

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

PERMIT MODIFICATION APPROVAL

November 06, 2015

ASCENT RESOURCES-MARCELLUS, LLC 3501 NW 63RD STREET OKLAHOMA, OK 73116

Re: Permit Modification Approval for API Number 10303100, Well #: WILEY N GRN WZ 3H

Acquired additional leases/Extending lateral

Oil and Gas Operator:

The Office of Oil and Gas has reviewed the attached permit modification for the above referenced permit. The attached modification has been approved and well work may begin. Please be reminded that the oil and gas inspector is to be notified twenty-four (24) hours before permitted well work is commenced.

Please call James Martin at 304-926-0499, extension 1654 if you have any questions.

Sincerely, Laura L. Aolkens

Gene Smith

Assistant Chief of Permitting

Office of Oil and Gas

API NO. 47- 103 - 03/60 MOD OPERATOR WELL NO. Wiley N GRN WZ 3H

Well Pad Name: Wiley GRN WZ

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

1) Well Operator: Ascent Resources-Marcel		Wetzel	Green	Center Point
	Operator ID	County	District	Quadrangle
2) Operator's Well Number: Wiley N GRN WZ	3H Well Pad	Name: Wiley	GRN WZ	
3) Farm Name/Surface Owner: Coastal Lumbe	er Co. Public Road	d Access: CR	13. CR 13	/3 and CR 13/8
4) Elevation, current ground: 1315'	levation, proposed j	ost-construction	on: 1286.2	29'
5) Well Type (a) Gas X Oil X	Unde	rground Storag	je	
Other				
(b)If Gas Shallow X	Deep			
Horizontal X				
6) Existing Pad: Yes or No No				
7) Proposed Target Formation(s), Depth(s), Anti-	•		Pressure(s):	:
Marcellus, Approximate TVD 7273', approximate	e thickness 50', +/- 4	600 psi		
8) Proposed Total Vertical Depth: 7273'				
9) Formation at Total Vertical Depth: Marcellu	S			
10) Proposed Total Measured Depth: 13600'				
11) Proposed Horizontal Leg Length: 6074'				
12) Approximate Fresh Water Strata Depths:	535'			
13) Method to Determine Fresh Water Depths:	Based on drilling h	nistory in nearl	oy wells	
14) Approximate Saltwater Depths: 1315'				
15) Approximate Coal Seam Depths: 1065'				
16) Approximate Depth to Possible Void (coal m	ine, karst, other):	None anticipat	ed	
17) Does Proposed well location contain coal sea directly overlying or adjacent to an active mine?	Yes	No	X	
(a) If Yes, provide Mine Info: Name:				
Depth:				
Seam:			REC	CEIVED
Owner:				Oil and Gas

SEP **03** 2015

OPERATOR WELL NO. Wiley N GRN WZ 3H
Well Pad Name: Wiley GRN WZ

18)

CASING AND TUBING PROGRAM

ТҮРЕ	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
Conductor	20"	New	J-55	94#	100'	100'	330, CTS
Fresh Water	13-3/8"	New	J-55	54.5#	1105'	1105'	320, CTS
Coal							
Intermediate	9-5/8"	New	J-55	40#	3400'	3400'	1650, CTS
Production	5-1/2"	New	P-110	20#	13600'	13600'	4375
Tubing	2-7/8"	New	N-80	4.7#			
Liners						-	

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Max. Associated Surface Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	20"	24"	0.438	2110	50	Class A	1.2
Fresh Water	13-3/8"	17-1/2"	0.38	2740	600	Class A	1.2
Coal							
Intermediate	9-5/8"	12-1/4"	0.395	3520	1500	Premium H/50-50 Poz H	Tail 1.27, Lead 1.51
Production	5-1/2"	8-3/4"	0.361	12640	5000	Premium H/50-50 Poz H	Tail 1.27, Lead 1.51
Tubing	2-7/8"	4.778"	0.19	11100			
Liners							

PACKERS

Kind:			
Sizes:			
Depths Set:			RECEIVED
		0	flice or Charles

SEP 03 2015

WW-6B (10/14) API NO. 47- 103 - 03100 Have OPERATOR WELL NO. Wiley N GRN WZ 3H

Well Pad Name: Wiley GRN WZ

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

The well will be spud using a conductor rig. It will drill down 100' per the casing program. It will set 20" casing and circulate cement back to surface. The conductor rig will move off location, a rig capable of drilling to TD will move on and finish drilling the well. We will drill on air with a tri-cone bit to 1105' and set freshwater casing. We will then continue drilling vertically and setting casing per the attached casing program to TD.

