Proposed Environmental Management and Pollution Control (Underground Storage Systems) Regulations 2009

and

Regulatory Impact Statement

August 2009
Proposed Environmental Management and Pollution Control (Underground Petroleum Storage Systems) Regulations 2009

and

Regulatory Impact Statement
PROPOSED ENVIRONMENTAL MANAGEMENT AND POLLUTION CONTROL
(UNDERGROUND PETROLEUM STORAGE SYSTEMS) REGULATIONS 2009 AND
REGULATORY IMPACT STATEMENT.

Environment Division
Department of Primary Industries, Parks, Water and Environment

GPO Box 1751
HOBART TAS 7001

August 2009


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Environment Division
Department of Primary Industries, Parks, Water and Environment
GPO Box 1751
HOBART, Tasmania 7001

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PART A

REGULATORY IMPACT STATEMENT

for the

ENVIRONMENTAL MANAGEMENT AND POLLUTION CONTROL (UNDERGROUND PETROLEUM STORAGE SYSTEMS) REGULATIONS 2009

August 2009
EXECUTIVE SUMMARY

Introduction
Leaking underground storage systems are recognised as a significant source of petroleum contamination in the environment. Petroleum in the environment can affect soil, surface water and groundwater resulting in toxic vapours in buildings, explosive risks, soil contact hazards and loss of water resources used for human consumption and ecosystem support. Although the Environmental Management and Pollution Control Act 1994 contains provisions which allow for the assessment, remediation and management of environmental harm there is currently no environmental legislation aimed at proactively preventing leaks. Therefore, regulations are proposed that will require the owners and operators of Underground Petroleum Storage Systems (UPSS) to upgrade existing equipment when it requires replacement, to monitor for leaks through analysis of product records and in some cases through installation of groundwater wells, and to decommission equipment appropriately.

The proposed regulations will be known as the Environmental Management and Pollution Control (Underground Petroleum Storage Systems) Regulations.

The purpose of this regulatory impact statement (RIS) is to:
- outline the content of the proposed regulations;
- outline the objectives of the proposed regulations;
- examine the costs and benefits of the proposed regulations;
- describe the likely impact of the proposed regulations on Industry, Government and the Community;
- note interstate experience with developing similar regulations and guidelines;
- consider alternatives to the proposed regulations;
- assess the impact of the proposed regulations on competition; and
- examine whether the regulations provide the greatest net benefit/least cost and are in the public interest.

The proposed regulations will not apply to above ground tanks, tanks located in basements, or to storage systems used for non liquid petroleum products. In the context of these regulations “petroleum” will include carbon based fuels derived from crude oil and from biomass as well as additives to these substances.

Background
An Issues and Options Paper was released for public comment in May 2008. This paper detailed the Environment Division’s preferred option of developing regulations to address the issue of leaking UPSS. Proposed regulations have been drafted taking into account the comments made on the Issues and Options Paper, and are being released for public comment in conjunction with this RIS. An outline of the regulations is given in Table ES1.
It is estimated that around 720 sites will be subject to these regulations; this includes service stations, industrial premises, commercial sites, farms, automotive retail/hire premises, shops and airports. The legislative instruments that currently impact on UPSS sites are not clear in relation to the management practices and infrastructure requirements that will reduce the risk of environmental harm as a result of leaking infrastructure. Currently, the Environment Protection Authority (EPA) is overseeing the cleanup or management of thirty sites where leaking UPSS have caused environmental harm.

Other Australian states have also been developing Environmental Management Systems for UPSS. In NSW, the Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulations 2008, commenced on 1 June 2008. The Victorian Environment Protection Authority has released Guidelines on the Design, Installation and Management Requirements for Underground Petroleum Storage Systems (UPSS). These provide guidance on how to satisfy an owner’s statutory duties under Clause 12 of the State Environment Protection Policy (Groundwaters of Victoria), which requires that all practicable measures be taken to prevent pollution of groundwater. The South Australian Department for Environment and Heritage has produced a draft Code of Practice.

Consultation
Stakeholder and broader public input has been sought during the development of the UPSS regulations. A Reference Group of stakeholders was established to provide advice on issues which have implications for stakeholders, to consider and provide input to early drafts of major Project documents, to inform key stakeholder groups of the Project’s process and related matters and to ensure, as far as possible, that the Project outputs are fit for purpose.

An Issues and Options Paper titled A Proposed Regulatory Model for Managing the Environmental Impacts of Underground Petroleum Storage Systems (UPSS) was released for public comment for five weeks in May 2008. Overall, respondents were supportive of the development of regulations, however, a number of issues were raised. A paper addressing these issues was prepared.

This RIS and the proposed regulations will be released for a five-week public comment period. A brochure will be sent to major stakeholders briefly summarising the requirements in the regulations and the conclusions of the RIS. In addition, a notice seeking comments will be placed in the State’s three daily newspapers. Copies of the RIS will also be distributed to the State, Parliamentary and departmental libraries.

All submissions will be considered and the proposed regulations will be reviewed, if necessary, to take into account the submissions. A summary of the submissions will be prepared and placed on the Department’s website along with the Division’s response to the submissions. A letter will be sent to everyone who made a submission, informing them of the location of the summary and response documents.
Cost and benefit analysis
An analysis was made of the proposed requirements that will be placed on owners and operators of UPSS and the costs and benefits of these requirements on industry, Government and the Community.

Costs to Industry
Calculations of the cost to Industry as a whole resulted in a lower and upper range estimate of $5.5-$7.3 million for the first five years that the regulations are in place.

Cost to Industry was calculated for the following requirements:
- installation of mandatory infrastructure for new and replaced storage systems;
- sampling and assessment following replacement of infrastructure;
- equipment integrity tests;
- loss monitoring and loss investigation;
- interstitial monitoring in double walled tanks;
- groundwater monitoring wells in specified groundwater protection zones;
- temporary and permanent UPSS decommissioning sampling;
- keeping records; and
- registering UPSS details.

Calculations excluded the percentage of owner/operators that would have installed/conducted the proposed requirements in any case due to the companies best practice protocols. The calculations are based on additional cost, for example the cost assigned to double walled piping is the cost over and above that of single walled piping.

For a single site, the baseline additional running costs in the first year due to the regulations are $750 to $1,350 where groundwater monitoring wells are not required, where infrastructure does not require repair or replacement due to a leak or a decision of the owner, and where decommissioning does not occur. The baseline costs reduce in subsequent years.

Benefits to Industry
The predicted benefits to Industry, over a five year period, are $19.1 million.

The benefits that the proposed regulations will supply to Industry are primarily based on the avoided costs. These include:
- cost of cleanup if a leak occurs;
- value of lost fuel when a leak occurs;
- cost of replacing a third party’s water supply if it becomes contaminated; and
- reduction in land value of a contaminated source site or neighbouring property.
Other significant benefits from the prevention and reduction of fuel being released into the environment that have not been quantified include:

- improved safety for workers both on and off site;
- a reduced risk to human health from soil and groundwater contamination;
- reduced risk of prosecution and legal action from third parties affected by contamination; and
- reduced risk of prosecution under EMPCA for causing environmental harm.

**Costs and benefits for Government**
The proposed regulations will initially result in increased costs for Government due to the need to educate industry with regard to the changes, the development and maintenance of a database, and the need to audit UPSS sites to ensure that all owners/operators are complying with the regulations (thus ensuring a level playing field). There is also likely to be an increase in contamination detected when the requirement for loss monitoring commences and thus more resources will be needed to ensure that the sites are investigated and remediated appropriately. However, in the long term the number of leaks and thus sites needing remediation should decrease along with the workload for government.

The main benefits to Government of the proposed regulations are:

- protection of groundwater and surface water assets;
- reduced risk of harm to the public and workers due to contamination moving offsite, especially into underground services, and vapours into buildings;
- ensuring land devaluation is minimised and limiting restrictions on the future use of land; and
- reduced risk of becoming responsible for contaminated sites where the polluter cannot be found or becomes bankrupt.

These costs and benefits have not been quantified.

**Costs and Benefits for the Community**
The proposed regulations could result in a marginal rise in fuel costs if Industry seeks to cover expenses associated with the implementation of the regulations. However, this is unlikely given that the baseline increase in costs per site, as described above, is only $750 - $1,350 in the first year.

The Community will benefit from the introduction of the proposed regulations through:

- protection of groundwater and surface water resources thus ensuring continued availability for domestic/productive uses and for ecosystem support;
- reducing the potential for land values to fall due to contamination from a nearby UPSS;
- transferring Government resources previously used for regulating environmental harm caused by leaking UPSS to other environmental or community issues;
• lowering of the risk to public health arising from contamination of soil and water resources; and
• reduced vapour danger to workers repairing other underground infrastructure.

These costs and benefits have not been quantified.

**Alternative regulatory options**
A number of options that would result in improvement of the environmental management and performance of UPSS in Tasmania were also considered. These options were assessed qualitatively and included:

• the “do nothing” option, which was assessed to provide comparison;
• developing “best practice” guidelines, as has occurred in other jurisdictions;
• the use of owner/operator insurance;
• amending Schedule 2 of the Environmental Management and Pollution Control Act 1994 to include sites containing UPSS (i.e. making them a Level 2 activity); and
• developing regulations.

**Greatest net benefit/least net cost of the alternatives**
After qualitatively reviewing the costs and benefits of the various policy instruments including those adopted by other Australian jurisdictions, it was determined that the instrument that best suits the Tasmanian situation and which will achieve the greatest net environmental benefit for the least net cost is regulations.

Advantages of the proposed regulations, compared to other options, are that regulations are:

• likely to be less expensive than insurance for the UPSS operator/owner as it is likely that site improvements (potentially the same as those required by the proposed regulations) will be required by the insurance company and insurance premiums would also have to be paid;
• likely to be less expensive than the option of including UPSS sites on Schedule 2 of EMPCA as the owner/operator would have to take all the actions required in the regulations as well as pay an annual fee for a permit/Environmental Protection Notice (EPN);
• more proactive than the insurance option and the do-nothing option;
• the only option that will capture UPSS which have storage capacities less than that required to be notified on the Register of Notifications under the new Dangerous Substances (Safe Handling) Regulations 2009; and
• more likely to produce a level playing field than the insurance or guidelines options.
**Table ES1**
**General Summary of Requirements in Proposed Environmental Management and Pollution Control (Underground Petroleum Storage Systems) Regulations 2009**

<table>
<thead>
<tr>
<th>Issue</th>
<th>Requirement</th>
<th>Timing relative to regulations commencing</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registration of Underground Petroleum Storage Systems (UPSS)</td>
<td>All UPSS must be registered with the EPA (systems operator, infrastructure owner and landowner must be defined along with UPSS details etc). Changes must be notified to the EPA so the register can be updated (eg change of systems operator, infrastructure replacement/changes, cessation of use).</td>
<td>New UPSS – immediate&lt;br&gt;Existing UPSS- Within 6 months</td>
<td>Year 1 = $200 then $100/year for each UPSS (in addition to costs that would have been paid prior to regulations commencing).</td>
</tr>
<tr>
<td>New infrastructure and when a tank is replaced due to a decision by the owner - the whole UPSS must be upgraded to mandatory equipment.</td>
<td>Mandatory Equipment:&lt;br&gt;Mandatory Equipment:&lt;br&gt;Non-corrodible tanks and piping&lt;br&gt;Secondary containment for tanks and piping&lt;br&gt;Leak monitoring for piping&lt;br&gt;Fill point equipment (e.g. containment devices)&lt;br&gt;Dispenser sumps&lt;br&gt;Overfill protection equipment&lt;br&gt;Tank pit observation wells&lt;br&gt;Equipment that earths the storage system.</td>
<td>Immediate&lt;br&gt;(Note – there is no requirement proposed to replace existing sound infrastructure).</td>
<td>$35,200 per UPSS (in addition to costs that would have been paid prior to regulations commencing).</td>
</tr>
<tr>
<td>New, upgraded or repaired UPSS</td>
<td>Equipment integrity test conducted and passed prior to use.</td>
<td>Immediate</td>
<td>$800/UPSS</td>
</tr>
<tr>
<td>Storage system, bowser, fill point or piping replaced</td>
<td>Assessment of groundwater and soil in vicinity of replaced UPSS, bowser, fill point and/or piping to determine if they have been contaminated with petroleum. Includes preparation of an assessment report.</td>
<td>Immediate</td>
<td>$10,000 per assessment</td>
</tr>
<tr>
<td>Loss monitoring</td>
<td>Small tanks less than 5,500L must use manual tank gauging or an alternative that is as similar as possible.</td>
<td>New UPSS – immediate</td>
<td>$300 per UPSS with</td>
</tr>
<tr>
<td>Component</td>
<td>Requirement</td>
<td>Timeframe</td>
<td>Cost</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>----------------------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>Double-walled tanks and/or piping</td>
<td>Six monthly interstitial monitoring.</td>
<td>Immediate</td>
<td>Nil</td>
</tr>
<tr>
<td>Loss investigation</td>
<td>Investigation must commence within 7 days of a loss being detected or suspected and be completed in 28 days. Director, Environment Protection Authority (EPA) must be notified.</td>
<td>Immediate</td>
<td>$5,100</td>
</tr>
<tr>
<td>Groundwater monitoring wells</td>
<td>Installed at all sites within Groundwater Protection Zones (GPZ). Initial groundwater protection zones to be defined 6 months after regulations commence and will cover areas: Within 5km of groundwater bores used to supply town drinking water or commercial water supply; Within 2.5km of surface water extraction points for town drinking water or commercial water supply; and Within 2.5km of a Ramsar wetland. Other GPZ may be defined by the Director in the future. Installation report must be prepared. Groundwater monitoring well water will have to be: Analysed when installed; Monitored every 6 months (this does not include analysis); Analysed when a loss of petroleum product is suspected. If site already has groundwater monitoring wells, these must be assessed to determine if they meet requirements in the regulations. Where a groundwater monitoring well is no longer being used it must continue to be maintained or decommissioned. Exemptions: storage systems &lt;5,500L and new storage systems on land where</td>
<td>New UPSS – before UPSS operational Existing UPSS – within two years of GPZ being defined.</td>
<td>$17,000 per site for installation (including analysis) On-going monitoring $120/site/year Decommissioning of well - $500 - $2,000</td>
</tr>
<tr>
<td><strong>Temporary Decommissioning of UPSS</strong></td>
<td>For a maximum of 12 months. After 12 months must be back in use or permanently decommissioned. Must follow guidelines. To return UPSS to service UPSS must pass an equipment integrity test and if UPSS is in a Groundwater Protection Zone, groundwater wells must be installed.</td>
<td>Immediate</td>
<td>Equipment integrity test – $800 per UPSS</td>
</tr>
<tr>
<td>---</td>
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</tr>
<tr>
<td><strong>Permanent Decommissioning of UPSS</strong></td>
<td>All tanks that are no longer required or suitable for holding petroleum products must be removed, except where it is unsafe to do so. Any contamination in the surrounding soil/groundwater must be assessed and an assessment report written. If tanks cannot be removed they must be filled in accordance with AS1940 and the surrounding soil and groundwater assessed.</td>
<td>Immediate</td>
<td>Assessment and report – $10,000</td>
</tr>
<tr>
<td><strong>Record Keeping</strong></td>
<td>UPSS operators must maintain records of site specific issues.</td>
<td>Immediate</td>
<td>$100/year</td>
</tr>
<tr>
<td><strong>Guidance documents</strong></td>
<td>The Director EPA will issue guidance documents on general issues (e.g. decommissioning etc).</td>
<td>Immediate</td>
<td></td>
</tr>
</tbody>
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<th>Description</th>
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</thead>
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<td>Board</td>
<td>Board of Environment Protection Authority (refer to sections 12-17 of EMPCA)</td>
</tr>
<tr>
<td>CSU</td>
<td>Contaminated Sites Unit (of Environment Division)</td>
</tr>
<tr>
<td>The Director</td>
<td>Director of the Environment Protection Authority (refer to section 18 of EMPCA)</td>
</tr>
<tr>
<td>DPIW</td>
<td>Department of Primary Industries and Water</td>
</tr>
<tr>
<td>DPIPWE</td>
<td>Department of Primary Industries, Parks, Water and Environment</td>
</tr>
<tr>
<td>EMPCA</td>
<td>Environmental Management and Pollution Control Act 1994</td>
</tr>
<tr>
<td>EPA</td>
<td>Environment Protection Authority</td>
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<tr>
<td>EPN</td>
<td>Environmental Protection Notice</td>
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<tr>
<td>GMW</td>
<td>Groundwater Monitoring Wells</td>
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<tr>
<td>GMZ</td>
<td>Groundwater Monitoring Zones</td>
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<tr>
<td>GPZ</td>
<td>Groundwater Protection Zones</td>
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<tr>
<td>ISO</td>
<td>International Standards Organisation</td>
</tr>
<tr>
<td>RIS</td>
<td>Regulatory Impact Statement</td>
</tr>
<tr>
<td>SIRA</td>
<td>Statistical Inventory Reconciliation Analysis</td>
</tr>
<tr>
<td>SLA</td>
<td>Subordinate Legislation Act 1992</td>
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<tr>
<td>UPSS</td>
<td>Underground Petroleum Storage Systems</td>
</tr>
<tr>
<td>WST</td>
<td>Workplace Standards Tasmania</td>
</tr>
</tbody>
</table>
2  PURPOSE

The purpose of this regulatory impact statement (RIS) is to explain the proposed Environmental Management and Pollution Control (Underground Petroleum Storage Systems) Regulations (referred to as the “proposed regulations”) and describe their likely impact on Industry, Government and the Community.

The Subordinate Legislation Act 1992 (SLA) requires a RIS to be prepared for all new subordinate legislation, such as regulations, that impose a significant cost, burden or disadvantage on any sector of the public. The RIS details the costs and benefits of the proposed subordinate legislation and alternative options so that the option which results in the greatest net benefit or least net cost to the community is identified.

The proposed regulations require the owners and operators of Underground Petroleum Storage Systems (UPSS) to put in place measures to prevent or limit, to the greatest possible extent, the release of petroleum products from the UPSS into the environment, thereby protecting soil and groundwater resources.

The Secretary of the Department of Treasury and Finance has advised that a RIS is required for the proposed regulations as they would impose a significant burden, cost or disadvantage on a sector of the public.

The RIS will form the basis of consultation with Industry, Government and the broader Tasmanian community on the costs and benefits of the proposed regulations and ultimately whether they can be justified to be in the public interest and return a net benefit to the State.

The Environment Division of the Department of Primary Industry, Parks, Water and Environment (DPIPWE) has prepared this RIS in order to:

- outline the content of the proposed regulations;
- outline the objectives of the proposed regulations;
- examine the costs and benefits of the proposed regulations;
- note interstate experience with developing similar regulations and guidelines;
- consider alternatives to the proposed regulations;
- assess the impact of the proposed regulations on competition; and
- examine whether the regulations provide the greatest net benefit/least cost and are in the public interest.
3 BACKGROUND

Leaking Underground Petroleum Storage Systems (UPSS) are recognised as a significant source of soil and groundwater contamination that can pose a significant risk to the environment and human health. The Environment Division of the Department of Primary Industry, Parks, Water and Environment (DPIPWE) has drafted regulations in an effort to prevent or limit, to the greatest extent practicable, the release of petroleum product into the environment. This proactive approach will help to protect current and future groundwater resources of Tasmania. It will also reduce costs to industry associated with the clean-up of land and water resources contaminated by leaked petroleum product.

