Analysis of temeprature logs :

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| --- | --- | --- | --- | --- |
| Shaft | Comment | Water Level | Temp | Statue |
| Boldon | Linear temperature gradient from -100 mAOD to Huttom seam L (-440 mAOD). In between, 4 seams with no impact on temperature gradient. | -35 m in Jan 2016 | Average temp: 15-16°C  Gradient 0.01°C  -16.8°C at 400m | Not pumped |
| Langton No7 | In staircase at Top Hard Inset, Waterloo Inset, Deep Hard seam (down to 300m) | 76 mBGL in 2013  66 mBGL in 2019  Water level from 32 to 46 mAOD 2016-2019  (42 mAOD 2018) | LOG 2013: From 10 °C at the top (-101.6 mBGL) to 21°C at the Bottom (425 mBGL)  Average of 18°C at -250m  TS 2016-2019: ~13°C | Not pumped |
| Lumley 6th | Isothermal gradient with slight shift at Main Coal from 2008.  Before that (2005), isothermal low above five Quarter, shift at Five Quarter and gradient down to Main Coal and isothermal gradient below Main Coal |  |  | Consented discharge  Tends to equilibrate with time |
| Mainsforth | Staircase: tends to develop at less important seams over time, but with decreasing amplitude of shift at most importance seams:  Shist at Base Permian (60 mBGL), Yard (120), Btm Hutton (200), Harvey (250) in 2006  Appears in Low Main in 2009 and visible in Maudlin + other NI in 2011 |  | Average temperature of 10-11°C at the surface, 12°C at 150 mBGL and 14°C at depth (250 mBGL) | Not pumped |
| Thrislington | Shift at Base Permian (50 mBGL), Low Main (110) and Harvey (200) in 2006   * Look in terms of mAOD |  | 9°C at surface | Not pumped |
| Ladysmith | Isothermal gradient in May 2008, shift toward lower T°C at 10 mAOD (cold inflow?) in Dec 2008 and shift at 20m AOD in Dec 2009. Tends to re-average in Dec 2009 (colder that in May 2008, especially down to 20 m depth = other seam?) | Water level at -5 | 9°C at surface  Average temperature laong profile = 12 °C | Not pumped |
| Stony Hall | Relatively isothermal with smooth perturbations where concentrations of seams |  |  |  |
| Chatershaugh | Down to 100 mBOD:  Isothermal down to -40 m (constant temperature of 11°C in 2005-2008). Below -40 m, T° 2005 (15.5°C)> T°2008 (12.5°C), with step in -40 m + one perturbation in 2005 at -85m. | Constant water level from 2010 to 2012 (6 mAOD) |  | Not pumped |
| Bilston Glen | Isothermal | Constant over time at 18°C |  | Not pumped |
| Easthouses | Linear gradient temperature with 2 tiny steps in 2016 and 2019 (150 and 210 mBGL) but conductivity steps in 2016 (170, 190 and 210 mBGM) that merge into 2 large steps in 2019 (150 and 210 m) |  |  | Not pumped |
| Dawdon | Steps along gradient  Same temperature gradient pre and post pumping | 69 L/s pumping | 18.7°C average | Pumped |
| Horden | Steps but gets more isothermal with time, with shifts toward higher temperature at depth and lower temperatures on top  General temperature increase when started pumping | 42 L/s | 16.5°C | Pumped |
| Hawthorn | Lots of temperature steps |  |  | Not pumped |
| Easington | Slight temperature change at seams location but rather isothermal up to the Base of Permian (gradient above) when pumping starts at Dawdon |  |  | Not pumped |

Pumped shaft / BH:

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| --- | --- | --- | --- |
| Site\_Title | Site\_Sub\_Title | Type\_of\_site | Region |
| A Winning | No.1 Dc Shaft | Pumped Passive | East Midlands |
| Acomb Drift | Pumped transfer | Active - Passive (Chemical Addition | North East |
| *Allerdean Mill* | *Pumped Raw Mine Water* | *Pumped Passive* | *North East* |
| Aspull Sough | Raw Minewater Transfer Pumps | Pumped Passive | North West |
| Bates | No.3 Shaft | Pumped Passive | North East |
| Blenkinsopp | Smallburn Shaft | Active - Passive (Chemical Addition | North East |
| Bullhouse | Raw Pumpstation | Pumped Passive | Yorkshire |
| Bullhouse | Treated Pumpstation | Pumped Passive | Yorkshire |
| *Cannock Wood* | *Abstraction Borehole* | *Pumped Passive* | *West Midlands* |
| Chester South Moor | Uc Pumping Shaft | Pumping Station | North East |
| Clough Foot | Pumped Raw Mine Water | Active - Passive (Chemical Addition | North West |
| Craig Y Aber | Discharge lower on west bank | Monitoring | South Wales |
| Craig Y Aber | Discharge upper on east bank | Monitoring | South Wales |
| Cuthill Breich Water | Cascade top | Pumped Passive | Scotland |
| Dawdon | Theresa Shaft | Active Treatment Plant | North East |
| Deerplay | West Lower Mountain B/H | Active - Passive (Chemical Addition | North West |
| Downbrook | Production Borehole | Pumped Passive | North West |
| Duke Of Bridgewaters Canals | Raw Minewater Pumps | Pumped Passive | North West |
| Duke Of Bridgewaters Canals | Treated Water Pumps | Pumped Passive | North West |
| East Edmondsley | Pump Station | Pumped Passive | North East |
| Fender (Dunston) | Seepage Pump | Pumped Passive | East Midlands |
| Fender (Dunston) | Raw Minewater Pump | Pumped Passive | East Midlands |
| Frances | Shaft | Active - Passive (Chemical Addition | Scotland |
| Garnet | Leachate Pump | Monitoring | North West |
| Glencairn Diamond | Blindwells Pumping B/H | Pumped Passive | Scotland |
| Glencairn Diamond | Pumping B/H 5A | Pumped Passive | Scotland |
| *Hand Bank* | *Pumping Borehole* | *Pumped Passive* | *Yorkshire* |
| Hockery Brook | Pump transfer | Pumped Passive | North West |
| Hope | Pumping Shaft | Non CA Pumped Passive | Yorkshire |
| Horden | South Shaft | Pumped Passive | North East |
| Kibblesworth | Glamis Pumping Shaft | Pumping Station | North East |
| Kimblesworth | No.3 Pumping Shaft | Pumping Station | North East |
| Lambley | Pump sump | Pumped Passive | North East |
| Lindsay | Raw Minewater Pump station | Pumped Passive | South Wales |
| Lynemouth | No.1 Shaft | Monitoring | North East |
| Michael | No.2 Shaft | Monitoring | Scotland |
| Mid Cannock | Pumping Borehole | Pumped Passive | West Midlands |
| Moira | Little Woodfield B/H | Monitoring | East Midlands |
| Mountain Gate | Pump Station | Pumped Passive | South Wales |
| Old Meadows | Pump House | Active - Passive (Chemical Addition | North West |
| Old Meadows | Treatment House | Active - Passive (Chemical Addition | North West |
| Pemberton | *Raw mine water* | *Pumped Passive* | North West |
| Polkemmet | No.1 Shaft | Active - Passive (Chemical Addition | Scotland |
| Silverdale | No.17 Shaft | Pumped Passive | West Midlands |
| Strafford | Silkstone Shaft | Pumped Passive | Yorkshire |
| *Summersales* | *New Pumping Borehole* | *Pumped Passive* | *North West* |
| Vivian | Pump Borehole | Active - Passive (Chemical Addition | South Wales |
| *Whitburn* | Yard Seam B/H | *Monitoring* | *North East* |
| Whittle New Drift | Pumping B/H | Pumped Passive | North East |
| Woodside | No.2 Shaft | Pumped Passive | East Midlands |
| Woolley | No.2 Pumping Shaft | Pumped Passive | Yorkshire |

