GUIDELINES ON THE DESIGN, INSTALLATION AND MANAGEMENT REQUIREMENTS FOR UNDERGROUND PETROLEUM STORAGE SYSTEMS

GUIDELINES FOR ENVIRONMENTAL MANAGEMENT

GUIDELINES ON THE DESIGN, INSTALLATION AND MANAGEMENT REQUIREMENTS FOR UNDERGROUND PETROLEUM STORAGE SYSTEMS (UPSS)

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The Environment Protection Authority (EPA) gratefully acknowledges the contributions of the Technical Working Group on Leak Prevention and Detection from Underground Petroleum Storage Systems (UPSS), comprising:

- WorkSafe Victoria, a division of the Victorian WorkCover Authority (VWA)

- Australian Institute of Petroleum (AIP)
- Victorian Automobile Chamber of Commerce (VACC)
- Australian Petroleum Agents and Distributors Association (APADA)
- Petroleum Industry Contractors Association (PICA)

FOREWORD

Leakage from Underground Petroleum Storage Systems (UPSS) is a significant problem within the petroleum industry. This problem is known to have environmental and safety implications. Improved working practices and a higher level of performance for UPSS are necessary to ensure protection of people, property and the environment.

This guideline has been developed in response to concerns about leakage from UPSS, and the need for clear and comprehensive guidance to owners/operators on the level of performance required for UPSS.

The Victorian WorkCover Authority (VWA) takes the lead role in regulating the storage and handling of Dangerous Goods pursuant to the *Dangerous Goods Act* 1985 (Vic.) and the Dangerous Goods (Storage and Handling) Regulations 2000 (Vic.). The management of UPSS facilities must also comply with the *Environment Protection Act* 1970 (Vic.) and subordinate legislation. Clause 12 of the *State environment protection policy (Groundwaters of Victoria*) requires that all practicable measures be taken to prevent pollution of groundwater.

Occupiers therefore have a range of duties as set out in a number of Victorian statutes and subordinate legislation. This document provides owners/operators of UPSS with practical guidance on protecting people, property and the environment.

EPA Victoria has developed these guidelines with the assistance of the Technical Working Group on Leak Prevention and Detection of Underground Petroleum Storage Systems (UPSS). Working Group representatives include VWA, AIP, APADA, VACC, PICA and other stakeholders from the retail and wholesale petroleum sector. The guidelines have been developed pursuant to Clause 27 of the *State environment protection policy (Groundwaters of Victoria)*.

In seeking to comply with their statutory duties, occupiers/operators of UPSS are expected to implement the measures set out in this document or be able to demonstrate that any alternative approach achieves an equivalent or higher level of performance in relation to the protection of people, property and the environment. This document sets out minimum requirements for UPSS in general. Individual circumstances may require additional measures to protect people, property and the environment.

MICK BOURKE
CHAIRMAN

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1 INTRODUCTION

Product release from Underground Petroleum Storage Systems (UPSS) can have significant adverse impacts on people, property and the environment.

Spills, overfills, and leaking tanks or piping may lead to fire, explosion, and contamination of soil and groundwater. UPSS need to be properly managed in accordance with Victorian legislation and policy to minimise these risks.

These guidelines have been developed in response to concerns about leakage from UPSS, and the need for clear and comprehensive guidance to owners/operators on the level of performance required for UPSS.

The objective of these guidelines is to achieve improved practices and performance in the management of UPSS to protect people, property and the environment.

A key reference for UPSS design, installation and management is the Code of Practice (CP4) 2002, produced by the Australian Institute of Petroleum (AIP) titled *The Design, Installation and Operation of Underground Petroleum Storage Systems (UPSS)*.

Where specific technical requirements are addressed in CP4 (AIP, 2002), reference should be made to CP4 as indicated in the text of this document.

These guidelines apply to all underground systems used to store petroleum fuel products in Victoria. Guidance is also provided for management of underground used oil storage systems.

1.1 Purpose

The purpose of these guidelines is to provide owners and operators of UPSS with a key point of reference on design, installation and management aspects of both new and existing UPSS, to ensure the protection of people, property and the environment.

These guidelines:

- provide practical guidance for owners/operators of UPSS on protecting people, property and the environment; and
- address gaps and limitations in existing guidance related to leak prevention, detection and clean up.

1.2 Regulatory Framework

Regulatory requirements related to UPSS are distributed across a number of statutes related to environment protection and dangerous goods. Appendix 1 provides a summary of some relevant regulatory duties.

To comply with their statutory duties, owners/operators of UPSS are expected to either implement the measures set out in this document or be able to demonstrate that any alternative approach achieves an equivalent or higher level of performance in relation to the protection of people, property and the environment[1].

Where this is not the case, an occupier may be in breach of specific provisions of the *Dangerous Goods Act 1985* and/or the *Environment Protection Act 1970* (including any subordinate legislation).

[1] This guideline sets out minimum requirements for UPSS in general. Individual circumstances may require additional measures to protect people, property and the environment.

The relationship of this document to relevant legislation and subordinate legislation is illustrated in Figure 1. The status and function of these guidelines is explained in further detail in Appendix 2.

1.3 Scope

These guidelines cover the design, installation and operation of both new and existing UPSS in Victoria. The document prescribes minimum performance levels in the following key areas of UPSS management for the protection of people, property and the environment:

- UPSS Management System;
- leak prevention (including the design and installation of new tanks, as well as upgrade requirements for existing tanks);
- leak detection (for both new and existing tanks);
- leak or spill response; and
- removal and/or decommissioning.

1.4 Related Documents

These guidelines should be read in conjunction with the legislation set out in Figure 1.

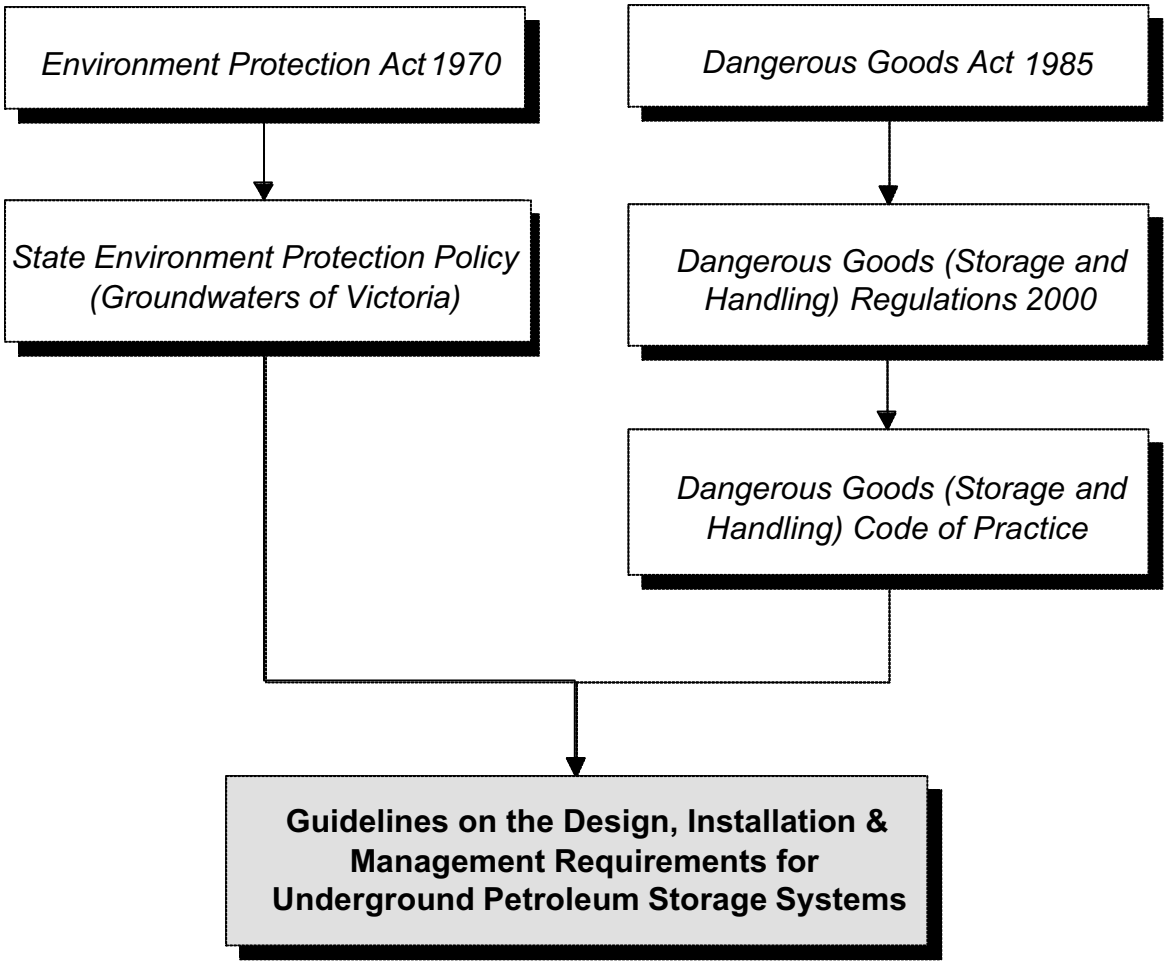
These guidelines include references to the Code of Practice (CP4) 2002 published by the Australian Institute of Petroleum (AIP), titled *The Design, Installation and Operation of Underground Petroleum Storage Systems (UPSS).*