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 especially 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 relatively simple measures (such as loss monitoring) had been undertaken.

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

An Issues and Options Paper was released in May 2008 defining the Environment Division’s preferred option of developing regulations to address the issue of leaking UPSS. Proposed regulations have been written and are being released for public comment in conjunction with this RIS.

The proposed regulations aim to address the environmental aspects of UPSS management and to complement the workplace occupational health and safety aspects of UPSS, which are regulated through the Dangerous Substances (Safe Handling) Act 2005 by Workplace Standards Tasmania (WST).

Other Australian states have been developing Environmental Management Systems for UPSS. In NSW regulations commenced in 2008, in Victoria Guidelines are in place and SA has produced a draft Code of Practice.
3.1 CURRENT SITUATION IN TASMANIA

Number of Sites with UPSS
In September 2008, approximately 520 sites in Tasmania had a Dangerous Goods Keeper’s Licence for petroleum products stored in underground tanks. These sites will now be on the Register of Notifications under the new Dangerous Substances (Safe Handling) Regulations. A Dangerous Goods Keeper’s Licence was only required where volumes stored were above certain limits (see Section 3.2 below for details of these limits). Approximately 320 of the 520 licensed sites are service stations. The other licensed sites include industrial premises, commercial sites, automotive retail and hire premises, schools, shops, airports etc. Most licensed sites have multiple UPSS. There are a total of 2,061 UPSS on the 520 sites.

There are a number of sites that have UPSS but were not required to have a Dangerous Goods Keeper’s Licence (and thus will not be included on the Register of Notifications), as the volume of petroleum product stored at these sites is below the volume where a licence was required. These are often sites where only one tank is present and could include mechanics, commercial buildings with heating oil tanks and refuelling facilities at private businesses and farms. It is estimated that there are 200 such sites in Tasmania.

It is assumed, for the purposes of this assessment, that there are 2,250 UPSS in Tasmania that will be affected by any proposed regulations.

Information has been gathered on particular uses of small volume UPSS to help to determine the impact of the proposed regulations. This included UPSS on farms, domestic heating oil tanks and used oil tanks as follows:

- At least 32 large farms have UPSS.
- Of the three heating oil delivery companies contacted two had no residential heating oil clients with underground tanks and the third had a couple with tanks of a capacity of less than 1000L. However, in the past a number of large houses had tanks (1,000-2,200L) for heating oil. There are also a small number of underground heating oil tanks on commercial properties that they deliver to, but this number is also decreasing.
- Five companies that collect used oil were contacted. The general consensus was that the storage of used oil in UPSS was rare, with four of the five companies either having no sites or a couple of sites on their books. However, the fifth company estimated that they collected used oil from UPSS at 32 premises (10-15% of their used oil clients). Eleven sites are recorded as having a Dangerous Goods Licence for used oil stored in an UPSS. Of these, eight are service stations. Of the fifteen sites included in the survey conducted by the Environment Division, three stored used oil in an UPSS. See Subsection “Infrastructure and Management Practices on Sites with UPSS” for details on the survey. In general, used oil was stored in an UPSS if there was one available on site but the survey respondents would not install a new UPSS for this purpose.

Current Environmental Harm Sites
The Contaminated Sites Unit (CSU) of the Environment Division deals with the regulation of sites where environmental harm is occurring or is likely to occur.
Currently, approximately 90% of the CSU’s workload is related to leaks from UPSS that have caused soil and/or groundwater contamination at levels where environmental harm or harm to human health has occurred or is likely to occur. This translates to around 30 sites and it is estimated by the CSU that five such harm sites are reported to the Director each year. There is also anecdotal evidence that the problem is larger than this with a number of sites with leaking tanks not being reported and a number of sites where losses from UPSS may be occurring but inadequate loss monitoring means that the leaks are not being detected.

Infrastructure and Management Practices on Sites with UPSS

A survey of 15 sites which have UPSS was conducted by the Environment Division from October 2006 to March 2007. The survey was conducted in order to gain an overview of current UPSS infrastructure and environmental management practices (e.g. loss monitoring, spill/leak responses etc) at a range of sites such as service stations, mechanics, industrial sites, farms etc. This information has been used to determine issues that need to be addressed by the proposed regulations and will also be used to estimate the financial impact that the proposed regulations will have on UPSS owners/operators.

Issues highlighted by the survey that were considered during the development of the proposed regulations include:

- the majority of tanks are greater than 20 years old and most are constructed of steel;
- inventory control does not always occur and in some cases merely consists of a basic assessment of inputs and outputs;
- there is a lack of any standardised level of discrepancy in petroleum product loss, as detected during inventory control, that triggers further investigation;
- there are sometimes lengthy delays between the detection of a fuel loss and the start of an investigation even if the UPSS operator had notified the UPSS owner of a discrepancy in the inventory control data. Some owners have either failed or been slow to respond following detection of a leak. In some instances this was because the onus of responsibility for the investigation, between owner and operator, was unclear;
- used oil was being stored in UPSS in available unused tanks - at two of the three sites that had an UPSS containing used oil, loss monitoring was not conducted; and
- basic measures to ensure product containment were only present at one site (e.g. cathodic protection and overfill prevention).

3.2 CURRENT LEGISLATIVE REQUIREMENTS AND GUIDANCE IN TASMANIA

This section outlines the current legislative instruments in Tasmania that either directly or indirectly address the issue of site contamination from leaking UPSS.
State Policy on Water Quality Management 1997

The purpose of Tasmania’s State Policy on Water Quality Management 1997 is “to achieve the sustainable management of Tasmania’s surface water and groundwater resources by protecting or enhancing their qualities while allowing for sustainable development in accordance with the objectives of Tasmania’s Resource Management and Planning System”. One of the objectives of the Policy is to “ensure that diffuse source and point source pollution does not prejudice the achievement of water quality objectives and that pollutants discharged to waterways are reduced as far as is reasonable and practical by the use of best practice environmental management”.

The Policy states in Section 24 that “The person who is responsible for an activity which has the potential to indirectly cause the contamination of groundwater must ensure that appropriate safeguards are taken to minimise the risk and the extent of such contamination”. This could be used in conjunction with Section 14 of the State Policies and Projects Act 1993 which states that “a person who contravenes or fails to comply with a provision of a State Policy or a requirement or an obligation imposed under a State Policy is guilty of an offence”.

Protected environmental values for groundwater (e.g. drinking water, irrigation) will be set under the Policy. The proposed regulations for UPSS will help to prevent contamination of groundwater and as such will enhance the protection of these environmental values.

The proposed regulations will be a proactive step towards detailing measures that will help UPSS owners/operators to comply with the State Policy.

Environmental Management and Pollution Control Act 1994 (EMPCA)

Section 23A (general environmental duty) of EMPCA requires a person to take practicable or reasonable steps to prevent or minimise environmental harm or environmental nuisance caused, or likely to be caused, by an activity conducted by that person. However, failure to comply does not itself constitute an offence or give rise to a civil right or remedy, but if a person has failed to comply with Section 23A, a notice requiring works may be issued to that person. The proposed regulations will help the UPSS owner/operator fulfil their environmental duty.

EMPCA also contains provisions in Part 5A that relate to contaminated sites. This Part requires that a person who knows or reasonably believes that their site is a contaminated site report this to the Director. The establishment of Notices under this section enable the Director to investigate potentially contaminated sites and to require remediation and site management of contaminated sites. Notices may be served on polluters and also on an owner who did not cause the pollution, where they should have suspected a site was contaminated due to its past or current uses.

1 State Policy on Water Quality Management 1997 p.10
The Dangerous Substances (Safe Handling) Act 2005 and Dangerous Substances (Safe Handling) Regulations 2009 commenced on 1 July 2009 and are administered by Workplace Standards Tasmania (WST). This new legislation is based on two national standards, the National Standard for the Storage and Handling of Dangerous Goods and the National Standard for the Control of Major Hazard Facilities.

Under the Dangerous Substances (Safe Handling) Act, a site that had a Dangerous Goods Keeper’s Licence and/or was a licensed depot under the Dangerous Goods (General) Regulations 1998 will no longer require these licences but will be captured as ‘large dangerous substances locations’ that are required to notify the Secretary and will be included in the Register of Notifications under the new Dangerous Substances (Safe Handling) Regulations. Therefore, sites that store the following volumes of Class 3 Flammable Goods will be included on the Register of Notifications:

- more than 10,000L of manufactured product is stored in shops, factories, warehouses, service stations, construction sites or on open land provided that storage is in closed packages;
- more than 20,000L of aggregate quantities of flammable liquids and diesel fuel are stored outdoors on open land either above ground or in underground tanks being tanks that –
  (a) have not less than half their capacity below the surface of the ground; and
  (b) are completely covered with not less than 600mm of earth or approved material.
- more than 1,000L of aggregate quantities of flammable liquids (including manufactured products) and diesel fuel, for all other premises.

In general, open land refers to agricultural type properties of greater than 2 hectares. A full definition is available in Section 2.2.5 of the Australian Standard for the Storage and Handling of Flammable and Combustible Liquids, 2004 (AS1940).

It is proposed that a consistent approach for dealing with overlaps between dangerous goods and environmental requirements for UPSS will be adopted. For example, guidelines describing the requirements for decommissioning UPSS will contain the requirements for both dangerous goods and environmental regulations. To ensure this occurs, Workplace Standards Tasmania is represented on a Stakeholder Reference Group that has been formed during the development of the UPSS regulations.

Environment Division Guidance
The Environment Division has produced a number of information bulletins and a pamphlet to help facilitate an improvement in the environmental management and decommissioning of UPSS. These include:

- a pamphlet titled Underground Storage Tanks – Prevent Spills and Leaks, Protect Your Asset (developed in 2000 and updated in 2004) which was sent to:
  - all licensed sites with UPSS by WST;
  - all Councils;
  - environmental consultants;
o environmental groups; and
o industry associations;

- Information Bulletin No 101 – Notification Obligations for Site Contamination due to Petroleum Hydrocarbons;
- Information Bulletin No 105 – Classification and Management of Contaminated Soil for Disposal - also applicable for the classification of other solid waste material (such as triple-interceptor trap waste) on an “as needs basis”;

The Information Bulletins are available on the Environment Division’s website www.environment.tas.gov.au by following the Land Contamination, then Information Bulletins links.

However, the number of sites reported to the Director (i.e. sites where environmental harm is occurring due to a leaking UPSS) has not reduced. The survey, conducted by the Environment Division as part of this project, also highlighted that the operators of UPSS were generally unaware that these documents existed.

3.3 MANAGEMENT SYSTEMS IN OTHER JURISDICTIONS

Victorian Environment Protection Agency Guidelines
In February 2003, the Victorian Environment Protection Authority issued Guidelines on the Design, Installation and Management Requirements for Underground Petroleum Storage Systems (UPSS). The guidelines state that “To comply with their statutory duties, owners/operators of UPSS are expected to either implement the measures set out in this document (the guidelines) or be able to demonstrate that any alternative approach achieves an equivalent or higher level of performance in relation to protection of people, property and the environment”. The statutory duties include Clause 12 of the State Environment Protection Policy (Groundwaters of Victoria) which requires that all practicable measures be taken to prevent pollution of groundwater.

NSW Regulations
The NSW Department of Environment and Climate Change’s Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulations 2008 commenced on 1 June 2008. The proposed Tasmanian regulations are similar to the NSW regulations but have been developed to suit Tasmanian business and natural environmental conditions. For example, the requirement to install groundwater monitoring wells will initially be restricted to protecting town and commercial drinking water sources and internationally listed wetlands.

Brisbane City Council
Brisbane City Council currently applies environmental conditions to both new and existing UPSS between 10,000-500,000L. The conditions primarily relate to the installation of appropriate leak prevention and leak detection equipment and the requirement that a management system is implemented to address operating, maintenance and emergency procedures.
South Australian Department for Environment and Heritage
The South Australian Department for Environment and Heritage is proposing to develop a Code of Practice for the management of UPSS.

Western Australian Department of Water
The Department of Water in Western Australia is responsible for managing the state’s water resources. In July 2008, they released a Water Quality Protection Note on Tanks for underground chemical storage which provides a general guide on issues of environmental concern, and offers potential solutions to the risk UPSS pose to water resources, including exclusion zones.

3.4 NATIONAL GUIDANCE

The proposed regulations have considered, and in some instances refer to, the following national standards.

Australian Standard 4897 (AS4897)

AS4897 sets out requirements for the design and installation of underground petroleum storage systems and provides requirements for the operation, maintenance, testing, repair and re-use of new and existing UPSS. This standard also sets out inventory control and loss investigation procedures that are appropriate for UPSS.

Australian Standard 4976 (AS4976)
AS 4976 is the Australian Standard for the Removal and Disposal of Underground Petroleum Storage Tanks and was also released in 2008. This standard replaces the Australian Institute of Petroleum’s Code of Practice of the same name (AIP CP22). AS4976 sets out procedures for the temporary decommissioning of tanks in situ and the removal, transport and off-site disposal of underground tanks. It also describes procedures for the abandonment of tanks in situ where removal is not feasible.

Australian Standard 1940 (AS1940)
The Australian Standard for the Storage and Handling of Flammable and Combustible Liquids (AS1940) includes requirements and recommendations for the safe storage and handling of flammable liquids that are dangerous goods Class 3 (e.g. hydrocarbons). This document details the method of installation for underground tanks (where it refers to AIP-CP4 along with other measures), inspection and maintenance requirements and the management of disused tanks.
4 CONSULTATION

4.1 PRIOR CONSULTATION

The following public consultation and communication methods have been used during the development of the UPSS regulations.

1. A Reference Group of stakeholders was established with members from Industry (including industry bodies such as the Tasmanian Automobile Chamber of Commerce and the Australian Institute of Petroleum), state and local government, environmental groups and environmental consultants with interests and/or significant experience in UPSS issues. Its role has been to:
   - provide advice on issues which have implications for stakeholders;
   - consider and provide input to early drafts of major Project documents;
   - inform key stakeholder groups of the Project’s process and related matters; and
   - ensure, as far as possible, that the Project outputs are fit for purpose.

Prior to the release of this RIS and the proposed regulations the Reference Group reviewed:
   - the dollar values and assumptions that were to be used in the RIS to calculate the costs/benefits of the regulations; and
   - a draft of the regulations.

Their comments have been reviewed and where appropriate incorporated into the RIS and proposed regulations released for public comment.


This Paper contained:
   - information supporting the need for regulatory change;
   - the objectives of the regulatory model;
   - the manner in which UPSS are managed in Tasmania (including results from a survey of sites that contain UPSS);
   - an overview of interstate and national management systems; and
   - a comparison of regulatory models that could be used.

The paper concluded that the Environment Division’s preferred option is the making of regulations under EMPCA. The paper then went on to detail the requirements that would be included in the proposed regulations including the issues, options and preferred option for each requirement.

Fourteen submissions were received from the following groups:
   - petroleum industry – two submissions;
• consultants – four submissions;
• industry body – one submission;
• local government (councils) – three submissions;
• state government agencies – four submissions.

Overall, the majority of respondents were supportive of the development of regulations. However, a number of issues were raised including:

• the need for adequate enforcement of the regulations;
• the need for up-to-date databases containing information on the location of UPSS and groundwater extraction wells prior to the regulations commencing;
• the meaning of what constitutes a “competent and experienced person” should be clearly defined in the regulations;
• equipment integrity tests on a new or repaired UPSS should occur at both pre and post burial – not just post burial as proposed in the paper;
• loss monitoring commencing within six months of the regulations being made was considered impracticable with 12 months being proposed as more reasonable and in accordance with the NSW regulations;
• six monthly interstitial monitoring was unnecessary and costly;
• that 15 days to complete a loss investigation process was not practicable;
• that the proposal requiring the installation of groundwater monitoring wells at sites with UPSS in the vicinity of surface waters, and groundwater extraction wells needs to be reviewed;
• there was the potential for inequities to occur depending on whether an UPSS was decommissioned prior to or after the regulations commenced (with regard to assessing the soil and groundwater surrounding the UPSS for contamination);
• the requirements to install double walled tanks and lines and conduct decommissioning sampling were considered onerous and placing the responsibility on the landowner to ensure these works occurred could result in problems where existing lease agreements could not be amended to transfer this onus to the operator of the site;
• the changes will require onerous on-site record-keeping;
• definition of “responsible person” as the landowner needs review as it may disadvantage innocent parties; and
• that councils will require guidelines that outline how to manage applications for new UPSS, decommissioning requests, data sharing and other matters.

A response paper to these issues was then prepared and placed on the Environment Division’s website: (http://www.environment.tas.gov.au/index.aspx?base=2663).

4.2 PROPOSED RIS CONSULTATION PLAN

This RIS and the proposed regulations will be released for a five-week public comment period. An electronic copy of these documents will be placed on the Environment Division’s website. Hard copies will be provided to all those that request one. A brochure will be sent to major stakeholders. The brochure contains information on how to make comment on the RIS and proposed regulations, provides details on how
to obtain copies and briefly summarises the requirements in the regulations and the conclusions of the RIS.

Stakeholders include:

- Tasmanian Automobile Chamber of Commerce;
- Australian Institute of Petroleum;
- UPSS owners / operators
- Local Government Association of Tasmania;
- Local Councils
- Tasmanian Chamber of Commerce and Industry;
- Tasmanian Conservation Trust;
- Heads of Government Agencies; and
- Environmental Defenders Office.

In addition, a notice seeking comments and providing the web address for the RIS and proposed regulations will be placed in the State’s three daily newspapers. Copies of the RIS will also be distributed to the State, Parliamentary and departmental libraries. Please refer to front of this document for the public consultation period, closing date for submissions and contact details for further information regarding the proposed regulations discussed in this RIS.

All submissions will be considered and the proposed regulations will be reviewed, if necessary, to take into account the submissions. A summary of the submissions will be prepared and placed on the Department’s website along with the Division’s response to the submissions. A letter will be sent to everyone who made a submission, informing them of the location of the summary and response documents.
5 STATEMENT OF OBJECTIVES

The objectives of EMPCA are outlined in Schedule 1 of the Act. Relevant to these regulations are objectives (c) and (e) which state the aims of reducing or eliminating the release of pollutants into the environment and require the persons engaged in polluting activities to make progressive environmental improvements.

The proposed regulations are aimed at the prevention and early identification of leaks from UPSS and thus seek to reduce the potential adverse impacts that leaking petroleum products can have on the environment, human health, and land and water resources in Tasmania. This can be achieved by the development and implementation of regulations that prescribe pollution prevention and operational management requirements for the operators and owners of UPSS.

