

BEFORE THE OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF COLORADO

IN THE MATTER OF ALLEGED VIOLATIONS) CAUSE NO. 1V
OF THE RULES AND REGULATIONS OF THE)
COLORADO OIL AND GAS CONSERVATION) DOCKET NO. 0802-OV-02
COMMISSION BY **NOBLE ENERGY, INC.**,)
ADAMS COUNTY, COLORADO)

NOTICE OF ADMINISTRATIVE ORDER BY CONSENT

TO ALL INTERESTED PARTIES AND TO WHOM IT MAY CONCERN:

On June 17, 1980, Union Pacific Resources Company, d/b/a Champlin Petroleum Company ("Champlin") drilled the Wailes 41-33 #1-X Well (API #05-001-07626), which is located in the NE $\frac{1}{4}$ NE $\frac{1}{4}$ of Section 33, Township 1 South, Range 64 West, 6th P.M. The Wailes 41-33 #1-X Well was completed in the "J" Sand Formation with 8 $\frac{5}{8}$ -inch surface casing run from the ground surface to a depth of 212 feet below ground surface (fbgs), 5 $\frac{1}{2}$ -inch production casing run from ground surface to 7,990 fbgs, and with perforations from 7,908 to 7,879 fbgs.

On or around June 29, 1998, ownership of the Wailes 41-33 #1-X Well was transferred from Champlin to United States Exploration, Inc. ("USX") (Operator #91755).

On March 31, 2003, a domestic water well (the "Britton water well") was constructed for James and Sharon Britton under Colorado Division of Water Resources Permit No. 244247. The Britton water well is located in the NE $\frac{1}{4}$ NE $\frac{1}{4}$ of Section 33, Township 1 South, Range 64 West, 6th P.M, and is approximately 300 feet west-southwest of the Wailes 41-33 #1-X Well. The Britton water well is approximately 400 feet deep. It is screened from approximately 300 fbgs to 400 fbgs and produces water from the Upper Arapahoe Formation.

On or around March 30, 2006, Noble Energy, Inc. ("Noble Energy") completed the purchase of assets from USX, including the Wailes 41-33 #1-X Well. Noble Energy is responsible for operations at the Wailes 41-33 #1-X Well, even though USX continues to be the named operator.

On or around October 4, 2006, Mr. Britton contacted Noble Energy because he was concerned about gas bubbling in his water well. On October 4, 2006, Noble Energy initiated investigation and repair work on the Wailes 41-33 #1-X Well. During the initial investigation, Noble Energy measured a bradenhead pressure of 80 pounds per square inch. Noble Energy conducted numerous mechanical integrity tests on the Wailes 41-33 #1-X Well and determined that holes were present in the production casing from 200 to 230 fbgs. Noble Energy also advised Mr. Britton to contact the Colorado Oil and Gas Conservation Commission Staff ("COGCC Staff").

On October 5, 2006, Mr. Britton contacted COGCC Staff and informed them that he observed vigorous bubbling in his water well. Mr. Britton further indicated that he first observed bubbling in his water well one to two weeks prior to the call. COGCC Staff assigned tracking number 200097544 to Mr. Britton's complaint. Arrangements were made with Noble Energy to sample the water well for possible impact from the Wailes 41-33 #1-X Well.

On October 5, 2006, Noble Energy shut in the Wailes 41-33 #1-X Well by installing a retrievable bridge plug above the "J" Sand production interval. Noble Energy believes gas ceased escaping from the Wailes 41-33 #1-X Well on October 5, 2006 when the retrievable bridge plug was installed. Noble Energy bled off the remaining gas in the casings that same day. LT Environmental, Inc. ("LTE"), on behalf of Noble Energy, collected a gas sample from the bradenhead of the Wailes 41-33 #1-X Well for analysis of gas composition and stable isotopes of methane. (A production gas sample could not be collected because the well had already been shut-in by the time LTE arrived.) Analysis of this gas showed the presence of thermogenic gas isotopic values and gas composition similar to the gas produced from "J" Sand Formation wells.

