

**OIL AND GAS DOCKET NO. 04-0257312**

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**THE APPLICATION OF SUE-ANN OPERATING, L.C. TO CONSOLIDATE VARIOUS MINNIE BOCK, NORTH FIELDS INTO THE MINNIE BOCK, NORTH (FRIO CONS) FIELD AND ADOPT FIELD RULES FOR THE MINNIE BOCK, NORTH (FRIO CONS) FIELD, NUECES COUNTY, TEXAS**

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**Heard by:** Richard D. Atkins, P.E.

**Date of Hearing:** July 11, 2008

**Appearances:**

Dale E. Miller

**Representing:**

Sue-Ann Operating, L.C.

**EXAMINER'S REPORT AND RECOMMENDATION**

**STATEMENT OF THE CASE**

Sue-Ann Operating, L.C. requests to consolidate forty Minnie Bock, North Fields into a new field to be known as the Minnie Bock, N (Frio Rvrbed Con) Field. However, it was decided by commission staff that the name was inappropriate, so Sue-Ann agreed to Minnie Bock, North (Frio Cons) Field as the consolidated field name. The fields proposed for consolidation are as follows:

<b><u>FIELD NAME</u></b>	<b><u>FIELD NUMBER</u></b>
Minnie Bock, North	61916 001
Minnie Bock, North (Frio 25)	61916 032
Minnie Bock, N. (Frio 25 Up.)	61916 048
Minnie Bock, North (Horner)	61916 080
Minnie, Bock, N. (Wright)	61916 096
Minnie, Bock, N. (Wright FB B)	61916 112
Minnie Bock, N. (Z 3)	61916 160
Minnie Bock, N. (Z 3 3800)	61916 176
Minnie Bock, N. (Z 3-A)	61916 192
Minnie Bock, N. (Z 3-A FB B)	61916 208
Minnie Bock, N. (Z 4 Lower)	61916 224
Minnie Bock, N. (Z 4-A)	61916 240
Minnie Bock, N. (Z 4-A FB B)	61916 256
Minnie Bock, N. (Z 4-A FB C)	61916 272
Minnie Bock, N. (Z 4-C)	61916 288
Minnie Bock, N. (Z 5-A)	61916 304

Minnie Bock, N. (Z 5-E)	61916 312
Minnie Bock, N. (Z 6)	61916 320
Minnie Bock, N. (Z 13)	61916 448
Minnie Bock, N. (Z 13 Seg W)	61916 464
Minnie Bock, N. (Z 14)	61916 480
Minnie Bock, N. (Z 14 Blk. C)	61916 496
Minnie Bock, N. (Z 14 FB B)	61916 512
Minnie Bock, N. (Z 15)	61916 528
Minnie Bock, N. (Z 21-A)	61916 560
Minnie Bock, N. (Z 22)	61916 576
Minnie Bock, N. (Z 22 Blk. D)	61916 592
Minnie Bock, N. (Z 23-A)	61916 608
Minnie Bock, N. (Z 23-A FB A)	61916 624
Minnie Bock, N. (Z 23-B)	61916 640
Minnie Bock, N. (5860)	61916 775
Minnie Bock, North (5900)	61916 784
Minnie Bock, N. (5970)	61916 787
Minnie Bock, N. (6050)	61916 796
Minnie Bock, North (6130)	61916 800
Minnie Bock, North (6190)	61916 816
Minnie Bock, N. (6250)	61916 832
Minnie Bock, N. (6575)	61916 845
Minnie Bock, N. (6600)	61916 848
Minnie, Bock, North (6750)	61916 864

Sue-Ann requests that the following rules be adopted for the new field:

1. Designation of the field as the correlative interval between 5,610 feet and 6,903 feet as shown on the Induction Electric log of the Atlantic Richfield Company - Lee M. Dugger Lease, Well No. 6 (API No. 42-355-06172), Nueces County, Texas;
2. 150' lease line spacing with no minimum distance between wells;
3. 40 acre proration units with optional 20 acre density;
4. Oil allocation based on salvage, gas allocation based on 5% deliverability and 95% per well and that the allocation formula be suspended.

