

APPENDIX 3

BEST MANAGEMENT PRACTICES FOR SERVICE STATION FORECOURTS

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This appendix provides more detail for service station owners and operators. It is in two parts. Appendix 3.1 sets out best management practices and is based on a recent publication of the Australian Institution of Petroleum. Appendix 3.2 is a generic surface spillage mitigation plan for service stations.

A3.1 Best Management Practices for Service Station Forecourts

A3.1.1 General Requirements

Do not pour fuel down drains or sumps. Separators can only remove so much oil. If too much enters they start to pass it out rather than remove it. If the oil doesn't get into the separator in the first place, it won't have to be removed.

Do not introduce detergents into the drainage system. Detergents are a major enemy of separator operation because they promote the formation of an oil/water emulsion (mixture) which will not separate under the influence of gravity. It should also be noted that detergents are a pollutant in their own right and should not be discharged to the wider environment. If cleansing agents are to be used they should be used sparingly and must be of an approved type. Decantings from windshield detergent bottles and the like should be disposed of to the sewer and not to the stormwater system.

Under no circumstances should underground tanks be filled beyond their licensed capacity.

A3.1.2 Staff Training

It is important that all staff involved in forecourt operations are familiar with the drainage system and the best management practices outlined here, and especially with the location and operation of the interceptor outlet valve if present. It is the responsibility of site managers to ensure that all staff are familiar with site systems and procedures, and evidence of this bearing the signatures of trained staff should be retained on site for inspection by the authorities.

A3.1.3 Spill Control

Prevention of product spills is a matter of priority in all operations. Equipment, facilities design, and operational procedures must address minimisation of spill potential.

A3.1.3.1 Dispensing Equipment

Current fuel dispensing equipment incorporates a range of in-built safety features designed to avoid or limit accidental spills.

The practice of “topping off” fuel tanks during fuelling should be avoided. The proper use of “hold open” latches can facilitate automated filling and can minimise spills. Improper fuelling methods should be guarded against.

Should a spill occur it may require:

- Temporary closure of forecourt operations.
- Blockage of adjacent drains unless they can be used to direct product into a containment area.
- Recovery of product from such a containment area or its absorption using industrial absorbents or rags.
- Spot cleaning of the area with rags or absorbents and hosing into collection pits for effluent separator treatment.

If gasoline is spilled, vapour generation may become the prime hazard source.

If diesel is spilled, evaporation is minimal, so the driveway surface may be hazardous until it is thoroughly cleaned.

If hosing is involved, the volume of water used should be kept to a minimum, and the effluent should be directed into on-site drainage which leads to an interceptor. No product should be permitted to enter drains and escape to stormwater or off-site.

A3.1.3.2 Delivery Spills

Under normal circumstances the delivery driver will take control of a delivery spill or overflow situation. Generally, the following procedure should be adhered to:

- Close all vehicle valves.
- Isolate the spill area and contain any spill.
- Stop all operation in the immediate area of concern; remove or shut down ignition sources; isolate all electrics.
- Close the interceptor valve and block any drains leading to areas beyond the station boundaries.
- Avoid any water flush of product into drain streams creating overload conditions and escape of product off-site.
- Alert emergency contact personnel and relevant authorities.

Site staff should visually inspect the drainage systems for signs of free product after tanker deliveries and after any spill events on site. Free product and contaminated materials must be disposed of in an appropriate manner. Note the restrictions on the handling of gasoline fuel by waste contractors under Appendix 3.1.5 Waste Disposal Methods.

A3.1.3.3 Other Sources

Spills may occur from lube oil top-up, brake fluid top-up, and similar minor servicing needs. A drip pan should be placed under a vehicle if disconnecting hoses, unscrewing filters, or removing other parts to capture the automotive fluids.

If fluids are leaked into exposed surfaces, proper spill response procedures should be performed. For minor spills, spill control should centre on the use of rags or absorbents only. Contaminated residue should be treated as outlined below under Appendix 3.1.5 Waste Disposal Methods.

