

Lifting Equipment Engineers Association

Guide to Documentation and Marking – Part 5 Lifting Accessories, Slings

Document reference LEEA 059-5 version 2 dated 23.02.15

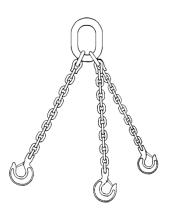
Introduction.

This guide is aimed at manufacturers, distributors and users of lifting equipment within the European Economic Area. It has been developed as a quick reference guide to ensure that lifting equipment is supplied with the correct documentation and marking as required by current legislation, standards and best practice guidance.

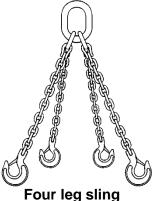
LEEA 059-5 is one of a series of guides related to documentation and marking of a range of generic forms of lifting equipment as listed below:

- Part 1 Manual Lifting Machines
- Part 2 Powered Lifting Machines
- Part 3 Lifting Machine Supporting Structures
- Part 4 Lifting Accessories, Non-fixed load lifting attachments.
- Part 5 Lifting Accessories, Slings
- Part 6 General accessories and Components for slings.

Item & Standard Required Information **Chain Slings** Documents to be supplied in accordance with the relevant legislation & relevant standard: Assembly of one or more chains for attaching loads to the hook EC Declaration of Conformity (guidance LEEA 030.1e) Manufacturers Certificate (guidance EN 818-4 / EN 818-5 clause 8) of a crane or other lifting Manufacturer's instructions for use (guidance LEEA SI.1.3 and EN 818-6) Note: the EC Declaration of Conformity & Manufacturers Certificate can be issued as a single document. **Manufacturers Certificate** Each assembled chain sling shall be provided with a dated certificate stating conformance with EN 818-4 & giving a least the following minimum information: Name of the chain sling manufacturer or supplier including date of issue of the certificate & authentication. Number & part of the standard, eg EN 818-4 or EN 818-5 Single leg sling The identification number or symbol of the chain sling A description of the chain sling, to include a list of all component parts The nominal size of the chain & the grade mark The nominal length The working load limit For chain slings of welded construction the following information is required in addition to the minimum information above: The value of the manufacturing proof force(s) applied The name of the person or establishment that carried out the manufacturing proof force test & final Two leg sling examination.



Three leg sling.



BS EN 818-4 (G8) BS EN 818-5 (G4)

LEEA COPSULE - Section 14

For chain slings joined by mechanical devices. In the case of chain slings the following information is required in addition to the minimum information above:

- In the case of chain slings proof tested following assembly the following information:
 - 1. The name of the person or establishment that carried out the manufacturing proof force test & final examination.
 - 2. The value of the manufacturing proof force applied.
- In the case of chain slings not proof tested following assembly, the name of the competent person or establishment that carried out the visual examination.

Marking requirements

Single leg sling.

- CE Mark
- Sling manufacturers name or symbol
- Year of manufacture
- WLL in tonnes (t)
- **Identification mark**
- Sling grade
- Number of legs i.e. 1

Multi-leg sling.

- **CE Mark**
- Sling manufacturers name or symbol
- Year of manufacture
- WLL in tonnes (t) and range of angles.
- **Identification mark**
- Sling grade
- **Number of legs**

Information Which Should Be Exchanged Between the User & the Designer or Supplier

In the case of multipurpose slings, only a general specification can be given, whereas for dedicated single purpose slings a more detailed exchange of information is necessary. In either case, the following is the minimum information which should be exchanged between the user and designer or supplier of the equipment:

Multipurpose Slings

- 1. Details of the sling required, ie single leg, two leg etc, maximum load to be lifted, length of leg(s).
- 2. Slinging conditions, if the sling is to be used in choke hitch, if the sling is to be used at 0-45° or 45°-60° as well and the maximum load to be lifted in any of these conditions.
- 3. If shortening devices are required for sling adjustment.
- 4. The environmental conditions, including extremes of temperature and details of possible chemical attack.
- 5. The conditions of loading, including being subject to shock loads, if the nature of the load is inherently dangerous, eg hot metal or acids, if the load is to be transported over areas involving high risk, eg work areas.
- 6. Details of the largest and smallest crane hook onto which it is intended to place the upper terminal fitting.
- 7. Other technical requirements or any special requirements applicable on the site(s) where the sling is to be used.

