

MANDATORY CODE OF PRACTICE

For an
Occupational Health Programme for Medical Surveillance

Name of Mine

OCCUPATIONAL HEALTH PROGRAMME

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OCCUPATIONAL HEALTH PROGRAMMES

1. INTRODUCTION

Occupational Health Programmes should promote:

- (i) The values of:
 - Respect for the dignity of the individual
 - Providing a clean, safe and healthy work environment
 - Improving the quality of life of employees.

- (ii) Relevant legislation:
 - Mine Health and Safety Act
 - Constitution
 - Occupational Health and Safety Act, including the Hazardous Chemical Substances Regulations
 - Employment Equity Act
 - Basic conditions of Employment Act.

This document is based on reviews of relevant scientific studies and legislation and is a guide to help implement workplace practices and procedures responsibly.

The Appendices provide guidelines for all forms of medical surveillance that may be required, whether currently identified as a risk or not. This Code of Practice (COP) may change from time to time, in line with legislation. It must be noted that other forms may be used, provided the information contained therein is not less than those provided in this COP.

2. HEALTH HAZARDS

Employees may be exposed to any or all of the following hazards:

Chemical: Dusts of silica, clay and waste material

Physical/Ergonomic

- Noise
- Thermal Stress
- Radiation (UV or sunlight)
- Manual Handling

Psychosocial

- Shift work
- Low morale and motivation

Whatever the substance or process, the methods to ensure the protection of employees may be summarized as:

- Hazard identification
- Risk Assessment
- Intervention and control
- Audit and review of occupational health programme.

The risk assessment identifies which aspects of the following programmes are relevant, as well as workers exposed to high-risk environments. (Refer to Appendix 1 on the format of the occupational health risk assessment. A team approach must be adopted when conducting the assessment involving the manager of the area, plant engineer, risk control manager, occupational health nurse (OHP) and doctor, and health and safety representatives.)

a) Environmental monitoring

Identification and measurement of contaminants/stressors in the work- place.

b) Engineering controls

To reduce where reasonably practicable any dust or hazard which has been identified as being above the action level/occupational exposure limits, or that has resulted in ill-health, injury or death.

c) Personal protective equipment

Appropriate protective equipment is used in identified and demarcated areas and employees instructed in its use.

d) Workplace practices

Such practices include dampening of dust, vacuum cleaning, stack emission control, etc. to reduce contaminants in the air.

e) Medical surveillance

Pre-placement, routine and exit health assessments for people who work in risk areas.

f) Worker information

Employees must be informed from time to time of the nature of the materials with which they work and of any possible hazards, which may arise from exposure to such materials.

Occupational hygiene and biological monitoring results should be conveyed to employees and their representatives, whilst at all times complying with patient confidentiality.

3. HEALTH RISKS

The respiratory health risks of the various substances are dependent on the:

- concentration of respirable (<10 microns) dust in the breathing zone of the person
- duration of exposure
- frequency of exposure

Particles less than 10 microns in diameter can penetrate into the alveoli (lower levels) of the lungs.

Particles between 10 - 100 microns (inhalable dust) may be deposited from the nose to large bronchi (upper level of the lungs).

3.1 Silica (Silicon dioxide SiO₂)

3.1.1 Legislated limits

Crystalline respirable dust: TLV-TWA (control limit) = 0,1 mg/m³

For quartz containing dusts the occupational exposure limit for respirable particles is calculated:

$$\frac{10}{\% \text{ quartz} + 2} \text{ mg/m}^3$$

1.0.0 Silicosis

This is the most important and best known of the 'fibrotic pneumoconioses'.

Care must be taken to differentiate between free silica (SiO₂) and silicates which are compounds formed by the combination of silica and materials such as oxides of calcium and magnesium (non-fibrous silicates do not harm the lung unless free silica is present).

There may be remarkably few signs or symptoms even when chest X-rays show gross changes. Radiographic changes can vary from calcification in the periphery of the hilar lymph nodes ('egg shell' calcification), discrete rounded opacities through to progressive massive fibrosis (PMF).

Silicosis may predispose to tuberculosis - hence tuberculosis is a compensatable disease under the Occupational Disease in Mines and Works Act for people exposed to silica.

Lung function tests may show decreases in total lung capacity, vital capacity, residual volume and compliance, all in keeping with a restrictive lung pattern caused by fibrosis.

3.1.2.1 Acute silicosis

This is a pulmonary fibrosis, which develops shortly after exposure to very high levels of quartz. It presents with shortness of breath, weight loss, pleuritic chest pain and right heart failure. It is usually fatal within 1 year of appearance of symptoms.

1.0.0.0.0 Cancer

The International Agency for Research on Cancer (IARC) has classified silica as a Group 1 or human carcinogen.

2.0.0.0.0 Connective Tissue Disease

There is an association between silicosis and an increased incidence of connective tissue diseases such as scleroderma.

3.0.0.0.0 Prevention

- Use of wet methods to ensure minimal dust
- Use of appropriate dust masks

3.2 Clay

The composition is variable and may contain such minerals as $\text{Al}_2\text{Si}_2\text{O}_5(\text{OH})_4$.

The higher the alumina content, the lower the free quartz content.

Simple and complicated pneumoconioses have been described in workers exposed to clay.

The occupational exposure limit (OEL) will therefore depend on the quartz content, which may be as high as 35%.

4. HEALTH SURVEILLANCE PROGRAMMES

Health Surveillance programmes include:

❖ Occupational health related

- Pre-employment/pre-placement
- Routine
- Fitness for work/disability assessment
- Exit

❖ General Health screening

4.1 LEGAL ASPECTS

4.1.1 EMPLOYMENT EQUITY ACT

Section 7

“(1) Medical testing of an employee is prohibited, unless –

(a) legislation permits or requires the testing; or

(b) it is justifiable in the light of medical facts, employment conditions, social policy, the fair distribution of employee benefits or the inherent requirements of a job;

(2) Testing of an employee to determine that employee’s HIV status is prohibited unless such testing is determined to be justifiable by the Labour Court.

Psychological testing and other similar assessments of an employee are prohibited unless the test or assessment being used:

(a) has been scientifically shown to be valid and reliable

(b) can be applied fairly to all employees; and

© is not biased against any employee”.

However, medical surveillance is a requirement under the Mine Health and Safety Act and the Occupational Health and Safety Act.

MINE HEALTH AND SAFETY ACT

Section 13

"(1) The manager must establish and maintain a system of medical surveillance of employees exposed to health hazards".

Section 16

"(1) Every occupational medical practitioner at a mine must compile an annual report covering employees at that mine, giving an analysis of the employees' health based on the employees' records of medical surveillance, without disclosing the names of the employees.

(2) The annual report compiled in terms of subsection (1) must be given to the manager, who must deliver one copy of the report to each of:

*The owner
The Health and Safety Committee, and
The Medical Inspector.*

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1.0.0 OCCUPATIONAL HEALTH AND SAFETY ACT

- Environmental Regulations
- Hazardous Chemical Substances Regulations
- Noise Regulations

4.2 GUIDELINES FOR SPECIFIC ROLES OR RISK AREAS

- Exposures to dusts, allergens (isocyanates in paints) and welding fumes.

Assessment of:

- Respiratory system
- Allergies
- Smoking habits

Investigations required:

- Respiratory questionnaire
- Spirometry

- **Exposure to noise (>85dB(A))**

Assessment + investigation required: audiogram

- **Hot environment work**

Assessment of:

- Cardiovascular system
- Diabetes
- Kidneys

➤ **Drivers (including Heavy Vehicle and Forklift)**

Assessment of:

- Cardiovascular system
- Central and peripheral nervous system
- Vision and hearing
- Diabetes
- Epilepsy
- Previous back problems
- Alcohol/medication affecting the central nervous system.

Investigations required:

- Vision screening including visual fields
- Audiogram

➤ **Heavy Lifting**

Assessment of:

- Previous backache/back problems,
- Injuries/fractures
- Musculo-skeletal system

➤ **Exposure to UV radiation**

Assessment of:

- Skin
- Eyes

➤ **Working with Visual Display Units**

Assessment and Investigations required:

- Visual screening
- Musculo-skeletal assessment

Shiftwork

Assessment of:

- Heart, gastro-intestinal disorders
- Stress, psychiatric disorders
- Sleeping difficulties
- Diabetes
- Epilepsy

4.3 PRE-EMPLOYMENT OR PRE-PLACEMENT EXAMINATIONS

1.0.0 Objectives

- Try and ensure the best fit between the employee and his/her work
- To ensure that the person will not be a danger to himself or others
- To obtain baseline information, e.g. audiometry or spirometry for people who will be working in risk areas
- To assist in general health promotion and in the early detection of non-occupational disorders such as hypertension or diabetes for which intervention may be provided.

