

# UPSS: COUNCIL ARA RESPONSIBILITIES

## QUICK REFERENCE GUIDE

FOR COUNCIL REGULATION OF  
UNDERGROUND PETROLEUM STORAGE SYSTEMS

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This quick reference guide is one of a series of resources on contaminated land developed for Councils. These resources were developed with the use of funds under the NSW EPA Council Regional Capacity Building (CRCB) program on contaminated land.

The process of developing these resources was a collaboration between the respective CRCB projects delivered by the Riverina and Murray Joint Organisation, Riverina Eastern Regional Organisation of Councils, Northern Rivers Contaminated Land Program, Far North West Joint Organisation and the Dubbo Regional Council.

The Northern Rivers Contaminated Land Program is also to be acknowledged for allowing its *Fuel System Operation Plan User Guide* to be included as an appendix to this quick reference guide.

Golder and Associates (now part of WSP) is acknowledged for its technical guidance and input in developing this resource.

## REPORT LIMITATIONS

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**The following limitations are to be noted in relation to this resource:**

- The legislative framework is the framework of 23 June 2023
  - o *Contaminated Land Management Act 1997*
  - o *Environmental Planning and Assessment Act 1979*
  - o *Environmental Planning and Assessment Regulation 2021*
  - o *Local Government Act 1993*
  - o *Managing Land Contamination: Planning Guidelines: SEPP55 – Remediation of Land (1998)*
  - o *Protection of the Environment Operations Act 1997*
  - o *Protection of the Environment Operations (General) Regulation 2021*
  - o *Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019*
  - o *Protection of the Environment Operations (Waste) Regulation 2014*
  - o *State Environmental Planning Policy (Resilience and Hazards) 2021*
  - o *Work Health and Safety Act 2011*
  - o *Work Health and Safety Regulation 2017.*
- Information on processes, steps and related information is of 23 June 2023.
  - o *Consultants Reporting on Contaminated Land: Contaminated Land Guidelines (NSW EPA, 2020)*
  - o *Liquid Trade Waste Guidelines (DPIE, 2021).*

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# INTRODUCTION

This quick reference guide is a 'one-stop shop' procedural resource for Council to navigate the requirements of the *Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019 (UPSS Regulation)*.

The *UPSS Regulation* designates Council as the appropriate regulatory authority (ARA) on specific matters relating to the design, installation, operation, maintenance and decommissioning of underground petroleum storage systems (UPSSs) within its local government area. These include ensuring that the design and installation of a UPSS is in accordance with the provisions of the *UPSS Regulation* and that the operation of the system maintains compliance with the *UPSS Regulation* through best practice loss monitoring and leak detection procedures.

This quick reference guide provides a simplified process for staff to incorporate Council's ARA responsibilities in their development control functions. The simplified process enables Council to manage its corporate risk through best practice pollution prevention so as to minimise the risk of harm in the operation of UPSSs on human health and the environment, and by ensuring the operation of UPSSs maintains compliance with development consent and the *UPSS Regulation*.

## Relevant development control processes that this quick reference guide relates to include:

- development assessment and consent for a new or 'significantly modified' UPSS
- UPSS inspection and monitoring
- decommissioning of UPSSs
- category 2 remediation works.

## Relevant inspection processes include:

- formal inspection in line with Council's UPSS plan
- inspection in response to a complaint (for example, hydrocarbon odours, pollution incidents) and/or notification (for example, pollution incident, leak notification form)
- notification of category 2 remediation works, including the decommissioning of a UPSS.

The NSW EPA is the ARA for a UPSS that is either owned by Council or is managed by a third-party on behalf of Council. Processes outlined in this quick reference guide can be used by Council to ensure its UPSSs comply with the *UPSS Regulation*.

## PURPOSE AND OBJECTIVES

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This quick reference guide is a high-level reference guide for Council officers when they are required to consider Council's ARA responsibilities under the *UPSS Regulation* in its development control functions.

The objective of the quick reference guide is to outline Council's ARA responsibilities with respect to the design, installation, operation, maintenance and decommissioning of UPSSs. This guide also draws in other related best practice resources.

This guidance does not address Council's obligations when it is a public land owner or manager of a site that includes a UPSS. Information and procedures for public land managers are [provided by the NSW EPA](https://www.epa.nsw.gov.au/your-environment/contaminated-land/managing-contaminated-land/procedures-for-land-managers)<sup>1</sup> and as regulated by the NSW EPA for licensed activities. Nor does this guidance address Council's obligations as an activity operator or person conducting business or undertaking where Council conducts business activities that are potentially contaminating (for example, fuel storage and dispensing at a Council depot).

This quick reference guide is one of a series of resources on contaminated land management developed for Councils. These resources are intended to guide and inform Council development control processes so as to:

- ensure land is or can be made suitable for its proposed use
- minimise the risk of harm to human health and the environment, including by ensuring UPSSs maintain compliance with development consent
- apply best practice in preventing pollution and managing contaminants in soil.

<sup>1</sup><https://www.epa.nsw.gov.au/your-environment/contaminated-land/managing-contaminated-land/procedures-for-land-managers>

## INTENDED AUDIENCE, AND ROLES AND RESPONSIBILITIES

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Council staff are required to consider its ARA obligations under the *UPSS Regulation* when managing UPSSs in its development control functions.

**This quick reference guide is relevant to Council staff who:**

- are involved in the development assessment and consent processes for a new or 'significantly modified' UPSS
- deliver development control processes related to ensuring that the operation of a UPSS maintains compliance with development consent and the *UPSS Regulation*
- decommission UPSSs.

It is acknowledged that the regulatory landscape for UPSSs is not limited to the *UPSS Regulation*. SafeWork NSW also has obligations regarding decommissioning under the *Work Health and Safety Act 2011* and its subordinate *Work Health and Safety Regulation 2017*. These obligations relate to the licensing of UPSS tanks, to the notification process for decommissioning UPSS tanks and to workplace health and safety matters regarding the operation of a retail fuel service station or fuel depot.

## GLOSSARY

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### Fuel delivery area

The area where fuel tankers undertake tank filling and includes the remote fill points and spill box.

### Fuel dispensing area

The immediate area surrounding the fuel dispensing bowsers where vehicles or other equipment and containers are routinely filled and at which there is a higher risk of contamination.

### Fuel system operation plan (FSOP)

An FSOP (formerly known as an environment protection plan) documents the fuel systems and procedures.

### Groundwater monitoring well

A well that is used to measure or monitor the level, quality, quantity or movement of groundwater.

### Light non-aqueous phase liquid (LNAPL)

An organic or inorganic liquid that is not miscible with water and has a specific gravity less than 1.0 (for example, petrol and diesel).

### NSW Environment Protection Authority (EPA)

The environmental regulator in NSW.

### Petroleum products

Any fuel that consists predominantly of a mixture of hydrocarbons derived from crude oil, whether or not the fuel includes additives (such as ethanol). Includes oil and used oil.

### Underground petroleum storage system (UPSS)

A system of tanks, pipes, valves and other equipment that is designed to either contain petroleum or to control its passage into, out of, through or within the system. The system includes any structure through which petroleum routinely passes from one part of the system to another.

# UPSS DATA AND INFORMATION

There are a range of underground petroleum storage system (UPSS) data and information that can guide and inform Council decisions in its development control business processes. Best practice management of this data and information within Council's records management system will enable Council to make informed decisions on future land use and to ensure that the ongoing operation of UPSSs minimises the risk of harm to human health and the environment.

## UPSS data and information can be managed in Council's:

- electronic document and records management system (for example, HP Trim)
- planning information system (for example, Civica Authority)
- mapping (for example, IntraMaps)
- registers, including the Contaminated Land Site Register and UPSS Register (see Table 1).

**Table 1:** Best practice UPSS data and information management

Data/information	Process	EDRMS	PIS	Mapping	Register	
					CLSR	UPSS
UPSS designs and drawings	DA/IMP	x	Link	x	Link	Link
Assessment of site contamination reports	DA	x	Link		Link	Link
Category 2 remediation report	DA/IMP	x	Link		Link	Link
Regulatory notifications	IMP	x	Link		Link	Link
UPSS survey responses	IMP	x		x	x	x
Completed inspection form	IMP	x			Link	Link
UPSS plan	IMP	x		x	Link	Link
Risk assessment file	IMP	x		x	Link	Link
UPSS loss monitoring and leak detection reports	IMP	x			Link	Link
SafeWork NSW data	IMP	x		x	x	x
NSW Fair Trading data	IMP	x		x	x	x

**Note:** EDRMS = electronic document and records management system; PIS = planning information system; DA = development assessment; IMP = inspection and monitoring processes; CLSR = Contaminated Land Site Register; UPSS = underground petroleum storage system. 'Link' means that the system should include a link to relevant data and information contained in the EDRMS.

## UPSS DATA AND INFORMATION

Table 1 illustrates the importance of establishing and maintaining registers. The Contaminated Land Site Register and the UPSS Register are the cornerstone of best practice UPSS data and information management. It is acknowledged that not all Councils will have a UPSS Register (nor a UPSS plan).

### Additional notes for staff to consider include:

- UPSS design drawings – provided via either
  - a development application for a new or ‘significantly modified’ UPSS – designated staff should create a new record in the UPSS plan, revise the risk assessment spreadsheet and update the UPSS Register
  - a notification to Council on a change to a UPSS – staff should request updated designs and drawings
- assessment of site contamination reports – reports can be lodged either
  - via a development application – designated staff should update the CLSR and the UPSS Register, revise the risk assessment file and update the UPSS plan
  - in response to a category 2 remediation works notification – staff should ensure the validation report is provided
- regulatory notifications – formal notifications would include
  - EPA notices under the *Contaminated Land Management Act 1997*
  - leak notification forms lodged by UPSS owners
  - notification on category 2 remediation works
  - notices under the *Protection of the Environment Operations Act 1997* in relation to ‘prevention’ or ‘clean-up’ notices
- UPSS survey responses – designated staff should
  - rely on the UPSS plan to determine the frequency of engagement with UPSS owners on the survey
  - assess the responses to the survey and revise (if applicable) the risk assessment file and update the UPSS plan and UPSS Register
- completed inspection forms – designated staff should
  - rely on the UPSS plan to determine the frequency of site inspections
  - assess the findings of the site inspection, and if applicable revise the risk assessment file for the site
  - update the UPSS plan and the UPSS Register
- UPSS plan and underlying risk assessment spreadsheets for each UPSS site – as noted above, records should be updated and maintained if triggered by either a development application or an inspection process
- UPSS loss monitoring and leak detection reports – these should be obtained frequently (refer to UPSS plan) to confirm that the operation of a UPSS maintains compliance with the *Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019*.

The process to update and maintain UPSS data and information is equally important as the creation of UPSS data and information. Hence, the UPSS plan can be relied upon to provide guidance to staff on the frequency of processes to confirm that a UPSS maintains compliance with the requirements of the *Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019*.



