

# **Planning and Development Process for Sites with Underground Petroleum Storage Systems**

Department of  
**Environment, Climate Change and Water NSW**



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## 1. Introduction

The Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2008 (UPSS Regulation) came into effect on 1 June 2008. It provides for the early detection, reporting and investigation of leaks from underground petroleum storage systems (UPSS) and promotes the adoption of industry best practice in the design and installation of new UPSS and modifications to existing UPSS.

Requirements for UPSS are set out in the UPSS Regulation which may be viewed at [www.environment.nsw.gov.au/clm/upss.htm](http://www.environment.nsw.gov.au/clm/upss.htm).

All UPSS that are subject to the planning approval process must now meet the specific requirements of the UPSS Regulation.

This guide has been prepared by a working group with representatives from the Department of Environment, Climate Change and Water NSW (DECCW), NSW Department of Planning, the Local Government and Shires Associations, and Bankstown Council. It is designed to assist planning consent authorities (usually local councils) to incorporate the requirements of the UPSS Regulation in their assessment and development approval activities for premises that include UPSS.

This document outlines the requirements that proponents need to meet in the design, installation and subsequent monitoring and maintenance of new and modified UPSS so that they comply with the Regulation. The guide also identifies the conditions that should be included in development approvals issued by planning consent authorities for premises with UPSS.<sup>1</sup>

Specific aims of this guide are to:

- provide information to planning consent authorities about what proponents must do to ensure consistent design, installation, modification and environmental management of UPSS
- assist consent authorities to incorporate UPSS requirements into development control plans
- ensure that developments which incorporate new UPSS or modify existing systems operate in a manner that reduces their potential impact on the environment and human health
- increase the awareness of UPSS owners, operators and developers about industry best practice and recognised industry standards.

## 2. The UPSS Regulation and the planning process

The UPSS Regulation takes a preventative approach to managing potential contamination from underground petroleum storage tanks and associated pipework. An evaluation should be made at the planning consent stage to ensure that the appropriate level of equipment is to be installed. This is the most cost-effective way for UPSS sites to meet all the requirements of the Regulation.

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<sup>1</sup> The UPSS Regulation does not require a separate development control plan: requirements should be integrated into the development control plans that apply in each council area.

## 2.1 Role of DECCW

DECCW has been declared the appropriate regulatory authority (ARA) for the implementation of the UPSS Regulation until 31 May 2012. After this date the ARA will be the relevant local authority. While it is the ARA, DECCW will be responsible for overseeing both implementation and enforcement of the Regulation to ensure the requirements are applied consistently across NSW. This power will be exercised in consultation with local authorities so that all required corrective or enforcement actions are coordinated with existing local government responsibilities.

In relation to planning issues, DECCW will not be prescribing specific consent conditions, but it is available to provide planning authorities with technical advice to help them frame appropriate conditions. The time needed to respond to requests for advice will vary and depend on the level of complexity of the inquiry or the type of assistance sought.

## 2.2 Role of planning consent authorities

Introduction of the Regulation has not altered the planning consent role of local government and it continues to have responsibility for approving developments incorporating UPSS for which it is currently the consent authority. Local authorities also continue to be responsible under the *Protection of the Environment Operations Act 1997* (POEO Act) for regulating environmental issues such as spills, stormwater pollution, and soil and groundwater contamination resulting from site activities.

While it is the ARA, DECCW requests that local planning authorities advise it of all planning approvals they issue which involve the installation (or significant modification) of UPSS. This is intended to ensure that DECCW's registry of UPSS sites is kept current.

After the initial period of implementation of the UPSS Regulation (up to June 2012), local councils will become the ARA and assume responsibility for matters relating to the preventative management of underground infrastructure for petroleum storage. Handover of responsibility will be progressive and subject to review and consultation between councils and DECCW. During this time, DECCW will continue to provide technical advice to aid council decision-making.

At the transfer of responsibility, local authorities will be better positioned to regulate UPSS sites. They will be able to establish a clear set of management requirements at the planning stage and use the Regulation to enforce recording of information and reporting mechanisms which ensure environmentally sound management of the UPSS under their jurisdiction.