A3.1.4 Procedures for Cleaning Forecourts

Preferred cleaning methods are those involving a minimum use of water as the cleaning medium.

- Using an industrial class broom, the entire pavement area should be swept free of surface materials. Deposit paper, litter, loose waste, etc. in waste bins.

Alternatively

- Using a mechanical or powered sweeper or industrial vacuum unit follow the same procedure as above, depositing all collected material in trade waste bins. Because of the forecourt environment, operation of powered equipment must be restricted to personnel who are mature, familiar with forecourt operational hazards, and safety conscious.
- Identify any product spills, stains, etc. and, initially using industrial absorbents, remove and collect any product. Wipe clean remaining stains with rags soaked in an approved cleansing agent. *Minimise the use of solvents of any type for this purpose.* An alternative to the use of rags is to spot-spray stains with the same approved cleansing agent. *Apply only those detergents to the forecourt area which are permitted by the consent conditions. Refer also to section 7.5.2.*
- Broom the area where the cleaning agent has been applied, allow 5 minutes, and then wash off the area concerned using a 15 mm hose.

Use the above dry cleaning methods before washing down the forecourt to reduce the quantity of water used and minimise the volume of effluent generated.

- Spent absorbents, waste materials, and litter should be disposed of in an environmentally acceptable manner as described under Waste Disposal Methods below.
- Thorough washing of the forecourt should not normally be necessary more frequently than once weekly, provided regular dry cleaning is conducted. Traffic conditions and loading may require more frequent wash-down by the operator.
- Cleaning agents should be used only in accordance with manufacturers' recommendations.
- All drains, silt traps, etc. must be kept clean and free of obstruction.
- All sludges, waste materials, etc. recovered from silt traps, drains, settlement pits, and separators must be disposed of in an environmentally acceptable manner as described under Waste Disposal Methods below.

- Where forecourt wash-down is practised, surplus surface water should be squeegeed from the pavement surface to avoid the potential for accidents.

A3.1.5 Waste Disposal Methods

Sources of waste on service stations vary. Certain wastes require specific disposal methods. Unless local authorities direct otherwise, disposal of wastes should be as follows:

- **Trash and solids** cleaned from drains, grated drains, and trash arresters should be deposited in conventional industrial trade waste bins.
- **Silt** from silt arresters, drains, and grated drains should be placed in conventional industrial trade waste bins.
- **Domestic grease and sediment from grease traps** should be disposed of using licensed contractors appropriately equipped and operating to local regulatory authority requirements.
- **Used oil and customer “cocktails”** of materials and fuels should be disposed of using approved contractors. Oil and grease trapped by either buried or above-ground separators must be similarly disposed of by approved contractors or at the same time as sediment is removed from such equipment by approved trade waste contractors.
- **Gasoline** is not to be handled in vacuum or suction trucks for either suction or cartage due to the presence of flammable fumes. If present, gasoline should be removed using either a hand- or air-operated pump and drummed for removal.
- **Sediment and waste** from sediment collection pits servicing above-ground separators or from in-ground separators must be disposed of through licensed trade waste contractors operating to local authority requirements.

A3.1.6 Separator Cleaning Procedures

Because equipment configuration will vary somewhat between sites, cleaning procedures will most likely do so too.

The following procedures should be regarded as being “good guidelines”, but they should not necessarily take precedence over local work instructions relating to this task.

- Obtain a Confined Space Entry Permit if the pit exceeds 1.5 metres in depth.
- Wear adequate clothing and personal protective equipment.
- Close the interceptor valve or block off the clean water outlet if required.
- Remove all liquid and solids from within each chamber using an approved, licensed trade waste contractor.

- Remove any further silt or solids that may have become lodged in the system.
- Flush through all drains leading to the interceptor.
- Hose all internal surface areas using **controlled quantities** of cleansing agent only, if necessary.
- Again remove all effluent and solids from each chamber.
- Remove the plug from the clean water outlet.
- Recharge the pit with clean water to operating level.
- Reinstate pit covers.

