

Facilities Directorate

Control of Vibration

Standard Operating Procedure

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1. Introduction

Without effective controls employees regularly using vibrating equipment may suffer from long term harm known as Hand-Arm Vibration Syndrome (HAVS) or more commonly Vibration White Finger (VWF) which is a prescribed industrial disease and reportable under the RIDDOR Regulations 2013.

The Control of Vibration at Work Regulations 2005 require the Facilities Directorate to assess the risks associated with the use of vibrating equipment, vehicles (associated with whole body vibration) and power tools and where necessary implement control measures to mitigate the risk of harm.

The Regulations state exposure action and limit values for hand-arm and whole body vibration in order to minimise the health risks.

Where the work of the service area exposes employees to risks involving vibrating equipment then a strategy to reduce the levels of vibration so far as is reasonably practicable must be developed.

It is important that the **HSE L140 Guidance on the Control of Vibration at Work Regulations 2005** – document is read in conjunction with this SOP.

2. Equipment and Tools

Common tools and/or processes that may create hazardous levels of vibration and therefore potential harm are covered under the scope of this SOP such as:

- Electric tugs
- Floor cleaning equipment (buffers/polishers) used in Domestic Services
- Fork lift trucks
- Grounds and gardens equipment – such as lawnmowers (including ride-ons), trimmers, hedge trimmers, leaf blowers and chainsaws
- Off road vehicles
- Power tools such as drills, grinders, sanders and saws
- Tractors

Note this is not an exhaustive list as each Department will be required to assess all of their work equipment for the risk of vibration.

3. Abbreviations/Definitions

- A(8) – Total vibration dose calculated for a standard eight hour day
- CTS - Carpal Tunnel Syndrome, when a nerve in your wrist is compressed causing pain
- EAV - Exposure Action Value – level at which vibration control measures must be instigated
- ELV - Exposure Limit Value – level of vibration which must not be exceeded in any one day
- HAVS - Hand Arm Vibration Syndrome – generic term for the damage caused to the hands such as impaired blood circulation, nerve and muscle damage

- OHS – Occupational Health Services
- m/s² - metres per second squared. The measure of acceleration of an object, i.e. the rate of change of speed
- PPE – Personal protective equipment
- PPM – Planned preventative maintenance
- VWF – Vibration (induced) White Finger
- WBV - Whole Body Vibration, transmitted through the seat or feet of employees who drive mobile machines over rough or uneven surfaces

4. Scope of the SOP

This SOP includes all Facilities staff using any equipment covered in Section 2.

The responsibility to ensure this SOP is implemented with in each department lies with the Facilities Area Managers.

5. Aims of the SOP

This SOP is to ensure all Facilities Managers/Supervisors/Team Leaders and equipment operators are aware of their responsibilities under the Control of Vibration at Work Regulations 2005.

The task responsibility is to actively assess the risks of vibration, implement suitable preventative and protective measures for any staff groups affected as far as is reasonably practicable.

Managers, Supervisors and Team Leaders will be responsible for ensuring the formal task based risk assessments are completed, suitable control measures implemented and monitoring processes are adhered to.

The aims of this SOP (following a hierarchy of control) include:

- Identifying equipment in each department which emanates levels of vibration
- Measurement of the vibration levels
- Tagging each piece of equipment for user information
- Evaluating the level of risk to employees
- Elimination of the risk where possible
- Substitution through tool selection – moving towards battery powered equipment when replacing old items
- Managing exposure through effective planning and monitoring of work processes; including checking daily personal exposures (Appendix 1C)
- Providing information, training and instruction
- Provision of suitable PPE
- Providing suitable health surveillance

This procedure also includes ensuring Managers, Supervisors and Team Leaders being alert to signs and symptoms related to vibration such as:

- Attacks of whitening (blanching) in one or more fingers when exposed to cold/wet conditions

- Episodes of finger turning red and having a burning sensation when warming up
- Tingling and/or loss of sensation in the fingers
- Loss of light touch
- Pain and cold sensations between periodic 'white finger attacks'
- Loss of grip strength and/or manual dexterity

6. Equipment Inventory (Asset Register)

NHS Lothian Facilities will put in place a procurement strategy which will ensure any equipment purchased meets specific and exacting standards to ensure regulatory compliance.

This will include disposal of equipment and tools.

Each department must have an equipment inventory, which not only gives details of manufacturers and suppliers instructions but includes specific information on any risks and actions.