## 2.3 Requirements of the UPSS Regulation

A planning consent authority must ensure that the proponent for a UPSS facility meets the requirements of the UPSS Regulation in the following areas:

- design, installation and commissioning of new UPSS, including installation of groundwater monitoring wells
- modifications to existing UPSS and repair of leaks
- decommissioning of UPSS sites and tank removal.

The UPSS Regulation stipulates **minimum system requirements** that must be included in new UPSS facilities:

- installation of mandatory pollution protection equipment (MPPE), i.e. non-corrodible secondary containment tanks and associated piping and overfill protection devices

- installation and testing every six months of groundwater monitoring wells.

## 2.4 Industry best practice

Consent authorities are encouraged to ensure that new UPSS adopt design standards consistent with industry best practice set out in the appropriate industry standards, such as Australian Standard *AS4897–2008: Design, installation and operation of underground petroleum storage systems* (AS 2008a).

The use of equipment or infrastructure which is not required by the UPSS Regulation but is considered good environmental practice at storage sites include:

- tank pit observation wells
- fill points and dispenser sumps
- cathodic protection for tanks and piping
- earthing of UPSS systems
- used oil removal points
- vent piping
- vapour recovery systems.

It should be noted that much of this equipment is a frequent inclusion with new or upgraded installations. Not all of this equipment is applicable to all sites.

However, to meet the requirements of the UPSS Regulation only those items specified as MPPE need to be installed.

## 2.5 Responsibility for compliance

The UPSS Regulation states that responsibility for compliance with the provisions of the UPSS Regulation at a storage system lies with the person responsible for the system.

The UPSS Regulation requires that all design, installation and testing of new or modified storage systems is performed by duly qualified persons, who are those with competencies and experience that are recognised as appropriate for an activity in the relevant industry. The person responsible for a UPSS must ensure that relevant activities are undertaken by duly qualified persons. Such persons must provide details of the industry standards and specifications they follow in the design, installation and testing of the system.

The DECCW website at [www.environment.nsw.gov.au/clm/selectaclmcons.htm](http://www.environment.nsw.gov.au/clm/selectaclmcons.htm) outlines aspects to be considered when selecting contaminated land consultants. Similar factors can be used to assess whether consultants/contractors in other fields relevant to UPSS have the necessary competency and experience.

## 2.6 General considerations for consent conditions

As with many developments, it may not be practical for all technical aspects to be resolved prior to the submission of a development application. It is therefore not expected that the planning authority's technical expertise should extend beyond a broad understanding of the applicable industry specifications to be followed.

However, to ensure all activities are completed to an appropriate standard by a duly qualified person, the planning authority may choose to include a broad condition of consent that the minimum requirements of the UPSS Regulation are met.

Council may also consider requiring declarations or proof of qualifications to be submitted with the development application in support of the claim that the contractors engaged are duly qualified persons. DECCW is able to provide advice on suitable criteria if requested.

The key issues which planning consent authorities should consider when assessing a UPSS development are discussed in Section 3. Figure 1 summarises these planning considerations.

### **3. Issues to be considered by consent authorities under the UPSS Regulation**

#### **3.1 Installation and commissioning of a new UPSS**

##### **UPSS Regulation requirement**

All the requirements of the Regulation must be followed when a new UPSS site is planned, installed and commissioned.

##### **Proponent's role**

A proponent must ensure that duly qualified persons have undertaken the design, installation and associated testing on all UPSS-related infrastructure before it is commissioned.

##### **Planning conditions to implement**

A new UPSS must:

- be appropriately designed, installed and commissioned by duly qualified persons in accordance with the UPSS Regulation
- have minimum mandatory pollution protection equipment installed, consistent with the Regulation, comprising non-corrodible secondary containment tanks and associated pipework and overfill protection devices
- have groundwater monitoring wells installed and tested in accordance with the Regulation
- have a certificate showing that an equipment integrity test (EIT) has been carried out in line with the written directions of duly qualified persons.

