



**Chapter 6:
Personal Protective Equipment**

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Purpose

The purpose of this chapter is to define the types and standards of Personal Protective Equipment that are provided to all employees.

Objectives

The objectives are to:

- Provide information on the standards that apply to Personal Protective Equipment.
- Provide information on the rules that apply to the use and care of Personal Protective Equipment.
- To define when Personal Protective Equipment must be worn if not mandatory at all times.
- To ensure that proper maintenance and inspection of PPE is conducted.

Special Terms

CSA..... CANADIAN STANDARDS ASSOCIATION
MSDS MATERIAL SAFETY DATA SHEET
OH&S. OCCUPATIONAL HEALTH & SAFETY
PPE..... PERSONAL PROTECTIVE EQUIPMENT

6.1 Policy of Personal Protective Equipment

Purpose:

The purpose of this Policy is to minimize injuries and ensure the health and safety of the employees and general public by utilizing Personal Protective Equipment.

Policy:

It is the Policy to have all employees and visitors utilize the appropriate Personal Protective Equipment as follows:

1. Employees and authorized visitors will wear hard hats, CSA approved construction grade 1 steel toed boots, and full reflective safety vests when visiting the shop or the yard at WGS and WGS worksites.
2. Employees will wear dust masks, hearing protection, safety belts and lanyards, face and skin protection, safety glasses, and other PPE as deemed required by the hazard assessment at designated worksites.
3. Employees must inspect and maintain their PPE as per training and manufactures specifications.

The Company will supply Personal Protective Equipment required by an employee as outlined in this section of the HSE Manual, and will conform with Occupational Health & Safety Regulations and Best Management Practices.

The safety information in this Policy does not take precedence over Occupational Health & Safety Regulations. All employees should be familiar with the OH&S Act, Regulations, and Code.

Bill Turner – Vice President / General Manager
December 1, 2010

6.2 Head Protection

Information Sheet

General Information

When there is a foreseeable danger of injury to a workers head at a worksite and there is a significant possibility of lateral impact to the head, this company will ensure that the worker wears industrial protective head gear that is appropriate to the hazards and meets the applicable legislative requirements. If the possibility of lateral impact to the head is unlikely, the worker will wear industrial protective headwear that is appropriate to the hazard.

Safety head wear is designed to protect the head from impact of falling objects, bumps, splashes from chemicals or harmful substances, and contact with energized objects and equipment.

In construction, the recommended type of protective head-wear is the Class B hard hat which has the required 'dielectric strength'.

There are many designs of hard hats; however, they all must meet the CSA or ANSI Standards:

**CSA Z94.1-05 – or most current Industrial Protective Headwear,
ANSI Z89.1-2003 –or most current American National Standard for
Industrial Head Protection (if the protective headwear was
manufactured on or after July 1, 2009).**

Head protection is made up of two parts:

- The Shell (light and rigid to deflect blows)
- The Suspension (to absorb and distribute the energy of the blow)

Both parts of the head wear must be compatible and maintained according to manufacturer's specifications. If attachments are used with head wear, they must be designed specifically for use with the specific head wear used. Bump caps are not considered a helmet. In Alberta, they can be used when the only hazard is where a worker might strike his/her head against a stationary object. (Ex. mechanic working in or under vehicles in the shop).

Inspection and Maintenance

Proper care is required for head gear to perform efficiently. The service life is affected by many factors including storage, temperature, chemicals, sunlight and ultraviolet radiation (welding). The usual maintenance for head gear is simply washing with a mild detergent and rinsing thoroughly. Instructions for inspection and maintenance are also located on the outside of the bag the hard hat is provided in and recommend for best storage to keep it inside that bag when not in use.

DO:

- Replace head gear that is pitted, holed, cracked or brittle.
- Replace head gear that has been ***subjected*** to a blow even though damage cannot be seen.
- Remove from service any head gear if its serviceability is in doubt.
- Replace head gear and components according to manufacturer's instructions.
- Consult OH&S or your supplier for information on head gear.

DON'T:

- Drill, remove peaks, alter the shell or suspension in any way, or wear backwards.
- Use solvents or paints on the shells (makes shells 'break down').
- Put chin straps over the brims of Class B head gear.
- Use any liner that contains metal or conductive material.
- Carry anything in the hard hat while wearing it (dust masks being an exception).

6.3 Foot Protection

Information Sheet

General Information

Safety footwear is designed to protect feet against a wide variety of injuries. Impact, compression and puncture are the most common types of foot injury.

In the 5 year period 2002 – 2007, injuries to one foot or feet accounted for more than 11% of the lost time claims and averaging approximately 38 days in duration per claim.

Occupational Health & Safety Regulations require footwear to meet the following standards:

**CSA Standard CAN/CSA-Z195-02/most current or
ASTM Standard F2413-05 or most current Specification for
Performance Requirements for Protective Footwear.**

Symbols on Footwear:

Grade I – Withstand 125 Joules, or 93 ft. lbs.: a 50 lb. weight dropped from a height of 22 inches.

Grade II – Withstand 90 joules, or 65 ft. lbs.: a 50 lb. weight dropped from a height 16 inches.