Single purpose slings.

- 1. All details of the load to be lifted, including the gross weight and dimensions together with the position of the centre of gravity and details of any permanently built in lifting points.
- 2. The environmental conditions, including extremes of temperature and details of possible chemical attack.
- 3. The conditions of loading, including being subject to shock loads, if the nature of the load is inherently dangerous, eg hot metal or acid, if the load is to be transported over areas involving high risk, eg work areas.
- 4. Details of the crane hook onto which the upper terminal fitting will be placed.
- 5. The headroom available.
- 6. Other technical requirements or special requirements applicable on the site(s) where the sling is to be used.
- 7.

Steel Wire Rope Slings

Assembly of one or more steel wire rope legs for attaching loads to the hook of a crane or other lifting machine



Single leg sling



Two leg sling

Documents to be supplied in accordance with the relevant legislation & relevant standard:

- EC Declaration of Conformity (guidance LEEA 030.1e)
- Manufacturers Certificate (guidance EN 13414 -1, -2, -3)
- Manufacturer's instructions for use. (guidance Sl.2.3)

Note: the EC Declaration of Conformity & Manufacturers Certificate can be issued as a single document.

Manufacturers Certificate

The certificate shall contain at least the following information.

- The name & address of the manufacturer or where applicable the authorized representative.
- The number & part of this European Standard; i.e. EN 13414-1.
- The description of the sling including all component parts.
- The WLL & the appropriate angle(s) to the vertical for multi-leg slings.
- The static test coefficient(s) used for design of component(s) (e.g. hook; link; shackle).

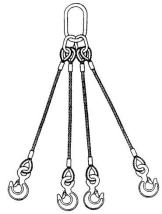
Additional information for grommets to EN 13414-3.

- Identification number of grommet
- Nominal diameter
- Direction of lay of grommet
- Nominal mass of grommet
- Nominal length of circumference
- Description of the grommet including all component parts
- Actual length or circumference
- Actual diameter
- Pin diameter (if specified by the purchaser)
- Measuring load (if specified by the purchaser)

Additional information for cable laid slings:



Three leg sling



Four Leg sling.

BS EN 13414 - Parts 1,2 & 3 LEEA COPSULE - Section 15

- Identification number of sling
- Nominal diameter
- Direction of lay of sling
- Nominal mas of sling
- Nominal length or circumference
- Description of the sling including component parts
- Actual length, stating whether under load or no load
- Actual diameter
- Eye length.
- Approximate splice length from beginning of eye to last tuck
- Tail length
- Length between last tucks
- Pin diameter
- Measuring load

Marking requirements:

Single leg sling (single part or endless)

- CE Mark
- Manufacturers identifying mark
- Numbers and/or letters identifying the sling with the manufacturer's certificate.
- Working load limit
- Year of manufacture
- Material Grades

Multi-leg sling

- CE Mark
- Manufacturers identifying mark
- Numbers and/or letters identifying the sling with the manufacturer's certificate.
- Working load limit and the angles applicable.
- Year of manufacture
- Material grades

Information Which Should Be Exchanged Between the User & the Designer or Supplier

As wire rope slings are frequently used for multi-purpose lifting applications, precise details of the load to be lifted are not always available. In these circumstances, only a general specification can be given but should, as far as possible, include the following information:

- 1. The maximum load to be lifted and, if available, dimensions of the load together with details of any permanently built-in lifting points.
- 2. The number of sling legs required and length.
- 3. If multi-leg, the range of angles for which the sling is to be rated (ie 0-45° or additionally 45°-60°).
- 4. The upper and lower terminal fittings required (if any) or type of eye, eg soft eye, thimbles.
- 5. Information on any adverse environmental conditions, eg exposure to chemical atmospheres, high or low temperatures, exposure to the elements etc.
- 6. The conditions of loading, including whether the sling is likely to be subjected to a shock load, whether the load to be lifted is inherently dangerous, eg hot metal or acid, whether the load is to be transported over areas involving high risk eg work areas.
- 7. The extent of the headroom available if known.
- 8. Other technical requirements or any special requirements applicable on the site(s) where the sling is to be used.

Textile Slings Flat woven webbing slings

Assembly of one or more sewn webbing components for attaching loads to the hook of a crane or other lifting machine.

