

Multiphase Pumping Eliminates Flaring and Venting



Application of the Multiphase Blow Down Unit (BDU) to open liquid logged gas wells

Author and presenter: Sven Olson,
Leistritz Advanced Technologies Corp.
Allendale, New Jersey

Contributor: Joe Latronica, Leistritz Advanced Technologies and
Chad Tompkins, Encana Service Company, Ltd



Multiphase Pumping Eliminates Flaring and Venting



l of

Flaring in North Dakota

Sustainability advocacy group Ceres claims state's efforts to curb the practice have not gone far enough

TOM DARIN/USKEY
Houston



A fracking facility and drill site near Fort Lupton, Colorado.

Photographer: RJ Sangosti/Denver Post via Getty Images

The Obama administration proposed the first federal rules to cut methane emissions from oil and gas production, the second major climate initiative by President Barack Obama this month.

HOW IT WORKS

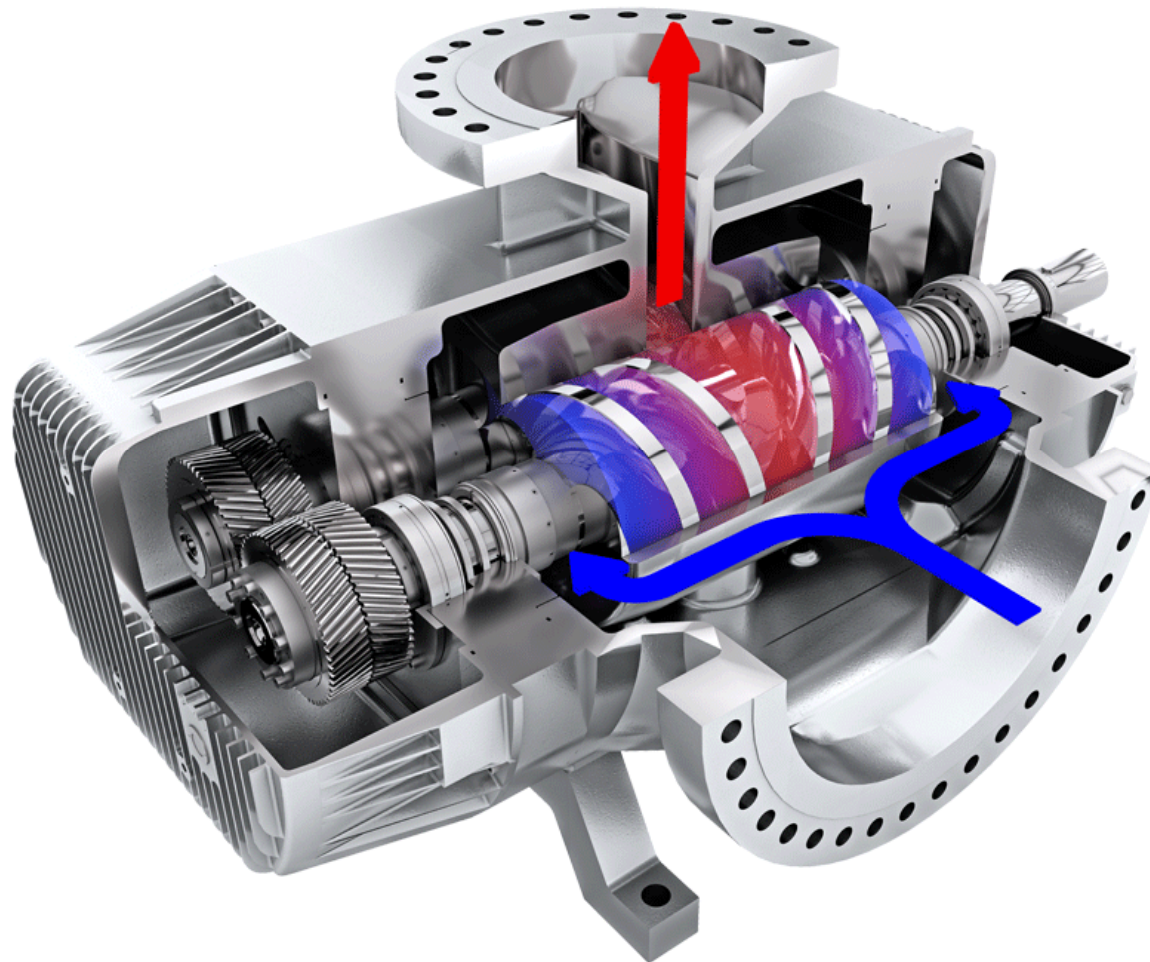
Low tubing velocity is a problem in tight gas formations and in aging wells. At a certain point it will not reach the critical velocity needed to lift the liquids up the production tubing. The liquids clog the well bore, the pressure drops and cannot overcome the flow line backpressure and the well shuts in.

