RAILROAD COMMISSION OF TEXAS

HEARINGS DIVISION

OIL & GAS DOCKET NO. 10-0298425

THE APPLICATION OF ENERVEST OPERATING, LLC PURSUANT TO STATEWIDE RULE 101 FOR THE DESIGNATION OF THE MILLS RANCH (GRANITE WASH CONS.) FIELD AS A TIGHT GAS FORMATION, WHEELER COUNTY, TEXAS

HEARD BY: Brian Fancher – Technical Examiner
Ryan Lammert – Administrative Law Judge

PREPARED BY: Paul Dubois – Technical Examiner

HEARING DATE: December 30, 2015

CONFERENCE DATE: March 21, 2017

APPEARANCES:	**REPRESENTING:**
James Clark, P. E.	EnerVest Operating, LLC
Jonathon Travis	

EXAMINERS' REPORT AND RECOMMENDATION

STATEMENT OF THE CASE

Pursuant to Statewide Rule 101 (16 Tex. Admin. Code §3.101), EnerVest Operating, LLC ("EnerVest") (Operator No. 252131) seeks a tight formation area designation for a portion of the Mills Ranch (Granite Wash Cons.) Field, in Wheeler County, Texas. The requested area includes eleven surveys containing 6,422 acres (about 10 square miles), and the correlative interval for the tight formation area designation is limited to the Kansas City B and C Formations within the larger Mills Ranch (Granite Wash Cons.) Field correlative interval. EnerVest provided evidence that the requested area meets the technical requirements of Statewide Rule 101(f). The application was not protested. The Technical Examiner and Administrative Law Judge (collectively, "Examiners") recommend the application be approved and the tight formation area be designated.

STATUTORY AUTHORITY

Pursuant to Statewide Rule 101(f)(3)(B), an applicant for a tight formation area certification must provide engineering and geological exhibits, including a written explanation of each, to establish the following:

(i) *That the in situ permeability throughout the proposed formation or specific portion thereof is 0.1 millidarcies or less, as determined by geometric mean or median analysis of available data from all wells that either have been tested or are completed in the proposed formation within the requested area. If no in situ permeability estimates are provided for wells that are in the requested area and have been tested and/or are completed in the proposed formation, an explanation shall be provided;*

(ii) *That the pre-stimulation stabilized production rate against atmospheric pressure at the wellhead, as determined by a geometric mean or median analysis of available data from all wells within the requested area that either have been tested and/or are completed in the proposed formation or specific portion thereof, does not exceed the production rate listed in the following table;*[1]

(iii) *That no well drilled into the formation is expected to produce, without stimulation, more than five barrels of crude oil per day; and*

(iv) *That the requested designated area does not extend beyond a two and one-half mile radius drawn from any data point well.*

DISCUSSION OF THE EVIDENCE

Background

On September 26, 2015, EnerVest sent notice of its application for a tight area formation designation to all operators in the Mills Ranch (Granite Wash Cons.) Field. On September 30, 2015, EnerVest filed its application for a tight area formation designation with the Commission in Austin, Texas. On October 26, 2015, Commission staff notified EnerVest that the application could not be granted administratively because of several technical deficiencies; EnerVest subsequently requested a hearing on the application. On October 28, 2015, the application was received by the Hearings Division.

At the hearing on December 30, 2015, EnerVest requested that the tight formation area be enlarged to include three additional sections of land under lease to

---

[1] *See* 16 TAC §3.101(f)(3)(B)(ii); the table is not reproduced here. The maximum allowable pre-stimulation production rate is 802 thousand cubic feet (mcf) per day for a tight formation area designation the average depth to top of which is between 10,500 feet and 11,000 feet below ground surface.

Chesapeake. EnerVest included these three sections of land at Chesapeake's request. However, EnerVest's evidence did not include any data from the three Chesapeake sections in its technical analysis. By letter dated January 13, 2016, EnerVest withdrew its request to include the three Chesapeake sections.

