

OIL AND GAS DOCKET NO. 04-0229075

COMMISSION CALLED HEARING TO DETERMINE IF THE CAMDEN RESOURCES, INC. CASAS UNIT WELL NO. 1, ROSITA, E. (WILCOX CONS.) FIELD IS IN COMPLIANCE WITH STATEWIDE RULES 11 AND 37, DUVAL COUNTY, TEXAS

OIL AND GAS DOCKET NO. 04-0229076

COMMISSION CALLED HEARING ON THE COMPLAINT OF SHELL WESTERN E & P REGARDING THE CAMDEN RESOURCES, INC. CASAS UNIT WELL NO. 1, ROSITA, E. (WILCOX CONS.) FIELD, DUVAL COUNTY, TEXAS

HEARD BY: Donna K. Chandler, Technical Examiner
Mark H. Tittel, Hearings Examiner

APPEARANCES:

Brian Sullivan
Jim Thompson
Ricardo Garza

Philip Patman
Dick Marshall
Rick Johnston
Mark Rhoades
Bryan Patton
Preston Moore
Andy Vaughn

Tim George

REPRESENTING:

Shell Western E & P, Inc.

Camden Resources, Inc.

Casas Family

PROCEDURAL HISTORY

Complaint Filed:	July 26, 2001
Notice of Hearing:	July 30, 2001
Dates of Hearing:	November 14-15, 2001

Date of Transcript: January 15, 2002
Proposal for Decision: March 28, 2002

EXAMINERS' REPORT AND PROPOSAL FOR DECISION

STATEMENT OF THE CASE

Camden Resources, Inc. ("Camden") completed its Casas Unit No. 1 on an 81 acre pooled unit in the Rosita, E. (Wilcox Cons.) Field on April 2, 2001. Shell Western E & P ("Shell") is the operator of two leases directly offsetting the Casas lease to the north and west. Shell contends that there is probable cause to believe that the well is bottomed off the Casas lease and requests that the Casas No. 1 be shut-in until it is in compliance with Rule 11. Shell also requests that, pursuant to Statewide Rule 11(e), the Commission require Camden to run a directional survey on the well to accurately determine its bottomhole location.

Camden believes that the Casas No. 1 is in compliance with Rule 11 and requests that the well be assigned an allowable effective the date it was eligible, based on the filing date of completion papers.

DISCUSSION OF THE EVIDENCE

Background

Camden completed its Casas Unit No. 1 in the Rosita, E. (Wilcox Cons.) Field on April 2, 2001. The surface location for the well is 473 feet from the north line and 475 feet from the west line of the Casas lease. Field rules for the Rosita, E. (Wilcox Cons.) Field require well spacing a minimum of 467 feet from lease lines. Completion papers for the well were filed with the Commission's District Office in Corpus Christi on June 8, 2001. The Form W-12 (Inclination Report) for the well indicates a cumulative displacement of 467 feet at a depth of 16,840 feet. The producing interval for the well is from 15,840 feet to 15,888 feet. The Commission assigned an allowable to the subject well on June 29, 2001 based on the completion papers filed by Camden.

On July 6, 2001, the Commission notified Camden that completion papers for the Casas Unit No. 1 could not be processed and an allowable could not be assigned to the well because it could not be determined if the well was in compliance with Rule 11 and/or Rule 37. This letter was sent to Camden after receipt of a partial directional survey on the well which was run from 9,050 feet to 12,550 feet. In that interval, the well deviated 115 feet in a westerly direction and 76 feet in a northerly direction. Based on the directional survey information and the Form W-12 (Inclination Report) information, Commission staff determined that the well may be bottomed off lease and the allowable for the well was

rescinded. The well continues to produce approximately 10 MMCFD with a -0- allowable.

Shell's Evidence

Shell believes that the Form W-12 filed for the Casas Unit No. 1 cannot be relied upon for several reasons, as summarized below.

