maintained on the rig floor to fit all connections that are in the drill string. A wrench to fit the drill-string safety valve shall be stored in a location readily accessible to the drilling crew.

(iii) A safety valve available on the rig floor assembled with the proper connection to fit the casing string being run in the hole.

(11) Locking devices installed on the ram-type preventers.

(e) *Subsea BOP requirements.* (1) Prior to drilling below surface and intermediate casing, a BOP system shall be installed consisting of at least four remote controlled, hydraulically operated BOP's including at least two equipped with pipe rams, one with blind-shear rams, and one annular type. A subsea accumulator closing unit or a suitable alternate approved by the District Supervisor is required to provide fast closure of the BOP components and to operate all critical functions in case of a loss of the power fluid connection to the surface. When proposed casing setting depths or local geology indicate the need for a BOP to provide safety during the drilling of the surface hole, the District Supervisor may require that a subsea BOP system be installed prior to drilling below the conductor casing.

(2) The BOP system shall include operable dual-pod control systems necessary to ensure proper and independent operation of the BOP system functions when drilling below the surface casing.

(3) Prior to the removal of the marine riser, the riser shall be displaced with seawater. Sufficient hydrostatic pressure or other suitable precautions, such as mechanical or cement plugs or closing the BOP, shall be maintained within the wellbore to compensate for the reduction in pressure and to maintain a safe controlled well condition.

(4) Any necessary repair or replacement of the BOP system or a system component after installation shall be accomplished under safe controlled conditions, (e.g., after casing has been cemented but prior to drilling out the casing shoe or by setting a cement plug, bridge plug, or a packer).

(5) When a subsea BOP system is to be used in an area which is subject to ice scour, the BOP stack shall be placed in an excavation (glory hole) of sufficient depth to assure that the top of the stack is below the deepest probable ice-scour depth.

(f) *Surface BOP requirements.* Prior to drilling below surface or intermediate casing, a BOP system shall be installed consisting of at least four remote controlled, hydraulically operated BOP's including at least two equipped with pipe rams, one with blind rams, and one annular type.

(g) *Tapered drill-string operations.* (1) Prior to commencing tapered drill-pipe operations, the BOP stack shall be equipped with conventional and/or variable-bore pipe rams installed in two or more ram cavities to provide the following:

(i) Two sets of pipe rams capable of sealing around the larger size drill string, and

(ii) One set of pipe rams capable of sealing around the smaller size drill string.

(2) Subsea BOP systems shall have blind-shear ram capability. Surface BOP systems shall have blind ram capability.

[53 FR 10690, Apr. 1, 1988. Redesignated and amended at 63 FR 29479, 29485, May 29, 1998; 63 FR 29607, June 1, 1998]

### § 250.407 Blowout preventer (BOP) system tests, inspections, and maintenance.

(a) *BOP pressure testing timeframes.* You must pressure test your BOP system:

(1) When installed;

(2) Before 14 days have elapsed since your last BOP pressure test. You must begin to test your BOP system before 12 a.m. (midnight) on the 14th day following the conclusion of the previous test. However, the District Supervisor may require testing every 7 days if conditions or BOP performance warrant; and

(3) Before drilling out each string of casing or a liner. The District Supervisor may allow you to omit this test if you did not remove the BOP stack to run the casing string or liner and the required BOP-test pressures for the next section of the hole are not greater than the test pressures for the previous BOP test. You must indicate in your

APD which casing strings and liners meet these criteria.

(b) *BOP test pressures.* When you test the BOP system, you must conduct a low pressure and a high pressure test for each BOP component. Each individual pressure test must hold pressure long enough to demonstrate that the tested component(s) holds the required pressure. Required test pressures are as follows:

(1) All low pressure tests must be between 200 and 300 psi. Any initial pressure above 300 psi must be bled back to a pressure between 200 and 300 psi before starting the test. If the initial pressure exceeds 500 psi, you must bleed back to zero and reinitiate the test. You must conduct the low pressure test before the high pressure test.

(2) For ram-type BOP's, choke manifold, and other BOP equipment, the high pressure test must equal the rated working pressure of the equipment or the pressure otherwise approved by the District Supervisor; and

(3) For annular-type BOP's, the high pressure test must equal 70 percent of the rated working pressure of the equipment or the pressure otherwise approved by the District Supervisor.

(c) *Duration of pressure test.* Each test must hold the required pressure for 5 minutes.

(1) For surface BOP systems and surface equipment of a subsea BOP system, a 3-minute test duration is acceptable if you record your test pressures on the outermost half of a 4-hour chart, on a 1-hour chart, or on a digital recorder.

(2) If the equipment does not hold the required pressure during a test, you must remedy the problem and retest the affected component(s).

