

# PERMIAN PRODUCTION EQUIP., INC.



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**The Walking Beam Operated “Beam Gas Compressor™,” provides low cost, reliable solution to well head compression for Oil and Gas Wells.**



Beam Gas Compressor™ Installation

**Bottom Line.** Operators regard the oil field rod-pumping unit as the most reliable piece of equipment in the oil patch today. Operators are now combining the pumping unit, already on location, with the Beam Gas Compressor™ to provide the answer for increasing cash flow on rod pumping wells. This is accomplished by drawing gas and gas pressure from the casing to allow additional hydrocarbons to flow from the formation to the well bore. The increase in production cash flow, with

today's prices, has ranged from \$100.00 per day (\$36,000.00 per year) to over \$550.00 per day (\$200,000.00 per year).

**Design and Operation.** The Beam Gas Compressors™ utilized in these illustrations use the energy from the normal pumping action of the pump jack already on location. The size of the BGC™ was configured to compress the daily gas production at the operators desired casing pressure within the pumping units normal operating run time. As the walking beam movement pumps the well, the Beam Gas Compressor™ draws produced gas from the casing through check valves and discharges it into the flow line down stream from the pumping tee. The gas rejoins the tubing production and flows to the separator and to the gas sales line. The BGC™ is double acting and does not effect the counter balance of the pumping unit. The BGC™ is manufactured to operate in all corrosive environments as well as wet and high BTU gases and has been installed on virtually every style-pumping unit.

**Application.** These case histories in this writing refer to: a. oil wells with low bottom hole pressures with fair to a good Productivity Index (PI), b. wells that were experiencing lost production and mechanical problems due to gas interference (gas locking) in the down hole pump, c. gas wells with good permeability but have low formation pressure, d. oil wells that were non-economical to produce. At present,

according to the Texas Railroad Commission, there are over 17,000 wells in Texas that are being scheduled for P&A. A good number of these wells would be economical if produced without backpressure on the formation. This would result in a higher percentage of hydrocarbons being recovered from these existing well bores.

In addition to the case histories referred to in this writing, operators have found the BGC™ to be an economical tool to comply with environmental rules by capture and compressing vented gas into the sales line and boosting low pressure gas to operate lease production equipment.

**Operator Comments.** Operators that are utilizing the BGC™ to make their wells more profitable find that some of the advantages over other types of wellhead compression are: a. using the pumping unit as the prime mover for the compressor is not only reliable, but it is energy efficient and reduces the lease operating expense, b. the BGC™ installation is simple and can be moved to other wells in the field, c. the lease operators enjoy the low maintenance without the need for daily attention or adjustments, d. they like the fact that the BGC™ does not require a scrubber for condensate.

**Case Histories.**

**Case #1:**

Jack Huff – Oil & Gas Producer  
 Chris Huff, Operations Manager  
 Midland, TX.  
 Well Name: Bern A Lease, Well #2  
 Location: Lea County, New Mexico near Monument.  
 BGC™ installed: June 2000

**Production data before and after the Beam Gas Compressor installation.**

Production Data	Casing w/ 24 PSI	Casing w/<0 PSI	Revenue Increase
BOPD =	3.33	4.4	\$ 32.10
MCFD =	28.7	56.4	\$ 138.50
<b>Daily Avg. Revenue Increase</b>			<b>\$ 170.60</b>

**Operator Comment:** As the above figures demonstrate, installation of the BGC has resulted in increased production of both oil and gas as a direct result of lower backpressure on the formation. Gas Production, however, doubled after installing the unit. At today's prices, this increase of oil and gas translates to approximately \$2,500.00 net monthly income after deduction of taxes, royalty, and rental charges for the unit. Obviously, we are pleased with the results and are currently discussing the possibility of installing BGC's on other wells.

**Case #2**

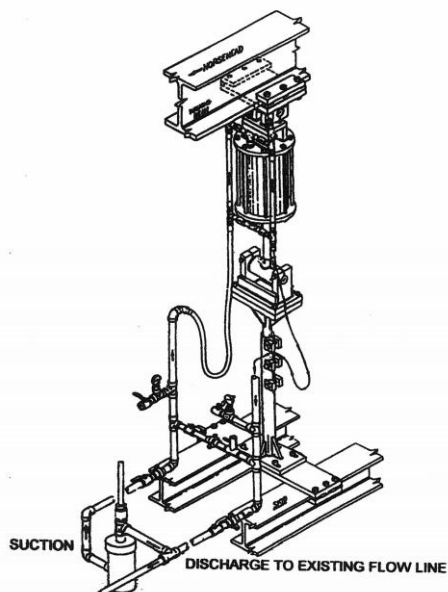
Aghorn Operating, Inc.  
 Trent Day, Vice President Operations  
 Odessa, TX  
 Well name: University 3764 - #101  
 Location: Andrews County, Texas near Andrews.  
 BGC Installed: November, 1998