5.1 OBJECTIVES OF PROPOSED REGULATORY MODEL

During the initial stages of this project a range of regulatory models, to manage the environmental impacts of leaking UPSS were evaluated against 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 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 to be included in the Register of Notifications under the new Dangerous Substances (Safe Handling) Regulations (or previously had a Dangerous Goods Keeper’s Licence issued by Workplace Standards Tasmania);
- to allow penalties for non-compliance to apply; and
- to ensure that leaks are investigated and environmental harm is reported.

The regulatory model selected will not apply to:

(a) a storage system whose tanks are situated wholly above ground, together with any associated pipes, valves and other equipment (whether situated above or below ground);

(b) a sump, separator, stormwater or wastewater collection system, catchment basin, pit, septic tank or other like structure (unless petroleum routinely passes through the structure from one part of a storage system to another);

(c) a bunded tank situated below ground level but not in the ground (such as in a basement, cellar or tunnel); or
(d) a storage system which contains a petroleum product which is not a liquid at standard conditions of temperature and pressure (e.g. a liquefied petroleum gas storage system).

5.2 WHY REGULATORY CHANGE IS NEEDED

More effective regulation is needed to prevent or limit, to the greatest extent practicable, the release of petroleum product into the environment. The extent of the problem of leaking UPSS is reflected in the workload of the Contaminated Sites Unit of the Environment Division; approximately 90% of which is related to leaks from UPSS. It has been the experience of the Contaminated Sites Unit that leaks of petroleum product can result in extensive contamination and expensive remediation if groundwater is impacted. By introducing a system to monitor for leaks and setting a minimum standard for new infrastructure, releases of petroleum products should be prevented or limited. This should minimise the risk posed to human health and/or the environment by exposure to petroleum products, or their residues.

Upgrading a site to incorporate best practice infrastructure and management practices may result in other advantages in addition to preventing/lowing remediation costs for UPSS operators/owners. For example, the Australian Convenience Store News (May/June 2007) contains a quote from Dale Timms (Manager, Envirotank) that double walled tanks “…can also make a big difference to your ability to raise finance. At least two major banks will treat entire UPSS with double wall tanks and lines as assets, but class single walled systems as financial liabilities”.

The Need to Protect Human Health
A number of the chemicals in petroleum are toxic to humans. People can be exposed to the chemicals via vapours from the petroleum in air or via ingestion or contact with contaminated water (including groundwater) or soil.

Fuel leaked from UPSS into the ground can result in vapours rising through the soil and entering buildings above the contamination. Basements can especially be affected. Impacts on human health from vapours can result from short or long term exposures. For example, short-term exposures of humans to toluene can cause respiratory irritation and central nervous system depressant effects (Air Toxic NEPM – Toluene Health Review May 2003) and chronic human health effects such as bone marrow depression and leukaemia can result from long term exposure to benzene (Air Toxic NEPM – Benzene Health Review May 2003).

The Need to Protect Groundwater Quality
Petroleum product that leaks into a groundwater system has the potential to contaminate large volumes of groundwater. Remediation is often very expensive, technically difficult and time consuming. Domestic and agricultural users are increasingly relying upon groundwater resources in Tasmania. The need to protect groundwater from contamination is therefore emerging as an important issue. For example, in 2005
approximately three hundred groundwater bores were drilled in Tasmania to supplement surface water usage following the increasing restrictions placed upon the use of surface water.\(^2\) In addition, a number of town water supplies in Tasmania are currently sourced from groundwater and if drought conditions continue to occur, there may be further need to use the groundwater resource for human consumption.

Even small amounts of fuel added to a groundwater resource can make it 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).

An overview of groundwater in Tasmania on the DPIWWE website\(^3\) states:

“Tasmania’s groundwater resources are tapped by more than 8,000 bores and wells, supplying water for irrigation, town water, domestic use, stock watering, mining and other commercial purposes. While the majority of these are in use, there are also some which have been abandoned.

The best available information suggests that the sustainable groundwater yield across the whole State is of the order of 500 to 2,530 GL (0.5 to 2.53 million litres). Averaged across the State, less than 5% of the sustainable yield is estimated to be currently in use. Therefore, Tasmania’s groundwater resources are generally under-utilised. However, there are a number of local hotspots around the State, where the density of bores and the demand for groundwater are relatively high, and pressures on the resource are occurring.”

Additional risks to both the environment and human health posed by petroleum contaminated groundwater include:

- the build up of vapours in buildings (both onsite and offsite from the UPSS) from the contaminated groundwater moving through the soil. This is of particular concern where the neighbouring properties have a residential use;
- contamination of surface waters (rivers, lakes etc) due to the inflow of contaminated groundwater. Contaminated surface waters have the potential to impact aquatic ecosystems and all those dependent upon it. In 2001, The State of Knowledge Report: Air Toxics and Indoor Air Quality in Australia stated that “Benzene has a high acute toxic effect on aquatic life. Long term effects on marine life can mean shortened lifespan, reproductive problems, lower fertility and changes in appearance or behaviour”;
- damage to ecosystems that exist in, or depend upon, the groundwater; and
- an explosion risk where volatile hydrocarbon vapours build up in underground areas such as utility pits, stormwater pipes etc.

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\(^2\) pers. com. J. Deakin, Senior Water Management Officer, Water Resource Division, DPIW 2006

In summary, a protective strategy for current and future uses of groundwater and surface water resources, based on preventing groundwater contamination, is intended to be a major outcome of the proposed regulations.

Deterioration of Existing UPSS
Historically, underground tanks have been of single-walled steel construction with steel pipes connecting the tanks to fill points and bowsers. While some of these tanks would have had protective coverings such as paint or bitumen to prevent corrosion when they were installed, this covering is often damaged and cannot be maintained when the tank is in the ground (Lindon, 1993). This can lead to the deterioration of the tank and/or piping and petroleum product can be lost. Even more modern tanks, such as those constructed of fibreglass, have the potential to leak from holes in the tanks or from joins, often as a result of poor installation.

It was estimated in 1993 that 20% of operating service stations in Western Australia had leaking underground storage tanks (Lindon, 1993). A survey of a range of Tasmanian UPSS operators, conducted as part of this project, showed that the majority of tanks are greater than 20 years old and most of the tanks are constructed of steel. Steel tanks are likely to corrode and leak over time so it is reasonable to assume that Tasmania would have a similar proportion of leaking tanks as Western Australia. It is also probable that these aging tanks and piping will continue to deteriorate and start to leak, or leak more profusely. Therefore, it is likely that the amount of contamination due to leaking UPSS will increase over time and a proactive approach to address these leaks and to prevent leaks from occurring is required.

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).

Case studies of two Tasmanian sites contaminated by leaked petroleum product, which are being regulated by the Environment Division’s Contaminated Sites Unit, and approximate remediation costs are given below.

The first site has operated as a service station for over 50 years and has had a number of incidents where fuel was released, including leaking tanks and line failures. The contamination has spread in groundwater to cover an area of approximately 80m by 50m. Works that have been conducted to delineate and to assess the impact of the contamination include:

- the installation of over fifty monitoring wells;
- the completion of a health risk assessment to determine if the contamination poses a risk to the surrounding sensitive receptors;
- the removal of a significant quantity of contaminated soil;
- the replacement of all UPSS; and
the installation of a groundwater remediation system that pumps out and treats the contaminated groundwater - this system will run for a minimum of 2 years.

It is estimated that the cost of assessing and remediating the contamination on this site will cost in excess of $1.2 million, with the groundwater remediation system alone costing more than $500,000.

The second site also operated as a service station for 50 years, but unlike the previous example had no significant infrastructure failure during that time. However, when the site was decommissioned in order to make way for a residential development, contamination, likely to have resulted from small spills associated with the service station activities, was identified in soil and groundwater. Although the level of contamination was relatively minor and localised, the site was located in an area that is sensitive to pollution. It was subsequently discovered that groundwater with an opalescent sheen was discharging into the basement of an adjacent residential property raising concerns that vapours from contaminants could result in unacceptable risks to residents both on and off the service station site. Despite the relatively minor level of contamination, significant effort was invested in managing the impact of this contamination including:

- the installation of over twenty groundwater monitoring wells;
- the installation of four soil vapour monitoring bores;
- installation of additional ventilation in basements of adjoining residential properties;
- the completion of two health risk assessments (on and offsite) to determine if the contamination posed a risk to the surrounding residential occupants and future site users;
- the removal of some contaminated soil from the site;
- the ongoing monitoring of air quality at on and off-site locations; and
- restrictions being placed on future site developments.

It is estimated that the cost of assessing and managing the contamination on this site to date is approximately $500,000 and it is estimated that costs at completion of remediation will total $750,000. In addition, a loss in opportunity has been caused by building restrictions being placed on the site and access to groundwater being restricted due to residual contamination.

A Regulatory Impact Statement (RIS) prepared for the 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”4. This cost was revised based on comments received on the RIS and was increased to $400,000 per leaking tank.5

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6 PROPOSED REGULATORY PROVISIONS AND ASSESSMENT OF COSTS AND BENEFITS

A number of options as to the type of regulatory model, that could be used to improve the environmental management and performance of UPSS in Tasmania, were considered when this project commenced. These options include the following:

- the "do nothing" option, whereby the environmental management of UPSS remains unchanged was included for comparison;
- 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.

These options were discussed in detail in the Issues and Options Paper, which concluded that regulations are the preferred option. Each option is summarised in Section 6.2 below and assessed as to its ability to achieve the objectives outlined in Section 5.1. The cost and benefits of each option to Industry, the Community and Government relative to the costs and benefits of implementing regulations is also discussed in Section 6.2.

6.1 IMPACTS OF PROPOSED REGULATIONS

The Division's preferred option of developing regulations under EMPCA, will allow all the objectives listed in Section 5.1 to be met. The primary advantage of regulations over the alternative options is that regulations will establish enforceable minimum standards.

The proposed regulations prescribe pollution prevention requirements for owners/operators of UPSS in Tasmania and are supplied with this document. It is anticipated that the regulations will commence in December 2009.

This Section of the RIS outlines the proposed requirements that will be placed on owners and operators of UPSS to minimise the risk of soil and groundwater contamination and the costs and benefits of these requirements on Industry, the Government and the Community. Information as to how the costs and benefits were calculated, including assumptions that were made, are also provided.

Cost/Benefit Analysis Assumptions
The dollar values allocated to the costs and benefits have come from a range of sources including members of the Reference Group, industry contacts and the NSW RIS. The values and assumptions used have been reviewed by the Reference Group.
It is estimated that there are 720 premises (including service stations) with underground petroleum storage systems (UPSS) in Tasmania. This number was derived from Workplace Standards Tasmania’s dangerous goods licensing data as well as from other information held by the Environment Division. Based on this information it is estimated that the 720 sites contain 2,250 UPSS.

The number of UPSS that leak per year was set at 2% (45 UPSS). This figure was derived by reviewing the number of reported leaking UPSS per year in Tasmania (on average five) and applying international estimates that between 20 and 30% of UPSS are leaking at any time. The figure of 2% was also used in the NSW RIS. The number of sites reported as leaking under the proposed regulations will likely rise in the first instance due to increased identification when loss monitoring commences.

The calculations of costs and benefits have taken into account that a number of infrastructure owners would have chosen to install equipment that is required in the regulations even if the regulations did not exist. The Adoption Rates Table in Appendix A specifies the percentage of UPSS operators/infrastructure owners that would have undertaken the requirements in the regulations voluntarily without the regulations being made and the corresponding percentage of infrastructure owners that would not have undertaken the requirements voluntarily. This recognises that a number of operators are choosing to install equipment that exceeds the current minimum standards. The percentages were estimated using the results of a survey of sites with UPSS (see Section 3.1) and discussions with tank installers and petroleum companies.

Appendix B contains a qualitative summary of the costs and benefits to Industry, Government and the Community.

Costs and Benefits for Industry
One of the main objectives behind the proposed regulations is to encourage business to more pro-actively manage the environmental risks associated with their use of UPSS. The following section outlines the direct and indirect costs and benefits to Industry of the proposed regulations.

It should be noted that it is possible to apply for an exemption from any of the regulations. For example, an exemption from the requirements to install groundwater monitoring wells 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; or
2. where the entire UPSS infrastructure has been upgraded to mandatory equipment 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 the EPA will accept or reject the application for an exemption.
If a more cost effective method is found which can achieve the same or enhanced environmental outcomes compared to the regulations, then an exemption can also be applied for.

**Costs to Industry**
The following section describes the cost to Industry for each requirement in the regulations, in the same order as the requirements appear in the regulations. The figures used to calculate the costs to Industry are amounts in addition to current costs. For example, the cost assigned to double walled piping is the amount over and above the cost for installing single walled piping. This section also describes the assumptions that were made to determine the overall costs of the regulations. In general, where a range of prices have been supplied for a particular requirement, the higher costs have been used in the calculations. Appendix C contains the input and output data for the cost benefit analysis.

**Mandatory equipment for new and replaced storage systems**
The proposed regulations will require the infrastructure owner to install mandatory equipment when a new UPSS is installed or an UPSS is replaced. It should be noted that if a tank is to be replaced the whole UPSS must be replaced. The prices used to calculate the cost of installing a new storage system with mandatory equipment are detailed in the table below. Prices are in 2009 values.

<table>
<thead>
<tr>
<th>Costs (additional to usual standard)</th>
<th>$</th>
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</thead>
<tbody>
<tr>
<td>Non-corrodable double walled tank</td>
<td>20,000</td>
</tr>
<tr>
<td>Non-corrodable double walled piping for 1 UPSS</td>
<td>3,000</td>
</tr>
<tr>
<td>Fill point containment for 1 location</td>
<td>5,000</td>
</tr>
<tr>
<td>Dispenser sump</td>
<td>5,000</td>
</tr>
<tr>
<td>Overfill protection equipment</td>
<td>1,500</td>
</tr>
<tr>
<td>Tank pit observation wells</td>
<td>700</td>
</tr>
</tbody>
</table>

The cost assigned to double walled tanks and piping are the amounts over and above the cost for installing single walled infrastructure. The remaining items are costed in full as these are currently not installed in a “standard” UPSS. The figures were obtained from a number of leading installers and cross-checked with the figures used in the NSW RIS.

Requirements in the Dangerous Substances (Safe Handling) Act may result in more of this equipment being installed. For example, Section 24 of the Act states that the designer, manufacturer, importer and installer of a handling system for Dangerous Goods needs to ensure that the system is designed/constructed/installed in such a way that the risk to the environment from its proper use is at an acceptable level.

The number of UPSS installed per year (12), which included new and replaced systems, was supplied by a leading tank installer in Tasmania.
The upper and lower range of costs for this requirement (using the Adoption Rates Table in Appendix A) are $164,640 and $247,320 per year.

It should be noted that, initially, it was proposed that if only piping were replaced then the new piping must be double-walled. However, based on Industry feedback this was determined to be too onerous, as the tank itself needs to be significantly modified to allow this to occur.

**Sampling and Assessment when an UPSS, Bowser, Fill Point or Piping is Replaced**

If a storage system, bowser, fill point or piping is replaced, the proposed regulations require that the groundwater and soil in the vicinity of the removed component is assessed for contamination and an assessment report, detailing the results of the assessment produced. The cost to undertake this sampling, analyses and to write an assessment report has been estimated at $10,000 and the number replaced per year is estimated at twelve UPSS and six for bowsers, fill points and piping. Adjustment of this calculation to include the Adoption Rates specified in Appendix A results in a range of costs of $162,000 - $180,000 per year, Industry wide, for this regulatory requirement.

**Equipment Integrity Test**

The proposed regulations require an equipment integrity test to be carried out on:

- any new, replaced, or recommissioned UPSS;
- piping that has been replaced or repaired; or
- a tank that has been repaired;

To demonstrate that the system does not leak.

A cost of $800 per integrity test has been used in these calculations. The number of tests that will occur per year has been set at twelve integrity tests for new/replaced UPSS and repaired tanks, and twelve integrity tests for replaced/repaired piping. A cost for testing recommissioned UPSS has not been included as the number of UPSS being recommissioned per year is likely to be minimal.

The cost of this requirement to Industry, when adjusted for Adoption Rates is estimated at between $3,840 and $7,680 per year.

**Loss Monitoring**

Loss monitoring to detect leaks from UPSS is a key requirement of the proposed regulations. Loss monitoring should identify leaks earlier and prevent large fuel losses. The cost for loss monitoring of $300 per UPSS per year is based on a cost of $25 per month per grade of fuel for Statistical Inventory Reconciliation Analysis (SIRA), which is the most common form of loss monitoring. It is assumed that all UPSS on a site contain different fuels, which will be an overestimate. There can also be an initial setup cost of $150.

For existing UPSS this requirement will be phased in during the 12 months after the regulations commence. This is to give UPSS owners/operators enough time to investigate and commission an appropriate loss monitoring system for their site.
The cost of ongoing loss monitoring requirements to Industry are calculated as being between $270,000 and $405,000 per year although set up costs in the first year of use will result in costs between $313,200 and $469,800.

Loss monitoring as required in the regulations (i.e. a procedure that is capable of detecting a loss of petroleum of 0.76 litres per hour), is considered inappropriate for small storage systems. Small storage systems are defined as an UPSS that has a capacity of less than 5,500 litres and which is the only storage system on a site. Small storage systems may be checked for fuel loss by either:

- manual tank gauging (where the level of fuel in the tank is measured over 36 hours without fuel being added) or
- any other comparable method as accurate as manual tank gauging.

The cost of ongoing loss monitoring requirements to Industry are calculated as being between $270,000 and $405,000 per year although set up costs in the first year of use will result in costs between $313,200 and $469,800.

Loss monitoring as required in the regulations (i.e. a procedure that is capable of detecting a loss of petroleum of 0.76 litres per hour), is considered inappropriate for small storage systems. Small storage systems are defined as an UPSS that has a capacity of less than 5,500 litres and which is the only storage system on a site. Small storage systems may be checked for fuel loss by either:

- manual tank gauging (where the level of fuel in the tank is measured over 36 hours without fuel being added) or
- any other comparable method as accurate as manual tank gauging.

The costs associated with manual tank gauging have not been included in this cost analysis as they are considered minimal and would be conducted by the site operator.

**Interstitial Monitoring**

The proposed regulations require that the space between the two walls of a double-walled tank be monitored twice a year, to determine whether both walls are sound. A cost has not been included for this requirement as Industry information suggests that most double-walled tanks have an inspection point accessible to a site operator. Costs may be much higher however if instruments such as automatic tank gauging sensors are fitted.

**Loss investigation**

A loss investigation must be conducted if:

- a loss from an UPSS is suspected;
- the level of water at the bottom of a tank has increased; or
- a wall in a double-walled tank is found not to be sound.

The cost for this requirement used in this analysis is based on the investigations required if SIRA returns a “fail”. The cost is estimated by multiplying the number of leaking UPSS (45) by the cost of investigating that failure ($5,100 per UPSS, which includes $1,100 for sampling and analysing groundwater monitoring wells). The Adoption Rates specified in Appendix A for sites that currently have loss monitoring processes in place (and therefore would presumably already conduct loss investigation when necessary) have been applied. This results in a cost to Industry of $91,800-$137,700 per year.