Grade III – Withstand 60 joules, or a 45ft. lbs.: a 50 lb. weight dropped from a height of 10.5 inches.

Electric Shock Resistant Footwear – Carries this CSA marking tag. Use where this is a danger of high voltage.

CSV Triangle – Use where there is a danger of punctures.

Grade I for construction service is identified by a green CSA tag sewn into the boot

A minimum 6” high cut boot provides the maximum support against ankle injuries. Boots must be kept laced up to be effective.

CSA approved running shoes are not acceptable where there is a high hazard for ankle injuries deemed by the hazard assessment.

6.4 Skin Protection

General Information

Full length pants and a sleeved shirt are required for protection from the sun. A protective Sun Block lotion is recommended for any areas of skin that may be exposed to the sun.

Should a hazard be deemed to a workers skin due to a harmful substance that may injure the skin on contact or may adversely affect a worker's health if it is absorbed through the skin, WGS will ensure that the worker is provided with appropriate PPE.

6.5 Eye and Face Protection

Information Sheet

General Information

Eye and Face Personal Protective Equipment (PPE) is designed to protect the worker from such hazards as:

- Small particles (sand, rock) and objects that can injure your eye(s)
- Hot or molten bits of metal that can burn your eyes
- Chemicals that can burn delicate eye tissue
- Bright lights from welding arcs can burn the optic nerve in your eyes

This PPE has two types:

1. Basic Eye Protection
 - goggles
 - Mono-frame eyewear with dust protection
 - CSA approved eyewear, prescription eyewear is provided by the HSE Department.
2. Face Protection
 - Metal mesh face shields for radiant heat or hot and humid conditions
 - Chemical and impact resistant (plastic) face shields
 - Welders' shields or helmets with specified cover
 - Filter plates and lens

Hardened glass prescription lens and sport glasses are not a substitute for proper, required industrial safety eye protection.

Choose eye protection that fits you well. Your workday will be more productive, less hazardous, and hassle free when your eyewear is comfortable. Lens coatings, venting or fittings may be needed to prevent fogging or to fit with regular prescription eyeglasses. Always ensure it gives the protection needed for the job being done.

Contact Lenses: do not provide eye protection. Seek advice and directions from the safety coordinator and your eye doctor regarding the use of contact lenses in the

workplace. Many worksites have loose particles, posing a danger, as well as gases or vapors at a work site can be absorbed by the lenses and then harm the eyes.

Basic eye protection should be worn with face shields. Face shields alone often are not enough to fully protect the eyes from work hazards. When eye and face protection are required, OH&S regulations as a minimum, Material Safety Data Sheet, (MSDS) or your supplier will help in your selection.

Lenses: Must meet CSA standards. These lenses are stronger than regular lenses and impact resistant.

Lens Marking: The manufacturer's logo is marked on all approved safety lenses.

Frames: Safety frames are stronger than regular frames and are often heat resistant. They prevent lenses from being pushed into your eyes.

Frame Imprint: All CSA certified safety frames are imprinted and may have the CSA logo as well.

For more information, look at:

 CSA Standard "Industrial Eye and Face Protectors"

Note:

Prescription eyewear may be worn if it is safety eyewear and complies with *the above standards*. Prescription safety eyewear having glass lenses must not be used unless it is worn behind safety glasses that meet the above listed standards. If wearing contact lenses poses a hazard to the workers eyes during work, the worker will be advised of the hazards and the alternatives to wearing contact lenses

DO:

- Ensure your eye protection fits properly (close to face).
- Clean safety glasses as required. Plastic lenses should be washed with soap and water only to minimize scratching.
- Store safety glasses in a safe, clean, dry place away from sunlight when not in use.
- Replace pitted, scratched, bent and poorly fitting PPE (damaged face/eye protection interferes with vision and will not provide the protection it was designed to deliver).

DON'T:

- Modify eye/face protection.
- Use eye/face protection which does not have a CSA certification (CSA stamp for safety glasses is usually on the frame inside the temple near the hinges of the glasses)

Eye Protection for Welders and welders helper(s)

Welders and welders' helpers must also wear the prescribed equipment. Anyone else working in the area should also wear protection when there is a chance they could be exposed to a flash.

Welders must wear the appropriate shade of lenses for the type of work being performed.

Recommended shades for lenses are:

- Light cutting using Oxygen Acetylene 4-6
- Heavy cutting using Oxygen Acetylene 6
- Arc Welding 12-14
- Mig/Tig Welding 14

Welders must wear safety glasses under welding shields, to provide protection if chipping or hammering with the welding hood up.

New automatic changing welding lenses are appropriate. Individual shade settings can be selected from a range of 9 to 14 by the welder for the type of work he/she is doing.

6.6 Safety Glasses Policy

Purpose

To prevent and eliminate all potential risks of eye injury or irritation by utilizing safety glasses.

Scope

This policy shall apply to all company employees and subcontractors working for Wapiti Gravel Suppliers.

Policy

It is the policy of Wapiti Gravel Suppliers that safety glasses be worn in the following situations:

1. Using power tools such as cut-off saws and drills.
2. Pounding metal pins or using hammer and punch or chisel.
3. Situations (grinding, hammering, gouging, etc.) where materials can splash or enter the eye.
4. Any situation where there is danger or risk of eye injury or irritation.