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2.0.0 Scope

Pre-employment or pre-placement health assessments should, therefore, be conducted on all prospective full-time, part-time or temporary employees, prior to employment, especially:

- ✓ Those that will be working in risk areas
- ✓ Professional drivers.

A general health screening should be considered for all other job categories.

Occupational health practitioners who have a qualification in occupational health and who are familiar with the workplace conditions should preferably conduct these examinations.

The health assessment form that includes a questionnaire, examination and special investigations is shown in Appendix 2.

Special attention should be paid to the following:

(a) Full History

Previous employment, noting any aspects, which may have been hazardous to health - mines, quarries, asbestos, noise.

Past medical conditions - dermatitis, asthma, chronic cough, conjunctivitis, musculoskeletal conditions, e.g. backache that required more than 1 day off work

Cigarette smoking, past and present (number/day, number of years)

(b) Physical examination:

Special reference to eyes, skin, nasal septum, respiratory tract and musculoskeletal systems

(c) **Special investigations:**

Audiometry - especially for those working in a demarcated noise area

Chest X-ray: At the discretion of the plant physician, but recommended when the person has worked on a mine, quarry or has been exposed to asbestos, or will have significant exposure to silica.

Lung Function Tests: The machine must meet the specifications of the ATS - American Thoracic Society – see *Appendix 5*.

Indications:

Anyone who will work in a 'respirator zone' area, or will be exposed to irritating fumes, or sensitising agents, e.g. welding fumes

Essentially, lung monitoring must be considered for people who work in areas where irritants affect the nose, throat and eyes, or where dust noticeably collects.

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4.3.3 Results of Examination

The result of the assessment will be communicated to the Human Resources Manager, Risk Control Manager or Site Manager. Advice will be:

- ✓ Fit for work
or
- ✓ Fit subject to specified restrictions
or
- ✓ Unfit for the job applied for.

If the person is fit subject to certain conditions, then consideration should be given to innovative ways of modifying the job.

Where a factory or site does not have an on-site clinic, the health assessment form should be forwarded to qualified medical or nursing staff so that there can be assurance that clinical details will be handled confidentially. All the employer needs to know is whether the applicant is fit for the intended work.

4.3.4 Medical Conditions found at Pre-Employment

1. Respiratory Disease

- Asthma/Chronic Bronchitis

These conditions may preclude an applicant from working in an environment where there is dust, fumes, etc. which would aggravate a pre-existing condition.

- Tuberculosis

People from high-risk areas, e.g. mining industry or hostels, should have a pre-employment chest X-ray. People previously treated for TB may be employed even in risk areas as long as lung functions are >75% normal.

2. Diabetes

In general, insulin-dependant diabetics should not be employed where they may inadvertently injure themselves or others in the event of a hypoglycaemic attack. They should therefore not work near unguarded moving machinery, up ladders, cranes or scaffolding or drive heavy-duty vehicles.

Diabetes treated with diet and oral agents can undertake most occupations PROVIDED they are well controlled and do not experience hypoglycaemic attacks.

3. Epilepsy

Again, the approach is to ensure that he/she is not a danger to himself/herself or to others in the workplace as for insulin-dependent diabetics.

4. Eyesight

People who are blind in one eye should not be employed as drivers or work with machinery, or in an area where they are likely to sustain an injury to the good eye.

For professional drivers, the vision (corrected) should be

$$\frac{6}{9}, \frac{6}{12}$$

or better and an adequate field of vision is necessary. A night vision defect can cause difficulty with driving at night but this condition occurs only in mild degrees in the healthy eye.

People with contact lenses should not work in a dusty environment.

5. Hearing

Providing a prospective employee can hear sufficiently well so that he is not a danger to himself or others, he may be employed.

The employee and the doctor or sister, therefore putting on record any pre-existing hearing loss for which the company is not responsible, signs the audiogram.

6. Cardiovascular Disease

e.g. Ischaemic Heart Disease (previous myocardial infarct, angina).

People with these conditions would be unsuitable for jobs with undue physical activity or stress, as well as hot environment work.

7. Musculoskeletal

For people who will undertake moderate/heavy manual work, e.g. artisans:

- medical history, such as any back injury or recurrent absence from work due to back pain or sciatica
- examination for full range of movements
- biokinetic assessment where possible.

8. **HIV**

HIV screening must **NOT** be done for fitness to work.

9. **Drug Screening**

A written company policy and procedure should exist.

The reason for drug screening should be clearly documented. Such reasons might involve safety for the individual, other employees or the public or requirements related to job performance.

Written consent for screening and for communication of results to the employer must be obtained prior to screening as well as the consequences for refusal.

4.4 ROUTINE/PERIODIC MEDICAL ASSESSMENTS

4.4.1 General Principles

- A distinction must be made between screening programmes that are a statutory requirement and those programmes undertaken in the interest of promoting good health.
- Screening procedures must fulfil the following criteria:
 - Accuracy, i.e. is the test valid, sensitive and specific
 - Relevance
 - Adequate quality control.

Please see Appendix 5 on the ATS (SA Thoracic Society) Criteria for lung function testing and quality control for spirometry.

- Participation in screening programmes requires informed consent, even if required by law.
- For examinations or investigations, consent is only “informed” if the employee understands:
 - The purposes of the test
 - The possible consequences both of taking and not taking the test.
 - What action will take place if there are abnormal results.
- Biological and biological effects monitoring
 - Individuals must be told their results.
 - Grouped results (without names) should be shared with managers, engineers, risk control and other health professionals, and the health and safety committee, as biological and biological effects monitoring are a means of assessing the success of control measures and reduction of risk.
 - Regulations under the Mine Health and Safety Act and the Occupational Health and Safety Act require the results of biological monitoring, biological effects monitoring and health surveillance be kept for a certain time period, e.g. audiometric tests must be kept for 40 years from the last date of medical surveillance (*see Appendix 8*).

The health surveillance should focus on:

a) History

Any complaints such as irritation of eyes or throat, shortness of breath, backache, psychosocial stress.

b) Physical Examination

Special reference to skin, conjunctivae, nasal membranes and lungs for employees exposed to clinker or lime.

For employees that may be at risk of having HIV, check for signs of weight loss, lymphadenopathy, oral hairy leukoplakia, thrush, seborrhoeic dermatitis, and herpes zoster (shingles) scars.

c) Special investigations – where indicated, depending on the level of risk exposure

- Audiogram
- Respiratory questionnaire and spirometry.

Deterioration from baseline or previous tests is significant and should be investigated further.

- Chest X-ray

At the discretion of the occupational physician.

Radiological surveillance of workers exposed to silica dust (Reference: NCOH/SORDSA Alert: Feb '99, Crystalline Silica: Health Hazards + Precautions)

Category	Chest Radiography		
	Pre-placement	Periodic *	Exit ^b
1. Exposure conditions			
Low dust ^a	Yes	3 yearly	Yes
Low dust > 10 years	Yes	Biennially	Yes
High dust	Yes	Annually	Yes
2. Workers with silicosis (assuming not exposed)	Yes	Biennially if symptoms stable (Medical evaluation annually)	Yes
3. Past exposure, but no current exposure and no silicosis	No, unless symptomatic or no radiograph within past 5 years	When convenient, or 5 yearly, or when symptoms change	No

* Frequency adjusted according to case yield

a Respirable quartz below 0.1 mg/m³

b Exit radiograph necessary if none taken within the past 12 months

- Special Medical Examination

Employees who report any abnormal signs or symptoms, which may be work-related, must be examined to determine whether or not they will be allowed to continue in their existing job or whether a transfer to another area is necessary.

4.4.2 Frequency of Testing

The frequency of testing is based on the level of risk, but as a general rule, the following should apply:

		<u>Frequency</u>
	▪ People working in risk areas, e.g. noise zones, respirator zones, shift workers, drivers	Yearly
	▪ General health check-up Age: <=39 years 40 – 49 years >= 50 years	Every 3 years Every 2 years Every year

However, yearly examinations should be considered for individuals that might be at risk of HIV.

Participation should be voluntary:

		<u>Frequency</u>
	<ul style="list-style-type: none"> ▪ Executive medical examinations Age: <ul style="list-style-type: none"> <=39 years 40 – 49 years >= 50 years 	Every 3 years Every 2 years Every year

4.4.3 Executive Medical Examinations

The purpose of these examinations is to detect asymptomatic conditions such as hypertension and diabetes before they cause problems such as heart attacks and strokes. Participation should be voluntary, and the results may not be divulged to third parties unless specific informed consent is obtained.