(d) *Additional BOP testing requirements.* You must:

(1) Use water to test a surface BOP system;

(2) Stump test a subsurface BOP system before installation. You must use water to stump test a subsea BOP system. You may use drilling fluids to conduct subsequent tests of a subsea BOP system;

(3) Alternate tests between control stations and pods. If a control station or pod is not functional, you must suspend further drilling operations until that station or pod is operable;

(4) Pressure test the blind or blind-shear ram during a stump test and at all casing points. Additionally, the interval between any blind or blind-shear ram tests may not exceed 30 days;

(5) Function test annulars and rams every 7 days between pressure tests;

(6) Pressure-test variable bore-pipe rams against all sizes of pipe in use, excluding drill collars and bottom-hole tools;

(7) Test affected BOP components following the disconnection or repair of any well-pressure containment seal in the wellhead or BOP stack assembly;

(8) Actuate safety valves assembled with proper casing connections prior to running casing, and

(9) If you install casing rams, you must test the ram bonnet before running casing.

(e) *Postponing BOP tests.* You may postpone a BOP test if you have well-control problems such as lost circulation, formation fluid influx, or stuck drill pipe. If this occurs, you must conduct the required BOP test on the first trip out of the hole. You must record the reason for postponing any test in the driller's report.

(f) *Visual inspections.* You must visually inspect your surface and subsea BOP systems and marine riser at least once each day if weather and sea conditions permit. You may use television cameras to inspect subsea equipment. The District Supervisor may approve alternate methods and frequencies to inspect a marine riser. Casing risers on fixed structures and jackup rigs are not subject to the daily underwater inspections.

(g) *BOP maintenance.* You must maintain your BOP system to ensure that the equipment functions properly.

(h) *BOP test records.* You must record the time, date, and results of all pressure tests, actuations, and inspections of the BOP system, system components, and marine riser in the driller's report. In addition, you must:

(1) Record BOP test pressures on pressure charts;

(2) Have your onsite representative certify (sign and date) BOP test charts and reports as correct;

(3) Document the sequential order of BOP and auxiliary equipment testing and the pressure and duration of each test. You may reference a BOP test plan if it is available at the facility;

(4) Identify the control station or pod used during the test;

(5) Identify any problems or irregularities observed during BOP system testing and record actions taken to remedy the problems or irregularities;

(6) Retain all records, including pressure charts, driller's report, and referenced documents, pertaining to BOP tests, actuations, and inspections at the facility for the duration of drilling; and

(7) After drilling is completed, you must retain all the records listed in paragraph (h)(6) of this section for a period of 2 years at the facility, at the lessee's field office nearest the Outer Continental Shelf (OCS) facility, or at another location conveniently available to the District Supervisor.

(i) *Alternate methods.* The District Supervisor may require, or approve, more frequent testing, as well as different test pressures and inspection methods, or other practices.

[63 FR 29607, June 1, 1998]

### § 250.408 Well-control drills.

(a) Well-control drills shall be conducted for each drilling crew in accordance with the following requirements:

(1) Drills shall be designed to acquaint each crew member with each member's function at the particular test station so each member can perform their functions promptly and efficiently.

(2) A well-control drill plan, applicable to the particular site, shall be prepared for each crew member outlining the assignments each member is to fulfill during the drill and establishing a prescribed time for the completion of each portion of the drill. A copy of the complete well-control drill plan shall be posted on the rig floor and/or bulletin board.

(3) The drill shall be carried out during periods of activity selected to minimize the risk of sticking the drill pipe or otherwise endangering the operation. In each of these drills, the reaction time of participants shall be measured up to the point when the designated person is prepared to activate the closing sequence of the BOP system. The total time for the crew to complete its entire drill assignment shall also be measured. This operation shall be recorded on the driller's report as ''Well-Control Drill.'' All drills shall be initiated by the toolpusher through the raising of the float on the pit-level device, activating the mud-return indicator, or its equivalent. This operation shall be performed at least once each week (well conditions permitting) with each crew. The drills shall be timed so they will cover a range of different operations which include on-bottom drilling and tripping. A diverter drill shall be developed and conducted in a similar manner for shallow operations.

(4) *On-bottom drilling.* A drill conducted while on bottom shall include the following as practicable:

(i) Detect kick and sound alarm;

(ii) Position kelly and tool joints so connections are accessible from floor, but tool joints are clear of sealing elements in BOP systems, stop pumps, check for flow, close in the well;

(iii) Record time;

(iv) Record drill-pipe pressure and casing pressure;

(v) Measure pit gain and mark new level;

(vi) Estimate volume of additional mud in pits;

(vii) Weight sample of mud from suction pit;

(viii) Check all valves on choke manifold and BOP system for correct position (open or closed);

(ix) Check BOP system components and choke manifold for leaks;

(x) Check flow line and choke exhaust lines for flow;

(xi) Check accumulator pressure;

(xii) Prepare to extinguish sources of ignition;

(xiii) Alert standby boat or prepare safety capsule for launching;

(xiv) Place crane operator on duty for possible personnel evacuation;

(xv) Prepare to lower escape ladders and prepare other abandonment devices for possible use;

(xvi) Determine materials needed to circulate out kick; and

(xvii) Time drill and enter drill report on driller's report.