all personnel in his/her vicinity is aware of their intentions and all personnel will ensure they are not underneath the climbing Trainer.</p> <p>All persons not training/being trained will wait on the platform at the entrance of the wall.</p> <p>Only persons training/being trained will use the matting area.</p>	2	2	4	Acceptable	Falling from the wall is Unlikely as the incident may occur. However the provision of the control measure which restricts the height gained from climbing lowers the consequence of the resulting injury. Ensuring all other personnel are not in the vicinity of a falling climber also reduces the resulting injury.
Risk	Description of Potential Harm or Injury	Pre-Mitigation Risk				Mitigation, Precautions and Control Measures to Reduce the Potential Risk	Residual Risk				Comments
		Consequence	Probability	Risk Score	Potential Risk		Consequence	Probability	Risk Score	Potential Risk	

<p>Personnel falling from height from the platform</p>	<p>Fall results in broken/fractured bones and/or concussion.</p>	<p>3</p>	<p>4</p>	<p>12</p>	<p style="background-color: red; color: black; text-align: center;">High</p> <p>The Trainer requiring access to the platform, 'Rigging Trainer', will use the easiest route up and down the wall. When climbing the wall without protection the 'Rigging Trainer' will ensure personnel in his/her vicinity is aware of their intentions and all personnel will ensure they are not underneath the climbing Trainer. (As above). When using the platform for training purposes the Rigging Trainer will set up a traverse line and they will be attached to this at all times. Trainees using the platform will be attached to lifelines/traverse lines under guidance of the Trainer.</p>	<p>3</p>	<p>1</p>	<p>3</p>	<p style="background-color: #d9e1f2; text-align: center;">Acceptable</p>	<p>When standing on the platform, this height is greater than the height specified by the Edge facility for climbing without protection. Therefore the Consequence here remains the same. However protection measures when using the platform are implemented and therefore the probability of the Trainer/Trainee falling from this height are Highly Unlikely.</p>
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<p>Personnel falling from height onto others below</p>	<p>Causing major injury including internal bleeding, broken/fractured bones and/or concussion.</p>	<p>4</p>	<p>4</p>	<p>16</p>	<p style="text-align: center;">Unacceptable</p> <p>Where climbing (by Trainers only) is necessary, the Trainer in question will communicate their intention to other Trainers. All Trainers will ensure no personnel will be in the vicinity of the Trainer climbing. All personnel must be aware of their surroundings at all times, which includes above as well as around themselves. Communication between all personnel will ensure this. Climbing on the wall without protection will not exceed the height specified in the Edge Climbing Wall Induction. When not being trained, trainees will be required to wait on the black matting 'waiting area'. Trainees will not progress up ropes until their skills have developed in line with the Training Guide. Development of skills will be determined by the Trainers.</p>	<p>3</p>	<p>1</p>	<p>4</p>	<p style="text-align: center;">Acceptable</p> <p>An initial high Consequence was identified due to the serious injuries that can result from heavy objects falling on a person from height. Following the implementation of the control measures, falling from the wall is Unlikely as the incident may occur, but only at heights deemed safe as identified in the Edge Induction. Therefore the Consequence of the resulting injury is lower. Falling from a greater height is Highly Unlikely to occur due to the requirements for protection and assessment of Trainees abilities during the training sessions. Trainees waiting on the black matting will be in an area where no objects or persons can fall on them from height.</p>
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Personnel falling from height due to incorrect use of equipment	Broken/fractured bones, knocked unconscious from fall.	4	3	12	High	Trainees will be under constant supervision from the Trainers. Training will take place through a step by step process and Trainees will not progress to the next stage, including gaining height/ more complicated SRT, until they are ready to do	4	1	4	Acceptable	Ensuring all Trainers are competent in caving techniques, as detailed within the Training Guide, will ensure that Trainees will be supervised by appropriate Personnel at all times. The provision of a Trainer supervising Trainees at all
Risk	Description of Potential Harm or Injury	Pre-Mitigation Risk				Mitigation, Precautions and Control Measures to Reduce the Potential Risk	Residual Risk				Comments
		Consequence Probability	Risk Score	Potential Risk	Consequence Probability		Risk Score	Potential Risk			