Format

- ✓ Relevant medical history
- ✓ Full medical examination including ECG and if possible a stress ECG, and lung function tests
- ✓ Laboratory tests
 - Full blood count
 - Lipid profile (total cholesterol, HDL + LDL)
 - Uric acid
 - Others as required (e.g. prostate screen)
- ✓ Major portion around lifestyle, e.g. stress, diet, alcohol, smoking.

Studies, both internationally and by the Sports Science Institute in Cape Town, have shown the value of exercise:

- ✓ There is a 50% reduction in heart attacks in people who exercise 4 hours per week
- ✓ Physical activity decreases the risk even when risk factors such as hypertension and cholesterol are present
- ✓ The risk of being overweight is not obesity per se, but lack of physical activity
- ✓ Inactivity is a risk factor for heart disease equivalent to smoking, cholesterol and hypertension

4.4.4 Drug + Alcohol Testing (from the South African Society of Occupational Medicine Guidelines)

The company is entitled to take reasonable steps to ensure that intoxicated employees do not enter the workplace. Important considerations:

- ✓ Have a policy and procedure agreement between the company and unions for the regulation of drug and alcohol abuse in the workplace.
- THE USE OF ANY TEST SHOULD BE NEGOTIATED WITH THE UNIONS
- ✓ Clinical observation such as the smell of alcohol, is insufficient to prove intoxication. A reliable calibrated breathalyser is an accurate measure of blood alcohol, and can therefore be used.
 - ✓ The test can be done by a trained non-medical person, who conducts the test in the presence of a union and management representative.

- ✓ The medical staff must not be involved in the testing and discipline of employees, as this is a line management function.
- ✓ The Labour Relations Act section on Incapacity, Ill-health or Injury, recommends counseling and rehabilitation to be considered for alcoholism and drug abuse.

4.5 EXIT MEDICAL ASSESSMENTS

These assessments should be performed on employees, who have been permanently transferred out of a risk area or are leaving employment, to ensure that no substance or process has affected their health.

4.6 RECORD KEEPING

It is essential that updated and accurate medical records be kept for all employees.

These records should include:

- ✓ Previous employment history, length of service, job category, smoking habits
- ✓ Results of physical examinations must be specific, i.e. NO evidence of dermatitis, NO nasal ulcers, rather than NAD – *“no abnormality detected”* or *“not actually done”*.

Medical surveillance records must be kept for a minimum of 30 – 40 years, depending on the type of investigations.

These are important when ill-health claims are made against companies or when health and safety disputes occur.

1. ENVIRONMENTAL MONITORING

The various acts concerned with health and safety in South Africa require that a risk assessment of potential exposures on employees be performed. Appropriate sampling and measuring techniques by an Approved Inspection Authority (AIA) must quantify identified hazards.

Workplace monitoring in the cement and lime manufacturing industry will include:

Chemical	-	dust levels of any hazardous substance e.g. coal. Welding fumes
Physical	-	noise temperature light ventilation

For sites falling under the Department of Mineral and Energy Affairs, personal dust sampling must be done according to the standards and procedures laid down by the Government Mining Engineer (GME).

Summary of GME guidelines:

A mine or works is divided into areas for sampling purposes. Sites, with surface operations only, have only one sampling area, which is divided into statistical populations. For convenience, quarries have been split into three and factories into four statistical populations.

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Each operation must have at least one person (preferably two) holding the Chamber of Mines Air Quality Control Certificate under whose supervision the sampling will be done. These persons need not personally do the filter weighing, preparation of the sampling train, or generate the report, but must supervise the proceedings and control the programme. Where operations do not have approved weighing facilities they must make use of an organisation, which does. Where use is made of an outside weighing facility the used filters must be transported by a person trained to handle them correctly as per the instructions in the guidelines. Courier or postal services may not be used.

A minimum of five samples must be taken in each HEG (Homogeneous Exposure Group) in a six-month period according to an approved planned schedule. The schedule must be submitted to the GME for approval at least one month prior to commencement of the sampling cycle. If samples cannot be taken on the scheduled day valid reasons must be given and the sample rescheduled as soon as possible. If a sample falls due on a day of plant maintenance or during kiln shutdowns it must still be taken since this forms part of normal operational conditions at a plant.

At least five samples from each statistical population must be analysed over a period one year by an approved laboratory using recognised SABS methods. The five samples may be combined for analysis.

In addition to the mean/average respirable dust levels calculated from the GME method, companies should also focus on monitoring high risk/dusty areas by measuring both 'respirable' and 'total' dust levels. Effort should be made to reduce levels below the 'action level' (= ½ Occupational Exposure Limit).

6. INTEGRATION OF ENVIRONMENTAL MONITORING AND MEDICAL SURVEILLANCE

In order to demonstrate that employees work in a clean, safe and healthy environment, it is vital that a correlation is made between the results of environmental monitoring and health surveillance. For example, of employees working in areas where respirable dust levels are $>5\text{mg}/\text{m}^3$, some had had a 20% reduction in lung functions after 5 years of exposure, whilst others were affected after 10 years - similarly others had evidence of pneumoconiosis after 10 years of exposure, or had evidence of pneumoconiosis after 15 years of exposure.

Occupational hygiene and health surveillance (individual and grouped) must be compared with previous investigations to determine whether there is an improvement or deterioration.

The prevalence of disabilities in various job categories such as noise-induced hearing loss, musculoskeletal disorders, ill-health retirements, etc. should be calculated.

Where possible the causes of ill-health retirement and deaths (including people who have already retired) should be investigated in order to ascertain any occupational causes, and to institute appropriate health promotion programmes.

Abbreviations

NA	-	Not applicable
TWA-OEL-CL	-	Time weighted average – Occupational Exposure Limit – <u>Control Limit</u>
TWA-OEL-RL	-	Time weighted average – Occupational Exposure Limit – <u>Recommended limit</u>

OCCUPATIONAL HEALTH RISK ASSESSMENT

The Mine Health and Safety Act (MHSA) and the Occupational Health and Safety Act (OHSA) including the Hazardous Chemical Substances Regulations require a risk assessment.

These regulations require:

“reasonably practicable” steps to be taken to mitigate hazards.

Means practicable having regard to:

- The severity and scope of the hazard and risk
- The state of knowledge reasonably available concerning the hazard and risk and of any means of removing or mitigating that hazard or risk
- The availability and suitability of means to remove or mitigate that hazard or risk
- The cost of removing or mitigation that hazard or risk in relation to the benefits deriving therefrom.

Hazard

A hazard is something with the potential to cause harm (death, major injury or physical and mental ill-health) such as a:

- Substance
- Piece of equipment
- Way of working
- Form of energy

Risk

Risk is a measure of the likelihood that the 'hazard' may occur.

STEPS in Risk Assessment:

- Consider all activities, both routine and non-routine, including foreseeable emergencies
- Identify the hazards
- Identify individuals or groups that may be exposed to hazards (include operators, inexperienced staff, maintenance workers, contractors, visitors, public, etc.)
- Determine and assess the risks of health
- Determine whether current control measures are adequate
- Eliminate or reduce risks
- Monitor:
 - effectiveness of controls
 - health of those at risk

QUANTIFYING OCCUPATIONAL RISK

A basic approach, which can be used, is:

Occupational Risk = Likelihood of Occurrence x Severity of Consequence

		<u>LIKELIHOOD OF OCCURRENCE</u>	<u>SEVERITY OF CONSEQUENCE</u>	<u>OCCUPATIONAL RISK</u>
Very high	10			
High	8			
Moderate	6			
Low	4			
Very low	2			
None	0			

>50: Significant occupational risk

30-49: Moderate occupational risk

0-29: Little occupational risk

- Likelihood of occurrence on:
 - level of exposure compared to occupational exposure limit
 - frequency of exposure
 - duration of exposure
- Severity of consequence
 - very high/high consequences would include cancer, allergies, or the development of a condition which would result in an employee having to be removed from the workplace or receiving a disability benefit, or results in injury or death.