On October 5, 2006, Noble Energy offered to reimburse the Brittons for their purchase of bottled water for drinking and cooking. To date, the Brittons have sought no reimbursement for their drinking and cooking water from Noble Energy.

On October 6, 2006, samples were collected from the Britton water well at an outdoor hydrant. The sampling was performed by LTE, on behalf of Noble Energy. The samples were analyzed for water quality parameters, gas composition, and stable isotopes of methane. The

analytical results showed dissolved methane to be present in the Britton water well at a concentration of 6.46 milligrams per liter (mg/l). Benzene was originally observed in the water well sample at a concentration of 76.5 micrograms per liter (µg/l) (using U.S. Environmental Protection Agency (“USEPA”) Method 8021B, a gas chromatograph analytical method). However, a rigorous review was conducted, including re-analysis of the sample using USEPA Method 8260B, a gas chromatograph and mass spectrometer method that allows for specific ion verification to substantiate this laboratory detection. The review and re-analysis revealed that the original detection of benzene was a “false positive” and that benzene was not present in the Britton water well. All other laboratory results for water quality parameters were typical for water wells completed in the Upper Arapahoe Formation. Analysis of the gas collected from the Britton water well showed both gas composition (methane, ethane, propanes, butanes, and hexanes) and stable isotope values characteristic of thermogenic gas, and these sample results were very similar to the gas composition and isotopic values detected in the Wailes 41-33 #1-X Well bradenhead gas sample. Based on these sample results, COGCC Staff concluded that the gas present in the Britton water well and the Wailes 41-33 #1-X bradenhead gas came from the same source, *i.e.*, “J” Sand gas from the Wailes 41-33 #1-X Well.

As part of the initial complaint investigation, air within the Britton home was monitored by LTE using a Lower Explosive Limit (“LEL”) meter. As a proactive measure, Noble Energy elected to have residential LEL meters installed in the house. The LEL meters have never alarmed.

From October 5, 2006, when the Wailes 41-33 #1-X Well was shut in, to October 16, 2006, Noble Energy attempted to resolve lost circulation issues and performed remedial cementing operations on the Wailes 41-33 #1-X Well. During that time period, the pressure in the annulus between the surface casing and production casing decreased from a steady blow to a light blow. On October 17, 2006, Noble Energy observed a vacuum on the bradenhead, indicating that the flow of gas up the annulus had likely stopped. Noble Energy did not observe bradenhead pressures greater than zero pounds per square inch at any time after October 16, 2006.

On October 16, 2006, Noble Energy ran a cement bond log from 1,810 to 90 fbs to verify cement coverage from the remedial cement operations. The cement bond log showed fair cement from 1,658 to 1,400 fbs, good cement from 1,400 to 1,190 fbs, and fair cement from 1,190 to 236 fbs. Top of cement was at 236 fbs (below the surface casing shoe at 212 fbs). Noble Energy also ran a cement bond log to verify the existing primary cement top. The cement bond log showed good cement coverage from the bottom of the logged interval at 7,724 fbs to the primary cement top at 7,036 fbs. Despite evidence of cement on the cement bond log from 1,658 to 236 fbs, the production casing would not hold pressure when Noble Energy attempted to pressure test the production casing.

Despite several attempts to squeeze cement into casing holes from October 17, 2006 through November 7, 2006, the production casing would not hold pressure. COGCC Staff conditionally approved Noble Energy’s plan to run and cement a liner from total depth to surface, and required Noble Energy to continue to monitor the impacted water well and collect a production gas sample when the well returned to production. A 3½-inch liner was set and cemented from 7,840 fbs to surface on November 16, 2006. On November 20, 2007, Mr. Britton informed COGCC Staff that his recollection was that gas bubbles did not cease in his water well until the liner was installed.

