ALBERTA ENERGY AND UTILITIES BOARD
Calgary Alberta

GAUNTLET ENERGY CORPORATION
APPLICATION TO CONSTRUCT AND OPERATE
SOUR GAS COMPRESSOR STATION
AT LSD 16-16-48-12W5M **Examiner Report 2000-7**
BRAZEAU RIVER FIELD **Applications No. 1060362**

1 DECISION

Having considered all of the evidence, the examiners conclude that Gauntlet Energy Corporation's (Gauntlet) applied-for compressor is needed and is reasonably sized and located. It would not negatively impact resource conservation, public health, or safety, nor would it cause unnecessary environmental impacts or introduce any significant imbalance in other well licensees' opportunity to produce. The examiners therefore recommend approval of Application No. 1060362.

2 APPLICATION AND HEARING

2.1 Application

On February 24, 2000, Gauntlet applied to the Alberta Energy and Utilities Board (EUB/Board), pursuant to Section 7.001 of the Oil and Gas Conservation Regulations, for a permit to construct and operate a sour gas compressor station at Legal Subdivision 16, Section 16, Township 48, Range 12, West of the 5th Meridian (LSD 16-16-48-12W5M). The compressor station would maintain production rates from two Gauntlet-operated wells located at LSD 16-16-48-12W5M (the 16-16 well) and LSD 13-15-48-12W5M (the 13-15 well). The compressor would be rated at 860 horsepower (h.p.) (641 kilowatts) and would handle the current processing arrangement of 300 thousand cubic metres per day(10^3 m^3/d) of natural gas containing up to 7.9 moles/kilomole of hydrogen sulphide gas (H_2S). The compressor would be located off the 16-16 well site at a location near an access road and adjacent to a number of pipelines. Gauntlet submitted during the hearing that if its application were approved, it would remove the 210 h.p. rental compressor at the 13-15 well.

2.2 Interventions

The EUB received objections to Gauntlet's applied-for sour gas compressor station from Circle Energy Inc. (Circle) on March 21, 2000, and Triumph Energy Corporation (Triumph) on March 8, 2000. Circle was a working interest owner of both the 16-16 and 13-15 wells. Triumph was a working interest owner and the operator of a well located at LSD 1-21-48-12W5M (the 1-21 well). Both intervening parties considered the size and location of the proposed compressor to be inappropriate. On August 3, the Board received a letter from Circle withdrawing its objection, which was further confirmed by a letter dated August 15. However, as the hearing

was already closed, the examiners have not considered the withdrawal in rendering their decision in this matter.

2.3 Hearing

The application was considered at a public hearing in Calgary, Alberta, on June 20, 2000, before examiners appointed by the Board. The examiner panel consisted of R. J. Willard, P.Eng. (Chairman), G. A. Habib, and A. P. Chare. Those who appeared at the hearing are listed on the following table.

THOSE WHO APPEARED AT THE HEARING

Principals and Representatives (Abbreviations Used in Report)	Witnesses
Gauntlet Energy Corporation (Gauntlet) K. F. Miller	L. R. Sibbald, P.Eng. D. K. Brown, P.Eng., of Jade Management G. M. MacPherson, P.Eng., of Millenia Resource Consulting
Circle Energy Inc. (Circle) J. E. Clarke, P.Geol.	C. W. Baker
Triumph Energy Corporation (Triumph) T. M. Keohane, P.Eng.	
Alberta Energy and Utilities Board staff G. Bentivegna, Board Counsel L. Martinuzzi, P.Eng. G. McLean, C.E.T.	

3 ISSUES

The examiners consider the issues respecting this application to be the

- need for the compressor,
- size of the compressor, and
- location of the compressor.

4 BACKGROUND

The examiners note that the applicant and the two interveners participated in third-party mediation without success. The examiners further note that Gauntlet assumed operatorship of the 13-15 well from Circle through court appointment on June 7, 2000. While operating the 13-

15 well, Circle installed a temporary 210 h.p. compressor to sustain the well's production rates. Authorization for this expenditure and payment issues are a point of dispute between Circle and Gauntlet and the subject of an ongoing court proceeding. This matter is clearly outside of the EUB's jurisdiction.

