FURTHER READING

Emergency planning	FISA802
Training and certification	FISA805
First aid at work: Your questions answered	INDG214
Don't lose your hearing	INDG363
Managing health and safety in forestry	INDG294

These publications are available from the FISA and HSE websites.

NOTES

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Date: .....

Further information

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59 George Street, Edinburgh, EH2 2JG Tel: 0131 240 1410
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This guide sets out evidence of good practice for a specific forestry task. Deviation from the guide should only be considered after a full risk assessment has been undertaken by competent persons. Health and safety obligations MUST be met at all times.

THINK SAFE / STAY SAFE

This publication is based on guidance previously published by HSE in AFAG203 Clearing saw, which was withdrawn in 2013.

For more general information about health and safety, please visit the Health and Safety Executive website www.hse.gov.uk

FISA203 **Reprinted 03/13**

Clearing saw

Image courtesy of Forestry Commission Picture Library

FISA Safety Guide 203

INTRODUCTION

This leaflet covers the safe working practices to be followed when using a petrol-driven clearing saw.

You can use this leaflet, along with the manufacturer's handbook, as part of the risk assessment process to help identify the controls to put in place when using a clearing saw in forestry and other tree work.

You must also assess the effect of the site and the weather as well as following this guidance.

Users of clearing saws should be particularly aware of the potential hazards of being cut by the saw, hit by timber and exposure to noise and vibration.

All operators must have had appropriate training in how to operate the machine and how to carry out the tasks required (see FISA leaflet 805 *Training and certification*).

PERSONAL PROTECTIVE EQUIPMENT (PPE) REQUIRED

❑ **1** Use the following PPE:

- A safety helmet (complying with EN 397).
- Hearing protection (complying with EN 352).
- Eye protection (a mesh visor complying with EN 1731 or safety glasses/visor to EN 166).
- Suitable protective gloves when handling the clearing saw and for protection from thorns, brambles and harmful weeds.
- Protective boots with good grip and ankle support (complying with EN 345-1).
- Non-snag outer clothing appropriate to the prevailing weather conditions. The use of high-visibility clothing may also be appropriate.

❑ **2** Hand-cleaning material such as waterless skin cleanser or soap, water and paper towels should be readily available.

❑ **3** Each person should carry a personal first-aid kit including a large wound dressing (see HSE leaflet INDG214 *First aid at work: Your questions answered*).

❑ **4** Use a harness for supporting the machine which must be fitted and adjusted correctly – see the manufacturer's handbook.

THE MACHINE

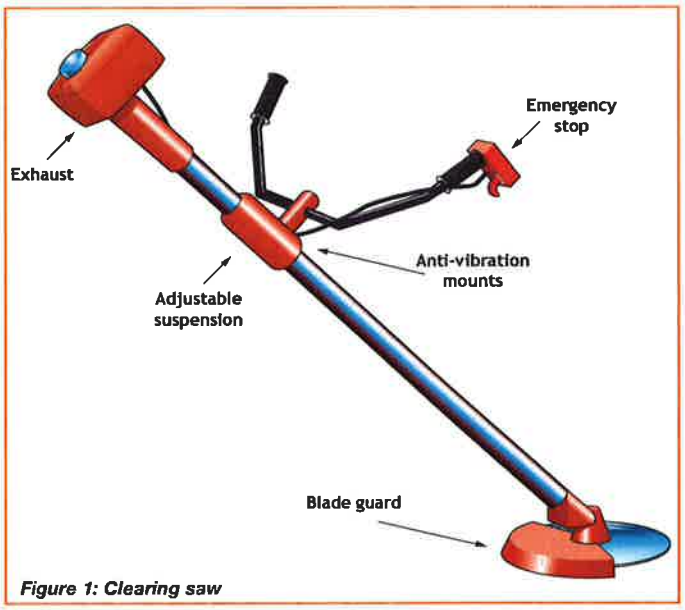

Figure 1: Clearing saw

❑ **5** Only use the clearing saw if:

- the stop switch works and is clearly marked;
- the blade guard and anti-vibration mounts are undamaged and functional;
- the exhaust system and silencer are in good order;
- there is an adjustable suspension ring for the harness.

❑ **6** Make sure you have the equipment recommended by the manufacturer to carry out sharpening, maintenance and adjustments, and a blade cover for transportation.

❑ **7** Kickback is the uncontrolled backward and/or upward motion of the clearing saw blade. It happens when a section of the blade (see *Figure 2*) contacts an object such as a log or branch or when the wood pinches the saw blade in the cut.

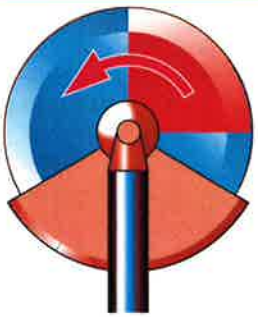

Figure 2: Kickback risk area of the blade 12-3 o'clock

PREPARING TO WORK

- ❑ **8** Ensure a risk assessment has been carried out and the significant findings recorded. All workers involved in any operation on the worksite should be made aware of and comply with the controls identified.
- ❑ **9** A safe method of operation for the work to be done must be agreed to ensure that a safe working distance can be maintained between workers and between workers and machinery (out of the risk zones of the machines being used).
- ❑ **10** Ensure a designated and responsible person knows the daily work programme and agree with them a suitable emergency contact procedure. Where reasonably practicable use a mobile phone or radio and a pre-arranged call-in system.
- ❑ **11** Ensure the operators can provide the emergency services with enough detail for them to be found if there is an accident, eg the grid reference, the distance from the main road, the type of access (suitable for car/four-wheel drive/emergency service vehicles). In urban areas street names are essential. Know the location details before they are needed in an emergency. (Also see FISA leaflet 802 *Emergency planning*.)
- ❑ **12** On all reasonably foreseeable approaches to the worksite, erect warning and prohibition signs conforming to the Health and Safety (Safety Signs and Signals) Regulations 1996, indicating a hazardous worksite and that unauthorised access is prohibited. In areas of very high public access, the risk assessment may indicate that additional controls (eg barrier tape, barriers, extra manning) are required.

MAINTENANCE

- ❑ **13** Ensure maintenance is carried out as specified in the manufacturer's handbook.
- ❑ **14** Keep a maintenance record.
- ❑ **15** Cover or remove the blade when the saw is not in use.
- ❑ **16** Check periodically throughout the day that:
  - the on/off switch is effective;
  - all nuts, bolts and screws are tight;
  - the blade is stationary when the engine is idling.
- ❑ **17** Ensure the saw blade is maintained according to the manufacturer's instructions.
- ❑ **18** Change the blade if it is cracked or any teeth are missing.

FUELLING

- ❑ **19** Petrol vapour is invisible and can travel considerable distances from spillage or fuelling sites. Maintain a safe distance from all sources of ignition at all times.
- ❑ **20** Store fuel to avoid vapour ignition from any source such as fires, people smoking or the clearing saw. Select a site shaded from direct sunlight and away from watercourses and drains.
- ❑ **21** Use fuel containers that incorporate a non-spill spout. The containers must be clearly labelled and have caps which fit securely.
- ❑ **22** Replace the fuel cap securely, ensuring that the 'O' ring seal on the cap is in good condition.
- ❑ **23** Keep fuel from contacting the skin. If fuel gets into the eyes wash out with sterile water immediately and seek medical advice as soon as possible.
- ❑ **24** Move a safe distance (normally at least 4 m) from the fuelling point before starting the clearing saw.