**Loss confirmation**

The Director of the EPA must be notified if a leak is confirmed. EMPCA currently empowers the Director to require an investigation of the extent of contamination and the need for remediation to be carried out. These assessment costs are not included in this analysis as they would be charged independently of the proposed regulations.
**Groundwater Monitoring Wells (GMW)**

Even though a loss monitoring system will be in place at all UPSS sites, the required detection limit of 0.76 litres/hour (18 litres a day) could still result in small leaks remaining undetected and the release of a significant amount of product over time (6,650L/yr). This is more likely to occur where the UPSS is comprised of steel tanks and thus there is no ability to check visually for a leak or loss of vacuum as there is with double walled tanks. 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 is therefore proposed as a secondary means of detecting leaks in areas where the groundwater has a sensitive use (such as drinking water) or the groundwater could affect a sensitive ecosystem (such as Ramsar wetlands). These areas will be defined as Groundwater Protection Zones and the installation of GMW in these areas should reduce the risk of harm occurring.

The cost to industry of installing GMW has been based on the Director defining initial Groundwater Protection Zones (GPZ), after information relating to all the UPSS has been received (i.e. 6 months after the regulations commence). These GPZ will most likely encompass areas:
- within 5km of groundwater bores used to supply town drinking water or commercial water supplies
- within 2.5km of surface water extraction points for town drinking water or commercial water supplies and
- within 2.5km of a Ramsar wetland.

These groundwater monitoring wells will have to be:
- analysed when installed;
- monitored every 6 months (this does not include analysis); and
- analysed when a loss of petroleum product is suspected.

Other GPZ may be defined by the Director in the future and this has been factored into the costs by assuming one percent of sites with UPSS per year will need to install GMW in the future. This estimate of the number of sites needing groundwater wells in subsequent years accounts for new sites being established in the groundwater protection zones as well as any addition to the zones that may occur.

It is recognised that the direction of groundwater flow will mean that the siting of some UPSS sites will not pose a contamination risk to a sensitive use even though they are within a GPZ, as they are “down-gradient”. The proposed regulations incorporate a mechanism for exemptions to the need to install GMW where the flow can be demonstrated to be away from a sensitive use.

The number of UPSS sites that will need to install GMW when the above GPZ are defined, were calculated using:
- locations of UPSS known to the Division;
- town water supply extraction points;
- Ramsar wetland locations; and
- all commercial water extraction points known to the Division.
This resulted in 100 UPSS sites being defined as being within the GPZ defined above. It was then assumed that only half of all UPSS defined as impacting surface extraction points would be geographically up-gradient such that a leak from an UPSS could impact the extraction point.

For the purposes of this RIS it was assumed that there are initially 55 sites where groundwater monitoring wells would need to be installed; in subsequent years 1% (i.e. 7.2) of all sites would require well installation annually. It is estimated that the installation of a minimum of three bores at a site, the production of a Groundwater Monitoring Installation Report and the initial sampling and analysis of water from each bore will cost $17,000. Ongoing monitoring is likely to be undertaken by the UPSS operator using a bailer. The ongoing cost of monitoring the wells is likely to be $120 per year (based on a cost of $20 per bailer with two disposable bailed for each of the 3 wells monitoring twice a year). Installation costs adjusted for Adoption Rates results in a cost to Industry of $374,000 - $420,750 for 2011 and 2012 when the initial group of bores will be installed; this decreases to $97,920 - $110,160 for the remaining two years over which this assessment is calculated. Groundwater monitoring costs increase annually as more bores are installed. The lower range costs, for Industry as a whole, start at $2,640 in 2010 and increase to $6,662 in 2014 whereas the upper range costs start at $2,970 and increase to $7,495.

While it is acknowledged that $17,000 is a significant cost to an infrastructure owner, a number of steps have been taken to reduce the overall impact of this requirement. The initial proposal was for all sites with UPSS to be required to install GMW, except where a suitably qualified hydrogeologist stated that the risk of groundwater being contaminated was minimal and this statement was accepted by the Director. It was also initially proposed that annual sampling and analyses of groundwater from the wells would be required (a cost of $1,100 per site per year).

After further consideration and consultation with the project’s Reference Group this requirement was changed to the current requirement, which focuses on areas where maximum impact on human health and the environment will occur if groundwater becomes contaminated. The sampling and analyses were also scaled back due to GMWs being a secondary means of detecting leaks. It was also determined that monitoring should detect extensive contamination without the need for analysis. The requirement for wells to be installed two years after a GMZ is defined is also an effort to stagger costs so that this expenditure can be budgeted for.

The impact of this requirement has also been reduced by excluding new storage systems that are situated on land where petroleum has not previously been stored. These sites were excluded as it was considered that the risk posed by a system with mandatory equipment and loss monitoring systems in place on a clean site, was low.

Small storage systems have also been excluded as they present less of a risk to groundwater due to their small capacity. This applies where there is a single UPSS on a site which has a capacity of less than 5,500L.
The proposed regulations also state that pre-existing wells on a site in a GPZ can be assessed to determine if they are compliant with the requirements under the regulations. If compliant, there is no need to install additional wells.

**Groundwater Monitoring Well Decommissioning**

The proposed regulations require that groundwater monitoring wells are decommissioned within 60 days if they are not being maintained (i.e. they are not sealed to exclude surface water, clearly marked to indicate their presence, or properly secured). The wells must be decommissioned in accordance with *Minimum construction requirements for water bores in Australia, Land and Water Biodiversity Committee, September 2003*, as a minimum.

The cost of this requirement has not been factored into this analysis as it is unlikely that any wells will be decommissioned in the five years that this analysis covers.

**Temporary decommissioning/temporary cessation of use**

The proposed regulations contain requirements relating to the temporary decommissioning of UPSS. An equipment integrity test is required if the UPSS is to be re-used/commissioned. This will cost approximately $800 per UPSS. It is assumed the number of temporary decommissionings will be small as they can only occur for a maximum of 12 months. Therefore, this cost has not been included in this analysis.

**Decommissioning/permanent cessation of use of UPSS**

The number of UPSS permanently decommissioned per year was assumed to equal the number that were leaking (45) minus the 12 that were replaced (resulting in 33 UPSS). The cost to undertake sampling, analyses and reporting of the results of the assessment is estimated at $10,000 per UPSS. This cost will be less if multiple UPSS are decommissioned at the same time. The cost of this requirement to Industry, adjusted for Adoption Rates, is therefore estimated as being between $198,000 and $264,000 per year.

**Record Keeping**

The requirement to keep records that relate to the environmental management of the UPSS has been estimated at one hours work per annum at a cost of $100/hour with the assumption that between 40 and 60% of UPSS operators are already undertaking this requirement. This results in an additional cost to Industry of $28,800 - $43,200 per year.

**Notification/registering UPSS details**

The regulations require that information relating to all UPSS and the people involved with the UPSS (the system operator, infrastructure owner and landowner) is forwarded to the Director within six months of the regulations commencing.

The initial cost of this requirement is estimated at $200 (2 hours work at $100/hour). It is assumed that only half the sites will then need to update this information in any year and that this updating would cost $100 for each site. This results in a cost to Industry of $144,000 in the first year and $36,000 per year for subsequent years. As
This is a new cost, as no notifications have been previously required, the full cost of this requirement is included.

This requirement has been altered from the preferred option in the Issues and Options Paper which stated an on-line (internet based) compliance form would be required to be completed annually for every site that contains an UPSS regardless of its size. It was also proposed that the requirement for annual reporting be reviewed after the regulations have been in place for five years. However, based on feedback during the public consultation period this was considered to be too onerous on Industry especially when no changes may have occurred on a site for a number of years.

**Total Costs**

A five year projection of the increase in costs to Industry as a whole (upper and lower range) were calculated based on the information presented above. The costs estimated are contained in Appendix C. The delay in the implementation of aspects of the proposed regulations is reflected in the blank cells for the first year.

These calculations resulted in a lower range cost estimate of $5,529,194 and an upper range cost estimate of $7,319,543 for Industry to implement the regulations in the first five years.

**Benefits to Industry**

The benefits that the proposed regulations will provide to Industry are based on avoided costs. Avoided costs, in this context, are the expenses that are likely to accrue if UPSS were not regulated. These avoided costs include:

- cost of cleanup/remediation if a leak occurs;
- value of lost fuel/year;
- cost of replacing a third party’s water supply if it becomes contaminated; and
- reduced land value/amenity

Other significant benefits from the prevention and/or reduction of fuel being released into the environment that have not been quantified include:

- improved safety for workers;
- a reduced risk to human health from soil and groundwater contamination;
- reduced risk of prosecution and legal action from third parties affected by contamination; and
- reduced risk of prosecution under EMPCA for causing environmental harm.

Although it is not possible to quantify the savings to Industry in relation to prosecution that is avoided, the following examples are provided. As reported in the WME Environmental Management News (13 January 2009) Mobil was ordered to pay $350,000 to fund environmental projects after pleading guilty to causing an environmental hazard through a long-term oil leak. “The steel pipeline from Mobil’s Altona refinery to its Yarraville terminal had corroded. EPA Victoria investigations revealed the leak could have started in December 2004 and remained undetected until December 2006, when residents in Newport complained of a strong petrol odour.” Another case, reported in Environmental Manager, Issue 682 – 29 Jul 2008, involved a $200,000 out-of-court
settlement between the Government and BP Australia over a 2007 petrol spill. The spill reputedly involved 65,000 litres of unleaded petrol that leaked at a suburban BP service station due to “...a catastrophic (equipment) failure in a short space of time.”

**Reduction in contamination that requires cleanup**
A value of $1,000,000 has been assigned for the cleanup and remediation (including assessment) of a contaminated site i.e. a site that is causing serious or material environmental harm. This is based on current known reasonable expenditure. This calculation uses the actual number of sites reported per year to the Director as causing environmental harm although this is almost certainly an underestimate of the actual sites causing environmental harm as it is likely that many are not detected. The number of sites with a leak per year was estimated at 2% of sites for the purposes of calculating costs to Industry in the previous section but this is distinct from this calculation as not all sites with a leak are necessarily causing environmental harm. Under the proposed regulations this cost won’t be entirely avoided, however it will be substantially reduced due to earlier identification of leaking UPSS (by ensuring better infrastructure is installed and implementing the loss monitoring requirements) so that the extent of contamination should be reduced. It is assumed that 80% of the cleanups of leaking UPSS will be avoided by early detection. Therefore, it is assumed that every year four sites will avoid spending $1,000,000.

Calculations have also been made for sites where remediation currently occurs as part of a sale agreement or due to a change in landuse. It has been estimated that ten sites undergo such remediation each year for a cost of $100,000 per site. For the reasons outlined above it is expected that the regulations will result in a 50% reduction in the number of sites and/or in the cost per site. Clearly the magnitude of the reduction is less than for the situation outlined in the first paragraph; this is because there remains a baseline cost per site for cleanup of minor spills. The calculated benefit in relation to avoided cleanup of “sale agreement/change of use sites” is $500,000 per year Industry wide.

An interstate example reported in *Environmental Manager 246 – 4 May 1999*, stated that a centralised computer-controlled leak detection program installed in Shells 700 petrol stations had saved the company $6m in remediation liability in just 15 months. “Sophisticated statistical analysis carried out through the program has led to early detection of 58 failed underground petroleum storage systems.”

The requirement to conduct loss monitoring commences 12 months after the regulations are made so the benefit of $4,500,000 for the reduction in clean up costs has only been factored in after the first year.

**Reduced amount of fuel lost**
In order to derive a value for the amount of fuel that would be prevented from being lost from a leaking UPSS due to requirements in the proposed regulations it has been assumed that half of all leaking UPSS would have been detected previously. This means that 22.5 UPSS per year would have continued to leak without being detected. It is difficult to assign a leak rate as, where fuel loss occurs, it is often possible to estimate the amount of petroleum that was lost but the time frame is usually not known.
However, for these calculations the required leak rate detection level of 0.76 l/h (as defined in the proposed regulations) has been used as this represents a low end figure. This rate of loss translates to 6,657.6 litres per year at a cost of $1.20/litre (almost $8,000 a year saved per leaking tank).

The requirement to conduct loss monitoring, which will detect the loss of fuel and then stop the leak continuing, commences 12 months after the regulations commence. Therefore, this benefit of $179,755 per year Industry wide has only been factored in after the first year.

**Decreased cost of replacing a third party’s water supply if it becomes contaminated**

To calculate this benefit a value needed to be assigned to the use of groundwater as a drinking resource. This will vary depending on the remoteness of the location and, also, the value of the resource is likely to significantly increase if surface water resources come under more pressure. A dollar amount of $11 was assigned to a kilolitre (kL) of water which includes cartage to a property at an accessible location. This was averaged from local water carter costs. Typical water usage for a Tasmanian household for one year was reported in the ABS Water Account as being 176 kL\(^6\). The number of domestic bores affected in a 5 year period was set at one. This was based on EPA experience, although with groundwater bore installation increasing, the number of affected bores is likely to increase. Therefore, a value of $1,936 per year was set for this cost saving after loss monitoring commences in 2011.

**Limiting the reduction in land value/amenity caused by contamination**

By limiting the amount of contamination occurring, the regulations will reduce the impact on land value/amenity. The value that has been assigned to the reduction of land value/amenity encompasses the loss in relation to future uses of a site that may be limited due to contamination, in addition to the limitations and stigma that may be imposed on residential premises and businesses adjacent to a leaking UPSS. In “When Bad Things Happen to Good Property”\(^7\) a literature review of 58 peer reviewed journal articles and selected case studies are analysed to determine the effect of contamination on changes in real estate values. The average loss was determined to be 9.5%. It was assumed for the Tasmanian situation that ten percent of leaking UPSS sites would experience or cause such a loss of land value/amenity for one property. Assuming a median house price of $250,000 this would translate to a loss of $23,750 per leaking UPSS. The avoided costs are therefore $106,875 per year after the first 12 months.

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\(^7\) Simons, Robert “When Bad Things Happen to Good Property”, Environmental Law Institute Washington DC, May 2006
Estimated avoided costs over 5 year period
Over 5 years the predicted benefits to Industry due to the regulations will be $19,154,265. Appendix C presents a year by year breakdown of the 5 year projection of avoided costs for Industry under the proposed regulations.

Other benefits
Other benefits to Industry that will result from the proposed regulations but are difficult to estimate a dollar value for and therefore have not been detailed above, include:

- fewer disruptions to business operations, which can occur when contamination requires remediation;
- fewer 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;
- fewer situations where litigation may arise from the contamination on adjacent properties; and
- adding value to the property that the UPSS is on. For example, the Australian Convenience Store News (May/June 2007) contains a quote from Dale Timms (Manager, Envirotank) that double walled tanks “...can also make a big difference to your ability to raise finance. At least two major banks will treat entire UPSS with double wall tanks and lines as assets, but class single walled systems as financial liabilities”.

Costs and Benefits for Government
The proposed regulations will initially result in increased costs for Government as there will be an increased demand on regulatory resources in the short to medium term. This will occur due to the need to educate industry with regard to the changes, the development and maintenance of a database, and the need to audit Industry to ensure that all UPSS owners/operators are complying with the regulations (thus producing a level playing field). There is also likely to be an increase in contamination detected when the requirement for loss monitoring commences. This will mean that more resources will be needed to ensure that the sites are investigated and remediated appropriately. However, in the long term the number of leaks and thus sites needing remediation should decrease along with the workload for government.

The main benefits to Government of the proposed regulations are as follows:

- protection of groundwater and surface water assets;
- less risk of harm to the public and workers due to contamination moving offsite, especially into underground services and vapours into buildings;
- ensuring land devaluation is minimised and limiting restrictions on the future use of land; and
- less risk of contaminated sites where the polluter cannot be found or becomes bankrupt; this increases the difficulty and costs for Government in ensuring assessment/cleanup occurs.

Costs and Benefits for the Community
The main cost to the Tasmanian community could be a marginal rise in fuel costs to cover the implementation of the regulations. However, this is unlikely as the costs will
be minimal ($750-1,350 per year per UPSS site) unless groundwater monitoring wells and/or new infrastructure are required, a loss occurs or an UPSS is decommissioned. It is also likely that with the fluctuation in the fuel price at present due to the price of oil changing, and the exchange rate fluctuations, any increase due to the regulations would be negligible. The regulators of the NSW UPSS regulations are not aware of any increase in fuel costs in NSW due to their regulations.

The Tasmanian community will benefit from the introduction of the proposed regulations through:

- protection of groundwater and surface water resources and ecosystems;
- lowering of the potential for their land values to fall due to off-site contamination;
- transferring Government resources previously used for regulating environmental harm caused by leaking UPSS to other environmental or community issues;
- lowering of the risk to public health arising from contamination of soil and water resources; and
- reduced danger to workers in other underground infrastructure.

**Restriction on Competition**

The above information shows that there is a significant benefit to implementing these regulations. However, it is acknowledged that some small businesses (especially those that sell fuel as their major business) may struggle to afford the costs of upgrading infrastructure, installing groundwater monitoring wells when required, or decommissioning costs. In these situations the smaller businesses may cease to trade whereas the larger businesses will more likely accommodate these costs. Therefore, competition may become restricted in some locations. It should be noted that a large number of service stations have closed in the last 10 years due to other market forces.

It should also be noted that an effort has been made in the regulations to delay requirements that have a significant cost, so that these requirements can be budgeted for (e.g. the installation of groundwater monitoring wells can occur during a 2 year period after the GPZ has been defined).

Appendix D considers the impact of environmental policy and regulation on investment locational decisions. It concludes that the stringency of environmental regulations is less significant than the difficulty or otherwise of approval processes. Country areas may have an advantage over metropolitan areas in regard to ease of meeting certain environmental requirements eg noise and odour issues, which should work to the benefit of Tasmania given its decentralised character.

### 6.2 ALTERNATIVE REGULATORY OPTIONS CONSIDERED

A number of alternative types of regulatory models, that could be used to improve the environmental management and performance of UPSS in Tasmania, were considered when this project commenced. These options include the following:

- the “do nothing” option was included for comparison
- 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).

These options were discussed in detail in the Issues and Options Paper. Each option is summarised below and assessed as to its ability to achieve the objectives outlined in Section 5.1. The relative cost of each option to Industry, the Community and Government is also discussed. A summary of the qualitative costs and benefits of these options is contained in Appendix B.

