

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

September 26, 2014

WELL WORK PERMIT Horizontal 6A Well

This permit, API Well Number: 47-9101309, issued to PDC MOUNTAINEER 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: VELTRI 4HM

Farm Name: VELTRI, ANTHONY J.

API Well Number: 47-9101309

Permit Type: Horizontal 6A Well

Date Issued: 09/26/2014

API Number: 91-01309

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. <u>Failure to adhere to the specified permit conditions may result in enforcement action.</u>

CONDITIONS

- 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.

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

			91	2	318
1) Well Operator: PDC Me	ountaineer, LLC.	494494839	Taylor	Courthouse	Grafton 7.5'
THE CANADAN STATE		Operator ID	County	District	Quadrangle
2) Operator's Well Number:	: 4 HM	Well P	ad Name: Ve	eltri	
3) Farm Name/Surface Own	ner: Anthony J. Veltr	Public Ro	oad Access: US	S Rt 119 & 25	0
4) Elevation, current ground	I: 1476' E	levation, propose	d post-construc	tion: 1474'	
5) Well Type (a) Gas	Oil _	Un	derground Stor	age	
Other					
(b)If Gas	Shallow	Deep			
	Horizontal =				
6) Existing Pad: Yes or No		b v. valueni	-		
7) Proposed Target Formation		시간 시간에 어떻게 하십시다. 기원			
Marcellus Shale / TVD to La	anding Zone is 7982' / T	hickness = 100' / P	ressure: (7982' >	0.42 psi/ft = 3	060 psi)
8) Proposed Total Vertical I	Depth: 7982'				
9) Formation at Total Vertic	cal Depth: Marcellus				
10) Proposed Total Measure	ed Depth: 17,640'				
11) Proposed Horizontal Le	g Length: 9,175'				
12) Approximate Fresh Wat	er Strata Depths:	125', 179', 350', 8	k 525'		
13) Method to Determine Fr	resh Water Depths:	Offset wells: 47-09	1-00825, 00826,	00949, & 0099	1.
14) Approximate Saltwater	Depths: 2012' (If pre	esent).			
15) Approximate Coal Sean	Depths: 144', 298',	631', 875'			
16) Approximate Depth to F	ossible Void (coal m	ine, karst, other):	Not Known		V
17) Does Proposed well loca directly overlying or adjacer		yes	N	lo 🗸	
() 10 V	Con Nilson				CEIVED
(a) If Yes, provide Mine In				Office of	Oil and Gas
	Depth:				0 3 2014
	Seam:		_		
	Owner.			MAD	epartment of nental Protect
				Touronn	iental i lotos

WW-6B (9/13)

18)

CASING AND TUBING PROGRAM

091-01309

TYPE	Size	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling	INTERVALS: Left in Well	CEMENT: Fill-up (Cu. Ft.)
Conductor	20"	N	H-40	94 lb.	70'	70'	Cement to Surface
Fresh Water	13 3/8"	N	H-40	48 lb.	575'	575'	Cement to Surface
Coal							
Intermediate	9 5/8"	N	J-55	40 lb.	2,700'	2,700'	Cement to Surface
Production	5 1/2"	N	P-110	20 lb	17,640'	17,640'	3,824 minimum
Tubing							
Liners							

Lemost I. Lupuste.

TYPE	Size	Wellbore Diameter	Wall Thickness	Burst Pressure	Cement Type	Cement Yield (cu. ft./k)
Conductor	20"	24"	.756	1,500	1	1.06
Fresh Water	13 3/8"	17 1/2"	.66	1,730	1	1.36
Coal						
Intermediate	9 5/8"	12 1/4"	.790	3,950	1	1.38
Production	5 1/2"	8 1/2" / 8 3/4"	.722	12,640	Н	1.18
Tubing						
Liners						- A

PACKERS

Kind:		
Sizes:		
Depths Set:		

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WV Department of Environmental Protection WW-6B (9/13)

