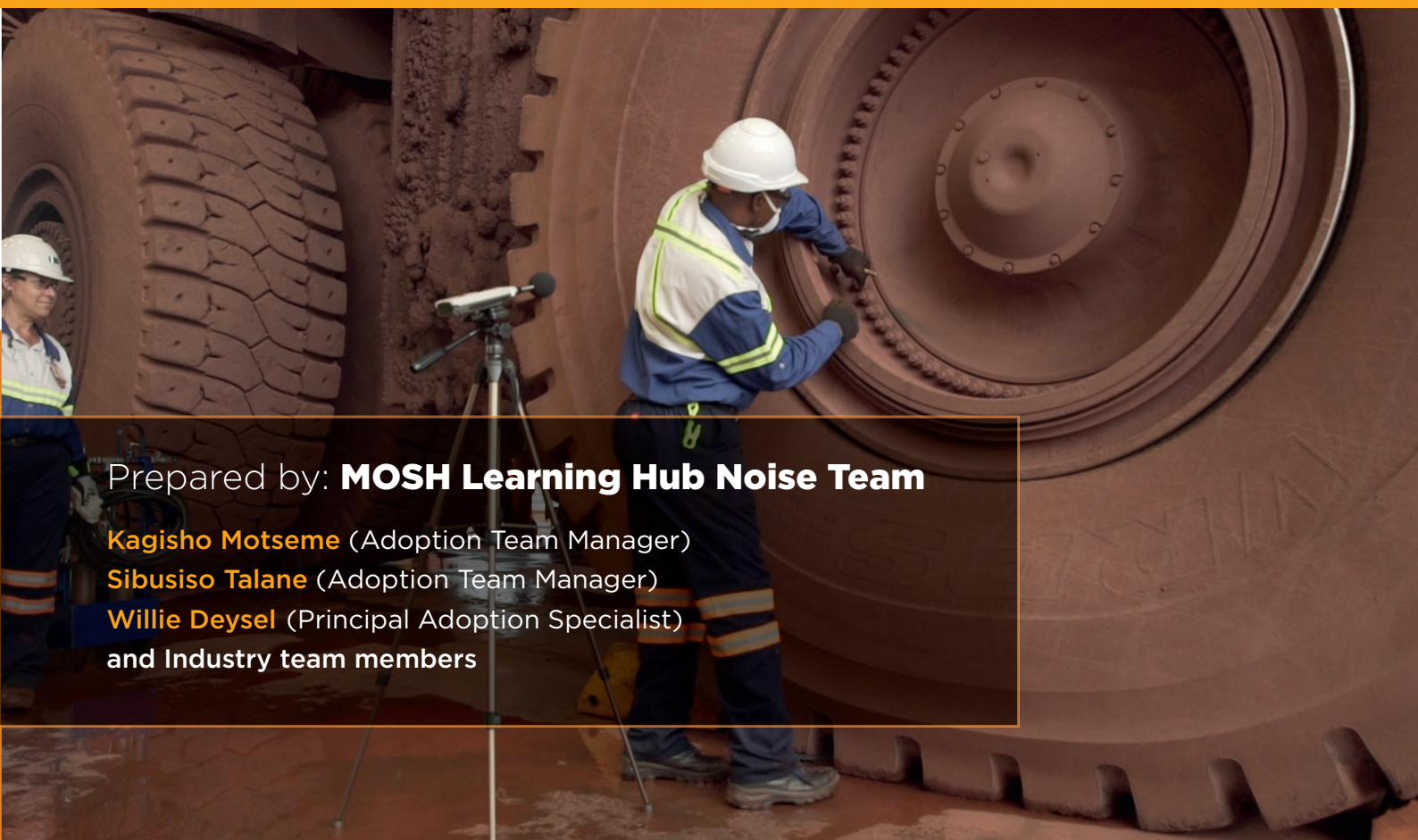
MINING INDUSTRY
OCCUPATIONAL
SAFETY & HEALTH

MINERALS COUNCIL
SOUTH AFRICA

LEADING PRACTICE ADOPTION GUIDE FOR TYRE DEFLATION NOISE REDUCTION SIMPLE LEADING PRACTICE

February 2019



Prepared by: **MOSH Learning Hub Noise Team**

Kagisho Motseme (Adoption Team Manager)
Sibusiso Talane (Adoption Team Manager)
Willie Deysel (Principal Adoption Specialist)
and Industry team members

TABLE OF CONTENTS

PREAMBLE

Noise induced hearing loss (NIHL) is one of the major occupational health risks that the mining industry is currently struggling to address. NIHL contributes to at least 90% towards all compensable occupational diseases in South Africa. Therefore, noise control initiatives are fundamental in ensuring that the industry curbs the risk of NIHL.