For example:

Date purchased and supplier	Equipment or vehicle	*Exposure Action Value 2.5m/s ² (EAV)	**Exposure Limit Value 5.0m/s ² (ELV)	Duration of use per day or week	Maintenance and service schedule details

- *A daily exposure action value of 2.5 m/s² A(8) – represents a clear risk requiring action to manage and control/minimise this
- ** A daily exposure limit value of 5 m/s² A(8) – represents a high risk above which employees should not be exposed
- The EAV and ELV are based on a combination of the vibration at the grip points on the equipment and the time spent gripping it

For example - Horticultural Manufacturers are now recommending back pack style leaf blowers in order that the vibration is in the padded 'back pack' and the operator experiences less vibration holding the nozzle.

7. Risk Assessment

As well as the equipment inventory each department must also use the manufacturer and suppliers' information and anonymised health surveillance information from Occupational Health to inform their risk assessment.

The Facilities Vibration Risk Assessment Record template must be used

7.1 How to complete the risk assessment:

- Identify all the tasks that will require to be completed using vibrating equipment – a risk assessment will be required for each task
- The tasks will be planned as well as ad-hoc and unplanned emergency work
- Determine which groups of staff could be affected
- When thinking about staff who could be affected – remember there maybe some staff who could be more at risk due to health issues (e.g. Diabetes) or already have a confirmed Hand Arm Vibration Syndrome (HAVS) diagnosis
- Detail the tasks to be undertaken as these can sometimes affect the tools performance e.g. 'Cutting grass – is it long/short or wet/dry – once the grass is cut do you intend to use a strimmer on the edges?'
- Detail the equipment that will be used for each job
- Detail the frequency of the tasks e.g. once per week, twice per month, 3 times per year etc
- State the approximate time it will take to complete the task – factoring in weather conditions and the affect this may have
- Calculate as accurately as possible the time staff spend holding vibrating equipment or operating vehicular type equipment
- You must use the **HSE Hand-Arm Vibration Exposure Calculator – see Appendix 1a and 1b**
- Copy and paste the calculation from the website for each tool onto the corresponding risk assessment
- Factor in breaks and task rotation
- Check tool tag information is accurate
- Determine the PPE required for the task – remember this might differ Spring/Summer and Autumn/Winter – indoors/outdoors
- Ask staff who use any of the equipment if they have currently or previously ever experienced any of the signs and symptoms described in section 5
- Always try to purchase and use battery powered or low vibration tools – as a first option
- Higher vibration tools can be used for short duration tasks if the job requires this and it will reduce exposure to vibration trigger times - but stated exposure times must not be exceeded

- It is important to note that damaged poor performing or very old models of equipment may be hazardous even over very short periods

For example – cutting tools should be kept sharp so they remain efficient.

- Operator user is also an important consideration as most types of hand held, hand guided or hand fed powered equipment can cause issues if used incorrectly.
- Using the correct equipment for each job may complete the task more quickly and therefore can reduce the exposure time; thereby reducing the risk
- Ensure staff can reduce the amount of time they use a specific item of equipment in one go by doing other tasks in-between
- An important control measure is ensuring you properly provide the required information, instruction and training to all staff who may be affected by any vibration risk
- Each task risk assessment must be reviewed annually or before if there is any indication the task is taking longer or exposure times are being breached. In any confirmed case of HAVS all task risk assessments will be reviewed to ensure risk is minimised to the lowest level practicable

7.2 Factors that may affect the severity of the risk

- Excessive grip, push, pull or other forces used to guide and direct equipment/tools
- Exposure patterns – length and frequency of work, failing to rotate between vibration and non vibration jobs and not factoring in rest periods
- Lack of understanding of controlling HAVS risks such as – thinking it acceptable to use each vibration tool (one after the other) to the maximum exposure in any one shift
- Not wearing gloves to keep the hands warm and dry in inclement weather
- Health factors affecting blood circulation such as susceptibility to cold weather, Raynaud's Syndrome, smoking, certain medications and illnesses
- Individual susceptibility such as having a confirmed diagnosis of HAVS

7.3 Supporting information

When purchasing equipment you should expect to receive the following:

- Information on the equipment performance
- Information on the vibration emission of the equipment – including 'in use' risk level information
- A warning of any 'vibration related risks' from using the equipment
- Information on the safe use of the equipment
- A guide on what training may be required

- Information on how to maintain the equipment

You should try where possible to include as much information on each risk assessment as is required for example when assessing 'grass cutting' consider dry/wet, long/short grass on one record not on four separate risk assessments.

There will also be a 'point of work' risk assessment completed before each task is commenced.

7.4 Employee Responsibilities

NHS Lothian has a duty of care to protect where reasonably practicable all employees from the risks associated with using vibration tools and/or equipment.

