Worker Health

What does legislation require?

- **Identify and assess risks to worker health**
- **Select and implement controls for risks to worker health**
- **Develop a Worker Health control plan for worker health Recommended only for quarries and alluvials)**

At the very least the HSAW Act requires all sites to manage risks to health

What risks to worker health are we talking about?

Regulation 108

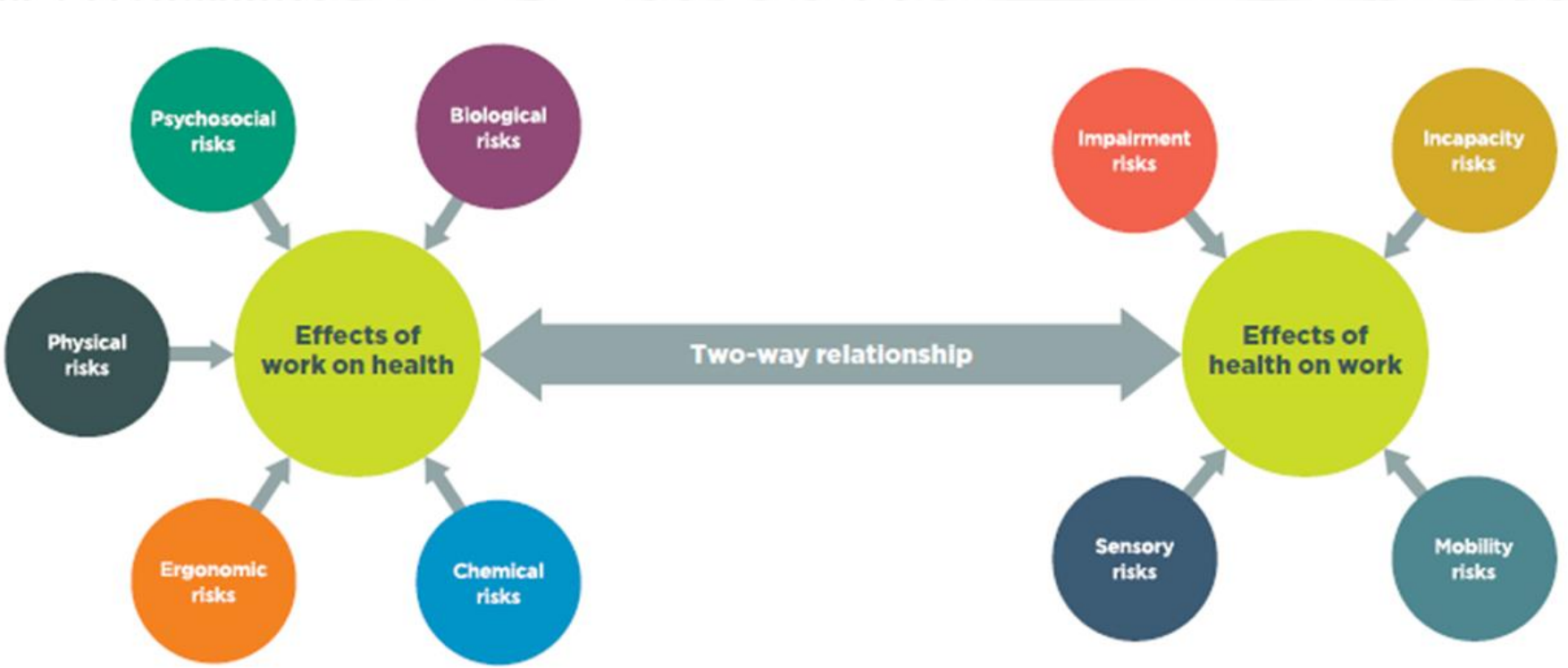
- **Noise**
- **Vibration**
- **Dust, including asbestos dust, coal dust, silica dust, or mixed dust (being dust that contains mixtures of more than one different kind of dust)**
- **Diesel particulates**
- **Fumes, including exhaust fumes, welding fumes and other fumes arising from metallic sources**
- **Temperature, including extreme hot and cold temperatures, and humidity**
- **Changes in atmospheric pressure**
- **Manual handling and lifting**
- **Hours of work and fatigue**
- **Psychosocial hazards**
- **Ultraviolet radiation**
- **Ionising radiation**
- **Biological hazards**

What risks to worker health are we talking about?