# UPSS REGULATION AND COUNCIL DEVELOPMENT CONTROL

**Table 2:** Summary of Council's business processes and the *Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019*

Council business process	Council role	ARA responsibilities – key concepts and methods		
		Pollution prevention programs and systems	Guidelines and standards	Inspection and monitoring
<b>Planning and Assessment</b> <ul style="list-style-type: none"> <li>Development applications</li> <li>Certification (of construction, complying development, occupation; as principal certifying authority)</li> </ul>	<ul style="list-style-type: none"> <li>Development assessment and consent</li> <li>Principal certifying authority</li> <li>Development control inspections</li> </ul>	<ul style="list-style-type: none"> <li>Contaminated Land Management Policy</li> <li>Standard conditions of consent</li> <li>CLSR</li> <li>UPSS Register</li> </ul>	<ul style="list-style-type: none"> <li>Australian Standards</li> <li>UPSS Guidelines</li> </ul>	Conditions of consent (Newbury principles and are enforceable)
<b>Inspection and monitoring</b> <ul style="list-style-type: none"> <li>Operation of a UPSS maintains compliance with <i>UPSS Regulation</i></li> <li>Notifications (for example, leak notification, category 2 remediation works)</li> <li>Stormwater management (regulated under the <i>POEO Act</i>)</li> <li>Inspections</li> <li>Complaints (including air emissions, noise, lighting, odour and so on)</li> <li>Compliance and enforcement</li> </ul>	<ul style="list-style-type: none"> <li>Environmental health officer</li> <li>Environmental planner</li> <li>Council compliance officer</li> </ul>	<ul style="list-style-type: none"> <li>Contaminated Land Management Policy</li> <li>UPSS Register</li> <li>CLSR</li> </ul>	<ul style="list-style-type: none"> <li>UPSS plan</li> <li>FSOP</li> <li>Risk-based assessment framework to inform inspection priorities</li> </ul>	<ul style="list-style-type: none"> <li>Education and engagement</li> <li>Survey of UPSS owners</li> <li>Inspection program</li> <li>Action plans with UPSS owners to achieve compliance</li> </ul>



# UPSS REGULATION AND COUNCIL DEVELOPMENT CONTROL

**Table 2 (Cont.):** Summary of Council's business processes and the *Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019*

Council business process	Council role	ARA responsibilities – key concepts and methods		
		Pollution prevention programs and systems	Guidelines and standards	Inspection and monitoring
<p><b>Data and information management</b></p> <ul style="list-style-type: none"> <li>Data and information management services, including the UPSS Site Register, Council CLSR and others</li> </ul>	<ul style="list-style-type: none"> <li>Information technology officer</li> <li>CLSR manager</li> <li>UPSS Register manager</li> </ul>	<ul style="list-style-type: none"> <li>Contaminated Land Management Policy</li> <li>Records Management Policy</li> <li>CLSR</li> <li>UPSS Register</li> <li>Corporate mapping system</li> </ul>	<ul style="list-style-type: none"> <li>Maintained systems</li> </ul>	<ul style="list-style-type: none"> <li>Accurate, reliable and accessible</li> </ul>
<p>Council's business processes and associated data and information systems should be supported by high-quality, accurate information.</p> <p>Benchmark Council data requirements against regulatory guidelines and standards.</p> <p>Valid and reliable data are the key to a useful and credible CLSR.</p>				

**Note:** ARA = appropriate regulatory authority; UPSS = underground petroleum storage system; *UPSS Guidelines* = *Guidelines for Implementing the Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019*; *UPSS Regulation* = *Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019*; *POEO Act* = *Protection of the Environment Operations Act 1997*; FSOP = fuel system operation plan; CLSR = Contaminated Land Site Register.

The [Guidelines for Implementing the Protection of the Environment Operations \(Underground Petroleum Storage Systems\) Regulation 2019](#) have been set out by the NSW EPA and are not intended to be duplicated in this guidance.<sup>2</sup>

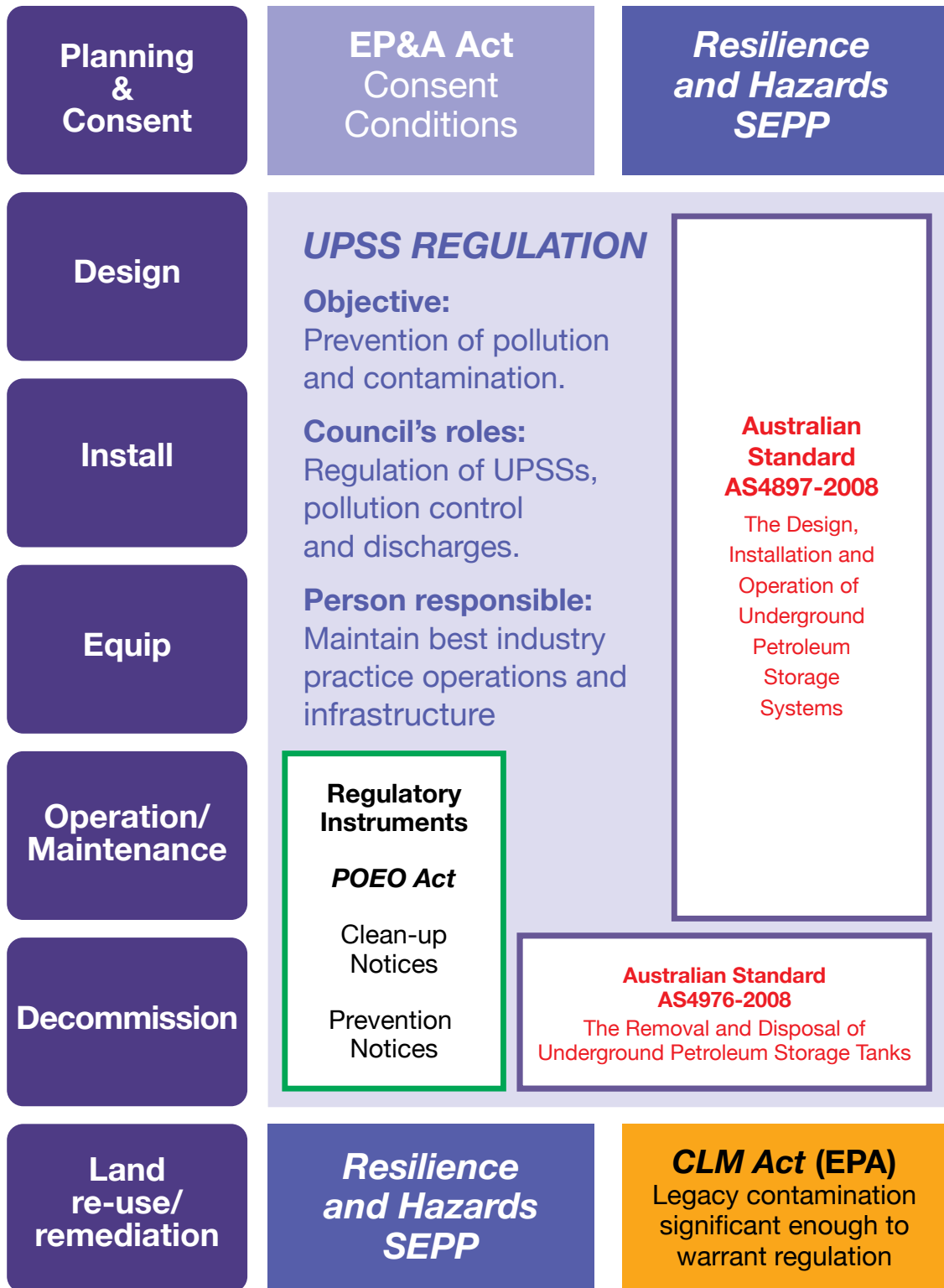
The NSW EPA has also developed a series of resources for Council's implementation of the Regulation. This includes 8 non-statutory fact sheets and practice notes, which can be found on the [EPA's website](#).<sup>3</sup>

<sup>2</sup> <https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/contaminated-land/20p2700-underground-petroleum-storage-systems-guidelines.pdf>

<sup>3</sup> <https://www.epa.nsw.gov.au/your-environment/contaminated-land/upss/resources-for-implementing-upss>

# REGULATORY FRAMEWORK

Underground petroleum storage systems (UPSSs) are regulated throughout the entire lifecycle.



**Note:** EP&A Act = Environmental Planning and Assessment Act 1979; UPSS Regulation = Protection of the Environment Operations (Underground Petroleum Storage System) Regulation 2019; Resilience and Hazards SEPP = State Environmental Planning Policy (Resilience and Hazards) 2021; POEO Act = Protection of the Environment Operations Act 1997; CLM Act = Contaminated Land Management Act 1997.

## REGULATORY FRAMEWORK

The administration of the *Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019* requires Council to carry out 2 roles and to maintain Council-wide systems over the lifecycle of the UPSS.

**PLANNING AND  
ASSESSMENT ROLE**

**ENVIRONMENTAL  
COMPLIANCE MONITORING  
AND INSPECTION ROLE**

**CONTAMINATED LAND SITE REGISTER  
UPSS REGISTER**









# PREVENTING POLLUTION

The incorporation of Council's appropriate regulatory authority responsibilities on underground petroleum storage systems (UPSSs) in its business processes is to prevent pollution. Focusing on prevention minimises the potential for harm to human health and the environment from pollution that results in contamination. It also reduces the corporate and operational risk on Council over the lifetime of the UPSSs.

Best practice UPSS design and installation, consistent operation, maintenance, management and monitoring of the UPSS allow the preventative framework to function. This is particularly important in high-risk settings where the risk is driven by, for example, an old non compliant UPSS that is in close proximity to sensitive receptors.

The major environmental concerns with respect to the potential harm to the environment and human health from UPSSs are listed in Table 3.

**Table 3:** Summary of regulatory control mechanisms

Problem	Issue	Regulatory control mechanisms
<b>UPSS failures, leaks and spills</b>	Can cause contamination of soil and groundwater and result in vapour intrusion risks to onsite and offsite receptors.	<p>Early warning monitoring systems required by AS 4897-2008</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>See the 'Loss Monitoring (SIRA Etc.)' tab</p> </div> <div style="text-align: center;">  <p>See the 'Leak Detection (Groundwater Monitoring)' tab</p> </div> </div>
<b>Polluted stormwater from forecourt run-off</b>	Can cause harm to the local waterways. May also lead to petroleum vapours building up in stormwater pipes or other infrastructure, resulting in a toxic or explosive environment.	<p>Onsite environmental controls and management.</p> <p>Pollution of waters is an offence under the <i>POEO Act</i>. See the 'Forecourt Design and Stormwater Management' tab.</p> <div style="text-align: right;">  </div>
<b>Air pollution and odour from poor fuel handling, leaks and spills</b>	Can cause harm and nuisance to onsite workers, neighbouring properties, the community and the environment.	<p>Vapour recovery is recommended for all UPSSs.</p> <p>However, vapour recovery systems are not mandatory in all parts of regional NSW.</p> <p>See the <a href="https://www.epa.nsw.gov.au/your-environment/air/reducing-motor-vehicle-emissions/vapour-recovery-service-stations">NSW EPA website</a><sup>4</sup> for more information</p> <div style="text-align: right;">  </div>

**Note:** UPSS = underground petroleum storage system; *POEO Act* = *Protection of the Environment Operations Act 1997*.

<sup>4</sup> <https://www.epa.nsw.gov.au/your-environment/air/reducing-motor-vehicle-emissions/vapour-recovery-service-stations>

## PREVENTING POLLUTION

There are many other hazards associated with petroleum hydrocarbons due to their flammable and toxic nature. In workplaces, these hazards are regulated by SafeWork NSW.

Council's business processes ensure that UPSS sites comply with the *Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019* through 2 roles.



### PLANNING AND ASSESSMENT ROLE

When a development application involving a new or 'significantly modified' UPSS is submitted, Council's review of the application documentation must consider whether the applicant has met the requirements of the Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019 and the appropriate Australian Standards (see Appendix D). Council should consider the application in relation to

the local environmental settings, policy and statutory requirements under the Environmental Planning and Assessment Act 1979, and planning policies.

A risk ranking process can assist with determining whether model consent conditions (Chapter 4 of the [Register of Contaminated Land Consent Conditions](#))<sup>5</sup> are appropriate or if additional conditions are required for a high-risk site.



### ENVIRONMENTAL COMPLIANCE AND INSPECTION ROLE

All operational premises or sites with UPSSs (following Council's planning approval) should be included in Council's UPSS plan (or formal inspection and monitoring program if no UPSS plan exists).

Council's UPSS plan determines the likely risk that a UPSS site presents to human health and the environment within their local government area. The risk should be determined by considering the likelihood and consequences if a spill, release or failure of the UPSS occurs. The **likelihood** can be determined by considering the condition of the UPSS and the

compliance record of the site. The **consequences** can be determined by considering onsite and offsite environmental conditions and the risk of vapour intrusion, contamination of drinking water and harm to the environment both onsite and in its surrounds.

The UPSS plan and supporting risk assessment spreadsheet can be used by Council to guide and inform its UPSS inspection and monitoring program. See the 'UPSS Inspection and Monitoring' tab for further information.

<sup>5</sup> <https://www.hccrems.com.au/product/2020-register-contaminated-land-consent-conditions/>

# UPSS INSPECTION AND MONITORING

Underground petroleum storage system (UPSS) owners and site operators are required to comply with the *Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019 (UPSS Regulation)* when operating a UPSS.

Council's UPSS plan sets out important information for staff to determine the UPSS sites that are to be subject to inspections and the frequency of those inspections. Inspections are also beneficial to UPSS owners because they may identify areas of noncompliance. This provides an opportunity for Council staff to work closely with the UPSS owner to resolve the noncompliance.

The UPSS plan can also be relied upon to advise staff on the frequency of sending the UPSS survey to UPSS owners. The UPSS survey template has been provided to Council.

A UPSS inspection form is provided in Appendix B. This form can be used by Council to plan, prepare and inspect a site with a UPSS. A completed inspection form should be used to update the Contaminated Land Site Register and UPSS Register and be stored in Council's electronic document and records management system.

## ENVIRONMENTAL COMPLIANCE AND INSPECTION ROLE

Council should follow the following steps and use their systems and policies to guide the level of compliance and application of education programs where they exist.

