



# Heat pump systems – our approach to regulation

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14 September 2016



# Environmental considerations

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# Water for life and livelihoods

- ➔ Water is the most essential of our natural resources
- ➔ Our job is to ensure that we manage and use it effectively and sustainably



# The regulatory structure - open loop systems



## ➔ Ground source systems

➔ Groundwater investigation consent

## ➔ Ground and surface water source systems:

➔ Abstraction licence – to take water into the system

- Controls volume, timing, siting, screening etc

➔ Discharge permit – to put the water back

- Controls quality, treatment, temperature etc

➔ Permit for flood risk activity – building in a flood risk area

# The regulatory structure - closed loop systems

- ➔ A closed-loop heat exchanger doesn't need groundwater investigation consent, an abstraction licence or an environmental permit.

# Some key tests

We need to be confident that a proposed scheme will **not have unacceptable impacts**.

Must not cause deterioration in status of the water body or prevent achievement of **Water Framework Directive (WFD) objectives**

Must protect **fish passage and fisheries**

Must not have unacceptable impacts on **protected sites or species**

Must not have unacceptable impacts on the **rights of other water users**

# Principles of abstraction

- ⇒ How much water is available?
- ⇒ How much water is needed for the environment?
- ⇒ Who else has protected rights?
- ⇒ Rights of access to the abstraction point



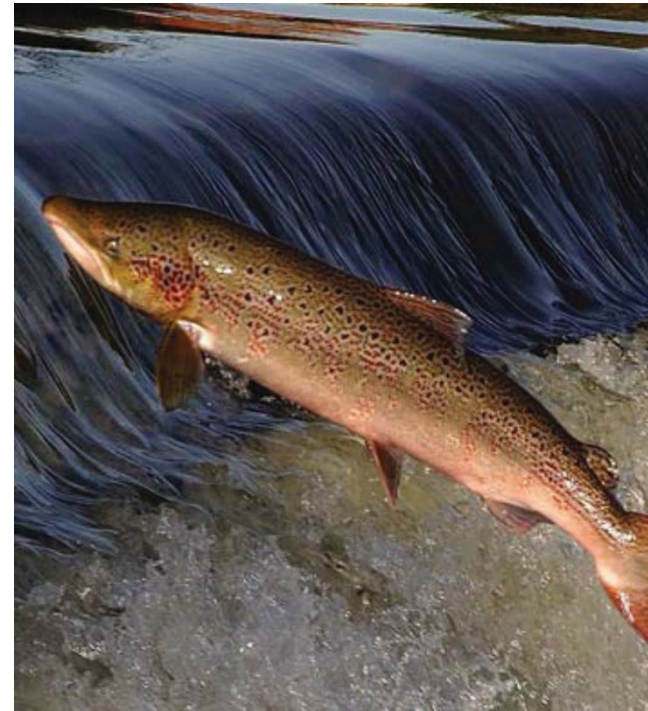
# Discharges

- ➔ Understanding temperature stresses is crucial to our permit determination
- ➔ Cooler discharge is better than warmer discharge
- ➔ Generally, temperature differences of 2 - 3° C in the mixing zone will be preferred
- ➔ Modelling may be required
- ➔ We may need to consider the potential for cumulative effects from multiple schemes and other development pressures