1. Shell believes that many of the paper discs which recorded the angle of inclination were read too low, resulting in less accumulative displacement on the Form W-12.
2. An inclination survey at a depth of 2,016 feet was not included on the Form W-12. An inclination of 0.5 degrees was recorded at this depth on daily drilling reports. This survey was not included in the accumulative displacement and a disc was not available for review.
3. For survey depths of 4,975 feet, 8,600 feet and 14,675 feet, the paper discs are not available for Shell to verify the readings of inclination submitted on the Form W-12.
4. Camden was not able to provide "hard data" to verify the Multi-Shot survey data for depths of 15,581 feet, 16,080 feet, 16,445 feet and 16,849 feet. Shell cannot verify the readings of inclination submitted on Form W-12 for these four depths.
5. Ten of the surveys made with standard TOTCO units should have used hot well units. According to Shell, standard units have an operating temperature limit of 200 degrees; hot well units use copper discs and have an operating temperature limit of 500 degrees. The bottomhole temperatures for the ten surveys exceeded 200 degrees and the surveys may therefore be inaccurate.
6. In several instances, disc envelopes indicated that discs used had a range of 0-7degrees; the discs inside the envelopes actually were 0-14 degree discs. Shell believes that those discs should not be relied upon because it cannot be determined which range is correct.

For 31 of the 35 survey points listed on the Form W-12 Inclination Report for the Casas Unit No. 1, a tool called a TOTCO was used to measure the angle of inclination at various depths in the wellbore. The tool records two measurements of inclination at each depth, with the readings "punched" on paper discs in the tool. Each of the two readings should record the same inclination at that depth, or the reading should not be relied upon, according to Shell's procedures. For inclination angles of up to 6 degrees, there can be reading uncertainty of up to 0.5 degrees, depending on the individual reading the disc. In addition, the instrument uncertainty can be up to 0.5 degrees, resulting in a maximum combined uncertainty of 1 degree. Shell believes that 14 of the TOTCO discs were read too low by Camden. With Shell's interpretations at these 14 points, the maximum accumulative displacement would be 510.584 feet. Because this distance is greater than the 473 foot distance to the nearest lease line, Shell believes that a directional survey must be required pursuant to Statewide Rule 11(c).

Shell also pointed out that increasing any three readings by 0.25 degrees will result in maximum accumulative displacement of greater than 473 feet. Similarly, increasing any two readings by 0.5 degrees will result in maximum accumulative displacement of greater than 473 feet, again triggering the requirement of running a directional survey to determine bottomhole location.

Because a partial directional survey is available between 9,050 feet and 12,550 feet, Shell recalculated the Form W-12, eliminating the TOTCO data at those depths and incorporating the western component of the directional survey data, and also using Shell's interpretations for nine depths. (The remaining five TOTCO readings of the 14 disputed are within the directional survey interval). With all of these substitutions, the maximum accumulative displacement is 477.525 feet at total depth, again, greater than the distance to the nearest lease line. Adding 1 degree of uncertainty to each reading results in possible displacement of over 600 feet.

Shell also claims that Camden did not take steps to straighten the wellbore after it was determined that the wellbore was drifting in a westerly direction, based on the partial directional survey. According to Shell's witness, to straighten a hole, typically the weight on bit is reduced and the rotary speed is increased. Camden's daily reports show that after the directional survey, the bit weight was increased and the rotary speed was decreased, indicating to Shell that Camden was trying to continue the westward trending of the wellbore. Shell suggests that Camden could have also changed the bottomhole assembly in the well to cause the wellbore to move back toward vertical. Shell has apparently used these methods to control direction and angle in several of its wellbores in the immediate vicinity of the Casas Unit No. 1.

Shell believes that there is probable cause to suspect that the Casa No. 1 is not bottomed within its lease, and therefore, under Statewide Rule 11(e), the Commission can require that a directional survey be run on the wellbore. Shell has agreed to pay all costs for the directional survey and has offered to post a bond of \$3.5 million.

Camden's Evidence

Camden believes that the Casas No. 1 is in compliance with Rule 11 because the rule requires directional surveys only under two circumstances: 1) when the maximum displacement indicated by an inclination survey is greater than the actual distance from the surface location to the nearest lease line, or 2) when a well is directionally drilled. The inclination report filed for the Casas No. 1 indicates a maximum displacement of 467.1 feet at a depth of 16,840 feet while the nearest lease line is 473 feet away. No directional tools were ever used in this wellbore and Camden claims the well was drilled as a vertical well.

Camden drilled the Casas No. 1 based on geologic and seismic data indicating that a vertical well at the location would encounter the same fault block from which three of

Shell's wells are producing. Mapping indicated that a well at the surface location of the Casas No. 1 would encounter the productive reservoir upthrown to the trapping fault southeast of the well. Based on this interpretation of the reservoir, Camden had no reason to intentionally deviate the well toward the west.