### STEP 1:

#### DUE DILIGENCE AND BACKGROUND

- Does the site or premises have existing land use rights in place from a prior development application (DA) approval?
- Confirm the original consent conditions of the site's DA using Council's Contaminated Land Site Register.
- Was the DA determined prior to 2008? If so, the requirement in the *UPSS Regulation* for best practice infrastructure does not apply unless there is evidence that the UPSS has caused or is causing harm to the environment or human health and needs to be replaced. The requirement for best practice operation with monitoring systems in place is required no matter when the DA was determined.

### STEP 2:

#### RISK RANKING OF THE SITE

- Refer to the Contaminated Land Site Register or UPSS plan.
- Prioritise high-risk sites for a compliance inspection and ongoing monitoring.
- If the site has not been inspected, go to Step 3.
- If the site has been inspected and there is a plan in place to raise the compliance level or continue education of the operation, go to Step 6.

### STEP 3:

#### ENGAGEMENT WITH THE RESPONSIBLE PERSON AND REQUEST FOR INFORMATION

- Template letters and so on are in the UPSS plan for requesting the fuel system operation plan (FSOP) and information relating to the UPSS at the site.
- If the UPSS operator does not have an FSOP, or if it is not maintained in an organised manner, make use of the [NSW EPA's template FSOP](#).<sup>6</sup> The Northern Rivers Contaminated Land Program has also developed a user guide for Councils to assist UPSS owners to prepare an FSOP (see Appendix A).

<sup>6</sup> <https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/clm/19p1789-storage-system-information-for-upss.pdf>



## STEP 4:

### FSOP AUDIT

Once the FSOP and site information are received, it should be reviewed.

- Use the checklist in Table 4 (in the 'Fuel System Operating Plan' tab) to review and audit the FSOP against the statutory requirements of the *UPSS Regulation*.
- Where information required by the *UPSS Regulation* that is critical to the site inspection is missing, Council should request the information in writing with a date specifying when the information should be received. Where there is an opportunity to provide educational information about the particular matter, consider attaching relevant information (for example, an applicable NSW EPA fact sheet) to the letter of request.
- Maintain a list of items to review during the site inspection, targeting items in the FSOP that require onsite verification. Where there is ambiguity or uncertainty as to how the site is operated or maintained, or regarding the environmental management procedures, make sure that these are the items you spend time on during the site inspection.
- Prior to the inspection, fill out as much of the UPSS inspection form as possible. Highlight the areas identified for follow-up or in-depth inspection.
- Provide a list of these items to the person responsible prior to the inspection if possible and appropriate.

## STEP 5:

### SITE INSPECTION

- Complete the UPSS inspection form (see Appendix B).
- Site inspections may include:
  - verification of the location of the site of the UPSS and monitoring systems
  - verification of the proximity of the site to neighbours and sensitive receptors
  - review of monitoring records and response plans held by the site
  - interviews with site operators and staff to verify training in spill and loss monitoring system alarms.
- The site inspection is the key moment to build mutual respect and trust regarding compliance with the *UPSS Regulation*.

## STEP 6:

### FOLLOW UP ON ISSUES, SITE IMPROVEMENTS OR NONCOMPLIANCES

- Take into consideration your Council's compliance and enforcement policy and any specific environmental plans, policies or areas of environmental protection significance, such as land zoned for environmental protection.
- Also take into consideration the location and proximity of irrigation channels used for agriculture.

## STEP 7:

### ONGOING INSPECTIONS

- Maintain a regular inspection program of UPSS sites (that is, in line with Council's UPSS plan) and follow up on noncompliances or issues for high-risk situations or sites. Ensure that dates specified for compliance act as a trigger for both the UPSS responsible person to have completed an action or task and for Council to make enquiries as to the status of the required actions.

# FUEL SYSTEM OPERATION PLAN

Section 18 of the *Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019* requires that a site with underground petroleum storage systems in use should have a copy of its fuel system operation plan (FSOP) available onsite.

An FSOP documents the site-specific management and configuration of the underground fuel system. It also details maintenance requirements and procedures to be followed in the event of a spill or fuel leak.

## ENVIRONMENTAL COMPLIANCE AND INSPECTION ROLE

The FSOP must include all the following components listed in the checklist in Table 4.

**Table 4:** Fuel system operating plan checklist

FSOP components (section 18 of the <i>UPSS Regulation</i> )	What exactly? (Requirements of the <i>UPSS Regulation</i> or the <i>UPSS Guidelines</i> , where available)	Included (Y/N)	Adequate (Yes/No)	Comments and remedy (why 'no'? how is compliance reached?)
<b>Storage system information (subclause (1))</b>	<ul style="list-style-type: none"> <li>Is the site operational?</li> <li>Is there an FSOP?</li> </ul>			
<b>Loss monitoring system details subclause (2)(a)</b>	Reconciliation process, manual dipping, automatic tank gauging, monthly review, statistical inventory reconciliation analysis, third-party operated system, adequate sensitivity (0.76 L/hour).			
<b>Incident management procedure (subclause (2)(b))</b>	<ul style="list-style-type: none"> <li>Identification of steps that must be followed in dealing with any leaks and spills of petroleum from the UPSS?</li> <li>Is there a clear linkage and response protocol for responses to the loss monitoring system and the leak detection system?</li> </ul>			
<b>Maintenance schedule (subclause (2)(c))</b>	<ul style="list-style-type: none"> <li>Are there details of what maintenance is proposed to be carried out, and when, in relation to the system generally and in relation to the various gauges, indicators, leak detection systems and other measuring instruments in the system?</li> <li>Is there an independent duly qualified contractor?</li> <li>Are maintenance records available?</li> <li>Does the maintenance contractor attend the site as required or defined in the maintenance schedule?</li> </ul>			
<b>Current 'as-built' system drawings (subclause (2)(d))</b>	<ul style="list-style-type: none"> <li>Are the drawings present?</li> <li>Are they legible and adequate?</li> </ul>			

# FUEL SYSTEM OPERATION PLAN

**Table 4 (Cont.):** Fuel system operating plan checklist

FSOP components (section 18 of the <i>UPSS Regulation</i> )	What exactly? (Requirements of the <i>UPSS Regulation</i> or the <i>UPSS Guidelines</i> , where available)	Included (Y/N)	Adequate (Yes/No)	Comments and remedy (why 'no'? how is compliance reached?)
<b>Plans of storage site (subclause (2)(e))</b>	<ul style="list-style-type: none"> <li>• Are the plans present?</li> <li>• Are they adequate?</li> <li>• Do the provided site plans clearly identify the following?                             <ul style="list-style-type: none"> <li>○ the storage system</li> <li>○ all buildings and associated infrastructure</li> <li>○ all fences and gates</li> <li>○ all groundwater monitoring wells (including any codes or symbols by which they are designated)</li> <li>○ any unsealed ground surfaces</li> <li>○ all drainage and services.</li> </ul> </li> </ul>			
<b>A copy of each industry standard that has been provided (subclause (2)(f))</b>	<ul style="list-style-type: none"> <li>• The standards must be listed in connection with each of the following:                             <ul style="list-style-type: none"> <li>○ the design of the system</li> <li>○ the installation of the system</li> <li>○ the design of any modification</li> <li>○ the implementation of any modification.</li> </ul> </li> <li>• Have the appropriate standards been used and referenced?</li> <li>• Is there evidence that they have been followed?</li> </ul>			
<b>Specifications of the UPSS are provided (subclause (2)(g))</b>	<ul style="list-style-type: none"> <li>• Is there a copy of each of the following specifications?                             <ul style="list-style-type: none"> <li>○ the design specifications for the system</li> <li>○ the installation specifications for the system</li> <li>○ the design specifications for any modification</li> <li>○ the implementation specifications for any modification.</li> </ul> </li> <li>• Are the specifications included?</li> <li>• Do they match the actual site UPSS infrastructure (that is, the makes, models, serial numbers of the UPSS components)?</li> <li>• Are third-party providers and operators listed and contactable for this information?</li> </ul>			

# FUEL SYSTEM OPERATION PLAN

**Table 4 (Cont.):** Fuel system operating plan checklist

FSOP components (section 18 of the <i>UPSS Regulation</i> )	What exactly? (Requirements of the <i>UPSS Regulation</i> or the <i>UPSS Guidelines</i> , where available)	Included (Y/N)	Adequate (Yes/No)	Comments and remedy (why 'no'? how is compliance reached?)
<b>A record of employee site induction and incident management training that has been undertaken on the site (subclause (2)(h))</b>	<ul style="list-style-type: none"> <li>• Are there records?</li> <li>• Is the induction record adequate?</li> <li>• Is the incident management training record adequate?</li> <li>• Are the records up to date?</li> <li>• Do the records list competencies that the training provides, what the training allows an employee to do, or what action the employee can take?</li> </ul>			
<b>UPSS site details (subclauses (2)(i) and (3)(a))</b>	<p>Are the following details provided?</p> <ul style="list-style-type: none"> <li>• the name of the person responsible for the system, an address for service and a 24-hour contact phone number for that person</li> <li>• if the person responsible for the relevant storage system is a corporation – the name of a natural person who is authorised to act on behalf of the corporation in relation to the control of the system, and a 24-hour contact phone number for that person</li> <li>• the street address of the storage site</li> <li>• the land title particulars (such as the lot and DP numbers) of the land on which the system is situated</li> <li>• if the person responsible for the system is not the owner of the storage site, the name of the owner</li> <li>• details of access to, and the security of, the system, including details of any locks, gates, fences and the like and the means of opening them</li> <li>• the location of all records kept in accordance with Part 5 or 6 of the <i>UPSS Regulation</i> (including leak detection system reports).</li> </ul>			

# FUEL SYSTEM OPERATION PLAN

**Table 4 (Cont.):** Fuel system operating plan checklist

FSOP components (section 18 of the <i>UPSS Regulation</i> )	What exactly? (Requirements of the <i>UPSS Regulation</i> or the <i>UPSS Guidelines</i> , where available)	Included (Y/N)	Adequate (Yes/No)	Comments and remedy (why 'no'? how is compliance reached?)
<b>Loss monitoring details (subclause 4)</b>	Information regarding the loss monitoring system for a storage system such as: <ul style="list-style-type: none"> <li>who designed the system?</li> <li>are they duly qualified?</li> <li>is the design in accordance with EPA guidelines to measure discrepancies between the amount of petroleum that should be present in the system and the amount of petroleum that is actually present in the system, so as to be capable of detecting losses of petroleum?</li> </ul>			
<b>Is the FSOP adequate? (subclause 6)</b>	<ul style="list-style-type: none"> <li>Does the FSOP comply with the <i>UPSS Guidelines</i>?</li> <li>Is the FSOP updated as required (for example, monitoring reports, actions and results)?</li> <li>Is the FSOP accessible on the storage site (hard copy or electronic)?</li> </ul>			
<b>Is the FSOP format acceptable? (Part 7)</b>	In what format is the FSOP available? <ul style="list-style-type: none"> <li>one consolidated document</li> <li>as a collection of documents</li> <li>hard copy or electronic form, or a combination of both.</li> </ul>			

**Note:** FSOP = fuel system operation plan; *UPSS Regulation* = *Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019*; *UPSS Guidelines* = *Guidelines for Implementing the Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019*.

Compliance with subclauses (2)(f) and (2)(g) is not required if the UPSS was installed prior to June 2008 or if the standards and specifications are not available and there is sufficient evidence that the person responsible has taken all reasonable steps to obtain them.

## [Fuel System Operation Plans \(Fact Sheet 4\)](#)<sup>7</sup>

documents important details regarding the management, configuration and maintenance of underground fuel systems and steps to be undertaken in the event of fuel leaks or spills.

<sup>7</sup> <https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/clm/19p2014-fact-sheet-4-fuel-system-operation-plans.pdf>

As part of Council's role in carrying out its planning functions, Council should ensure that development applications that include underground petroleum storage systems (UPSSs; whether new or 'significantly modified'), including underground waste oil storage systems, should be designed, installed and maintained in accordance with the *Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019 (UPSS Regulation)*, the *Guidelines for Implementing the Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019* and Australian Standard AS 4897-2008.

Please refer to [Fuel Handling and Dispensing Areas \(Fact Sheet 1\)](#).<sup>8</sup> It documents the design and installation requirements for fuel handling and dispensing areas. Contamination of soil or surface water or groundwater can be prevented by using good infrastructure design principles and management practices and by adhering to environmental regulations and responsibilities.

## PLANNING AND ASSESSMENT ROLE

Review the consent conditions for development applications and modifications to understand the history of the site and the existence of historical and current approvals.

Use the decision tree in Appendix C to determine whether the development application considers all requirements of the *UPSS Regulation*. This includes whether it complies with the minimum standards for the design and installation of UPSSs.

