Poppel Facies

Unit name: Poppel Facies

Hierarchical unit name: uncertain stratigraphic position

Type: Facies

Code: Po

Author(s):

- Compiled by: Verhaegen Jasper, Vandenberghe Noël & Walstra Jan

Alternative names: /

Origin of the name: Named after the area in the north of the Antwerp province where this facies is present. It was previously considered as an informal unit of the underlying Diest Formation.

Status: Formal

Date: 31/01/2023

How to refer: Verhaegen, J., Vandenberghe, N. & Walstra, J., 2023. The Poppel Facies, 01/09/2023. National Commission for Stratigraphy Belgium. http://ncs.naturalsciences.be/lithostratigraphy/Poppel-Facies

Characterizing description

The Poppel sand has been described in a flushed borehole Weelde (BGD 008E0133; DOV kb8d8e-B26) by Laga & Notebaert (1981). An interval of 31 m between 102 and 133 m deep is described as poorly glauconitic fine clayey and also carbonate containing homogeneous sand. This sand interval has a characteristic gamma-ray profile: a cyclic evolution with a middle very low gamma-ray signal; the resistivity values increase upwards but above the middle part of the interval resistivities remain high in two lobes. (Figure 0-1).

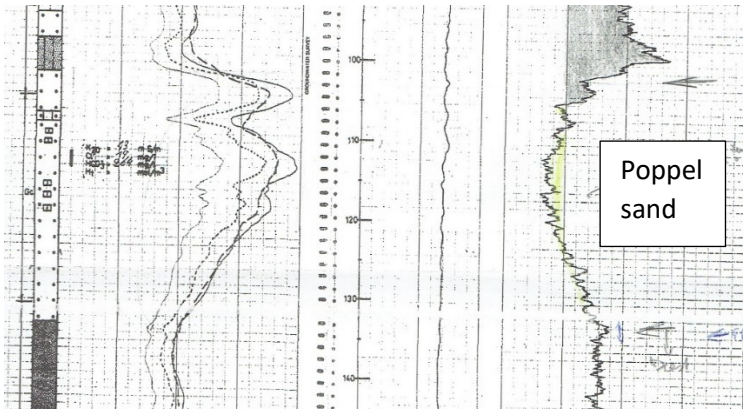

Figure 0-1. Log signature of the Poppel Facies in the Weelde borehole

The stratigraphic interpretation is unsure. Laga & Notebaert (1981) have opted to consider the sand as a glauconite poor part of the underlying Diest Formation. The sand above was interpreted by these authors as the Kattendijk Formation. However on regional profiles drawn in the mid and late 1970s by Laga for the Groundwater Commission of the Province of Antwerp (Archives of the Geological Survey

of Belgium), the Poppel Facies obviously is not yet indicated as it was not yet described, but on the profiles PGL/76/106/3 (Poppel-Ravels-Turnhout) and PGL 76/106/2 (Poppel-Ravels-Dessel) (Laga, 1976), this Poppel Facies would geometrically have been included in about 45 m of fine glauconitic sand interpreted as Kasterlee Formation sand below the Lillo Formation with shell debris and overlying the Diest Formation (Vandenberghe et al. , 2020 figs 7a&b). Nevertheless, the presence of carbonates in the sand is not in line with either the classical Kasterlee Formation or the Diest Formation. Another complicating factor is that the geometrical relay of Kattendijk Sand in the west by Kasterlee Sand in the east is shown to occur in the Weelde area on profile PGL/74/105 (Laga, 1976). Given the carbonate content of the Poppel Facies a lateral correlation of this unit with the carbonate containing Kattendijk Formation is plausible. Based on log correlations between Belgium and the Netherlands in the northwestern Campine area (Vernes et al., 2023), the Poppel Facies may be correlated with the Goirle Member of the Oosterhout Formation (see Fig. 35.2). The overlying Kattendijk Formation is the lateral equivalent of the Tilburg Member of the Oosterhout Formation, while the underlying Diest Formation can be correlated with the Diessen Formation. Based on this correlation, a position of the Poppel Facies as a basal unit of the Kattendijk Formation in the Voorkempen area may be proposed. More data are required before the interval can be given its definitive stratigraphic position.

Type section, type locality, type borehole, type CPT and/or type geophysical borehole

The borehole Weelde (BGD 008E0133; DOV kb8d8e-B26) between 102-133 m.

Description upper boundary

The Poppel Sand Facies is delineated at its top by a marked gamma-ray signal increase, attributed by Laga & Notebaert (1981) to the base of the Kattendijk Formation.

Description lower boundary

The Poppel Sand Facies is delineated at its base by the change in gamma-ray signal from an increasing downward trend in the Poppel Facies into a stable signal in the underlying Diest Sand, and analogously by the change from a decreasing RES log signature trend in the Poppel Facies to a stable low resistivity signal in the Diest Sand.

