

Subsurface Geology Exercise

Subsurface Geology is the applied basic discipline which is researched oil and gas field evaluation and development geology problems. The research of subsurface geology covers a wide range with strong comprehensiveness, high practicability and fast development speed.

To adequately evaluate subsurface geologic phenomena in the areas of petroleum, the petroleum geologists and reservoir engineers must be thoroughly knowledgeable of the fundamentals and complicated of subsurface geology to interpret complicated subsurface stratigraphic and structural relationships. The subsurface geologists and reservoir engineers must be experienced to compile and to synthesize geologic parameters and have experienced subsurface mapping that has studied analysis of fold, faults, unconformities, facies changes, etc.

As a basic course, the students should master the basic process of subsurface geological work, and the compilation and application of subsurface geological foundation maps of oil and gas fields, as well as master the basic requirements of geological logging, formation testing and geological mapping and the ability to further analyze the reservoir. The contents and technical methods of subsurface geological research in oil and gas fields need to be strengthened through practice.

The practice includes 6 exercises from single well comprehensive interpretation to geological mapping and pressure calculation, which is helpful to train students' comprehensive analysis ability and mapping skills. It mainly includes three aspects: the first part is single well geological evaluation, including compilation of completion summary map and identification of oil, gas and water layers. The second part is the study of subsurface geological structure of oil and gas fields, which is the focus of this discipline. Through the comparison of drilling geological profiles, stratigraphic sequences are established, and then the study of stratigraphic characteristics is carried out. Through the analysis of subsurface geological mapping and reasonable geological inference, the temporal and spatial distribution characteristics of strata, structures and oil and gas bearing properties are reproduced, and the concept of time and spatial evolution of the study area is established to guide further exploration. This part mainly includes formation correlation and cross section profile mapping. The third part is the study of oil and gas reservoirs, including the formation pressure and formation temperature research and oil and gas reserves calculation.

The practice contains the main research contents and technical methods of the subsurface geology. It will good for understanding subsurface geology research and master the research methods.