BEFORE STARTING

- ❑ **25** The operator should ensure they have been informed of all hazards (including toxic plants and ground debris) identified in the worksite assessment and can state the control measures to be followed.
- ❑ **26** Carry out pre-start checks, ensuring that safety guards and attachments are securely fixed in position.
- ❑ **27** Agree your method of operation with other workers, including keeping a minimum of 15 m apart.
- ❑ **28** Check that the blade is seated correctly, is sharp and not cracked and that the blade retaining nut is secure.
- ❑ **29** Check that the balance of the saw is correct for the operating conditions.
- ❑ **30** Check that the handles give a comfortable working stance. If adjustment is required re-secure the locking screws.
- ❑ **31** Check that the weight of the saw is spread evenly over both shoulders and that the blade hangs straight in front of you.
- ❑ **32** Ensure the emergency release system is working efficiently.

OPERATION

- ❑ **33** To start, place the machine on level ground with the blade clear of debris.
- ❑ **34** Ensure the blade is stationary when the engine is idling.
- ❑ **35** Always run at full throttle for safe cutting.
- ❑ **36** Operate smoothly using your legs and hips to move the machine.
- ❑ **37** Organise the work sequence so that any debris ejected by the saw flies into a safe zone.
- ❑ **38** Stop cutting immediately if you see any people within 15m.
- ❑ **39** When cutting woody material and where obstructions create a risk of kickback use the 8-11 o'clock sector of the blade.

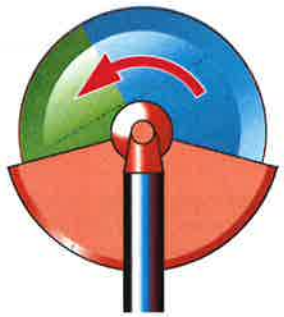

Figure 3: Use the 8-11 o'clock sector of the blade

- ❑ **40** Do not touch the blade when the engine is running.
- ❑ **41** Release the throttle when the blade jams. Switch off if jamming persists.

WORKING AT THE ROADSIDE

- ❑ **44** Ensure all operations near to highways are adequately signed with the appropriate notices as specified in the DTLR *Code of Practice Safety at street works and road works*.

NOTES

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FURTHER READING

First aid at work: Your questions answered	INDG214
Managing health and safety in forestry	INDG294

This publication is available from the HSE website.

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THINK SAFE / STAY SAFE

This publication is based on guidance previously published by HSE in AFAG802 Emergency planning, which was withdrawn in 2013.

For more general information about health and safety, please visit the Health and Safety Executive website www.hse.gov.uk

FISA802

Reprinted 03/13

Emergency planning

FISA Safety Guide 802

INTRODUCTION

The purpose of this leaflet is to help minimise the time taken for the emergency services to reach you and advise on ways to minimise the risk to operators if there is an emergency. It also highlights the need to include environmental and other emergencies within the planning process.

You can use this leaflet as part of the risk assessment process to help identify controls which can be used as part of an emergency planning procedure.

PRECAUTIONS

❑ **1** Avoid working alone. If you must, you should make arrangements for someone to check on you at regular intervals. The greater the risk, the more frequent the checks should be. As a minimum requirement, always inform your contact when work starts and finishes.

❑ **2** If you are part of a team scattered across an area, everyone in the team should arrange to meet at agreed times throughout the day.

❑ **3** Carry a personal first-aid kit on you while at work. It should contain at least a large wound dressing, a pair of plastic gloves and a Rescusciade (or similar device). This is in addition to a worksite first-aid kit which should be kept at a central location (see HSE leaflet INDG214 *First aid at work: Your questions answered*).

❑ **4** Employers and the self-employed need to assess the first-aid requirements of their work. Make sure there are enough suitably trained first-aid personnel (first-aiders) and facilities so that immediate assistance is available to casualties of illness or injury, and that an ambulance or other professional help can be summoned without delay. The assessment should also identify which items need to be in the worksite first-aid kit.

❑ **5** The first-aid assessment should take account of:

- the nature of the work;
- the past history and consequences of accidents;
- the nature and distribution of the workforce;
- the remoteness of the site from the emergency services, including location, terrain and weather conditions;
- working on shared or multi-occupied sites;
- holidays and other absences of first-aiders;
- the presence of trainees and the public;
- the possibility of medical conditions or allergies. (The use of MedicAlert® may be considered, visit www.medicalert.org.uk for details.)

FORWARD PLANNING

❑ **6** For any emergency procedures to work well, it is vital that all operators and managers are aware of the procedures and have had the opportunity to test them.

❑ **7** Anticipate problems that will exist in getting to a casualty, eg releasing a casualty that has been trapped below a tree or heavy equipment. Identify the personnel and equipment that need to be on site and establish how to quickly get access to others that may become necessary.

❑ **8** Identify hazardous overhead or underground services at the worksite, eg overhead/underground power lines, gas mains etc. Arrange any emergency contact details and site evacuation procedures that may be necessary.

❑ **9** Be aware that a spillage of petrol, diesel, urea or pesticide can cause harm to the environment (particularly aquatic plants and animals) and contaminate drinking water supplies. Emergency procedures should be put in place and followed if there is a spill. They should include contact details, what needs to go in a spill kit, how to use it and where it should be deployed.

❑ **10** Emergency procedures should be tested, evaluated and modified, as necessary, to ensure they are working.

EMERGENCY PROCEDURES

❑ **11** If there is an emergency, make sure the site is safe for you, the casualty and any other people in the area. Look out for hung-up trees, dangerous parts of machinery, high-voltage electricity cables etc.

❑ **12** Put in place a system for contacting the emergency services, power/gas/water companies and environmental agencies (EA/SEPA) as necessary. Ensure the system is clearly understood by all people working on the site. Identify areas of poor radio and mobile telephone reception. The emergency services may be contacted using a mobile phone (112 or 999) or public telephone (999).

❑ **13** Ensure you know your location. Be able to provide the emergency services with the necessary information to find the site, eg the grid reference and the access points from the main road to your location in the forest or woodland. In urban areas street names will be required. If possible send someone to meet the emergency services at a designated meeting point to guide them to the site.

❑ **14** Evacuation measures need to be examined as part of the risk assessment by the owner, site manager or main contractor and outlined in the site safety rules. You should make sure you are familiar with the evacuation procedure.

❑ **15** If after first aid has been administered the casualty can walk and is near to transport or the roadside, help them leave the area. Otherwise only move them if it is absolutely necessary. If the casualty must be carried, wait for trained help to arrive.

❑ **16 The completed emergency procedures should be recorded and should accompany the site-specific risk assessment.** A simple example is given below.