Flat woven or endless round sling

Documents to be supplied in accordance with the relevant legislation & relevant standard:

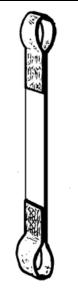
- EC Declaration of Conformity (guidance LEEA 030.1e)
- Manufacturers Certificate (guidance BS EN 1492-1 clause 8)
- Manufacturer's instructions for use. (guidance LEEA SI.3.4 and BS EN 1492-1 annex B)

Note: the EC Declaration of Conformity & Manufacturers Certificate can be issued as a single document.

Manufacturers Certificate

The certificate shall include at least the following information:

- The manufacturers name & address, symbol or mark



Flat woven webbing sling

BS EN 1492 - 1 LEEA COPSULE - Section 16

- Working load limit for the sling & for multi-leg sling assemblies the range of angles to the vertical.
- Type, including eye, fitting, number of legs, nominal length & width.
- The expression 'flat woven webbing sling' or 'flat woven sling assembly'.
- Material of the webbing
- Grade of fitting
- If fitted details of the reinforcements & protection against damage from edges & or abrasion.
- The number of the European standard, e.g. EN 1492-1
- test references, refer to clause 6 of EN 1492-1
- traceability code
- identification of the person authorised to sign the certificate on behalf of the manufacturer & date of the signature

Marking requirements

- CE Mark
- Working load limit, in straight lift
- Material of the webbing
- Grade of fitting
- Nominal length in m
- Business name of the manufacturer or symbol, trade mark or other unambiguous identification
- Traceability code
- A reference to the standard to which it was made
- Year of manufacture

Additional marking requirements for multi-leg slings. (to be marked on a round tag attached to the master link)

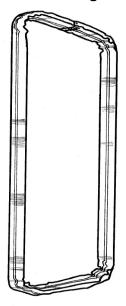
- Maximum angle of use of any leg to the vertical
- Label on each leg must not show the WLL

Information Which Should Be Exchanged Between the User & the Designer or Supplier
As flat woven webbing slings are frequently used for multi-purpose lifting applications, precise details of the

load to be lifted and mode of use are not always available. In these circumstances, only a general specification can be given but should, as far as possible, include the following information:

- 1. Type of sling required, ie single, two leg etc.
- 2. Details of soft eyes and eye protection OR if terminal fittings are required to be attached to the sewn webbing component, the type, eg choker eyeplates etc.
- 3. The gross weight and dimensions of the load to be lifted together with details of any permanently built in lifting points if known or alternatively, the maximum load to be lifted.
- The effective working length of the sling.
- 5. The mode of use, ie whether the sling is to be used in choke hitch or basket hitch etc. In the absence of other information, the manufacturer will assume straight pull.
- 6. The environmental conditions, particularly if the temperature is outside the range of -40°C to +80°C, if there is any exposure to specific chemicals or liquids, if the sling will be exposed to strong sunlight for long periods.
- 7. The conditions of loading, including:
 - (a) Whether the sling is likely to be subject to shock load.
 - (b) Whether the load is to be transported over areas involving high risk, eg work areas. (This should not be done if it can be avoided.)
 - (c) Whether the load itself is hazardous.
- 8. If any protective sleeves are required, the number, length and type of sleeves to be fitted.
- 9. If any moulded wear pads are to be fitted, the length, number and position.
- 10. The material of the sewn webbing component.
- 11. Material and grade of any terminal fittings.
- 12. If any special treatment or finish is to be applied to the sewn webbing component.
- 13. Any special instructions including any special marking requirements.

Round Slings



BS EN 1492-2 LEEA COPSULE – Section 17

Documents to be supplied in accordance with the relevant legislation & relevant standard:

- EC Declaration of Conformity (guidance LEEA 030.1e)
- Manufacturers Certificate (guidance BS EN 1492-2)
- Manufacturer's instructions for use. (guidance LEEA SI.4.4 and BS EN 1492-2 annex B)

Note: the EC Declaration of Conformity & Manufacturers Certificate can be issued as a single document.

Manufacturer's certificate.

