



RAILROAD COMMISSION OF TEXAS

HEARINGS DIVISION

December 9, 2016

Rule 37 Case No. 0258401
Status No. 666781

The Application of Houston Gulf Energy Corporation for an Exception to Statewide Rule 37 for the Boehl Lease, Well No. 2, Powder River (Consolidated) Field, Goliad County, Texas.

PROPOSAL FOR DECISION

APPEARANCES:

FOR APPLICANT:

Kelli Kenney, Attorney
Robert Pace, Geologist
John Thibeaux, Petroleum Engineer

APPLICANT:

Houston Gulf Energy Corporation
"
"

PROTESTANT:

David Wilks, Manager

Brian Wilks, Engineer

REPRESENTING:

Boehl Lane Ranch, LLC and Wilks Family
Trust
"

PROCEDURAL HISTORY

APPLICATION FILED:

April 24, 2015

NOTICE OF HEARING:

August 5, 2015

HEARD BY:

Marshall Enquist - Administrative Law Judge
Brian Fancher - Technical Examiner

HEARING DATE :

August 28, 2015

TRANSCRIPT RECEIVED:

June 6, 2016

PFD CIRCULATION DATE:

December 9, 2016

STATEMENT OF THE CASE

Houston Gulf Energy Corporation ("HGE" or "Applicant"), seeks an exception to Statewide Rule 37 for its existing Boehl Lease, Well No. 2, Powder River (Consolidated) Field, Goliad County, Texas. The Boehl Lease drillsite tract totals 98 acres. The Boehl Lease, Well No. 2 ("Boehl No. 2") is only 151 feet north of the common leaseline between the Boehl Lease and the Wilks Lease to the

south. HGE believes that a Statewide Rule 37 exception for the existing Boehl No. 2 is necessary to effectively drain the reserves under the Boehl Lease and that it would not be economically feasible to drill a new well at a regular location to drain those reserves.

Boehl Lane Ranch, LLC and the Wilks Family Trust protest this application because they believe the slight structural high on the Boehl Lease connects with a slight structural high on the Wilks Lease. The Wilks Family Trust believes there is not enough technical evidence to demonstrate that failure to produce the Boehl No. 2 will cause waste. The Boehl No. 2 is too close to the leaseline. The Wilks Family Trust believes it can access the reserves under the Wilks Lease with a regular well and that its regular well will also drain the reserves under the Boehl Lease.

The Powder River (Consolidated) Field is on Special Rules with 330 foot leaseline spacing and 0 between-well spacing on 160-acre units with a maximum diagonal of 4500 feet. Optional rules for the field are similar except that 20-acre units are allowed with a maximum diagonal of 1500 feet.

The well location is 151 feet from the south line of the lease and 1140 feet from the east line of the lease, and 1149 feet from the north line of the survey and 4304 feet from the east line of the survey, being the Solomon Griffin Survey, A-126.

As a preliminary matter, the Examiner took Official Notice of Oil & Gas Docket No. 02-0261659, remarking that there appeared to have been a hearing concerning the well at issue in the present hearing, the Boehl No. 2, with a Dismissal Order and a letter requiring that the well be shut-in. Counsel for Houston Gulf indicated she had a copy of that file and would provide it to the Examiners if the file had been lost after HGE obtained a copy of the file. Absent objection from counsel for HGE, Official Notice was taken of the file in that docket.

BACKGROUND

The well at issue in this case has an interesting history. The subject well was originally drilled by Houston Oil & Minerals on the 280-acre Boehl Urban Oil Unit #1 with a completion date of March 12, 1967. Soon after, on June 18, 1969, the well was plugged.

On July 15, 2008, Transcontinental Minerals Corp. ("Transcontinental") filed a Form W-1 for a re-entry of the previously plugged well, now described as the Boehl Well No. 2 (API# 175-02021) on the 90-acre Boehl Lease. The permit was granted August 5, 2008. The re-entry and re-completion had already been accomplished prematurely, on January 3, 2008, and the well reported production beginning in June, 2008. In the Form W-1 application, the Boehl No. 2 was described as 146 feet north of the south leaseline. Transcontinental represented that it was its own offset to the south, thereby avoiding a Statewide Rule 37 hearing.

Soon after the Boehl No. 2 became operational, David Wilks notified the Commission that he was the mineral owner to the south of the Boehl No. 2 and filed a complaint with the Commission alleging that he had not been given notice of the re-entry application. Upon being notified of the

complaint, Transcontinental requested a hearing by letter dated April 17, 2009. The hearing was set as *Oil & Gas Docket No. 02-0261659: Commission Called Hearing to Provide Transcontinental Minerals Corp., Magnus Oil & Gas Corporation, and/or McFadden Energy Partners, LLC an Opportunity to Show Cause Why Permit No. 666781 to Re-enter the Boehl Lease, Well No. 2, Powder River (Consolidated) Field, Goliad County, Texas, Should Not Be Cancelled for Failure to Provide Notice Required by Statewide Rule 37*. Notice of Hearing was issued April 28, 2009.

The hearing was called to order on May 20, 2009, but the only party to appear was the Complainant, Mr. David Wilks. Neither Transcontinental nor any of its allied companies appeared at the hearing. Consequently, by letter dated July 8, 2009, Hearings Examiner Mark Helmueller advised Transcontinental that the permit for the well was cancelled and that the well must be shut-in immediately.

Production had been reported for Well No. 2 from June 2008 through March, 2009. From January 2008 to date, the Form P-4 operator for the Boehl No. 2 has been successively listed as Transcontinental Minerals Corp.; McFadden Energy Partners, LLC; Woodlands Oil and Gas, Inc.; and Houston Gulf Energy Corporation. The common officer in all four companies is John Ehrman.

In 2015, Mr. Wilks noticed that the Boehl No. 2 was again producing. Not being aware of any subsequent hearing or permit granted for the well, Mr. Wilks filed a second complaint with the Commission, noting that the well was producing again without having obtained a Statewide Rule 37 exception permit. The subject well reported production of 3,135 MCF for January, 2015 and 1,750 MCF for February, 2015. The well is currently shut-in.

Mr. Wilks' 2015 complaint resulted in HGE filing the present Statewide Rule 37 exception application on April 24, 2015. Although the application is described as a re-entry of the Boehl No. 2, the re-entry and perforation of the well were accomplished in 2008. The present application is simply to provide the well a valid permit from the Commission so that a valve on the well may be opened and the gas produced to a sales line.

DISCUSSION OF THE EVIDENCE

Houston Gulf Energy's Evidence

As originally drilled in 1967, the Boehl Urban Gas Unit #1 produced 12 MMCF of gas and 500 barrels of oil from the Weesatche, South (Yegua 4800) Field, over a period of approximately four months. It was plugged in 1969. When the well was re-entered in 2008, it became known as the Boehl No. 2 because it no longer was part of a unit and was re-completed uphole in a different field, the Powder River (Consolidated) Field.