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

We plan to hydraulically fracture/stimulate the well utilizing the "slickwater" frac technique. We will plug and perforate through cased hole and frac with an anticipated max pressure that will not exceed 10,000 psi.

- 21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 42.3
- 22) Area to be disturbed for well pad only, less access road (acres): 6.8
- 23) Describe centralizer placement for each casing string:

Conductor: N/A

Surface: Centralizer every 3 joints or 120' Intermediate: Centralizer every 3 joints or 120'

Production: Run 1 spiral centralizer every 120' from the first 5.5" long joint to the top of the curve

Run 1 spiral centralizer every 200' from the top of the curve to surface

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

Conductor: Class A Cement (see attachment for complete description)
Surface: Class A Cement (see attachment for complete description)

Intermediate: Premium H/50-50 Poz H Cement (see attachment for complete description) Productions: Premium H/50-50 Poz H Cement (see attachment for complete description)

25) Proposed borehole conditioning procedures:

The wellbore will be properly circulated at TD of each section until as much of the residual drill cuttings have been removed from the wellbore as possible, residual drilling gas has been circulated out and until the mud and wellbore are both constant and stable. Mud properties will be adjusted if needed. Hole cleaning times may vary from well to well, hole section to hole section.

*Note: Attach additional sheets as needed.

Cement Additives for WW-6B

Class A – Neat + 2% BWOC Calcium + Chloride + .25% BWOC Flo-Seal Additives are Polyflake LCM

Class H Premium + 0.75% FI 17 + 0.1% C41P + 0.15%C45 +3pps gilsonite + 0.2% C20 Additives are FL-17, C41-P, C-45, Gilsoite, and C-20

50/50 Poz H + 0.5 %FL 17 +5% Gyp + 0.1%C41P + 0.15% C51 + 0.1% C20 Additives are FL-17, Gypsum, C41-P, C-51, and C-20

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Office of Charles Gas

SEP 0 3 23/5

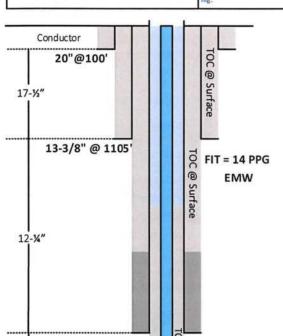
WV Department of Environmental Protection

11/06/2015

103-0310040N



		Wil	ey N GF	RN WZ 3H		•
County, State	C	Township:	Lo cation:		Formation:	
Wetzel,	, West Virginia	Grant				Marcellus
Coord inates:	SHL Lat/Long:	39.509383 N, 80	.692043 W	RKB / Elevation:	AFE DC/CWC:	
NAD 27	BHL Lat/Long:				USDW:	Property #:
Rie:	*	Target line: 7.3	73' TVD @ 0' V	S 90 5 Inc 330 Azi	535'	AFF #



FIT = 15 PPG **EMW**

9-5/8" @ 3,400'

Casing Design									
Interval	Hole size (In)	Size (In)	Weight #/ft	Grade	Conn.	Collapse (PSI)	Burst (PSI)	Depth (ft)	Cost \$/ft
Conductor	26"	20"	-		-	-	-	100	
Surface	17-1/2*	13-3/8"	54.5	1-55	BTC	1,130	2,740	1,105	36
Intermediate	12-1/4"	9-5/8"	36	J-55	LTC	2,020	3,520	3,400	22
Production	8-3/4"	5-1/2"	20	P-110	ULT-DOX	11,110	12,540	13,600	22

Cement Design							
Interval	Slurry	Weight	Ft ³	Yelld	Excess	Cement Top	
Conducor	Tall	15.6 ppg	330	1.20 cuft/sk	50%	Surface	
Surface	Tall	15.6 ppg	320	1.20 cuft/sk	50%	Surface	
Intermediate	Lead	13.5 ppg	250	1.51 cuft/sk	30%	Surface	
intermediate	Tall	15.3 ppg	1150	1.27 cuft/sk	30%	700	
Dradustian	Lead	13.5 ppg	1000	1.51 cuft/sk	100/	2500	
Production	Tall	15.3 ppg	1250	1.27 cuft/sk	10%	6300	

