

# Groundwater Regulatory Guidance

Groundwater Remediation – Groundwater pump and treat involving water abstraction/discharge

Note 001

## Purpose of this guidance note

There is a need to clarify the regulatory requirements and procedures associated with operating groundwater pump and treat systems that will involve water abstraction/discharge. This note is intended to be a short reference guide for the regulation of such systems.

## What does this cover?

Where groundwater pollution, resulting from either historical land use or from a recent pollution event is identified, control of the spread of pollution and/or removal of the water for clean-up may involve both abstraction of the groundwater and an associated discharge. Systems commonly used include the following;

- **Hydraulic Control of Plumes.** This usually involves pumping of groundwater to reverse the natural groundwater gradient and restrict or limit the down-gradient movement of the 'plume' away from the area where the pollution has occurred.
- **Pump and Treat Remediation.** One option for reducing the pollutant load within groundwater is to abstract the polluted water and remove the contaminants from the water using a variety of technologies prior to discharging the treated water either back into the ground or to surface water or foul sewer. In some cases the water will be removed to a licensed treatment facility.

The basic components of such systems comprise one or more of the following:

- i) abstraction of water
- ii) above ground treatment or removal of contaminated water
- iii) discharge or recirculation of treated/untreated water.



## Regulatory requirements

### Water Abstraction

- Where aggregate abstraction volumes are less than 10 m<sup>3</sup>/d, no notification is required for this element. Volumes between 10 m<sup>3</sup>/d and 20m<sup>3</sup>/d must be notified to the Northern Ireland Environment Agency (NIEA) and volumes more than 20m<sup>3</sup> per day will require an abstraction licence<sup>(1)</sup> from the NIEA Water Management Unit. This may incur a fee. As formal application and determination for a licence can take a period of time, where immediate implementation of abstraction is in the interest of protecting human health or the environment, NIEA will consider authorising such works for a temporary period with an abstraction licence to be applied for retrospectively (where required).
- Where boreholes are to be installed in or around contaminated land or groundwater pollution plumes, the potential exists for such works to cause additional impacts on soils and water resources. The design, construction and decommissioning of such works must be carried out by suitably qualified consultants and contractors to minimise the risk of additional, avoidable impact. Further guidance on this can be found in EA R&D Technical report P5-065/TR<sup>(2)</sup>.

### Above Ground Treatment and Water Discharge

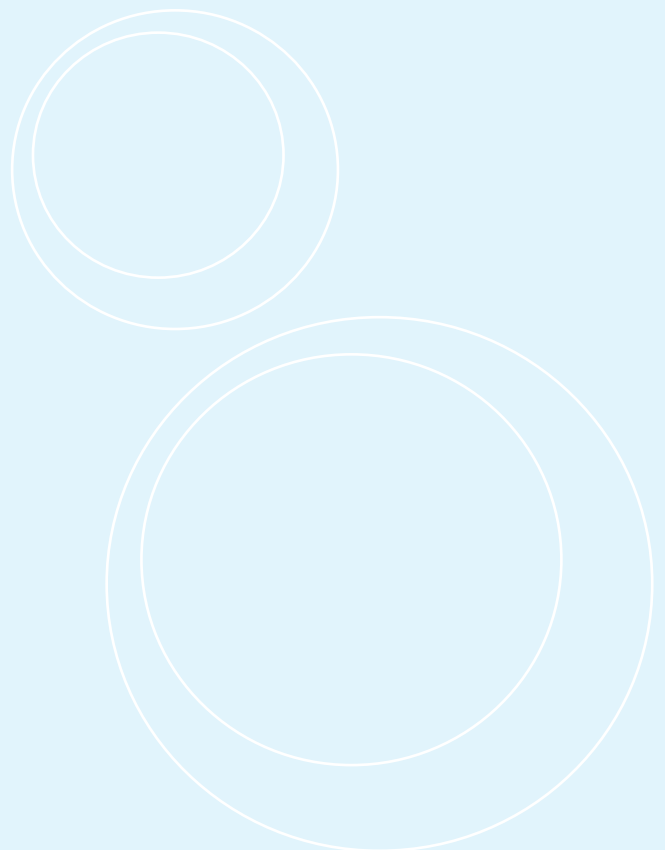
- Where above ground treatment of polluted water is to take place, this will usually be required to be undertaken through a site specific deployment plan produced by an operator holding an appropriate mobile treatment licence (MTL)<sup>(3)</sup> for the technology to be operated. Further advice can be sought from NIEA Land and Resource Management Unit (LRM). All process based treatments will require a licence.
- Irrespective of volume, for discharge to surface water or underground stratum (below ground), a consent to discharge<sup>(4)</sup> must also be sought from the NIEA Water Management Unit. This will incur a fee. Information on abstracted and intended discharge water quality will generally be required as part of the consent application process. As determination of consent can take up to 4 months upon receipt of a complete

application, it is recommended that applicants allow for this processing period to ensure that consent will be in place before the proposed discharge commences.

