

- Record of equipment used (e.g. BOP model, operator size and type, ram assembly);
- Record of wellbore pressure and operator closing pressure throughout the tests;
- Record of wellbore temperature throughout the test.

4.7.3.16 PR2 Continuous Operating Temperature Design Validation, Ram-type BOP

4.7.3.16.1 Purpose

NOTE This test determines the ability of the ram packers and seals to maintain a wellbore pressure seal after repeated closings and openings at continuous elevated rated temperature of the nonmetallic sealing components.

4.7.3.16.2 Protocol

NOTE When testing VBRs, the packer may be changed between tests on minimum and maximum pipe sizes.

The test shall not be started until the wellbore temperature is at or above the test temperature. The wellbore temperature below the rams shall be maintained at or above the test temperature for the duration of the hold times.

The test protocol shall be as follows:

- a) Open the BOP and begin the heating cycle. Continue the heating until the test fluid temperature is reached and has stabilized.
- b) Close and open the BOP three times using the manufacturer's recommended operating pressure.
- c) With test fluid at or above test temperature, close the BOP and apply 1.4 MPa to 2.1 MPa (200 psi to 300 psi) wellbore pressure and hold for a minimum of 5 minutes after pressure stabilization.
- d) Apply the full rated working pressure of the BOP and hold for a minimum of 10 minutes after pressure stabilization.
- e) Bleed off the wellbore pressure and open the ram BOP.
- f) Repeat steps b through e until the minimum acceptance criteria are met. See Tables 18, 20, 21, and 22.

4.7.3.16.3 PR2 Continuous Operating Temperature Test Documentation, Ram-type BOP

Documentation shall include:

- Record of equipment used (e.g. BOP model, operator size and type, ram assembly);
- Record of wellbore pressure and operator closing pressure throughout the tests;
- Record of wellbore temperature throughout the test.

4.7.3.17 PR1 and PR2 Extreme High Temperature Design Validation, Ram-type BOP

4.7.3.17.1 Purpose

NOTE This test determines the ability of the nonmetallic seals and molded sealing assemblies used as pressure-controlling and/or pressure-containing parts to maintain a wellbore pressure seal at the extreme temperature of the nonmetallic sealing components.

The test shall consist of a full rated pressure test with a minimum hold time of 60 minutes at the extreme temperature rating.

4.7.3.17.2 Protocol

NOTE When testing VBRs, the packer may be changed between tests on minimum and maximum pipe sizes.

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The test shall not be started until the wellbore temperature is at or above the test temperature. The wellbore temperature below the rams shall be maintained at or above the test temperature for the duration of the hold times.

The test protocol shall be as follows:

- a) Open the BOP and begin the heating cycle. Continue the heating until the test fluid temperature is reached and has stabilized.
- b) With the test fluid at or above test temperature, close the BOP and apply 1.4 MPa to 2.1 MPa (200 psi to 300 psi) wellbore pressure and hold for a minimum of 3 minutes after pressure stabilization.
- c) Apply the full rated working pressure of the BOP and hold for a minimum of 60 minutes after pressure stabilization.
- d) Bleed off the wellbore pressure.

4.7.3.17.3 PR1 and PR2 Extreme High Temperature Test Documentation, Ram-type BOP

Documentation shall include:

- Record of equipment used (e.g. BOP model, operator size and type, ram assembly);
- Record of wellbore pressure and operator closing pressure throughout the tests;
- Record of wellbore temperature throughout the test.

4.7.3.18 PR1 Test for Annular Sealing Characteristics, Annular BOP

4.7.3.18.1 Constant Wellbore Pressure Test

4.7.3.18.1.1 Purpose

NOTE This test determines the operator closing pressure required to maintain a wellbore pressure seal on a specified test mandrel as a function of wellbore pressures up to full rated working pressure of the blowout preventer.

4.7.3.18.1.2 Protocol

The test shall be conducted on the designated drill pipe sizes; see Table 26.

The test protocol shall be as follows:

- a) Close the preventer using the manufacturer's recommended closing pressure.
- b) Apply 3.45 MPa (500 psi) wellbore pressure.
- c) Lower the closing pressure until a leak develops.
- d) Bleed off the wellbore pressure and open the preventer.
- e) Repeat steps a through d, increasing wellbore pressure in a minimum of 10 approximately equal pressure increments until wellbore pressure equals the rated working pressure of the preventer.

