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 14, 2015

WELL WORK PERMIT

Horizontal 6A Well

This permit, API Well Number: 47-5101780, 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: CURRY 3H
Farm Name: CURRY, JAMES E.
API Well Number: 47-5101780
Permit Type: Horizontal 6A Well
Date Issued: 01/14/2015

API Number: 5101780

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.

Horizontal 6A Well Permit App. Checklist:

4705101780

Received Date: 10/6/2014

API: 5101780

Operator: CHEVRON APPALACHIA, LLC

WELL: CURRY 3H

Pad Name: CURRY

End Comment Period: 11/5/14

Pad Built: X Yes ___ No

Date Reviewed: 12-13-14 INT. KK

CHECKLIST FOR FILING A PERMIT
Horizontal 6A Well

Please include these required elements in the Horizontal Well 6A applications, in order listed below. Do not use staples.

First Well		Subsequent Well	
10,150.00	☐	5,150.00	X

Check#: 25735919

- ✓ Fees Paid
- ✓ Checklist / Cover letter
- ✓ **WW-6B Notice of Application** ~~Unit salt water~~ Void procedure — ✓ **Field Approved**
- ✓ **Cement Additives**
- ✓ **Well Bore Schematic (not required)** doesnt match
- ✓ **WW-9 Fluids/Cuttings Disposal and Reclamation Plan** no pit or closed loop — ✓ **Field Approved**
- ✓ **Site Safety Plan** — ✓ **Field Approved**
- ✓ **Water Management Plan** — ✓ **DWWM Approval**
- ✓ **Topographic map showing access road**
- ✓ **Mylar Plat (Signed and sealed) (Surface Owner matches WW-6A)** — ✓ **Plat Spotted**
- ✓ WW-6A1 Lease Information — Drill? (J) Great Lakes → Range Res.
- ✓ Road Crossing Letter (if drilling under road) — Chevron USA → Chevron App
- ✓ WW-PN Application Notice by Publication — ~~Hoy leg length diff from LB~~ OK
- ✓ Public Notice (dated copy of advertisement or affidavit of publication) — -Disk
- ✓ WW-6AC Notice Certifications and Waivers
- ✓ WW-6A Notice of Application notarized w/ any attachments
- ✓ Topographic Map with labeled surrounding water wells (not required)
- ✓ Certified Mail receipts for WW-6A
- ☐ WW-6A3 Notice of Entry for Plat Survey (if one was conducted)

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Horizontal 6A Well Permit App. Checklist: API: 5101780

- [ ] Certified Mail receipts for WW-6A3
- [x] WW-6A4 Notice of Intent to Drill (if no WW-6A3)
- [x] Certified Mail receipts for WW-6A4
- [x] WW-6A5 Notice of Planned Operation
- [x] Certified Mail receipts for WW-6A5
- [x] WW-6RW Well Location Restriction Waiver (if applicable)
- [x] WW-6RW Voluntary Statement of No Objection (if applicable)
  - [x] Waiver for Surface Owner at Wellhead
  - [ ] Waiver for Surface Owner for Roads or other Disturbances
  - [x] Waiver for Coal Owner, Operator or Lessee
  - [ ] Waiver for surface owner for Impoundment or Pit
  - [x] Waiver for Surface Owner or Water Purveyor within 1500 feet of Center of Pad
  - [ ] Waiver for Natural gas Storage Field Operator David Blake
- [x] DOH Road Bonding Letter
- [x] Frac Additives List of Chemical Names & CAS#s
- [x] Site Construction, Reclamation, Erosion & Sediment Control Plans [ ] DEP Engineer Approved
- [x] MSDS Sheets

Reviewer outside checks:

- [ ] Comments - Public, Surface Owner, Water Well Purveryor
- [x] Bond ($250,000)
- [x] Operator is registered with the SOS
- [x] Workers Compensation / Unemployment Insurance account is OK
- [x] Professional Engineer/Company has COA
- [ ] Check for mine data at proposed coordinates
- [x] Check for floodplain data at proposed coordinates

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Horizontal 6A Well Permit App. Checklist: API: 5101780