However employees also have a duty of care to assist the Employer meet their obligations and can do this by:

- Following the risk assessment for each task and ensure you comply with the control measures
- Asking if the job can be done in a different way – i.e. without using vibrating tools
- Asking to use suitable low vibration/battery powered tools
- Always use the right tool for the job – e.g. to do the job more quickly and therefore less exposure to vibration
- Check each tool before using it, read the vibration tag, check it is working properly (not vibrating more than normal) and that it has been properly maintained
- Make sure cutting tools are sharp and therefore efficient
- Rotate your jobs
- Avoid gripping tightly where you can
- Try to store tools so that handles do not become very cold or freeze in winter
- Try to keep warm and dry – in cold weather wear suitable clothing – especially gloves
- Complete your weekly exposure checklist (Appendix 1C) where you are required to do so *
- Learn how to recognise any potential or early signs and symptoms of HAVS and act upon this immediately
- Complete your annual HAVS Checklist and attend OH appointments

***Additional Information for Managers/Supervisors and Team Leaders**

Weekly Exposure Checklist – this is not a continuous monitoring tool but one where we will periodically measure and monitor exposure to vibration – especially during peak (summer) months where workloads are higher.

You can do this randomly over a period of 1- 2 weeks weeks – as long as all tasks are covered in the monitoring period.

This information assists in the completion of new risk assessments and the revision of existing ones and in the delivery of training.

The most appropriate time to do this period of monitoring would be just before you ask staff to complete the annual health surveillance screening questionnaire. This provides additional (quality assurance) information to support the questionnaire returns and provides additional information on exposure the Occupational Health Service.

The **exception** to this is for any staff who are on a **restricted points plan** – they will be required to submit a weekly sheet to their manager, who will check this and discuss with the employee.

8. Risk Reduction Measures

Actions to be taken to reduce risks include the following:

- Eliminate the risk – where possible
- Take vibration emissions into consideration when purchasing or hiring equipment – check the literature or equipment specification available. Always avoid high vibration types when lower alternatives are available
- Purchase battery powered equipment where suitable and sufficient for the task
- All equipment must have the vibratory acceleration levels checked and this must include an ‘in use’ assessment by an appropriately qualified employee or contractor.
- Look for ways of working that avoid or reduce the need to hold vibrating equipment or alternative methods of completing tasks that do not involve vibratory equipment
- Supervisors and Managers to create weekly work plans that aim to reduce exposure times; rotate tasks around the teams; match number of staff to the jobs in order to carry them out more efficiently, factor in weather and ground conditions
- Monitor working practices and observe how staff are using equipment and any difficulties they may be experiencing – such as excessive manual effort and/or a heavy grip required to carry out the task
- Provide staff with information, instruction and training on working with vibratory tools, adhering to stated exposure times and what signs and symptoms of potential HAVS that they should look out for and report without delay
- Provide appropriate personal protective equipment and clothing such as outdoor clothing and gloves to protect staff from the weather elements, this will help maintain good circulation

- Maintain the equipment in accordance with the manufacturers instructions

For whole body vibration

- Adjust the driver weight setting on the suspension seat if possible – this can avoid the seat suspension ‘bottoming out’ when going over uneven ground
- Make sure the seat position is adjusted properly to achieve a good line of sight and to easily reach to controls
- Ensure the vehicle speed matches the ground conditions to avoid hitting bumps and/or potholes at speed
- Steer, brake, accelerate smoothly – to avoid jolting
- Try to follow routes that have an even terrain or surface

9. Health Surveillance

9.1 Health Surveillance and the Occupational Health Service

Area Managers must ensure all staff (including seasonal employees) using vibration equipment access an appropriate health surveillance programme (see Tiers 1-5 below)– this must include pre employment screening if the job will require the use of vibration equipment

- **Tier 1** is a pre employment questionnaire used (as an **initial screening** tool for people moving into jobs involving vibration equipment and/or new staff) as a first check and the replies to this questionnaire will determine whether further action is required – see APPENDIX 2

This first check (**pre employment**) also allows a base line to be established for future HAVS checks

Tier 1 should also be used if you engage a new employee **who already has a HAVS diagnosis or another medical condition** that could be affected by working with vibratory equipment such as Diabetes, Carpal Tunnel Syndrome, Raynaud’s Syndrome, Hypothyroidism - if you are unsure – check with the Occupational Health Service

