Applies to: ALL SSE	**CONTROL OF VIBRATION EXPOSURE STANDARD**	**RS-SHE-202**
Classification: **Internal**	Uncontrolled if printed	Rev: 4.00

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Charlotte Mitchell	Mark Patterson, Group SHE Manager	October 2017	October 2020

Control of Vibration Exposure Standard - Summary

What are the risks?

Prolonged exposure to vibrating tools and equipment can cause:

- Hand-arm vibration syndrome (HAVS); or
- Whole body vibration syndrome (WBVS).

HAVS is a condition related to the use of hand-held power tools e.g. grinders, hammer drills or from hand-guided machinery e.g. chainsaws, plate compactors.

WBVS is caused by shaking or jolting of the human body through a supporting surface such as a seat or floor e.g. off-road machines, fork lift trucks, earth-moving machinery.

How are the risks managed?

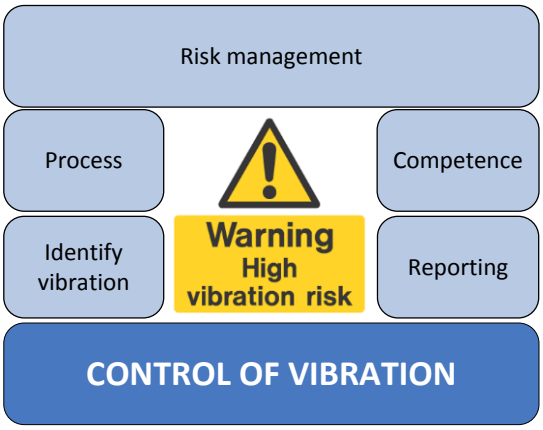
By ensuring the provision of:

- assessment of risk to health;
- elimination or control of exposure to vibration;
- recording and monitoring of exposure;
- information, instruction and training; and
- health surveillance (where exposure is above Exposure Action Value).

What is the process used in this Standard?

This Standard follows a simple 4 step process shown below. The steps to apply this Standard are described in terms of 15 Mandatory Requirements which shall be undertaken throughout SSE.

In addition a number of optional Recommendations have also been provided as guidance to Businesses as they manage their risks.



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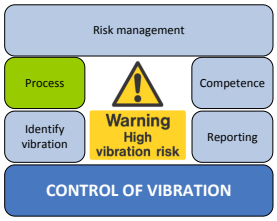
Scope, Business, Legislation, Deviation, Review and Language	
Scope	This Standard shall be applied to Businesses operated or wholly owned by SSE; application is identified in RF-SHE-415 SHE Management System Documentation Applicability Matrix.
Business	In this Standard the term Business is used to represent a discrete operation within the Company. It is led by a Business Head who reports to an Executive Committee Director.
Legislation	In cases of conflict between this Standard and applicable legislation within the country of operational activity then that legislation shall take precedence and be complied with. In cases where this Standard is more onerous than this legislation then this Standard shall apply.
Deviation	Deviations from this standard shall be agreed in writing between the Business Head and the Group Safety, Health and Environment Manager.
Review	The Group Safety, Health and Environment Manager shall review the working and current applicability of this standard every 3 years as a minimum.
Language	In this Standard the following terms apply: • 'Mandatory Requirement' describes the steps required to achieve compliance with the requirements of the standard. • 'Recommendation' describes additional requirements which could be implemented to further enhance the effectiveness of the standard. • 'Shall' is used where a requirement is mandatory. • 'Should' is used where a recommendation is preferred. • 'May' is used where alternatives are acceptable.

1. Control of Vibration process

Intent	To ensure that persons at work are not exposed to vibration levels, which could potentially affect their health.

Mandatory Requirements 	**1. Each Business shall ensure that a process is in place to ensure safety and health whilst working with equipment that presents a source of vibration. This shall include:**
	• Identifying work activities with regular exposure to vibration;
	• Identifying vibration magnitude of plant, equipment or tools;
	• where vibration above defined levels cannot be eliminated a vibration risk assessment shall be completed to develop a safe system of work for the planned activity;
	• applying work-place restrictions from health surveillance for any employees with HAVS/WBVS symptoms;
	• the appointment of competent persons to ensure:
	  ○ compliance with statutory requirements and this Standard;
	  ○ documentation is established, implemented and maintained;
	  ○ effective selection (including procurement), use, and maintenance of equipment;
	  ○ provision of information, instruction and supervision of employees working with vibrating plant, equipment or tools;
	  ○ that periodic audits and inspections of work equipment and activities are conducted.

