

UDC 622.24

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WORK AND OPERATION OF THE PREVENTER UNIT

The preventive installation is mounted under the base of the tower block. Depending on the conditions of the well wiring, the mouth can be equipped with a preventive device already when drilling a shaft under a casing with a diameter of 377 mm. This is how exploratory and sea wells were equipped in new areas. The installation and operation of preventive installations must be carried out in accordance with the safety rules in the oil and gas production industry. The preventer unit is pressurized with water at the pressure allowed by the casing (but not more than the test pressure of the unit) for 30 minutes.

The hydraulic control system is pressurized with an oil pressure of 10 MPa for 5 minutes. Before pressing, it is necessary to pull out a clip with a rubber diaphragm designed for a pressure of 0.5 MPa from the cutter. After pressing, the clip is installed in place, the cover of the cutter is tightened. In the manifold, the tightness of the shutters of all the valves, the operation of the hydraulic control system of the working valves, the cleanliness of the holes of the discharge plugs, and the reliability of the fastening of their casings are consistently checked.

The tightness of the rubber sealing rings between the rod and the cover of die preventers is checked by unscrewing a special plug on the cover.

By pressing the universal preventer, the opening and closing of the seal, the tightness of the seal and the cuff are checked [1]. The oil tank is filled with AMG-10 or DP-8 oil, depending on the season of operation, and the batteries are filled with nitrogen to a pressure of 6-6.5 MPa. Check the correctness of the adjustment of the electrocontact pressure gauge and the indications of other pressure gauges. Air jams are eliminated in the hydraulic system by repeatedly closing and opening the preventer and valves with all distributors until the time of their closing becomes constant. After that, the batteries are charged to a pressure of 10 MPa.

When drilling a well, the preventive unit works in four modes:

- a) normal well drilling process;
- b) the readiness of the installation to seal the well when passing layers with possible manifestations;
- c) the work of the preventive installation during the period of the beginning of manifestations and their elimination;
- d) operation of the preventer installation as a fountain armature in an emergency (if it is impossible to remove the preventers and install the fountain armature).

During the normal well drilling process, the preventers and valves are open, except for the valves on the leads to the pumps, units and regulating fittings, which are in the closed state. Clay mortar cut-offs must have diaphragms, quick-change fittings must be without nozzles. In the event of failure of clay mortar breakers, the working latches on the strings are closed. In this position, it is allowed to work for no more than 16 hours, then the breakers must be brought into working condition [2]. When the installation is ready to close the wellhead, the hydraulic system maintains a pressure of 10 MPa. To close any preventer or latch, it is enough to put the handle in the "closed" position. During this period, it is especially important to check the serviceability of the preventers and latches before each lowering and raising of the drilling tool, and to wash the universal preventer with water.

During the development of the well, the procedure for working with the preventive installation is as follows. Before closing the preventers, the opening of the latches, which are in the open state during the normal drilling process, is checked. Close the preventer and observe

the readings of the manometers. After closing the preventer, the working latches on the strings, installed in front of the tee and cross, are closed. As soon as the pressure in the strings reaches the value indicated in the geological and technical outfit, the gas in the chamber is stirred up by opening the working valves on the strings. When a clay solution appears, the working valves are closed and the pressure is monitored on the manometers. This operation is repeated until the pressure on the preventer emissions at the moment of valve opening increases to the limit specified in the geological and technical order. In this case, as a precaution, the electricity is turned off, the diesel engines are turned off, the operating valves are opened, and the well products are directed into the container. If necessary, by connecting drilling or cementing pumps to the leads of the working strings, the well can be blocked.

You should be especially responsible for regulating the pressure in the well with quick-change or regulating fittings.

Depending on the specific conditions of drilling, the order of operation of the preventive installation during the period of development of the well may be changed. The open fountain is being eliminated according to a specially developed plan.

When developing a well, various complications may arise with casing pipes, drilling tools, or with wellhead equipment, in which case the preventer installation cannot be dismantled. In this case, the product obtained from the well is sent along the working strings of the preventive installation to the storerooms. At the same time, in an emergency situation, the mouth equipment is bound with valves and fittings of the fountain fittings and this binding is combined with the product pipeline prepared for the period of operation of the well. The well is operated with preventive equipment installed on the mouth. In some fields of the North Caucasus, Azerbaijan and Central Asia, well production (oil, oil with gas or gas) has the following parameters. The pressure on the mouth when the valves are closed is 50-60 MPa, the pressure on the mouth when the diameter of the fitting is 10 mm is 35-45 MPa, while the temperature at the mouth of the well reaches 120-135 °C. The throughput of wells with a 10-mm fitting reaches 1000 t/day with a gas factor of 500-600 m³ of gas/t of oil.

Often there are corrosive components in the well product, where, for example, the content of carbon dioxide in the product reaches 5-8%, and hydrogen sulfide - 6-10%. Increased requirements are placed on the preventive installation mounted on the wellhead drilled in such difficult conditions. First, all rubber elements of the seals must be oil and gas resistant, sufficiently heat resistant and durable in these operating conditions. It should be borne in mind that it is impossible to change almost all seals while the well is in operation. Secondly, all connections with both metallic and non-metallic seals must ensure complete tightness throughout the life of the well. Thirdly, castings of casing parts of the preventer installation must be tight during the entire period of well operation.

References:

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