- **Tier 2**– again is a questionnaire which is used as an annual screening tool for **all staff** using vibration equipment – see APPENDIX 3.
- **Tier 3**– this involves a HAVS health assessment by a suitably qualified OH Practitioner and if the assessment shows the employee may have HAVS then Tier 4 will apply
- **Tier 4**– this is the formal diagnosis of HAVS by a suitably qualified OH Doctor – when you receive this notification – this is now RIDDOR reportable (see 8.2)
- **Tier 5** – is optional and involves referral of the employee for specific HAVS tests carried out by Occupational Health Staff

- **Always submit a management referral to Occupational Health** if any member of staff reports **any** signs and symptoms related to whole body, hand arm vibration or work related upper limb disorder

9.2 RIDDOR Reporting

You must report any OH confirmed cases of whole body, hand arm vibration or carpal tunnel syndrome to the HSE as a RIDDOR report (you must report this without delay) and carry out a full Significant Adverse Event Report, involving the Health and Safety Advisory Team where required.

9.3 Health Surveillance – Individual Site Actions

Area Managers must ensure any new or transferred employees (including seasonal employees) into their department completes the 'pre employment questionnaire' **before** they commence any duties/tasks which require the use of vibration tools.

A copy of this questionnaire must be sent to the Occupational Health Department and the original retained in personal files on site. This is important as it establishes a base line for future statutory health surveillance.

Any new or transferred employee with an existing confirmed HAVS or Carpal Tunnel Syndrome diagnosis will not commence work tasks using vibration equipment until they have been seen by an OH Doctor and a **Personal Exposure Management Plan** (see Appendix 4) is completed and agreed by Employee, OH Doctor, Health and Safety Adviser and Area Manager

- **All staff** who use vibratory equipment will complete the 'Annual Screening Questionnaire for Health Surveillance' **See Appendix 3**
This is mandatory not optional

Area Managers must ensure all staff complete this annual questionnaire – evidence of this will be a requirement of Quarter 2 Health and Safety Report.

A copy of this questionnaire must be sent to the Occupational Health Department and the original retained in personal files on site

- Where a (new) positive (HAVS) diagnosis is provided by an OH Physician or Nurse, the site Area and Site Manager/Supervisor must ensure a review of the relevant risk assessments for those tasks are carried out.

The review of the task risk assessments must consider if any other employee(s) could be at risk from carrying out the same or a similar task, using the same or similar equipment and the appropriate actions taken

- At the same time a '**Personal Exposure Management Plan**' will be completed outlining the actions required to minimise any further risk to

the Employee (with the confirmed diagnosis) –this will be done in conjunction with Occupational Health colleagues. See Appendix 4

Site management will arrange for the OH appointment and forward the relevant risk assessments, weekly checklists, training records and the blank Personal Exposure Management Plan to the OH Service.

When the plan is complete, all have agreed and signed it off - this will be fully discussed with the Employee and their Supervisor/Team Leader to ensure they understand their responsibilities to follow the plan and minimise any further risk or exacerbation to the health issue.

NOTE: Any member of staff on a points restriction plan will be required to submit a weekly exposure checklist to their Supervisor/Team Leader.

- Area and Site Managers/Supervisors must monitor any information or feedback from OH on any fitness to work with vibration tools, health related issues or health surveillance information gathered (anonymously) and action where necessary
- Additional monitoring (using the weekly exposure checklist) is detailed in section 7.4

10. Equipment Purchasing, Servicing and Maintenance

10.1 Procurement Strategy (see Appendix 5)

- As detailed in section 6 NHS Lothian works to a Procurement Specification which is agreed within the organisations current procurement arrangements and are for a period of 4 years. Within this strategy is a requirement to set up an equipment procurement framework to ensure all equipment purchased meets the required standards.
- Facilities are currently working on a specific procurement framework which will cover all Vibration Tools.
- Managers purchasing equipment **must procure** from this framework.
- Any task specific items procured because of a special purpose or need – and which is outwith the framework, will have to be evaluated and agreed by the strategic group before purchasing.
- Advice can be sought from the NHS Lothian Health and Safety Team where required
- Area and Site Managers/Supervisors must avoid 'like for like' purchasing when replacing vibrating tools – unless that particular model has been assessed and evaluated as the lowest vibration tool available.
- Area and Site Managers/Supervisors will be expected to evaluate any product before purchase (such as utilising trial periods)

Manufacturers/Suppliers may offer) and share information with other Hard FM Colleagues.