	Informat	
Formation	TVD	Sub Sea
Freshwater	535'	780
Pittsburgh Coal	1,065	250'
Saltwater	1,315	*
BigInjun	2,355'	-1,040
Big Injun Base	2,555	-1,240
Berea	2,915	-1,600
Gordon	3,135'	-1,820
Gordon Base	3,220	-1,905
Middlesex	6,948'	-5,633
Geneseo	7,091	-5,776
Tully	7,119	-5,804
Hamilton	7,143	-5,828
Office Marcellus	17,231 d	-5,916
Purcell	7,238'	-5,923
Lower Marcellus	7,240	-5,925
Basal Marcellus	7,263	-5,948'
1/1/ Onondaga	7,2810	-5,966
Oriskany	Distant	ion

8-3/4" Curve and Lateral

13.600':

Target Line: 7,273' TVD @ 0' VS, 90.5° Inc, 330° Azi

Mud up @ 6,600' 10.0 ppg mud with 12 #/bb1LCM

Kick Off Point

					Drilli	ng Fluids Infor	mation			Office	e of O	ii and	i Gas	5
	AIRINT	ERVALS					SY	NTHETICOL	L BASED MUD	INTERVAL				
Interval	Depth (MD)	Rate (cfpm)	Water (bbl/hr)	Foamer (gal/hr)	Interval	Depth (MD)	Weight (#/gal)	Viscosity (sec/qt)	HTHP (ml/30min)	PV (cps)	SEP 1	& RPM	WP5 ppm	OWR % by vo
Surface	0"-1105"	>5000	30-50	1/2 -3/4	Vertical	6,600*-6,728*	10.0 - 10.5	50-60	4-6	18-24	10-12	6-9	150K	75:25
Intermediate	1105'-3,400'	>5000	30-50	1/2 -3/4	Curve	6,728'-7,628'	10.5 - 13.5	50-60	4-6	18-24	10-12	6-9	180K	70:30
Vert/Nudge	3,400'-6,600"	>5000	40-60	3/4-1	Lateral	7,628'-13,600'	13.5 - 13.7	50-60	4-6	18-24	10-12	6-1	106/2	1015

W	W٠	-6	A1
(5/	13)	

Operator's Well No.	Wiley N GRN WZ 3H
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INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE Chapter 22, Article 6A, Section 5(a)(5) IN LIEU OF FILING LEASE(S) AND OTHER CONTINUING CONTRACT(S)

Under the oath required to make the verification on page 1 of this Notice and Application, I depose and say that I am the person who signed the Notice and Application for the Applicant, and that –

- (1) the tract of land is the same tract described in this Application, partly or wholly depicted in the accompanying plat, and described in the Construction and Reclamation Plan;
- (2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

Lease Name or				
Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page

Please see attached.

Acknowledgement of Possible Permitting/Approval In Addition to the Office of Oil and Gas

The permit applicant for the proposed well work addressed in this application hereby acknowledges the possibility of the need for permits and/or approvals from local, state, or federal entities in addition to the DEP, Office of Oil and Gas, including but not limited to the following:

- WV Division of Water and Waste Management
- WV Division of Natural Resources WV Division of Highways
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- County Floodplain Coordinator

The applicant further acknowledges that any Office of Oil and Gas permit in no way overrides, replaces, or nullifies the need for other permits/approvals that may be necessary and further affirms that all needed permits/approvals should be acquired from the appropriate authority before the affected activity is initiated.

