

OR/19/049 Sample information

From Earthwise

[Jump to navigation](#) [Jump to search](#)

Kearsey, T, Gillespie, M, Entwisle, D, Damaschke, M, Wylde, S, Fellgett, M, Kingdon, A, Burkin, J, Starcher, V, Shorter, K, Barron, H, Elsome, J, Barnett, M, and Monaghan, A. 2019. UK Geoenergy Observatories Glasgow: GGC01 cored, seismic monitoring borehole — intermediate data release. *British Geological Survey Internal Report*, OR/19/049.

Summary spreadsheet of core and fluid samples preserved for geomicrobiology

File name: GGC01_geomicrobiology_externalversion_V2.xlsx

This Excel workbook details sub-samples collected from rock cores immediately after core recovery and preserved for geomicrobiology analysis, and which has been made available for the science community via an open sample call. It contains two worksheets: one lists the core samples and the other describes fluid samples that were collected and preserved from around the core barrel.

Each 5cm long subsample of core collected for geomicrobiology analysis was split into four pieces, with the preservation of these pieces being as described in the 'type of sample' column:

- '-80' denotes the 2 quarters preserved at -80°C (for DNA/RNA studies etc.)
- 'culture' denotes the 1 quarter preserved at 4°C (for culture studies; 4°C samples were flushed with nitrogen and sealed).
- 'counts' denotes the 1 quarter preserved at 4°C (from which a portion was been removed and preserved in glutaraldehyde fixative for tracer and cell counts).
- 'SSK' denotes the sample number. GMC=geomicrobiology core

In the second worksheet the fluid samples collected are described as follows:

- '1 ml fix' denotes core barrel fluid preserved in glutaraldehyde fixative and frozen at -80°C
- '30 ml drilling fluid' denotes the remainder of the core barrel fluid collected and preserved at -80°C
- '1g count' denotes crushed core material preserved in glutaraldehyde fixative

Summary spreadsheet of bgs fluid/water samples and basic hydrogeological parameters of BGS fluid/water samples

File name: GGC01_fluidsamples_fieldparameters_externalversion_V4.xlsx

This spreadsheet records water, fluid and other samples that were taken by BGS over the course of drilling.

Two water samples were taken from the top of the borehole using a hand bailer upon completion of drilling. The first was taken on the 17/12/2018 after the casing had been removed up to the superficial deposits and the borehole had been flushed with clean water and left to settle overnight. The second sample was taken on 07/01/2019 after the borehole had been left open and uncased for two weeks. Samples of mains water (used for borehole flushing) were also taken for comparison. When taking these samples the following water quality parameters were monitored at least three

times over an interval of not less than five-minutes: pH, redox (Eh), dissolved oxygen, temperature and conductivity. Alkalinity was also measured, using a Hach Digital Titrator, a minimum of three times.

Post sample collection the redox potential was corrected for temperature and the bicarbonate (HCO₃) value of the water was calculated using the field alkalinity values.

The samples collected are being analysed for a suite of water chemistry parameters; data will be released when available.

Summary of tracer and additive information

Geomicrobiology tracer

A geomicrobiology tracer, AFN-09 RADGLO UV Blue, was added daily to the settling tanks containing the re-circulating water used to drill the borehole. The tracer was added to allow the extent of drilling fluid ingress into core material to be assessed. The volumes added, based on BGS records, are summarised in Table 11 below. Various sizes of settling tanks were used throughout the drilling for the re-circulating of drilling water and therefore different amounts of tracer was added to these tanks depending on which one was in use on that day. The original addition of tracer to the settling tanks was based on a ratio of tracer to drilling fluid was 1:40000 and this was attempted to be maintained throughout the drilling process. In order to account for potential losses of water throughout the drilling, additional tracer was added to the settling tanks daily. The tracer data sheet documents it as a mixture of the following chemicals: Ammonium hydroxide (<1% weight), iron (III) sulfate (<0.1% weight) and acrylonitrile (<0.1% weight). A 30 ml sample of the geomicrobiology tracer, AFN-09 RADGLO UV Blue, was taken during the drilling.

Table 11 Volume of tracer added.

Date	Volume of re-circulating water (litres)	Volume of tracer added to water (ml)
27/11/2018	13 000*	325 [^]
28/11/2018	13 000	60
29/11/2018	13 000	60
30/11/2018	13 000	60
03/12/2018	7,000** (new tanks)	175
04/12/2018	7,000	30
06/12/2018	13 000* (new tanks)	325
07/12/2018	13 000	60
10/12/2018	13 000	60
11/12/2018	13 000	60
12/12/2018	13 000	60

* based on 6,000 litres in two settling tanks and 1,000 litres in borehole

** based on 3,000 litres in two settling tanks and 1,000 litres in borehole

[^] Added at beginning of day after morning samples were taken

Polymer drilling additive

To aid drilling, a drilling additive called Insta-pac supplied by CETCO Europe, was added by the

drilling contractors to the re-circulating water in the settling tanks at various points throughout the drilling. This additive contains Naphtha (petroleum), hydrotreated heavy [low boiling point hydrogen treated naphtha] (<3%). A 60 ml sample was taken by BGS.

Retrieved from

'http://earthwise.bgs.ac.uk/index.php?title=OR/19/049_Sample_information&oldid=45096'

Category:

- [OR/19/049 UK Geoenergy Observatories Glasgow: GGC01 cored, seismic monitoring borehole - intermediate data release](#)

Navigation menu

Personal tools

- Not logged in
- [Talk](#)
- [Contributions](#)
- [Log in](#)
- [Request account](#)

Namespaces

- [Page](#)
- [Discussion](#)

Variants

Views

- [Read](#)
- [Edit](#)
- [View history](#)
- [PDF Export](#)

More

Search

Navigation

- [Main page](#)
- [Recent changes](#)

- [Random page](#)
- [Help about MediaWiki](#)

Tools

- [What links here](#)
- [Related changes](#)
- [Special pages](#)
- [Permanent link](#)
- [Page information](#)
- [Cite this page](#)
- [Browse properties](#)

• This page was last modified on 21 January 2020, at 10:01.

- [Privacy policy](#)
- [About Earthwise](#)
- [Disclaimers](#)