The MOSH Noise Team in their quest to find the next industry potential noise leading practice, identified a practice at Sishen Iron Ore mine which involves noise reduction during vehicle tyre deflation. This practice primarily focuses on mitigating the noise risk to employees by isolating the noise source position and remotely releasing it further away from the employee's potential exposure position/zone. Hence it is called the "Tyre Deflation Noise Reduction" practice. The practice has vast health and safety benefits as it significantly reduces the risk of NIHL occurrence at a reasonably low-cost engineering intervention.

This report outlines the process that the MOSH Noise Team followed during their investigation and documentation of the practice at the source mine, including the assessment of technical, behavioural and leadership aspects and the cost of the practice. The challenges and lessons learned are also clearly outlined in this report.

Heavy mining vehicles (HMVs) are an important component of open pit/cast mining. These vehicles are mostly used for hauling and transporting of ore and waste material during the mining cycle. HMVs usually operate on gravel road surfaces, which are normally inclined, irregular and very coarse. Effective tyre maintenance is therefore an important aspect towards achieving and maintaining production targets, health and safety standards. Failure to implement a consistent and reliable tyre management programme can result in several detrimental accidents and incidents to employees of any open pit operation.

An effective tyre management programme ensures correct selection of tyres, scheduled tyre maintenance, reduced health and safety incidents/accidents, reduced equipment downtime and as a result, increased production. Tyre management can also extend tyre life in the most cost-efficient manner through tyre repairing and, if warranted, re-treading, rim tracking and maintenance, including anti-corrosion treatment and robust non-destructive testing regimes.

The process of tyre maintenance often requires that the tyre be deflated before being worked on. Tyre deflation can present numerous health and safety risks to the employees, such as high noise exposure, dust exposure, eye injuries due to trajected particles, hand injuries and unexpected release of stored energy (tyre burst).

1. BACKGROUND

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

2. SYSTEM

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

3. SIMPLE LEADING PRACTICE (SLP)

A leading practice is classified as an SLP 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 customised and used. Such plans are provided in this adoption brief.

4. ADOPTION PROCESS AND MOSH LEADING PRACTICE / SLP MAIN ELEMENTS

Importantly, sustainable adoption of a leading practice, including an SLP, 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 comprise of the three main elements (legs) depicted below.

1. BEST PRACTICE DESCRIPTION

The Sishen Iron Ore mine, in conjunction with their on-site tyre management contractor, identified noise emitted during tyre deflation as a critical risk to their employees. Over the years, the operation has implemented several engineering control initiatives/practices to mitigate the identified noise risk. Unfortunately, some of these initiatives/practices were either ineffective, cumbersome or not user-friendly. Sishen Iron Ore mine has seen a constant evolution in terms of noise silencing initiatives, and their commitment towards finding an effective solution to the noise risk during tyre deflation has resulted in the successful implementation of the Tyre Deflation Noise Reduction practice.

Tyre Deflation Noise Reduction Practice

This practice primarily focuses on mitigating the risk of noise to employees by isolating the noise source position and remotely releasing it further away from the employees' potential exposure position/zone.

2. PROBLEM STATEMENT

Tyre deflation can present numerous health and safety risks to employees, such as high noise exposure. The noise levels emitted during tyre deflation can rise to peak levels of approximately 130.0 dB(A) if no controls are in place.

The following noise baseline measurements on various tyre sizes (pre and post), noise risk controls, and the deflation time study were conducted by the Sishen Iron Ore Hygiene Department:

- Tyre size is different depending on vehicle size, therefore the duration of deflation and that of employee's exposure to noise will vary depending on the size of the tyre. It is important to note that more than one tyre can be deflated at once (multiple noise sources) when deflation is conducted in a workshop, thus increasing the employee's risk of exposure to noise
- The most significant benefit in the use of the practice is the reduction of the noise emitted from the deflation of the trackless mobile machine (TMM) tyres, resulting in significant reduction in the employees' noise exposure risk. Graphs 1 and 2 compare the noise emissions of a 63 inch TMM tyre inflated at a pressure of 600kPa (kilopascal) and deflated directly to the atmosphere versus the same tyre deflated through the fixed piping deflation system

3. TECHNICAL ASPECTS OF THE PRACTICE

Sishen Iron Ore mine currently uses two systems for deflation:

- Mobile trolley deflation system
- Fixed pole deflation system

Both these deflation systems have vast noise exposure reduction benefits (reducing noise emitted from approximately 114.0 dB(A) down to approximately 68.0 dB(A)) to employees, and can be easily used according to intended/applicable requirements on production site/field or at the tyre workshop. However, the specific deflation tools have a significant impact in the effectiveness of the above-mentioned systems.

3.1 MOBILE TROLLEY DEFLATION SYSTEM

This is a mobile unit system that is used for both inflation and deflation of tyres on the pit (production site) when breakdowns occur. It is normally loaded on a light duty vehicle to attend to breakdowns on the mining site.

