

NATIONAL RIVERS AUTHORITY



POLLUTION PREVENTION GUIDELINES

FUELLING STATIONS: CONSTRUCTION AND OPERATION

These notes are for guidance only and refer to all forms of retail and other fuel outlets including those where diesel only is handled. They do not apply to other fuel sites such as rail side depots where fuel stocks may be stored above ground or other commercial fuel sites. Although existing sites are encouraged to comply, it is not intended that the requirements should apply retrospectively unless pollution has occurred or the risk that it might is unacceptable. Early consultation with your local National Rivers Authority Environmental Quality Office is advisable, as each site will be considered according to the individual circumstances. Details of local offices will be found at the end of these guidelines.

Note that throughout these guidelines the term 'separator' is used instead of the more commonly used 'interceptor'. The terms have the same meaning.

1. LEGISLATION

Your attention is drawn specifically to the following legislation:-

- i) Water Resources Act 1991
- ii) The Salmon & Freshwater Fisheries Act 1975
- iii) Land Drainage Act 1991

It should be noted that under Section 85 of the Water Resources Act, 1991, it is an offence to discharge poisonous, noxious or polluting material, (which includes oil and petroleum spirit, sewage or other polluting matter) into any "controlled waters", (which includes any watercourse, coastal waters or underground strata) either deliberately or accidentally.

- iv) The Petroleum (Consolidation) Act, 1928

The safe keeping of petroleum spirit (petroleum products that give off a flammable vapour at a temperature of less than 21° C) is regulated by a licence issued under the provisions of The Petroleum (Consolidation) Act, 1928, by Harbour, Fire and Civil Defence Authorities and County Councils. Licence conditions may be imposed in relation to other substances and activities within the licensed site in as far as they are affected by the presence of the petroleum spirit.

2. GUIDANCE

The Health and Safety Executive has produced a guidance document HS(G)41, Petrol filling stations : Construction and operation (reference 1), which amongst other things incorporates advice on petrol interception and storage tank design and installation. Although the advice is specifically provided for the safe keeping of petrol, much of it has environmental benefits. The booklet should be read in conjunction with this guidance note.

(N.B. Filling stations storing and dispensing diesel fuel only are not covered by The Petroleum (Consolidation) Act, 1928 or HS(G)41).

3. GENERAL

- a. Planning, construction, installation, operation and maintenance of filling stations should be in accordance with Health and Safety booklet HS(G)41, Petrol filling stations : Construction and Operation.
- b. When an existing site is to be redeveloped, the developers should be required to carry out an investigation of ground contamination and to undertake remedial works where necessary.
- c. The NRA's policy on Groundwater Protection identifies zones where there is an unacceptably high risk of pollution from certain activities (eg due to the proximity of a potable abstraction). Underground storage of fuel within these zones would pose such a risk, and the Authority will oppose any such new installations.

4. DISPOSAL OF SURFACE WATER

- a. All areas within the curtilage of a filling station should be positively drained on an impervious surface. Any joint in the surface must be adequately sealed and those sealants must be resistant to attack from petrol and oil products.
- b. Under normal circumstances, rainfall derived site drainage will pass to surface waters. If this is a direct discharge to 'controlled waters' the formal consent of the NRA under the provisions of the Water Resources Act 1991 will be required. If the discharge is made to a public surface water sewer the consent of the sewerage undertaker may be necessary. In exceptional cases discharge to the foul sewer, subject to the consent of the sewerage undertaker, may be required.
- c. Surface water drainage from all areas except uncontaminated roof water must discharge through a full retention oil/petrol separator of an approved design with a minimum capacity adequate to contain at least the maximum contents of a compartment of a road tanker likely to deliver petrol at the filling station. By-pass units are not suitable for use on petrol station forecourts. Separators should be regularly inspected and maintained and should be refilled with clean water after emptying. See Appendix A.

Note : European standards on separators are at present being developed and should be completed in 1993. Manufacturers are already producing separators to the draft standard. Separators will be fitted with automatic devices such as an audible alarm or a warning light to give warning before the maximum level of oil storage is reached and to close the outlet from the separator when this level is attained. Separators will be classified as Class I or Class II according to their separating efficiency.