HGE bases its case on prevention of waste. Using leased seismic and well control from well logs, HGE identifies what it believes is a broad, flat structure in the 3300 Frio Sand, which HGE believes is a member of the Powder River (Consolidated) Field [see **Attachment I**]. The structure has

a gas-water contact at a subsea depth of -3045 feet. The Boehl No. 2 could be perforated at -3040 feet, giving it a structural advantage of 5 feet. There is a similar flat structure to the south on the Wilks Lease, which Houston Gulf believes is also productive of gas. However, in between the two structures are two wells that are wet, the Urban No. 1 (API# 175-30436) and the Urban No. G-1 (API# 175-33852), indicating the structure on the Boehl Lease and the structure on the Wilks Lease are separated from one another and do not communicate.

HGE presented a log cross section [see **Attachment II**], which shows numerous gas pay zones marked in red scattered across the section. Some of these pay zones are seen extending over more than one well log and other pay zones show up in only a single well. HGE has marked the pay zone with a top of 3320 feet as its example of a gas pay zone that is continuous over a wide area. In the log of the Boehl No. 2, HGE depicts 5 feet of pay sand with a top at the 3320 foot level, with other pay intervals of 5 feet, 3 feet, 8 feet and 5 feet seen farther uphole. In the log of the junked and abandoned Boehl No. 1, HGE finds 6 feet of pay sand with a top at the 3320 foot level, with other pay intervals of 7 feet, 10 feet and 4 feet seen farther uphole.

Based on the gas pay zone that appears on the logs of the Boehl No. 2 and the Boehl No. 1 at 3,320 feet, HGE developed a net gas isopach map [see **Attachment III**], showing 6 feet of gas sand with an area of 33 acres from the top of the structure to the base and then from the 5 foot net gas line down to zero net gas (the gas-water contact), a 2.5 foot band of gas sand over a 10-acre area. This map was then used to calculate a total gas volume.

Based on its net gas isopach map, HGE calculates the structure in the 3300' Frio Sand has 223 net acre-feet of reservoir on the Boehl Lease. HGE calculates 535 MCF of gas per acre-foot [see **Attachment IV**] or 119,305 MCF for the 223 acre-feet of reservoir. Assuming a production efficiency of 85%, the well would produce 101,409 MCF of gas [see **Attachment V**]. HGE assumes the operator has a net revenue interest of 80% (after subtraction of the royalty interest), and then subtracts 7% severance tax and 2% ad valorem tax, yielding the operator a 71% interest, or a share of production in the range of 72,001 MCF of gas. HGE then assumes a price for gas at \$3.67/mcf, arriving at a value of the gas to the operator of \$264,243. Further assuming monthly well expenses of \$2,500 per month over two years of production, the operator would incur additional expenses of \$60,000, reducing the operator's profit to \$204,242.

HGE then presented an AFE [see **Attachment VI**] demonstrating that the cost to drill a new well at a regular location would be \$259,723. The cost of drilling a new well at a regular location (\$259,723) minus the anticipated return to the operator (\$204,242) would yield a net loss of \$55,481, making the drilling of a new well economically prohibitive.

The nearby Boehl No. 1 is not available to recover the reserves in the 3300 Frio Sand. HGE tried to re-enter this well and rework it but encountered numerous downhole problems, resulting in the 2 7/8" tubing being impossible to recover from the wellbore. There is no available wellbore on the Boehl lease at a regular location to recover the reserves from the 3300 Sand. HGE would not drill a new well, at a loss, to recover the reserves from the 3300 Sand. Absent a Statewide Rule 37 exception allowing

HGE to use the existing Boehl No. 2 to access the 3300 Sand, recoverable gas reserves of 101,409 MCF would be unrecoverable and would be wasted.

Protestant's Evidence

Protestant Brian Wilks has been analyzing the subject field since 2009. It is his opinion that the two gas-bearing structures presented as separated by wet sands on HGE Exhibit 4 [Attachment I], are actually connected on the east side of the Boehl and Wilks Leases. There is an existing well on the Wilks Lease, the Urban No. 1 (API# 175-33852) that is completed in a deeper horizon and was producing oil when acquired. This well is at a regular location for the Powder River (Consolidated) Field, being more than 330 feet from the nearest leaselines. The prior operator had environmental problems. The company Mr. Wilks works for acquired the well and wanted to clean the site. As a result, the well was shut in. Mr. Wilks suggests that the company he works for could re-enter the Urban No. 1, produce the remaining oil, then move uphole to the 3300 Sand and produce the gas.

Mr. Wilks notes that the difference between the Boehl Lease top of sand contour and the Wilks Lease top of sand contour is only five feet on HGE Exhibit No. 4. Mr. Wilks argues that the top of sand contours actually connect. He disputes the HGE contention that the two sand tops are unconnected as the seismic used by HGE does not have sufficient resolution to make this distinction. Mr. Wilks questioned the expert geologist called by HGE, Mr. Pace, who confirmed that the seismic used by HGE had only 50 feet of resolution due to the wavelength. Mr. Pace countered that the well logs were more accurate and the picks on the logs verified HGE's interpretation of the seismic data.

Mr. Wilks stated that he fully agreed with the HGE well log cross-section, but that it needed the addition of the well log of the Urban No. 1 for completeness. Mr. Wilks believes the gas being targeted by HGE on the Boehl Lease extends along the eastern portion of the Wilks Lease and continues down to another lease farther south named the Loest Lease.

There will not be waste if HGE is not allowed to produce the Boehl No. 2. Mr. Wilks believes the gas can be produced from the Urban No. 1 on the Wilks lease. He asserts there is not sufficient technical evidence to conclude that the gas accumulation the applicant would like to produce exists only under the Boehl Lease and not the Wilks Lease.

Mr. Wilks also notes that the 2008 drilling application filed by Transcontinental listed a completion depth of 3500 feet, but the completion papers filed by Transcontinental indicated a packer set at 2780 feet and a perforated interval of 2822 to 2824 feet. The present drilling application filed by HGE in 2015 lists a completion depth of 2800 feet.

The completion interval for the Boehl No. 2, shown on HGE Exhibit #5, the cross-section built from well logs, has a top of approximately 3320 feet. This is the depth at which the gas sand HGE wants to produce is located and that pay zone is the basis for their calculations. The interval has been referred to in this hearing as the 3300 Frio Sand. The designated field interval for the Powder River (Consolidated) Field is from the surface to 3182 feet. Mr. Wilks is concerned that the applied-for

interval and the interval used to justify the application do not match. If the interval cited by HGE is truly to the 3300 Frio Sand, this may be a separate field outside the Powder River (Consolidated) Field, which may require leaseline spacing greater than 330 feet.

