

**3R - 087**

**P&A WORKPLAN**

**6/10/2013**



**CONESTOGA-ROVERS  
& ASSOCIATES**

6121 Indian School Road, NE Suite 200  
Albuquerque, NM, USA 87110  
Telephone: (505) 884-0672 Fax: (505) 884-4932  
<http://www.craworld.com>

June 10, 2013

Reference No. 074943

Mr. Glenn von Gonten  
New Mexico Oil Conservation Division  
1220 South Saint Francis Dr.  
Santa Fe, NM 87505

Re: ConocoPhillips Company Federal Com. 15 Unit A Site Monitoring Well Plugging and  
Abandonment Notification  
API No. 30-045-20078  
NMOCD No. 3R-087  
CRA Project No. 074943

---

Dear Mr. von Gonten:

This letter discusses monitor well plugging and abandonment activities conducted by Conestoga-Rovers & Associates (CRA) at the ConocoPhillips Federal Com. 15 Unit A Site (Site) located on the north side of Gila Street between Washington Avenue and English Road in San Juan County, New Mexico. A Site Location Map and a Site Layout Map have been included as **Figures 1** and **2**, respectively. This work was completed on April 24, 2013 after receiving approval from the New Mexico Energy, Minerals and Natural Resources Department Oil Conservation Division (NMOCD) in a letter dated November 9, 2012 granting remediation site closure and a letter from the New Mexico Office of the State Engineer (NMOSE) dated April 16, 2013 granting approval for the abandonment of monitor wells with Specific Plugging Conditions. Copies of these letters are included as **Appendix A** and **Appendix B**, respectively.

On April 24, 2013, a total of five monitor wells were plugged and abandoned by National Exploration, Wells, and Pumps (National EWP) of Peralta, New Mexico. Grout, consisting of Type I/II Portland cement and 3-5% bentonite, was pumped from the bottom to the top of the casing through a 1-inch tremie pipe into each well. Surface completions were removed and each casing was cut to at least one foot below ground surface (bgs). Rebar was placed above the cut casing to provide reinforcement, and grout and/or concrete was added to approximately three to six inches bgs. Native soil was placed on top to complete the plugging and abandonment of each monitor well.

Specifications for all wells including well identification number, casing diameter, total depth, depth to groundwater, location (latitude/longitude), and surface completion type were field checked during plugging and abandonment activities. The theoretical and actual grout volumes used in each monitor well were calculated and recorded. This information is included in **Table 1**. Well Plugging Records were submitted to the NMOSE by National EWP on April 30, 2013, and received on May 3, 2013. Well Plugging Records are included as **Appendix C**.



**CONESTOGA-ROVERS  
& ASSOCIATES**

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June 10, 2013

Reference No. 074943

-2-

Please contact Kelly Blanchard at 505.884.0672 or keblanchard@craworld.com if you have any questions or require additional information.

Yours Truly,

CONESTOGA-ROVERS & ASSOCIATES

Kelly E. Blanchard  
Project Manager

KB/cd/1  
Encl.

cc: Terry Lauck, ConocoPhillips Company (electronic only)

## FIGURES

SITE LOCATION MAP AND SITE LAYOUT MAP






**FIGURE 1.**

Site Location Map  
ConocoPhillips Company  
Federal Com No.15 Unit A  
Section 1, Township 29N, Range13W  
San Juan County, NM



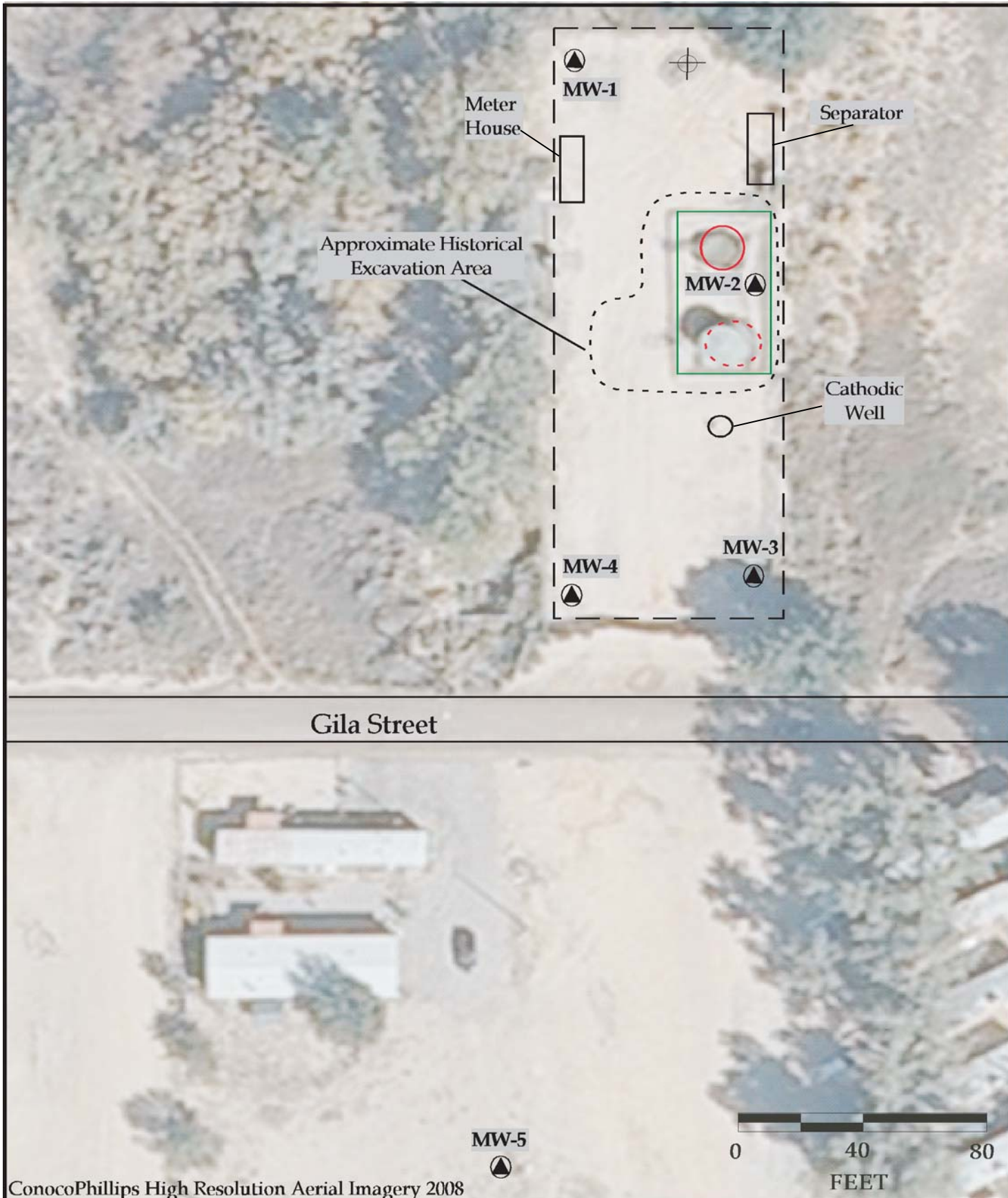
 Approximate ConocoPhillips  
Federal #15 Site location