Council may consider the checklist in Table 5 for the design principles of UPSSs and forecourts while assessing the development application. The checklist also includes information on above-ground petroleum infrastructure, which may be present on UPSS sites.

### Development consent can include conditions that:

- ensure design principles identified in Table 5 are implemented
- a construction certificate will only be issued when Council (or the principal certifying authority) certifies that the requirements of the *UPSS Regulation* (including site drawings, compliance with Australian Standards and so on) have been met
- an occupation certificate will only be issued when Council (or the principal certifying authority) certifies that the fuel system operation plan complies with the requirements of the *UPSS Regulation*.

Standard conditions that can be used by Council in respect of UPSSs can be found on the Hunter Joint Organisation website.



<sup>8</sup><https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/clm/19p2011-fact-sheet-1-fuel-handling-areas.pdf>



# DEVELOPMENT ASSESSMENT AND CONSENT

**Table 5:** Checklist for design principles of UPSSs and forecourts

Principles of UPSSs	What exactly? (Requirements/guidance of the <i>UPSS Regulation</i> or NSW EPA fact sheets and guidance, Australian Standards, where available, and international best practice as technology innovations emerge and become available and accepted by regulators)	Included (Y/N)	Adequate (Yes/No)	Comments and remedy (why 'no'? how is compliance reached?)
<b>New petroleum storage systems</b> Applies to all new petroleum storage systems installed after 1 January 2020				
<b>Fuel dispensing areas and fuel delivery areas</b>	<ul style="list-style-type: none"> <li>• Are the fuel dispensing and fuel delivery areas located in a covered area to minimise the entry of stormwater?</li> <li>• Is the covered area protected at the canopy line from the entry of surface waters from the uncovered area by either a grade change, grated drains or a combination of both?</li> <li>• Does the canopy extend to the maximum reach of nozzles and, from that point, have a 10-degree from-vertical overhang so as to minimise rainwater entering the forecourt areas?</li> <li>• Are stormwater drains located outside the fuel dispensing or fuel delivery areas?</li> <li>• Is the ground surface within the fuel dispensing and fuel delivery areas made of impervious material?</li> </ul> <p><b>Note:</b> asphalt is not considered to be a suitable material as it can react with petroleum products.</p> <ul style="list-style-type: none"> <li>• Is drainage from these areas directed to one of the following?                             <ul style="list-style-type: none"> <li>o Class 1 full retention oil water separator. The device must be fitted with a hydrocarbon level visible and audible alarm and be sized appropriately for the catchment area of the covered forecourt area plus a fuel spill from one fuel tanker compartment, prior to discharge to the sewer system (subject to approval from the relevant utility).</li> <li>o Class 1 stormwater quality improvement device. The device must be fitted with a hydrocarbon level visible and audible alarm and be sized appropriately for the catchment area of the site plus a fuel spill from one fuel tanker compartment, prior to discharge to the stormwater system.</li> </ul> </li> </ul>			

# DEVELOPMENT ASSESSMENT AND CONSENT

**Table 5 (Cont.):** Checklist for design principles of UPSSs and forecourts

Principles of UPSSs	What exactly? (Requirements/guidance of the <i>UPSS Regulation</i> or NSW EPA fact sheets and guidance, Australian Standards, where available, and international best practice as technology innovations emerge and become available and accepted by regulators)	Included (Y/N)	Adequate (Yes/No)	Comments and remedy (why 'no'? how is compliance reached?)
<b>Above-ground petroleum storage systems</b>	<ul style="list-style-type: none"> <li>Is the ground surface within the fuel dispensing and fuel delivery areas made of impervious material? No fuel should be dispensed outside of this area.</li> <li>Is the drainage in this area directed to a spill containment device or, where the above-ground tanks are installed in an excavated bund, is drainage directed back into the bund?</li> </ul>			
<b>Self-bunded petroleum storage tanks (above-ground storage tanks)</b>	<p>The following requirements apply to all above-ground storage tanks:</p> <ul style="list-style-type: none"> <li>Are the self-bunded petroleum storage tanks constructed of double-walled materials that provide double protection against leakage?</li> <li>Is the construction of the tank suitable to be filled with petroleum products?</li> <li>Is there a clear access route to the fuel tank that is clear of clutter, hanging branches of trees and electrical lines?</li> <li>Is the tank located in a suitable position that considers the location of waterways, the stormwater system and drainage patterns on the site?</li> <li>Are steel bollards installed to protect the tanks from damage?</li> <li>Are the dispensing areas roofed with a minimum of 10 degrees of overhang?</li> </ul>			
<b>Single-wall petroleum storage tanks (above-ground storage tank)</b>	<p>The following requirements apply to all above-ground storage tanks:</p> <ul style="list-style-type: none"> <li>Is the tank installed within a bunded area?</li> <li>Does the bunded area have a capacity of at least 110% of the tank's volume?</li> <li>Is the bunded area roofed with a minimum of 10 degrees of overhang?</li> <li>Are the steel bollards installed to protect the tanks from damage?</li> <li>Is the construction of the tank suitable to be filled with petroleum products?</li> </ul>			

**Table 5 (Cont.):** Checklist for design principles of UPSSs and forecourts

Principles of UPSSs	What exactly? (Requirements/guidance of the <i>UPSS Regulation</i> or NSW EPA fact sheets and guidance, Australian Standards, where available, and international best practice as technology innovations emerge and become available and accepted by regulators)	Included (Y/N)	Adequate (Yes/No)	Comments and remedy (why 'no'? how is compliance reached?)
Parking, footpaths and trafficable areas	<ul style="list-style-type: none"> <li>• Are parking areas, footpaths and trafficable areas paved with concrete?</li> <li>• Is the stormwater captured in this area diverted to a treatment system that is capable of removing litter, sediment and oil products?</li> </ul>			

**Note:** UPSS = underground petroleum storage system; *UPSS Regulation* = *Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019*.

## ENVIRONMENTAL COMPLIANCE AND INSPECTION ROLE

Inspections would likely be carried out as part of the construction certification process and prior to the issuance of an occupation certificate.

Once the UPSS site becomes operational, inspections of the UPSS site should occur at a frequency as determined by the risk-based approach detailed in the Council's UPSS plan.

A common problem in regional areas is a service station that requires significant capital investment (for example, overall site works, improvements to the forecourt, stormwater management). Where regional service stations do not have the capital to invest in this, a risk-based approach that considers what the highest risks are and how they can be mitigated by agreed actions with the operator may be the only way forwards via an agreed action plan.

However, certain instances of noncompliance may require enforcement procedures under the *Protection of the Environment Operations Act 1997*. These instances may include:

- a significant leak in the UPSS, resulting in an increased risk of harm to human health and the environment
- identification of a contamination plume that has migrated offsite
- not having a fuel system operation plan, which means the site must immediately cease operations until this plan is in place
- no progress in resolving noncompliance matters via an agreed action plan.

# LEAK DETECTION (GROUNDWATER MONITORING)

Section 20 of the *Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019 (UPSS Regulation)*.

A leak detection system is a backup in case the loss monitoring system fails to detect a leak from the underground petroleum storage system (UPSS). See the [EPA's Leak Detection Systems \(Fact Sheet 3\)](#).<sup>9</sup>

The leak detection system must be designed by a duly qualified person and comply with section 4.5.7 of *Australian Standard AS 4897-2008: The Design, Installation and Operation of Underground Petroleum Storage Systems* and Part 3 and Clause 20 of the *UPSS Regulation*. If a fuel leak is detected, incident management procedures should be implemented, a duly qualified person should be engaged to investigate and determine the nature and extent of the contamination, and the appropriate regulatory authority should be notified.

## ENVIRONMENTAL COMPLIANCE AND INSPECTION ROLE

When reviewing documentation associated with environmental compliance monitoring and inspection, Council should be aware of the following.

### GROUNDWATER MONITORING WELLS

Groundwater monitoring wells are the most common leak detection system. The preferred leak detection system is a network of wells around the UPSS. Groundwater should be monitored for the presence of fuel (hydrocarbons) every 6 months in accordance with the groundwater sampling procedures detailed in Schedule B2 of the *National Environment Protection (Assessment of Site Contamination) Measure 1999*.

**However, the following items may trigger groundwater investigation:**

- spills or recorded fuel losses
- observation of hydrocarbon sheen or odour in onsite wells, stormwater drains or neighbouring properties
- aging UPSSs
- an upgrade of site facilities or change in land zoning
- due diligence purposes.



<sup>9</sup><https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/clm/19p2013-fact-sheet-3-leak-detection-systems.pdf>

# LEAK DETECTION (GROUNDWATER MONITORING)

**Table 6:** Checklist for groundwater monitoring wells

Groundwater monitoring components (section 20 of the UPSS Regulation)	What exactly? (Requirements of the UPSS Regulation or the UPSS Guidelines, where available)	Included (Y/N)	Adequate (Yes/No)	Comments and remedy (why 'no'? how is compliance reached?)
<b>Installation of groundwater wells</b>	<ul style="list-style-type: none"> <li>• Are the monitoring wells designed/ installed by a duly qualified person, such as an environmental consultant and licensed driller?</li> <li>• Is the person responsible for the UPSS able to present well design documents upon request by Council officers?</li> <li>• Are there minimum of 3 groundwater wells installed on the site – one up-gradient and 2 down-gradient of the UPSS?</li> <li>• If a leak is detected in the UPSS, are the groundwater wells located and screened in such a way that the leak will be captured?</li> <li>• Is the monitoring well construction and design in accordance with industry <a href="#">standards and guidelines</a>?<sup>10</sup></li> <li>• Is the monitoring well construction, location and designated numbering of groundwater wells included in FSOP?</li> </ul>			
<b>Checking of wells</b>	<ul style="list-style-type: none"> <li>• Are the groundwater wells monitored every 6 months?</li> <li>• Are the bi-annual groundwater monitoring records/reports maintained and available upon request?</li> <li>• Are the monitoring wells monitored for the presence of hydrocarbons visually or by using an interface probe? A visual assessment procedure is detailed below.</li> <li>• Is the monitoring conducted by a duly qualified person and/or is a detailed written instruction on how to check the wells for contamination available onsite or in the FSOP?</li> </ul>			

<sup>10</sup> [https://www.industry.nsw.gov.au/\\_data/assets/pdf\\_file/0004/329971/minimum-construction-requirements-for-water-bores-fourth-edition.pdf](https://www.industry.nsw.gov.au/_data/assets/pdf_file/0004/329971/minimum-construction-requirements-for-water-bores-fourth-edition.pdf)

# LEAK DETECTION (GROUNDWATER MONITORING)

**Table 6 (Cont.):** Checklist for groundwater monitoring wells

Groundwater monitoring components (section 20 of the UPSS Regulation)	What exactly? (Requirements of the UPSS Regulation or the UPSS Guidelines, where available)	Included (Y/N)	Adequate (Yes/No)	Comments and remedy (why 'no'? how is compliance reached?)
<p><b>Sampling of wells</b></p>	<ul style="list-style-type: none"> <li>• If well checking indicated the presence of hydrocarbons in groundwater, is sampling and analysis of groundwater conducted by a duly qualified person?</li> <li>• Is sampling conducted when a new UPSS or well is installed and/or upon the discovery of a leak through loss monitoring?</li> <li>• Has a duly qualified person performed sampling?</li> <li>• Are the groundwater samples analysed in a laboratory accredited by NATA?</li> <li>• Is the person responsible for the UPSS onsite able to present sampling/analysis reports upon request by Council officers?</li> </ul> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>o The results must be included in the site's FSOP and kept for at least 7 years or be made available within 3 days of being requested by an authorised officer.</li> <li>o If the test results confirm that hydrocarbons are present in the groundwater monitoring well, the appropriate regulatory authority (that is, Council) must be advised using a leak notification form.</li> <li>o Groundwater parameters and criteria indicating the presence of contamination are listed below in Table 7.</li> </ul>			
<p><b>Groundwater testing records</b></p>	<p>Do the field sampling records include the following?</p> <ul style="list-style-type: none"> <li>• the date and time of the sampling event.</li> <li>• any observations, such as evidence of an odour or sheen or an indication of the presence of free-phase hydrocarbons?</li> <li>• the name and signature of the person who conducted the tests. For electronically stored records, the name of the person who conducted the tests will suffice.</li> </ul>			

**Note:** UPSS Regulation = Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019; UPSS Guidelines = Guidelines for Implementing the Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019; UPSS = underground petroleum storage system; FSOP = fuel system operation plan; NATA = National Association of Testing Authorities.



