west virginia department of environmental protection

Office of Oil and Gas
601 57th Street SE
Charleston, WV 25304
(304) 926-0450
(304) 926-0452 fax

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

January 08, 2015

WELL WORK PERMIT

Horizontal 6A Well

This permit, API Well Number: 47-5101775, issued to CHEVRON APPALACHIA, LLC, is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to all conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas inspector.

Please be advised that form WR-35, Well Operators Report of Well Work is to be submitted to this office within 90 days completion of permitted well work, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

In addition to the applicable requirements of this permit, and the statutes and rules governing oil and gas activity in WV, this permit may contain specific conditions which must be followed. Permit conditions are attached to this cover letter.

Per 35CSR-4-5.2.g this permit will expire in two (2) years from the issue date unless permitted well work is commenced. If there are any questions, please feel free to contact me at (304) 926-0499 ext. 1654.

James Martin
Chief

Operator's Well No: CONNER 10H
Farm Name: KNABENSHUE, SARAH J. ET AL
API Well Number: 47-5101775
Permit Type: Horizontal 6A Well
Date Issued: 01/08/2015

API Number: 051-01775

PERMIT CONDITIONS

West Virginia Code § 22-6A-8(d) allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

CONDITIONS

1. This proposed activity may require permit coverage from the United States Army Corps of Engineers (USACE). Through this permit, you are hereby being advised to consult with USACE regarding this proposed activity.

2. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code § 22-6A-5a (12), which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than fifty (50) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.

3. When compacting fills, each lift before compaction shall not be more than 12 inches in height, and the moisture content of the fill material shall be within limits as determined by the Standard Proctor Density test of the actual soils used in specific engineered fill, ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort, to achieve 95 % compaction of the optimum density. Each lift shall be tested for compaction, with a minimum of two tests per lift per acre of fill. All test results shall be maintained on site and available for review.

4. Operator shall install signage per § 22-6A-8g (6) (B) at all source water locations included in their approved water management plan within 24 hours of water management plan activation.

5. Oil and gas water supply wells will be registered with the Office of Oil and Gas and all such wells will be constructed and plugged in accordance with the standards of the Bureau for Public Health set forth in its Legislative rule entitled *Water Well Regulations,* 64 C.S.R. 19. Operator is to contact the Bureau of Public Health regarding permit requirements. In lieu of plugging, the operator may transfer the well to the surface owner upon agreement of the parties. All drinking water wells within fifteen hundred feet of the water supply well shall be flow tested by the operator upon request of the drinking well owner prior to operating the water supply well.

6. Pursuant to the requirements pertaining to the sampling of domestic water supply wells/springs the operator shall, no later than thirty (30) days after receipt of analytical data provide a written copy to the Chief and any of the users who may have requested such analyses.

7. If any explosion or other accident causing loss of life or serious personal injury occurs in or about a well or well work on a well, the well operator or its contractor shall give notice, stating the particulars of the explosion or accident, to the oil and gas inspector and the Chief, within 24 hours of said accident.

8. During the casing and cementing process, in the event cement does not return to the surface, the oil and gas inspector shall be notified within 24 hours.

9. Operator shall provide the Office of Oil & Gas notification of the date that drilling commenced on this well. Such notice shall be provided by sending an email to DEPOOGNotify@wv.gov within 30 days of commencement of drilling.

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WW-6B
(9/13)

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
WELL WORK PERMIT APPLICATION

1) Well Operator: Chevron Appalachia, LLC	49449935	Marshall	Clay	Businessburg, WV 7.5'
	Operator ID	County	District	Quadrangle

2) Operator's Well Number: 10H Well Pad Name: Conner

3) Farm Name/Surface Owner: Conner Public Road Access: County Hwy 88/6 (Kull Lane)

4) Elevation, current ground: 1220' Elevation, proposed post-construction: 1220'

5) Well Type (a) Gas ■ Oil _____ Underground Storage _____
Other _____
(b)If Gas Shallow ■ Deep _____
Horizontal ■

JL 8/19/14

6) Existing Pad: Yes or No Yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Associated Pressure(s):
Marcellus; 6323'; 49' / 0.65 psi/ft.