Hazard	Comment	Type + Adequacy of Control	People at Risk	Likelihood of Occurrence	Severity of Consequence	Risk Ranking	Action Required
WORKPLACE PRACTICES+MACHINERY							
▪ Moving/rotating parts							
▪ Vehicle movement							
▪ Fire/explosion							
▪ Electrical							
▪ Manual handling							
▪ Work at heights							
▪ Slipping/tripping							
▪ Pressure systems							
▪ Other							
PHYSICAL							
▪ Noise							
▪ Heat							
▪ Light							
▪ Vibration							
▪ Ionising/non-ionising radiation							

Hazard	Comment	Type + Adequacy of Control	People at risk	Likelihood of Occurrence	Severity of Consequence	Risk Ranking	Action Required
CHEMICAL AGENTS							
<ul style="list-style-type: none"> ▪ Agents listed under Hazardous Chemical Substances Regulations 							
<ul style="list-style-type: none"> ▪ Dust, fibers, fumes, mists, gases 							
BIOLOGICAL AGENTS							
<ul style="list-style-type: none"> ▪ Viruses, bacteria, etc. 							
PSYCHOLOGICAL FACTORS							
<ul style="list-style-type: none"> ▪ High demand/low control 							
<ul style="list-style-type: none"> ▪ Role ambiguity/conflict 							
<ul style="list-style-type: none"> ▪ Shift work 							

ARE RISKS ADEQUATELY CONTROLLED?

- Do precautions and standards
 - represent best/good practice?
 - meet legal requirements?
 - reduce risk as far as reasonably practicable?
 - written work procedures followed?
 - suitability and usage of PPE?
- Adequate information and training
- Perception of:
 - Company commitment to health and safety
 - Employee motivation to work safely
- Proximity and suitability of emergency services

Minimizing Exposure to Hazards

Source	Transmission Path	Receiver
▪ Elimination	▪ Shielding	▪ Eliminate need for worker
▪ Substitution	▪ distance [↑]	▪ duration of exposure [↓]
▪ Enclose process	▪ Housekeeping	▪ Change work process
▪ Local exhaust ventilation		▪ Training
		▪ PPE

Reference: *Occupational Health*, 4th ed. Harrington, Gill, Aw + Gardiner

NGQURA BRICK

PRE-PLACEMENT HEALTH ASSESSMENT



MEDICAL SURVEILLANCE QUESTIONNAIRE

Appendix 2

1. **Employee Name** _____ **1.1 Age:** _____

2. **Employee Number/ID number** _____ **3 Employer** _____

4. **Type of medical:**

Pre-employment	Baseline	Other (Specify)
1	2	3

5. **Home Address** _____

6. **Marital status:**

Single	Married	Divorced	Living together	Widow/er	
1	2	3	4	5	

7. **Number of children:** _____

8. What is your current occupation (the job you do now)?

9. **Name of GP/Hospital/Clinic** _____

10. Are you employed as a:

Casual ≤3days/week	Permanent employee	Contract employee	Sub Contractor	Other (specify)
1	2	3	4	5

11. **Have you, or have you ever had, any of the following? If 'Yes' please provide full details at the bottom of the page (* BELOW).**

	Answer			Answer	
	Yes	No		Yes	No
11.1 Problems with your skin (i.e. rashes, sores)?					
11.2 Problems with your heart?			11.10 Problems with the muscles, bones, joints?		
11.2.1 Chest pain (angina)?			11.11 Problems with your back?		
11.2.2 High cholesterol level?			11.11.1 Have you ever slipped a disk?		
11.2.3 Shortness of breath if you climb stairs?			11.12 Have you ever had any sugar in your urine?		
11.2.4 High blood pressure (hypertension)?			11.13 Have you ever been tested for HIV/AIDS?		
11.3 Problems with your lungs?			11.14 Have you ever had yellow jaundice?		
11.3.1 Asthma?			11.15 Cancer or tumours of any kind?		
11.3.2 TB?			11.16 Do you take any tablets or medicines on a daily basis?		
11.3.3 Bronchitis?			11.16.1 Type: Dosage:		
11.3.4 Coughing for more than two (2) weeks?			11.16.2 Type: Dosage:		
11.4 Problems with your stomach?			11.16.3 Type: Dosage:		
11.5 Problems with bladder or kidney infections?			11.17 Has the Doctor/Clinic given you any medicines or tablets in the last 3 months?		
11.5.1 Problems passing water?			11.17.1 Type: Dosage:		
11.5.2 VD (drop)?			11.17.2 Type: Dosage:		
11.6 Epilepsy (fits)?			11.18 Have you ever been in hospital?		
11.6.1 Unconscious?			11.19 Have you ever had an operation?		
11.6.2 Headaches or migraines?			11.20 Have you ever had an accident (sport, car)?		
11.7 Problems with your ears?			11.21 Have you ever been injured on duty/while at work?		
11.8 Problems with your eyes?			11.22 Are there any foods or medicines that cause rashes, itchy skin or make it difficult to breath?		
11.9 Problems with your throat?					
	1	2		1	2

***For each of the 'Yes' answers, please provide the following details:**

No.	Problem & last symptoms?	Treated by?	Specific treatment used	Current status

12. How many years and / or months have you worked?

12.1 In this Industry? _____ Years _____ Months
 12.2 For your Current Employer? _____ Years _____ Months

13. Please list all of the jobs that you have ever had since leaving school:

	Industry eg. Construction	Occupation e.g. carpenter	From (Yr) To (Yr)	Main Hazards e.g. noise, heat, chemicals, dust
13.1				
13.2				
13.3				
13.4				
13.5				
13.6				

14. Describe the work you are doing now:

15. Family history: Do any of your immediate family have or had any of the following illnesses/diseases?

Disease	Mother			Father		
	Yes	No	Don't know	Yes	No	Don't know
15.1 High blood pressure (Hypertension)						
15.2 Stroke						
15.3 Heart attack						
15.4 Angina (chest pain)						
15.5 Sugar diabetes (Diabetes)						
15.6 Porphyria						
15.7 Mental Illness e.g. Depression requiring hospitalisation						
15.8 Other (Specify):						
15.9 Other (Specify):						
	1	2	3	4	5	6

16. Do you drink any alcohol?

Yes	No
1	2

16.1 If 'Yes' what types of alcohol do you drink?

Type	Frequency (tick one only)				No. of drinks (tick glasses or bottles)		
	Daily	Weekends Only	Monthly/ bi-monthly	Special Occasions	No. of Glasses	No. of Bottles	
						350ml Dumpy/can	750 ml Quarts
16.1.1 Beer							
16.1.2 Wine/ Sherry/port							
16.1.3 Spirits							
16.1.4 Other:							
	1	2	3	4	5	6	7

If 'Other', please record adjacent to 'Other' in the matrix above

17. **Do you smoke?**

Yes	No
1	2

17.1 **If 'Yes', what do you smoke?**

	Type	Frequency			
		Daily	Weekly	Monthly	How many?
17.1.1	Cigarettes				
17.1.2	Pipe				
17.1.3	Dagga				
17.1.4	Other: (specify)				
17.1.5	Other: (specify)				

1 2 3

17.2 **How long have you smoked?** _____ Years _____ Months

18. **Do you play any sport?**

Yes	No
1	2

18.1 **If 'Yes', what types of sport do you play?**

	Type	Frequency			
		Daily to weekly	Weekends	Monthly	Never
18.1.1	Rugby				
18.1.2	Soccer				
18.1.3	Boxing				
18.1.4	Cricket				
18.1.5	Gym				
18.1.6	Other: (Specify)				

1 2 3 4

19. **What do you do on your off days/spare time?**

	Type	Frequency			
		Daily	Weekends	Monthly	Never
19.1	Read				
19.2	Watch TV				
19.3	Work at home				
19.4	Church work				
19.5	Other: (Specify)				

1 2 3 4

20. **Physical Examination:**

Please record actual finding under comments and check no fields are left out!