Latitude = 36.759339 deg N  
Longitude = -108.149891 deg W



 **CONESTOGA-ROVERS  
& ASSOCIATES**











ConocoPhillips High Resolution Aerial Imagery 2008

**FIGURE 2.**

Site Layout Map  
 ConocoPhillips Company  
 Federal Com No.15 Unit A  
 Section 1, Township 29N, Range 13W  
 San Juan County, NM

LEGEND

-  Monitoring Well
-  Well Head
-  General Site Boundary
-  Produced Water Tank
-  Condensate Tank
-  Berm



**CONESTOGA-ROVERS  
 & ASSOCIATES**

## TABLES

### WELL SPECIFICATIONS

Well Specifications for Plugging and Abandonment Operations  
ConocoPhillips Company Federal Com. 15 Unit A  
San Juan County, New Mexico

Well #	Well Type	Casing Diameter (in)	Total Depth (feet bgs)	Approx. Groundwater level (feet bgs)	Theoretical grout volume (gallons)	Actual grout volume (gallons)	Approx. Latitude (N)	Approx. Longitude (W)	Surface Completion Type	Screened Interval feet (bgs)	NMOSE Permit
MW-01	MW	2	19.60	10.59	3.14	6.00	36°45'34.33"	108°08'59.47"	flush mount on 2'x2' pad	5' - 20'	Not Permitted
MW-02	MW	2	19.07	10.62	3.05	10.00	36°45'33.43"	108°08'58.74"	flush mount on 2'x2' pad	5' - 20'	Not Permitted
MW-03	MW	2	18.52	10.34	2.96	6.00	36°45'32.12"	108°08'58.71"	flush mount on 2'x2' pad	5' - 20'	Not Permitted
MW-04	MW	2	18.37	9.69	2.94	5.00	36°45'32.09"	108°08'59.47"	flush mount on 2'x2' pad	5' - 20'	Not Permitted
MW-05	MW	2	17.02	12.72	2.72	5.00	36°45'30.24"	108°08'59.57"	flush mount on 2'x2' pad	3.5' - 17.5'	Not Permitted

**All wells are non-artesian and breach only one aquifer**

MW = Groundwater Monitoring Well

bgs = below ground surface

TD = Total Depth

APPENDIX A

NOVEMBER 9, 2012 NMOCD FORMAL REQUEST FOR SITE CLOSURE AND NO FURTHER  
ACTION STATUS LETTER

State of New Mexico  
Energy, Minerals and Natural Resources Department

Susana Martinez  
Governor

John Bemis  
Cabinet Secretary

Brett F. Woods, Ph.D.  
Deputy Cabinet Secretary

Jami Bailey  
Division Director  
Oil Conservation Division



NOVEMBER 9, 2012

Mr. Terry Lauck  
Site Manager  
ConocoPhillips Company  
Risk Management & Remediation  
420 South Keeler Avenue  
Bartlesville, OK 74004

**Re: Site Closure Request of July 22, 2010 for Federal No. 15 (3R-087)**  
**Site Closure Request of July 22, 2010 for Shepherd & Kelsey No. 1 (3R-097)**  
**Site Closure Request of March 22, 2012 for Shepherd & Kelsey No. 1E (3R-098)**

Dear Mr. Lauck:

After meeting with you on November 6, 2012, and after conducting a file review, the Oil Conservation Division (OCD) has determined that ConocoPhillips has completed corrective action for releases as required by 19.15.29.11 NMAC at the three remediation sites listed below.

3R-087	ConocoPhillips Federal No. 15
3R-097	ConocoPhillips Shepherd & Kelsey No. 1
3R-098	ConocoPhillips Shepherd & Kelsey No. 1E

OCD has closed these three cases in its database. ConocoPhillips may plug and abandon all monitor wells and remove all remediation equipment. Please include a copy of this closure approval letter when you submit your Annual Ground Water Monitoring Report.

If you have any questions, please contact Jim Griswold at 505-476-3465. Thank you for your cooperation.

Sincerely,

Glenn von Gonten  
Senior Hydrologist

GvG/gvg

STATE ENGINEER OFFICE  
AZTEC, NEW MEXICO  
2013 APR 10 AM 10:54

## APPENDIX B

APRIL 16, 2013 NMOSE APPROVAL FOR ABANDONMENT OF MONITOR WELLS WITH  
SPECIFIC PLUGGING CONDITIONS

State of New Mexico  
Energy, Minerals and Natural Resources Department

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**Susana Martinez**  
Governor

**John Bemis**  
Cabinet Secretary

**Brett F. Woods, Ph.D.**  
Deputy Cabinet Secretary

**Jami Bailey**  
Division Director  
Oil Conservation Division



**NOVEMBER 9, 2012**

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Site Manager  
ConocoPhillips Company  
Risk Management & Remediation  
420 South Keeler Avenue  
Bartlesville, OK 74004

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Sincerely,

**Glenn von Gonten**  
Senior Hydrologist

GvG/gvg





STATE OF NEW MEXICO  
OFFICE OF THE STATE ENGINEER  
AZTEC

Scott A. Verhines, P.E.  
State Engineer

100 Gossett Drive, Suite A  
Aztec, New Mexico 87410

April 16, 2013

Conestoga-Rovers & Associates  
ATTN: Mrs. Kelly Blanchard  
6121 Indian School Road NE, Suite 200  
Albuquerque, NM 87110

RE: Well Plugging Plan of Operations for ConocoPhillips Federal Com. 15 Unit A; Farmington,  
New Mexico

Dear Mrs. Blanchard:

After reviewing the Well Plugging Plan of Operations submitted to obtain OSE approval for the abandonment of five monitoring wells located at the referenced facility, which was received on April 10, 2013, the OSE is returning a favorable approval with Specific Plugging Conditions (attached). Please pay special attention to Specific Plugging Condition number 3, which requires the hydration of the bentonite (if used), with the correct amount of water, before mixing into the cement slurry. In addition, minor annotations have been made on the plugging plan form submitted.

Please submit a completed Well Plugging Report, along with a copy of the approved plugging conditions, describing the actual abandonment process and itemized materials used to the address referenced in the attached approval conditions within 20 days after completion of well plugging.

Should you have any further questions or concerns regarding this correspondence, feel free to contact me at 505-334-4571.