10.2 Equipment Maintenance Strategy

Area Managers will set up a planned preventative maintenance programme (PPM) within the departments Computer Aided Facilities Management System (BackTraq) which includes:

- Carrying out an equipment review to ensure every tool is 'accounted for' and has a unique identifier/tag and that the vibration tool tag is visible and accurate
- Engaging with a external competent and independent testing company to assess and record both the vibration and noise levels of each tool (Baselines to be established in 2017 and tools retested in 2018 to assess any difference in values – decision will then be taken for 2019 and beyond as to the ongoing frequency of external competent and independent testing or whether we will undertake this 'in house')
- Carrying out weekly visual checks will allow defects to be picked up 'sooner than later' and can be done when tools are greased/oiled, refilled with fuel or batteries are recharged
- Ensuring all equipment is on an appropriate maintenance schedule – in line with the Manufacturers instructions
- Ensuring all maintenance and service visit schedules are being adhered to, including equipment which is sent to Manufacturers for servicing and calibration, and all appropriate records are retained within BackTraq.
- Any equipment that does not meet the requirements when put into use and after a period in service shall be identified and reported to the Area Manager. They will ensure such issues are logged and the procurement group advised of its unsuitability and steps taken to remove it from our equipment framework.
- Regular servicing and maintenance of equipment will help to keep the vibration levels down to the minimum necessary for efficient operation. Servicing and maintenance should only be undertaken by a competent person.

10.3 Hired Equipment

Prior to hiring equipment, evidence of compliance with maintenance schedules must be requested/supplied as part of the hire process.

Prior to use checks on hired equipment are to include:

- Obtain written evidence from the hirer of a recent inspection/testing records required by the Provision and Use of Work Equipment Regulations

- Request the vibration levels and exposure times related to any hired equipment
- Carry out a visual check before use to confirm that the equipment is safe to operate and is in good condition with no obvious faults or defects

11. Information, Training and Instruction

This will include:

- Formal competency training for Managers on how to monitor and control vibration risks in the workplace
- Appropriate training in the use of vibration tools and/or equipment for all users
- Tool box talks will be carried out with all employees in the spring (before the summer season) and in the late autumn (before the winter season) covering the control and management of vibrating equipment.
- Information from the risk assessments and the required control measures for all users
- How to choose the appropriate tool for the task and ensuring every user fully understands this process – with regard to also understanding the information on each tool tag and what this means in practice
- How to minimise exposure through task rotation and correct selection of equipment
- How to use equipment whilst avoiding excessive gripping or using excessive force
- How to complete the weekly monitoring checklist and the reasons for doing this
- Raising awareness on the negative health effects associated with vibration and how to minimise this
- The importance of staying healthy in the workplace – such as wearing appropriate PPE clothing and gloves in cold or wet weather
- How to recognise the ill health signs, the symptoms of vibration and the duty to report this as soon as possible
- The importance of completing the annual health surveillance questionnaire, which is mandatory
- The importance of attending any appointments or taking part in any assessments related to OH and health surveillance, what these arrangements are and how this can help users to stay healthy at work

12. References

- Control of Vibration at Work Regulations 2005
- HSE L140 Guidance on the Control of Vibration at Work Regulations
- INDG296 – Hand Arm Vibration – A Guide for Employees (HSE)
- INDG175 – Hand Arm Vibration at Work – A Brief Guide (HSE)
- INDG242 – Control back pain risks from whole body vibration (HSE)
- Provision and Use of Work Equipment Regulations 1998

13. Appendices

Appendix 1A - HSE Guidance on the use of the online hand arm vibration calculator

Appendix 1B – HSE Exposure points system and ready reckoner

Appendix 1C – Weekly Personal Exposure Checklist

Appendix 2 – HSE Initial Screening Form

Appendix 3 – HSE Annual Screening Questionnaire

Appendix 4 – Personal Exposure Management Plan

Appendix 5 – Procurement Strategy

APPENDIX 1A

Guide to using the HSE on-line hand-arm vibration exposure calculator

1. The calculator may be used online or, if you prefer, you can download and save it on your computer as a spreadsheet file (Microsoft Excel).

2. Click on the white areas and type in a vibration magnitude (in m/s^2) and an exposure duration (in hours and/or minutes). You can do this for up to six different tools or processes.

3. When you have entered all the numbers, press the ENTER key, or click on a different cell. The following values will then be calculated and displayed in the yellow cells on the right.

- The *Partial exposure* is the vibration exposure (shown in both $\text{m/s}^2 A(8)$ and exposure points) for each individual tool or process, and is calculated from the *Vibration magnitude* and the *Exposure duration*.
- The *Total exposure*, also given in $\text{m/s}^2 A(8)$ and exposure points, is calculated from the *Partial exposures*.