# LEAK DETECTION (GROUNDWATER MONITORING)

**Table 7:** Groundwater monitoring parameters and criteria values

Chemical group	Parameter	Criteria values (µg/L)		
		Drinking water <sup>1</sup>	Fresh water <sup>2</sup>	Marine water <sup>2</sup>
Miscellaneous	pH	6.5–8.5	†	†
Total petroleum hydrocarbons	C <sub>6</sub> –C <sub>9</sub>	–	–	–
BTEXN	C <sub>10</sub> –C <sub>40</sub>	–	–	–
	Benzene	1	950	700
	Toluene	800	180	180
	Ethyl benzene	300	80	80
	o-xylene	–	350	#
	m-xylene	–	75	75
	p-xylene	–	200	#
	Total xylene	600	–	–
Naphthalene	–	16	70	
Alcohol	Ethanol	–	1400	#
Metals	Lead	10	3.4	4.4

**Note:** A dash indicates that the criterion is not available. Total petroleum hydrocarbon contamination is assessed by consideration of component compounds.

<sup>1</sup> Criteria values are taken from the health values of the *Australian Drinking Water Guidelines* (2011, updated 2022).<sup>11</sup>

<sup>2</sup> Criteria are sourced from the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (2018).<sup>12</sup>

† pH criteria are dependent on the type and location of the water body. Refer to Table 3.3.2 in Volume 1 of the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (2000).<sup>13</sup>

# Insufficient data for marine value. The *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (2018) recommends using the freshwater value as a screening value.<sup>14</sup>

During visual assessment or the use of interface probes to determine the presence of hydrocarbons and fuel in groundwater, Council officers can record following (Note: the visual assessment and interface probe assessment must be conducted by duly qualified person):

- **visual assessment**
  - Was the groundwater sample obtained using a transparent disposable bailer?
  - Were visual checks for sheen or hydrocarbon odour conducted immediately after the sample was raised from the well?
  - Were there any signs of fuel/oil floating on water on the inside of the bailer, or of a hydrocarbon film on the outside of the bailer?
- **interface probe assessment**
  - Was the interface probe assessment carried out, before any water samples were collected from the monitoring well, by an appropriately qualified and experienced person using an interface probe with a resolution of 1 millimetre?
  - Was the interface probe assessment able to detect the presence of a minimum thickness of 3 millimetres of free-phase hydrocarbons?
  - Does the interface probe intercept the top of the water table in order to detect the presence of any phase-separated hydrocarbons?

<sup>11</sup> <https://www.nhmrc.gov.au/about-us/publications/australian-drinking-water-guidelines>

<sup>12</sup> <https://www.waterquality.gov.au/anz-guidelines/guideline-values/default/water-quality-toxicants/search>

<sup>13</sup> <https://www.waterquality.gov.au/anz-guidelines/resources/previous-guidelines/anzecc-armcanz-2000>

<sup>14</sup> <https://www.waterquality.gov.au/anz-guidelines/guideline-values/default/water-quality-toxicants/search>

# LEAK DETECTION (GROUNDWATER MONITORING)

## GROUNDWATER MONITORING REPORTS

Where impacts from petroleum products are detected in groundwater and/or when routine groundwater monitoring is conducted, a groundwater monitoring event (GME) report should be prepared. The purpose of a GME report is to provide information to detail how the results may impact the environment.

At a minimum, a GME report should include the information presented in Table 8.

**Table 8:** Checklist for groundwater monitoring event report

Reporting components	What should the report include?	Included (Y/N)	Adequate (Yes/No)	Comments and remedy (why 'no'? how is compliance reached?)
<b>Introduction</b>	<ul style="list-style-type: none"> <li>Background</li> <li>Objectives of the sampling program</li> <li>Scope of work</li> </ul>			
<b>Site information</b>	<ul style="list-style-type: none"> <li>Name, address, lot and DP number, local government area</li> <li>Site owner's trading name, description of owner (company, operator, third-party), current site use, reason for groundwater sampling</li> <li>Current site plan with scale bar, showing the direction of north, position of wells, local groundwater flow direction</li> </ul>			
<b>Groundwater assessment criteria</b>	<ul style="list-style-type: none"> <li>An assessment of the results against the groundwater sampling parameters in Table 7</li> </ul>			
<b>Discussion</b>	<ul style="list-style-type: none"> <li>Discussion of results and exceedances in criteria, if any</li> <li>Discussion on the source of the groundwater impacts, where identified, including the steps that have been and are to be undertaken to prevent the further release of hydrocarbons</li> </ul>			
<b>Recommendations</b>	<ul style="list-style-type: none"> <li>Proposed remedial measures to reinstate the environmental value of the groundwater resource where impacts exceeding criteria are identified, or appropriate justification as to why this is not necessary</li> </ul>			

# LEAK DETECTION (GROUNDWATER MONITORING)

## ALTERNATIVE LEAK DETECTION METHODS

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Where it is impractical, meaningless or impossible to install groundwater monitoring wells, an alternative monitoring system may be designed and presented to the regulator for consideration.

### Scenarios include:

- a very deep groundwater table where a fuel release is unlikely or unable to be reached due to for example, the presence of clay
  - An alternative may be to use tank pit observation wells (see the next paragraph).
- a UPSS installed as part of an on-water marina complex
  - An alternative suggested by the NSW EPA is to conduct daily visual inspections of the water body.
- a UPSS installed adjacent to a water body where groundwater is influenced by tidal movements
  - An alternative suggested by the NSW EPA is to conduct daily visual inspections of the water body.

In addition to the alternatives mentioned above, Council may suggest that the frequency of loss monitoring reconciliation be increased or that limits for allowable loss or gain be lowered. Council should also consider if these UPSS sites present a high risk (such as the marina and coastal UPSS sites) and adjust their compliance frequency setting to the highest.

## TANK PIT OBSERVATION WELLS

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Tank pit observation wells are installed within the tank pit(s) of a petroleum storage system to monitor for the presence of liquid that may contain leaked or spilled petroleum products. Tank pit observation wells can also be used to check for vapours. The monitoring of tank pit observation wells should be included in the 6-monthly groundwater monitoring.

### INTERSTITIAL MONITORING

Interstitial monitoring can be used as an alternative leak detection system. It must be capable of detecting a leak through either the wall of the tank or piping. Interstitial monitoring cannot quantify any losses from a storage system. It cannot be considered a loss monitoring system. Therefore, testing of the interstitial monitoring system must be undertaken at least every 6 months as outlined in AS 4897-2008 and recorded in the fuel system operation plan.

### VAPOUR MONITORING

Vapour monitoring is an alternative leak detection system that can be used either continuously or regularly to monitor for hydrocarbon vapours in the soil surrounding the tanks. The installation of vapour monitoring wells must be designed and located appropriately by a duly qualified person. Generally, it requires porous backfill material and a tracer element in the tanks that allows vapours to be detected.

## DETECTION AND MANAGEMENT OF LIGHT NON-AQUEOUS PHASE LIQUIDS

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Light non-aqueous phase liquids (LNAPLs) are organic liquids such as petroleum hydrocarbon and diesel products that are immiscible with and less dense than water.

If LNAPLs are detected onsite, an assessment of the extent and potential for offsite migration should be performed. When a consultant is engaged to provide advice on the management of LNAPLs, Council should ensure that they manage the LNAPL and the site in accordance with the [technical note issued by the NSW EPA](#).<sup>15</sup>

<sup>15</sup> <https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/clm/150553-technote-lnapl-assrem.pdf>

## LOSS MONITORING (SIRA ETC.)

Section 21 of the *Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019*.

A loss monitoring system (LMS) is a calculation or reconciliation based on data inputs, including:

- the amount of fuel delivered
- the amount of fuel sold
- the amount of fuel remaining in stock.

It is designed to detect losses of petroleum by measuring discrepancies between the amount of petroleum that should be in the system and the amount of petroleum that is actually present in the system. Statistical inventory reconciliation analysis (SIRA) is an example of a loss monitoring system. The LMS notifies an underground petroleum storage system (UPSS) operator when there is a significant fuel gain or loss. When a significant discrepancy in the LMS is observed, the operator must carry out an investigation to identify if there has been a loss of fuel and, if so, the cause. If a leak is confirmed, the source needs to be identified and fixed within a reasonable period. The LMS must be designed by a duly qualified person and comply with section 4.5 of AS 4897-2008. Please refer to [EPA's fact sheet for more information on loss monitoring](#).<sup>16</sup>

## ENVIRONMENTAL COMPLIANCE AND INSPECTION ROLE

Council officers may consider advising the person responsible for UPSS site to initiate system checks to determine the cause of a discrepancy identified during loss monitoring. The suggested loss monitoring procedure checklist is provided in Table 6 of the [UPSS Guidelines](#).<sup>17</sup>

When reviewing documentation associated with Council's UPSS inspection program, Council should be aware of the items identified in Table 9.

**Table 9:** Checklist for UPSS loss monitoring

Loss monitoring system (section 21 of the <i>UPSS Regulation</i> )	What exactly? (Requirements of the <i>UPSS Regulation</i> or the <i>NSW EPA UPSS Guidelines</i> , where available)	Included (Y/N)	Adequate (Yes/No)	Comments and remedy (why 'no'? how is compliance reached?)
<b>Loss monitoring system</b>	<ul style="list-style-type: none"> <li>• What type of loss monitoring system is present on the UPSS site?                             <ul style="list-style-type: none"> <li>○ automated inventory reconciliation</li> <li>○ manual wet stock reconciliation</li> <li>○ statistical inventory reconciliation analysis</li> </ul> </li> <li>• Is the loss monitoring system designed by a duly qualified person in accordance with AS 4897-2008?</li> <li>• Does the site operator conduct routine tests for loss monitoring?</li> <li>• Does the site operator have monthly records to assess cumulative losses or gains?</li> <li>• Are details of the loss monitoring system, alarms, limits and procedures available onsite in the FSOP?</li> </ul>			

<sup>16</sup> <https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/clm/19p2012-fact-sheet-2-loss-monitoring-systems.pdf>

<sup>17</sup> <https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/contaminated-land/20p2700-underground-petroleum-storage-systems-guidelines.pdf>

# LOSS MONITORING (SIRA ETC.)

**Table 9 (Cont.):** Checklist for UPSS loss monitoring

Loss monitoring system (section 21 of the <i>UPSS Regulation</i> )	What exactly? (Requirements of the <i>UPSS Regulation</i> or the <i>NSW EPA UPSS Guidelines</i> , where available)	Included (Y/N)	Adequate (Yes/No)	Comments and remedy (why 'no'? how is compliance reached?)
<b>Discrepancies identified that require further investigation</b>	<ul style="list-style-type: none"> <li>• Do the records show unexplained deviation of losses or gains from normal operating trends? If yes, was an investigation undertaken?</li> <li>• Do the records show 5 or more consecutive recordings of unexplained loss, 18 or more days of unexplained losses in one calendar month (when measured every day) or 50% of recordings as unexplained losses in one calendar month (when not measured every day)?</li> <li>• Do records show an unexplained increase in the water level at the bottom of the tank between consecutive recordings? If yes, was an investigation undertaken?</li> <li>• Is a report and outcome of the investigation available onsite and included in the FSOP?</li> </ul>			
<b>Loss monitoring procedures</b>	<ul style="list-style-type: none"> <li>• Within 60 days after becoming aware of any discrepancy detected by the loss monitoring system for a storage system, were the following actions taken by the site operator or person responsible for UPSS?               <ul style="list-style-type: none"> <li>o an investigation of the discrepancy</li> <li>o confirmation of the existence of a leak and its source, if the discrepancy could not be attributed to anything other than a leak</li> </ul> </li> <li>• What steps were undertaken to stop the leak?</li> <li>• Were reasonably practicable steps taken to prevent the re-occurrence of the leak? (Refer to the 'UPSS Leak Notification' tab)</li> </ul>			

**Note:** *UPSS Regulation* = Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019;  
*UPSS Guidelines* = Guidelines for Implementing the Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019;  
 FSOP = fuel system operation plan

# FORECOURT DESIGN AND STORMWATER MANAGEMENT

The principal reason for having appropriate forecourt design and stormwater management at an underground petroleum storage system (UPSS) site is to prevent run-off discharging into stormwater drains and polluting natural watercourses, soil and neighbouring properties. Where petroleum hydrocarbon discharges are significant, there is also a risk of vapours building up in parts of the stormwater system, resulting in health and explosion risks.

