

**STATE OF NEW MEXICO  
DEPARTMENT OF ENERGY, MINERALS AND NATURAL RESOURCES  
OIL CONSERVATION DIVISION**

**APPLICATION OF COG OPERATING LLC FOR SPECIAL POOL RULES AND REGULATIONS FOR THE ARTESIA GLORIETA-YESO POOL, BEAR GRASS DRAW GLORIETA-YESO POOL, CEDAR LAKE GLORIETA-YESO POOL, EMPIRE GLORIETA-YESO POOL, EAST EMPIRE GLORIETA-YESO POOL, FREN GLORIETA-YESO POOL, EAST FREN GLORIETA-YESO POOL, GRAYBURG JACKSON SEVEN RIVERS-QUEEN-GRAYBURG-SAN ANDRES-GLORIETA-YESO (PADDOCK) POOL, GRAYBURG JACKSON SEVEN RIVERS-QUEEN-GRAYBURG-SAN ANDRES POOL, GRAYBURG JACKSON YESO POOL, NORTH LEAMEX PADDOCK POOL, LOCO HILLS GLORIETA-YESO POOL, AND WEST MALJAMAR YESO POOL, AND CANCELLATION OF OVERPRODUCTION, LEA AND EDDY COUNTIES, NEW MEXICO.**

**CASE NO.: 14613**

**APPLICATION OF BURNETT OIL CO., INC. AND HUDSON OIL COMPANY OF TEXAS FOR CONSOLIDATION AND EXPANSION OF AND ADOPTION OF SPECIAL POOL RULES FOR CERTAIN YESO POOLS IN LEA AND EDDY COUNTIES, NEW MEXICO.**

**CASE NO.: 14647**

**COG OPERATING, LLC's CLOSING STATEMENT**

The Division must determine two things: (1) whether the allowable and no gas-oil ratio limit proposed by COG Operating, LLC ("Concho") will cause harm to the reservoir, will prevent waste and protect correlative rights; and (2) what the proper well density should be for developing the Yeso in the area subject to Burnett Oil Co., Inc. and Hudson Oil Company's ("Burnett/Hudson") application.

All parties to the case agree that the Yeso Shelf is a solution gas drive reservoir with low porosity and permeability, and lenticular, or compartmentalized, reserves. Concho testified and provided evidence that a high rate of production and high gas-oil ratios historically have not harmed the reservoir. Indeed, production rates are ultimately a function of the low reservoir "kh" (millidarcy-feet) and present no danger of damaging the reservoir. The reservoir has been produced unrestricted up until the time Concho filed this application and no testimony was presented indicating reservoir damage due to the production rate. In fact, at the request of the examiner, information was provided on studies completed by industry-leading engineers that indicate higher producing rates increase recovery.

Concho has the largest library of data on the Yeso Shelf that is the subject of Concho's application. Concho has approximately 1600 wells in its Yeso database as well as numerous sidewall cores and whole cores, FMI's, mud logs and open hole logs. This library is extensive, spans almost a decade of information gathering, and has allowed Concho to graduate from a strict log analysis to a more sophisticated statistical analysis to guide its well location and perforation decisions. The data presented by Concho at the hearing was based on this large inventory of rock data as opposed to the select and limited samplings of data presented by Burnett/Hudson, who, by their own testimony, freely admit that they are still under a learning curve when it comes to the Yeso Formation. Further, while logging is still important particularly as operators "step out" in the pool, relying primarily on log data is short-sighted because the log only shows what is in that hole and does not convey the whole story. Due to the nature of this reservoir, Concho drills wells on a statistical basis which is again based on its massive database.

**A. Evidence on Allowable:**

Mr. Midkiff researched the production of all operators in the pools subject to the application. As he testified, Concho proposes a 300 barrel a day depth bracket allowable because it will allow ALL operators in these pools to produce their wells without unreasonable restriction. The evidence and testimony showed that no damage has been caused to the reservoir by historical unrestricted production and reservoir energy has not been affected. There has been no evidence of interference or communication between wellbores and operators, including Burnett, are currently achieving incremental recovery even on 10-acre spacing. In fact, as Mr. Midkiff testified, Concho is accessing new reserves in its wells on 10-acre spacing, as evidenced by the fact that the formation's gas-oil ratio has not significantly changed over time. This is confirmed by Concho's drainage calculations which show an average drainage area of approximately 9 acres for the Paddock and 5 acres for the Blinebry. Mr. Prentice also testified that allowing the 300 barrel a day allowable allows for a more efficient primary recovery period and for secondary recovery efforts to occur sooner and in a more orderly and efficient fashion.

The only evidence presented by Burnett/Hudson on their proposed allowable, which mysteriously and almost inexplicably was reduced from 240 barrels per day to 187 barrels a day by the time of the Hearing, was the testimony of Mr. Gore. He opined that a 187 barrel a day allowable would allow Burnett/Hudson to fully produce its wells IF they were also granted the proposed "balancing rule." This is unnecessarily complicated and achieves the same goal as the proposal in Concho's application.

Of the operators in the subject pools, 14 support increasing the allowable to 300 barrels of oil per day and an unlimited gas-to-oil ration to allow for unrestricted production. Only two operators in the subject pools support increasing the allowable to 187 barrels of oil per day, a 2000:1 gas-to-oil ratio and an annual balancing of over production to ALSO allow for unrestricted production.

Concho has shown that its proposed allowable will not harm the reservoir, will not cause waste and will protect correlative rights.