4. In addition to the partial and total exposure values, the calculator also uses the vibration magnitudes to produce the following values:

- *Exposure points per hour*
- The number of exposure points for every hour of exposure time for the individual tool or process.
- *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 ($2.5 \text{ m/s}^2 A(8)$ or 100 points) 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 ($5 \text{ m/s}^2 A(8)$ or 400 points) is reached.

5. The illustration below shows the calculator in use. In this example, three tools are used by an operator during a working day. The vibration magnitudes are 10, 6 and 3.5 m/s^2 and the total exposure times are 15, 30 and 90 minutes respectively. These values have been typed into the white cells (you can use hours, minutes or a combination of the two for the exposure duration). The results (in the yellow cells) show the partial exposure values for the three tools and the total exposure which, at $2.8 \text{ m/s}^2 A(8)$ or 123 points, is above the exposure action value.

- Q. The action and limit values are given as 8-hour equivalent values, $A(8)$, but my employer works for more than 8 hours / works less than 8 hours per day. How do I determine their exposure?
- The $A(8)$ value is an "8-hour equivalent" value and is not directly dependent on how long someone is at work. Most workers have vibration exposures that change over the working day. The $A(8)$ value allows us to compare average daily exposures. If someone works for just 45 minutes a day using a tool with a vibration level of 4 m/s^2 they will have the same daily exposure as someone who works for 12 hours a day with a tool producing 1 m/s^2 . We choose to express this as the $A(8)$ daily exposure value which, in both of these example cases, is $1.2 \text{ m/s}^2 A(8)$ (or 24 points).

HSE
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HAND-ARM VIBRATION EXPOSURE CALCULATOR

Version 4.3 January 2014

Tool or process name	Vibration magnitude m/s ² r.m.s.	Exposure points per hour	Time to reach EAV 2.5 m/s ² A (8)		Time to reach ELV 5 m/s ² A (8)		Exposure duration		Partial exposure m/s ² A (8)	Partial exposure points
			hours	minutes	hours	minutes	hours	minutes		
Tool or process 1	10	200		30	2			15	1.8	50
Tool or process 2	6	72	1	23	5	33	0.5		1.5	36
Tool or process 3	3.5	25	4	5	16	20	1	30	1.5	37
Tool or process 4										
Tool or process 5										
Tool or process 6										

Lock Tool or process names

Instructions for use:
 Enter vibration magnitudes and exposure durations in the white areas.
 To calculate, press <Enter>, or move the cursor to a different cell.
 The results are displayed in the yellow areas.
 To clear all cells, click on the 'Reset' button.
 Tick the 'Lock tool or process name' check box to prevent 'Reset' clearing these cells.
 For more information, click the 'Help' button.

Daily exposure m/s ² A (8)	Total exposure points
2.8	123

WARNING: Exposure at or above 2.5m/s² A (8) EAV (100 points)

1. The cells can be cleared for another calculation by clicking on the Reset button in the bottom right hand corner.

Note: When you open the spreadsheet you may see a Microsoft Excel message asking you to decide whether to enable or disable macros. If your system settings allow it, you should enable macros. If not, the Reset button will not work, but the white cells can still be cleared by manually deleting their contents.

APPENDIX 1B

Exposure points system and ready-reckoner

The table below is a 'ready reckoner' for calculating daily vibration exposures. All you need is the vibration magnitude (level) and exposure time. The ready-reckoner covers a range of vibration magnitudes up to 40 m/s² and a range of exposure times up to 10 hours.

The exposures for different combinations of vibration magnitude and exposure time are given in exposure points instead of values in m/s² A(8). You may find the exposure points easier to work with than the A(8) values:

- exposure points change simply with time: twice the exposure time, twice the number of points;
- exposure points can be added together, for example where a worker is exposed to two or more different sources of vibration in a day;
- the exposure action value (2.5 m/s² A(8)) is equal to 100 points;
- the exposure limit value (5 m/s² A(8)) is equal to 400 points;

