



Common Forum

Common Forum – Working Document

Status of pumped water

Common Forum/DD 2013.008

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Synthesis of the answers received after Antonella Vecchio's (Italy) request (30/01/2013) Updated the 12 April 2013

The request:

I have a question on the legal regime of the pumped water from a contaminated groundwater.

In Italy groundwater (within the aquifer) is considered contaminated if exceeds the legal threshold values of the Contaminated Sites legislation. In these cases a Pump and Treat plant may be implemented. However it is controversial in Italy how does the "pumped" water must be considered:

- A) a liquid waste that should be discharged/treated as a waste.
- B) an industrial wastewater that may be discharged according to the wastewater regime (even without any treatment) or reused within the production cycle of the industrial plant.
- C) a contaminated groundwater that should be always remediated to threshold values.

What is the EU position (if any) about this issue? Do you know if this issue is faced in other MS legislations? Do we have at EU or MS level some technical and legal references on this issue?

ANSWERS FROM COUNTRIES

Austria / Dietmar Müller (30.01.2013)

Referring to our water legislation it is obvious that any discharge of treated groundwater needs authorisation/a specific permit. (Given a situation of combined phase-extraction of DNAPLs or NAPLs it will be requested to treat the residues accordingly and regularly as (hazardous) liquid waste).

Depending on the solution where to the treated groundwater should be discharged different quality criteria/requirements will be applied for (i) sewers, (ii) surface waters (rivers) and (iii) groundwater.

As for sewers and surface waters quality criteria for discharges are given by a general ordinance under the Water Act addressing wastewaters as well as a bunch of further ordinances addressing specific activities, which means those are usually more specific on particular contaminants.

As for groundwater any direct or indirect discharge should not cause a more than insignificant change in water quality locally (watch out: we don't discuss at the level of water bodies, which are large management units of > 100 km²!). Therefore the authority will consider:

- (i) the natural quality of groundwater (background values),
- (ii) drinking water criteria (our water act stipulates a general objective, that any groundwater [watch out again: locally not only the GW-body] should be kept in its natural quality and as a resource for drinking water),
- (iii) the place of discharge (upstream, within or downstream of a contaminated site)
- (iv) neighbouring protection zones and wells (and any other possibly groundwater dependent terrestrial or aquatic ecosystem - but that's hardly a criteria in practice)



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Besides our national scheme I would like to point you to Guidances by the WFD Common Implementation Strategy Working Group C "Groundwater", and in particular the "Preventing or Limiting Direct and Indirect Inputs (CIS Guidance Document No 17) .

Just to add on the prevent & limit requirements - those stem originally from the Council Directive [80/68/EEC](#) of 17 December 1979 on the protection of groundwater against pollution caused by certain dangerous substances

See:

http://europa.eu/legislation_summaries/environment/water_protection_management/l28017b_en.htm

There are two common European lists of dangerous substances drawn up for the protection of groundwater:

- direct discharge of substances in List I is prohibited. This list includes organohalogen, organophosphorus and organotin compounds, mercury and cadmium and their compounds, and hydrocarbons and cyanides;
- discharge of substances in List II must be limited. This list includes certain metals such as copper, zinc, lead and arsenic, and other substances such as fluorides, toxic or persistent organic compounds of silicon, and biocides and their derivatives not appearing in List I.

All indirect discharges of substances in List I and all direct or indirect discharges of substances in List II are subject to prior authorization. Such authorisation:

- is granted after an investigation into the receiving environment;
- is granted for a limited period and subject to regular review;
- lays down the conditions that have to be met for discharges. If they have not been or cannot be met, the authorization is withdrawn or refused.

However, in the course of amending the Groundwater Directive (2006) and its Article 10 also the Directive will be reviewed / revised and discussion on this topic shall start soon (by January 16th, 2013).

Finally this links may provide you access to

(i) the WFD CIRCA: Implementing the Water Framework Directive" and

(ii) its WG C "groundwater" - if you look for "00 guidance documents" you will find the repository and within Guidance No 17 on prevent & limit

<https://circabc.europa.eu/faces/jsp/extension/wai/navigation/container.jsp>

https://circabc.europa.eu/faces/jsp/extension/wai/navigation/container.jsp?FormPrincipal:_idcl=FormPrincipal:_id3&FormPrincipal_SUBMIT=1&id=b1a3fb16-0308-479a-8b6d-0c056b6890e4&javax.faces.ViewState=rO0ABXVyABNbTGphdmEubGFuZy5PYmplY3Q7kM5YnxBzKWwCAAB4cAAAAAN0AAEycHQAKy9qc3AvZXh0ZW5zaW9uL3dhaS9uYXZpZ2F0aW9uL2NvbnRhaW5lci5qc3A

and UK materials

<http://www.defra.gov.uk/publications/files/pb13555-ep-groundwater-activities-101221.pdf>



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Belgium – Flanders / Marijke Cardon (11.02.2013)

According to the Flemish soil remediation decree the remediation of polluted soils is carried out in different steps: exploratory and descriptive soil investigations, soil remediation plan, soil remediation works and the aftercare. The approval of the soil remediation plan by the competent authority (OVAM) acts as an environmental permit for the remediation work that has to be done.

In the case the soil remediation plan includes the remediation of polluted groundwater by a pump and treat technology, the approval of the plan will act as an environmental permit for the category "wastewater and cooling water" according to the Flemish decree on environmental permits. The "pumped" groundwater will be considered as an industrial wastewater that may be discharged according to the wastewater regime or reused within the production cycle of the industrial plant.

