BOP PRESSURE TESTING PROCEDURE

STEP	SUB	PROCEDURE	REMARKS
		Discuss Operator BOP requirements WITH RIG MANAGER.	**BE AWARE OF CONTRACT AND PERMIT REQUIREMENTS.**
		Insure that all Romfor's BOP equipment is tested consistent with Romfor's policy. This may require Nabors to incur the cost for the testing subcontractor as well as provide rig time to the Operator for the test.	
0	**1**	**PPE Requirements - Hard Hat, Safety Glasses, Work Gloves, Steel Toe Shoes, Back Support, and Anti-Fall Protection. Fit for Duty check on all hands.**	All Full Body Harnesses are to be inspected prior to any use.
	2	**Review JSA for Pressure Testing BOP.**	Include all third party personnel.
	3	**Rig Manager to discuss procedures with pressure testers. This is to include:** - Stack design (Class II, IV, etc.)	Refer to *Romfor's Drilling Policy* BOPE testing requirements.
		- The proper size and type of test plug to fit the casing head.	Check condition of the test plug.
		- Position, size and pressure rating of choke manifold and valves. - Wellhead rated working pressure. - The drill pipe grade and operating pressure of the drill pipe.	Use Romfor's drill pipe design criteria of 80% of Used Drillpipe Burst.
		- Casing burst pressure.	
		- Ensure testers have the 1502 model unions.	Cellar area is clean and cleared of obstacles.
		- The use of methanol-water for testing in freezing weather. - Outline the overall testing and the specific valves that are to be tested.	
		- BOP test will be noted on the IADC Daily Drilling Report form.	All BOP equipment pressure tests are to be recorded on a chart and maintained by the testing subcontractor for 6 months.
		- Inform testers of low-high test requirements.	
1		**Verify the following items are ready or available, as required:** - Adequate tie off points are in place to assure 100% tie off.	Use antifall protection devices.
		- Fluorescent vest. - Designate qualified man to be flagger. - Two way communication., - Proper API ring gasket is used if repairing a leak.	**Do Not** reuse old API ring gaskets.
		- Proper size hammer wrenches and hammers, if required.	All bolts, wrenches, hammers and API rings are cleaned and in good condition.

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		- Cellar covers are to be reinstalled as soon as practical. - All wellhead, Blowout Preventers, valves, and fail-safes shall be pressure tested from the direction they would be exposed to well pressure. - All BOP equipment should be tested every 14 days or when the integrity of the BOP stack has been compromised (i.e. changing rams, seals, or lifting the stack.) - Casing head "wear bushing" is not installed. - Have correct "wear bushing" retrieval tool on location.	Ensure rotary bushings are locked if left in-place. Where H2S is present all personnel must possess a H2S certificate.
		READY TO TEST BOP STACK	
2		**This procedure is based on a three ram BOP stack that is nippled up. Refer to the rig specific JSA.**	
3		Before the test, the Rig Manager and the Tester will ensure that all personnel are fully aware of their required assistance, including any needed emergency actions.	PRIOR to any work, a Job Safety Analysis (JSA) shall be conducted in the presence of the rig crew, tool pusher, company representative and any service company which may be impacted by the test. Attendance of the JSA shall be documented.
4		Ensure the testing area is secure with caution tape.	Remain outside of the barricade tape while testing procedures are in progress.
5		All blowout prevention equipment, except annular BOP's, will be pressure tested to the minimum of the following criteria.	
	1	Maximum anticipated wellhead pressure (if known).	
	2	80% of casing burst pressure.	
	3	Working pressure rating of the wellhead.	
	4	Working pressure rating of the BOP stack.	
6		Annular BOP's should be tested to 70% of rated working pressure.	
7		All BOP equipment tests must include a low-pressure test of 250 psi before proceeding to the full pressure test.	**NO PERSONNEL ARE TO BE IN THE VICINITY OF PRESSURE TESTING OPERATIONS OR EQUIPMENT. UTILIZE CAUTION TAPE OR A FLASHING LIGHT TO SECURE THE AREA.**
8		Test pressure held (and recorded) for a minimum of five minutes after full pressure has been established represents a satisfactory pressure test.	

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9		All high-pressure connections associated with the well control equipment (i.e. choke & kill line valves, choke manifold valves, TIW valves, floor safety valves, inside BOP (Gray) valves) are to be isolated and pressure tested during each BOP test.	
10		When the integrity of the BOP stack has been compromised (i.e. changing rams or lifting the stack), the compromised component must be re-tested. This includes testing the ram and associated bonnet seals, or body testing a flange connection.	
11		The possibility of test pressure leaking past a packoff or test plug and being applied to a weaker element (i.e. casing collapse, lower rated ring gasket, etc.) must always be considered. All reasonable steps should be taken to monitor and eliminate this event.	Ensure that the casing valve is open and not plugged.
		START TESTING BOPE	
12		The Testing Technician will then check the wellhead to ensure the right test plug for that particular wellhead is available (Size, Type, and working pressure) and ensure all lockdown bolts are retracted.	
13		The Testing Technician will then check the drill pipe connection taking his tie-in-connection (called a top head & kelly sub) and screw it on a joint of pipe to check the connections.	
14		The Testing Technician will connect the pressure recorder, fill his tank with water, and pre-test pump, hose, and recorder.	
15		The Testing Technician will communicate with the Rig Manager and Company Representative to see if the choke manifold can be tested while tripping pipe. If not, the choke manifold shall be tested during BOP testing procedures.	
		TEST THE CHOKE MANIFOLD	
16		The choke manifold is then tested by:	
	1	Closing the manual valve next to the BOP on the choke line.	
	2	Attach test line to choke manifold.	
	3	Test all valves in the proper sequence.	