The applied-for compressor is intended to maintain deliverability of both the 16-16 and the 13-15 wells over the reserve life of both wells. It would also replace existing compression at the 13-15 well, which the applicant believed was inadequate, resulting in shortfalls in meeting processing commitments.

The three referenced wells produce gas from a zone of high permeability in the Brazeau River Shunda F Pool (the F Pool). The F Pool is estimated to have 620 million (10^6) m^3 of original gas in place, with about half remaining. A fourth well, 4-22, operated by Burlington Resources Canada Energy Ltd., produces low volumes of gas from the F Pool and was not considered part of the competitive drainage concerns arising from different compressor sizes.

The 13-15 and 1-21 wells currently produce gas under compression with compressors sized at 210 and 400 h.p. respectively. Existing pipelines transport the F Pool gas to a Petro-Canada tie-in point at LSD 7-16-48-12W5M (the Petro-Canada 7-16 header). From there the gas is transported to the Petro-Canada Brazeau River gas plant at LSD 4-31-48-12W5M. If the proposed compressor were approved by the EUB, Gauntlet would need to construct a short tie-in pipeline to connect the compressor to the existing pipelines. The Burlington-operated 4-22 well is connected to a Canadian Midstream pipeline in the area and transports gas to a Gulf Midstream operated plant in Township 46, Range 14, West of the 5th Meridian.

The 13-15, 16-16, and 1-21 wells have firm capacity under a Petro-Canada contract to deliver up to 150 10^3 m^3/d of gas per well. The processing agreement with Petro-Canada stipulates that the 13-15 and 16-16 wells have a combined processing capacity of 300 10^3 m^3/d. If either well cannot produce its maximum allotted volumes the other can make up any production shortfall up to the combined maximum of 300 10^3 m^3/d. However, the agreement also has a ratchet-back clause whereby if a well were incapable of meeting its full nomination for a period of time, the available capacity would be reduced such that there would be no ability on a go-forward basis to recapture lost volumes.

5 NEED FOR THE COMPRESSOR

5.1 Views of the Applicant

Gauntlet emphasized the need for the compression of gas for both the 13-15 and 16-16 wells due to falling production rates, competitive drainage in the F Pool, and the possibility of Petro-Canada reducing the amount of gas that could be nominated from both wells. Gauntlet claimed that the 16-16 well had experienced a serious decline in production since March 10, 2000, due to lack of compression. Gauntlet stated that production had declined in the 16-16 well from about 150 10^3 m^3/d to between 80 and 100 10^3 m^3/d at the time of the hearing. Gauntlet complained that it had lost gas reserves due to competitive drainage by the 13-15 and 1-21 wells, which both had the advantage of compression.

If the applied-for compressor were approved, Gauntlet submitted that as the operator of the 13-15 well it would remove the existing 210 h.p. compressor and tie in the well to the proposed facility. Gauntlet submitted that it had the support of all working interest owners in both wells with the exception of Circle to tie in both wells to the larger compressor. Gauntlet added that the proposed compressor would allow the 13-15 well to meet its share of the Petro-Canada gas plant nomination. Gauntlet estimated that the 13-15 well was producing at about 15 per cent below its entitled processing capacity at the time of the hearing and had not met its full nomination level since March 5, 2000. Failing to meet maximum allowed nomination levels at either of the wells, Gauntlet added, was contrary to the best interest of all working interest owners.

5.2 Views of the Interveners

Both Circle and Triumph agreed during the course of the hearing that compression at all wells was appropriate. However, Circle argued that there was no need to change out the compressor at the 13-15 well until the end of 2000. Circle noted that production from the 13-15 well had only dropped below the 150 10^3 m^3/d production limit a few times. Circle added that it investigated the production drop and determined that two back pressure valves were holding too much pressure on the wellhead. Circle explained that the back pressure valves were retrimmed during a Petro-Canada plant shutdown in May and early June 2000 and it fully expected production to return to the 150 10^3 m^3/d production rate.