A new UPSS can only be commissioned once all these requirements have been met.

#### **3.2 Installation of groundwater monitoring wells on UPSS sites**

##### **UPSS Regulation requirement**

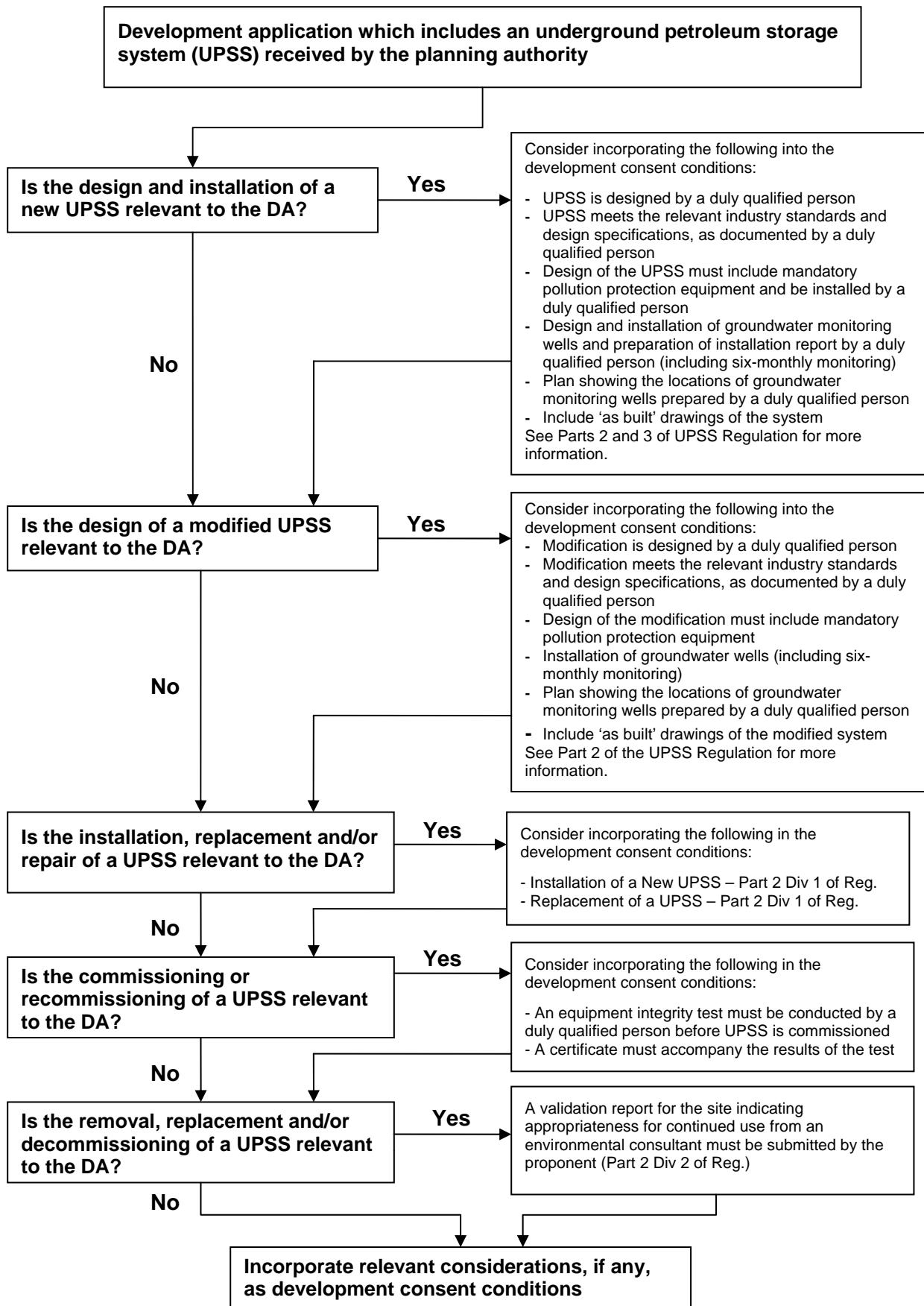
Groundwater monitoring wells must be designed and installed in accordance with the relevant specifications by duly qualified persons.<sup>2</sup> Wells must be tested for the presence of hydrocarbons according to the written instructions of a duly qualified person at least every six months. The person responsible for a UPSS must ensure that documentation is provided by the duly qualified persons, indicating that all UPSS Regulation requirements have been met.