- [ ] IMP-1A Associated Pit or Impoundment (if applicable) n/a
- [x] WW-6A7 Well Restrictions Form w/ Signature
  - [x] At Least 100 Feet from Pad and LOD (including any ES Control Feature) to any Perennial Stream, Lake, Pond, Reservoir or Wetland
    - [ ] DEP Waiver and Permit Conditions
  - [ ] At Least 300 Feet from Pad and LOD (including any ES Control Feature) to any Naturally Producing Trout Stream
    - [ ] DEP Waiver and Permit Conditions
  - [ ] At Least 1000 Feet from Pad and LOD (including any ES Control Feature) to any Groundwater Intake or Public Water Supply
    - [ ] DEP Waiver and Permit Conditions
  - [x] At Least 250 Feet from an Existing Water Well or Developed Spring to Well Being Drilled
    - [ ] Surface Owner Waiver and Recorded with County Clerk, OR
    - [ ] DEP Variance and Permit Conditions
  - [ ] At Least 625 Feet from an Occupied Dwelling Structure to the Center of the Pad
    - [x] Surface Owner Waiver and Recorded with County Clerk, OR
    - [ ] DEP Variance and Permit Conditions
  - [ ] At Least 625 Feet from Agricultural Buildings Larger than 2500 Square Feet to the Center of the Pad
    - [x] Surface Owner Waiver and Recorded with County Clerk, OR
    - [ ] DEP Variance and Permit Conditions

WW-6B
(9/13)

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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	Washington	Moundsville, WV 7.5'
		Operator ID	County	District	Quadrangle

2) Operator's Well Number: 3H Well Pad Name: Curry

3) Farm Name/Surface Owner: Curry Public Road Access: Wayman's Ridge Rd/County Rt 38

4) Elevation, current ground: 1317' Elevation, proposed post-construction: 1317'

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

JH 8/21/14

6) Existing Pad: Yes or No Yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Associated Pressure(s):
Burket; 6,370'; 20'; 0.51 psi/ft

8) Proposed Total Vertical Depth: 6,404'

9) Formation at Total Vertical Depth: Burket

10) Proposed Total Measured Depth: 13,458'

11) Proposed Horizontal Leg Length: 7,054'

12) Approximate Fresh Water Strata Depths: 573' GL

13) Method to Determine Fresh Water Depths: Local stream base/Curry 1H Pilot/offset operators

14) Approximate Saltwater Depths: 1,890'-3,080' GL

15) Approximate Coal Seam Depths: 825' GL

16) Approximate Depth to Possible Void (coal mine, karst, other): 825' GL

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: Alexander Mine (abandoned)
Depth: 825'-833' GL,
Seam: Pittsburgh No. 8 Coal Seam
Owner: Reserve Coal Properties Company

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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	20"	New	J-55	94#	673'	673'	CTS
Coal	13-3/8"	New	J-55	54.5#	925'	925'	CTS
Intermediate	9-5/8"	New	N-80	40#	2,292'	2,292'	CTS
Production	5.5"	New	P-110	20#	16,343'	16,343'	CTS
Tubing							
Liners							

JL 8/21/14

TYPE	Size	Wellbore Diameter	Wall Thickness	Burst Pressure	Cement Type	Cement Yield (cu. ft./k)
Conductor	30"	36"				
Fresh Water	20"	26"	0.438"	2,100 psi	Class A	1.21
Coal	13-3/8"	17.5	0.380"	2,730 psi	Class A	1.04
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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19) Describe proposed well work, including the drilling and plugging back of any pilot hole:

Drill 26" hole to 673' then run and cement 20" casing to surface covering the fresh water. Drill 17.5" hole to 925' then run and cement 13-3/8"" casing to surface covering coal. Drill 12.25" hole to 2,292' 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 13,426' MD and 6,372' 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 utilize 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): 12.5 Acres

22) Area to be disturbed for well pad only, less access road (acres): 3.6 Acres

23) Describe centralizer placement for each casing string:

There will be a bow spring centralizer every jt on the Water string. There will be a bow spring centralizer every 2 joints for the Coal and Intermediate String. The production string will have a 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 Coal String will be class A cement with 1% CaCl2, and flake. The intermediate will contain class A cement, 2% 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:

We will be circulated a minimum of 2 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.