Sincerely,

Blaine A. Watson, P.G.  
District V Manager

Enclosures

cc: Aztec Reading (cover only)  
WATERS



## DISTRICT 5

Scott A. Verhines, P.E.

### NEW MEXICO STATE ENGINEER

Kelly Blanchard of Conestoga-Rovers & Associates (as consultant for ConocoPhillips Company) has identified 5 monitoring wells (no OSE File numbers), as tabulated below, to be plugged in accordance with NMOCD requirements for a discontinued monitoring well network. National Exploration Wells and Pumps (formerly WDC) will perform the plugging under well driller license #WD-1210. Most of the wells are believed to have semi-typical monitoring well construction, including a bentonite annular seal above the sand pack, with a cement/bentonite grout to ground surface. Depth to water is estimated to be approximately 8.5 to 10.5 feet below land surface.

Location: ConocoPhillips Fed Com #15 well site, south of Animas Valley Mall, Farmington, (San Juan County), New Mexico.

Approximate well coordinates: See tabulated data below.

<u>Well Name</u>	<u>Inside Diameter (inches)</u>	<u>Depth to Water (feet)</u>	<u>Total Depth (feet)</u>	<u>Latitude North</u>	<u>Longitude East</u>
MW-1	2	9.61	20	36.7595	108.1499
MW-2	2	9.53	20	36.7593	108.1497
MW-3	2	8.82	20	36.7589	108.1496
MW-4	2	8.4	20	36.7589	108.1499
MW-5	2	10.52	17.5	36.7584	108.1499

NMOCD project manager: Jim Griswold/Glenn VonGonten 505-479-3465, NMOCD approval letter dated 11/9/12 was attached.

#### **Specific Plugging Conditions of Approval for five monitoring wells, ConocoPhillips Fed Com #15 well site (Farmington), San Juan County, NM**

1. Water well drilling and other well drilling activities, including well plugging, are regulated under 19.27.4 NMAC, which requires any person engaged in the business of well drilling within New Mexico to obtain a Well Driller License issued by the New Mexico Office of the State Engineer (NMOSE). Therefore, the firm of a New Mexico licensed Well Driller shall perform the well plugging.
2. Theoretical volume of sealant required for abandonment of 2-inch diameter casings is approximately 0.16 gallons per foot. The plugging plan of operations listed approximately 97.5 feet for the total footage in five 2-inch diameter wells. For a total depth of 97.5 feet in 2-inch wells, the required plugging volume should not be less than 15.91 gallons. Total minimum volume of sealant required shall be calculated upon sounding the actual pluggable depth of the wells and multiplying by the correct volume factor for the casing diameter.
3. The Well Plugging Plan of Operations submitted requests the use of Portland Type I/II cement with a 3-5% bentonite additive. Portland cement has a fundamental water demand of 5.2 gallons water per 94-lb. sack of cement, and this plan (as submitted) proposed 7.4 gallons of water per 94-lb. sack of cement. Use of mix water increment in excess of the fundamental water demand results in a thinned

mix of cement prone to shrinkage that may disrupt effective sealing and hydraulic separation. AWWA Well Standards so allow use of a maximum of 6.0 gallons water per 94-lb. sack of cement if necessary for pumpability of neat cement grout. A note to allow the use of no more than 6.0 gallons of water per 94-lb. sack of cement was added to the proposed plugging plan. This volume excludes the additional water needed to separately hydrate the bentonite additive, as discussed below.

Pure bentonite powder ("90 barrel yield") is allowed as a cement additive under NMOSE / AWWA guidelines, and neither granular bentonite nor extended-yield bentonite shall be mixed with cement for the purpose of this plugging. When supplementing a cement slurry with bentonite powder as requested, water demand for the mix increases at a rate of approximately 0.65 gallons of water for each 1% increment of bentonite by dry weight cement (above a water demand of not to exceed 6.0 gallons water per 94-lb. sack of cement). Therefore, a 3% bentonite/cement mix may contain up to 7.95 gallons of water (total) per 94-lb. sack of cement. This mixture would consist of 1.95 gallons of water used to make the bentonite slurry and 6.0 gallons of water for mixing one 94-lb. sack of cement. If a 5% bentonite additive rate is used, the volume of water for the bentonite slurry would be 3.25 gallons.

The bentonite must be hydrated separately with its required increment of water before being mixed into the wet cement. If water is otherwise added to the combination of dry ingredients or the dry bentonite is blended into wet cement, the alkalinity of the cement will restrict the yield of the bentonite powder, resulting in excess free water in the slurry and excessive cement shrinkage upon curing.

4. Placement of the sealant within the wells shall be by pumping through a tremie pipe extended to near well bottom, and kept below top of the slurry column as the well is plugged from bottom-upwards in a manner that displaces the standing water column.
5. Prior to, or upon completion of plugging, the well casing may be cut-off below grade as necessary to allow approved construction onsite, provided a minimum 6-inch thickness of reinforced abandonment grout or concrete completely covers the top of the cut-off casing. More stringent local building codes may apply.
6. Should the NMOCD, or another regulatory agency sharing jurisdiction of the project authorize, or by regulation require a more stringent well plugging procedure than herein acknowledged, the more-stringent procedure should be followed. This, in part, includes provisions regarding pre-authorization to proceed, contaminant remediation, inspection, pulling/perforating of casing, or prohibition of free discharge of any fluid from the borehole during or related to the plugging process.
7. NMOSE witnessing of the plugging will not be required, but shall be facilitated if a NMOSE observer is onsite. NMOSE witnessing may be requested during normal work hours by calling the District 5 NMOSE Office at 505-334-4571, at least 48-hours in advance. NMOSE inspection will occur dependent on personnel availability.
8. Well Plugging Record(s) (available at: <http://www.ose.state.nm.us/PDF/WellDrillers/WD-11.pdf>) itemizing the actual abandonment process and materials used shall be filed with the State Engineer (NMOSE, P.O. Box 25102 - 407 Galisteo Street - Room 102, Santa Fe, NM 87504-5102), within 20 days after completion of well plugging. Please attach one copy of these plugging conditions.

The NMOSE Well Plugging Plan of Operations notices dated April 5, 2013, with any OSE annotations, are hereby approved with the aforesaid conditions applied, when signed by an authorized designee of the State Engineer:

  
Blaine Watson, NMOSE District 5, Water Rights Division

Date: 4-16-2013



**CONESTOGA-ROVERS  
& ASSOCIATES**

Albuquerque, NM, USA 87110  
Telephone: (505) 884-0672 Fax: (505) 884-4932  
<http://www.craworld.com>

April 8, 2013

Reference No. 074943

Mr. Blaine Watson  
New Mexico Office of the State Engineer  
100 Gossett Dr.  
Suite A  
Aztec, NM 87410

Dear Mr. Watson:

Re: ConocoPhillips Company Federal Com. 15 Unit A Well Plugging Plan of Operations

Conestoga-Rovers and Associates, on behalf of ConocoPhillips Company Risk Management and Remediation, herein submits one copy of the above-referenced document, for Monitor Wells located at the Federal Com 15 Unit A Natural Gas Production Wellsite in San Juan County, New Mexico. Work is scheduled to begin during the week of April 22, 2013 pending your approval of the attached Well Plugging Plan of Operations Forms.

