



**Strategy for regulation  
of health and safety  
risks**

**Chapter 9: Occupational  
Health**

31 March 2020

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# Summary

**Vision:** Excellence in health risk culture, management and risk control, with worker health treated equally with worker safety at both company and industry level.

**ORR priorities on occupational health:** The available evidence<sup>1</sup> supports the case for further action by rail employers on the most prevalent causes of work-related ill health: musculoskeletal disorders (MSDs), particularly hand arm vibration syndrome (HAVS), and mental health. We are clear, however, that industry can and should do more to tackle less visible health hazards, particularly long latency occupational lung diseases linked to exposures to hazardous dust and fumes, where serious ill health may not become evident for many years.

At company level, we need to see more consistent legal compliance on worker health, driven by evidence-based health risk assessments, and a demonstrable focus on designing out health risks so that there is less reliance on personal protective equipment as the default option. Across the industry, we expect to see leadership and commitment by rail companies to sharing of key health data to inform better health risk assessment and modelling, and wider adoption of common health performance indicators for benchmarking, in order to drive continuous improvement on health.

**ORR strategy** To help deliver these priorities we will:

- Target our planned inspection and assurance on risks from hand arm vibration (HAV) and long latency occupational lung disease, with a focus on compliance by mainline employers, contractors and suppliers
- Prioritise our reactive inspection on health in line with our mandatory investigation policy and respond to other reported health concerns where the evidence suggests a potential breach of health and safety law
- Continue to champion industry efforts on better mental health and apply HSE's investigation criteria<sup>2</sup> to prioritise follow up of complaints of work-related stress

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<sup>1</sup> [https://orr.gov.uk/data/assets/pdf\\_file/0010/41986/closing-the-gap-on-health-industry-progress-2019.pdf](https://orr.gov.uk/data/assets/pdf_file/0010/41986/closing-the-gap-on-health-industry-progress-2019.pdf)

<sup>2</sup> <https://www.hse.gov.uk/stress/reporting-concern.htm>

- Seek evidence that rail employers are routinely applying the hierarchy of risk control and health by design principles, increasingly measured by RM3 across the industry
- Support consistency in our inspection and enforcement on health by training our inspection staff, and publishing guidance where is a clear need and where we are best placed to do so
- Review, and where needed, develop our policy position in developing areas of health, including those where passengers and the public could be affected
- Work with industry to improve the quality of occupational disease data reported to us under RIDDOR and published on our data portal
- Provide targeted input to key industry health leadership groups to maintain momentum in sustaining recent progress at sector level, supporting and challenging industry on progress towards reporting of common health data and metrics to inform evidence-based health risk assessment
- Support, monitor and challenge industry efforts to improve the consistency of medical examinations under the train driver licensing regime

## Introduction

- 1.1 This strategy focuses on those areas of health covered by health and safety law. These include work-related (or occupational) ill health conditions caused or made worse by work (for example those resulting from exposures to dust, fume, asbestos, noise, vibration, musculoskeletal risk or work-related stress), as well as fitness for work including drug and alcohol management, and medical fitness assessments. Managing risks from fatigue are primarily dealt with as worker safety and human factors issues, and so are not specifically included here.
- 1.2 There is inevitably some overlap with the wider aspects of worker health such as general wellbeing and lifestyle management, including smoking, obesity, and worker engagement. While important, these do not fall within ORR's regulatory role and are therefore not specifically considered in this strategy. Nevertheless, we continue to encourage duty holders to invest in supporting better health outcomes through worker engagement and strong cultures, as set out in RM3<sup>3</sup>.
- 1.3 The legal duties on rail employers to properly control risks to worker health arising from their work activities also extend to passengers and the wider public. This strategy recognises the potential for harm to passenger and public health arising from inadequate control of specific hazards such as legionella bacteria in rail industry

<sup>3</sup> <https://orr.gov.uk/rail/publications/guidance/health-and-safety/risk-management-maturity-model-rm3>

water treatment systems, and also public concerns over noise, dust and poor air quality particularly in enclosed stations, and mental distress arising from crowding<sup>4</sup> on platforms and trains.

