

# **A Proposed Regulatory Model for Managing the Environmental Impacts of Underground Petroleum Storage Systems**

Issues and Options Paper

SUMMARY



DEPARTMENT of  
ENVIRONMENT, PARKS, HERITAGE *and the* ARTS

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# **A Proposed Regulatory Model for Managing the Environmental Impacts of Underground Petroleum Storage Systems**

## **Issues and Options Paper**

### **SUMMARY**

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ENVIRONMENT DIVISION  
DEPARTMENT OF ENVIRONMENT, PARKS, HERITAGE AND THE ARTS  
GPO Box 1751  
HOBART TAS 7001

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A PROPOSED REGULATORY MODEL FOR MANAGING THE  
ENVIRONMENTAL IMPACTS OF UNDERGROUND PETROLEUM STORAGE  
SYSTEMS

ISSUES AND OPTIONS PAPER

SUMMARY

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# SUBMISSIONS

Submissions are invited in relation to any aspect of this document. Comment is especially invited on the preferred options proposed in the paper, including their practicality, potential costs and benefits.

Submissions will be considered in finalising the regulatory model. Submissions must be in writing and forwarded to:

General Manager  
Environment Division  
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Submissions may also be hand delivered to 6<sup>th</sup> floor, 134 Macquarie Street, Hobart or emailed to [EnvironmentEnquiries@environment.tas.gov.au](mailto:EnvironmentEnquiries@environment.tas.gov.au).

Submissions must be received by **5.00 p.m. Friday 6<sup>th</sup> June 2008**.

If you would like any further information regarding this document, please contact:

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<http://www.environment.tas.gov.au>

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## 1 Introduction

Leaking Underground Petroleum Storage Systems (UPSS) are recognised as a significant source of soil and groundwater contamination that may pose a risk to the environment and human health. The Environment Division of the Department of Environment, Parks, Heritage and the Arts is developing a regulatory model to prevent or limit, to the greatest extent possible, the release of petroleum product into the environment. This proactive approach will help to protect current and future groundwater resources and reduce costs to industry associated with the clean-up of land and water resources contaminated by leaked petroleum product.

Information on the proposed regulatory model is now being released for stakeholder and public comment. Submissions are encouraged, especially in relation to:

- the preferred regulatory model proposed;
- the proposed content of the preferred model; and
- the practicality and potential costs and benefits of all preferred options.

This input will help to establish a model that protects the environment and human health and can be practically implemented.

This document contains a summary of the information provided in *A Proposed Regulatory Model for Managing the Environmental Impacts of Underground Petroleum Storage Systems – Issues and Options Paper*. The Issues and Options Paper contains additional information as to why it is considered that a regulatory model is needed as well as detailing the options that were considered prior to a preferred option being chosen.

Steel underground tanks were commonly used for petroleum storage in the past in Tasmania. As these tanks age the likelihood of fuel leaks increases. It is estimated that there are 1000 sites with UPSS in Tasmania. UPSS owners and operators are often unaware of, or underestimate, the environmental damage that fuel leaked to the environment can cause. Leaks can result in extensive contamination if groundwater is impacted and remediation of this contamination can be very expensive and in some cases may not be technically possible. In a number of cases it is likely that the impact and extent of contamination and remediation costs could have been greatly reduced if reasonably simple measures (such as loss monitoring) had been undertaken.

It is acknowledged that a number of UPSS operators currently monitor for leaks diligently and take appropriate actions where leaks are suspected. It is expected that any regulatory changes will have a minimal impact on these sites. However, the changes will assist owners/operators to improve environmental performance by providing direction on issues such as the steps that must be undertaken if a leak is suspected and the level of loss that leak detection methods must be able to detect.

In recognition of the cost that leaking UPSS can have on business owners/operators, the environment and the community, the New South Wales, Victorian and South Australian governments and Brisbane City Council are all developing or have developed regulatory systems for UPSS. These systems, along with Codes of Practice produced by the Australian Institute of Petroleum (AIP), were the key references used during the development of the Issues and Options Paper. It should be noted that Australian Standard 4897 has replaced AIP-CP4.

The proposed regulatory changes aim to address the environmental aspects of UPSS management and to complement the occupational health and safety aspects of UPSS,

which are regulated through the *Dangerous Goods Act 1998* by Workplace Standards Tasmania (WST).