EMERGENCY PROCEDURES – CONTACT DETAILS

Location name	
Grid reference	
Designated meeting place (useful in remote areas to guide the emergency services to the worksite)	
Site location name	
Nearest access point	
Street name/district	
Type of access (public road/light vehicles, four-wheel drive)	
Suitable helicopter landing area	
Phone number of nearest doctor	
Location of nearest Accident and Emergency hospital **Phone number**	
Works Manager contact details **Radio call sign** **Phone number** **Mobile number**	
Your own contact number **Mobile number**	

FURTHER READING

Using petrol-driven chainsaws	FISA301
Use of winches in directional felling and takedown	FISA310
Tree-climbing operations	FISA401
Mobile elevating work platforms (MEWPs) for tree work	FISA403
Emergency planning	FISA802
Training and certification	FISA805
Management of health and safety in forestry	INDG294
Avoidance of danger from overhead electric power lines GS6	978 0 7176 1348 8
Avoiding danger from underground services HSG47	978 0 7176 1744 9
Electricity at work: Safe working practices HSG85	978 0 7176 2164 4
Memorandum of guidance to the Electricity at Work Regulations 1989 HS(R)255	978 0 7176 6228 9

These publications are available from the FISA and HSE websites.

Advice on what to do in an emergency is in the Energy Networks Association (ENA) leaflet Electricity Emergencies. This includes emergency telephone numbers for UK electricity network operators and safety information for farmers and agricultural contractors. Available from the ENA website www.energynetworks.org.

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This publication is based on guidance previously published by HSE in AFAG804 Electricity at work: Forestry, which was withdrawn in 2013.

For more general information about health and safety, please visit the Health and Safety Executive website www.hse.gov.uk

FISA804(Rev 1) **Reprinted 08/13**

Electricity at work: Forestry

Image courtesy of Forestry Commission Picture Library

FISA Safety Guide 804

INTRODUCTION

❑ **1** This leaflet covers the safe working practices to be followed by those working on forest operations near overhead power lines (OHPLs) and underground electricity cables, who are not working for the Network Operator. Contractors and employees working for the Network Operator that owns the electrical equipment have specialist competencies that enable them to work within the Energy Networks Association (ENA) guidance.

❑ **2** To ensure that the right tasks are carried out by the right people, this guidance groups these health and safety tasks into management roles as defined in the HSE/FISA publication *Managing Health and Safety in Forestry:*

- Landowner;
- Forestry Work Manager (FWM); and
- Contractor;

❑ **3** Where it is necessary to work close to OHPLs, detailed guidance on avoiding danger from OHPLs is published by HSE in Guidance Note GS6 *Avoidance of danger from overhead electric power lines*. Guidance on safe working practices on or near electrical systems is published in HS(R)25 *Memorandum of guidance to the Electricity at Work Regulations 1989*, HSG85 *Electricity at work – safe working practices* and in HSG47 *Avoiding danger from underground services.*

HAZARDS INVOLVED

❑ **4** Contact with OHPL causes fatal or severe electric shock and burn injuries. This can either be by direct or indirect contact, for example through a fallen tree, vehicle, rope or fence wire. This can also happen when a person or object is close enough to a line for a flashover to occur. Striking underground cables may lead to burn injuries from the resulting 'explosion' and may also result in fatal electric shock if contact is made with energised (live) conductors.

❑ **5** Everyone must assume that all overhead and underground electrical equipment is energised unless it has been confirmed by the Network Operator that it has been de-energised (isolated and earthed). This will be arranged by the Network Operator issuing a Permit to Work, or similar document, to an authorised permit holder.

COMPETENCE

❑ **6** All those involved in controlling, supervising and carrying out work near live electrical equipment should be competent and should have received adequate instruction as well as training in the correct procedures and precautions they must take. The level of supervision should also reflect the risks involved.

❑ **7** All operators must have had appropriate training, and any relevant refresher training, in how to operate any equipment or machinery and how to carry out the tasks required (see FISA 805 *Training and certification*).

❑ **8** All workers must be made aware, through safety briefings based around this document, of the onsite dangers and the appropriate precautions and actions to take.

❑ **9** The Network Operator may provide electrical awareness training to FWM or contractors on request.

PLANNING

❑ **10** Landowners should consult the Network Operator well in advance to discuss each of their forthcoming programmes. With this advanced planning, Landowners may find that the Network Operators have planned shutdowns that coincide with their work near electrical equipment. Likewise Network Operators might rearrange their maintenance activities to fit in with felling plans.

WORKSITE PLANNING

❑ **11** Start the necessary discussions with the Network Operator well before work starts, usually at least two months, where operations are to be carried out within 2 tree lengths plus the vicinity zone of the OHPL or close to underground cables.

❑ **12** In consultation with the Landowner and Network Operator, the FWM must find out the routes of **all** OHPL and underground cables that cross or are near the worksite and access routes and confirm this by onsite inspection. These must be clearly marked on the site and the site maps.

❑ **13** Organise operations within the worksite to minimise the need for mobile equipment to pass below or close to OHPLs or over underground cables.

❑ **14** Agreement should be reached with the owner of the OHLP, usually the Network Operator, for the OHPL to be de-energised and made safe. Where it is not practicable to de-energise the OHPL, follow the precautions in this leaflet.

❑ **15** You must **never** measure OHPL height using tape measures or other solid measuring devices and must be done through the Network Operator.

❑ **16** Prepare site-specific risk assessments, and method statements, and ensure these incorporate any advice received from the Network Operator.

❑ **17** You must assess the effect of the site characteristics, such as slope and the weather conditions, that could affect how the work may be done.

❑ **18** Operators or drivers must check the heights of vehicles to ensure that they do not exceed the maximum safe height and can pass beneath the lines with a suitable clearance as defined by Network Operator. This can be best achieved through discussion with operators using fixed reference points that will not exceed the safe clearance heights within the worksite and access roads.

❑ **19** Ensure there is a warning notice prominently displayed inside the cab of all machines that may have to work near OHPLs. The notice should give the maximum working height of the machine and the maximum height in the transport position.

❑ **20** Plan and designate safe loading areas (minimum 10m from the OHPL) for timber stacks and clearly mark these on the site harvesting plan.

❑ **21** At the pre-commencement meeting identify:

- the location of the OHPL and underground cables on maps and on site;
- the name of the Network Operator contact for when more information is required; and
- the Network Operator's emergency number.

❑ **22** Do not reduce the clearance between the ground and OHPLs in any way, for example by creating brash mats or resurfacing roadways, without having the line height re-measured.

ACCESS ROUTES TO THE WORKSITE

❑ **23** The Landowner must establish the safe access routes with the FWM who will brief operators, including contractors and hauliers on those routes.

❑ **24** Where OHPLs cross the access road to a worksite, the Landowner must consult the Network Operator to establish the height of the OHPLs. Warning notices must be prominently displayed at each side of the lines, clearly showing the maximum safe height for vehicles passing under the lines and clearly marked on all site maps.

❑ **25** When travelling to and from a worksite, the operator or driver must ensure machine attachments and loads are kept below the maximum safe height.

ACCESS ROUTES WITHIN THE WORKSITE

❑ **26** Where OHPLs cross the worksite and it is necessary to cross under OHPLs, the FWM must consult the Network Operator to establish the height of the OHPLs.

❑ **27** Within the worksite, the FWM will clearly identify the safe clearance for driving alongside OHPLs and underground cables by providing suitable barriers. In many cases, marked trees or high stumps will form the basis of a suitable barrier, as long as there is no opening which would allow access for vehicles. The absolute safe minimum driving distance from the barriers to the OHPL is 10 m. The Network Operator may advise distances greater than 10 m depending on the voltage of the line and the nature of the terrain. *See Figure 1.*

❑ **28** Erect goalposts at all points within a worksite where it is necessary to cross under OHPLs. Ensure that there are barriers to prevent any crossing other than at the designated crossing points. Consult the Network Operator on the required height of the posts' cross members to establish appropriate clearances from the conductors.