8) Proposed Total Vertical Depth: 6,329'

9) Formation at Total Vertical Depth: 15,504'

10) Proposed Total Measured Depth: Marcellus

11) Proposed Horizontal Leg Length: 8,445'

12) Approximate Fresh Water Strata Depths: 80', 230'

13) Method to Determine Fresh Water Depths: Local stream base/Conner 4H Pilot/offset operators

14) Approximate Saltwater Depths: 3362'

15) Approximate Coal Seam Depths: 752'

16) Approximate Depth to Possible Void (coal mine, karst, other): None Anticipated, well bores are located in an interior barrier pillar (see coal exhibi

17) Does Proposed well location contain coal seams directly overlying or adjacent to an active mine? Yes ☑ No ☐

(a) If Yes, provide Mine Info: Name: Ireland Mine
Depth: 752'
Seam: Pittsburgh No 8 Coal Seam
Owner: CONSOL Energy

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DEC 29 2014

WW-6B
(9/13)

18) **CASING AND TUBING PROGRAM**

TYPE	Size	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling	INTERVALS: Left in Well	CEMENT: Fill-up (Cu. Ft.)
Conductor	30"	New			40'	40'	CTS
Fresh Water	13-3/8"	New	J-55	54.5#	323'	323'	CTS
Coal							
Intermediate	9-5/8"	New	N-80	40#	2,157'	2,157'	CTS
Production	5.5"	New	P-110	20#	15,504'	15,504'	CTS
Tubing							
Liners							

LKC
12-10-14

TYPE	Size	Wellbore Diameter	Wall Thickness	Burst Pressure	Cement Type	Cement Yield (cu. ft./k)
Conductor	30"	36"				
Fresh Water	13-3/8"	17.5	0.380"	2,730 psi	Class A	1.18
Coal						
Intermediate	9-5/8"	12.25	0.395	5,750 psi	Class A	1.29
Production	5.5"	8.5	0.361	12,640 psi	Class A	2.2
Tubing						
Liners						

PACKERS

Kind:				
Sizes:				
Depths Set:				

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Office of Oil and Gas
WV Dept. of Environmental Protection

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(9/13)

19) Describe proposed well work, including the drilling and plugging back of any pilot hole:

Drill 17.5" hole to 323' then run and cement 13-3/8"" casing to surface covering the fresh water. Drill 12.25" hole 2157' then run and cement to surface 9 5/8" casing. Drill 8 1/2" hole to KOP. Drill 8 1/2" curve and lateral to 15,504' MD and 6,329' TVD. Run 5 1/2" production casing and cement back to surface.

20) Describe fracturing/stimulating methods in detail, including anticipated max pressure and max rate:

Chevron will utilizing plug and perf method with 40 stages using 8,572 bbl of fluid and 315,000 lbm of sand per stage

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 9.9 ac

22) Area to be disturbed for well pad only, less access road (acres): 3.8 ac

23) Describe centralizer placement for each casing string:

There will be a bow spring centralizer every two jts on the Water string and intermediate. The production string will have two centralizer every jt in the lateral and curve, then one every two jts from KOP to surface.

24) Describe all cement additives associated with each cement type:

The Water String blend will contain class A cement, 3% CaCl2, and flake. The intermediate will contain class A cement, 10% CaCl2, Salt, and flake. The Production cement will have a lead and tail cement. The lead will contain class A cement, KCl, dispersant, suspension agent, and retarder. The tail will contain class A cement, Calcium Carbonate, KCl, dispersant, de-foamer, suspension agent, and friction reducer.

25) Proposed borehole conditioning procedures:

Well will be circulated a minimum of 3 bottoms up once casing point has been reached on all hole sections and until uniform mud properties are achieved.

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*Note: Attach additional sheets as needed.

Office of Oil and Gas
WV Dept. of Environmental Protection

4705101775

WW-6B Attachment Conner North Unit 1H, 3H, 5H, 7H, 8H, 9H, and 10H

Scenario-1: Marcellus well drilled first as Pilot well:

a. **If a void is encountered, we will drill ahead to min 30' or max 50' below mine void and stop drilling.**
   - Notify DEP Inspector and obtain permit/ approval to plug back hole. The plugback procedure will be as follows:
     - Trip in hole with 2-7/8" tubing cement stinger to 20' above top of void.
     - Mix and pump cement to fill rat hole below void. Trip out of hole and lay down tubing
     - Trip in hole with Open Hole Packer and set at 20' above top of void. Test packer.
     - Trip out of hole and lay down packer running tool
     - TIH w/ 2-7/8" tubing to **5'+/-** from top of packer
     - Mix and pump **15.6pgg** cement on top of packer and fill hole to within 10' from surface.
     - Trip out of hole and lay down tubing.
     - Nipple down BOPE and related equipment
     - Cut casing, lay wellhead and casing cut piece
     - Weld on steel plate to cover casing
     - Rig down and skid rig to next well. Note: Cellar ring removal, cellar filling and installation of land mark will be done later

