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SOUTH AFRICAN NATIONAL STANDARD

Railway safety management

Part 4: Human factors management

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Table of changes

Change No.	Date	Scope

Acknowledgement

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Transnet Freight Rail (TFR)

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the Transport Education and Training Authority

the Transport Education and Training Quality Assurance Body

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Foreword

This South African standard was approved by the National Committee SABS TC 1066, *National steering committee for railway safety standards*, in accordance with procedures of the SABS Standards Division, in compliance with annex 3 of the WTO/TBT agreement.

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SANS 3000 consists of the following parts, under the general title *Railway safety management*.

Part 1: General.

Part 2-1: Technical requirements for engineering and operational standards – General.

Part 2-2: Technical requirements for engineering and operational standards – Track, civil and electrical infrastructure.

Part 2-3: Technical requirements for engineering and operational standards – Rolling stock.

Part 2-4: Technical requirements for engineering and operational standards – Train authorization and control systems and equipment (in course of preparation).

Part 2-5: Technical requirements for engineering and operational standards – Train operations management (in course of preparation).

Part 2-6: Technical requirements for engineering and operational standards – Interoperability, inter-modal and utilities management (in course of preparation).

Part 3: Railway occurrence management (in course of preparation).

Part 4: Human factors management.

Part 5: Railway stations (in course of preparation).

Reference is made in clause 1 and 3.1.30 to the "relevant national legislation". In South Africa this means the National Railway Safety Regulator Act, 2002 (Act No. 16 of 2002).

Reference is made in 3.1.4, 3.1.22, 3.1.27, 3.1.28 and 3.1.29 to the relevant national legislation. In South Africa this means the Health and Safety Act, 1993 (Act No. 85 of 1993).

Reference is made in 4.2.1, 4.4, 4.5.1, 5.1.2.1, 5.1.3.2, 5.1.4.1, 5.1.5.1, 5.1.6.1, 5.2.2.1, 5.2.3.2, 5.2.4, 5.2.5.1, 5.2.6.1, 5.2.6.2, 5.3.2.1, 5.3.4.1, 5.3.5.1, 5.3.5.3, 5.3.6.1, 5.4.2.1, 5.4.3.2, 5.4.4, 5.4.5.1, 5.4.6.1, 5.4.6.2, 5.5.2.1, 5.5.3.2, 5.5.4, 5.5.5.1, 5.5.6.1, 5.5.6.2(b), 6.3.1.4, 6.3.2.1, 6.3.5, 6.4.5, 6.5.5, 6.6.4, 6.7.4, 6.7.6, 6.7.8.1, 6.7.8.2, 6.7.9, 6.9.4, 6.10.4 and 6.11.4 to the "relevant national legislation". In South Africa this means the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) and the Mine Health and Safety Act, 1996 (Act No. 29 of 1996).

Reference is made in 6.1.1.3(c) and 6.2.6.9 to the "relevant national railway safety regulator". In South Africa this means the regulator specified in the National Railway Safety Regulator Act, 2002 (Act No. 16 of 2002).

Reference is made in 6.1.2.1 and 6.4.2.1 to the "relevant national legislation". In South Africa this means the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993), the Mine Health and Safety Act, 1996 (Act No. 29 of 1996), the Basic Conditions of Employment Act, 1997 (Act No. 75 of 1997), the Constitution of the Republic of South Africa, 1996, the Labour Relations Act, 1995 (Act No. 66 of 1995), and the Employment Equity Act, 1998 (Act No. 55 of 1998).

Reference is made in 6.1.6.3, 6.1.7.2.1, 6.1.7.2.2, 6.3.7.1, 6.3.7.2, 6.3.7.3 and 6.5.4.3 to the "relevant national legislation". In South Africa this means the Health Professions Act, 1974 (Act No. 56 of 1974).

Reference is made in 6.2.5.1 and 6.2.8.2 to the "relevant national legislation". In South Africa this means the South African Qualifications Authority Act, 1995 (Act No. 58 of 1995) and the Skills Development Act, 1998 (Act No. 97 of 1998).

