



August 2014

**Mine Health and Safety
Inspectorate
Monthly Regional Newsletter**

WESTERN CAPE

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mineral resources

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1 TOPICAL ISSUE OF THE MONTH

1.1 Accidents reported

The regional office received two reports of injury accidents during August. No fatal accidents or reportable non-casualty accidents were reported.

1.2 Short description of accidents

- A short circuit occurred on the live feed side to the secondary crusher. The resultant flash caused severe burns to the hand and neck of the injured.
- While retrieving the fast rescue craft, the injured caught his thumb between the craft and boat resting cradle.

1.3 National Accident Statistics

The table below indicates the national accident statistics from 1 January to 31 August 2014:

	Fatalities			Injuries		
	01/01/2013 31/08/2013	01/01/2014 31/08/2014	% change	01/01/2013 31/08/2013	01/01/2014 31/08/2014	% change
Total	63	61	-3	2165	1465	-32
Gold	27	38	41	856	726	-15
Coal	5	7	40	174	141	-19
Platinum	20	5	-75	950	332	-65
Other	11	11	0	185	266	44

Region	Fatalities			Injuries		
	01/01/2013 31/08/2013	01/01/2014 31/08/2014	% change	01/01/2013 31/08/2013	01/01/2014 31/08/2014	% change
Total	63	61	-3	2165	1465	-32
Western Cape	0	0	0	4	7	75
Northern Cape	2	1	-50	40	70	75
Free State	5	10	100	211	215	2
Eastern Cape	1	0	-100	0	4	100
KwaZulu/Natal	2	2	0	31	19	-39
Mpumalanga	8	7	-13	184	137	-26
Limpopo	4	5	25	107	160	50
Gauteng	17	25	47	426	365	-14
Klerksdorp	2	2	0	229	174	-24
Rustenburg	22	9	-59	933	314	-66

1.4 Quality Management System

The following is a simplified model of Quality Management System taken from the internet:

A quality management system is defined as a documented set of policies and procedures that provide assurance to the customer of the product and service levels expected. It is:

- Systems-based.
- People-based.
- Process-based.

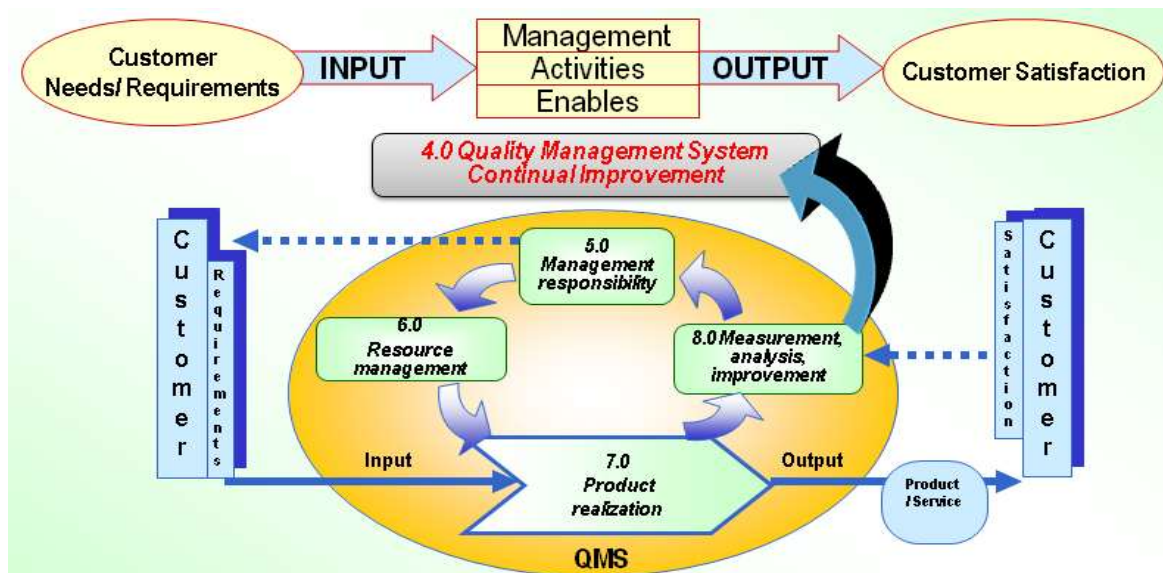
Advantages of implementing Quality Management System include:

- Defines and conveys quality objectives, policies and practices.
- Facilitates uniformity in practice and training of new employees.
- Eliminates, prevents and reduces quality deficiencies.
- Expedites the interchange of employees between various job.
- Eliminates important system changes being made without due consideration.
- Provides a basis for audits to be conducted.