**Maintain the Current Situation**

The “do nothing” option was discounted for the following reasons:

- the risk of harm to the environment and human health posed by leaked petroleum from UPSS will not reduce and it is likely that the incidence of leaks will increase in the short-to-medium term as existing UPSS age and deteriorate;
- the cost to Industry of doing nothing will equal avoided costs described above ($19,154,265 over 5 years) as extensive contamination and costly remediation will continue. This is well in excess of any benefits/savings due to not undertaking the required actions in the regulations which are equal to the costs i.e. $5,529,194 - $7,319,543 over 5 years;
- the cost to Government and the Community of this option will be minimal until the number of “orphaned” sites (where the landowner cannot afford the remediation) increase. The Government then may need to remediate these sites using taxpayer’s money. There is also the cost to Government and the community of any health related issues or loss of resources, such as groundwater, that petroleum contamination may cause; and
- there are currently inequities in the Industry as some service stations have complied with the Industry Code of Practice AIP-CP4 (now AS4897) while others have not. This will continue under the “do-nothing option” thereby disadvantaging compliant businesses.

The main benefit of continuing with the current situation is that Industry can adopt best practice when and if they choose to do so based on their budget cycle and Government and the Community have no up-front costs.

**“Best practice” guidelines or Code of Practice**

A “best practice” guideline (or Code of Practice) for the management of UPSS could be developed which would detail the actions that are expected of UPSS owners and operators to protect the environment.

This option was not considered appropriate due to the lack of enforceability of guidelines or a Code of Practice. While enforceable action could be taken under EMPCA or the State Policy on Water Quality Management this would occur after harm has occurred. This is considered too reactive (and not proactive) as harm and extensive remediation costs have not been prevented.

Because the guidelines or Code of Practice are not enforceable there is a high likelihood that the uptake by UPSS owners/operators would be low. Voluntary compliance with
the guidelines/Code of Practice could also result in an inequitable situation with not all owners/operators complying. These inequities could lead to non-complying owner/operators having a competitive advantage over those who choose to comply due to the additional costs involved.

Costs and benefits to Industry for businesses that don’t comply would be similar to those listed above in the “do-nothing option”.

Cost and benefits for businesses that do comply would be the same as those discussed under the regulation option. However, these businesses would be disadvantaged initially as they have the initial outlay to be in compliance. It should be noted that some businesses have already adopted best practices and thus would be substantially compliant when the regulations commence.

The preparation of guidelines or a Code of Practice are just as resource intensive and therefore as costly for Government to produce as regulations. However, as uptake is likely to be low this expenditure will give a poor return to the community. Implementation costs for guidelines/codes of practice are likely to be lower for Government than regulations.

The likely lack of voluntary adoption of guidelines/codes of practice would result in UPSS continuing to leak, exposing Industry, Government and the Community to significant costs, as discussed in the “do-nothing” option above, if contamination occurs.

**Owner/operator insurance**

Another option is to require owners/operators of UPSS to demonstrate that they have the financial resources, via insurance, to pay for any potential remediation costs and third party damages that could result from a leak. An environment protection notice (EPN) under EMPCA would need to be issued (see below) or new regulations written to require that insurance be purchased.

In order to obtain insurance cover, UPSS owners may need to demonstrate that appropriate pollution prevention, leak detection and UPSS management systems (i.e. similar requirements to those that will be in the proposed regulations) are in place. This means that they will have to pay similar costs as discussed under the regulations section as well as insurance premiums.

One of the main disadvantages of the insurance option is that requirements may differ between insurance companies which could lead to inequities in environmental requirements and costs between companies. There is also the risk that the insurance premiums may not cover the full cost of remediation and then the business or the Government and wider community will be left with the liability.

Another disadvantage is that insurance is not a proactive approach for the prevention of contamination, as insurance will provide a cleanup fund after contamination and harm have occurred.
Costs to Government to write regulations or EPNs will be initially similar to the regulations option discussed above or the amending of Schedule 2 of EMPCA option discussed below. However, the ongoing costs will be lower as Government only has to audit to ensure insurance has been taken out while the insurance industry will be responsible for ensuring the environmental requirements of their policies are being complied with.

The Community may benefit because fewer Government resources will be spent but fuel prices may rise as the costs to Industry are likely to be higher than for regulations.

**Amend Schedule 2 of EMPCA**

The option of amending Schedule 2 of EMPCA to include sites which have UPSS (i.e. list them as a Level 2 activity) would result in all existing UPSS sites being issued with an environment protection notice (EPN) and all future sites requiring assessment and granting of a permit under the *Land Use Planning and Approvals Act 1993*.

The EPN/permit would contain environmental conditions which would mimic the requirements listed under the regulations option. The main disadvantage of issuing EPNs or permits is that each of the 720 sites with an UPSS would need an individual EPN/permit with each document stating the same conditions. This would result in a cumbersome and administratively costly system for both Industry and Government.

The costs to Industry would be greater than that of the proposed regulations because if a business was issued with an EPN, the cost of preparation of the EPN would be passed on from Government to Industry. Similarly, all Level 2 activities require assessment by the Environment Protection Authority and Industry would need to pay a one-off time-based assessment fee to the Government for this process. In addition, once a business has a permit or EPN, an annual fee under the EMPCA (General Fees) Regulations 2007 must be paid to the Government for the ongoing regulation and review of the activity. Industry therefore must pay these fees and pay to undertake the equivalent of all the works required in the proposed regulations.

Government faces additional costs with the addition of a new activity to assess and regulate on Schedule 2 of EMPCA. Industry has the opportunity under the General Fee Regulations to reduce their annual fees by adopting environmental management practices beyond what is required under their permit conditions. This reduced fee means that government does not achieve full cost recovery.

A significant disadvantage of this option compared to regulations is the difficulty in identifying sites with an UPSS which did not have a Dangerous Goods Keeper’s License and will therefore not be included in the Register of Notifications under the new Dangerous Substances (Safe Handling) Regulations. This could result in a group not being subject to an EPN/permit and its environmental conditions. Therefore, there could be a non-compliant group failing to take proactive measures to prevent or manage the risk of leakages from an UPSS.
6.3 GREATEST NET BENEFIT/LEAST NET COST

The proposed regulations are designed to prevent or limit, to the greatest extent practicable, the release of petroleum product into the environment. The decision to develop regulations is a proactive approach which will help to protect current and future groundwater resources of Tasmania. It will also reduce costs to industry associated with the clean-up of land and water resources contaminated by leaked petroleum product. It reflects the movement by other Australian and international jurisdictions towards adopting a legislative policy instrument aimed at reducing the significant environmental risks posed by leaking tanks.

After reviewing the costs and benefits of the various policy instruments including those adopted by other Australian jurisdictions, it was determined that the instrument that best suits the Tasmanian situation and which will achieve the greatest net environmental benefit for the least net cost are regulations.

Advantages of the proposed regulations, compared to other options, are that regulations are:

- likely to be less expensive than insurance for the UPSS operator/owner as it is likely that site improvements (potentially the same as those required by the proposed regulations) will be required by the insurance company and insurance premiums would also have to be paid;
- likely to be less expensive than the option of including UPSS sites on Schedule 2 of EMPCA as the owner/operator would have to take all the actions required in the regulations as well as pay an annual fee for a permit/Environmental Protection Notice (EPN). This option could also be more expensive for Government if the full cost of permits/EPNs cannot be charged back to Industry;
- more proactive than the insurance option and the do-nothing option;
- the only option that will capture UPSS which have storage capacities less than that where they must be included in the Register of Notifications under the new Dangerous Substances (Safe Handling) Regulations; and
- more likely to produce a level playing field than the insurance or guidelines options.
7 BIBLIOGRAPHY


Australian Convenience Store News http://www.c-store.net.au (Magazine).


Minimum construction requirements for water bores in Australia, Land and Water Biodiversity Committee, September 2003.


State Policy on Water Quality Management 1997
## APPENDIX A
ADOPTION RATES OF REQUIREMENTS IN REGULATIONS WITH AND WITHOUT REGULATIONS

<table>
<thead>
<tr>
<th>Requirement</th>
<th>% that would have installed/conducted without regulations</th>
<th>% that would not have installed/conducted unless required by proposed regulations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Double walled tanks</td>
<td>Best (%) 80  Worst (%) 60</td>
<td>Best (%) 20  Worst (%) 40</td>
</tr>
<tr>
<td>Double walled piping</td>
<td>Best (%) 20  Worst (%) 5</td>
<td>Best (%) 80  Worst (%) 95</td>
</tr>
<tr>
<td>Fill point containment</td>
<td>Best (%) 40  Worst (%) 20</td>
<td>Best (%) 60  Worst (%) 80</td>
</tr>
<tr>
<td>Dispenser sump</td>
<td>Best (%) 40  Worst (%) 20</td>
<td>Best (%) 60  Worst (%) 80</td>
</tr>
<tr>
<td>Overfill protection</td>
<td>Best (%) 40  Worst (%) 20</td>
<td>Best (%) 60  Worst (%) 80</td>
</tr>
<tr>
<td>Tank pit observation wells</td>
<td>Best (%) 40  Worst (%) 20</td>
<td>Best (%) 60  Worst (%) 80</td>
</tr>
<tr>
<td>Equipment integrity test</td>
<td>Best (%) 80  Worst (%) 60</td>
<td>Best (%) 20  Worst (%) 40</td>
</tr>
<tr>
<td>Equipment replacement sampling when a storage system, bowser, fill point or piping is replaced</td>
<td>Best (%) 10  Worst (%) 0</td>
<td>Best (%) 90  Worst (%) 100</td>
</tr>
<tr>
<td>Loss monitoring system</td>
<td>Best (%) 60  Worst (%) 40</td>
<td>Best (%) 40  Worst (%) 60</td>
</tr>
<tr>
<td>Installing groundwater monitoring wells</td>
<td>Best (%) 20  Worst (%) 10</td>
<td>Best (%) 80  Worst (%) 90</td>
</tr>
<tr>
<td>UPSS decommissioning sampling</td>
<td>Best (%) 40  Worst (%) 20</td>
<td>Best (%) 60  Worst (%) 80</td>
</tr>
<tr>
<td>Record keeping</td>
<td>Best (%) 60  Worst (%) 40</td>
<td>Best (%) 40  Worst (%) 60</td>
</tr>
</tbody>
</table>
### APPENDIX B
QUALITATIVE SUMMARY OF THE COSTS AND BENEFITS TO INDUSTRY, GOVERNMENT AND THE COMMUNITY

<table>
<thead>
<tr>
<th>REGULATIONS</th>
<th>Industry</th>
<th>Government</th>
<th>Community</th>
</tr>
</thead>
</table>
| Costs       | ▪ New infrastructure  
             ▪ Integrity testing  
             ▪ Loss monitoring  
             ▪ Loss investigation  
             ▪ Installing groundwater monitoring wells  
             ▪ Sampling  
             ▪ Record keeping  
             ▪ Decommissioning | ▪ Auditing  
              ▪ Database construction and maintenance  
              ▪ Increased workload on regulatory resources in first few years from:  
                  o Assisting industry with meeting new regulatory requirements  
                  o Increased reported loss of product and environmental harm sites. | ▪ Possible rise in fuel prices.  
              ▪ Opportunity costs associated preparing regulatory instrument to address leaking UPSS could have been directed to other environmental or community issues. |
| Benefits    | ▪ Avoided costs include:  
                   o Clean up costs  
                   o Value of lost fuel  
                   o 3rd party claims resulting from soil and water contamination  
                   o Reduced land value and amenity  
                   o Legal costs and penalties.  
                   (a) Improved worker safety/less explosive risk.  
                   (b) Reduced risk to human health.  
                   (c) Reduced risk of causing off-site contamination and litigation from neighbours.  
                   (d) “Level playing field” – all UPSS owners/operators must comply. | ▪ Protection of groundwater and surface water assets.  
              ▪ Protection of ecosystems.  
              ▪ Less falls in land tax and stamp duty revenues due to devaluation of land contaminated by fuel leaks.  
              ▪ Less fuel leak/explosive danger to govt. employees working in other underground infrastructure.  
              ▪ Less emergency service costs/repair and remediation costs/workcover costs.  
              ▪ Less risk of being left with the cost of rehabilitating ‘orphan’ contaminated.  
              ▪ Workload and costs relating to regulations will decrease with time. | ▪ Protection of groundwater and surface water assets.  
              ▪ Protection of ecosystems.  
              ▪ Reduced risk to public health arising from contamination of soil and water resources.  
              ▪ Reduced risk of falling land values from off-site contamination. |
| DO NOTHING  | ▪ Must pay clean up and remediation costs arising from leaking tanks equal to benefits under regulations. | ▪ Increase in the number of ‘orphan’ sites that government is responsible for managing and reclaiming.  
              ▪ Risks to environment and health remain.  
              ▪ Loss of resources (groundwater etc) will continue. | ▪ Public health costs arising from contaminated groundwater and surface water.  
              ▪ Potential loss of clean/green image.  
              ▪ Environmental degradation – habitat destruction, soil and water contamination. |
### Regulatory Impact Statement for EMPC (Underground Petroleum Storage Systems) Regulations 2009

#### Benefits
- Allows industry to adopt best practice when/if they choose and to suit their budget cycles.
- No upfront costs.
- No upfront costs.

#### BEST PRACTICE GUIDELINES/CODE OF PRACTICE

<table>
<thead>
<tr>
<th>Cost</th>
<th>Benefit</th>
<th>Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voluntary scheme – not all will adopt guidelines so inequities will occur.</td>
<td>Allows industry to adopt best practice when/if they choose and to suit their budget cycles.</td>
<td>Guideline development just as costly as regulations without the benefit of enforcement. Other jurisdictions have experienced low uptake of guidelines – poor return on govt. expenditure for guidelines development.</td>
</tr>
<tr>
<td>Businesses that comply – costs same as regulations.</td>
<td>Minimal enforcement costs.</td>
<td>Minimal benefits due to expected low uptake.</td>
</tr>
<tr>
<td>Businesses that don’t comply – initial cost savings (competitive advantage) then costs equal regulations benefits.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Owner/operator insurance

<table>
<thead>
<tr>
<th>Cost</th>
<th>Benefit</th>
<th>Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Higher insurance premiums</td>
<td>When a tank leaks this may be covered by insurance (likely to be conditions on this).</td>
<td>EPN preparation – although most costs passed onto industry. Preparation of regulations. Audit system needed ensure compliance. Insurance may not cover long term costs leaving govt. to eventually carry the future costs of remediation. Less efficient resource use (insurance is reactive not proactive) costs society overall. Proactive measures allow resources to be used for other economic activities (there is an opportunity cost).</td>
</tr>
<tr>
<td>Insurance companies may require upgrades to equivalent to the regulations.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost of preparing EPNs to implement this option is passed onto industry.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insurance may not cover or recognise the long term costs of soil and water contamination leaving the landowner with future costs.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Amend schedule 2 of EMPCA

<table>
<thead>
<tr>
<th>Cost</th>
<th>Benefit</th>
<th>Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Same as regulations plus:</td>
<td>Same as regulations.</td>
<td>Same as regulations.</td>
</tr>
<tr>
<td>- EMPCA assessment fees (from $1,000 up to $50,000).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- EMPCA annual permit fees (from $600 up to 40,000 p.a.).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Same as regulations plus:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Cost of preparing EPNs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Cost of reviewing applications.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Cost of managing annual permits.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Same as regulations.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Owner/operator insurance

<table>
<thead>
<tr>
<th>Cost</th>
<th>Benefit</th>
<th>Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Higher insurance premiums</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insurance companies may require upgrades to equivalent to the regulations.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost of preparing EPNs to implement this option is passed onto industry.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insurance may not cover or recognise the long term costs of soil and water contamination leaving the landowner with future costs.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Amend schedule 2 of EMPCA

<table>
<thead>
<tr>
<th>Cost</th>
<th>Benefit</th>
<th>Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Same as regulations plus:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- EMPCA assessment fees (from $1,000 up to $50,000).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- EMPCA annual permit fees (from $600 up to 40,000 p.a.).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Same as regulations plus:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Cost of preparing EPNs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Cost of reviewing applications.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Cost of managing annual permits.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Same as regulations.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# APPENDIX C
## COST BENEFIT ANALYSIS

### COSTS

#### Assumptions

<table>
<thead>
<tr>
<th>Assumptions</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>No sites with UPSS</td>
<td>720</td>
</tr>
<tr>
<td>No. UPSS in Tasmania</td>
<td>2,250</td>
</tr>
<tr>
<td>No. of leaking UPSS/yr - (2%)</td>
<td>45</td>
</tr>
<tr>
<td>No. new/replaced UPSS/yr</td>
<td>12</td>
</tr>
<tr>
<td>No. UPSS permanently decommissioned/yr</td>
<td>33</td>
</tr>
<tr>
<td>No. replaced/repaired piping only /year</td>
<td>12</td>
</tr>
<tr>
<td>No. bowser, fill point, piping replaced/yr</td>
<td>6</td>
</tr>
<tr>
<td>No. of sites needing GW wells in yr's 2&amp;3</td>
<td>55</td>
</tr>
<tr>
<td>1% sites need GW wells in subsequent yrs</td>
<td>7.2</td>
</tr>
<tr>
<td>% of sites registering/first year</td>
<td>100</td>
</tr>
<tr>
<td>% of sites registering changes in subsequent yrs</td>
<td>50</td>
</tr>
</tbody>
</table>

#### % that would not have installed/conducted unless required by proposed Regulations

<table>
<thead>
<tr>
<th></th>
<th>best (%)</th>
<th>worst (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Double walled tanks</td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td>Double walled piping</td>
<td>80</td>
<td>95</td>
</tr>
<tr>
<td>Fill point containment</td>
<td>60</td>
<td>80</td>
</tr>
<tr>
<td>Dispenser sump</td>
<td>60</td>
<td>80</td>
</tr>
<tr>
<td>Overfill protection</td>
<td>60</td>
<td>80</td>
</tr>
<tr>
<td>Tank pit observation wells</td>
<td>60</td>
<td>80</td>
</tr>
<tr>
<td>Equipment integrity tests</td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td>Loss monitoring system</td>
<td>40</td>
<td>60</td>
</tr>
<tr>
<td>GW monitoring wells</td>
<td>80</td>
<td>90</td>
</tr>
<tr>
<td>UPSS decommissioning sampling</td>
<td>60</td>
<td>80</td>
</tr>
<tr>
<td>Equipment replacement sampling</td>
<td>90</td>
<td>100</td>
</tr>
<tr>
<td>Record keeping</td>
<td>40</td>
<td>60</td>
</tr>
<tr>
<td>Costs (additional to current standard)</td>
<td>$</td>
<td></td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>----</td>
<td></td>
</tr>
<tr>
<td>Double walled tanks</td>
<td>20,000</td>
<td></td>
</tr>
<tr>
<td>Integrity testing per UPSS</td>
<td>800</td>
<td></td>
</tr>
<tr>
<td>Double walled piping for 1 UPSS</td>
<td>3,000</td>
<td></td>
</tr>
<tr>
<td>Fill point containment for 1 location</td>
<td>5,000</td>
<td></td>
</tr>
<tr>
<td>Dispenser sump</td>
<td>5,000</td>
<td></td>
</tr>
<tr>
<td>Overfill protection</td>
<td>1,500</td>
<td></td>
</tr>
<tr>
<td>Tank pit observation wells</td>
<td>700</td>
<td></td>
</tr>
<tr>
<td>GW monitoring well installation for site</td>
<td>17,000</td>
<td></td>
</tr>
<tr>
<td>GW monitoring well -bailer costs per year</td>
<td>120</td>
<td></td>
</tr>
<tr>
<td>Loss monitoring per UPSS per year</td>
<td>300</td>
<td></td>
</tr>
<tr>
<td>Loss monitoring system setup costs</td>
<td>150</td>
<td></td>
</tr>
<tr>
<td>Loss investigation</td>
<td>5,100</td>
<td></td>
</tr>
<tr>
<td>Decommissioning sampling/UPSS, bowsers, fill point &amp; piping</td>
<td>10,000</td>
<td></td>
</tr>
<tr>
<td>Registration costs (in house)/first year</td>
<td>200</td>
<td></td>
</tr>
<tr>
<td>Registration costs (in house)/subsequent yrs</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Record keeping costs</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Deferred commencement in years</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>GW wells (most installed in yrs 2&amp;3)</td>
<td>2</td>
</tr>
<tr>
<td>Loss monitoring system</td>
<td>1</td>
</tr>
</tbody>
</table>
### Industry wide costs additional to current costs over a 5 year period - Lower range cost estimate scenario