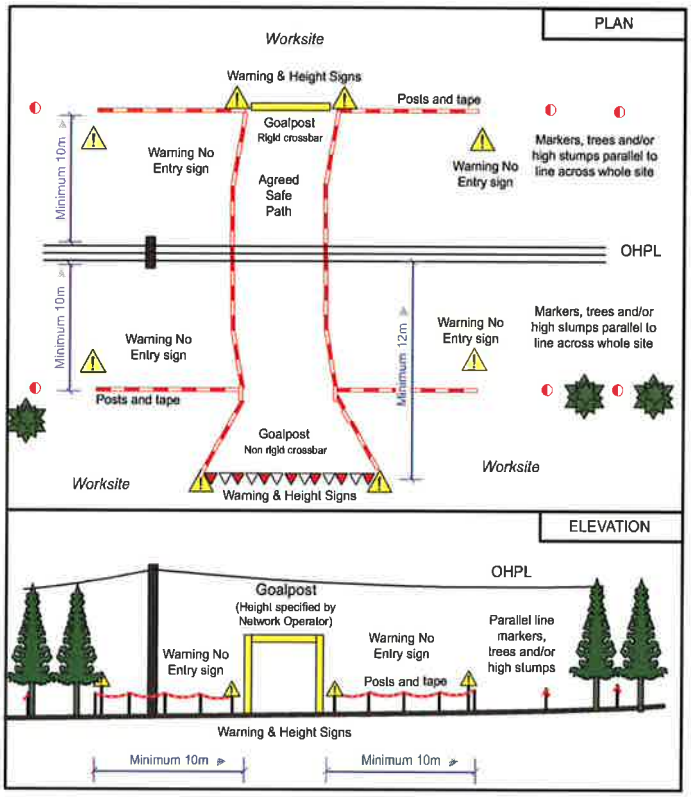

Figure 1: Site layout

❑ **29** Goalposts also need to be erected where lines cross any route that is used to move between nearby worksites.

❑ **30** Goalposts should be constructed from rigid, non-conducting material, such as timber or plastic pipe and be highly visible by their colour or distinctive marking, for example red and white stripes.

❑ **31** If the agreed safe path is too wide to be spanned by goalposts with a rigid non-conducting crossbar, you may have to use tensioned plastic ropes with bunting attached.

❑ **32** Where it is necessary to travel over or near underground cables consult with the owner to determine their depth and protection measures required. See *Underground Cables Section.*

❑ **33** When working close to OHPLs, move ladders, scaffold poles, other poles or any long objects horizontally and keep them as low as possible.

UNDERGROUND CABLES

- **34** Underground cables may not be very far below the surface. Before you start any operation that might damage underground cables, for example digging, ditch maintenance, crossing with heavy machinery or timber stacking, ensure, so far as is reasonably practicable, whether there are any underground power cables where you are working. Check with the Network Operator and with the site manager on maps, and look for location markers on the ground. If a cable runs down an overhead line support, this shows that there are underground cables.

- **35** Where you identify underground cables, the owner of the cables and FWM should walk the site to identify, with the use of cable locating devices, the edges and approximate depth of all cable-runs on the worksite and mark these on the site and the constraints map.

- **36** Where access is required, and you have to travel over underground cables, the FWM must consult the owner of the cable to discuss working methods and protection.

- **37** Markers must be erected at **all** access points to indicate that it is an authorised access point to the worksite. All agreed crossing points within the worksite must also be marked.

- **38** Where digging work must be carried out near underground cables, consult the owner of the cables. Carry out the safe digging procedures detailed in HSE's Guidance book HSG47 *Avoiding danger from underground services*.

TREE-FELLING OPERATIONS – OHPL

- **39** For tree felling operations, trees should be assessed for their falling distance in relation to the overhead line. They should be categorised as being in either: a Red, Amber or Green Zone.

- **40** These zones are illustrated in *Figures 2, 3* and *4* and defined as:

Red Zone: The area next to the OHPL containing all trees within falling distance of the Vicinity Zone of any conductor and all trees which could cause damage to any support structure.

In normal circumstances the extent of the Red Zone is measured on the ground from directly underneath the outermost conductor to the centre of the tree (minimum 10 m). This should be done by the FWM in consultation with the Network Operator.

The extent of the Red Zone could vary greatly along the length of the line when taking full account of variations in line height, cross-arm widths, steep slopes, valleys and variations in tree heights. Only when this is specifically addressed in the risk assessment, and agreed by the FWM and the Network Operator can a more specific assessment of tree falling distance to the Vicinity Zone of any Conductor or supporting structure be made. Where this more precise definition is used, it is essential that the measurements are taken by suitably trained Network Operator personnel using accurate methods.

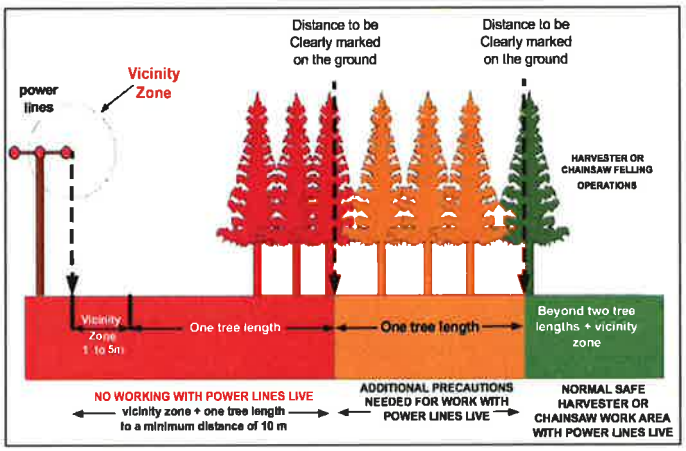

Figure 2: Red/Amber Zones (Uniform height crop)

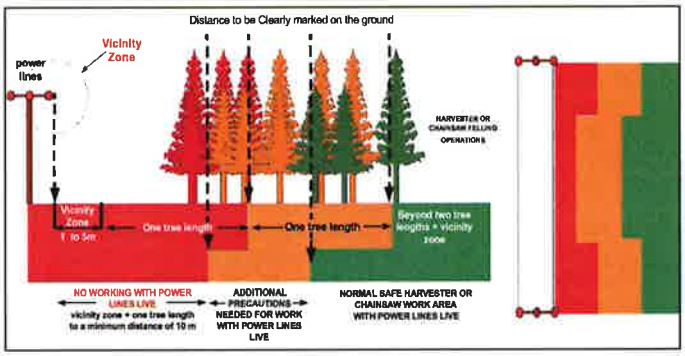

Figure 3: Red/Amber Zones (Uneven height crop)

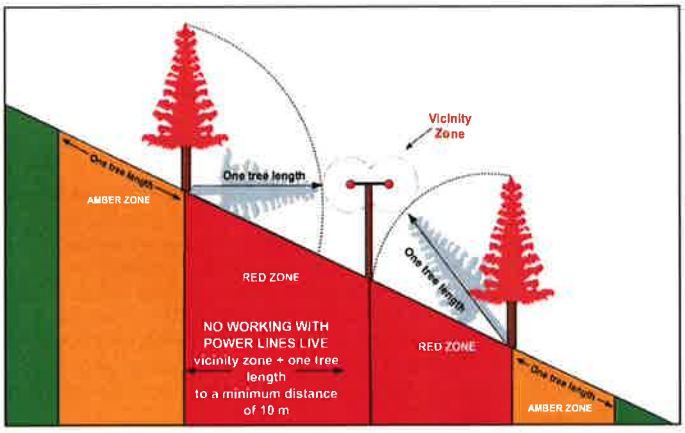

Figure 4: Red/Amber Zones on a side slope

Amber Zone: The area from the Red Zone up to a distance of one further tree length. This zone acts as a buffer to protect the Red Zone and within it trees may be felled either away from or parallel to the OHPL, following conditions set out in Section 43.