40	265	800																		Above exposure limit value
30	150	450	900																	Likely to be at or above limit value
25	105	315	625	1250																Above exposure action value
20	67	200	400	800	1200															Likely to be at or above action value
19	60	180	360	720	1100	1450														Below exposure action value
18	54	160	325	650	970	1300														
17	48	145	290	580	865	1150														
16	43	130	265	510	770	1000														
15	38	115	225	450	675	900	1350													
14	33	98	195	390	590	785	1200													
13	28	85	170	340	505	675	1000	1350												
12	24	72	145	290	430	575	865	1150	1450											
11	20	61	120	240	365	485	725	970	1200	1450										
10	17	50	100	200	300	400	600	800	1000	1200										
9	14	41	81	160	245	325	485	650	810	970										
8	11	32	64	130	190	255	385	510	640	770										
7	8	25	49	98	145	195	295	390	490	590										
6	6	18	36	72	110	145	215	290	360	430										
5.5	5	15	31	61	91	120	180	240	305	365										
5	4	13	25	50	75	100	150	200	250	300										
4.5	3	10	21	41	61	81	120	160	205	245										
4	3	8	16	32	48	64	95	130	160	190										
3.5	2	6	13	25	37	49	74	98	125	145										
3	2	5	9	18	27	36	54	72	90	110										
2.5	1	3	6	13	19	25	38	50	63	75										
2	1	2	4	8	12	16	24	32	40	48										
1.5	0	1	2	5	7	9	14	18	23	27										
1	0	1	1	2	3	4	6	8	10	12										
	5 min	15 min	30 min	1 h	1 h 30 min	2 h	3 h	4 h	5 h	6 h										
	Exposure time, <i>T</i>																			

Using the ready reckoner






1. Find the vibration magnitude (level) for the tool or process (or the nearest value) on the grey scale on the left of the table.
2. Find the exposure time (or the nearest value) on the grey scale across the bottom of

the table.

3. Find the value in the table that lines up with the magnitude and time. The illustration shows how it works for a magnitude of 5 m/s² and an exposure time of 3 hours: in this case the exposure corresponds to 150 points.

4. Compare the points value with the exposure action and limit values (100 and 400 points respectively). In this example the score of 150 points lies above the exposure action value.

The colour of the square containing the exposure points value tells you whether the exposure exceeds, or is likely to exceed, the exposure action or limit value:

	Above limit value
	Likely to be above limit value
	Above action value
	Likely to be above action value
	Below action value

5. If a worker is exposed to more than one tool or process during the day, repeat steps 1 – 3 for each one, add the points, and compare the total with the exposure action value (100) and the exposure limit value

APPENDIX 1C WEEKLY EXPOSURE CHECKLIST – (PRINT OFF FOR USE)

PRINT NAME:

W/B:



RECORD TRIGGER TIME (E.g. 30 MINS/2 HOURS ETC) ONLY NOT THE AMOUNT OF TIME THE WHOLE TASK TAKES

EQUIPMENT TYPE	TRIGGER TIME POINTS PER HOUR	MON	TUE	WED	THUR	FRI	SAT	SUN
1.								
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								
11.								
12.								

OPERATIVE NOT EXPOSED TO VIBRATION THIS WEEK:

REASON:

RETURN CHECKLIST TO:

**APPENDIX 2 – INITIAL SCREENING/PRE EMPLOYMENT QUESTIONNAIRE
(PRINT OFF FOR USE)**

Part 1	
1.1 Name	
1.2 Occupation	
1.3 Site/Service	
1.4 Date of Birth	
1.5 Date of commencement of employment / or commencement of using vibration tools	
Part 2	
2.1 Have you ever used vibration tools in previous employment?	YES/NO If Yes please give details
2.1.1 Have you ever been diagnosed with having Hand Harm Vibration Syndrome/Vibration White Finger and/or Carpal Tunnel Syndrome?	Yes/No If Yes please give details
2.2 Have you ever had any serious diseases or injuries involving your muscles, joints, skin, nerves, heart or blood vessels?	Yes/No If Yes please give details
2.3 Do you have any numbness or tingling in your fingers lasting more than 20 minutes after using vibrating equipment?	Yes/No If Yes please give details
2.4 Do you have any numbness or tingling in your fingers at any other time? Experienced a loss of strength?	Yes/No If Yes please give details
2.5 Do you awake at night with pain, numbness or tingling in your hand or wrist?	Yes/No If Yes please give details
2.6 Have any of your fingers gone 'white' on exposure to the cold?	Yes/No If Yes please give details
2.7 Have you noticed any change in your response to your tolerance of working outdoors in the cold or wet?	Yes/No If Yes please give details
2.8 Are you experiencing any other problems with your hands, arms shoulders or neck?	Yes/No If Yes please give details
2.9 Do you have difficulty picking up small objects (screws) fastening buttons or opening tight jars or bottles?	Yes/No If Yes please give details
2.10 Do you have any hobbies or out of work interests or commitments that may increase the risk of developing any vibration related ill health?	Yes/No If Yes please give details

Signed:

Date:

Return to:

Please attach additional paperwork as necessary.