19) Describe proposed well work, including the drilling and plugging back of any pilot hole:
Drill and Complete a horizontal Marcellus Shale well following all State and Federal guidelines. All casing will be new and the production casing will be cemented a minimum of 100' into the intermediate casing if it is not cemented to the surface.
20) Describe fracturing/stimulating methods in detail, including anticipated max pressure and max rate:
Slickwater frac, pumping 85 BBL/min. maximum. Each stage to be comprised of approximately 10,000 BBL of water and 400,000 lbs of sand. Maximum pressure of 9000 psi
21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres):
22) Area to be disturbed for well pad only, less access road (acres): 3.36 acres
23) Describe centralizer placement for each casing string:
Conductor: None Surface: 1 every 90' of pipe and a basket Intermediate: 1 every 7 joints and a basket Production: 1 every 12 Joints in the vertical section, then 1 every 2 joints in the horizontal section
24) Describe all cement additives associated with each cement type:
See attached sheet.
25) Proposed borehole conditioning procedures:
Surface and intermediate holes are cleaned with air. Production hole is circulated with weighted drilling out of hours with high viscosity sweeps ran intermittently.
: JUL 0 8 2014
WV Department of Environmental Protection

*Note: Attach additional sheets as needed.



PDC Mountaineer, LLC 120 Genesis Boulevard, PO Box 26 Bridgeport, WV 26330

304-842-3597 304-808-0913 (fax)

CEMENT ADDITIVES ASSOCIATED WITH EACH CEMENT TYPE:

SURFACE: Type 1 cement + 2% CaCl + 0.25 pps Cello Flake

INTERMEDIATE: Pre-Flush Mud Clean 1

Type 1 cement + 2% CaCl + 0.25 pps Cello Flake

PRODUCTION: Pre-Flush Mud Clean 1

LEAD Class H cement + 0.1% bwoc R-3 + 0.25% bwoc CD-32 + 1.2% bwoc FL-62 + 0.1% bwoc ASA-301 + 0.4% bwoc Sodium Metasilicate + 50.5% fresh water TAIL Type 1 cement + 0.4% bwoc R-3 + 0.3% bwoc CD-32 + 1% bwoc FL-62

+ 0.15% bwoc ASA-301 + 50.5% fresh water

ADDITIVES:

CaCl (Calcium Chloride)= Accelerator Cello Flake= Lost circulation control agent R-3= Retarder CD-32= Dispersant FL-62= Fluid loss control agent ASA-301 Sodium Metasillicate= Free water control & Solid suspension

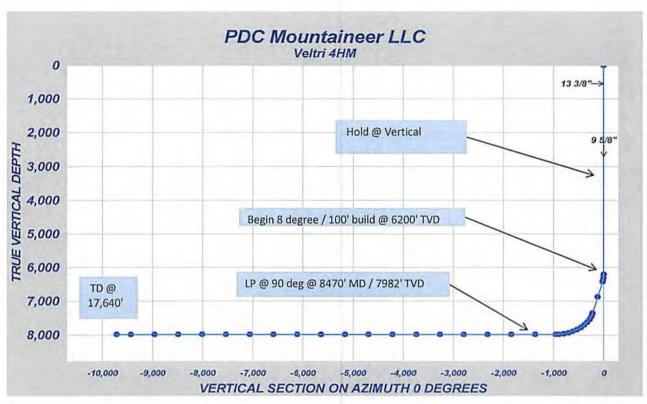
> RECEIVED Office of Oil and Gas

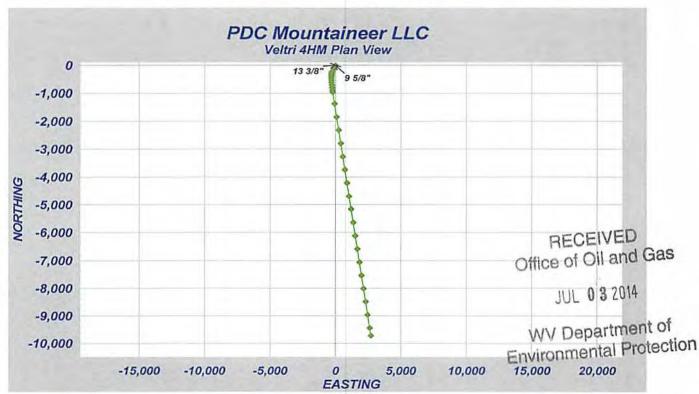
JUL 0 3 2014

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PDC Mountaineer LLC Veltri 4HM Well Plan Taylor County, WV