Green Zone: The area beyond the Amber Zone that is two tree-lengths plus the Vicinity Zone (normal forest operations).

❑ **41** The vicinity zones (*Table 1*) around an OHPL are the areas in which there is the danger of electricity flashover if someone enters, this distance increases as the voltage increases.

Table 1 Vicinity zone distances

Nominal system voltage (kV)	Minimum distance for vicinity zone (metres)
Up to and including 1 kV	1 m
Exceeding 1 kV but not exceeding 11 kV	2 m
Exceeding 11 kV but not exceeding 33 kV	2.5 m
Exceeding 33 kV but not exceeding 66 kV	3 m
Exceeding 66 kV but not exceeding 132 kV	3.5 m
Exceeding 132 kV but not exceeding 275 kV	4 m
Exceeding 275 kV but not exceeding 400 kV	5 m

❑ **42** Where there are any trees to be felled in the Red or Amber Zone then there must be consultation between the FWM and the Network Operator. Where you can arrange to turn the power off then the work should be done with the line de-energised (isolated and earthed) and a Permit to Work issued to an Appointed Person.

❑ **43** Where a OHPL **cannot** be de-energised, then **Red Zone trees will not be felled** and felling within the **Amber Zone** will only be allowed provided the following conditions are met.

- The Red and Amber Zones must be clearly marked on site by the FWM and Network Operator. Use paint or high-visibility tape on the trees or any other suitable marking method.
- A consultation between the FWM and the Network Operator must take place. There must be a written agreement for the marking of Red and Amber Zones and the felling and extraction arrangements. This will make clear that no Red Zone trees will be felled with the line energised.
- Operators must be made aware of the dangers from electricity, how to avoid the danger and what to do in an emergency. If this is not done through formal electrical awareness training, then it must be justified in the risk assessment.
- Ensure you use only trained and competent operators with the relevant chainsaw or Forestry Machine Operator Certificate of Competence.
- Felling should be arranged so that trees are felled away from, or parallel to the conductors, taking account of terrain, aspect, species and tree height.
- Traffic movement on site should be properly controlled. Ensure that no part of any machine, load, or tree being processed can come within 10 m of any overhead conductor when working alongside an OHPL.
- Assess and take account of the ground conditions.
- Assess the weather conditions and make sure the wind direction does not affect control of the felling direction. If it is likely to have an adverse effect, stop operations until the wind speed drops to an acceptable level.

❑ **44 If tree-felling work is required within the Red Zone with the line energised, then this will only be carried out by staff engaged directly by the Network Operator, with the Network Operator acting as FWM. These works will only take place in accordance with Engineering Recommendations that have been published by the Energy Networks Association.**

❑ **45** Where the OHPL **can** be de-energised the following is required.

- A system to ensure the line has been de-energised and made safe before work begins – this will involve the Network Operator issuing a safety document stating that the line has been isolated, earthed and will remain so until the safety document is signed-off on completion of the work.
- The safety document should only be issued to a competent person capable of understanding the electrical hazards and controls, and overseeing the forestry operations.
- All those on site must be made aware that they must treat the line as energised until the safety documentation is in place and the line de-energised.
- The line must be dropped from between relevant supports or under the direct control of a trained and competent person authorised by the Network Operator. The competent person must be briefed on the forestry aspects of the site and remain on site until the work is complete.
- Timber must be placed at least 10 m from the OHPL to enable safe extraction when the line is re-energised (*see figure 5.*);
- As soon as either the earths are removed or the safety document is signed-off the line must be treated as energised.
- All work parties must be told when the line is being re-energised.
- The line to be handed back to the Network Operator and the safety documentation signed-off before the line is re-energised.

TIMBER EXTRACTION OPERATIONS

❑ **46** Do not operate a forwarder or skidder if any part of the machine or its load (product being lifted) is likely to come within 10 m of energised OHPLs. Where necessary, clearly mark the limit of work in relation to the energised OHPLs (see *Figure 5*). Use high-visibility tape or other markings.

❑ **47** The forwarder or skidder must be operated from the opposite side of the timber from the OHPL.

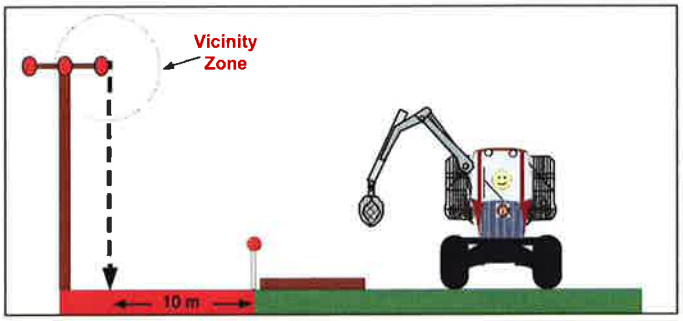

Figure 5: Timber layout and extraction

❑ **48** Where loaded skidders are being driven under OHPLs, there must be goalposts and the tree butt should be secured directly against the butt plate. Where this is not practical due to stability, then an agreed safe working method must be discussed with the Network Operator.

❑ **49** When thatching tracks for timber extraction, ensure that no brash is lifted or placed within 10 m of an energised OHLP.

❑ **50** Do not stack timber in any place where it would be possible for the machine or timber being handled to contact or come close to the energised line.

CABLE CRANE SYSTEM

❑ **51** If you are using a high lead or skyline cable crane system.

- **Do not transport or reposition a cable crane winch with the mast raised if it is within 10 m of an OHPL.**
- Consult the Network Operator to ensure that Red Zone distances, vicinity zone + one tree length (minimum distance of 10 m), is sufficient for the type of cable crane system and the OHPL.
- Never cross the route of OHPLs with any type of cable extraction system.
- Normally no part of the aerial setup (i.e. tower/mast, skyline, haul lines, guy, spar or supports) should be located within the Red Zone of an OHPL (see *Figure 6*). In exceptional circumstances it may, on occasion, be necessary to have guys or anchors **but NOT running ropes** located within this zone. This must incorporate fail-to-safe restraint systems and be agreed with the Network Operator – and the guys and anchors made of non-conductive material – no wire ropes or chains.