Any other hazard that may adversely affect the health of mine workers who work at the mining operation, such as:

- **hazardous substances (eg solvents, processing chemicals)**
- **hazardous fauna (eg wasps)**
- **pressure injection injuries**
- **heavy metals**

Risk assessments need to consider both effects



Noise

Sources of high noise exposure

- **Blasting - sirens, stemming, mixing, transporting**
- **Drilling - exploration, blast holes**
- **Compressors**
- **Fixed plant - crushers, trommels, screens, conveyors, pumps**
- **Workshops - hoists, cranes, fans, pressor cleaners**
- **Hand tools - angle grinders, drills, power tools**
- **Mobile machinery - loaders, excavators, trucks, bulldozers**
- **Any area where voices have to be raised too be heard by someone one metre away**

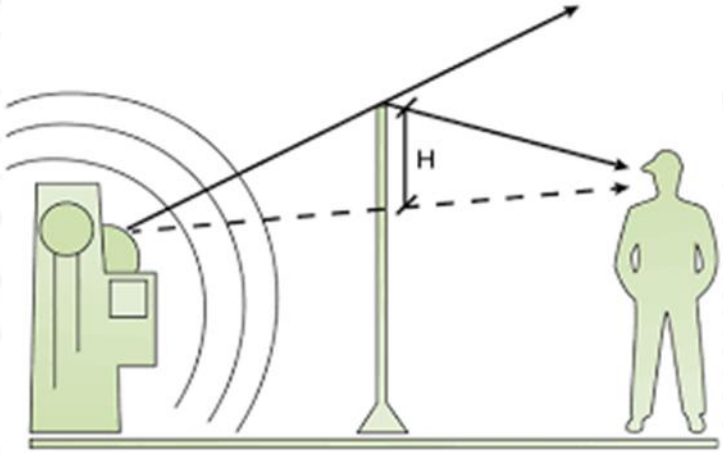
Noise exposure limits

- **Noise exposure level, LAeq.8h of 85 dB(A)**
- **Peak noise level, Lpeak, of 140 dB**

Once you lose your hearing you won't get it back!!

Noise controls

- **Eliminating noise exposure**
- **Isolating noise from workers, or workers from noise**
- **Replace with quiet alternatives**
- **Fit silencers (eg mufflers)**
- **Provide acoustic barriers**
- **Appropriate PPE**



Noise health monitoring

- **Where limits exceeded, annual audiometric testing of workers**
- **Testing conducted to AS/NZ 1269 series**

See the Approved Document of Practice for the Management of Noise in the Workplace

Vibration

Whole body vibration can cause

- Lower back pain
- Neck and shoulder problems
- Herniated discs
- Early spine degeneration

and may also contribute to

- Digestive problems
- Reproductive organ damage
- Impairment of vision, balance or both
- Cardiovascular, respiratory, neurological, endocrine and metabolic changes

Sources of high exposure to whole body vibration

- **Excavators less than 25 tonnes**
- **Rigid dump trucks**
- **Front end loaders**
- **Graders**
- **Dozers - especially ripping**
- **Scrapers**
- **Articulated dump trucks**

Monitoring vibration

- **Encourage workers to report pain and/or discomfort**
- **Observe during workplace inspections**
- **Regular checks for vibration during**
- **maintenance**

- **Assessment can be carried out by a qualified ergonomist or human factors professional**

Vibration controls

- Vehicle suspension appropriate for load
- Good seat design and suspension, fully adjustable (ISO 7096)
- Cab suitable for size and reach of operator
- Improved visibility from cab, especially at night
- Use vehicles that are fit for purpose
- Maintain roads in good condition
- Regular maintenance on vehicles
- Operator training and awareness
- Limit time workers are exposed to vibration

Airborne contaminants

Sources of airborne contaminants

- **Dust, including respirable crystalline silica**
- **Diesel engine emissions**
- **Gases**
- **Welding fumes**
- **Blasting fumes**
- **Vapors and mists (incl those containing legionella)**
- **Asbestos, both naturally occurring and man-made**

Air Quality in the Extractives Industry (ACOP)

Recommends that quarries and alluvials have an Air Quality Management Plan that details:

- **types of dust and contaminants in the air**
- **amount and length of exposure**
- **monitoring of air quality**
- **control and suppression of dust and other contaminants**
- **circumstances and requirements for its periodic review and revision**
- **auditing programme**

Exposure monitoring and health monitoring

Requirements of primary duty of care under HSAW Act:

- ***Exposure Monitoring*** **- to determine whether the concentration of a substance hazardous to health at the workplace, exceeds the relevant prescribed exposure standard**

- ***Health Monitoring*** **- to ensure that the controls in pace are effective, and that airborne contaminants are not causing adverse effect on the health of workers**

Respiratory health questionnaire

Personal Details of Person Investigated

1. Surname
2. Given Names
3. Home Address
4. Telephone Numbers Home:
   Work:
5. Date of Birth?
6. Gender Male ☐ Female ☐
7. Ethnic Origin? European ☐
   Maori ☐
   Pacific Island ☐
   Other ☐
   If other please specify below
8. Name and Address of Family Doctor?
9. **Occupational History**

   Current Employment

   Who do you work for?