As part of Council's role in carrying out its planning functions, Council should ensure that development applications that include UPSSs include forecourt design and stormwater management systems in accordance with the following:

- [\*Managing Run-off from Service Station Forecourts \(Practice Note\)\*](#).<sup>18</sup> This document provides guidance on preventing potentially polluted run-off escaping from service station forecourts
- *Australian Standard AS 1940-2017: The Storage and Handling of Flammable and Combustible Liquids*
- *Australian Standard AS 4897-2008: The Design, Installation and Operation of Underground Petroleum Storage Systems*
- *ACAPMA Best Practice Guidelines: Management of Hydrocarbons in Stormwater at Retail Fuel Outlets (2017)*.<sup>19</sup>

## PLANNING AND ASSESSMENT ROLE

Review the consent conditions for development applications and modifications to understand the history of the site and the existence of historical and current approvals.

### When reviewing documentation associated with the development application, Council should:

- assess development applications for new and 'significantly modified' UPSSs on a case-by-case basis, commensurate with the potential risk of harm to the environment
- determine if the proposed forecourt run-off management option is the best option to prevent harm to the environment from occurring
- apply any necessary controls as part of consent conditions (for example, treatment, maintenance and monitoring requirements)
- validate whether the submitted design plan of the service station complies with all legal obligations and requirements and meets environmental standards and conditions.

## ENVIRONMENTAL COMPLIANCE AND INSPECTION ROLE

When reviewing documentation associated with the UPSS inspection program, Council should be aware of the matters identified in Table 10.

**Table 10:** Checklist for UPSS forecourt design and stormwater management

Principles of forecourt design	What exactly? (Requirements/guidance of the UPSS Regulation or the NSW EPA fact sheet and Australian Standards, where available)	Included (Y/N)	Adequate (Yes/No)	Comments and remedy (why 'no'? how is compliance reached?)
Forecourt surface	<ul style="list-style-type: none"> <li>• Does the forecourt have a clean, sealed and hardstand concrete surface?</li> </ul>			

<sup>18</sup><https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/contaminated-land/19p1681-practice-note-managing-run-off-from-service-station-forecourts.pdf>

<sup>19</sup><https://acapmag.com.au/wp-content/uploads/2017/07/Draft-Stormwater-Management-Guideline-Consultative-Draft-13-July-2017.pdf>



# FORECOURT DESIGN AND STORMWATER MANAGEMENT

**Table 10 (Cont.):** Checklist for UPSS forecourt design and stormwater management

Principles of forecourt design	What exactly? (Requirements/guidance of the <i>UPSS Regulation</i> or the <i>NSW EPA fact sheet</i> and <i>Australian Standards</i> , where available)	Included (Y/N)	Adequate (Yes/No)	Comments and remedy (why 'no'? how is compliance reached?)
<b>Bundling or partitioning</b>	<ul style="list-style-type: none"> <li>• Does the forecourt have a physical divider (preferably using forecourt gradient or rollover bunding) between zones presenting a higher risk of contamination to those presenting a lower risk of contamination?</li> <li>• Does the forecourt have a covered and bunded storage area for hazardous chemicals separated from fuel dispensers and trafficable areas?</li> <li>• Does the forecourt have bunding that encloses the storage tank fill connection points and/or spill containment enclosures?</li> <li>• Does this bunded area have appropriate capacity to contain the largest compartment of any tanker delivering to the service station and drain to the high-risk contamination zone disposal system?</li> </ul>			
<b>Canopy</b>	<ul style="list-style-type: none"> <li>• Does the forecourt have a canopy that extends to the maximum reach of fuel dispensing nozzles and have a 10-degree from-vertical overhang reducing rainwater entering high-risk contamination zones?</li> <li>• Is the rainwater falling onto the canopy collected for re-use (if possible) or directed away from the forecourt area?</li> </ul>			
<b>Storage area</b>	<ul style="list-style-type: none"> <li>• Is there a designated storage area for waste bins?</li> <li>• Is there a collection pit (including monitoring alarm and pump-out well) for any contaminated run-off or spills occurring within the hazardous chemical storage area?</li> </ul>			

# FORECOURT DESIGN AND STORMWATER MANAGEMENT

**Table 10 (Cont.):** Checklist for UPSS forecourt design and stormwater management

Principles of forecourt design	What exactly? (Requirements/guidance of the <i>UPSS Regulation</i> or the NSW EPA fact sheet and Australian Standards, where available)	Included (Y/N)	Adequate (Yes/No)	Comments and remedy (why 'no'? how is compliance reached?)
<b>Spill kits, fire extinguishers and first aid kits</b>	<ul style="list-style-type: none"> <li>• Are the spill kits accessible and visible?</li> <li>• Are the fire extinguishers accessible and visible?</li> <li>• Are first aid kits accessible and visible?</li> <li>• Are the locations of spill kits, fire extinguishers and first aid kits recorded on the site plan and available on request?</li> <li>• Is all equipment within tag expiry dates?</li> </ul>			
<b>Stormwater drains and wastewater management</b>	<ul style="list-style-type: none"> <li>• Are the stormwater drains collecting forecourt run-off from low contamination risk areas appropriately managed?</li> <li>• Are the drainage pits collecting forecourt run-off from high contamination risk areas appropriately managed?</li> </ul> <p>Please refer to Section 4 of the <a href="#">Managing Run-Off from Service Station Forecourts</a> practice note for more information.<sup>20</sup></p>			
<b>Water-sensitive urban design</b>	<ul style="list-style-type: none"> <li>• Is a water-sensitive urban design installation suitable for either a new or upgraded UPSS site?</li> </ul>			

**Note:** *UPSS Regulation = Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019*; UPSS = underground petroleum storage system.

<sup>20</sup> <https://www.epa.nsw.gov.au/publications/contaminatedland/managing-run-off-from-service-station-forecourts>

# UPSS LEAK NOTIFICATION

In accordance with Part 5.7 of the *Protection of the Environment Operations Act 1997 (POEO Act)*, the relevant authority (Council) must be notified of a pollution incident by the person responsible for the underground petroleum storage system (UPSS) site. Where the notification is verbal, a written notification using a [leak notification form](#)<sup>21</sup> should be submitted within 7 days.

## Council officers may receive incident notification for the following types of incidents on a UPSS site:

- A leak or spill has occurred and/or has been verified with loss monitoring.
- There is evidence of free-phase hydrocarbons in surface water or groundwater.
- Offsite migration of hydrocarbons has occurred, or there is evidence of it occurring.

## ENVIRONMENTAL COMPLIANCE AND INSPECTION ROLE

When reviewing documentation associated with environmental compliance monitoring and inspection, Council should be aware of the following.

**Table 11:** Checklist for UPSS leak notification form

Leak notification form sections (Part 5.7 of the POEO Act)	What exactly? (Requirements/guidance of the UPSS Regulation or the NSW EPA fact sheet and Australian Standards, where available)	Included (Y/N)	Adequate (Yes/No)	Comments and remedy (why 'no'? how is compliance reached?)
<b>Reason for submitting the notification</b>	<p>Has a reason for notification been provided?</p> <ul style="list-style-type: none"> <li>• There is a leak from the UPSS, verified by loss detection or incident management procedures, which is causing or threatens material harm to human health and the environment.</li> <li>• There is evidence on the site of free-phase hydrocarbons in surface water and/or in groundwater.</li> <li>• There is evidence that offsite migration of hydrocarbons could occur, is occurring or has occurred.</li> </ul>			
<b>UPSS site details</b>	<p>Are the following details included in the notification form?</p> <ul style="list-style-type: none"> <li>• site name and address</li> <li>• nature of activity at the site</li> <li>• local Council</li> <li>• SafeWork NSW hazardous chemicals on premises (formerly dangerous goods) licence or notification details, environment protection licence details (if applicable)</li> </ul>			
<b>Site characteristics</b>	<p>Are the following details about site characteristics provided?</p> <ul style="list-style-type: none"> <li>• lithology (type of soil)</li> <li>• depth to groundwater</li> <li>• direction of groundwater</li> </ul>			

<sup>21</sup><https://www.environment.nsw.gov.au/resources/clm/09309upssleaknotify.pdf>

# UPSS LEAK NOTIFICATION

**Table 11 (Cont.):** Checklist for UPSS leak notification form

Leak notification form sections (Part 5.7 of the POEO Act)	What exactly? (Requirements/guidance of the UPSS Regulation or the NSW EPA fact sheet and Australian Standards, where available)	Included (Y/N)	Adequate (Yes/No)	Comments and remedy (why 'no'? how is compliance reached?)
<b>Details of the incident</b>	<p>Are the following details of incident provided?</p> <ul style="list-style-type: none"> <li>• nature of incident (leak or spill)</li> <li>• date of incident occurrence or leak identification</li> <li>• location of leak</li> <li>• duration of leak</li> <li>• cause of leak (if known)</li> <li>• location where pollution has occurred or is occurring</li> <li>• nature of any pollutants involved (for example, petrol, diesel, oil, kerosene)</li> <li>• approximate volume of pollutant released</li> </ul>			
<b>Receptors</b>	<p>Are the details about receptors included?</p> <ul style="list-style-type: none"> <li>• aspects of the environment affected by the leak (that is, soil, groundwater, air, surface water, stormwater, sediments)</li> <li>• evidence of offsite migration</li> </ul>			
<b>Actions taken or proposed to deal with the leak</b>	<p>Are the details of actions taken or proposed included in the form?</p> <ul style="list-style-type: none"> <li>• description of actions taken or proposed actions</li> </ul>			
<b>Details of the person responsible for UPSS site</b>	<ul style="list-style-type: none"> <li>• Name of person responsible for UPSS site</li> <li>• Name of person onsite during the time of the incident</li> <li>• Contact details</li> </ul>			

**Note:** POEO Act = Protection of the Environment Operations Act 1997; UPSS Regulation = Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019; UPSS = underground petroleum storage system.

## COUNCIL'S ACTIONS TO TAKE WHEN AN INCIDENT OCCURS

### STEP 0:

- Where the person responsible has contacted Council and requires emergency assistance, they should instead be directed to the appropriate emergency service by calling '000'. The appropriate combat agency, either NSW Fire & Rescue (HAZMAT) or the NSW Rural Fire Service, depending on the location of the leak and the type of issue, will provide a response to the incident. The emergency service will utilise the services available from Council by request. Most commonly, the emergency service may want to know the underground stormwater network of the area, the proximity of underground services and/or underground structures such as basements. In that case, Council staff should make stormwater and sewer plans available immediately upon request.

## IF THIS IS AN EMERGENCY, CALL 000

REFER THE INCIDENT TO THE APPROPRIATE EMERGENCY SERVICE

### STEP 1:

- Where a leak or spill is detected and notified to Council, Council staff should, as soon as practicable, contact the person responsible for the UPSS to determine if the risks to human health and the environment are under control with necessary actions already in place to verify, stop and mitigate the impact of the leak or spill.

### STEP 2:

- Inspect the site (area of incident) and monitor if appropriate actions were taken to stop and mitigate the impact of the leak as reasonably practicably and were compliant with UPSS guidelines and regulations.
- Verify if the steps have been taken to recover or remove petroleum that has leaked or spilled so that the site does not pose a threat to the environment or human health and safety.
- Inspect the stormwater and sewer to check if the leak/spill has migrated into the stormwater drains.
- If contamination is suspected (by visual inspection), a local Council officer may request a groundwater sampling event and/or environmental investigation to examine the extent and impact of the leak and/or provide advice on engaging a contaminated land consultant to conduct the investigation.
- If there is evidence that contamination has occurred, the local Council officer (if they are not the appropriate regulatory authority) can advise the person responsible for UPSS site to [notify the EPA about the contamination](#)<sup>22</sup> as required by section 148(8) of the *POEO Act*.

<sup>22</sup><https://www.epa.nsw.gov.au/your-environment/contaminated-land/managing-contaminated-land/duty-report-contaminated-land>



# UPSS DECOMMISSIONING

If a tank or underground petroleum storage system (UPSS) has not been used to store fuel for 2 or more years, or where it is not intended to be used to store fuel again, it is considered to be abandoned and must be decommissioned appropriately. Decommissioning a UPSS means having its contents removed and making it safe by removing it from the ground or rendering it permanently unusable. Decommissioning must be in accordance with *Australian Standard AS 4976-2008* and SafeWork NSW guidance.

NSW EPA's fact sheet, [Decommissioning an Underground Petroleum Storage Tank or System](#),<sup>23</sup> identifies the procedures and requirements and provides guidance for decommissioning a UPSS or fuel tank.

Where practical and reasonable, a person responsible for a UPSS tank that is to be decommissioned should be encouraged by Council to consider 'decommissioning and removal' as an alternative to 'decommissioning in-situ'. The person responsible should also be advised to notify SafeWork NSW of its intent to decommission a UPSS tank.