The rest wells original plan will be revised to incorporate a coal casing string as follows:

b. **Marcellus Wells Contingency Casing Plan:**
   - Drill 26" hole to **330'** (min 50' or max 150' beyond freshwater zone)
   - Run 20" 94.5# J-55 BTC casing
   - Cement casing to surface using displacement method with **30% excess**
   - Drill 17-1/2" hole to **800'** (min 30'or max 50 beyond mine void)
   - Run 13-3/8" 54.5# J-55 BTC casing with cement basket **20' above mine void**
   - **Cement casing using displacement method to bottom of mine void using 100% excess**
   - **Grout from surface to cement basket using whatever volume of cement necessary to get cement to surface**
   - Drill 12-1/4" hole to **2,157'** (50' below the base of the Burgoon)
   - Run 9-5/8" 40# N-80 BTC casing to isolate shallow gas sand and salt water zones
   - Cement casing to surface using displacement method with **30% excess**
   - Drill 8-1/2" production hole to TD
   - Run 5 ½" 20# P-110 VA Superior production casing to TD
   - Cement casing to surface using displacement method with **10% excess**

Scenario-2: Drilling String/ Bottom Hole Assembly Stuck during drilling:

- If the drill string/BHA gets stuck during drilling operation:
  - Make all necessary effort and attempt to free the drill string/BHA.
  - If all effort and attempts proves unsuccessful, will notify WV DEP Inspector of situation and obtain verbal and/or email approval to plug hole back with cement plug(s) and sidetrack well
  - Cement plug(s) will be set as needed to the desired depth adequate for successful sidetrack of well without compromising anti-collision with the original hole and ghost well(s)/adjacent wells on the same pad
  - Cement plug(s) additives will contain Class H cement, KCl, Dispersant, Anti-Foam, and Retarder.
  - Trip in hole with Drilling Bottom Hole Assembly
  - Dress/drill cement to proposed kick off point
  - Kick off and sidetrack well and directionally drill sidetrack well to original casing point

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CEMENT ADDITIVES

The Water String blend will contain class A cement, 3% CaCl2, and flake.

The intermediate will contain class A cement, 10% CaCl2, Salt, and flake.

The Production cement will have a lead and tail cement.

The lead will contain class A cement, KCl, dispersant, suspension agent, and retarder.

The tail will contain class A cement, Calcium Carbonate, KCl, dispersant, de-foamer, suspension agent, and friction reducer.

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Conner North 10H

Items in Yellow do not Automatically Update

Marshall Co. WV
August 21, 2014

Casing & Cementing Details

Ground Level Elevation: 1,222'
All depts from KB of: 15'

	Casing Formation	DEPTH MD	DEPTH TVD	Inclination	HOLE SIZE	CASING SPECS	CEMENT INFO	GENERAL INFO
	30 " Casing	55'			36"	Conductor	grout to surface Minimum 40 ft from GL or at least 10 ft into bedrock	
	Bow Spring: 1-shoe jt, 1-every 2nd jt 1 on ea 2-3 jts across previous shoe. Rigid: 2-within 100 ft of surface Deepest Aquifer	245'				Fresh Water Casing 13-3/8" 54.5# J-55 BTC 0.458" wall Capacity = 0.3553 bbl/ft Annulus = 0.2681 bbl/ft (+ 15.6 bbl for shoe track) Burst = 2110 psi	Cement to surface Class A w/ 3% CaCl2, Salt & Flake Yield (cf/sk) = 1.21 Weight (ppg)= 15.6 79 bbl 367 sks	30% excess
	13.38 "Casing	315'			17 1/2"		Minimum 50 ft past deepest known fresh water	
	Pittsburgh Coal	767'						
	Possible Red Beds 802-902' from GL							
	Possible Red Beds 1070'-1100" from GL							
	Bow Spring: 1-shoe jt, 1-every 2nd jt 1 on ea 2-3 jts across previous shoe. Rigid: 2-within 100 ft of surface					Intermediate Casing 9-5/8" 40# N-80 BTC 8.835" ID - 8.679" DD Capacity = 0.0758 bbl/ft Annulus = 0.0558 bbl/ft (+ 3.1 bbl for shoe track) Burst = 5750 psi Collapse = 3090 psi	Cement to surface Class A w/ 10% CaCl2, Salt & Flake Yield (cf/sk) = 1.29 Weight (ppg)= 15.6 159.5 bbl 694 sks	30% excess
	Burgoon (Big Injun)							
	9 5/8 "Casing	2,172'			12 1/4"			
BOPE Class for section 13-5/8" 10K Class III BOPE	Berea					Prod. Casing 5-1/2", 20# P-110, New Vam Capacity = .0221 bbl/ft (+1 bbl for shoe track) Burst = 12,640 psi Collapse = 11,080 psi ID = 4.778" Drift = 4.653"	Class A: 1) LEAD SLURRY Yield (cf/sk) = 1.32 Weight (ppg)= 15.2 285.9 bbl 1216 sks TOC Lead = 15 ft MD Class A: 2) TAIL SLURRY Yield (cf/sk) = 1.61 Weight (ppg)= 15.2 424.2 bbl 1478 sks TOC Tail = 6,088 ft MD	Lead Length: 6,088' (Surface to 200' above Upper Marcellus plus 10% in open hole) Tail Length: 9,431' (200' above Upper Marcellus to Shoe plus 10% in open hole)
	Middlesex							
	Burkett Sh. Tully Lm.			55.85°				
	S5			60.24°				
	S4			75.01°				
	Stafford S2b (L. Marcellus)			79.91°				
Centralization * 2 Torq glider per jt from shoe to KOP * 1 single bow per 2 jt from KOP to surface	Horizontal Landing Point	7,549'		88.65°				
	S1b (Basal Marcellus)			90.0°				
	Onondaga			90.0°				
	5 1/2 "Casing	15,519'			8 1/2"			