The guidelines also make reference to the following documents:

- CP22 (1994) *The removal and disposal of underground petroleum storage systems*, Australian Institute of Petroleum (AIP);
- RP001[2] *Recommended practices for installation of underground liquid storage systems*, Petroleum Industry Contractors Association (PICA);
- AS1692-1989 *Tanks for Flammable and Combustible Liquids*, Standards Association of Australia;
- AS1940-1993 *The Storage and Handling of Flammable and Combustible Liquids*, Standards Association of Australia; and
- AS2430 *Classification of Hazardous Areas*, Standards Association of Australia.

[2] This guideline refers to a 2002 draft update of RP001. It is expected that the update will be published by early 2003.

Figure 1 – Regulatory Framework



2 UPSS MANAGEMENT SYSTEM

A UPSS management system clearly defines requirements, processes and responsibilities for UPSS operation and management, thereby minimising the risk of adverse effects a release from a UPSS may have on people, property and the environment.

A *management system* is generally comprised of:

- objectives and targets;
- defined responsibilities;
- documented procedures;
- record keeping;
- training;
- performance monitoring and feedback; and
- review and adjustment.

Owners and operators of UPSS need to implement and maintain a management system for UPSS that includes both tank and piping. The components of the UPSS management system are set out in Figure 2.

The management system also needs to include systems and procedures for preventing spills and leaks during tank filling, and plans for response in the event of a spill or leakage, in accordance with obligations under the *Environment Protection Act 1970* and the *Dangerous Goods Act 1985*.

The management system should be documented and a framework document made readily available on site.

As a minimum, the following details need to be readily available on site:

- documented information on ownership and occupation of both the site and the UPSS, including specific contractual/franchise arrangements;
- responsibilities (and contact details) for activities associated with the management of the UPSS; and
- details (e.g. size and location) of all UPSS infrastructure (including tanks, pipes and fill parts).

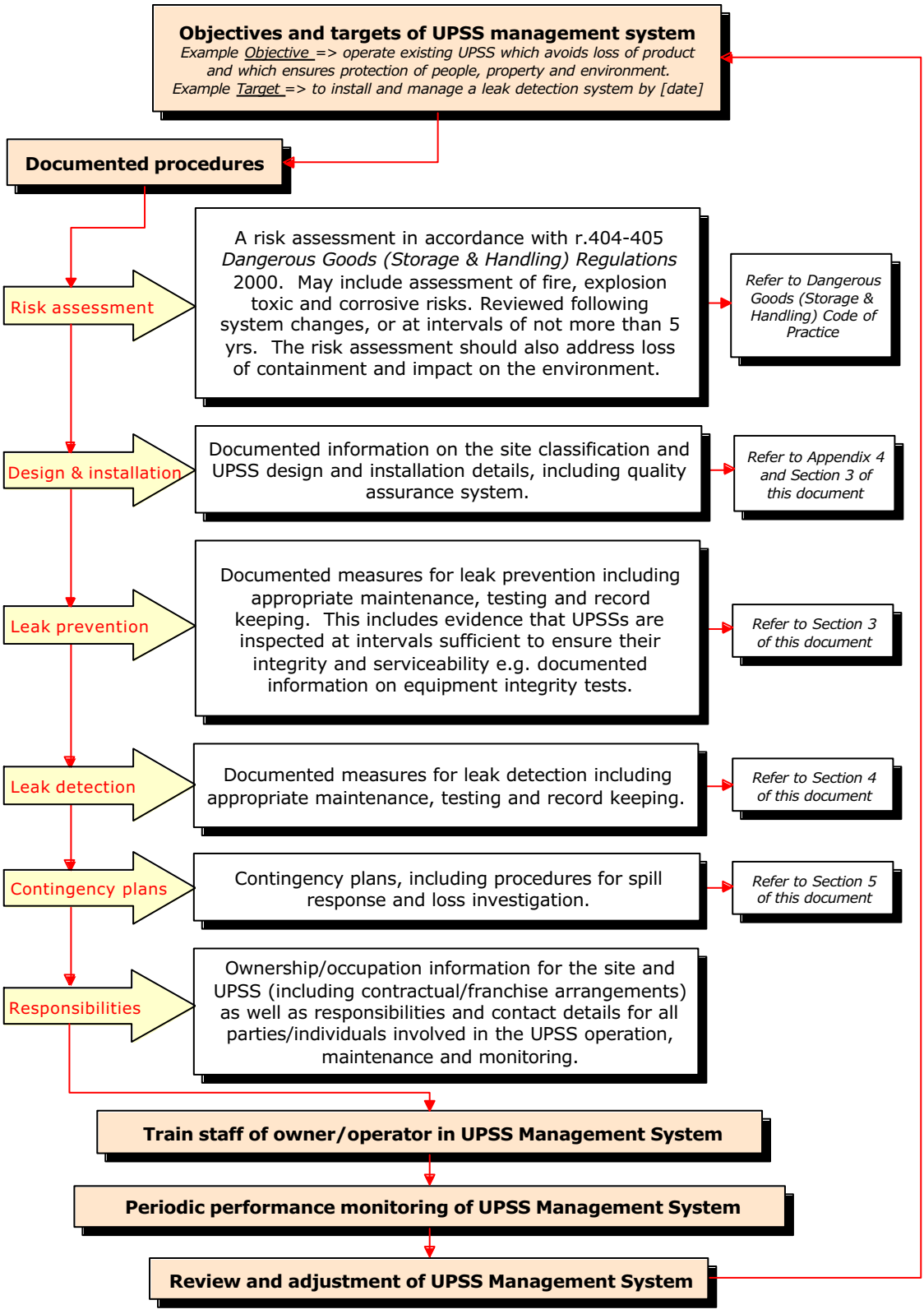
It is necessary for all staff with responsibilities associated with a UPSS to be suitably trained in each of the elements of the management system.

Occupiers should maintain all records associated with the UPSS for a minimum of five (5) years after removal of the UPSS.

Refer to Appendix 5 for a summary of record keeping requirements associated with the design, installation and management of UPSS. Retaining a copy of these records is a necessary part of taking all practicable measures to prevent pollution and protect people, property and the environment.[3]

[3] Retaining a copy of records for five (5) years or more may not be necessary where the system is decommissioned/removed and a statutory environmental audit has been conducted and completed for the site.

Figure 2 – Components of UPSS Management System



3 LEAK PREVENTION

All practicable measures must be taken to prevent pollution of groundwater[4] and pollution of land[5]. This includes measures taken to prevent leakage of product from any UPSS, irrespective of age[6]. Occupiers also have a duty to not cause or permit an environmental hazard[7].