The BDU will flow the gas and liquids coming off the well head by drawing down the well head pressure. The tubing velocity increases and the liquids will move up the tubing with the increasing gas flow. The BDU boosts the multiphase flow from well head to export line pressure. When the gas is flowing the BDU can shut down and restarted and the cycle can be repeated.

**Conventional de-liquefaction
Requires venting or flaring
Multiphase pumps offer an alternative**



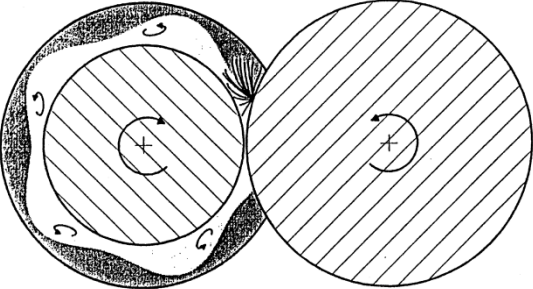
Multiphase Pumping Eliminates Flaring and Venting



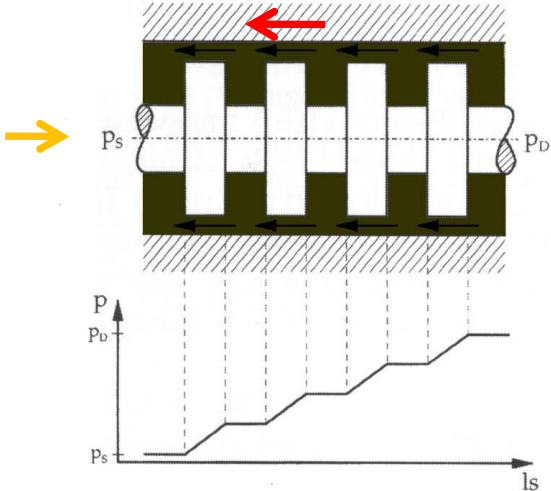
Multiphase pump



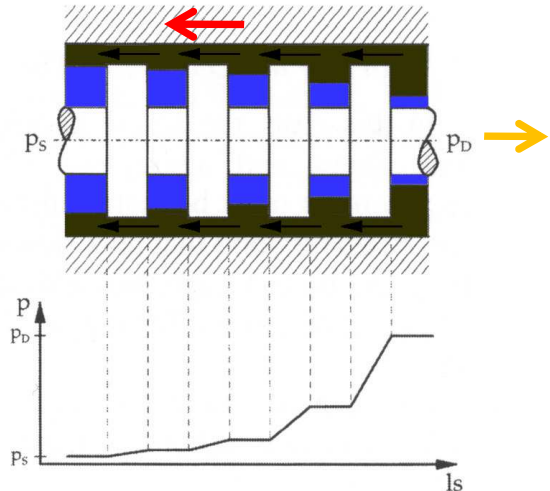
Multiphase Pumping Eliminates Flaring and Venting