4.7.3.18.2 Constant Closing Pressure Test

4.7.3.18.2.1 Purpose

NOTE This test determines the maximum wellbore pressure obtainable, up to the rated working pressure, for a given closing pressure when closing on a test mandrel.

4.7.3.18.2.2 Protocol

The test shall be conducted on the designated drill pipe sizes; see Table 26.

The test protocol shall be as follows:

- a) Apply 3.45 MPa (500 psi) closing pressure.
- b) Apply increasing wellbore pressure until a leak occurs or wellbore pressure equals the rated working pressure of the preventer.
- c) Bleed off wellbore pressure and open the preventer.
- d) Repeat steps a through c, increasing closing pressure 0.69 MPa (100 psi) each time until closing pressure reaches the level recommended by the manufacturer.

4.7.3.18.3 PR1 Full Closure Pressure Test, Open Hole

4.7.3.18.3.1 Purpose

NOTE 1 This test determines the operator closing pressure required to seal on the open hole at one-half of rated working pressure.

The maximum number of flexing cycles required to achieve full closure at room temperature shall be specified in the manufacturer's written procedure.

NOTE 2 This test is only necessary for annular packing elements rated for complete shut-off (CSO) operation.

4.7.3.18.3.2 Protocol

This test shall be conducted without drill pipe in the wellbore.

The test protocol shall be as follows:

- a) Close the preventer using the pressure recommended by the manufacturer.
- b) Apply wellbore pressure of 1.4 MPa to 2.1 MPa (200 psi to 300 psi) and hold for 3 minutes. If leakage occurs, increase the closing pressure as needed. Do not exceed the manufacturer's recommended maximum operating pressure.
- c) Following a successful low-pressure test, raise wellbore pressure to one-half the rated working pressure of BOP. Hold the pressure for 3 minutes. If leakage occurs, increase closing pressure as needed. Do not exceed the manufacturer's recommended maximum operating pressure.

4.7.3.18.4 PR1 Sealing Characteristics Documentation, Annular BOP

Documentation shall include:

- Record of equipment used (e.g. BOP model, annular packer assembly, test mandrel);
- Record of wellbore pressure vs. operator closing pressure throughout each test;
- The number of flexing cycles required to achieve full closure at room temperature for the Open Hole pressure test;
- The closing pressure required to maintain a wellbore pressure seal on the specified test mandrel as a function of wellbore pressures up to full rated working pressure of the blowout preventer;
- The maximum wellbore pressure obtainable, up to the rated working pressure, for a given closing pressure when closing on the specified test mandrel;
- The closing pressure required to seal on the open hole at one-half of rated working pressure.

4.7.3.19 PR2 Test for Sealing Characteristics, Annular BOP

4.7.3.19.1 PR2 Constant Wellbore Pressure Test

4.7.3.19.1.1 Purpose

NOTE This test determines the operator closing pressure required to maintain a wellbore pressure seal on test mandrels (either one size or two, as specified) as a function of wellbore pressures up to full rated working pressure of the blowout preventer.

4.7.3.19.1.2 Protocol

The test shall be conducted on the designated pipe sizes; see Table 26.

The test protocol shall be as follows:

- a) Close the preventer using the manufacturer's recommended closing pressure.
- b) Apply 3.45 MPa (500 psi) wellbore pressure.
- c) Lower the closing pressure in 100 psi step reductions and hold for 3 minutes at each pressure value until a leak develops.
- d) Bleed off the wellbore pressure and open the preventer.
- e) Repeat Steps a through d, increasing wellbore pressure incrementally until wellbore pressure equals the rated working pressure of the preventer. The wellbore pressure increment shall be determined to result in a minimum of five approximately equally-spaced data points.

4.7.3.19.2 PR2 Constant Closing Pressure Test

4.7.3.19.2.1 Purpose

NOTE This test determines the maximum wellbore pressure obtainable, up to the rated working pressure, for a given operator closing pressure on test mandrels (either one size or two, as specified).

4.7.3.19.2.2 Protocol

The test shall be conducted on the designated pipe sizes; see Table 26.

The test protocol shall be as follows:

- a) Apply 3.45 MPa (500 psi) closing pressure.
- b) Apply increasing wellbore pressure until a leak occurs or wellbore pressure equals the rated working pressure of the preventer.
- c) Bleed off the wellbore pressure and open the preventer.
- d) Repeat steps a through c, increasing closing pressure 0.69 MPa (100 psi) each time until closing pressure reaches the level recommended by the manufacturer or until the rated working pressure of the preventer is obtained.