Mr. Wilks also raised the issue of Statewide Rule 37(j), which indicates that a decision made on an application cannot be reconsidered on the same well again in the future, except on changed conditions.

ALJ's and Technical Examiner's Opinion

Houston Gulf Energy Corporation ("HGE") based its request for a Statewide Rule 37 on prevention of waste. The ALJ and Technical Examiner believe HGE has failed to carry its burden of proof in this application and recommend that HGE's Statewide Rule 37 application be denied.

An applicant seeking an exception to Rule 37 based on prevention of waste must demonstrate that: (1) unusual conditions, different from conditions in adjacent parts of the field, exist on the tract for which the exception is sought; and (2) as a result of these conditions, a substantial volume of hydrocarbons will be recovered by the well for which a permit is sought that would not be recovered by any existing well or by additional wells drilled at regular locations. *Hawkins v. Texas Co.*, 209 S.W.2d 338, 343-44 (Tex. 1948).

Near the end of the hearing, Mr. Wilks asked HGE to provide information on the completion interval being requested.

- Q. (Wilks) This is a question for any of the three who can answer it for me. And it's just mostly a clarification question is: What is the production interval of the well, Boehl No. 2?
- Q. (Kenney) Do you - - and I may clarify that question? Are you asking where the well is currently perfered?
- Q. (Wilks) Where the well is currently perfered and packer set above the gas production.
- Q. (Ms. Kenney) This is an engineering question.
- A. (Thibeaux) 30 - - what we have is 3322 to 24.
- Q. (Wilks) And which document was that a basis of?
- A. (Pace) I believe it just came from scout tickets or - - I have it marked on the log. So it's just ...
- Q. (Wilks) The reason.
- A. (Thibeaux) The reason I bring it up is - -
- Q. (Examiner Fancher) Sorry, gentlemen. To get a clear record, just one at a time. It makes it...
- A. (Thibeaux) Talk to you. It's 3322 to 24.

After receiving that information, Mr. Wilks noted that the completion information filed for the 2008 Transcontinental re-entry indicated the perforated interval was 2822 to 2824 feet. He raised the possibility that the 3300 Frio Sand that HGE bases its calculations on might not be in the Powder River (Consolidated) Field, and asked for confirmation of the production interval of the Boehl No. 2. Counsel for HGE questioned Mr. Pace, HGE's expert geologist, attempting to respond to Mr. Wilk's concern:

- Q. (Kenney) Mr. Pace, based on a review of the logs, do you believe that in the Boehl No. 2 at the current perfs in the 3200 Sands¹ that that - - that those sands are part of the Powder River (Consolidated) Field?
- A. (Pace) Yes.

Transcript, p. 101, lines 6-11.

Mr. Wilks' statements about the 2008 completion papers for the Boehl No. 2 listing a completion at 2822 to 2824 feet raised a valid concern about the HGE application. Even the 2015 Form W-1 filed by HGE indicates the completion depth requested is at 2800 feet. The ALJ and Technical Examiner are left with the conflicting facts that HGE's Form W-1 identifies the interval it wishes to produce as the Powder River (Consolidated) Field at 2800 feet and Mr. Pace and Mr. Thibeaux, expert witnesses testifying for HGE, identified the currently perforated interval as 3322 to 3324 feet and as lying within the Powder River (Consolidated) Field. Neither applicant or protestant offered a definitive answer as to the appropriate marker to identify the bottom of the Powder River (Consolidated) Field. However, the ALJ and Technical Examiner find that these contradictions are not the greatest problem with the HGE application.

The log cross section [**Attachment II**] provides the basis of HGE's case. HGE highlights a single gas pay sand which is 5 feet thick in the Boehl No. 2 and 6 feet thick in the Boehl No. 1. On its Exhibit 5, HGE has highlighted this particular gas sand in red and extends it across the log section for the Boehl No. 2 through the Boehl No. 1, continuing to the left on the Exhibit where there is no well log control. Based on these two picks, HGE proposes the existence of a large, flat gas sand structure. The sand structure is bounded on the northeast by a normal fault with an unknown amount of throw. Beneath this large, flat structure, HGE suggests the existence of a gas/water contact. From this, HGE posits the existence of 6 feet of gas sand covering 33 acres and 2.5 feet of gas sand covering 10 acres. Converted to volumetrics, this amounts to 223 net acre-feet of gas sand, which further converts to 101,409 MCF of gas in the structure based on an 85% recovery factor. After subtracting the gas equivalent due to the royalty interests, and subtracting the gas equivalent due to severance tax and ad valorem tax payments, HGE believes it would be left with 72,001 MCF of gas as its share of the recoverable gas in place. These figures assume that HGE is granted its applied-for Rule 37 exception and is able to use the Boehl No. 2, which has already been re-entered and perforated in the 5 foot gas sand that is the basis for the above figures.

¹ The transcript indicates Ms. Kenney asked about the 3200 Sand. This may be either a transcription error or a very slight verbal miscue by Ms. Kenney. The interval that was being discussed at this point in the transcript was the 3300 Frio Sand.

HGE then multiplies the 72,001 MCF of gas by a projected 5-year gas price of \$3.67/MCF, resulting in a return to HGE of \$264,243.67. This is further reduced by operating expenses of \$2,500 per month for two years, or \$60,000, reducing HGE's net to \$204,243.67.

HGE provided the AFE for a new drill, named the Boehl No. 1 Twin, to the same gas sand that is discussed above. The well would be drilled to a total depth of 4,000 feet and would cost \$259,722. The expense of the new drill would exceed the value of the recovered gas to the operator for a net loss of \$55,479.33. It is apparent that HGE presents these figures to demonstrate that drilling a new well to recover the reserves it believes exist would not be economical.

However, HGE's expert Geologist, Robert Pace, provided additional information on the sand bodies and gas pay sands within the Powder River (Consolidated) Field, marking them on HGE Exhibit No. 5. Mr. Pace testified as follows:

- A. (Pace) The section basically goes from 2500 to 3700. Sands are colored in yellow just to highlight them. I colored most of them, not all of them. There are red marks on the zones that are productive by log character and/or production data. And next to those red spots, I put a thickness of the gas. So you'll see, for example, in the Boehl No. 2, 4 feet, 5 feet, up to 5 feet, 3, 8, 5. So those are indications of pay in those sands in those particular wells. On the 3300-foot sand, which has this red band across the cross section, you have 5 feet of pay in the Boehl No. 2. And you go updip about 9 feet, I believe, and you have 6 feet of pay. So it's a pretty flat structure. And then you go to the right of the Boehl No. 2, the Urban Well is wet. There's no resistivity corresponding to sand as opposed to the high resistivity in gas character in the Boehl No. 2.

Transcript, page 23, lines 9-25; page 24, lines 1-2.