- 1.4 Improving the health of the rail workforce is central to the success of the whole industry: improving the quality of rail workers' lives, securing more consistent legal compliance, and increasing productivity with associated cost savings, freeing up valuable industry resource. Historically, worker health has had a lower profile than worker and passenger safety in the rail sector. Since 2010 ORR has focused attention on occupational health via two dedicated health programmes for 2010-14 and 2014-19, challenging individual dutyholders and the wider sector to tackle the historic imbalance between worker safety and worker health.
- 1.5 Our 2019 report 'Closing the gap on health'<sup>1</sup> provides a comprehensive review of the available evidence on industry's management of occupational health by the end of our 2014-2019 health programme. We have used the evidence in this report on the extent and causes of work-related ill health, and on the maturity of the industry in managing occupational health, to inform our revised strategic priorities.

## Legal duties and the role of ORR

- 1.6 Employers, employees, directors, suppliers, owners of premises and others have duties under the Health & Safety at Work etc. Act 1974 to ensure, so far as is reasonably practicable, the safety and health of those at work in, or who enter their premises, or who are otherwise affected by their activities. ORR's role, as the health and safety regulator, is to encourage compliance with the law, from advice through to formal enforcement, while keeping safety representatives properly informed.
- 1.7 Rail employers are required by law to report to ORR diagnoses of certain occupational diseases in a person at work and we have published guidance on what is needed<sup>5</sup>. Reportable health conditions include diagnoses of occupational asthma, dermatitis, cancer, HAVS and other upper limb conditions related to repetitive work or vibrating tools, or any disease arising from occupational exposure to a biological agent.
- 1.8 ORR has identified four areas of occupational health where statutory reporting arrangements allow for consideration of a mandatory investigation by ORR inspectors:
  - Legionellosis (Legionnaires' disease) where the source of infection may be at a railway location
  - Any instance where a worker is suspended from work due to lead poisoning

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<sup>4</sup> [https://orr.gov.uk/data/assets/pdf\\_file/0010/4996/crowding-position-statement.pdf](https://orr.gov.uk/data/assets/pdf_file/0010/4996/crowding-position-statement.pdf)

<sup>5</sup> <https://orr.gov.uk/rail/health-and-safety/occupational-health/reporting-occupational-diseases>

- Any report of a case of occupational asthma caused by exposure to a respiratory sensitiser, such as isocyanate paint
- A diagnosis of worsening hand arm vibration syndrome

1.9 We may investigate other incidents if we consider they may reveal important intelligence about management systems failures or breaches of the law.

1.10 ORR has a statutory role in ensuring that the requirements for licensing and certification of train drivers in Great Britain under The Train Driving Licences and Certificates Regulations 2010 (TDLCR)<sup>6</sup> are met, and we published revised guidance<sup>7</sup> on duties and responsibilities in 2019. ORR-registered Recognised Doctors carry out the train driver medical assessments against the requirements set out in Schedule 1 of TDLCR. Following an audit of the Recognised Doctors in 2016, ORR made recommendations to the industry: principally to introduce a regular audit regime and to deliver education and information to the Recognised Doctors. We have continued to engage with industry on delivering these recommendations.

## Extent and causes of work-related ill health

1.11 There is evidence that sickness absence in rail is higher than national industry benchmarks. RSSB's 2019 estimate of a Lost Time Rate in rail of 4.28% compares with the Office of National Statistics (ONS) 2017 estimate of 1.9% for all industry and 1.7% for the private sector. It is disappointing that many rail companies are still unable to report on work-related sickness absence: this is key to understanding the areas where workplace interventions might have most impact.

1.12 Latest HSE data suggest rates of work-related ill health in rail workers (2-5%) are broadly comparable with those in construction workers (3-5%), a known higher risk sector, with levels of respiratory and skin disease similar to those seen in all workers. There is no evidence of an increased risk of mesothelioma (a serious asbestos-related disease) among current rail workers but there is a higher than average risk among former rail vehicle builders arising from historic exposures to asbestos. Recent claims for industrial injuries disablement benefit by rail workers are dominated by long latency asbestos-related disease, again arising from historic exposures.