WW-6B Attachment Curry Unit 2H, 3H, 4H, 5H, 6H, 7H, 8H, 9H, 10H, 11H

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:

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b. **Marcellus Wells Contingency Casing Plan:**
   - Drill 26" hole to **700'** (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 **925'** (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 **2,292'** 100' below the Berea Sand
   - Run 9-5/8" 40# N-80 BTC casing to isolate the Berea, 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**

c. **Utica/ Point Pleasant well Contingency Casing Plan**: In a situation where there is also Utica/ Point Pleasant well(s) to be drilled on same pad, the Point Pleasant/Utica well contingency casing design based on the outcome of the Marcellus pilot well drilled will be as follows:
   - Drill 26" hole to **673'** (min 50' or max 150' beyond freshwater zone)
   - Run 24" 186# X-56 DDS casing
   - Cement casing to surface using displacement method with **30% excess**
   - Drill 21" hole to **925'** (min 30'or max 50 beyond mine void)
   - Run 18-5/8" 87.5# 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 17-1/2" hole to **2,292'** 100' below the Berea Sand
   - Run 13-3/8" 72# N-80 BTC casing to isolate the Berea, shallow gas sand and salt water zones
   - Cement casing to surface using displacement method with **30% excess**
   - Drill 12-1/4" hole to **8,852'** 100' below the Lockport

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 Coal String will be class A cement with 1% CaCl2, and flake.

The intermediate will contain class A cement, 2% 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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Curry 3H

Items in Yellow do not Automatically Update

Marshall Co. WV
January 5, 2015

Casing & Cementing Details

Ground Level Elevation: 1,320'
All depts from KB of: 32'

	Casing Formation	DEPTH MD	DEPTH TVD	Inclination	HOLE SIZE	CASING SPECS	CEMENT INFO	GENERAL INFO
						Conductor	grout to surface	
	30 " Casing	72'			36"	Minimum 40 ft from GL or at least 10 ft into bedrock		
	Bow Spring: 1-shoe jt, 1-every jt 1 on ea 2-3 jts across previous shoe. Rigid: 2-within 100 ft of surface					Fresh Water Casing 20" 94# J-55 BTC 0.438" 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)= 15.6 251 bbl 1163 sks	30% excess
	Deepest Aquifer	605'						
	20.00 "Casing	705'			26 "	Minimum 50 ft past deepest known fresh water		
	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					Coal Casing 13-3/8" 54.5# J-55 BTC 0.458" wall Capacity = 0.1508 bbl/ft Annulus = 0.1237 bbl/ft (+ 6 bbl for shoe track) Burst = 2730 psi	Cement to surface Class A w/ 3% CaCl2, Salt & Flake Yield (cf/sk) = 1.04 Weight (ppg)= 15.3 25 bbl 137 sks 277 bbl 1494 sks	shoe 50% excess to basket 100% excess
	Basket	837'						
	Top Coal	857'						
	Deepest Coal	867'						
	13 3/8 "Casing	957'			17 1/2"	Minimum 35 ft , Optimum 50 ft, Maximum 100 ft below the bottom of void		
	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)= 15.6 179.8 bbl 783 sks	30% excess
	Burgoon (Big Injun)							
	9 5/8 "Casing	2,324'			12 1/4"			
BOPE Class for section 13-5/8" 10K Class III BOPE	Berea			55.85° 60.24° 75.01° 79.91° 88.65° 90.0° 90.0°		Prod. Casing 5-1/2", 20# P-110, New Vam Capacity = .0221 bbl/ft (+1 bbl for shoe track) Burst = 12,640 psi Collapse = 11,050 psi ID = 4.778" Drift = 4.653"	Class A: 1) LEAD SLURRY Yield (cf/sk) = 1.32 Weight (ppg)= 15.2 291.4 bbl 1239 sks TOC Lead = #REF! Class A: 2) TAIL SLURRY Yield (cf/sk) = 1.61 Weight (ppg)= 15.2 326.2 bbl 1137 sks TOC Tail = 6,209 ft MD	Lead Length: 6,209' (Surface to 200' above Upper Marcellus plus 10% in open hole) Tail Length: 7,249' (200' above Upper Marcellus to Shoe plus 10% in open hole)
Centralization * 2 Torq glider per jt from shoe to KOP * 1 single bow per 2 jt from KOP to surface	Horizontal Landing Point	6,404'		SLB Toe Sleeve assembly LC FC FS Lateral length = 7,054' 45ft Shoe Track				
	Berkett	6,404'						
	Tully	6,418'						
	5 1/2 "Casing	13,458'			8 1/2"			

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WW-9
(9/13)

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API Number 47 - _____ - _____
Operator's Well No. 3H

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 Moundsville, WV 7.5'

Elevation 1317' County Marshall District Washington

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 offsite 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

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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.