## **B. Evidence on GOR:**

Concho provided evidence and testimony that a high gas-oil ratio does not waste reservoir energy or otherwise cause harm to the reservoir. In two pools in the subject area – the West Maljamar Yeso Pool and the Grayburg Jackson Pool – there is currently no limiting gas-oil ratio. Further, Concho provided evidence that the initial gas-oil ratio for all the pools in the subject area has remained about the same over the life of these pools. Conversely, Burnett/Hudson offered no evidence in support of a 2000:1 gas-oil ratio. Rather, Burnett/Hudson's own evidence indicates that many of their wells currently exceed a gas-to-oil ratio of 2000:1.

Restricting production for purposes of the gas-to-oil ratio limit could lead to situations similar to Case No. 376 in which Buffalo Oil Company testified that as they were penalized for purposes of the gas-to-oil ratio allowable the gas-to-oil ratio was increasing rapidly, causing the well to be penalized further. Testimony was also provided on damage to the Yeso from restricting production by Concho and Premier. Premier testified to two separate instances where wells were restricted due to their high producing rate and this restriction caused an ultimate loss in productivity.

Burnett testified that they used the  $B_{oi}$  provided by Concho, indicating they had done no drainage calculations of their own prior to the hearing.

## **C. Evidence on Density:**

Due to the lenticular nature of the Yeso Shelf, four wells per 40-acre spacing unit are needed to contact multiple productive lenses and accordingly avoid leaving reserves in the ground. Burnett/Hudson contends that it needs only two wells per 40-acre spacing unit due to their completion techniques, which appear to be unique to Burnett and not widely used by other Yeso Shelf operators. However, Concho and other operators use different completion techniques for a variety reasons not the least of which is Concho's constant focus on secondary recovery opportunities. The "slickwater frac" that Burnett/Hudson employs decreases the chances for a successful secondary recovery project later on. Concho's completion techniques complement 10-acre development and are designed to prepare the reservoir for potential secondary recovery. Concho does not attempt to drain large areas with big fracs with long extensions because the fracs will inevitably interfere with nearby offsets (e.g., Burnett/Hudson's witness testified that he believed they had evidence of a 900-foot frac half length in a Burnett well). More importantly, efficient secondary recovery operations are based on the ability to inject water into a well bore and sweep or bank oil beginning as close to the injector as possible. Large extended propped fracs defeat that concept and provide highly permeable pathways for water to flow through resulting in a highly inefficient, and probably unsuccessful, water flood.

As a public company, Concho is required to have an independent third party, with expertise in reservoir engineering, review all the reserve categories and forecasts for certification before the Securities and Exchange Commission. Both bodies recognize the type of reservoir rock involved with these assets have consistently agreed with Concho, other operators in the area, and the State of New Mexico over the years that development on 10-acre spacing is necessary for the development of new reserves. That interpretation has a direct impact on the value of each

operator along the entire shelf area. The decision to decrease well density would have not only a serious impact on Concho but also would negatively affect smaller operators, such as Premier, as testified to by its President, Mr. Jones.

Concho and other operators show average drainage of approximately 9 acres in the Paddock and 5 acres in the Blinebry. These drainage calculations make it clear that 10-acre spacing is still required and, in fact, is necessary for the efficient recovery of reserves, for the prevention of waste and protection of correlative rights.

If Burnett/Hudson believes that only 2 wells per spacing unit is adequate, then there is nothing under the existing rules that prevents them from continuing their unique completion techniques, while leaving other operators free to choose their preferred method of exploiting the oil and gas in these pools.

Despite Burnett/Hudson's contention that their completions achieve drainage with two wells per 40-acre unit, their own drainage calculations demonstrate that 20-acre spacing leaves between 10 and 30 percent of reserves in the ground, depending on the target section of the Yeso. This is true even with Burnett's high-volume slick water fracture method. With this evidence, it makes no sense to decrease well spacing to two wells per 40-acre spacing unit when so many reserves will remain untapped. Burnett/Hudson failed to meet its burden of proof that the statewide standard of 10-acre spacing results in waste, violates correlative rights, and is in the interest of conservation.

### **Conclusion**

Approximately 94% of the active wells in these pools are operated by parties that support Concho's application. Apache, a large international corporation, and Premier, a small New Mexico independent, both have appeared in support and provided their independent analysis of why Concho's application makes sense and why Burnett/Hudson's application should be denied.

The Division has examined this Yeso Shelf twice in recent history. In 2004, in Case No. 13185, the Division granted Devon's application for a 300 barrel per day allowable in the Northeast Red Lake-Glorieta-Yeso Pool. The Division found that increasing the depth bracket allowable "will enable the operators in the pool to efficiently produce the hydrocarbons with this reservoir, will not result in the excessive waste of reservoir energy, should not reduce the ultimate recovery of oil from this reservoir, and will not violate correlative rights." Concho Ex. 35. In Case No. 14554, the Division granted Mewbourne's application for an increased allowable in a Yeso pool also finding there would not be waste or violation of correlative rights.

And here, Concho has demonstrated that its request for an increased allowable and no limiting gas-oil ratio will not harm the reservoir, cause waste or violate correlative rights. Concho's allowable request has the added benefit of resolving the universal overproduction issue in these pools, as recognized by the Examiners. Concho has also shown that the existing spacing rules are required to adequately produce the reserves in these pools.

Therefore, Concho respectfully requests the Division grant its application and deny Burnett/Hudson's application with respect to the proposed allowable, gas-oil ratio and well density.

Respectfully submitted,

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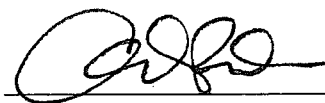
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**CERTIFICATE OF SERVICE**

I hereby certify that on June 10, 2011, I served a copy of the foregoing document to the following counsel of record via Electronic Mail to:

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