Managing concrete wash waters on construction sites: good practice and temporary discharges to ground or to surface waters

If you comply with the requirements below, we will allow you to discharge concrete wash waters from some construction sites to ground or to surface waters without the need for an environmental permit.

Background

The Environmental Permitting Regulations (EPR) 2010 make it an offence 'to cause or knowingly permit a groundwater activity or a water discharge activity' except in accordance with an environmental permit. A groundwater activity includes the making of any discharge that results in, or might lead to the input of pollutants to groundwater; a water discharge activity includes discharging polluting matter to surface waters. See Note 5.

Concrete delivery and production is carried out daily on thousands of construction sites nationwide. Sites range from very small scale domestic activity to large scale construction and civil engineering projects. Concrete mixers, delivery lorries and related equipment (chutes, pump lines, drums, barrows etc), need to be washed off regularly, and managing the disposal of concrete wash waters legally and in an environmentally responsible way has always been difficult for the construction industry.

Concrete wash waters are polluting. Typically they have a high pH (11-12) due to calcium hydroxide (derived from the cement); high suspended solids; and other trace materials, some originating from cement, others from additives or from the mixing equipment.

You should consider how you will deal with wash water disposal at the planning stage of any construction project. We recommend that you minimise the amount of wash water produced and, where possible and practicable, reuse it on site or return it to the batching plant.

Wash waters that can't be reused on site should be discharged to foul sewer where it's possible and acceptable to the sewerage provider. If this isn't possible or practical, they can be discharged to ground or to surface waters in accordance with this regulatory position statement or a valid environmental permit. If none of these options are possible the wash waters must be taken off site by road tanker and treated at a treatment facility authorised by us.

Volumes of wash water produced depend on the size and type of site, but are generally only produced for short periods during the construction works. For the purposes of this RPS we've classified scale as follows:

Scale	Concrete loads delivered per week	Typical volumes of wash waters produced per week (litres)
Small	Up to 10	Up to 200*
Medium	10 to 50	200 - 1,000*
Large	51 to100	1,000 - 2,000*
Very large	Greater than 100	Greater than 2000*

*based on approximately 20 litres of wash water generated per concrete delivery load.

Our approach

We won't require an environmental permit for small **and** medium scale discharges (as described above) of concrete wash waters from construction sites to **ground or to surface waters**, provided:

- Your discharge is at a single point and temporary, for a period of no more than 12 consecutive weeks. If you need to make a continuous discharge that lasts longer than 12 weeks this may be acceptable but you need to check with us first. Similarly for intermittent discharges that may occur over longer periods, again please check with us.
- You make the discharge in line with the good practice guidance in Appendix 1.
- You've carried out an appropriate assessment of the ground conditions and potential receptors (see Note 1) and are able to demonstrate that pollution (see Note 2) won't occur from your operation.
- The operation doesn't involve the discharge of hazardous substances (see Note 3) arising from any trace materials/ essential additives within the cement washings at concentrations that require permitting. For some medium, large and very large scale discharges we may require you to provide analysis to confirm this before you make a discharge.

If, after having considered these factors, you're uncertain whether the activity is of low enough risk to comply, you should contact National Customer Contact Centre (tel. 03708 506 506) for advice, quoting this regulatory position statement.

Enforcement

If you're not applying for a permit, we won't normally take enforcement action unless the activity has caused, or is likely to cause, pollution or harm to human health or environmental receptors. For a more detailed explanation of this enforcement position,

please see our Enforcement and Sanctions guidance. This can be found on the 'How we regulate you' page in the Business & Industry section of our web site. This doesn't affect your responsibility to comply with other regulatory regimes, applied by us and other regulators.

Further advice
Further advice on working with concrete, cements and dealing with the risks to the water environment is available in our pollution prevention guidance at http://www.environment-agency.gov.uk/business/topics/pollution/32252.aspx

Further nature conservation information can be found at http://www.magic.gov.uk, www.arkive.org.uk, www.ukbap.org.uk, www.naturalengland.org.uk, www.ccw.gov.uk

This regulatory position will be reviewed by January 2012.

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Appendix 1 - Good practice guidance for dealing with concrete wash waters

Criteria to be met for all wash water discharges:

1. General management to prevent pollution

You must develop a strategy for dealing with concrete wash water and put this in place before concrete mixing or deliveries start on site.