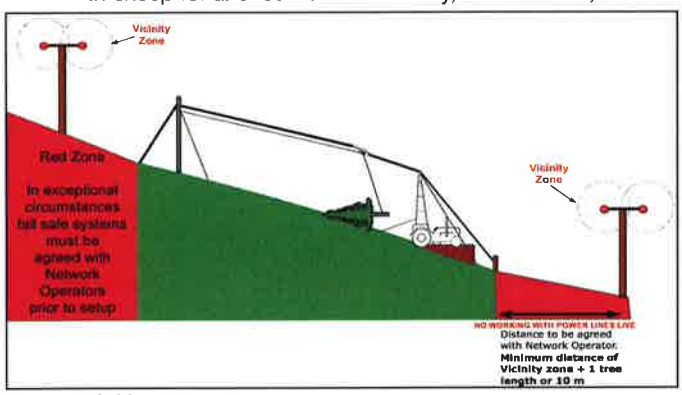

Figure 6: Cable crane set up

FENCING

❑ **52** Fencing presents some risks, particularly from the fence wire coming in to contact with:

- the conductors,
- striking underground cables by digging and driving fence posts;
- from induced voltages that may be present in fences running parallel to OHPLs – induced voltages will increase with the line voltage and the length of parallel fence and will reduce the further away the fence is from the line.

❑ **53** The following precautions should be taken:

Planning

- Plan the route of a new fence to avoid hazards.
- Check the site map for the routes of OHPLs and underground cables.
- Ensure that any underground cables have been identified on the ground and that you have appropriate control measures to avoid contact when driving posts.
- If a wire fence has to be erected close to an OHPL, then plan a route at right angles to the OHPL to avoid induced voltages. Where possible fences should not cross directly under the line to avoid the possibility of fence wire contacting conductors during erection and dismantling. This is a particular problem if fence wire has to be stretched across a valley beneath a line.
- Where winches are used to lay out fence wire near an OHPL, there must be systems to prevent a broken wire contacting the OHPL.
- Do not attach fencing to an OHPL pole.

Consultation

- Consult the Network Operator when running fences within 50 m parallel to OHPLs.

Controls

- To reduce the risk of induced voltages, you may need to earth the wires on these fences, use at least one steel post every 50 to 60 m to earth the fence.
- Never erect or dismantle a fence on your own when near an OHPL, and be aware of the potential dangers of fencing in valleys or when there is lightning.
- Always keep the fencing wire under control – this is particularly important in steep valleys, where clearance may be reduced.
- When assessing hazards (see worksite planning section), be aware of the working height of machines and tools.

OTHER GROUND-BASED OPERATIONS

❑ **54** Consider the risks and the identified control measures, and seek advice from the Network Operator for ground-based operations that could come within 10 m of an OHPL, such as ground prep, track construction, road maintenance, use of sprayers, flails or mulcher, tipping trailers or mobile elevated work platforms.

❑ **55** Smoke and hot gases from a fire can create a conductive path for electricity. If the method of work involves having a fire on site when clearing rhododendron, scrub or brash, then consult the Network Operator to establish where the fire may be located, limits on the size of the fire, and if there are any other considerations for example terrain or weather.

AERIAL WORKS

❑ **56** Make sure you know where OHPLs are near the worksite.

❑ **57** When the FWM engages specialist aerial contractors, for example for spraying or fertilising, they must provide maps that clearly identify the position of OHPL to the contractor.

EMERGENCY PROCEDURES

❑ **58** Agree the site-specific risk assessment, method statement and suitable emergency procedure with the Network Operator in case of accidental contact or damage to the electrical equipment. This should include:

- the name or number of the OHPL or underground cable (provided by the Network Operator); and
- never to touch OHPL or underground cable – assume the line or wires are energised, even if they are not sparking – remember that, even if they are 'de-energised', the wires can become 're-energised' again with no notice – this may happen automatically after a few seconds, or they may be re-energised remotely up to several hours later if the Network Operator is not aware that the line has been damaged.
- Do not go near or touch any person, machine, other plant or tree that is touching or very near an OHPL or underground cable, until you are advised by the Network Operator that it is safe to do so. Warn others to keep away.

❑ **59** All accidents and near-misses should be reported immediately to the FWM and the Network Operator emergency number as soon as possible, for example:

- a collision with a goalpost; and
- contact with conductors, stays, poles or insulators.

❑ **60** The operator of a machine, or the load it is carrying is in contact, with an OHPL or underground cable should:

a) If the machine is operable:

- release the load, lower any raised parts that are controlled from the driving position, and, or, drive the machine clear of the line, as long as neither of these actions risks breaking the line or dragging it to ground level; and
- contact the Network Operator immediately by mobile phone, or as soon as possible by any other method.

b) If the machine is not operable (or cannot be driven free) and it or its load is in contact with or within 5 m of a damaged OHPL:

- stay in the cab;
- contact the Network Operator immediately by mobile phone, or as soon as possible by any other method;
- instruct everyone outside the vehicle not to approach it – touching it or even getting too close could kill them; and
- do not leave the cab until you have confirmation that the OHPL or underground cable is de-energised.

c) If the machine is not operable or cannot be driven free of the line and there is a risk of fire that you can't safely extinguish or other immediate life-threatening hazard:

- **avoid simultaneous contact with any part of the machine and the ground;**
- jump as far away as you can from the machine landing on your feet;
- move away as quickly as possible;
- warn other people not to approach the vehicle – touching it or even getting too close could kill them;
- contact the Network Operator immediately by mobile phone, or as soon as possible by any other method; and
- **do not** return to the machine until you have confirmation that the OHPL or underground cable is de-energised.

❑ **61** After any vehicle has been removed from danger and made safe, it must be checked by a competent person to ensure it is working properly before returning to normal use.

NOTES

NOTES

Training and certification

FISA Safety Guide 805

FISA is the Forest Industry Safety Accord, and its main committee consists of representatives from leading forestry organisations. One of its main aims is to agree and produce guidance describing good practice for the tree-work industry.

This guidance was previously produced by the HSE and they continue to fully support the principals and aims of these guides. The guides describe the agreed industry standards expected on work sites. Following the guidance is not compulsory and you are free to take other action. But if you do follow the guidance you will normally be doing enough to comply with the law. Health and safety inspectors seek to secure compliance with the law and may refer to this guidance as illustrating good practice.

Introduction

This leaflet is intended to help employers and the self-employed identify the training and, where necessary, the assessment requirements for tree-work operatives. Although it is focused on the tree-work industry, the principles described can be used for other associated industries where the same operations are carried out. It will also help clients ensure that their contractors are suitably qualified.

It includes advice from FISA and the AA on entry – level qualifications, the need to consolidate training, and recording career progression.

Tree work can be a high-risk activity and workers are often required to operate in remote areas with difficult terrain and in all weathers. Effective training is an essential requirement for ensuring this work is carried out both safely and efficiently.

FISA leaflets contain advice on a number of specific machines and processes related to the tree-work industry and those relevant to the intended work activity should be read in conjunction with this leaflet.

Terminology

This guidance on training and certification includes terms such as 'certificate of competence' and 'integrated training and assessment' that are widely known and used within the industry. However, they may differ from those terms used in the Qualifications and Credit Framework (QCF). To prevent confusion these terms are retained in this guidance but, where used, they apply to the appropriate training and assessment units awarded under QCF.

