

Microfacies and depositional environmen of the Asmari Formation in 339 well oil field Marun

Sh.azizi*; H.amiriebakhtiar . N .kohansal

Corresponding author : Islamic Azad University North, Branch of Tehran , Student of Basic Sciences Faculty
E-mail address : shahlaazizi78@yahoo.com

Abstract

The Asmari Formation (Oligo- Miocene) is one of the most important hydrocarbon reservoir rock in zagros basin (south west of Iran).

Asmari Formation , in type section consist of 314 m , limestone ,dolomitic limestone and argillaceous limestone .

Asmari Formation consist of 2 members , Evaporate member in the south west of Lurestan and another one is sandstone member in the south of Dezful embayment.

Marun oil field is located at 40 km. from south east of Ahwaz city.

The Thickness of Asmari Formation is about (approximately)360 m.

Litology of Asmari. (At there) is limestone , dolomite and in intercalation of sandstone and shale .

The petrography studies indicate faciesbelts.These lithofaci indicate that sedimentation was occurred in open marine, reef, barrier , lagoon and tidalflat.

This study shows that these sediments may have been deposited in" Homoclinal ramp" .

tidalflat facies

These sediments contain microfacies mudstone(A1) , dolomudstone (A2) and intraclastic wackestone (A3).

The most abundant micritic , coarse grained, evaporate deposition ,fenestral porosity , indicates a low energy ,upper photic and depositional in the upper photic zone .

This facies is equal(equivalent) to Microfacies no.8 (Flugel 2004, Wilson 1975), and this is located in inner ramp . identified facies include dolomitic, porosity ,stylolite

Lagoon facies

These sediments contain microfacies miliolida packstone (B1) , benthic foraminifer wackestone to packstone (B2) , bioclastic benthic foraminifer wackestone to packstone(B3) .

The most abundant benthic foraminifera are milolids, Borelis sp. , Peneroplis sp. , Dendritina rangi , Austerotrillina asmariensis , ..., and micritic matrix is indication of low energy and shallow lagoon deposition environment.

This microfacies is equal(equivalent) to standard microfacies (SMF) no.10,(Flugel 2004 & Wilson 1975), and this is related to Facies belt no.7

Main diagenes processes in this facies are: moldic porosity , fenestral porosity, Dissolution , stylolite .

Barrier facies (C)

These sediments contain microfacies ooid Grainstone. The lack of micritic and abundant Drusy Calcite Cement and texture grained indication of hight energy(turbidity)and shoal depositional environment. This microfacies is equal to standard Microfacies (SMF) no.18, (Flugel 2004 & Wilson 1975), and this is related to Facies belt no.7

Reef facies(D)

These sediments contain microfacies coral reef with by Gasteropoda , Brachiopoda. These microfacies include facies no.4 (flugel 2004, and Wilson1975), and facies belt no. 7. Main Diagenes processes in this facies include cementation .

Open marine facies

These sediments contain microfacies packstone Lepidocyclina(E1) and Wackestone to packstone Benthic foraminifers (Heterostegina sp., Operculina sp., Nummulites spp.,....) The lack of algea , bioclasts and the appearance of perforate foraminifers indication open marine(deep water) and outer ramp .

Depositional environment model of Asmari Formation

The microscopic facies study and the comparing with recent and old sedimentary environment and facies lagoon and tidalflat indicate that the facies of Asmari Formation in understudy section have been appeared in a carbonate ramp of type Homoclinal ramp .