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| Yorkshire Zone 5- Pumped Passive 27 L/s– 97.27 mAOD - old adit | |  |  | | --- | --- | | Depth |  | | 56 | Flockton Thick Seam Inset | | 84 | Flockton Thin Seam Inset | | 103 | Fenton Top Seam Inset | | 107 | Fenton Low Seam Inset | | 129 | Parkgate Seam Inset | | 219 | Silkstone Seam Inset/Base of shaft |   Close to Strafford shaft – 60mAOD - monitoring shaft (water level) |
| South Tyneside, NE England – Yard Seam B/H: Elevation 30 mAOD – 24 L/s | Westoe – Monitoring shaft – 19mAOD  Boldon – Monitoring shafts – 29 mAOD    Wearmouth glasswork – Maudling BH – Monitoring – No Data  --- (East of Wear) ------------  Lumley 6th shaft – Monitoring shaft (50 mAOD)+ consented discharge (35)    Nicholsons shaft– Monitoring shaft (57 mAOD)+ consented discharge (48)    Chatershaugh = 3 shaft (Passive gravity discharge at 78 L/s, 15.8°C) – 5-8 mAOD 🡪 step at main coal (-50m)    --- Silksworth (Silksworth =)– Yard Seam BH – 126.38 mAOD – Monitoring BH |
| Kibblesworth (Team Valley ,NE England) – 300 L/s 14.8 °C  Pumping station: Glamis Pumping shaft (74 mAOD) | + No3 Pumping shaft (88) + consented discharge |
| Blenkinsopp (South Tyne, NE England) – Active/Passive – 126 mAOD | Smallburn shaft (126 mAOD) : 25 L/s, 12.8°C  (+ 1 BH next to it)  Both are isolated from other wells. |
| Woodside, in isolated block East Midlands (Notts-Derbys Border)  Pumped passive (86.5 mAOD) – 102 L/s    32 Top Hard Goaf  78 2nd Waterloo Inset  185 pump position  196 Deep soft Inset  212 Deep Hard Inset  228 Piper Inset  263 Tupton Inset  348 Mickley Inset  443 Kilburn Inset  468 Shaft Bottom | Closest wells :   * Babbington: Top Hard Borehole – WL – 78mAOD      * Moorgreen: Waterloo BH – monitoring WL- 91 mAOD   But separated by fault |
| Michael Shaft – East Fife, Scotland – 12 mAOD | Coastal shaft north of the Fifth of Forth. Surrounded by wells all in the CMSC:   * Leven4 BH - Barncraig B/H – monitoring WL – 8L/s - 29 mAOD      * Lochhead BH - Dysart Main B/H monitoring WL – 45 mAOD * Randolph BH - Lower Dysart B/H monitoring WL – 62 mAOD * Frances BH - Active - Passive 126 L/s 14°C – 47 mAOD * Muiredge Chemiss BH - B/H monitoring WL – 39 mAOD * Cameron BH- Dysart Main B/H monitoring WL – No Data * Middlefield BH– No Data * Balgonie Dalginch BH– monitoring WL - 69 mAOD * Balgone Muirespot BH– monitoring WL - 69 mAOD |
| Lynemouth, Wansbeck, NE England - north of Bates (close to sea)- 74L/s, 16.8°C, 15m OD | Ellington shaft – monitoring 26 mAOD  Pegswood BH separated by fault - Drift Boreholes monitoring (64)  North Seaton – 30 mAOD – monitoring WL |
| Bates – Blythe, NE England - pumped passive 135 L/s, 12.5°C- 6mAOD | Bedlington A along same dyke – 30 mAOD monitoring WL  Choppington A - 30 mAOD monitoring WL  Crofton BH – Yard Seam – No Data  New Delaval - Forster Shaft – 27.7 mAOD monitoring WL |

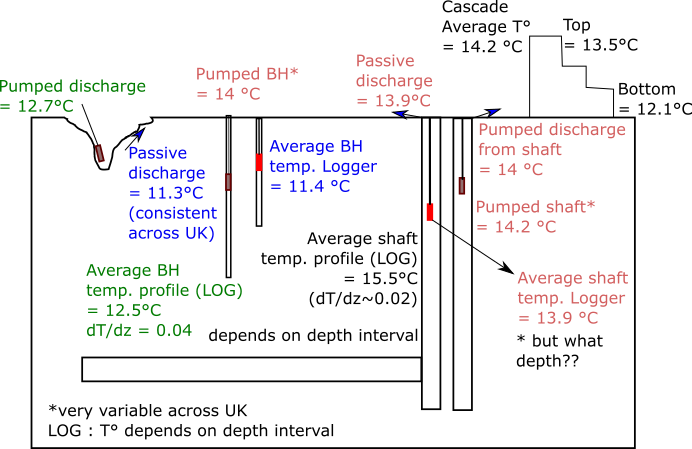
If pumped, what is the depth of the pump

Boreholes:

* Linear = Eldon, Leacroft (below 75 mBGL), Littleton, Monckton Coke Works BH, Niddrie (Wisp) BH (only slight step at 50m)
* Isothermal = A Winning (pumped 40 L/s, 16.2°C, slight step at Low Main -100 mAOD)
* Stair step = Bates ( pumped with cascade, large step at 240 m depth)

Inset Frances





Stony Hall (2009)