1.13 Reliable data on cases of occupational cancer in the rail sector are not currently available. HSE estimate that the construction industry bears the largest burden (around 40%) of occupational cancer cases, with about 3,500 new cancer cases each year attributed to past exposures to asbestos and silica. HSE (all industry) estimates of future cancer cases suggest that occupational exposures associated with asbestos will decline significantly, and that occupational exposures to silica, diesel engine exhaust emissions (DEEE), solar radiation, shift work, and working as

<sup>6</sup> <https://www.legislation.gov.uk/ukSI/2010/724/contents>

<sup>7</sup> <https://orr.gov.uk/rail/licensing/train-driving-licences-and-certificates>

painters and welders may become the main causes of occupational cancer in the future.

- 1.14 RIDDOR diseases reported to ORR under the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR) 2013 are dominated by diagnoses of HAVS, with 359 HAVS from a total of 399 disease cases reported to us during our 2014-19 health programme. The high number of reported HAVS cases reflects the much-needed improvements made in statutory health surveillance<sup>8</sup> arrangements to detect symptoms at an early stage and prevent further disease progression. While the majority continue to be reported by Network Rail, HAVS reporting by rail contractors and labour suppliers has also increased in the last five years, reflecting increased awareness and health surveillance compliance.
- 1.15 Reports of worsening HAVS diagnoses are of particular concern, as they are more likely to arise from vibration exposures in current jobs, rather than new diagnoses of pre-existing symptoms arising from exposures with previous employers. Since October 2017, worsening HAVS are considered by ORR for mandatory investigation.
- 1.16 The relatively small number (40) of other RIDDOR diseases reported during our 2014-19 health programme included upper limb musculoskeletal conditions due to repetitive work, occupational asthma, occupational dermatitis, and a case of occupational cancer.
- 1.17 Available industry data suggest that MSDs and mental health are the major drivers of industry sickness absence and referrals to company occupational health services: about one in four. Data for the mainline and London Underground Limited (LUL) show a broadly downward trend in the more serious manual handling incidents resulting in lost time over the last three years. While the trend in industry data for lost time shock/trauma incidents has been broadly downward, 2018-19 saw an upturn compared with the previous year.
- 1.18 Trade union surveys of health and safety representatives for all industry, and for rail workers (ASLEF members), consistently identify stress, bullying and harassment, back/repetitive strain injuries, and long hours of work as key concerns.

## Improving industry performance on occupational health

- 1.19 Despite the hard-won progress seen in recent years, compliance on occupational health in rail is behind where we would expect it to be. We judge that capability and maturity in managing traditional occupational health risks in rail is still lagging behind comparable industry sectors. Current industry processes, including standards and assurance, for managing risks from individuals' medical fitness (e.g. diabetes, visual

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<sup>8</sup> Statutory health surveillance is a system of ongoing health checks required by law for employees exposed to specific health hazards at work <http://www.hse.gov.uk/health-surveillance/what/index.htm>

acuity) are also not sufficiently robust and a concerted effort to deliver real progress is needed in this area.

- 1.20 Our recent assessment of industry progress on health found that increased senior level recognition and commitments to worker health and wellbeing are not always translated into improved compliance on the ground, with evidence of failure to meet basic minimum legal requirements on health. Over the five years of our second health programme, ORR served 23 formal enforcement notices for failures to adequately control risks to workers' health and welfare by mainline duty holders.
- 1.21 Failure to conduct and apply the findings of a suitable and sufficient health risk assessment was an underlying cause in most, if not all, of the cases where we took formal enforcement action. We want to see better understanding and application of health risk assessment principles, supported by a sound evidence base on the consequences and likelihood of harm, driving more reliable health risk controls. More effective site supervision, monitoring and assurance on health, including through the supply chain, will be essential to achieving consistent legal compliance across the industry.
- 1.22 Rail employers need to place less reliance on use of personal protective equipment and task rotation to manage individual worker exposures, and do more to identify and implement sustainable solutions which design out the potential for health risk in the future. While we have seen progress towards designing out health risks in key areas such as DEEE, silica dust, and manual handling, in many cases this has been driven by ORR intervention. We expect rail employers to be able to demonstrate that the hierarchy of risk control has been properly applied to health risks, with priority given to design and technical changes over provision of protective equipment. Health by design needs to be properly considered in the procurement, planning, and delivery of work, as well as in assurance through the supply chain.
- 1.23 Our RM3 (Risk Management Maturity Model) assessments for health suggest modest improvements in management maturity for occupational health over the last five years, although it remains below that seen for managing safety across duty holder groups. We also found much greater variability in the assessments for worker health than for worker safety. We want to see a shift towards routine use of RM3 specifically for health by more rail companies, particularly Network Rail routes and new adopters such as trams and larger heritage operators, to help them to identify where improvements are most needed.
- 1.24 We expect the mainline industry, co-ordinated by the Health and Wellbeing Policy Group (HWPG) and supported by RSSB, to continue to lead on developing health research, standards, tools and good practice, as well as enabling better health management capability via shared health data, metrics, and benchmarking.
- 1.25 While many non-mainline operators including TfL, HS2, Crossrail and Eurostar are increasingly engaging with mainline initiatives on health, the tram and heritage sectors appear to be largely self-contained in their management of worker health. We would encourage wider sharing of experience and good practice both outside and