A3.1.7 Inspection and Maintenance Schedule

With any oil separation device, maintenance is essential to avoid gross re-entrainment of previously separated contaminants. Both oil and solids accumulations can be re-entrained in a storm event if the pollutants are allowed to build up to excessive levels. The maintenance programme is designed to prevent this accumulation and to ensure that the design flow conditions continue to prevail in the device.

A3.1.7.1 Frequency

The attached Inspection and Maintenance Schedule must be carried out monthly.

A3.1.7.2 Catchment

Grates and sumps in the catchment area will need to be clear of debris and sediments. Any evidence of water ponding or product spillage needs to be reported.

The use of detergents on site needs to be guarded against as these will emulsify the oil and degrade the separator performance. Any evidence of their use should be reported.

A3.1.7.3 Oil Removal

The separator should be inspected to determine the amount of oil collected. Oil should be removed if necessary by pumping or decanting. The oil can be removed by the following methods:

- Removal by pumping or decanting the surface oil layer in a dry period between storms. Do not try and remove the oil while there is a flow through the device. The invert of the orifice or slotted pipe used to withdraw the oil can be set at the separator orifice invert level. Since there is no flow in the separator when the oil is being removed, and the oil outlet is set at the appropriate level, there should be a minimal withdrawal of water as the oil is being removed.

- Use of oil absorption pads. These will soak up some oil, which then cannot be re-entrained into the flow. Such pads have a limited uptake capacity, and may present a disposal problem.

A3.1.7.4 Oil in By-Pass (where applicable)

The by-pass should be inspected for evidence of any accumulated oil. Report any evidence of this, as modifications may be required to the flow control devices if this is occurring.

A3.1.7.5 Removal of Sediment

The slurry at the bottom of tanks needs to be removed if it has built up to a level greater than 150 mm. Use a dip tape to determine the depth of the accumulated sediment. It should be removed by an approved waste disposal contractor. Sediment should also be removed from the by-pass as required.

A3.1.7.6 Flow Control (where applicable)

Flow is controlled by both the plate orifice and the position of the by-pass weir (where applicable). Check for evidence of poor flow control, e.g., evidence of flooding in the by-pass weir chamber, flooding in sump chambers, etc.

Orifice and weir positions may need to be adjusted if problems are encountered with flow conditions. Persistent clogging should be reported, as screening may be required to prevent debris causing blockages.

API Oily Water Separator

INSPECTION AND MAINTENANCE SCHEDULE

Site

Date

1. Catchment

Yes No

Are grates and sumps clear of debris and sediments?

Corrective Action Taken

Yes No

Is there evidence of water ponding or product spillage?

Corrective Action Taken

Yes No

Is there evidence of detergents being used on site?

Comments

2. Oil Removal

What is the depth of free oil in the main chamber?

Yes No

Has it been removed?
(if greater than 3 mm it should be)

Yes No

Is there any evidence of oil accumulating in the by-pass?

Corrective Action Taken

3. Sediment Removal

What is the depth of sediment in the bottom of the main chamber?

	Yes	No
Has it been removed? <i>(if greater than 150 mm it should be)</i>	<input type="checkbox"/>	<input type="checkbox"/>

	Yes	No
Is there evidence of sediment accumulating in the by-pass?	<input type="checkbox"/>	<input type="checkbox"/>

Corrective Action Taken

4. Flow Control

	Yes	No
Is there any evidence of poor flow control?	<input type="checkbox"/>	<input type="checkbox"/>

Corrective Action Required

	Yes	No
Is there any evidence clogging or debris accumulation in either the orifice plate or by-pass device?	<input type="checkbox"/>	<input type="checkbox"/>

Corrective Action Taken

Signed:

(Name):