# Surface water systems - screening the intake

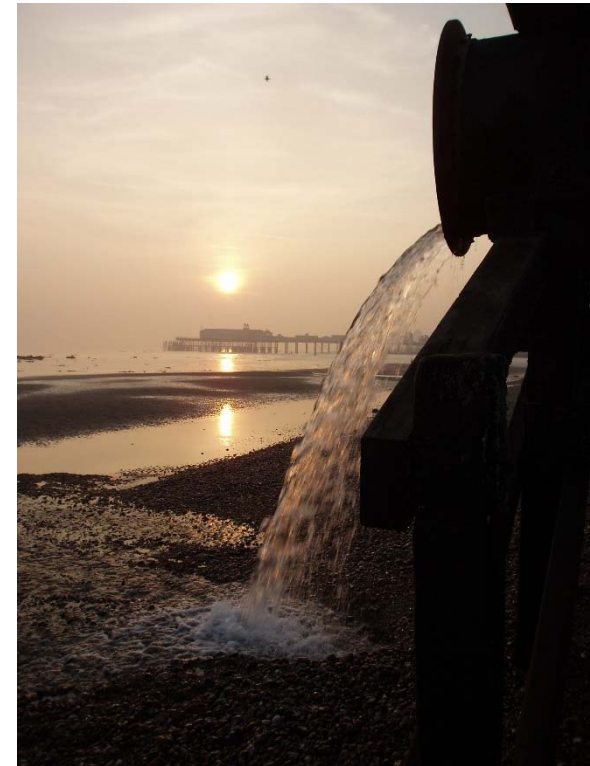
- ➔ To protect fish and eels, we will require screens on intakes
- ➔ Depending on the river and site location, screen size may be as fine as 1- 2mm
- ➔ Screen positions and maintenance must address the risk of fish entrapment



# Discharge permits – standard rules etc

- ➔ Smaller schemes may be eligible for a range of exemptions or ‘standard rules’ permits.
- ➔ For details of these and the whole application process, search GOV.UK for ‘heat pump systems’

(<https://www.gov.uk/guidance/open-loop-heat-pump-systems-permits-consents-and-licences>)



# Further information



Environmental management – guidance

## Open-loop heat pump systems: permits, consents and licences

**From:** [Environment Agency and Department for Environment, Food & Rural Affairs](#)

**First published:** 1 February 2016

**Last updated:** 6 May 2016, [see all updates](#)

**Part of:** [Environmental permits: regulatory position statements, Water, Environmental permits, Business and the environment and Water quality](#)

**Applies to:** [England](#) (see detailed guidance for [Scotland](#), [Northern Ireland](#) and [Wales](#))

The environmental permit, consent and licence you need before you install a ground source or surface water source heating or cooling system.

# Summary advice for developers

- ➔ Address the environmental issues early – contact the Environment Agency
- ➔ Check there is enough water available
- ➔ Check for site specific environmental constraints (for example, protected sites and species)
- ➔ Screen the intake (surface water)
- ➔ Cooler discharges can be good for the environment