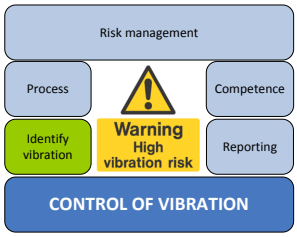
Recommendations	• The diagram shown in Appendix A illustrates the requirements. • To assist in auditing the requirements of this Standard and inspection of work activities an audit protocol form (FO-SHE-014-202, Audit Protocol Control of Vibration) has been provided.

2. Identification of sources of vibration

Intent

To identify work practices where potentially damaging vibration levels may occur and may exceeds the exposure action value (EAV) or the exposure limit value (ELV).

Mandatory Requirements



2. **A competent person shall ensure that all work activities and work areas where vibration levels meet or exceed the exposure action value are identified. This shall include:**
   - an observation of specific working practices;
   - reference to relevant information on the probable magnitude of vibration corresponding to any equipment used in actual working conditions;
   - where necessary, measurement of the magnitude of vibration to which employees are likely to be exposed to determine whether the exposure is at or above the EAV or ELV; and
   - identification of employees particularly sensitive to vibration.
3. **Where vibration levels are above the EAV then a competent person shall ensure exposure is reduced to as low a level as is reasonably practicable by establishing and implementing a programme of organisational and technical measures.**
4. **Where vibration levels are above the ELV then a competent person shall reduce vibration levels to below the ELV by identifying the reason for that limit being exceeded and modifying working practices accordingly.**
5. **For work activities this shall be completed and documented during the planning stage such that appropriate controls can be implemented during the activities.**

Recommendations

- A quick estimate of vibration exposure assessment is provided by:

  High risk (likely above ELV) – persons who regularly operate:
  - hammer action tools for more than about 1 hr/day; or
  - rotary tools for more than about 4 hr/day.

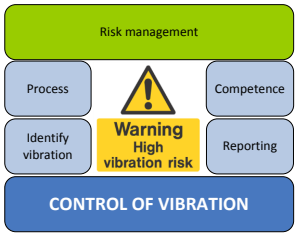
  Medium risk (likely above EAV) - persons who regularly operate:
  - hammer action tools for more than about 15 mins / day; or
  - rotary tools for more than about 1 hr/day.
- A calculator to determine an operator's maximum trigger time is provided by the HSE and is available via this <Link>.

3. Vibration risk management

Intent

To ensure that control measures are identified and applied to reduce exposure to vibration hazards.

Mandatory Requirements



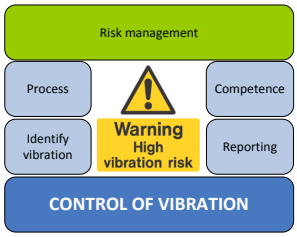
6. A competent person shall conduct a risk assessment which shall include consideration of:

- magnitude, type and duration of exposure, including any exposure to intermittent vibration or repeated shocks;
- effects on employees particularly sensitive to vibration;
- effects of vibration on the workplace and work equipment, including the proper handling of controls, the reading of indicators, the stability of structures and the security of joints;
- information provided by manufacturers of work equipment;
- availability of replacement equipment designed to reduce exposure to vibration;
- extension of exposure at the workplace to whole-body vibration beyond normal working hours, including exposure in rest facilities supervised by the employer;
- specific working conditions e.g. low temperatures; and
- appropriate information obtained from health surveillance including, where possible, published information.

7. The competent person shall record the:

- significant findings of the risk assessment as soon as is practicable after the risk assessment is made or changed; and
- control measures taken or planned to be taken.

