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Study of the Triangle-Anti-Flexure Breaking Zone through the South Sungurtau Site by Seismore Exploration-2D Method

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ABSTRACT: This article reveals the geological structure of the area under study, the distribution patterns of zones where oil and gas products are likely to accumulate, and their relationship to various tectonic faults and uplift.

The geological structure of the territory under study is revealed, the zone distribution scheme in which oil and gas products can accumulate, as well as their connection with various textual disorders and raised Abstract

This article reveals the geological structure of the study area, the distribution of zones in which oil and gas products can accumulate, as well as their relationship with various tectonic disturbances and uplift.

KEYWORDS: flexure, discontinuity, profile, horizon, class, inconsistency, dropping, uplift, block, gorst, graben, amplitude.

I.INTRODUCTION

2D seismic surveys in the South Kungurtau area of the Uchbosh-Karshi flexure section were studied on the basis of the General Depth Point Method (UChNU) (Figures 1 and 2).

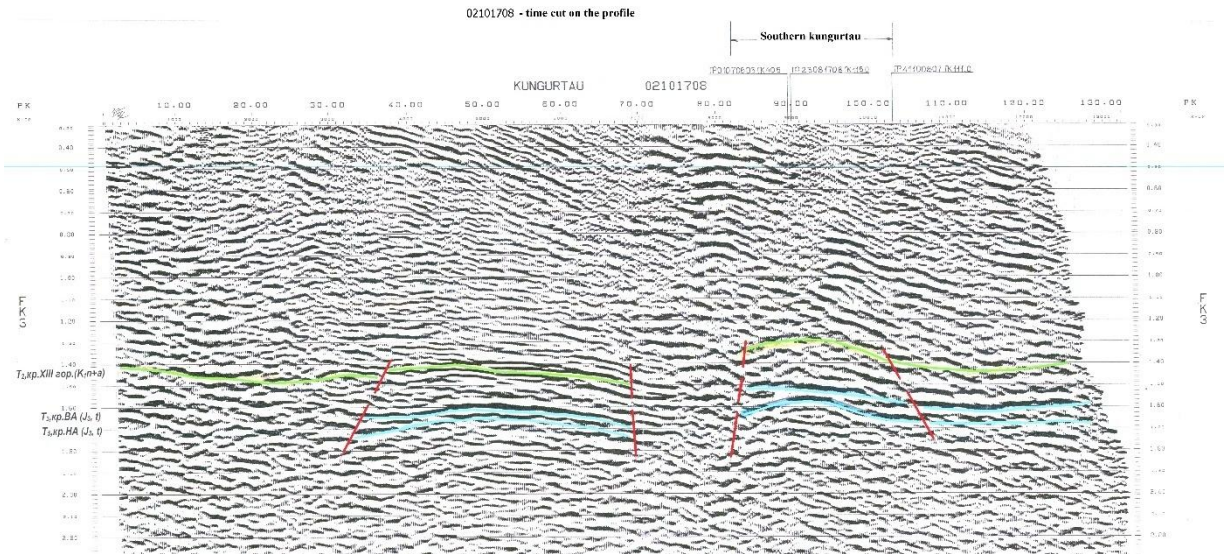

Figure 1. 02101708-Time section cut according to the profile.

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To interpret this processed field data, time cuts are made by correlation. In the search for promising oil and gas deposits, it is necessary to introduce an effective system of seismic exploration and, as a result, to identify non-traditional oil and gas deposits.

Figure 1. Time section structured according to profiles 02101708. This profile crosses the South Kungurtau area to the diary, and in this time section the T2, T3, and T5 return horizons are separated. Correlation is broken near discontinuous structures and raises suspicion when approaching these areas

