OIL AND GAS DOCKET NO. 08-0281522

THE APPLICATION OF BC OPERATING, INC. FOR AN MER ALLOWABLE AND INCREASED NET GAS-OIL RATIO AUTHORITY FOR VARIOUS LEASES, GOLDSMITH (CLEAR FORK) FIELD, ECTOR COUNTY, TEXAS

HEARD BY: Andres J. Trevino, P. E. – Technical Examiner
Michael Crnich – Legal Examiner

PFD PREPARED BY: Paul Dubois – Technical Examiner

DATE OF HEARING: May 15, 2013

APPEARANCES:	**REPRESENTING:**
APPLICANT:	
Paul Tough	BC Operating, Inc.
Michael Moylett	
Gerard G. Vavrek	

EXAMINER'S REPORT AND RECOMMENDATION

STATEMENT OF THE CASE

BC Operating, Inc. (BC), is developing part of the Goldsmith (Clear Fork) Field in Ector County, Texas. As a result of its ongoing development and improved stimulation methods, BC believes the oil and gas allowables are not sufficient to meet the productive capabilities of 22 wells in the field. BC has requested a hearing to (1) set a 500 BOPD MER allowable, (2) set a daily gas limit of 1,000 MCFPD, (3) obtain an exception to Statewide Rule 49a, and (4) cancel all overproduction.

The notice of hearing was issued on April 9, 2013 and set a hearing date of May 15, 2013. The notice identified the following 22 wells as the subjects for the hearing:

	Original 22 Wells	
Lease Name	**Well No.**	**API No.**
Allison	1	42-135-41770
Allison	3	42-135-41772
Allison	5	42-135-41846
Annabelle	3	42-135-41560

Annabelle	4	42-135-41763
Annabelle	6	42-135-42042
Annabelle	8	42-135-42056
Catherine Elaine	7	42-135-42023
Jason	4	42-135-42148
Jason	5	42-135-42226
Jason	7	42-135-42308
Jocelyn	1	42-135-41781
Jocelyn	3	42-135-42095
Jocelyn	4	42-135-42096
Louisa	5	42-135-42030
Louisa	7	42-135-42225
Mary Elise	2	42-135-41778
Pate	4	42-135-41797
Pate	6	42-135-41799
Pate	8	42-135-42060
Pate	12	42-135-41912
Tripp	5	42-135-41663

At the hearing, BC requested the withdrawal of six wells from consideration, as these wells were either (1) not drilled yet, or (2) drilled and completed in different zones. The six wells removed from the case are as follows:

6 Wells Removed at Hearing

Lease Name	Well No.	API No.
Allison	5	42-135-41846
Catherine Elaine	7	42-135-42023
Jason	4	42-135-42148
Jason	7	42-135-42308
Louisa	7	42-135-42225
Pate	8	42-135-42060

Also, at the hearing, BC requested the addition of six wells to the matter, bringing the total for consideration back up to 22. The six additional wells are listed as follows:

6 Wells Added at Hearing

Lease Name	Well No.	API No.
Adam	11	42-135-42305
Annabelle	5	42-135-42088
Isabel	1	42-135-41313
Isabel	2	42-135-41589

Isabel	3	42-135-41822
Isabel	4	42-135-41834

At the hearing, it was recognized by all parties that the additional six wells were not included on the notice. Therefore, on November 22, 2013, the examiners sent a letter to all persons on the service list informing them of the addition of the six wells and providing an opportunity to protest. A ten day response and protest period was allowed; no protests were received. The examiners note data referenced in this report is that submitted as evidence in the May 15, 2013 hearing, six months prior to the report being written.

DISCUSSION OF EVIDENCE

BC is actively developing the southeast part of the Goldsmith (Clear Fork) Field in Ector County, Texas. The Goldsmith (Clear Fork) Field is located on the north-central portion of the Central Basin Platform, and the subject portion of the field is on a northwest-southeast trending anticline. The field structure has a relief of about 100 feet from the top to the flanks. The top of the productive reservoir is found at a depth of approximately 6,000 feet and the gross reservoir thickness is approximately 1,200 feet. Although some structural closure exists, most hydrocarbon trapping is controlled by lateral and vertical limits of porosity and permeability. Limestones and dolomites comprise most of the reservoir lithology with the majority of the reservoir quality rock being a sucrosic dolomite. Solution gas drive is the apparent producing mechanism.

The Lower Clear Fork and Wichita Formations are highly stratified with varying degrees of lateral heterogeneity. The Clear Fork and Wichita reservoirs were deposited broadly as shallow-platform and marginal-bank carbonates. Fluctuations in sea level, combined with an arid paleo-climate resulted in the deposition of porous reservoir rocks alternating with non-porous intervals and are responsible for the highly stratified reservoirs.