4.7.3.19.3 PR2 Full Closure Pressure Test, Open Hole

4.7.3.19.3.1 Purpose

NOTE 1 This test determines the operator closing pressure required to seal on the open hole at one-half of rated working pressure.

The maximum number of flexing cycles required to achieve full closure at room temperature shall be specified in the manufacturer's written procedure.

NOTE 2 This test is only necessary for annular packing elements rated for complete shut-off (CSO) operation.

4.7.3.19.3.2 Protocol

This test shall be conducted without pipe in the wellbore.

The test protocol shall be as follows:

- a) Close the preventer using the pressure recommended by the manufacturer.
- b) Apply wellbore pressure of 1.4 MPa to 2.1 MPa (200 psi to 300 psi) and hold for 3 minutes. If leakage occurs, increase the closing pressure as needed. Do not exceed the manufacturer's recommended maximum operating pressure.
- c) Following a successful low-pressure test, raise wellbore pressure to one-half the rated working pressure of BOP. Hold the pressure for 3 minutes. If leakage occurs, increase closing pressure as needed. Do not exceed the manufacturer's recommended maximum operating pressure.

4.7.3.19.4 PR2 Sealing Characteristics Documentation, Annular BOP

Documentation shall include:

- Record of equipment used (e.g. BOP model, annular packer assembly, test mandrel [one or two mandrels as specified]);
- Record of wellbore pressure vs. operator closing pressure throughout each test;
- The number of flexing cycles required to achieve full closure at room temperature for the Open Hole pressure test;
- The closing pressure required to maintain a wellbore pressure seal on the specified test mandrel as a function of wellbore pressures up to full rated working pressure of the blowout preventer;
- The maximum wellbore pressure obtainable, up to the rated working pressure, for a given closing pressure when closing on the specified test mandrel.
- The closing pressure required to seal on the open hole at one-half of rated working pressure.

4.7.3.20 PR2 Extended Range Operational Characteristics, Annular BOP

4.7.3.20.1 Purpose

NOTE 1 This test determines the ability of an annular packing unit to maintain a seal on pipe sizes above and below the rated range, at wellbore pressures less than or equal to rated working pressure. Data collected from this test can be used to report operational characteristics at parameters outside of the full rated working pressure range.

NOTE 2 The rated range is the range of tubulars that can be sealed up to the full rated working pressure of the BOP and meet the minimum fatigue characteristics within that range.

NOTE 3 The extended range is the range outside the rated range in which the manufacturer defines the operational characteristics based on test data. This range may not be extrapolated outside the bounds of the test data.

The pressure rating of an untested tubular size shall be equal to the lowest rating of the successful pressure tests above and below that tubular size.

End user shall consider the mechanical properties of the tubulars (e.g. collapse rating, when using the annular).

4.7.3.20.2 Protocol

The test shall be conducted on tubular sizes (as specified by the manufacturer) that are in the extended range.

The test protocol shall be as follows:

- a) Install the test mandrel in annular BOP.
- b) Close and open the packing unit seven times using the manufacturer's recommended closing pressure. On every seventh closure, pressure test the packing unit at 1.4 MPa to 2.1 MPa (200 psi to 300 psi) and the wellbore pressure as specified by the manufacturer at less than or equal to the rated working pressure of the BOP. Test pressures shall each be stabilized and held for a minimum period of 3 minutes. Do not exceed the manufacturer's recommended maximum operating pressure.
- c) On every 20th pressure-test cycle, measure the ID of the packing element when the operating piston reaches the fully open position. Then, continue to measure the ID of the packer at 5-minute intervals until the packer ID reaches the bore size of the BOP or until 30 minutes has elapsed. Record the ID.
- d) Repeat steps a through c until the packing unit fails a pressure test or until 364 openings and closings have been completed (52 pressure tests).

4.7.3.20.3 Extended-range Operational Characteristics, Documentation

Documentation shall include:

- Record of equipment used (e.g. pipe sizes tested, BOP size/pressure rating/model);
- Record of wellbore pressure and operator closing pressure throughout the test on each mandrel size tested. If this test is not performed, the extended-range rating shall be reported as 0 psi;
- Record of wellbore fluid temperature during test;
- A graph of the packing unit inside diameter (ID) after every 20th pressure cycle vs. time up to 30 minutes.
- The number of successful closures and pressure cycles attained.

