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The Chamber of Mines
MOSH LEARNING HUB
Leading Practice Adoption System

Simple Leading Practice Adoption Brief
Winch Covers

This simple leading practice involves fitting a cover over the operating drums of a scraper winch to reduce the harmful dust exposure experienced by winch operators. Winch operators have been identified across industry as the occupation with the highest exposure to silica dust.

In principle, the winch cover simply involves fitting a cover to the winch drum guard or to the winch casing of existing winches. The pictures below illustrate a winch drum guard before and after fitting the winch cover as well as fitting the cover on the winch casing.

Winch cover fitted on drum guard

Winch cover fitted to casing

The MOSH Adoption System

Background: The MOSH Leading Practice Adoption System was established by industry in 2007 to assist in achieving the tripartite agreed 2013 occupational health and safety milestones. In 2005 the CEOs of major mining companies had committed their companies to achieving these milestones.

System: The system is based on the simple concept of identifying, documenting and then facilitating widespread adoption of leading practices that have enabled superior OHS performance at existing mines. Although conceptually simple, the barriers to successful technology transfer make it notoriously difficult to consistently achieve in practice. The MOSH system therefore includes special behaviour management techniques to address these barriers.

Behaviour management plans: The behaviour management techniques of the MOSH adoption process need to be implemented as part of the leading practice. They are derived from mental models research conducted specifically to identify the various barriers that prevent successful adoption.

Simple Leading Practice, SLP: A leading practice is classed as a simple leading practice when both the practice and its adoption do not depend on securing a change in the behaviour of many people. An independent review panel is established in each case to formally make this assessment. In the event that the practice is confirmed as an SLP, behavioural communication and leadership behaviour plans that are generically applicable may be customized and used. Such plans are provided in this adoption brief.

Adoption process: Importantly, sustainable adoption of a leading practice, including a simple leading practice, must include adoption of not only the technical leg, but also its behavioural communication and leadership behaviour legs. In concept, a leading practice, including an SLP, must therefore be considered to comprise of the three legs depicted below:

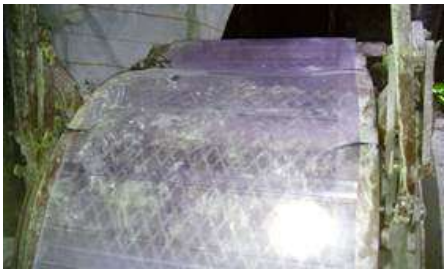
MOSH Leading Practice / SLP

- Behavioural communication plan
- Leadership behaviour plan
- Technical aspects

Pullman winch cover fitment (FLF 230 - normal with motor on the side)



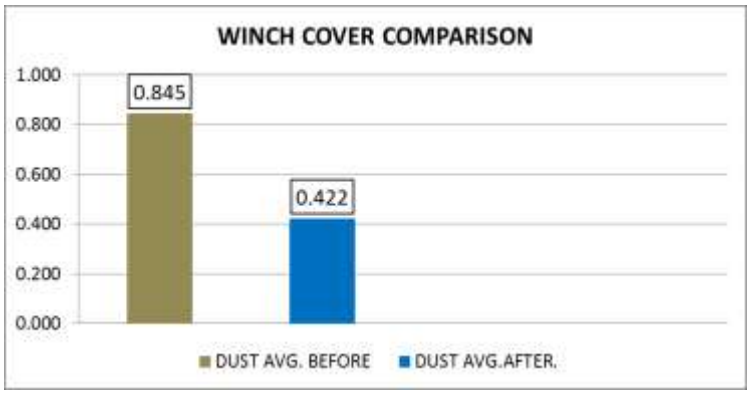





Existing winches should be retro-fitted with the covers and all replacement or new winches should be equipped with covers prior to being sent underground. Specifications for the covers should be drawn up by the mine. More detail about the cover and the adoption process is provided later.