Legal requirements

1 Workers must be adequately trained and competent to carry out their job safely. The Health and Safety at Work etc Act 1974 places general duties on employers and the self-employed to provide health and safety training and information (see INDG345 Health and safety training).

2 The Management of Health and Safety at Work Regulations 1999 require employers to provide health and safety training for workers, when:

- they first start work, ie induction training;
- they are exposed to new or increased risks;
- they require refresher training – this is recommended at specific intervals for certain high-risk activities, eg operating machinery, including chainsaws; and
- a supervisor identifies specific weaknesses in an operator's abilities.

3 Employers must provide this training during working hours and employees must not have to pay for it.

4 Managers and supervisors must:

- accept they have a responsibility to manage health and safety;
- recognise that health and safety is part of effective management, good for business; and
- take action to ensure high standards of health and safety.

5 A number of regulations, including the Provision and Use of Work Equipment Regulations 1998 (PUWER) and the Control of Pesticides Regulations 1986 (COPR), also require users of equipment to receive adequate training.

6 Generally, the responsibility for providing relevant training rests with the employer or self-employed person. However, the responsibility for deciding the level of training and competencies required for certain worksites falls to the person commissioning the work (eg on a large forestry worksite, the forestry work manager (FWM) would take on this role; on a local authority site, the commissioning council employee or agent).

Provision of training

Planning

7 To ensure that operators have received appropriate training, identify:

- the work activities to be carried out;
- the equipment to be used; and
- any future changes, new contract requirements, and business activities.

8 Identify:

- the individual's existing competencies and experience; and
- the evidence you have to support this.

9 Record operator competencies and experience to:

- help identify future training needs;
- help with work planning and the allocation of operators to given work operations; and
- show clients the range of available skilled operators, and work activities you can complete.

Delivery

10 Ensure that the training provided:

- is adequate and appropriate to the level of complexity of the work involved; and
- covers the information, instruction and guidance needed to work safely and productively, in the given working environment.

11 Identify whether assessment following training is required, who can deliver the training and, where required, who can assess the operator's ability.

12 Assess the competency of any person nominated to provide training, using either an internal or external resource as appropriate. Ensure the individual has sufficient technical and theoretical knowledge and practical skills relevant to:

- the operational activity, equipment, subject area;
- any applicable good practice guidance, relevant legislation, Approved Code of Practice (ACOP), and contract standards; and
- has the communication skills to be able to impart the necessary information in a manner appropriate to the individual learners, and in a range of learning styles/methods.

13 External sources that may be able to provide appropriate training include independent training providers, instructors and colleges.

14 Familiarisation/induction training describes very basic introductory training, often delivered by machinery dealers or suppliers. While these introductions have value and may be used as evidence of operator training, they should not be regarded as adequate to show an operator's competence on their own.

Assessment

15 It is important to assess an individual's level of competence to confirm the adequacy of training, eg by observing them carrying out an activity, within a set time, to a recognised and appropriate standard.

16 The tree-work industry represented on FISA has expressed a preference for independent assessments of operator competence, ie separated from any training, to ensure impartiality for certain higher risk tasks.

Records

17 Record employees' training (and assessment where relevant), competencies and experience ie continuing professional development (CPD). Unless training is recorded, and records are accessible, an operator's skill, knowledge and experience (proficiency) can be difficult to evidence. Clients often ask for proof of operator competence before awarding contracts.

18 FISA recommends that records are kept of the content of any briefings, instruction, guidance and assessment.

Experience

19 Experience may be gained in many ways, eg by:

- practising the operational skills over time;
- completing both basic and more advanced training; and
- learning from personal trial, observations, work colleagues and supervisors.

20 Appropriate and skilled supervision is required during learning periods. A record of supervision should be kept, for example by completing the relevant FISA checklist.

Competence and proficiency

21 Competence can be described in two main ways and it is important that these are not confused:

- **Basic competence:** The ability, skills and knowledge required to enable an individual to complete simple tasks safely, within a set time frame and to a number of agreed and recognised criteria or standards, eg certificates of competence. Holders of such certificates do not generally require close supervision; however, ongoing monitoring of operating standards by the employer will be required, and should be recorded. It is unrealistic to expect operators who have passed certificates of competence to achieve full output (proficiency) until they have consolidated the skills learned.
- **Proficiency:** Includes the above and follows a period of practical experience (defined by the employer). It shows the ability of an individual to maintain their own safety and the safety of others during the completion of more complex activities, to a high standard and in an efficient manner. Minimal but ongoing monitoring of operating standards by the employer will be required, and should be recorded, eg by using the relevant FISA or AA guide as a checklist (see also paragraph 20: 'Experience' and paragraph 32: 'Consolidation of training').

22 FISA recognises that in practice, operator training is likely to involve a combination of in-house, college-based or specialist training, including nationally recognised courses.

23 Due to the high-risk nature of many forestry and arboriculture operations it is strongly recommended that specialist instructors carry out the training for these activities.

24 In-house, college or independent training should provide training that is mapped to National Occupational Standards (NOS) approved by industry. This means that detailed records need to be kept to show who provided the training (including their level of competence), what the training consisted of, its duration and how it was carried out. Training providers will need post-course monitoring of competence and a system of quality assurance to verify that adequate standards are maintained.

25 For certain forestry and arboriculture operations, eg use of chainsaws and forest machine operation, independent assessment is recommended to confirm that **the minimum level of training** has been completed, fully understood and the appropriate skills developed.

Chainsaws and aerial tree work

26 For professional chainsaw operators working in forestry, FISA recommends that the minimum level of adequacy of training for chainsaw operations – including aerial tree work, pruning and dismantling – be confirmed by an independent assessment, leading to recognised qualifications (previously referred to as certificates of competence). This is also a common requirement in contracts of service.

27 FISA recommends that chainsaw operators working outside forestry at a basic level (defined as 'occasional users') attend an integrated training and assessment (ITA) course. This applies to the operations of chainsaw maintenance, basic cross-cutting, and felling material up to 200mm diameter. This will be recognised as meeting the requirements of the Provision and Use of Work Equipment Regulations 1998.

28 FISA recommends that occasional users wishing to fell material over 200mm diameter hold a recognised qualification relevant to the activities being undertake.

