



Respiratory Protection Procedure

Health and Safety

1 Purpose and Scope

The purpose of this Respiratory Protection Procedure is to define the respiratory protection requirements at Roy Hill. This procedure applies to all Roy Hill employees, sub-contractors and visitors associated with facilities under the control of Roy Hill. This document does not include the requirements for self-contained breathing apparatus.

2 Assessment of Respiratory Protection

Respiratory protection should be the last resort in the hierarchy of control management and is to be assessed and implemented using a 3-step approach to establish the appropriate actions and guidance in the risk prevention and minimization of workplace conditions associated with Respiratory illness.

The 3-step approach will consist of a:

- Risk Assessment (conducted by Hygiene and Health team);
- Hygiene Monitoring Assessment (conducted by Hygiene and Health);
- Implementation of Respiratory Protection Program.

2.1 Risk Assessment

An integral part of the Respiratory Protection Procedure (RPP) is to undertake a comprehensive risk assessment to identify areas where personnel are exposed to potentially high contaminant levels within their work place. As part of the risk assessment process the following information will be ascertained and evaluated.

- Location and work description;
- Activities undertaken;
- Equipment, tools and materials to be used (source of fumes etc);
- Controls available using the Hierarchy of Control;
- Respirator characteristics and limitations;
- Range of protection – types of contaminants, concentration, size of particle or type, supplied air or not;
- Protection Factor;
- Absorption capacity;

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2.2 Hygiene Monitoring Assessment

The assessment for airborne contaminants will be undertaken for a variety of reasons. These will include:

- Determining the general risk for an employee group, area or location;
- Establishing/confirming where the highest risk to workers may occur;
- Establishing/confirming whether controls in place reduce airborne contamination or levels of exposure;
- Where controls can't reduce exposure below the appropriate Occupational Exposure Limit, respiratory protection will be used to provide protection.
- The monitoring program will provide a measured concentration for each contaminant which will then be compared to the appropriate Occupational Exposure Limit. This then enables the correct respirator and filter to be selected to ensure adequate protection is being provided.

3 Respiratory Protection Programme

When selecting a respirator there are two types of respirator's which should be considered being:

Air purifying Respirator

- Particulate Respirator that filters out mechanically and thermally generated particulate.
- Gas and Vapour Respirators which filter out certain gases and vapours.

Air Supplied Respirator

- Contaminated air is drawn through a filter or filters by means of a fan and delivered to the space enclosed by the head covering generally under positive pressure.
- These respirators are often known as Powered air purifying respirators (PAPR's).

3.1 Selection of Respiratory Protective Equipment

The selection of respiratory protection devices available onsite is undertaken by the Health & Hygiene Specialist, in conjunction with the requirements of AS 1715 and with supported information from external supply specialists.

The selection of the appropriate respirator depends on several factors which include:

- Nature of Contaminant;
- Concentration of Contaminants;
- Tasks to be undertaken;
- Additional PPE to be worn;
- Communication requirements;
- The individual users

In environments where there is or may be an oxygen deficiency for example; confined spaces or any risk of flammability or explosion. If the oxygen level, atmospheric contaminate concentration level is unknown or if the contaminate is unknown, then this becomes an emergency response situation, where alternative emergency RPE is to be worn by trained ERT members.

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The minimum protection factor (MPF) is determined by the known airborne contaminate level divided by the exposure level for that contaminate. This can be found via the attached link or by contacting the Health & Hygiene team. Australian Exposure standards - [Safe Work Australia Exposure Standards](#)

Required minimum protection factor (MPF) = Ambient airborne concentration

Acceptable exposure level/standard

The MPF determines the selection of the correct RPE for the task

MPF	Maximum gas/vapour concentration in ppm.	Suitable RPE
Mechanically and/or Thermally Generated Particulates		
Up to 10	n/a	P2 Disposable face piece P2 Half face respirator and replaceable filter.
Up to 50	n/a	P2 Full face respirator
Gas and Vapour Concentration		
Up to 10	1000	Class AUS, 1, 2 or 3 Filter with half face respirator.
Up to 50	1000	Class AUS or Class 1 filter with full face piece.

4 Control Measures

Exposure to respiratory hazards and potential exposure shall be controlled, using in order of priority, the hierarchy of controls listed below:

- Elimination;
- Substitution;
- Isolation;
- Engineering (i.e. ventilation);
- Administrative.

The use of Personal Protection Equipment (PPE) such as RPD's is the least favoured means of controlling hazards and exposure to hazards due to the dependence on individual cooperation, proper fit, and appropriate training for the PPE to be reliable and effective. However, there are situations in industries where the control or containment of hazardous materials and exposures principles cannot be fully achieved. For such situations and for back up protection, careful consideration for the correct selection and application of RPD may be beneficial.