The Environment Division's preferred regulatory model for managing the environmental impacts of UPSS is the making of regulations under the *Environmental Management and Pollution Control Act 1994* (EMPCA). Table S1 (attached) summarises the issues and preferred options for the contents of the proposed regulations.

Input into this paper has been sought from a reference group of key stakeholders, which includes representatives from industry (including industry bodies i.e. the Tasmanian Automobile Chamber of Commerce and the Australian Institute of Petroleum), State Government Agencies, local government, environmental groups and environmental consultants.

The Issues and Options Paper is being released for public comment for a period of five weeks. After comments have been received a regulatory model will be proposed to the Minister for Environment, Parks, Heritage and the Arts.

If regulations are to be made, a Regulatory Impact Statement (RIS) is likely to be required under the *Subordinate Legislation Act 1992*. The RIS will detail the costs and benefits of the proposed regulations and will include an assessment of whether the changes will impact on competition. Therefore, the Issues and Options Paper does not contain detailed information on the financial impact of any proposed changes.

If a RIS is required it will be released for public comment, along with draft regulations, prior to the regulations being finalised.

## **2 Issues to be Addressed by the Regulatory Model**

### **2.1 The Need to Protect Groundwater Quality**

It is considered important to protect Tasmania's groundwater resources from contamination as the current and recurring drought and water shortages are likely to result in this resource becoming more valuable in future years. Polluted groundwater can also result in the contamination of surface water (streams and waterways etc). If petroleum product leaks into a groundwater system, large volumes of groundwater can be severely impacted as groundwater readily transports petroleum product. It can also be extremely hard to remediate groundwater once it is contaminated, with remediation often being very expensive, technically difficult and time consuming.

It should be noted that even small amounts of fuel added to a groundwater resource can make the water too contaminated for drinking or agricultural supply purposes. For example, if 100ml of unleaded fuel was added to an Olympic size swimming pool (2.5 million litres), the resulting level of benzene in the water would exceed the level set in the Australian Drinking Water Guidelines (National Health and Medical Research Council, 2004).

### **2.2 The Need to Protect Human Health**

A number of the chemicals in fuel are toxic to humans. Some of the chemicals are carcinogens and people can be exposed via vapours (including indoor air contaminated by fuel under buildings) and via ingestion or contact with contaminated soil and water (including groundwater).

### **2.3 Cost and Practicality of Remediating Contamination**

It is not always practicable to remediate petroleum contamination, particularly where groundwater is impacted. Where remediation is not possible or cannot be readily achieved, affected properties may not regain their original value, as the current land use may not be possible on the site. Adjacent properties may also be affected and future land uses may be restricted (e.g. the land may not be able to be used for residential purposes).

A Regulatory Impact Statement (RIS) for the proposed NSW Regulations states that “Preventing leaks, and monitoring and early detection of leaks, minimises the potential for widespread contamination and avoids expensive clean-up operations. A value of \$100,000 per leaking tank is considered a conservative estimate of the potential benefit or avoided clean-up costs for a service station site”.

### **3 Objectives of Proposed Regulatory Model**

It is intended that any proposed regulatory model should meet the following objectives:

- To proactively prevent contamination through the adoption of best practice environmental management;
- To reduce the risk of leaks occurring by requiring minimum construction standards for new (and upgraded) infrastructure such as double-walled tanks;
- To enable the early detection of leaks by requiring loss monitoring inventory control and the monitoring of groundwater wells in certain situations so that leaks are stopped sooner and remediation can commence earlier, thus potentially reducing the risk of harm and cost of remediation;
- To ensure that UPSS are decommissioned appropriately;
- To create a level playing field by requiring compliance by all UPSS owners/operators even if they do not need a Dangerous Goods Keeper’s Licence (issued by WST);
- To allow penalties for non-compliance to apply;
- To ensure that leaks are investigated and environmental harm is reported; and
- To be a proactive step towards detailing measures that will help UPSS owners/operators to comply with the *State Policy on Water Quality Management 1997*.