5.3 Views of the Examiners

The examiners note and accept that all parties agreed that compression is needed to effectively and fairly produce gas reserves from the 13-15 and 16-16 wells. While obviously the 16-16 well was in immediate need of compression, the size of the compressor, the impact of expenditures, and the timing for added compression were in dispute.

In determining the most appropriate option to attain the needed compression, the examiners must have regard for effective development of the gas resource while minimizing any impact on the environment and the public. Therefore, in reaching a decision on the preferred alternative, the examiners must review any relative impacts created by the size and location of the proposed compressor and the viable alternatives.

6 SIZE OF THE COMPRESSOR

6.1 Views of the Applicant

Gauntlet recognized that several options existed to deal with the falling production rates and compression needs:

- remove the 210 h.p. compressor at the 13-15 well and install the proposed 860 h.p. compressor to serve both the 13-15 and 16-16 wells;

- install a 400 h.p. compressor at the 16-16 well and leave the 210 h.p. unit in place at the 13-15 well until a 400 h.p. change-out was required; or

- remove the 210 h.p. compressor at the 13-15 well and install two 400 h.p. compressors at the 13-15 and 16-16 wells as soon as possible.

Gauntlet submitted that other options were discussed but not considered viable alternatives. Triumph had proposed compressing all of the gas at the 1-21 compressor site and charging a common processing fee. This was not generally regarded by Gauntlet as a viable alternative because the existing 1-21 compressor did not have the ability to service the processing capacity available at the Petro-Canada plant. Another alternative was to tie in the gas from all three wells into a yet-to-be constructed Canadian Midstream compressor. This too was not considered a viable alternative because it would require significant additional pipelining to tie in the compressor and Canadian Midstream would assume operatorship of the wells.

Gauntlet provided the following economic details regarding the viable options:

- The proposed project would cost a total of $2.2 million, with $1.1 million for the installed compressor and an additional $1.1 million for peripheral equipment, such as the blow case, separator, SCADA system, and alarm.

- The cost to install two 400 h.p. compressors at the 13-15 and 16-16 wells would be approximately $2.49 million ($672 000 x 2 for compressors + $572 000 x 2 for peripheral equipment).

Gauntlet stated that the proposed compressor represented a full reserve life compression solution for both the 13-15 and 16-16 wells. Gauntlet submitted that the compressor would eliminate the need for change-outs of single-well compressors as they became inadequate to maintain satisfactory production rates and thus would eliminate future capital expenditures. Based on its assessment of the compressor design, Gauntlet concluded that the proposed unit would provide both the best capital and best operational arrangement for the two wells.

Gauntlet submitted that when it was considering the best unit for the application, its two main objectives were to sustain a production profile that would allow Gauntlet to maintain its processing limit at the Petro-Canada plant for both wells and to maximize the ultimate recovery of gas from the F Pool. Gauntlet indicated that the proposed compressor could be utilized for one or both wells and was designed for a wide range of flow rates. With minimal modifications (single-acting versus double-acting cylinders), it could operate in three different modes. In addition, if one well's production was to substantially drop off, the horsepower utilization could be directed so that both wells would benefit from the arrangement, as opposed to having stranded horsepower at one well under a two-compressor scenario.

Gauntlet indicated that the ultimate recovery of gas could be greater with the proposed compressor, as the compressor would enable the 13-15 and 16-16 wells to produce to a low abandonment pressure. Gauntlet submitted that the proposed compressor could effectively achieve a 95 per cent recovery of the gas within a three-year time frame. It estimated that the minimum inlet suction pressure would be around 689 kilopascals (kPa), with the gas gathering

system pressure setting the discharge pressure at 9800 kPa. The wide range of flow rates could also be used for a potential future blowdown of the F Pool. Gauntlet stated that ultimately it wanted to match Triumph's ability to maximize the processing capacity limitation at the Petro-Canada gas plant.