During tyre deflation, the air hose from the trolley is connected to the tyre using a particular inflation/deflation tool (adapter). The trolley is then moved further away from the tyre and tyre technician's position where the air can be discharged, thus reducing noise exposure to any employees.

Various deflation tools/adapters can be used for different tyre sizes. It is important to note the importance of this deflation tool/adapter as it ensures the release of air from the tyre through the air hose to the discharge position and restricts the release of air or noise to the immediate position of the tyre technician.

The mobile trolley deflation system, although portable and handy, has its own disadvantages such as slower deflation due to restrictions caused by the noise muffler. The trolley also requires regular maintenance/servicing of the noise muffler which is susceptible to dust clogging. Consequently, this results in extending the deflation time.

3.2 FIXED POLE DEFLATION SYSTEM

This is a fixed installation system at a tyre workshop. The installation includes a multi-connection manifold connected to a single 63mm pipe which extends to the top of the roof where the air and noise are discharged during deflation.

All tyres that need to be deflated in the workshop are subjected to this system to reduce noise exposure of employees. Due to the larger diameter pipe being used, the deflation time is shortened significantly.

During tyre deflation, the air hose from the manifold is connected to the tyre utilising a particular inflation/deflation tool (adapter), routing the air via a ball valve on the manifold and discharging the air from the tyre at the workshop roof (5.50m) via the 50mm pipe, thus reducing noise exposure to any employees in the area.

The installation of such a system does not require a lot of expertise and can be done in-house by the engineering department. The maintenance of the system is also low, as only the hoses, valves and the deflation tool may need regular attention.

Various deflation tools/adapters as in the mobile trolley system, are also used for different tyre sizes.

3.3 INFLATOR/DEFLATION ADAPTER

The inflation/deflation adapter is a vital component of the two above-mentioned deflation systems. The adapter connects to the tyre valve and the hose (1/4" industrial female coupler) that conveys the air to either the mobile trolley or the fix pole for discharge.

INFLATION/DEFLATION EQUIPMENT

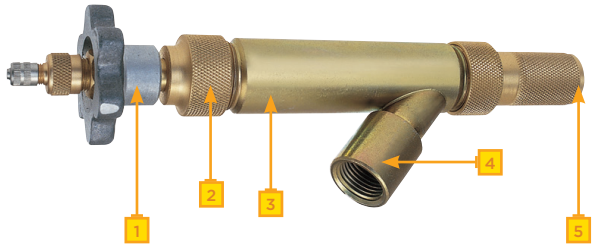
SHOWN BELOW IS A CROSS-SECTION OF THE DIFFERENT FLOW DIAMETERS ON THE FOUR VALVE SYSTEMS			
Large bore 19°/4.826mm			The large bore valve system is the oldest of the four off-road tire valve systems. Below are the basic components of a large bore valve system
Super Large bore 44°/11.176mm			To maximize air flow, an IN-80A or an IN-95 inflator is used to remove the core housing during inflation and deflation. The super large bore valve system is more than three times faster than a large bore valve and reduces inflation time 60%, deflation time 80%
Z bore 56°/14.224mm			The Z-bore valve system is very similar to the super large bore valve system. By using an O-ring seal to clamp the spud to the rim, a greater flow diameter is createdd without sacrificing strength or performance
Mega bore 69°/17.526mm			The mega bore valve system is unique because it uses a different hole size than other valve system. There are several other features which make this system unique

3.4 MAIN COMPONENTS OF THE INFLATION/DEFLATION TOOL

Operation on an inflation/deflation tool

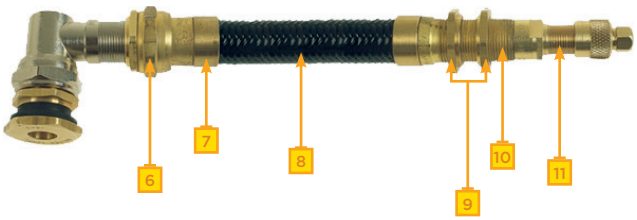
Main components of the inflation/deflation tool

1. Slide extractor mechanism turn knob
2. Slide action retaining collar
3. Main body
4. Air inlet/outlet
5. Connecting union



Main components of valve equipment

6. Swivel connector
7. Connector sleeve
8. Flexible extension
9. Lock nuts
10. Straight connector
11. Valve core housing



3.5 OPERATION OF DEFLATION TOOL

STEP 1: PRE-START/USE INSPECTION OF TOOLING/EQUIPMENT

- Inspect air lines and valve components for signs of damage or defects
- Inspect the inflation tool for signs of damage or defects
- Check that the slide action retaining collar is secured tightly onto the main body