If you have any questions or require additional information, please contact me at (505) 884-0672 or keblanchard@craworld.com.

Yours truly,

CONESTOGA-ROVERS & ASSOCIATES

Kelly E. Blanchard  
Project Manager

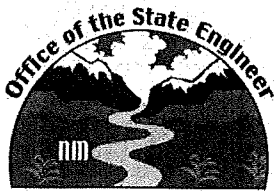
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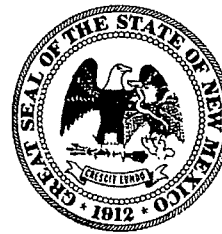
cc: Terry Lauck, ConocoPhillips (electronic only)

STATE ENGINEER OFFICE  
AZTEC, NEW MEXICO  
2013 APR 10 AM 10:53

Equal  
Employment Opportunity  
Employer



# WELL PLUGGING PLAN OF OPERATIONS



2013 APR 10 AM 10:50

STATE ENGINEER OFFICE  
AZTEC, NEW MEXICO

NOTE: A Well Plugging Plan of Operations shall be filed with and accepted by the Office of the State Engineer prior to plugging.

**I. FILING FEE:** There is no filing fee for this form.

## **II. GENERAL / WELL OWNERSHIP:**

Existing Office of the State Engineer POD Number (Well Number) for well to be plugged: See Attached Table

Name of well owner: ConocoPhillips Risk Management and Remediation

Mailing address: 1380G Plaza Office Bldg, 315 Johnstone AVE

City: Bartlesville State: Oklahoma Zip code: 74004

Phone number: (918) 661-0935 E-mail: terry.s.lauck@conocophillips.com

## **III. WELL DRILLER INFORMATION:**

Well Driller contracted to provide plugging services: National Exploration Wells and Pumps

New Mexico Well Driller License No.: WD1210 Expiration Date: 12/31/2013

## **IV. WELL INFORMATION:**

Note: A copy of the existing Well Record for the well to be plugged should be attached to this plan.

- 1) GPS Well Location: Latitude: See Attached Table deg, \_\_\_\_\_ min, \_\_\_\_\_ sec  
Longitude: \_\_\_\_\_ deg, \_\_\_\_\_ min, \_\_\_\_\_ sec, NAD 83
- 2) Reason(s) for plugging well: Request from New Mexico Oil Conservation Division to plug and abandon all site wells. See attached letter.
- 3) Was well used for any type of monitoring program? Yes If yes, please use section VII of this form to detail what hydrogeologic parameters were monitored. If the well was used to monitor contaminated or poor quality water, authorization from the New Mexico Environment Department may be required prior to plugging.
- 4) Does the well tap brackish, saline, or otherwise poor quality water? No If yes, provide additional detail, including analytical results and/or laboratory report(s): \_\_\_\_\_
- 5) Static water level: See Attached Table feet below land surface / feet above land surface (circle one)
- 6) Depth of the well: See Attached Table feet

2013 APR 10 AM 10:53

- 7) Inside diameter of innermost casing: See Attached Table inches.
- 8) Casing material: PVC
- 9) The well was constructed with:  
       an open-hole production interval, state the open interval:         
X a well screen or perforated pipe, state the screened interval(s): See Attached Table
- 10) What annular interval surrounding the artesian casing of this well is cement-grouted? N/A
- 11) Was the well built with surface casing? Yes If yes, is the annulus surrounding the surface casing grouted or otherwise sealed? Yes If yes, please describe: See Attached Table
- 12) Has all pumping equipment and associated piping been removed from the well? Yes If not, describe remaining equipment and intentions to remove prior to plugging in Section VII of this form.

#### V. DESCRIPTION OF PLANNED WELL PLUGGING:

Note: If this plan proposes to plug an artesian well in a way other than with cement grout, placed bottom to top with a tremie pipe, a detailed diagram of the well showing proposed final plugged configuration shall be attached, as well as any additional technical information, such as geophysical logs, that are necessary to adequately describe the proposal.

- 1) Describe the method by which cement grout shall be placed in the well, or describe requested plugging methodology proposed for the well: Install tremie pipe, mix and pump cement/bentonite grout from the bottom of well casing to top of casing..
- 2) Will well head be cut-off below land surface after plugging? Yes

#### VI. PLUGGING AND SEALING MATERIALS:

Note: The plugging of a well that taps poor quality water may require the use of a specialty cement or specialty sealant

- 1) For plugging intervals that employ cement grout, complete and attach Table A.
- 2) For plugging intervals that will employ approved non-cement based sealant(s), complete and attach Table B.
- 3) Theoretical volume of grout required to plug the well to land surface: See Attached Table
- 4) Type of Cement proposed: Type I Type II Portland with 3% to 5% bentonite ✓
- 5) Proposed cement grout mix: 7.46.0 gallons of water per 94 pound sack of Portland cement.
- 6) Will the grout be:        batch-mixed and delivered to the site  
X mixed on site

6.0 gal is excluding the  
bentonite hydration water;  
see # 7 on p. 3.  
-BW 4/16/13

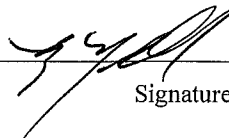
- 7) Grout additives requested, and percent by dry weight relative to cement: 3% to 5% bentonite  
Hydrate separately with 0.65 gallons of water per 1% of bentonite powder used. Approximately 1.95 gallons would be needed for a 3% bentonite mix with each 94-lb. sack of cement. A 5% mix would use 3.25 gallons with each sack. -BW 4/16/13
- 8) Additional notes and calculations: Work scheduled to begin April 22, 2013

**VII. ADDITIONAL INFORMATION:** List additional information below, or on separate sheet(s):

Work scheduled to begin April 22, 2013.

**VIII. SIGNATURE:**

I, Bryan Nydoske (National EWP), say that I have carefully read the foregoing Well Plugging Plan of Operations and any attachments, which are a part hereof; that I am familiar with the rules and regulations of the State Engineer pertaining to the plugging of wells and will comply with them, and that each and all of the statements in the Well Plugging Plan of Operations and attachments are true to the best of my knowledge and belief.

  
 Signature of Applicant

04/5/2013

Date

**IX. ACTION OF THE STATE ENGINEER:**

This Well Plugging Plan of Operations is:

- ☒ Approved subject to the attached conditions.  
☐ Not approved for the reasons provided on the attached letter.

