

Vibration at Work Policy

Application

This Policy applies to all activities and workplaces where the use of powered tools, equipment and vehicles could expose employees to vibration of the hands and arms or the whole body.

Aims and Objectives

The aim of this Policy is to ensure that Baskerville Reclamation Ltd complies with the Control of Vibration at Work Regulations by removing or reducing the risk of exposure to vibration by employees.

Introduction

Regular and frequent exposure to vibration can lead to permanent health effects. Exposure to vibration at work can occur in two ways: -

1. Hand Transmitted Vibration (known as Hand Arm Vibration or HAV)

This is vibration transmitted into the arms and /or hands, from using handheld powered work equipment

This type of vibration exposure can cause a range of health conditions collectively known as hand arm vibration syndrome (HAVS) as well as specific diseases such as carpal tunnel syndrome. Symptoms can be tingling and numbness in the fingers, loss of sense of touch and strength in the hand and blanching of the fingers which become red and painful on recovery. Although caused by exposure to vibration, the main trigger for HAV symptoms is exposure to the cold.

There are many types of equipment which may cause ill health from vibration. The use of handheld, hand guided or hand fed powered equipment may indicate that employees could be exposed to vibration risk, particularly if the equipment uses a “hammer action”.

- Concrete breakers
- Hammer drills
- Handheld grinders
- Impact wrenches
- Jigsaws

HAV symptoms can appear after only a few months of exposure or take many years to be recognised. Symptoms are likely to get worse if exposure to vibration is not controlled.

2. Whole Body Vibration (WBV)

Whole Body Vibration is associated with back pain caused by shaking and jolting of the body through a supporting surface (usually the seat or floor). This can occur, for example when driving or riding on a vehicle along an unmade road, operating earth moving machines, or standing on a structure attached to a large fixed machine which is impacting or vibrating.

There is likely to be a risk from WBV when one or more of the following occur;

- Workers regularly drive off-road
- Vehicles have damaged seats or seat adjustments
- The driver is jolted, shaken or lurched from side to side, or backwards and forwards
- Vehicles use unmade or poor-quality roads for part of the journey, or on worksites with poor surface
- Severe shocks or jolts are transmitted into the driving seat
- Workers sit or stand on a mobile or static machine when it is operating
- The manufacturer warns of WBV risks
- There is a history of back pain in the job
- Vehicles are used for work they were not designed for
- Employees report uncomfortable levels of vibration
- Vehicle maintenance suggests that vehicle wear may be due to high levels of vibrations or shock
- Employees report pain in their lower back during and after exposure to WBV

Most exposure to whole body vibration at work is unlikely to cause back pain on its own unless there are very high levels of vibration or shocks over long periods of time on most working days. However, WBV exposure can aggravate back problems caused by other activities such as poor design of equipment, driver posture, bad driver technique, sitting for long periods, manual handling activities or climbing up and down into vehicle cabs.

Older people, those with back or neck problems, young people or pregnant women are more likely to be at risk of back pain and may be at higher risk from exposure to whole body vibration.

The Arrangements for Applying the Policy

1. Risk Assessment

2. Managers / team leaders must follow the following five steps to risk assess vibration at work.

Step 1 Identify the Hazard

1. Identify any powered work equipment or work processes which may expose employees to vibration.
2. Collect information from manufacturer's handbooks/data sheets and other published information which identifies any vibration risks in the equipment and record this information on the record sheet in **(vibration record sheet)**.
3. To ensure the validity and quality of information, comparing data from two of these sources should be considered. If no information is available from other sources, managers should make an estimate by doubling the manufacturer's declared emission value.
4. Note the characteristics of the equipment being used, such as the weight and size of the equipment if it is awkward to lift or position the equipment; the maintenance requirement and the maintenance history; the type of vibration exposure (e.g. intermittent vibration or repeated shocks).

