Classification of Oil and Gas Fields According to Their Reserves

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Giant fields have enormous importance because they contain most of the world’s reserves. In spite of this, their classification is not clear.

In “Handbook of oil and gas fields of foreign countries” (Moscow, “Nedra,” 1976), five categories of fields are recognized according to their initial recoverable oil reserves (Table 1). Vysotskiy classifies as giants those fields that have initial recoverable reserves greater than 500 million tons. Moody classifies a giant as one having reserves greater than 500 million barrels (68.5 million tons).

Bakirov (1972) proposed a classification of fields based on a log normal distribution of reserves (Table 1). In this classification oil reserves of higher categories are differentiated in greater detail.

There is much interest in the classification of oil fields according to oil in place (Table 2) by Kontorovich and others (1975). However, data on oil in place is less reliable.

According to Nering (1978), giants are those fields with reserves greater than 70 million tons (Table 3), the same as with Moody (68.5 million tons). However, Nering recognizes three groups: large (275-700 million tons), medium (135-275 million tons), and small (70-135 million tons). He also recognizes a super-giant category with more than 700 million tons of extractable reserves. The Nering and Vysotskiy category boundaries are different, and therefore comparison is not possible.

Any classification of fields should meet the following five conditions: First it should include determined (recoverable) reserves and not total resources. Second, it should be detailed but not cumbersome. Third, it should be rigid and at the same time have a simple mathematical base. Fourth, the rule of multiplicity is desirable - the ratio of reserves of individual groups of fields should be expressed by whole numbers (for example, 1, 10, 100). Fifth, the classification should have continuity with existing classifications, in spite of their differences.

The classification given in Table 4 meets the above requirements more or less. The subdivision of fields with reserves greater than 500 million tons is due to their extreme important role in total oil and gas reserves of the world. These account for more than half the world reserves.