The certificate shall include at least the following information:

- the manufacturer's name & address, symbol or mark and, where applicable, the name & address of the authorized representative";
- WLL of the sling, & for multi-leg sling assemblies the range of angles to the vertical;
- type, including fitting, number of legs & nominal length;
- the expression 'roundsling' or 'roundsling assembly'
- material of the roundsling;
- grade of fitting
- if fitted, details of protective sleeves
- the number of the European Standard, i.e. EN 1492-2;
- test references (see clause 6 of EN 1492-2);
- traceability code;
- identity of the person authorized to sign the certificate on behalf of the manufacturer & date of signature;
- the static test coefficient(s) used for design of component(s) (e.g. hook; link; shackle)."

Marking requirements.

- CE Mark
- Working load limit
- Material of the roundsling
- Grade of fitting
- Nominal length in m
- Business name of the manufacturer, or symbol, trade mark or other unambiguous

identification

- Traceability code
- The standard number to which the sling was made.
- Year of manufacture

Additional marking requirements for multi-leg slings. (to be marked on a round tag attached to the master link)

- Maximum angle of use of any leg to the vertical
- Label on each leg must not show the WLL

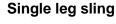
Information Which Should Be Exchanged Between the User & the Designer or Supplier

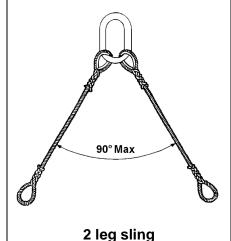
As roundslings are frequently used for multi-purpose lifting applications, precise details of the load to be lifted are not always available. In these circumstances, only a general specification can be given but should, as far as possible, include the following information:

- 1. The gross weight and dimensions of the load to be lifted together with details of any permanently built in lifting points.
- 2. The environmental conditions, particularly if the temperature is outside of the range -40°C to +80°C, if there is any exposure to specific chemicals or liquids, if the sling will be exposed to strong sunlight for long periods.
- 3. The conditions of loading including:
 - (a) Whether the sling is likely to be subjected to shock load.
 - (b) Whether the load is to be transported over areas involving high risk eg work areas. (This should not be done if it can be avoided)
 - (c) Whether the load itself is hazardous.
- 4. The effective working length of the sling.
- 5. The mode of use, ie whether the roundsling is to be used in choke hitch, basket hitch etc.
- 6. The material of construction.
- 7. If additional protective sleeves are required, the length and number of sleeves to be fitted.
- 8. Material and grade of any fittings or coupling devices.
- 9. Any special instructions including any special marking requirements.

Natural & Man Made Fibre Ropes







Documents to be supplied in accordance with the relevant legislation & relevant standard:

- EC Declaration of Conformity (guidance LEEA 030.1e)
- Manufacturers Certificate (guidance BS EN 1492-4)
- Manufacturer's instructions for use. (guidance LEEA SI.5.3 and BS EN 1492-4 annex A)

Note: the EC Declaration of Conformity & Manufacturers Certificate can be issued as a single document.

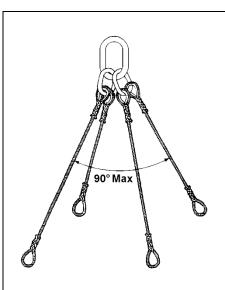
Manufacturer's certificate.

The certificate shall include at least the following information:

- Manufacturer's name, address, symbol or mark & where applicable the name & address of the authorized representative.
- WLL of the sling, & for multi-leg sling assemblies the angle to the vertical;
- Type, including eye, fitting, number of legs & nominal length;
- Nominal diameter or reference number of rope, the rope material & type of construction;
- Grade of fittings;
- Number of the European Standard, i.e. EN 1492-4:2004;
- Traceability code:
- Identity of the person authorized to sign the certificate on behalf of the manufacturer & date of signature;
- The static test coefficient(s) used for design of component(s) (e.g. hook; link; shackle).

Marking requirements

- CE Mark
- Working load limit in straight lift in the case of single leg or endless slings or for multi-legs with an angle of 0 – 45 degrees
- Material of the rope
- Reference number of the rope and grade of fittings
- Nominal length in m
- Business name, symbol, trade mark or other unambiguous identification



4 leg sling

BS EN 1492 – 4 COPSULE Section 18

- Traceability code
- Number and part of this standard.
- Year of manufacture.

