Ref:	NR/L2/RMVP/0131
Issue:	1
Date:	5 December 2009
Compliance date:	6 March 2010

Level 2

Design and Installation of Fuelling, Lubrication Oil and Coolant Storage and Delivery Systems

Endorsement and Authorisation

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Accepted for issue by:

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Issue record

Issue	Date	Comments
1	5 December 2009	First draft issued for comment

Compliance

This Network Rail standard is mandatory and shall be complied with by Network Rail and its contractors if applicable from 6 Mar 2010.

When this standard is implemented, it is permissible for all projects that have formally completed GRIP Stage 4 to continue to comply with the Issue of any relevant Network Rail Standards current when GRIP Stage 4 was reached and not to comply with requirements contained herein, unless the designated Standard Owner has stipulated otherwise in the accompanying Briefing Note.

Reference documentation

Doc Ref Number	Title
SI 1990/c43	Environmental Protection Act 1990
SI 2001/2954	Control of Pollution (Oil Storage) Regulations 2001
2004/108/EEC	Electro-magnetic Compatibility Directive
SI 1998/2306	The Provision and Use of Work Equipment Regulations 1998
GM/RT1040	Safe Working On or Near Electrical Equipment
GI/GN7520	Guidance on Lighting Of Railway Premises
GL/RT1255	Low Voltage Power Supplies in Electrified Areas
RT/E/G/00007	Environmental Management for Light Maintenance Depots
BS EN 60269-1	Low Voltage fuses General Requirements
BS 1710: 1998	Specification for identification of pipe lines and services
BS 3818	Specification for Self-sealing Fuelling Couplings for Diesel Locomotives and Diesel Railcars
BS 3858	Specification for binding and identification sleeves for use on electric cables and wires
BS 4800	Schedule of Paint Colour for Building Purposes
BS 5499 & BS 5378	Graphic Symbols and Signs. Safety Signs Including Fire Safety Signs. Signs with Specific Safety Meanings.
BS 6221-2	Printed wiring boards. Methods of test
BS 6221-6	Printed wiring boards. Specification for multilayer printed

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	wiring boards
BS 7671	Requirements For Electrical Installations (IEE Wiring Regulations)
BS EN 976: 1996	Horizontal cylindrical tanks for the storage of fuel based products
BS EN 10216-1 & BS EN 10217-1	Welded steel tubes and storage tanks for pressure purposes
BS EN 10255	Non-alloy steel tubes suitable for welding or threading Technical delivery conditions
BS EN 60073	Safety Principles For Man-Machine Interface Marking and identification. Coding Principles for Indicators and Actuators
BS EN 60079	Explosive Atmospheres. Equipment Protection by Flameproof enclosures “D”
BS EN 60439	Low Voltage Switchgear And Control Gear Assemblies Type Tested and Partially Tested Assemblies
BS EN 60204-1	Safety of machinery. Electrical equipment of machines. general requirements
BS EN 60529	Specification for degrees of protection provided by enclosures (IP code)
BS EN 61386-1	Conduit systems for cable management. General requirements
BS EN 1760-2	Safety of machinery. Pressure sensitive protective devices. General principles for the design and testing of pressure sensitive edges and pressure sensitive bars
BS EN ISO 12100-1	Safety of machinery. Basic concepts, general principles for design. Basic terminology, methodology
BS EN ISO 12100-2	Safety of machinery. Basic concepts, general principles for design. Technical principles
BS EN ISO/IEC 17050	Conformity Assessment. Suppliers Declaration of Conformity General Requirements
BASEEFA including BS 5501-9	British Approvals Service for Electrical Equipment in Flammable Atmospheres
NR/GN/ENV/00007	Enviromental management for light maintenance depots
NR/GN/ELP/27225	Guidance manual for stations and depots – Equipment maintenance
NR/SP/CIV/044	Construction of under track crossings

The Railway Group Standards and other references listed above are given for guidance purposes, but are not intended to be exhaustive list of all relevant documents.