Class I units will normally contain a coalescing filter and will be used when a high level of performance is required. Class II units will be conventional gravity separators.

For discharges to the foul sewer a Class II unit would be appropriate. Discharges to surface water may require either a Class I or a Class II unit according to local circumstances.

5. OTHER EFFLUENTS

- a. All vehicle wash waters should pass to the foul sewer, where available, subject to the consent of the sewerage undertaker. In the absence of a suitable foul sewer such effluents should be contained in a sealed storage vessel and either recirculated or disposed of off-site. **A dedicated area, graded to ensure wash waters are directed to the effluent collection point, should be provided.**

b. Unless forecourts drain to either foul or combined sewers which discharge to a treatment plant, degreasing or steam cleaning of the forecourt shall not take place unless :

i) Any liquid is soaked up using absorbent material which is disposed of off-site. Sealing of gullies may be appropriate to prevent liquid or absorbent entering the drainage system.

or

ii) A closure valve is fitted at the oil separator outlet which is closed during the cleaning operation and all accumulated washings removed for disposal off-site. An alarm should be installed to indicate that the closure valve is in the 'shut' position

6. FUEL STORAGE

a. All underground fuel storage tanks should be installed in compliance with and their integrity regularly tested in accordance with HS(G)41 or subsequent guidance documents. All above ground fuel storage tanks with current NRA guidelines (Reference 4) and HS(G) 50 and 51 (References 2 & 3).

REFERENCES

1. Petrol Filling Stations: Construction and Operation HS(G)41 ISBN 0-11-885449-6
2. Storage of Flammable Liquids in Fixed Tanks HS(G)50 ISBN 0-11-885532-8
3. Storage of Flammable Liquids in Containers HS(G)51 ISBN 0-11-885538-7
All available from HMSO
4. Pollution Prevention Guidelines: Above Ground Oil Storage Tanks PPG2
Available from NRA Environmental Quality offices

For further information, please contact your NRA Regional Office at:-



ANGLIAN REGION
0733 371811
NORTHUMBRIA AND YORKSHIRE REGION
LEEDS 0532 440191
NEWCASTLE 091 284 5069
NORTH WEST REGION
0925 53999
SEVERN-TRENT REGION
021 711 2324
SOUTHERN REGION
0903 820692
SOUTH WEST AND WESSEX REGION
0392 444000
THAMES REGION
0734 535000
WELSH REGION
0278 770088

HEAD OFFICE BRISTOL 0454 624400

APPENDIX A SEPARATOR DESIGN CRITERIA

- a. The maximum flow received by the separator should be given at least six minutes retention. This flow should be calculated in accordance with the design criteria used for the drainage system which, will usually be based on a rainfall rate of 50mm per hour.
- b. The separator should be of a single chamber construction (i.e without integral by-passes or separate oil storage compartments)
- c. Multi-chamber units are discouraged but, if used, six minutes retention should apply to each chamber or to the largest chamber only. **The total capacity should not be used for calculating retention times.**
- d. The minimum capacity of the oil separator should be adequate to contain at least the maximum contents of a compartment of a road tanker likely to deliver petrol at the filling station.
- e. The inlet to the main chamber should not be direct to the water surface.
- f. Clean uncontaminated water such as roof drainage should preferably be discharged downstream of the device.
- g. Adequate facilities must be provided for inspection of the separator and tanker access must be available for cleaning purposes.
- h. Where a separator is provided in a drainage system, trapped gullies are not necessary unless required to satisfy any other regulations.
- i. Where any closure valve is fitted, an audible or visual alarm should be installed to give warning that it is closed.
- j. Adequate venting arrangements should be incorporated in the structure. In many cases ventilated covers will be sufficient.

MAINTENANCE

It is important to recognise that oil separators require regular maintenance. A routine programme of inspection should be established, and the separator cleaned as required.

Separator Size

To determine the minimum separator capacity required for conventional single chamber units, based on 6 minutes retention, multiply the catchment area in square metres by a factor of 5 to give a separator volume in litres.

- e.g. for catchment area 800 sq.m.
Single chamber separator capacity = $800 \times 5 = 4000$ litres

ENVIRONMENT AGENCY



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