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# **RAILWAY VEHICLE DRIVERS (LOCO DRIVERS) MEDICAL FITNESS**

## **GUIDELINE**



Department of  
**Industry and Resources**

**MOSHAB Approved**

**December 1997**

**Document No: ZMR002RY**



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## **FOREWORD**

**Comments on, and suggestions for, improvements to this Guideline are encouraged.  
This Guideline will be revised as appropriate.**

**Comments should be sent to:**

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## MEDICAL FITNESS TO TAKE CHARGE OF AND DRIVE ON THE MINE RAILWAY

### 1. LEGISLATIVE REQUIREMENTS

Provision in the Mines Safety and Inspection Regulations 1995 is made for the competency and medical fitness of railway vehicle drivers, the relevant regulations are as follows :

#### Issue of certificate

- 15.7.** (1) The manager or another competent person must issue a certificate to a person if -
- (a) the person has been examined in accordance with subregulation (2) by the manager or competent person; and
  - (b) the manager or competent person is satisfied from the examination that the person is competent to perform the person's duties.
- (2) The examination referred to in subregulation (1) may be written or oral or both, may include practical operating tests, and must be of such a standard as to satisfy the examiner that the examinee -
- (a) can speak, read and write the English language competently;
  - (b) is medically fit to take charge of and drive on the mine railway the class of vehicle to which the examination relates;
  - (c) has had adequate experience under the direct supervision of a qualified driver in operating the class of vehicle to which the examination relates;
  - (d) has adequate knowledge of the principles of operating, the component parts and the braking system, of the class of vehicle to which the examination relates; and
  - (e) has adequate knowledge of the railway operating rules and the signals and signalling systems in use on the railway or part of the railway where the vehicle is to be used.

#### Suspension or cancellation of certificate

- 15.9.** (1) The manager of a mine may cancel or suspend a certificate if in the manager's opinion -
- (a) the certificate was obtained by fraud;
  - (b) the holder is not a fit and proper person to hold such a certificate;
  - (c) the holder is not medically fit to drive and operate vehicles on the railway at the mine; or
  - (d) the certificate should be cancelled or suspended for any other reason.
- (2) If a certificate is cancelled or suspended, the holder must deliver the certificate to the manager on demand by the manager.

Penalty: See regulation 17.1.

- (3) If the manager cancels or suspends a certificate, the manager must as soon as is practicable notify the senior inspector of the cancellation or suspension and of the reason for it.

Penalty: See regulation 17.1.

- (4) Before cancelling or suspending a certificate, the manager must give the holder notice

of the proposed cancellation or suspension and a reasonable opportunity to make written submissions.

### **Medical examinations**

- 15.10.** (1) Each controller, member of a train crew or other person employed in any capacity in relation to a railway that requires the person to be fully conversant with the operating rules (including signals and signal codes) must attend before a medical practitioner to have the person's hearing, vision and general fitness examined -
- (a) at intervals of not more than 2 years; and
  - (b) at such other times as may be required by a medical practitioner or an inspector.

Penalty: See regulation 17.1.

- (2) The person must ensure that the results of each medical examination referred to in subregulation (1) –
- (a) are recorded in the form determined by the State mining engineer; and
  - (b) forwarded as soon as is practicable to the principal employer at, or the manager of, the mine at which the person examined is employed.

Penalty: See regulation 17.1.

- (3) If a medical practitioner records under subregulation (2) that the person examined is not medically fit to carry out duties in a specified class of employment -
- (a) a person must not employ the person concerned or permit him to be employed in that class of employment; and
  - (b) the person concerned must not, after being notified of the opinion recorded, engage in that class of employment.

Penalty: See regulation 17.1.

The former Mines Regulations Act Regulation had similar provisions for medical examinations and some standards were developed to assist medical practitioners reach a decision on medical fitness following their examination. These were used up until 1995.

## **2. INTRODUCTION**

The Mines Safety and Inspection Act 1994 emphasises the duty of care responsibilities for mine management. Thus the determination of the content and standards for medical fitness as required in the Regulations, is the responsibility of the manager, or other competent person, of a mine with railway operations.

It is proposed, however, that the Department of Minerals and Energy produce a “guideline” nominating minimum medical standards for medical practitioners, to utilise when performing medical assessments on railway vehicle drivers.

### **3. MEDICAL CRITERIA**

In deciding on medical criteria for train crew it is appropriate to identify the job requirements for locomotive engine drivers, identify the potential problems that may cause incapacity to perform these tasks, and the risk that such events may occur.

It is then appropriate to suggest the medical entity (disease) that could cause this incapacity and examine for this disease. In so doing it is important to consider the justification for any screening procedure which includes sensitivity (probability that it will detect diseased individuals), specificity (probability that it will not label a normal person as diseased); positive predictive value (probability that a person with an abnormal test, truly has the disease); and reliability (ability of a test to produce consistent results).

#### **(i) Task requirements**

- a. climb into locomotive.
- b. start up and operate locomotives;
- c. observe signalling using lights with colour coding;
- d. respond to and utilise communications equipment in the locomotive cabin;
- e. stop the locomotive, either when appropriate or as an emergency;
- f. read signs, operating procedures and other material pertinent to operating a locomotive;
- g. write down clearance instructions from radio controller;
- h. make/break couplings of locomotive, ore, goods wagons;
- i. set and release manual braking systems;
- j. walk the train in the event of breakdown; and
- k. work long shifts with high concentration.

#### **(ii) Potential problems**

- a. difficulty with visibility and vision;

- b. problems with identifying the colour signals;
- c. difficulty in hearing communications (radio or phone) with instructions;
- d. difficulty in hearing alarms;
- e. sudden inability to operate a locomotive engine;
- f. problem with hand grip and manual dexterity in managing brakes and couplings;  
and
- g. reduced agility and steadiness of gait.