4.7.3.21 PR1 Fatigue Test, Annular BOP

4.7.3.21.1 Purpose

NOTE 1 This test determines the ability of an annular packing unit to maintain a seal throughout repeated closings and openings.

NOTE 2 This test simulates closing and opening the blowout preventer once per day and wellbore pressure testing at full rated working pressure once per week comparable to one year of service.

4.7.3.21.2 Protocol

The test protocol shall be as follows:

- a) Install the test mandrel in annular BOP for packing unit tests. The test shall be conducted on the designated test mandrel pipe sizes in accordance with Table 26.
- b) Close and open the packing unit seven times using the manufacturer's recommended closing pressure. On every seventh closure, pressure test the packing unit at 1.4 MPa to 2.1 MPa (200 psi to 300 psi) and the full rated working pressure of the BOP. Test pressures shall each be stabilized and held for a minimum period of 3 minutes.
- c) On every 20th pressure-test cycle, measure the ID of the packing element when the operating piston reaches the fully open position. Then, continue to measure the ID of the packer at 5-minute intervals until the packer ID reaches the bore size of the BOP or until 30 minutes has elapsed. Record the ID.
- d) Repeat Steps b and c until the packing unit fails a pressure test or until 364 openings and closings have been completed (52 pressure tests).

4.7.3.21.3 PR1 Fatigue Test Documentation, Annular BOP

Fatigue test documentation shall include:

- Record of equipment used (e.g. BOP size/pressure rating/model);
- A graph of the packing unit inside diameter (ID) after every 20th pressure cycle vs. time up to 30 minutes;
- The number of successful closures and pressure cycles attained;
- Record of wellbore pressure and operator closing pressure.

4.7.3.22 PR2 Fatigue Test, Annular BOP

4.7.3.22.1 Purpose

NOTE 1 This test determines the ability of an annular packing unit to maintain a seal throughout repeated closings and openings.

NOTE 2 This test simulates closing and opening the blowout preventer once per day and wellbore pressure testing at full rated working pressure once per week up to one year of service.

4.7.3.22.2 Protocol

The test protocol shall be as follows:

- a) Install test mandrel in annular BOP for packing unit tests. The test shall be conducted on the designated test mandrel pipe sizes in accordance with Table 26.
- b) Close and open the packing unit seven times using the manufacturer's recommended closing pressure. On every seventh closure, pressure test the packing unit at 1.4 MPa to 2.1 MPa (200 psi to 300 psi) and the full rated working pressure of the BOP. Test pressures shall each be stabilized and held for a minimum of 3 minutes.
- c) On every 20th pressure test cycle, measure the ID of the packing element when the operating piston reaches the fully open position. Then, continue to measure the ID of the packer at 5-minute intervals until the packer ID reaches the bore size of the BOP or until 30 minutes has elapsed. Record the ID.
- d) Repeat Steps a through c until the packing unit fails a pressure test or until 364 openings and closings have been completed (52 pressure tests).

NOTE Annular BOP fatigue minimum pressure cycle information is contained on Table 25.

4.7.3.22.3 PR2 Fatigue Test Documentation, Annular BOP

Fatigue test documentation shall include:

- Record of equipment used (e.g. BOP size/pressure rating/model, mandrels [either one size or two as specified]).
- A graph of the packing unit inside diameter (ID) after every 20th pressure cycle vs. time up to 30 minutes.
- The number of successful closures and pressure cycles attained.
- Record of wellbore pressure and operator closing pressure.
- Document any observed wear following the test.

4.7.3.23 PR1 and PR2 Packer Access Test, Annular BOP

4.7.3.23.1 Purpose

NOTE This test determines the ability of the blowout preventer to undergo repeated packer changes without affecting operational characteristics.

4.7.3.23.2 Protocol

The test shall be conducted on the designated drill pipe sizes; see Table 26. A PR2 test may use the PR1 test mandrel size.

This test shall be accomplished by obtaining access to the packing unit and performing a wellbore pressure test to the rated working pressure at every 20th packing unit access.

The test protocol shall be as follows:

- a) Perform the manufacturer's recommended procedures for removing closure as required for packer access.
- b) Perform the manufacturer's recommended procedures, including maintenance and replacement parts, for closing the packer access closure.
- c) Repeat Steps a and b to failure or a maximum of 200 times. Every 20th packing unit access, pressure test the BOP to the rated working pressure for a 3-minute holding period.