   How long have you worked in this industry?

   How long as a minor/quarryman

   If you have had previous employment as a minor/quarryman, where?

   How long?

   Daily Exposure – What is your average daily exposure?

   Very Little ☐ About half a Day ☐ All day ☐
10. **Smoking**

    Have you every smoked for as long as a year? Yes ☐ No ☐

    At what age did you begin smoking?

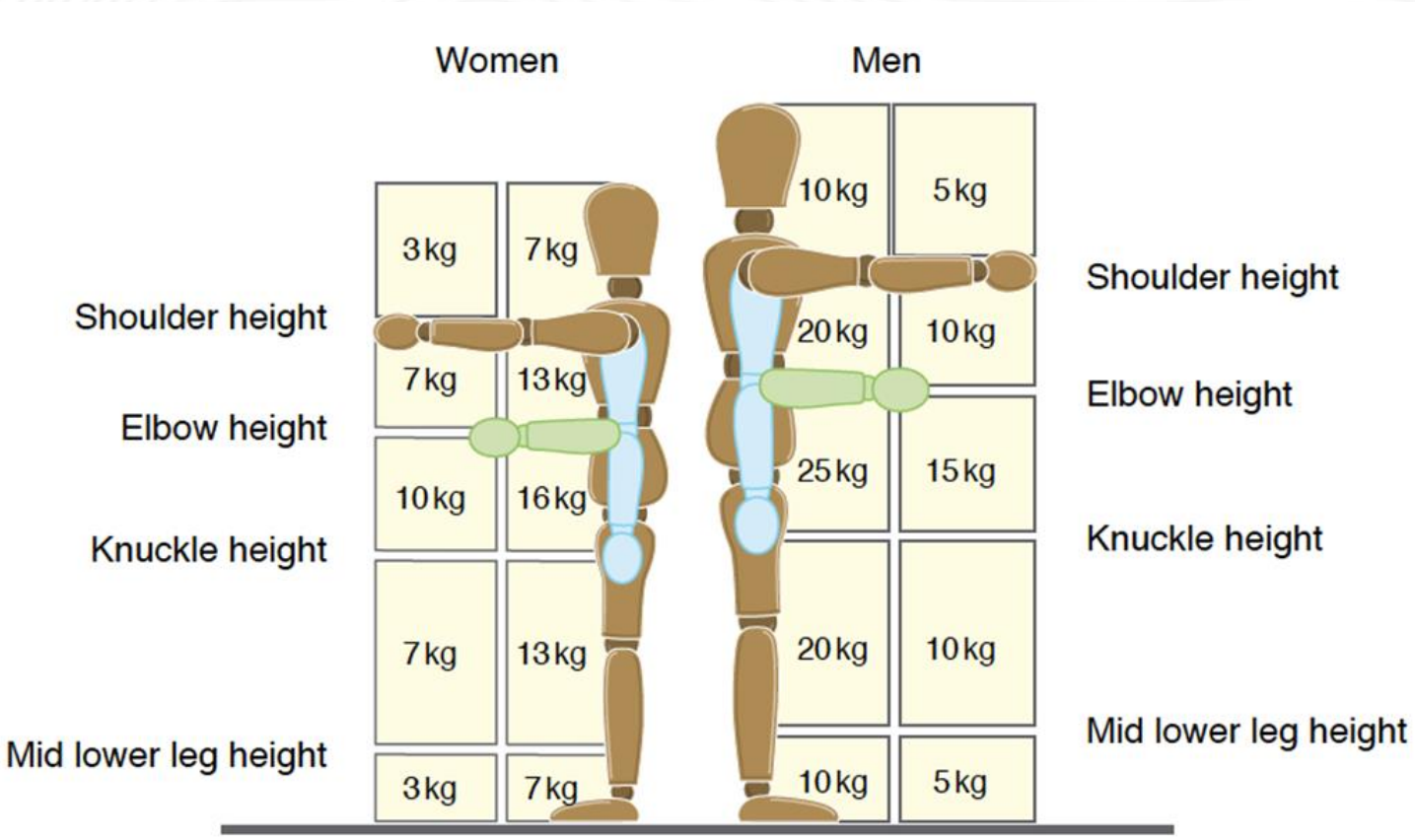
    On average, how many cigarettes did you/do you smoke each day?

