

SECTION 7-B INSPECTION AND TESTING — SUBSEA INSTALLATIONS

SURFACE INSPECTION AND TESTING

7.B.1 Prior to delivery to an offshore drilling unit, visually inspect the preventers, spools, high pressure connector, and kill and choke valves for condition of bodies, machined surfaces, grooves, actuating rods, rams, seals, and gaskets. Inspect in accordance with procedures in Par. 7.A.2.a-d.

7.B.2 Test each individual component of the blowout prevention system to be utilized in test facilities under shop conditions to rated working pressure utilizing procedures outlined in Par. 7.A.2.e. Following unitization in the shop, test entire unit for proper operation using the hydraulic closing system. Test the closing system to 3000 psi. Pressure test each preventer and high pressure connector for low pressure (200 psi) leaks and to rated working pressure. Record the date and results of inspection and tests on the shipping tags.

7.B.3 After delivery to an offshore drilling unit, install the unitized blowout prevention system on a prepared test stump. A low pressure and rated working pressure test of each component as in the off-site procedure (Par. 7.B.2) should be repeated and properly recorded in the well log. Test record should include opening and closing times and hydraulic fluid volumes required for each function. Subsequent pressure tests should be limited to 70% of the rated working pressure of the blowout preventer stack or the anticipated surface pressure, whichever is greater. Full rated working pressure tests should be limited to one test following any major ram cavity repair work.

7.B.4 The blowout prevention system should be visually inspected and pressure tested in accordance with Par. 7.B.3 before rerunning on a well.

SUBSEA TESTING

7.B.5 The blowout prevention system should be operated on each trip but not more than once every 24 hours during normal operations. The annular preventers need not be operated on each trip. They must, however, be operated in conjunction with the required pressure tests and at an interval not to exceed seven days. The peri-

odic actuation test is not required for the blind or blind shear rams. These rams need only be tested when installed and prior to drilling out after each casing string has been set. A record of these tests should be maintained in the well log and should include closing and opening times and pressures and volumes of hydraulic fluid for each function.

7.B.6 Pressure tests of the subsea system should be conducted after installation, after setting casing, and before drilling into any known or suspected high pressure zones. Otherwise, these tests should be conducted at regular intervals but not more than once every week. On installation of the blowout preventer stack, each component including the high pressure connectors should be individually pressure tested at a low pressure (200 psi) and to the greater of 70 percent of rated working pressure or the maximum pressure expected in the upper part of the casing. Subsequent pressure tests may be limited to the lesser of 70 percent of the rated working pressure of the blowout preventers or 70 percent of the minimum internal yield strength rating of the upper part of the casing, provided the test pressure equals or exceeds the maximum pressure expected inside the upper part of the casing. An exception is the annular preventer which may be tested to 50 percent of its rated working pressure to minimize pack-off element wear or damage. A test plug or cup type tester should be used (refer to Section 7-A). Precautions should be taken not to expose the casing to test pressures in excess of its rated internal yield strength. A means should be provided to prevent pressure buildup on the casing in the event the test tool seals leak. Actuation testing of pipe rams should not be performed on moving pipe.

7.B.7 The subsea blowout prevention system is dependent on surface actuated hydraulic, pneumatic, and electric controls. The design of this prevention system is dependent on water depth and environmental conditions and should have an adequate backup system to operate each critical function. It is equally important to pressure and operationally test this system concurrently with the blowout preventers and connectors.