SLB Toe Sleeve assembly
LC FC FS
Lateral length = 7,970'
45ft Shoe Track

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WV Dept. of Environmental Protection

WW-9
(9/13)

4705101775

API Number 47 - _____ - _____
Operator's Well No. 10H

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Chevron Appalachia, LLC OP Code 49449935

Watershed (HUC 10) Middle Grave Creek - Grave Creek Quadrangle Businessburg, WV 7.5'

Elevation 1220' County Marshall District Clay

Do you anticipate using more than 5,000 bbls of water to complete the proposed well work? Yes ☑ No ☐

Will a pit be used? Yes ☐ No ☑

If so, please describe anticipated pit waste: _____

Will a synthetic liner be used in the pit? Yes ☐ No ☑ If so, what ml.? _____

Proposed Disposal Method For Treated Pit Wastes:

_____ Land Application
_____ Underground Injection (UIC Permit Number _____)
_____ Reuse (at API Number _____)
▪ Off Site Disposal (Supply form WW-9 for disposal location)
_____ Other (Explain _____

Will closed loop system be used? If so, describe: Yes. The system will remove drill cuttings from the drilling fluid. The drill cuttings are then prepared for transportation to an off-site disposal facility.

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc. Vertical on Air, Horizontal on Oil Based

-If oil based, what type? Synthetic, petroleum, etc. Synthetic

Additives to be used in drilling medium? Fluid loss control, emulsifier, and shale stabilizer

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. Removed Offsite

-If left in pit and plan to solidify what medium will be used? (cement, lime, sawdust) N/A

-Landfill or offsite name/permit number? Arden Landfill - Permit # - PA DEP 100172

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action.

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment.

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Office of Oil & Gas
DEC 29 2014

Company Official Signature Anna Shumaker

Company Official (Typed Name) Anna Shumaker

Company Official Title Permitting Coordinator

Subscribed and sworn before me this 12 day of August, 2014

Thomas Basinger Notary Public

My commission expires 9/24/2017

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
THOMAS BASINGER
Notary Public
CONNELLSVILLE CITY, FAYETTE CNTY
My Commission Expires Sep 24, 2017

4705101775

Form WW-9

Operator's Well No. 10H

Chevron Appalachia, LLC

Proposed Revegetation Treatment: Acres Disturbed 16.0 Prevegetation pH 6.5-7.0

Lime 6 Tons/acre or to correct to pH 6.5-7.0

Fertilizer type 10-20-20

Fertilizer amount 1,000 lbs/acre

Mulch 3 Tons/acre

Seed Mixtures

Temporary		Permanent	
Seed Type	lbs/acre	Seed Type	lbs/acre
Annual Ryegrass Mixture (Lolium Multigorum) - 10 LB per acre		Perennial Ryegrass Mixture (Iolium Perenne) -10 lb per acre	
		Creeping Red Fescue or Chewing Fescue - 10 lb per acre	
		Kentucky Bluegrass Mixture (POA Pratensis) - 10 lb per acre	