This document provides guidance on practicable measures for leak prevention applicable at most UPSS installations. In some cases, other measures may also be practicable.

Leak prevention is achieved by ensuring that UPSS are adequately designed, installed, operated and maintained. This is particularly important for installations located in sensitive environments, where loss of containment can result in serious environmental damage.

The UPSS owner/operator needs to maintain records of all aspects of leak prevention including details of spill containment measures and stormwater control, UPSS design and installation certifications[8], system checks, inspections, and quality assurance records, in accordance with section 2. Refer to Appendix 5 for a summary of record keeping requirements.

3.1 UPSS Design

Owners and operators of UPSS must ensure that all new UPSS are designed to mitigate risk[9] and effectively contain product such that it does not pose an environmental hazard[10].

An important aspect of designing UPSS to prevent leaks is in the selection of the equipment. The design should address the equipment selection measures set out in section 3.2.

The UPSS Designer should certify that:

- they are suitably qualified and experienced in UPSS design (refer to the list of competencies provided in Appendix 3);
- the UPSS design conforms with the equipment selection measures of section 3.2; and
- the design complies with the specific requirements set out in r.419 of the Dangerous Goods (Storage and Handling) Regulations 2000, including provision of stable foundations and support, and protection against corrosion and stress.

The above certification should be retained by the UPSS owner/operator in accordance with section 2.

Design for Spill Containment and Surface Water Protection

In addition to the above UPSS design considerations, occupiers have statutory obligations

[4] Clause 12, *State environment protection policy (Groundwaters of Victoria)*.

[5] Clause 17, *State environment protection policy (Prevention and management of contamination of land)*.

[6] Section 31(1), *Dangerous Goods Act 1985*.

[7] Section 27A, *Environment Protection Act 1970*.

[8] For some systems existing at the time of implementation of these requirements, such certification by the designer, installation contractor and owner may not be available.

[9] Regulation 410(1), Dangerous Goods (Storage & Handling) Regulations 2000.

[10] Section 27A, *Environment Protection Act 1970*.

regarding spill containment[11], and must not pollute water[12].

In seeking to comply with these duties, as part of the design of any new UPSS, occupiers need to:

- ensure that provision is made for spill containment that will contain within the premises any dangerous goods that may be spilled or leaked (whether the spill or leak is above or below ground); and
- have regard to the need for measures to control spills and leaks during transfer of dangerous goods.

3.2 UPSS Equipment Selection

Table 1 sets out practicable measures for preventing pollution and protecting people, property and the environment. Such measures need to be adopted for ***new*** and ***upgraded*** UPSS.

Practicable measures for pollution prevention include secondary containment of both tanks and piping, as well as the implementation and maintenance of a leak detection system (refer to section 4).

Groundwater monitoring bores also need to be installed at *sensitive sites*[13] in accordance with the guidance set out in section 4.1 (excluding sites where only a small quantity of used oil is stored).

Existing UPSS may retain existing equipment, but implementation of a leak detection system is practicable and therefore necessary (refer to section 4). The leak detection system should be operational within 12 months of the published date of these guidelines.

It is also necessary to install groundwater monitoring bores at *sensitive sites* with existing UPSS. This should occur within two (2) years of the published date of these guidelines (excluding sites where only a small quantity of used oil is stored).

Refer to Table 2 for a summary of the minimum standard for equipment selection for existing UPSS.

Vapour Recovery

Owners/operators of both ***new*** and ***existing*** UPSS are required to comply with the *State environment protection policy (Air Quality Management)* and any relevant Protocol for Environmental Management.

Owners/operators of sites with vapour recovery equipment in place need to operate the system so that vapours are effectively recovered upon delivery of fuel to the UPSS.

[11] Regulation 422, Dangerous Goods (Storage & Handling) Regulations 2000.

[12] Section 39, *Environment Protection Act 1970*.

[13] 'Sensitive Sites' are defined in the Site Classification System contained in Appendix 4.

Table 1 - Equipment Selection Measures for NEW & UPGRADED UPSS[14]

UPSS Area		Equipment Requirements	Guidance
FUEL SYSTEMS	**TANK**	Non-corrodible Tanks	Section 4.2.1, 4.2.2 of CP4 (AIP, 2002)
		Secondary Containment for Tanks	Section 4.2.3 of CP4 (AIP, 2002)
	PIPING	Non-corrodible Product Piping	Section 4.3.1, 4.3.2 of CP4 (AIP, 2002)
		Secondary Containment for Product Piping	Section 4.3.3 of CP4 (AIP, 2002)
		Leak Detection for Product Piping	Section 4.3.4 of CP4 (AIP, 2002)
		Fill Point Requirements	Section 4.3.5 of CP4 (AIP, 2002)
		Vapour recovery on delivery for UPSS with existing infrastructure	*State Environment Protection Policy (Air Quality Management)* and any relevant Protocol for Environmental Management, and section 4.3.6 of CP4 (AIP, 2002)
	OTHER	Leak Detection for UPSS (tank & piping)	Section 4 of this document
		Dispenser Sumps	Section 4.4.1 of CP4 (AIP, 2002)
		Overfill Protection	Section 4.4.2 of CP4 (AIP, 2002)
		Tank Pit Observation Bores	Section 4.1 of this document, and section 4.4.3 of CP4 (AIP, 2002)
		Groundwater Monitoring Bores[15]	Section 4.1 of this document, and section 4.5.7 (a) – (f) of CP4 (AIP, 2002)
		Earthing of UPSS	Section 4.4.4 of CP4 (AIP, 2002)

[14] After Table 3.3, Equipment Level 1, CP4 (AIP 2002)
[15] For sensitive sites – refer to Appendix 4.

USED OIL SYSTEMS	**TANK**	Non-corrodible Tanks	Section 5.2.1, 5.2.2 of CP4 (AIP, 2002)
		Secondary Containment for Tanks	Section 5.2.3 of CP4 (AIP, 2002)
		Leak Detection for Tanks	Section 4.2 of this document
	PIPING	Non-corrodible Piping	Section 5.3.1, 5.3.2 of CP4 (AIP, 2002)
		Used Oil Removal Point	Section 5.4 of CP4 (AIP, 2002)

Table 2 - Equipment Selection Measures for EXISTING UPSS

UPSS Area		Equipment Requirements	Guidance
FUEL SYSTEMS	**TANK**	Existing Equipment [16]	-
	PIPING	Existing Equipment [16]	-
	OTHER	Leak Detection for UPSS (tank & piping)	Section 4 of this document
		Groundwater monitoring bores [17]	Appendix 4 and section 4 of this document and section 4.5.7 (a) – (f) of CP4 (AIP, 2002)
		Vapour recovery on delivery for UPSS with existing infrastructure	*State Environment Protection Policy (Air Quality Management)* and any relevant Protocol for Environmental Management, and section 4.3.6 of CP4 (AIP, 2002)
USED OIL SYSTEMS		Existing Equipment [16]	-
		Leak Detection	Section 4 of this document

[16] Minimum standard: UPSS occupiers (owners/operators) have a duty to ensure the integrity of a UPSS in accordance with r.418 (1) and r.419 (1) of the Dangerous Goods (Storage and Handling) Regulations 2000, and to ensure they are not storing or handling petroleum products in a manner that is likely to cause an environmental hazard in accordance with s.27A (1) of the *Environment Protection Act 1970*. Where existing UPSS equipment does not provide this, or there is significant risk of non-containment, the system requires upgrading.

[17] For sensitive sites – refer to Appendix 4.

3.3 Installation

Correct installation of UPSS is critically important in maintaining the integrity of new systems. Incorrect installation or design appears to be a contributor to a significant proportion of reported releases from UPSS.

It is important that installation of UPSS be conducted in accordance with a quality assurance system, which includes the elements described below.