L = Left; R = Right

0 = Normal, no abnormality detected

1 = Minor abnormality (minor treatment, no specialist referral, no impact on work)

2 = Major abnormality (specialist referral, impact on work/unable to work if not treated)

General condition	Comments			
20.1	Height			
20.2	Mass (Weight)			
20.3	Body Mass Index (BMI)			
20.4	Skin Lesions			
20.5	Lymph Glands			
20.6	Varicosities			
	Head and Neck:			
20.7	Corrected Vision	L	R	
20.8	Pupils (pearl)	L	R	
20.9	Peripheral vision			
19.10	Ishihara Colour Vision	Grade 1	Grade 2	Grade 3 Grade 4
	ENT:			
20.11	Canals	L	R	
20.12	Drums	L	R	
20.13	Sinuses			
19.14	Throat			
20.15	Teeth (condition)			
	CVS:			
20.16	Pulse Rate			
20.17	BP			
20.18	Respiration			
20.19	Thorax and breasts			
20.20	Lungs			
20.21	Heart			
	Abdomen:			
20.22	Organs			
20.23	Masses			
20.24	Hernia			
	Musculo skeletal:			
20.25	Deformities			
20.26	Spine			
20.27	ROM: Upper body			
20.28	ROM: Back			
20.29	Lifting techniques			
	CNS:			
20.30	Power			
20.31	Co-ordination			
	Skin & appendages			
20.32	Hands			

21. Special Investigations:

21.1	Urinalysis	Normal	Glucose	Protein	Blood	Leukocytes	Ketones	Other
		1	2	3	4	5	6	7

22. Exposure at work: (From Job spec or from OH report)

23. Remarks from examiner: (Regarding overall findings and reasons for referral)

24. Referral Requirements (Please record each appropriate organization or person):

22.1	Municipal Clinic (Specify):
22.2	Day Hospital (Specify)
22.3	GP (Specify):
22.4	Specialist (Specify):
22.5	Hospital (Specify):

25. Fitness for work.

Please use the following ranking to determine overall suitability for work:	Select one only
Able to perform the work without any harmful effects.	1
Able to perform the work, but with reduced efficiency or effectiveness	2
Able for perform the work, although this may have a harmful effect on the medical condition.	3
Able to perform the work, but not without an unacceptable risk to his/her health and safety and/or the health and safety of other workers or the community.	4
Physically or mentally incapable of performing the work in question.	5

Workers Signature: _____

Examiners Name: _____

Signature of Examiner: _____

Date: _____

:

PERIODIC MEDICAL ASSESSMENT

1. NAME Date of birth:.....

Company No.:..... Date appointed:.....

Department:..... Occupation:.....

		Year	Year	Year	Year
2.	RELEVANT HISTORY				
	- any symptoms due to workplace substances or processes				
	- present medication				
	- other				
3.	HABITS				
	- Diet				
	- Alcohol Amount/week				
	- Smoking Amount/day				
	- Exercise Frequency/intensity/type/time (FITT)				
	- Sleep Duration				
	- Sick leave (Days off over past year to be included)				

3.

EXAMINATION	<u>Year</u>	<u>Year</u>	<u>Year</u>	<u>Year</u>
- General				
- Skin				
- Lymph nodes				
- Heart ✓ Rate ✓ BP ✓ Heart sounds ✓ Exercise tolerance				
- Lungs				
- Abdomen				
- Spine and musculo-skeletal				
- CNS ✓ Cranial nerves ✓ Sensory ✓ Motor ✓ Reflexes ✓ Co-ordination				
- ENT + MOUTH				
- Weight				
- Urine analysis				

SPECIAL INVESTIGATIONS WHERE INDICATED

■	Audiometry				
	<ul style="list-style-type: none"> - >=15dB deterioration at 3,4 or 6 KHz from baseline audiogram - PHL of hearing deterioration from baseline audiogram 				
■	Lung function tests/spirometry <ul style="list-style-type: none"> - FEV₁ - FVC - FEV₁/FVC - PEFR 				
■	Visual acuity Far R/L Near R/L Night vision				
■	Biological monitoring e.g. blood lead, urinary chromium				
■	Cholesterol Total LDL HDL				
■	Blood glucose (glucometer)				
■	Other				
4.	REMARKS AND RECOMMENDATIONS				
5.	DATE MEDICAL EXAMINER Signature Employee Signature			

NGQURA BRICK
P O BOX 2308 NORTH END PE
041 466 4510

EXIT MEDICAL ASSESSMENT

1. NAME Date of birth:.....
Company No.:..... Date of employment:.....
Department:..... Occupation:.....

1. Details of any complaint or query regarding health.

2. Job history and Hazardous Exposure Levels

3.

<u>Injury or disease</u>	<u>Date</u>	<u>Claim No.</u>	<u>Finalised</u>

5. EXAMINATION

General:	Lungs:
Skin:	CNS:
Pulse:	Spine + MSS:
BP	ENT:
Heart:	Urine:

6. SPECIAL INVESTIGATIONS WHERE INDICATED

Audiogram:

Lung function tests:

Visual acuity:

Biological monitoring:

Other:

7. OPINION

- Health of employee is satisfactory/unsatisfactory.

- Letter of reference in respect of

.....

(specify condition regarding further treatment, etc.)

- Comments

.....

.....

.....

.....

8. MEDICAL EXAMINER

Signature examiner Date:

I understand the above, and I am satisfied that this is a true reflection of my health.

Signature employee

COPY OF REPORT TO BE GIVEN TO EMPLOYEE

QUALITY CONTROL - SPIROMETRY

Introduction

Accuracy and repeatability are of the utmost importance in pulmonary function testing may occur either from:

- ✓ The equipment
- ✓ The tester
- ✓ The person being tested.

Recommendations for spirometry quality control is in the process of being developed by the S A Thoracic Society and are summarised as follows:

1. Equipment

FVC + FEV

- Volume Range

High	0,50 – 8L
Low	0,50 to 6L
- Accuracy

$\pm 5\%$ of readings or $\pm 0,100$ L, whichever is greater.
- Precision

$\pm 3\%$ of readings or $\pm 0,050$ L whichever is greater.
- Resistance

Less than 2,5 cm H₂O /L/S from zero.

PEF

- PEF = Largest expiratory flow achieved with a maximally forced effort from a position of maximal inspiration.

The instrument must measure PEF within an accuracy of $\pm 10\%$ of readings or ± 20 L/min whichever is the greater.

- CALIBRATION CHECK
 - Use 3 litre syringe (at different rates, e.g. ± 1 sec, 6 sec)
 - Daily, 4 hourly or on relocation may also use known subjects.
 - Document calibration.

2. The Tester

The tester must have attended at least a 2-3 day training course to ensure competency.

3. Subject being tested

■ Performance of FVC manoeuvre

- Check spirometer calibration
- Explain test
- Instruct and demonstrate test to subject
Correct posture with head elevated
Inhale completely
Position mouthpiece
Exhale with maximal force.
- Perform manoeuvre
Have subject assume correct posture
Attach nose clip
Inhale completely
Place mouthpiece in mouth and close lips around mouthpiece
Exhale maximally
Repeat instructions as necessary

** Repeat for a minimum of 3 manoeuvres – no more than 8 are usually required.

Check test reproducibility and perform more manoeuvres as necessary.

■ Acceptability and Reproducibility Criteria

➤ Acceptability

Spirograms free from artefacts such as cough and early termination.

Extrapolated volume < 5% of FVC or 0,15L, whichever is greater.

* The peak expiratory flow (PERF) should be produced within the first 15% of the FVC. When the PERF is reached after 25% of expired volume, the curve should be rejected.

Have a satisfactory exhalation 6 seconds of exhalation.

➤ Reproducibility

After 3 acceptable spirograms, apply the following tests:

- ✓ Are the 2 largest FVC within 0,2L of each other.
- ✓ Are the 2 largest FEV₁ within 0,2L of each other.

If both these criteria are met, the test session is concluded.

If both of these criteria are not met, continue testing until:

- ✓ Both criteria met, or
- ✓ 8 spiromograms have been performed, or
- ✓ the subject cannot continue.

Save a minimum of the 3 best manoeuvres.

N.B. It is better to do 30 lung function tests a year properly rather than 300 poorly performed ones.

For most people, lung function testing is an abnormal athletic event.

QUESTIONNAIRE ON RESPIRATORY SYMPTOMS

Workplace: _____

Name: _____ Company No: _____

Weight: _____ Height: _____

Place of birth: _____

PREAMBLE

I am going to ask you some questions, mainly about your chest. I should like you to answer YES or NO whenever possible, and when the answer is YES, specify.

COUGH

1. Do you usually cough first thing in the morning?
2. Do you usually cough during the day or night?
3. 3.1 Do you cough like this on most days, for as much as 3 months each year?

- 1.0 Do you cough more on any particular day of the week?

- 2.0 If YES, which day(s)?

PHLEGM

4. Do you usually bring up any phlegm from your chest first thing in the morning?

5. Do you usually bring up any phlegm from your chest during the day or night?

6. 6.1 Do you bring up phlegm like this on most days for as much as 3 months each year?

- 6.2 How long have you had this phlegm? 3 years or less/more than 3 years?

PERIODS OF COUGH AND PHLEGM

1.0 In the past 3 years have you had a period of (increased) cough and phlegm lasting for 3 weeks or more?

2.0 Have you had more than one such period?

3.0 Have you ever coughed up blood? YES/NO

Yes: streaks _____ more _____

When was this?

TIGHTNESS OF CHEST

8. Does your chest ever feel tight or your breathing becomes difficult? Do you get this only with colds?

Do you get this apart from colds?

Specify time of day and day

Is your chest tight or your breathing difficult on any particular day of the week? If YES, which day?

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Sometimes	Always <input checked="" type="checkbox"/>	<input type="checkbox"/>				

At what time of the day does your chest feel tight?