    If you no longer smoke, how old were you when you stopped smoking?

Silica dust control plan

Task/Area		Control methods	Comments
Cutting Sandstone	Excavator With saw	• Restrict access to work area. • Ensure door and window seals are working regularly • Keep cabin clean (Vacuum regularly) • Check filters and air conditioning • Wait 20 seconds before opening door once machine turned off. • NOTE: Sharp tools generate less dust than blunt tools or draw bits	
	Wire saw	• Restrict access to work area. • Operator to wear air stream helmet if exposure exceeds 30 minutes • P2 respirator if exposure less than 30 mins in any one day.	
Cutting shed	Saws	• Restrict access to work area. • Ensure water available to all saws • P2 Respirators •	
	Stone masonry work	• Restrict access to work area • Operator to wear air stream helmet	
Amenities		• Wet wipe/mop any surfaces or use vacuum regularly (Do not sweep office floors) • Keep doors and windows clean • Check air conditioning filters weekly • Do not sweep office floors. Use heavy duty vacuum or wet mop. • Workers should be able to wash and shower at the end of each shift, or alternatively should remove dusty clothing prior to leaving site.	
Haul Roads		• Construct haul roads using suitable material • Water haul roads (sprays or water cart) • Restrict movement of light vehicles and pedestrians • Locate amenities away from haul roads • Dedicated light and heavy vehicle parking areas • Speed limit control •	
Loading areas		• Water loading areas (sprays or water cart) • Restrict movement of light vehicles and pedestrians • Locate amenities away from loading areas • Dedicated light and heavy vehicle parking areas	

Manual handling



Exposure to manual handling injuries

- **Repetitive tasks (eg shovelling)**
- **Lifting heavy loads (eg vehicle maintenance)**
- **Handling shifting loads (eg liquids)**
- **Handling awkward loads (eg screens)**
- **Handling when not in an upright position (eg working under vehicles)**

Manual handling controls

- Use mechanical assist devices
- Reduce weight being handled
- Handle objects close to the body
- Ensure work is performed in an upright position
- Use good lifting techniques
- Good housekeeping (uncluttered work areas)
- Manual handling training for workers
- Ergonomic assessment of tasks as appropriate

Fitness for work

General principles

- The person in charge must ensure a worker or visitor is not exposed to hazards and accordingly must ensure he/she is **fit for the work** to be carried out loads (eg liquids)
- Every worker must ensure they do not put themselves or others at risk of injury or illness by ensuring he/she is **fit for the work** to be carried out loads (eg screens)
- No worker is to carry out operations, or enter an operating part of a mine, if the person is under the **influence of alcohol, or impaired by drugs** when not in an upright position (eg working under vehicles)

Fitness for work is affected by

- **External influences (worker activities outside of work, drugs and alcohol, recreational activities)**
- **Work health hazards (dust, heat, fatigue, hazardous substances)**

Both will require identification and management of worker behaviour and the work environment.

"IF IT LOOKS LIKE A DUCK, IT PROBABLY IS A DUCK"

Facts

- **Est 3200 people die in Australia annually (est 800 in NZ) as a result of excessive alcohol. This is 9 per day, 21/2 times the road death toll. 81,000 are hospitalised annually**
- **1.46 million Australians consume alcohol on a daily basis. Australia is the world's 19th largest consumer of alcohol (NZ 31st) at 34 litres per person p.a. (NZ 25lt per person p.a.)**
- **40% of Australians admit to having tried illicit drugs (In NZ it is 49%)**
- **15% of Australians admit to taking illicit drugs (NZ 16.6%) and 18% of these admit to driving under the influence of drugs (33% in NZ)**
- **25% of Australians suffer from some level of mental illness (commonly anxiety, depression or substance-use disorders). Similar results in NZ Good housekeeping (uncluttered work areas)**
- **Being awake for 17 hours impairs performance to the same level as the legal blood alcohol level**

How are you addressing drugs and alcohol?