## PLANNING AND ASSESSMENT ROLE

When reviewing documentation lodged with a development application associated with the decommissioning of UPSSs (or tanks), Council should be aware of the following requirements:

- The person responsible for the UPSS must notify Council no later than 30 days before the system is decommissioned or removed.
- The person responsible should also provide Council with a remediation action plan if site remediation is required.
- A report must be prepared and submitted to Council no later than 60 days after the system is decommissioned. If remediation of the site is also required as part of the decommissioning process, a validation report must be submitted to the local authority no later than 60 days after the remediation is completed.
- The validation report must be prepared by a duly qualified person and describe the processes used to decommission the storage system, how contamination was assessed at the site and how the remediation objectives were met.

## ENVIRONMENTAL COMPLIANCE AND INSPECTION ROLE

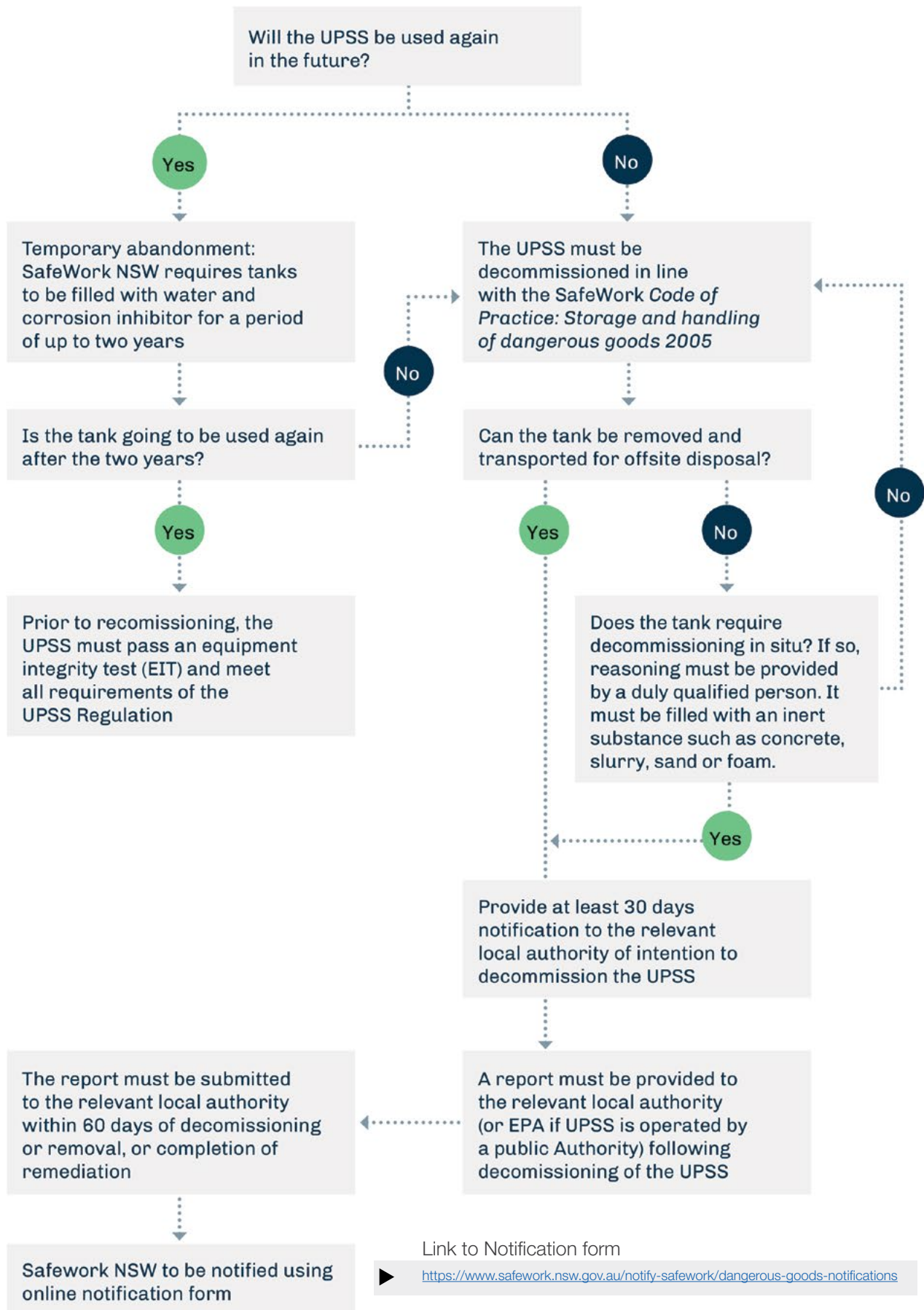
When reviewing documentation associated with the decommissioning process, Council should be aware of the:

- requirements set out in the *Guidelines for Implementing the Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019*
- NSW EPA's *Decommissioning an Underground Petroleum Storage Tank or System* fact sheet.

The following decision tree outlines the key considerations for Council in the decommissioning process. (See following Page)

<sup>23</sup> <https://www.epa.nsw.gov.au/-/media/21p3279-decommissioning-underground-petroleum-storage.pdf>

# UPSS DECOMMISSIONING



**Note:** UPSS = underground petroleum storage system; UPSS Regulation = Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019.

**Source:** Guidelines for Implementing the Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019 (NSW EPA, 2020).

The *Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019 (UPSS Regulation)* provides powers to the appropriate regulatory authority to exempt a person or a class of persons from any of the requirements of the Regulation.

Councils are the regulatory authority for most underground petroleum storage systems (UPSSs) in their local government area. Councils can exempt a person responsible for a UPSS in their local area

from complying with any of the requirements of the Regulation. Current exemptions that are granted by the NSW EPA under the *UPSS Regulation 2014* should be reviewed by Council. It is best practice for Council not to renew these exemptions because they were granted, in most cases, to provide sufficient time for UPSS sites to comply with the Regulation. It would only be under exceptional circumstances that an exemption is granted or renewed.

## ENVIRONMENTAL COMPLIANCE AND INSPECTION ROLE

Exemptions from the provisions of the *UPSS Regulation* may be granted on the basis of the categories in Table 12. Additional information is provided in [UPSS Technical Note: Site Sensitivity Assessment](#).<sup>24</sup>

It is best practice for Councils to no longer grant exemptions to UPSS operators to one or more provisions of the *UPSS Regulation*.

**Table 12:** Categories for exemptions from provisions of the *UPSS Regulation*

Category	Description	Risk-based site sensitivity assessment to be requested by Council?
<b>Category 1</b>	General exemption from all provisions of the <i>UPSS Regulation</i> for backup generator tanks, waste oil tanks and heating oil tanks	
<b>Category 2</b>	Sites outside environmentally sensitive zones exempt from installing groundwater wells	
<b>Category 3</b>	Sites inside environmentally sensitive zones exempt from installing groundwater wells	
<b>Category 4</b>	Exemption from specific requirements of the <i>UPSS Regulation</i>	

**Note:** *UPSS Regulation* = *Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019*.

<sup>24</sup> <https://www.environment.nsw.gov.au/resources/clm/1034technotessa.pdf>

# UPSS EXEMPTIONS

The following checklist in Table 13 may be used by Council to decide if an exemption should be granted.

**Table 13:** Checklist for the decision-making (regulation) by Council to decide whether an exemption should be granted

Components of risk-based site sensitivity assessment	Included (Y/N)	Adequate (Y/N)	Comments and remedy (why 'no'? how is compliance reached?)
Is the information provided adequate and complete to allow Council to make an informed decision?			
Are the human health and ecological risks identified?			
Is assessment proportionate to the risks identified?			
Is evidence provided that the nature of the risk to environmental receptors is manageable?			
Are there any alternatives provided to meet the UPSS requirements?			
Are levels of residual contamination on the site acceptable for the current or proposed use?  Does the site history demonstrate that any past contamination incidents have been satisfactorily remediated?			
Are pollution prevention equipment, management practices and satisfactory compliance with other provisions of the <i>UPSS Regulation</i> adequate to make an informed decision?			

Note: UPSS = underground petroleum storage system; *UPSS Regulation* = *Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019*.

**This tab should NOT be used for leak notification. It is intended to be used in response to a community complaint or to a call for assistance from Fire and Rescue NSW or the EPA.**

Council will also be provided with a separate best practice resource on incident and resource management that can be provided to smaller, independent retail fuel service stations and fuel depots. It is an updated version of the retired NSW EPA resource, *UPSS – Best Practice Guide for Environmental Incident Prevention and Management*.

## ENVIRONMENTAL COMPLIANCE AND INSPECTION ROLE

Council should ensure that the site has adequate preparedness for an onsite incident, with response and clean-up procedures in place, training in the procedures and regular exercises practised to reinforce and continuously refresh how the procedures are to be carried out.

Incident response procedures document, in detail, the appropriate responses to a leak or spill from the petroleum storage system and action(s) to be taken in the event of an incident.

**The incident management procedure needs to document the responsibilities of the person responsible for underground petroleum storage systems (UPSS) in relation to:**

- actions taken by staff upon discovery of a leak or spill
- access to and activation of emergency shutdown systems
- use of spill clean-up kits
- covering of drain entrances and bunding of impacted waterways
- notification of emergency services where necessary
- notification of Council where necessary
- as soon as practicable, take such actions as required to identify the source and cause of a leak or spill (where an underground leak from a UPSS is identified, refer to the 'UPSS Leak Notification' tab for further information)
- controlling and mitigating any impact the leak or spill is having, or may have, on human health and the environment.

**The incident management procedure must set out the steps to be followed when dealing with any leaks and spills of petroleum from the UPSS. The procedures should detail the following:**

- notification of the incident to the EPA or the appropriate regulatory authority as soon as reasonably practicable
- actions taken as soon as practicable to prevent any further release of petroleum into the environment
- location and contents of spill kits and type and equipment to the identified hazards
- identification and mitigation of any fire, explosion or vapour hazards
- all steps taken to mitigate the impacts of any petroleum that has leaked or spilled
- all steps taken to recover or remove petroleum that has leaked or spilled so that the site does not pose an ongoing threat to the environment or human health and safety
- removal or, where practicable, repair, of leaking components in accordance with industry best practice.



## COUNCIL'S ACTIONS TO TAKE WHEN AN INCIDENT OCCURS

When Council receives a complaint from a community member about petrol odour, sheen or air quality or drainage issues, the following actions can be taken.

When the complainant provides evidence of a leak on a UPSS site, Council should contact the site to determine whether a leak notification is required (see the 'UPSS Leak Notification' tab).

### STEP 0:

If Council has information that represents an incident or an emergency (for example, loss of fuel, hydrocarbon odours in a building, potential for an explosion, acute harm from exposure to fuel, or any hazardous conditions), a HAZMAT combat agency is required to respond to these issues to ensure public safety.

## IF THIS IS AN EMERGENCY, CALL 000

REFER THE INCIDENT TO THE APPROPRIATE EMERGENCY SERVICE

### STEP 1:

- When Council is notified of the incident, the person responsible for the UPSS should be contacted immediately to determine whether risks to human health and the environment are under control and whether actions are in place to stop and mitigate the impact of the leak or spill as soon as practicable.
- Verify if actions were taken in accordance with the incident management plan.
- Inspect and obtain more information, and request environmental monitoring if contamination is suspected.
- Council should consider following up and checking the condition of the UPSS site after the incident has been resolved.



# SUPPLEMENTARY INFORMATION (APPENDICES)

This section provides important user guides, templates and checklists to assist staff in the handling and management of their appropriate regulatory authority responsibilities under the UPSS Regulation in Council business processes. This reference material is also available in electronic format on the website for staff to access and use.

Appendix	Resource	Description
<b>A</b>	Fuel system operation plan user guide	Provides guidance on what information is required to develop a fuel system operation plan
<b>B</b>	UPSS inspection form	A form that can be used by Council staff in an inspection of a UPSS site
<b>C</b>	Decision tree for UPSS and development assessment and consent	Provides guidance to staff on the consideration of UPSS in development assessment and consent business processes
<b>D</b>	Checklist for UPSS minimum standards	A checklist that can be used by staff to confirm requirements in the design and installation of UPSS

## APPENDIX A – FUEL SYSTEM OPERATION PLAN USER GUIDE

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The Fuel System Operation Plan User Guide was developed by the Northern River Contaminated Land Project who has approved its use in this resource.



