Cambridge Carbonates Ltd

Expertise in carbonate and evaporite systems

Well name: S02-02 | Date: 24 January 2019 | Scale: 1:50

Formation: Cores 1 and 2: Schouwen Member | Logging Team: Peter GUTTERIDGE/ Alberto RIVA

Carbonates:

Sedimentary Structures:

- Structureless

Components:

- mud clast

Clastics:

Sedimentary Structures:

- matrix rich breccia
- conglomerate, matrix supported
- conglomerate, matrix to clast supported

Components:

Lithology:

- Limestone
- No core
- Argillaceous Limestone

Diagenetic features:

- Barite cement
- Sphalerite cement
- open fracture
- horizontal stylolite
- subvertical stylolite

Karst features:

- cemented fracture
- vug
- Dual cavity fill

Karst association:

- Cave fill

Main cement type:

Depositional Environment:

- Karst collapse or fill

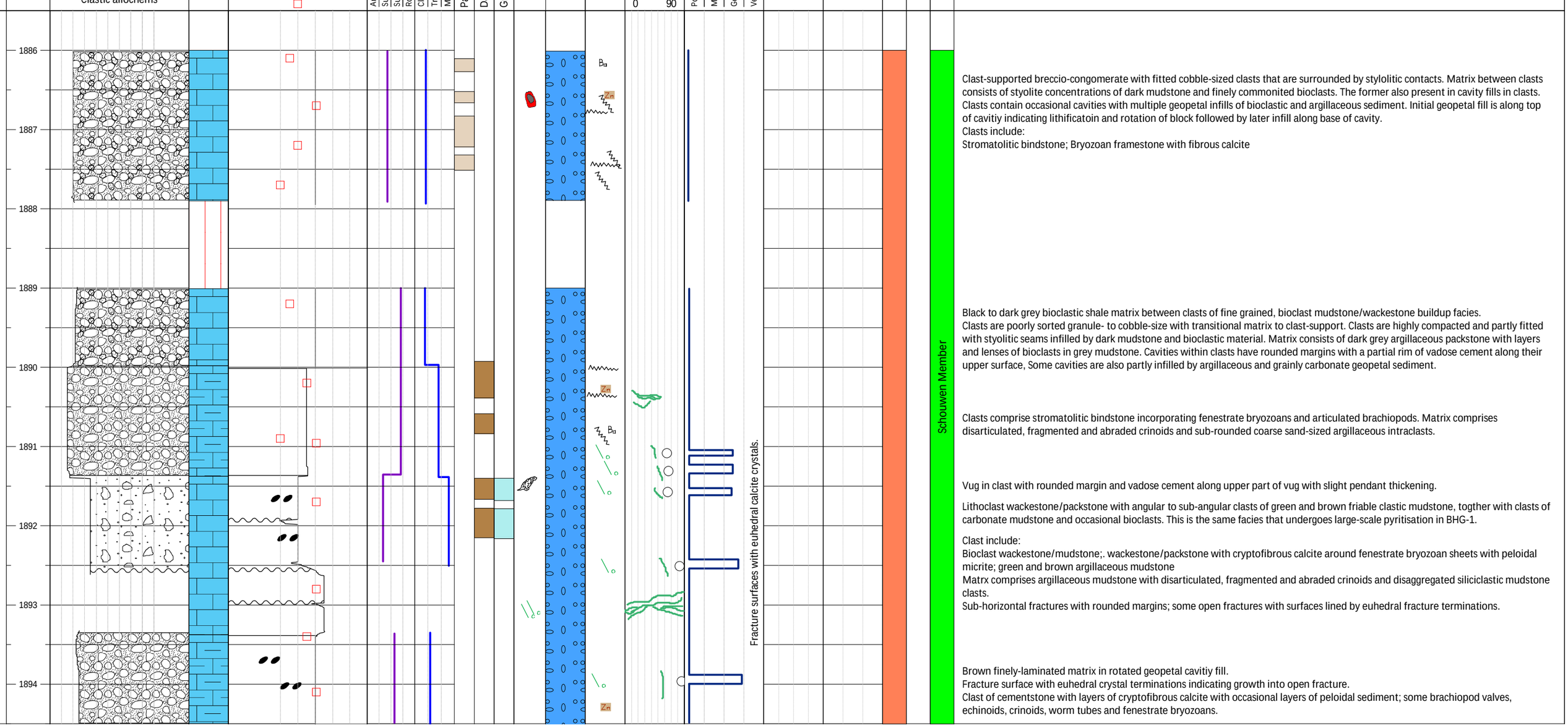
Bed contacts:

- sharp

Fracture:

- Open fracture

Thin sections | Core depth m | Clastic sedimentary structures: Dolomite Crystal Size (Coarse, Mediur, Fine); Grain Size (Boulder, Cobble, Pebble, Granule, Very coars, Coarse san, Medium sa, Fine sand, Silt, Mud); Clastic allochems | Lithology | Carbonate sedimentary structures: Carbonate texture (Mudstone, Wackestone, Packstone, Grainstone, Boundstone, Breccia); Carbonate components; Thin section texture | KARST: Karst Texture (Angular, Subangular, Subrounded, Rounded); Karst Fabric (Clast-support, Transitional, Matrix-support); Karst Matrix (Pale brown mudstone, Dark mudstone, Green clay); Karst Features; Karst Association | Main Cement Type | Diagenetic Features | Fractures: Structure, Dip (0–90) | Porosity Comment | Visible Porosity (Poor, Moderate, Good, Very good) | Plug porosity (%) (0–20) | Plug permeability (mD) (0.1–100) | Depositional Environment | Depositional cycles | Formation | Comments



Clast-supported breccio-congomerate with fitted cobble-sized clasts that are surrounded by stylolitic contacts. Matrix between clasts consists of styolite concentrations of dark mudstone and finely commonited bioclasts. The former also present in cavity fills in clasts. Clasts contain occasional cavities with multiple geopetal infills of bioclastic and argillaceous sediment. Initial geopetal fill is along top of cavitiy indicating lithificatoin and rotation of block followed by later infill along base of cavity.
Clasts include:
Stromatolitic bindstone; Bryozoan framestone with fibrous calcite

Black to dark grey bioclastic shale matrix between clasts of fine grained, bioclast mudstone/wackestone buildup facies.
Clasts are poorly sorted granule- to cobble-size with transitional matrix to clast-support. Clasts are highly compacted and partly fitted with styolitic seams infilled by dark mudstone and bioclastic material. Matrix consists of dark grey argillaceous packstone with layers and lenses of bioclasts in grey mudstone. Cavities within clasts have rounded margins with a partial rim of vadose cement along their upper surface, Some cavities are also partly infilled by argillaceous and grainly carbonate geopetal sediment.

Clasts comprise stromatolitic bindstone incorporating fenestrate bryozoans and articulated brachiopods. Matrix comprises disarticulated, fragmented and abraded crinoids and sub-rounded coarse sand-sized argillaceous intraclasts.

Vug in clast with rounded margin and vadose cement along upper part of vug with slight pendant thickening.

Lithoclast wackestone/packstone with angular to sub-angular clasts of green and brown friable clastic mudstone, togther with clasts of carbonate mudstone and occasional bioclasts. This is the same facies that undergoes large-scale pyritisation in BHG-1.

Clast include:
Bioclast wackestone/mudstone;. wackestone/packstone with cryptofibrous calcite around fenestrate bryozoan sheets with peloidal micrite; green and brown argillaceous mudstone
Matrx comprises argillaceous mudstone with disarticulated, fragmented and abraded crinoids and disaggregated siliciclastic mudstone clasts.
Sub-horizontal fractures with rounded margins; some open fractures with surfaces lined by euhedral fracture terminations.

Brown finely-laminated matrix in rotated geopetal cavitiy fill.
Fracture surface with euhedral crystal terminations indicating growth into open fracture.
Clast of cementstone with layers of cryptofibrous calcite with occasional layers of peloidal sediment; some brachiopod valves, echinoids, crinoids, worm tubes and fenestrate bryozoans.