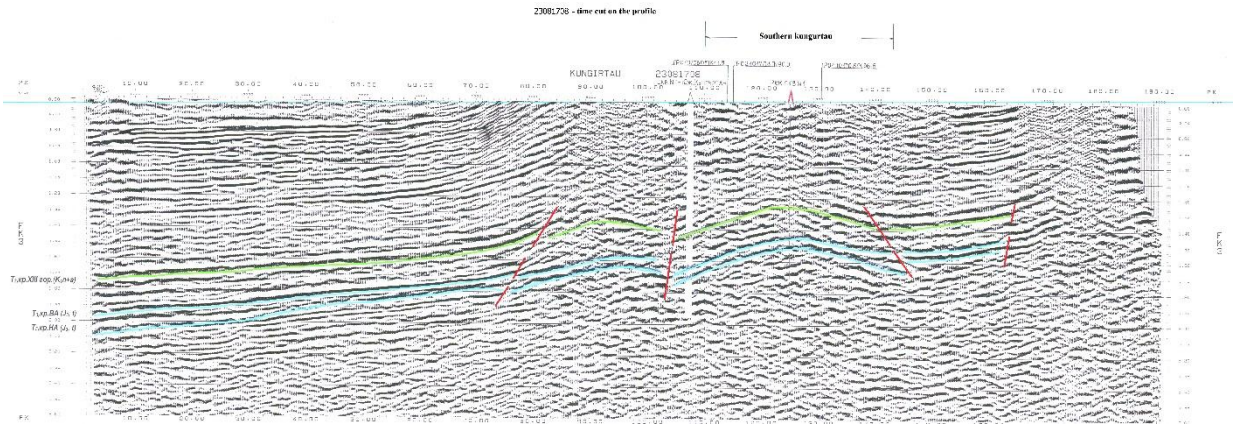

Figure 2. Time section cut according to profile 23081708.

Figure 2. 23081708 time section structured on profiles. This profile crosses the South Kungurtau area transversely, and the T2, T3, and T5 return horizons are separated in this time section. In the recorded records, intermittent disturbances and in other disturbances, characteristic disturbances in the continuity of the phases occur. That is, a violation of the class axis is observed. In addition, there is a significant blurring of the amplitudes without interruption of the phase unit, as well as a significant shift of the reflected waves over time.

The parametric well №1 - South Kungurtau is used in lithological binding of seismic materials. The well section reveals: Turon (0-30m); Senoman (30-270m); Alb (270-520m); Senon (520-853m); Turon (853-1238m); Senoman (1238-1480m); Alb (1480-1724m); Neocom-apt (1724-2400m); Titon (2400-2466m); High anhydrites (2400-2411m); Salt pack (2411-2453m); Oxford-kimeridj (2466-2625m); XV horizon (2466-2520m); XVa horizon (2520-2625m); Kellovey (2625-2720m); XVI horizon (2625-2720m); Terrigen Jura (2720-2750m).

In the lithological section of the well, we can observe inconsistencies in the stratigraphic contacts at 520 m. That is, the formation of a lower chalk deposit over the upper chalk deposit is observed.

Structural mapping of the studied profiles was constructed on the T5 (J3 t) horizon, i.e., on the lower anhydrides of titanium, according to deep drilling data and seismogeological sections (Fig. 3).