The company will supply both clear and/or tinted safety glasses for all employees that meet the CSA Standard CAN/CSA-Z94.3-07 at a minimum. Employees can purchase, at their own expense, other models of safety glasses, but the glasses must meet the above noted standard.

The safety information in this policy does not take precedence over the Occupational Health & Safety Regulations. All employees should be familiar with the OH&S Act, Regulation, and Code.

Bill Turner – President / General Manager
December 1, 2010

6.7 Body Protection

When there is a danger that the workers hand, arm, leg or torso may be injured, this company will ensure that the worker wears properly fitting hand, arm, leg or body protective equipment that is appropriate to the:

- Work
- Worksite, and the
- Hazards identified

The skin will be protected from harmful substances that may injure the skin on contact or may adversely affect the workers' health if it is absorbed through the skin.

6.8 Respirator Code of Practice

This code of practice identifies the Wapiti Gravel Suppliers procedure for the selective use, servicing and maintenance of respiratory protective equipment. This policy shall comply with section 244 to 255 of part 18 of the Albert's OH&S code.

Definitions

The following definitions apply in this code of practice.

Airline Respirator is a respirator consisting of a full-face piece, hood, or helmet, to which breathable air is supplied through a small diameter hose.

Chemical Cartridge Respirator is an air purifying respirator designed to protect against low concentrations of vapors, acid and alkaline gases, mercury vapors, pesticides, and combinations of these contaminants, provided that the appropriate chemical cartridge and or filter is used.

Dust Solids are mechanically procured particles of filters.

Fumes are solid particles generated by condensation from the gaseous state generally after volatilization from melted substances (e.g. welding) and often accompanied by a chemical reaction, such as oxidation.

Gases are substances that are in the gaseous state at the ambient temperature and pressure.

High-Efficiency Particulate Air Filter (HEPA) is a filter that has been tested to assure efficiency is equal to or exceeding 99.97% for removal of particulates having a mean aerodynamic diameter of 0.3 μm from the air

Immediately Dangerous to Life or Health (IDLH) a condition in any worksite, space, or area where a hazardous atmosphere exists to such an extent that a person without appropriate respiratory protection could be fatally injured or suffer immediate, irreversible, or incapacitating health effects.

Particulate Filter Respirator protects against airborne particulate matter with dusts, mists, metal fumes and smokes.

mg/m³ means milligrams of air contaminate per cubic meter of air.

Occupational exposure limits (OEL) represents airborne concentrations of substances under which it is believed that nearly all workers may be repeatedly exposed without adverse effect.

8-hour OEL's represent the time-weighted average concentration for an 8 hour workday and a 40 hour workweek, to which nearly all workers may be repeatedly exposed, day after day, without adverse effect.

STEL (short-Term Exposure Limit) is defined as a 15-minute TWA exposure, which should not be exceeded at any time during a workday, even if the 8hour TWA is within the TLV-TWA. Exposures above the TLV-TWA up to the STEL should not be longer than 15 minutes and should not occur more than four (4) times per day. There should be at least 60 minutes between successive exposures in this range.

Threshold Limit Value – Ceilings (TLV-C) is the concentration that should not be exceeded during any part of the working exposure.

Oxygen deficiency is an atmosphere containing less than 19.5% oxygen.

Ppm refers to the concentration of a gas or vapor in the air, and indicates the volume present per million volumes of air.

Self-Contained Breathing Apparatus (SCBA) provides respiratory protection in oxygen-deficient environments and in situations where high or unknown concentrations of toxic gases, vapors, or particulates are present.

Vapors refer to the gaseous state of a material that is solid or liquid at normal temperature.

Components of a Respirator Program

A respirator program consists of four basic components:

- Air sampling assesses the concentration of contaminants. It determines whether a particular job requires respiratory protection and the level of respiratory protection required.
- Fit testing ensures that the respirator wearer can obtain a proper seal between his/her face and the respirator. Clean shaved face required.
- Cleaning and maintenance of respirators ensures that the respirator retains its original effectiveness.
- Worker training ensures that personnel are aware of the proper use of various respirators and their limitations.

Responsibilities

The HSE Department will coordinator the respirator policy. HSE personnel can be contacted at (780)-532-1790 extension 2130 or 2131. On cell at line (780)-832-8672 or (780)-512-6789 and is responsible for ensuring that:

- An adequate supply of respirators, cartridges, filters, breathing air, etc. Is readily available.
- Each employee who will be wearing a respirator is quantitatively fit tested.
- The required hands-on training is provided.

- Adequate records are kept on employee training and equipment maintenance. (Employee safety training records are maintained by the HSE department)
- Identifying the jobs/tasks/operations that require respiratory protection or upgrading of respiratory protection.

An employee's supervisor is responsible for ensuring that:

- The employee has read and understood the requirements of this code of practice.
- The employee observes the requirements of this code of practice including annual fit testing.
- The employee knows how to fit test a respirator and has hands-on training.
- The proper respiratory protective equipment is worn by the employee for work requiring respiratory protection.
- The employee is informed of any changes or additions to this code or practice.
- The employee has received the required training.