Documented benefits to date

The installation of a winch cover has been found to result in a 50% reduction in aerosol particles in the breathing zone of winch operators. The measurements were made over ten minute sampling periods using a spot sampling instrument (side pack).



Summary of the generic value case

The value case for deciding to adopt the winch cover SLP outlined in this brief includes is as follows:

	Issue	Details
1	**Initial cost**	If the cover is fitted by the winch supplier the estimated cost is R2500 per winch. If the covers are made and fitted using existing mine personnel and redundant conveyor belt, the real extra cost to the mine becomes negligible.
2	**Operational costs**	No measurable increase in operational costs have been identified
3	**OHS benefit**	The risk of silicosis to winch operators, the employees who are most at risk, will be very significantly reduced. This is of real value to both workers and management.
4	**Progress towards zero harm**	Death from silicosis caused by excessive exposure to silica dust is the greatest cause of mortality in mine workers. Reducing this risk in the group most at risk will constitute a significant step towards achieving the ultimate goal of zero harm
5	**Improved working relationships**	Implementation of the behavioural communication and leadership behaviour plans has the potential to significantly improve the operational working relationship between supervisors and their staff
6	**Buy-in and support**	The mine-wide intervention in the interests of protecting the health of those most at risk will help engender buy-in and support for the intervention, and of employees for management
7	**Legal compliance**	The installation of winch covers will assist in meeting regulated maximum dust exposure levels. It will also be a good case of management doing what is *reasonably practicable* to provide and maintain a working environment that is safe and without risk to the health of winch operators.
8	**Reduced compensation**	In the longer term the mining industry, including the mine, will benefit from a reduction in compensation and other costs associated with silicosis.

The value case

An important point about a value case is that it contains more than a conventional business case. Much of the value from an intervention to improve health or safety performance cannot be readily assessed in hard financial terms. Much of the value derived from many health and safety interventions is of strategic or long-term benefit, and it therefore needs to recognized in those terms.

Extract from Mine Health and Safety Act: *section 5. (1)*

*As far as is **reasonably practicable**, every **employer** must provide and maintain a working environment that is safe and without **risk** to the **health** of **employees**.*

Generic SLP behavioural plans

Behavioural communication: The elements of the behavioural communication plan set out below identify beliefs and issues that are generally present in mines, and which act as barriers to adoption of new technology and practice. The provision and presentation of convincing information is thus necessary to address the misperceptions or knowledge gaps associated with these beliefs and issues.

No.	Generic belief / issue	Essence of required communication
1	**There will be no personal benefit**	The direct health benefits to winch operators from a 50% reduction of silica dust inhalation must be clearly identified and communicated to them. The indirect benefits derived from adopting the winch cover SLP must be identified and explained to the relevant supervisors and engineering maintenance staff
2	**It will have a negative impact on production**	Experience illustrating that adoption of the winch cover SLP has no impact on production must be explained to all supervisors and winch operators.
3	**It will involve extra work effort**	The extra maintenance work required of the winch operator and engineering maintenance staff must be made part of their defined work.
4	**Short cuts are taken to meet production targets**	The reasons for a safe mine being a productive mine must be explained to the winch operators, engineering staff and their supervisors. The harm of ill-advised short cuts to health, safety and production should be brought out.
5	**Trust and buy-in are needed for adoption**	The importance of regular dialogue with staff to identify and address any and all concerns about the SLP to be explained to all relevant supervisory levels.
6	**Leaders must lead by example**	Leaders responsible for ensuring operation or maintenance of the equipment must regularly check and ensure that the equipment is in proper working order.
7	**Workers have a disregard for health and safety**	Managers and supervisors must communicate their high regard for health and safety through their actions, and in particular by ensuring that workers do not sacrifice health and safety considerations in the interests of production.
8	**Workers fail to implement training provided**	Explain to supervisors that they will get what they allow. Persons who do not do what they have been trained to do must be constructively coached or sent for re-training if necessary.