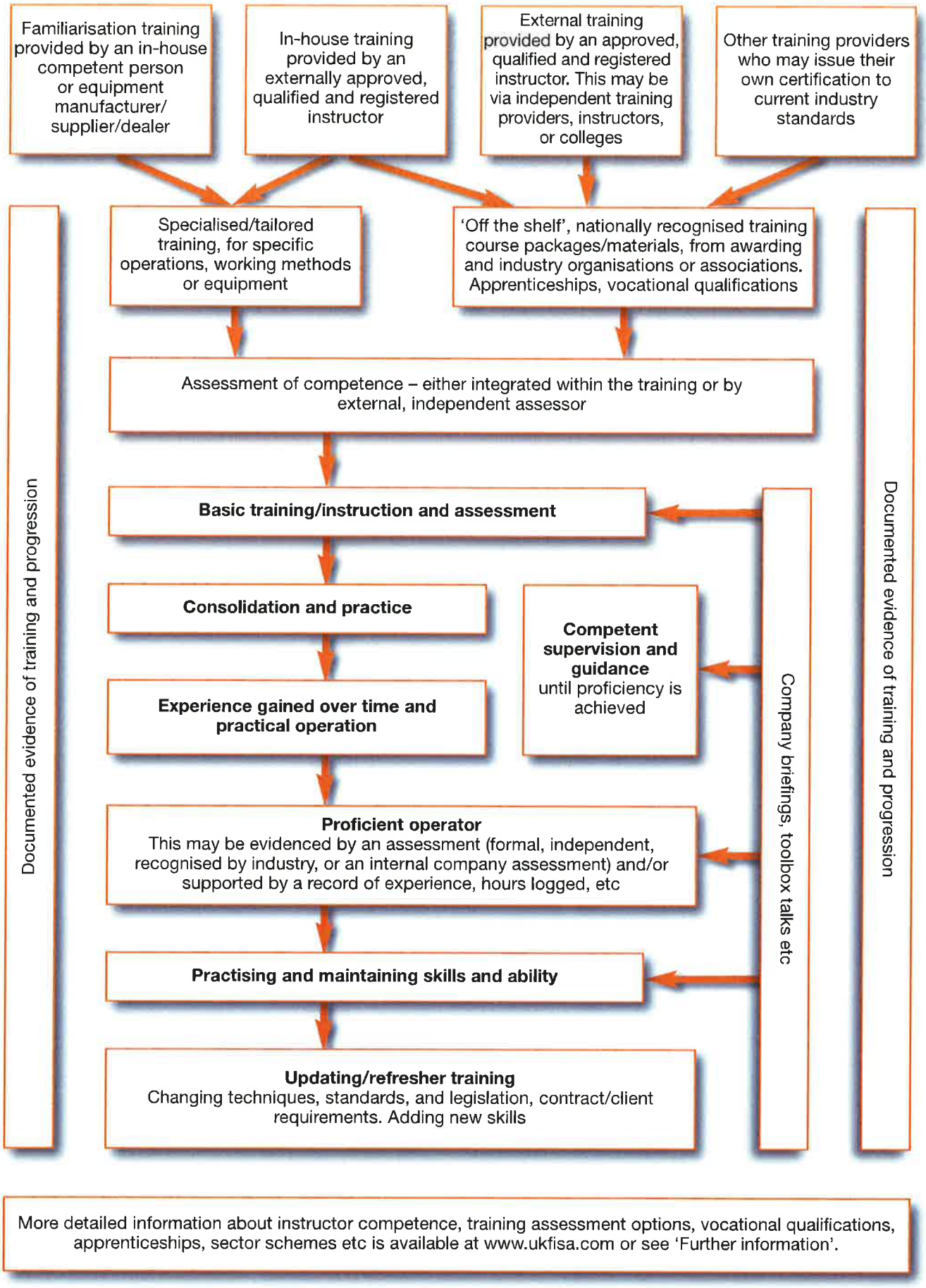

Figure 1 Training, instruction, assessment and progression (this information should be taken into consideration when planning operator training)

Other operations

29 The level of risk should always be assessed in each situation. For certain machinery operations, such as using brush cutters, chippers, stump grinders and mobile elevated work platforms (MEWPs), FISA recommends that operators choose between either an ITA course or an independently assessed training course.

Status of non-UK training and certification

30 Employers of workers from outside the UK should ensure that their level of training and competence meets the standard as described above. Where employers are not able to do this themselves FISA recommends a UK qualification is undertaken to ensure operator competence.

Consolidation of training

31 FISA recognises that gaining basic training or qualifications should only be seen as an entry into the tree-work industry; the training and development process lasts throughout an entire career. The initial step following entry-level training is consolidation of the training, which is usually in the form of a probationary period operating under supervision among qualified and experienced colleagues.

32 Only when newly qualified tree workers have demonstrated their ability and experience over a length of time should they be considered as fully proficient and qualified. The length of this period will vary according to the individual, but FISA's advice is that six months is likely to be a minimum. A record should be kept of their work and tasks completed. It is the responsibility of the tree worker and their employer to keep this record (for example by using the relevant FISA or AA guide as a checklist) to demonstrate their experience and developing levels of proficiency.

Update or refresher training

33 There is a risk that when tree workers spend time on other tasks, their proficiency can lapse. This, along with the introduction of new techniques, brings with it a need for refresher and update training at various stages in the tree worker's career. This occasional further training should add value to the tree worker's growing skills and experience and provide a structure for staff development.

34 In general, proficient tree workers who regularly practise their skills in the presence of colleagues and employers will require training less often. However, advances in technology may justify specific update training, and certain trained skills such as first aid and aerial rescue will need specific, regular practice and updating. For chainsaws, INDG317 *Chainsaws at work* recommends that refresher/update training takes place every three to five years. This can often be incorporated as part of training for more advanced skills. It is important to record and plan for refresher/update training and the employer must record the structure of the training received by the tree worker based on the type of work undertaken.

35 For most machinery operations, including chainsaw and aerial tree work, FISA recommends that recorded refresher/update training should take place at least every five years. However, where a supervisor identifies specific weaknesses in an operator's abilities, this will need to be addressed, irrespective of the date of previous training.

Further information

Further advice on training and certification can be obtained from a number of sources including colleges and the following organisations:

- City & Guilds Land Based Services (formerly NPTC) is a nationally recognised awarding organisation, providing certificates of competence www.nptc.org.uk
- Lantra Awards is a nationally recognised awarding organisation providing training and qualifications in the land based and environmental sector www.lantra-awards.co.uk
- FISA will manage the FISA safety guides (previously AFAG) relating to forest and forestry activities
- Arboricultural Association will manage the AFAG leaflets previously produced by the HSE.

Sources of funds for training and certification

The system for funding training is complex and changing. Lantra Sector Skills Council, your local agricultural college, or your training provider can advise whether you might be eligible to access funds. Funding advice organisations include:

- Lantra Sector Skills Council www.lantra.co.uk
- National Apprenticeship Service www.apprenticeships.org.uk
- Skills Funding Agency http://skillsfundingagency.bis.gov.uk
- Business Link www.businesslink.gov.uk

Evaluation of foreign certificates

National Recognition Information Centre for the United Kingdom (NARIC) www.naric.org.uk

General information

United Kingdom Forest Products Association www.ukfpa.co.uk
Confederation of Forest Industries (ConFor) www.confor.org.uk
Forestry Commission www.forestry.gov.uk Forestry Contracting Association www.fcauk.com Institute of Chartered Foresters www.charteredforesters.org

Further reading

Leaflets in the FISA series, covering a wide range of practical operations can be accessed at www.ukfisa.com. The following HSE guidance may soon be withdrawn. Where appropriate FISA will attempt to continue to maintain such guidance.

First aid at work: Your questions answered	INDG214
Managing health and safety in forestry	INDG294
Chainsaws at work	INDG317
Health and safety training: What you need to know	INDG345

These publications are available from the HSE website.

(Please note that each FISA Guide is designed to be used as a checklist of good practice for operators on site and completed checklists can provide an excellent record of operator monitoring.)

This guide is produced by the Forest Industry Safety Accord (FISA)
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This publication is based on guidance previously published by HSE in AFAG805 Training and Certification, which was withdrawn in 2013.

For more general information about health and safety, please visit the Health and Safety Executive website www.hse.gov.uk