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1 Purpose

This standard defines the technical design requirements for off-loading, storage and dispensing systems used for supplying fuel, lubrication oil and coolant to rolling stock, on-track machines and diesel powered road/rail vehicles within Light Maintenance Depots owned by Network Rail, whether the depot is operated by Network Rail or through a third party lease arrangement.

2 Scope

This specification covers the design, manufacture, installation, testing and commissioning of new and refurbished storage and dispensing installations at Network Rail owned Light Maintenance Depots (LMD's).

3 Definitions

Storage & Dispensing System — Any Permanent:-

- Above or below ground tank, used for the storage of fuel oil, lub oil and coolant.
- Any Pipeline providing supply arrangements to, or delivery arrangements from, the above tanks.
- Any fuel, lub oil and coolant dispensing arrangements up to the point of dispensing to free air, or delivery to a receiving item of plant for use as appropriate.
- Any electrical or mechanical plant associated with supply, delivery and dispensing arrangements complete, including all controls, valves, pumps, dispensers etc.
- Any tank bund structure, fuel dispensing slab, or other arrangement for containing spillages of fuel, oil or coolant stored, delivered or dispensed within the above facilities.
- Any supporting infrastructure to the above facilities.

OTM — On Track Machine (OTM) – Any rail mounted machine, whose primary function is for the renewal, maintenance, inspection or measurement of the infrastructure.

OTP — On Track Plant (OTP) includes :-

- Road rail vehicles (RRV).
- Rail mounted maintenance machines (RMMM).
- Trailers and attachments with rail guidance wheels.

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IBC's Intermediate Bulk Containers – for bulk material and liquids transfer (normally around 1000 ltrs – but may differ in litrage)

All other terms used within this document shall have their meaning as described in the relevant Railway Group Standards or other applicable Network Rail documents.

4 Requirements

4.1 General

The storage and dispense system shall be designed to provide the most efficient distribution network taking due cognisance of the depot layout and the operational requirements at the depot concerned.

All equipment shall be positioned such that the risk of damage through collision of passing vehicles, persons, fork lift trucks, etc is minimised. The positioning of equipment shall be such that it does not present a hazard to depot staff.

The number and type of dispense points, liquid type to be dispensed, demand required, number and size of storage tanks shall all be as detailed in the relevant contract documentation.

The whole installation shall have an in service life of 25 years minimum.

The installation shall have a minimum 90% availability, taking account of maintenance and repair times only.

4.2 Delivery of hazardous / dangerous liquids

All delivery areas must be clearly marked and bunded ensuring they are isolated from surface water drains. (reference RT/E/G/00007 Section 3)

All delivery points must be of a fixed lockable type, designed to prevent damage or unauthorised use to vandalism.

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All External delivery points, where they are outside of the main bunded area, must have fixed bunding provided to prevent spills to land or surface drainage.

4.3 Bulk Storage Tanks

Fuel only

Steel double skinned cylindrical storage tanks of strength and structural integrity to a minimum of BS EN 976: 1996 shall be provided, which shall, wherever possible be horizontally mounted. Where multiple tanks are provided, they shall all be of equal capacity.

All applications

The storage tanks shall be supplied complete with the following fixtures:-

Contents gauge

Manhole complete with lid, access ladder, platform and peripheral hand railing

Breather c/w birdcage

Sludge drain valve c/w valve and plug

Fill Pipe connection situated centrally on top of the tank

Draw off connection situated centrally at low level

Dips stick c/w dip pipe and non spark cap for fuel and oil applications.

High and low level alarms

Delivery meter

Where manhole covers are provided for inspection purposes on bulk storage tanks they must be lockable, labelled appropriately with the warnings e.g “Confined Space” and the location included within the drawings.

If a recirculation pumped system is employed, it shall be designed such that it re-circulates directly into the same tank it is drawing from. Interlocks and protection shall be provided such that it is impossible for pumps to draw from and re-circulate into different tanks.

All storage tanks shall be painted in accordance with BS 4800.

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