- Q. (Kenney) Okay. So just to clarify a little bit here for the Examiners, the yellow highlights that you have identified on here, that is showing the net gas thickness in each of these wells?
- A. (Pace) The yellow - - no, just the sand,
- Q. Just the sand thickness.
- A. Right.
- Q. And the red highlight that you have that moves horizontal across the cross section, would you please identify what that is?
- A. That's the gas-bearing sand, and I've only marked it for the 3300-foot sand.

Transcript, page 24, lines 12-25; page 25, lines 1-6.

When an operator receives a permit to drill a particular field, it is not required to file for additional permits as long as any additional perforations are within the same field. In this case, if HGE is granted the applied-for permit, it will not need any additional permits to complete its well in higher sand intervals within the field.

In the present case, HGE is attempting to make the argument that the existing Boehl Well No. 2 qualifies as an unusual condition. HGE does not explicitly base its case on the result reached in *Exxon Corporation v. Railroad Commission*, 571 S.W.2d 497 (Tex. 1978), but on similar logic. In that case, Exxon, as an offset operator, appealed the Commission's grant of a Statewide Rule 37 exception to BTA Oil Producers ("BTA"). BTA sought an exception to the between-well spacing provisions of Statewide Rule 37. The *Exxon* case states that unusual conditions are not limited to subsurface conditions and may include an existing wellbore when a new well would not be drilled at a regular location due to economic conditions. In the *Exxon* case, BTA had drilled its Wedge No. 2 at a regular location for its original target field, the Ellenburger, but found it non-productive and came uphole to produce the Montoya Reservoir. Upon exhausting the reserves in the Montoya Field, BTA decided to come uphole and complete in the Devonian Field. Unfortunately, the Devonian Field required between-well spacing of 1200 feet and the BTA Wedge No. 1 and the BTA Wedge No. 2 were only 265 feet apart. BTA noted the Devonian Field had two parts: an Upper Devonian gas cap and a Lower Devonian oil zone. BTA argued that there was no communication between the oil and gas zones in its Wedge No. 2 and that the Wedge No. 1 had already been plugged back above the Lower Devonian oil producing zone and was not available to produce the oil zone whereas the Wedge No. 2 could. BTA then argued that the value of the oil in the Lower Devonian oil zone did not justify, on an economic basis, the drilling of a new well at a regular location to recover the Lower Devonian oil reserves. While BTA could drill a well at a regular between-well location and reach the target field, it would not do so if the value of the recovered hydrocarbons resulted in a net loss after factoring in the expense of drilling the new well. Stated slightly differently, BTA argued that the hydrocarbons in the Lower Devonian oil zone could not be recovered by any existing well in the field or by any new well drilled at a regular location in the field. BTA argued that the existing wellbore constituted an unusual condition in that it penetrated the field uphole, the Lower Devonian oil zone, and the use of the existing wellbore would result in the economical recovery of reserves that would otherwise go unrecovered and be wasted. BTA prevailed in this argument.

The present case is easily distinguishable. HGE's case fails because it is part of their burden to show that a substantial volume of hydrocarbons will be recovered by the well for which a permit is sought that would not be recovered by any existing well or by additional wells drilled at regular locations. Here, HGE has failed to show that an additional well drilled at a regular location could not produce the recoverable hydrocarbons beneath the Boehl Lease.

HGE has based its case on the value of the reserves within a single 5 to 6 foot interval in the Powder River (Consolidated) Field, in hopes that the Commission would not notice the obvious fact that there are several additional productive intervals above the one productive interval HGE's calculations are based on. HGE has presented a case that relies upon the expected recovery of gas from one 5 to 6 foot gas sand interval within the Powder River (Consolidated) Field, from a well only 151 feet from the

common lease line. Moving uphole in the Boehl No. 2 from that 5 foot gas sand, HGE's expert geologist has marked another 5 foot gas sand, followed by a 3 foot gas sand, then an 8 foot gas sand and then another 5 foot gas sand. HGE's expert witness described these sands as "...productive by log character and/or production data..."² In all, HGE has identified an additional 21 feet of gas sand above the 5 foot interval used in its gas recovery calculations, but did not calculate the amount of gas in the extra 21 feet of gas sands. Rather than use a single 5 foot gas sand to establish the value of the gas within the Powder River (Consolidated) Field, HGE should have calculated the value of the gas in 26 feet of gas bearing sands.

The junked and abandoned Boehl No. 1 is at a regular location more than 330 feet from the common lease line. The single gas sand that HGE has used to calculate the value of the gas reserves is 6 feet thick at this location. Moving uphole in the abandoned Boehl No. 1, HGE has identified a 7 foot gas sand, followed by a 10 foot gas sand, and then a 4 foot gas sand. Again, there is an additional 21 feet of gas sand above the interval HGE has used for its calculations. Rather than use a 6 foot gas sand to establish the value of the gas in the Powder River (Consolidated) Field, HGE should have calculated the value of the gas in 27 feet of gas bearing sands. While no figures were presented calculating the gas volumes in each of the individual gas sands above the single interval for which calculations were provided, it is intuitively obvious that a much greater volume of gas would exist in 27 feet of gas sand than in 6 feet of gas sand.

The ALJ and Technical Examiner believe that if HGE had calculated the value of the gas in 26 or 27 cumulative feet of gas sands, it would not have been able to reach a value of the hydrocarbons that would be outweighed by the expense of drilling a new well. We note that HGE's own expert witness described the additional intervals as productive. There are numerous regular locations 330 feet north of the common lease line that would afford HGE an opportunity to recover its fair share of the hydrocarbons beneath the Boehl Lease by drilling a new well. Stated another way, HGE's calculations of the quantity and value of the gas beneath the Boehl Lease in the Powder River (Consolidated) Field are based, as shown by its own evidence, on a small subset of the cumulative footage of gas sands under that lease in that field. HGE's calculations are inadequate to quantify and value the recoverable gas in place beneath the Boehl Lease. Absent reliable calculations of volume and value of the recoverable gas beneath the Boehl Lease, HGE cannot show that those hydrocarbons cannot be recovered by an additional well drilled at a regular location.

The ALJ and Technical Examiner recommend that the application of Houston Gulf Energy Corp. for a Statewide Rule 37 exception for the Boehl Lease, Well No. 2 in the Powder River (Consolidated) Field, Goliad County, Texas be denied.

Based on the record in this docket, the Examiners recommend adoption of the following Findings of Fact and Conclusions of Law:

² Transcript, p. 23, lines 12-13.