Mandatory Requirements (cont)



8. **For all activities involving exposure to vibration a competent person shall develop a series of organisational and technical control measures to eliminate or reduce personal exposure to vibration, including:**
   - to limit the duration and magnitude of exposure to vibration;
   - choosing appropriate work equipment which produces the least possible vibration;
   - the provision of auxiliary equipment which reduces the risk of injuries caused by vibration;
   - appropriate maintenance programmes for work equipment;
   - the design and layout of workplaces, work stations and rest facilities;
   - implementing appropriate work schedules with adequate rest periods;
   - provision of clothing to protect persons from cold and damp; and
   - provision of suitable and sufficient information, instruction and training for employees.
9. **The vibration risk assessment shall be reviewed at least every 2 years or earlier if there is reason to suspect that it is no longer valid. Typical review requirements are due to:**
   - changes in work practices or equipment;
   - new ways to reduce vibration exposure; or
   - where there is doubt about the effectiveness of control measures e.g. adverse results from Health Surveillance programmes.
10. **For employees diagnosed with HAVS or for employees that are particularly sensitive to vibration, the following shall be completed:**
    - a record of the brief of working protocols for employees diagnosed with HAVS FO-SHE-202-004 Template letter – Working Protocol for HAVS;
    - employee completes the risk assessment FO-SHE-202-003 Hand-Arm Vibration Syndrome (HAVS) Diagnosed – Point of Work Risk Assessment prior to using vibrating tools/equipment; and ensure that
    - individual measuring/monitoring equipment is used.
11. **Health surveillance shall be provided for employees where it has been identified that there is a risk to health (see RS-SHE-200, Health Surveillance).**

Recommendations

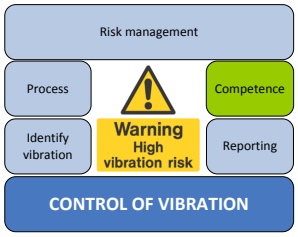
- A risk assessment will be considered suitable and sufficient if it identifies:
  - where there may be a risk from exposure to vibration;
  - a sound estimate of employees exposures and a comparison with the EAV and ELV;
  - the identification of individuals who may be at more risk and need to be protected by additional control measures
  - the available risk control measures, including information, instruction and training;
- Whilst equipment manufacturers provide data related to vibration levels it may be more effective to consider data from tests carried out under more representative methods of work.
- In developing the risk assessment the competent person should take into account both the:
  - level of exposure to vibration of persons averaged over a working day or week; and
  - maximum vibration exposure to which persons are exposed in a working day.

4. Competence

Intent

To ensure that there are sufficient competent persons to control individual exposure to vibration.

Mandatory Requirements



12. **All persons responsible for any work activities associated with the control of vibration exposure shall be competent to perform those roles.**
13. **Training requirements shall be developed for those persons who are likely to be exposed to vibration levels above the lower exposure action value. This shall contain information and instruction on the:**
    - nature of risk;
    - indicators of adverse health effects (HAVS/WBVS);
    - organisational and technical controls in place;
    - the correct use of work equipment to minimise exposure;
    - vibration EAV and ELV;
    - use of individual measuring/monitoring equipment, if required;
    - significant findings of the vibration risk assessment;
    - health surveillance requirements if required;
    - safe working practices to be adopted.
14. **Records shall be maintained to demonstrate training delivered, date of appointment, date of review and any limitations imposed.**

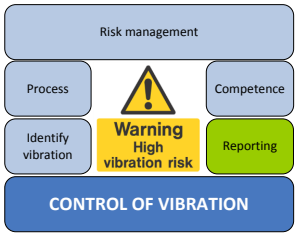
Recommendations

- Supporting documents for this Risk Standard:
  - Training Brief, Control of Vibration at Work (TB-SHE-202-001); and
  - Health Surveillance - Frequently Asked Questions (TB-RS-SHE-200-002).
- Competence requirements should be developed for persons providing typical roles such as persons involved in:
  - specification and procurement of equipment;
  - monitoring and measurement of vibration magnitude;
  - development of control measures to eliminate or reduce vibration magnitude; and
  - those performing work activities where vibration hazards are present.