STEP 2: PREPARATION OF THE VALVE ASSEMBLY

- Loosen the valve core housing in the 'straight connector'
- Use the vice grips to hold the lower section of the 'straight connector' so that it does not damage the threads
- Loosen the valve core housing about half a turn using a half inch spanner
- Thoroughly clean the threads on the 'straight connector' using a wire brush or a re-threading tool to ensure the correct fitment of the 'connecting union'

STEP 3: ATTACHMENT OF THE INFLATION/DEFLATION TOOL TO THE VALVE ASSEMBLY

- Attach the 'connecting union' onto the 'straight connector'
- Attach the main body of the inflator to the 'connecting union'

STEP 4: ATTACHMENT OF THE INFLATION/DEFLATION AIR HOSE TO THE INFLATION/DEFLATION TOOL

- If the inflation tool is not permanently connected to the remote inflation station air hose, attach the inflation/deflation hose to the inflation tool
- Close the main air supply ball valve
- Close the purge/dump valve
- Operate the inflation tool to extract the core housing
- Push the slide extractor mechanism inwards until it connects onto the valve core housing
- Turning the knob may be required until the extractor clicks into the locating grooves
- Turn the knob on the slide extractor mechanism counter-clockwise to un-screw the valve core housing out of the valve assembly

STEP 5: OPERATION OF THE INFLATION TOOL FOR THE INSTALLATION OF THE VALVE CORE HOUSING

- Close the main air supply ball valve
- Close the purge/dump valve
- Ensure that a core housing is installed in the slide extractor mechanism
- Push the slide extractor mechanism inwards until the core housing engages with the valve assembly
- Turn the knob on the slide extractor mechanism clockwise to screw the valve core housing into the valve assembly
- When the core housing is completely screwed in, pull back the slide mechanism to release the extractor from the core housing
- Check that the slide action retaining collar is secured tightly onto the main body

STEP 6: REMOVAL OF THE INFLATION/DEFLATION TOOL FROM THE VALVE ASSEMBLY

- Use the pressure gauge to confirm that there is no pressure in the inflation/deflation air hose. If there is pressure, open the purge/dump valve to release it
- Disconnect the main body of the inflator from the 'connecting union'
- Disconnect the 'connecting union' from the 'straight connector' of the valve assembly

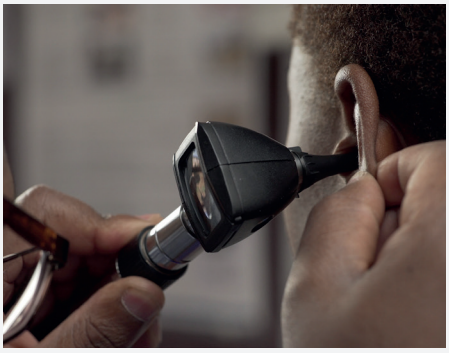
STEP 7: FINAL STEPS

- Attach the 'connecting union' back onto the main body of the inflator
- Clean and inspect the inflation tool for any damage
- If the slide action becomes tight, lube the shaft with a light oil and work it until the slide actions become smooth
- Use a rag and/or wire brush to clean off all gum and debris from internal parts
- Replace any seals parts or inflator as required
- Tag out and report faulty equipment as per site procedure
- Store all tooling in the correct storage location

PART III: DOCUMENTED BENEFITS TO DATE

Tyre deflation can present numerous health and safety risks to the employees due to high noise exposure. The noise levels emitted during tyre deflation can rise to peak levels of approximately 130.0 dB(A) if no controls are in place.

The following noise baseline measurements on various tyre sizes (pre and post) noise risk controls, and the deflation time study were conducted by the Sishen Iron Ore Hygiene Department:



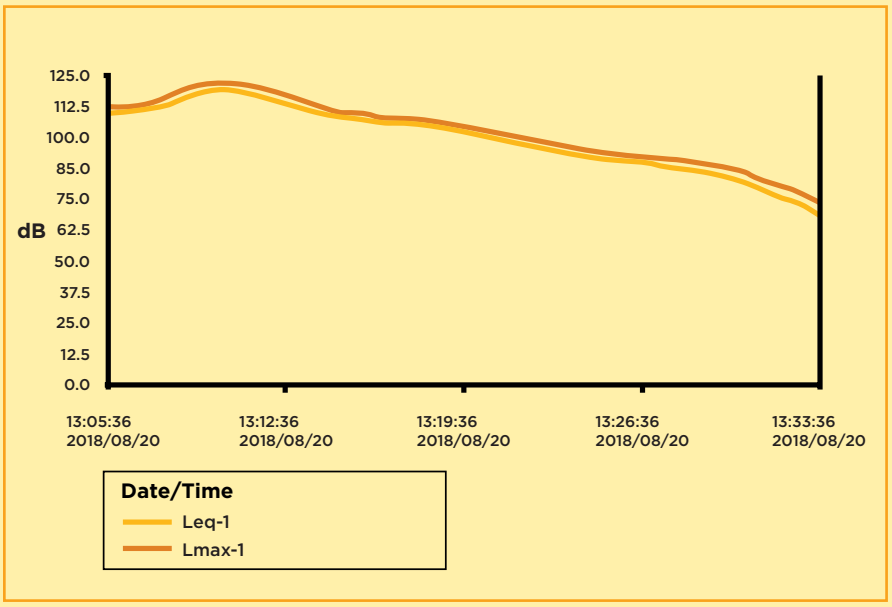
NOISE EMISSION AND TIME STUDY DATA – TYRE DEFLATION PROCESS