The employee is responsible for:

- Knowing and observing all instructions and regulations concerning respiratory protective equipment in this code of practice.
- Using the respirator equipment that is appropriate for the hazard.
- Positive/Negative leak test prior to use.
- Inspecting and storing respirators properly.
- **Must be clean shaven at all times.**
- Reporting any defective equipment.
- Performing hazard assessment before performing a RPE required task.

Respirator Selection Criteria

Hazard Identification

A hazard assessment shall become completed by a competent worker in respect to respiratory protective equipment, and reviewed with the work group before the job task can begin.

Respiratory hazards must be identified and evaluated, and the measured concentrations must be compared to the pertinent Occupational Exposure Limits. Air sampling and analysis must be carried out to determine the time-weighted average concentration and the ceiling concentration of the respiratory hazard to which a person may be exposed. Respirator protective equipment shall be selected in accordance with CSA standard Z94.9-02, *selection, use and care of respirators*.

Respiratory Approval

Only respirators approved by the Mine Safety and Health Administration (MSHA) or the National Institute for Occupational Health and Safety (NIOSH) will be used.

Respirator Classification

Respirators are classified according to their mode of operation

- Atmosphere Supplying Respirators
 - Self-Contained Breathing Apparatus
 - Supplied Air Breathing Apparatus

Atmosphere-supplying respirators provide protection against oxygen deficient and toxic atmospheres. The breathing atmosphere is independent of atmospheric conditions. No protection is provided against skin irritation or against absorption through skin. The use of atmosphere-supplying respirators in IDLH atmospheres is limited to specific devices under specific conditions.

- Air Purifying Respirators
 - Gas and Vapor Removing
 - Particulate Removing
 - Combination Gas, Vapor, and Particulate Removing

Nature or Respiratory Hazards

Contaminant Concentration

If the contaminant concentration is unknown, an air-purifying respirator is not approved. Air-purifying devices are approved for use in atmospheres containing specific contaminants at levels up to specifically designated concentrations.

Physical Properties of Contaminants

If the contaminants are present in different physical stages (gas, Vapor, dust and fume) the respirator must provide protection for all forms. An air-purifying device may require both a chemical absorbent and particulate filter for adequate protection.

Warning Properties

Air purifying respirators are approved only for contaminants with adequate warning properties to warn the respirator user when breakthrough or face piece leakage occurs. A substance has adequate warning properties when:

- Its odor, taste, or irritant effects are detectable and persistent at concentrations below the OEL
- Its odor or irritation threshold is above the OEL but no ceiling limit exists and no serious or irreversible health effects occur within the concentration range.

Respirator Capabilities and Limitations

The performance limitations of the various types of respirators must be considered when selecting a respirator.

7.1 Particulate Filter Respirators

The maximum use of concentration for particulate filter respirators vary according to the face piece style and the filter used. They must not be used in IDLH environments, oxygen deficient atmospheres, or unknown concentrations.

HEPA cartridges must be used for exposure to highly toxic particulates. Highly toxic particulates are particulates with an OEL of less than 0.05 mg/m^3 .

When dusts, mists, and fumes, are present at the same time as vapors and gases, a combination gas/vapor and dust/mist/fume respirator must be used.

7.2 Airline Respirators (SABA)

In an airline respirator, breathing air is supplied through a small diameter hose from a compressor or a compressed air cylinder(s). A flow control valve is provided to govern the rate of airflow to the wearer. Exhaled air passes through a valve in the face piece.

An airline respirator is designed to protect the wearer against contaminants in concentrations that are not IDLH.

Airline respirators must be equipped with an independent, wearer-controlled, auxiliary air tank (egress bottle) for use in IDLH atmospheres.

Airline hoses should be:

- Hydrocarbon and chemical resistant.
- Non-kinking.
- Used only for breathing air.
- Capable for withstanding a minimum of 1725 kPa (250 psi).
- Breathing airline connections must be standardized and be a minimum of 6m (1/4") inner diameter.
- Cannot exceed 90 meters in length or the length specified by the manufacturer.

The compressed breathing air supplies to the face piece must meet the requirements of CSA standard CAN Z180.1-00 (R2005), *compressed breathing air and systems*. Air samples are sent out every 6 months to ensure compliance. Pure oxygen must never be used in airline systems.

Airlines for use in confined spaces must not be taped, tied, or otherwise secured to lifelines, but shall be kept unencumbered.

An airline respirator must have a minimum airflow of 4 cfm but no more than 15 cfm.

All breathing air stations must be clearly identified and the fittings back-welded.

7.3 Self-Contained Breathing Apparatus (SCBA)

All self-contained breathing apparatus' may be used in oxygen deficient atmospheres.

Only positive pressure self-contained breathing apparatus' are approved for use in IDLH environments. Demand devices have protection factors no greater than air-purifying than air-purifying devices with the same face piece.

All SCBAs must be equipped with a pressure gauge and a low pressure alarm.

IDLH Environments

The following constitutes IDLH environments:

- Oxygen deficient atmospheres.
- Any atmosphere contaminated with cyanides, sulphides, isocyanides, chlorine, or other toxic gases.

- Any atmosphere with the OEL-ceiling concentration for a particular substance.