This application was unopposed and the examiner recommends approval of Sue-Ann's request for field consolidation and field rules.

### **DISCUSSION OF THE EVIDENCE**

The forty Minnie Bock, North fields were discovered beginning in March 1946. There are 19 fields classified as oil, 6 fields classified as associated and 15 fields classified as non-associated. To date, 93 wells have been completed in the proposed consolidated fields. The fields operate under various spacing and density rules and have various allocation formulas. The fields are geographically intermingled and there are no other fields contained within the proposed correlative interval. Several of the wells have produced from up to five different fields.

There are nine active oil wells, eight operated by Sue-Ann Operating, L.C. and one by Hedrick Production Inc. Sue-Ann operates all 16 active gas wells and is the operator of record for all seven inactive gas wells and five of the six inactive oil wells still carried on the proration schedule. There are 68 oil completions and 32 gas completions that are plugged and abandoned. The total cumulative production from the 40 fields proposed for consolidation through February 2008 is 3.2 MMBO, 133.5 MBC and 29.1 BCFG.

Sue-Ann is proposing to consolidate the forty fields into the Minnie Bock, North (Frio Cons) Field and classify it as associated-prorated. The proposed designated interval for the consolidated field is from 5,610 feet to 6,903 feet as shown on the Induction Electric log of the Atlantic Richfield Company - Lee M. Dugger Lease, Well No. 6 (API No. 42-355-06172), Nueces County, Texas.

The Minnie Bock, North fields consist of stacked middle Frio age sands that were deposited in a deltaic near shore marine environment. Cross section analysis indicates that the Frio interval includes numerous lenticular sands with extensive lateral variability. Structurally downdip, many of the sands exhibit a serrated log characteristic and begin to pinch out. The Frio sands all have depletion drive as the primary drive mechanism and produce little water. Most of the sands may prove to be productive in future wells, but separate completions in each sand would not be commercial. In addition, completing in all of the productive intervals at the same time will reduce the economic limit for each interval and provide for the additional recovery of hydrocarbons.

Sue-Ann provided drainage area calculations for four of the fields proposed for consolidation. The estimated drainage acreage varies from 316 acres in the Bickler & Mosley #3 LT to less than one acre for the Wright, J.H. #4. Although a couple of the fields have a few wells with larger drainage areas, most of the wells in all of the four sample fields have drainage areas from 48 acres down to 7 acres and coincide with the requested 40 acre proration units with optional 20 acre density.

Sue-Ann Operating, L.C. stated that the initial cost of drilling, completing and stimulating the wellbore in all possible zones within the requested correlative interval is approximately \$728,000. Sue-Ann estimated that the additional cost to complete the

wellbore in each of the reservoirs separately after depletion of reserves would be approximately \$510,000. In addition, the delay in the recovery of the reserves from each reservoir would result in the wells becoming less economic, thereby reducing the ultimate recovery.

Sue-Ann also stated that producing all of the Frio reservoirs simultaneously would reduce the abandonment rate for each zone and increase the ultimate recovery of hydrocarbons from all of the reservoirs. Assuming an economic limit of 15 MCFGPD and an exponential decline rate of 10% per year for gas wells and an economic limit of 1 BOPD and an exponential decline rate of 20% per year for oil wells, Sue-Ann calculated the incremental reserves to be recovered for each additional reservoir completed in a wellbore to be 51,964 MCFG for gas wells and 1,636 BO for oil wells, thereby preventing waste and promoting conservation.

Minimum well spacing of 150' lease line spacing with no minimum distance between wells and 40 acre proration units with optional 20 acre density will provide flexibility in locating wells for future development in the Minnie Bock, North area. Sue-Ann will be actively developing the Frio interval by drilling infill wells and completing existing wells into additional Frio zones and needs the flexibility to downhole commingle production to increase the economic viability of completing the wells.