Communication materials

It is the responsibility of the mine to develop the required communication material to effectively (convincingly) convey the substance of the key messages set out in this generic behavioural communication plan which has been customized for the winch cover SLP.

It will also be important to identify and brief those responsible for delivering the various messages.

Leadership behaviour: The elements of the customised leadership behaviour plan that must be implemented in adopting the winch cover SLP are set out below. The provision of appropriate briefing and training will be necessary to achieve the leadership behaviours identified in this plan.

Antecedents (To enable the behaviour for successful adoption)	Behaviours (By the relevant person for successful adoption of the SLP)	Consequences (By next level supervisor in response to observed behaviour)
Operational adopters (Winch operator / Engineering Technician)		
• Operator training on operation and required regular maintenance • Technician training on installation and maintenance of covers • Briefing before implementation • Regular performance enquiries by supervisors	• Operator to operate and clean winches with covers as instructed • Technician to install and maintain winch covers to specification as trained. • No short cuts • Report any problems with SLP • Request explanations to ensure full understanding	• Immediate positive feedback from supervisor on observing desired behaviour • Constructive coaching to address any observed problems (no abuse) • Special recognition for exceptional performance
First level supervisors (Miner / Foreman)		
• Briefing of miner on operation and required regular maintenance • Briefing of foremen on installation and maintenance of winch covers • Briefing prior to implementation • Regular meetings with next level supervisor	• Regular dialogue to check on equipment and operator performance • Ensure operators / technicians receive any necessary training / instruction • No short cuts allowed or taken • Prompt action on any reported problems • Provide immediate positive feedback on observing desired behaviour • Provide constructive coaching on observing sub-standard behaviour	• Immediate positive feedback from next level supervisor on observing desired behaviour • Constructive coaching to address observed problems (no abuse) • Special recognition for exceptional performance
Second level supervisors (Shift boss / Mine Overseer / Engineer)		
• Briefing before implementation • Regular meetings with next level supervisor	• No short cuts allowed or taken • Ensure that operators and supervisors receive any necessary training / instruction • Enquire about winch cover performance / problems at regular meetings with supervisors • Provide immediate positive feedback on observing desired behaviour • Provide constructive coaching on observing sub-standard behaviour	• Immediate positive feedback from next level supervisor on observing desired behaviour • Constructive coaching to address observed problems (no abuse) • Special recognition for exceptional performance

Training

It is the responsibility of the mine to develop the training and briefing material required for implementation of the generic leadership behaviour plan that has been customised for the winch cover SLP.

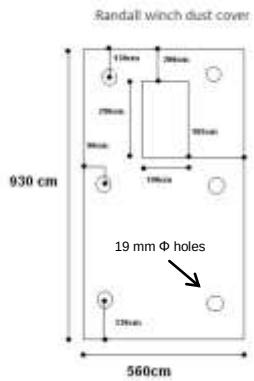
Guidance on implementation of the leadership behaviour and behavioural communication plans is provided later.

SLP technical details

The relevant technical aspects of the SLP are given below:

1. The winch cover should be made from a non-flammable material, such as conveyor belting that conforms with SANS 971
2. It should also meet relevant requirements of the DMR guideline for the compilation of a mandatory code of practice for the safe use of conveyor belt installations for the safe transport of mineral, material or personnel (DMR 16/3/2/2-A8)
3. Full specification of the cover, such as dimensions and bolting arrangements should be decided and specified by the mine engineering department to suit the winches in use at the mine. An example of dimensional arrangements provided at the source mine for a winch cover is shown alongside.
4. Establish a winch cover installation and routine maintenance programme for all existing and new winches at the mine, using mine or outsourced resources as appropriate.
5. Ensure proper alignment of winches on installation underground to enable the operator to see the drum and avoid rope entanglement.
6. Accumulation of dust under the cover to be cleaned away on a weekly basis using water.
7. Ensure that water is appropriately available to winch operators to enable cleaning when necessary.
8. Provide one-hour on-site training of winch operators on operation of an equipped winch, and on inspecting and cleaning the cover when necessary.