Well Operator: Ascend Resources - Marcellus, LLC ECEIVED

By:

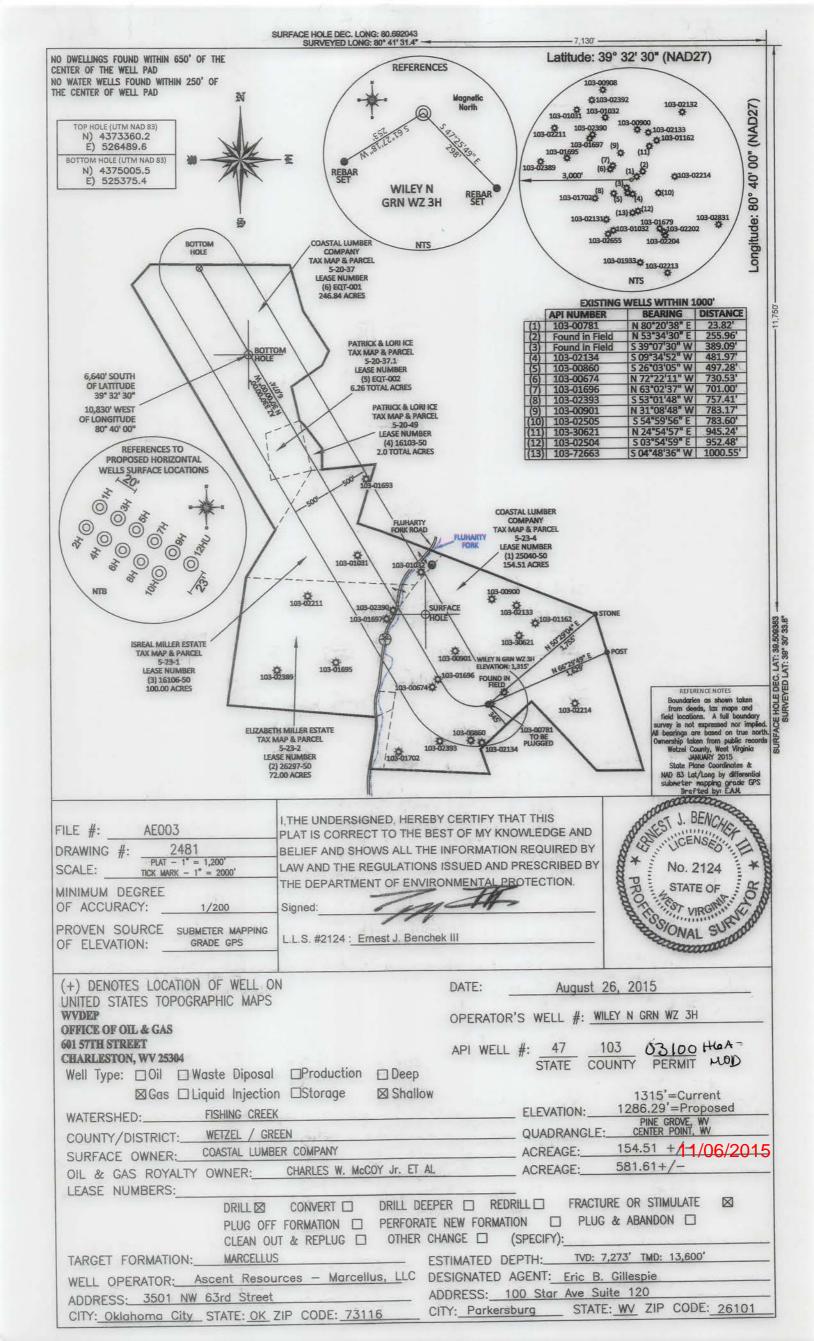
Its: Regulatory Technician

SEP 0 3 2015

SEP 0 3 2015

MV. Preparament of Environmental Protection

11/06/2015



WW-6A1

Operator's Well No.

