Concrete Washout

Concrete wagon wash-out contains suspended solids and has a high pH (is highly alkaline), therefore has the potential to pollute watercourses and groundwater. The substances in concrete wash-out water are far more mobile than when concrete is placed in the ground and therefore wash-out water can cause significant environmental impact. Concrete wash-out water must therefore be controlled to prevent pollution.

Planning

If concrete pours are expected, suitable measures for preventing or dealing with concrete wash-out water must be identified and agreed with subcontractors or suppliers prior to concreting activities starting.

The **hierarchy of control** in relation to concrete wash-out is:

1. Avoid concrete wash-out on site (e.g. use of ConcreteSock)
2. Use concrete wagons with integrated wash-out collection tanks
3. Contain on site and pump back into the concrete wagon
4. Contain on site (and where residual water is left);
    a. Discharge waters to foul sewer under a temporary Trade Effluent Consent
    b. Tanker waters off site and dispose of at a permitted water treatment facility as a waste
    c. Discharge waters to surface water in accordance with an Environmental Permit (no silts, pH between 6-9)

If relying on evaporation, the hardened concrete from washing down vehicles etc. can be reused on site. However, containers must be covered to prevent rainwater ingress and subsequent overflowing.

Commercial team

When placing orders for deliveries of concrete / cement the Commercial team should request that no washing down of chutes takes place on site.

Below are examples of concrete socks, which means washing down can be avoided on site. Note – this is only an option if the development site is not too far from the batching plant.

Integrated wash-out units

If washing down cannot be avoided then the Commercial team should request that delivery wagons have integrated wash-out collection tanks, and that they only wash down chutes into these.

If none of the above options are possible then adequate provision must be made on site to provide suitable wash down facilities.

A proprietary system such as a Siltbuster (Concrete Washout System), Mudtech BlueRinse system, Kelly Tank or suitably lined skips / containers must be provided.

Mudtech BlueRinse system

Siltbuster system

The volume of concrete wash water should be kept to a minimum by efficient use of water during wash out, use of brushes etc. Hoses and sprays must not be left unattended. Where concrete pumps are used, washout will be necessary and must be controlled. Concrete wash waters will have a high pH and must be treated to lower the pH to safe levels (pH 6-9).

Various treatment options are available, such as pH blue (additive) or CO2 treatment which will lower the pH to safe levels. One of these options must be used to lower the pH of the water.

On-site treatment of concrete wash water

Solids- the units above work by filtering out solids through geotextile bags, which will require emptying dependent on the number of wash-downs.

Water – after the solids have been separated from the washout water the water will have a high pH. The water require treatment to lower the pH (between 6-9).

Various options are available, such as geotextile bags impregnated with a pH reducer, pH reducer dosing liquids or carbon dioxide (available in gas bottles).

Note: the Mudtech BlueRinse system is an integrated system which means water is re-used until such time as the equipment is no longer needed.

Lined skips (should be covered to prevent rainwater ingress)

If using skips / pits to contain concrete washout, the skip / pit must be lined with an impermeable liner. The liner must overhang the sides of the skip / pit and be fixed with clips or similar, to prevent the liner falling into the skip / pit.

Furthermore, the skip / pit should be covered with a sheet to prevent rainwater ingress. Hardened solids can be broken out and used on site for various applications (once processed by mobile plant).

Regular inspections must be carried out to ensure the liner is containing all water / solids and is free from damage / holes etc.

Solids which set into the skips can be broken out and used on site for various applications. However, the water must be contained, owing to high pH. High pH waters will need to be moved to another lined skip or IBC ready for disposal and or treatment (see options below).

Mortar tubs (should be covered to prevent rainwater ingress)

Well maintained, empty mortar tubs can be used to contain small volumes of concrete washout. Mortar tubs do not require lining, providing an inspection has confirmed that there is no risk of water escape i.e. tub is free from damage / holes etc.

As above, tubs should be covered to prevent rainwater ingress, and hardened solids can be used on site.

Treated water (whether by manual or automated methods) can be:

- ✓ Used for dust suppression in specific circumstances (see EA RPS 235 for rules which must be followed) – ***not in Scotland***

- ✓ Discharged to foul sewer under a temporary trade effluent (TTE) consent. The consent must be obtained from the local water company prior to any discharge. The consent will include conditions in relation to suspended solids, pH, flow rate etc. Any discharges must be monitored in accordance with the consent and records must be kept to demonstrate compliance

> Any discharges to surface water drains and watercourses will require an Environmental Permit / Licence from the Environment Agency / NRW / SEPA.

Under no circumstances should concrete wash water be discharged to surface waters. Furthermore, any treatment methods must be setup >10m away from any drains, ditches, gullies, watercourses etc.

Residual concrete

Hardened residual concrete left over from the process of dewatering can be used for construction purposes where suitable. If not, this must be disposed of in the inert/masonry skip prior to removal from site.

Procurement

All of the above options involve a cost, whether for treatment of the wash-water prior to discharge, or for off-site disposal. These costs should be identified, and requirements communicated to subcontractors for inclusion in pricing. The chosen solution for dealing with concrete wash-out water must be recorded and any associated plant or equipment must be identified and included in subcontractor packages or procurement schedules (including concrete socks, settlement tanks, pH dosing kit, details of monitoring records etc.).

Contractors involved in concrete wash out activities must work to approved method statements including implementation of relevant control measures. If the effluent is to be removed from site, details of the waste carrier and disposal point must be recorded.

Competence / Training

Persons operating proprietary washout units must be given a set-up briefing by the supplier when the unit is delivered. Only persons who attend the briefing should operate the unit.

Documentation

If manual treatment of high pH water is being undertaken, records of the dosing, pH measurement and suspended solids must be recorded. A record must be produced prior to each discharge (in accordance with any temporary trade effluent consent).

Refer to EMS standard – Waste Management.