Oil and Gas Exploration in Central Asia During Six Years of the Seven Year Plan

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A large volume of geological, geophysical, and oil exploratory work was accomplished in Central Asia from 1959 to 1964. Many tens of thousands of square kilometers were covered by large scale geological surveys, gravity and aeromagnetic surveys; about 200,000 km of seismic profiles were run; 2,310,000 meters of structural-core drilling and 2,540,000 meters of deep prospecting drilling were accomplished; and 1125 deep wells were tested. Four-fifths of the deep exploration meterage during this period was carried out in Uzbekistan and Turkmenistan; 80% of the structural meterage was also in Uzbekistan and Turkmenia, and 20% in Kirgizia and Tadzhikistan.

Stratigraphic drilling in Central Asia was limited; during the last two years its annual volume was 2,000 m. The annual volume of exploration-prospecting drilling for oil and gas for Central Asia as a whole in 1962-64 was at 400-450 thousand m; 350 thousand m of this was about evenly distributed between Uzbekistan and Turkmenia, and the other 70-80 thousand m between Kirgizia and Tadzhikistan. Parametric drilling decreased in Uzbekistan, Kirgizia, and Tadzhikistan; its annual volume in 1962-64 was 15-20 thousand m.

Analyzing the volumes of geological exploration, it is necessary to distinguish deep prospecting drilling. See Table 1. These data show that the volume of this type of drilling decreased in individual regions of Central Asia.

The annual number of deep wells completed (tested) for 1962-64 was also lower when compared with 1959-61. It is evident from Table 1 that the yearly volumes of exploration drilling have increased more than 2.6 times during the six year period. The total volume of exploration drilling in Central Asia during the previous six years (1952-57) was 108,000 m, and in the last six years (1959-66) it increased to 218,000 m. Due to these increases in exploration drilling, its share in the total meterage for Central Asia rose to the level of the national average: in 1963-64 for the USSR it accounted for 51%, and for Central Asia it was 47-57%.

The situation is unfavorable with respect to deep prospecting drilling in Central Asia; this becomes very obvious in comparison of these figures with rates for the USSR as a whole. This annual national average volume of prospecting drilling in 1962-64 increased by 45-50% in comparison with 1958, whereas for Central Asia the increase was 25-30%. Minimum rates during this period were characteristic for Kirgizia and Uzbekistan; they were somewhat higher for Turkmenia and very high for Tadzhikistan. In 1958 Central Asia accounted for 10.3% of the total national volume of prospecting drilling, but in 1962-64 this share dropped to 8.7-9%. About the same ratios are observed for the number of completed (tested) deep prospecting wells. The graph in Fig. 1 shows that the actual annual volumes of prospecting drilling are much lower than the control figures for the Seven Year Plan (1959-65) and do not even reach the level of the revised plans of each year of the last five years.

Structural-core drilling was in a better situation. From 300,000 m in 1959 its volume increased more than 1.5 times to 524,000 in 1964. Its volume in 1964 for the USSR was 13% above that of 1958, whereas for Central Asia it increased 87% during this period. Maximum rates of growth of this type of drilling were achieved in Uzbekistan and Tadzhikistan. These increases are due in considerable measure to the fact that Central Asia is in the primary stage of study of its geology. However, the advisability of increasing structural-exploration drilling on productive strata that occur at depths of 300-3500 m under conditions of discordance of structural plans requires special study.

Capital outlays on exploration in Central Asia are presented in Table 2. These data show an annual increase in expenditures. The annual meterage increased only 10% by 1963 and 17% by 1964 in comparison with 1959, whereas annual expenditures for these periods increased 70 and 93%, respectively. As was noted above, the share of deep prospecting meterage for Central Asia dropped from 10.3% of the total for the country in 1958-59 to 8.7-9.0% in 1962-64, whereas the share of expenses rose from 11.0-11.3% to 13.1-13.6% for these some periods. These data indicate substantial changes in the structure of the capital outlays for exploration in Central Asia.

During the period 1959-64 very large expenditures were made on exploration (wildcat) drilling and geophysical methods of prospecting. The share of exploration drilling in the total outlays for geological exploration increased from 12-14% in 1958-59 to 32-43% in 1963-64, and from 19% on geophysical (largely seismic) in 1958 to 25% in 1964. The other expenditures on geological exploration remained essentially unchanged.