within these sectors, particularly on shared health issues such as mental health, MSDs, noise, vibration, and chemical hazards. For the tram and light rail sector, we recognise that the core purpose and immediate focus of the Light Rail Safety and Standards Board (LRSSB) is to assist the sector to implement the recommendations arising from the overturning of a tram at Sandilands Junction. However, there may be scope in the longer term to consider the case for extending its remit to occupational health, including sector-specific standards and guidance.

## Challenges to better occupational health management

- 1.26 There is a risk that organisational and structural changes within the industry could distract attention and stall the progress we have seen on worker health in recent years. We judge that the much-needed improvements we have seen in managing health within Network Rail routes, driven largely by the centre in recent years, are at particular risk from organisational change.
- 1.27 Across the mainline, a lack of rail-specific clinical support, expertise and guidance to third party occupational health providers (OHPs) continues to present challenges to the consistent and efficient delivery of medical fitness for work assessments and wider occupational health management, an area recognised and being addressed by the mainline Occupational Health Specialist Advisory Group (OHSAG). We want to see further industry efforts to improve the consistency and efficiency of medical fitness assessments as a priority.
- 1.28 Reluctance by mainline employers to report key health data into a voluntary shared health data collection system (in contrast to the widespread and considerably better-established *safety* reporting system) could undermine efforts to target interventions on health and wellbeing, and to report on common health performance indicators.
- 1.29 Without better health data, industry may continue its current focus on the immediate drivers of sickness absence (MSDs and mental health) but fail to build understanding of, and risk assessment capability for, less visible and/or emerging harm from long latency disease in particular. Development at sector level of a measure of comparative harm for different ill health outcomes, effectively an 'FWI equivalent for ill health', would support better evidence based risk assessment and targeting of investment.
- 1.30 The rail industry is delivering real progress in occupational health and wellbeing at local level but does not yet have the resources, expertise, training and other industry-wide structures needed to realise the potential health and business benefits across the sector. Without cross-industry agreement on key structural challenges such as delivering more consistent and efficient occupational health service provision; and better evidence-based risk assessment and modelling, informed by reliable health data, recent progress may stall.

# ORR priorities on health

## Where?

- 1.31 We will target our resource where best available evidence indicates the compliance gaps are greatest, focusing effort on mainline duty holders, including Network Rail, their suppliers, and principal and lower tier contractors, and on mainline operators.
- 1.32 We will continue to monitor and review Transport for London's (TfL) performance on worker health but limit our planned work, based on evidence from previous years of a mature understanding of the hazards and a generally high standard of control.
- 1.33 We will continue to address management of occupational health in the tram and light rail sector as part of ongoing health and safety liaison meetings, commensurate with evidence of risk gathered from inspection intelligence and other sources such as RIDDOR disease reports.
- 1.34 Our inspection and liaison work in the heritage sector will routinely include consideration of health hazards, and we will support the Heritage Rail Association in improving understanding of expected risk controls in the sector.
- 1.35 We will encourage wider sharing of good practice in managing shared health risks within the light rail/tram and heritage sectors.