Tyre information		Free-to-air deflation		Trolley system		Fixed system	
Tyre size	*Tyre pressure (kPa)*	*LAeq (dBA)*	*Duration (hh:mm:ss)*	*LAeq (dBA)*	*Duration (hh:mm:ss)*	*LAeq (dBA)*	*Duration (hh:mm:ss)*
LDV							
245/17/R16	240	**89.5**	00:00:35	**71.4**	00:00:27	**63.8**	00:00:25
215/75/R17.5	400	**82.3**	00:01:07	**70.9**	00:00:35	**61.7**	00:00:20
315/80/R22.5	600	**101.3**	00:03:05	**73.8**	00:02:38	**54.4**	00:02:04
Secondary Equipment							
45/65/R45	500	**90.8**	01:00:37	**67.4**	00:55:00	**54.9**	00:27:27
29.5/R25	500	**93.1**	00:20:07	**68.8**	00:15:15	**60.4**	00:07:03
23.5/R25	300	**89.7**	00:19:49	**76.7**	00:13:08	**68.3**	00:07:30
Primary Equipment							
27/R49	700	**96.0**	00:29:00	**59.9**	00:20:18	**58.3**	00:17:47
50/90/R57	700	**107.2**	00:30:21	**73.4**	00:22:46	**68.1**	00:19:19
59/80/R63	700	**102.0**	00:32:15	**74.0**	00:23:14	**70.1**	00:21:52

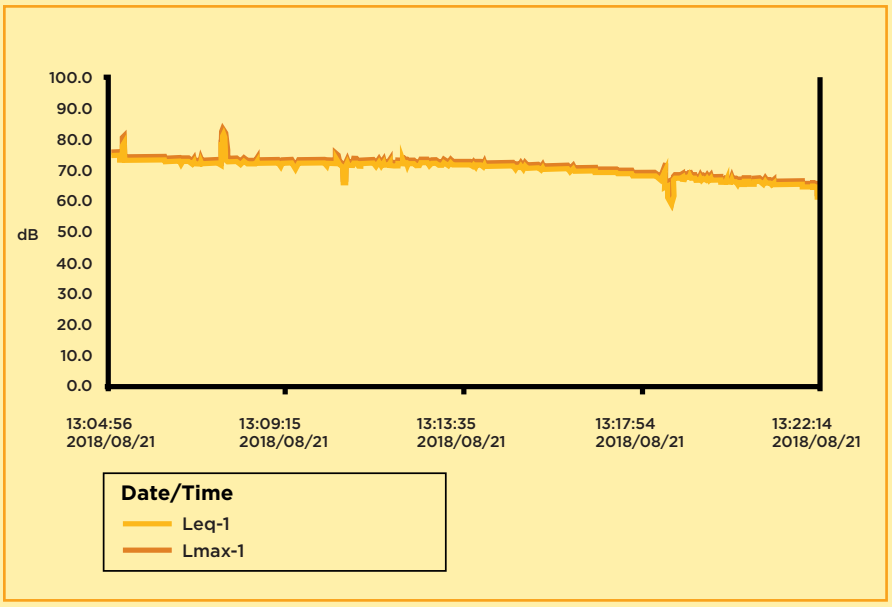
* *Tyre size is different depending on the vehicle size, therefore the duration of deflation and that of employee's exposure to noise will vary depending on the size of the tyre. It is important to note that more than one tyre can be deflated at once (multiple noise sources) when deflation is conducted in a workshop, thus increasing the employee's risk of exposure to noise*

NOISE EMISSION COMPARISON:

The graphs alongside demonstrate the extent of noise emission reduction, by making use of a direct comparison of the noise emissions of a 63" TMM tyre, inflated at a pressure of 600kPa, deflated directly to the atmosphere versus the same tyre deflated through the fixed piping deflation system.



Graph 1: *Deflation of a 63" TMM tyre, inflated at a pressure of 600kPa directly to the atmosphere*



Graph 2: *Deflation of a 63 inch TMM tyre, inflated at a pressure of 600kPa through the fixed piping system*

The noise measurements reported in this section were conducted at the source mine and were performed in accordance with the "Guidance Note for Noise Measurement of Equipment to Ensure Conformance with Mine Health and Safety Council Milestones", making use of a calibrated Type 1 integrating sound level meter.