STEP 2 WHO MIGHT BE HARMED AND HOW

1. Identify the employees who may be exposed to vibration.
2. Collate information on how work processes/equipment are being operated;
 - a. what the equipment is being used for?
 - b. how the equipment is being used?
 - c. what is the method of work being applied?
 - d. what are the working conditions in which the equipment is being used?
 - e. record location, terrain and temperature
3. Record how long employees are actually in contact with the equipment while it is vibrating – in some cases this 'exposure time' may only be a few minutes in several hours of work with the equipment. (Record this information on the record sheet in vibration record sheet)
4. Obtain feedback from employees using or operating the equipment to determine which equipment may have particularly high vibration and any other difficulties they may have when using the equipment.
5. Some employees will be exposed to vibration by being exposed to more than one item of work equipment or process, in these cases the exposure for each item or activity must be recorded.
6. Employees whose existing health condition may put them at greater risk of hand arm vibration or whole-body vibration should be identified and consideration given to the affect of vibration exposures on them **(see Health Surveillance)**.

STEP 3 ASSESS THE RISK AND IMPLEMENT CONTROL MEASURES

Assessing the risk

1. Vibration is measured in metres per second squared (m/s^2).
2. The Vibration at Work Regulations set out exposure action (EAV) and exposure limit values (ELV) which indicate what action should be taken if exposures to vibration reach those levels.
3. Managers **must** undertake a risk assessment for every vibration exposure situation.
4. Estimating the risk can be done by taking the information collated on the form in Appendix 1, and inputting the data into the free calculator tool on the Health and Safety Executive website. (See further information – Estimating Exposures).
5. The calculator tool estimates daily vibration exposures by taking the vibration values and the length of time equipment is being used, automatically calculates an estimated vibration level and compares them with the action and limit values set down in the regulations.
6. The use of more than one tool or item of work equipment by an employee can be accommodated by this calculator tool.

Exposure Action Value (EAV)

1. The exposure action value (EAV) is a daily amount of vibration exposure above which employers are required to take action to control exposure.
2. The exposure action values are;

Hand Arm Vibration	Whole Body Vibration
2.5 m/s^2 A(8) The greater the exposure level, the greater the risk and the more action employers will need to take to reduce the risk.	0.5 m/s^2 A(8) WBV risks are low for exposures around the action value and only simple control measures are usually necessary in these circumstances.

Exposure Limit Value (ELV)

1. The exposure limit value (ELV) is the maximum amount of vibration an employee may be exposed to on any single day.
2. The exposure limit values are;

Hand Arm Vibration	Whole Body Vibration
5 m/s^2 A(8)	1.15 m/s^2 A(8)

Vibration Dose Value (VDV) – for Whole Body Vibration calculations only

1. Where there is exposure to significant shocks or jolts to the whole body during the working day, rather than constant vibration exposure, it may be preferable to use the Vibration Dose Value (VDV) to calculate exposures.
2. VDV information may be provided by manufacturer data or other sources.
3. Note. The Regulations allow a transitional period for the exposure limit value until July 2010 (2014 for the agricultural and forestry sectors). This only applies to work equipment already in use before July 2007. The exposure limit value may be exceeded during the transitional period but should not be ignored, all the other requirements of the Regulations must be complied with and all reasonable measures should be taken to reduce exposure.

Calculating actual exposure levels

Actual exposure level assessment (carried out by an expert who is competent to do so) will not generally be necessary. However in circumstances where it is difficult to tell whether the exposure limit values is exceeded or not, the level of vibration may need to be evaluated more accurately in this way.

Controlling the risk

1. When the vibration calculator or vibration estimate indicates that the Exposure Action Value (EAV) for HAV or WBV is reached or exceeded, managers must;
 - a. Introduce a programme of controls to eliminate risk or reduce exposure to as low a level as is possible.
 - b. Provide health surveillance for those employees who continue to be regularly exposed above the action value or otherwise continue to be at risk.
2. Where an Exposure Limit Value (ELV) is likely to be reached, managers must;
 - a. take immediate action to reduce the exposure to below the limit value
 - b. investigate why the exposure has exceeded the limit
 - c. take action to ensure that the limit is not exceeded again.
3. See Page 17 (hierarchy of risk control measure) information on the control measures to be used for control of WBV and HAV exposure.
4. Managers / Team leaders must create an action plan detailing the control measures to be put in place. As a priority, a plan to eliminate or reduce the risk from high risk work tasks should be established and implemented. The medium and low risk activities should then be examined.

STEP 4 RECORD FINDINGS

Recording the risk assessment

Managers / team leaders must record the risk assessment on the General Risk Assessment Form for the person or job being examined.