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

4705101780

Form WW-9

Operator's Well No. 3H

Chevron Appalachia, LLC

Proposed Revegetation Treatment: Acres Disturbed 19.5 Prevegetation pH 6.5-7.0

Lime 2,000 lb/ac Tons/acre or to correct to pH 6.5 to 7.0

Fertilizer type 10-20-20

Fertilizer amount 1,000 lbs/acre

Mulch 2 Tons/acre

Seed Mixtures

Temporary		Permanent	
Seed Type	lbs/acre	Seed Type	lbs/acre
Annual Ryegrass Mixture 10 lb per acre (3/1-5/15) and (8/16-4/30)		Kentucky 31 Frescue - 20 lb/ac Annual Rye Grass	
Barley or Oats (local seeds) 50 lb per acre (3/1-5/15)		Red Fescue (PENN LAWN) 20 lb/ac and 41 lb/ac	
Millet (Hungarian, German, or Japanese) 50 lb per acre (5/16-8/15)		Crownvetch 20 lb/ac Hard Fescue Mixture 63 lb/ac	
Cereal Rye or Cereal Wheat - 50 lb per acre (8/16-4/30)		Hard Fescue Mixture 63 lb/ac Annual Ryegrass (8/1-5/15) 7lb/ac (cut & fill slopes) Annual Ryegrass (8/1-5/15)12 lb/ac (all other areas) Weeping Lovegrass (5/15-8/1) 5lb/ac	

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: James Unlisbee

Comments: Occupied Dwelling located less than 625 feet from center of pad will require a Surface Owner Waiver recorded with County Clerk or DEP Variance and Permit Conditions.

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OCT 06 2014
WV Department of Environmental Protection

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

Field Reviewed? (✓) Yes ( ) No

4705101780

CHEVRON
APPALACHIA, LLC

West Virginia Well Site Safety Plan

Curry Site
Well 3H
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

Original: September 2012

Revised: June 2013

Revised: May 2014

RECEIVED
Office of Oil and Gas
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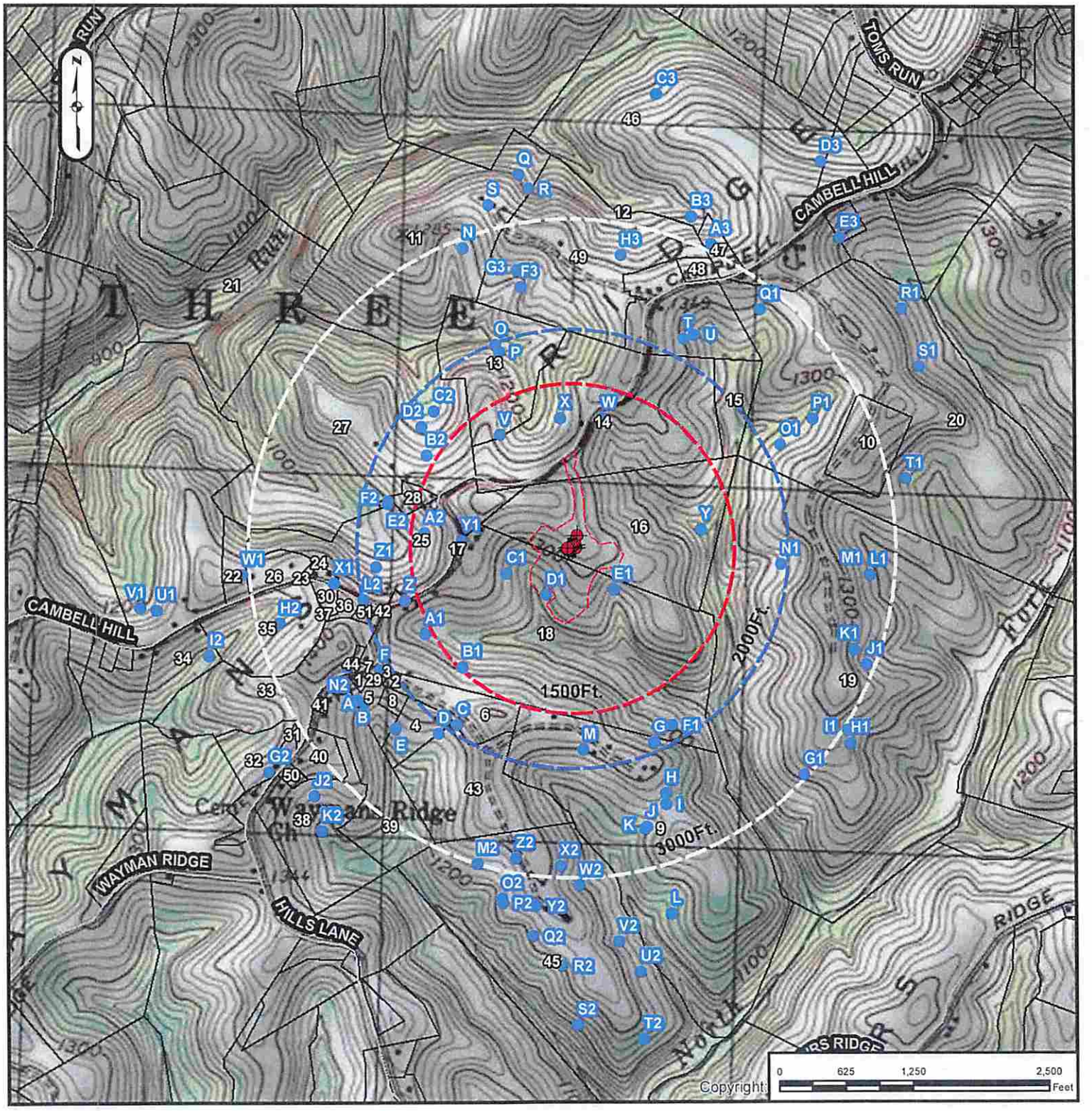
Environmental Protection