Attach:
Drawing(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided)

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: [signature]

Comments:

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SEP 12 2014

Title: Oil + Gas Inspector Date: 8/19/14

Office of Oil and Gas
WV Dept. of Environmental Protection

Field Reviewed? (✓) Yes ( ) No

4705101775

CHEVRON
APPALACHIA, LLC

West Virginia Well Site Safety Plan

Conner Site
Well 10H
Marshall County, West Virginia

Prepared in Conformance with:

West Virginia's Code §22-6A and Legislative Rule §35-8-5.7
and
West Virginia Department of Environmental Protection's, Office of Oil and Gas documents:
"Well Site Safety Plan Standards" (issued August 25, 2011), and
"Deep Well Drilling Procedures and Site Safety Plan Requirements" (issued October 22, 2012)

8/19/14

Revision 1

Received
SEP 12 2014
Office of Oil and Gas
WV Dept. of Environmental Protection

Original: September 2012

Revised: June 2013

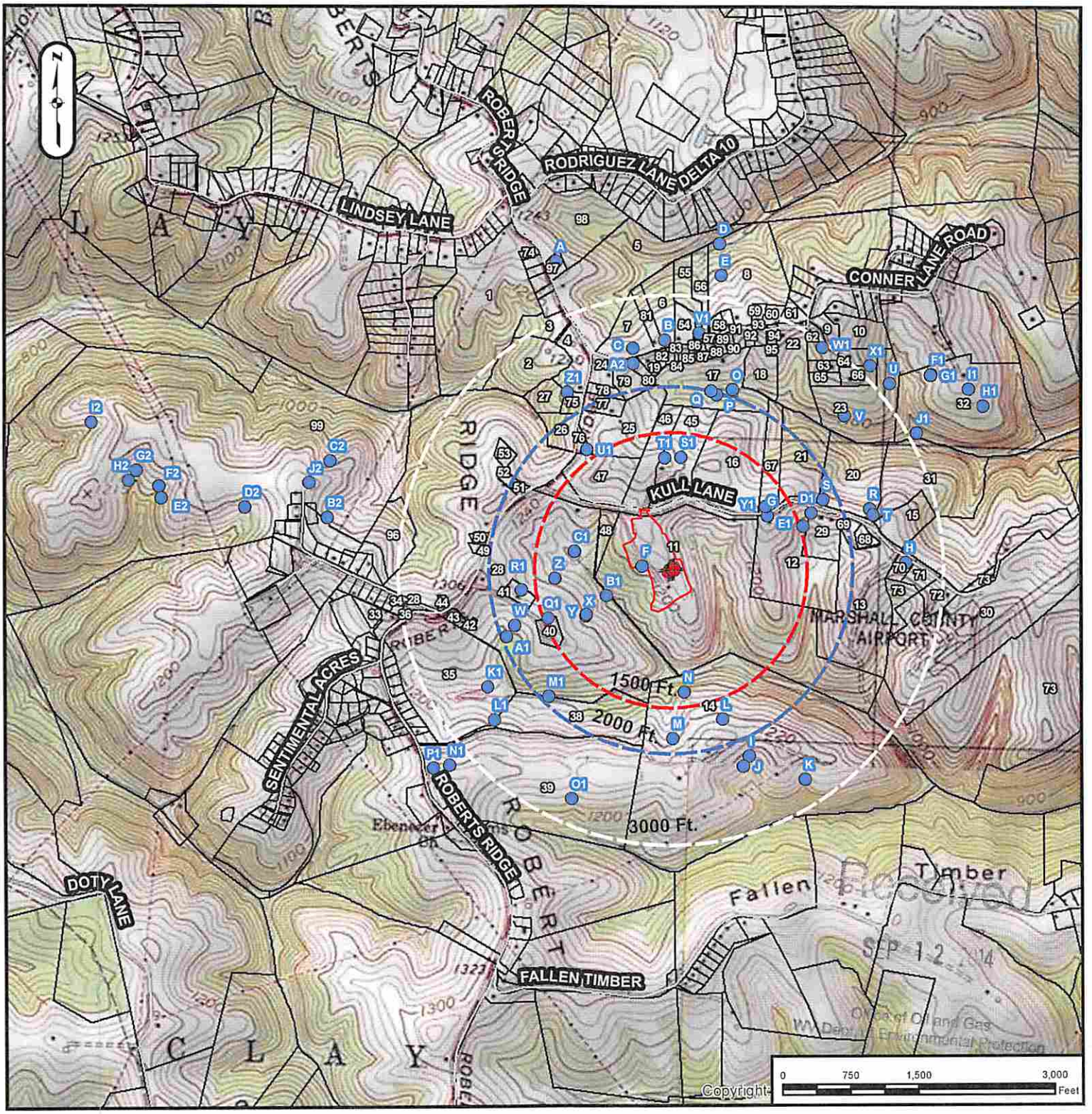
Revised: May 2014

WATER SUPPLY EXHIBIT
CONNER