Communicating the Risk Assessment

1. All employees who are (or who are likely to be) exposed to vibration should be given appropriate information, instruction and training with regard to the risks and control measures to be implemented.
2. This information should include.
 - a. The risk factors (e.g. The levels of vibration, daily exposure duration, regularity of exposure over weeks, months and years).
 - b. How to recognise and report hand arm or whole-body vibration symptoms,
 - c. The need for health surveillance, how it can help employees remain fit for work, how it is provided, how the results are used and the confidentiality of the results; (see health surveillance),
 - d. An explanation of the ways to minimise risk including use of control measures, changes to working practices to reduce vibration exposure, correct selection, use and maintenance of equipment and correct techniques for equipment use,
 - e. General health advice e.g. For those employees exposed to vibration, such as advice on maintenance of good blood circulation by keeping warm and massaging fingers and advice on reducing smoking.

STEP 5 REVIEW THE ASSESSMENT

1. Risk Assessments must be reviewed regularly, at least annually, or when changes occur which may affect the exposure to vibration risk.
2. Managers / team leaders must check regularly that the programme of controls that have been introduced is being carried out by all employees.
3. Ongoing communication should take place between managers, supervisors, employees regarding any vibration hazards with the work equipment or the way it is being used and the continued use of control measures.

2. Information Instruction & Training

1. All employees should receive appropriate training on the equipment or vehicles being used, and/or the work processes they are carrying out.
2. Employees must be aware of the need to use equipment/vehicles in the correct way.
3. All employees must be made aware of the risks of vibration in the job they, are doing, the risk assessments and the control measures required to reduce the risk.
4. Employees exposed to vibration must be given appropriate health advice and support through Employee Leaflets and from Occupational Health where necessary.
5. Training records must be maintained.

3. Purchasing Policy for new equipment or replacing old equipment and tools

1. When considering the purchase of new or replacement powered work equipment, managers must consider the vibration characteristics of the equipment and choose, so far as is reasonably practicable, equipment which is suitable for the work, efficient and of lower vibration.
2. It is advisable to;
 - a. Discuss equipment requirements with a range of suppliers
 - b. Check with suppliers that their equipment is suitable and will be effective for the work
 - c. Compare vibration emission information for different brands/models of equipment
 - d. Ask for vibration data relating to how the equipment will be used and for any training requirements required for safe operation.
 - e. Ask staff to try different models and brands of equipment and take account of their feedback prior to making purchasing decisions.
 - f. Find out about the equipment's vibration reduction features and how to use and maintain these to ensure they are effective.
3. Where work equipment is hired, the above requirements also apply.
4. Manufacturers of machines (other than agricultural tractors and road vehicles) are required by law to;
 - a. Design/construct vehicles and machines which produce minimum vibration
 - b. Provide a handbook giving information on how to use the machine safely, what tasks the machine is designed for, the vibration emissions, any maintenance procedures needed on vibration reduction features and instructions on how to use the equipment to avoid risk from vibration

4. Vibration exposures outside the work environment

Employees may choose hobbies outside work which expose them to vibration hazards. Employees must be advised to inform their manager if activities outside work may expose them to vibration.

Where managers have knowledge of hobbies which may expose employees to vibration from machinery or equipment outside work

(e.g. Motorcycling/DIY) the **manager** should record this information on the employees' personal record.

5. Health surveillance

Hand Arm Vibration

1. Health surveillance must take place for those employees who are;
 - a. Likely to be regularly exposed to vibration above the exposure action value; or,
 - b. Have a diagnosis of HAV's; or,
 - c. May have just joined Baskerville Reclamation Ltd or are transferring from one job to another and may be exposed to vibration risk.
2. The purpose of health surveillance is to;
 - a. Identify anyone exposed or about to be exposed to hand-arm vibration who may be at particular risk, for example people with blood circulatory diseases such as Raynaud's Disease;
 - b. Identify any vibration-related disease at an early stage in employees regularly exposed to hand-arm vibration;
 - c. Help prevent disease progression and eventual disability;
 - d. Help people stay in work;
 - e. Check the effectiveness of vibration control measures.
3. It is important that employees understand that the aim of health surveillance is to protect them from developing advanced symptoms of ill health so that they can continue to work.
4. Employees must have understanding of the need and co-operate if health surveillance is to be effective.
5. Health Surveillance may be carried out at a local level (with support of Occupational Health) or by the Occupational Health Unit.

