

The Technique of Rational and Dynamic Production Allocation of Shale Gas Wells in Jiaoshiba Block, Fuling Area

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ABSTRACT

The characteristics of flow, productivity reduction and production of shale gas wells in the Jiaoshiba Block of Fuling Gas Field can be summarized as variations in different production stages and different regions. At present, a production allocation technique is not available for such shale gas wells. Under such circumstances, studies have been conducted for rational and dynamic production allocation of shale gas wells in Jiaoshiba Block, Fuling Area. With consideration to field practices of shale gas production around the world, stress sensitivity testing results of shale core and actual production of shale reservoirs in the block, the production mode with constant productivity under properly controlled pressures was developed. In addition, taking into consideration production allocation techniques for conventional gas reservoirs and field production features of shale gas wells in the Block, rational production allocation parameters for shale gas wells with various productivities were identified through application of production allocation method of gas production indication curve and the unsteady productivity analysis techniques. With the introduction of concepts related to rational and dynamic production allocation of shale gas wells in different zones and stages as well as patterns of gas well productivities in different zones, production allocation can be achieved by adjusting proper production allocation parameters in accordance with present cumulative productivity of the wells. The newly-developed technique has been applied in production allocation in the Jiaoshiba Block of the Fuling Gas Field. In addition to satisfying the three-year steady productivity requirements for shale gas wells in the Block by using production allocation, the technique can effectively enhance recovery rates and economic performances of shale gas reservoirs.