Witness my hand and official seal this 16<sup>th</sup> day of April, 2013

Scott A. Verhines, State Engineer

By: Blaine White

STATE ENGINEER OFFICE  
 AZTEC, NEW MEXICO  
 2013 APR 10 AM 10:53

**TABLE A - For plugging intervals that employ cement grout. Start with deepest interval.**

	Interval 1 – deepest	Interval 2	Interval 3 – most shallow
			Note: if the well is non-artesian and breaches only one aquifer, use only this column.
Top of proposed interval of grout placement (ft bgl)			See Attached Table
Bottom of proposed interval of grout placement (ft bgl)			See Attached Table
Theoretical volume of grout required per interval (gallons)			See Attached Table
Proposed cement grout mix gallons of water per 94-lb. sack of Portland cement			7.4 gallons 6.0 -excludes separate bentonite hydration water -BW 4/16/13
Mixed on-site or batch-mixed and delivered?			On-Site
Grout additive 1 requested			3% to 5% bentonite Hydrated separately, per #7 on p. 3. -BW 4/16/13
Additive 1 percent by dry weight relative to cement			None
Grout additive 2 requested			None
Additive 2 percent by dry weight relative to cement			None

2013 APR 10 AM 10:53

STATE ENGINEER OFFICE  
AZTEC, NEW MEXICO



**TABLE B - For plugging intervals that will employ approved non-cement based sealant(s). Start with deepest interval.**

	Interval 1 – deepest	Interval 2	Interval 3 – most shallow
			Note: if the well is non-artesian and breaches only one aquifer, use only this column.
Top of proposed interval of sealant placement (ft bgl)			
Bottom of proposed sealant of grout placement (ft bgl)			
Theoretical volume of sealant required per interval (gallons)			
Proposed abandonment sealant (manufacturer and trade name)			

STATE ENGINEER OFFICE  
AZTEC, NEW MEXICO  
2013 APR 10 AM 10:53

Well Specifications for Plugging Plan of Operations  
 ConocoPhillips Company Federal Com. 15 Unit A  
 San Juan County, New Mexico

Well #	Well Type	Casing Diameter (in)	Total Depth (feet bgs)	Approx. Groundwater level (feet bgs)	Approx. volume (gallons)	Approx. Latitude (N)	Approx. Longitude (W)	Surface Completion Type	Screened Interval feet (bgs)	NMOSE Permit
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MW-05	MW	2	17.5	10.52	2.80	36°45'30.24"	108°08'59.57"	flush mount on 2'x2' pad	3.5' - 17.5'	Not Permitted

All wells are non-artesian and breach only one aquifer

MW = Groundwater Monitoring Well

bgs = below ground surface

TD = Total Depth

Unknown = Well not located during previous field activities, will be searched for during plug and abandonment activities

2013 APR 10 AM 10:53

STATE ENGINEER OFFICE  
 AZTEC, NEW MEXICO



**CONESTOGA-ROVERS  
& ASSOCIATES**

6121 Indian School Rd., NE Suite 200  
Albuquerque, NM, USA 87110  
Telephone: (505) 884-0672 Fax: (505) 884-4932  
<http://www.craworld.com>

April 5, 2013

Reference No. 074943

Mr. Glenn von Gonten  
New Mexico Oil Conservation Division  
1220 South Saint Francis Dr.  
Santa Fe, NM 87505

Dear Mr. von Gonten:

Re: Work Plan for Plug and Abandonment Activities  
ConocoPhillips Federal Com. 15 Unit A  
API #30-045-20078  
NMOCD #3R-087

STATE ENGINEER OFFICE  
AZTEC, NEW MEXICO  
2013 APR 10 AM 10:53

Conestoga-Rovers & Associates (CRA), environmental consultant for ConocoPhillips Risk Management and Remediation (ConocoPhillips), herein submits a work plan to conduct monitor well plugging and abandonment activities at the Federal Com. No. 15 Unit A (Site) located in Section 1, Township 29N, Range 13W, of San Juan County, NM.

A formal request for no further action status at the Site was requested of the New Mexico Oil Conservation Division (NMOCD) by ConocoPhillips and Tetra Tech in a report dated July 22, 2010. The scope of work presented in this work plan includes activities for plugging and abandonment of Site monitor wells as permitted by the NMOCD in their *Response to Closure Request* letter dated November 9, 2012 (**Attachment A**).

CRA proposes to plug and abandon all existing Site monitor wells. **Figure 1** shows the general location of the Site and **Figures 2** shows the general Site layout and Site details including monitor well locations.

#### **SCOPE OF WORK FOR PLUGGING AND ABANDONMENT ACTIVITIES/REPORTING**

CRA proposes the following scope of work:

- Preparation of this work plan, monitor well plugging, and abandonment procedure to fulfill the expectations of the NMOCD and the New Mexico Office of the State Engineer (NMOSE) in regards to the Site-specific requirements. This task includes review of existing data, preparation of this work plan, Site health and safety plan, and submittal of a Well Plugging and Abandonment Plan of Operations document to the NMOSE for approval prior to the commencement of work.
- Proposed field activities include the abandonment of Monitor Wells MW-1, MW-2, MW-3, MW-4, and MW-5. All monitor wells are approximately 20 feet deep, constructed with 2-inch PVC, and 8-inch manhole-cover surface completions. Monitor well abandonment

Equal  
Employment Opportunity  
Employer



**CONESTOGA-ROVERS  
& ASSOCIATES**

April 5, 2013

Reference No. 074943

- 2 -

procedures will be performed in accordance with all federal, state, and local regulations. Monitor well abandonment will be supervised by a qualified scientist or technician and the details recorded in the Site field book. The monitor wells will be plugged and abandoned by National Exploration Wells and Pumps (National EWP) of Peralta, NM. Plugging and abandonment of each well will be completed by backfilling the PVC casing with a cement/bentonite grout from total depth to surface using a tremie pipe. A concrete plug will be placed over top of the PVC casing cut at least six inches below grade. All surface completions will be removed and the surface will be restored to grade with native soil or concrete. Demolition debris will be hauled off site by National EWP and disposed of at a ConocoPhillips-approved landfill.

- A monitor well plugging and abandonment report will be prepared and submitted to the NMOCD detailing the monitor well plugging and abandonment field activities. In addition, an individual Plugging Record will be submitted for each monitor well to the NMOSE upon completion of plugging and abandonment activities.

Monitor well plugging and abandonment activities are estimated at two working days and are tentatively scheduled to commence the week of April 22, 2013. If during the course of this project, CRA determines that additional tasks are advisable or additional data collection will be required beyond the scope of work, approval will be obtained prior to proceeding.

CRA is prepared to implement the above scope of work immediately upon receipt of NMOCD approval. Should you have any questions or comments regarding this submittal, please contact me at 505-884-0672.