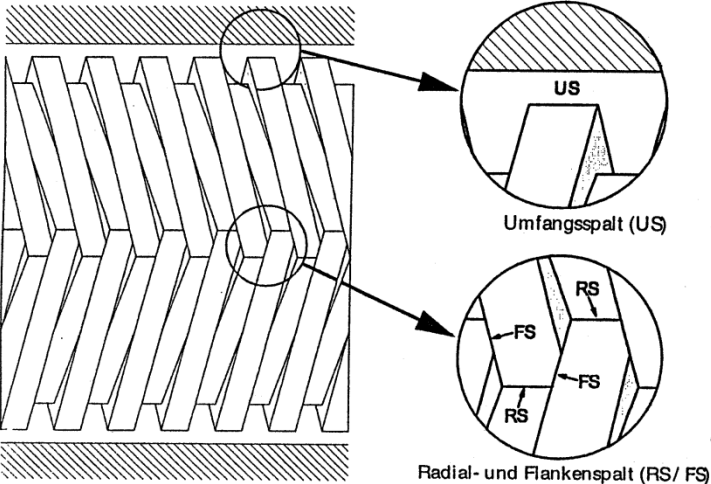
Liquids and Gas Phase split



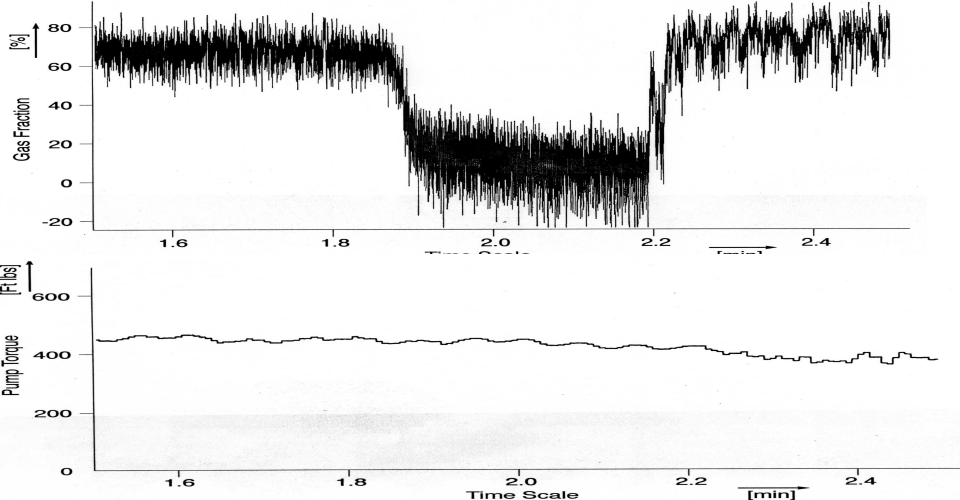
Pumping liquids