In addition to the advantages these objectives will bring to the environment and communities near UPSS, industry will also benefit from the regulatory changes due to less contamination occurring. This will result in fewer:

- situations where extensive remediation is required;
- restrictions on future and current land uses, as restrictions may occur when extensive contamination is present or remediation cannot reduce the contamination to a suitable level;
- situations where litigation may arise from the contamination of adjacent properties;
- disruptions to business operations which can occur when contamination requires remediation; and
- financial losses due to petroleum product being lost from the UPSS.

### **4 Tasmania’s Proposed UPSS Regulatory Model**

The definition of UPSS that will be used in the proposed regulatory model will be that of AS 4897, where UPSS means: “one or more completely or partially buried tanks that contain or are intended to contain product or used oil, leak monitoring systems, cathodic

protection and all product piping to, from or associated with the tanks and up to the inlet port of the dispensers”.

The scope of the regulatory model will be limited to UPSS for petroleum products such as petrol, diesel, kerosene, heating oil, aviation fuel and used oil. Storage of gases under pressure such as liquid petroleum gas (LPG), liquid natural gas (LNG) and compressed natural gas (CNG) will be excluded.

#### **4.1 Options for Regulatory Model**

The following options as to the type of regulatory model, that could be used to improve the environmental management and performance of UPSS in Tasmania, are detailed in the Issues and Options Paper:

- the “do nothing” option whereby the environmental management of UPSS remains unchanged;
- developing “best practice” guidelines, as has occurred in Victoria, or a Code of Practice, as is proposed in South Australia;
- the use of owner/operator insurance;
- amending Schedule 2 of EMPCA to include sites containing UPSS (i.e. making them a Level 2 activity); and
- developing regulations.

The preferred option is to develop new regulations under the *Environmental Management and Pollution Control Act 1994*, as regulations should allow all the objectives listed in Section 3 to be met.

Further information on each of the above options and reasons as to why the development of regulations was chosen as the preferred option, are contained in the Issues and Options Paper.

#### **4.2 Proposed Regulations - Issues and Preferred Options**

The issues and preferred options for the main requirements that are proposed to be contained in the regulations are summarised below. Other options considered are detailed in the Issues and Options Paper along with why it was concluded that these options were not appropriate.

In general, the regulations will only apply to:

- UPSS that are operational when the regulations commence; and
- UPSS that become operational after the regulations commence.

The exception is where unused UPSS are to be removed/decommissioned.

##### ***4.2.1 New and replaced infrastructure***

###### **4.2.1.1 Issue**

The installation of infrastructure that is designed to contain spilt product and that allows monitoring for leaks to occur can prevent contamination. Therefore, the setting of a minimum standard of UPSS infrastructure for new and upgraded systems is integral to any proposed regulatory changes.

#### 4.2.1.2 Preferred option

The preferred option for new systems is that the infrastructure listed in Table A be installed. The installation of this infrastructure will reduce the risk of leakage and provide the ability to detect leaks promptly. For existing systems where one or more tanks are being replaced/upgraded the preferred option is the tank/s, associated pipework and related infrastructure be upgraded to conform with the equipment listed in Table A. For existing systems where only pipework is being replaced it is proposed that there will be no requirement to upgrade the pipework or system.

**Table A: Equipment requirements (based on AS4897 Level 1)**

Non-corrodible tanks
Secondary containment for tanks
Non-corrodible petroleum product piping
Secondary containment for petroleum product piping
Leak monitoring for petroleum product piping
Fill point requirements (e.g. containment devices)
Leak monitoring (e.g. inventory control etc)
Dispenser sumps
Overfill protection (e.g. mechanical or electrical devices)
Tank pit observation wells
Earthing of UPSS

Note: Groundwater well requirements are discussed separately in Section 4.2.4.

It should be noted that alternative materials, equipment designs or methods, may be acceptable if it can be shown that they give no less protection to the environment and human health and safety than the level required.

#### Additional requirements

Where double-walled tanks and/or piping are installed, it is proposed that interstitial monitoring (observing the space between the tank and/or line walls) be undertaken six monthly by the person responsible, to ensure that both walls of the tanks/piping are sound.

#### Timing

It is proposed that the infrastructure listed in Table A be required at all new sites and sites where a tank is being replaced as soon as the proposed regulations commence. It is not intended that the proposed regulations will require any replacement of UPSS infrastructure at existing sites unless it is shown that the equipment is not sound.