Yours truly,

CONESTOGA-ROVERS & ASSOCIATES

Kelly Blanchard

KB/cd/1  
Encl.

c.c.: Terry Lauck, ConocoPhillips

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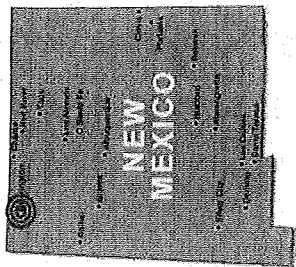
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FIGURES



FIGURE 1.

Site Location Map  
ConocoPhillips Company  
Federal Com No.15 Unit A  
Section 1, Township 29N, Range13W  
San Juan County, NM



Approximate ConocoPhillips  
Federal #15 Site location

Latitude = 36.759339 deg N  
Longitude = -108.149891 deg W



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& ASSOCIATES

ConocoPhillips High Resolution Aerial Imagery 2008

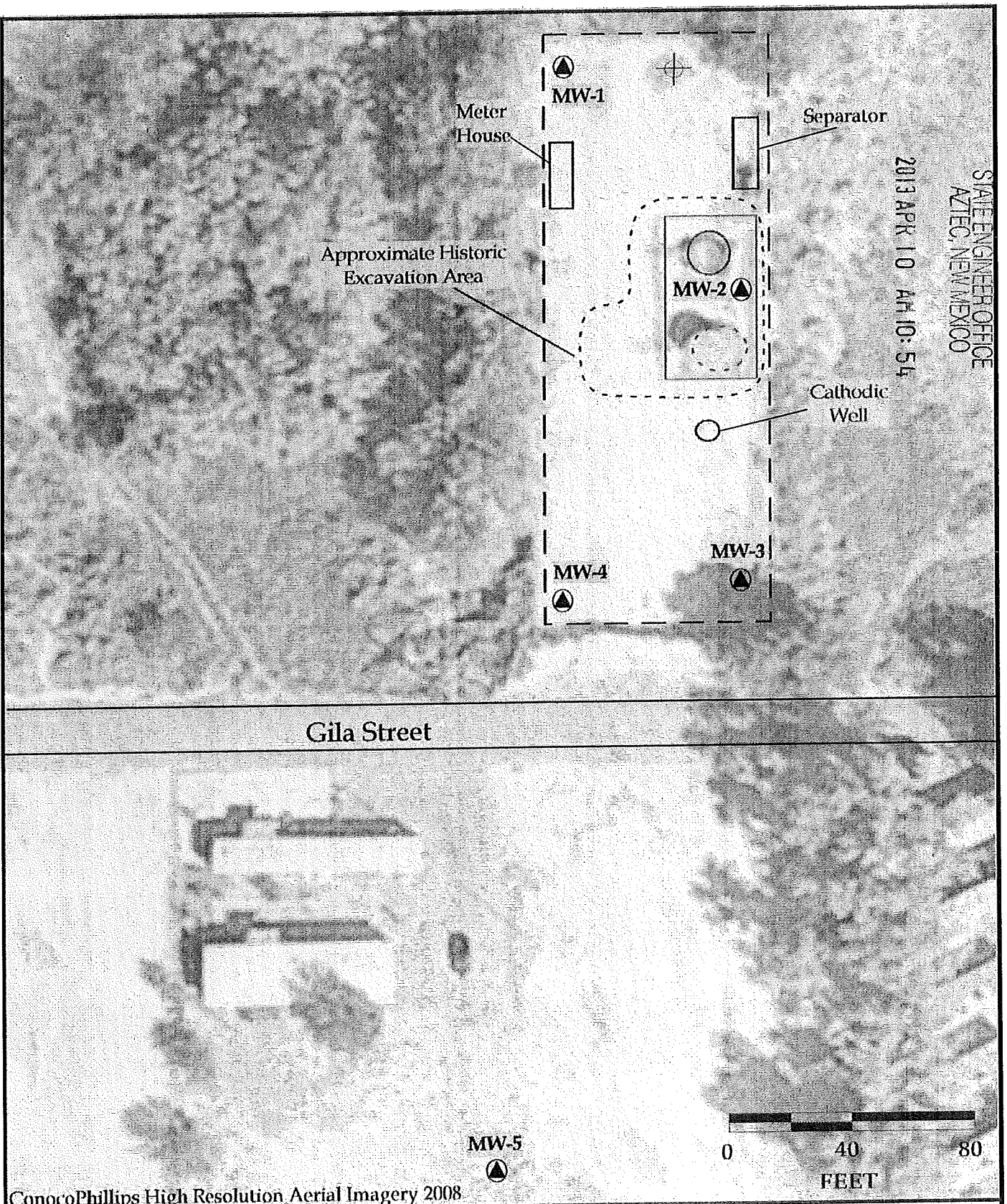
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



Gila Street

ConocoPhillips High Resolution Aerial Imagery 2008

**FIGURE 2.**

Site Layout Map  
ConocoPhillips Company  
Federal Com No.15 Unit A  
Section 1, Township 29N, Range 13W  
San Juan County, NM

LEGEND

-  Monitoring Well
-  Well Head
-  General Site Boundary
-  Produced Water Tank
-  Condensate Tank
-  Berm



**CONESTOGA-ROVERS  
& ASSOCIATES**

ATTACHMENT A

NMOCD RESPONSE TO CLOSURE REQUEST LETTER

STATE ENGINEER OFFICE  
AZTEC, NEW MEXICO

2013 APR 10 AM 10:54

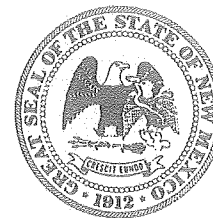


## APPENDIX C

### MONITOR WELL PLUGGING RECORDS



# PLUGGING RECORD



NOTE: A Well Plugging Plan of Operations shall be approved by the State Engineer prior to plugging - 19.27.4 NMAC

## I. GENERAL / WELL OWNERSHIP:

State Engineer Well Number: Not permitted - site well No. MW-1, Federal Com 15  
Well owner: ConocoPhillips Phone No.: 918-661-0935  
Mailing address: 13806 Plaza Office Building, 315 Johnstone Avenue  
City: Bartlesville State: Oklahoma Zip code: 74004

## II. WELL PLUGGING INFORMATION:

- 1) Name of well drilling company that plugged well: National Exploration Wells and Pumps
- 2) New Mexico Well Driller License No.: WD1210 Expiration Date: 10/31/2013
- 3) Well plugging activities were supervised by the following well driller(s)/rig supervisor(s): Jim Ward
- 4) Date well plugging began: 4/24/13 Date well plugging concluded: 4/24/13
- 5) GPS Well Location: Latitude: 36 deg, 45 min, 34.33 sec  
Longitude: -108 deg, 08 min, 59.47 sec, WGS 84
- 6) Depth of well confirmed at initiation of plugging as: 19.60 ft below ground level (bgl),  
by the following manner: groundwater level meter
- 7) Static water level measured at initiation of plugging: 10.59 ft bgl
- 8) Date well plugging plan of operations was approved by the State Engineer: 4/16/13
- 9) Were all plugging activities consistent with an approved plugging plan? yes If not, please describe differences between the approved plugging plan and the well as it was plugged (attach additional pages as needed):

- 10) Log of Plugging Activities - Label vertical scale with depths, and indicate separate plugging intervals with horizontal lines as necessary to illustrate material or methodology changes. Attach additional pages if necessary.