The Proposed Tight Formation Area

EnerVest is an operator of 27 wells in the Mills Ranch (Granite Wash Cons.) Field in the following eleven Wheeler County surveys containing 6,422 acres (about 10 square miles):[2]

- Section 2, Block 4 B&B/McCrohan, G. O. Survey A-8268;
- Section 50 Block A3 H&GN RR Co./Young, A. H. Survey, A-8461;
- Section 49 Block A3 H&GN RR Co. Survey, A-219;
- Section 31 Block A3 H&GN RR Co. Survey, A-210;
- Section 32 Block A3 H&GN RR Co./Miller, W. J. Survey, A-8262;
- Section 28 Block A3 H&GN RR Co./Fry, H. Survey, A-522;
- Section 27 Block A3 H&GN RR Co. Survey, A-208;
- Section 26 Block A3 H&GN RR Co./McCabe, M. F. Survey, A-427;
- Section 26 Block A3 H&GN RR Co./Sanders, W. Survey, A-528;
- Section 25 Block A3 H&GN RR Co. Survey, A207; and
- Section 9 Block A3 H&GN RR Co. Survey, A-199.

Through the Final Order in Oil & Gas Docket No. 10-0261739, the Commission consolidated the Mills Ranch (Granite Wash) and Mills Ranch (Granite Wash, K. C.) Fields into the Mills Ranch (Granite Wash Cons.) Field.[3] In that matter, the entire correlative interval between 10,297 feet to 11,512 feet as shown on the log of the Sallie Well No. 505 (API No. 483 32819), Section 5, Block L, J. M. Lindsay Survey, A-462, Wheeler County, was designated as a single reservoir for proration purposes and be designated as the Mills Ranch (Granite Wash Cons.) Field. This interval included both the Kansas City and Granite Wash Formations.

In EnerVest's present application, however, the designated tight formation area is limited to two intervals in the Kansas City Formation. These two intervals are referred to by EnerVest as the Kansas City "B" and "C" intervals. According to EnerVest's expert engineering witness, the Kansas City Formation is a tight carbonate, whereas the underlying Granite Wash Formation is composed of a clastic lithology. The contacts at the top of the Kansas City B, between the Kansas City B and C, and between the Kansas City C and Granite Wash Formations are readily discernable on vertical well logs that transect the proposed tight formation area section. Specifically, high-gamma

---

[2] Ex. 1.

[3] *See* Oil & Gas Docket No. 10-0261739, The Application Of Sanguine Gas Exploration To Consolidate The Mills Ranch (Granite Wash) And Mills Ranch (Granite Wash, K.C.) Fields Into A Single Field Called The Mills Ranch (Granite Wash Cons.) Field And To Adopt Field Rules For The Mills Ranch (Granite Wash Cons.) Field, Wheeler County, Texas. November 30, 2010.

ray values indicating high shale content are observable at the base of the Kansas City A, Kansas City B and Kansas City C intervals. On the well log of the Black, J. R. Well No. 2 (API No. 42-483-32041) the proposed tight formation are designation occurs within the depth interval of 10,543 feet to 10,888 feet. [4] Several tight formation area designations already exist for nearby portions of the Granite Wash Formation.

EnerVest asserts that the carbonate reservoirs in the Kansas City B and C intervals are not economic targets for development with vertical wells. Its typical horizontal wells in the Kansas City B and C intervals have 4,300-foot laterals that have been fracture stimulated with more than 100,000 gallons of acid and 2.3 million pounds of proppant. Without such stimulation, EnerVest stated that the Kansas City Formation would not be productive at all because the formation is too tight.

Data Points

Of the 27 wells operated by EnerVest in the proposed tight formation area, 11 were evaluated for the technical requirements of Statewide Rule 101(f)(3)(B), and are considered to be "data point" wells in this applicaiton. The production matching on two other gas wells did not converge to a unique solution and could not be used. The other 14 wells were oil wells. EnerVest testified that wells in this field produce volatile oil or retrograde gas, and there is a fine line between how wells are classified as gas wells or oil wells. EnerVest did not evaluate data from the oil wells in the proposed tight formation area, as those wells would not be eligible for the serverance tax reduction under Statewide Rule 101. However, EnerVest does assert that it believes several of the oil wells are, in fact, gas wells, but EnerVest has not as of yet pursued reclassification through a hearing and Commission Final Order.

