

Australian Standard[®]

**The design, installation and operation of
underground petroleum storage
systems**



This Australian Standard® was prepared by Committee ME-017, Flammable and Combustible Liquids. It was approved on behalf of the Council of Standards Australia on 15 January 2008.

This Standard was published on 5 February 2008.

The following are represented on Committee ME-017:

- Agsafe
 - Australasian Fire Authorities Council
 - Australian Industry Group
 - Australian Institute of Petroleum
 - Australian Paint Manufacturers Federation
 - Department of the Premier and Cabinet, SA
 - Department of Consumer and Employment Protection, WA
 - Department of Defence
 - Department of Emergency Services, Qld
 - Department of Justice, Tas.
 - Fire Protection Association of Australia
 - Insurance Council of Australia
 - Plastics and Chemicals Industries Association
 - Victorian WorkCover Authority
-

This Standard was issued in draft form for comment as DR 07403.

Standards Australia wishes to acknowledge the participation of the expert individuals that contributed to the development of this Standard through their representation on the Committee and through the public comment period.

Keeping Standards up-to-date

Australian Standards® are living documents that reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued.

Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments that may have been published since the Standard was published.

Detailed information about Australian Standards, drafts, amendments and new projects can be found by visiting www.standards.org.au

Standards Australia welcomes suggestions for improvements, and encourages readers to notify us immediately of any apparent inaccuracies or ambiguities. Contact us via email at mail@standards.org.au, or write to Standards Australia, GPO Box 476, Sydney, NSW 2001.

Australian Standard[®]

**The design, installation and operation of
underground petroleum storage
systems**

First published as AS 4897—2008.

COPYRIGHT

© Standards Australia

All rights are reserved. No part of this work may be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying, without the written permission of the publisher.

Published by Standards Australia GPO Box 476, Sydney, NSW 2001, Australia

ISBN 0 7337 8536 0

PREFACE

This Standard was prepared by Standards Australia Committee ME-017, Flammable and Combustible Liquids, to provide requirements and recommendations for the underground storage of petroleum products. It is based on the Australian Institute of Petroleum (AIP) CP 4—2002, *Code of Practice—The design, installation and operation of underground petroleum storage systems*, which has been withdrawn by AIP.

This Standard is intended to promote the safe, environmentally sound and efficient underground storage of petroleum products. It is intended to be used by oil industry employees, service station operators, installation contractors and regulatory authorities. It is not intended to replace any statutory regulations in any area, which take precedence over the requirements of this Standard. The relevant regulatory authority having jurisdiction may determine the extent of application of this Standard.

Individual companies may have additional or special policies and requirements that exceed or vary the requirements set out in this Standard. In such situations, such companies also need to be consulted.

Statements expressed in mandatory terms in notes to tables are deemed to be requirements of this Standard.

CONTENTS

	<i>Page</i>
SECTION 1 SCOPE AND GENERAL	
1.1 SCOPE	5
1.2 APPLICATION	5
1.3 REFERENCED DOCUMENTS	6
1.4 DEFINITIONS AND ABBREVIATIONS.....	6
1.5 RECORDS.....	12
SECTION 2 SITE CLASSIFICATION	
2.1 SCOPE OF SECTION	13
2.2 SITE CLASSIFICATIONS.....	13
SECTION 3 EQUIPMENT LEVELS FOR NEW UPS SYSTEMS	
3.1 SCOPE OF SECTION	15
3.2 GENERAL	15
3.3 EQUIPMENT LEVELS.....	15
SECTION 4 EQUIPMENT REQUIREMENTS FOR PRODUCT	
4.1 SCOPE AND APPLICATION OF SECTION	17
4.2 TANKS.....	17
4.3 PIPING	18
4.4 OTHER EQUIPMENT	20
4.5 LEAK MONITORING	21
SECTION 5 EQUIPMENT REQUIREMENTS FOR USED OIL SYSTEMS	
5.1 SCOPE OF SECTION	24
5.2 TANKS.....	24
5.3 PIPING	24
5.4 USED OIL REMOVAL POINT	24
5.5 LEAK MONITORING	25
SECTION 6 GENERAL DESIGN AND INSTALLATION REQUIREMENTS	
6.1 SCOPE OF SECTION	26
6.2 DESIGN OF UPS SYSTEM.....	26
6.3 HEALTH AND SAFETY	26
6.4 INSTALLATION OF UPS SYSTEMS.....	27
SECTION 7 INVENTORY CONTROL AND LOSS INVESTIGATION	
7.1 SCOPE OF SECTION	29
7.2 GENERAL	29
7.3 INVENTORY CONTROL FOR UPS SYSTEMS CONTAINING PRODUCT	29
7.4 LEAK OR SPILL RESPONSE	30
SECTION 8 MAINTENANCE AND TESTING	
8.1 SCOPE OF SECTION	32
8.2 GENERAL	32
8.3 CATHODIC PROTECTION SYSTEMS.....	32
8.4 LEAK MONITORING SYSTEMS.....	32
8.5 EQUIPMENT INTEGRITY TESTS (EIT)	33

SECTION 9 REPAIR AND RE-USE OF EQUIPMENT

9.1	SCOPE OF SECTION	34
9.2	REPAIR OF EQUIPMENT	34
9.3	RE-USE OF TANKS	35

APPENDICES

A	LIST OF REFERENCED DOCUMENTS	37
B	EXPLANATORY NOTES	38
C	SUMMARY OF CERTIFICATION AND RECORD-KEEPING REQUIREMENTS	44
D	INVENTORY CONTROL AND RECONCILIATION.....	46
E	DISCREPANCY OR LOSS INVESTIGATION PROCEDURE.....	52
F	INSTALLATION OF UPS SYSTEMS: OWNER'S CHECKLIST	54
G	OPERATION AND MAINTENANCE OF UPS SYSTEM: OWNER/OPERATOR CHECKLIST	56

STANDARDS AUSTRALIA

Australian Standard

The design, installation and operation of underground petroleum storage systems

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard sets out requirements for the design and installation of underground petroleum storage systems for the storage of petroleum products or used oil, and provides requirements for the operation, maintenance, testing, repair and re-use of new and existing underground petroleum storage systems.

This Standard also sets out inventory control and loss investigation procedures that are appropriate to all underground petroleum storage systems.

NOTE: In this Standard, the term ‘underground petroleum storage system’ is abbreviated to UPS system.

1.2 APPLICATION

1.2.1 Where this Standard applies

This Standard applies to the following:

- (a) New installations, in terms of design and installation.
- (b) New and existing installations, in terms of operation, maintenance, testing, repair and re-use of UPS systems.
- (c) All installations, in terms of inventory control and loss investigation procedures.

1.2.2 Where this Standard does not apply

This Standard does not apply to the following:

- (a) Existing UPS systems, with regard to their design and installation.
- (b) Structures such as sumps, separators, stormwater or wastewater collection systems, catchment basins, pits, septic tanks.
- (c) Bunded tanks situated below ground level, but not in the ground, such as those in a basement, cellar or tunnel.
- (d) Pipework that is not associated with an UPS system.
- (e) Storage systems for liquefied petroleum gas (LP Gas), which are covered by AS/NZS 1596.

1.2.3 Application of sections

Table 1.1 summarizes the processes to be followed for the installation of new UPS systems and upgrading of existing UPS systems in order to comply with this Standard and lists the relevant references that apply.