WATER SUPPLY EXHIBIT
CURRY

Date: 7/21/2014

4705101780

Blue Mountain Inc.

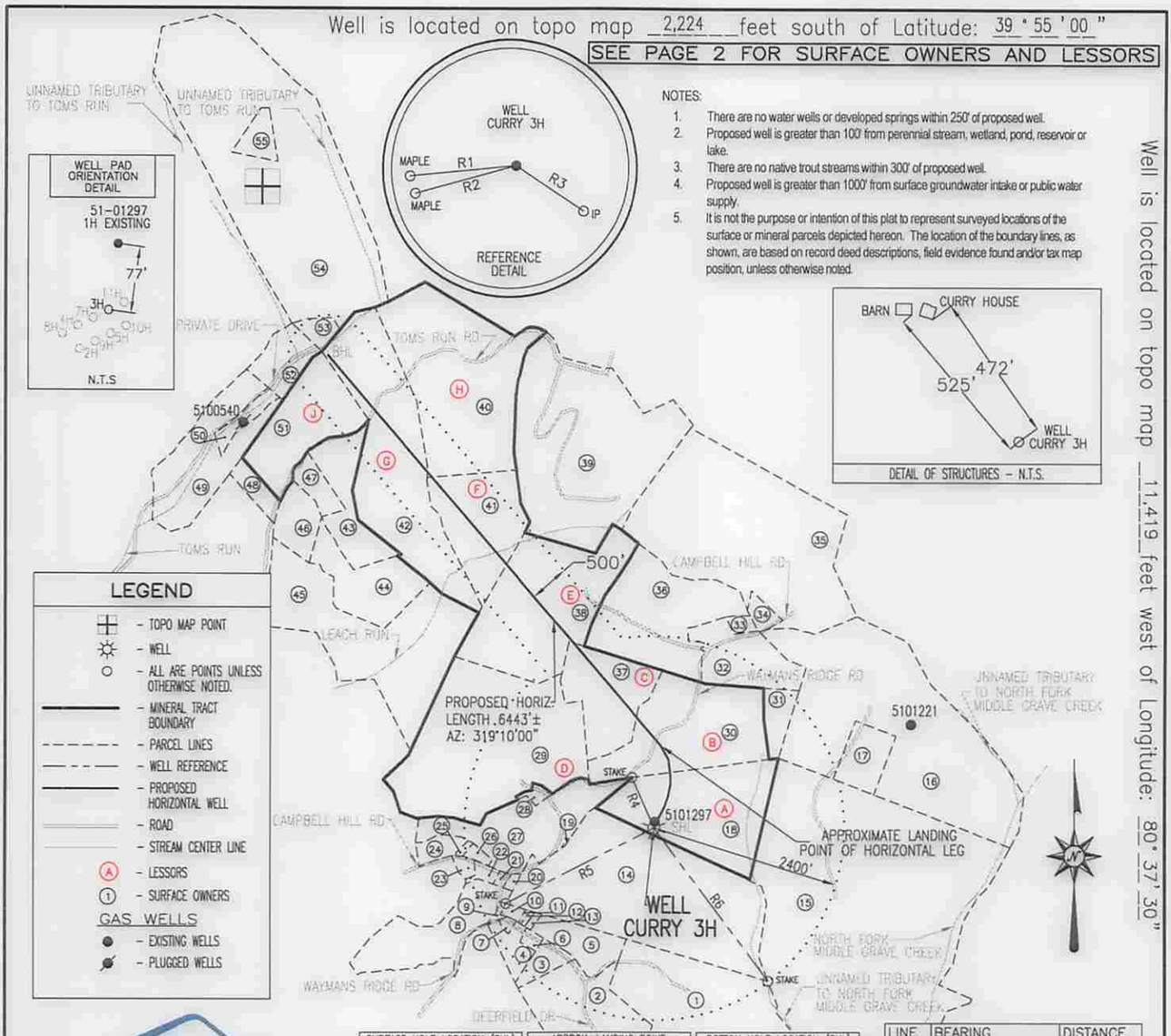


SURFACE OWNER:	JAMES E. CURRY	COUNTY:	MARSHALL
OIL/GAS OWNER:	JAMES E. CURRY	DISTRICT:	WASHINGTON
WELL OPERATOR:	CHEVRON APPALACHIA, LLC	SURVEYOR:	BLUE MOUNTAIN INC.
ADDRESS:	800 MOUNTAIN VIEW DRIVE SMITHFIELD, PA 15478	ADDRESS:	11023 MASON DIXON HIGHWAY BURTON, WV 26562
PHONE:	724-564-3700	PHONE:	304-662-6486

Well is located on topo map 2,224 feet south of Latitude: 39 ° 55 ' 00 "

SEE PAGE 2 FOR SURFACE OWNERS AND LESSORS

Well is located on topo map 11,419 feet west of Longitude: 80 ° 37 ' 30 "



LINE	BEARING	DISTANCE
R1	S 84°19'09" W	268.86'
R2	S 74°38'08" W	263.76'
R3	S 56°11'05" E	205.22'
R4	N 23°57'19" W	686.37'
R5	S 63°22'44" W	2096.90'
R6	S 37°07'00" E	2391.06'

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

SURFACE HOLE LOCATION (SHL)	APPROX. LANDING POINT	BOTTOM HOLE LOCATION (BHL)
UTM 17-NAD83(M)	UTM 17-NAD83(M)	UTM 17-NAD83(M)
N:4417821.554	N:4418135.89	N:4419599.44
E:528534.835	E:528554.84	E:527246.64
NAD83, WV NORTH	NAD83, WV NORTH	NAD83, WV NORTH
N:515692.430	N:516722.812	N:521597.241
E:1641384.251	E:1641467.139	E:1637254.573

FILE #: CURRY 3H

DRAWING #: CURRY 3H

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: _____

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

DATE: DECEMBER 18, 2014

OPERATOR'S WELL #: CURRY 3H

API WELL #: 47 (STATE) 51 (COUNTY) _____ (PERMIT)

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

WATERSHED: MIDDLE GRAVE CREEK-GRAVE CREEK ELEVATION: 1317.13'

COUNTY/DISTRICT: MARSHALL / WASHINGTON QUADRANGLE: MOUNDSVILLE, WV 7.5'

SURFACE OWNER: JAMES E. CURRY ACREAGE: 45.01±

OIL & GAS ROYALTY OWNER: JAMES E. CURRY ACREAGE: 441.205±

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: BURKETT ESTIMATED DEPTH: TVD: 6,372'± TMD: 13,425'±