In-Situ Permeability

EnerVest conducted production matching analysis with PROMAT software to evaluate the in-situ permeability of the eleven data points. Based on this analysis, EnerVest determined that the geometric mean permeability was 0.0016 millidarcies, which meets the requirement in Statewide Rule 101(f)(3)(B)(i) to be less than 0.1 millidarcies.

Pre-stimulation Stabilized Production Rate

EnerVest conducted single rate flow test analysis using ONEPT software to evaluate the pre-stimulation stabilized production rate for the data point wells. Based on this analysis, EnerVest determined that the geometric mean pre-stimulation stabilized production rate 14 thousand cubic feet per day, which meets the requirement in Statewide Rule 101(f)(3)(B)(ii) to be less than 803 thousand cubic feet per day.

---

[4] Ex. 4.

Oil Production

EnerVest determined that, without stimulation, a vertical well in the field would not be expected to produce more than 5 barrels of oil per day. EnerVest determined that the semi-steady state oil flow from an unstimulated vertical well would be 2.6 barrels of oil per day, which meets the requirement in Statewide Rule 101(f)(3)(B)(iii) to be less than 5 barrels of oil per day. EnerVest concludes that, in the proposed tight formation area, no wells will produce oil or gas in the absence of hydraulic fracture stimulation. However, once stimulated, about half of the wells will produce hydrocarbons in such a way as to be classified as gas wells pursuant to Commission rules and policy, and the other half (more or less) will be classified as oil wells. Those that classify as gas wells will qualify for the severance tax reduction under Statewide Rule 101.

Distance to Data Points

Statewide Rule 101(f)(3)(B)(iv) requires all of a designated tight formation area be within 2.5 miles of a data point well. It appears that about one-half of one section of the proposed tight formation area falls beyond the 2.5 mile limit. However, the overall data point density of the 6,422-acre area (11 data point wells, or about one data point well per 583 acres) significantly exceeds the minimum data point density implied by the rule in which one data point can be used to justify a circular area with a radius of 2.5 miles (or about one well per 12,566 acres).

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 the hearing.

2. The proposed tight formation area covers 6,422 acres in 11 surveys in Wheeler County, Texas.

3. The proposed tight formation is Kansas City Formation, B and C intervals, in the Mills Ranch (Granite Wash Cons.) Field. This proposed tight formation area does not include the Granite Wash Formation, which has been elsewhere designated as a tight formation area.

4. The geologic contacts delineating Kansas City Formation B and C intervals are readily identifyable on well logs in the area.

5. EnerVest operates 27 wells in the proposed tight formation area, including 13 gas wells and 14 oil wells.

6. Data from 11 of the 13 data point wells was of sufficient quality to evaluate by modeling the in-situ permeability and pre-stimulation stabilized production rates.

7. The geometric mean permeability of the 11 data points is 0.0016 millidarcies, which meets the requirement in Statewide Rule 101(f)(3)(B)(i) to be less than 0.1 millidarcies.

8. The geometric mean pre-stimulation stabilized production rate is 14 thousand cubic feet per day, which meets the requirement in Statewide Rule 101(f)(3)(B)(ii) to be less than 803 thousand cubic feet per day.

9. Without stimulation, no well in the field would be expected to produce more than 5 barrels of oil per day, which meets the requirement in Statewide Rule 101(f)(3)(B)(iii) to be less than 5 barrels of oil per day.

10. The overall data point density of the 6,422-acre area (11 data point wells, or about one data point well per 583 acres) significantly exceeds the minimum data point density implied by the rule in which one data point can be used to justify a circular area with a radius of 2.5 miles (or about one well per 12,566 acres), substantively meeting the requirement in Statewide Rule 101(f)(3)(B)(iv).

CONCLUSIONS OF LAW

1. Resolution of the subject application is a matter committed to the jurisdiction of the Railroad Commission of Texas. Tex. Nat. Res. Code § 81.051.

2. All notice requirements have been satisfied. 16 Tex. Admin. Code §3.101.

3. The application for a tight formation area designation meets the requirements of Statewide Rule 101. 16 Tex. Admin. Code §3.101.

EXAMINERS' RECOMMENDATION

Based on the above findings of fact and conclusions of law, the Examiners recommend the Commission enter an order granting the application of EnerVest Operating, LLC for a tight formation area designation for a portion of the Mills Ranch (Granite Wash Cons.) Field, in Wheeler County, Texas.