1. INITIAL COST FOR THE INSTALLATION OF THE FIXED POLE DEFLATION SYSTEM

No.	Elements of the system	Quantity	Unit	Supplier	Estimated cost per unit
1	Large bore inflating/deflating tool	1	Each	Tyre maintenance supplier	R1 350
2	Super large bore inflating/ deflating tool	1	Each	Tyre maintenance supplier	R920
3	1/4" industrial nipple	8	Each	Tyre maintenance/hydraulics supplier	R25
4	1/4" large bore clip-on air chuck	8	Each	Tyre maintenance/hydraulics supplier	R230
5	1/4" industrial female coupler	8	Each	Tyre maintenance/hydraulics supplier	R125
6	3/4" air hose	10	Meter	Tyre maintenance/hydraulics supplier	R155/m
7	32mm brass ball valve	4	Each	Steel supplier/hardware store	R300
8	65mm galvanised pipe		Meter	Steel supplier	R215/m
9	65mm galvanised elbow	2	Each	Steel supplier/hardware store	R130
10	65mm galvanised T-piece	1	Each	Steel supplier/hardware store	R200
11	65mm galvanised reducing T-piece	4	Each	Steel supplier/hardware store	R215
12	65mm galvanised end dap	2	Each	Steel supplier/hardware store	R85
13	65mm galvanised malleable holderbat	6	Each	Steel supplier/hardware store	R95
14	Female hose adaptor (quick coupling) O-ring replacement kit	1	Each	Tyre maintenance/hydraulics supplier	R35

* *The costs involved in the training of the employees and the installation of the fixed piping system involved in the adoption of the tyre deflation noise reduction practice is not included*

2. INITIAL COST FOR THE TROLLEY DEFLATION SYSTEM

No.	Elements of the system	Quantity	Unit	Supplier	Estimated cost per unit
1	Large bore inflating/deflating tool	1	Each	Tyre maintenance supplier	R1 350
2	Super large bore inflating/deflating tool	1	Each	Tyre maintenance supplier	R920
3	Tyre inflation/deflation trolley	1	Each	Tyre maintenance/hydraulics supplier	R19 000
4	1/4" industrial nipple	2	Each	Tyre maintenance/hydraulics supplier	R25
5	1/4" large bore clip-on air chuck	2	Each	Tyre maintenance/hydraulics supplier	R230
6	1/4" industrial female coupler	2	Each	Tyre maintenance/hydraulics supplier	R125
7	3/4" air hose	10	Meter	Tyre maintenance/hydraulics supplier	R155/m
8	Female hose adaptor (quick coupling) O-ring replacement kit	1	Each	Tyre maintenance/hydraulics supplier	R35
9	Replacement air muffler	1	Each	Tyre aintenance/hydraulics supplier	R565

3. OPERATIONAL COSTS

The following key maintenance aspects associated with the tyre deflation noise reduction SLP were identified:

i. Fixed piping system:

No.	Item description	Frequency	Unit	Supplier	Estimated cost per unit
1	Replacement large bore inflating/ deflating tool	When required	Each	Tyre maintenance supplier	R1 350
2	Replacement super large bore inflating/deflating tool	When required	Each	Tyre maintenance supplier	R920
3	32mm brass ball valve	When required	Each	Steel supplier/hardware store	R300
4	1/4" industrial female coupler	When required	Each	Tyre maintenance/hydraulics supplier	R125
5	Female hose adaptor (quick coupling) O-ring replacement kit	When required	Each	Tyre maintenance/hydraulics supplier	R35

The following key maintenance aspects associated with the tyre deflation noise reduction SLP were identified:

ii. Trolley system:

No.	Item description	Frequency	Unit	Supplier	Estimated cost per unit
1	Replacement large bore inflating/ deflating tool	When required	Each	Tyre maintenance supplier	R1 350
2	Replacement super arge bore inflating/deflating tool	When required	Each	Tyre maintenance supplier	R920
3	32mm brass ball valve	When required	Each	Steel supplier/hardware store	R300
4	1/4" industrial female coupler	When required	Each	Tyre maintenance/hydraulics supplier	R125
5	Female hose adaptor (quick coupling) O-ring replacement kit	When required	Each	Tyre maintenance/hydraulics supplier	R35
9	Replacement air muffler	When required	Each	Tyre maintenance/hydraulics supplier	R565

4. OTHER IMPACTS OF SIGNIFICANT BUSINESS VALUE

DETAIL	COMMENT
Improved stakeholder relationships internally and externally	Greater investor attraction
Buy-in and collaboration from all stakeholders	Tripartite involvement and approval
A more positive relationship between all stakeholder levels at the mine	People generally want to know that their health is being looked after
Progress towards zero harm culture	In line with industry commitment and towards the achievement of the 2020 Noise Milestones
Less risk of management prosecution/class actions	Reductions in the occupational health exposures (noise and airborne pollutants) of individuals will result in a reduced risk of prosecution/class action
Healthier and productive workforce	Refer to moral obligation section
Reduction in injuries	Reduction in eye injuries due to trajected particles, as well as a reduction in hand and associated injuries from the unexpected release of stored energy
Improved productivity	Reduction in mobile plant downtime due to faster deflation durations