### 4.2.2 Installation

#### 4.2.2.1 Issue

Both AS4897 and the Victorian Guidelines state that incorrect installation is one of the major causes of leaks in UPSS.

#### 4.2.2.2 Preferred option

To ensure that equipment has been installed correctly, it is intended that the proposed regulations will require an equipment integrity test to be conducted prior to any new, upgraded or repaired UPSS being used. The integrity test will need to be conducted on

the entire UPSS (i.e. tanks and lines) in accordance with Sections 6.4.4 and 8.5 of AS4897.

### **4.2.3 Loss monitoring**

#### **4.2.3.1 Issue**

The rapid identification of leakages from UPSS is vital, as the sooner a leak is identified and rectified, the less contamination will occur. This will result in less harm occurring and lower remediation costs. A loss monitoring system must be able to monitor the UPSS with sufficient frequency, sensitivity and reliability to be able to provide a high level of confidence that a loss will be rapidly detected.

Loss monitoring is the first line of defence for leak detection and should identify losses of petroleum product from an UPSS by comparing the volumes of product delivered, removed/used and remaining in the UPSS (measured by daily dips).

Results from a survey conducted by the Environment Division found that loss monitoring was conducted at most UPSS sites surveyed. However, the survey highlighted issues that the proposed regulations need to address including the need for:

- a consistent method for determining if a “loss” must be investigated further; and
- prompt discrepancy investigation.

#### **4.2.3.2 Preferred options**

##### Loss Monitoring

The preferred option, based on AS4897, the proposed NSW regulations and the Victorian guidelines, is that loss monitoring be undertaken in such a manner that:

- it can detect a loss from any portion of the UPSS (i.e. the tank and pipework);
- it is conducted on a tank basis not a grade basis (i.e. tanks with the same type of product must not be grouped as this can mask losses);
- it is installed, calibrated and commissioned in accordance with the manufacture’s instructions;
- it is capable of detecting a loss of 0.76 litres (or less) per hour with a 95% probability of detection and a 5% or less probability of false detection; and
- the results are recorded.

This requirement would commence immediately for new UPSS and would need to be operational for all existing sites within six months of the regulations commencing.

Statistical Inventory Reconciliation Analysis (SIRA) is a method that could be used as a loss monitoring system.

A detection rate of 0.76 litres/hour (18 litres/day) is proposed. It must be emphasised that this is a loss monitoring detection rate, not an investigation rate, and certainly not an allowable rate of loss. If a loss is detected that is of concern, it must be investigated, even if the loss is less than 0.76 litres/hour. It is likely that this rate will be reviewed as loss monitoring methods become more advanced.

It is also proposed that the regulations will require that all dipsticks have increments of 100L or less.

The Issues and Options Paper contains a definition of discrepancy, requirements to ensure that discrepancies are promptly investigated and details of further works that will be required if a leak is confirmed.

*Alternate method for tanks with a capacity of 5,500 litres or less*

It is acknowledged that in some cases loss investigation methods, as detailed above, may not be feasible. For example, for low throughput UPSS (e.g. backup generators), UPSS where the volumes added may not be measured (e.g. used oil tanks) and UPSS where usage may not be measured (e.g. heating oil tanks).

Details of loss monitoring methods for these UPSS are contained in the Issues and Options Paper.

The requirement to monitor tanks with a capacity of 5,500 litres or less would commence immediately for new UPSS and would need to be operational at all existing sites within six months of the regulations commencing.

#### **4.2.4 Groundwater monitoring wells (GMW)**

##### **4.2.4.1 Issue**

Even though a loss monitoring system will be in place at all UPSS sites, as proposed in Section 4.2.3, the required detection limit of 0.76 litres/hour (18 litres a day) could still result in leaks remaining undetected and the release of a significant amount of product over time. The release of this undetected amount of fuel could result in an unacceptable impact on people, property and/or the environment. The installation and monitoring of groundwater wells in areas where usable groundwater exists is therefore proposed as a secondary means of detecting leaks and should further reduce the risk of harm occurring.

##### **4.2.4.2 Preferred option**

The preferred option is that groundwater monitoring wells (GMW) be installed at sites where UPSS are located in the vicinity of groundwater extraction wells and/or surface waters and where Groundwater Management Units are defined.