Date: 6/2/2014

4705101775

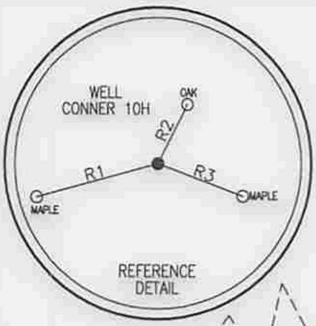
Blue Mountain Inc.



SURFACE OWNER:	SARAH KNABENSHUE, ET AL	COUNTY:	MARSHALL
OIL/GAS OWNER:	HOWARD BONAR CONNER, ET AL	DISTRICT:	CLAY
WELL OPERATOR:	CHEVRON APPALACHIA, LLC	SURVEYOR:	BLUE MOUNTAIN INC.
ADDRESS:	800 MOUNTAIN VIEW DRIVE SMITHFIELD, PA 15478	ADDRESS:	11023 MASON DIXON HIGHWAY BURTON, WV 26562
PHONE:	724-564-3700	PHONE:	304-662-6486

Well is located on topo map 13,094 feet south of Latitude: 39° 55' 00"

Well is located on topo map 163 feet west of Longitude: 80° 45' 00"



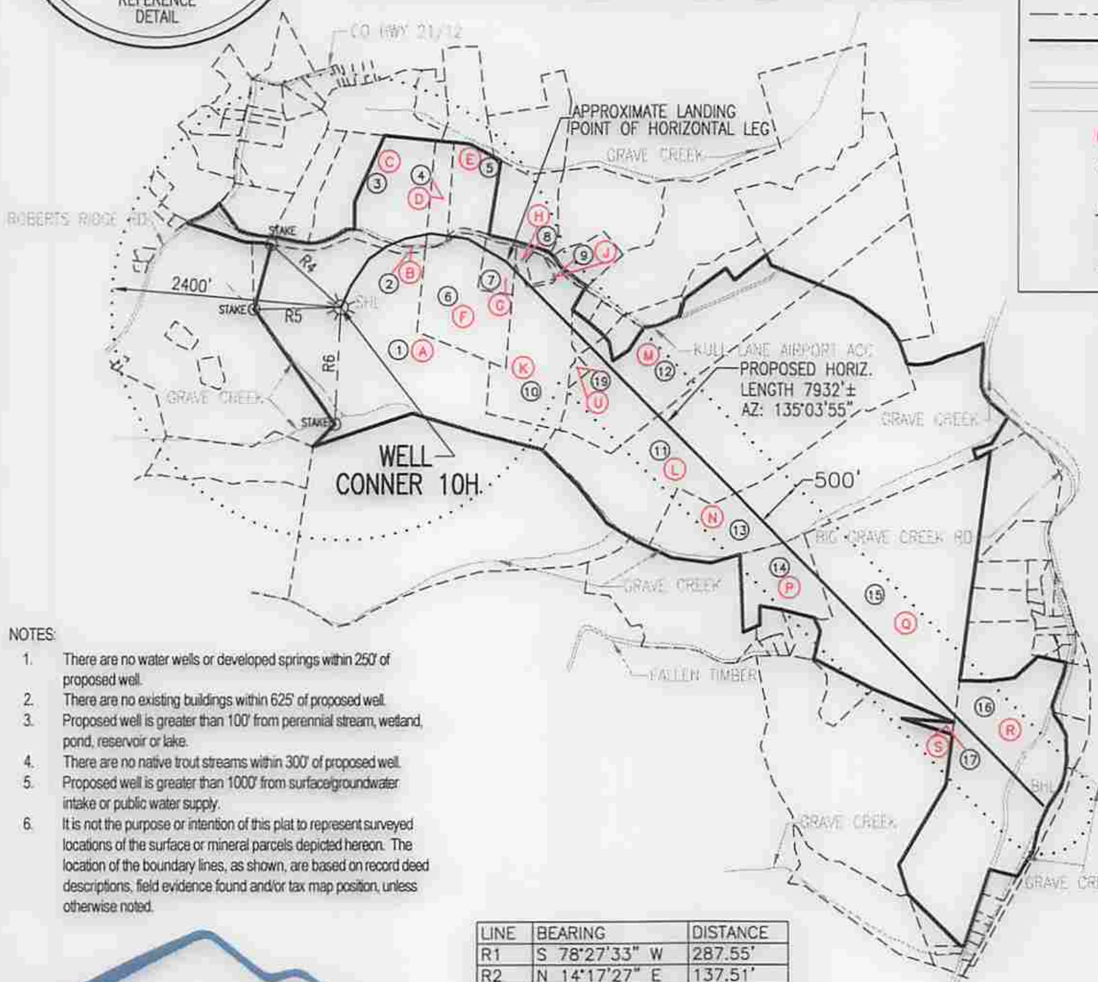
SURFACE HOLE LOCATION (SHL)	APPROX. LANDING POINT	BOTTOM HOLE LOCATION (BHL)
UTM 17-NAD83	UTM 17-NAD83	UTM 17-NAD83
N:4414548.34	N:4414702.21	N:4413020.08
E:521327.27	E:521851.56	E:523586.97
NAD 83, WV NORTH	NAD 83, WV NORTH	NAD 83, WV NORTH
N:505346.75	N:505822.92	N:500207.82
E:1617553.04	E:1619281.94	E:1624884.43
LAT/LON DATUM-NAD83	LAT/LON DATUM-NAD83	LAT/LON DATUM-NAD83
LAT:39.8807212	LAT:39.8820942	LAT:39.8668919
LON:-80.7505818	LON:-80.7444453	LON:-80.7242105