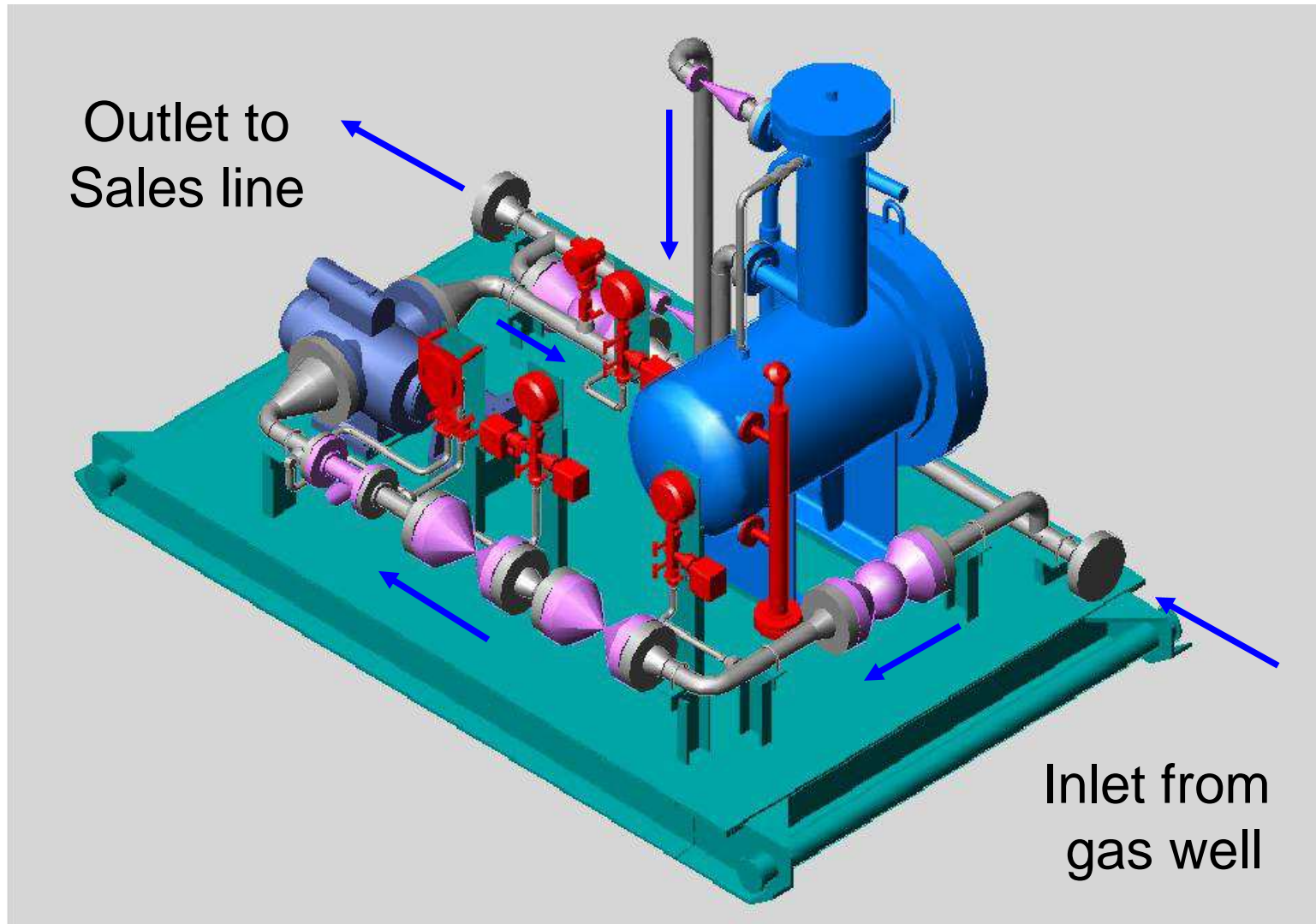
Compressing gas



Pump principle

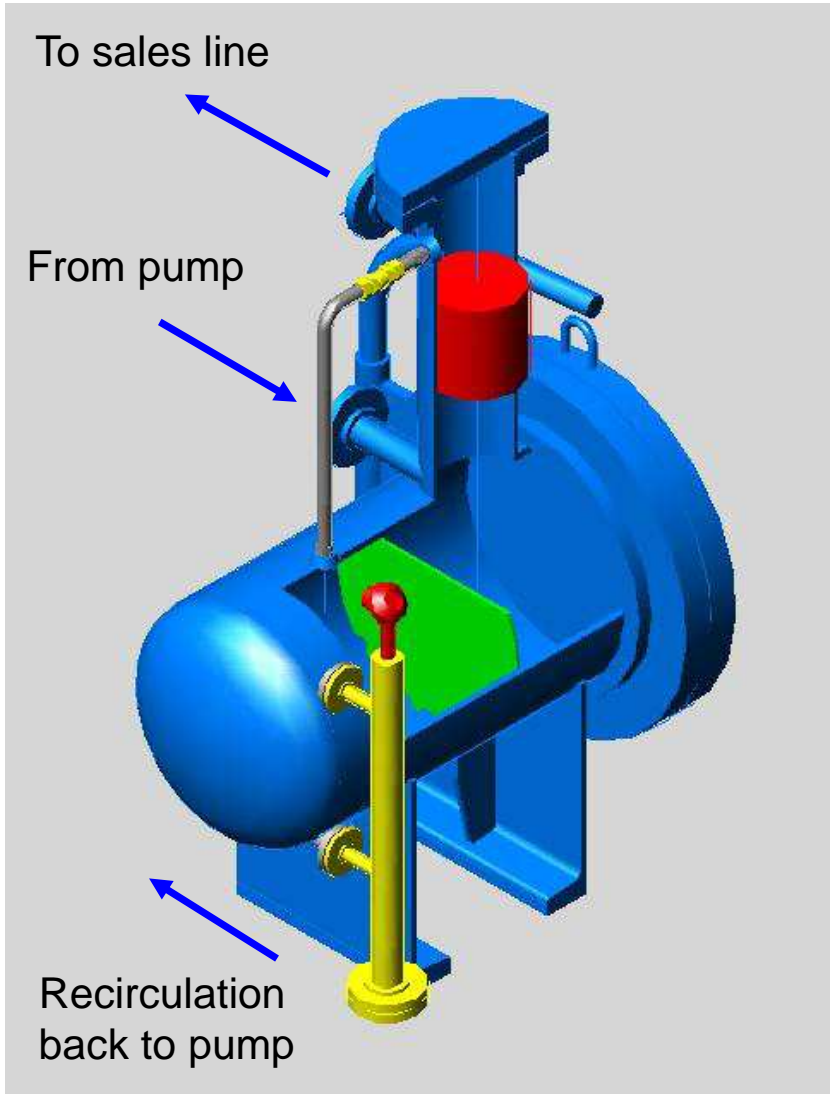