##### **Proponent's role**

A proponent must ensure groundwater monitoring wells have been designed and installed by a duly qualified person on a UPSS site prior to its commissioning. The wells must meet the requirements of the UPSS Regulation for design, location, installation and documentation, as well as any other relevant planning conditions of consent.

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<sup>2</sup> Old UPSS must have groundwater monitoring wells in operation by 1 June 2011.



**Note:** A UPSS must meet all the relevant requirements of the UPSS Regulation where planning approval is granted **on or after 1 June 2008**

**Figure 1: Flow diagram for development applications involving a UPSS**

### **Planning conditions to implement**

All sites must have groundwater monitoring wells designed and installed by duly qualified persons in accordance with relevant industry standards. The person responsible for the system must ensure that the duly qualified persons provide details of specifications relevant to the design and installation of the wells.

Groundwater monitoring wells must be:

- sealed to exclude surface water
- constructed to prevent cross-contamination with other groundwater monitoring wells
- clearly marked to indicate their presence and properly secured
- tested for hydrocarbon contamination at minimum intervals of six months.

### **Exemptions**

The person responsible for a UPSS may apply to DECC for an exemption to install groundwater monitoring wells at the site. Details of any exemption that has been granted should be provided with a development application or in support of a variation to existing development consent conditions. Further information on the exemption process is provided in the *Guidelines for implementing the POEO (Underground Petroleum Storage Systems) Regulation 2008* (DECC 2009), available at [www.environment.nsw.gov.au/clm/upss.htm](http://www.environment.nsw.gov.au/clm/upss.htm).

## **3.3 Operational management of a new UPSS**

### **UPSS Regulation requirement**

The minimum operational management requirements for new UPSS facilities are:

- preparation of an Environment Protection Plan (EPP), including loss monitoring<sup>3</sup> and incident management procedures
- development and use of loss detection procedures.

### **Proponent's role**

The proponent should ensure that an EPP has been prepared and procedures for loss monitoring and detection and incident management are in place if the UPSS is to be used. The EPP must be kept up-to-date and amended as necessary. Where responsibility for the system changes, all records of the site must be transferred to the new person responsible within 30 days. Records of activities, incidents and modifications must be kept for at least seven years from their date of creation. Groundwater monitoring wells must also be tested and maintained in accordance with the Regulation.

### **Planning conditions to implement**

All sites with operating UPSS must have an EPP in place. Procedures must also be prepared and documented for loss monitoring and detection and incident management.

## **3.4 Modification of a UPSS**

A modification is considered to be any upgrade, replacement, extension, removal or other alteration of a system, not including any alteration made before the system is first used.

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<sup>3</sup> The loss monitoring procedures must be able to detect a leak of at least 0.76 litres per hour with an accuracy of 95%.

## UPSS Regulation requirement

A ‘significant’ modification under the UPSS Regulation is the replacement of 50% or more of the tanks in a system or where development consent is required under the *Environmental Planning and Assessment Act 1979*. Modifications involving less than 50% of the system (‘other modifications’ below) are not considered significant under the Regulation unless development consent is required by the local council.

Any significant modification requires the whole system to comply with the provisions of the Regulation relating to a new UPSS (see Section 3.1).

For other modifications, mandatory pollution protection equipment is not a requirement. Under these circumstances, it is recommended that industry best practice is followed in any repair or replacement of UPSS.