LEGEND

- TOPO MAP POINT
- WELL
- ALL ARE POINTS UNLESS OTHERWISE NOTED.
- MINERAL TRACT BOUNDARY
- PARCEL LINES
- WELL REFERENCE
- PROPOSED HORIZONTAL WELL
- ROAD
- STREAM CENTER LINE
- LESSORS
- SURFACE OWNERS

GAS WELLS

- EXISTING WELLS
- PLUGGED WELLS



NOTES:

1. There are no water wells or developed springs within 250' of proposed well.
2. There are no existing buildings within 625' of proposed well.
3. Proposed well is greater than 100' from perennial stream, wetland, pond, reservoir or lake.
4. There are no native trout streams within 300' of proposed well.
5. Proposed well is greater than 1000' from surface/groundwater intake or public water supply.
6. It is not the purpose or intention of this plat to represent surveyed locations of the surface or mineral parcels depicted hereon. The location of the boundary lines, as shown, are based on record deed descriptions, field evidence found and/or tax map position, unless otherwise noted.

LINE	BEARING	DISTANCE
R1	S 78°27'33" W	287.55'
R2	N 14°17'27" E	137.51'
R3	S 70°06'44" E	159.74'
R4	N 48°22'42" W	975.75'
R5	S 88°35'45" W	908.39'
R6	S 03°00'53" W	1204.91'

SEE PAGE 2 FOR SURFACE OWNERS AND LESSORS

Blue Mountain Inc.
11023 MASON DIXON HIGHWAY
BURTON, WV 26562
PHONE: (304) 662-6486

FILE #: CONNER 10H

DRAWING #: CONNER 10H

SCALE: 1" = 2000'

MINIMUM DEGREE OF ACCURACY: 1/2500

PROVEN SOURCE OF ELEVATION: U.S.G.S. MONUMENT THOMAS 1498.81'

I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

Signed: [signature]

R.P.E.: L.L.S.: P.S. No. 2000

GEORGE D. SIX LICENSED No. 2000 STATE OF WEST VIRGINIA PROFESSIONAL SURVEYOR

PLACE SEAL HERE

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS
WVDEP
OFFICE OF OIL & GAS
601 57TH STREET
CHARLESTON, WV 25304

STATE OF WEST VIRGINIA

DATE: JULY 31, 2014

OPERATOR'S WELL #: CONNER 10H

API WELL #: 47 (STATE) 51 (COUNTY) 01775 H6A (PERMIT)

Well Type: ☐ Oil ☐ Waste Disposal ☒ Production ☐ Deep
☒ Gas ☐ Liquid Injection ☐ Storage ☒ Shallow

WATERSHED: MIDDLE GRAVE CREEK - GRAVE CREEK ELEVATION: 1220.45'