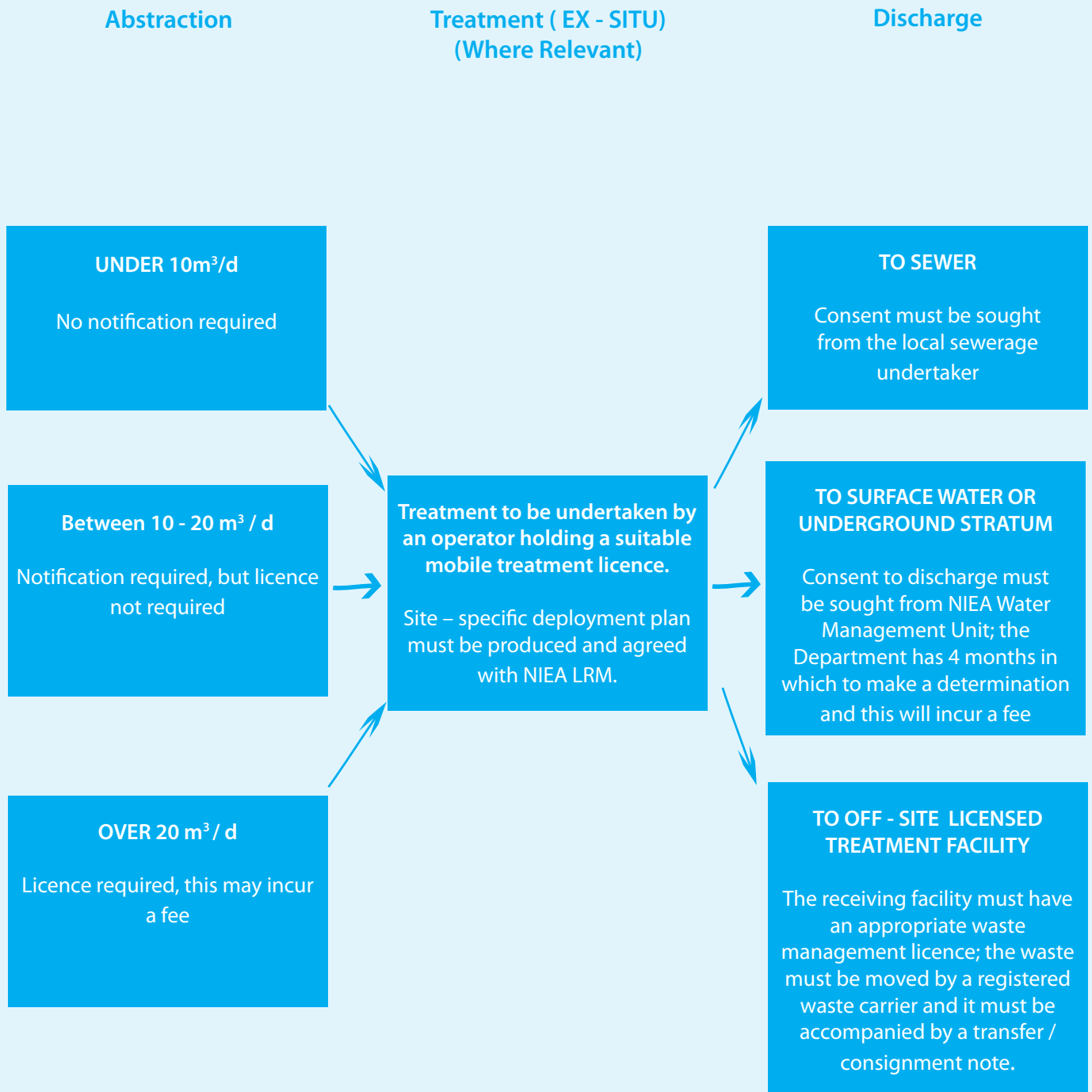
- Where discharge is to be to the foul sewer, consent should be sought from the sewerage undertaker.

### References:

- (1) The Water Abstraction & Impoundment (Licensing) Regulations (Northern Ireland) 2006
- (2) Technical aspects of site investigation. R & D Technical Report P5-065/TR. Environment Agency
- (3) Waste Management Licensing Regulations (Northern Ireland) 2003
- (4) The Water (Northern Ireland) Order 1999



## Summary



NB: For certain situations, NIEA will consider interim permission for works where this is required to protect human health or the environment, whilst formal permit applications are being considered.

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