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

CURRY

3H

PAGE 2 OF 2

SURFACE HOLE LOCATION (SHL)
UTM 17-NAD83(M)
N:4417821.554
E:528534.835
NAD83, WV NORTH
N:515692.430
E:1641384.251

APPROX. LANDING POINT
UTM 17-NAD83(M)
N:4418135.89
E:528554.84
NAD83, WV NORTH
N:516722.812
E:1641467.139

BOTTOM HOLE LOCATION (BHL)
UTM 17-NAD83(M)
N:4419599.44
E:527246.64
NAD83, WV NORTH
N:521597.241
E:1637254.573

	LESSOR	DIST-TM/PAR
A	JAMES E. CURRY	14-10/15
B	JAMES E. CURRY	14-10/13
C	DENNIS & MICHELLE S. BLAKE	14-10/12
D	MICHAEL T. & PENNY J. DAVIS	14-10/9
E	DENNIS & MICHELLE S. BLAKE	14-10/10
F	MARY LOU RUBINI	14-6/41.1
G	JOHN W. & MARY ALICE MILLER	14-10/3
H	JOHN W. & MARY ALICE MILLER	14-6/41
J	L. DEXTER & SANDRA L. COFFIELD	14-10/4.3
	SHERI L. EVRAETS, TRUSTEE OF THE SHERI L. EVRAETS FAMILY TRUST	

	SURFACE OWNER	DIST-TM/PAR
1	RAYMOND EUGENE FRANKLIN ET UX	14-11/9
2	DAVID LAWRENCE WILSON ET UX	14-11/8
3	DEBRA J. & RICHARD L. WAYT JR.	14-11/8.5
4	PATRICIA SUE HOSKINS	14-11/8.6
5	DAVID E. FRANKLIN	14-11/8.7
6	GREGORY SCOTT MCDONALD ET UX	14-11/8.9
7	MARY V. JAKO ET AL	14-11/8.2
8	ILA F. MOORE ET AL	14-11/6
9	ROBERT H. BOWMAN JR.	14-11/8.1
10	JOHN J. & BELINDA R. BAKER	14-11/8.8
11	RICHARD W. HYETT ET UX	14-11/17
12	RICHARD W. HYETT ET UX	14-11/8.4
13	RICHARD W. HYETT ET UX	14-11/8.3
14	JOSEPH MICHAEL CROW ET UX	14-10/17
15	JOHN J. HART ET UX	14-10/18
16	JOHN J. & RENEE A. HART	14-10/19.1
17	JOHN J. & RENEE A. HART	14-10/19
18	JAMES E. CURRY	14-10/15
19	JOSEPH MICHAEL CROW	14-10/16
20	DAVID E. HILL ET UX	14-11/7
21	DAVID E. HILL ET UX	14-11/6.10
22	DENNIS C. FISHER ET UX	14-11/6.4
23	DENNIS CLYDE FISHER	14-11/18
24	RICHARD E. HITT	14-10/8.3
25	VALLIE JAMES WEST	14-10/8
26	VALLIE JAMES WEST	14-10/8.1
27	DAVID L. BLAKE	14-10/8.2
28	FREDA ELIZABETH BLAKE	14-10/9.1
29	MICHAEL T. DAVIS	14-10/9
30	JAMES E. CURRY	14-10/13
31	JOHN J. HART ET UX	14-10/14
32	JOHN J. II & JENNA E. HART	14-10/11
33	JAMES E. BLAKE	14-10/11.1
34	JOHN J. HART ET UX	14-6/36
35	CARL W. & BRIDGETT L. YOHO	14-6/35
36	DENNIS & MICHELLE S. BLAKE	14-10/11.3
37	DENNIS BLAKE ET UX	14-10/12
38	DENNIS BLAKE ET UX	14-10/10
39	JEFFREY L. & JANET L. ALLEN	14-6/37
40	JOHN W. & MARY ALICE MILLER	14-6/41
41	MARY LOU RUBINI	14-6/41.1
42	JOHN W. & MARY ALICE MILLER	14-10/3
43	JOHN W. & MARY ALICE MILLER	14-10/4.8
44	JOHN W. & MARY ALICE MILLER	14-10/4.7
45	JOHN W. & MARY ALICE MILLER	14-10/4.6
46	AARON ALLEN STRAIGHT	14-10/4.5
47	JOSEPH D. STRAIGHT	14-10/4
48	RANDALL E. & CHARLOTTE REXROAD	14-10/4.4
49	JOHN W. & MARY ALICE MILLER	14-9/24
50	DANNIE J. RUZA SR.	14-9/24.1
51	BRUCE M. STRAIGHT	14-10/4.3
52	DANNIE J. RUZA SR.	14-10/1
53	DANNIE J. RUZA SR.	14-10/2
54	WILLIAM H. III & LINDA BARDALL	14-7/42
55	WHEELING POWER CO.	14-7/42.1

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

DECEMBER 18, 2014