



TECHNOLOGY AND INNOVATION

Close-out Report



Respiratory Protection Equipment



Introduction

Because of a variety of ergonomic constraints, the 'PPE route' should always be regarded as the last resort in any strategy designed to protect employees from workplace hazards. However, despite some significant advances with respect to dust control in local AngloGold mines, occupational dust exposure and its consequences have led to a situation possibly more serious than ever before. The extent of the problem is such that an urgent revision of PPE selection and allocation was called for.

To gain the maximum benefit of any intended PPE; the most fundamental issue is employee acceptance. This is a complex requirement and was also the single most important motivation for the field trial. Related issues are communication, education, instruction, logistics and, obviously, the selection and available range of PPE.

Performance Indicators

The project achieved its original purpose of assessing ergonomic acceptance of RPE for different realistic scenarios.

Resource Utilisation

329 Employees participated in the project.

8 Types of respirators (1360 units) were evaluated.

Trails were conducted at Savuka Mine, TauTona Mine, Great Noligwa Mine and SA Metallurgy.

Strengths and Weaknesses

Employees were not willing to test equipment that was similar to the equipment already being used.

Success Factors

The project was launched through the Operations Health and Safety Committees. This assisted in proper communication of the project aim and eventual success.

Findings

A summary of the findings is depicted in Appendix A.

It is clear that most employees prefer disposable respirators, fitted with expiration valves. Although employees prefer respirators fitted with expiration valves, it is also evident that fold-up capability is required.

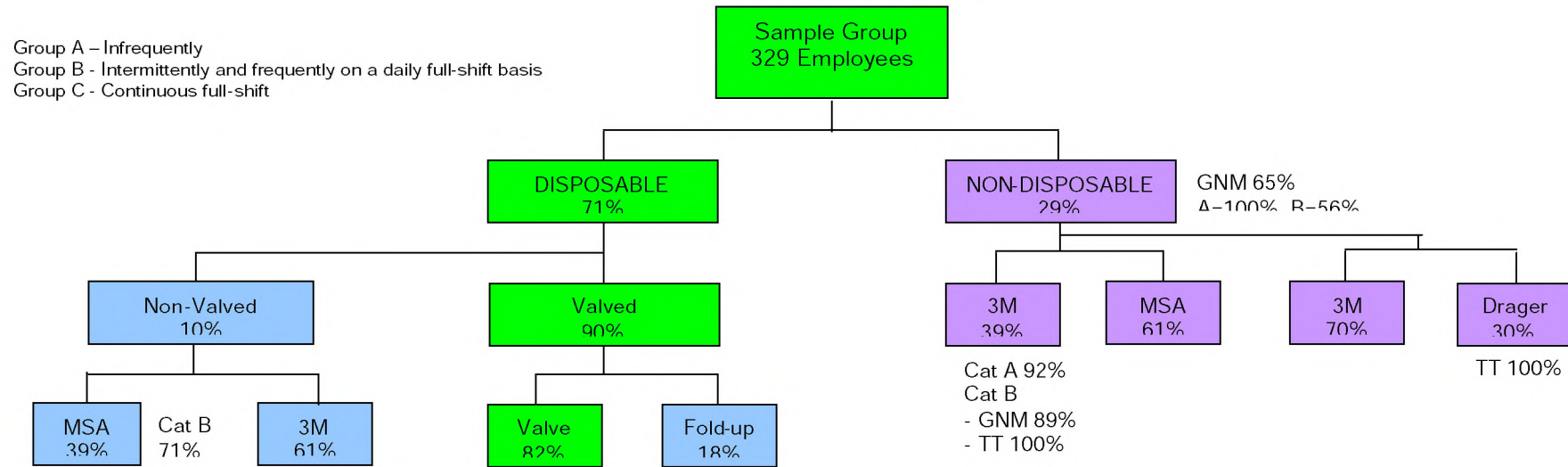
An AngloGold South African Region Directive was issued (Appendix B).

RPR on standard stock was rationalised and generic equipment was made available on standard stock (Appendix C).

APPENDIX A

Summary findings of RPE trail.

