CAPITA SYMONDS

Water – the shifting legislative & regulatory landscape

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Introduction

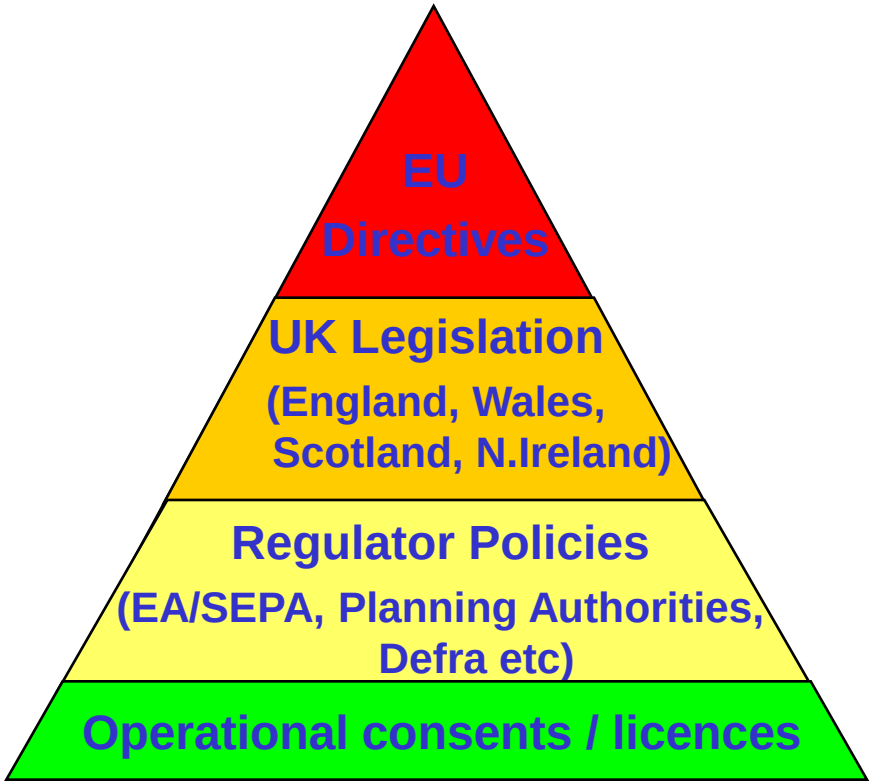
- Why do we need to know anything about legislation?
  - to understand what applications for development / management practices may be judged against.
  - to advise our clients what they need to do (or incorporate into a development design) in order to progress with their project.
  - to tailor our assessment approaches to focus on concerns protected by legislation.
- WFD / Groundwater Daughter Directive
- How might this affect engineering developments in the future?
- Environment Agency groundwater policy (GP3)
- Forthcoming abstraction licensing changes

Background

- Increased focus on environment since mid to late 1980's, and increasing public awareness of issues since the 1990's.
- Engineering design and operations have not significantly changed in their approach, but there has been an increased political focus on the water environment since 2000.
- Shifting land use planning and licensing regimes to accommodate flexibility in the management of our water environment.

Legislation vs Policy - overview

- Fragmented framework of European & UK legislation relating to water:
  - **Quality** (e.g. EU Groundwater Directive 1980, Nitrate Directive, Groundwater Regs).
  - **Industry sector focus** (e.g. Landfill Directive, Contaminated Land Regulations).
  - **Quantity** (e.g. Water Resources Act 1991, Water Act 2003).
  - **Nature conservation focus** (e.g. Habitats Directive)



High level strategy ("Directives")

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UK transposition ("Acts" and "Regulations")

↓

Management plans & policies
(e.g. RBMPs, CAMS, CFMPs, GP3)

↓

site specific operational consents

Water Framework Directive (WFD)

- Late 90's EU made 'water protection one of its main priorities, with policies to make waters clean and keep them clean.
- WFD (2000/60/EC):
  - Requires us to set out objectives for all water (surface and ground) protection in the future.
  - Is a framework directive to tie up individual legislation strands.
  - Requires us to look at the water environment as a whole integrating water quality, quantity and physical habitat with ecological indicators.
- Key areas of protection:
  - Aquatic ecology.
  - Unique & valuable habitats.
  - Drinking water resources.
  - Bathing waters.