The following constitutes suitable protection in IDLH environments:

- Full-face positive pressure self-contained breathing apparatus.
- Full-face positive pressure supplied-air respirator with and auxiliary self-contained air supply (escape bottle.)

For IDLH environments in confined spaces, numerous additional safety precautions may be implemented, i.e. Use of lifelines, harnesses, safety standby personnel, etc.

In addition, personnel must refer to specific operating procedures where the need for and use is further defined.

Summary of Maximum Use Concentration for Respirators in NON-IDLH Atmospheres

Table from CAN/CSA Z94-4-01 Table 1 and 2:

Particulates

- < 10 X OEL Half-mask filter respirator
- < 100 X OEL Full-face filter respirator

Powered air purifying respirator

- > 1000 X OEL Full-face powered air purifying respirator.

Gas or Vapor

- < 10 X OEL Half-mask cartridge respirator
- < 100 X OEL Full-mask cartridge respirator

Breathing Air Systems

- > 1000 X OEL Full-face positive pressure airline respirator with escape bottle, SABA.
- > 10000 X OEL Full-face positive pressure self-contained respirator, SCBA.

IDLH Atmospheres: Chlorine, Hydrogen Sulfide, etc.

Full-face pressure demand SCBA.

Full-face pressure demand airline respirator with escape bottle.

Oxygen Deficiency

Full-face pressure demand SCBA.

Full-face pressure demand airline respirator with escape bottle.

7.5 Conditions Which Exclude the Use of Air Purifying Respirators

- Oxygen deficiency.
- IDLH concentrations.
- Entry into an unventilated or confined area.
- Firefighting.
- Situation requiring a protection factor greater than 50.
- Presence of unidentified contaminants.
- Unknown contaminant concentrations or concentrations exceeding maximum use.

- Chemicals having inadequate or no warning properties.

7.6 Respirator Fit Testing

The degree of protection afforded by a respirator depends on several factors, including:

- The effectiveness of the seal to the facial skin
- The effectiveness and capacity of the air-purifying or air supplying element.
- The efficiency and capacity of the air-purifying or air supplying element.
- Inward leakage through the respirator components.

A quantitative respirator fit test must be used to determine the ability of each respirator wearer to obtain a satisfactory fit. The fit test shall comply with the CSA standard Z94.4-02 (R2007), *Selection Use, and Care of Respirators*.

A qualified fit test should be carried out at least annually or whenever work conditions necessitate a change in the type of respirator worn,

Under no circumstances shall a person wear a respirator for which a satisfactory facial fit has not been obtained.

Annual re-testing is required for all employees.

Donning a Half-Mask Respirator

- 1.) Fit the respirator on the bridge of the nose, making sure that you are able to breathe through the nose. Then swing bottom of the face piece into contact with the chin.
- 2.) Position the cradle headband with the longer straps above the ears, over the crown of the head and the shorter straps below the ears, around the nape of the neck.
- 3.) Adjust the straps for a comfortable fit by moving the adjustment slides to lengthen or shorten the straps. Adjust the straps snugly so that no air leaks around the face piece. It is not necessary to pull straps so tight that the respirator digs into face.

Donning a Full-Face Respirator

- 1.) Pull out the headband straps, especially the "front" or the forehead strap, so that their ends are at the buckles.
- 2.) Grip the face piece between the thumb and fingers.
- 3.) Insert the chin well into the lower part of the face piece and pull the headbands back over the head.
- 4.) To obtain a firm and comfortable fit against the face at all points, adjust the headband as follows:

Ensure the straps are lying against the head.

- Tighten the neck straps.
- Tighten the side straps; do not touch forehead or front straps.
- Place both hands on the headband pad and push it towards the neck.
- Tighten forehead or front strap a few notches if necessary.

There are two methods to fit testing respirators:

- 1.) Quantitative.

2.) Qualitative.

Quantitative respirator fit testing measures the actual leakage of the respirator face piece. It does not depend on the sense of smell to tell whether the face piece fits or not.

Qualitative respiratory fit testing ensures that an effective seal is being attained assuming that the wearer knows the proper procedures for fitting and wearing the face piece. Irritant smoke or isoamyl acetate are usually for qualitative fit testing.

7.7 Field Testing the Respirator Seal

Each respirator must be subjected to one of the following tests prior to use:

Negative Pressure Sealing Test

This test consists of closing off the inlet opening of the respirator by putting the palms of the hands on the cartridges so that there is no passage of air, in haling gently, and holding the breath for at least ten seconds. If the face piece is deflated, it can be reasonably assumed that the fit of the respirator to the wearer is satisfactory.

Positive Pressure Sealing Test

This test is conducted by closing off the exhalation valve or the breathing tube or both and exhaling gently. The fit of the respirator is considered satisfactory if a slight positive pressure can be built up inside the face piece without detection of any outward leakage of air between the sealing surface of the face piece and the respirator wearer's face.

7.8 Inspection and Maintenance

A respirator maintenance program has the following components:

- Inspection for defects.
- Routine cleaning and disinfecting
- Repair and replacement as requires.
- Proper storage of equipment.

Each respirator shall be inspected by the user immediately before and after use to ensure that it is in proper working condition.

Respirators shall be used and maintained in accordance with the manufacturer's specifications.