The Goldsmith (Clear Fork) Field was discovered in March 1946 at a depth of 6,300 feet. The subject area was generally passed over for development because of the very high water cut (80-90 percent) of produced fluids. Recent application of contemporary well completion and stimulation methods, along with a high price for oil, have improved reservoir economics. In 2010 BC acquired two Clear Fork producing wells in this area and has since then aggressively developed the field. BC now operates more than 70 wells drilled in the field. Current field rules include (1) lease line spacing of 330 feet and no between well spacing limitations, (2) 40-acre standard proration units with 20-acre tolerance and 10-acre optional units. The current top allowable for the field is 110 BOPD; many wells in the field have been granted higher MER allowables, including 17 wells operated by BC (see Oil & Gas Docket No. 08-0272344).

Through March 2013, cumulative production for the entire Goldsmith (Clear Fork) Field (from all operators) was 121 MMBO and 581 BCFG. BC's cumulative productivity

from 2010 through March 2013 was 833 MBO and 2.54 BCFG. BC is currently producing about 70,000 BO per month. BC has modified its well completion practices from three to five stage fracture stimulations and has tuned its production practices to operate efficiently in a high water cut field.

BC's expert engineering witness testified that it was not feasible to conduct step testing for the requested MER allowable as the wells are on rod pumps. BC had experimented with electric submersible pumps (ESPs) but found that they did not function efficiently in this reservoir given their high cost and tendency to gas lock and overheat. Decline curves for the 22 wells subject to this hearing generally exhibit flat water production and declining water-to-oil ratios. These trends are accompanied by flat gas-to-oil ratio curves.

BC's production data indicates that the wells operate more efficiently at higher production rates because of the need to keep the water pumped off and prevent the wells from loading up. In the 22 wells subject to this application, the maximum per well oil production has ranged from 55 to 934 BOPD, and the maximum per well gas production has ranged from zero (0) to 1,541 MCFGPD. The lower-producing wells may be located in poor reservoir quality rock, and BC may attempt to restimulate or recomplete these wells in the future.

BC's testimony and evidence indicate the wells operate more efficiently at higher production rates by reducing the hydrostatic head of the significant water volume in the reservoir. An MER allowable of 500 BOPD, daily gas limit of 1,000 MCFGPD, and an exception to Statewide Rule 49(a) will promote conservation, prevent waste and not harm correlative rights.

FINDINGS OF FACT

1. Notice of this hearing was given to all parties entitled to notice at least ten days prior to the date of hearing. No protests were received.

2. Notice was given to all parties entitled to notice for the six wells added to the matter during the hearing. No protests were received.

3. The Goldsmith (Clear Fork) Field is designated as an associated oil and gas field and was discovered in March 1946 at a depth of 6,300 feet.

4. The subject portion of the field is on a northwest-southeast trending anticline with relief of about 100 feet from the top of structure to the flanks.

5. Limestones and dolomites comprise most of the reservoir lithology with the majority of the reservoir quality rock being a sucrosic dolomite.

6. The Lower Clear Fork and Wichita Formations are highly stratified with varying degrees of lateral heterogeneity, and thus limited or no hydraulic communication between wells.

7. Solution gas drive is the apparent producing mechanism.

8. The top yardstick allowable is 111 BOPD and many wells have been granted higher MER allowables.

9. Decline curves for the 22 wells subject to this hearing generally exhibit flat water production and declining water-to-oil ratios.

10. In the 22 wells subject to this application, the maximum per well oil production has ranged from 55 to 934 BOPD, and the maximum per well gas production has ranged from zero (0) to 1,541 MCFGPD.

11. The 22 wells are on rod pumps preventing variable rate testing.

12. Production data indicated decreasing water cut, decreasing water-to-oil ratio, and flat gas-to-oil ratios.

13. The wells produced efficiently at production rates higher than the field-wide allowable rate of 111 BOPD.

CONCLUSIONS OF LAW

1. Notice of this hearing was given as specified in the provisions of all regulatory codes.

2. All things have occurred or been accomplished to give the Commission jurisdiction in this matter.

3. An MER allowable of 500 BOPD, daily gas limit of 1,000 MCFGPD, providing exceptions to Statewide Rule 49(a) and cancelling overproduction for BC's 22 subject wells in the Goldsmith (Clear Fork) Field will not cause waste and will not harm correlative rights.

RECOMMENDATION

Based on the above findings and conclusions of law, the examiners recommend approval of the MER allowable of 500 BOPD, net daily gas rates of 1,000 MCFGPD, and cancellation of overproduction for the 22 subject wells in the Goldsmith (Clear Fork) Field.

Respectfully submitted,

Paul Dubois
Technical Examiner

Michael Crnich
Legal Examiner