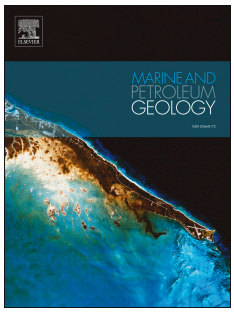
Accepted Manuscript



Depositional and diagenetic controls on deeply-buried Eocene sublacustrine fan reservoirs in the Dongying Depression, Bohai Bay Basin, China

Benben Ma, Yingchang Cao, Kenneth A. Eriksson, Yancong Jia, Benjamin C. Gill

PII: S0264-8172(17)30060-0

DOI: 10.1016/j.marpetgeo.2017.02.014

Reference: JMPG 2821

To appear in: *Marine and Petroleum Geology*

Received Date: 24 October 2016

Accepted Date: 13 February 2017

Please cite this article as: Ma, B., Cao, Y., Eriksson, K.A., Jia, Y., Gill, B.C., Depositional and diagenetic controls on deeply-buried Eocene sublacustrine fan reservoirs in the Dongying Depression, Bohai Bay Basin, China, *Marine and Petroleum Geology* (2017), doi: 10.1016/j.marpetgeo.2017.02.014.

Depositional and diagenetic controls on deeply-buried Eocene sublacustrine fan reservoirs in the Dongying Depression, Bohai Bay Basin, China

Benben Ma[a, b, c*], Yingchang Cao[b**], Kenneth A. Eriksson[c], Yancong Jia[d], Benjamin C. Gill[c]

[a] *Faculty of Earth Resources, China University of Geosciences, Wuhan, 430074, China*

[b] *School of Geosciences, China University of Petroleum, Qingdao, 266580, China*

[c] *Department of Geosciences, Virginia Polytechnic Institute and State University, Blacksburg, VA 24061, United States*

[d] *School of Energy, China University of Geosciences, Beijing, 100083, China*[1]

ABSTRACT

This paper investigates the reservoir potential of deeply-buried Eocene sublacustrine fan sandstones in the Bohai Bay Basin, China by evaluating the link between depositional lithofacies that controlled primary sediment compositions, and diagenetic processes that involved dissolution, precipitation and transformation of minerals. This petrographic, mineralogical, and geochemical study recognizes a complex diagenetic history which reflects both the depositional and burial history of the sandstones. Eogenetic alterations of the sandstones include: 1) mechanical compaction; and 2) partial to extensive non-ferroan carbonate and gypsum cementation. Typical mesogenetic alterations include: (1) dissolution

*Corresponding author: Faculty of Earth Resources, China University of Geosciences, Wuhan, 430074, China; E-mail address: mabenbenupc@163.com (B. Ma)
**Corresponding author: School of Geosciences, China University of Petroleum, Qingdao, 266580, China; E-mail address: cyc8391680@163.com (Y. Cao).