Reusable air-purifying respirators should be checked as follows:

Examine the face piece for:

- Excessive dirt.
- Cracks, tears, holes, or physical distortion of shape from improper storage.
- Inflexibility of the rubber face piece.
- Cracked or badly scratched lenses in full face pieces.
- Incorrectly mounted full-face piece lenses, broken or missing mounting clips.
- Cracked or broken air cartridge holders, badly worn threads or missing gaskets.
- A nose cap.

Examine the head straps or head harness for:

- Breaks.

- Loss of elasticity.
- Broken or malfunctioning buckles and attachments.
- Excessively worn serrations on head harness, which might permit slippage.

Examine the exhalation valve, after removing its cover for the following:

- Foreign material such as detergent residue and dust particles under the valve.
- Cracks, breaks, or chips, in the valve body, particularly on the sealing surface.
- Missing or defective valve cover
- Improper installation of the valve in the valve body.

Examine the air-purifying element for:

- Incorrect cartridge or filter for the hazard.
- Incorrect installation, loose connections, missing or worn gaskets, or cross threading in the holder.
- Cracks or dents in the outside case of the cartridge

Supplied air respirators should be examined using the procedure for air purifying respirators, except those pertaining to the air purifying elements.

If the device has a corrugated breathing tube, examine it for:

- Deterioration by stretching the tube and looking for cracks

Examine the air supply system for:

- Integrity and condition of the air supply lines and hoses, including attachment and end fittings.
- Correct operation and condition of all regulators.

Self-contained breathing apparatus inspections should include all of the above items as well as the following:

- Cylinders should be maintained at a minimum of 70% capacity except while being depleted during use.
- The regulator and any warning device must be tested to ensure they are functioning properly.
- A SCBA cylinder must be recharged when they air pressure drops below 2000 psi.
- Cylinders must be checked for integrity and hydrostatic test date.
- Hoop-wrapped and fully wrapped composite cylinders must be hydrostatically tested every 3 years. Steel and seamless aluminum cylinders must be hydrostatically tested every 5 years.

7.9 Cleaning of Respirators

A respirator issued for anything other than continuous personal use including routine, non-routine, emergency, or reserve use, must be leaned and sanitized after each use.

To clean a respirator:

- 1.) Remove filters and cartridges.
- 2.) Disassemble face piece.
- 3.) To make a suitable respirator cleaning solution, dilute Cavalcade solution 100 to 1. Cavalcade is a detergent and germicide. At the concentrations used, Cavalcade should not cause any skin irritations. Lukewarm water should be used.
- 4.) Immerse the respirator in the solution and scrub gently with a soft brush.
- 5.) Rinse in lukewarm water.
- 6.) Dry the respirator with either a clean paper towel or let it sit and air dry.
- 7.) **Dried respirators must be stored in a clean plastic bag.**

7.10 Respirator Storage

There is no easy way to determine when a cartridge should be replaced. The service life of a cartridge is dependent upon:

- The concentration of the contaminant.
- The breathing rate
- Relative humidity

A detectable odor in the face piece, eye, nose, throat irritations are indications that the cartridges have served their useful life and should be replaced.

Excessive breathing resistance upon inhalation is an indication that the filters require replacement.

New cartridges must be kept in their plastic bags until ready to be used.

Disposal cartridge respirators are good for one shift only. When not in use, respirators must be stored in a clean dry plastic bag to retain their effectiveness.

All RPE stored for emergencies shall be inventoried on a monthly basis.

7.11 Respiratory Training

Persons required to wear respiratory protection will receive training regularly in the operation, use, and maintenance of respiratory equipment.

The training will include:

- Instruction in the nature, extent, and effects, of respiratory hazards to which a person may be exposed.
- Instruction in the selection, use, sanitary care, maintenance, proper storage, and limitations of each respirator type.
- Practice in the proper fitting, wearing, adjusting, and checking the face-to-face piece seal of each face piece seal of each respirator type.
- An opportunity to handle the respirator and to wear it in a safe atmosphere for an adequate period, to ensure that the wearer is familiar with the characteristics of the respirator.
- An explanation of the requirements for maintaining the respirator (gas tight) seal.
- Instruction on how to deal with emergency situations involving the use of different respirators or the malfunction of respirators.

Records will be kept on the type of training each person has received, and dates that these training sessions have occurred.

7.12 Respirators most used at WGS

- North half mask double cartridge respirator model # 550030 S=small, M=medium, L=large Filter cartridge used: North #7580P100 (purple)
- Moldex AirWave P2
- Moldex half mask double cartridge respirator model 7000 series with purple cartridges

6.9 Hearing Conservation Policy and Procedure

OBJECTIVE

To ensure that the standard for prevention of hearing loss is adhered to by wearing proper hearing protection when exposed to noise levels that are harmful.

This objective is based on the knowledge that noise can produce permanent hearing loss depending on (a) sound intensity, (b) length of time the worker is exposed, (c) individual susceptibility to noise-induced hearing loss.