Falling from height due to failure of equipment	Broken/fractured bones, knocked unconscious from fall. Falling onto personnel below causing major injury.	4	3	12	High	Equipment will be checked on a regular basis to ensure all ropes, ladders, rigging and SRT equipment is safe to use. This will be carried out using the Equipment Safety Check Guide. Trainers will be responsible for the safety of their own equipment. Ensuring Trainers are capable of checking their equipment will be included as part of the assessment for ensuring personnel are competent to be Trainers. Part of the training that is delivered to Trainees includes maintenance and checking of equipment.	4	1	4	Acceptable	Regular checks of equipment will ensure that only equipment deemed to be safe is used for any caving activity.
Risk	Description of Potential Harm or Injury	Pre-Mitigation Risk				Mitigation, Precautions and Control Measures to Reduce the Potential Risk	Residual Risk				Comments
		Consequence	Probability	Risk Score	Potential Risk		Consequence	Probability	Risk Score	Potential Risk	

Equipment falling from height	Metal equipment, in particular descenders, being dropped from height and landing on personnel below.	3	4	12	High	No personnel, at any time, are to walk or stand underneath anybody who is on a rope, a ladder, on the wall, the ledge, or in any other way above the ground. When not being trained, trainees will be required to wait on the black matting 'waiting area'. Any equipment being moved to/from the platform level will be hauled/lowered using ropes. Trainers will ensure all equipment is attached to the Trainees harness prior to ascending the rope. Descenders will be attached to the central mallion to prevent moving the descender from the gear loop whilst on the rope.	3	1	3	Acceptable	It is essential that all gear is secured to the Trainees harness in order to not only ensure that it does not fall from height, but also to ensure that the Trainee does not fall from height. Good practice when moving gear from the floor to the platform level will not only prevent gear from falling from height, but also instills good underground practice in this regard.
Risk	Description of Potential Harm or Injury	Pre-Mitigation Risk				Mitigation, Precautions and Control Measures to Reduce the Potential Risk	Residual Risk				Comments
		Consequence	Probability	Risk Score	Potential Risk		Consequence	Probability	Risk Score	Potential Risk	

Trapping fingers, hair or clothing in equipment	Minor injury and inability to descend the ropes	2	4	8	Moderate	Trainers will ensure all Trainees have their hair tied back, no loose clothing is being worn and do not progress onto more technical SRT practices until ready to do so (Training Guide). A club knife will be available at all training sessions and will be held by the Training Officer.	2	2	4	Acceptable	Even with the precautions in place, it is possible that hair can still become trapped, especially if long. Provision of knives during training will ensure all Trainees can be freed and descend from the rope safely.
Risk	Description of Potential Harm or Injury	Pre-Mitigation Risk				Mitigation, Precautions and Control Measures to Reduce the Potential Risk	Residual Risk				Comments
		Consequence Probability	Risk Score	Potential Risk	Consequence Probability		Risk Score	Potential Risk			