From _____ Time _____

Has your chest ever been tight or your breathing difficult on any particular day of the week and time?

Please tick

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Sometimes	Always <input checked="" type="checkbox"/>	<input type="checkbox"/>				

BREATHLESSNESS

Are you troubled by shortness of breath when hurrying on level ground or walking up a slight hill?

1.0 Do you get short of breath walking with other people of your own age on level ground?

2.0 Do you have to stop for breath when walking at your own pace on level ground?

3.0 Is your breathlessness worse on any particular day?

WHEEZING

1.0 Does your chest ever sound wheezy or whistling?

2.0 Do you get this with colds?

3.0 Do you get this occasionally apart from colds?

4.0 Do you get this most days or nights?

5.0 Have you ever had attacks of shortness of breath with wheezing?

6.0 When did you first get these attacks?

Before the age of 30 years _____

At or after age of 30 years _____

7.0 Do you still get these attacks?

CHEST ILLNESSES

1.0 During the past 3 years have you had any chest illness which has kept you away from your usual activities for as much as one week?

2.0 Did you bring up more phlegm than usual during any of these illnesses?

3.0 Have you had more than one illness like this in the past 3 years?

PAST ILLNESSES

Have you ever had:

14.1	An injury or operation affecting your chest?	YES	NO
14.2	Heart trouble	YES	NO
14.3	Bronchitis	YES	NO
14.4	Pneumonia	YES	NO
14.5	Pleurisy	YES	NO
14.6	Pulmonary tuberculosis	YES	NO
14.7	Asthma	YES	NO
14.8	Any chest illness	YES	NO
14.9	Hay fever	YES	NO

TOBACCO SMOKING

1. Do you smoke? (Record YES if regular smoker up to 1 month ago)

2. Have you ever smoked?

Record NO if subject has never smoked as much as one cigarette a day, or 30g of tobacco a month, for as long as 1 year

Age when stopped:

	NOW	BEFORE
Cigarettes per day		

Grams of tobacco/week (pipe)

Cigars/week (large or small)

For how many years have you been a smoker?

OCCUPATION

Specify **place**, **length of service** and **years** during which the subject has worked in any of these industries.

Have you ever worked in?

17.	A dusty job?	YES	NO
18.	A coalmine?	YES	NO
19.	Any other mine?	YES	NO
20.	A quarry?	YES	NO
21.	A foundry?	YES	NO
22.	A pottery?	YES	NO
23.	A cotton, flax or hemp mill?	YES	NO
24.	With asbestos?	YES	NO
25.	Any other dusty job (specify)	YES	NO
26.	Have you ever been exposed regularly to an irritating gas or to chemical fumes? Specify details of nature and duration	YES	NO

27. **Pre-shift blow** **Post-shift blow**

1st

2nd

3rd

Date:

Time:

1. **CHEST X-RAY RESULTS**

29. **EXAMINATION / OPINION / DIAGNOSIS**

30. **MEDICAL EXAMINER**

Signature examiner Date:

I understand the above, and I am satisfied that this is a true reflection of my health.

Signature employee

DRIVER HEALTH POLICY

(Based on the South African Society of Occupational Medicine Guidelines)

1. POLICY INTENT

- To determine if the driver is able to perform his duties safely and effectively, and that he has the ability to make the requisite decisions for safe driving.
- To ensure compliance with relevant legislation, including:
 - Road Traffic Act (No. 93 of 1996 – Sections 15 and 16)
 - Occupational Health and Safety Act (No. 85 of 1993)
 - Hazardous Substances Act (No. 15 of 1973)

2. LEGISLATIVE ASPECTS – Sections 15 + 16 of Road Traffic Act.

Section 15

15(1) A person shall be disqualified from obtaining or holding a learner's or driving license if he or she:

- (a) is suffering from one of the following diseases or disabilities:
 - (i) uncontrolled epilepsy;
 - (ii) sudden attacks of disabling giddiness or fainting due to hypertension or any other cause;
 - (i) any form of mental illness to such an extent that it is necessary that he or she be detained, supervised, controlled and treated as a patient in terms of the **Mental Health Act, 1973 (Act No. 18 of 1973)**;
 - (ii) any condition causing muscular inco-ordination;
 - (iii) uncontrolled diabetes mellitus;
 - (iv) defective vision ascertained in accordance with a prescribed standard;
 - (v) any other disease or physical defect which is likely to render him or her incapable or effectively driving and controlling a motor vehicle of the class to which such license related without endangering the safety of the public: Provided that deafness shall not of itself be deemed to be such a defect.
- (b) is addicted to the use of any drug having narcotic effect or the excessive use of intoxicating liquor.
- (c) In such other circumstances as may be prescribed, either generally or in respect of a particular class of learner's or driving licence.

Section 16

16(1) No person shall, when applying for a learner's or driving licence, willfully fail to disclose any disqualification to which he or she is subject in terms of Section

16(2) Any person who –

(a) is the holder of a licence authorising the driving of a motor vehicle in terms of this Chapter; and

(b) becomes aware thereof that he or she is disqualified from holding such licence,

shall, within a period of 21 days after having so become aware of the disqualification, submit the licence or, in the case where it is contained in an identity document, that document to the MEC of the province concerned.

3. DRIVER CATEGORIES

I. Category “**D**” (PRDP) which authorises the driving of a motor vehicle carrying **hazardous/dangerous goods**.

Category “**P**” (PRDP) which authorises the carrying of **passengers** or **passengers and goods**.

This group carries the highest responsibility towards the public and co-workers, as an incident involving the vehicles they operate could lead to disastrous consequences.

II. Category “**G**” (PRDP) which authorises the driving of a motor vehicle conveying **goods**.

III. **Special** vehicle drivers in control of specialised vehicles which are used for specific purposes where skill, method of operation and place of operation require attention, e.g. forklift truck operators, crane drivers, etc.

IV. **Standard** vehicle drivers operating light vehicles in standard transport, circumstances where no special requirements exist over and above the required licence and personal skills to operate the vehicle.

REQUEST FOR HEALTH EVALUATION OF DRIVERS

TO: Dr/Sr

Please carry out the necessary health evaluation of:

NAME:

ID No. :

Company number:

Driver category:

Type of health evaluation:

Pre-employment

Periodic

Return to work after absence due to

.....

Post incident

Remarks

.....
.....
.....
.....

Signed Date

Manager Tel. No.

Company

HEALTH EVALUATION INTERVAL SCHEDULE

	Driver Category			
	<u>I</u>	<u>II</u>	<u>III</u>	<u>IV</u>
Pre-employment	✓	✓	✓	✓
PRDP (time interval in months)	24	24		24
Periodic as per company policy (time interval in months)	12	12	12	On request
Return to work after significant ill-health absence	✓	✓	✓	On request
Post incident	✓	✓	✓	Yes

HEALTH EVALUATION PROTOCOL

		Pre-employment	Periodic/ PRDP	Return to work	Post-incident
Medical:	Past History	✓			
	Current History	✓	Yes	Yes	Yes
Occupational:	Past History	✓			
	Current History	✓	✓	✓	✓
Physical examination:		✓	✓	✓	✓
Sensory:	Vision (+ fields)	✓	✓	0	0
	Hearing	✓	✓	0	0
Special investigations:		✓	0	0	0

✓ = indicated; 0 = optional

Written informed consent should be obtained when special investigations are required.

NGQURA BRICK

MEDICAL EXAMINATION FORM

FOR

PROFESSIONAL DRIVERS

(To be completed by Applicant)

Name :

Date of Birth:

Company:

Driver Category:	Goods (G)
	Dangerous Goods (D)
	Passenger (P)
	Forklift

- Have you ever had or do you have:
 - Frequent or severe headaches, dizziness, head injury or unconsciousness? YES/NO
 - Epilepsy or fits? YES/NO
 - Any problems with your eyes? YES/NO
 - Any hearing or speech problem? YES/NO
 - Any mental or psychological problems? YES/NO
 - Rheumatic fever, heart disease or high blood pressure? YES/NO
 - Lung problems such as asthma, pneumonia? YES/NO
 - Allergies YES/NO
 - Stomach, bowel or liver problems? YES/NO
 - Kidney, bladder problems or blood, protein, sugar in the urine? YES/NO
 - Thyroid disorder or diabetes? YES/NO
 - Malignant tumours or cancers? YES/NO
 - Weight loss (without dieting) YES/NO
 - Any infectious disease, such as TB or Hepatitis? YES/NO
 - Are you taking any medication? YES/NO
 - Admissions to hospital? YES/NO
 - Any other illness or injury? YES/NO
 - Any hereditary disease, such as high cholesterol, in your family? YES/NO
 - Have you had a medical examination in the past five years for an insurance policy or any other reason? YES/NO

If YES to any of the above questions, please give details:

.....
.....