Description of Quality Assurance System

In the context of UPSS installations, a quality assurance system should be in place which:

- clearly defines the:
  - objectives of the system,
  - responsibilities (who will perform each task),
  - protocols and standards to be adopted for UPSS installation, and
  - procedures for UPSS installation;
- identifies the process for checking that the procedures have been implemented to the appropriate protocol/standard, and that the system is fit for purpose and complies with these requirements; and
- enables the maintenance of quality assurance records.

Duty of Owner/Operator

The UPSS owner/operator needs to ensure that a qualified and experienced installation contractor who is trained to install UPSS under a scheme acceptable to EPA and/or VWA installs the UPSS[18].

The UPSS owner/operator needs to document the following requirements:

- the installation contractor has complied with the requirements of this section;
- the installation checks and tests specified in Appendix G of CP4 (AIP, 2002) have been carried out;
- the UPSS certification (to be provided by the installation contractor, as described be low) will be retained by the owner/operator in accordance with section 2; and
- as-built drawings have been prepared for all new and re-used UPSS in accordance with section 6.4.4 of CP4 (AIP, 2002), and will be retained in accordance with section 2 of this document.

Duty of Installation Contractor

The installation contractor needs to be trained to install UPSS under a scheme acceptable to EPA and/or VWA within 12 months of such a scheme being established.

The installation contractor needs to develop and implement health and safety measures in accordance with the relevant measures required by the *Occupational Health and Safety Act 1985*. Guidance is provided in section 6.3 of CP4 (AIP, 2002).

The installation contractor needs to certify that the installation complies with:

- this section;
- equipment-specific installation requirements of sections 3 and 4 where relevant;
- the requirements of the UPSS Designer;
- the equipment manufacturer's instructions;
- the specifications contained in AS1940-1993 *The Storage and Handling of Flammable Combustible Liquids*, Standards Association of Australia; and
- the methods and specifications contained in RP001 *Recommended practices for installation of underground liquid storage systems*, PICA, where relevant.

Equipment Integrity Test

Following installation of a new UPSS or upgrade of an existing UPSS, and prior to use, it is necessary for the system to be subject to an equipment integrity test in accordance with section 6.4 and 8.5 of CP4 (AIP, 2002).

It is important that the equipment integrity test conducted be in accordance with a quality system[19].

The owner/operator needs to retain the results of the integrity test in accordance with section 2[20].

3.4 Maintenance

All practicable measures need to be adopted in the operation and maintenance of UPSS to prevent leakage. This includes, but is not limited to, maintenance and operation in accordance with the manufacturer's recommendations.

For specific guidance refer to section 8 of CP4 (AIP, 2002).

Further to the above measures, owners/operators of UPSS need to make sure that the following facilities are appropriately maintained and, where necessary, tested to ensure continued integrity:

- spill containment and stormwater protection systems (refer to section 3.1 of this document);
- vapour recovery systems (where fitted); and
- sumps (including those beneath pumps and fill points).

All maintenance and testing records should be retained by the owner/operator in accordance with section 2. Refer to Appendix 5 for a summary of record keeping requirements.

3.5 Repair, Reuse, Upgrade

Where an existing UPSS system fails (whether or not loss of product has occurred):

- immediate action is required to prevent further loss of product (refer to section 5),
- the system needs to be reviewed to identify the cause of the failure, and
- appropriate corrective action needs to be taken to prevent further failures of that system or other systems at the same site.

[18] The installation contractor needs to be suitably trained within 12 months of the establishment of a scheme acceptable to EPA and/or VWA.

[19] A suitable quality system is one which would be eligible for National Association of Testing Authorities (NATA) (or equivalent quality system) accreditation.

[20] Regulation 419(1)(e)-(f), Dangerous Goods (Storage & Handling) Regulations 2000.

Prior to returning a failed system to service, one of the following is required:

- the system is repaired in accordance with section 9.3 of CP4 (AIP, 2002); or
- the system is upgraded in accordance with Table 1 and the measures set out in section 3.2 of this document.

Where one or more ***tanks*** are replaced in a system that does not include all measures set out in Table 1, the entire system (or that part of the system related to the tank that was replaced) needs to be upgraded.

Where the ***pipe system*** at a site is replaced (as opposed to repair involving the replacement of a section of piping), the pipework needs to meet the minimum equipment selection measures set out in Table 1.

Repair of existing tanks without secondary containment by internal lining should not occur at sensitive sites[21], unless the owner/operator demonstrates that the repair (and any other associated measures, e.g. additional leak detection) will achieve an equivalent or higher protection of people, property and the environment than the measures set out in Table 1.

Where an occupier becomes aware that repair or replacement of all or part of the UPSS is necessary because of significant risk of loss of containment, this needs to be undertaken in accordance with the procedure set out above.

Duty of Repair Contractor

The repair contractor needs to:

- be suitably trained under a scheme acceptable to EPA and/or VWA22, and
- certify that the repair complies with section 9.3 of CP4 (AIP, 2002).

Duty of Owner/Operator

The UPSS owner/operator should document that the equipment repair, re-use or upgrade is:

- in accordance with the measures set out in section 3.5;
- in accordance with the equipment manufacturer's instructions for repair;
- in accordance with specific guidance on the repair or reuse of UPSS in section 9 of CP4 (AIP, 2002), where relevant; and
- followed by an equipment integrity test, prior to use, in accordance with section 6.4 and 8.5 of CP4 (AIP, 2002).

[21] See Appendix 4 for Site Classification System.

[22] The contractor needs to be suitably trained within 12 months of the establishment of a scheme acceptable to EPA and/or VWA.

4 LEAK DETECTION

It is necessary for owners/operators of UPSS to take all practicable measures, commensurate with the risk posed by a UPSS, to detect leakage of any product from any UPSS. This is an important aspect in preventing pollution[23] and ensuring that a UPSS does not cause an environmental hazard[24] or pose danger to people or property.

As a practicable measure to prevent pollution, every UPSS needs to be operated under a leak detection system.

The leak detection system needs to monitor the UPSS with sufficient frequency, sensitivity and reliability to provide a high level of confidence that a release will be detected in sufficient time for a response to be implemented before a significant risk is posed to human health or the environment.

Section 4.1 provides practical guidance on the leak detection measures necessary to protect people, property and the environment for both new and existing UPSS.

The owner/operator of the UPSS should maintain records of all aspects of leak detection including leak detection system design, procedures, responsibilities, system checks, inspections, and results of groundwater monitoring results where relevant, in accordance with section 2. Refer to Appendix 5 for a summary of record keeping requirements.

[23] Clause 12, *State environment protection policy (Groundwaters of Victoria)* and Clause 17, *State environment protection policy (Prevention and management of contamination of land)* .

[24] Sections 27A and 59E, *Environment Protection Act 1970*.

4.1 Leak Detection for Fuel Systems

For existing UPSS, a leak detection system should be operational within 12 months of the date of publication of these guidelines.

As a default *minimum* standard, it is necessary that all UPSS be monitored using a system that:

- is rated to detect a release of 0.76 L/hour (or a release of 18 L/day), with greater than 95% confidence (and less than 5% false positive)[25];
- is verified as meeting the above performance standards by an independent party at an approved testing facility using the current United States Environmental Protection Agency (USEPA) protocols and system of verification; and
- reports with a frequency not less than monthly.

It is important that leak detection systems are able to detect a leak from both the tank and the pipework.

Occupiers of UPSS should ensure that the third party test of a leak detection method is applicable to their particular UPSS configuration (having regard to tank capacity, volume throughput and number of tanks in a manifolded set).

Occupiers should obtain written verification from the independent third party that the leak detection test method complies with the *current* USEPA protocol.

The leak detection methods summarised in Table 3 below may be useful in meeting the leak detection measures described in this document. More than

one of the methods listed in Table 3 may be required to satisfy the requirement that 'all practicable measures be taken to prevent pollution of groundwater'[26]. Specific guidance associated with each method is set out in the referenced section of CP4 (AIP, 2002).