5. MORAL OBLIGATION

Excessive noise exposure can lead to permanent hearing loss and poor verbal communication, and can reduce the ability to recognise warning signals, which can lead to accidents. NIHL is one of the most prevalent work-related diseases and injuries in the industrialised world, but it is also completely preventable (Edwards, 2012). Research conducted on industry best practice indicates that noise control engineering should be implemented to reduce the risk of noise exposure (Franz, 2005).

The dominant components of the solution include a substantial commitment to prevention and a culture of health rather than just more treatment and cure. The health cost conundrum can be impacted by reducing the burden of NIHL and health risk in mining populations, thereby improving the health and productivity of the workforce, the health of the bottom line for engaged employers and ultimately the health of the mining industries' economy.
The broader value proposition of integrated mining population health and productivity enhancement should drive this approach by leveraging the value of health and the power of prevention.

PART V: SUMMARY OF GENERIC BEHAVIOURAL ASPECTS

1. BEHAVIOURAL COMMUNICATION REQUIREMENTS

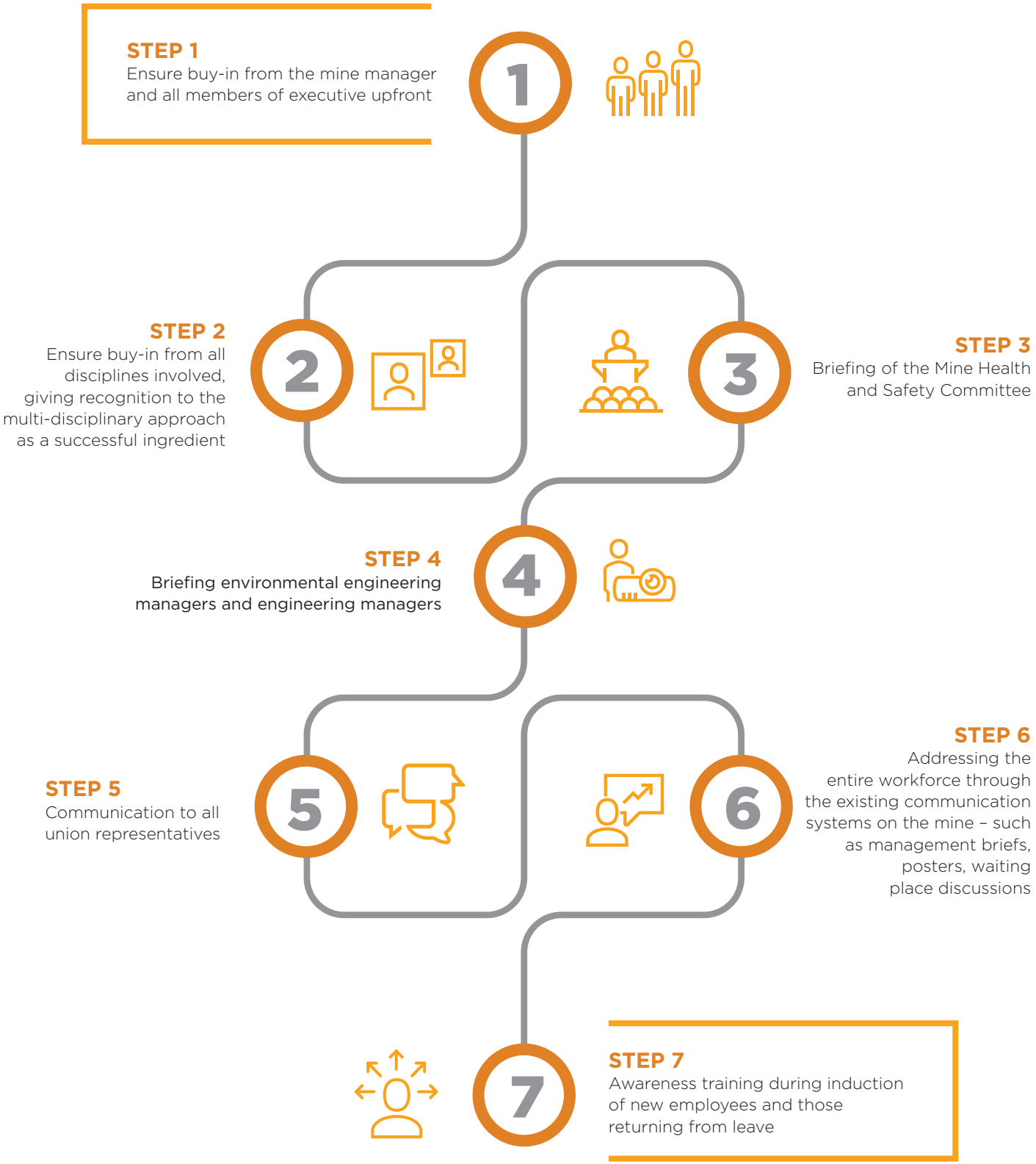
No.	Issue / belief	Essence of required behavioural communication
1	Not making use of the Tyre Deflation Noise Reduction practice would not significantly impact on the hearing of exposed persons, since hearing protection is worn and is compulsory	Workers could still suffer from NIHL, even if hearing protection is used or when hearing protection devices are not properly used or fitted. The Tyre Deflation Noise Reduction practice reduces the noise level of the deflating air to a safe level, should be understood to be a barrier to prevent NIHL and be used whenever a tyre requires to be deflated
2	Leaking components of the tyre deflation system would not significantly impact on the hearing of exposed persons, since hearing protection is worn and is compulsory	Leaking components within the tyre deflation system would result in an increase in noise exposure and a false sense of protection. Incident reports should be submitted upon discovery of system leaks. Pre-use inspections and scheduled maintenance should be conducted to ensure that the tyre deflation system is free from leaks
3	Potential negative impact on production	There should be no negative impact on production
4	Extra work effort	The only extra work involved is the attachment of the inflation/deflation tool and the connection of the flexible hose
5	Short cuts to meet production targets	Not applicable. The practice reduces the deflation duration of mobile equipment tyres and would assist employees in meeting their targets
6	Trust and buy-in	Repeatedly emphasise to all supervisory levels the importance of regular dialogue with their staff
7	Leaders must lead by example	Leaders responsible for maintenance of the equipment must diligently ensure the equipment is maintained
8	Worker disregard for health and safety	Managers must regularly demonstrate their high regard for health and safety
9	Failure to implement training provided	Explain to supervisors that they must not allow sub-standard activity (maintenance) – as they will get what they allow. They must provide constructive coaching or if necessary, send the person for re-training