4.7.3.23.3 PR1 and PR2 Packer Access Test Documentation, Annular BOP

Packer access test documentation shall include:

- Record of equipment used (e.g. BOP size/pressure rating/model);
- The number of successful packer access cycles to failure, or 200 (see Table 25 for performance criteria), whichever is attained first;
- Record of wellbore pressure and operator closing pressure.

4.7.3.24 PR1 Stripping Life Test, Annular BOP

4.7.3.24.1 Purpose

NOTE This test determines the ability of the annular packing unit to maintain control of wellbore pressure while stripping drill pipe and tool joints through the closed packing unit without exceeding an average leak rate of 3.8 l/minute (1 gal/minute).

4.7.3.24.2 Protocol

The test protocol shall be as follows:

For 279 mm (11 in.) and larger BOPs, install a 127 mm (5 in.) OD test mandrel with a simulated 18° API 6 ⁵/₈-inch tool-joint profile; for 228 mm (9 in.) and smaller, install an 88.9 mm (3 ¹/₂ in.) OD test mandrel with a simulated 18° API 5-inch tool-joint profile.

- a) Close the BOP with the manufacturer's recommended closing pressure. Apply 6.89 MPa (1000 psi) wellbore pressure. Reduce the closing pressure until the preventer leak rate is less than 3.8 l/minute (1 gal/minute) (to wet the test mandrel wall).
- b) Reciprocate the test mandrel at a minimum of 1,500 mm (5 ft) in each direction and at approximately four cycles per minute. A stripping cycle consists of the tool joint passing through the element twice, once in each direction. Wellbore pressure should vary no more than ±10% during the stripping operation. Increase closing pressure as necessary to maintain a leak rate below 3.8 l/minute (1 gal/minute). Continue testing until a leak rate of 3.8 l/minute (1 gal/minute) develops at the manufacturer's recommended closing pressure, or 2500 stripping cycles have been completed.

- c) Document

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4.7.3.24.3 PR1 Stripping Life Test Documentation, Annular BOP

Documentation shall include:

- Record of equipment used (e.g. BOP size/pressure rating/model);
- Wellbore pressure used during the test;
- Record of reciprocating speed;
- Equivalent length of pipe and number of stripping cycles obtained, or 2500 stripping cycles, whichever is attained first;
- Closing pressure used during the test;
- Documentation of any wear on elastomers.

4.7.3.25 PR2 Stripping Life Test, Annular BOP

4.7.3.25.1 Purpose

NOTE This test determines the ability of the annular packing unit to maintain control of wellbore pressure while stripping drill pipe and tool joints through the closed packing unit without exceeding an average leak rate of 3.8 l/minute (1 gal/minute).

4.7.3.25.2 Protocol

The test protocol shall be as follows:

For 279 mm (11 in.) and larger BOPs, install a test mandrel with an API 5DP 5 19.50 S IEU NC 50 tool-joint profile. For 228 mm (9 in.) and smaller BOPs, install a test mandrel with an API 5DP 3 1/2 15.50 G EU NC 38 tool-joint profile.

NOTE Tool-joint profiles may be simulated.

For annular packing units designed to strip larger tool-joint profile OD sizes than specified above, the packer shall be tested using the largest tool-joint profile OD size for which the unit was designed.

- a) Orient the taper of the tool-joint profile to simulate pin-down installation.
- b) Close the BOP with the manufacturer's recommended closing pressure. Apply 6.89 MPa (1000 psi) wellbore pressure. Reduce the closing pressure until the preventer leak rate is less than 3.8 l/min (1.0 gal/minute) (to wet the test mandrel wall).
- c) Reciprocate the test mandrel at a minimum of 1500 mm (5 ft) in each direction and at approximately four cycles per minute. A stripping cycle consists of the tool joint passing through the element twice, once in each direction. Wellbore pressure should vary no more than $\pm 10\%$ during the stripping operation. Increase closing pressure, as necessary to maintain a leak rate below 3.8 l/minute (1 gal/minute). Continue testing until BOP is unable to maintain a leak rate of less than 3.8 l/minute (1 gal/minute) up to the manufacturer's maximum closing pressure, or until 2500 stripping cycles have been completed. The minimum performance criteria shall be achieved prior to exceeding the recommended closing pressure.

4.7.3.25.3 PR2 Stripping Life Test Documentation, Annular BOP

Documentation shall include:

- Record of equipment used (e.g. BOP size/pressure rating/model, mandrel description);
- Wellbore pressure and temperature used during the test;
- Record of reciprocating speed;

- The number of tool joints stripped;
- Closing pressure used during the test;
- Damage to the test mandrel, including when damage was initially observed;
- The number of stripping cycles, or 2500 stripping cycles, whichever is attained first;
- Documentation of any wear on elastomers.

