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## Scientific drilling project of MK-2 well for gas hydrate exploration in Mohe basin of China

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MK-2 well is located in Mohe Basin, Northeast China. In 2011 -2013, Jilin university complete scientific drilling project MK-2 well for gas hydrate under the organization of the China Geological Survey. This paper would show the research of drilling project of MK-2 well, the drilling equipment and processes for gas hydrate used in the entire construction process. The drilling depth of MK-2 was 2300m and the end borehole diameter of well was 77.5 mm. The large diameter rope coring drilling tools were used for the whole well coring.

The conventional drilling equipment choose HXY-8 rig, SG-24-type drill tower and BW-320 mud pump[1]. The well control system was used to prevent the blowout caused by the gas hydrate dissociation, and two platforms were designed to install the control system. The refrigeration system was a kind of drilling



equipment necessary for gas hydrate drilling, which could cool the drilling mud and keep the well at a low temperature. In this system, the refrigeration unit was for cooling by an coaxial heat exchanger to reduce the temperature of mud using refrigerant glycol as a carrier [2] . The solid control system could guarantee the mud performance under a low temperature, which included grit removal equipment and degassing equipment. The drilling parameter detection system was configured to detect the WOB, rotational speed, pump pressure, the pump output, mud temperature, flammable gases in the process of drilling real-time, which could also improve the drilling efficiency, meet hydrate drilling requirements.

This research of Scientific Drilling Project MK-2 well could set a successful example for the drilling procedures of gas hydrate in permafrost, and has a very important implication for the development of gas hydrate drilling work in the future.

Figure 1: Scientific Drilling Project site of MK-2

References:

- [1] Yu L, Zhao D J, Sun Y H et al. (2011) Exploration Engineering : Rock & Soil Drilling and Tunneling 6:13-16
- [2] Zhao J P , Sun Y H, Guo W et al. (2010) Energy Exploration & Expoitation 28(5),351-364