## How?

- 1.36 We will focus our effort on those activities that the regulator is best placed to deliver, ensuring legal compliance and supporting continuous improvement, increasingly measured by use of RM3 2019. Where necessary we will take enforcement action in line with our enforcement policy<sup>9</sup>.
- 1.37 We expect the industry to have the lead on developing health research, industry standards, tools and good practice including enabling reporting of shared health data, common health metrics, and benchmarking. While we propose to step back from the detail of work under Leading Health and Safety on Britain's Railways<sup>10</sup> we will maintain oversight on delivery of key strategic commitments to ensure that the leadership and hard-won progress seen in recent years on health is sustained.
- 1.38 We will continue to use best available data and evidence from our inspection work to assess performance on health, and will report progress in our Annual Health and Safety Reports<sup>11</sup>. We will publish regulatory guidance on health where there is a clear need and we (rather than the industry) are best placed to do so, for example to support consistent enforcement by our inspectors.

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<sup>9</sup> <https://orr.gov.uk/rail/health-and-safety/investigation-and-enforcement/enforcement-powers>

<sup>10</sup> <https://www.rssb.co.uk/RSSB-and-the-rail-industry/Leading-health-and-safety-on-Britain-s-railway>

<sup>11</sup> <https://orr.gov.uk/rail/health-and-safety/annual-health-and-safety-report>

- 1.39 We will continue to publish key health data on our data portal<sup>12</sup>, and look to include suitable health metrics in our internal benchmarking of performance by Network Rail.
- 1.40 Where we have the regulatory levers available, we will work with the industry to improve the accuracy and timeliness of health data reported to us. This includes RIDDOR disease data reported via the mainline Safety Management Intelligence System (SMIS) and ORR web form reporting channels, and health data reported by Network Rail in their Annual Return data tables. We will continue to encourage industry efforts towards reporting of comprehensive shared health data at sector level by our input to senior industry groups.
- 1.41 We will use RM3 criteria to assess performance on health, and develop our understanding of how organisational culture influences effective management of health risks. We expect to see self-assessments carried out by rail employers for health risk management arrangements. We will encourage more use of RM3 2019 for health by the new adopters including Network Rail routes and regions, tram/light rail, and larger heritage operators.
- 1.42 We will provide timely responses to public concerns about potential risks to health from the operational railway, and follow up those cases where the available information suggests a potential breach of the law. In practice, where the employer's risk assessment can demonstrate that health risks to workers are well controlled, any residual risk to passengers or the public living close to the railway will generally be very low based on the short duration, and often intermittent, exposure to the hazard.
- 1.43 Public concerns about the impact of railway noise, dust, fumes, and effluent, while unpleasant, are often more appropriately dealt with as a statutory nuisance<sup>13</sup> under environmental protection legislation and enforced by Local Authority Environmental Health Departments rather than ORR.
- 1.44 Where passengers and workers raise concerns about poor air quality inside railway premises, our role is to ensure that train and station operators are doing all that is reasonably practicable to minimise exposures to diesel fumes, assessed against the relevant occupational exposure limits under the Control of Substances Hazardous to Health Regulations 2002. ORR does not have regulatory powers to require compliance with statutory air quality standards for ambient (outside) air which are enforced by local authorities, and which differ significantly from occupational exposure limits for DEEE constituents under health and safety law. We have published rail inspector guidance<sup>14</sup> on assessment and control of DEEE in railway premises.

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<sup>12</sup> <https://dataportal.orr.gov.uk/statistics/health-and-safety/occupational-health/>

<sup>13</sup> Statutory nuisance complaints under the Environmental Protection Act 1990 cover interference with use/enjoyment of premises; substantial impact on quality of life; and actual or potential injury/threat to physical or mental health

<sup>14</sup> [https://orr.gov.uk/\\_data/assets/pdf\\_file/0019/15157/rig-2014-04-diesel-engine-exhaust-emissions-deee-in-the-railway-sector.pdf](https://orr.gov.uk/_data/assets/pdf_file/0019/15157/rig-2014-04-diesel-engine-exhaust-emissions-deee-in-the-railway-sector.pdf)

1.45 ORR's position statement on crowding<sup>15</sup> recognises the potential for negative effects on passenger wellbeing in crowding scenarios and sets out our expectations on station and train operators. We expect operators' plans to clearly set out how crowding hazards can be identified, reduced where possible, and crowding's negative effects on passenger wellbeing alleviated. We expect operators to consider the impact of crowding in their Accessible Travel Policies (ATP), approved by ORR as part of their licence requirements, and how these ATP strategies are applied in practice. This could include, for example, how information about access to accessible toilets on crowded services can be communicated.