Where the works involve the removal and/or replacement of any tank, a validation report for the storage site must be prepared in accordance with the *Guidelines for consultants reporting on contaminated sites* (EPA 1997). The report must be submitted to the local authority no later than 60 days after a tank’s removal or replacement or after remediation of the site is completed, where this is required. All documentation must be kept for seven years from its creation or seven years after decommissioning.

## Proponent’s role

The proponent must verify with the consent authority whether development consent is required for modifications to a UPSS.

As outlined in Section 3.1, a proponent must ensure duly qualified persons have undertaken all design, installation and appropriate testing on a modified UPSS before it is recommissioned. Where contamination is identified during modification works, the proponent must notify the ARA in accordance with the POEO Act to ensure proper action is taken to deal with the contamination.

In all cases, regardless of whether modification and/or repair of a UPSS requires development consent, the system must not be recommissioned until a certificate has been signed by a duly qualified person, confirming that the UPSS has passed an EIT and a site validation report has been submitted to the relevant local authority.

## Planning conditions to implement

If the activity is one that triggers development approval from the local authority, consent conditions should consider whether the installation of mandatory pollution protection equipment and groundwater monitoring wells are required.

The system cannot be recommissioned without certification that an EIT has been performed in line with the written directions of a duly qualified person. The person responsible must also be in possession of documentation showing appropriate design, installation and testing/commissioning, including current as-built drawings and dates of commencement and completion of modification. If a tank has been removed or replaced, the system may not be recommissioned unless a validation report has been submitted to the relevant local authority:

- no later than 60 days after a tank’s removal or replacement, or
- no later than 60 days after remediation of the site is completed, where this is required.

Validation reports must be kept for seven years from the date of creation or seven years after the decommissioning of the tank.

## 3.5 Repair to a UPSS

### **UPSS Regulation requirement**

A repaired UPSS can only be recommissioned where there is certification that an EIT has been performed in line with the written directions of a duly qualified person.

### **Proponent's role**

A proponent must ensure that a system is properly recommissioned following repair or rectification after discovery of a leak.

### **Planning conditions to implement**

Depending on the nature of the activity, repairs may not trigger consent. However, if a UPSS leaks and repair work is undertaken, the system cannot be recommissioned unless it satisfies the requirements outlined in the UPSS Regulation.

## 3.6 Decommissioning UPSS sites and tank removal

### **UPSS Regulation requirement**

If a tank is removed or decommissioned *in situ*, a validation report for the storage site must be submitted to the relevant local authority to verify the site has met remediation criteria or is suitable for continued and future use. This validation report must be served no later than 60 days after the system is decommissioned or, where remediation is required, no later than 60 days after remediation is completed. Documents relating to the decommissioning of tanks must be kept for at least seven years from the date of decommissioning.

When considering tank decommissioning, reference should be made to the Occupational Health and Safety Regulation 2001, *UPSS technical note: Site validation reporting* (DECCW in press), *UPSS technical note: Decommissioning, abandonment and removal of underground petroleum storage systems* (DECCW in press) and *Dangerous goods fact sheet 3\_1* (WorkCover NSW 2009).

### **Proponent's role**

For proposed works requiring development consent, a proponent must follow the applicable standards and industry best practice as well as ensure that appropriate notification and reporting occurs before and after decommissioning works and tank removal.

Even if decommissioning and/or removal of tanks does not require development consent, it should conform to industry best practice and must meet the requirements of *Planning guidelines: State Environmental Planning Policy 55 – Remediation of land* (DUAP 1998), i.e. notification of the local planning authority at the start and completion of land remediation.

The proponent should also be aware that NSW WorkCover Authority is responsible for occupational health and safety issues relating to decommissioning and removal of tanks from a site: see *Storage and handling of dangerous goods – Code of practice 2005* (WorkCover NSW 2005) and *Dangerous goods fact sheet 3\_1* (WorkCover NSW 2009).

### **Planning conditions to implement**

Validation and reporting of the condition of a UPSS site following tank removal or site decommissioning must address all areas of the site consistent with the requirements of the UPSS Regulation and *SEPP 55*. A validation report for tanks that are removed or decommissioned must be submitted to the local planning authority no later than 60 days after the completion of works or, where site remediation is required, within 60 days of its completion. The purpose of the validation report is to assist planning consent authorities with future planning decisions.