<table>
<thead>
<tr>
<th>YEARS</th>
<th>Registration costs</th>
<th>Record Keeping</th>
<th>Dble Wall UPSS</th>
<th>Dble Wall piping</th>
<th>Fill Pnt cont.</th>
<th>Dispenser sump</th>
<th>Overfill Protection</th>
<th>Tank pit Observation Wells</th>
<th>Equip. Integrity Tests</th>
<th>Loss Monitoring System</th>
<th>Loss Investigation</th>
<th>GW Well Installation</th>
<th>UPSS Decommission Sampling</th>
<th>Replacement Sampling</th>
<th>TOTAL COSTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>144,000</td>
<td>28,800</td>
<td>48,000</td>
<td>28,800</td>
<td>36,000</td>
<td>36,000</td>
<td>10,800</td>
<td>5,040</td>
<td>3,840</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>198,000</td>
<td>162,000</td>
</tr>
<tr>
<td>2011</td>
<td>36,000</td>
<td>28,800</td>
<td>48,000</td>
<td>28,800</td>
<td>36,000</td>
<td>36,000</td>
<td>10,800</td>
<td>5,040</td>
<td>3,840</td>
<td>313,200</td>
<td>91,800</td>
<td>374,000</td>
<td>2,640</td>
<td>198,000</td>
<td>162,000</td>
</tr>
<tr>
<td>2012</td>
<td>36,000</td>
<td>28,800</td>
<td>48,000</td>
<td>28,800</td>
<td>36,000</td>
<td>36,000</td>
<td>10,800</td>
<td>5,040</td>
<td>3,840</td>
<td>270,000</td>
<td>91,800</td>
<td>374,000</td>
<td>5,280</td>
<td>198,000</td>
<td>162,000</td>
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<tr>
<td>2013</td>
<td>36,000</td>
<td>28,800</td>
<td>48,000</td>
<td>28,800</td>
<td>36,000</td>
<td>36,000</td>
<td>10,800</td>
<td>5,040</td>
<td>3,840</td>
<td>270,000</td>
<td>91,800</td>
<td>97,920</td>
<td>5,971</td>
<td>198,000</td>
<td>162,000</td>
</tr>
<tr>
<td>2014</td>
<td>36,000</td>
<td>28,800</td>
<td>48,000</td>
<td>28,800</td>
<td>36,000</td>
<td>36,000</td>
<td>10,800</td>
<td>5,040</td>
<td>3,840</td>
<td>270,000</td>
<td>91,800</td>
<td>97,920</td>
<td>6,662</td>
<td>198,000</td>
<td>162,000</td>
</tr>
</tbody>
</table>

**Total:** $5,529,194

### Industry wide costs additional to current costs over a 5 year period - Upper range cost estimate scenario

<table>
<thead>
<tr>
<th>YEARS</th>
<th>Registration costs</th>
<th>Record Keeping</th>
<th>Dble Wall UPSS</th>
<th>Dble Wall piping</th>
<th>Fill Pnt cont.</th>
<th>Dispenser sump</th>
<th>Overfill Protection</th>
<th>Tank pit Observation Wells</th>
<th>Equip. Integrity Tests</th>
<th>Loss Monitoring System</th>
<th>Loss Investigation</th>
<th>GW Well Installation</th>
<th>UPSS Decommission Sampling</th>
<th>Replacement Sampling</th>
<th>TOTAL COSTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>144,000</td>
<td>43,200</td>
<td>96,000</td>
<td>34,200</td>
<td>48,000</td>
<td>14,400</td>
<td>6,720</td>
<td>7,680</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>264,000</td>
<td>180,000</td>
</tr>
<tr>
<td>2011</td>
<td>36,000</td>
<td>43,200</td>
<td>96,000</td>
<td>34,200</td>
<td>48,000</td>
<td>14,400</td>
<td>6,720</td>
<td>7,680</td>
<td>469,800</td>
<td>137,700</td>
<td>420,750</td>
<td>2,970</td>
<td>264,000</td>
<td>180,000</td>
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<td>43,200</td>
<td>96,000</td>
<td>34,200</td>
<td>48,000</td>
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<td>6,720</td>
<td>7,680</td>
<td>405,000</td>
<td>137,700</td>
<td>420,750</td>
<td>5,940</td>
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<td>180,000</td>
<td>1,747,590</td>
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<td>2013</td>
<td>36,000</td>
<td>43,200</td>
<td>96,000</td>
<td>34,200</td>
<td>48,000</td>
<td>14,400</td>
<td>6,720</td>
<td>7,680</td>
<td>405,000</td>
<td>137,700</td>
<td>110,160</td>
<td>6,718</td>
<td>264,000</td>
<td>180,000</td>
<td>1,437,778</td>
</tr>
<tr>
<td>2014</td>
<td>36,000</td>
<td>43,200</td>
<td>96,000</td>
<td>34,200</td>
<td>48,000</td>
<td>14,400</td>
<td>6,720</td>
<td>7,680</td>
<td>405,000</td>
<td>137,700</td>
<td>110,160</td>
<td>7,495</td>
<td>264,000</td>
<td>180,000</td>
<td>1,438,555</td>
</tr>
</tbody>
</table>

**Total:** $7,319,543
## BENEFITS

### Assumptions

<table>
<thead>
<tr>
<th>Description</th>
<th>Value or Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>UPSS currently Notified (under EMPCA) as causing environmental harm/yr</td>
<td>5</td>
</tr>
<tr>
<td>UPSS currently remediated due to sale agreement, change landuse/yr</td>
<td>10</td>
</tr>
<tr>
<td>Cleanup &amp; remediation costs per environmental harm site</td>
<td>$1,000,000</td>
</tr>
<tr>
<td>Cleanup &amp; remediation costs per sale/change landuse etc site</td>
<td>$100,000</td>
</tr>
<tr>
<td>Avoided environmental harm costs due to Regulations=80%</td>
<td>0.8</td>
</tr>
<tr>
<td>Avoided sale/change landuse Costs due to Regulations=50%</td>
<td>0.5</td>
</tr>
<tr>
<td>Half of leaking UPSS have leaked for a year</td>
<td>0.5</td>
</tr>
<tr>
<td>Assume leak rate is minimum detectable</td>
<td>0.76l/hr</td>
</tr>
<tr>
<td>Value of fuel $/litre (retail)</td>
<td>1.2</td>
</tr>
<tr>
<td>Fuel loss per tank/year, litres</td>
<td>6,657.6</td>
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<tr>
<td>Value of lost fuel/year $</td>
<td>7,989.12</td>
</tr>
<tr>
<td>Carted water per kL ($)</td>
<td>11</td>
</tr>
<tr>
<td>GW use for domestic purposes - one bore/year (kL)</td>
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</tr>
<tr>
<td>Value of water resources for one domestic bore/yr</td>
<td>$1,936</td>
</tr>
<tr>
<td>No. domestic bores affected in 5 year period</td>
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</tr>
<tr>
<td>Assumed 50% of sites would avoid cleanup/remediation</td>
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<tr>
<td>Reduced land value-assume for 10% of sites</td>
<td>$23,750</td>
</tr>
<tr>
<td>Improved safety for workers</td>
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</tr>
<tr>
<td>Reduced risks to human health</td>
<td>not quantified</td>
</tr>
<tr>
<td>Liability to prosecution</td>
<td>not quantified</td>
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</table>
## Estimated Avoided Costs over a 5 year period

<table>
<thead>
<tr>
<th>Years</th>
<th>Cleanup/Remediation of Environmental Harm</th>
<th>Cleanup/Remediation for a Change of use</th>
<th>Fuel Loss due to leaking UPSS</th>
<th>Water replacement due to Loss of IGW Bore</th>
<th>Reduction of Land Value</th>
<th>TOTAL AVOIDED COSTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>2011</td>
<td>4,000,000</td>
<td>500,000</td>
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<td>1,936</td>
<td>106,875</td>
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<td>2012</td>
<td>4,000,000</td>
<td>500,000</td>
<td>179,755</td>
<td>1,936</td>
<td>106,875</td>
<td>$4,788,566</td>
</tr>
<tr>
<td>2013</td>
<td>4,000,000</td>
<td>500,000</td>
<td>179,755</td>
<td>1,936</td>
<td>106,875</td>
<td>$4,788,566</td>
</tr>
<tr>
<td>2014</td>
<td>4,000,000</td>
<td>500,000</td>
<td>179,755</td>
<td>1,936</td>
<td>106,875</td>
<td>$4,788,566</td>
</tr>
</tbody>
</table>

$19,154,265

### TOTAL BENEFITS

**Scenario one - lower cost estimate**

- **Benefits**: $19,154,265
- **Costs**: $5,529,194

**Scenario two - upper cost estimate**

- **Benefits**: $19,154,265
- **Costs**: $7,319,543

**Footnote:**

Costs were calculated in the following manner: the best case result for “double walled piping” was derived using 12 (i.e. the number of replaced UPSS) x 0.8 (i.e. 80% incurring this cost) x 3,000 (i.e. cost of double walled piping with cost of single walled piping subtracted as these are necessary anyway).
APPENDIX D
INTERSTATE COMPETITIVENESS IN AUSTRALIA: THE SIGNIFICANCE OF ENVIRONMENTAL POLICY AND REGULATION IN INDUSTRIAL INVESTMENT LOCATIONAL DECISION-MAKING

In 2003, a literature search was conducted by the Environment Division to obtain information on the significance of environmental policy and regulation for the interstate competitiveness of manufacturing industry. Literature was sought on the factors influencing industrial investment locational decisions. The Tasmanian Departments of Economic Development and Treasury and Finance were consulted about appropriate literature and literature sources.

The literature search uncovered little that specifically deals with factors in industrial investment locational decisions and nothing on investment locational decision-making that entails choice between the Australian States and Territories. There is some local and overseas literature dealing generally with investment locational decision-making that entails choice between countries, regions or cities. An Australian Treasury paper reviewed three large-scale international studies and identified six factors which influence investment locational choice between countries, none of which related to environmental policy or regulation (although ‘an efficient and honest public sector’ was one factor) (Preston 1994).

Studies involving regions and cities can be used to some extent as a surrogate for studies involving the States. A Commonwealth Government study on the growth of regional cities found that such cities may enjoy various locational advantages over the metropolitan centres, including lower cost of effluent disposal, the ability to locate environmentally sensitive industries away from residential areas and community attitudes that are not antagonistic to such industries. (Australian Government Department of Housing and Regional Development 1994). The study cited numerous other factors, and no ranking was allocated to the various factors.

An Australian Government guide to investment attraction for rural and regional towns identifies 12 factors which may influence a decision to invest, two of which are ‘ease of local, State and Commonwealth approval processes’ and a ‘supportive and appropriate planning and regulatory environment’. Nonetheless, of the 16 regional investment case studies included in the guide only one cited a relevant factor – the length of time taken to obtain planning and other approvals was a difficulty for a tourism development in Tasmania (Gordon 2001). The absence of environmental policy and regulation as a factor in the case studies may reinforce the findings of the Commonwealth study referred to above. It tends to confirm that environmental regulation is not significant and that preferential investment in country areas is due in part to the lesser significance of environmental regulation or the greater ease of meeting environmental requirements.

A study conducted in the USA found nine factors that were significant to investors when choosing between regions, none of which related to environmental policy or
government regulation. Nonetheless the study concluded that improving the permitting process was an important factor in attracting investment, with special mention of environmental approval processes (Cohen 2000).

Another American study examined the economic impact of environmental regulation in all 50 States. The study compared macroeconomic performance indicators with an index of the stringency of environmental regulation in each State, for the period 1982-1992. The finding was that there was no statistically significant relationship. Indications were that strong environmental regulation actually has a positive economic impact during periods of economic growth but a negative effect during recessions (Meyer 1995).

A European study examined locational decision making factors for industrial and other firms, which are users of ports. It surveyed firms on 50 possible factors. The two environment related factors, environmental impact assessment obligation and restrictions concerning wastewater disposal, were ranked 25 and 27 respectively by industrial firms. The top five factors for industrial firms were worker attitudes, port reliability, port costs, availability of unskilled and semi-skilled labour and connection to the national motorway system (Pellenbarg 1997).

The Tasmanian Department of Treasury and Finance has published a Competition Index for the State annually since 2000. The index is intended to be a guide to the advantages and disadvantages of establishing a representative firm in each State of Australia. The 16 factors used in the index were identified through a program of industry visits and consultation with the TCCI. Only one is relevant, the ‘planning index’, and that was included only from 2002. The planning index reflects the time taken for local government to process development applications, and the 2002 index ranks Tasmania as the most favourable of the three States for which data was available. The Competition Index may be found at the following website:

In summary, the above literature does not support the view that environmental policy and regulation is a highly significant factor in investment locational decisions. The stringency of environmental regulations is less significant than the difficulty or otherwise of approval processes. Country areas may have an advantage over metropolitan areas in regard to ease of meeting certain environmental requirements, e.g. noise and odour issues which should work to the benefit of Tasmania given its decentralised character.
REFERENCES


PART B

PROPOSED ENVIRONMENTAL MANAGEMENT AND POLLUTION CONTROL (UNDERGROUND PETROLEUM STORAGE SYSTEMS) REGULATIONS 2009

August 2009
TASMANIA

ENVIRONMENTAL MANAGEMENT AND POLLUTION CONTROL (UNDERGROUND PETROLEUM STORAGE SYSTEMS) REGULATIONS 2009

STATUTORY RULES 2009, No.

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Version 13
24 July 2009
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ENVIRONMENTAL MANAGEMENT AND POLLUTION CONTROL (UNDERGROUND PETROLEUM STORAGE SYSTEMS) REGULATIONS 2009

I, the Governor in and over the State of Tasmania and its Dependencies in the Commonwealth of Australia, acting with the advice of the Executive Council, make the following regulations under the Environmental Management and Pollution Control Act 1994.

Dated 200 .

Governor

By His Excellency’s Command,

Minister for Environment, Parks and Heritage

PART 1 - PRELIMINARY

1. Short title

These regulations may be cited as the Environmental Management and Pollution Control (Underground Petroleum Storage Systems) Regulations 2009.

2. Commencement

These regulations take effect on the day on which their making is notified in the Gazette.
3. Interpretation

In these regulations –

“abandoned storage system” means a storage system that existed before the commencement day but is not in use on that day;

“Act” means the Environmental Management and Pollution Control Act 1994;

“AS 4897” means Australian Standard AS 4897 Design, Installation and Operation of Underground Petroleum Storage Systems, issued and published on 5 February 2008, as amended or substituted from time to time;

“commencement day” means the day on which these regulations take effect;

“EPA guideline” means a guideline in force under regulation 40;

“equipment integrity test”, in relation to a storage system, means a test that is conducted –

(a) after all storage system works, including concreting and sealing, are completed; and

(b) in accordance with AS 4897; and
(c) on all components of the storage system that contain, or may contain, petroleum;

“existing storage system” means a storage system –

(a) that is in use on the commencement day; or

(b) that is an abandoned storage system;

“groundwater-monitoring well”, in relation to a storage system, means a well that is designed to enable the monitoring of groundwater to determine whether petroleum from the storage system has entered any groundwater aquifer in the vicinity of the system;

“groundwater protection zone” means an area of land declared by the Director under regulation 5 to be a groundwater protection zone for the purposes of these regulations;

“GST” has the same meaning as in the A New Tax System (Goods and Services Tax) Act 1999 of the Commonwealth;

“hourly rate” has the same meaning as in the Environmental Management and Pollution Control (General Fees) Regulations 2007;
“infrastructure owner” of a storage system means the person who owns the storage system (and who may be the landowner as the owner of the fixture);

“land” means –

(a) a parcel of land owned by a landowner; or

(b) if the landowner owns several parcels of land and those parcels share a common boundary, several parcels of land owned by the landowner;

“landowner”, in respect of a storage system, means an owner of land on which the storage system is situated and includes a person who –

(a) has taken possession of an area of land on which the storage system is situated in the exercise of a right under a mortgage, charge or other encumbrance; and

(b) has the power to sell or otherwise dispose of the area of land;

“mandatory equipment” means the following equipment:

(a) non-corrodible tanks and piping as defined in AS 4897;
(b) secondary containment for tanks and piping as defined in AS 4897;

(c) dispenser sumps in accordance with the requirements of AS 4897;

(d) fill point equipment in accordance with the requirements of AS 4897;

(e) overfill protection equipment comprising a mechanical or electrical device that is installed in the tank fill piping;

(f) tank pit observation wells in accordance with the requirements of AS 4897;

(g) equipment that earths the storage system in accordance with the requirements of AS 4897;

“Minimum construction requirements for water bores in Australia” means the Minimum construction requirements for water bores in Australia, published in September 2003 by the Land and Water Biodiversity Committee, as amended or substituted from time to time;

“monitor”, in relation to a groundwater-monitoring well, includes observation or the use of probes, to detect the presence
of petroleum, but does not include sampling and analysis;

“new storage system” means a storage system, other than an existing storage system, that is used after the commencement day;

“petroleum” means a fuel or lubricant that –

(a) is liquid at ambient conditions of temperature and pressure; and

(b) is used, could be used, or has been used, as a fuel or lubricant; and

(c) consists of one or more of the following:

(i) hydrocarbons derived from crude oil;

(ii) biofuel;

(iii) additives including but not limited to ethanol, methanol, esters, toluene, MTBE or ETBE; and

(d) includes but is not limited to the following:

(i) petrol;

(ii) diesel;
(iii) high-ethanol fuel such as E85;
(iv) biodiesel;
(v) gasoline;
(vi) used (waste) oil;
(vii) aviation fuel;
(viii) kerosene;
(ix) motor spirit;
(x) two-stroke oil;
(xi) heating oil;

“piping” means piping that routinely contains petroleum but does not include vent piping or piping for petroleum vapour recovery;

“small storage system” means –

(a) a storage system that has a capacity of less than 5 500 litres and which is the only storage system on the land on which that storage system is situated; or

(b) a storage system that contains used oil and has a capacity equal to or greater than 5 500 litres but in which less than 5 500 litres of used oil is stored at any one time;
"storage system" means a system that consists of –

(a) one or more tanks that –

(i) are linked by piping; and
(ii) are completely or partially buried in the ground; and
(iii) contain or are designed to contain petroleum; and

(b) any structure, associated with the tank or tanks, that is designed to control the passage of petroleum into, out of or through the system (including dispenser sumps and any other structure designed to collect or contain petroleum loss) but does not include –

(i) petroleum vent piping; or
(ii) petroleum vapour recovery piping; or
(iii) the bowser; or
(iv) any other structure which is above ground –

and includes a tank that was part of a storage system;

"system operator" of a storage system means –
Environmental Management and Pollution Control
(Underground Petroleum Storage Systems) Regulations 2009
Statutory Rules 2009, No.