A3.2 Service Station Surface Spill Mitigation Plan

Risk	Preventive measures	Responsible party	Document/procedure	Emergency procedure/action	By	Follow up action	By
1. Pump knocked over/ pulled over	*Pumps bolted down *Pump suction flex or shear valve breaks in preference to pipework *Shear groove in spout *Breakaway coupling on hose *Emergency pump shut-off *Pump power & comms isolation switch *Under pump sumps	Contractor - Oil company Oil company Oil company Oil company Oil company	Oil co. specs & UST COP Electrical regulations Oil co. specs & UST COP	*Isolate pump, power & comms *Use spill response kit if necessary *Contact contractor *Contact oil co. if spill > 5 litres *Shut interceptor outlet valve, if necessary *Clean out sumps)) Site) operator))) Contractor	*Pump/pipework repaired *Accident/damage report *Inspect/clean out interceptor	Contractor Site operator Contractor
2. Forecourt spills: All types	*Automatic shut-off nozzles *Emergency shut-off switches	Oil company Oil company	Oil co. specs & UST COP Electrical regulations	*Use spill response kit *Contact contractor *Shut interceptor outlet valve *Contact Fire Service if spill > 5 litres *Contact local authority if spill > " " *Close site if spill is major, e.g., >> holding capacity, until cleaned up) Site) operator	*Incident report/investigate cause *Replenish response kit *Inspect/clean out interceptor *Undertake environmental investigation, if necessary *Implement action points as highlighted by Incident Report	Oil co. Site operator Contractor Oil co. Oil co.
3. Vehicle 'cocktail'	*Site operator training *Latches on some diesel pumps	Site operator Oil company) Letter to all) site operators Oil co. specs & UST COP	*Arrange safe removal of fuel from vehicle) Site) operator	*Contact contractor to safely dispose of product	Site operator
4. Leaking pumps	*Automatic shut off nozzles *Under pump sumps *Maintenance contract *Visual observation	Oil company Oil company Contractor Site operator	Oil co. specifications Maintenance contract	*Contact contractor	Site operator	*Rectify leaks *Report any loss/ground contamination	Contractor

A3.2 Service Station Surface Spill Mitigation Plan (continued)

Risk	Preventive measures	Responsible party	Document/procedure	Emergency procedure/action	By	Follow up action	By
5. Tanks overfilled	*Driver dip tanks prior to delivery *Driver fills within licensed capacity *Dipstick calibrated only to licensed tank capacity *Tank filled with over-fill prevention *Tank fill and dip points tagged	Driver Driver Oil company Oil company Contractor	Driver's handbook Oil co. specifications Oil co. specifications	*Control spill *Contain spill *Shut interceptor outlet valve *Contact Fire Brigade, if necessary *Contact duty despatcher	Driver Driver Driver Site Operator Driver	*Incident report/investigate cause *Replenish spill kit *Inspect/clean out interceptor *Advise local authorities *Undertake environmental investigation, if necessary *Implement action points as highlighted by incident report	Oil co./Driver Driver/Site operator Contractor Oil company Oil company Oil company
6. Overfill preventor shuts off during delivery	*Driver dip tanks prior to delivery *Driver fills within licensed capacity *Driver fills within licensed capacity	Driver Driver Oil company	Driver's handbook Oil co. specifications	*Shut valves *Pump product out of tanks	Driver Site operator	*Incident report *Investigate & rectify cause	Driver Oil company
7. Spill during delivery	*Driver training *Equipment maintenance	Driver Site Operator	Driver's handbook Site contingency plan	*Control spill *Contain spill *Shut interceptor outlet valve *Contact Fire Brigade, if necessary *Contact duty despatcher	Driver Site operator	*Incident report/investigate cause *Replenish spill kit *Inspect/clean out interceptor *Advise local authorities *Undertake environmental investigation, if necessary *Implement action points as highlighted by incident report	Oil co./Driver Driver/Site operator Contractor Oil company Oil company Oil company
8. Leaking remote fill point	*Observe at start of fill *Drain plunger in spill container	Driver	Driver's handbook		Driver	*Incident report *Investigate & rectify cause	Driver Oil company