API Number 47 -	91	- 01309
Operator's	Wel	1 No. 4HM

09/26/2014

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name PLD Mountaineer, LLC	OP Code 494494839
Watershed (HUC 10) Berkley Run	Quadrangle Grafton
Elevation 1474 County Taylor	District Courthouse
Do you anticipate using more than 5,000 bbls of water to com Will a pit be used? Yes No No	plete the proposed well work? Yes No No
If so, please describe anticipated pit waste:	
Will a synthetic liner be used in the pit? Yes	No If so, what ml.? 60
Proposed Disposal Method For Treated Pit Wastes:	
Land Application Underground Injection (UIC Perm Reuse (at API Number To Be Determ	nined
Off Site Disposal (Supply form W Other (Explain	W-9 for disposal location)
Will closed loop system be used? If so, describe: Yes, cuttings	go into a half round where they will be solidified and hauled to Meadowfill.
Drilling medium anticipated for this well (vertical and horizon	ntal)? Air, freshwater, oil based, etc. Vertical-air; Horizontal-mud
-If oil based, what type? Synthetic, petroleum, etc. sy	nthetic
Additives to be used in drilling medium? Lime, perma-lose, xan-p	olex, super sweep, caustic soda, bar, x-cide.
Drill cuttings disposal method? Leave in pit, landfill, remove	d offsite, etc. Landfill
-If left in pit and plan to solidify what medium will b	e used? (cement, lime, sawdust) N/A
-Landfill or offsite name/permit number? Meadowill La	
on August 1, 2005, by the Office of Oil and Gas of the West \ provisions of the permit are enforceable by law. Violations law or regulation can lead to enforcement action. I certify under penalty of law that I have personal application form and all attachments thereto and that, bas	conditions of the GENERAL WATER POLLUTION PERMIT issued Virginia Department of Environmental Protection. I understand that the of any term or condition of the general permit and/or other applicable by examined and am familiar with the information submitted on this ed on my inquiry of those individuals in the expensible for true, accurate, and complete. Lam aware that there are significant billity of fine or imprisonment.
Company Official Signature Loven P. Jo	husen SEP 2 3 2014
Company Official (Typed Name) Steven P. Johnson	VE1
Company Official Title Agent	WV Department of Environmental Protection
Subscribed and sworn before me this 33 no day of day of My commission expires Weccouler	SEPTEMBER OFFICIAL SEAL STATE OF WEST VIRGINIA NOTATY FULLIC MARK J. KING 183 DEER CREEK LANE BUCKHANNON, WV 26201 My commission expires December 21, 2020

Form WW-9 Operator's Well No. Veltri 4HM PDC Mountaineer, LLC Prevegetation pH 5.9 Proposed Revegetation Treatment: Acres Disturbed 14.4 Tons/acre or to correct to pH 10-20-20 Fertilizer type Fertilizer amount at least 500 lbs/acre Mulch 2 - 3 Tons/acre Seed Mixtures Temporary Permanent Seed Type Seed Type lbs/acre lbs/acre **Timothy Grass Timothy Grass** 40 40 12 **Orchard Grass** 12 Orchard Grass Redtop Clover 5 Redtop Clover 5 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. Towned Shayalch REGEIVED Office of Oil and Gas JUL 0 3 2014 Title: OCA CAS INSPECTION Date: 6-23-14 WV Department of Environmental Protection Field Reviewed?