Information Which Should Be Exchanged Between the User & the Designer or Supplier

As fibre rope slings are frequently used for multi-purpose lifting applications, precise details of the load to be lifted and mode of use are not always available. In these circumstances, only a general specification can be given but should, as far as possible, include the following information:

- 1. Type of sling required, eg single leg, endless.
- 2. Type of eye, eg soft eyes, or if fittings are required, details of the fittings, eg hook.
- 3. Gross weight and dimensions of the load to be lifted together with details of any permanently built-in lifting points or the maximum load to be lifted.
- 4. Effective working length of the sling.
- 5. The mode of use, eg whether the sling is to be used in choke hitch, basket hitch etc.
- 6. The environmental conditions, particularly if the temperature is outside the range of 40°C to 80°C or if there is any exposure to specific chemicals, liquids or gases.
- 7. The conditions of loading including:
 - (a) Whether the sling is likely to be subject to shock load.
 - (b) Whether the load is to be transported over areas involving high risk, eg work areas. (This should not be done if it can be avoided.)
 - (c) Whether the load itself is hazardous.
- 8. Material from which the sling is to be manufactured.
- 9. If any protective sleeves are required, the length and number of sleeves to be fitted.
- 10. Any special instructions including any special marking requirements.

Note: In the absence of any specific information, the supplier will assume that the circumstances of use are suitable for the sling to be used at its maximum safe working load and the sling(s) will be marked and certified on that basis.

APPENDIX 1

The following appendix has been developed as a guide to support the requirements of LEEA 059.

The relevant legislation is:

- Machinery Directive 2006/42/EC
- Supply of Machinery (Safety) Regulations 2008
- Provision and Use of Work Equipment Regulations 1998
- Lifting Operations and Lifting Equipment Regulations 1998
- Management of Health and Safety at Work Regulations 1999.

It is emphasised that this guidance applies to legal requirements only. If the equipment or service provided is to a standard or other specification, additional documents or marking may be required. For each product type within the guidance these marking requirements have been specified

Lifting equipment includes any manual or power operated lifting machine and any lifting accessory which can connect the load to the lifting machine or the lifting machine to its supporting structure.

The guiding principle for all documentation is that it must be legible, complete and accurate. Information which is untrue can result in prosecution. In particular the traditional practice of 'back to back' documentation is now unacceptable.

NEW EQUIPMENT

New lifting equipment must comply with The Supply of Machinery (Safety) Regulations 2008 as amended in 2011. (SOMSR) The Responsible Person must issue an EC Declaration of Conformity (DOC) and affix the CE marking. This document and marking are evidence that the Responsible Person has claimed compliance. The equipment must also be accompanied by instructions. The information to be contained in the EC Declaration of Conformity and the instructions and the other marking requirements are defined within the guidance for each product type.

Note: Some machinery and safety components are subject to special attestation procedures. These are listed in Annex IV of the Machinery Directive (Annex D of the Supply of Machinery (Safety) Regulations) In general, such special procedures only apply to lifting equipment if it is to be used for lifting persons.

An employer has a duty under Regulation 10 of PUWER98 to ensure that any new equipment has been designed and constructed in compliance with the essential requirements contained in SOMSR. The EC Declaration of Conformity and the CE marking are evidence that it complies.

An employer has a duty under Regulation 9 of LOLER to have lifting equipment thoroughly examined (which includes any appropriate supplementary testing) before first use. There is an exemption for new equipment if it has not been used and the employer has received an EC Declaration of Conformity made not more than 12 months before the equipment has been put into use. However if safety depends on the installation conditions, a thorough examination is required to ensure that it has been installed correctly and is safe to operate. Following any thorough examination, the person making the examination has a duty under Regulation 10 of LOLER to make a report of the examination. The information to be contained in that report is listed in LOLER Schedule 1 and LEEA have produced example templates, refer to LEEA 030.1a.

The simplest solution

In most cases, the simplest way to comply with the legal requirements is for the manufacturer to issue the EC Declaration of Conformity, affix the CE marking and provide instructions. If the equipment is not supplied direct to the end user, those in the supply chain should pass on the original documents and not alter any markings. The end user should obtain and keep the original documents. If the exemption applies, the equipment can be put into use. If, at the point of being put into use, the exemption does not apply or if safety depends on the installation conditions, the employer should have it thoroughly examined by a competent person and obtain and keep the report of that examination. Provided the report states that it is safe to operate, the equipment can be put into use.

Problems and alternative solutions

(1) Your supplier has not provided the DOC

The equipment should be rejected until it is provided.