Groundwater Management Units (GMUs) are areas where there is high demand for groundwater and the quality and quantity of groundwater is high. Currently Tasmania has 13 GMUs which are under review.

The requirement to install GMW will occur gradually as data becomes available through permit to drill requirements, the licensing of bores and the definition of additional Groundwater Management Units by the Water Management Section of the Department of Primary Industries and Water (DPIW).

The distances between UPSS and extraction bores/surface waters, whereby GMW will be required to be installed will be determined in consultation with the Water Management Section. As a starting point the definition of an environmentally sensitive area proposed to be used in NSW (i.e. proximity to sensitive receptors) will be considered. The distances proposed in NSW are that GMW must be installed where a UPSS is within:

- 500 metres of any surface water (rivers, wetlands, dams, tidal waters etc);
- 5,000 metres of a town water supply bore;
- 1,000 metres of a domestic water supply bore; and/or
- 500 metres of an irrigation or stock water supply bore.

### Exemptions

It is intended that groundwater monitoring wells will not be required to be installed where a single tank under 5,500 litres is used for storing the following:

- fuel for backup generators at domestic or commercial premises;
- heating oil at a residential premise; or
- used oil.

Exemptions have been proposed in these cases as the low volume of product stored is considered to pose less risk to the environment and human health than higher volume UPSS.

It is proposed that an exemption from the requirements to install GMW could be applied for in the following situations:

1. where a suitably qualified hydrogeologist states, based on a site investigation, that the risk of groundwater becoming contaminated is minimal;
2. where an UPSS (which complies with the proposed regulations) is installed on a site which hasn't contained an UPSS previously; or
3. where all the UPSS infrastructure has been upgraded as per Section 4.2.1 and a detailed site investigation, which has been conducted by a suitably qualified person, concludes that no soil or groundwater contamination is present at the UPSS site that is likely to cause environmental harm.

Based on the information received, the Director of Environmental Management will accept or reject the application.

### Timing

It is proposed that where the installation of monitoring wells is required they will be:

1. installed before a new site becomes operational; and
2. installed at existing sites within two years of being notified by the Environment Division that GMW must be installed.

### Monitoring

It is proposed that GMW will have to be monitored every six months for petroleum contamination. Monitoring includes visual assessment, odour detection, use of probes etc. The GMW will also have to be sampled and analysed within 30 days of well installation or a leak in a UPSS is suspected.

The Director of Environmental Management must be notified if free phase product is observed or it is likely that offsite migration of contamination could occur, is occurring or has occurred.

## **4.2.5 Replacement of tanks and lines and permanent decommissioning**

### **4.2.5.1 Issue**

Based on observations by the Contaminated Sites Unit of the Environment Division, a large number of UPSS have historically been decommissioned inappropriately. Another important issue is the need to assess and remediate contaminated soil and groundwater adjacent to UPSS that are being permanently removed or replaced. This will prevent product in the area that surrounded the UPSS from continuing to be a source of contamination.

### **4.2.5.2 Preferred option**

The preferred option is that all UPSS that are in use after the regulations commence and then become no longer required or suitable for holding petroleum product, whether

they are to be replaced or not, be removed by a skilled professional, except where it is unsafe to do so (e.g. removal of the UPSS will cause structural damage to adjacent buildings etc). The surrounding soil and groundwater must also be assessed and if contamination is detected remediation may be required. If tanks cannot be removed they must be filled in accordance with AS1940 and the surrounding soil and groundwater assessed. A validation report will be required where lines, a tank, or a whole UPSS is being removed whether to be replaced or not, or decommissioned in-situ.

No requirement is proposed for the removal of UPSS that are not in use when the regulations commence. This is due to the fact that often these UPSS are on sites that are no longer owned by the UPSS owner/operator. However, when such a tank is removed (or decommissioned in-situ) after the regulations commence, an environmental assessment of the surrounding soil and groundwater and a validation report will be required. The removal of these UPSS will often occur when the site is being redeveloped or sold.

#### **4.2.6 *Environmental management plans/Record keeping***

##### **4.2.6.1 Issue**

During a survey conducted by the Environment Division it was noted that owner/operators did not necessarily know whether unused tanks and/or groundwater monitoring wells were located on their site. The survey also highlighted that operators did not know what actions were required if there was a leak, what level of loss required investigation etc.

