

II. Sequence Stratigraphic Framework

Accurate identification of the sequence boundaries is the base of sequence stratigraphy and establish the sequence stratigraphic framework^[1]. In fact sequence divided is identification and division the characteristics of tectonic movement and unconformity-level^[2, 3]. According to the modern theory of sequence stratigraphy, through the study area all types of logs, logging data, core data combined and combine tectonic evolution of the basin, the Cretaceous sedimentary in the study area is divided into six second-order sequences, fourteen third-order sequence, and AG Group sedimentary fine research, further divided into four sequences^[4, 5].

III. Sequence characteristics and Recognition

The group AG in lower Cretaceous is the first set of formations, formed in the first period faulted sedimentary cycle. Bottom edge is angular unconformity contact with regional Precambrian metamorphic rocks. In the early Cretaceous Period, at the bottom of group AG sedimentary thick shale. By the drilling, the shale is general development in the basin, it is the most important hydrocarbon source rock. Due to the increased water depth and hydrodynamic strength, on the shale the basin start sedimentary sandstone. The Formation sandstone on the GR curve showed obvious features box. On the top of group AG is deposited the shale about 30m, and siltstone lamina, the logging response characteristics of this shale is quite obviously.

After deposition the group AG, tectonic activity intense, the uplift of regional cause erosion, strengthening to the basin edge direction, formation a regional unconformity on the top of group AG, formation big changes on the top surface, the characteristics on the top surface of each well is different. In accordance with this feature and combined with seismic, identifying and classifying top interface of the top surface group AG.

Based on core and log facies, determined Group AG is mainly delta front. During this period lake experienced a number of up and down. Forming a plurality of mid-term base level cycle. High-resolution sequence stratigraphy theory suggests that the change of level cycles must formation different levels of sequence boundaries. Combined with core observation make division and contrast group AG, identified seven third-order sequence(Fig 2).

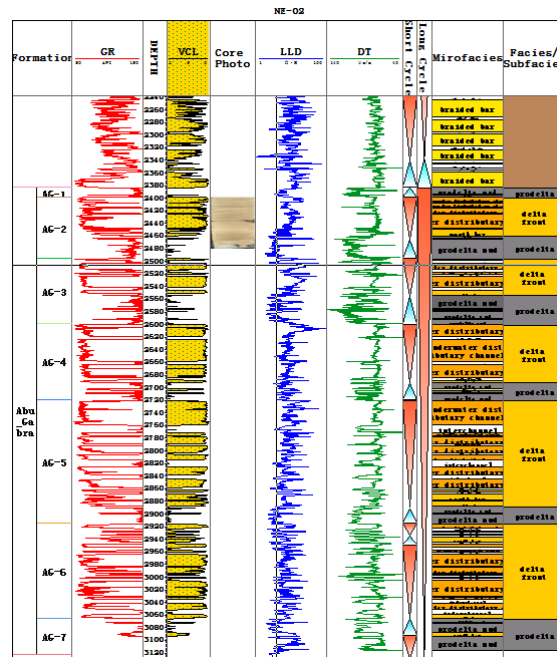


Fig 2 Sedimentary cycles

Group Ben is developed in the late Early Cretaceous, the period is the depression period after the end of the first faulted period. In the period deposition stable, is braided river deposition. As early as the late Cretaceous hydrodynamic gradually become strong, a large number of sandstone have deposition in this time. There is a clear anti-cyclicality on vertical. The formation of group Ben and group Arad is different in well logs. The well logs and lithology have been change.

Group Dar is from upper Cretaceous, at the the second fault time. During this time tectonic movement intense. Forming a large number of contemporaneous fault, Create formation uneven thickness. Top group Dar is a regional unconformity. NE and AZ highlands sedimentary facies is the delta, and fluvial deposits. Therefore, according to the combination of logging sedimentary cyclicity roup Dar will be divided into Ara layer, Za layer, Gh layer and the Ba layer 4 two sequences.

IV. Depositional system types

1. SUBFACIES IDENTIFICATION DIVISION

In sequence stratigraphy based, combine well logging, seismic and core observation, and comprehensive analysis of each well rock type, color, bedding and other construction phase marks, study on Comprehensive predecessors Muglad Basin, study the sedimentary systems in the research area. Identify the main depositional system types include the following four kinds of sub-phase type, delta front, delta plain, braided river sub-facies, meandering river sub-facies.

