

GTUIT Wellhead Gas Processing Takes a Big Bite Out of the Flaring Issue

Flaring of wellhead gas is one of the biggest challenges and opportunities facing the global oil industry today. The impact of human induced climate change is putting the spotlight on oil producers, pressuring them to do a better job to lessen the environmental impact of their operations. Typically a by-product of oil extraction, wellhead gas flaring dumps large amounts of volatile organic compounds (VOCs) into the air, and pumps out carbon monoxide, carbon dioxide and soot. Billions of cubic meters of wellhead gas are unnecessarily flared worldwide every year.



Wellhead gas is a valuable and useful commodity when captured and processed. Producers that process wellhead gas do so for a variety of reasons, including meeting regulatory requirements, improving the local air quality in the communities they operate in, or for corporate social responsibility reasons. All do it for economic reasons because turning the waste stream into a revenue generator is a no brainer. Any producer that flares unprocessed wellhead gas is literally burning money. Billings, Montana, USA based GTUIT LLC helps them stop flaring.

In 2013, GTUIT introduced a mobile, scalable wellhead gas processing technology that recovers natural gas liquids (NGLs) and produces a consistent high quality, high BTU dry gas stream. To date the firm has produced over 10 million gallons of NGL. The processed gas is used to power onsite power generation equipment or converted into compressed or liquefied natural gas on site.

30 GTUIT Systems are in operation in the Bakken shale play in North Dakota, USA. Combined, these systems can process over 22 million cubic feet of wellhead gas per day, and have captured more than three billion cubic feet of gas since entering service. Having recently been awarded a prestigious World Bank Global Flaring Reduction Partnership award for their success in the Bakken, GTUIT now has their sights firmly set on tackling the flaring problem in the rest of the world.

The Bakken - An Effective Proving Ground

North Dakota is an excellent place to test new oil and gas technology. It is sparsely populated and the oil fields have limited access to infrastructure. The summertime temperature can top 35°C and in the winter it can plunge to below -40°C. GTUIT took full advantage of this harsh environment to commercialize a robust technology that can reliably operate in any oil producing region.

Flexible and Scalable System with a Berg Inside

Two key features of the GTUIT System are its unique ability to scale capacity to synchronise with a well's stage of production, and a flexible design that enables it to effectively manage the variable nature of wellhead gas compositions and flows throughout its lifecycle. 1,000 MCFD, 500 MCFD or 250 MCFD capacity



Three NGL Recovery Systems Operating in Parallel Conditioning 2,000 MCFD of Flare Gas in North Dakota.

modules can be deployed in the optimal configuration to match the incoming wellhead gas during any stage of the well's life.

The GTUIT Systems operate at the intersection of thermodynamic and oil field efficiency. The technology utilizes compression and mechanical refrigeration in a mobile and modular package that withstands the rigors of oil field use. Wellhead gas is first sent through a proprietary flow control system that evens out the ebbs and surges of oil well production. It is then compressed and processed through a mechanical refrigeration system engineered by Toronto, Canada based Berg Chilling Systems Inc. that lowers the temperature, causing the heavy liquids to drop out. Over 70% of C3+ hydrocarbons and most of the water are removed. Berg's expertise in mechanical refrigeration and experience in the global oil and gas sector enabled them to develop the core of the system with built-in flexibility to handle a wide variety of variations and conditions experienced in oil the world's oil fields.

Fuel Conditioning for Onsite Power Generation

Oil producers in remote regions often do not have access to power and must provide their own on-site electricity generation. Raw wellhead gas can be used to fuel power generation equipment, although the equipment

typically needs to be significantly de-rated to be able to accept it, resulting in considerably higher capital and operating costs.

GTUIT took their core technology and applied it to solve the wellhead gas fuel challenge. Together with Berg they developed GTUIT Fuel Conditioning System (FCS), a cost effective front-end fuel conditioning system for on-site power generation and micro-grid power generation. Caterpillar Oil and Gas, one of the world's largest manufacturers of industrial power generation equipment, was so impressed with GTUIT's fuel conditioning technology, they've named them their gas fuel conditioning partner, and became a minority owner earlier this year.

GTUIT FCS units take raw wellhead gas and produce conditioned dry fuel gas, plus a marketable NGL stream. The system's proprietary flow control delivers the fuel gas at a constant flow rate, BTU and pressure. The consistent, high quality GTUIT conditioned gas reduces maintenance requirements for power generation equipment, and most importantly allows the generators to run at near or full name-plate capacity, reducing capital outlay and operating costs

The bottom line for the producers is less flaring and a smaller environmental impact all the while producing conditioned gas at the well site that reduces capital and operating costs for power generation.



1000 MCFD Capacity

GTUIT Mobile NGL Recovery Unit in Operation.

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