Overall Findings



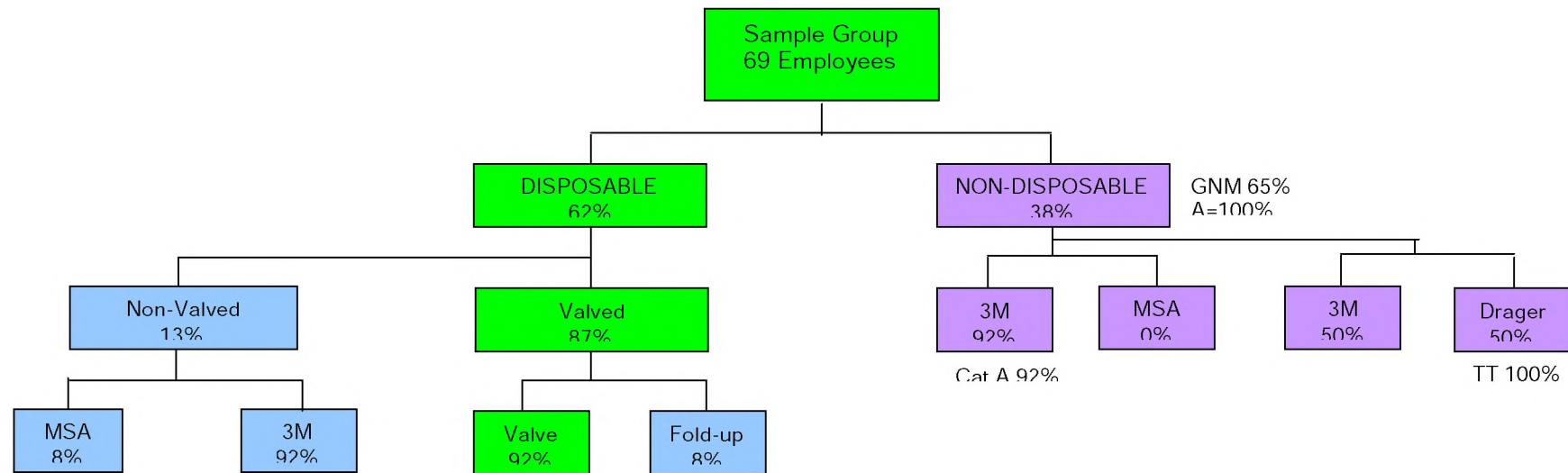
Savuka Mine:

- People were not willing to test disposable half-mask respirators without expiration valves, which is similar to types already used on mine. Only 4/20 employees were willing to participate in this comparison.
- Only one (1) out of twenty (20) employees were willing to test the non-disposable respirator. This employee preferred any other disposable respirator above any of the two non-disposable respirators.

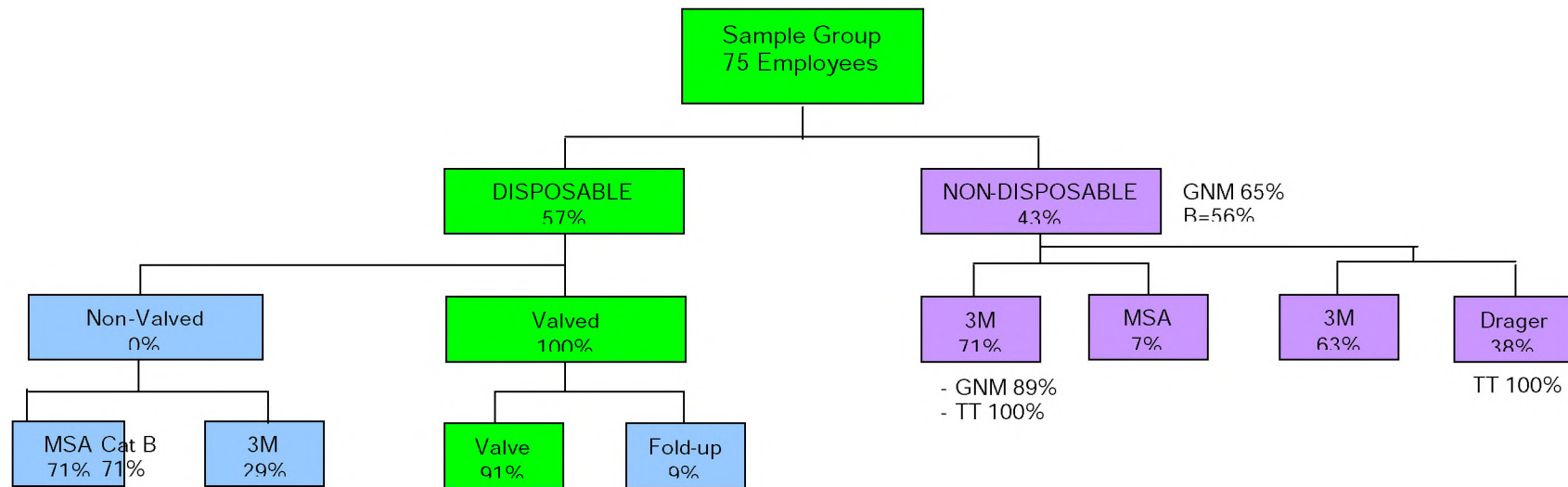
SA Metallurgy:

- One (1) employee preferred the MSA Microguard 20710 (non-valved) above both of the 3M products.
- 1 x A Group, 3 x B Group and 9 x C Group employees preferred the 3M 8822 disposable respirators above any of the non-disposable respirators.
- 9 tests were conducted BUT employees preferred none of the non-disposable half masks.

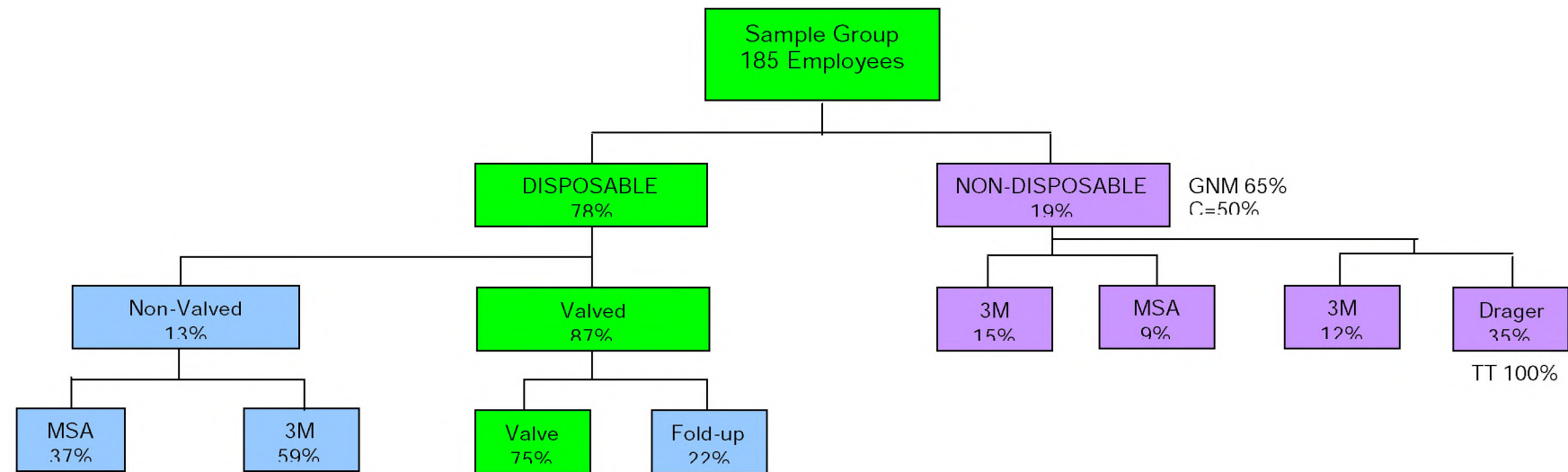
Group A (Infrequent use of RPE) Findings



Group B (Intermittently and frequently on a daily full-shift basis use of RPE) Findings



Group C (Continuous full-shift of RPE) Findings



APPENDIX B



ANGLOGOLD LTD

OCCUPATIONAL ENVIRONMENT SAFETY AND HEALTH DIRECTIVE

RESPIRATORY PROTECTIVE EQUIPMENT REQUIREMENTS

Guideline title	Requirements for the implementation and utilisation of respiratory protective equipment.
Number	88
Countries of application	South Africa
Date of first issue	06 December 2002
Date of issue of this revision	

Prepared by: D.E. Wrigley
Manager Occupational Environment

Issued by: N.F. Nicolau
Executive Officer
South African Region

THE REASON FOR THIS DIRECTIVE

It is recognised that the introduction of Respiratory Protective Equipment (RPE), to be worn by persons exposed to high risk dust concentrations, must be regarded as a last resort in the strategy designed to protect employees from excessive dust exposure.