(2) The DOC covers a bulk supply which you will sell in smaller quantities

Provide a copy to your customer. However it is likely that the exemption under LOLER will not apply so thoroughly examine the equipment and issue a LOLER report. Alternatively combine the two with a statement on the LOLER report to the effect that the Responsible Person issued a DOC for the item. Keep the DOC and let your customer see it if requested.

(3) Your supplier will sell direct to your customer so you do not wish to reveal your source

The marking requirements of SOMSR for lifting machines include the name and address of the manufacturer. For lifting accessories it includes identification of the manufacturer. You cannot therefore legally hide this information. If your supplier is not the manufacturer but has passed on the original documents, the simplest solution applies. If your supplier is the manufacturer then either use the alternative in (2) above or 'own brand' it as in (4) below.

(4) Equipment made by others but sold in your name

This is known as 'own branding'. The Commission guidance is that if you appear to be the manufacturer you must accept all the obligations of a manufacturer including assembly of the technical file, declaration of conformity, marking and compliance with the essential safety requirements. If you are not in possession of the technical file you should have a written mandate from the manufacturer that authorises you as their legal representative and details explicitly which obligations set out in article 5 are entrusted to you. As a minimum you must be made responsible for compiling the technical file and making it available to the authorities if requested during market surveillance.

Note: The technical file needn't be paper based, electronic records are acceptable and only a Member State can expect to have sight of it following a substantiated request.

(5) Equipment assembled from several items or modified

The person assembling equipment is regarded as the manufacturer of the assembly. If items within the assembly have a DOC, that forms part of the technical file for the assembly. Similarly anyone modifying equipment and/or changing its intended use is regarded as the real manufacturer. In both cases the obligations include assembly of the technical file, issuing of the DOC, marking and compliance with the essential requirements including provision of instructions.

(6) Equipment made by others which you are asked to test and certify

Be cautious about what you are being asked to do. Traditionally a certificate of test and examination was all that was required to take the equipment into service. Now it is only one ingredient of the technical file. If you are testing it on behalf of the manufacturer as part of his verification process, then he should provide a test specification for you to work to after which you should simply report the results. However

some internet sources do not provide any documentation and customers will send such equipment or home made equipment expecting you to test it and certify it as safe to use. In general, equipment which should be CE marked and have a DOC but hasn't, should be referred back to the manufacturer. If you go beyond simply testing, examining and reporting the results, you may be taking a risk.

If it is a test and examination of a new installation and safety depends upon the installation conditions, then Regulation 9 of LOLER applies. Check also that your customer has the DOC(s) from the manufacturer(s) and that the equipment has been installed in accordance with their instructions. If it is an assembly of items or includes a modified item, check who is responsible for the assembly or modification. See (5) above.

(7) Equipment supplied without instructions

There is a requirement under SOMSR that the equipment is accompanied by instructions for use. Therefore, as a general rule, the equipment should be rejected until such instructions are supplied. If it is general purpose equipment, without any characteristics particular to the design, then generic instructions are an acceptable alternative, eg the LEEA safety information leaflets.

(8) Equipment supplied without CE marking

In general, all complete items of lifting equipment should have the CE marking. Sub assemblies and components are not usually marked. Some items, such as shackles, may be made for non-lifting applications. If the item is supplied complete, intended for lifting applications and not marked, reject it.

(9) Equipment with a Declaration of Incorporation

An EC Declaration of Incorporation (DOI) is a device to legally market machinery which can function but is not complete and may not be safe. It is a statement that the machinery is not to be used until incorporated into an assembly for which a DOC is issued. If you buy and incorporate such machinery, you have the obligations of the manufacturer of the finished assembly.

IN-SERVICE EQUIPMENT

An employer has a duty under Regulation 9 of LOLER to have his lifting equipment thoroughly examined at specified maximum periods or in accordance with an examination scheme and after any exceptional circumstances which are liable to jeopardise the safety of the equipment. Following any thorough examination, the person making the examination has a duty under Regulation 10 of LOLER to make a report of the examination irrespective of whether or not the equipment is found safe to use.

The report must be made to the employer and any person from whom the equipment has been hired or leased. If the person making the examination is of the opinion that there is a defect involving an immediate or imminent risk of serious personal injury, he has a duty to send a copy of his report to the relevant enforcing authority. (Generally the HSE) The information to be contained in that report is listed in LOLER Schedule 1 and LEEA have produced example templates, refer to LEEA 030.1a.