Respectfully submitted,

Paul Dubois
Technical Examiner

Ryan Lammert
Administrative Law Judge

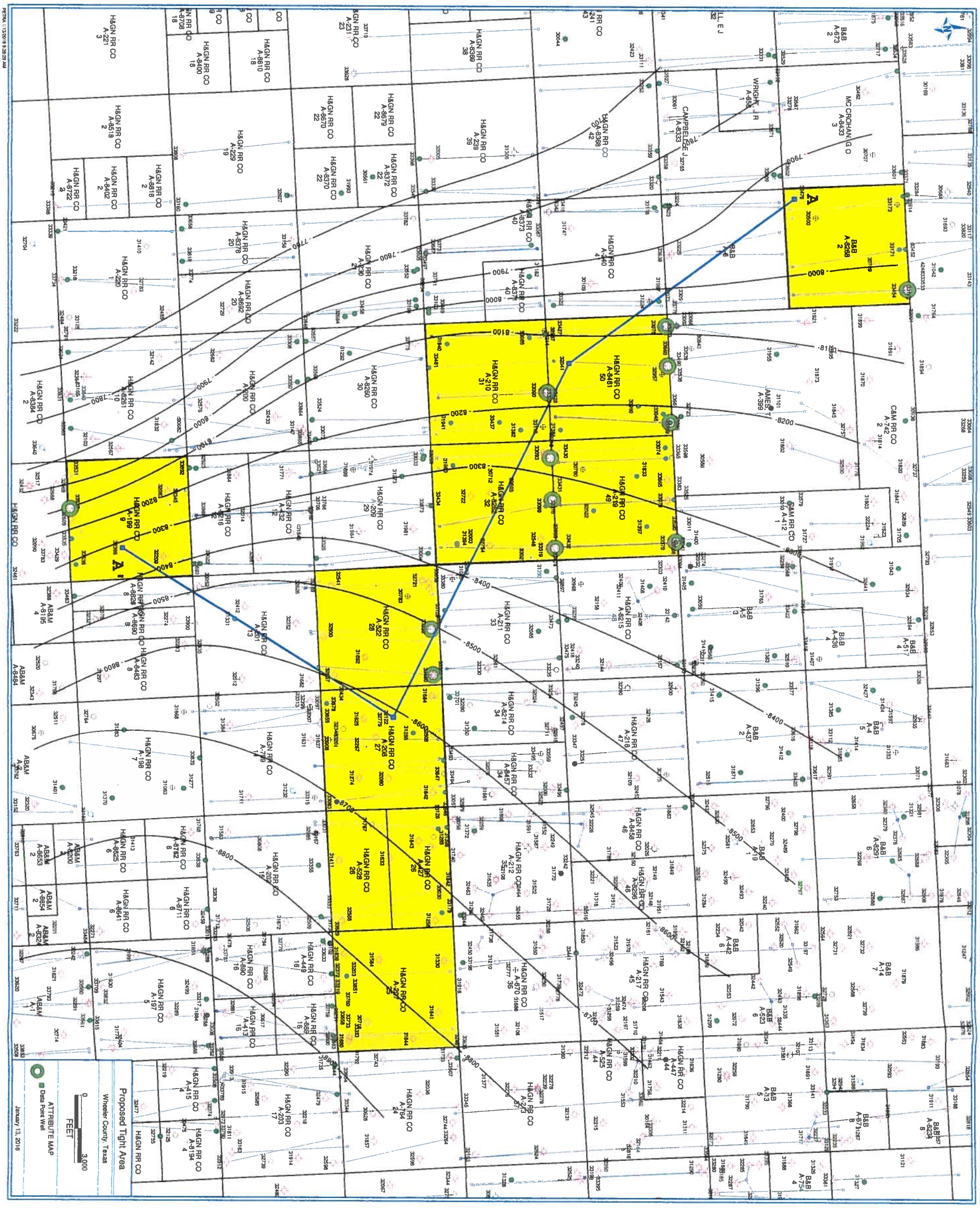

Exhibit No.1

Oil and Gas Docket No. 10-0298425
Enervest Operating, LLC
December 30, 2015 **Exhibit No.** 3R