Whole Body Vibration

1. There are no methods available for detecting changes in people's backs that are specifically related to workplace risk factors therefore no formal health surveillance programme can be required under the Regulations.
2. The risk assessment process should indicate where back pain may be a problem in a particular work area, or where high risk groups are carrying out driving activity. In these cases health monitoring should take place.
3. A structured system of health monitoring should be adopted to ensure reporting, monitoring and investigation of symptoms can take place.
4. The results of health monitoring are informal and cannot be treated as a diagnosis of ill health.

Arrangements in Place for Hand Arm Vibration Health Surveillance

1. Where a post is identified as involving exposure to vibration the applicant will, upon appointment, be required as part of their pre employment medical screen to complete a short questionnaire (**see Initial screening questionnaire**).
2. People already employed by Baskerville Reclamation Ltd transferring from one job to another should also be given a questionnaire asking about their previous exposure to vibrating tools or processes. See copy of the health surveillance questionnaire. (**to be completed by occupational health expert**)
3. Employees exposed to vibration risks will be issued with a short questionnaire to be completed once per year. This questionnaire requests information from employees about symptoms they may be experiencing and can check whether employees need to be referred to a occupational health professional for assessment.
4. When an employee raises concerns about symptoms, receives a GP certificate stating work related vibration symptoms or the annual health questionnaire identifies concerns, a HAV's health assessment by a qualified occupational health professional will be arranged.
5. Baskerville Reclamation Ltd Ltd will need to maintain records of any health surveillance and fitness for work advice for each employee for the duration of their employment plus 3 years
6. Health support will be given where further investigation of an ill health condition is required and they will advise on a suitable health surveillance programme for employees.
7. Additionally, Baskerville Reclamation Ltd will provide advice on an employees' fitness to continue work with vibrating tools.
8. The results of health surveillance should be regularly reviewed by managers and discussed with staff member. This process will assist in deciding whether risk controls are effective or need to be changed.
9. Confidential medical information will not be divulged to a 3rd party by the N&J Tree Services Ltd.

6. Legislative Framework

Control of Vibration at Work Regulations 2005.

7. Further advice and Information

HSE leaflets are available at www.hse.gov.uk/pubns/

Advice for employers

1. Control the risks from Hand Arm Vibration INDG175(rev2)
2. Control back pain risks from whole body vibration INDG242(rev1)

Advice for employees

1. Hand Arm Vibration INDG296(rev1)
2. Drive away bad backs – Advice for mobile machine operators and drivers (on Whole Body Vibration) INDG404

Table showing the different categories of vibration coefficient and the legal thresholds – see HSE INDG 175, Hand Arm Vibration at Work, A brief Guide

Colour Code	Vibration exposure over 8 hours A(8)	Additional requirements	
	A(8) < 2.5m/s ²	Daily vibration exposure is below the Exposure Action Level (EAL)	No need for further measures to reduce exposure, if manufacturer's guidance and maintenance is followed. Workers with HAVS diagnosed will still require further controls/surveillance.
	A(8) = 2.5-5.0m/s ²	Daily vibration over Exposure Action Level (EAL)	Increased risk for developing vibration related diseases for the operator. Controls to reduce exposure needed and health surveillance measures. Workers with HAVS diagnosed will still require further controls/surveillance.
	A(8) > 5.0m/s ²	Daily vibration exposure exceeds the Exposure Limit Value (ELV)	The level of exposure that should not be exceeded during a normal working day

Once exposure information has been collected for each item of equipment used, it can now be input into the HSE Vibration calculator at www.hse.gov.uk/vibration/hav/calcinst.htm to establish the following;

- **The Partial exposure** is the vibration exposure for each individual tool or process.
- **The Total exposure** given in m/s²A(8)
- **Time to reach EAV (exposure action value)**. This is the total exposure time required for the individual tool or process, before the exposure action value (2.5 m/s²A(8)) is reached.
- **Time to reach ELV (exposure limit value)**. This is the total exposure time required for the individual tool or process, before the exposure limit value (5 m/s²A(8)) is reached.

Refer to the Vibration at Work Policy for actions required once the above information has been calculated.