Multiphase Pumping Eliminates Flaring and Venting



Skid mounted BDU Principle Flow Path

Multiphase Pumping Eliminates Flaring and Venting



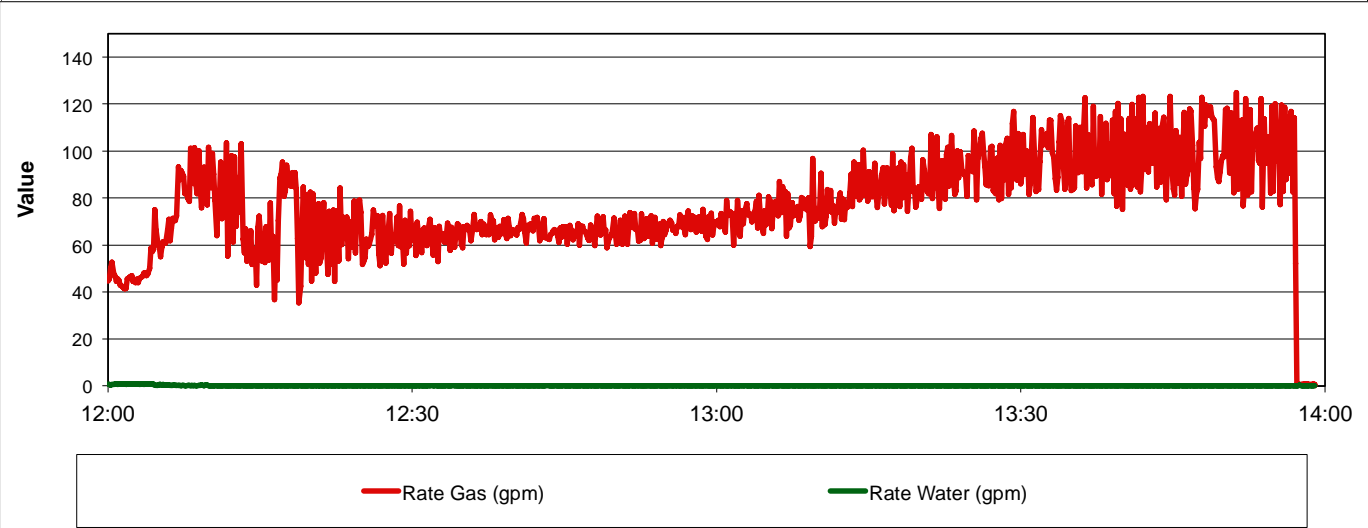
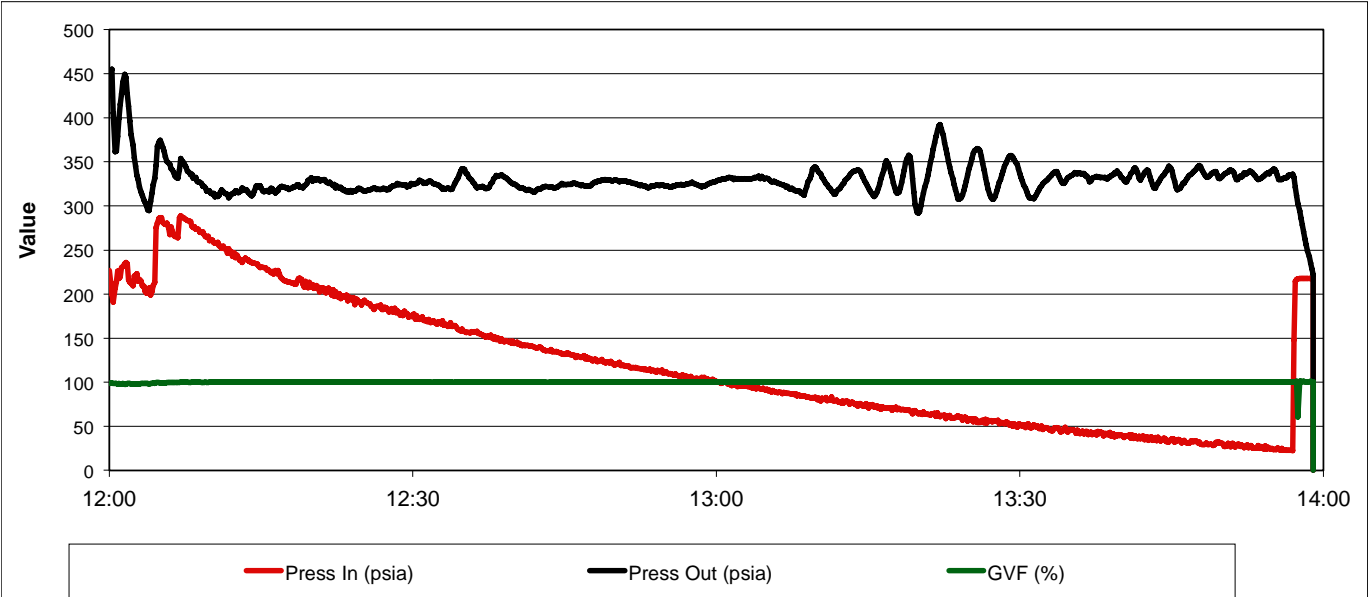
Liquid Knock-Out Boot