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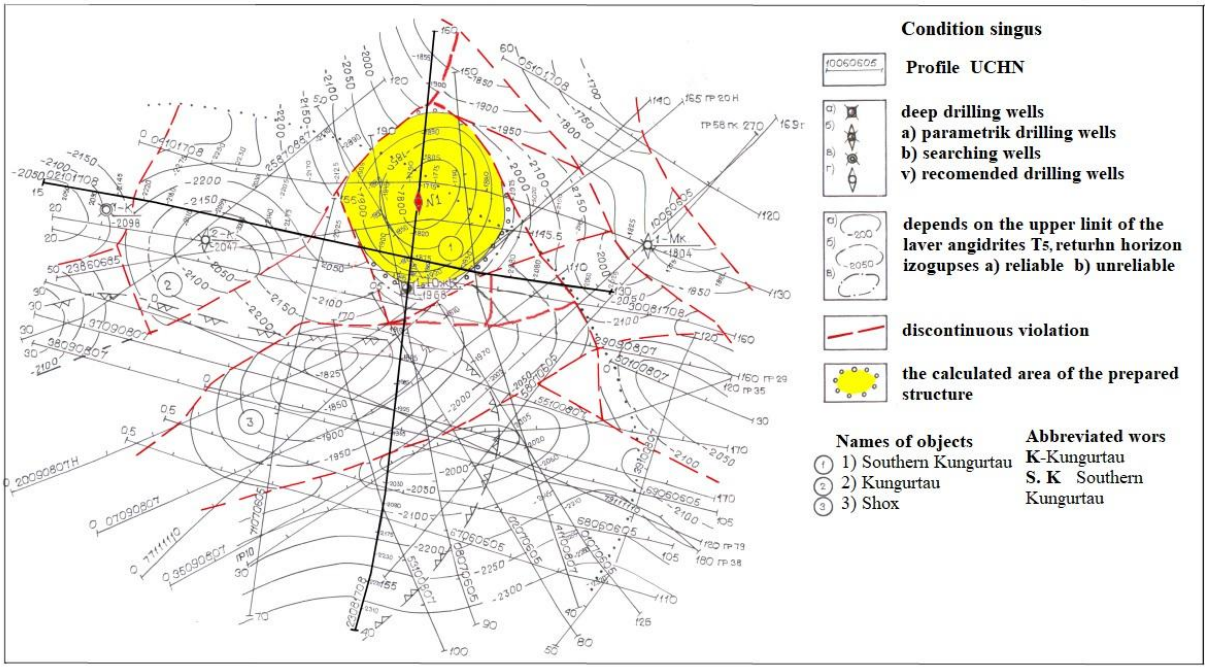

Figure 3. Structural map of the T5 return horizon connected to the upper surface of the lower anhydrites of the South Kungurtau area

cale 1: 50000

By observing the study area in seismogeological profiles, we obtain geological data (Figure 4).

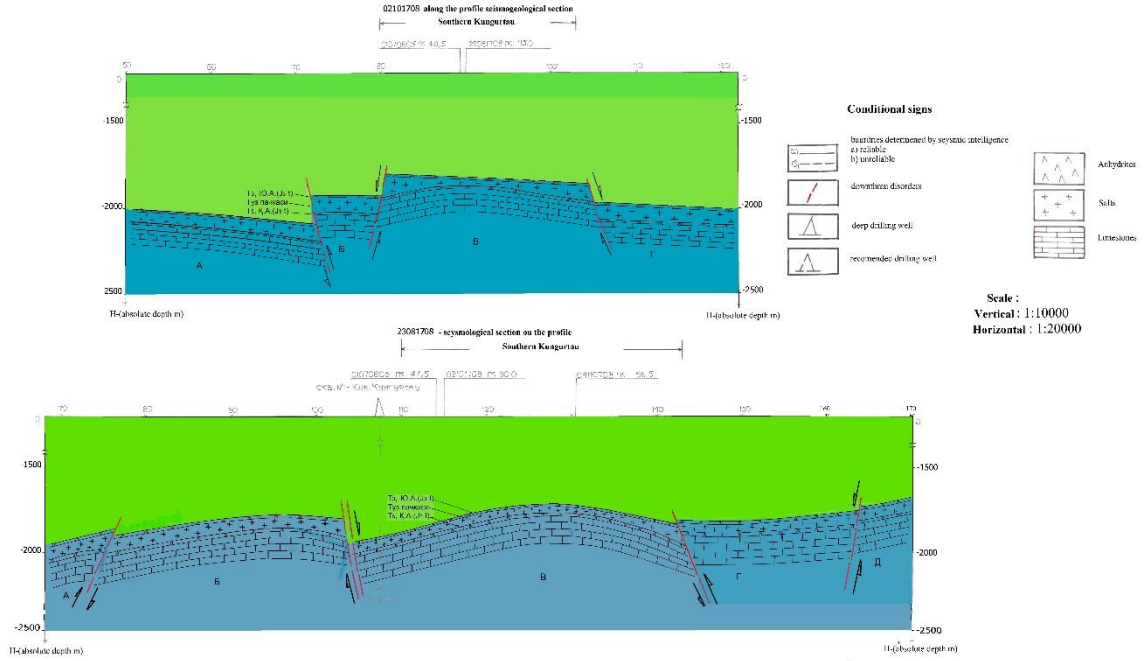

Figure 4. 02101708, 23081708 Seismic section divided by profiles Scale Vertical 1: 10000 Horizontal 1: 20000