Table 3 – Leak Detection Methods for Fuel Systems

Leak Detection Methods	Refer to CP4 Section
Automatic Tank Gauging plus Line Leak Detection	4.5.3
Statistical Inventory Reconciliation Analysis	4.5.4
Interstitial Monitoring (as back-up only)	4.5.5
Line Leak Detection for pressure piping[27]	4.5.6

Equipment associated with UPSS, including leak detection systems, may need to be suitably certified for work within a hazardous area, as defined in AS2430 *Classification of Hazardous Areas*, Standards Association of Australia. Owners/operators of UPSS need to ensure that equipment is appropriately certified.

Alternative methods of leak detection (in addition to those listed in Table 3) may be employed if the owner/operator of the UPSS can demonstrate that the alternate method meets the relevant performance standards for leak detection set out in this section[28].

Notes regarding leak detection:

- ***Tank Pit Observation Bores*** are necessary at all new installations (in accordance with Table 1, section 3.2) as back up to the leak detection system. Tank pit bores should be inspected periodically for product (for example, weekly).
- ***Groundwater monitoring*** is not, in itself, a sufficient leak detection method because the product has already migrated to groundwater at the time of detection. However, any leak detection regime for a sensitive site needs to include groundwater monitoring as an additional precaution. Effective monitoring of groundwater incorporates periodic observation for separate phase hydrocarbons and may also involve sampling and analysis for dissolved contaminants.
- ***Equipment Integrity Tests*** (EITs) are not considered adequate as a method for ongoing leak detection (due to limitations in the testing frequency). EITs may be useful, however, as a diagnostic tool to assist in confirming and isolating a leak that has been detected using another method (refer to Table 3), and in confirming the integrity of a system following installation or repair.

[25] Adopted from the USEPA Code of Federal Regulations (CFR Title 40: Protection of Environment Part 280).

[26] Clause 12, *State environment protection policy (Groundwaters of Victoria)*.

[27] Line leak detection is necessary for pressure piping to provide protection in the case of catastrophic line failure. However mechanical line leak detection currently does not meet the minimum performance standard for leak detection set out in this document. Where mechanical line leak detection is employed for pressure-piping systems, an additional leak detection method is required (e.g. from Table 3 above) to ensure that both the tank and piping are in compliance with the relevant performance standard for leak detection.

[28] Section 4.1 of this document sets out the minimum performance standards for the retail petroleum sector. Any alternative scheme for other fuel storage applications (including systems with very low throughput) needs to demonstrate an equivalent level of protection of people, property and the environment.

Leak Detection for Sensitive Sites

A sensitive site is a site that has been classed as such in accordance with the Site Classification System set out in Appendix 4. Advice from a competent and experienced hydrogeologist may be necessary to assist owners/operators of UPSS in determining whether some sites are sensitive.

It is necessary to take additional precautions, with respect to leak detection, at sensitive sites due to the relatively high risk to people, property and the environment.

The default maximum release detection rate of 0.76 L/hour (minimum performance standard for leak detection systems specified in section 4) is *not* an allowable leak rate. Leaks of this magnitude may still result in unacceptable impact on people, property or the environment, particularly at sensitive sites.

A leak detection system at a *sensitive* site therefore needs to:

- achieve detection of any release in sufficient time to take corrective action before the release poses a significant risk to people, property or the environment;
- include sufficient redundancy (e.g. multiple barriers) to provide a high level of confidence that any significant release will be detected; and
- be assessed and approved by a competent person[29] to achieve the first two requirements listed here.

[29] May require advice from a competent and experienced UPSS Designer and/or hydrogeologist.

Groundwater Monitoring Bores at Sensitive Sites

Owners/occupiers of UPSS need to take all practicable measures to achieve the nominated level of performance for leak detection set out in section 4.

At sensitive sites[30] (for both new and existing UPSS) it is also practicable and therefore necessary to install groundwater monitoring bores as an additional precaution.

For **existing UPSS** at sensitive sites groundwater monitoring bores should be installed within two years of the date of publication of these guidelines.

For **new UPSS** at sensitive sites groundwater monitoring bores need to installed and developed before operation of the UPSS.

The number of groundwater monitoring bores installed needs to be sufficient to reasonably detect a leak from the UPSS (including all associated pipework), as well as determine the local groundwater flow direction.

Prior to installation of a groundwater monitoring bore, a licence is required to construct works in accordance with section 67 of the *Water Act 1989* (Vic). If specified as a condition of the licence issued under section 67, the work must be carried out by, or under the direction of, a licensed driller, in accordance with section 316 of the *Water Act 1989*.

The method of design, construction and installation (including drilling method) of groundwater

[30] Refer to the Site Classification System in Appendix 4 to determine whether a UPSS is located at a sensitive site. This may require advice from a competent and experienced hydrogeologist.

monitoring bores, and the location of sampling points, can affect the ability to collect a representative groundwater quality sample. It is important that a competent and experienced hydrogeologist assesses the site to determine the number and location of groundwater monitoring bores required.

The design, construction and installation of groundwater monitoring bores should be carried out in accordance with:

- ARMCANZ (1997) *Minimum construction requirements for water bores in Australia*; and
- the relevant sections of Publication 669 *Groundwater Sampling Guidelines*, EPA.

Groundwater quality monitoring at a sensitive site should include monthly observation for separate phase hydrocarbons.

Where the occupier has reason to suspect significant groundwater contamination, sampling and analysis for dissolved contaminants should be undertaken[31].

Any sampling needs to be carried out in accordance with Publication 669 *Groundwater Sampling Guidelines*, EPA.

Where groundwater monitoring indicates the presence of hydrocarbons in groundwater, occupiers need to follow the leak and spill response procedures outlined in section 5.

4.2 Leak Detection for Used Oil Systems

The leak detection methods summarised in Table 4 below may be used as leak detection measures for used oil systems. More than one of the methods listed in Table 4 may be required to satisfy the requirement that 'all practicable measures be taken to prevent pollution of groundwater'[32]. Specific guidance for each method is set out in the referenced section of CP4 (AIP, 2002).

Table 4 – Leak Detection Methods for Used Oil Systems[33]

Leak Detection Methods	Refer to CP4 Section
Automatic Tank Gauging	4.5.3
Interstitial Monitoring (as back up only)	4.5.5
Manual Tank Gauging (for Used Oil Tanks less than 5,500 litres)	5.5.2

[31] EPA will continue to review the availability of cost effective systems for routine monitoring of dissolved phase hydrocarbons with a view to incorporating such a requirement when practicable.

[32] Clause 12, *State environment protection policy (Groundwaters of Victoria)*.

[33] Adopted from Table 5.5.1, CP4, AIP 2002

5 LEAK OR SPILL RESPONSE

Owners/operators who discover or are made aware or are notified by any person of a leak or spill from a UPSS, need to[34]:

- Verify the leak/spill and stop the leak as soon as possible.
- Report any spillage, leakage or escape involving dangerous goods to the nearest fire authority or a police station[35]. In addition, any leak or spill of product with potential to cause an environmental hazard[36] or migrate off-site should also be reported to EPA Victoria (refer to Appendix 6 for contact details).
- Mitigate any threat to people, property and the environment by taking all practicable measures to ***clean up*** any leakage from a UPSS as soon as practicable[37]. The nature and timing of the clean up to achieve the objectives of the relevant State environment protection policy may be determined following risk assessment, taking into account:
  - the nature of the existing and proposed use of the site and the surrounding land and groundwater;
  - the potential for transport of contaminants, particularly where this may result in off site migration or contamination of groundwater either on site or off site; and
  - the potential for changed conditions to influence the risk posed by residual contamination. Such changed conditions may include rising groundwater, the extraction and use of groundwater, excavation and dewatering.
- Identify the cause of the leak, and take measures to ensure that the leak does not recur.
- Repair and/or upgrade the UPSS in accordance with section 3.5.
- Maintain records of leak response in accordance with the UPSS Management System set out in section 2. Refer to Appendix 5 for a summary of record keeping requirements.