Gauntlet argued that it selected a unit with advanced controls and electronic systems that would permit the unit to run efficiently at turndown rates and operate more efficiently than two 400 h.p. units. It stated that the proposed unit would result in minimized down times, lower operating costs, and lower air emissions and would allow for maximum salvage value. The proposed unit would run on a lean burn fuel and air management system. Gauntlet stated that the total air emissions from the proposed compressor would be much lower than two 400 h.p. compressors. Gauntlet estimated that the nitrogen oxide (NO_X) emissions from the proposed compressor would be 1.8 kilograms per hour (kg/h), compared to 7.8 (kg/h), for a single 400 h.p. compressor without a lean burn system.

Gauntlet acknowledged that the proposed compressor would make the existing compressor at the
13-15 well redundant. It argued, however, that Circle created that situation. Gauntlet explained that Circle had not served it with proper notification of its intent to install a 210 h.p. compressor at the 13-15 well. The 13-15 compressor is rented by the month and Gauntlet committed to returning it if the larger 16-16 compressor were approved and installed.

Gauntlet concluded that its choice was the best business decision for itself and its partners. It would also minimize any environmental and public impacts in a competitive situation. Gauntlet did not believe that there were any significant impacts that would warrant the EUB to deny its application.

6.2 Views of the Interveners

Circle argued that the costs associated with the proposed compressor were too high and that the installation of two 400 h.p. compressors when required at the 13-15 and 16-16 wells would be adequate to achieve the same objective at substantially lower expense. Circle disputed Gauntlet's estimates of what two such 400 h.p. compressors would cost and argued that the 13-15 compressor site already had most of the required peripheral equipment in place that could be reused to accommodate a larger 400 h.p. compressor, which would make change-out a more cost-effective alternative. Circle provided its own estimate of about $350 000 for a 400 h.p. compressor installed at the 13-15 well and about $800 000 for a 400 h.p. compressor installed at the 16-16 well. Circle submitted that the cost of two 400 h.p. compressors at both wells would be $1.15 million, as opposed to Gauntlet's proposed expenditure of $2.49 million.

Circle stated that it was never its intention to install the 210 h.p. compressor as a permanent solution to the compression needs of the 13-15 well; it was intended to be traded out at some point as needed. Circle argued that the 13-15 well had not reached that point, believing the existing compressor would be adequate until the end of 2000. Circle contended that there was a compressor at the 13-15 well that did its job, a fact that Gauntlet chose to ignore. Circle indicated its preference for a 400 h.p. compressor installation at the 16-16 well, followed by a change-out of the existing 13-15 compressor with a 400 h.p. compressor near the end of 2000.

Circle argued that it would be reasonable for it to be allowed to change out the 210 h.p. compressor at some future time when needed, so that it would have the opportunity to recover the existing compressor costs and generate an adequate return on its investment. Circle noted that it had already invested $180 000 to install the 210 h.p. compressor at the 13-15 well and argued that future upgrading to a 400 h.p. compressor at the appropriate time would represent an efficient use of existing peripheral equipment. This existing equipment would not be usable in the case of an upgrade to a larger 860 h.p. unit.

Circle submitted that it had never been served with an authorization for expenditure for the proposed compressor and therefore had not had the opportunity to evaluate the relative economics of the various options. More important, Circle added that it did not know what processing fees Gauntlet might charge for its share of production. Circle stated that without a proper indication of what its financial obligations might be, it could not support the application. Circle argued that Gauntlet should be required to supply the Board with detailed economics in support of whatever processing fees it might contemplate in order for the Board to properly assess whether approval of the proposed facility is appropriate.

Circle acknowledged that there would be little, if any, difference in the ultimate gas recovery from the F Pool whether under the proposed compressor or under either of the alternatives for two 400 h.p. compressors at the 13-15 and 16-16 wells. Circle did, however, question Gauntlet's overall recovery factor estimate of 95 per cent.