## What?

1.46 Focus our planned inspection and assurance activity on risks from hand arm vibration (HAV) and from exposures to asbestos, diesel fumes, silica dust and welding fume as potential causes of long latency occupational lung disease. This will include holding Network Rail to account for delivery of its agreed priority programme on asbestos management, and reinforcing our expectations on the safe removal of asbestos containing materials from older rolling stock in line with the current exemption under REACH<sup>16</sup>.

1.47 Prioritise reactive inspection on health in line with our mandatory investigation policy, following up reported diagnoses of worsening HAVS, occupational asthma, suspension from work due to high level blood lead levels, and any cases of Legionnaires' disease where a railway premise may potentially be involved.

1.48 Monitor and follow-up other selected occupational health reports, including:

- Where there is evidence of poor control of priority workplace health hazards, including where there is potential for harm to the health of passengers and the public (e.g. poor control of microbiological hazards such as legionella bacteria in train washes or tanking facilities)
- Where medical fitness for work has been implicated in serious safety incidents, including driver fitness assessments under TDLCR 2010
- On mental health, apply HSE's investigation criteria<sup>17</sup> to prioritise follow up of complaints on work-related stress. We will continue to make risk based decisions on any investigations in light of other reactive priorities and within the available resource.

1.49 Continue to visibly champion industry efforts to tackle mental ill-health across the sector, recognising that supporting our people is key to unlocking major improvements in health and safety culture. We will actively encourage wider

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<sup>15</sup> [https://orr.gov.uk/\\_data/assets/pdf\\_file/0010/4996/crowding-position-statement.pdf](https://orr.gov.uk/_data/assets/pdf_file/0010/4996/crowding-position-statement.pdf)

<sup>16</sup> [https://orr.gov.uk/\\_data/assets/pdf\\_file/0009/10611/rig-2014-01-asbestos-exemption.pdf](https://orr.gov.uk/_data/assets/pdf_file/0009/10611/rig-2014-01-asbestos-exemption.pdf)

<sup>17</sup> <https://www.hse.gov.uk/stress/reporting-concern.htm>

participation in industry initiatives on suicide prevention and the Million Hours Challenge,<sup>18</sup> and industry work on managing traumatic incidents.

- 1.50 Use the opportunity during planned inspection, investigation and liaison activity in other areas to obtain updated intelligence on compliance on the management of noise, to inform our future planning.
- 1.51 Across our interventions on health, actively seek evidence that rail employers are routinely applying the hierarchy of risk control and health by design principles, so that there is less reliance on use of protective equipment as the last line of defence for rail workers.
- 1.52 Continue to provide adequate training and guidance to our visiting staff, particularly our trainee inspector and inspector assistants, on priority health risk areas to support consistent inspection and enforcement on health.
- 1.53 Keep under review, and where needed, develop our policy position in developing or emerging areas, for example on effluent and air quality, including those where passengers and the public could be affected.
- 1.54 On medical fitness for work, monitor, challenge and support industry efforts to improve the consistency of medical examinations under the train driver licensing regime. Provide targeted support, via RSSB and OHSAG, to improve the standards on medical fitness for work, and to develop rail-specific training for occupational health clinicians entering the sector.
- 1.55 Encourage industry to explore opportunities for shared occupational health service provision, learning for example from Network Rail's experience with 'one-stop-shop' health clinics near rail stations.