STANDARD PROCEDURE:

Maximum Noise Exposure for Unprotected Ear

Duration per Day in Hours	Sound Level in Decimals (A)	Examples
16	80	Conversational speech
8	85	OH&S Limit
4	90	Electric motor fan
2	95	Concrete pouring
1	100	Hand drill
1/2	105	
1/4	110	Arc air welder
1/8	115	Jet engine

* No continuous exposure in excess of 115 dBA is allowed

* Pain begins at 125 dBA

The above chart illustrates maximum exposures for the unprotected ear. Wapiti Gravel Suppliers offers several types of hearing protection and therefore all employees must wear hearing protections whenever exposed to noise levels above 85 decibels (dBA).

PROTECTIVE EQUIPMENT:

The company provides equipment for use by employees. Standard issue ear plugs are available from the HSE Department. Ear Muffs and specialized plugs are available from the HSE Dept.

All positions/jobs exposed to noise have been or are being monitored for noise exposure with a noise dosimeter and are rated for noise exposure. The required hearing protection for each job class is listed in the Noise Assessment Table (please consult with the HSE Department).

Employees unable to wear the standard plugs or muffs should see the HSE Dept. to investigate specialized and/or more suitable protection.

Hearing protection is to be used when the noise level is 85 decibels or greater and/or as posted.

Ear Plugs/Application:

- can reduce noise as much as 33 dBA's (Note 1).
- clean hands should be used to roll sponge type ear plugs into a cylinder.
- insert by pulling ear outward and upward.
- once inserted hold in place until plug expands
- if voice sound distorted, plug has been inserted correctly
- plugs come in different sizes, material and styles. Inform workers that other types are available if the standard plug supplied does not work.

Muffs:

- can reduce noise up to 23 dBA's (Note 1)
- ensure muffs fits completely over ears and have a good seal
- replace or repair cushions as needed to maintain good seal
- Safety glasses reduce the effectiveness of muffs.

Combination Muffs & Plugs:

- can reduce up to 38 dBA's of noise. An ear muff only reduces noise by an additional of 5 dBA when combined with ear plugs.

NOTE 1 – the NRR (noise reduction rating) listed on hearing protection is for ideal ears and a perfect fit.

PREVENTION:

The company is committed to the prevention of hearing loss by:

- a) reducing noise exposure times where possible
- b) reducing noise levels through engineering design controls; equipment maintenance; modifying existing equipment where practical and isolating noise.
- c) providing workers with hearing protection (PPE).
- d) reminding workers to use protection.
- e) recommending employees exercise similar practices off the job when exposed to noise

- through use of music devices, power tools, firearms, snowmobiles, etc.
- f) offering training for all employees to include information dissemination upon hiring and orientation, during safety huddles and individual instruction by the attendant during audiometric testing. Training will include selection, use, and maintenance of hearing protection equipment required to be used at a work site in accordance with the manufacturer's specifications.
 - g) offering a monitoring program.

MONITORING PROGRAM:

1. The HSE department will regularly conduct dosimeter noise level testing of workers exposed to noise above 80 dBA.
2. Upon hiring within six months of hiring date and not more than 12 months after the initial baseline all employees exposed to noise must complete a hearing test (audiometric exam) by our contract Audiometric tester (SureHire). At least every second year thereafter the first years tests.
3. The audiometric exam will determine the status of hearing and the effectiveness of noise control and hearing protection.
4. Referral for further medical assessment will occur should deterioration in hearing be evident.
5. Confidentiality will be maintained. All audiometric tests are to be kept in the employee's health record and released only with the employee's written consent.
6. The audiometric tester will take opportunities to instruct and reinforce information regarding hearing and hearing protection with employees on an individual basis.

Training

THE ROLL DOWN: PREPARING A FOAM EARPLUG FOR INSERTION

Hands and plugs should be clean prior to use. Begin by rolling the plug into a very thin crease-free cylinder. The cylinder should be as small in diameter as possible, which is *as tightly compressed as you can make it*. Do not worry about hurting the plug — it is designed to be compressed in this way. Crease-free rolling is accomplished by squeezing lightly as you begin rolling, then applying progressively greater pressure as the plug becomes more tightly compressed. Make sure you roll (not twist), the plug into a cylinder rather than any other shape such as a cone or a ball. The plug is best rolled between the fingertips. One method is illustrated in Figures 1 and 2, with an alternative in Figure 3. Another option, for those with less finger strength, is to use the thumbs and forefingers of both hands as shown in Figure 4.