WFD – Key aspects

- Establish a **holistic approach** to managing the water environment, based on river basins, integrating water **quantity** with **quality** considerations.
- Set **quality objectives for all water bodies** and place a programme to meet those objectives. Prevent deterioration in the status of water bodies.

River Basin Management Plans (Final – Dec 2009)

- Establish quality classification systems for surface water and groundwater.
- Have statutory controls in relation to pollution of water bodies from point and diffuse sources.
- Promote sustainable water use based on long term protection of water resources.

'water environment status' changes

- WFD places an emphasis on continual evolvement of environmental objectives for a catchment in light of new information / technical advances.

Shifting goalposts?

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Water Environment Status

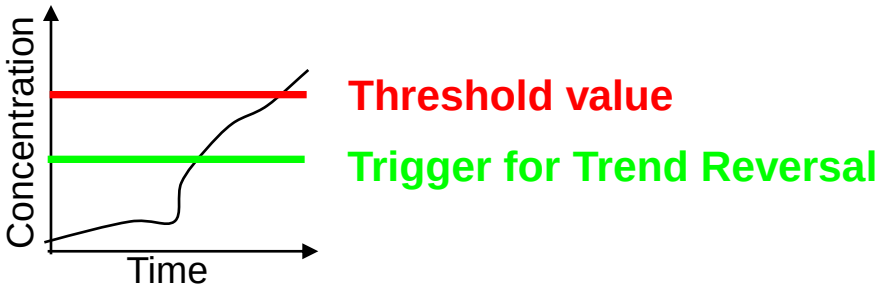
- Water environment status applies to all surface waters & groundwaters.
- Surface water status (5 classification levels – high to bad):
  - Ecological parameters:
    - Biological (communities of plants & animals)
    - Physio-chemical (e.g. oxygen, pH, EC, nitrate & ammonia)
    - Hydromorphological (water flow & physical habitat).
  - Chemical parameters (Environmental Quality Standards)

- Groundwater (2 classification levels – good or poor):
  - Quantitative (sufficient water resource to maintain health of associated ecosystem).
  - Chemical parameters (Groundwater Daughter Directive).
  - Groundwater body cannot be of good status if it causes an associated surface water body to fail its ecological or chemical status.

- UK Technical Advisory Group will continue to develop surface water & groundwater standards (www.uktag.com).

Groundwater Daughter Directive

- 1980 Groundwater Directive will remain in place until December 2013 (protection in the interim).
- Prevent hazardous substances input and limit non-hazardous substances.
- Threshold values based on protection of groundwater with regard to inter-relationship with surface waters, dependent terrestrial ecosystems, human toxicology and ecotoxicology.



- Authorised direct discharge to groundwater bodies providing it does not compromise the achievement of the environmental objectives established for that body:
  - Geothermal purposes (e.g. ground heat source pumping systems).
  - Re-injection of pumped water from mines and quarries, or associated with the construction or maintenance of civil engineering works.
  - Construction, civil engineering or similar works on or in the ground which come into contact with groundwater.

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How might this affect engineering developments in the future?

- Depends upon translation to policies / plans, and their influence on planning permission / licence decisions.
- Regional Spatial Strategies & RBMPs potentially in conflict during 1st cycle (6 years).
- Potential for confusion amongst regulators = delays in permissions / consents, potentially precautionary principle conditions.

- Programme delays unless thought about in enough time & with good demonstration of scientific understanding (with evidence) of development impacts.
- Lack of certainty in securing operational consent in the future, may potentially jeopardise the commercial decision to go ahead with a scheme.
- At a time when land use planning system changing to facilitate fast track planning for major civils schemes, licensing system potentially going the opposite way.
- Lifting of exemptions for dewatering = licence 'battles'?