Triumph submitted that it would accept any of the three viable options, provided there would never be more than one 860 h.p. compressor or two 415 h.p. compressors used to produce the 13-15 and 16-16 wells. Triumph explained that if there were too much horsepower compressing gas from the 13-15 and 16-16 wells, it could create an inequitable drainage of reserves. Triumph argued that a smaller or less powerful compressor could recover the same amount of gas from the F Pool as long as it had the same minimum suction pressure as the proposed unit. Triumph submitted that the time required to reach the ultimate recovery point would take longer with a lower horsepower compressor.

Triumph stated that as a competitor it could not comment on how the working interest participants of 13-15 and 16-16 made their capital expenditure decisions. Its interest was to ensure that lease line drainage was fair.

Triumph did not contest the limited reserve base and rapid production decline of the F Pool. Triumph speculated that the F Pool could have only about two years of remaining production life, as opposed to Gauntlet's estimate of three years.

Triumph speculated that if the Petro-Canada plant inlet volumes were reduced and excess capacity became available, Gauntlet might take advantage of the situation and produce more than the agreed-to limit of 300 10^3 m^3/d limit for both wells. Triumph recognized that more horsepower on the 13-15 and 16-16 wells could lead to a quicker depletion of the F Pool and in turn could boost Gauntlet's share of the total gas production from the F Pool. Triumph requested that if the proposed compressor were approved by the EUB, the 210 h.p. compressor should be removed from the 13-15 well.

6.3 Views of the Examiners

The examiners accept that Gauntlet's compression option meets its needs and allows for adequate and ongoing utilization of the processing capacity over the life of the reserves. The examiners believe that Gauntlet has considered alternatives and made a business choice acceptable to the majority of its working interest partners. The examiners expect that an operator should be able to judge the beneficial aspects of its capital investment and make its own business decisions in consultation with its partners. The examiners believe that in the absence of any significant public interest impact that would cause them to reject Gauntlet's option, the EUB should not intervene in these kinds of business decisions. If neither option has an added advantage over the other in terms of environmental or public health, safety, or other related concerns, then there is no clear basis for a regulator favouring one over the other. In this specific case all regulatory requirements are met and there are no compelling public interest reasons to deny Gauntlet's proposed compressor. In fact, all working interest partners with the exception of Circle are in favour of the proposed facility. Moreover, the examiners note that there is an added environmental benefit to using one large unit rather than two smaller units due to reduced emissions.

The examiners note Circle's concern about the uncertainty regarding what compression fees Gauntlet might be considering. While such concern is understandable, there are other venues available to Circle to address any perceived inequities. Despite the apparent impasse between the two parties, the examiners are of the view that a review of compression fees should only occur after the parties have attempted to negotiate the terms of such arrangements. In the event that the parties are unable to reach a suitable settlement or arrive at an impasse in their negotiations concerning compression fees, the examiners would expect Circle to file the necessary documentation for a review of the fees in due course.

The examiners also note Triumph's concern that no more than one 860 h.p. compressor or two 415 h.p. compressors be allowed to produce the 13-15 and 16-16 wells. However, Gauntlet committed to remove the 210 h.p. compressor at the 13-15 well if the proposed compressor is approved and operational. Given the competitive drainage of the F Pool, the examiners concur with Triumph that from an equity perspective the combined horsepower at the two wells should not exceed 860 h.p. The examiners expect Gauntlet to follow through with its commitment to remove the 210 h.p. compressor upon installation of the additional compression located at 16-16. Should an equitable drainage issue be raised in the future—for example, changes of the gas plant well allocations—the examiners believe it could become the subject of a rateable take application.

7 LOCATION OF THE COMPRESSOR

7.1 Views of the Applicant

Gauntlet argued that consolidating compression of the 13-15 and 16-16 wells into one location would result in improved operating efficiency. Gauntlet stated that it selected the proposed location in consultation with Petro-Canada and the latter endorsed the design and location of the compressor based on its own safety requirements. Gauntlet also stated that the

compressor design and location were determined to meet or exceed all regulatory and safety requirements in Alberta.

Gauntlet stated that it held discussions with Alberta Environment (AENV) as part of its notification and public consultation process and determined that, while the applied-for location would be in a Wildlife C Area, there were no remaining construction restrictions.

