

Petrol stations – Development application checklist



Development applications (DAs) that incorporate a petrol station, as defined in Planning and Design Code, require referral to the Environment Protection Authority (EPA) in accordance with the *Planning Development and Infrastructure Act 2016*.

The [Planning and Design Code](#) defines a petrol station as being:

... a facility for the storage and retail sale of petroleum products or other liquid organic chemical substances.

The EPA receives many DA referrals for petrol stations, including proposals for the construction of new petrol stations and the upgrade of existing petrol stations. These petrol stations can be either staffed or unstaffed.

When assessing a petrol station DA, the EPA must have regard to, and seek to further, the objects of the [Environment Protection Act 1993](#) (EP Act) and have regard to the general environmental duty (as prescribed by section 25 of the EP Act), any relevant environment protection policies and the waste strategy for the state.

Due to the specific definition of a petrol station contained in the Planning and Design Code, the EPA assesses only the potential environmental impacts relating to the proposed petroleum storage and dispensing activity. The EPA's role is to undertake a technical assessment and provide direction to the relevant authority on the potential environmental harm from pollution and waste associated with such activities. Typically, this means that the EPA considers potential air quality, stormwater and site contamination impacts associated with petrol station DAs.

Noise impacts are not ordinarily considered within the scope of the EPA's assessment of petrol stations because significant noise sources do not directly arise from the storage and sale of fuel (more likely to arise from ancillary uses such as car/dog wash and vacuum facilities, fast food drive-through facilities, etc). Relevant authorities are responsible for considering potential noise impacts from these type of sources in their assessment.

Petrol station development application checklists

For the EPA to effectively assess a DA that incorporates a petrol station, the applicant is required to provide a suite of supporting documentation. The following checklists set out the minimum information that the EPA will require to undertake its assessment. This is in addition to the required information outlined in the EPA publication, [Development checklist for referral to the Environment Protection Authority](#).

Staffed and unstaffed petrol stations have different levels of risk so require different levels of information; these are differentiated in the checklists and signified by the following symbols:

✓ = Required

O = May be required

X = Not applicable

General information

Each application should include general information to help the EPA understand the nature and scale of the proposal.

General – relevant Information	Staffed	Unstaffed
Hours of operation	✓	✓
Total number of fuel storage tanks	✓	✓
Location of tanks (shown clearly on site plans)	✓	✓
Statement as to whether tanks are underground or aboveground	✓	✓
Details about fuel type (unleaded, diesel, AdBlue, LPG, etc) and storage capacity of each fuel type	✓	✓
Whether the petrol station would be staffed or unstaffed	✓	✓

Air quality

Petrol vapour emissions at retail petrol stations are a significant source of air pollution in South Australia. Emissions of volatile organic compounds contribute to air pollution and are emitted from storage systems holding hydrocarbons (other than diesel and LPG), as well as from fuel bowsers, vehicle tanks (displacement during dispensing) and tanker deliveries.

For the purposes of assessing air quality impacts relating to development applications, sensitive receivers are defined in the EPA publication [Evaluation distances for effective air quality and noise management](#), as a fixed location such as a house, building or other premises or open area where health, property or amenity are affected by emissions from existing or proposed development.

For example, one of the most toxic chemicals in petrol vapour is benzene, which has a maximum ground level concentration of 0.058 mg per cubic metre as a three-minute average as listed in Schedule 2 of the [Environment Protection \(Air Quality\) Policy 2016](#). This means that anywhere off site in the vicinity of the petrol station, where people can spend more than three minutes at a time, is considered a sensitive receiver (eg businesses, restaurants, bus stops) for benzene. The definition of a sensitive receiver, while ordinarily encompassing the definition provided in the Planning and Design Code, is wider for the purposes of the EPA's assessment of DAs.

The EPA recommended evaluation distance (ie buffer distance) for unleaded petrol dispensing (eg from the bowsers) is 50 metres to the nearest sensitive receiver.

Vapour recovery

Adverse air quality impacts arising from petrol stations may be minimised through the use of vapour recovery systems to reduce petrol emissions into the atmosphere from underground storage systems.

Vapour recovery systems are designed in two stages. A Stage 1 vapour recovery system (VR1) captures displaced vapours from storage tanks when a tanker delivers petrol to a petrol station, whereas a Stage 2 vapour recovery system (VR2) captures displaced vapours at the bowser while a motorist refuels their vehicle and directs vapours back into the tank or other appropriate vessel.

The installation of a VR1 is an industry standard requirement for all fuel storage tanks (other than tanks storing diesel and LPG) and includes underground storage tank vent pipes being fitted with a pressure vacuum relief valve, to minimise loss during unloading and storage of fuel.

If sensitive receivers are located closer than 50 metres to the fuel bowsers and the proposal is for a new petrol station, increasing the number of fuel bowsers, or moving bowser closer to sensitive receivers at an existing petrol station which dispenses unleaded fuel, it must be demonstrated that the reduction of the 50-m evaluation distance does not pose an unacceptable risk to human health or amenity (ie odour nuisance). This can be demonstrated by confirming the installation of VR2 (except bowsers dispensing diesel or LPG), air quality modelling, or the provision and explanation of other potential mitigating factors (eg operational limitations such as reduction in maximum petrol delivery rates at the bowsers, etc).