The location of the fault to the southeast was important because if the well crossed the fault, it would likely encounter non-productive reservoir. Camden had intended to have Schlumberger run a directional survey from about 12,500 feet to surface to determine what direction the well was drifting. There was apparently a miscommunication between Camden and Schlumberger about the type of survey to run. This miscommunication resulted in the running of the partial survey between 9,050 feet and 12,500 feet, with no gyroscopic tool used to tie the beginning of the survey to the surface. The partial directional survey therefore does not reveal a bottomhole location for the well at any point in the survey interval.

During the drilling of the well, the angles of inclination were never more than 3 degrees above 14,149 feet and Camden therefore saw no reason to implement procedures to change the direction of the wellbore. Three degrees inclination is typically considered to be a "vertical" hole. The highest angle recorded on the Form W-12 was 5.22 degrees at 16,840 feet, one of the measurements obtained by Multi-Shot surveys. This depth is almost 1,000 feet below the perforations in the well.

Camden did not change to hot well units (copper discs) until 13,101 feet. Camden does not believe that the use of standard units (paper discs) to this depth resulted in any error due to higher temperatures. Camden's normal procedure is to use standard units until the paper discs began to get brown from temperature, at which time copper discs are used. Camden believes all of the standard units are reliable as they do not indicate any damage due to excessive temperature.

Shell also complained that several discs could not be relied upon because they were 0-14 degree discs inside an envelope indicating that a 0-7 degree tool had been used. Camden asserts that it is typical to use the 7 degree tool. At 9,000 feet, a 14 degree tool was used because the 7 degree tool malfunctioned. There were eight other depths for which the discs indicated a 14 degree range. In actuality, at these eight depths, a 7 degree tool was used in conjunction with a 14 degree range disc. These discs should be read as discs having a range from 0 to 7 degrees, not 0 to 14 degrees. The readings are not unreliable as Shell claims. They must simply be read on a different scale.

Camden submitted records from Multi-Shot, the company who performed the four inclination surveys at 15,581, 16,080, 16,445 and 16,840 feet. Multi-Shot surveys were used at these depths due to the high temperatures. The company records verify the information submitted on the Form W-12 for those depths. The information recorded by the tool is downloaded into Multi-Shot computers and there is no film or hard data to review.

Shell had pointed out that an inclination survey at 2,016 feet had been omitted from

Form W-12 and that surveys at two other depths, 3,496 feet and 12,225 feet, were recorded on the W-12 at different angles than is indicated on daily drilling reports. At 3,496 feet, the drilling report indicates two different inclinations for that depth: 0.25 degrees and 0.50 degrees. On the Form W-12, 0.25 degrees was recorded. At 12,225 feet, the daily drilling report indicates an inclination reading of 1.75 degrees; the Form W-12 for that depth records an inclination of 1.25 degrees. Camden incorporated these three changes into revised W-12 calculations, resulting in a maximum accumulative displacement of 470.5 feet at total depth.

Shell believes that 14 of the discs were interpreted incorrectly and should have been adjusted upward, based on their reading of the disc. However, Shell adjusted no readings downward. Camden's witness re-interpreted all of the discs. In instances where the TOTCO indicated slightly different readings, an average of the two readings was taken. Some of the new interpretations were lower than those reported on Form W-12; some were higher. Substituting the new interpretations of Camden, the maximum accumulative displacement is 466.6 feet at total depth rather than the reported 467.1 feet. This difference is insignificant.

Camden also compared the displacement indicated by the partial directional survey between 9,050 feet and 12,550 feet to the maximum displacement indicated by inclination surveys over that same depth. The maximum displacement based on inclination surveys is 139 feet. From the partial directional survey, maximum displacement over the same depth interval is 137.8 feet. Camden believes the partial directional survey confirms the accuracy of the TOTCO readings. Some angles indicated on the directional survey were higher than those indicated by TOTCO at the same depth; some were lower. The largest difference was 0.96 degrees. The average difference between the directional survey measurements and the TOTCO measurements, including positive and negative differences, is 0.048 degrees.

Shell claimed that Camden did not take steps that a prudent operator would take to drill the Casas No. 1 as near vertical as possible. Shell believes that Camden should have taken steps to change drift of the wellbore after the results of the partial directional survey indicated westward drift. Decreased bit weight, increased rotary speed, and different bottomhole assemblies may have had some effect on wellbore drift. However, Camden contends that the wellbore was drilled as near vertical as possible using normal, prudent, practical drilling operations as required by Rule 11.

The deepest perforation in the well is 15,888 feet. The next inclination after that depth is at 16,080 feet. The accumulative displacement at 16,080 feet is only 415 feet, demonstrating that the producing interval is well within the lease boundary.