On December 2, 2006, COGCC Staff issued a Notice of Alleged Violation (“NOAV”) (#20001001063) to Noble Energy for impacting the Britton water well with gas from the “J” Sand Formation from casing leaks at the Wailes 41-33 #1-X Well. The NOAV alleged violations of the following COGCC Rules (a through c, below) and required the following actions (d and e, below):

a. Rule 324.A.a., which requires an operator to take precautions to prevent significant adverse environmental impact to air, water, soil, or biological resources to the extent necessary to protect public health, safety and welfare, by using cost-effective and technically feasible measures to protect environmental quality and to prevent the unauthorized discharge or disposal of oil, gas, exploration and production waste, chemical substances, trash, discarded equipment or other oil field waste;

b. Rule 317A.b., which states that surface casing must be set to a depth sufficiently deep to protect the deepest permitted producing water well within one mile of the well; and

c. Rule 906.a and b., which state that impacts resulting from releases shall be investigated and cleaned up as soon as practicable.

d. The NOAV required Noble Energy to submit a Site Investigation and Remediation Workplan, Form 27, to address mitigation of the Britton water well impact, and either 1) treat the Britton water well to reduce dissolved methane levels to below 2 mg/l; 2) provide the Brittons with a new water well outside the impacted area; 3) provide the Brittons with a domestic water tap to a

public water system if a system exists in the area; or 4) propose another alternative to remediate the water well impact.

e. The NOAV additionally required that the chosen remedial alternative, if available by the Form 27 submittal deadline, be agreed to by the Brittons. The Form 27 submittal deadline was December 29, 2006.

On December 28, 2006, Noble Energy requested from COGCC Staff and received approval for an extension to the deadline for the Form 27 to allow for further discussion with the Brittons regarding replacement and/or treatment of their water well. Noble Energy submitted Form 27 to the COGCC Staff on January 16, 2007, and COGCC Staff approved it with conditions on January 18, 2007. The conditions of approval of Noble Energy's Form 27 were:

a. A long-term ground water monitoring period needs to be instituted at the end of the third quarterly period proposed by Noble Energy (*i.e.*, after December 31, 2007).

b. Any new water well drilled for the Brittons must be periodically monitored for possible ground water contaminants related to the natural gas release.

c. If the existing Britton water well is converted to a monitoring well, a longer monitoring plan must be developed to evaluate ongoing remediation of the release from the Wailes 41-33 #1-X Well.

The Britton water well was resampled for dissolved methane on January 8, 2007. Methane was not detected in this water well sample indicating that the remedial cementing work performed in October and November 2006 on the Wailes 41-33 #1-X Well was successful in eliminating the release of natural gas into the aquifer in which Britton water well is completed. The Britton water well has been re-tested seven times since the October 6, 2006 sample. Other than the 6.46 mg/l reading obtained on October 6, 2006, the day after Mr. Britton noticed bubbling in the well, the dissolved methane concentration in the water well has ranged from 0.0014 to 0.0065 mg/l. Two of the re-test samples, collected on January 8, 2007 and September 25, 2007, did not exceed the analytical method detection limit of 0.0008 mg/l. Benzene has not been detected in any of the samples above the analytical detection limit of 0.001 mg/l.

Noble Energy should not be found in violation of Rule 317A.b. because at the time the Wailes 41-33 #1-X Well was drilled, the depth of surface casing was sufficiently deep to protect water wells in the area. The Britton water well was drilled and completed after the Wailes 41-33 #1-X Well and to a depth greater than the depth of the surface casing in the pre-existing Wailes 41-33 #1-X Well.

Noble Energy should not be found in violation of Rule 906.a. or 906.b. because Noble Energy investigated and cleaned up the release from the Wailes 41-33 #1-X as soon as practicable.

Noble Energy should be found in violation of Rule 324A.a. for the unauthorized discharge of gas from the Wailes 41-33 #1-X Well that impacted the Britton water well.