RPD shall only be used when this hierarchy of controls has been considered, and when process design, ventilation, and work practices used to minimize fugitive emissions and exposures are not practical. The use of RPD should always be considered as a last resort.

4.1 Training

Training will be provided in the safe use and limitation of RPE. Training is provided at routine intervals.

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The Respiratory awareness training package is inclusive of:

- Identification of Respiratory hazards
- Selection and Use of Respirators;
- Respirator Fit Testing;
- Maintenance and Storage;
- Links to Roy Hill reference documentation

4.2 Fit Testing Requirements

Employees will undergo respirator fit testing to certify they are using the appropriate respirator and are achieving the required fit for the task they are completing. The Quantitative respirator fit test ensures the face piece is sized and donned correctly. The fit testing will be undertaken by a competent Person:

- On commencement of work requiring a RPD;
- When there are changes in the employee's physical condition that could affect respiratory fit (e.g. changes in body weight, facial scarring etc);
- Regular scheduled intervals

Achieving a respirator fit depend on an effective facial seal to ensure protection for the wearer. Beard growth, some hairstyles and other facial features may prevent an adequate seal between the wearer's face and the fitting surfaces of a face piece or mouthpiece. Stubble growth, depending on its length or stiffness, also interferes to some degree with proper sealing of a face piece. Therefore, any person wearing close fitting respirators that rely on a facial seal must be clean shaven.

Where respiratory protection is required it is the Department Manager's responsibility to develop a system to ensure that only clean-shaven employees are permitted to wear types of respirators that rely on a facial seal.

Where employees are not clean shaven, a reasonable alternative should be provided where practicable e.g. a loose fitting Powered Air Purifying Respirator (PAPR).

4.3 Exclusions

Some medical conditions such as asthma, heart disease, and epilepsy may exclude the user from wearing RPE. Certain facial features/shapes may also exclude the user from wearing respiratory protection as they are unable to get an adequate seal. This is considered as part of the pre-employment medical testing.

5 Maintenance and Storage of Respirators

Re-usable respirators which are used routinely should be cleaned after each use. Respirators should be washed with a mild detergent using warm water using a soft brush. Following cleaning the respirator should thoroughly cleaned with clean water and allowed to dry.

A check of the respirator should occur before use with a thorough examination undertaken whilst cleaning. The check should include:

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- Physical damage to respirator;
- Missing straps or damage to elasticity of straps;
- Deterioration of nose piece setting
- Face piece for damage (Tears, cracks, distortion, dirt etc);
- Damaged or missing valves;
- Worn or missing gaskets or threads;
- Deterioration and loss of elasticity of straps;

PAPR's must be checked in accordance with manufacturer's recommendations, with the check including the following:

- Head Top;
- Flow rates;
- Pumps;
- Battery.

5.1 Storage

Respirators should be stored as close as practicable to the workplace, be kept clean and dry and away from sources of contamination, heat and exposure to direct sunlight. Stored respirators used for emergency type situations must be inspected frequently to ensure they are free of dust and moisture.

5.2 Disposal

Disposable Respirators, filters or canisters that have been used in potentially toxic environments should be disposed of considering that they are toxic also.

6 Record Keeping

Records shall be kept of the following data:

- Risk Assessments;
- Medical screening;
- Training;
- Audit results and corrective actions.

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7 Definitions

Term	Definition
Immediately Dangerous to Life or Health (IDLH)	A level of exposure to airborne contaminants that is "likely to cause death or immediate or delayed permanent adverse health effects or prevent escape from such an environment." Examples include smoke or other poisonous gases at sufficiently high concentrations.
Occupational Exposure Limit (OEL)	OELs are levels of agents in workplace air, which it is believed are low enough to protect nearly all workers from adverse health effects over a series of eight-hour (8h) shifts for a working lifetime. They should be used as guidelines only, rather than not safe / safe limits.
Powered Air Purifying Respirator (PAPR)	A type of RPD that of respirator is take air that is contaminated with one or more types of pollutants, remove a sufficient quantity of those pollutants and then supply the air to the user. There are different units for different environments. The units consist of a powered fan which forces incoming air through one or more filters for delivery to the user for breathing. The fan and filters may be carried by the user or with some units the air is fed to the user via tubing while the fan and filters are remotely mounted.
Respiratory Protection Device (RPD)	Personal respiratory protective equipment that is designed to prevent the inhalation of contaminated air. For example, a disposable, half-faced or full-faced mask that protects the wearer from particulates, gases or vapours.

8 References

Document number	Title
	AS/NZS 1715- Selection, use and maintenance of respiratory protective equipment
	AS/NZS 1716:2012 Respiratory protective devices
OP-PRO-00457	Confined Space Entry Procedure

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