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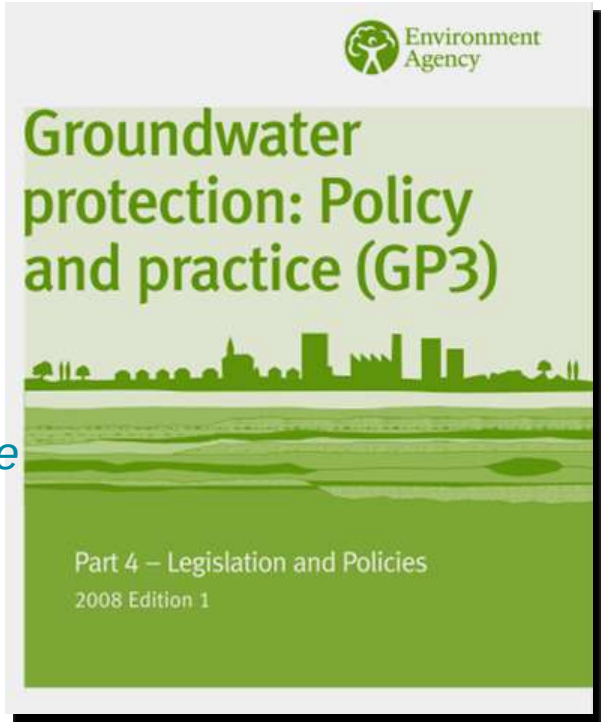
Groundwater Protection: Policy & Practice (GP3)

- Influence of WFD / GWDD can be seen clearly in current EA policies (which supersede their 1998 PPPG).
- GP3 Part 4 (p.17) states that "Pollution is defined in the WFD as:

  the direct or indirect introduction, as a result of human activity, of substances or heat into the air, water or land which may be harmful to human health or the quality of aquatic ecosystems or terrestrial ecosystems directly depending on aquatic ecosystems, which result in damage to material property, or which impair or interfere with amenities and other legitimate uses of the environment"

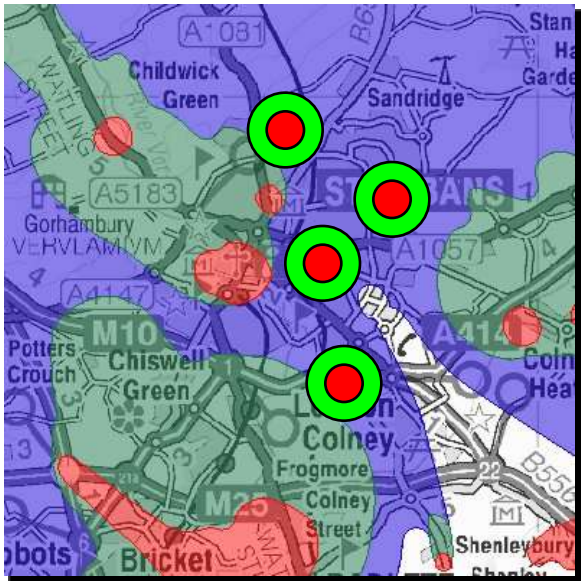


- GP3 Part 4 (p.34) states that to meet WFD's requirement for designated Drinking Water Protected Areas (providing >10m^3/day, serving >50 people or intended for human consumption), all groundwater bodies in the UK will be designated as such areas.

GP3 Policies (snapshot)

- P1-3: expectation that developers and operators will assess the area of influence of their activities and to take account of groundwater uses and dependent ecosystems within this area during planning, construction and operation.
- P1-4: expectation that developers and operators will provide adequate information to statutory bodies when submitting their proposals so that the potential impact on groundwater bodies and quality can be adequately assessed.

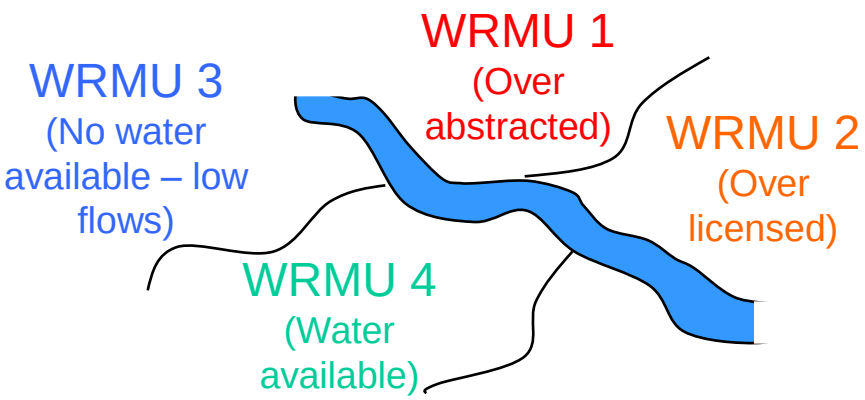
- P2-4: Assignment to all other groundwater abstractions intended for human consumption (but which do not have bespoke SPZs) with a default SPZ1 (50m radius) and SPZ2 (250m radius).