- DO YOU SMOKE? YES/NO
If YES, how many cigarettes or how much tobacco do you smoke a day?.....
- DO YOU DRINK ALCOHOL? YES/NO
If YES, how much do you drink per week?

DECLARATION BY APPLICANT:

I hereby certify that the above information is correct to the best of my knowledge.

Signature of applicant Date:

MEDICAL EXAMINATION

General appearance

Enlarged lymph glands

Weight (kg)

Height (cm)

CARDIOVASCULAR SYSTEM

Pulse rate

Blood pressure

Heart sounds

Murmurs

Peripheral pulses

RESPIRATORY SYSTEM

ABDOMEN

Liver

Spleen

Hernia

Scars

NERVOUS SYSTEM

Cranial nerves

Motor

Sensory

Reflexes

SPINAL and MUSCULO-SKELETAL

ENT

VISUAL ACUITY

Without glasses

With glasses

URINE

Blood

Sugar

Protein

Bile

SPECIAL INVESTIGATIONS (as required)

- Audiogram
- ECG
- Chest X-ray
- Blood (Gamma GT, MCV)
- Substance abuse tests

This is to certify that the applicant is (tick one)

- Fit
- Unfit
- Temporarily unfit to work as a professional driver.

SIGNATURE.....NAME.....

QUALIFICATIONS.....

ADDRESS.....

TELEPHONE DATE:

CRITERIA FOR REJECTION

Driver Category		
I	II	III

1. **Cardiovascular conditions**

Uncontrolled blood pressure
Paroxysmal persistent arrhythmias
Angina pectoris
Myocardial infarct
CABG or coronary angioplasty
Congenital heart disease (if arrhythmia, embolism, cerebral ischaemia or ventricular hypertrophy in past 5 years) affecting cardiac function
Heart valve repair or Replacement
Vasovagal or other syncope
Pacemaker

2. **Endocrine conditions**

Diabetics requiring insulin
Diabetics on tablets or diet with complications (e.g. retinopathy)

3. **Neurological conditions**

Epilepsy after age 5 years

Head injury:

- With compound fracture
- With intracranial haematoma
- Unconsciousness > 24 hrs

TIA or Stroke

Dementia
Inco-ordination, ataxia
Parkinson's disease, multiple sclerosis or Meniere's disease

Disorders which limit neck or limb movements

Medication, which may impair skills, responses and co-ordination

Severe mental handicap

Serious psychiatric disorders

Alcoholism + drug addiction which has not responded successfully to treatment or is likely to relapse

4. **Vision**

Corrected visual acuity worse than $\frac{6}{9}$ in one eye and $\frac{6}{12}$ in the other.

A minimum visual field 50° nasal and 70° temporal in respect of each eye is required.

SHIFT WORK AND HEALTH IMPLICATIONS

1. Basic Conditions of Employment Act (BCEA) – Code of Good Practice on the Arrangement of Working Time.
 - (*Relevant Aspects*)
 - 1.0 Employers who engage employees to perform regular night work must ensure that these employees are informed of the health and safety hazards associated with the work that they would perform. This reiterates the obligations on employers in terms of the Occupational Health and Safety Act (OHSA) and the Mine Health and Safety Act (MHSA).
 1. Design and Evaluation of Shift System
 - 1.0 The design of shift rosters must be sensitive to the impact of these rosters on employees and their families.
 - 2.0 Information that an employer may require on the effects of shift rosters includes:
 - 1.0.0 The ranked preferences of employees for different shift systems (rate of rotation, length of shift, starting and finishing time of shifts, etc.).
 - 2.0.0 The employee's views of the advantages and disadvantages of the existing and proposed shift system.
 - 1.0.0 How an existing or proposed shift schedule affects or might affect the health and safety of employees.
 - 2.0.0 Means, costs and availability of transport to and from the place of residence and the personal security of the employees while commuting.
 1. Design of Shift Rosters
 - 1.0 The frequency of night work, weekend work and work on public holidays should be limited as much as possible for each worker.
 - 2.0 It is preferable that shifts be rotated in a forward direction (morning to afternoon to night) bearing in mind workers' preferences, local conditions, and difficulties in scheduling a long period of rest after spells of night shifts.
 - 3.0 Night shifts should be no longer than morning and afternoon shifts. Where long night shifts are used, they should be carefully reviewed to find ways to avoid excessive fatigue. Successive long night shifts should be avoided to the extent practicable.
 2. Performance of Safety – Critical Tasks.
 - 1.0 Employers should take particular care in the timing of safety-critical tasks in shift cycles, and during individual shifts.

3. Health Assessment and Counseling

- 1.0 An employee is entitled to have a medical examination at the time of commencing regular night work and thereafter at regular intervals while he or she continues to work regularly at night.
- 2.0 The examination should be performed by a medical practitioner or by a health professional in appropriate cases. This could include qualified staff employed at a workplace clinic.
- 1.0 The examination should cover:
 - 1.0.0 Any difficulties the employee may be having in adapting to night work routines;
 - 2.0.0 Any health problems that the employee is manifesting;
 - 3.0.0 Any psychological, emotional and social stresses experienced by the employee, strategies that may help the employee cope with night work and education input on the risks of shift work;
 - 4.0.0 Insomnia and symptoms of sleep deprivation such as irritability and chronic fatigue;
 - 5.0.0 Use of medication, the effectiveness of which depends upon circadian (daily body) rhythms;
 - 6.0.0 Diet and use of caffeinated drinks, alcohol, sleeping pills and cigarettes.
- 2.0 In certain circumstances it may be appropriate to advise certain individuals against shift work. These circumstances include where the effectiveness of medication is fundamentally affected by circadian (daily body) rhythms, workers with gastro-intestinal or cardiovascular disorders and epileptics.
- 3.0 The examination should also include educational input on the health risks that may be associated with the employee's work schedule and as coping strategies that may assist the employee.

2. Health Aspects

(a) Effects

- Disturbed sleep
This may result in malaise and fatigue.
- Gastro-intestinal problems
This may be due to altered dietary habits or increased use of tobacco and caffeine.
- Cardiovascular disease
A variety of studies have found increases in the incidence and prevalence of cardiovascular disease in shift workers. The risk may be a complex interaction between altered eating habits and disturbed circadian rhythms.
Between 5 – 20% of shift workers have marked difficulty in adapting to shift work

(b) Contraindication to Shift Work

- Insulin-dependent diabetes
- Epilepsy
- Ischaemic heart disease
- Pregnancy
- Severe gastrointestinal disease
- Depression and psychosis

(c) Medical Examinations

- Pre-placement
- Routine
- Exit

Format

- Particular attention to items listed in (b)
- Provide information on coping strategies.

(d) Coping Strategies

- Try and maintain a regular sleep routine.
- Block out noise and light when sleeping during the day
- Healthy diet
- Exercise

(e) 8 hour and 12 hour shift systems

There are few differences as regards the health effects on people between 8 and 12 hour shifts.

There may be certain advantages to 12 hour shifts in terms of lower stress levels, better physical and psychological wellbeing as well as improved quality of off-duty sleep and improved family relations. There are, however, concerns about fatigue and safety.

Internationally it is recognised that:

- there is no ideal shift system.
- aim for high flexibility and innovative shift systems.

AUDIOMETRIC TESTING

*THIS GUIDELINE MUST BE READ IN CONJUNCTION WITH THE DME COP FOR NOISE,
REF 16/3/2/4-A3*

1. Definitions

- Audiogram: a chart graph or table indicating the hearing threshold of an individual as a function of frequency at 0,5, 1, 2, 3, 4, 6 and 8kHz, as determined during an audiometric test
- Audiometrist: a person registered as such with the Health Professions Council, or one of the following;
 - An audiologist, i.e. a graduate in speech therapy and audiology, registered with the Health Professions Council
 - A person who holds a certificate in audiometry issued by an institution recognised and approved by the Department of Labour or by the Department of Minerals and Energy.
- **Baseline audiogram:** an audiogram derived from an audiometric test performed prior to employment, or within a period of 30 days of employment, that is performed after a period of at least 16 hours since the employee was last exposed to a noisy environment. The baseline audiogram shall serve as the employee's standard against which all subsequent audiograms will be compared in order to determine the deterioration (if any) that has occurred while employed, in terms of percentage loss of hearing.
- **Baseline audiometrist:** performed by a competent person who has completed initial training within the last two years or who has completed refresher training within the last two years to ensure quality control for baseline audiograms.
- **Diagnostic audiogram:** an audiogram performed by an audiologist and obtained after a period of at least 16 hours since the employee was last exposed to a noise environment. Wearing of hearing protection devices (HPD) will NOT fulfil the 16 hours noise-free requirement
- **Monitoring audiogram:** an audiogram obtained as part of ongoing medical surveillance of employees where their exposure levels equal or exceed 105dBA. The monitoring audiogram is recorded during or immediately after completing a normal shift, the purpose of which is to determine whether any temporary threshold shift has occurred. An audiometrist performs the monitoring audiogram.
- **Screening audiogram:** an audiogram obtained as part of ongoing medical surveillance, and that is performed after a period of 16 hours since the employee was last exposed to a noise environment. The use of appropriate hearing protective devices may be used to fulfil the 16 hour noise-free requirement. An audiometrist performs the screening audiogram.

