# Application of high-resolution biostratigraphy to differentiate and correlate reservoir units in Raven Field, Nile Delta, Egypt

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Raven Field lies in the West Nile Delta of Egypt. This field is being developed to provide greater stability for the energy supply of Egypt. The Raven reservoir sits within nannofossil Zones NN4b, NN4a, NN3a, and NN2 that straddle the Langhian and basal Burdigalian. The reservoir is comprised of channelized turbidite sands that were deposited in an upper slope environment. Biostratigraphy was used to assign international zones to exploratory and appraisal wells. Prior to the main development of the drilling campaign, the Reservoir Management Team challenged the biostratigrapher to see if biostratigraphy could be used to subdivide the multiple reservoir channels in the field in order to assist in the selection of casing points and well TDs. This study applied high-resolution calcareous nannofossil and foraminiferal analyses to investigate the possibility of intra-reservoir "bioevent" correlation, using precise taxonomic concepts to define a new succession of bioevents within the reservoir intervals. A quantitative analysis was conducted on eight existing appraisal wells that included 500 cutting samples and 41 supplemental core samples.

Eighteen new bioevents were identified within the reservoir sand units in order to differentiate eight different channel sand packages that were encountered in eight existing appraisal wells. The new bioevent scheme was then applied successfully to more recent Raven development wells.

A robust biostratigraphic correlation is very useful when making interpretations about reservoir heterogeneity, connectivity, and size. In addition, a more detailed zonation provides wellsite biostratigraphy that can assist in making operational drilling decisions by reducing stratigraphic uncertainty around casing point and TD calls.