A Quality Management System provides a feedback loop in which:

- Policies define purposes and set the standards an organization wants to meet.
- Procedures are implemented to put these policies into practice.
- Policies and procedures are reviewed to make sure that organization actively improve their effectiveness and efficiency.

1.5 A Diagram of a Simplified Quality Management System model:



2. OCCUPATIONAL HEALTH

2.1 Occupational Hygiene

An effective health management system aims to ensure that mine employees are healthy and fit for the occupation in which they are positioned, to create a healthy work environment that is free from exposures leading to ill health, to educate and inform employees of the consequences of risk behaviors (in and away from the work place) so that they may leave the mine's employment with no ill effect.

Employee health is affected by the occupational hygiene stressors to which they are exposed as well as by exposures and lifestyle issues away from the working environment. It is therefore important that holistic health management systems are adopted which are aimed at addressing education and understanding with regard to health and occupational hygiene issues. This should be complemented by effective Occupational Hygiene Management and Occupational Medical Surveillance systems where required in terms of risk assessment.

2.2 Occupational Medicine

Pulmonary Fibrosis

What is Pulmonary Fibrosis?

Pulmonary Fibrosis involves scarring of the lung. Gradually, the air sacs of the lungs become replaced by fibrotic tissue. When the scar forms, the tissue becomes thicker causing an irreversible loss of the tissue's ability to transfer oxygen into the bloodstream.

What are the symptoms?

- Shortness of breath, particularly with exertion.
- Chronic dry, hacking cough.
- Fatigue and weakness.
- Discomfort in the chest.
- Loss of appetite.
- Rapid weight loss.

What is the prevalence of Pulmonary Fibrosis?

There are five million people worldwide that are affected by this disease. In the United States there are over 200,000 patients with Pulmonary Fibrosis. As a consequence of misdiagnosis the actual numbers may be significantly higher. Of these more than 40,000 expire annually. This is the same number as those who die from Breast Cancer. Typically, patients are in their forties and fifties when diagnosed. However, diagnoses have ranged from age seven to the eighties. Current research indicates that many infants are afflicted by Pediatric Interstitial Lung Disease. At this time there is limited data on prevalence for this group.

What are the causes?

Traditional theories have postulated that it might be an autoimmune disorder, or the after effects of an infection, viral in nature. There is a growing body of evidence which points to a genetic

predisposition. A mutation in the SP-C protein has been found to exist in families with a history of Pulmonary Fibrosis. The most current thinking is that the fibrotic process is a reaction to microscopic injury to the lung. While the exact cause remains unknown, associations have been made with the following:

- Inhaled environmental and occupational pollutants.
- Cigarette smoking.
- Diseases such as Scleroderma, Rheumatoid Arthritis, Lupus and Sarcoidosis.
- Certain medications.
- Therapeutic radiation.

How is it treated?

There are currently no effective treatments or a cure for Pulmonary Fibrosis. The pharmacological agents designed to treat lung scarring are still in the experimental phase while the treatments intended to suppress inflammation have only limited success in reducing the fibrotic progress.

Because the origin and development of the disease is not completely understood, misdiagnosis is common. Varying terminology and lack of standard diagnostic criteria have complicated the gathering of accurate statistics about people with pulmonary fibrosis. Supplemental oxygen improves the quality of life and exercise capacity. Single lung transplant may be considered for some patients. Pulmonary Fibrosis is a very complex disease and the prediction of longevity of patients after diagnosis varies greatly.

There are a number of new trials testing drugs to treat Pulmonary Fibrosis.

3. OCCUPATIONAL SAFETY

3.1 Mining

Mining within 100m of structures to be protected.

During inspections at various mining operations in the Western Cape, it is apparent that the regulations pertaining to mining within 100 metres of structures to be protected are often not being complied with. Below is an explanation of the applicable regulations and the information regarding application for approval in terms of these regulations. Managers are therefore encouraged to submit documentation for approval in advance to avoid unnecessary stoppages and the resulting disruption in mining operations.