# Permitting heat pump applications

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14 September 2016

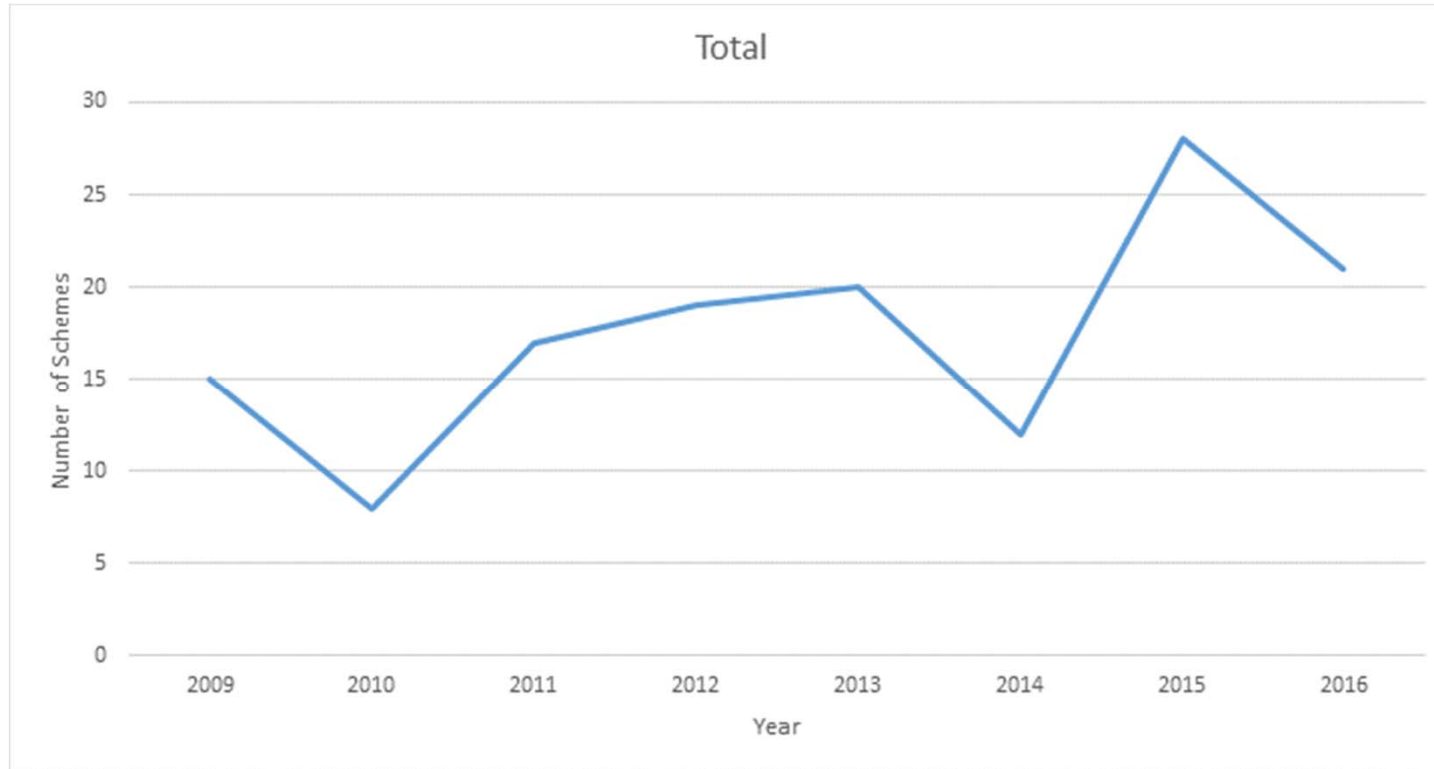
# Structure

- ⇒ My team
- ⇒ Popularity of heat pumps
- ⇒ Application process
- ⇒ Determination process
- ⇒ Permit conditions
- ⇒ How we are trying to improve things

# My team

- ➔ Based in Sheffield
- ➔ Only team trained in dual permitting
- ➔ Receive and determine all heat pump applications

# Popularity of heat pump





# Application process

- ➔ Exemptions
- ➔ Pump test
- ➔ Joint application form A, B8 and F2
- ➔ Additional information
- ➔ How we communicate with you

# Determination process

- ⇒ What is important to the EA?
  - ⇒ Volume of water abstracted and discharged
  - ⇒ Distance between abstraction and discharge points
  - ⇒ Time between abstraction and discharge
  - ⇒ Thermal impacts
  - ⇒ Saline intrusion



# Permit conditions

## ⇒ Abstraction Licence

- ⇒ Amount of water abstracted
- ⇒ Point of abstraction and discharge
- ⇒ Screening for surface water licences only

## ⇒ Discharge permits

- ⇒ Point at which the water is returned
- ⇒ How much water can be returned
- ⇒ Temperature of the returned water

# How we are improving our service

- ➔ Contact us for pre-application advice:
  - ➔ National Customer Contact Centre
    - E: [enquiries@environment-agency.gov.uk](mailto:enquiries@environment-agency.gov.uk)
    - T: 03708 506 506
- ➔ Joint application form for ground and surface water systems (2014)
- ➔ Applications processed by our heat pump team
- ➔ Updated guidance on GOV.UK (2015)
- ➔ Future forms to include pre-application option