For each interval plugged, describe within the following columns:

Depth (ft bgl)	Plugging Material Used (include any additives used)	Volume of Material Placed (gallons)	Theoretical Volume of Borehole/ Casing (gallons)	Placement Method (tremie pipe, other)	Comments ("casing perforated first", "open annular space also plugged", etc.)
0					
	Type I II portland cement ± 3-5% bentonite	6 gallons	3.2 gallons	Tremie pipe	Casing Confirmed as 2" pvc
TD-19.6					
20					

MULTIPLY	BY	AND OBTAIN
cubic feet x	7.4805	= gallons
cubic yards x	201.97	= gallons

**III. SIGNATURE:**

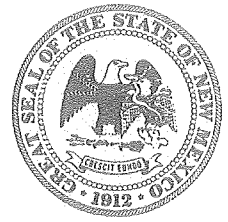
I, \_\_\_\_\_, say that I am familiar with the rules of the Office of the State Engineer pertaining to the plugging of wells and that each and all of the statements in this Plugging Record and attachments are true to the best of my knowledge and belief.

Jim Wozel  
Signature of Well Driller

4-30-13  
Date



# PLUGGING RECORD



NOTE: A Well Plugging Plan of Operations shall be approved by the State Engineer prior to plugging - 19.27.4 NMAC

## I. GENERAL / WELL OWNERSHIP:

State Engineer Well Number: Not permitted - site well No. MW-2, Federal Can Y5  
Well owner: Conoco Phillips Phone No.: 918-661-0935  
Mailing address: 13806 Plaza Office Building, 315 Johnstone Avenue  
City: Bartlesville State: Oklahoma Zip code: 74004

## II. WELL PLUGGING INFORMATION:

- 1) Name of well drilling company that plugged well: National Exploration Wells and Pumps
- 2) New Mexico Well Driller License No.: WD1210 Expiration Date: 10/31/2013
- 3) Well plugging activities were supervised by the following well driller(s)/rig supervisor(s): Jim Ward
- 4) Date well plugging began: 4/24/13 Date well plugging concluded: 4/24/13
- 5) GPS Well Location: Latitude: 36 deg, 45 min, 33.43 sec  
Longitude: -108 deg, 08 min, 58.74 sec, WGS 84
- 6) Depth of well confirmed at initiation of plugging as: 19.07 ft below ground level (bgl),  
by the following manner: ground water level meter
- 7) Static water level measured at initiation of plugging: 10.62 ft bgl
- 8) Date well plugging plan of operations was approved by the State Engineer: 4/16/13
- 9) Were all plugging activities consistent with an approved plugging plan? yes If not, please describe differences between the approved plugging plan and the well as it was plugged (attach additional pages as needed):

- 10) Log of Plugging Activities - Label vertical scale with depths, and indicate separate plugging intervals with horizontal lines as necessary to illustrate material or methodology changes. Attach additional pages if necessary.

For each interval plugged, describe within the following columns:

Depth (ft bgl)	Plugging Material Used (include any additives used)	Volume of Material Placed (gallons)	Theoretical Volume of Borehole/ Casing (gallons)	Placement Method (tremie pipe, other)	Comments ("casing perforated first", "open annular space also plugged", etc.)
0	Type I II Portland cement ± 3-5% bentonite	10 gallons	3.2 gallons	Tremie pipe	Casing confirmed as 2" pvc
19.07					

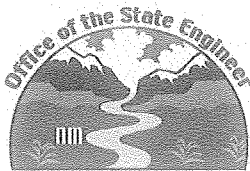
MULTIPLY	BY	AND OBTAIN
cubic feet x	7.4805	= gallons
cubic yards x	201.97	= gallons

**III. SIGNATURE:**

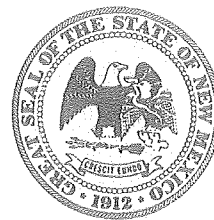
I, \_\_\_\_\_, say that I am familiar with the rules of the Office of the State Engineer pertaining to the plugging of wells and that each and all of the statements in this Plugging Record and attachments are true to the best of my knowledge and belief.

\_\_\_\_\_  
Signature of Well Driller

4-30-13  
Date



# PLUGGING RECORD



NOTE: A Well Plugging Plan of Operations shall be approved by the State Engineer prior to plugging - 19.27.4 NMAC

## I. GENERAL / WELL OWNERSHIP:

State Engineer Well Number: Not permitted - site well No. MW-3 Federal Com 15  
Well owner: ConocoPhillips Phone No.: 918-661-0935  
Mailing address: 1308 G Plaza Office Building, 315 Johnstone Avenue  
City: Barthlesville State: Oklahoma Zip code: 74004

## II. WELL PLUGGING INFORMATION:

- 1) Name of well drilling company that plugged well: National Exploration Wells and Pumps
- 2) New Mexico Well Driller License No.: WD1210 Expiration Date: 10/31/2013
- 3) Well plugging activities were supervised by the following well driller(s)/rig supervisor(s): Jim Ward
- 4) Date well plugging began: 4/24/13 Date well plugging concluded: 4/24/13
- 5) GPS Well Location: Latitude: 36 deg, 45 min, 32.12 sec  
Longitude: -108 deg, 08 min, 58.71 sec, WGS 84
- 6) Depth of well confirmed at initiation of plugging as: 18.52 ft below ground level (bgl),  
by the following manner: groundwater level meter
- 7) Static water level measured at initiation of plugging: 10.34 ft bgl
- 8) Date well plugging plan of operations was approved by the State Engineer: 4/16/13
- 9) Were all plugging activities consistent with an approved plugging plan? yes If not, please describe differences between the approved plugging plan and the well as it was plugged (attach additional pages as needed):

- 10) Log of Plugging Activities - Label vertical scale with depths, and indicate separate plugging intervals with horizontal lines as necessary to illustrate material or methodology changes. Attach additional pages if necessary.