Denmark / Christian Andersen (30.01.2013)

When groundwater is extracted, a specific permit is needed in all cases to discharge or reinject it. It must be treated as wastewater when discharged to a water body or a sewer. If it is discharged to the sewer leading to a purification facility, specific values have to be met, which however are different from those of a water body. If extracted water is reinjected to the ground, it must meet the standard groundwater criteria.

Finland / Jussi Reinikainen (01.02.2013)

In Finland we don't have regulatory limit values for defining contaminated groundwater, groundwater that requires remediation or treated and discharged groundwater. So, basically all the decisions are done on a site-specific basis.

Based on our legislation, waters that are discharged from contaminated sites or other sites used for potentially polluting activities and which may cause environmental pollution are considered as wastewaters. In general, an environmental permit or another approval from the authorities is required for discharging wastewaters or for any other activities that may cause pollution of environment or a water body. This also includes remediation of contaminated sites or groundwater. Requirements for discharging waters (including emission or concentration limit values) are set in the permit on a site-specific basis. However, if such activities may lead to contamination of soil or groundwater, a permit cannot be granted. This is also to be evaluated case-specifically.

In addition, substances that are dangerous to the aquatic environment (referred to in national legislation and WFD) may not be discharged into surface water or a sewer of a waste water treatment plant. There's also a list of substances in regulation that may not be discharged into groundwater. These prohibitions, however, don't apply to such small emissions that can't cause danger of pollution of the receiving waters or harm the operations of the treatment plant. Evaluation of whether the emission is small enough is once again done on a case by case basis. These principles, I guess, are more or less the same for all the EU countries (due to WFD) as already pointed out in previous replies.



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There are also possibilities for municipalities to set specific environmental protection regulations that apply to discharges of certain waters (e.g. drainage waters from excavation pits on remediation sites). In those cases limit values for the emissions are set by the local authorities (including the operator of a waste treatment plant when such water are discharged to a municipal sewer).

Germany / Andreas Bieber (30.01.2013)

The decision, whether groundwater needs remediation (e.g. pump and treat), is a case by case decision in Germany.

We do not have national threshold values indicating that a remediation of affected groundwater is necessary or national threshold values which have to be reached by remediation.

If a remediation is necessary or which level has to be reached by a remediation is always a case by case decision, taking the special circumstances of the individual case into account.

We have levels: trigger levels.

Their function is to indicate whether the contamination is so low that any action is not necessary.

That means:

- The measured levels are below the trigger levels: remediation is definitely not necessary.
- The measured levels are above the trigger levels: a detailed investigation is necessary to find out whether a remediation is necessary.

The purpose is the possibility to sort out the unproblematic cases and to concentrate on the possibly problematic cases.

The permission for pumping and treating contaminated groundwater and the involvement of the water authorities are part of the remediation planning.

This includes also the permission to re-infiltrate the treated groundwater or to feed it into a surface water system or into a wastewater system.

Lithuania / Kestutis Kadunas (30.01.2013)

The cases described by Antonella not clearly described in legislation of Lithuania. However, contaminated groundwater are treated as "wastewater" and legislation on wastewater should be applied when contaminated groundwater are pumped. In wastewater legislation two threshold values are used: (a) "to environment" (it means indirect discharge to ground); (b) "to surface water (direct discharge). In cases when contaminant exceeds TV, groundwater should be treated to levels (a) or (b).

In legislation on contaminated land management treated groundwater can be direct discharged to the same aquifer (usually shallow) only for "plume" management.



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Spain - Basque Country / Ana Alzola (01.02.2013)

Here decisions are taken case by case. When extracted, groundwater is considered just as water that can show different levels of quality. Depending of the groundwater quality, geographical location of the contaminated site (in relation to surface waters) and the availability of water treatment installations, different options can be taken into account.

Just to mention some of them: reinjection into the aquifer (mainly superficial aquifers related to surface waters, not deep ones), discharge as if it was industrial water, discharge into water treatment installation pipelines or treatment. All of these options have been authorized in many cases by the Water Protection Body.

Spain / Juan Grima Olmedo (01.02.2013)

Answering your question I will try to summarize some ideas. As you may know, in Spain, the governing board of the Water Authorities belongs to the Autonomic Administration in intra-community basins while River Basin Authorities (dependent of the Environment Ministry) are the competent body in inter-community basins. Procedures can vary slightly, but in essence should be very similar (Ana can explain such peculiarities better than me).

1. To start with your question, the legal regime of pumped water is unclear in Spain. If we think of contaminated soil it is needed (Royal Decree of Contaminated Soils, 9/2005) an administrative resolution declaring the soil as contaminated. In this case any material taken from the site is a waste and must be treated consequently. In the water case no resolution of contaminated aquifer has been made (as far as I know) up to date, except for salt water intrusion. It is supposed that (within the framework of the Groundwater Directive) some groundwater bodies will be declared in bad status. Then the water extracted should be considered as contaminated water. But, from the legal perspective, a legal decision must be made before
2. Another question is the discharge permit. Independently of the consideration given to the extracted water, the discharge permit granted by the competent body must take into consideration the following aspects:
 - a. Best available techniques. Incorporated in the transposition of Integrated Pollution Prevention and Control Directive
 - b. Environmental quality standards. Maximum concentration of contaminants in water aimed to protect the environment and the human health. Depending on the type of discharge (surface or groundwater), a specific study is made to check depth to groundwater, potential receptors (water supply, mainly) and self-purification capacity of materials (These method is used sometimes). In other cases (proved contamination, spills, etc.) a risk assessment can be needed
 - c. Emissions limit values. According to our national legislation they can be expressed in units of concentration (percentiles or maximum contaminant concentration), as contaminant load or a combination of both