Wiley N GRN WZ 3H

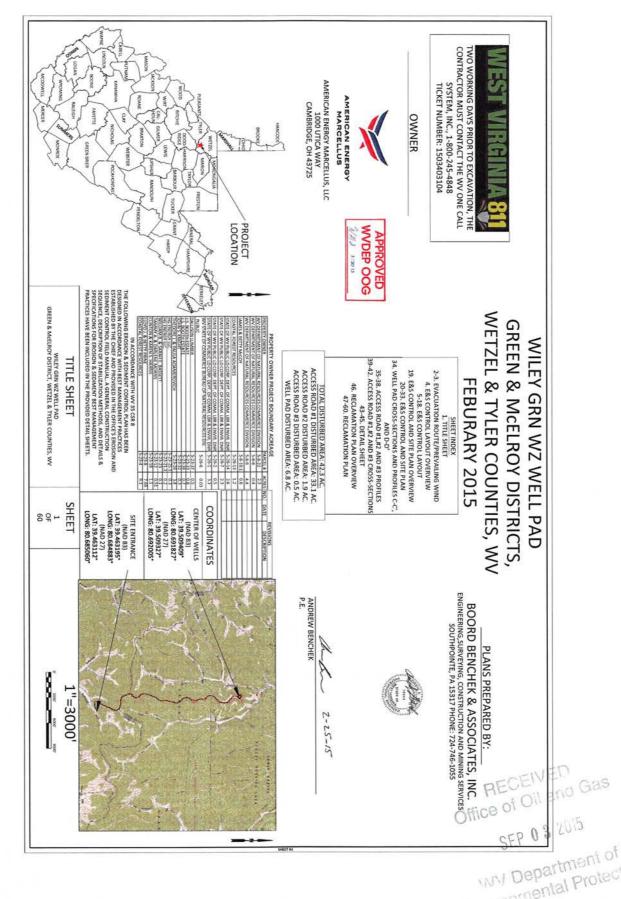
INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE Chapter 22, Article 6A, Section 5(a)(5)

IN LIEU OF FILING LEASE(S) AND OTHER CONTINUING CONTRACT(S)

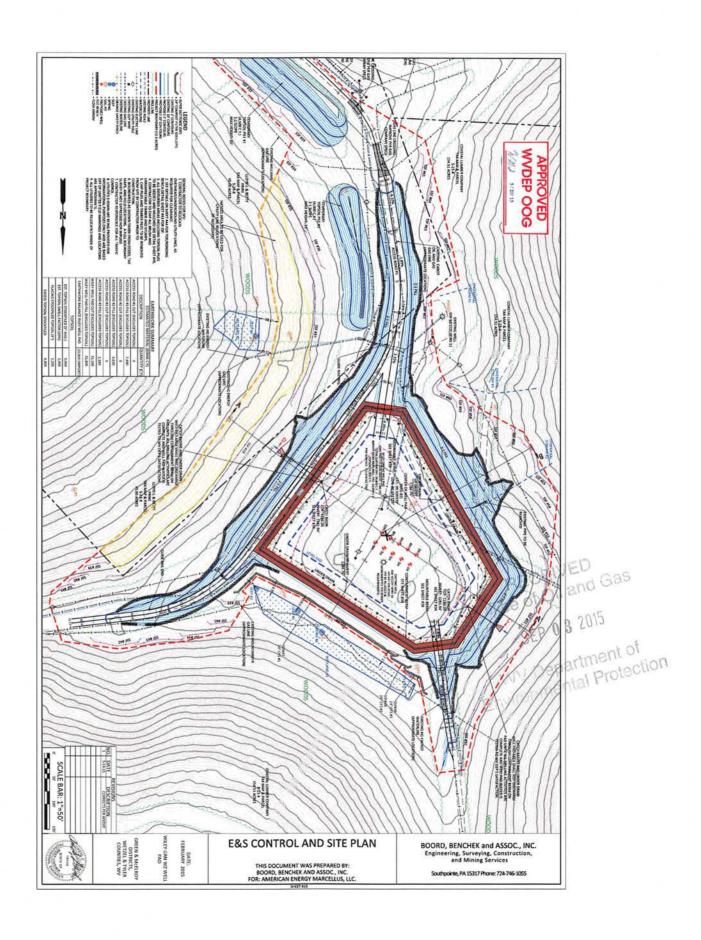
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(1) the tract of land is the same tract described in this Application, partly or wholly depcited in the accompanying plat, and described in the Construction and Reclamation Plan;
(2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