Estimating Vibration Exposures

1. HSE on line vibration exposure calculator

Managers/ Team leaders can use a tool for calculating vibration exposure (both HAV and WBV) which is available on the HSE website at; www.hse.gov.uk/vibration/calculator

To estimate the exposure of an employee to vibration the following 2 things are required;

1. The average **vibration magnitude** (level) of the vibration of the equipment measured as an acceleration value. (m/s²).
The vibration magnitude for equipment/machinery can be variable, and can be affected by the working conditions, the job being done, the working technique or posture and how the measurement is taken.

Vibration magnitude can be obtained from;

- Manufacturers or suppliers of tools and equipment

Tooling manufacturer's declared emission values are measured using laboratory tests and may underestimate the vibration likely to be produced in real use. The manufacturer should be asked to supply information on the likely vibration exposure characteristics when actually being used for a particular task. If this is not available, it is suggested that the value given be doubled.

- Trade associations
 - Technical or scientific publications
 - On-line databases
 - HSE website www.hse.gov.uk/vibration . Vibration magnitudes have been measured by the HSE in real work situations.
2. The daily **exposure time** – the time the employee is actually in contact with vibration either through the hand for HAV or body for WBV. This exposure time must be determined in order for the vibration exposures to be calculated.
 3. **Exposure time** is the “contact” time or “trigger time” where the employee is actually in contact with vibration. Contact time should be evaluated by observation - operators estimates should not be relied upon as operators often overestimate their own exposure time.

For equipment being used on a continuous basis such as grinders or mowers, observing the work for a period of time and estimating the contact time within the time period is the most appropriate way of determining exposure time.

For intermittent tasks such as drilling holes or getting on and off a vehicle, the number of repeated operations carried out during a time period multiplied by the time taken to do each operation will enable an exposure time to be calculated.

Actual vibration measurements

Actual vibration measurements are **not expected to take place** unless it is not possible to assess vibration exposure using any other means. Managers/ Team leaders must be able to establish whether the exposure action values and limit values are likely to be exceeded.

Examples of when actual vibration measurements may be required are;

- When checks need to be made as to whether daily exposure limits remain below the exposure limit value.
- where control measures have been implemented and “before and after” measurements might be required.
- where tooling or work processes are being used in an unusual manner (but approved by the manufacturer) and data is not available.

If actual measurements are required, they must be conducted by a competent person and should be repeated periodically as magnitudes can be highly variable.

Hierarchy of risk control measures to be considered are;

1. **Eliminating the use of vibrating tools** by introducing alternative work methods which eliminate or reduce exposure to vibration or by mechanising or automating the work.
2. **Limit the use of high-vibration tools wherever possible.**
3. **Equipment selection**

Replace equipment with suitable, modern, ergonomic low vibration types. Select the lowest vibration tool that is suitable and can do the work efficiently.

Equipment that is unsuitable, too small or not powerful enough is likely to take much longer to complete the task and expose employees to vibration for longer than is necessary.

4. Workstation design

Improve the design of workstations to minimise loads on employees' hands, wrists and arms caused by poor posture.

Use devices such as jigs and suspension systems to reduce the need to grip heavy tools tightly.

5. Inspection of Tooling

Tools should be inspected by the user to ensure they are in good working condition, a checklist for each tool could be developed to look at general condition. Replace consumable items such as grinding wheels, so that equipment is efficient and keeps employee exposure as short as possible.

6. Maintenance of Tooling

Introduce appropriate maintenance programmes for your equipment to prevent avoidable increases in vibration (following the manufacturer's recommendations where appropriate).

7. Work schedules

Limit the time that your employees are exposed to vibration.

Plan work to avoid individuals being exposed to vibration for long, continuous periods – several shorter periods are preferable.

Where tools require continual or frequent use, introduce employee rotas to limit exposure times (you should avoid employees being exposed for periods which are long enough to put them in the high risk group).

8. Clothing

Provide your employees with protective clothing when necessary to keep them warm and dry. Gloves can be used to keep hands warm and promote good circulation but should not be relied upon to provide protection from vibration.

Health Surveillance Questionnaires

Three questions have been developed for the different levels of health surveillance.

1. Initial Screening Questionnaire
2. Annual Screening Questionnaire
3. Clinical Assessment Record (to be completed by a medically competent person).

Signed:



G.Chadwick
Managing Director

Date: 16.11.2019