[34] Whether that leak has been detected by the leak detection system, or because product is observed by other means, such as at the surface or in nearby services.

[35] Section 32(1), *Dangerous Goods Act 1985*

[36] An environmental hazard, as defined in the *Environment Protection Act 1970*, means a state of danger to human beings or the environment whether imminent or otherwise resulting from the location, storage or handling of any substance having toxic, corrosive, flammable, explosive, infectious or otherwise dangerous characteristics.

[37] *State environment protection policy (Groundwaters of Victoria),* Clause 21, *State environment protection policy (Prevention and management of contamination of land)* and Regulation 422(3) of the Dangerous Goods (Storage and Handling) Regulations 2000.

6 UPSS REMOVAL/ DECOMMISSIONING

Disused UPSS need to be removed wherever practicable, and any associated pollution cleaned up to the extent practicable.

Where removal is not practicable (for example, where removal will cause serious risk to adjoining tanks, underground structures or other structures) the disused UPSS should be emptied and decommissioned.

UPSS removal or decommissioning needs to be carried out by a suitably qualified and experienced person in accordance with:

- AIP (1994) CP22 *The removal and disposal of underground petroleum storage tanks*;
- SAA AS1940-1993 *The storage and handling of flammable and combustible liquids*; and
- relevant occupational health and safety measures required by the VWA pursuant to the *Occupational Health and Safety Act 1985*; and *Dangerous Goods Act 1985* and relevant subordinate legislation. For specific information regarding these measures, contact the Victorian WorkCover Authority (refer to Appendix 6 for contact details).

6.1 Duty of Owner/Operator

Owners/operators of UPSS need to:

- ensure that UPSS removal or decommissioning is carried out in accordance with the above guidance;
- manage any contamination which may remain following removal or decommissioning of the UPSS;
- ensure that an assessment of the environmental condition of the site is conducted by a competent and experienced environmental assessor when removing or decommissioning a UPSS; and
- maintain records associated with UPSS removal/decommissioning for five (5) years after the life of the tank. Refer to Appendix 5 for a summary of record keeping requirements.

APPENDIX 1 – SUMMARY OF REGULATORY DUTIES

The following table is a summary of the most commonly applicable regulatory duties related to UPSS. It is not an exhaustive listing of all potentially applicable duties. This section should be read in conjunction with the relevant legislation referred to in the table below.

***Dangerous Goods Act* 1985**	
s.31(1)	Duty to take all reasonable precautions for the prevention of any leakage.
s.32(1)	Duty to report any spillage, leakage or escape involving dangerous goods to the nearest fire authority or a police station.
s.33(1)-(2)	Duty not to receive a dangerous good where the container is known to be leaking.
***Dangerous Goods (Storage & Handling) Regulations* 2000**	
r.404–405.	Duty to identify any hazard associated with the storage and handling of dangerous goods and assess associated risks (to be reviewed at a minimum of every five (5) years, and after changes to the system).
r.410(1)	Duty to design systems to eliminate risk or, if not practicable, to reduce the risk so far as is practicable.
r.418(1)	Duty to ensure that structures and plant are manufactured, installed, commissioned, operated, tested, maintained, repaired and decommissioned, so as to eliminate risk, or if not practicable, to reduce the risk so far as is practicable.
r.419(1)	Duty to ensure that systems have stable foundations, and are installed to prevent excessive stress and corrosion. Also duty to inspect container at intervals that are sufficient to ensure the container's integrity and serviceability. Records must be retained for as long as the container is in service, and must be delivered to future occupiers.
r.422(1)	Duty to ensure that provision is made for spill containment that will eliminate risk, or if not practicable, to reduce risk as far as is practicable.
r.422(3)	Duty to take immediate action, in the event of a spill or leak, to reduce risk and to clean up the dangerous goods and any resulting effluent as soon as reasonably possible.
r.423(1)	Duty to eliminate risk associated with the transfer of dangerous goods, or if not practicable to eliminate risk, to reduce risk as far as is practicable.
r.430(1)	Duties relating to placarding.
r.442(1)	Duty to maintain a register of dangerous goods stored/handled on the premises.
r.445(1)	Duty to investigate the cause of an incident and to maintain a record of this investigation for at least five (5) yrs.

***Environment Protection Act* 1970**	
s.27A(1)(c)	Offence relating to causing or permitting an environmental hazard.
s.39	Duty to not pollute waters (including groundwater).
s.45	Duty to not pollute land.
s.59E	Offence relating to aggravated pollution and intentionally or negligently causing or permitting an environmental hazard.
State environment protection policy (Groundwaters of Victoria)	
Clause 9	Duty to protect beneficial uses listed in Table 2 of the policy.
Clause 12	Duty to take all practicable measures to prevent pollution of groundwater.
Clause 13	Power of the Authority to direct the clean up of polluted groundwater.
Clause 18	Duty to remove non-aqueous phase liquid from an aquifer.
Clause 27(1)	Responsibility of the Authority to develop guidelines aimed at minimising the impact of activities that are detrimental or potentially detrimental to groundwater quality.

APPENDIX 2 – REGULATORY FRAMEWORK

Status and Function of this Guideline

Clause 12 of the *State environment protection policy (Groundwaters of Victoria)* requires that all practicable measures be taken to prevent pollution of groundwater. This guideline sets out practicable measures and therefore establishes a minimum standard for protection of groundwater quality. In some cases, additional or alternate measures may also be practicable.

Occupiers of UPSS are expected to ensure that the UPSS is designed, installed, operated and maintained in accordance with these guidelines, or demonstrate that alternate measures provide equivalent, or higher, protection of the environment[38].

These guidelines are incorporated as a guideline pursuant to clause 27 of the *State environment protection policy (Groundwaters of Victoria)*.

Implementation of the measures set out in this guideline (or demonstration that an alternative approach achieves equivalent or higher performance) is deemed by WorkCover to satisfy the duties placed upon occupiers of UPSS in relation to the design, installation, operation and maintenance of UPSS, pursuant to Dangerous Goods legislation.

Responsibility

The occupier of the UPSS is responsible for fulfilling the regulatory duties set out in legislation (refer to Appendix 1 for a summary of the most commonly applicable duties). As previously stated, the guidance in this document is designed to provide advice to occupiers of UPSS regarding practical steps to protect people, property and the environment.

The occupier of a UPSS may include the site owner, site operator or equipment owner.

Multiple occupiers may also be identified for a site, and, for the purposes of delivery, the person responsible for fuel delivery (company or individual) may be deemed occupier of at least part of the site for the period of the delivery activity.

Where a discharge from a premises occurs, the occupier is potentially liable for offences related to pollution of land or water and any necessary clean up action.

Enforcement Related to UPSS Leaks

Leaks from UPSS may cause pollution of the environment, or may pose a risk to people and property.

Such leaks may give rise to offences under the *Dangerous Goods Act 1985* and the *Environment Protection Act 1970*. Such offences carry significant penalties:

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[38] An occupier:

- includes a person who is in occupation or control of the premises whether or not that person is the owner of the premises and in relation to premises different parts of which are occupied by different persons means the respective person in occupation or control of each part. (*Environment Protection Act 1970*).
- in relation to any premises (other than licensed premises that are a vehicle or boat), includes a person who -
  (a) is the owner of the premises;
  (b) exercises control at the premises under a mortgage, lease or franchise; or
  (c) is normally or occasionally in charge of or exercising control or supervision at the premises as a manager or employee or in any other capacity.

  (*Dangerous Goods Act 1985)*

- Penalties of up to $40,000 apply to a body corporate or $10,000 to an individual under the *Dangerous Goods Act 1985*. Further penalties apply for each day an offence continues after conviction. Where there are previous convictions under the Act, additional penalties may also apply.
- Penalties of $240,000 to $1 million (and/or 7 years jail for aggravated pollution) apply under the *Environment Protection Act 1970*.

Even where no significant environmental impact or damage to person or property is caused, management of UPSS in a manner that is likely to cause an environmental hazard is an offence under s.27A (1)(c) of the *Environment Protection Act 1970*, with a maximum penalty of $240,000.