EXAMINERS' OPINION

Statewide Rule 11 (c)(1)(A) requires the running of a directional survey when the maximum displacement indicated by an inclination survey is greater than the actual distance

from the surface location to the nearest lease line. Based on Form W-12 submitted by Camden, the accumulative displacement at total depth is 467 feet, less than the well's 473' distance from the nearest lease line. Even when the survey at 2,016 feet is added and the changes are incorporated at survey depths of 3,496 feet and 12,225 feet, the maximum accumulative displacement is still less than the distance to the nearest lease line. When the depth of the perforated interval is considered, instead of total depth, the maximum displacement is 415 feet, and well within the lease line.

The partial directional survey confirms the accuracy of the inclination readings. Between the depths of 9,500 feet and 12,550 feet, the total displacement indicated on Form W-12 is 139 feet. Based on the partial directional survey, the total displacement in the same depth interval is 137.8 feet. The very small average angle difference between the TOTCO measurements and directional survey measurements confirms the accuracy of the TOTCO measurements reported on Form W-12.

The examiners do not believe that probable cause exists to suspect that the Casas No. 1 is bottomed off the Casa lease. By increasing numerous inclination survey readings, Shell showed that calculations indicate that the bottomhole could be off lease. However, there is no basis to arbitrarily increase the inclination measurements. Camden rebutted all of Shell's allegations concerning unreliability of the W-12 information. The calculations on Form W-12 assume that all drift is in the same direction toward the lease line. This is likely not the case. Camden submitted evidence that Shell's wellbores in the area actually corkscrew at deeper depths.

FINDINGS OF FACT

1. Notice of this hearing was sent to all interested parties at least ten (10) days prior to the subject hearing.
2. Camden completed its Casas Unit No. 1 in the Rosita, E. (Wilcox Cons.) Field on April 2, 2001. The surface location for the well is 473 feet from the north line and 475 feet from the west line of the Casas lease.
3. Field rules for the Rosita, E. (Wilcox Cons.) Field require well spacing a minimum of 467 feet from lease lines.
4. Completion papers for the subject well were filed with the Commission's District Office in Corpus Christi on June 8, 2001. The Form W-12 (Inclination Report) for the well indicates a maximum accumulative displacement of 467 feet at a depth of 16,840 feet.
5. The Commission assigned an allowable to the subject well on June 29, 2001

based on the completion papers filed by Camden. On July 6, 2001, the Commission notified Camden that completion papers for the Casas Unit No. 1 could not be processed and an allowable could not be assigned to the well because it could not be determined if the well was in compliance with Rule 11 and/or Rule 37. The well continues to produce approximately 10 MMCFD without an allowable.

6. Camden ran a partial directional survey on the subject well from 9,050 feet to 12,550 feet. In that interval, the well deviated 115 feet in a westerly direction and 76 feet in a northerly direction.
7. Based on Form W-12 submitted by Camden, the accumulative displacement of the Casas Unit No. 1 at total depth is 467 feet, which is less than the 473' distance to the nearest lease line. When the depth of the perforated interval is considered (15,840-15,888 feet), instead of total depth, the maximum displacement is 415 feet.
8. The accuracy of the inclination readings for the Casas Unit No. 1 reported on Form W-12 is confirmed by the partial directional survey.
9. The maximum displacement indicated by the inclination survey for the Casas Unit No. 1 is 467 feet. This distance is less than the 473 foot distance from the actual surface location of the well to the nearest lease line.

CONCLUSIONS OF LAW

1. Proper notice was given to all parties as set out in the provisions of all applicable codes and regulatory statutes.
2. All things have occurred and been accomplished to give the Commission jurisdiction in this matter.
3. Shell failed to show probable cause to suspect that the Casas Unit No. 1 is not bottomed within the boundaries its lease; therefore, the ordering of a directional survey of the Casas Unit No. 1, pursuant to Statewide Rule 11(e), is not justified.
4. Camden is not required to run a directional survey under the terms of Statewide Rule 11(c).
5. The Casas Unit No. 1 was drilled in compliance with Statewide Rules 11 and 37. The well should be assigned an allowable effective June 29, 2001.

EXAMINERS' RECOMMENDATION

The examiners recommend that Shell's complaint against Camden be dismissed with prejudice and that the Commission enter an order that the Casas Unit No. 1 was drilled in compliance with Statewide Rules 11 and 37 and should be assigned an allowable effective May 25, 2001.

Respectfully submitted,

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Technical Examiner

Mark H. Tittel
Hearings Examiner