Rule 523. specifies a base fine of One Thousand dollars (\$1,000) for each day of violation of Rule 324. The parties disagree on the calculation of the number of days the violation continued but have agreed to a fine of Eighteen Thousand Four Hundred dollars (\$18,400).

The fine includes adjustment for the following aggravating factor (a, below) and four mitigating factors (b through e, below), is not subject to the \$10,000 fine limitation pursuant to Rule 523.a.(3) and §34-60-121(1), C.R.S., and results in no more than \$1,000 per violation per day:

a. The violation caused, or threatened to cause, a significant adverse environmental impact to air, water, soil or biological resources;

b. Noble Energy demonstrated prompt, effective and prudent response to the violation;

c. Noble Energy cooperated with the COGCC Staff with respect to the violation;
and

d. The cause of the violation was outside Noble Energy's reasonable control and responsibility because the Britton water well was drilled after the Wailes 41-33 #1-X Well was drilled and was screened at a depth deeper than surface casing was set on the Wailes 41-33 #1-X Well.

e. The cost of correcting the violation reduced or eliminated any economic

benefit to Noble Energy because Noble Energy shut in the Wailes 41-33 #1-X Well and performed remedial work on the Well until December 11, 2006.

Noble Energy should continue to follow the Site Investigation and Remediation Workplan, Form 27, as necessary, including any subsequent revisions and/or adjustments required by the COGCC Staff.

Noble Energy, or its successors or assigns, should be required to remain responsible for complying with this Administrative Order by Consent ("AOC" or "order") notwithstanding any subsequent sale of the water well or property.

On January 24, 2008, COGCC Staff issued an AOC to Noble Energy for violation of Rule 324A.a. for the unauthorized discharge of gas from the Wailes 41-33 #1-X Well located in the NE $\frac{1}{4}$ NE $\frac{1}{4}$ of Section 33, Township 1 South, Range 64 West, 6th P.M. that impacted the Britton water well located in the NE $\frac{1}{4}$ NE $\frac{1}{4}$ of Section 33, Township 1 South, Range 64 West, 6th P.M., approximately 300 feet from the Wailes 41-33 #1-X Well, proposing a fine of Eighteen Thousand Four Hundred dollars (\$18,400) for violation of the rule. On January 24, 2008, Noble Energy agreed to and accepted the AOC, including the fine of Eighteen Thousand Four Hundred dollars (\$18,400).

NOTICE IS HEREBY GIVEN, that the Oil and Gas Conservation Commission of the State of Colorado, pursuant to the above, has scheduled the above-entitled matter for hearing on:

Date: Monday, February 25, 2008
Tuesday, February 26, 2008

Time: 9:00 a.m.

Place: Suite 801, The Chancery Building
1120 Lincoln Street
Denver, Colorado 80203

In accordance with the Americans with Disabilities Act, if any party requires special accommodations as a result of a disability for this hearing, please contact Margaret Humecki at (303) 894-2100 ext. 139, prior to the hearing and arrangements will be made.

Pursuant to said hearing in the above-entitled matter at the time and place aforesaid, or at any adjourned meeting, the Commission will enter such orders as it deems appropriate to protect the health, safety and welfare of the public and to prevent the waste of oil and gas, either or both, in the operations of said field, and to carry out the purposes of the statute.

In accordance with Rule 509., any interested party desiring to protest the granting of the application or to intervene on the application should file with the Commission a written protest or intervention no later than February 11, 2008, briefly stating the basis of the protest or intervention. Such interested party shall, at the same time, serve a copy of the protest or intervention to the person filing the application. An original and 13 copies shall be filed with the Commission. **Anyone who files a protest or intervention must be able to participate in a prehearing conference during the week of February 11, 2008.** Pursuant to Rule 503.f., if a party who has received notice under Rule 503.b. wishes to receive further pleadings in the above-referenced matter, that party must file a protest or intervention in accordance with these rules.

IN THE NAME OF THE STATE OF COLORADO

OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF COLORADO

By _____
Patricia C. Beaver, Secretary