Gauntlet acknowledged the concerns raised by the interveners regarding the proximity of the proposed compressor location to existing pipeline rights-of-way and an access road. Gauntlet indicated that the compressor would be located outside of the pipeline rights-of-way and would be approximately 40 m from the road. Gauntlet argued that the compressor location would satisfy all regulatory setback requirements.

Gauntlet recognized that existing pipeline locations on the survey drawings of the proposed facility differed from the existing pipeline locations on a survey plat obtained from the EUB. Gauntlet, however, was confident that the proposed compressor would not encroach on Triumph's or Circle's pipeline rights-of-way and committed to physically locate the pipelines to ensure they would be outside the rights-of-way. Gauntlet also indicated that it was willing to discuss its site-specific safety and operational issues and work with Circle and Triumph to ensure that the proposed location could be operated in a safe manner.

7.2 Views of the Interveners

Triumph indicated that it had safety concerns about the proposed compressor location being very close to existing pipelines. Triumph also expressed concern about the proximity of the proposed compressor location to an existing road that was the only access and egress for many of the well sites, including the 1-21 well. Triumph added that in the unlikely event of a major accident there could be interruptions in its operations. It believed that the compressor should be at least 100 m from the existing pipelines and roadway but did not site any specific setback regulation that would require a 100 m setback to either the road or pipelines.

Triumph did not supply evidence as to the exact distance the compressor would be from existing pipelines. However, it indicated that it was informed of a discrepancy between the EUB pipeline maps and Gauntlet's survey, which resulted in some doubt as to how far away the proposed facility would be from the existing pipeline rights-of-way. Triumph acknowledged Gauntlet's commitment to resolve the discrepancy to ensure that the compressor was not located on the pipeline rights-of-way and Gauntlet's willingness to discuss any site-specific safety and operational issues to ensure that the proposed location was safe.

Circle submitted that it was not convinced that the proposed location would maintain the safety of other producers in the area. Circle indicated that none of the other compressors in the area were located within 100 m of existing flow lines and as close to any road as the proposed facility. Circle submitted that Gauntlet could not provide any guarantees that access or safety would not be impacted.

7.3 Views of the Examiners

In assessing the proposed location of the compressor, the examiners believe that they must consider potential impacts of the compressor and what mitigative measures, if any, are necessary to ensure that impacts are minimized. With respect to environmental issues, the examiners accept that AENV had no specific concerns with the location. The examiners expect the applicant to satisfy all of AENV's regulatory requirements and obtain any additional AENV approvals that may be necessary prior to the commencement of any further construction. Accordingly, the examiners consider the only potential surface impact of the proposed compressor location to be the setback requirements relative to the existing pipelines and access road.

The examiners accept Gauntlet's release volume calculation and the corresponding level-1 facility classification. The examiners note that the EUB only requires a level-1 facility, other than a sour gas well, to be outside rights-of-way for pipelines or roads. In this case, the examiners note that there was a discrepancy between the EUB pipeline maps and Gauntlet's survey, which resulted in some doubt as to how far away the proposed facility would be from the existing pipeline rights-of-way. Accordingly, the examiners expect Gauntlet to clarify the discrepancy between the EUB pipeline maps and the survey and make any necessary changes to EUB records. Notwithstanding the need to clarify this discrepancy, the proposed location would still be outside the pipeline right-of-way and therefore is in compliance with the EUB's requirement for such a facility.

While the location has raised some safety concerns from both Circle and Triumph, the examiners note that the applied-for location meets regulatory requirements. Gauntlet has agreed to discuss site-specific safety and operational issues and work with Circle and Triumph to ensure that the proposed location is operated in a safe manner. Therefore, the examiners are satisfied that the location is appropriate and the commitment to communicate with other operators will further ensure that any potential impacts are minimized.

DATED at Calgary, Alberta, on August 29, 2000.

ALBERTA ENERGY AND UTILITY BOARD

(Original signed by)

R. J. Willard, P.Eng.

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A. P. Chare

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G. A. Habib