##### **4.2.6.2 Preferred option**

The preferred option is that records be kept so that they may be accessed by subsequent owners/operators of the site and during any audit of the site. Details of the records that must be kept and for what length of time are detailed in the Issues and Options Paper.

It is also considered important that documentation that sets out general procedures, such as actions to be taken if a spill or leak occurs, be readily available on site. It is proposed that the Director of Environmental Management will supply these but site specific procedures such as loss monitoring will need to be documented by the owner/operator and kept on site.

#### **4.2.7 *Person responsible***

##### **4.2.7.1 Issue**

Defining a person responsible in the proposed regulations will be useful for enforcing the regulations and for entities affected by the proposed regulations, as this will stipulate who needs to undertake the works/comply with the requirements.

##### **4.2.7.2 Preferred option**

The preferred option is that the landowner is the person responsible for all required actions. However, responsibilities (for loss monitoring etc) can be transferred to another party if agreed to by both parties in writing. This will simplify the regulations by identifying a single entity responsible for compliance, rather than attempting to decipher the relationships that may exist between the operator, fuel company, UPSS owner,

landowner etc. It will also protect the landowner, and their asset, by giving the owner control over who is responsible for compliance.

#### **4.2.8 Ensuring compliance**

##### **4.2.8.1 Issue**

To ensure that a level playing field exists between UPSS operators it is considered necessary to have a system in place to assess whether sites are complying with the regulations.

##### **4.2.8.2 Preferred option**

The preferred option is that annual reporting to the Director of Environmental Management be required for all sites containing an UPSS. It is proposed that the Director will require the fuel delivery companies to supply records of their clients with UPSS. This information would be compared to the list of sites for which a compliance form was submitted to ensure that all sites with UPSS are complying with the regulations. The main advantage of this option is that it allows the sites with volumes of product that are too small to require Dangerous Goods Keeper's Licences to be identified.

## **5 The Way Forward**

Stakeholder and public comment is now being sought on the form and content of the regulatory model. This input will help to establish a model that is protective of the environment and human health and can be practically implemented.

At the conclusion of the public comment period for this Issues and Options Paper all comments received will be considered and a final regulatory model defined. If regulations are to be made it is likely that a Regulatory Impact Statement (RIS), defining the costs and benefits of the proposed model, will be required. The RIS and draft regulations will then be released for public comment, prior to the regulations being finalised.

### **References**

- AIP-CP4 Australian Institute of Petroleum (AIP) 2002, *Code of Practice on the Design, Installation and Operation of Underground Petroleum Storage Systems*.
- AS1940 (2004) (incorporating Amendment No.1) *Australian Standard 1940 – The storage and handling of flammable and combustible liquids*.
- AS 4897 (2008) *Australian Standard 4897 – The design, installation and operation of underground petroleum storage systems*.
- National Health and Medical Research Council 2004, Australian Drinking Water Guidelines. <http://www.nhmrc.gov.au/publications/synopses/eh19syn.htm>

### **Acronyms**

- AIP – Australian Institute of Petroleum  
AS – Australian Standard  
CP – Code of Practice  
DPIW – Department of Primary Industries and Water  
DEPHA - Department of Environment, Parks, Heritage and the Arts *formerly* the Department of Tourism, Arts and the Environment (DTAE)  
EMPCA – *Environmental Management and Pollution Control Act 1994*  
RIS – Regulatory Impact Statement  
UPSS – Underground Petroleum Storage Systems  
WST – Workplace Standards Tasmania

**Table S1:**

**Summary of Preferred Options for a Regulatory Model for Managing the Environmental Impacts of Underground Petroleum Storage Systems**

The preferred option is to develop regulations under the *Environmental Management and Pollution Control Act 1994*. It is proposed that the regulations will require the following:

Issue	Requirement	Timing relative to regulations commencing
New sites and full or partial replacement of infrastructure  <i>Note: The whole UPSS* needs to be upgraded if a tank in a UPSS is replaced but no upgrade is necessary if only the lines are replaced.</i>	<ul style="list-style-type: none"> <li>• Non-corrodible tanks</li> <li>• Secondary containment for tanks</li> <li>• Non-corrodible product piping</li> <li>• Secondary containment for product piping</li> <li>• Leak monitoring for product piping</li> <li>• Fill point requirements (e.g. containment devices)</li> <li>• Leak monitoring (e.g. inventory control, groundwater monitoring wells etc)</li> <li>• Dispenser sumps</li> <li>• Overfill protection (e.g. mechanical or electrical device)</li> <li>• Tank pit observation wells</li> <li>• Earthing of UPSS.</li> </ul>	Immediate  <i>Note – there is no proposal to require replacement of existing sound infrastructure.</i>
Interstitial monitoring of double-walled tanks and/or piping	Six monthly monitoring.	Immediate
New, upgraded or repaired UPSS	Equipment integrity test conducted and passed prior to use.	Immediate
Loss monitoring	Must be able to detect a release of 0.76 litres/hour. SIRA is an option. The minimum requirements for special UPSS (e.g. heating oil tanks, used oil tanks and backup generator tanks) are specified in the Issues and Options Paper.	New UPSS – immediate Existing UPSS – within 6 months
Discrepancies or suspected fuel losses	Prompt investigation and action to fix leaks. Time limits will be set to ensure prompt action taken.	Immediate

\* 'whole UPSS' refers to one or more completely or partially buried tanks that contain or are intended to contain product or used oil, leak monitoring systems, cathodic protection and all product piping to, from or associated with the tanks and up to the inlet port of the dispensers.

NOTE : Further information is available in *A Proposed Regulatory Model for Managing the Environmental Impacts of Underground Petroleum Storage Systems – Issues and Options Paper* and the summary of this document.

<p>Groundwater monitoring wells (GMW)</p>	<p>GMW will need to be installed in the following situations:</p> <ol style="list-style-type: none"> <li>1. all sites containing UPSS within a set distance of drinking water, irrigation water and stock water extraction bores or surface water. As information relating to groundwater bore locations is obtained through bore installation licensing and database upgrades, more sites requiring GMW will be identified; and</li> <li>2. all UPSS sites where Groundwater Management Units* are defined by the Water Resources Division of the Department of Primary Industries and Water (DPIW).</li> </ol> <p>unless an exemption is applicable or applied for and accepted by the Director of Environmental Management.</p> <p>UPSS owners/operators will be notified by the Director via a letter if GMW need to be installed.</p> <p>Wells will need to be:</p> <ul style="list-style-type: none"> <li>• monitored six monthly for free product including opalescent sheen (this includes visual, odour, using meters etc – not analysis);</li> <li>• sampled and analysed for dissolved contamination within 30 days of new wells being installed or if the occupier/owner has reason to suspect a leak in a UPSS.</li> </ul>	<p>Where GMW are required, the timing is as follows:</p> <p>New UPSS –before UPSS operational.</p> <p>Existing UPSS - within two years of notification by the Director of Environmental Management.</p>
<p>Decommissioning</p>	<p>All tanks that are in use after the regulations commence and then become no longer required or suitable for holding petroleum products, must be removed by a skilled professional, except where it is unsafe to do so. The surrounding soil/groundwater must be assessed and if necessary remediated to the extent practicable and a validation report written. If tanks cannot be removed, they must be filled in accordance with AS1940 and the surrounding soil and groundwater assessed and remediated where necessary.</p> <p>If a person decides to remove/decommission UPSS that were not in use when the regulations commenced then the UPSS must be decommissioned/removed in accordance with the above requirements, including the need for a validation report.</p>	<p>Immediate</p> <p>No timing set - timing determined by the landowner/UPSS owner.</p>
<p>Record Keeping</p>	<p>UPSS operators must maintain records to do with site specific issues.</p>	<p>Immediate</p>
<p>Compliance reporting</p>	<p>Initially, annual reporting required. Fuel suppliers will be required to provide client lists and these will be compared to the annual reports. This will allow sites which do not have to have a Dangerous Goods Keeper's Licence to be identified.</p>	<p>New UPSS site – immediate</p> <p>Existing UPSS site – within 2 years</p>

\* Groundwater Management Units (GMUs) are based on geological boundaries, 'current' extensive use of the resource and potential future extensive use of the resource. The GMUs are areas where there is high demand for groundwater and the quality and quantity of groundwater is high.



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