**APPENDIX 3 - ANNUAL SCREENING QUESTIONNAIRE FOR HAVS
HEALTH SURVEILLANCE (PRINT OFF FOR USE)**

Part 1	
1.1 Name	
1.2 Occupation	
1.3 Site/Service	
1.4 Date of Birth	
Part 2	
2.1 Have you been using hand held vibrating tools in your job in the last year?	<p>YES/NO</p> <p><i>If No you do not need to proceed further if Yes go to section 2.2 and complete the remainder of the questionnaire</i></p>
2.2 How often do you use vibrating tools and what types do you use most frequently?	
2.3 Do you have any numbness or tingling in your fingers lasting more than 20 minutes after using vibrating equipment?	<p>Yes/No</p> <p>If Yes please give details</p>
2.4 Do you have any numbness or tingling in your fingers at any other time? Experienced a loss of strength?	<p>Yes/No</p> <p>If Yes please give details</p>
2.5 Do you awake at night with pain, numbness or tingling in your hand or wrist?	<p>Yes/No</p> <p>If Yes please give details</p>
2.6 Have any of your fingers gone 'white' on exposure to the cold?	<p>Yes/No</p> <p>If Yes please give details</p>
2.7 Have you noticed any change in your response to your tolerance of working outdoors in the cold or wet?	<p>Yes/No</p> <p>If Yes please give details</p>
2.8 Are you experiencing any other problems with your hands, arms shoulders or neck?	<p>Yes/No</p> <p>If Yes please give details</p>
2.9 Do you have difficulty picking up small objects (screws) fastening buttons or opening tight jars or bottles?	<p>Yes/No</p> <p>If Yes please give details</p>
2.10 Has anything else changed with regards to your health whilst using vibration tools?	<p>Yes/No</p> <p>If Yes please give details</p>
2.11 Do you have any hobbies or out of work interests or commitments that may increase the risk of developing any vibration related ill health?	<p>Yes/No</p> <p>If Yes please give details</p>

Signed:

Date:

Return to:

**APPENDIX 4- PERSONAL EXPOSURE MANAGEMENT PLAN
(PRINT OFF FOR USE - PLEASE NOTE THIS HAS 2 PAGES)**

Employee Name	Site/Job Role	Manager

Date	Diagnosed by	Diagnosis of

Information from Previous Appointments

Date	Findings at previous appointments	Recommendations made

1. What equipment does the employee currently use?	Can they continue to use any or all of this equipment?	Restriction and/or personal daily vibration limit	Any other recommendations or actions required?

2. Are there any restrictions or alterations to the employees duties Yes/No	If yes - specify

3. Has the employee received any information, instruction and/or training related to work tasks and diagnosis? Yes/No	If yes - specify

4. Does the employee require to attend any further health surveillance appointments related to diagnosis? Yes/No	If yes - specify

Plan agreed by:

Name	Signature	Date	Role	Additional Comments
			Employee	
			Manager	
			OH Practitioner	
			H&S Adviser	

Date plan to be reviewed on:

APPENDIX 5 – PROCUREMENT STRATEGY

1. Introduction

Facilities will work within a four-year procurement strategy framework to promote a system of 'positive purchasing' of hand held vibration tools.

This is also in accordance with the L140 HSE Hand Arm Vibration Guidance Document.

2. The Procurement Framework

Managers must procure new equipment from this framework and assistance is available from the Health and Safety Team where required.

2.1 The requirements are to:

- Ensure all equipment is purchased from a reputable supplier who will be on our purchasing framework
- Ensure all new equipment purchased is suitable for the task it will be used for
- Ensure all new equipment is suitable for the work it is intended to do and the conditions in which it will be used
- Ensure it is used only for the operations and conditions it is suitable for
- Purchase equipment that is designed and constructed to reduce the risk from vibration to the lowest level reasonably practicable
- Ensure it is properly maintained throughout its working life to sustain its best vibration performance
- Trial equipment where we can and seek Employees opinions based on the practical trial

2.2 In addition Managers will require to:

- Move away from a simple 'like for like' purchase when new equipment is required, and select tools which consider the following factors:
- Take into consideration safety and ergonomic factors such as:
 - Vibration magnitude
 - Opportunity to replace with battery powered equipment
 - Tool weight
 - Tool efficiency and suitability for the task
 - Handle design and comfort
 - Grip force required
 - Ease of use/handling
 - Cold exposure from grips or exhausts on compressed air tools
 - Noise exposure
 - Dust exposure

- Ensure any new piece of equipment is incorporated into the relevant task risk assessment
- Ensure staff are trained/instructed on any new piece of equipment, its performance, vibration risks and limits of use and suitability for the task