Figure 1

Figure 2

Figure 3

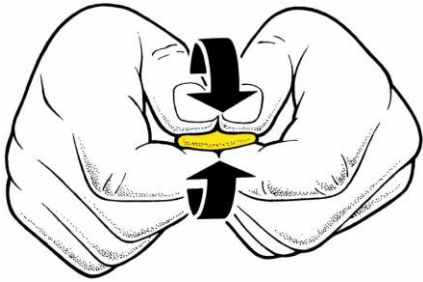


Figure 4

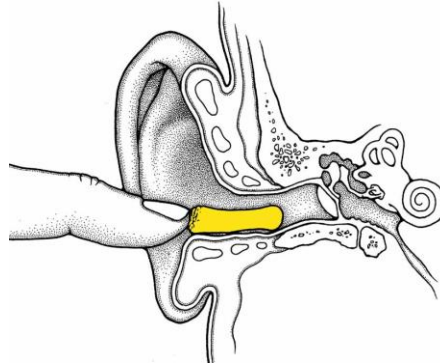
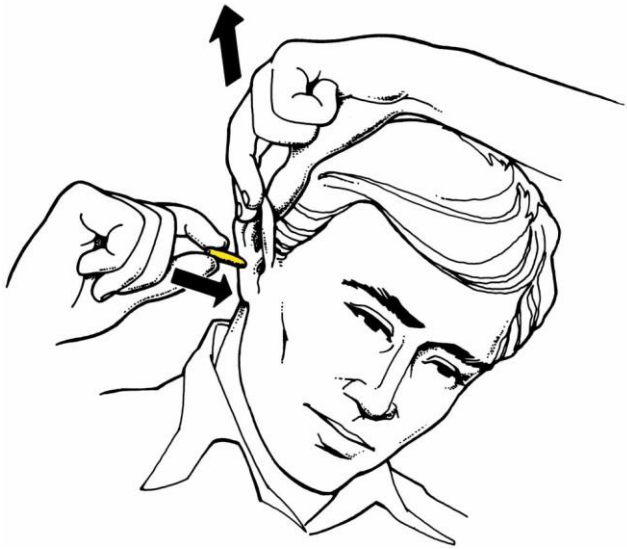


Figure 5



6.8 Harness for Fall Arrest

Fall Arrest Policy

Only workers properly trained in fall protection will use fall protection at WGS

Fall arrest equipment consisting of full body (parachute) harness with shock absorbers, lanyard, must be used by every employee at Wapiti Gravel Suppliers when exposed to:

1. Risk of falling from 1.2 metres or 4 feet from permanent structures.
2. Risk of falling from 3 metres or feet from temporary structures.
3. Whenever working at any height poses a risk that any employee deems unacceptable, due to potential for losing his balance, narrow work platforms, etc.

Each employee must assess the potential for falling from heights and provide themselves with the maximum protection available, regardless of height.

General Information

Body or parachute style harnesses are used to provide workers working at heights with freedom of movement and protection from falls. These devices will arrest a fall and absorb some of the shock of the fall. The systems are attached to a lanyard, fall arresting device or rope grab. A shock absorber in the system must be used in all fall arrest situations.

A life line should never be used as a service line. The only time a life line becomes a load bearing line, is in the event of a fall. At all other times, it should be just slack enough to permit free movement on the service lines.

In the construction industry, full body harness systems used with shock absorbers are required.

It is very important to get quality advice in the selection, purchase and maintenance of your fall arresting equipment.

See CSA Standard:

DO:

- Always do a pre-use inspection of any harness you choose to wear. Please see the attached form.
- Obtain expert advice before purchasing a falling arresting device.
- Properly train and practice with the system you decide to use.
- Use webbing type harnesses instead of leather harnesses.
- Use only the manufacturer's components for replacement parts.
- Inspect carefully before each use (inspection to be performed by a trained worker).
- Have the harness fitted snugly to the worker using the system.
- Ensure that the anchor points are secure and able to support the load in the event of a fall.
- Follow the manufacturer's instructions on care and use.
- Ensure all lines used with the systems have thimbles.
- Use only the proper safety rated fastenings with the system.
- Use a full body harness with shock absorber whenever possible.

DON'T:

- Modify, change or put additional holes in the harness or hardware.
- Jerry-rig the system.
- Use the system for any other than its intended use.
- Use the lifeline for a service line.

SAFE WORK PRACTICE: FALL PROTECTION

GENERAL: Protect workers from injuries associated with working at heights and using proper fall arrest protection

APPLICATION: Fall Arrest Protection shall be utilized where there is or may be a danger to workers falling above 3 meters or falling into a hazardous location that

could cause injury. No person shall use fall protection devices until they have received adequate training.

PROTECTIVE MECHANISMS

Safe job procedure, Fall Protection Plan

Manufacturer's specifications

PPE

ERP (Emergency Response Plan)

Hazard Assessment

Critical work permits (Safety Meeting)

SELECTION AND

USE

Manufacturer's specification as per safe work procedure

SUPERVISOR

RESPONSIBILITY

To facilitate and/or provide proper instruction to their workers on protection requirements and training. Also ensure a fall protection rescue plan is completed.

Hazard analysis

Work site inspection

Determine type of equipment required

WORKER

RESPONSIBILITY

1. Be fully conversant with Fall protection systems.
2. Ensure you know capabilities of Fall Protection Equipment. This equipment must be inspected prior to use. Remove defective Equipment from use.
3. Ensure barricades, ribbons and signs identify restricted areas.
4. Ensure you understand the procedures for rescue of workers who may be unable to rescue themselves from an elevated work area. Rescue plan must be identified in ERP.
5. Ensure you know your anchor points.
6. Ensure you do not wrap the lanyards and/or rope around beams, girders, pipes, etc.
7. Fall protection must not be alone, utilize buddy system and continually check each other's harness and D ring to ensure that the harness is not too loose and or the D ring has not slipped down the back.
8. Lanyards must not be used as fall protection, only fall restraint.

Review HSE department will review practice annually.

refer to Part 9 (Fall Protection) of the OH&S Code.