# Mylene meeting 13/05/2020

Comments on length –SG keep it because you can always edit it down

CMCD - Set up meeting to identify the way forward

SG – aim to focus on three main chapters for thesis that form three publications

* With work done already, MR should aim for this
* What are the three main research questions
* How to test
* What and when to publish

MR – Research questions

1. Heat sources and recharge
2. Impact of past mine working practices on heat in flooded mines
3. What are the most important data to extract from mine plans to build useful models to assess sustainable heat

CMCD – Jesus looking at the value of the void

CMCD – developing code in OGS 2019

AFH – Research question 2 could get some information from radioactive waste disposal literature

SG – What are the actual hypotheses to test? Convert from the broad questions to specific testable hypotheses.

* Does surface temperature contribute to the minewater thermal recharge
* Is heat mining inevitable?

Date for panel – ask Wyn for availability on the 11th June?

CMCD – Research Q 2 – possibility to use UKGEOS temperature data? Show the effect of abstraction on subduing the geothermal gradient. Sean Watson and Rob Westaway 2020 (Scottish Journal of Geology)

SG – have data up-dip. Could model the 2D heat transfer at the site? Paper based on the seismic borehole that did not intersect mine workings. Also tone of paper not particularly complimentary of geothermal site

SG – BGS do have pump test data and temperature logging. Pump test = 20 l/s for 5 hours. 1-2 m drawdown. Being prepared for public release.

SG – would be good to get a publication out in the area soon.

MR – why to use UKGEOS?

CMCD – data is available but need to understand what the past recent history affect has been on the temperature profile

SG – what is the contribution of the gw flow toward the Clyde

CMCD – generic model of zones (appear in every location but with different thicknesses). Compare the three locations and see how they differ

MR – data at Dawdon includes temperature profile before pumping too so could be used for benchmarking

What should be the first paper?

* Assessment of appropriate technology for depth for geothermal technology?
* GSHPs are heat mining – storage is required

Including advective flow

* Second stage paper after diffusive flux heat mining

Clear message for first paper is that storage is required for sustainable heat extraction

Justification of line source extraction is that we are focussing on the geological response to the heat extraction – this is not a function of the heat exchanger behaviour

MR – geographically based input data from other papers required? CMCD not necessary

SG – suggestion of paper outline discussion soon. What are the figures you are going to include in the paper? How are you going to illustrate the main points and conclusions? Will enable you to focus on the paper direction and make writing easier.

* Main conclusion of storage requirement for the sustainability of heat extraction from the GSHP.

AFH, MR and CMCD to define the scope of the paper and what figures to use.

SG – actually your hypotheses are pretty good but could be included in an executive summary to make clearer at the start.

SG – well done on your work so far. bye

AFH – do we need to go to 3D for the paper?

CMCD- may be good for pre-empting reviewer questions but is maybe not completely necessary.

MR – 3D not yet working, but have been working on the confirmation report mainly.

CMCD – will work on inkscape file reading