## Appendix I: Definitions

Certain terms have specific meanings under the UPSS Regulation as listed below.

<b>Appropriate regulatory authority (ARA)</b>	See definition in the POEO Act, although in the context of the UPSS Regulation, DECCW is the ARA for the first four years from commencement of the Regulation after which it will be the relevant local council. Councils remain the ARA for all other matters at a UPSS site not directly associated with the operation of the storage system, such as noise and stormwater.
<b>As-built drawings (current)</b>	Detailed site plans (to a recognisable scale) which depict the final installed configuration of any part of a UPSS and any construction deviations showing all features of the storage site as <i>currently</i> built. This does not include the pre-constructed drawings.
<b>Cathodic protection system</b>	Method of preventing or reducing corrosion of a metal surface by making the metal a cathode (i.e. the positive charge) by using either an impressed direct current or attached sacrificial anodes
<b>Commission (a UPSS or any part of one)</b>	To bring a storage system or groundwater monitoring well into use for the first time following its installation, modification or repair
<b>Decommission (a UPSS or any part of one)</b>	To permanently abandon the use of a system or render it permanently unusable
<b>Duly qualified person</b>	A person who has competencies and experience (in relation to a specific activity) that are recognised as appropriate for that activity by the relevant industry
<b>Environment Protection Plan (EPP)</b>	A document referred to in clause 19 of the UPSS Regulation to enable management of activities at a UPSS in an environmentally responsible manner
<b>Equipment integrity test (EIT)</b>	A test conducted to evaluate whether a storage system is providing containment as originally designed, in accordance with the manufacturer's specification. The EIT must be able to detect a leak of 0.38 litres per hour from tank or pipe work, with a probability of detection at least 95% of the time and a false detection of 5% or less.
<b>Groundwater monitoring well</b>	A well that has been purposely installed as part of a groundwater monitoring system around a UPSS site. Must be located in an appropriate place to detect any leaked petroleum that may have migrated into the groundwater (or to characterise the quality of groundwater flowing onto the UPSS site).
<b>Incident management procedure</b>	In the context of this guide, a documented response procedure to manage a leak or spill of petroleum from a system; also known as leak or spill response procedure.

<b>Installation</b> (of a UPSS or any part of one)	The original installation of a system on the premises on which it is situated, including any work in the vicinity of the premises necessary for the installation and any alteration made before the system was first used
<b>Leak</b>	Any loss of petroleum from a storage system because the storage system is not providing full and continuous containment
<b>Loss detection</b>	Procedures and processes able to identify the cause of a discrepancy (loss) from any part of a UPSS (i.e. leak from tanks or pipework)
<b>Loss monitoring procedure</b>	<p>One or more procedures for undertaking inventory control (reconciliation) of the petroleum in a system to identify a discrepancy in the volume of petrol (either loss or gain) and the means to record and trigger the need for any further action.</p> <p>The UPSS Regulation prescribes that the method of loss monitoring must be able to detect a leak of at least 0.76 litres per hour, with a probability of detection of at least 95% of the time and a false detection of 5% or less.</p>
<b>Mandatory pollution protection equipment</b>	<p>The minimum equipment and infrastructure requirements for a storage system, necessary to ensure effective containment of any petroleum in the storage system (should a leak or spill occur). The UPSS Regulation prescribes:</p> <ul style="list-style-type: none"><li>• non-corrodible secondary containment tanks and associated pipework</li><li>• overfill protection devices.</li></ul>
<b>Modification</b> (of a UPSS or any part of one)	The upgrade, replacement, extension, removal or other alteration of a system, not including any alteration made before the system is first used
<b>Modified storage system</b>	A storage system modified since 1 June 2008
<b>New UPSS</b>	Any storage system that is not an old system (see definition for ‘old UPSS’)
<b>Old UPSS</b>	<p>Any storage system:</p> <ul style="list-style-type: none"><li>• that was in use before 1 June 2008, or</li><li>• that was being lawfully installed before 1 June 2008, or</li><li>• that received development approval under the <i>Environmental Planning and Assessment Act 1979</i> before 1 June 2008,</li></ul> <p>but does not include a storage system that replaces any such system.</p>
<b>Person responsible</b>	The person who has the management and control of a system or, if a system has been decommissioned, the person who had the management and control immediately before it was decommissioned

