



**SAFETY ALERT - #15-2007**  
**WELLHEAD INTEGRITY FAILURE - INJURY**  
**RELEASE DATE: MARCH 22, 2007**

<b>Function:</b> Production	<b>Incident Date:</b> February 8, 2007
<b>Location:</b> Onshore	<b>Location Detail:</b> Wellsite
<b>Incident Type:</b> Injury	<b>Country and Region:</b> Canada, NE British Columbia

**Description of Incident:**

On February 08, 2007, a worker was preparing to run a jet pump into a well and was in the process of pressuring up the tubing and hence the casing, to verify that the standing valve was seated. At that time, he heard a leak near the offside casing valve. He moved closer to investigate when the bull plug in the offside casing valve blew out, ripping off his boot and breaking his lower left leg. He seriously broke his lower left arm when falling from the strike. The force of the bull plug being blown out carried his boot and the plug about 130 feet away. He got up, closed the master tubing valve to stop the flow, went to his vehicle, and called for assistance. Emergency response was initiated. Medics treated his injuries on site and transported him to the hospital for further treatment of his injuries.

**Contributing Factors:**

Main causes of the event were:

- Offside casing valve not closed allowing pressure to build behind the bull plug,
- Bull plug not adequately installed as secondary security,
- Procedures not adequate to ensure integrity of wellhead after well servicing and before jet pump installation.
- Upon investigation it was determined that the offside casing valve was not closed (90-95% open). The bull plug was examined by an independent metallurgical lab and determined that the bull plug had not been threaded into the offside casing valve mating flange more than two or three turns.
- Further investigation found that the practice for verifying that a gate/paddle type valve is closed was not adequate. The practice was to turn the valve less than one full turn in most cases. This does not ensure a gate/paddle type valve is actually open or closed as the actual travel of the gate/paddle may not be enough to confirm that the valve is just not frozen or stuck in that spot.
- A significant contributing finding was that the procedure for installing a jet pump did not include a step to verify proper line-up of all wellhead valves prior to running the jet pump.

**Recommendations:**

- Review and update procedures where necessary to ensure there is a wellhead valve position verification step included. This step means "**verify correct position of all wellhead valves**". Orient workers to changes.
- Well Servicing and Operations must verify and communicate to each other whether a gate/paddle type valve is open or closed. The valve must be moved through a sufficient portion of its full travel (more than one turn, full travel if possible) to verify its position.
- After any kind of well servicing, wellhead security must be double-checked to ensure that valves have been left in the correct positions and that all ports are adequately sealed (gauges, blinds or bull plugs properly secured).
- All sites need to check current well operating procedures and ensure there is a "Well Valve Position Verification" step included.

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