In addition, EPA and VWA have powers to direct action to:

- remedy pollution or hazards, or
- require action to prevent pollution or harm to people or property.

This may include circumstances where UPSS are not managed in accordance with this guideline and the occupier is not able to otherwise demonstrate that an equivalent or higher degree of protection of human health or the environment is achieved via the alternate approach.

Notices issued by EPA Victoria and the VWA include:

- Clean Up Notice (EPA),
- Pollution Abatement Notice (EPA),
- Minor Works Pollution Abatement Notice (EPA),
- Improvement Notice (VWA), and
- Prohibition Notice (VWA).

Costs of rectification of pollution can be very significant and typically range from $50,000 to $1 million (which is in addition to any penalty that may be applied).

In determining the need for and type of enforcement action, EPA and VWA will have regard to the degree to which practicable measures to protect people, property and the environment, such as those set out in this guideline, have been implemented.

EPA and VWA will monitor implementation of the measures set out in this guideline by:

- routine inspections,
- special projects and targeted audit programs, and
- inspections in response to incidents and complaints.

Where significant issues are identified, EPA and VWA will take the necessary enforcement action. For further information on enforcement procedures, please refer to:

- Publication 384, *Enforcement Policy*, EPA; and
- *Compliance and Enforcement Policy,* VWA.

APPENDIX 3 – COMPETENCIES OF UPSS DESIGNER

This checklist can be used as a guide to assist in selection of appropriately qualified and experienced personnel for design of UPSS. An individual engaged to supervise the design of a UPSS needs to demonstrate an adequate expertise in a range of these criteria, as well as have access to other suitably qualified and experienced persons who are able to provide support in the areas where the individual is not expert.

A UPSS Designer should certify that they can demonstrate adequate competencies and experience in UPSS design in accordance with the following checklist.

QUALIFICATIONS	✓/×
Required qualifications: - engineering degree, or - relevant trade certificate with significant experience in designing UPSS.	
Membership of a prescribed professional organisation (that is, one which requires an entrance exam, minimum qualification and/or ongoing professional development). The professional organisation should also have a code of ethics for members.	
COMPETENCIES	✓/×
Experience in designing UPSS.	
Knowledge of the *Environment Protection Act 1970* and *Dangerous Goods Act 1985*, including subordinate legislation.	
Familiarity with relevant standards, policies, requirements, guidelines and codes of practice.	
Understanding of the methods for installing UPSS.	
Understanding of corrosion protection, or access to expertise in this area.	
Understanding of methods for ensuring stable foundations and support for UPSS.	
Understanding of UPSS design and installation considerations to prevent excessive stress.	

APPENDIX 4 – SITE CLASSIFICATION SYSTEM

Each site needs to be classified according to the sensitivity of the site, that is, the potential for impact on sensitive receptors and beneficial uses of the environment in the event that a spill or leak should occur.

UPSS owners/operators may need to engage a competent or experienced person to determine the site classification or assume the site to be *sensitive*.

For the purpose of these requirements, if there is no existing beneficial use or sensitive receptor in the vicinity of a UPSS, the *likelihood* of a beneficial use or sensitive receptor being realised is useful in determining the *sensitivity* of the environment in the vicinity of a UPSS, and the corresponding leak prevention and leak detection measures which are practicable.

Owners/operators of UPSS need to be aware, however, that irrespective of the likelihood of a beneficial use being realised in the short to medium term, the *State environment protection policy (Groundwaters of Victoria)* requires protection of all identified beneficial uses of groundwater (refer to Table 2 of the policy). This acknowledges the long-term importance of groundwater as a natural resource.

Where there is insufficient information to determine the site classification according to the process outlined in this appendix, site testing should be undertaken to acquire the relevant information.

The owner/operator of the UPSS needs to retain all information used to determine the site classification in accordance with the UPSS Management System requirements of section 2. Refer to Appendix 5 for a summary of record keeping requirements. This information should be made readily available on-site.

Site Classification System

Sites are classified as either *sensitive* or *other*. The classification system is outlined in **Figure A4.1**, with reference to **Tables A4.1, A4.2** and **A4.3.**

Where Table A4.3 indicates the term *review* the UPSS owner/operator needs to engage a competent and experienced hydrogeologist to determine whether the site is to be classed as *sensitive* or *other* by evaluating the likelihood of an effect on any beneficial use or sensitive receptor being realised before detection and clean up of any leak.

The owner/operator may alternatively assume (by self-assessment) that the site is *sensitive*. In such cases there is no need to engage a hydrogeologist to determine the site classification.

Figure A4.1 – Flow chart to determine site sensitivity

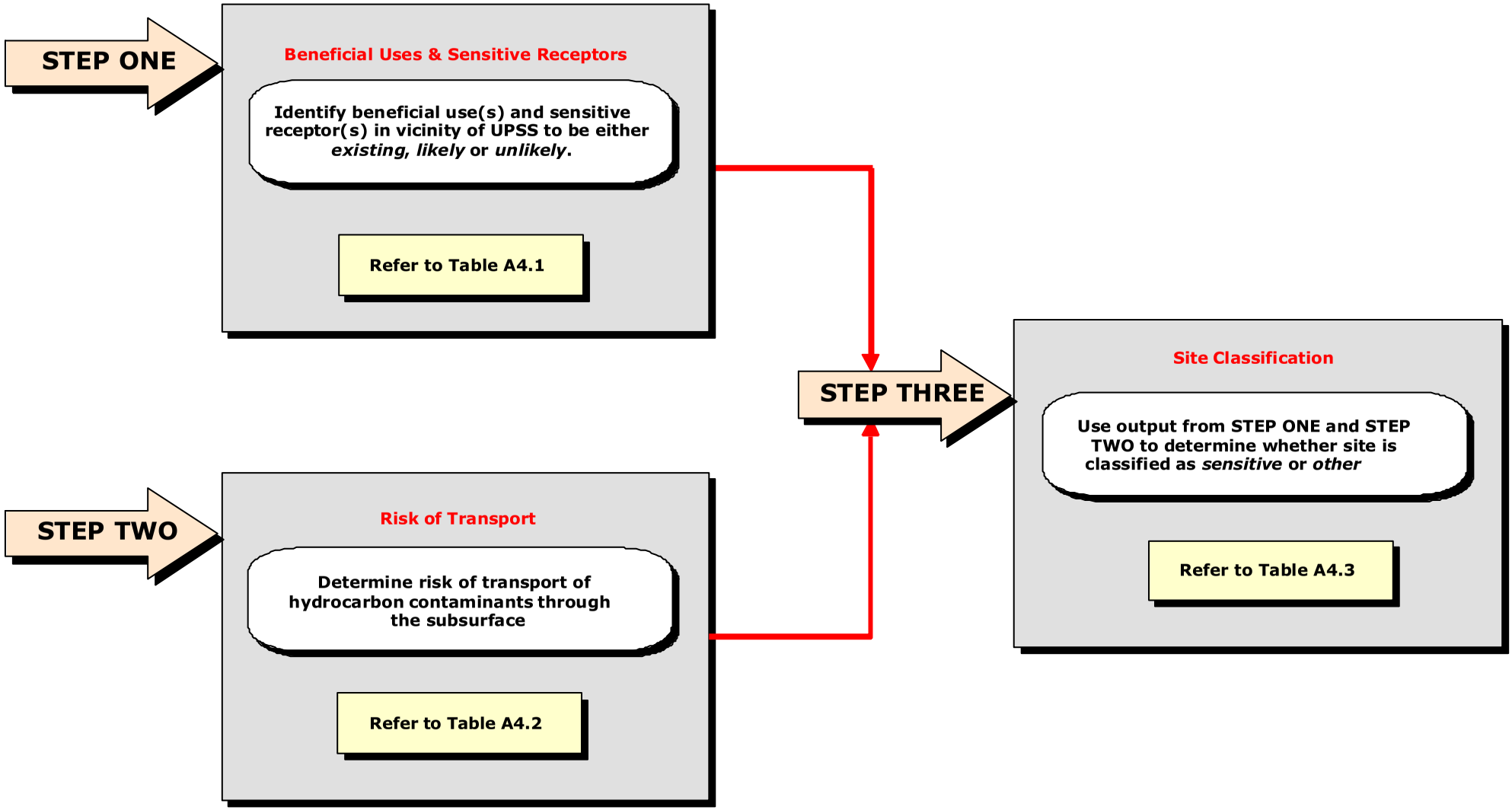

Table A4.1 Beneficial Use(s) & Sensitive receptor(s)