Reference is made in 6.3.4.3 and 6.3.8.2 to the "relevant national legislation". In South Africa this means the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993), the Mine Health and Safety Act, 1996 (Act No. 29 of 1996), the Health Professions Act, 1974 (Act No. 56 of 1974) and the National Health Act, 2003 (Act No. 61 of 2003).

Reference is made in 6.3.6.1, 6.3.6.4.1, 6.5.6.1, 6.6.3.3 and 6.7.5.2 to the "relevant national legislation". In South Africa this means the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993), the Mine Health and Safety Act, 1996 (Act No. 29 of 1996) and the Health Professions Act, 1974 (Act No. 56 of 1974).

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Reference is made in 6.4.8.1, 6.4.10.1, 6.5.2.1, 6.6.2.1, 6.8.1.3 and C.2 to the “relevant national legislation”. In South Africa this means the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993), the Mine Health and Safety Act, 1996 (Act No. 29 of 1996), the Basic Conditions of Employment Act, 1997 (Act No. 75 of 1997), the Labour Relations Act, 1995 (Act No. 66 of 1995), and the Employment Equity Act, 1998 (Act No. 55 of 1998).

Reference is made in 6.4.9.1 to the “relevant national legislation”. In South Africa this means the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993), the Mine Health and Safety Act, 1996 (Act No. 29 of 1996) and the Basic Conditions of Employment Act, 1997 (Act No. 75 of 1997).

Reference is made in 6.7.1.2, 6.7.1.3, 6.7.1.4, 6.7.2.1 and 6.7.3 to the “relevant national legislation”. In South Africa this means the Code of Good Practice on the Protection of Employees during Pregnancy and after the Birth of a Child as given in the regulations in terms of section 87(1)(b) of the Basic Conditions of Employment Act, 1997 (Act No. 75 of 1997).

Reference is made in 6.9.1.1, 6.9.1.2, 6.9.2.1 and 6.9.2.2 to the “relevant national legislation”. In South Africa this means the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993), the Mine Health and Safety Act, 1996 (Act No. 29 of 1996), the Basic Conditions of Employment Act, 1997 (Act No. 75 of 1997) and the National Road Traffic Act, 1996 (Act No. 93 of 1996).

Reference is made in 6.9.5.1 to the “relevant national legislation”. In South Africa this means the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993), the Mine Health and Safety Act, 1996 (Act No. 29 of 1996), the Basic Conditions of Employment Act, 1997 (Act No. 75 of 1997) and the Labour Relations Act, 1995 (Act No. 66 of 1995).

Reference is made in 6.9.6 to the “relevant national legislation”. In South Africa this means the National Road Traffic Act, 1996 (Act No. 93 of 1996) and the Prevention of and Treatment for Substance Abuse Act, 2008 (Act No. 70 of 2008).

Reference is made in 6.10.6.1 to the “relevant national legislation”. In South Africa this means the Basic Conditions of Employment Act, 1997 (Act No. 75 of 1997).

Annexes C and D form an integral part of this document. Annexes A, B, E, F and G are for information only.

Introduction

This document has been developed primarily with a view to providing railway operators with the minimum requirements to manage human factors (HF) for employees who undertake safety-related work. It is read and implemented in conjunction with the relevant national legislation and applicable standards.

"Human factors" and "ergonomics" are synonymous terms and are used interchangeably. HF/ergonomics focuses on ensuring an ergonomically designed workplace, with tools and equipment matched to human anthropometric, physiological and biomechanical dimensions. This part of SANS 3000 uses the term HF and focuses on the management of the following human aspects to ensure safe railway operations:

- a) human factors in design (clause 4);
- b) physical environmental factors (clause 5); and
- c) organizational and psychological factors (clause 6).

The purpose of HF management is to reduce occurrences attributable to human error, by optimizing human capital, and by mitigating the risks associated with HF in the workplace to acceptable levels. It is a dynamic risk-driven process.

Risk assessments for HF management should be conducted in accordance with the risk assessment process as outlined in SANS 3000-1, SANS 3000-2-1 and the relevant clauses. The operator should follow a systematic approach to manage exposure to physical, chemical, ergonomical, biological, psychosocial or mechanical stressors (or any combination of these).

HF management forms an integral part of a railway operator's safety management system, as described in SANS 3000-1. This implies that a separate system to manage HF is not required.