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June 3, 2011

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Douglas K. Anthony, Deputy Director
Development Review Division, North County
COUNTY OF SANTA BARBARA
PLANNING & DEVELOPMENT
624 W. Foster Road
Santa Maria, CA 93455

**Re: Notices of Violation dated May 26, 2011
Hydraulic Fracturing of Careaga Wells 6-21 & 7-18
Venoco, Inc., Los Alamos, CA**

Dear Mr. Anthony:

This firm represents Venoco, Inc. Our client has received your department's two NOV's dated May 26, 2011. At the appropriate time and venue, Venoco intends to fully pursue its rights and remedies with respect to these NOV's. In the meantime, we would like to take this opportunity to make clear that Venoco categorically denies that the company has violated the County's LUDC or the land use permits issued for the two wells, or any other rule or regulation for that matter. Venoco respectfully requests that the NOV's be withdrawn promptly and that the enforcement cases be closed. A brief summary of reasons for this follows.

The two NOV's are virtually identical. Each rests on the allegation that Venoco's use of the conventional well **completion technique** of **hydraulic fracturing** constituted prohibited "water flooding... for enhanced oil recovery." Under no generally accepted use of these terms did this well completion procedure constitute any form of water flooding - - for enhanced oil recovery, or for any other purpose.

Hydraulic fracturing is one of several down-hole completion techniques long associated with efforts to achieve **primary recovery** from the reservoir into which the

well has been drilled. It has been safely used in California for decades. Once an oil well is drilled and lined with steel casing, fluids are pumped down to an isolated portion of the well at pressures high enough to cause cracks, or fractures, in the rock formation thousands of feet below the earth's surface. Typically, a propping agent such as sand is pumped into the well to keep the fractures open. The fractures allow the natural pressure of the reservoir to move the oil more freely. Only a single well is involved and the natural pressure of the reservoir itself is unaffected by the procedure. The hydraulic fracturing operations performed on the Careaga wells fit this description. The fluid injection operations in each instance lasted less than two hours.

Hydraulic fracturing is entirely distinct from any form of **secondary recovery** operation, such as a **water flood**. In a water flood operation water is continuously injected for years into an oil reservoir via one or more wellbores for the purpose of augmenting reservoir pressure, thereby driving oil out of the reservoir rock and into the wellbores of producing wells. A common goal of water flood operations is to remove oil left behind after **primary recovery** when the reservoir is approaching or has reached exhaustion of its natural energy. Unlike hydraulic fracturing, which involves the brief stimulation of a well intended for oil or gas production, a common denominator in **secondary recovery** operations is the use of separate wells for water input and for production output. Also, in hydraulic fracturing, injected fluid is recovered from the same wellbore into which it is injected.

Enhanced oil recovery (EOR) is a generic term, but also of limited application. It is used to describe operations performed after **primary recovery**, such as the injection of substances into the oil reservoir to increase (or retard the loss of) reservoir pressure in order to enhance the movement of oil to the production well(s). EOR is often used to describe a **tertiary recovery** operation or, occasionally, a **secondary recovery** operation, such as water flooding.¹ It is not properly used to describe a well completion technique, such as hydraulic fracturing.²

¹ Tertiary recovery is an enhanced recovery process that goes beyond water or gas flooding and may involve the injection of other substances or the use of other techniques involving the application of energy extrinsic to the pool.

² The technical features of this letter are drawn from numerous sources, including: Santa Barbara County Code, Chap. 25, Sec. 25-4 ("secondary and enhanced recovery operations"); Cal. Dept. Conserv., Public Affairs Office, May 1, 2011 ("Hydraulic Fracturing"); Vol. 8 Williams & Meyers, *Oil & Gas Law, Manual of Terms* ("enhanced recovery," "secondary recovery," "water flooding"); *fulcrumexploration.com* ("enhanced recovery"); *oilgasglossary.com* ("secondary recovery," "tertiary recovery," "water flooding"); SPE E&P Glossary, Society of Petroleum Engineers ("waterflood," "enhanced oil recovery"); and Venoco engineering professionals.

Douglas K. Anthony, Deputy Director
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In sum, the Careaga hydraulic fracturing well completion technique utilized by Venoco simply did not constitute any form of water flooding for enhanced oil recovery, and the central allegations of the NOV's are therefore flawed.

We also wish to advise you of our view that any attempt by the County to regulate any such down-hole completion techniques has been preempted by State law. See e.g., 59 Ops. Cal. Atty. Gen. 461. The discussion of this topic will be expanded upon later, as necessary.

We hope that these NOV's are promptly withdrawn and the enforcement cases closed without the necessity for further proceedings. Should you have any questions about the foregoing, please don't hesitate to contact me.

Very Truly Yours,

HOLLISTER & BRACE

By



Steven Evans Kirby

SEK:bew

copy: Board of Supervisors
Venoco, Inc.