4.7.3.26 PR1 Low Temperature Design Validation, Annular Type BOP

4.7.3.26.1 Purpose

NOTE This test determines the ability of the nonmetallic seals and molded sealing assemblies used as pressure-controlling and or pressure-containing parts to maintain a wellbore pressure seal after repeated closings and openings at the minimum rated temperature and rated working pressure of the nonmetallic sealing components and molded sealing assemblies.

4.7.3.26.2 Protocol

The test shall not be started until the wellbore fluid is at or below the test temperature. The wellbore fluid below the annular packing unit shall be maintained at or below the test temperature for the duration of the hold times.

Packing unit tests for both PR1 and PR2 shall use the test mandrel size designated for PR1 in Table 26.

The test protocol shall be as follows:

- a) Install test mandrel in annular BOP for packing unit tests.
- b) Begin the cooling cycle and continue the cooling until the wellbore fluid temperature is reached and has stabilized.
- c) Close and open the BOP seven times using the manufacturer's recommended operating pressure.
- d) With wellbore fluid at or below test temperature, close the BOP and apply 1.4 MPa to 2.1 MPa (200 psi to 300 psi) wellbore pressure and hold for a minimum of 3 minutes after pressure stabilization.
- e) Apply the full rated working pressure of the BOP and hold for a minimum of 3 minutes after pressure stabilization.
- f) Bleed off wellbore pressure and open annular BOP.
- g) Repeat Steps b through f twice more, for a total three pressure test cycles.

4.7.3.26.3 PR1 Low-Temperature Design Validation Documentation, Annular-type BOP

Documentation shall include:

- Record of equipment used (e.g. BOP model, size and type, nonmetallic seals, and molded sealing assemblies).
- Record of wellbore pressure and operator closing pressure throughout the tests.
- Record of wellbore temperature throughout the test.

4.7.3.27 PR2 Low-Temperature Design Validation, Annular Type BOP

4.7.3.27.1 Purpose

NOTE This test determines the ability of the nonmetallic seals and molded sealing assemblies used as pressure controlling and or pressure-containing parts to maintain a wellbore pressure seal after repeated closings and openings at the minimum rated temperature and rated working pressure of the nonmetallic sealing components and molded sealing assemblies.

4.7.3.27.2 Protocol, Annular Packing Unit Tests

The test shall not be started until the BOP assembly and wellbore fluid is at or below the test temperature. The BOP assembly and wellbore fluid shall be maintained at or below the test temperature for the duration of the hold times.

Packing unit tests shall use the test mandrel size designated for PR1 in Table 26.

Other nonmetallic seals used as pressure-containing parts shall be tested in accordance with equipment manufacturer's written procedures.

The test protocol shall be as follows:

- a) Install test mandrel in annular BOP for packing unit tests.
- b) Begin the cooling cycle and continue the cooling until the BOP assembly and wellbore fluid temperature is reached and has stabilized.
- c) Close and open the BOP seven times using the manufacturer's recommended operating pressure.
- d) With BOP assembly and wellbore fluid at or below test temperature, close the BOP and apply 1.4 MPa to 2.1 MPa (200 psi to 300 psi) wellbore pressure and hold for a minimum of 10 minutes after pressure stabilization.
- e) Apply the full rated working pressure of the BOP and hold for a minimum of 10 minutes after pressure stabilization.
- f) Bleed off wellbore pressure and open annular BOP.
- g) Repeat steps b through f, twice more for a total three pressure test cycles.

4.7.3.27.3 PR2 Low-Temperature Design Validation Documentation, Annular-type BOP

Documentation shall include:

- Record of equipment used (e.g. BOP model, size and type, nonmetallic seals, and molded sealing assemblies).
- Record of wellbore pressure and operator closing pressure throughout the tests.
- Record of wellbore temperature throughout the test.

4.7.3.28 PR2 Continuous Operating Temperature Design Validation, Annular-type BOP

4.7.3.28.1 Purpose

NOTE This test determines the ability of the nonmetallic seals and molded sealing assemblies used as pressure controlling and or pressure-containing parts to maintain a wellbore pressure seal after repeated closings and openings at the continuous elevated rated temperature and rated working pressure of the nonmetallic seals and molded sealing assemblies.