FINDINGS OF FACT

1. At least 10 days notice of this hearing was given to the designated operator, all offset operators, all lessees of record for tracts that have no designated operator, and all owners of record of unleased mineral interests for each affected adjacent tract.
2. In the present case, Rule 37 Case No. 0258401, Houston Gulf Energy Corporation (“HGE ” or “Applicant”), seeks an exception to Statewide Rule 37 for the Boehl Lease, Well No. 2, Powder River (Consolidated) Field, Goliad County, Texas.
3. The Field Rules for the Powder River (Consolidated) Field require 330 foot leaseline spacing and 0 feet between wells on 160-acre units. The Field has optional rules requiring 330 foot leaseline spacing and 0 feet between wells on 20-acre units. The designated field interval is from the surface to -3182 feet.
4. The Boehl Urban Oil Unit #1 was drilled by Houston Oil & Minerals on a 280-acre tract with a completion date of March 12, 1967. It produced for a short period from the Weesatche, South (Yegua 4800) Field and was plugged on June 18, 1969.
5. Houston Gulf Energy Corporation requests a Statewide Rule 37 exception location 151 feet north of the common leaseline between the Boehl Lease and the Wilks Lease, the site of the Boehl Well No. 2, which was re-entered and re-perfed in 2008 by Transcontinental Minerals Corp.
 - a. On July 15, 2008, Transcontinental Minerals Corp. (“Transcontinental”) filed a Form W-1 for the re-entry of the plugged Boehl Urban Oil Unit #1, which was re-designated the Boehl Well No. 2 on the 90-acre Boehl Lease. The well had been renamed as it was no longer part of a pooled unit.
 - b. The Form W-1 Drilling Permit for the Boehl No. 2 was granted by the Commission on August 5, 2008.
 - c. The re-entry and recompletion of the well had already been accomplished on January 3, 2008, and the well reported production for June, 2008.
 - d. The Boehl No. 2 was drilled 146 feet north of the south leaseline of the Boehl Lease. Transcontinental represented that it was its own offset to the south, thereby avoiding a Statewide Rule 37 hearing.
 - e. Soon after the Boehl No. 2 began producing, David Wilks filed a complaint with the Commission indicating that he was the mineral owner of the tract south of the Boehl No. 2, and that he had not leased his minerals or received notice of the drilling permit application for the Boehl No. 2.

- f. Upon being notified of the complaint, Transcontinental requested a hearing on the matter by letter dated April 17, 2009. Transcontinental was granted a hearing in *Oil & Gas Docket No. 02-0261659: Commission Called Hearing to Provide Transcontinental Minerals Corp., Magnus oil & Gas Corporation, and/or McFadden Energy Partners, LLC an Opportunity to Show cause Why Permit No. 666781 to Re-enter the Boehl Lease, Well No. 2, Powder River (Consolidated) Field, Goliad County, Texas, Should Not Be Cancelled for Failure to provide notice Required by Statewide Rule 37*. Notice of hearing was issued April 28, 2009.
 - g. The hearing in Oil and Gas Docket No. 02-0261659 was called to order on May 20, 2009. The Complainant, Mr. David Wilkes appeared. Neither Transcontinental nor any of its allied companies appeared.
 - h. By letter dated July 8, 2009, Hearings Examiner Mark Helmueller advised Transcontinental that the permit for the well was cancelled and that the well must be shut-in immediately.
 - i. From January 2008 to date, the Form P-4 operator of Well No. 2 on the Boehl Lease has been, successively, Transcontinental Minerals Corp.; McFadden Energy partners, LLC; Woodlands Oil and Gas, Inc.; and Houston Gulf Energy Corporation. The common officer in these four companies is John Ehrman.
6. In 2015, Mr. Wilks noticed that the Boehl No. 2 was again producing. Mr. Wilks filed a second complaint with the Commission, noting that the well had started producing again without having obtained a Statewide Rule 37 exception permit. The well reported production of 3,135 MCF in January, 2015 and 1,750 MCF in February, 2015 under Houston Gulf Energy Corporation.
 7. Mr. Wilks' 2015 complaint resulted in Houston Gulf Energy Corporation filing, on April 24, 2015, the present application for a Statewide Rule 37 for the Boehl Lease, Well No. 2 ("Boehl No. 2").
 8. The location of the Boehl No. 2 is 151 feet from the south line and 1140 feet from the east line of the lease, and 1148 feet from the north line and 4304 feet from the east line of the survey, being the Solomon Griffin Survey, A-126.
 9. HGE constructed an isopach map showing a large, flat structure containing gas under the Boehl lease. The structure shows a gas/water contact at -3045 subsea rising to -3040 subsea.
 - a. Based on the isopach map, HGE constructed a net gas isopach map showing 6 feet of gas-bearing sand over 33 acres, with a 2.5 foot fringe of gas-bearing sand covering 10 acres.
 - b. Based on the net gas isopach map, HGE calculated 223 acre-feet of gas-bearing sand in

the structure.

- c. Based on the 223 feet of gas-bearing sand, and 535 MCF of recoverable gas per acre-foot, HGHE calculated 119,308 MCF of recoverable gas in place. Factoring in a sweep efficiency of 85%, HGE believes it would recover 101,409 MCF of gas.
 - d. After deduction of the gas equivalent of royalty, severance tax and ad valorem tax, HGE finds its share of the recoverable gas would be 71,001 MCF. At an average price of \$3.67/MCF over five years, HGE calculates the value of the gas at \$264,242.00. After deducting monthly well expenses of \$2500/month for 24 months, HGE would receive \$204,242.00.
10. HGE produced an "AFE", also known as an "Authorization for Expenditure", for a new well drilled on the Boehl Lease, the Boehl #1 Twin, to access the recoverable reserves under the Boehl Lease. The cost of the new well would be \$259,722. The cost of the new well would exceed the value of HGE's calculated share of the recoverable reserves under the Boehl Lease, based on one 6 foot interval of gas sand, by \$55,479.00, resulting in a loss to HGE.
 11. HGE's case is based on prevention of waste. HGE's burden is to demonstrate that (1) unusual conditions, different from conditions in adjacent parts of the field, exist on the tract for which the exception is sought; and (2) as a result of these conditions, a substantial volume of hydrocarbons will be recovered by the well for which a permit is sought that would not be recovered by any existing well or by additional wells drilled at regular locations. *Hawkins v. Texas Co.*, 209 S.W.2d 338, 343-44 (Tex. 1948).
 12. HGE's calculations are based on a flat gas bearing oval structure, derived from a 5 foot gas sand interval in the log of the Boehl No. 2 and a 6 foot gas sand interval in the log of the Boehl No.1, which is more or less continuous across the eastern half of the Boehl Lease. These sands shown in the well logs correlate across a distance of approximately 750 feet.
 - a. In the log section of the Boehl No. 2, as shown on HGE Exhibit No. 5, there are additional gas sands marked above the 5 foot interval that HGE considers. There are intervals of 5 feet, 3 feet, 8 feet and 5 feet farther up the log, totaling an additional 21 feet of gas sands. These gas sand intervals were marked by HGE's own expert witness.
 - b. In the log section of the Boehl No. 1, as shown on HGE Exhibit No. 5, there are additional gas sands marked above the 6 foot interval that HGE considers. There are additional intervals of 7 feet, 10 feet and 4 feet, totaling an additional 21 feet of gas sands. These gas sand intervals were marked by HGE's own expert witness.
 - c. HGE did not demonstrate that the additional gas sand intervals were not productive.
 - d. HGE's calculations of the volume of gas beneath the Boehl Lease are based on a small

subset of the total cumulative feet of gas sands beneath the Boehl Lease.