A multi-factor allocation formula is necessary for the protection of correlative rights pursuant to State Statutes. Since the Frio interval includes numerous lenticular sands with extensive lateral variability, the ultimate recovery is determined by sand quality and not by assigned acreage. Therefore, Sue-Ann proposed a two-factor allocation formula for gas wells based on 5% deliverability and 95% per well to satisfy both of the above statements. In addition, Sue-Ann requested that the allocation formula be suspended as there is a 100% market for all the gas produced from the field. In addition, the maturity level of the oil fields justify a salvage classification.

#### **FINDINGS OF FACT**

1. Notice of this hearing was given to all persons entitled to notice and there were no protests.
2. The forty Minnie Bock, North fields were discovered beginning in March 1946. There are 19 fields classified as oil, 6 fields classified as associated and 15 fields classified as non-associated. To date, 93 wells have been completed in the proposed consolidated fields.

3. The fields operate under various spacing and density rules and have various allocation formulas. The fields are geographically intermingled and there are no other fields contained within the proposed correlative interval.
4. There are nine active oil wells, eight operated by Sue-Ann Operating, L.C. and one by Hedrick Production Inc. Sue-Ann operates all 16 active gas wells and is the operator of record for all seven inactive gas wells and five of the six inactive oil wells still carried on the proration schedule.
5. Sue-Ann is proposing to consolidate the forty fields into the Minnie Bock, North (Frio Cons) Field and classify it as associated-prorated. The total cumulative production from the 40 fields proposed for consolidation through February 2008 is 3.2 MMBO, 133.5 MBC and 29.1 BCFG.
6. The designated interval for the consolidated field is from 5,610 feet to 6,903 feet as shown on the Induction Electric log of the Atlantic Richfield Company - Lee M. Dugger Lease, Well No. 6 (API No. 42-355-06172), Nueces County, Texas.
7. Wells in the forty Minnie Bock, North fields produce from the same correlative interval.
8. The Minnie Bock, North fields consist of stacked middle Frio age sands that were deposited in a deltaic near shore marine environment. Cross section analysis indicates that the Frio interval includes numerous lenticular sands with extensive lateral variability.
9. The Frio sands all have depletion drive as the primary drive mechanism and produce little water.
10. Sue-Ann estimated that the additional cost to complete the wellbore in each of the reservoirs separately after depletion of reserves would be approximately \$510,000. In addition, the delay in the recovery of the reserves from each reservoir would result in the wells becoming less economic, thereby reducing the ultimate recovery.
11. Sue-Ann calculated the incremental reserves to be recovered for each additional reservoir completed in a wellbore to be 51,964 MCFG for gas wells and 1,636 BO for oil wells.
12. The calculated drainage areas support Sue-Ann's requested 40 acre spacing with optional 20 acre units that will provide flexibility in locating wells for future development in the Minnie Bock, North area.

13. Sue-Ann proposed a two-factor allocation formula for gas wells based on 5% deliverability and 95% per well to satisfy State Statutes. In addition, the maturity level of the oil fields justify a salvage classification.
14. Suspension of the allocation formula in the consolidated field is appropriate because there is a market for any gas produced from the field.

**CONCLUSIONS OF LAW**

1. Proper notice of this hearing was given to all persons legally entitled to notice.
2. All things have occurred or been accomplished to give the Railroad Commission jurisdiction in this matter.
3. Consolidation of the fields as proposed by Sue-Ann Operating, L.C. is necessary to prevent waste and protect correlative rights.
4. The proposed field rules will prevent waste, protect correlative rights, and satisfy statutory requirements.

**EXAMINER'S RECOMMENDATION**

Based on the above findings of fact and conclusions of law, the examiner recommends that the Commission consolidate the forty Minnie Bock, North Fields into the new field, the Minnie Bock, North (Frio Cons) Field, Nueces County, Texas, adopt permanent field rules for the Minnie Bock, North (Frio Cons) Field and that the allocation formula in the field be suspended.

Respectfully submitted,

Richard D. Atkins, P.E.  
Technical Hearings Examiner