	Parcel No.	Fee/Lease No.	Lessor/Assignor	Lessee/Assignee	Royalty/Instrument	Book/Page
_	5-23-4	25040-50	John R. McCoy etal	J.F. Guffey	1/8	48/445
	3234	23040-30	J.F. Guffey	W.M. Graham	Assignment	56/286
			W.M. Graham	W.H. Nimick	Assignment	56/288
			W.H.Nimick	South Penn Oil Company	Assignment	49/268
			South Penn Oil Company	South Penn Natural Gas Company	Assignment	33A/455
			South Penn Natural Gas Company	South Penn Oil Company	Assignment	215/478
_	P		South Penn Oil Company	Pennzoil Company	Cert. of Name Change	WV Sec. of State rec
	/		Pennzoil Company	Pennzoil United, Inc.	Assignment	246/491
	V		Pennzoil United, Inc.	Pennzoil Company	Cert. of Name Change	WV Sec. of State rec
			Pennzoil Company	Pennzoil Products Company	Assn. & Supp. Assn.	319/397 & 322/57
			Pennzoil Products Company	Pennzoil Exploration and Production Company	Assignment	363/384
			Pennzoil Exploration and Production Company	PennzEnergy Exploration and Production, L.L.C.	Cert. of Merger	12/177
	7 7		PennzEnergy Exploration and Production, L.L.C.	Devon Energy Production Company, L.P.	Cert. of Merger	12/278
			Devon Energy Production Company, L.P.	East Resources, Inc.	Assignment	370/580
			East Resources, Inc.	HG Energy, LLC	Assignment	118A/253
			East Resources, Inc. and HG Energy, LLC	American Energy - Marcellus, LLC	Assignment	153A/238
			American Energy - Marcellus, LLC	Ascent Resources - Marcellus, LLC		
			American Energy - Marcellus, LLC	Ascent Resources - Marcellus, LLC	Cert, of Name Change	WV Sec. of State rec
	5-23-2	26297-50	Israel Miller, gdn for John W. Miller and Jacob Miller	South Penn Oil Company	1/8	53/200
			South Penn Oil Company	South Penn Natural Gas Company	Assignment	33A/455
			South Penn Natural Gas Company	South Penn Oil Company	Assignment	215/478
			South Penn Oil Company	Pennzoil Company	Cert. of Name Change	WV Sec. of State re
			Pennzoil Company	Pennzoil United, Inc.	Assignment	246/491
			Pennzoil United, Inc.	Pennzoil Company	Cert. of Name Change	WV Sec. of State re
			Pennzoil Company	Pennzoil Products Company	Assn. & Supp. Assn.	319/397 & 322/5
			Pennzoil Products Company	Pennzoil Exploration and Production Company	Assignment	
			Pennzoil Exploration and Production Company	Pennzen Exploration and Production Company PennzEnergy Exploration and Production, L.L.C.	Cert. of Merger	363/384 12/177
_			PennzEnergy Exploration and Production, L.L.C.	Devon Energy Production Company, L.P.	Cert. of Merger	
_			Devon Energy Production Company, L.P.	East Resources, Inc.		12/278
_			East Resources, Inc.		Assignment	370/580
_				HG Energy, LLC	Assignment	118A/253
_			East Resources, Inc. and HG Energy, LLC	American Energy - Marcellus, LLC	Assignment	153A/238
_			American Energy - Marcellus, LLC	Ascent Resources - Marcellus, LLC	Cert. of Name Change	WV Sec. of State re
	5-23-1	16106-50	Israel and Elizabeth Miller	South Penn Oil Company	1/8	49/52
_	3131	10100-30	South Penn Oil Company	South Penn Natural Gas Company	Assignment	33A/455
_						
-	-		South Penn Natural Gas Company	South Penn Oil Company	Assignment	215/478
_			South Penn Oil Company	Pennzoil Company	Cert. of Name Change	WV Sec. of State re
_			Pennzoil Company	Pennzoil United, Inc.	Assignment	246/491
_			Pennzoil United, Inc.	Pennzoil Company	Cert. of Name Change	WV Sec. of State re
_			Pennzoil Company	Pennzoil Products Company	Assn. & Supp. Assn.	319/397 & 322/5
			Pennzoil Products Company	Pennzoil Exploration and Production Company	Assignment	363/384
			Pennzoil Exploration and Production Company	PennzEnergy Exploration and Production, L.L.C.	Cert. of Merger	12/177
			PennzEnergy Exploration and Production, L.L.C.	Devon Energy Production Company, L.P.	Cert. of Merger	12/278
			Devon Energy Production Company, L.P.	East Resources, Inc.	Assignment	370/580
			East Resources, Inc.	HG Energy, LLC	Assignment	118A/253
			East Resources, Inc. and HG Energy, LLC	American Energy - Marcellus, LLC	Assignment	153A/238
			American Energy - