Application of Digitization to Long Distance Oil Pipeline Leakage Diagnosis

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Abstract

Along with the rapid development and widespread application of digital technology, the digitization information technology has already become one important part of the long-distance oil pipeline leakage diagnosis. This article combines the correlation technology of digitization with the present problems which comes in the western crude oil & product oil pipeline leakage diagnosis, integrates each other organically, makes good use of the merits of digitization technology and finds out the new technology direction to the pipeline leakage diagnosis. In the process of security operation of the western crude oil & product oil pipeline, through the digitization technology, we constructs the database, the long-distance on-line digitization monitoring module as well as the real-time digitization leakage warning module in order to come true the long-distance dynamic monitoring, realize the management digitization and the security operation digitization. At the same time, the digitization technology will entirely record the target parameters including the oil temperature, the oil velocity, the wall thickness of pipeline and the elevation etc between each monitoring position (including the stations and the valve chambers). Once the fault or the leakage comes out in the pipeline, the digitization technology will be able to quickly and accurately display the information such as the fault position, the liquid leakage rate, the peripheral geographical environment and so on, and sends out the acousto-optic warning information, so that the safety operation personnel in production can carry out the safety maintenance according to alarm information. Furthermore, for the interference signal, namely non-leakage signal, the digitization technology can carry on the effectively elimination in order to avoid the false alarm. Therefore, the digitization technology which will be applied to the long-distance oil pipeline leakage diagnosis has lots of merits such as real time, accuracy, convenience, quickness and security etc, and it will be able to enhance the management level to the pipeline security operation and the economic benefit so that it will have a good development prospect.

Keywords : digitization ; pipeline ; leakage diagnosis