For each interval plugged, describe within the following columns:

Depth (ft bgl)	Plugging Material Used (include any additives used)	Volume of Material Placed (gallons)	Theoretical Volume of Borehole/ Casing (gallons)	Placement Method (tremie pipe, other)	Comments ("casing perforated first", "open annular space also plugged", etc.)
0					
	Portland I II cement + 3-5% bentonite	6 gallons	3.2 gallons	Tremie Pipe	Casing Confirmed as 2" PVC
18.52					

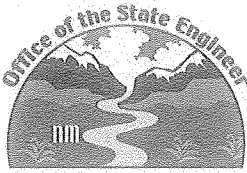
MULTIPLY	BY	AND OBTAIN
cubic feet x	7.4805	= gallons
cubic yards x	201.97	= gallons

**III. SIGNATURE:**

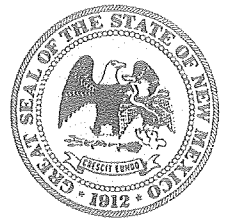
I, \_\_\_\_\_, say that I am familiar with the rules of the Office of the State Engineer pertaining to the plugging of wells and that each and all of the statements in this Plugging Record and attachments are true to the best of my knowledge and belief.

Jim Wood  
Signature of Well Driller

4-30-12  
Date



# PLUGGING RECORD



NOTE: A Well Plugging Plan of Operations shall be approved by the State Engineer prior to plugging - 19.27.4 NMAC

## I. GENERAL / WELL OWNERSHIP:

State Engineer Well Number: Not permitted - site well No. MW-4, Federal Can 15  
Well owner: Conoco Phillips Phone No.: 918-661-0935  
Mailing address: 1308 G Plaza Office Building, 315 Johnstone Avenue  
City: Bartlesville State: Oklahoma Zip code: 74004

## II. WELL PLUGGING INFORMATION:

- 1) Name of well drilling company that plugged well: National Exploration Wells and Pumps
- 2) New Mexico Well Driller License No.: WD 1210 Expiration Date: 10/31/2013
- 3) Well plugging activities were supervised by the following well driller(s)/rig supervisor(s): Jim Ward
- 4) Date well plugging began: 4/24/13 Date well plugging concluded: 4/24/13
- 5) GPS Well Location: Latitude: 36 deg, 45 min, 32.09 sec  
Longitude: -108 deg, 08 min, 59.47 sec, WGS 84
- 6) Depth of well confirmed at initiation of plugging as: 18.37 ft below ground level (bgl),  
by the following manner: groundwater level meter
- 7) Static water level measured at initiation of plugging: 9.69 ft bgl
- 8) Date well plugging plan of operations was approved by the State Engineer: 4/16/13
- 9) Were all plugging activities consistent with an approved plugging plan? Yes If not, please describe differences between the approved plugging plan and the well as it was plugged (attach additional pages as needed):



- 10) Log of Plugging Activities - Label vertical scale with depths, and indicate separate plugging intervals with horizontal lines as necessary to illustrate material or methodology changes. Attach additional pages if necessary.

For each interval plugged, describe within the following columns:

Depth (ft bgl)	Plugging Material Used (include any additives used)	Volume of Material Placed (gallons)	Theoretical Volume of Borehole/ Casing (gallons)	Placement Method (tremie pipe, other)	Comments (“casing perforated first”, “open annular space also plugged”, etc.)
0	Type I II Portland Cement 1/8 3-5% bentonite	5 gallons	3.2 gallons	Tremie pipe	Casing confirmed as 2" PVC
18.37					

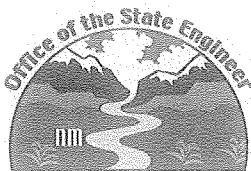
MULTIPLY	BY	AND OBTAIN
cubic feet x	7.4805	= gallons
cubic yards x	201.97	= gallons

**III. SIGNATURE:**

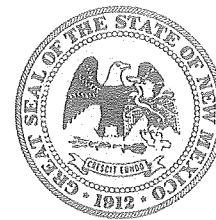
I, \_\_\_\_\_, say that I am familiar with the rules of the Office of the State Engineer pertaining to the plugging of wells and that each and all of the statements in this Plugging Record and attachments are true to the best of my knowledge and belief.

Jim Ward  
Signature of Well Driller

\_\_\_\_\_  
Date



# PLUGGING RECORD



NOTE: A Well Plugging Plan of Operations shall be approved by the State Engineer prior to plugging - 19.27.4 NMAC

## I. GENERAL / WELL OWNERSHIP:

State Engineer Well Number: Not permitted - site well No. MW-5, Federal Com 15  
Well owner: ConocoPhillips Phone No.: 918-661-0935  
Mailing address: 1308 G Plaza Office Building, 315 Johnstone Avenue  
City: Bartholomew State: Oklahoma Zip code: 74004

## II. WELL PLUGGING INFORMATION:

- 1) Name of well drilling company that plugged well: National Exploration Wells and Pumps
- 2) New Mexico Well Driller License No.: WD 1210 Expiration Date: 10/31/2013
- 3) Well plugging activities were supervised by the following well driller(s)/rig supervisor(s): Jim Ward
- 4) Date well plugging began: 4/24/13 Date well plugging concluded: 4/24/13
- 5) GPS Well Location: Latitude: 36 deg, 45 min, 30.24 sec  
Longitude: -108 deg, 08 min, 59.57 sec, WGS 84
- 6) Depth of well confirmed at initiation of plugging as: 17.02 ft below ground level (bgl),  
by the following manner: groundwater level meter
- 7) Static water level measured at initiation of plugging: 12.72 ft bgl
- 8) Date well plugging plan of operations was approved by the State Engineer: 4/16/13
- 9) Were all plugging activities consistent with an approved plugging plan? yes If not, please describe differences between the approved plugging plan and the well as it was plugged (attach additional pages as needed):

- 10) Log of Plugging Activities - Label vertical scale with depths, and indicate separate plugging intervals with horizontal lines as necessary to illustrate material or methodology changes. Attach additional pages if necessary.

For each interval plugged, describe within the following columns:

Depth (ft bgl)	Plugging Material Used (include any additives used)	Volume of Material Placed (gallons)	Theoretical Volume of Borehole/ Casing (gallons)	Placement Method (tremie pipe, other)	Comments ("casing perforated first", "open annular space also plugged", etc.)
17.02	Type I II Portland Cement 1/2 3-5% bentonite	5 gallons	2.80 gallons	Tremie pipe	Casing confirmed as 2" pvc

MULTIPLY	BY	AND OBTAIN
cubic feet x	7.4805	= gallons
cubic yards x	201.97	= gallons

### III. SIGNATURE:

I, \_\_\_\_\_, say that I am familiar with the rules of the Office of the State Engineer pertaining to the plugging of wells and that each and all of the statements in this Plugging Record and attachments are true to the best of my knowledge and belief.

Jim Word  
Signature of Well Driller

4-30-12  
Date