GP3 Policies (snapshot)

- P6-1: aim to ensure that the total authorised abstraction from any groundwater management unit does not exceed the long term annual average amount available for licensing after environmental needs have been accounted for.

- P6-7: schemes that pose a risk to groundwater resources, quality or abstractions must provide an acceptable hydrogeological risk assessment to the EA and the planning authority. Any activities that can adversely affect groundwater must be considered including physical disturbance of the aquifer.



- P6-8: Within SPZ1 the EA will normally object in principle to any planning application for a development that may physically disturb the aquifer.

- P6-11: for any proposal which could physically disturb aquifers, lower groundwater levels, or impede or intercept groundwater flow, the EA will seek to achieve equivalent protection for water resources and the groundwater dependent environment as if the effect were caused by a licensable abstraction.

Abstraction Licensing Changes

- Water Resources Act (1991) = dewatering for civil engineering & mining schemes exempt from licensing.
- Water Act (2003) = removes this exemption, with all abstractions >20m^3/day requiring an abstraction licence. Note: Awaiting secondary legislation (Transitional Regulations) before exemptions can be lifted – Oct 2009?.
- Three types of licence:
  - **Full licence** – water abstracted from one source of supply for a period >28 days to be used for some purpose, or discharged in such a way that it is not returned to a source of supply (volumetric payment).
  - **Transfer licence** – water abstracted from one source of supply for a period >28 days and transferred (without intervening use) to another source of supply, or a different point in the same source of supply (application fee only).
  - **Temporary licence** – allows abstraction from a source of supply for a period <28 days (application fee only).

Defining what is licensable?

- Legal review undertaken by Mills & Reeves for MIRO Research Project *Managing the Interface between Planning and Licensing with respect to Quarry Dewatering* (Thompson A; Howarth C et al, 2007).

- **'Abstraction'** is defined as *"the doing of anything whereby any of that water is removed from that source of supply, whether temporarily or permanently, including anything whereby the water is so removed for the purpose of being transferred to another source of supply"*

  - 'Removal' must be as a result of deliberate action such as pumping or the formation of channels, ditches or adits to assist gravity drainage of water from an excavation.

  - Mills & Reeve advise that the digging of a quarry is not, in itself, regarded as a form of abstraction.

  - Environment Agency advised that the removal of water contained within the pores of excavated material would not be regarded as a form of abstraction.

  - Gravity drainage not assisted by engineering works of any kind, is not regarded by the EA as abstraction, and thus is not a licensable activity.

Defining what is licensable?

- **'Source of supply'** is defined as *"any inland waters (other than 'discrete waters' or any underground strata in which water is or at any time may be contained"*
  - 'Discrete waters' defined as lakes, ponds or reservoirs which do not discharge to other inland waters.
  - Reservoirs that are used for the temporary storage of water (e.g. settlement lagoons) abstracted from an excavation will generally not fall under this category.
- **Removal of rainfall** may or may not be licensable depending on whether the water body from which it is pumped is classed as a 'source of supply'
  - Pumping of rainfall that would otherwise have entered the source of supply will require a licence (since you are effectively removing part of the source's recharge).
  - If the excavation is not within a source of supply, then pumping of rainfall will not require a licence.

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Defining what is licensable?

- **Pumping of floodwaters** may or may not be licensable depending upon source of flooding
  - Due to high groundwater levels = licensable.
  - Due to surface water or sea waters = not licensable (falls under land drainage exemption).