Part 1 – Preliminary

(a) the person who manages the day-to-day operations of the storage system; or

(b) if paragraph (a) does not apply, the infrastructure owner of the storage system;

“tank pit observation well” means a well that has been installed within the tank pit of a storage system to enable the groundwater in the backfill, and the backfill itself, to be observed for the presence of petroleum.

4. When storage systems are in use

In these regulations, a storage system is in use if petroleum enters or passes through any part of the storage system or if petroleum that has the potential to be utilised is stored in any part of the storage system.

5. Declaration of groundwater protection zones

The Director may, by notice, declare an area of land to be a groundwater protection zone for the purposes of these regulations –

(a) to protect water resources such as ground and surface drinking-water sources; and
(b) to protect sensitive ecosystems that may be affected by groundwater quality, such as internationally listed wetlands; and

(c) for any other reason determined by the Director.

6. Storage systems to which regulations do not apply

These regulations do not apply to the following storage systems:

(a) separators, stormwater collection systems, wastewater collection systems, catchment basins, pits, septic tanks or other similar structures, unless petroleum routinely passes through the structures;

(b) bunded tanks situated below ground level (for example, bunded tanks in a basement, cellar or tunnel);

(c) storage systems that contain petroleum that is not liquid at ambient conditions of temperature and pressure.

7. Sampling and analysis

(1) For the purposes of these regulations, a person carrying out sampling of groundwater or soil must –

(a) collect the sample in accordance with –
(i) the National Environmental Protection (Assessment of Site Contamination) Measure, made on 10 December 1999 by the National Environment Protection Council, as amended or substituted from time to time; or

(ii) the relevant Australian Standard for collection of samples of that kind, which may include AS 4482.1, AS 4482.2 or AS 5667.11; or

(iii) Groundwater Sampling Guidelines, Publication Number 669, published by the Environment Protection Authority, Victoria in April 2000, as amended or substituted from time to time; or

(iv) another standard that is approved by the Director; and

(b) ensure that the collected sample is analysed in a laboratory that is –

(i) a laboratory accredited by the National Association of Testing Authorities in respect of the relevant test; or

(ii) a laboratory approved by the Director to undertake the relevant test.
(2) The Director may, by notice, determine a standard for the collection of samples for the purposes of these regulations.

(3) The Director may, by notice, approve laboratories for the purposes of subregulation (1)(b)(ii).

(4) In this regulation –

“AS 4482.1” means Australian Standard AS 4482.1 Guide to the sampling and investigation of sites with potentially contaminated soil, Part 1: Non-volatile and semi-volatile compounds, issued and published on 2 November 2005, as amended or substituted from time to time;

“AS 4482.2” means Australian Standard AS 4482.2, Guide to the sampling and investigation of potentially contaminated soil, Part 2: Volatile substances, issued and published on 5 September 1999, as amended or substituted from time to time;

“AS 5667.11” means Australian Standard AS 5667.11 Water quality – Sampling, Part 11: Guidance on sampling of groundwaters, issued and published on 5 April 1998, as amended or substituted from time to time;

“Environment Protection Authority, Victoria” means the Environment
Protection Authority established under section 5 of the *Environment Protection Act 1970* of Victoria;

PART 2 - USE, REPAIR AND REPLACEMENT OF STORAGE SYSTEMS

8. Storage systems generally

(1) An infrastructure owner must ensure that a storage system is not used unless all components of the storage system that are or will be in contact with petroleum are made of, or lined with, substances that are compatible with the petroleum stored in the storage system.

Penalty: Fine not exceeding 100 penalty units.

(2) A substance is compatible with petroleum for the purposes of subregulation (1) if both the substance and petroleum maintain, under conditions likely to be encountered in the storage system, their respective physical and chemical properties upon contact with one another.

9. New storage systems

An infrastructure owner of a new storage system must, before the new storage system is used for the first time –

(a) ensure that the storage system incorporates all mandatory equipment; and

(b) ensure that an equipment integrity test has been conducted and that the test
concludes that the storage system is not leaking; and

(c) give to the Director a notice, in a form approved by the Director, containing details of the new storage system.

Penalty: Fine not exceeding 100 penalty units.

10. Replacement and repair of components in storage systems

(1) If a tank forming part of a storage system is replaced, the infrastructure owner must ensure, before petroleum is put in the new tank, that the storage system incorporates all mandatory equipment.

Penalty: Fine not exceeding 100 penalty units.

(2) If a storage system, a bowser attached to a storage system, a fill point or piping in a storage system is replaced, the infrastructure owner must, within 28 days –

(a) ensure that an assessment, including sampling and analysis in accordance with regulation 7, of groundwater and soil within the vicinity of the component that has been replaced is conducted to determine –

(i) whether any petroleum has contaminated the groundwater or soil; and
(ii) whether any contamination by petroleum has caused or is likely to cause environmental harm; and

(b) if there are EPA guidelines in relation to an assessment under paragraph (a), ensure the assessment is conducted in accordance with those guidelines; and

(c) obtain a copy of an assessment report specifying details referred to in paragraph (a); and

(d) if there are EPA guidelines in relation to an assessment report under paragraph (c), ensure the assessment report is written in accordance with those guidelines.

Penalty: Fine not exceeding 100 penalty units.

(3) If a storage system or piping in a storage system is replaced, the infrastructure owner must, before the storage system is used –

(a) ensure that an equipment integrity test is conducted and that the test concludes that the storage system is not leaking; and

(b) give to the Director a notice, in a form approved by the Director, containing details of the replacement and an assessment of whether environmental harm is likely to occur or not.

Penalty: Fine not exceeding 100 penalty units.
Environmental Management and Pollution Control
(Underground Petroleum Storage Systems) Regulations 2009
Statutory Rules 2009, No.

Part 2 – Use, Repair and Replacement of Storage Systems

(4) If a component of a storage system is repaired, the infrastructure owner must ensure that the repair work meets the requirements set out in AS 4897 as a minimum.

Penalty: Fine not exceeding 100 penalty units.

(5) If a tank or piping in a storage system is repaired following the discovery of a leak in the storage system, the infrastructure owner must, before putting any further petroleum in the storage system –

(a) ensure that an equipment integrity test is conducted that concludes that the storage system is not leaking; and

(b) give to the Director a notice, in a form approved by the Director, containing details of the repairs.

Penalty: Fine not exceeding 100 penalty units.
PART 3 - LOSS-MONITORING AND INVESTIGATION

11. Loss-monitoring generally

(1) A system operator must not use a new storage system (other than a small storage system) unless loss-monitoring procedures are carried out in respect of the system in accordance with subregulation (4).

Penalty: Fine not exceeding 100 penalty units.

(2) A system operator must not, after the end of the 12-month period commencing on the commencement day, use an existing storage system (other than a small storage system) unless loss-monitoring procedures are carried out in respect of the system in accordance with subregulation (4).

Penalty: Fine not exceeding 100 penalty units.

(3) A system operator must ensure that the results of the loss-monitoring procedures are received by the system operator at least once a month.

Penalty: Fine not exceeding 100 penalty units.

(4) Loss-monitoring procedures are procedures that –

(a) are capable of detecting a loss of petroleum of 0.76 litres per hour with a 95% probability of detection and a 5% or less probability of false detection; and
12. Loss-monitoring for small storage systems

(1) A system operator must not use a new storage system that is a small storage system unless loss-monitoring procedures are carried out in respect of the system in accordance with subregulation (3).

Penalty: Fine not exceeding 100 penalty units.

(2) A system operator must not, after the end of the 12-month period commencing on the commencement day, use an existing storage system that is a small storage system unless loss-monitoring procedures are carried out in respect of the system in accordance with subregulation (3).

Penalty: Fine not exceeding 100 penalty units.

(3) For the purposes of subregulations (1) and (2), loss-monitoring procedures are procedures that –

   (a) use manual tank-gauging in accordance with AS 4897 or any other method that is as capable of detecting a loss of petroleum as manual tank-gauging; and

   (b) require measurements of petroleum levels in the storage system to be taken at
least twice a year and at intervals of at least 4 months; and

(c) require the measurements under paragraph (b) to be recorded.

13. **Interstitial monitoring**

(1) A system operator of a storage system with one or more double-walled tanks must not use the storage system unless interstitial monitoring is carried out in respect of the storage system.

Penalty: Fine not exceeding 100 penalty units.

(2) For the purposes of subregulation (1), interstitial monitoring is monitoring that –

(a) checks the space between the 2 walls of a double-walled tank to determine whether both walls are sound; and

(b) occurs on at least 2 occasions, at least 4 months apart, in each year; and

(c) requires the following information to be recorded:

(i) the date the monitoring occurs;

(ii) the name of the person who conducts the monitoring;

(iii) the results of a determination under paragraph (a).
(3) If the wall of a tank is not sound, the infrastructure owner must, before putting any further petroleum in the storage system, ensure that the tank is repaired or replaced in accordance with regulation 10.

Penalty: Fine not exceeding 100 penalty units.

14. Loss investigation

(1) In this regulation –

“loss investigation” means an investigation to locate the cause of an apparent loss of integrity in the storage system.

(2) A system operator must carry out a loss investigation if

(a) loss-monitoring procedures in accordance with regulation 11(4) indicate that a loss of petroleum has occurred; or

(b) in the case of a small storage system, loss-monitoring procedures indicate a variation in petroleum volume of more than 2% of the tank volume; or

(c) measurements of the water level at the bottom of the tank indicate an unexplained increase, between consecutive recordings, in the water level; or
Environmental Management and Pollution Control
(Underground Petroleum Storage Systems) Regulations 2009
Statutory Rules 2009, No.

Part 3 – Loss-monitoring and Investigation

(d) petroleum is being or has been lost from the storage system and the system operator or infrastructure owner is aware, or ought to be aware, of the loss; or

(e) the wall of a tank is found not to be sound when monitored in accordance with regulation 13(1).

(3) A system operator who is required by subregulation (2) to carry out a loss investigation must ensure that the investigation begins within 7 days of the system operator becoming aware that a loss investigation is required in accordance with subregulation (2).

Penalty: Fine not exceeding 100 penalty units.

(4) A system operator who is required by subregulation (2) to carry out a loss investigation must ensure that –

(a) the investigation is completed, and a report is obtained, as soon as reasonably practicable but, in any case, not later than 28 days after the loss investigation began; and

(b) if a groundwater-monitoring well is present in respect of a storage system, the investigation includes monitoring of that groundwater-monitoring well.

Penalty: Fine not exceeding 100 penalty units.
(5) For the purposes of subregulation (4)(a), a report is a report that contains –

(a) the name and qualifications of the person carrying out the investigation; and

(b) the date the investigation took place; and

(c) the results of the investigation.

(6) The system operator must, within 7 days after the loss investigation begins, give notice to the Director, in a form approved by the Director, that the loss investigation is being carried out.

Penalty: Fine not exceeding 100 penalty units.

15. Loss confirmation

(1) If a report provided to the system operator under regulation 14(4)(a) indicates that no loss of integrity in the storage system has occurred, the system operator must, within 7 days of receiving the report, give notice to the Director in a form approved by the Director.

Penalty: Fine not exceeding 50 penalty units.

(2) If a report provided to the system operator under regulation 14(4)(a) indicates that there has been a loss of integrity in the storage system, the system operator must, as soon as practicable and in any case within 24 hours –
(a) inform the infrastructure owner of the contents of the report; and

(b) notify the Director of the contents of the report.

Penalty: Fine not exceeding 100 penalty units.

(3) An infrastructure owner who is informed of the contents of a report in accordance with subregulation (2)(a) must –

(a) as soon as practicable, prevent any further petroleum from being lost from the storage system and prevent the further spread of petroleum that has been lost from the storage system; and

(b) if there is a groundwater-monitoring well in respect of a storage system, within 21 days after the report is provided, ensure that sampling and analysis of the well is carried out in accordance with regulation 7 to determine whether any petroleum has contaminated the groundwater; and

(c) within 14 days after sampling and analysis is carried out, give notice to the Director, in a form approved by the Director, of the results of the sampling and analysis.

Penalty: Fine not exceeding 100 penalty units.
PART 4 – GROUNDWATER-MONITORING WELLS

Division 1 – Groundwater-monitoring wells generally

16. Application

This Part does not apply to –

(a) small storage systems; and

(b) new storage systems that are situated on land that is not, to the satisfaction of the Director, contaminated with petroleum.

17. Specifications for groundwater-monitoring wells

(1) This regulation applies to all groundwater-monitoring wells, whether or not they are within a groundwater protection zone.

(2) The infrastructure owner of a storage system must ensure that a groundwater-monitoring well to which this regulation applies is –

(a) sealed to exclude surface water; and

(b) clearly marked to indicate its presence; and

(c) adequately secured at all times to prevent unauthorised access.

Penalty: Fine not exceeding 100 penalty units.
18. **Decommissioning of groundwater-monitoring wells**

(1) If a groundwater-monitoring well is not maintained in accordance with regulation 17, the infrastructure owner must ensure that, within 60 days of the well ceasing to be maintained in accordance with regulation 17, it has been decommissioned in accordance with the *Minimum construction requirements for water bores in Australia*.

Penalty: Fine not exceeding 100 penalty units.

(2) The infrastructure owner must, within 14 days after the well has been decommissioned in accordance with subregulation (1), give the Director a notice containing information, in a form approved by the Director, in relation to the decommissioning of the well.

Penalty: Fine not exceeding 50 penalty units.

**Division 2 – Installation of new wells**

19. **Storage systems, without existing wells, in groundwater protection zones**

(1) In this regulation –

“*prescribed date*”, in relation to a storage system, means 2 years after the day on which the groundwater protection zone, in which part or all of that storage system is situated, comes into existence.
(2) Subregulation (3) applies to an existing storage system or a new storage system if –

(a) the storage system is in use when a groundwater protection zone, in which part or all of the storage system is situated, comes into existence; and

(b) there are no groundwater-monitoring wells in respect of the storage system on the day on which the groundwater protection zone comes into existence.

(3) The infrastructure owner of a storage system must, before the prescribed date, ensure that –

(a) a sufficient number of suitably located groundwater-monitoring wells, as determined in accordance with regulation 21, are installed in respect of the storage system; and

(b) the requirements of regulation 22 are satisfied in relation to those groundwater-monitoring wells.

Penalty: Fine not exceeding 100 penalty units.

20. New storage systems (other than those to which regulation 19 applies), without existing wells, in groundwater protection zones

(1) This regulation applies to a new storage system if –
(a) part or all of the new storage system is installed in a groundwater protection zone after the groundwater protection zone comes into existence; and

(b) there are no groundwater-monitoring wells on the land when the new storage system is installed.

(2) The infrastructure owner of a new storage system to which this regulation applies must, before the new storage system is first used, ensure that –

(a) a sufficient number of suitably located groundwater-monitoring wells, as determined in accordance with regulation 21, are installed in respect of the new storage system; and

(b) the requirements of regulation 22 are satisfied in relation to those groundwater-monitoring wells.

Penalty: Fine not exceeding 100 penalty units.

21. Required number and location of groundwater-monitoring wells

For the purposes of this Part, a sufficient number of suitably located groundwater-monitoring wells are installed in respect of a storage system if there are enough wells, placed in suitable locations –
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(a) to enable the detection of petroleum that may be lost from any part of the storage system into any groundwater aquifer in the vicinity of the storage system that is likely to be affected by the loss of petroleum; and

(b) to identify the local groundwater flow direction.

22. Installation of groundwater-monitoring wells

(1) A groundwater-monitoring well in a groundwater protection zone must, in addition to the requirements under regulation 17, be –

(a) designed so that cross-contamination between aquifers is prevented; and

(b) constructed so that the groundwater-monitoring well casing allows entry of petroleum into the well in the event of a loss of petroleum from the storage system under high or low groundwater conditions; and

(c) constructed in accordance with the Minimum construction requirements for water bores in Australia; and

(d) in accordance with EPA guidelines, if any.
(2) Sampling and analysis of groundwater to determine whether petroleum has contaminated the groundwater must –

(a) occur between 7 and 21 days after a groundwater-monitoring well is installed; and

(b) be carried out in accordance with regulation 7.

23. Reports on installation

(1) An infrastructure owner must, within 30 days after a groundwater-monitoring well is installed in respect of a storage system in a groundwater protection zone, obtain a groundwater-monitoring well installation report.

Penalty: Fine not exceeding 100 penalty units.

(2) A groundwater-monitoring well installation report for the purposes of subregulation (1) must include –

(a) a list of industry standards that have been followed in installing the well; and

(b) final construction details of the well; and

(c) co-ordinates of the wells in eastings and northings; and

(d) details of the depth to standing-water level from ground level; and
(e) results of the groundwater analysis conducted under regulation 22(2), including information as to whether contamination by petroleum was detected and whether any petroleum contamination is likely to cause environmental harm.

(3) An infrastructure owner must, within 7 days of receiving a report under subregulation (1), provide details, relating to the groundwater-monitoring wells, to the Director in a form approved by the Director.

Penalty: Fine not exceeding 50 penalty units.

Division 3 – Testing and modification of existing wells

24. Storage systems, with wells, in groundwater protection zones

(1) In this regulation –

“prescribed date”, in relation to a storage system, means 2 years after the day on which the groundwater protection zone, in which part or all of that system is situated, comes into existence.

(2) Subregulation (3) applies to an existing storage system or a new storage system if –

(a) the storage system is in use when a groundwater protection zone, in which
part or all of the storage system is situated, comes into existence; and

(b) there are one or more groundwater-monitoring wells in respect of the storage system in existence on the day on which the groundwater protection zone comes into existence.

(3) The infrastructure owner of a storage system to which this subregulation applies must, before the prescribed date, ensure that an assessment is conducted to determine –

(a) whether a sufficient number of suitably located groundwater-monitoring wells, as determined in accordance with regulation 21, are installed in respect of the storage system; and

(b) whether the requirements of regulation 22(1) have been satisfied in relation to those groundwater-monitoring wells.

Penalty: Fine not exceeding 100 penalty units.