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<sup>18</sup> <https://millionhourchallenge.com/>

## Overview key health risk areas

Key risk areas	Background	Industry action	ORR action
Asbestos	Presence of legacy asbestos containing materials in railway buildings and infrastructure. Recent formal enforcement on mainline and heritage to secure compliance	Steady progress by Network Rail in delivering national Asbestos Management Programme (AMP) including asset surveys, management plans, removal, record keeping, and training. TfL completed extensive survey work to update its asbestos register.	Monitor and ensure delivery by NR against agreed AMP. Use routine inspection and liaison with heritage operators to reinforce our expectations on managing asbestos and the requirement in REACH exemption to consider reasonable opportunities for asbestos removal from heritage rolling stock which is to be placed on the market.
Respirable crystalline silica (RCS) dust	Widespread potential for RCS exposure not only in rail ballast handling but building and infrastructure maintenance. Evidence of potential for high exposures. From January 2020 RCS classed as carcinogen in EH40. Recent ORR enforcement for inadequate dust controls.	Clear recognition of potential risk with progress on mainline and TfL in control solutions including trials of dust suppressant additives, use water sprays, local exhaust ventilation, exclusion zones, and suitable RPE. More RCS health surveillance by larger employers but still some compliance gaps.	Seek assurance on implementation by Network Rail and their supply chain of revised standards and plant acceptance procedures for dust control on new ballast handling plant. Update inspector guidance on RCS.
Diesel engine exhaust emissions (DEEE)	Sustained level of concern from rail trade unions, and also lineside neighbours. Political interest in public health impacts of poor air quality. Recent formal enforcement action. Proposal for	Industry progress to reduce DEEE driven by RSSB's Clean Air Research Programme & 2020 GB Rail Strategic Framework on Air Quality. Evidence of duty holder willingness to collaborate at major stations, with technical controls on platforms and on trains, and	Targeted interventions on DEEE control at enclosed locations (e.g. tunnels, enclosed stations, and maintenance depots). Monitor industry activity, research and strategic commitments on improving air quality, and

Key risk areas	Background	Industry action	ORR action
	new WEL for elemental carbon in DEEE 2020/21	tightening of train idling policies. Good technical progress on retro fitting emission reduction to existing diesel trains.	intervene where we judge we can add value
Welding fume	2019 saw tightening of enforcement expectations for mild steel welding, based on new evidence. January 2020 reduced WEL for chromium VI in stainless steel welding fume. Mainly outdoors in planned rail maintenance and renewals jobs, but significant change needed to historic working practice including exhaust ventilation, suitable RPE, segregation, training and respiratory health surveillance	Evidence that industry recognises the challenge and updating their standards and procedures in line with HSE guidance. Need for better understanding of exposure levels for different welding tasks, and for reasonable practicability of engineering controls particularly in tunnels	Targeted inspection on welding tasks including enclosed locations (e.g. tunnels and sub-surface lines, workshops, depots, stations) with focus on effective risk control rather than assessment of individual exposures
Hand arm vibration	HAVS diagnoses continue to dominate RIDDOR diseases reported to ORR with worsening cases of particular concern. Recent ORR enforcement for inadequate risk control	High level of HAVS reporting reflects much-needed improvements on the mainline in the arrangements for detecting and reporting HAVS diagnoses. Steady progress by rail employers in procuring lower vibration tools, tool tagging and maintenance, understanding and limiting time on tools, but compliance still patchy	Follow up of worsening HAVS diagnoses to obtain assurance of robust review of HAV risk controls for the individual and others doing similar tasks. Continue to monitor HAVS health surveillance compliance by Network Rail to prevent disease progression
Microbiological hazards	Potential risk to public health from failure to properly manage legionella bacteria in rail industry	Despite some good practice, this is an area where industry could do more. Recent ORR inspection of	This area will continue to receive ORR attention through targeted investigation and routine liaison