Beneficial Use / Receptors	Factors to consider	Information Resources
EXISTING	• Groundwater abstraction bore <200m from UPSS (which abstracts groundwater from an aquifer which has the potential to be impacted by a leak), or • Basement, tunnel, underground utility or access chamber sufficiently near to UPSS (typically < 30 m) to be affected before detection and clean up of leak (need to consider depth of groundwater compared to depth of basement or utility), or • Surface water (e.g. creek, open drain, lake) <200m from UPSS	• Groundwater Database (Department of Natural Resources and Environment, www.nre.vic.gov.au) • Beneficial use maps • Visual Inspection • Drainage/sewer maps • Planning & building information • Utility information dial before you dig (dial 1100, or visit web-site at www.dialbeforeyoudig.com.au) • Local government
LIKELY[39]	• Possibility of installing a groundwater abstraction bore, *or* • Groundwater used in same geological setting nearby or elsewhere in Victoria, *and* • Beneficial use of groundwater consistent with existing and potential land use, *and* • EPA Victoria has not determined that the beneficial use does not apply (according to clause 9(2) of the *State Environment Protection Policy (Groundwaters of Victoria)*).	• Engage a competent and experienced hydrogeologist, or a professional with demonstrated competence and experience in hydrogeology.
UNLIKELY	None of the above.	Engage a competent and experienced hydrogeologist, or a professional with demonstrated competence and experience in hydrogeology.

[39] If there are no existing beneficial uses or sensitive receptors in the vicinity of the UPSS, Table A4.1 requires consideration of the likelihood of beneficial uses of groundwater being realised sometime in the future. It is important that UPSS owners/operators engage a competent and experienced hydrogeologist to conduct this assessment of the likelihood of protected beneficial uses being realised.

Assessing the likelihood of beneficial uses involves determining the Total Dissolved Solids (mg/L) concentration in the groundwater and the corresponding segment of the groundwater environment and protected beneficial uses as determined by Tables 1 and 2 of the *State environment protection policy (Groundwaters of Victoria)*. The assessment then needs to consider the factors listed in Table A4.1 to determine likelihood of beneficial uses being realised.

Table A4.2 Risk of Transport

	Permeability[40]		
Depth to water table	**High** › 10^{-4} cm/s Typically associated with sands, gravels, fractured rock, Karst limestone. Also uncharacterised fill material [41]	**Moderate** 10^{-4} to 10^{-7} cm/s Typically associated with silty sands, sandy silts, clayey sands, clayey silts.	**Low** ‹ 10^{-7} cm/s Typically associated with clays, unfractured igneous and metamorphic rocks, sandstone, shale, siltstone.
[0 m] UPSS in contact with groundwater	**HIGH**	**MEDIUM**	**LOW**
≤ 7 m from bottom of UPSS	**HIGH**	**MEDIUM**	**LOW**
› 7 m from bottom of UPSS	**MEDIUM**	**LOW**	**LOW**

[40] The values provided (cm/s) represent the saturated hydraulic conductivity (K) which is a function of the permeability of the medium and fluid characteristics (in this case water which is the main transport agent for petroleum product). The values for hydraulic conductivity listed in the table were sourced from the low end of the range of published figures (Domenico P.A & Schwartz F.W, 1990, *Physical and Chemical Heterogeneity*, John Wiley & Sons Inc, Singapore, and Freeze R.A & Cherry J.A, 1979, *Groundwater*, Prentice-Hall Inc. NJ).

[41] Uncharacterised fill to significant depth (i.e. relevant to transport of contaminants) should be regarded as exhibiting a high permeability unless demonstrated otherwise.

Table A4.3 Site Classification

Risk of Transport (from Table A4.2)	**Beneficial Use(s) / Sensitive Receptor(s)** (from Table A4.1)		
	EXISTING	**LIKELY**	**UNLIKELY**
HIGH	***Sensitive Site***	****Review***	***Other***
MEDIUM	****Review***	****Review***	***Other***
LOW	***Other*** *(unless surface water body nearby, then *review)*	***Other***	***Other***

****Review***	Engage a competent and experienced hydrogeologist to determine whether the site is to be classed as *sensitive* or *other* by evaluating the likelihood of an effect on beneficial use(s) or sensitive receptor(s) being realised before detection and clean up of any leak.	OR	Owner/operator assumes site is *sensitive* (by self-assessment)

APPENDIX 5 – RECORD KEEPING REQUIREMENTS

Section of Guideline	Record Keeping Requirements
(2) UPSS Management System	• objectives and targets of UPSS Management System; • documented risk assessment in accordance with r.404-405 *Dangerous Goods (Storage and Handling) Regulations* 2000, which includes risk to environment; • documented procedures on design and installation of UPSS (refer to (3) below); • documented leak prevention procedures, including maintenance and testing activities; • documented leak detection procedures, including maintenance and testing of leak detection system; • documented contingency plans, including written procedures for spill response and loss investigation in accordance with section 5; • documented responsibilities and contact details for all parties/individuals involved in activities associated with the above procedures (including UPSS operation, maintenance and monitoring); • records of staff training in UPSS Management System; and • documentation on periodic performance monitoring and review of UPSS Management System, and records of subsequent adjustments to Management System.
(3) Leak Prevention	• details of spill containment measures and stormwater control, including drainage plans; • information used to determine the site classification (refer to Appendix 4) including all testing information and results; • certification of UPSS design in accordance with section 3.1 (including checklist of UPSS Designer competencies contained in Appendix 3); • as-built drawings of UPSS in accordance with section 3.3; • certification of UPSS installation by installation contractor, and checklist completed by owner/operator (refer to section 3.3); • all equipment integrity test records and certifications in accordance with 3.3; • records of all maintenance and inspections in accordance with section 3.4, and • records of all repairs, re-use and upgrades of UPSS in accordance with section 3.5.

Section of Guideline	Record Keeping Requirements
(4) Leak Detection	• Inventory control records; • All records relating to the leak detection system, including certification of the method as meeting the requirements set out in section 4 (including specific requirements contained in Table 3); • All records associated with the design, construction and installation of groundwater monitoring bores, at sensitive sites, in accordance with section 4; and • Records of all leak detection system checks, inspections and tests (including results of groundwater monitoring bore observations and sampling at sensitive sites).
(5) Leak or Spill Response	• Information relating to leaks or spills and subsequent response (including notification and clean up of any pollution if necessary) in accordance with section 5.
(6) UPSS Removal / Decommissioning	• Information relating to UPSS removal or decommissioning (to be retained for five years after the life of the system) in accordance with section 6.

APPENDIX 6 – FURTHER INFORMATION

For more information on the design, installation or management of UPSS, contact the EPA Information Centre or the WorkCover Advisory Service. To notify EPA of a leak or spill, contact the EPA Pollution Watch Line.

- **EPA Information Centre**

  HWT Tower, 40 City Road, Southbank, Victoria 3006

  Tel: (03) 9695 2722

  Fax: (03) 9695 2710

  www.epa.vic.gov.au

- **EPA Pollution Watch Line**

  (03) 9695 2777

  Country callers toll free 1800 444 004

- **WorkCover Advisory Service**

  Level 24, 222 Exhibition Street, Melbourne, Victoria 3000

  Phone (03) 9641 1444

  Fax (03) 9641 1353

  Country callers toll free 1800 136 089

  www.workcover.vic.gov.au