Ba group, Gh group, Za group and AG group are developed delta sedimentary system. According to lithology type, sand body shape, core analysis and other features, delta depositional system is divided into delta plain, delta front and delta front sub-facies.

Delta front sedimentary facies of fine sandstone lithology, occasional sandstone and coarse sandstone, sandstone colors mostly gray and white, simultaneous presence of small amounts of brown sandstone, overall upward coarsening reverse rhythm, shale thin, It should be the river changed frequently. Delta front sedimentary particles better sorting, circular grinding poor to moderate. Sedimentary structures found mainly developed cross bedding, oblique bedding, parallel bedding and horizontal bedding (Fig 3) according to the study of core data.

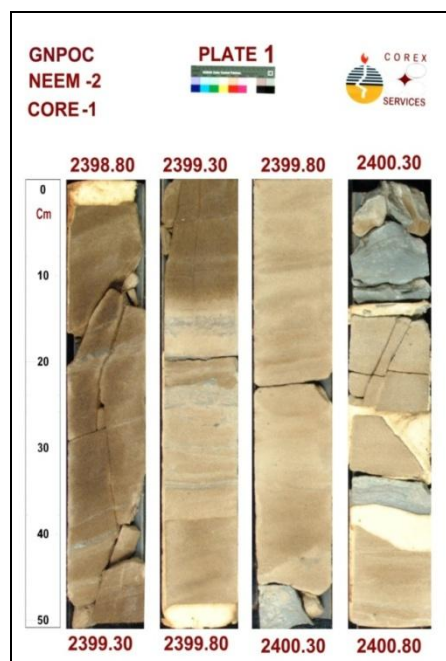


Fig 3 Core photos

Deltaic sediments on the road part is delta plain, depositional environments and sedimentary characteristics and have much in common with fluvial. Deposition ranging from location to fork over a lot of the river estuary sea level. Often gray fine sandstone and fine gray sandstone, mainly fine sandstone, common cross-bedding. Sandstone sorting good, mostly round particle. The main quartz sandstone deposits. Swamp extensive development, in the relative stagnation of reducing environment the formation of a large number of gray-brown clay rock.

The group Ben is braided river deposits, sandstone mainly is light brown quartz sandstone. Coarse and medium sandstone, a small amount of fine-grained sandstone. Photos from the core data can be clearly observed the cross-bedding and scour surface. Sand particles are mostly subround and subangular, medium sorted. Description deposited quickly, did not experience a long period of repeated washing.

The group Arad is meandering river deposits, A large number of shale, large sediment thickness. Mostly sandstone sedimentary is siltstone. Sorting and rounded are well. The main deposits are quartz sandstone, occasionally argillaceous matrix, occasionally kaolinitic cemented, poorly porosity. Channel sands development have cross bedding, horizontal bedding and parallel bedding, general thickness of between 4-8 meters.

2. STUDY ON SEDIMENTARY MICROFACIES

The upper AG group the upper delta front facies, have a large number of underwater distributary channel quartz sandstone, sandstone extends continuously along the river. Central mouth bar deposits are more developed, but far Shaba poorly developed. Ben group development a large number of barrier bar in flood

season, sand development well, constantly superimposed on the vertical, formation a wide range of thick sandstone.

In group AG, It is closely related to the formation of oil and gas reservoirs with lake flooding surface. In deltaic sequence top formation sandstone development well, oil and gas upward migration easy. However, due to the expansion of the maximum flooding surface, generating a new round of sedimentary cycles, mudstone deposited on the bottom of the formation is a cap layer for on previous one cycle sandstone. So that oil and gas in the water phase sequence at the top of each branch channel sandstone reservoir.

V. Conclusion

The use of well logging, core and seismic data, According to well logging about every facies layers, study Ne and Az block sequence stratigraphy combined with sequence stratigraphy, and the application of sequence stratigraphy and sedimentology theory, establish the sequence stratigraphic framework, According to the different levels of Cretaceous sedimentary base level cycle will be divided into six two sequences, 14 third-order and fourth-order.

For each sequence of sedimentary characteristics and sedimentary internal systems were analyzed. Bottom-up river through the water receded and water into two processes, lead to the development of the river has a different depositional systems. Bottom-up respectively delta deposition - braided river - meandering river deposition - delta deposition. The establishment of micro-phase sedimentary sequence indicates a deposit law sandbody. Powerful sand located on top of sedimentary cycles. Early sedimentary sand body poorly developed. The main reservoir is underwater distributary channel sand bodies and braided bar.

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