(4) If, after an assessment under subregulation (3), it is determined –

(a) that a sufficient number of suitably located groundwater-monitoring wells, as determined in accordance with regulation 21, have been installed in respect of the storage system; and
(b) that the requirements of regulation 22(1) have been satisfied in relation to those groundwater-monitoring wells—

regulation 26 applies in relation to the groundwater-monitoring wells.

(5) Subregulation (6) applies to an existing storage system, or a new storage system, that is in use when a groundwater protection zone in which the storage system is situated comes into existence, if, after an assessment under subregulation (3), it is determined—

(a) that a sufficient number of suitably located groundwater-monitoring wells, as determined in accordance with regulation 21, have not been installed in respect of the storage system; or

(b) that the requirements of regulation 22(1) have not been satisfied in relation to those groundwater-monitoring wells.

(6) The infrastructure owner of a storage system to which this subregulation applies must, before the prescribed date, ensure that—

(a) a sufficient number of suitably located groundwater-monitoring wells, as determined in accordance with regulation 21, are installed in respect of the storage system; and
(b) the requirements of regulation 22(1) are satisfied in relation to those groundwater-monitoring wells.

Penalty: Fine not exceeding 100 penalty units.

25. New storage systems (other than those to which regulation 24 applies), with existing wells, in groundwater protection zones

(1) Subregulation (2) applies to a new storage system if –

(a) part or all of the new storage system is installed in a groundwater protection zone after the groundwater protection zone comes into existence; and

(b) there are one or more groundwater-monitoring wells on the land when the new storage system is installed.

(2) The infrastructure owner of a new storage system to which this subregulation applies must, before the system is first used, ensure that an assessment is conducted to determine –

(a) whether a sufficient number of suitably located groundwater-monitoring wells, as determined in accordance with regulation 21, are installed in respect of the new storage system; and

(b) whether the requirements of regulation 22(1) have been satisfied in
relation to those groundwater-monitoring wells.

Penalty: Fine not exceeding 100 penalty units.

(3) If, after an assessment under subregulation (2), it is determined –

(a) that a sufficient number of suitably located groundwater-monitoring wells, as determined in accordance with regulation 21, have been installed in respect of the new storage system; and

(b) that the requirements of regulation 22(1) have been satisfied in relation to those groundwater-monitoring wells –

regulation 26 applies in relation to the groundwater-monitoring wells.

(4) Subregulation (5) applies to a new storage system if, after an assessment under subregulation (2), it is determined –

(a) that a sufficient number of suitably located groundwater-monitoring wells, as determined in accordance with regulation 21, have not been installed in respect of the new storage system; or

(b) that the requirements of regulation 22(1) have not been satisfied in relation to those groundwater-monitoring wells.
(5) The infrastructure owner of a new storage system to which this subregulation applies must ensure that, before the system is first used –

(a) a sufficient number of suitably located groundwater-monitoring wells, as determined in accordance with regulation 21, are installed in respect of the new storage system; and

(b) the requirements of regulation 22 are satisfied in relation to those groundwater-monitoring wells.

Penalty: Fine not exceeding 100 penalty units.

26. Analysis and assessment report

(1) If in accordance with regulation 24(4) or regulation 25(3) this regulation applies to a groundwater-monitoring well, the infrastructure owner must ensure that, within 21 days after the groundwater-monitoring well is assessed under regulation 24(3) or regulation 25(2), sampling and analysis of the groundwater-monitoring well is conducted, in accordance with regulation 7, to determine whether any petroleum has contaminated the groundwater.

Penalty: Fine not exceeding 50 penalty units.

(2) If in accordance with regulation 24(4) or regulation 25(3) this regulation applies to a groundwater-monitoring well, the infrastructure
owner must, within 30 days after an assessment under regulation 24(3) or regulation 25(2), obtain a groundwater-monitoring well assessment report for the purposes of this subregulation.

Penalty: Fine not exceeding 50 penalty units.

(3) A groundwater-monitoring well assessment report for the purposes of subregulation (2) must include –

(a) a statement that the wells comply with the requirements of regulation 21 and regulation 22(1); and

(b) construction details of the wells or, if construction details are unavailable, at a minimum the following details:

(i) depth to standing-water level from ground level;

(ii) the depth of the well;

(iii) the depth and length of the screened interval of the well; and

(c) co-ordinates of the wells in eastings and northing; and

(d) results of the analysis conducted under subregulation (1), including information as to whether contamination by petroleum was detected and whether any
petroleum contamination is likely to cause environmental harm.

(4) An infrastructure owner must, within 7 days of receiving a report under subregulation (2), provide details, relating to the groundwater-monitoring wells, to the Director in a form approved by the Director.

Penalty: Fine not exceeding 50 penalty units.

**Division 4 – Monitoring of wells**

27. **Wells to be monitored for contamination every 6 months**

(1) In this regulation –

“**free-phase petroleum product**” means petroleum product that has not dissolved in water;

“**sheen**” means any visible petroleum, including any opalescent sheen, that floats on the surface of water.

(2) A system operator of a storage system –

(a) that is in use in a groundwater protection zone; and

(b) in respect of which a groundwater-monitoring well is installed –

must ensure that –
(c) the groundwater-monitoring well is monitored for petroleum contamination at least every 6 months; and

(d) a tank pit observation well adjacent to the storage system, if any, is monitored for petroleum contamination at least every 6 months; and

(e) if there are EPA guidelines in relation to the monitoring required under paragraph (c) or (d), the monitoring is conducted in accordance with the EPA guidelines; and

(f) the following information is recorded:
   
   (i) the date the monitoring occurs;
   
   (ii) the name of the person who conducts the monitoring;
   
   (iii) the results of the monitoring under paragraph (c) and (e).

Penalty: Fine not exceeding 100 penalty units.

(3) If petroleum (including a free-phase petroleum product or a sheen) is detected in a groundwater-monitoring well or tank pit observation well, the system operator of a storage system in respect of which the groundwater-monitoring well or tank pit observation well is installed must, as soon as practicable but in any case not later than 24 hours after the petroleum is detected, give notice
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to the Director in a form approved by the Director.

Penalty: Fine not exceeding 100 penalty units.
PART 5 - CESSATION AND RESUMPTION OF USE

28. Storage systems being replaced or repaired

This Part does not apply to a storage system that is not in use because a component of the storage system is being repaired or replaced in accordance with regulation 10.

29. Notification of temporary or permanent cessation of use

(1) If a storage system is not in use for 30 continuous days, the system operator must notify the Director, within 45 days of the storage system ceasing to be used, that the storage system –

(a) has temporarily ceased to be used; or
(b) has permanently ceased to be used.

Penalty: Fine not exceeding 100 penalty units.

(2) Subregulation (1) does not apply to an abandoned storage system unless the system is returned to use after the commencement day and is not in use for 30 continuous days after being so returned to use.
30. Temporary cessation of use

(1) If a system operator notifies the Director in accordance with regulation 29 that the storage system has temporarily ceased to be used, the system operator must comply with EPA guidelines, if any, relating to the temporary cessation of use of a storage system.

Penalty: Fine not exceeding 100 penalty units.

(2) If a system operator notifies the Director in accordance with regulation 29 that the storage system has temporarily ceased to be used, the system operator must not begin to use the storage system again unless –

   (a) an equipment integrity test of the storage system is conducted and the test concludes that the storage system is not leaking; and

   (b) the infrastructure owner has complied with the requirements of subregulation (3) or (4).

Penalty: Fine not exceeding 100 penalty units.

(3) If part or all of the storage system to which subregulation (2) applies is in a groundwater protection zone and there are no groundwater-monitoring wells in respect of the storage system, the infrastructure owner must comply with the requirements of regulation 20(2) as if the storage system were a new storage system that is first being used.
Penalty: Fine not exceeding 100 penalty units.

(4) If part or all of the storage system to which subregulation (2) applies is in a groundwater protection zone and there are one or more groundwater-monitoring wells in respect of the storage system, the infrastructure owner must comply with the requirements of –

(a) regulation 25(2), (3), (4) and (5), as if the storage system were a new storage system to which regulation 25(1) applied; and

(b) regulation 26, as if that regulation applied in relation to each of the groundwater-monitoring wells.

Penalty: Fine not exceeding 100 penalty units.

(5) If a system operator begins to use a storage system in accordance with subregulation (2) after the storage system has temporarily ceased to be used, the system operator must, within 7 days of beginning to use the storage system, notify the Director that the storage system has been returned to use.

Penalty: Fine not exceeding 50 penalty units.

(6) If a system operator notifies the Director in accordance with regulation 29 that a storage system has temporarily ceased to be used, the system operator, at the end of the period of 12 months after the storage system ceases to be used, must –
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(a) if during that 12 month period the storage system is used again, comply with subregulations (2), (3), (4) and (5); or

(b) if the storage system is not used during that 12 month period, notify the Director in accordance with regulation 29 that the storage system has permanently ceased to be used.

Penalty: Fine not exceeding 100 penalty units.

31. Resumption of use of abandoned storage systems

(1) A system operator must not use an abandoned storage system after the commencement day unless

(a) an equipment integrity test of the storage system is conducted and the test concludes that the storage system is not leaking; and

(b) the infrastructure owner has complied with the requirements of subregulations (2) and (3).

Penalty: Fine not exceeding 100 penalty units.

(2) If part or all of the storage system to which subregulation (1) applies is in a groundwater protection zone and there are no groundwater-monitoring wells in respect of the storage system, the infrastructure owner must comply
with the requirements of regulation 20(2) as if the storage system were a new storage system.

Penalty: Fine not exceeding 100 penalty units.

(3) If part or all of the storage system to which subregulation (1) applies is in a groundwater protection zone and there are one or more groundwater-monitoring wells in respect of the storage system, the infrastructure owner must comply with the requirements of –

(a) regulation 25(2), (3), (4) and (5), as if the storage system were a new storage system to which regulation 25(1) applied; and

(b) regulation 26, as if that regulation applied in relation to each of the groundwater-monitoring wells.

Penalty: Fine not exceeding 100 penalty units.

(4) If an abandoned storage system is used after the commencement day, the system operator, infrastructure owner or landowner must, within 7 days after the system is used, give the Director a notice containing information, in a form approved by the Director, in relation to the system.

Penalty: Fine not exceeding 50 penalty units.

(5) For the purposes of this regulation –

“system operator” means the person who –
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Part 5 – Cessation and Resumption of Use

32. **Permanent cessation of use**

(1) In this regulation –


(2) If –

(a) a system operator notifies the Director in accordance with regulation 29 that a storage system has permanently ceased to be used; or

(b) no notice is given by a system operator required to give notice in accordance with regulation 29 –

the infrastructure owner must ensure, within 2 months after the storage system ceases to be used, that –

(a) manages or will manage the day-to-day operations of the storage system; or

(b) if paragraph (a) does not apply, the infrastructure owner of the storage system.
Part 5 – Cessation and Resumption of Use

(c) the storage system is removed and disposed of in accordance with AS 4976; or

(d) if the storage system cannot be removed without serious risk to the safety of people or adjoining infrastructure, the tanks of the storage system are decommissioned on-site in accordance with AS 4976.

Penalty: Fine not exceeding 100 penalty units.

(3) An infrastructure owner of an abandoned storage system must ensure that –

(a) if the abandoned storage system is removed, that it is removed and disposed of in accordance with AS 4976; or

(b) if the abandoned storage system cannot be removed without serious risk to the safety of people or adjoining infrastructure, the tanks of the storage system are decommissioned on-site in accordance with AS 4976.

Penalty: Fine not exceeding 100 penalty units.

(4) If a storage system is removed or decommissioned on-site, in accordance with subregulation (2) or (3), the infrastructure owner must ensure that, within 3 months after that removal or decommissioning on-site –
(a) an assessment is conducted as to whether any petroleum has contaminated the soil or groundwater within the vicinity of the storage system; and

(b) if there are any EPA guidelines in relation to the matters referred to in paragraph (a), the assessment is conducted in accordance with those guidelines; and

(c) the infrastructure owner obtains a copy of an assessment report specifying the details referred to in paragraph (a); and

(d) if there are any EPA guidelines in relation to the assessment report under paragraph (c), the assessment report is written in accordance with those guidelines.

Penalty: Fine not exceeding 100 penalty units.

(5) An infrastructure owner who receives a report under subregulation (4)(c) must, within 7 days after receipt, give notice to the Director, in a form approved by the Director, that the storage system to which the report relates has permanently ceased to be used.

Penalty: Fine not exceeding 50 penalty units.
PART 6 - RECORD-KEEPING

33. Records kept generally

(1) The system operator of a storage system must keep, for the period specified in subregulation (4), the following records in relation to the storage system:

(a) details of the ownership of the storage system, including any contractual arrangements relevant to the management of the storage system;

(b) contact details for the infrastructure owner, the landowner and all persons who are associated with the management of the storage system;

(c) details, including dimensions, capacity and location, of the storage system;

(d) details of any loss investigations under regulation 14 and actions taken as a result of them;

(e) copies of all notifications to the Director under regulation 14(6), regulation 15(1) and (2), regulation 27(3), regulation 29(1), regulation 30(5) and (6), regulation 31(4), regulation 36(1) and (2);

(f) monitoring results under regulation 27 in relation to groundwater.
Penalty: Fine not exceeding 50 penalty units.

(2) The infrastructure owner of a storage system must keep, for the period specified in subregulation (4), the following records in relation to the storage system:

(a) details of the ownership of the storage system;

(b) details, including dimensions, capacity and location, of the storage system;

(c) the storage system designs and installation plans;

(d) site plans for the storage system and any other storage system that was formerly on the land on which the storage system is situated, including site drainage plans;

(e) details of all repairs and replacements of components of the storage system under regulation 10;

(f) copies of all assessment reports under regulation 10(2)(c) and regulation 32(4)(c);

(g) copies of all notifications to the Director under regulation 9(c), regulation 10(3)(b), regulation 10(5)(b), regulation 15(3)(c), regulation 18(2), regulation 23(3), regulation 26(4), regulation 31(4), regulation 32(5), regulation 36(1) and (3);
(h) copies of all groundwater-monitoring well installation reports under regulation 23 and assessment reports under regulation 26(2);

(i) results of equipment integrity tests conducted under regulation 9(b), regulation 10(3), regulation 10(5), regulation 30(2)(a) and regulation 31(1)(a).

Penalty: Fine not exceeding 50 penalty units.

(3) A system operator is not required to keep a record specified in subregulation (1) and an infrastructure owner is not required to keep a record specified in subregulation (2) if the record was created before the commencement day and the system operator or infrastructure owner has taken reasonable steps to obtain the record but has not been able to obtain it.

(4) The records kept under subregulations (1) and (2) must be kept while the storage system –

(a) is in use; or

(b) has temporarily ceased to be used as notified in accordance with regulation 29.

(5) If the storage system permanently ceases to be used in accordance with regulation 32 –

(a) the infrastructure owner or system operator must deliver, to the landowner,
the records kept in relation to that storage system under subregulations (1) and (2); and

(b) the landowner must keep the records for a period of 10 years beginning on the day on which the storage system ceases to be used in accordance with regulation 32.

Penalty: Fine not exceeding 50 penalty units.

34. Records kept for 10 years from date of creation

A system operator must keep, for 10 years after their creation, the following:

(a) loss-monitoring records under regulation 11 or 12;

(b) interstitial monitoring records under regulation 13;

(c) monitoring results under regulation 27(2)(f);

(d) documents setting out record-keeping procedures and details of loss-prevention measures undertaken in respect of the storage system (including maintenance schedule and testing details);

(e) environmental training records, if any.

Penalty: Fine not exceeding 50 penalty units.
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Part 6 – Record-keeping

35. **Delivery of records**

A system operator, infrastructure owner or landowner of a storage system must, within 14 days after ceasing to be a system operator, infrastructure owner or landowner, deliver to the new system operator, infrastructure owner or landowner, copies of all documents for the storage system required to be kept under this Part, if any.

Penalty: Fine not exceeding 50 penalty units.
PART 7 - MISCELLANEOUS

36. Notifications in relation to existing storage systems and on change of responsibility

(1) A system operator, infrastructure owner and landowner of an existing storage system, other than an abandoned storage system, must, within 6 months after the commencement day, register the storage system by giving to the Director a notice containing information, in a form approved by the Director, in relation to the storage system.

Penalty: Fine not exceeding 100 penalty units.

(2) A person must, within 28 days after becoming the system operator of a storage system, notify the Director that the person has become the system operator of the storage system.

Penalty: Fine not exceeding 50 penalty units.

(3) A person must, within 28 days after becoming the infrastructure owner of a storage system, notify the Director that the person has become the infrastructure owner of the storage system.

Penalty: Fine not exceeding 50 penalty units.

37. Register

(1) The Director must maintain a register of –
(a) all notifications provided to the Director under these regulations; and

(b) any amendments to notifications referred to in paragraph (a).

(2) The Director may amend any details placed on the register.

38. Exemptions

(1) A person may apply to the Director for an exemption from the requirements of one or more provisions of these regulations.

(2) An application under subregulation (1) must be –

   (a) in a form approved by the Director; and

   (b) accompanied by a fee of 200 fee units.

(3) The Director may, by notice to a person who makes an application under subregulation (1), require the person to pay the hourly rate for each hour, or part of an hour, spent by the Director in assessing the application.

(4) The Director may –

   (a) after receiving an application under subregulation (1) from a person; and

   (b) receiving from the person any additional amount the person is required to pay under subregulation (3) –
exempt, or refuse to exempt, the person from the requirements of a provision of these regulations.

(5) An exemption under subregulation (4) may be granted unconditionally or on the conditions that the Director considers appropriate.

(6) A person exempted under subregulation (4) from the requirements of a provision of these regulations must comply with the conditions of the exemption, if any.

Penalty: Fine not exceeding 100 penalty units.

(7) The Director may, on his or her own initiative, by notice, exempt members of a class of persons specified in the notice from the requirements of a provision of these regulations.

(8) A notice under subregulation (7) may specify conditions on which a member of the class of persons specified in the notice is to be exempted.

(9) A person exempted under subregulation (7) must comply with the conditions of the exemption, if any.

Penalty: Fine not exceeding 100 penalty units.

(10) The fees prescribed under this regulation are exempt from GST.

39. Further information

(1) The Director may, in writing --
(a) request that a person provide, to the Director, further information about any matter that relates to an application by the person under these regulations; and

(b) refuse to grant an application unless that person provides that further information.

(2) The Director may request that –

(a) a system operator provide, to the Director, further information about a notification the system operator is required to give under these regulations; or

(b) an infrastructure owner provide, to the Director, further information about a notification the infrastructure owner is required to give under these regulations.

(3) A person requested under subregulation (2) to provide information must, within the time period determined by the Director, provide the information to the Director.

Penalty: Fine not exceeding 100 penalty units.

40. EPA guidelines

(1) The Director may, by notice, issue guidelines for the purposes of these regulations.

(2) The Director may, by notice, vary or revoke any guideline made under subregulation (1).
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EXPLANATORY NOTE
(This note is not part of the regulations)

These regulations prescribe requirements relating to the construction and operation of underground petroleum storage systems.