Air quality – relevant information	Staffed	Unstaffed
Distance to the nearest sensitive receivers	✓	✓
Total number of fuel pumps (bowsers) and location of bowsers	✓	✓
VR1 proposed (except tanks holding diesel or LPG), including underground storage tank vent pipes being fitted with a pressure vacuum relief valve, to minimise loss during the unloading and storage of fuel	✓	✓
If sensitive receiver located within 50 m and the proposal is for a new petrol station, is expanding an existing petrol station which dispenses unleaded fuel – VR2 proposed (except bowser dispensing diesel or LPG), or air quality modelling or explanation of other mitigating factors provided	✓	✓

Water quality

Clause 21(a) of the [Environment Protection \(Water Quality\) Policy 2015](#) (Water Policy) requires the EPA to consider whether an activity or development may result in pollution of any waters through discharge of waste or a pollutant into waters or onto land. When assessing a petrol station DA, the EPA must ensure that the objectives of the Water Policy are met, including that all reasonable and practicable measures are being taken to prevent or minimise environmental harm resulting from undertaking an activity that pollutes or might pollute waters.

Stormwater

Contaminated stormwater runoff can be generated at retail petrol stations from the hard surfaced forecourt areas including refuelling and fuel delivery areas.

The Water Policy defines ‘contaminated stormwater’ as including stormwater contaminated by a Class 1 pollutant such as petroleum products are classified as a Class 1 pollutant.

Clause 10 states that Class 1 pollutants must not be discharged directly into waters (including the stormwater system) or onto land where they may enter waters.

Water quality – relevant Information	Staffed	Unstaffed
All trafficable areas are hard surfaced (bitumen, concrete, or other impervious material)	✓	○
Description of how stormwater is proposed to be managed, including a stormwater management plan to a scale of not less than 1:500, indicating: <ul style="list-style-type: none"> • how potentially contaminated stormwater would be captured • the direction of stormwater flow on the site • the location of the treatment system and/or containment device • the location of any bunds, drains and/or sumps on the site • any entry/exit points to a local stormwater network • location of the fuel fill points. 	✓	✓
If a forecourt full retention oil/water separator is to be installed, the make and model of separator must, as a minimum: <ul style="list-style-type: none"> • have a no-bypass function • have capacity to contain the spill of least one compartment of the largest fuel tanker to service the site, plus stormwater runoff in the event of rainfall occurring • reduce oil content in the outlet to less than 5 milligrams per litre (mg/L) of water at all times (as confirmed by independent third-party scientific testing) • operate effectively in the event of a power failure • have high level and maintenance alarms which are connected by telemetry to appropriate maintenance personnel. 	✓	✓
If a containment device (eg blind tank) is to be installed, the tank must have capacity for a fuel spill (usually the capacity to contain 1 compartment of a fuel tanker which is approximately 8,000 litres) as well as stormwater runoff	✓	✓
Any sludge and oily waste collected within the treatment system or containment device is to be removed as necessary by an EPA licensed waste transporter	✓	✓
Canopy is designed to extend beyond the bunded area by 1 metre for every 3 metres of height to minimise the entry of clean stormwater to any stormwater treatment device	○	○

Potential site contamination

Leakage from underground petroleum systems is a significant issue that can have impacts on soils and groundwater and cause site contamination.

Site contamination risks resulting from tank or fuel line leaks or spills can be managed through containment and alarm systems that alert maintenance personnel. The EPA considers these risks to be higher in the case of unstaffed petrol stations where maintenance personnel may be off site. Unstaffed petrol stations are typically required to implement leak detection alarms that are connected via telemetry to off-site maintenance personnel and emergency procedures should be prepared accordingly.

In relation to the storage of fuel, the EPA considers that meeting the relevant Australian Standards constitutes compliance with the general environmental duty as required by section 25 of the EP Act.

The relevant Australian Standards are as follows:

- For underground fuel storage tanks, *Australian Standard 4897–2008: The design, installation, and operation of underground petroleum storage systems*.
- For aboveground fuel storage tanks, sections 5.8 and 5.9 of *Australian Standard 1940–2017: The storage and handling of flammable and combustible liquids*.

Potential site contamination – relevant information	Staffed	Unstaffed
Methods proposed to reduce the risk of leaks in underground fuel lines between the fuel pumps and fuel tanks, such as using double-walled lines and leak detectors which are designed and installed in accordance with clause 4.5 of <i>Australian Standard 4897–2008: The design, installation and operation of underground petroleum storage systems</i>	✓	○
Measures proposed to reduce the risk of site contamination from leaks from the underground storage tanks, such as installing double-walled tanks with a leak detection system which is designed and installed in accordance with clause 4.5 of <i>Australia Standard 4897–2008: The design, installation and operation of underground petroleum storage systems</i>	✓	○
Above ground fuel tanks designed and installed in accordance with sections 5.8 and 5.9 of <i>Australian Standard 1940–2017: The storage and handling of flammable and combustible liquids</i>	X (if no above ground tanks proposed)	✓
If underground fuel tanks are being removed, a construction environment management plan (CEMP) is to be prepared by a site contamination consultant in accordance with the EPA Guidelines for the assessment and remediation of site contamination and the industry guidelines Construction environmental management plan (CEMP)	✓	✓
Details explaining all emergency response procedures including that off-site personnel would be contacted via telemetry in the event of an emergency or spill	X	✓