<b>Petroleum</b>	Any fuel that consists predominantly of a mixture of hydrocarbons derived from crude oil, with or without additives (such as ethanol), that is used, or could be used, as a fuel and includes liquids such as petrol, diesel, gasoline, motor spirit, two-stroke, aviation fuel, heating oil, kerosene and used (waste) oil.
<b>Piping</b>	Pipework within a UPSS that is integral to the transfer and routine containment of petroleum. Vent piping and vapour recovery piping are not classified as piping under the UPSS Regulation.
<b>Remediate</b>	In the context of this guide:
	<ul style="list-style-type: none"><li>removing, dispensing, destroying, mitigating or containing the contamination of any land, or</li><li>eliminating or reducing any hazard arising from the contamination of the land, including by preventing the entry of persons or animals on the land.</li></ul>
<b>Secondary containment</b>	Equipment and infrastructure such as double-walled tanks and double-walled piping (an interstitial space), which are designed to contain a leak and/or prevent it from escaping beyond the containment area of a UPSS.
<b>Significant modification</b> (of a UPSS or part of one)	Any modification to an old or new UPSS system that involves: <ul style="list-style-type: none"><li>replacement of half or more of the tanks (at any one time), or</li><li>work which requires development consent</li></ul> thus triggering the need for the system to comply fully with the Regulation.
<b>Spill</b>	Any loss of containment of petroleum from a storage system during physical management, such as: <ul style="list-style-type: none"><li>transfer, delivery or removal</li><li>any UPSS operation</li><li>maintenance or testing</li><li>repair or closure.</li></ul>
<b>Storage system</b>	One or more tanks completely or partially buried in the ground that contain, or are intended to contain, petroleum (including used oil), and includes any structure through which petroleum routinely passes from one part of a storage system to another part of the system (i.e. from the tanks to the dispensers), but does not include dispensers.
<b>Sump</b>	In relation to a storage system, a structure used for the purpose of collecting spilled or excess oil, water and other liquids in the system

<b>Tank</b>	A container or vessel intended for the storage of petroleum within a storage system that, for the purpose of the UPSS Regulation, is buried below the ground surface to such an extent that the base of the tank (in the ground) is not visible
<b>Use (of a UPSS or part of one)</b>	To allow petroleum to remain in the system
<b>Underground petroleum storage system (UPSS)</b>	One or more tanks that are completely or partially buried in the ground which contain, or are intended to contain, petroleum (including waste oil), and encompasses any piping to, from or associated with, the tanks to the inlet port of any dispensers, but does not include vent or vapour recovery piping.
<b>Used (waste) oil</b>	Oil that has been used for lubricating or other purposes and has become unsuitable for its purpose due to the presence of impurities or loss of the original properties (and it is not intended for combustion)
<b>Validation report</b>	In relation to a storage system or a tank that forms part of a system, a validation report within the meaning of section 2.4 and 3.1 of the <i>Guidelines for consultants reporting on contaminated sites</i> (EPA 1997).

## Appendix II: Relevant legislation

*Environmental Planning and Assessment Act 1979* (NSW) – Principal planning legislation in NSW

Occupational Health and Safety Regulation 2001 (NSW) – Specifically clause 174ZF: Cleaning or decommissioning plant, equipment and containers (including UPSS)

Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2008 (NSW) – Outlines preventative measures for design, installation and management of UPSS

*State Environmental Planning Policy No. 55: Remediation of land* – available at [www.planning.nsw.gov.au](http://www.planning.nsw.gov.au)

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