Regulation 17.7(a) reads: “no mining operations are carried out within a horizontal distance of 100 (one hundred) metres from reserve land, buildings, roads, railways, dams, waste dumps or any other structure whatsoever including structures beyond the mining boundaries, or any surface, which it may be necessary to protect in order to prevent any significant risk, unless a lesser distance has been determined safe by risk assessment and all restrictions and conditions determined in terms of the risk assessment are complied with”

Regulation 17(10) requires that no mining may take place unless approval has been granted by the Chief Inspector in terms of Regulation 17.9(a) and 17.9(b). The application for approval must be submitted to the Principal Inspector of the region and must contain three copies of the following:

- Plans to scale of the area where exemption is required including coordinates,
- A risk assessment done by a suitably qualified Geotechnical Engineer, and
- Permission from the owner/operator of the structure or structures that will be impacted upon within the 100m horizontal distance.

3.2. Machinery

Typical Stone Quarry

Poincare H writes, *“It is through science that we prove, but through intuition that we discover”*.

Prism Business Media said the following about more than 77 year old McCrary Stone Quarry: McCrary Stone is a typical quarry, blasting raw material from the mountain every couple of weeks, systematically processing it through one or both of its stationery crushing circuits. The real difference at McCrary lies in the systems, how well they are managed and maintained. The company has a dedicated building on site where maintenance is performed on all rolling stock; each crusher is greased daily to ensure that it continues to function at peak condition. As Pat McCrary (owner) points out, “It’s always cheaper to grease a machine than to fix it.” Pat may stick to his old-school work-ethic approach to running his quarry, but he recognizes that upgrades in technology bring upgrades in performance and better performance means better profit.

The cone crushers reportedly contribute to increased profit by delivering efficient, reliable production in most aggregate applications. Features such as remote-adjust, internal counterweights and automated tramp-iron release, ensure that the production continues uninterrupted even under the most demanding conditions. By providing operational flexibility, the cone crushers allow facilities to quickly change production to meet demands of the marketplace. Also their roller-bearing design is said to offer reliability and durability improvements over crushers that incorporate bushing-based mechanisms.

It is not the formidable competition that Pat strives to overcome; rather his drive goes back to his sense of pride in running the perfect quarry, he puts more pressure on himself to succeed than any market forces could exert. The result of that dedication is demonstrated daily. The satisfaction Pat gains from doing it his way will no doubt keep him coming to work early every morning, for years to come.

4. AUDITS , INSPECTIONS AND INVESTIGATIONS

4.1 Inspections

The following inspections were conducted in August 2014.

	Planned	Actual
Mining inspections	10	12
Occupational Hygiene inspections	11	11
Occupational Medicine inspections	14	14
Machinery inspections	21	20

4.2 Audits

The following audits were conducting during the August 2014.

	Planned	Actual
Health and Safety Management Systems	16	6

5. COMPLIANCE ORDERS , INSTRUCTIONS AND NOTICES

The following were issued during August 2014.

	Instructions issued	Number of instructions
5.1	Section 55 (Compliance instructions)	1
5.2	Section 54 (Improvement instructions)	0
5.3	Section 54 (Stoppage instructions)	0

6. EXAMINATIONS

There was no examination conducted during August 2014 in the Western Cape Region.

7. LEGISLATION

Revised Explosive Regulations were circulated for comment.

8. REGIONAL OVERVIEW

8.1 Regional accident trends

At the end of August 2013 the Western Cape Region had four reportable injury accidents as compared to seven for August 2014. The trend indicates that the region may have almost double the number of accidents than last year. Concerted effort is needed to break this trend and ensure the health and safety of our employees.

8.2 Electric flash accidents

In the light of the electric flash accident that occurred in one of the mines in the Western Cape it is felt necessary to mention two serious electric flash accidents that occurred in other regions during this year.

In one accident five employees were injured in a flash that occurred during switching in a transformer room. In the other three employees were severely burnt when a flash occurred while switching in a substation, one employee subsequently died as a result of the burn wounds.

In the two accidents mentioned above it appears that remote switching was not used and that the proper protective equipment was not used. Electricity remains a major hazard and should be treated with the necessary care.

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