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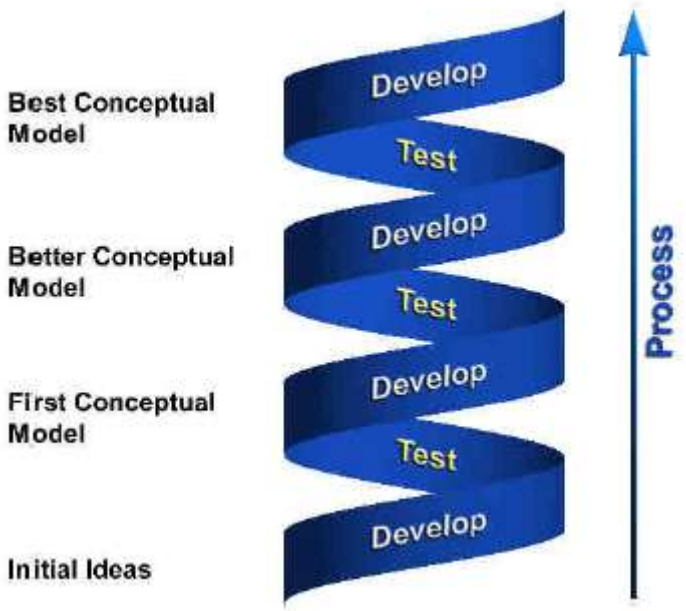
Dewatering HIA Methodology

- Environment Agency Science Report SC040020/SR1 *Hydrogeological Impact Appraisal for Dewatering Abstractions*

- Tiered approach
  - Tier 1 – Basic
  - Tier 2 – Intermediate
  - Tier 3 – Detailed
  - Reduce risk to an acceptable level
- Conceptual modelling
  - Concentrate on crucial factors
  - Test with numbers
- Impacts on flow & water level
- Thought process; not prescriptive calculations.



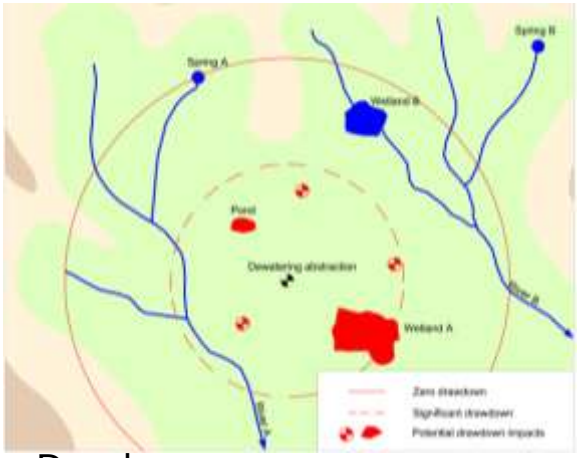
Dewatering HIA Methodology

SETTING THE SCENE

FLOW IMPACTS

Step 1 → Establish water resource status

Step 2 → Develop conceptual model



Step 3 → Identify water features susceptible to flow impacts

Step 4 → Apportion flow impacts

Step 5 → Allow for mitigation of flow impacts

Step 6 → Assess significance of net flow impacts

Repeat until uncertainty has been reduced to an acceptable level

Step 7 → Define search area for dewatering impacts

Step 8 → Identify water features susceptible to drawdown impacts

Step 9 → Predict max. drawdown impacts

Step 10 → Allow for mitigation of drawdown impacts

Step 11 → Assess significance of net drawdown impacts

Step 12 → Assess water quality impacts

Step 13 → Redesign mitigation measures

Step 14 → Develop monitoring & reporting strategy

DRAWDOWN IMPACTS

FINAL STEPS

Summary

- In the long term the integrated water management process initiated by WFD is intended to bring more certainty to the management of water resources for future generations.
- With it comes changes to the legislative and regulatory landscape within which we operate, in order to introduce the flexibility required to achieve sustainable water resources in the future.
- Confusion associated with change inherently leads to potentially protracted delays and negotiations.
- Potential for single operational consent to de-rail a programme unless thought and prepared for in plenty of time (Clients need to be made aware of this).
- With evolution of objectives and threshold values the goalposts may shift (and we need to be aware and respond to this).
- Proper understanding (backed up by real data) and clear communication of whole water environment conceptualisation will be key to making progress in this shifting landscape.

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