You must provide a designated impermeable containment area at a suitable place on site, such as at the exit. This is the only area on site where concrete activities are permitted to wash out, including mixers, barrows and rakes. A lined and watertight skip may be an acceptable solution. As far as possible concrete mixing or delivery lorries should return for washout to the batching plant with only chutes being washed out on site.

2. Minimise wash water and reuse

You should minimise the volume of concrete wash water for disposal and reuse it on site wherever possible. For example, you can use the wash water for subsequent washing or stockpile damping down. You can consider storing it and allowing as much wash water to evaporate as practicable. On site concrete batching plants should include wash water recirculation in the mixing process.

3. Discharge to the foul sewer

After implementing reuse, any excess wash water should be disposed of to foul sewer where it's possible and acceptable to the sewerage provider. The sewerage provider may require that wash waters are treated before a discharge can take place. Note: untreated wash water discharges to surface water drains or sewers are not acceptable.

4. Discharge to the environment - ground or surface water

If it isn't possible or practical to discharge to the foul sewer, wash waters can be discharged to ground or surface water. See Note 5. In most situations, concrete wash waters must be **fully** treated before making a discharge to the environment.

Full treatment means the fine solids must be removed and the pH must be corrected so that the wash water is no longer strongly alkaline. The fine solids can be removed by settlement in a tank or lagoon, or by filtration. The pH can be corrected by a suitable additive, such as citric acid or gaseous CO_2. pH should be corrected to a value of 6-9 before a discharge to the environment is made. There are proprietary wash water treatment systems available that offer both filtration and pH correction in one unit. In some situations (see Table 1 below) **partial treatment** is acceptable, in which case only fine solids need to be removed.

You must not discharge treated or untreated concrete wash waters onto bare rock surfaces or where the effluent will drain rapidly into natural features such as fissures or sink holes.

The location of your proposed discharge can't be within, or less than, 50 metres from a riverine or terrestrial European site or SSSI, or within a site designated for nature conservation (such as NNR, LNR, Local Wildlife Sites). See Note 6 for definitions.

5. Removal off site to a waste treatment facility

If you can't satisfy all the criteria in the additional requirements table you must arrange for appropriate and legal off site disposal, such as tankering to a waste treatment facility regulated by us.

Table 1 - Additional requirements depending on the size and location of discharge:

Discharge size	Discharge to ground	Discharge to surface water
Small discharges Up to 10 concrete loads per week producing approx. 200 litres of wash water / week	Untreated or treated wash water discharges to **ground** are acceptable provided the discharge meets the conditions specified below.	Only fully treated wash water discharges to **surface water** are acceptable provided there is no suitable alternative and the discharge meets the conditions specified below.
Medium discharges Up to 50 concrete loads per week producing up to 1000 litres of wash water / week	Partially treated wash water discharges to **ground** are acceptable provided the discharge meets the conditions specified below.	Fully treated wash water discharges to **surface water** are acceptable provided the discharge meets the conditions specified below.
Large discharges 51 - 100 concrete loads per week producing 1000 - 2000 litres of wash water / week	Fully treated wash water discharges to **ground** are acceptable provided the discharge meets the conditions specified below.	Fully treated wash water discharges to **surface water** are acceptable provided the discharge meets the conditions specified below.
Very large discharges More than 100 concrete loads per week producing more than 2000 litres of wash water per week	Wash water discharges from activities of this scale should have a valid environmental permit from us. A bespoke permit application must be made. If we issue a permit it will include conditions applying to the discharge.	
Discharge to ground	Specified conditions: •Not within a Groundwater Source Protection Zone (SPZ) 1 (see Note 4) or within 250m of any spring, well or borehole used for domestic or food production purposes, whichever is greater. • Not within 50m of any other borehole. • 10m from any watercourse (including drains, ditches, etc).	
Discharge to surface water	Specified conditions: • Made into a surface water that has enough flow in it at all times to dilute the wash water discharge properly (approx. ten times dilution or more). • Made via a discrete outlet pipe or channel at a discharge rate as low as practicable. • Made in a way that ensures that settled solids aren't carried over from any containment used to store and/or treat the waste water.	