COUNTY/DISTRICT: MARSHALL / CLAY QUADRANGLE: BUSINESSBURG, WV 7.5'

SURFACE OWNER: SARAH J. KNABENSHUE ET AL ACREAGE: 81.725±

OIL & GAS ROYALTY OWNER: SARAH J. KNABENSHUE ET AL ACREAGE: 542.906±

DRILL ☒ CONVERT ☐ DRILL DEEPER ☐ REDRILL ☐ FRACTURE OR STIMULATE ☐
PLUG OFF OLD FORMATION ☐ PERFORATE NEW FORMATION ☐ PLUG & ABANDON ☐
CLEAN OUT & REPLUG ☐ OTHER CHANGE ☐ (SPECIFY):

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: TVD: 6,329'± TMD: 15,504'±

WELL OPERATOR CHEVRON APPALACHIA, LLC DESIGNATED AGENT KENNETH E. TAWNEY
Address 800 MOUNTAIN VIEW DRIVE Address 500 LEE STREET, EAST SUITE 1600
City SMITHFIELD State PA Zip Code 15478 City CHARLESTON State WV Zip Code 25301-3202

CONNER
10H
PAGE 2 OF 2

SURFACE HOLE LOCATION (SHL)	APPROX. LANDING POINT	BOTTOM HOLE LOCATION (BHL)
UTM 17-NAD83	UTM 17-NAD83	UTM 17-NAD83
N:4414548.34	N:4414702.21	N:4413020.08
E:521327.27	E:521851.56	E:523586.97
NAD 83, WV NORTH	NAD 83, WV NORTH	NAD 83, WV NORTH
N:505346.75	N:505822.92	N:500207.82
E:1617553.04	E:1619281.94	E:1624884.43
LAT/LON DATUM-NAD83	LAT/LON DATUM-NAD83	LAT/LON DATUM-NAD83
LAT:39.8807212	LAT:39.8820942	LAT:39.8668919
LON:-80.7505818	LON:-80.7444453	LON:-80.7242105

	SURFACE OWNER	DIST-TM/PAR
1	SARAH J. KNABENSHUE ET AL	4-5/55
2	W VA DEPT OF HIGHWAYS	4-5/65
3	SARAH J. KNABENSHUE ET AL	4-5/56
4	ROBERT P. CARNAHAN ET UX	4-5/50.4
5	GEOFFREY ERIC HOWE	4-5/50
6	ETHEL FAYE HOWE	4-5/51
7	GREGORY E. HOWE	4-5/51.1
8	BRENDA FAYE RINE	4-5/52.2
9	BRENDA FAYE RINE	4-5/52.1
10	BRADLEY C. RINE	4-5/52
11	MARY E. PERSINGER ET AL	4-5/54.1
12	MARSHALL CO AIRPORT AUTHORITY	4-5/54.3
13	CHARLES W. JR. & JUDY MERCER	4-8/16
14	CAROL ANN JORDAN	4-8/15
15	HENRY W. & LINDA M. ASTON - LIFE ESTATE	4-8/17
16	MABEL JUANITA WILLIAMS	4-8/23
17	*HENRY W. & LINDA M. ASTON	4-8/19
19	LENEE J. & SHARON L. CURITTI	4-5/54.7

	LESSOR
A	HOWARD BONAR CONNER ET AL
B	HOWARD T. CONNER
	SARAH J. KNABENSHUE
	MARY L. WHITTINGTON
C	HOWARD BONAR CONNER ET AL
D	KULL/MAGERS HEIRS
E	KULL/MAGERS HEIRS
F	KULL/MAGERS HEIRS
G	KULL/MAGERS HEIRS
H	KULL/MAGERS HEIRS
J	KULL/MAGERS HEIRS
K	KULL/MAGERS HEIRS
L	LUCRETIA & ANTHONY JOHNSON HEIRS
	MARY E. PERSINGER ET AL
M	MARY E. PERSINGER ET AL
N	LUCRETIA & ANTHONY JOHNSON HEIRS
P	CAROL A. JORDAN
Q	HENRY W. & LINDA M. ASTON
	HEIRS OF JAMES HOLMES
R	MABEL J. WILLIAMS
S	*HENRY W. & LINDA M. ASTON
U	MARY E. PERSINGER ET AL

* - DENOTES PARCEL WITHIN 30 FEET OF PLANNED WELL BORE

47-51-01775
HGA

JULY 31, 2014

Blue Mountain Inc.
11023 MASON DIXON HIGHWAY
BURTON, WV 26562
PHONE: (304) 662-6486