

Relationship Between Faults and Hydrocarbon Distribution

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Abstrac:-On plane caprock sealing gas zone is relatively large in west, the second is in east and the least is in middle and north. sealing gas zone and its controlling to gas distribution in Nanpu depression are mainly in the following three aspects: ①on plane gas mainly distributed in sealing gas zone; ②on section gas distributed under the caprock in sealing gas zone ; ③on section gas distributed on up and down of the caprock in none sealing gas zone , but it is influenced by the supply level of gas source rock .

Key words:-Nanpu depression; caprock; faulted thickness;

Since conducting faulting cap accumulation within the opening period, the caprock depends crucially on conducting fracture in the upper and lower cap distribution can be formed. If conducting fracture in the upper and lower cap was not connected to the distribution shown in Figure 4a, transporting natural gas can not break through the cap rock migrated upward, the caprock. Conversely, if the conducting fracture in the upper and lower connection cap distribution, as shown in Figure 4b, transporting natural gas through the fracture migrated upward through the is connected to the upper and lower cap research in the accumulation of .

the caprock or not. Due to limited seismic mass cross section on the seismic section determined directly conducting fracture in the upper and lower cap distribution is very difficult, it can only use if there is cap and down to indirectly determine the distribution of natural gas. Different exploratory wells disconnect cap thickness (minus the cap layer thicknessConducting fracture throw) in ascending order, the upper and lower statistical distribution of natural gas, natural gas distribution up and down the cap and the cap has a cap only under the disconnection of gas distribution thickness desired size deemed closure cap the minimum thickness of disconnection. If the disconnect cap thickness greater than the required minimum closing disconnect thickness, conducting fracture therein was not connected to the vertical distribution of the caprock, gas can only be distributed in its next gathering; the contrary, if the thickness of the cover layer disconnect less than the minimum required to meet its closed off thickness, conducting

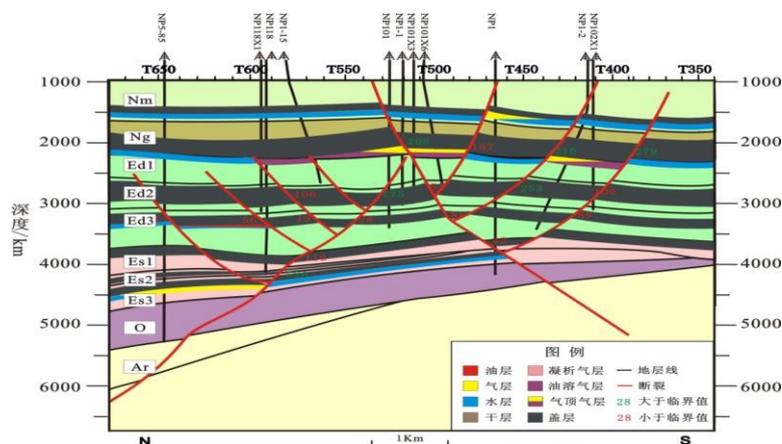


Fig1 Gas reservoir section of 1st structure in Nanpu Depression

accumulation of Nanpu Sag East Sec mudstone caprock sealing gas mainly distributed in the recessed Southwest, eastern distribution only local area, a relatively small area; mainly accumulation of the caprock Museum Volcanic Zone Depression in the Southwest, a relatively small area.

the relationship between Nanpu Sag in shallow accumulation region of the caprock and gas distribution between the mainly in the following two aspects ① accumulation of gas in the caprock area under the distribution of natural gas is mainly distributed in the western sag East under Sec mudstone caprock and Museum volcanic cap; ② accumulation of gas cap is not closed at its upper and lower distribution region, Sag natural gas can be distributed both in the East and mudstone caprock Sec Hall volcanic cap above, and it may be distributed under the East Sec mudstone caprock and volcanic Museum.

REFERENCES:

- [1] Lv Yanfang, Xu Chenlu, Fu Guang et al. Oil-controlling models of caprock-fault combination and prediction of favorable horizons for hydrocarbon accumulation in middle-shallow sequences of Nanpu sag[J]. OIL & GAS GEOLOGY, 2014,01:86-97.
- [2] accumulation in Nanpu sag[J]. Journal of China University of Petroleum : Science and Technology, 2013,01:27-34.
- [3] Sun Yonghe, Zhao Bo, Dong Yuexia et al. Control of faults on hydrocarbon migration and accumulation in the Nanpu Sag[J]. OIL & GAS GEOLOGY, 2013,04:540-549.
- [4] Fu Guang, Yang Jingbo. Sealing of Matching between Fault and Caprock to Oil-Gas Migration along Faults: An Example from Middle and Shallow Strata in Nanpu Depression[J]. Journal of China University of Geosciences: Earth Science, 2013,04:783-791.
- [5] Zhang Shulin, Tian Shicheng, Zhu Yongan et al. Fracture structure and hydrocarbon third migration in Nanpu Depression[J]. OIL & GAS GEOLOGY, 1996,04:262-267.
- [6] Zhu Youguang, Zhang Shuichang, Wang Yongjun et al. Forming Condition and Enrichment Mechanism of the Nanpu Oilfield in the Bohai Bay Basin, China[J]. Acta Geologica Sinica, 2011,01:97-113
- [7] Pang Xiongqi, Huo Zhipeng, Pan Bojiang, et al. Control of source rocks on hydrocarbon accumulation and assessment of gas pools in the Nanpu Sag, Bohai Bay Basin[J]. Natural Gas Industry, 2014, 34(1): 28-36.
- [8] Sun Yonghe, Zhao Bo, Dong Yuexia, et al. Control of faults on hydrocarbon migration and accumulation in the Nanpu Sag[J]. Oil & Gas Geology, 2013, 34(4): 540-549.
- [9] Tong Hengmao, Zhao Baoyin, Cao Zhe, et al. Structural analysis of faulting system origin in the Nanpu Sag, the Bohai Bay Basin[J]. Acta Geologica Sinica, 2013, 87(11): 1647-1661.
- [10] Tian Tao, Jiang Youlu, Wan Tao, et al. A tentative discussion on oil migration orientation: a case study of 1st structural belt of Nanpu sag[J]. Geology in China, 2011, 38(6): 1485-1492.
- [11] Wan Tao, Jiang Youlu, Dong Yuexia, et al. Reconstructed and traced pathways of hydrocarbon migration in Nanpu Depression, Bohai Bay Basin[J]. Earth Science—Journal of China University of Geosciences, 2013, 38(1): 173-180.