Key risk areas	Background	Industry action	ORR action
	water systems. Trade union and worker concerns about continued discharge of effluent from trains without retention tanks and risks to workers cleaning train under-frames. 2019 research for ORR identified potential risk from inhalation and skin contact to workers maintaining contaminated trains	legionella management in train maintenance depots identified some gaps in monitoring and assurance arrangements to ensure required controls actually delivered. Network Rail and mainline operators, including charter operators, working towards fitment of controlled emission toilets by 2023	with train operators. We will continue to work with the industry towards the 2023 goal and will update our published position paper on effluent.
Mental health	Major driver of sickness absence and referrals to occupational health services. Suicide among rail workers is an issue. Concern for rail trade unions, particularly in current period of uncertainty around organisational change. Range of occupational and personal issues contribute. Some limited evidence of upturn in reported shock/trauma incidents	Rail employers recognise the impact on productivity and engagement and are incentivised to tackle it on efficiency grounds. The industry is developing research, tools and guidance to support employers to improve post incident trauma and chain of care, keep colleagues in work, and on the effectiveness of line manager training on mental health. Strong industry commitment to anti-stigma campaigns and suicide prevention	ORR will continue to visibly champion initiatives to improve mental health at senior level across the industry, recognising that supporting our people is key to unlocking major improvements in health and safety culture. We will align our approach on the investigation of work related stress complaint with HSE's published position <sup>16</sup>
Musculoskeletal disorders	Major driver of sickness absence and referrals to occupational health services. Mainline data suggests improving trend in manual handling injuries, despite an ageing workforce. Significant ORR inspection and enforcement	Rail employers are actively engaged in reducing MSD risk with evidence of investment in early physiotherapy reducing absence and delivering overall cost savings. Increasing focus on health by design with NR's	In addition to a focus on HAVS, we will continue to monitor industry performance and duty holder management of MSD risks as part of business as usual activity, taking opportunities to review controls for higher risk



Key risk areas	Background	Industry action	ORR action
	in recent years, particularly on manual handling risk, has focused industry attention	national MSD programme delivering much needed solutions to manual handling of heavy and awkward loads. Extensive practical guidance from RSSB on designing out health risks	manual handling tasks during inspections.
Noise	Limited data on scale of challenge: noise induced hearing loss (NIHL) not RIDDOR reportable. Available data on industrial injuries claims and NR Annual Return do not suggest major problem. But remain concerns from rail trade unions and known potential for high exposures	ORR's strategic focus on occupational health, including HAVS, dust and fume, has resulted in better compliance on noise e.g. lower vibration tools are usually quieter too. Noise emissions are covered in EN design standards for new rail plant and equipment, and recent work with NR to include health in standards and product acceptance procedures, should help to drive procurement of quieter machinery	We will seek opportunities in our interventions in other areas to build our evidence base on compliance with legal requirements on noise, to inform future planning. We will continue to review trends in available data
Medical fitness	ORR's 2016 audit of Recognised Doctors for train driver licensing identified weaknesses in the governance arrangements at the time, and recommended the development of audit protocols and a delivery plan for periodic audits. We are keen to see progress in this area, including embedding audits of medical examinations carried out under	Industry recognises that further work is needed to ensure consistent application of the train driver licensing medical standards. There are concerns across the industry about maintaining a sufficient number of competent occupational health practitioners within the sector, and	In addition to our statutory duties under TDLCR 2010, we will support industry efforts to improve the current standards on medical fitness for work, and to develop rail-specific training for occupational health clinicians.  Where relevant we will consider arrangements for managing medical fitness for work in the

Key risk areas	Background	Industry action	ORR action
	TDLCR 2010 within its RISQS supplier assurance regime	providing good quality rail specific training to attract new entrants	investigation of safety and operational incidents. This may include consideration of effective drug and alcohol policies, including systems for random testing and for cause analysis.

## Annex A: Glossary

ASLEF	Associated Society of Locomotive Engineers and Firemen
ATP	Accessible Travel Policy
DEEE	Diesel Engine Exhaust Emissions
FWI	Fatality and Weighted Injury
HAVS	Hand Arm Vibration Syndrome
HRA	Heritage Rail Association
HSE	Health and Safety Executive
HWPG	Health and Wellbeing Policy Group
LHSBR	Leading Health and Safety on Britain's Railways
MSDs	Musculoskeletal Disorders
NIHL	Noise Induced Hearing Loss
OHPs	Occupational Health Providers
OHSAG	Occupational Health Specialist Advisory Group
ONS	Office for National Statistics
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulations 2007
RISQS	Rail Industry Supplier Qualification Scheme
RPE	Respiratory Protective Equipment
RIDDOR	Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013
RM3	Risk Management Maturity Model
RSSB	Rail Safety & Standards Board
TfL	Transport for London
TDLCR	Train Driver Licenses and Certificates Regulations 2010
UNITE	UNITE the union

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