- e. HGE's calculations are inadequate to quantify and value the recoverable gas in place beneath the Boehl Lease.
13. Absent reliable calculations of the volume and value of the recoverable gas beneath the Boehl Lease, HGE cannot show that those hydrocarbons cannot be recovered by wells drilled at regular locations. There are numerous regular well locations available 330 feet north of the south line of the Boehl Lease that HGE could use to recover the hydrocarbons beneath the Boehl Lease.

CONCLUSIONS OF LAW

- 1. Proper notice of hearing was timely given to all persons legally entitled to notice.
- 2. All things have occurred to give the Commission jurisdiction to decide this matter.
- 3. Houston Gulf Energy Corporation has not shown that approval of a Rule 37 exception for the Boehl Lease, Well No. 2, in the Powder River (Consolidated) Field, Goliad County, Texas is necessary to prevent waste and the ultimate loss of hydrocarbons.
- 4. Houston Gulf Energy Corporation has not met its burden of proof and satisfied the requirements of Railroad Commission Statewide Rule 37 in the instant Rule 37 case.

RECOMMENDATION

The ALJ and Technical Examiner recommend that the application of Houston Gulf Energy Corporation for a Statewide Rule 37 exception for the Boehl Lease, Well No. 2, in the Powder River (Consolidated) Field, Goliad County, be denied.

Respectfully submitted,



Marshall Enquist
ALJ



Brian Fancher
Technical Examiner

355200 2499800 355200

SCHORLEMER, WALTER 32219
PARKINSON-BDL 33668

DOHMANN "A" 4 33993

A-406

F.R.B. A-470 2504800

DIEBEL, FRED GAS 31825
3000

5500 -2985

DOHMANN 1 33973
DOHMANN 2 33364

ATTACHMENT I
Rule 37 Case No. 0258401
Houston Gulf Energy Corporation

LEE, JOYCE
STUMFOLL 32235
33623
3000

BOEHL LEASE

URBAN, CAROLINE 01973

BOEHL 1R 34220
BOEHL 1 14000
BOEHL 2 020215351

URBAN, G.1 30435

DOHMANN 1 33973
33364

HEARD-DOHMANN 32878

STUMFOLL 2 33991

STUMFOLL 3 34015

WILKES LEASE

URBAN, G.1 30435
URBAN FW. 1 3732

URBAN, I 33852

ARNECKE A 01791
ARNECKE, C. 00358

DOHMANN 2 45354

LUDCKE, W.C. 1A 00349

STUMFOLL 1 00350

TITE 00356

LOEST 1 34003

URBAN FW. 1 3732

URBAN, I 33852

LOEST 2 34044

ARNECKE 2 33107

2499800 00351

LOG SHOW 00352

9495

3315 -3073

5015 -3049

4/POSS. GAS 4900

9305 -3040

LOEST 3 00355

3975 -3049

3040

NDE 00351

LOG SHOW 00352

3030

POSSIBLE GAS

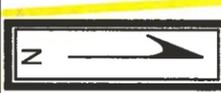
POSSIBLE GAS

01789 -3040 WET

9400

9250 -3049

3040



HOUSTON GULF ENERGY

GOLIAD, TEXAS

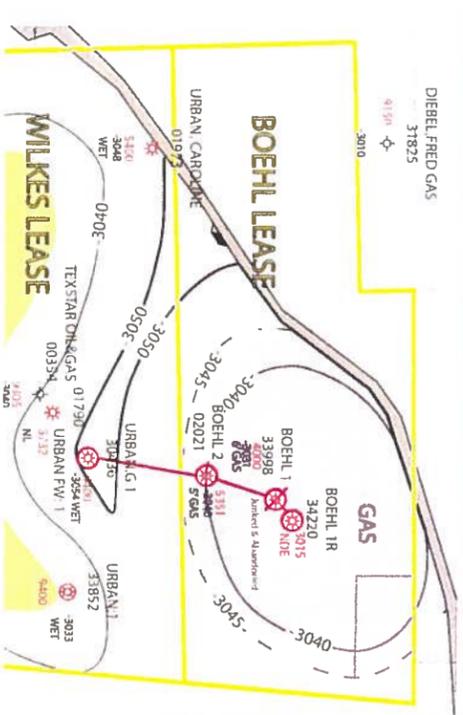
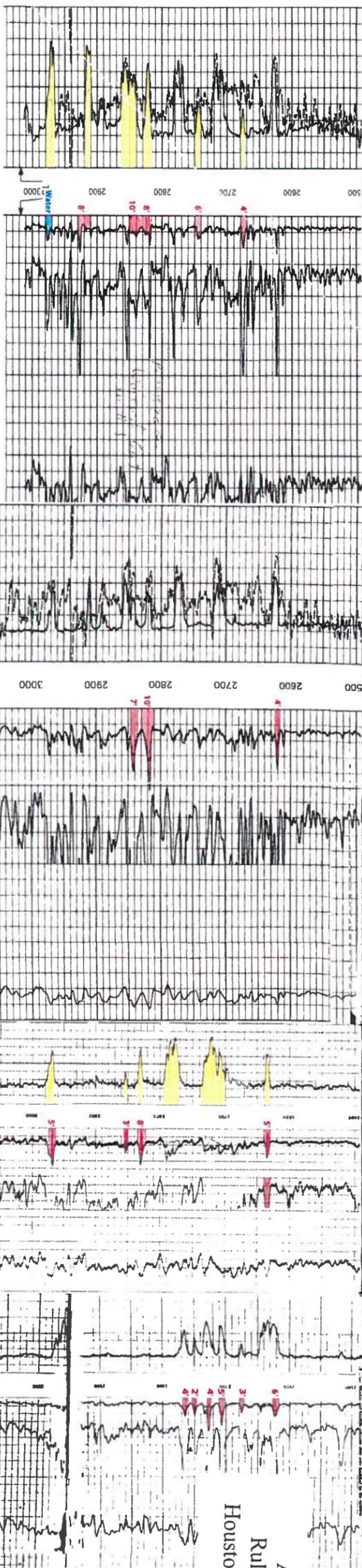
POWDER RIVER CONSOLIDATED FIELD