Despite some significant advances with respect to dust control in the South African Region, occupational dust exposure and its consequences have led to a situation where the mandatory introduction of RPE has become essential to prevent certain employees ⁽¹⁾ from contracting occupational lung disease.

FOR WHOM THE DIRECTIVE IS INTENDED

This directive applies to all General Managers in the South African Region.

MANDATORY REQUIREMENTS OF THE DIRECTIVE

The following requirements are to be implemented on all operations by no later than 1 February 2003.

- 1 Certain employees ⁽¹⁾ as identified by the Business Unit's risk assessment process, must wear approved RPE ⁽²⁾ when exposed to high dust concentrations.
- 2 Approved RPE ⁽³⁾ must be made available to any individual (other than those identified above) who wishes to utilise RPE during normal working hours.
- 3 Appropriate training must be provided to the identified individuals, Occupational Environment Safety and Health Staff and Business Unit's Occupational Health Nurses. Where non-disposable RPE is issued the training must include a physical leak-fit test.
- 4 Only RPE available as standard stock items may be issued. Where operational requirements necessitate considering the addition of other RPE for inclusion as standard stock, this RPE must:
 - 4.1 Conform to the required standards. ⁽²⁾ ⁽³⁾
 - 4.2 Be subjected to an employee evaluation field trial, similar to the trial conducted during 2002. (AngloGold Intranet, SA Region, Disciplines, OESH, Strategic Thrusts, Dust, Field Trial – Personal protection as an interim strategy to reduce occupational dust exposure: RPE selection and allocation).
 - 4.3 Be approved for utilisation by the South African Region Standards Committee.



NF NICOLAU
Executive Officer: SA Region

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- (1) As identified during phase 2 of the "Underground Dust Occupational Health Risk Modus Operandi (1999)", e.g. Winch Drivers, Loco Drivers, Machine Operators, Tip Attendants, Stope Team Leaders, Development Team Members, Belt Attendants, Hydropower Water Jet Operators and Loader Drivers.
- (2) Expiration valve fitted half-mask non-disposable RPE, conforming to the SABS EN 143 (as homologated in SABS 0338) specification for protection factor class FF2.
- (3) Vertical fold-down and expiration valve fitted disposable type, conforming to the SABS EN 149 (as homologated in SABS 0338) specification for protection class FF2.

APPENDIX C

Respiratory Protective Equipment (for dust) available as standard stock

- Attached the list of RPE that will be placed on standard stock.
- Current (old type) stock will be depleted before new items is made available.
- Commercial Services (Martin Els) to communicate new items stock codes as soon as available.
- Picco 20 Non Disposable Half Mask approved for TauTona Mine and then only on special order (will not be placed on standard stock).
- Operations to ensure that they comply with all aspects of Directive 88 (6 December 2002).

NON DISPOSABLE DUST RESPIRATORS

SUPPLIER	Product Description	Stock Code	Approved for	Estimated Price*	
Brain Velleman North Safety Products PO box 739 Welkom 057 355 1328/9	Single Half Mask	766160112	All SA Operations	R 35-00	
	Twin Half Mask	New Item	All SA Operations	R 42-66	
	P3 (Dust) Cartridge	766165212	All SA Operations	R 23-37	
	Ammonia Cartridge	766165413	All SA Operations	R 45-79	
Quinton Taylor Drager SA PO Box 68601	Picco 20	Only per special order	TauTona Mine Only	R 222-00	

* Spot price and might alter due to discount on bulk order

DISPOSABLE DUST RESPIRATORS				
SUPPLIER	Product Description	Stock Code	Approved for	Estimated Price*
Jannie Pretorius MSA PO Box 9460 057 355	Affinity FR Code 301	New Item	All SA Operations	R 9-00

* Spot price and might alter due to discount on bulk order