- **Drugs include illicit, prescription, over-the counter**
- **Testing??? (don't get bogged down in process)**
- **Mental illness**
- **General illness**

Mental illness

- **Most commonly anxiety and depression**
- **Workers suffering anxiety or depression will take on average 3 - 4 days extra sick leave per month, than other workers**
- **Need to identify the signs**
- **Have support mechanisms**

Behaviour demonstrated by workers suffering mental illness

- **Turning up to work late**
- **Finding it hard to meet reasonable deadlines**
- **Withdrawing from colleagues**
- **Relying on alcohol and sedatives**
- **Taking excessive sick leave**
- **Having difficulty concentrating or managing multiple demands**

What can you do if someone is not fit to work

- **Deny them access to the site. You have the right without needing to justify it**
- **Make your policies clear when employing, during training and at induction**
- **Be fair and consistent**
- **Provide support**

Observation and supervision are the key

- **You know your people, their background, culture, out of work activities**
- **Open, consultative environment will enhance communication**
- **Encourage positive peer pressure**
- **Supervise, supervise, supervise!!!!**

Hazardous substances

Hazardous substances include

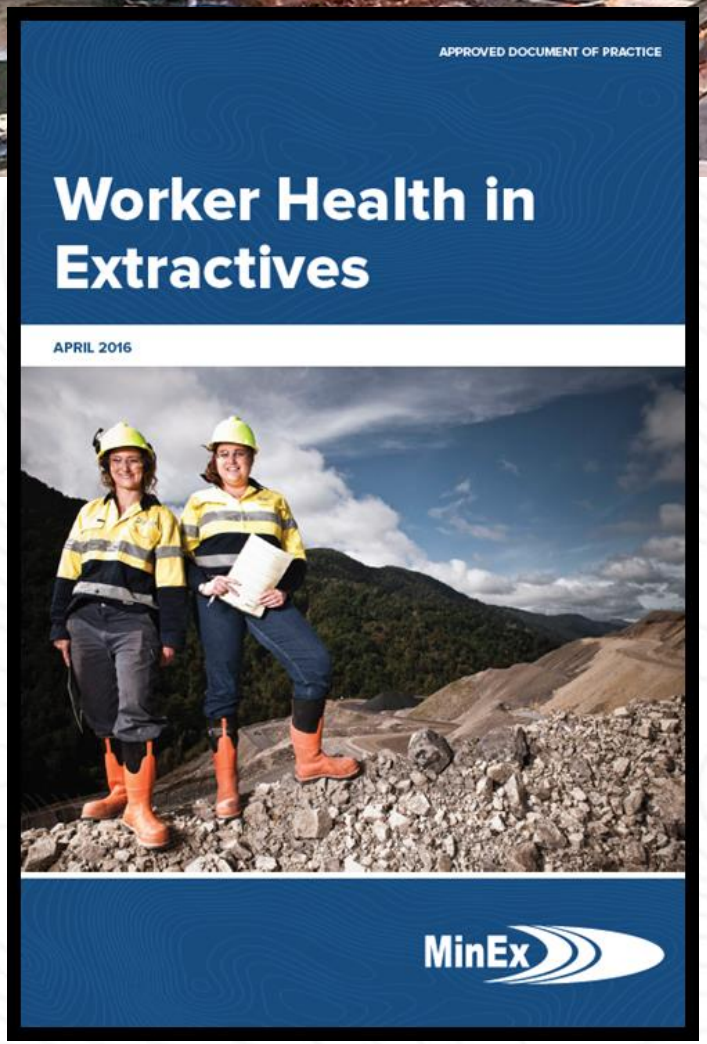
- Explosives and detonators
- Compressed gases
- Cyanide
- Lead
- Mercury
- Acids
- Resins (eg polyurethane resins)
- Paints and solvents
- Petrol, diesel and liquefied petroleum gas (LPG)

Five steps to managing hazardous substances

1. ***Prepare an inventory*** **- List all hazardous substances at your workplace**
2. ***Assess the risks*** **- Use SDS to consider staff exposure**
3. ***Use and store safely*** **- Train workers and provide suitable PPE**
4. ***Get ready for an emergency*** **- Emergency response plan**
5. ***Key HSNO controls*** **- Signs**
   - Approved handlers
   - Secondary containment (spills)
   - Fire Extinguishers

Health and Safety at Work (Hazardous Substances) Regulations 2017

From December 1 2017



Wayne Scott

wayne@minex.org.nz
mobile: 021 944 336