



RAILROAD COMMISSION OF TEXAS

HEARINGS DIVISION

OIL AND GAS DOCKET NO. 03-0295965

**THE APPLICATION OF BP AMERICA PRODUCTION COMPANY TO AMEND
FIELD RULES FOR THE MAPLE SLOUGH (UPPER WILCOX CONS) FIELD,
HARDIN COUNTY, TEXAS**

HEARD BY: Paul Dubois – Technical Examiner
Marshall Enquist – Hearings Examiner

HEARING DATE: May 13, 2015

CONFERENCE DATE: June 9, 2015

APPEARANCES:

Brian Sullivan, P.E.
Eric Eddlemon
Steve Smith
Gil Bujano
Thomas Cronin
Travis Gillham, P.E.

REPRESENTING:

BP America Production Company

EXAMINER'S REPORT AND RECOMMENDATION

STATEMENT OF THE CASE

BP America Production Company (BP) seeks to amend the field rules for the Maple Slough (Upper Wilcox Cons) Field in Hardin County, Texas. BP believes the proposed field rules will facilitate its efforts to revitalize the Maple Slough (Upper Wilcox Cons) Field. BP requests the following field rule amendments:

1. Reduce lease line spacing from 467 feet to 330 feet, and eliminate the between-well spacing requirement.
2. For horizontal wells, add the following provisions:
 - a. Dual lease line take point spacing with 100-foot for first and last take

- points and 330-foot perpendicular lease line spacing for all take points;
- b. No perforation zones;
 - c. 50-foot box rule;
 - d. Off-lease penetration points
 - e. Establishing additional acreage for horizontal wells;
 - f. Streamlined Rule 38 exceptions for unit sizes between 320 and 40 acres; and
 - g. Stacked lateral wells;
3. Time extensions for filing completion reports under Statewide Rule 16(b) [16 Tex. Admin. Code §3.16(b)] and potential tests under Statewide Rule 51(a) [16 Tex. Admin. Code §3.51(a)].
 4. Annual filing of Form G-10. BP requests the field's allocation formula remain suspended.

BP also requested that all wells in the field be permanently classified as gas wells if they are completed with a gas-oil ratio (GOR) greater than 3,000:1 standard cubic feet per barrel. At the hearing the Examiners informed BP that such a provision was not supported by evidence entered into the record at the hearing. By letter dated May 15, 2015, BP withdrew the gas well classification provision and requested the other provisions be granted. The Examiners recommend that BP's application, without the gas well classification provision, be granted and the field rules amended.

DISCUSSION OF EVIDENCE

The Maple Slough (Upper Wilcox Cons) Field was established by Commission Final Order in Docket No. 03-0265977 on July 6, 2010, by the consolidation of four upper Wilcox fields into the new Maple Slough (Upper Wilcox Cons) Field. The earliest predecessor field was discovered in 1983. The field is currently defined as the correlative interval from 9,552 feet to 10,700 feet as shown on the log of the B. P. Ricker Well No. 1, API No. 42-199-33216), H & TC RR Co./W. H. Ricker Survey, A-557, Hardin County, Texas. BP does not propose to change the correlative interval.

About ten wells have been drilled in the field. Cumulative production since 1983 is 461 thousand barrels of hydrocarbon liquids (mostly oil with some condensate) and 2.22 billion cubic feet of gas. The average field-wide GOR is 4,816 standard cubic feet per

barrel. The May 2015 proration schedules carry three oil wells on three leases and no gas wells. None of the oil wells are currently reporting production, and there has been very little field production since at least 2010. The oil proration schedule indicates two wells are delinquent on filing Form W-10 (Oil Well Status Report). One lease is severed. None of the three wells are operated by BP. However, BP has received three drilling permits for horizontal wells in the field, one of which has been spud and is currently being drilled (Ticonderoga Gas Unit B, Well No. 1H, API No. 42-199-33523).

The upper Wilcox Formation consists of sandstone and shale. Some of the shale intervals are correlative in wells beyond the limits of the Maple Slough (Upper Wilcox Cons) Field. The depositional environment of the field includes shore-face and tidal deltas. The sandstone target intervals exhibit lateral heterogeneity due to the compartmentalization of individual sandstone members. The area has experienced post-depositional faulting, resulting in further compartmentalization and the formation of trapping structures. BP testified that the upper Wilcox productive intervals are characterized by thin productive zones that flow naturally and do not require stimulation. BP also testified that its field characterization was confirmed by core samples obtained for the stratigraphically similar Buna, West (Wilcox) Field located about four miles to the south.

The Maple Slough (Upper Wilcox Cons) Field is defined from a depth of 9,552 feet to 10,700 feet. In this application, BP focused on the upper 200 feet of this interval, in which it identified three target sands (Wilcox-1, -2, and -3) based on log resistivity values in which a sandstone resistivity greater than about 7 Ohms indicates a typically productive interval, and a resistivity less than about 7 Ohms indicates a non-productive water bearing interval. Shale intervals bound the three target intervals. BP anticipates the Wilcox-2 interval will be the main pay zone for development.