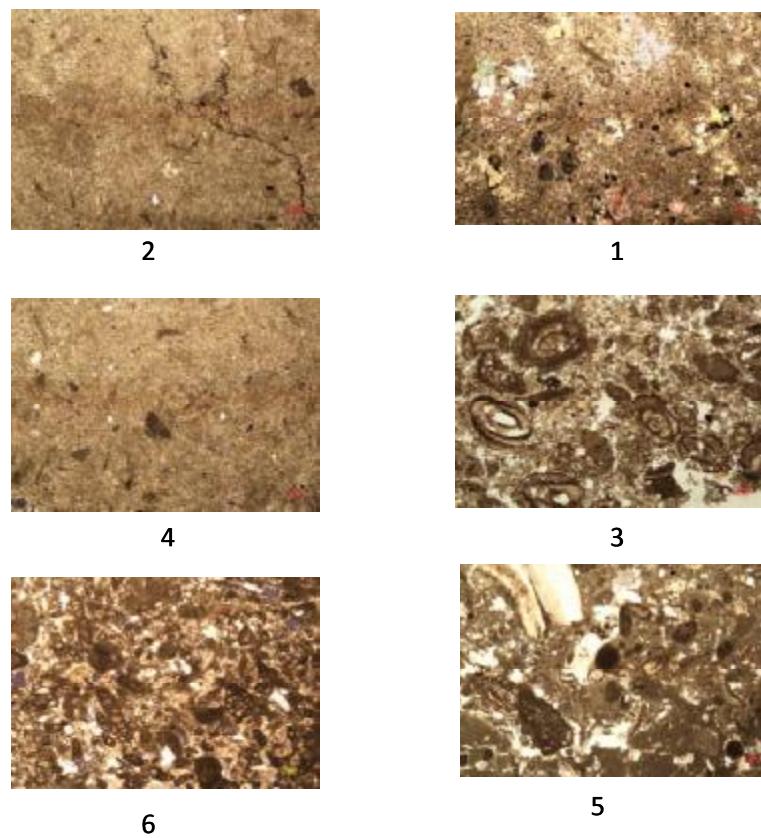


Plate1 . Fig 1. microfacies A1 mudstone – Fig 2 .microfacies A2 dolomudstone – Fig 3. microfacies A3 enteracistic Wacekston – Fig 4. microfacies B1 milioida packstone – Fig 5. microfacies B2 benthic foraminifer wackestone to packstone – Fig 6. microfacies B3 bioclastic foraminifer wackestone to packstone

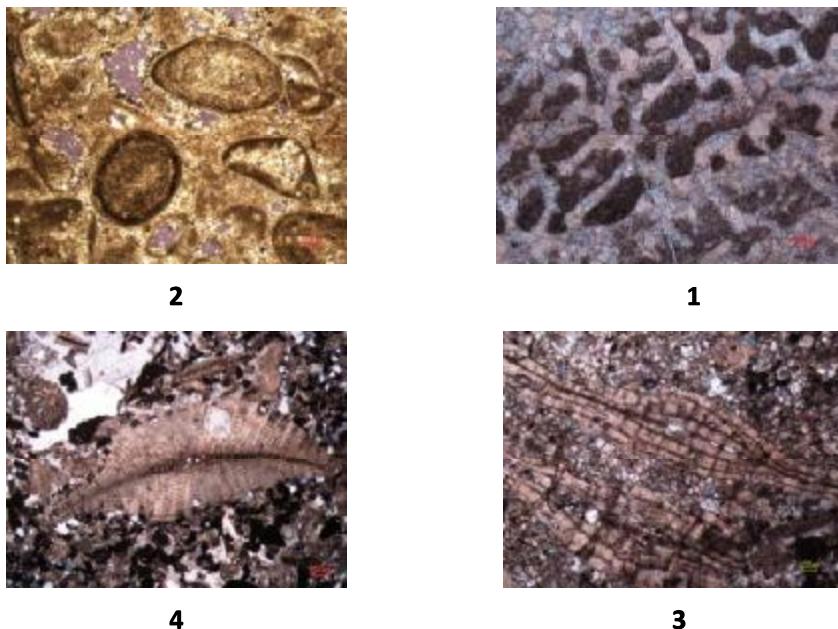


Plate 2 . Fig 1 micro facies C . ooid Grainstone _ Fig. 2 .microfacies D Reef – Fig .4 microfaciers E1 packstone Lepidocyclina _ fig .5 microfacies E2 Wackestone to packstone Benthic foraminifers

References

- Amirshahkarammi, M., Vaziri-moghaddam ,H., Taheri.A., (2007) sedimentary facies and sequence stratigraphy of the Asmari Formation at chaman-bolbol, zagros Basin, Iran. 959 pp
- flugel,E,(2004),Microfacies of carbonate rocks.Anlysis,Interpretation and Application NewYork , springerverlag , 976 pp
- vaziri-moghaddam, H.,Kimiagari, M., Taheri,A.,2006 Depositional environment and sequence stratigraphy of the Oligocene-miocene Asmari Formation in SW Iran,Lali Area. 52 pp
- Wilson,J.L.,1975.Carbonate Facies in Geologic History, NewYork,springerverlag,472pp..