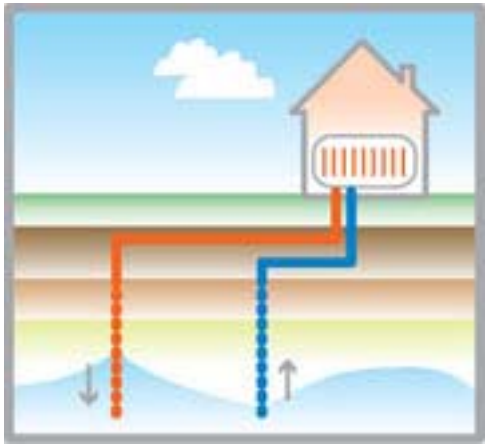
The OPEN LOOP Standard



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Content

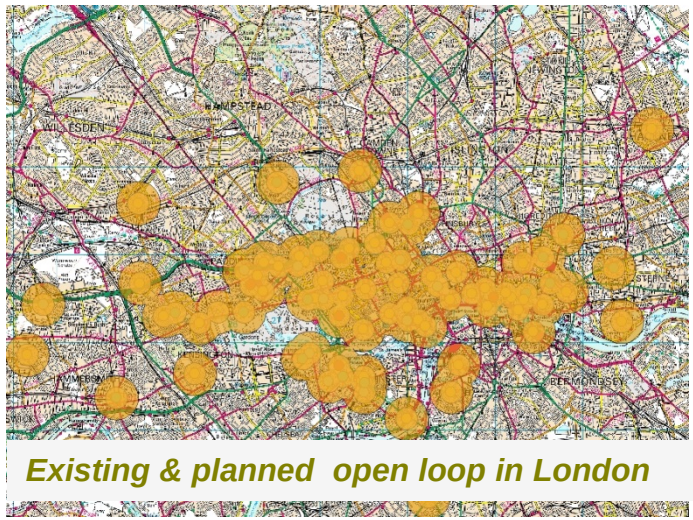
1. Open Loop; a different beast!

2. Main topics within the Standard

3. Progress to date

Open Loop

- The smallest in terms of numbers installed – BUT the largest in terms of system size
- Closed loop boreholes are ‘drill, install, cover & forget’
- Open loop boreholes are ‘living’ and require monitoring and attention for their entire operating lives



Existing & planned open loop in London

Why is Open Loop Different?

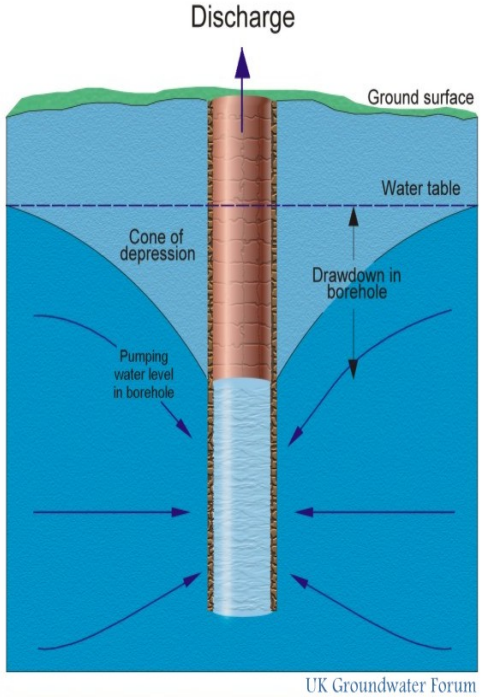
1. Drilling, testing and operation of an Open Loop system is a REGULATED ACTIVITY
2. Design and install process is detailed and lengthy
3. Expertise required is much broader:
    - Geology, Hydrogeology, Thermogeology, Geochemistry, Drilling, Testing, Regulation…
    - …as well as all the building physics and heat/cool design requirements in common with closed loop

The Standard

- Viability assessment
  - Can underlying geology sustain the required groundwater flow?
  - Use of BGS, EA and other database info
  - Is the site suitable; separation of boreholes etc?
  - Thermal impacts?
  - Long term water quality issues?
- The Design Process (pre & post drilling)

The Standard

- Well construction and test pumping
- Groundwater quality
- Monitoring and maintenance
- The Regulatory Process
  - Ongoing Data collection



Progress?

- Team of 14 assembled and met in October
  - All disciplines are represented from within the GSHPA, Environment Agency, BDA, WDA and BGS
- Drafting by sub-committees commenced in November
- Collation of input in December, issue Spring 2014