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	4	Make sure header (watermelon, etc.) is open-ended.	When filling stack, ensure that the choke manifold can be pumped through.
	5	Once a test is achieved, close the next set of valves, open valves behind the set that was closed and continue this process until all valves have been tested.	
		TEST THE LOWER BOP STACK	
17		Once drill crew is ready for Testing Technician, the technician will then check inside of BOP stack to make sure wear bushing is out of hole, hole is clear of any debris and is full of fluid up to wellhead.	Refer to rig specific JSA.
18		The Driller will pick-up test joint and put it into the mousehole. Screw pump-in-sub into the box connection of the test joint. The driller will then torque up the pump-in-sub to the desired torque for that connection.	
19		The Driller will then pick up the test joint and the technician will screw on the test plug to the bottom or pin end of the test joint (handy not tight). The Testing Technician will then dope the seal area of the test plug. The driller will set the test plug in the wellhead.	Check casing valve to ensure in open position and not plugged.
20		Rig crew fills stack with water and the Driller checks the seat of the test plug.	**ENSURE** no fluid leaks out of casing valve.
21		The Testing Technician will then hook up his test hose from the test pump to the pump-in sub.	
22		The Driller will close the bottom pipe rams.	
23		After bottom pipe rams are closed - the Testing Technician will then fill up the joint of pipe and pressure up to 1,000 and bleed off (to release air out of pipe). He will repeat this procedure a second time to release remaining air in the test joint. This needs to be done before BOP testing starts to remove air from entire system. This should only be required on first test.	During testing, the rig floor will be clear of all personnel.
24		After air is released, the technician will then put the pen on the pressure recorder and pressure up for the low test (for example - 250 low). After the time span required by the company representative, the Testing Technician will then go to the high test (required by the company man) (for example - 10,000 high). When the test is complete, the Testing Technician will then log in a tally book the first test information. Then bleed down the pressure to zero.	Romfor's policy is a minimum of five minutes of test on the chart.

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25		Open bottom rams.	Rotary table area will be clear of all personnel.
26		The technician will have the crew remove the insides of the kill line check valve and re-install the cap on the valve securely. **Note: This must be done to detect any leaks on the kill side.**	
		TEST THE UPPER BOP STACK	
27		Once the check valve's internal parts are removed and the cap reinstalled, close the top rams, the HCR valve and the outside kill line valve.	
28		Pressure up to recommended test pressures. After the test is complete, the technician will bleed down to zero and log information concerning test.	Rotary table area will be clear of all personnel. Romfor's policy is a minimum of five minutes of test on the chart.
29		Close inside or primary choke line valve and inside or primary kill line valve. Open HCR valve and outside kill line valve. Pressure up to recommended test pressures; hold for desired time and bleed down to zero. Then log information concerning test.	Rotary table area will be clear of all personnel.
30		Crew must install parts back into the check valve. With the inside choke line closed and top pipe rams still closed, the Testing Technician will then open the inside kill line valve and test to the recommended test pressure. Once held for the desired time, bleed to zero and log information. Note: If test for blind rams and choke are done from kill line, then inside parts of check cannot be installed at this time.	Rotary table area will be clear of all personnel. Romfor's policy is a minimum of five minutes of test on the chart.
		TEST THE ANNULAR PREVENTOR	
31		The Testing Technician will have the Driller close the hydril first, then open the TOP pipe rams. (This will prevent the test plug from becoming unseated in the wellhead.) Close a kill line valve and a choke line valve and test to the recommended test pressure. Once held for the desired time, bleed to zero and log information.	Rotary table area will be clear of all personnel. Annular BOP's should be tested to 70% of rated working pressure.
32		The technician will remove his test hose from the top of the test joint and unscrew the test joint from the test plug and remove it from the hole.	

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STEP	SUB	PROCEDURE	REMARKS
		TEST THE BLIND RAMS	
33		The technician will then tie into the choke manifold and open all choke line valves leading to stack. Keeping a kill line valve closed, have the driller close the blind rams and test to the recommended test pressure. Once held for the desired time, bleed to zero and log information.	Rotary table area will be clear of all personnel.
34		The Driller picks up the test joint, opens the blind rams and runs the test joint down to the test plug to retrieve it.	
		TEST THE KELLY, MUD LINE AND STANDPIPE	
35		The Driller picks up the Kelly and screws the Lower Well Control valve onto the bottom of the Kelly. Make sure all Kelly valves are open and all the valves on the standpipe are open. Fill the Kelly and all Standpipe at this time. Once full, close the Standpipe valve and pressure up to recommended test pressure. Hold for desired time, then bleed to zero and log information.	**STAND CLEAR** while pressuring up on BOPE. Testing Technician is to signal when testing is complete. Refer to rig specific JSA. **BE AWARE** of the pressure rating of the standpipe, standpipe valves and Kelly hose.
36		Test all Valves from the Lower Well Control Valve to the rig pump in proper sequence.	
37		All surface valve equipment can be tested at this time with adequate connections (i.e. Kelly subs, pipe plugs, and subs.)	All surface valves are to be tested to their rated pressure.
38		After testing is complete, the technician will rig down all equipment, fill out all appropriate paperwork, note any leaks or discrepancies and forward to company representative for approval.	
		END OF PROCEDURE	