Example of dimensions for a particular type of winch



Adoption procedures

Notwithstanding the simple nature of the practice, the systematic 10-step process outlined below should be used, with adjustment where necessary, to manage adoption of the winch cover SLP at the mine.

Steps for mine-wide adoption of winch cover SLP

Step No.	Activity	Guidance notes / Comment
1	**Facilitate adoption decision** • Obtain top management decision to adopt	Environmental specialist to develop and present a mine-specific value case for mine-wide adoption Top management buy-in and support is essential for successful adoption
2	**Secure widespread support for adoption** • Issue mine wide briefing note about adoption • Brief mine health and safety representatives	Advise all mine staff of the adoption decision; point out that this will benefit all underground staff and not only winch operators Brief health and safety representatives through dialogue
3	**Establish an effective adoption team** • Identify a person to lead / champion adoption process • Ensure / enable provision of any needed support	Manager to ensure that the selected person has the stature and time needed to lead and champion the process. Manager to hold a meeting with relevant persons to brief / instruct about the needed support
4	**Develop mine-wide adoption plan** • Identify appropriate piloting arrangements • Develop mine-wide roll out plan	Identify a suitable piloting section to enable checking and troubleshooting before mine-wide roll out Develop a mine-wide winch cover installation and maintenance programme
5	**Implement a monitoring programme** • Identify measurements to show impact of practice • Design monitoring plan and initiate data collection	This should include appropriate dust measurements, as well as relevant measurements to show any impacts on winch performance and operator perceptions The monitoring plan must include analysis and reporting arrangements for the duration of the plan
6	**Harmonise practice with mine standards** • Review leading practice against mine circumstances • Adjust non-core aspects of the practice as necessary	Engineering department to draw up specifications for the winch covers to suit the mine's winches and operating conditions Adoption Leaders to ensure retention of core elements of the practice
7	**Develop training and communication materials** • Identify persons who need to be trained or briefed • Develop required training and briefing materials	All persons involved in operating or overseeing adoption and successful operation and maintenance of the winch covers should be identified for briefing / training. The mine to develop the necessary materials to implement the behavioural communication and leadership behaviour plans provided in this brief Materials will be required, in particular, for use with winch operators, technicians, supervisors and foremen
8	**Brief and train mine persons** • Plan and implement briefing and training programme	Existing communication systems on the mine should be used, such as management briefs, posters, waiting place discussions, etc Responsibility for conducting the briefing sessions and providing the necessary training for successful adoption must be clearly identified. Appropriate elements of the behavioural communication material should be used to address the entire workforce and in awareness training during induction of new employees and returnees from leave.
9	**Pilot adoption of the practice** • Conduct pilot scale adoption of the practice • Monitor, identify and test any needed improvements	The piloting arrangements should include a sufficient number of winch covers and be long enough to allow operational difficulties to emerge and be addressed
10	**Finalise and implement mine-wide roll out plans** • Review and finalise mine-wide roll out plans • Implement mine-wide roll out	The roll out process should be carefully monitored by the mine's adoption champion through to its completion.

Critical success factors

1. *Top management buy-in and support*
2. *A credible adoption champion with adequate time and support*
3. *Proper briefing and training of key people*
4. *A well designed and executed adoption roll-out plan*

Training and communication materials

Relatively simple training and communication materials are envisaged for the winch cover SLP.

Some of the identified behavioural communication messages may warrant being communicated to all employees. The development of more substantial material and presentation arrangements may thus be justified in those cases. This is a matter that should be seriously considered and decided by management.

End notes

1. Any queries in relation to the practice or adoption procedures outlined in this adoption brief should be raised with the MOSH Adoption Team Manager: Dust, or the team's Adoption Specialist (Phone 011 498 7574).