2. Scope of Application

All employees who work in or may be required to enter a noise zone area shall undergo audiometric testing as prescribed below.

3. Medical Surveillance

- Baseline audiogram
 - (a) A baseline audiogram shall be recorded before commencement of employment or within 30 days of commencing employment for all employees who will be required to enter or work in noise zones.
 - (b) Two baseline audiogram's shall be performed by a Baseline Audiometrist
 - (c) Testing for the purpose of recording a baseline audiogram shall be conducted only after a period of at least 16 hours has elapsed since the person to be tested was exposed to a noise level equal to or exceeding 85dBA.
 - (d) The baseline audiogram, against which all subsequent audiograms will be compared, will be the better of the employee's two audiograms performed on the same day and that do not differ from each other by more than 10 dB for any of the measured test frequencies.
 - (e) Where it is not possible to obtain two audiograms that comply with the requirements of 6(1)(d) the employee shall be referred to an audiologist for the purpose of establishing baseline-hearing levels.
 - (f) Where it is not possible for the audiologist to obtain the required baseline audiogram, other techniques such as speech reception threshold will be acceptable for baseline purposes.
 - (g) A baseline audiogram shall have been obtained for all employees working in or required to enter noise zones, within a period of 24 months of the publication date of this guideline.
- **Screening audiometry:**
 - (a) The employer shall ensure that screening audiograms are obtained at least annually for all employees working in or required to enter noise zones. Employees working in or required to enter noise zones where the exposure level equals or exceeds 105 dBA must undergo audiometric periodical testing at 6-monthly intervals.
 - (b) All audiograms shall be performed after a minimum of 16 hours has elapsed since exposure to an environment where the noise levels equals or exceeds 85 dBA. This audiogram shall be referred to as the *screening audiogram*.
 - (c) The 6 monthly audiogram for employees exposed to 105 dBA or greater shall be recorded during or immediately after the employee's normal shift. The audiogram shall be referred to as the *monitoring audiogram*.
 - (d) An audiometrist shall perform the screening and monitoring audiograms.

- Action based on the results of 6 monthly monitoring or annual screening audiograms.
- Where there is a ≥ 15 dB deterioration in hearing at either 0,5, 1, 2, 3, 4 or 6 kHz when compared with the baseline audiogram, a repeat audiogram will be performed immediately. Should the repeat audiogram confirm a ≥ 15 dB shift, then:
 - The employee will be assessed by the occupational Health / Medicine practitioner who will determine whether the employee should be referred for 'diagnostic audiometry' and possible compensation.
 - The employee will be informed of the findings, and referred for re-training.
 - The suitability of the hearing protection shall be reassessed.

HOT ENVIRONMENT WORK

Employees working in a hot environment, combined with hard physical work, may develop heat-related illnesses. Fortunately people who regularly work in a hot environment gradually become acclimatised.

There are three major clinical disorders involving excessive heat stress:

- heat exhaustion
- heat cramp
- heat stroke.

(i) **Heat Exhaustion**

This is most prevalent in persons having reduced total blood volume resulting from dehydration following profuse sweating and insufficient fluid replacements.

Predisposing factors:

- Dehydration
 - Gastro-enteritis
 - Inadequate water supply
- High work rate in a hot dry area
- Unacclimatised individuals.

Symptoms:

Weakness, fatigue, headache, thirst and vomiting.

Signs:

- Exhaustion
- Dehydration
- loss of skin elasticity
- sunken eyes
- Increased pulse rate
- Low systolic blood pressure
- Temperature generally normal
- Poor urine output
- Cramps

Treatment:

Mild cases - water/isotonic drinks
 Moderate cases - IV infusion

(ii) **Heat Cramps**

This is characterised by painful spasms in one or more of the skeletal muscles. This may occur in people who sweat profusely in heat without adequate replacement of their salt losses.

Treatment:

- Isotonic drinks
- IV normal saline in more severe cases. Valium if severe.
- Rest

(iii) **Heat Stroke**

This is the most severe effect of heat and is the development of neurological symptoms in the presence of hyperpyrexia (core temperature > 40,5 C).

Signs and Symptoms:

- Hot, dry skin
- Confused and quarrelsome (think of heat stroke when there is any abnormal behaviour in a high risk situation)
- Muscle twitching and seizure-like movements
- Incontinence of urine/faeces
- Unconsciousness and coma
- Death.

First Aid Treatment:

The essential requirements for the emergency first aid treatment of heat stroke are a means of accurately measuring deep body temperature and for the immediate institution of effective cooling. A rectal thermometer with a range expanding to at least 42 C should be available.

For cooling purposes:

- Remove individual from locally hot area
- Remove clothing
- Splash with water and blow air with fan. Continue until rectal temperature is 38,4 C.
- A, B, C (airways, breathing, circulation) of basic life support.
- Administer oxygen (increased demand)
- IV infusion
- Send to hospital as soon as possible.

Legislation

The Environmental Regulations in the Occupational Health and Safety Act, No 85 of 1993, state that where the time-weighted average WBGT (Wet Bulb Globe Temperature) index, determined over a period of one hour, exceeds 30 in the environment in which people work, the employer of such workers shall:

- a. If practical, take steps to reduce the said index to below 30; or
- b. Where it is not practical to reduce the said index to below 30 and where hard manual labour is performed:
 - (i) Have every such employee beforehand and thereafter, at intervals not exceeding one year, certified fit to work in such environment by a registered medical practitioner by such practitioner, and every such employee shall, if found fit to work in such environment, be issued with a certificate to that effect by such practitioner or nurse;
 - (ii) Ensure that every such employee is acclimatised to such working environment before he is required or permitted to work in such environment;
 - (iii) Inform every such employee of the need to partake of at least 600 millilitres of water every hour.
 - (iv) Train every such employee in the precautions to be taken to avoid heat-stroke; and
 - (v) Provide the means whereby every such employee can receive prompt first aid treatment in the event of heat-stroke.

Provided that, where the question arises as to whether any particular type of work does in fact constitute hard manual labour, the decision of an inspector shall be decisive.

**MEDICAL CERTIFICATE OF FITNESS TO WORK
IN A HOT ENVIRONMENT**

NAME: **COMPANY NO.**

Was today examined in terms of the Environmental Regulations in the Occupational Health and Safety Act, No. 85 of 1993, and is **FIT/UNFIT** (delete where applicable) to work in a hot environment.

Medical Practitioner

Address:

.....
.....
.....
.....

Date:

EXPOSURE TO ULTRAVIOLET RADIATION

INTRODUCTION

There are essentially two types of UV radiation:

- ❖ UVA (wavelength 315 – 400 nm)

Little biological effect.
Mild redness and pigmentation of the skin.

- ❖ UVB (wavelength 380 – 315 nm)

Health effects of UVB radiation may include:

- Skin

Marked erythema (redness)
Chronic effects include carcinoma (basal, squamous and melanoma)

- Eyes

Can cause arc eyes – a keratoconjunctivitis (inflammation of the cornea and conjunctiva), e.g. during welding.
Intense UV radiation may cause cataracts.

MINIMISING EXPOSURE TO UV RADIATION

- ❖ Welders should use appropriate protective equipment including goggles, gauntlets
- ❖ For employees that may be continually exposed to the sun between 11h00 – 15h00, the following should be considered where appropriate:
 - Shade or cabin
 - Sunblock cream with a SPF of ≥ 15 for fair-skinned individuals
 - Long sleeves, long trousers and hat
 - UV blocking sunglasses.

MEDICAL SURVEILLANCE

- ❖ Skin evaluation by an occupational health practitioner to exclude early signs of basal cell and squamous cell carcinomas, and malignant melanomas
- ❖ Eye evaluation to exclude cataracts.