**Production data before and after the Beam Gas Compressor installation.**

Production Data	Casing w/ 15 PSI	Casing w/<0 PSI	Revenue Increase
BOPD =	2.27	12.7	\$ 313.00
MCFD =	0	7.3	\$ 36.33
<b>Daily Avg. Revenue Increase</b>			<b>\$ 349.33</b>

**Operator Comment:** This well was uneconomical to produce by the previous operator. The formation pressure is so low that the well will not produce against line pressure. With the installation of the BGC™ the well has been profitable even

before the oil and gas prices made the upward swing. In two years of operation the only maintenance on the BGC™ has been to replace the piston seals. The well is still profitable and we are presently looking at another project for the BGC™.



**Plumbing and hook-ups**

**Case #3**

Chisos Operating, Inc.  
 Kevin Sipes, V.P.  
 Midland, TX  
 Well name: Forest Switzer  
 Location: Pecos County, Texas near Imperial.  
 BGC Installed: 11/15/98

Production Data	Casing w/ 24 PSI	Casing w/ 7 PSI	Revenue Increase
BOPD =	12.10	13.1	\$ 30.00
MCFD =	34.5	69.6	\$ 175.50
<b>Daily Avg. Revenue Increase</b>			<b>\$ 202.50</b>

**Operator Comment:** Five months after the BGC™ was installed, we tied in another well to the compressor. The BGC™ is now compressing gas and pressure from two wells. Production has

been allocated by test once a month after the second well was added and we are unable to provide accurate date on the Forest Switzer #1, however production is holding up on both wells. The Forest Switzer is utilizing a pump off controller and we notices a 10% decrease in energy consumption after the installation of the BGC™. The field personnel reports we have not experienced any problems in the operation of the unit after installing an automatic lubrication pump.

**Case #4**

Range Resources  
 Mike McGinnis, District engineer  
 Fort Worth, TX  
 Well Name: Powell 15A – 33D  
 Location: Glasscock County, Texas, near Garden City.  
 BGC™ Installed: 12/1999

Range: Powell 15B - 33D

Production Data	Casing w/ 32 PSI	Casing w/<0 PSI	Revenue Increase
BOPD =	14.00	22	\$ 240.00
MCFD =	57	60.0	\$ 15.00
<b>Daily Adv. Revenue Increase</b>			<b>\$ 255.00</b>

**Operator Comment:** Production after installation of the BGC had increased. In February 2000 a bridge plug was removed to open up lower perfs and the well went to 100% water. The bridge plug was replaced in early June 2000 and returned to production. The production as of 9/2000 has leveled off to 33 BOPD, 31 MCFD, and 89 BWPD.

**Case #5**

Range Resources  
 Mike McGinnis, District engineer  
 Fort Worth, TX  
 Well Name: Powell 20A – 23D

Location: Glasscock County, Texas, near Garden City.

BGC™ Installed: 3/2000

Range Resources: Powell 20A – 23D

Production Data	Casing w/ 35 PSI	Casing w/<0 PSI	Revenue Increase
BOPD =	16.00	20	\$ 120.00
MCFD =	15	23.0	\$ 40.00
<b>Daily Avg. Revenue Increase</b>			<b>\$ 160.00</b>

**Operator Comment:** The production data is based on four months average production prior to installation and the seven months average production after the BGC™ installation.

We have installed Beam Gas Compressors on four other wells: the Powell 4-13D, Powell 4B – 33D, Powell 16A – 23D, and the Powell 9B – 33D. These wells were originally equipped with electric driven skid mounted compressors which were replaced with the beam operated style compressors. There was no change in production rates on these wells; however, utilities were reduced by \$300.00 - \$500.00 a month per well and rental was \$250.00 - \$300.00 per month less and according to our field people, the BGC takes very little maintenance. Also, during cold weather, the BGC's do not lock up like some of the other compressors can.

### Conclusion:

As the above illustrates, Beam Gas Compressors™ have been installed on a large variation of producing wells. They have made marginal wells profitable, good wells better, and saved operators operating cost by reducing energy consumption as well as providing a reduction in capital investment and/or rental cost. BGC'S have been installed on wells that were scheduled to be

plugged producing against as little as 15 PSIG line pressure. These wells were able to maintain an additional two to three years of profitable life due to a reduction in back pressure. The objective is to keep those wells producing at a higher profit for a longer period of time. The average well in the United States produces around 14 BOPD. So, No well is such a low producer that it should not be considered as a "suspect" for well head compression.