Thickness

A thickness of 31 m is interpreted in the Weelde borehole (BGD 008E0133).

Occurrence

Although the Poppel Facies was only described in the Weelde (BGD 008E0133) borehole, a more recent drilling at Weelde-vlieghaven (DOV kb8d8e-B161) shows a comparable borehole log interval but no further analyses in the interval of concern are available.

Regional correlations

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Age

The Poppel Facies has a late Miocene to early Pliocene age, based on its stratigraphic position in between the underlying Diest Formation and overlying Kattendijk Formation.

Dataset

Data in the LIS are part of the DOV-Neogene data collection, including links to the GSB-collection data sheets.

Subset of the Kasterlee Formation: https://www.dov.vlaanderen.be/data/opdracht/2020-021580

References

Archives of the Geological Survey of Belgium, Brussels. Information at: GSB@naturalsciences.be.

Laga, P., 1976. Geologische Doorsneden. Archieven Belgische Geologische Dienst. http://collections.naturalsciences.be/ssh-geology/geology/profiles-neogeen2020, accessed 15/03/2020.

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Annexes

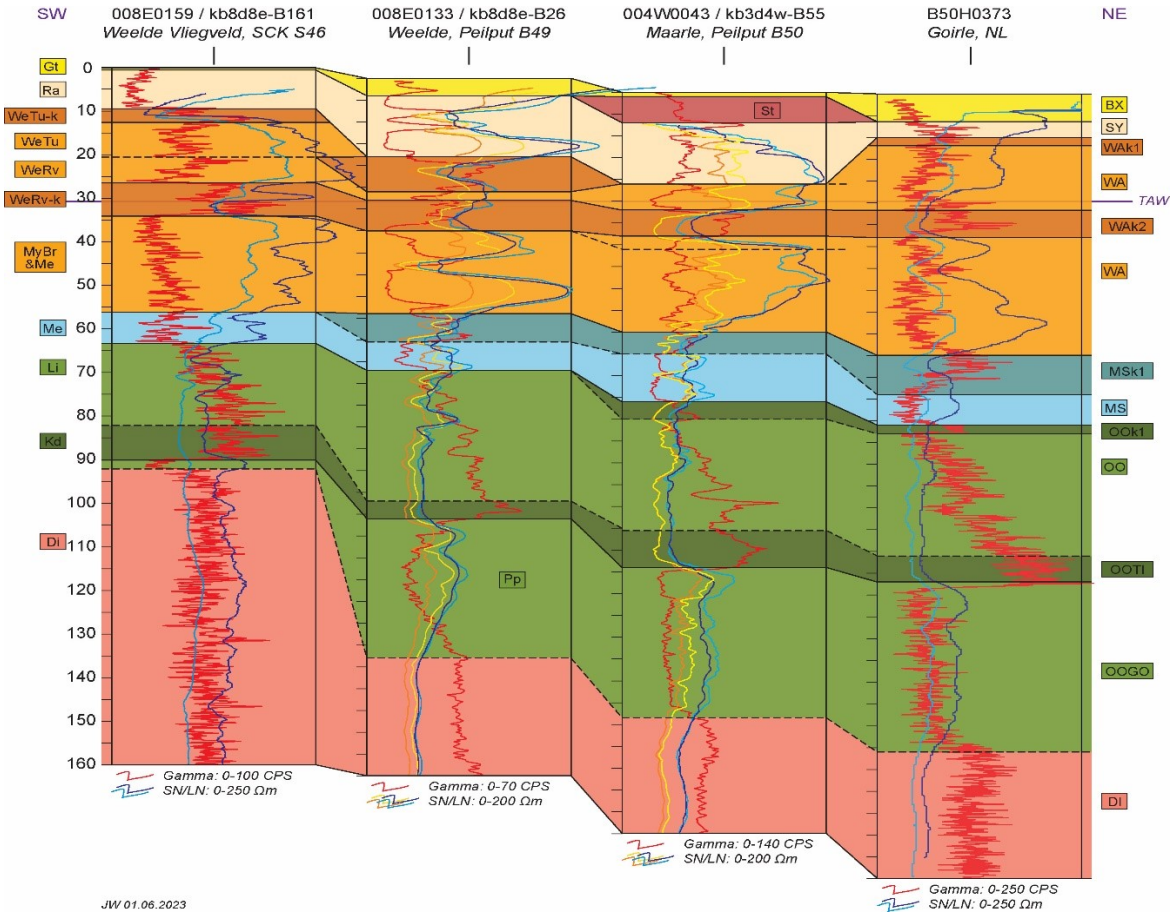

Figure 0-2: Correlation of geophysical well logs with interpretation of the Poppel Facies. Interpretations and correlations based on H3O-De Kempen project in black lines (Vernes et al., 2018); the dashed lines are interpretations based on Vernes et al. (2023) and Munsterman (2019).