3300' SAND / WILKES / URBAN / BOEHL LEASES
SUBSEA DEPTHS

SCALE: 1" = 500'
CREATED BY: R. PACE / JFG
DATE: 07 MAY 2015

HOUSTON GULF ENERGY CORP.
DOCKET NO.: 0258401
August 28, 2015
Exhibit 4

BAKER HUGHES COMPENSATED NEUTRON LOG GAMMA RAY LOG FILE NO: 42-175-3998 APN NO: 42-175-3998 WELL: BOEHL #1 FIELD: POWDER RIVER CONSOLIDATED COUNTY: GOULD STATE: TEXAS LOCATION: X = 2,503,274 FT Y = 353,835 FT HAZLETT RIC #2 OTHER SERVICES:	DATE: 02-JUN-2007 SERVICE ORDER: 508131 DEPTH DRILLER: 4000 FT BOTTOM LOGGED INTERVAL: 3995 FT CASING: 400 FT Casing: 411 FT TYPE OF FLUID IN HOLE: 9.8 LB/G VISCOSITY: 38 S FLUID LOSS: 6 CC SOURCE OF SAMPLE: FLOWLINE RM AT MEAS. TEMP: 2.28 OHMM @ 80 DEGF RMC AT MEAS. TEMP: 1.71 OHMM @ 80 DEGF RM AT MEAS. TEMP: 1.58 OHMM @ 130 DEGF SOURCE OF RMF: CALCULATED TIME SINCE CIRCULATION: 5 HOURS RECORDED TEMP: 130 DEGF LOCATION: PEARLAND CASE: S. SPORTSMAN ISSUED BY:
BAKER HUGHES HIGH DEFINITION INDUCTION LOG COMPENSATED 2-DENSITY LOG GAMMA RAY LOG LTRM SUB FILE NO: 42-175-3998 APN NO: 42-175-3998 WELL: BOEHL #1 FIELD: POWDER RIVER CONSOLIDATED COUNTY: GOULD STATE: TEXAS LOCATION: X = 2,503,274 FT Y = 353,835 FT HAZLETT RIC #2 OTHER SERVICES:	DATE: 02-JUN-2007 SERVICE ORDER: 508131 DEPTH DRILLER: 4000 FT BOTTOM LOGGED INTERVAL: 3995 FT CASING: 400 FT Casing: 411 FT TYPE OF FLUID IN HOLE: 9.8 LB/G VISCOSITY: 38 S FLUID LOSS: 6 CC SOURCE OF SAMPLE: FLOWLINE RM AT MEAS. TEMP: 2.28 OHMM @ 80 DEGF RMC AT MEAS. TEMP: 1.71 OHMM @ 80 DEGF RM AT MEAS. TEMP: 1.58 OHMM @ 130 DEGF SOURCE OF RMF: CALCULATED TIME SINCE CIRCULATION: 5 HOURS RECORDED TEMP: 130 DEGF LOCATION: PEARLAND CASE: S. SPORTSMAN ISSUED BY:
SCHLUMBERGER INDUCTION ELECTRICAL LOG FILE NO: 42-175-3998 APN NO: 42-175-3998 WELL: BOEHL #1 FIELD: POWDER RIVER CONSOLIDATED COUNTY: GOULD STATE: TEXAS LOCATION: X = 2,503,274 FT Y = 353,835 FT HAZLETT RIC #2 OTHER SERVICES:	DATE: 02-JUN-2007 SERVICE ORDER: 508131 DEPTH DRILLER: 4000 FT BOTTOM LOGGED INTERVAL: 3995 FT CASING: 400 FT Casing: 411 FT TYPE OF FLUID IN HOLE: 9.8 LB/G VISCOSITY: 38 S FLUID LOSS: 6 CC SOURCE OF SAMPLE: FLOWLINE RM AT MEAS. TEMP: 2.28 OHMM @ 80 DEGF RMC AT MEAS. TEMP: 1.71 OHMM @ 80 DEGF RM AT MEAS. TEMP: 1.58 OHMM @ 130 DEGF SOURCE OF RMF: CALCULATED TIME SINCE CIRCULATION: 5 HOURS RECORDED TEMP: 130 DEGF LOCATION: PEARLAND CASE: S. SPORTSMAN ISSUED BY:
WALKER #1 URBAN CUMMINS FILE NO: 42-175-30436 APN NO: 42-175-30436 WELL: WALKER #1 URBAN FIELD: WALKER #1 URBAN COUNTY: GOULD STATE: TEXAS LOCATION: X = 2,503,274 FT Y = 353,835 FT HAZLETT RIC #2 OTHER SERVICES:	DATE: 02-JUN-2007 SERVICE ORDER: 508131 DEPTH DRILLER: 4000 FT BOTTOM LOGGED INTERVAL: 3995 FT CASING: 400 FT Casing: 411 FT TYPE OF FLUID IN HOLE: 9.8 LB/G VISCOSITY: 38 S FLUID LOSS: 6 CC SOURCE OF SAMPLE: FLOWLINE RM AT MEAS. TEMP: 2.28 OHMM @ 80 DEGF RMC AT MEAS. TEMP: 1.71 OHMM @ 80 DEGF RM AT MEAS. TEMP: 1.58 OHMM @ 130 DEGF SOURCE OF RMF: CALCULATED TIME SINCE CIRCULATION: 5 HOURS RECORDED TEMP: 130 DEGF LOCATION: PEARLAND CASE: S. SPORTSMAN ISSUED BY:
BOEHL #2 ORIGINALLY HOUSTON ROYALTY #1 BOEHL-URBAN GAS UNIT FILE NO: 42-175-02021 APN NO: 42-175-02021 WELL: BOEHL #2 FIELD: POWDER RIVER CONSOLIDATED COUNTY: GOULD STATE: TEXAS LOCATION: X = 2,503,274 FT Y = 353,835 FT HAZLETT RIC #2 OTHER SERVICES:	DATE: 02-JUN-2007 SERVICE ORDER: 508131 DEPTH DRILLER: 4000 FT BOTTOM LOGGED INTERVAL: 3995 FT CASING: 400 FT Casing: 411 FT TYPE OF FLUID IN HOLE: 9.8 LB/G VISCOSITY: 38 S FLUID LOSS: 6 CC SOURCE OF SAMPLE: FLOWLINE RM AT MEAS. TEMP: 2.28 OHMM @ 80 DEGF RMC AT MEAS. TEMP: 1.71 OHMM @ 80 DEGF RM AT MEAS. TEMP: 1.58 OHMM @ 130 DEGF SOURCE OF RMF: CALCULATED TIME SINCE CIRCULATION: 5 HOURS RECORDED TEMP: 130 DEGF LOCATION: PEARLAND CASE: S. SPORTSMAN ISSUED BY:
BOEHL #1R Replacement well for HGE #1 BOEHL that was J&A FILE NO: 42-175-34220 APN NO: 42-175-34220 WELL: BOEHL #1R FIELD: POWDER RIVER CONSOLIDATED COUNTY: GOULD STATE: TEXAS LOCATION: X = 2,503,274 FT Y = 353,835 FT HAZLETT RIC #2 OTHER SERVICES:	DATE: 25-SEP-2014 SERVICE ORDER: US90967 DEPTH DRILLER: 3015 FT BOTTOM LOGGED INTERVAL: 3010 FT CASING: 3010 FT Casing: 3010 FT TYPE OF FLUID IN HOLE: 10.1 LB/G VISCOSITY: 50 S FLUID LOSS: 6 CC SOURCE OF SAMPLE: PITS RM AT MEAS. TEMP: 2.26 OHMM @ 75 DEGF RMC AT MEAS. TEMP: 1.70 OHMM @ 75 DEGF RM AT MEAS. TEMP: 1.42 OHMM @ 123 DEGF SOURCE OF RMF: CALCULATED TIME SINCE CIRCULATION: 7.5 HRS RECORDED TEMP: 125 DEGF LOCATION: ALICE, TX CASE: J. EHRMAN / M. GAHRT ISSUED BY:



ATTACHMENT II
 Rule 37 Case No. 0258401
 Houston Gulf Energy Corporation

HOUSTON GULF ENERGY CORP.
 DOCKET NO.: 0258401
 August 28, 2015
 Exhibit 5

HOUSTON GULF ENERGY
 GOULD, TEXAS
 POWDER RIVER CONSOLIDATED FIELD
 WILKES / URBAN / BOEHL LEASES
 N-S CROSS SECTION
 SCALE: NOT TO SCALE
 CREATED BY: R. PACE / JFG
 DATE: 10 AUG 2015



AUTHORITY FOR EXPENDITURE

ATTACHMENT VI

Rule 37 Case No. 0258401

Houston Gulf Energy Corporation

LEASE NAME:	Boehi #1 TWIN - 4000' well				AFE #:		DATE:	12-Aug-15
DESCRIPTION:	Drill and complete				TD:	4,000	FIELD:	Powder River
SURF LOCATION:						Drill	COUNTY:	Goliad
OBJECTIVE:	Frio				x	Development	STATE:	TEXAS
INTANGIBLE COSTS						DRY HOLE COSTS	COMPLETION COSTS	TOTAL
Leases/State/Permit								0
Location & Roads	Location / water well / cellar					5,000		5,000
Move In/Out								0
Turnkey Cost	1700' to test Navarro A,B,C and D sands					138,000		138,000
Daywork	Days	1	@ \$	3,000		0	6,500	6,500
Surface Damages/Right of Way						0		0
Cement & Pump Service							15,302	15,302
Casing Crews & Tools							4,300	4,300
Electric Logging and cores							13,679	13,679
Perforating/Csd Hole Logging								0
Remote Sensing								0
Geological and Geophysical								0
Supervision/Engineering								0
Administrative/Overhead								0
Equipment/Tool Rentals							0	0
Fuel, Power & Water							0	0
Directional Drilling/Surveying								0
Bits/Reams/Stabilizers								0
Miscellaneous Other								0
Contract Field Labor						600		600
Drilling/Completion Fluids								0
Slickline Services								0
Fishing Tools & Services								0
Cont Labor/Crews/Roustabouts						3,000	5,000	8,000
Sand Control Services								0
Pressure Testing							0	0
Trucking/Vacuum Truck								0
Coiled Tubing Services								0
Insurance								0
Swabbing							0	0
Well Stimulation/Testing - 25,000 # frac								0
SWD Charges							0	0
Pump Repair								0
Contingency and Miscellaneous	0	%				0	15,000	15,000
TOTAL INTANGIBLE COSTS						\$ 160,279	\$ 46,102	\$ 206,381
TANGIBLE COSTS								
Surface Casing	turnkey	Ft	8-5/8", K-55	@ \$	18.00	/Ft		0
Intermediate Casing		Ft		@ \$		/Ft		0
Production Casing	4,000	Ft	4-1/2", 11.6	@ \$	4.83	/Ft	19,320	19,320
Production Tubing	4,000	Ft	2-3/8", L-80	@ \$	2.58	/Ft	10,320	10,320
Rods	0	Ft	1	@ \$	1.35	/Ft		0
Valves/Connections/Fittings								0
Wellhead Equipment							1,680	1,680
Downhole Pump								0
Packers & Downhole Tools			seating nipple					0
Gas Lift								0
TOTAL TANGIBLE COSTS						1,680	\$ 29,640	\$ 31,320
LEASE EQUIPMENT								
Pumping Unit & Motor								0
Tanks & Equipment	Refurbish existing equipment that is on site.							0
Heater, Treater, Separator								0
Flowlines & Fittings								0
Valves & Fittings								0
Electrical Systems								0
Miscellaneous Equipment							22,021	22,021
TOTAL LEASE EQUIPMENT							22,021	22,021
TOTAL PROJECT COSTS						\$ 161,959	\$ 97,763	259,722
PREPARED BY:	John Thibeaux			Date	12-Aug-15	APPROVED BY:	8/12/2015	

HOUSTON GULF ENERGY CORP.

DOCKET NO.: 0258401

August 28, 2015

Exhibit 18



ATTACHMENT V
Rule 37 Case No. 0258401
Houston Gulf Energy Corporation



HOUSTON GULF ENERGY

Reserve Recovery Analysis on 3300' Frio Sand in Boehl 1 well

Porosity	30%
Water Saturation	40%
Depth Feet	3000
Pressure - psi	1395
Temperature degrees Fahrenheit	120
Temperature degrees Rankin	580
Z Factor	0.8
Percent Recovery of Gas in Place	64%
Gas Mcf recovery per Ac-ft	535



HOUSTON GULF ENERGY

Reserves and economics on 3300' Frio Sand in Boehl 2 well

Gas Mcf recovery per Ac-ft	535
Acre Feet of Reservoir - Based on Isopack	223
Gross Gas Reserves based on 85% sweep efficiency - MMCF	101,409
Net reserves based on an 80% NRI and 7% Severance tax and 2% Ad Valorem tax - MMCF	72,001
\$3.19/mcf - Average 5 year strip price for gas at 1150 BTU gas	\$ 3.19
\$3.67/mcf - Average 5 year strip price for gas at 1150 BTU gas	\$ 3.67
Net Revenue after taxes but before expenses	\$ 264,242
Monthly well expenses - \$2500/month	
assume 2 years of production	(\$60,000)
Drilling Costs	(\$259,723)
TOTAL LOSS AT A 0% DISCOUNT FACTOR	(\$55,481)

NOTE: The Boehl 1R did not go deep enough to penetrate this sand.