MICROBIAL INVESTIGATIONS

IN THE PROTOTYPE REPOSITORY

Microbial Analytics Sweden AB

SP Certified ISO 9001 ISO 14001

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WE EXPLORE THE LIVING UNDERGROUND

ANALYSES

CHAB analysis – determines the number of aerobic microbes. These consume oxygen which in turn can be corrosive to a copper canister

SRB MPN analysis – determines the number of sulphate-reducing microbes. These produce sulphide which in turn can be corrosive to a copper canister

IRB MPN analysis – determines the number of iron-reducing microbes. These can possibly be involved in illitisation

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SPECIALLY DESIGNED

ANALYSES

DNA-based analyses in bentonite and at copper surfaces – developed for determination and identification of sulphate-reducing microbes with DNA-based approaches

Gas extraction and gas analyses from bentonite cores – aims to determine the oxygen proportion in the bentonite

Microelectrode analyses in titanium cups – measures sulphide, pH, redox and oxygen in small water volumes (1mL)

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EXAMINED

MATERIAL

Buffer in dh6 and dh5 – MPN SRB, MPN IRB (20 samples) and CHAB analyses (50 samples) at three different distances and two temperatures as well as DNA-based analyses from the buffer in ring 9, 7, 5, 3 and 1 in both dh6 and dh5

Buffer in dh5 – MPN SRB, MPN IRB and CHAB analyses at three temperatures, DNA-based analyses and microelectrode analyses (oxygen) at the interface bentonite/copper in ring 10

Backfill – MPN SRB, MPN IRB (5 samples) and CHAB analyses (60 samples) as well as DNA-based analyses in backfill

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EXAMINED

MATERIAL

Titanium cups in dh6 and dh5 – Microelectrode analyses (sulphide, redox, pH and oxygen) in the water in titanium cups (28 samples) in buffer and backfill

Copper canister and interface bentonite/canister dh6 and dh5 – SRB culturing at two temperatures (20 samples) as well as DNA analyses (10 samples) at the copper canister and at the interface bentonite/copper in ring 8 (dH6) and 7 (dH5), respectively

Buffer in dH5 – Gas extractions and analyses of the proportion of oxygen (4 samples) in the buffer in ring 7 in dh5

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