Multiphase Pumping Eliminates Flaring and Venting



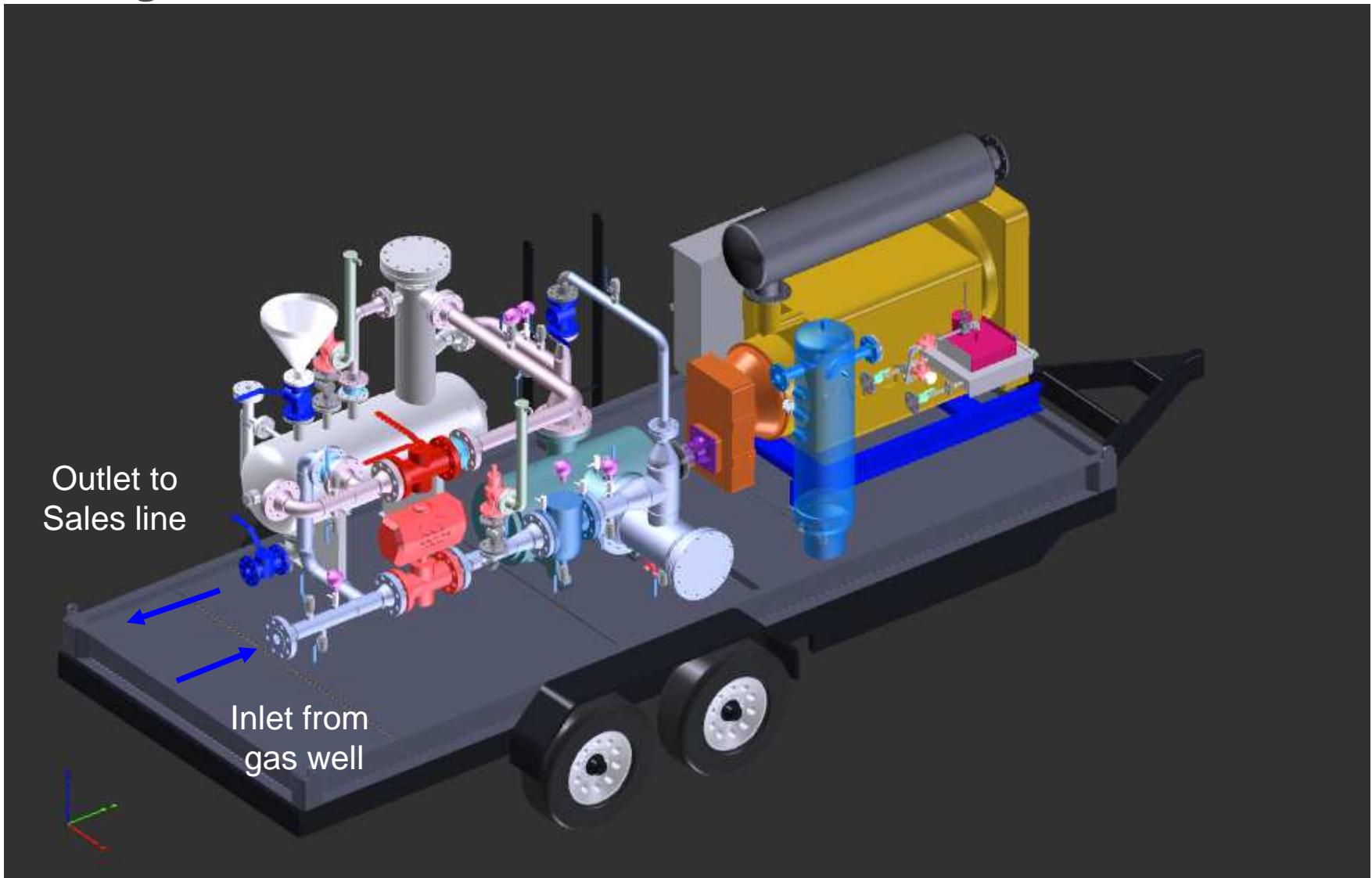
Testing at LSU

Multiphase Pumping Eliminates Flaring and Venting



Data from LSU test

Multiphase Pumping Eliminates Flaring and Venting



Portable BDU Principle Flow Path

Multiphase Pumping Eliminates Flaring and Venting

Leistritz