(iii) Medical issues requiring assessment

- a. visual acuity with or without corrective devices;
- b. colour vision capabilities;
- c. hearing capacity across the speech range of frequencies;
- d. potential for sudden loss of consciousness or collapse;
- e. physical capacity to do the tasks; and
- f. climbing ladders, agility, balance and capacity to walk.

#### **4. RECOMMENDED STANDARDS**

In suggesting medical standards it is proposed to recommend a core group of conditions pertinent to the safe operation of a locomotive engine, a baseline medical assessment.

It is recognised, however, that a private organisation may wish to take the opportunity to include additional health screening tests for the benefit of the employee, and so implement a medical assessment that is more extensive, than suggested in Appendix 1.

It should be recognised that in performing more comprehensive medical assessments, the justification for so doing becomes harder especially when considering the medical screening tests sensitivity and predictive value especially the ability of specific tests to predict functional incapacity relevant to driving a locomotive. Additionally detailed policies and rationales for such medical standards will need to be available, because of Disability Discrimination and Equal Opportunity of Employment Legislation implications.

(i) **Baseline medical assessment**



(a) Vision

Acuity: Binocular vision 6/9 or better with or without correction; 6/12 or better in either single eye, with or without correction;

Near vision, N5 at 30 cm, N14 at 1 m.

Visual fields: Both eyes with normal horizontal fields to confrontation testing.

Colour vision: Using the Ishihara Test, no more than 5 mistakes. Moderate protans and deutrans, or severe protanomalous individuals should be excluded after assessment with the Farnsworth Lantern Test. Those with a mild colour vision defect could then be nominated "colour vision defective - Railway Operations Safe" to prevent retesting with the Farnsworth Lantern on subsequent tests.

(b) Hearing

Specific comment is required on a binaural hearing loss worse than:

KHz	0.5	1	1.5	2	3	4	6
dB loss	30	30	30	30	40	40	40

A conditional medical certificate may be considered for those with hearing aids who can pass the above standard, or who can demonstrate radio communication capability in a moving locomotive cab.

(c) Potential for sudden loss of consciousness or collapse

Cardiovascular variables

- known ischaemic heart disease
- resting blood pressure: Systolic >160 mm Hg, diastolic >100 mm Hg, on or off treatment (tested in accordance to accepted protocols)
- heart block, recurrent dysrhythmias
- valvular disease with history of embolism
- aortic stenosis

Respiratory variables

- unstable severe asthma requiring daily medication
- evidence of continuing obstructive sleep apnoea

#### Renal variables

- evidence of residual renal stones

#### Neurological variables

- unstable epilepsy even on treatment
- transient ischaemic attacks
- vestibular disorders, recurrent vertigo
- menieres disease

#### Endocrine variables

- unstable insulin dependent diabetes with hypoglycaemic attacks

#### Alimentary system variables

- evidence of active peptic or duodenal ulceration, where there appears to be a high probability of sudden bleeding.

#### Psychiatric variables

- evidence of alcohol or other drug dependency
- current chronic psychosis, labile schizophrenia or manic depressive state
- use of medication which impairs coordination or motor performance, or depresses the central nervous system.

#### (d) Locomotive system

Ability to climb, stand, walk the railroad, handle couplings and maintain balance.

- (ii) **Additional medical parameters** which could be considered when conducting an overall fitness assessment on locomotive drivers and may help determine overall medical risk for incapacity to perform locomotive drivers duties.

The additional content would be determined by a number of factors:

- ◆ decision by the organisation to arrange positive health awareness in drivers; identification of known broad risk factors for health;
- ◆ influence of lifestyle factors and the detail considered necessary by the organisations advising medical practitioners.

The content of the medical examination ultimately will be decided in consultation with the consulting medical practitioner and the organisation owning the railway operation. The **baseline medical examination** should be considered as a minimum requirement reducing risk of an unpredictable event with the associated possibility of a safety breach, or injury.

**(iii) Frequency of medical examinations.** Under the regulations (15.10(1)(a)) it is stated that they should be at intervals of not more than 2 years; and (b) at such other times as may be required by a medical practitioner or an inspector.

**(iv) Results of medical examinations**

Reg 15.10(2)(a) states that the results of each medical examination are recorded in the form determined by the State mining engineer.

A suggested form is attached as Appendix 1 of this guideline.

Should a company have developed their own medical forms, and provided they are similar to, or better than, the proposed forms and have defined functional requirements for the job of train crew, then these could be used instead.



**Medical Assessment**

Peripheral visual acuity:

<b>Vision</b>	Right	Left	Binocular
Near			
Far			

Acceptable/Not Acceptable

Peripheral visual fields:  
 (confrontation)

Colour Vision:

Ishihara plates (Number of mistakes)..... Pass/Fail

Farnsworth Lantern Test ..... Pass/Fail

<b>Audiometry KHz</b>	0.5	1.0	1.5	2.0	3.0	4.0	6.0	8.0
Left ear								
Right ear								

	<b>Delete as Applicable.</b>	<b>Comment.</b>
<b>Cardiovascular System</b>	Acceptable / Not Acceptable / Further Evaluation	.....
<b>Blood pressure</b>	Acceptable / Not Acceptable / Further Evaluation	.....
<b>Respiratory system</b>	Acceptable / Not Acceptable / Further Evaluation	.....
<b>Neurological system</b>	Acceptable / Not Acceptable / Further Evaluation	.....
<b>Other medical systems</b>	Acceptable / Not Acceptable / Further Evaluation	.....

Is this person medically fit to carry out the duties of a railway vehicle driver?

Yes / No / Requires Further Evaluation (explain) .....

**Signed** .....

**Name of Medical Practitioner**..... **Date** .....