Recommendations (continued)

- Demonstrable competence requirements for those responsible for the completion of risk assessments should include but not be limited to:
  - a good knowledge of the work processes;
  - understand how risks arise from vibration exposure (HAVS/WBVS);
  - be able to identify potentially problematic vibration sources;
  - be able to obtain and understand information from machinery suppliers;
  - be able to estimate vibration exposure and make judgements on likely exposure;
  - understand vibration EAV and ELV, and know what legal duties apply;
  - obtain and understand good practice and industry standards for vibration control;
  - be able to prioritise controls and tackle immediate risks;
  - recognise where specific skills are required, and be able to access further competent advice;
  - understand what information to record, how and why to record it; and
  - know in what circumstances to review the assessment.

5. Reporting requirements

Intent	To ensure that the reporting requirements for confirmed HAVS cases to the Health and Safety Executive are met.
Mandatory Requirements 	**15. Once the business has been notified by the Occupational Health Provider that a diagnosis of HAVS has been made, then a RIDDOR report shall be made to the HSE 'without undue delay', using the following process:** • SSE's Occupational Health Provider notifies the SSE Occupational Health (OH) team, and the OH team notifies the diagnosed individual's business line manager and the Group SHE team without undue delay; • the SHE team request information from the business line manager to adequately complete the form for the submission of a RIDDOR report (F2508a). • the SHE team shall complete the RIDDOR form and notify the HSE without undue delay.
Recommendation	• To allow for an initial investigation to be undertaken, it is expected that a maximum period of 1-month should elapse between the original notification of the HAVS case by the Occupational Health provider and the notification of the HSE on F2508a for confirmed work-related cases.

Definitions

The following are definitions adopted by SSE.

Competent Person	A Competent Person is a person with the necessary knowledge, experience, training, skill and ability to perform the specific duty to which the requirement refers. There is more than one level of competent person, each with their duties and responsibilities
Exposure action value	The level of daily exposure to vibration above which certain actions are required to be taken to reduce exposure. These values are: • HAV the daily exposure action value is 2.5 m/s^2 A(8) • WBV the daily exposure action value is 0.5 m/s^2 A(8)
Exposure limit value	The maximum amount of vibration an employee may be exposed to on any single day. These values are: • HAV the daily exposure limit value is 5 m/s^2 A(8) • WBV the daily exposure limit value is 1.15 m/s^2 A(8)
Hand-arm vibration (HAV)	Mechanical vibration which is transmitted into the hands and arms during a work activity. It is a cause of damage to the tissues of the hands and arms and leads to conditions such as vibration white finger or carpal tunnel syndrome.
Mechanical vibration	Vibration occurring in a piece of machinery or equipment or in a vehicle as a result of its operation. This can lead to severe back pain.
Particularly sensitive to vibration	Employees with existing HAVS or other diseases of the hands, arms or shoulders. Employees with diseases affecting blood circulation e.g. diabetes, or nerve disorders affecting the hands or arms e.g. carpal tunnel syndrome.
Whole – body vibration (WBV)	Mechanical vibration which is transmitted into the body, when seated or standing, through the supporting surface, during a work activity or as described in the Regulations.

Reference

Key references required to develop Business risk control systems and procedures.

SI-2005/1093	SO	The Control of Vibration at Work Regulations 2005
L140	HSE	Hand-arm vibration, The Control of Vibration at Work Regulations 2005
L141	HSE	Whole-body vibration, The Control of Vibration at Work Regulations 2005
HSG170	HSE	Vibration solutions
INDG175	HSE	Control the risks from hand-arm vibration. Advice for employers on the Control of Vibration at Work Regulations 2005
INDG242	HSE	Control back-pain risks from whole-body vibration. Advice for employers on the Control of Vibration at Work Regulations 2005.
INDG296	HSE	Hand-arm vibration. Advice for employees
INDG404	HSE	Drive away bad backs. Advice for mobile machine operators and drivers.
OPERC	OPERC	A Guide to Hand-arm Vibration, 2005
OPERC	OPERC	Hand-arm Vibration, Training Module, 2007
HSA0255	HSA	Guide to the Safety, Health and Welfare at Work (General Application) Regulations, Chapter 2 of Part 5 Control of Vibration at Work

Appendix A – Control of Vibration Exposure Process Flowchart