Appendix 2 - Appropriate assessment record

Use our suggested format for an appropriate assessment of ground conditions and receptors to show that pollution won't occur from your operation. We don't need you to submit your completed assessment to us. Keep it to show that you understand and are complying with the terms of the RPS.

Heading: Record of assessment for low risk discharges into groundwater and compliance with the regulatory position statement <*Specify which regulatory position statement you are working to*>

Give your name and contact details, e.g. address, telephone, email.

State whether you an individual, public body, company, partnership etc.

Give the address and National Grid Reference (NGR) of the proposed activity.

State the nature of your activity or discharge - e.g. disposal of concrete wash waters on to land, sealing of old mine adits, lining of tunnels with grout, etc

State that you have you read and understood the full text of the position statement.

Specify the codes of practice, waste protocols or other standards relevant to the discharges from your activity into groundwater.

Do you comply with the requirements of those standards?

State how you have you assessed the ground conditions and relevant receptors.

Summarise the outcome of this assessment and reasons why you consider the risk of causing an input of pollutants to groundwater is low.

Confirm that you are complying fully with the requirements of the position statement

Sign and date your document

Notes

1) An appropriate assessment means that you've obtained enough information to develop a clear conceptual understanding of the relationship between the activity and all relevant receptors. You've checked the surrounding area and know what the receptors are within a relevant distance; to be certain you may need to carry out a survey of water features and contact adjacent land owners. You understand the nature and content of the materials you're using, and have sufficient information about the geological and hydrogeological conditions (both natural and man-made), to understand how pollutants may be transmitted and what impact they may have. It should be clear from your assessment that the pollution risk is very low. If not, you should contact us for advice. Use the suggested format provided in Appendix 2 to record the details of your assessment. For more detailed information on carrying out risk assessments see our guidance: H1 Annex J Groundwater and associated technical annexes.

2) Pollution is defined in the EPR 2010 and, for the purpose of this regulatory position, will only be considered to have occurred where substances have entered into surface water or groundwater (or deterioration of groundwater quality is linked to a harmful effect at a receptor). A receptor doesn't only include the existing uses of groundwater and surface water but all plausible future uses and functions to which the groundwater and surface water might be put, as well as groundwater itself.

3) Hazardous substances are toxic, persistent and liable to bio-accumulate. Details of what constitutes a hazardous substance can be found at www.wfduk.org/jagdag. A non-hazardous pollutant is any substance capable of causing pollution that isn't a hazardous substance.

4) A Source Protection Zone 1 (SPZ) is the innermost of three zones that we allocate to groundwater abstractions used for human consumption. An SPZ1 represents the distance from which the water takes 50 days to travel to the abstraction source or 50m, whichever is less. We've mapped SPZs around approximately 2000 public water supplies and other major abstraction sources such as bottling plants and breweries. These are available in 'what's in your back yard' on our website. A default SPZ1 distance of 50m should be applied to all other groundwater sources used for human consumption, such as private water supplies.

5) For discharges to ground, this regulatory position has been developed because concrete wash waters don't qualify for an exclusion under EPR 2010 (i.e. the discharges are not considered de minimis). We've provided guidance on interpreting groundwater activity exclusions.

6) Other terms used:

'European Site' means Special Area of Conservation or candidate Special Area of Conservation or Special Protection Area or proposed Special Protection Area in England and Wales, within the meaning of Council Directives 79/409/EEC on the conservation of wild birds and 92/43/EEC on the conservation of natural habitats and of wild flora and fauna and the Conservation of Habitats and Species Regulations 2010. Internationally designated Ramsar sites are dealt with in the same way as European sites as a matter of government policy and for the purpose of these rules will be considered as a European Site.

'SSSI' means Site of Special Scientific Interest within the meaning of the Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000).

'NNR' means National Nature Reserve, an area that has been designated by Natural England or the Countryside Council for Wales under Wildlife and Countryside Act 1981 as among the best examples of a particular habitat. National Nature Reserves are of national importance.

'LNR' means Local Nature Reserve, an area designated by a local authority under the National Parks and Access to the Countryside Act 1949.

'Local Wildlife site' is a non-statutory designation by a local authority of sites with a high local value for wildlife. They are designated according to selection criteria that follow Natural England or the Countryside Council for Wales guidelines.