Disposal Well Information Sheet (Includes Lat./Long., Operator, and API#)

Disposal Woll Name
Ohio Oil Gathering Corp Beils Rug
Long Run Disposal Well
Newell Run Disposal Well
BW #4
Greens Run
The K&H Well

Operator Ohio Oil Gathering Corp. Ohio Oil Gathering Corp. Ohio Oil Gathering Corp. Appalachian Oil Purchasers Appalachian Oil Purchasers	API Well !! 34-167-2-9395 34-167-2-9658 34-167-2-6385 47-073-02523 47-073-02540	State OH OH VVV WV	County Washington Washington Washington Pleasants Pleasants	rWP Newport Newport Newpore	Lat. 39.387 39.391 39.399 39.372	Lon. -81.289 -81.317 -81.273 -81.247
Central Environmental	34-009-2-3821	ОН	Athens	Troy	19,336	-97.135

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Disposal Well Name
Ohlo Oil Gathering Corp Beils Rur
Long Run Disposal Well
Newell Run Disposal Well
BW #4
Greens Run
The K&H Well

Oparator Ohio Oil Gathering Corp. Ohio Oil Gathering Corp. Ohio Oil Gathering Corp. Appalachian Oil Purchasers Appalachian Oil Purchasers Central Environmental	API Well # 34-167-2-9395 34-167-2-9658 34-167-2-6385 47-073-02523 47-073-02540 34-009-2-3821	State OH OH OH VVV WV OH	County Washington Washington Washington Pleasants Pleasants Athens	rWP Newport Newport Newport	Lat. 5 Lon. 39.387 Q D. 81.389 39.399 W - 6.1.697 39.399 W - 6.1.697 39.372 O 0 81.347 39.236
Central Environmental	34-009-2-3811	OH	Athens	Troy	39.236 — 381.759 E

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Vendor Schlumberger XCHEM	Product 100-mesh Sand 30/50 mesh sand 40/70 mesh sand Corrosion Inhibitor Surfactant HCL Gelling Agent Friction Reducer Iron Stabilizer Scale Inhibitor Bleach	Code Number \$100 \$012-3050 \$012-4070 A264 F108 H028 J590 J609 L058 TS-30 449610	Component Crystalline silica Crystalline silica Crystalline silica Methanol Prop-2-yn-1-ol Methanol Hydrochloric Acid Propan-2-ol Ammonium sulfate Sodium erthorbate Sodium polycarboxylate Sodium chloride Sodium Hypochlorite Sodium chlorite	CAS-NO. 14808-60-7 14808-60-7 14808-60-7 67-56-1 107-19-7 67-56-1 7647-01-0 67-63-0 7783-20-2 6381-77-7 ND 7647-14-5 1310-73-2 7681-52-9 7758-19-2
XCHEM	Chlorite	White area gares		

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Ad

Topo Quad:	Grafton	Scale:	1 " = 50	0'
County:	Taylor	Date:	July 1, 2	2014
District:	Courthouse	Project No	:153-13-	·C-13
PDC Veltri Pad Wells 1HM, 2HM, 3HM, 4HM, 5HM, 6HM				
48.51 Ac. O Mark Wayne & Judy Ela Neal PO Box 144 Walton, WV 25286 18 Ac. 25 Acs. Thomas R. Sheme Jr. RR 2 Box 423A Grafton, WV 26354	aine	1 Potentia	179	Anthony J. Veltri O RR 2 Box 416 Grafton, WV 26354 46 Ac.
18.36 Acs. Thomas R. Sheme Jr. RR 2 Box 423A Grafton VW 26354		I PDC	Veltri Pad	35 26.5 Acc
R	mas R. Sheme Jr. RR 2 Box 423A afton, WV 26354 30 148.37 Acs.	0 11500000 130	omae R. Sheme Jr. RR 2 Box 423A Grafton, WV 26354 GI.56 Acs.	26.5 Acs. Jeffrey Minary RR 2 Box 426 Grafton, WV/26354 NAD 27 North Zone N: 282,836.88 E: 1,842,559.82 WGS 84 ↓AT: 39/275311 TON: 80,8556336 Efev: 1474'
EGHE 1	SURVEYING AND MAPPING SERVICES PERFORMED B ALLEGHENY SURVEYS 1-800-482-8606 P.O. BOX 438 BIRCH RIVER, WV 26610 PH: (304) 649-8606 FAX: (304) 649-8608	K. P. Lander	PREPARED FOR: PDC Mo 120 & Bridge Env	JUL 0 8 2014 Funtaineer 164 Cof ANA DECRETARY TO THE CTIO