The current field rules provide for 320 acre proration units. Citing evidence in the previous field consolidation case (docket no. 03-0265977, June 23, 2010) as well as its current analysis, BP believes the compartmentalization of the individual sandstone units results in a wide range of per-well drainage areas. BP's calculations, which were similar to those of Brammer Engineering, Inc., in the previous case, broadly and evenly ranged from 318 acres per well to less than one acre per well. Therefore, BP requests a streamlined provision for exceptions to Statewide Rule 38 [16 Tex. Admin. Code §3.38] for unit sizes down to 40 acres following notification to offset operators and unleased mineral interest owners within 660 feet of the proposed well.

BP believes that horizontal wells are better suited to efficiently develop the field than vertical wells. A horizontal lateral will likely penetrate and drain multiple productive compartments. Further, the requested field spacing provisions (330-foot lease line, and 100-foot for first and last take points) will allow for the potential of a well to penetrate as many productive compartments as possible for a given well on a given tract, considering the highly variable and unknown size of each compartment.

Generally, BP does not intend to fracture stimulate wells in the field because the wells flow naturally, and because doing so may expose the productive zones to deeper water-bearing zones, thus harming economic productivity. Therefore, BP requests the field rules provide for stacked lateral wells, which would allow BP to develop, for example, the Wilcox-2 and Wilcox-3 zones with individual horizontal drainholes that do not require fracture stimulation. BP also stated that it may fracture stimulate some wells in situations in which the risk of breaking into water bearing zones was low.

Historically, both oil and gas wells have been completed in the field. BP believes that the reservoir itself is actually a retrograde condensate reservoir, and that hydrocarbon liquids produced at the surface existed at initial conditions in the reservoir as a gas. As BP is currently drilling its first well in the field, it did not provide wellstream compositional analysis or other data to support this claim, nor did it provide evidence of similar testing from the existing wells in the field.

The spatial extent of the field includes parts of the Big Thicket National Preserve, which is federal land administered by the National Park Service. The National Park Service has separate authority and requirements for drilling permits in the Big Thicket. Therefore, BP requests horizontal well provisions for no-perforation zones and off-lease penetration points to facilitate development in areas within and adjacent to the Big Thicket.

Finally, BP requests field rule provisions for time extensions for filing completion reports under Statewide Rule 16(b) [16 Tex. Admin. Code §3.16(b)] and potential tests under Statewide Rule 51(a) [16 Tex. Admin. Code §3.51(a)]. BP also requests that semi-annual well testing and filing of Form G-10 be relaxed to once a year, and that the allocation formula for the field remain suspended.

The Examiners note the field is currently classified as a salvage field with regard to oil production, so there is no restriction on the production of oil or casinghead gas from oil wells. BP did not request that this be changed, and therefore a change to this provision was not noticed. The oil proration schedule carries three wells, none of which are producing (and have produced very little oil in the last few years), and BP anticipates future wells in the field to be classified as gas wells. In the event future production is from oil wells, the appropriateness of the salvage classification may need to be revisited. The Examiners draw no findings or conclusions on the appropriateness of the salvage classification for oil wells at this time.

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.
2. The Maple Slough (Upper Wilcox Cons) Field was established by the consolidation of four upper Wilcox fields into the new Maple Slough (Upper

Wilcox Cons) Field.

3. About ten wells have been drilled in the field, both oil and gas wells
 - a. Cumulative production since 1983 is 461,301 barrels of hydrocarbon liquids and 2.22 billion cubic feet of gas.
 - b. The average field-wide GOR is 4,816 standard cubic feet per barrel.
4. The May 2015 proration schedules carry three oil wells on three leases and no gas wells. None of the oil wells are currently reporting production, and there has been very little field production since at least 2010.
5. BP is currently being drilling its Ticonderoga Gas Unit B, Well No. 1H, in the field.
6. The sandstone target intervals exhibit lateral heterogeneity due to the compartmentalization of individual the sandstone members and post-depositional faulting.
7. Upper Wilcox productive intervals are characterized by thin productive zones that flow naturally and do not require stimulation.
8. Wells in the field do not require fracture stimulation; fracture stimulation may expose the productive zones to deeper water-bearing zones, thus harming economic productivity.
9. Vertical wells in the field exhibit wide drainage patterns, from 318 to less than one acre per well.
10. Horizontal wells are well suited to efficiently develop because one horizontal lateral will likely penetrate and drain multiple productive compartments.
11. The spatial extent of the field includes parts of the Big Thicket National Preserve, which is federal land administered by the National Park Service.
12. Horizontal well provisions for no-perforation zones and off-lease penetration points will facilitate field development in areas within and adjacent to the Big Thicket.

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 § 1.45
3. The requested field rules will prevent waste, protect correlative rights, and promote the orderly development of the field.

RECOMMENDATION

Based on the above findings of fact and conclusions of law, the Examiners recommend the field rules for the Maple Slough (Upper Wilcox Cons) Field in Hardin County, Texas, be amended as set out in the attached Final Order.

Respectfully submitted,



Paul Dubois
Technical Examiner



Marshall Enquist
Hearings Examiner