Profile 02101708 is oriented along the direction of the Uchbosh-Karshi flexure rupture zone. Interruptions are observed in pickets 32, 74, 82, 105 on this profile. If we divide these divisions into blocks, we will have more

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information about the geological structure of the zone. A (32 ÷ 74PK) block B (74 ÷ 82PK) block uplift, V (82 ÷ 105PK) block dropping, B (74 ÷ 82PK) block, V (82 ÷ 105PK) block G (105 ÷ 130PK) block dropping is happening. Our V (82 ÷ 105PK) blog (structure) under study forms a horst-shaped structure bounded by dropping (Figure 4).

In order to determine the width of the Uchbosh-Karshi flexure rupture zone in the study area, the observation works are carried out by selecting a profile perpendicular to it (Figure 4).

According to profile 23081708, interruptions are observed in pickets 78, 104, 144, 163. A (0 ÷ 78 PK) block B (78 ÷ 104PK) block uplift, B (78 ÷ 104PK) block V (104 ÷ 144PK) block uplift, V (104 ÷ 144PK) block G (144 ÷ 163PK) block dropping, G (144 ÷ 163PK) blocks V (104 ÷ 144PK) uplift relative to block, G (144 ÷ 163PK) block D (163 ÷ 170PK) relative to block S. Our V (104 ÷ 144PK) blog (structure) under study forms a graben-shaped structure bounded by dropping (Figure 4). A noteworthy aspect of these 4 figures is that in each of the fractures the layers, which differ in the shape of the blocks, observe mutually known natural boundaries, i.e, tectonic contacts. If we observe the movement surface of these dropping and uplift, a cross-linking of rocks of different ages and compositions is formed along the surface of the movement. The reason for this is that we know that the surface of motion is formed under the influence of tectonic forces directed vertically and horizontally.

As a result of these analyzes, the width of the Uchbosh-Karshi flexure break zone according to profile 23081708 is 8.5 km. This means that the area under study is not around the Uchbosh-Karshi flexure break zone, but within this zone.

It is now possible to identify the elements of dropping and uplift observed in each of the pickets in the profiles and to consider the breaks along the T3 return horizon, i.e. the upper anhydrite layer.

In the 74th picket of profile 02101708, a uplift was observed and the dimensions of its elements were as follows: amplitude 120m along the movement surface, stratigraphic amplitude 105m, vertical amplitude 115m, horizontal amplitude 80m; At the 82nd picket, dropping was observed and the amplitude of the movement surface was 140m, the stratigraphic amplitude was 130m, the vertical amplitude was 130m, and the horizontal amplitude was 60m; At the 105th picket, the dimensions of the dropping and its elements are: amplitude 105m on the moving surface, stratigraphic amplitude 100m, vertical amplitude 103m, horizontal amplitude 40m. At the 78th picket of profile 23081708, a uplift was observed and the dimensions of its elements were as follows: amplitude 35m along the moving surface, stratigraphic amplitude 30m, vertical amplitude 40m, horizontal amplitude 15m; At the 104th picket, uplift was observed and the amplitude of the moving surface was 120m, the stratigraphic amplitude was 120m, the vertical amplitude was 125m, and the horizontal amplitude was 50m; At the 144th picket, the dimensions of the uplift and its elements are: amplitude 20m on the moving surface, stratigraphic amplitude 15m, vertical amplitude 17m, horizontal amplitude 5-10 meters; At the 163rd picket, the dimensions of the dropping and its elements were: amplitude 20m along the moving surface, stratigraphic amplitude 15m, vertical amplitude 17m, horizontal amplitude 5-10m; is formed.

Since the angle of inclination of the moving surface of all breaks is almost 800, we can include them in the type of vertical breaks.

Based on the above data, the seismic survey UChN-2D method is one of the most effective methods for studying layers that lie at great depths and are promising for oil and gas.

As a result of the research, promising areas for oil and gas in the Uchbosh-Karshi flexure break zone are being assessed.

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