<p>Fire alarm sounds whilst Trainees are attached on the rope</p>	<p>Trainee panics and cannot descend from rope quickly and safely resulting in being trapped in burning building, having the potential for a fatality/ies.</p>	<p>5</p>	<p>3</p>	<p>15</p>	<p style="background-color: red; color: black; text-align: center;">High</p> <p>All those deemed as Trainers will undergo an appropriate 'Trainer Induction' which includes a fast, only-in-emergency procedure for rescuing Trainees from ropes should the fire alarm sound. This will involve two scenarios: if the Trainee is near to the floor, then the Trainer will cut the rope that the Trainee is attached to. If the Trainee is much higher up the rope then the Trainer will prussic up the rope nearest to the Trainee, they will change over to their descender, then attach the Trainee to the Trainers' harness using their cows tails and then cut the rope that the trainee is on. The Trainer will then descend safely to the floor with the Trainee attached to them.</p> <p>As a result, Trainers will be required to wear their SRT kits during each session and the club knife will be available at all and will be held</p>	<p>5</p>	<p>1</p>	<p>5</p>	<p style="background-color: #d9e1f2; text-align: center;">Acceptable</p>	<p>With these precautions in place, all Trainers will have the knowledge and be prepared to rescue anyone from the ropes should the fire alarm sound.</p>
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Risk	Description of Potential Harm or Injury	Pre-Mitigation Risk				Mitigation, Precautions and Control Measures to Reduce the Potential Risk	Residual Risk				Comments	
		Consequence	Probability	Risk Score	Potential Risk		Consequence	Probability	Risk Score	Potential Risk		
					by the Training Officer.							
Slips, trips and falls (not from height)	Minor injury resulting from tripping over equipment, ropes and personal belongings left on floor.	2	4	8	Moderate	All equipment not in use and personal belongings will be left on the waiting area at the entrance to the climbing wall. These will be piled away from all walking areas. Excess rope will be neatly piled on the floor.	2	2	4	Acceptable	Injuries from slips, trips and falls at the climbing wall will lead to minor injuries. Clearing walk ways and standing areas to reduce likelihood of flooring provides for an Acceptable potential risk score.	
Risk	Description of Potential Harm or Injury	Pre-Mitigation Risk				Mitigation, Precautions and Control Measures to Reduce the Potential Risk	Residual Risk				Comments	
		Consequence	Probability	Risk Score	Potential Risk		Consequence	Probability	Risk Score	Potential Risk		

Fatigue/ exhaustion	Tiredness could lead to lack of understanding and inability to use equipment properly. Potential to be unable to descend safely from rope. Could lead to sit harness syndrome	4	3	12	High	<p>Trainees to be supervised at all times. Trainers to ensure Trainees are capable with carrying out the training exercises in relation to their fitness levels. Trainees will not progress to more complicated SRT until ready to do so.</p> <p>Should Trainees be unable to descend from the rope, then a mid-rope rescue, or rescue as detailed within the Fire Safety procedure above will be carried out.</p> <p>Trainers will be required to wear SRT kits and the club knife will be available at all and will be held by the Training Officer</p>	4	1	4	Acceptable	<p>Use of the training facility allows for a friendly, warm environment for Trainees to be taught caving techniques. Although underground caving is strenuous, within the training facility there are many rests and the height of the wall prevents continuous, long ascents, which can be tiring. However it is recognised that fitness is varied and caving attracts persons who wish to improve their health and fitness levels. Therefore it is important to ensure all Trainees are progressing at a comfortable rate for themselves.</p>
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Conclusions

All best efforts have been made to ensure that this risk assessment is comprehensive and accurate. It demonstrates that all risks associated with the teaching of caving and SRT techniques at the EDGE training wall are acceptable. This is achieved through the implementation of appropriate precautions and safety measures. To ensure these precautions and safety measures are implemented appropriately, the following reports and guides are available, and the procedures held within will be implemented as part of the training regime:

- EDGE Climbing Wall Induction
- ULSA Training Wall Induction
- ULSA Training Guide
- ULSA Training Log

Recommendations

This risk assessment, as well as those documents listed above are made available to all ULSA members via the ULSA virtual library and all members should read and be aware of their contents.

The risk assessment and all other documentation must be reviewed and updated on an annual basis, as a minimum.

Committee approval

Document approved for publication by LUUCaS Committee

President: Adam Aldridge	Signed: 	Date: 22/01/19
Secretary: Michael Bringham	Signed: 	Date: 22/01/19
Treasurer: Brendan Hall	Signed: 	Date: 22/01/19