Rear View Portable BDU

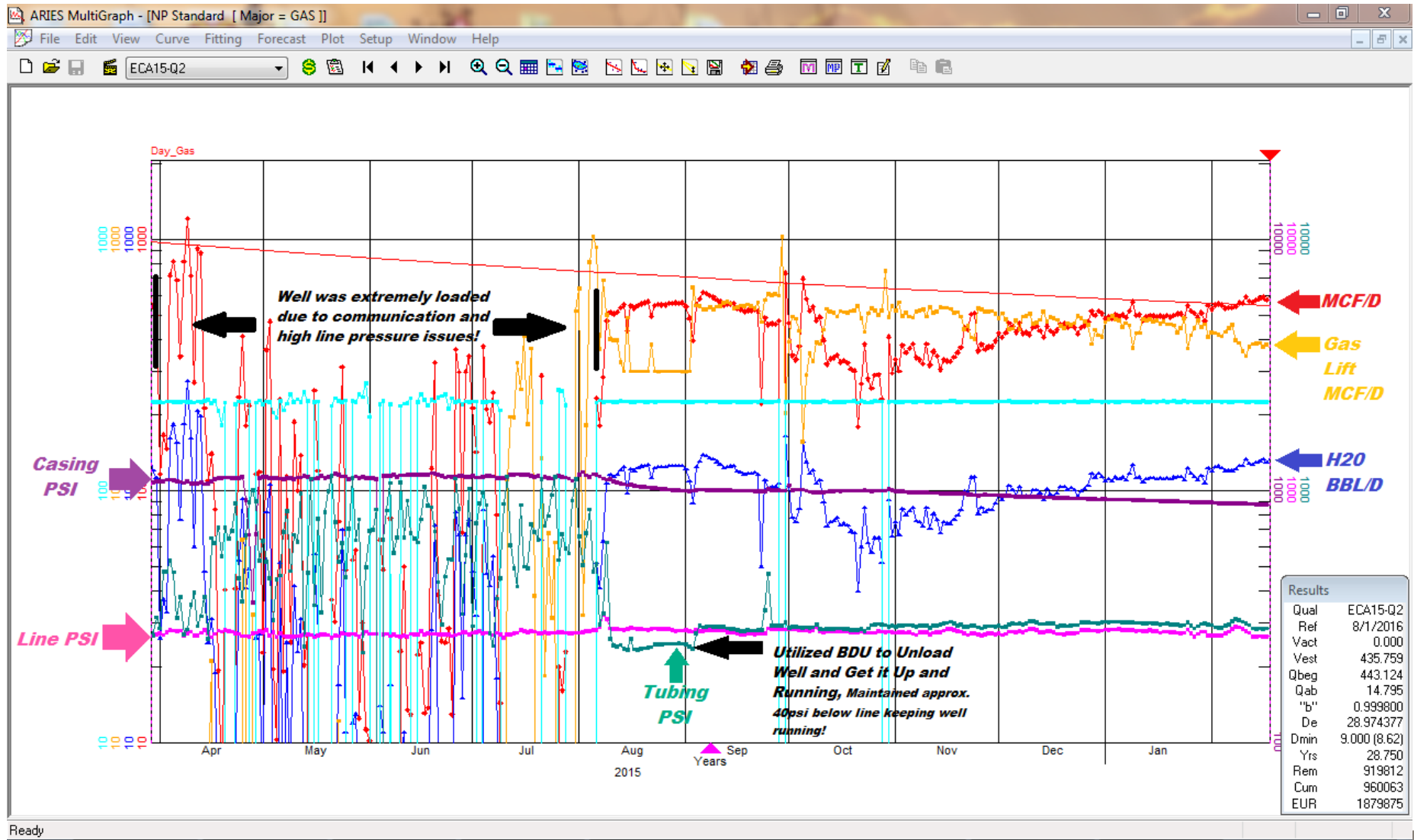
Multiphase Pumping Eliminates Flaring and Venting



**Unloading gas wells
at Encana Piceance play**



Multiphase Pumping Eliminates Flaring and Venting



Example of Unloading Cycle



**Back on the road
again
Moving on to new
challenges.**

**Thank You for Your
Attention!**