Council Regional Capacity Building Program



# Underground Petroleum Storage Systems (UPSS) Fuel System Operation Plan Guide

January 2021

**APPENDIX B –  
UPSS INSPECTION FORM**

**Protection of the Environment Operations  
(Underground Petroleum Storage Systems) Regulation 2019**

**UPSS SITE INSPECTION CHECKLIST**

Conducted on (date /time): Inspecting Officer:

Inspection Report No.:

File No.:

Site details	
Site/business name:	Site owner name:
Site address:	Person responsible name:
Lot: DP:	Email (Person responsible / Owner):
Local government area:	Phone (Person responsible / Owner):
Nature of lease/responsibility for site & UPSS:	
Exemption applies?	Total annual fuel sales (litres):
Vapour Recovery (Y/N) VR1 VR2	Tank information available? (Y/N):
If yes, record (if a tank contains multiple compartments, record each compartment as a separate tank):	Construction material(s):
Year tank was commissioned:	Products contained:
Volume:	Operational status:

Inspection details				
<b>Section A - Fuel system operation plan or equivalent (Y/N) or (✓x) – record details as applicable</b>				
<input type="checkbox"/> Present	<input type="checkbox"/> Separate document	<input type="checkbox"/> Accessible (onsite)	<input type="checkbox"/> Located offsite	<input type="checkbox"/> Format: electronic/ paper
Fuel system operation plan - contents				
<input type="checkbox"/> Site details	<input type="checkbox"/> Site security & access info	<input type="checkbox"/> Person responsible contacts	<input type="checkbox"/> Indicates location of records	<input type="checkbox"/> Design standards / industry specs
<input type="checkbox"/> Details of loss monitoring system	<input type="checkbox"/> Incident management procedure	<input type="checkbox"/> Maintenance schedule	<input type="checkbox"/> Plans/as-built drawings	<input type="checkbox"/> Employee induction and incident mgt training

## SUPPLEMENTARY INFORMATION (APPENDICES)

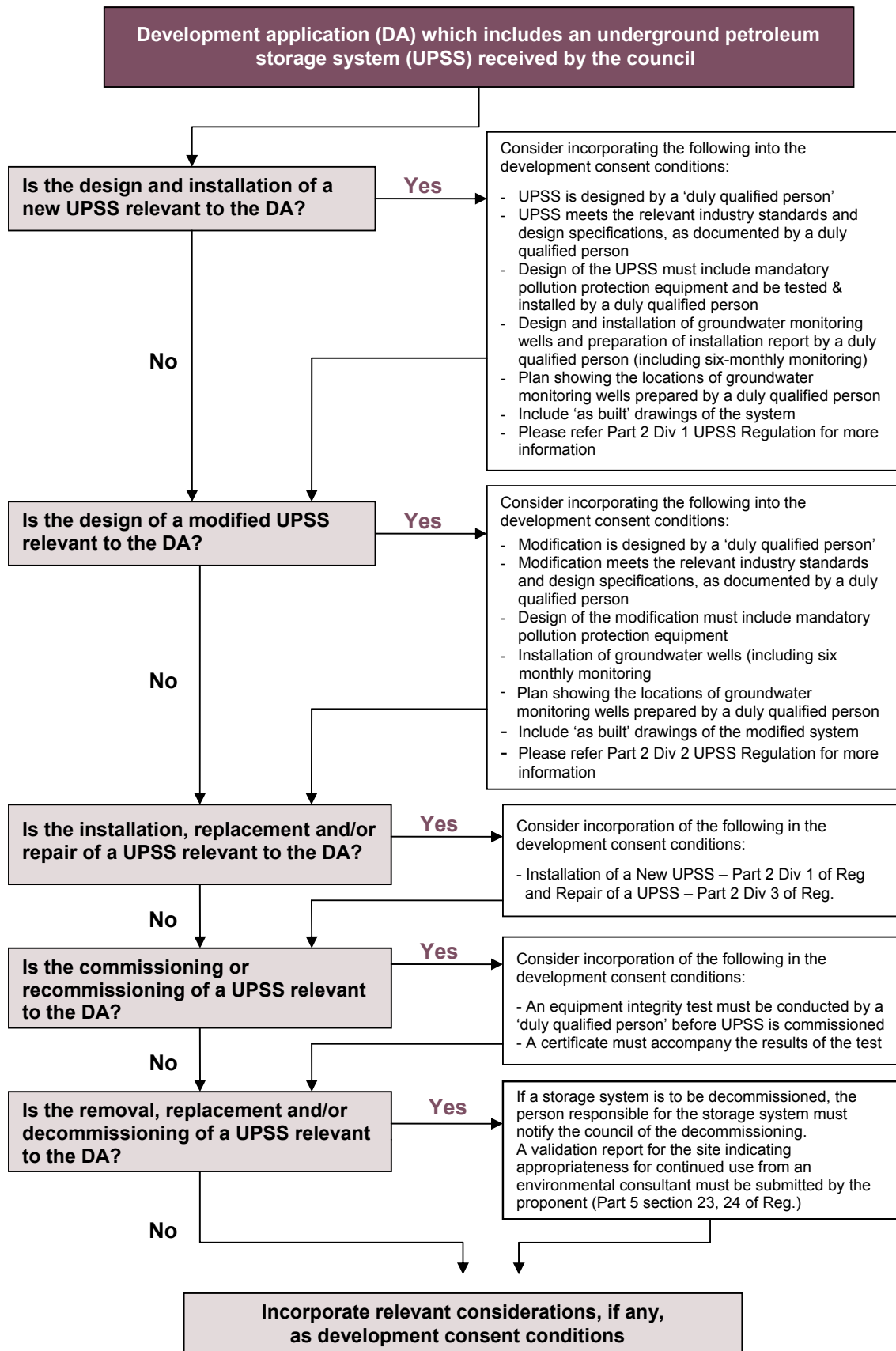
<b>Section B – Loss monitoring system (description)</b>					
<input type="checkbox"/> None	<input type="checkbox"/> SIRA	<input type="checkbox"/> ATG	<input type="checkbox"/> Interstitial	<input type="checkbox"/> Manual dipping	<input type="checkbox"/> Other:
Frequency of loss monitoring reports	<input type="checkbox"/> Daily	<input type="checkbox"/> Weekly	<input type="checkbox"/> Monthly	<input type="checkbox"/> Other:	
Certified to meet 0.76L/hr criteria?			Loss monitoring for all tanks?		
LM reports included in FSOP?			Are discrepancies investigated?		
<b>Section C(i) - Leak detection system, groundwater wells (or)</b>					
<input type="checkbox"/> Groundwater wells installed?	Number of wells:		<input type="checkbox"/> Installation report available?		
<input type="checkbox"/> Testing procedure available?	<input type="checkbox"/> Wells tested every 6 months?		<input type="checkbox"/> Groundwater monitoring results available?		
<b>Section C(ii) – Alternative leak detection system</b>					
<input type="checkbox"/> Alternative leak detection system used? Details:	<input type="checkbox"/> Designed by duly qualified person?		<input type="checkbox"/> Testing procedure?		
<b>Section D – Incident management procedure</b>					
<input type="checkbox"/> Procedure in place?	<input type="checkbox"/> Incident log kept in FSOP?		<input type="checkbox"/> Steps to mitigate spill/leak?		
<b>Section E – Maintenance schedule</b>					
Schedule in place showing general systems maintenance and maintenance of all gauges, indicators, probes, sensors and any other measuring instruments (Y/N):					
<input type="checkbox"/> Indicates maintenance actions			<input type="checkbox"/> Indicates maintenance frequency		
<input type="checkbox"/> Indicates where maintenance records kept					
<b>Comments, areas for action/improvement:</b>					

# SUPPLEMENTARY INFORMATION (APPENDICES)

<b>Other environmental management issues</b>			
<b>Section F - Forecourt design operation and maintenance (Y/N/NA) or (✓✗-)</b>			
Stormwater drains free of pollution		Stormwater drains protected from spills	
Forecourt area sealed and free from cracks		Oil water separator (or alternative)	
Forecourt area has canopy with overhang		Oil/water separator appropriately maintained	
Trade waste agreement/permit		Wastewater discharged to sewer (only for existing premises built prior to 1/6/2012)	
Forecourt area bunded for collecting surface run-off		Wastewater treated prior to discharge	
Licensed waste contractors used (planned to be used) to dispose of spill and leak waste		Wastes stored in a manner to prevent a pollution incident	
<b>Section G - Spill response and chemical storage</b>			
Spill kit present, accessible, adequate		Spill kit regularly checked and refilled	
Sweep/vacuum/absorbent materials used to clean small spills and surface areas		Relevant material safety data sheets at site	
Up-to-date register of chemicals at site		Staff trained in spill clean-up procedures	
Employees aware of who to contact in event of spill		Manifest box present	
<b>Comments, areas for action/improvement:</b>			



**APPENDIX C –  
DECISION TREE FOR UPSS AND  
DEVELOPMENT ASSESSMENT AND CONSENT**



## SUPPLEMENTARY INFORMATION (APPENDICES)

### APPENDIX D – CHECKLIST FOR UPSS MINIMUM STANDARDS

The following is a summary of the minimum standards for the design and installation of UPSSs.

UPSS	Equipment requirement	Guidance documents	Meets requirements and standards (Yes/No)
<b>Tanks</b>	<ul style="list-style-type: none"> <li>• Non-corrodible tanks</li> <li>• Double-walled and with an interstitial space between the 2 walls of the tank that is capable of being monitored for any breach of either the inner or outer wall of the tank</li> <li>• Installed in a tank pit</li> </ul>	<ul style="list-style-type: none"> <li>• Section 4.2.1 of AS 4897-2008</li> </ul>	
<b>Piping</b>	<ul style="list-style-type: none"> <li>• Non-corrodible and has cathodic protection</li> <li>• Double-walled piping and has an interstitial space between the 2 walls of the piping that is capable of being monitored for any breach of either the inner or outer wall of the piping</li> <li>• Leak detection for product piping</li> </ul>	<ul style="list-style-type: none"> <li>• Sections 4.3.1 and 4.3.4 of AS 4897-2008</li> </ul>	
<b>Fill points</b>	<ul style="list-style-type: none"> <li>• Dedicated to one tank only</li> <li>• Clearly labelled and identified</li> <li>• Provided with a spill containment device with a minimum capacity of 15 litres per fill point</li> <li>• Accessible from the vehicle unloading or loading position with a hose no longer than 6 metres</li> <li>• Accessible for visual inspection</li> <li>• Located in a position that is isolated from the stormwater system</li> <li>• Overflows and spills from the spill containment device are directed to an oil/water separator or a stormwater quality improvement device</li> </ul>	<ul style="list-style-type: none"> <li>• Section 4.3.5 of AS 4897-2008</li> </ul>	

## SUPPLEMENTARY INFORMATION (APPENDICES)

UPSS	Equipment requirement	Guidance documents	Meets requirements and standards (Yes/No)
<b>Cathodic protection</b>	<ul style="list-style-type: none"> <li>• Cathodic protection system designed and installed by a corrosion specialist</li> <li>• Tanks and piping are coated with a suitable dielectric material</li> <li>• The cathodic protection system has permanent test points to enable maintenance and testing</li> <li>• The UPSS is electrically isolated from all components to which it is physically connected and for which cathodic protection is not intended, including being isolated from the electrical earth</li> <li>• Cathodic protection systems are inspected and tested within 6 to 12 weeks of installation and at least every year thereafter</li> </ul>	<ul style="list-style-type: none"> <li>• Parts 1 and 2 of AS 2832.1-2015</li> <li>• Section 4.3.2 of AS 4897-2008</li> <li>• Maintenance documents and instructions from a corrosion specialist</li> </ul>	
<b>Tank pit and groundwater monitoring wells</b>	Refer to the 'UPSS Inspection and Monitoring' tab of this document	<ul style="list-style-type: none"> <li>• Sections 4.4.3 and 4.5.7.2 of AS 4897-2008</li> <li>• 'UPSS Inspection and Monitoring' tab of this document</li> </ul>	
<b>Equipment integrity test</b>	<ul style="list-style-type: none"> <li>• It should be capable of detecting a leak of 0.38 litres per hour, with a probability of detection of at least 95% and probability of false detection of 5% or less</li> <li>• It should be conducted by a competent and experienced person, who must provide the person responsible for the UPSS with a certificate stating that the system passed the test, as well as the results of the test. These documents must be kept for the life of the UPSS</li> <li>• Should be a nationally approved and certified method of equipment integrity testing that meets, at a minimum, the requirements or certification standards of the United States Environment Protection Agency</li> </ul>	<ul style="list-style-type: none"> <li>• AS 4897-2008</li> </ul>	

**Note:** UPSS = underground petroleum storage system. AS 4897-2008 is *The Design, Installation and Operation of Underground Petroleum Systems*. AS 2832.1-2015 is *Cathodic Protection of Metals. Part 1: Pipes and Cables*.