2. LEADERSHIP BEHAVIOUR REQUIREMENTS

Antecedents (for desired behaviour)	Behaviours (desired for successful adoption)	Consequences (for exhibited behaviour)
Operational adopters (tyre technician)		
• Formal training programme • Tyre deflation system and components • Pre-use checklist • Incident reporting system • Planned task observations	• Tyre deflation system is used whenever a tyre is deflated • Tyre deflation system is inspected and pre-use checklists are completed prior to each tyre being deflated • Incidents are reported when leaks in the tyre deflation system is identified	• Planned task observations • Review of reported incidents • On-the-job training
First level supervisors		
• Formal training programme • Tyre deflation system and components • Pre-use checklist • Incident reporting system • Planned task observations • Scheduled maintenance system/ job cards • Availability of maintenance parts/consumables • Over inspection reporting system	• Planned task observations conducted • Review of pre-use checklists and incident reports • Performing of over inspections • Performing scheduled maintenance	• Planned task observations • Review of reported incidents • On-the job training • Review of job cards • Review of over inspections
Second level supervisors (and any other levels if applicable)		
• Formal training programme • Tyre deflation system and components • Pre-use checklist • Incident reporting system • Planned task observations • Scheduled maintenance system/ job cards • Availability of maintenance parts/ consumables • Over inspection reporting system • Stock inventory system and procurement system	• Planned task observations conducted • Review of pre-use checklists and incident reports • Performing of over inspections • Maintenance of adequate stock levels on replacement parts	• Planned task observations • Review of reported incidents • On-the job training • Review of job cards • Review of over inspections • Review of replacement parts inventory
Trainers		
• Formal training programme • Audit programme and schedule	• Formal training is provided to all employees involved in the task of tyre deflation on a periodic basis • On the job training is provided at scheduled intervals	• Audits on training programme

PART VI: STEPS FOR THE ADOPTION OF THE SLP

The following steps need to be taken to ensure proper adoption:



PART VII: GUIDANCE NOTES FOR THE ADOPTION OF THE SLP

The following guidance notes will assist mines with their adoption of the SLP:

i. The training department must ensure that all persons involved in the practice to be adopted are properly informed and trained on all the elements of the practice, prior to the purchasing/installation of the infrastructure

ii. Engineering department must ensure that a workspace dedicated for tyre repairs is provided

iii. The engineering department must coordinate/oversee the installation of the fixed pole deflation system at the operation

iv. The engineering department must take responsibility for maintaining the tyre deflation noise reduction system adopted/installed and have replacement maintenance items/parts readily available at the operation

MINING INDUSTRY
OCCUPATIONAL
SAFETY & HEALTH

www.mosh.co.za

www.mineralscouncil.org.za

MINERALS COUNCIL
SOUTH AFRICA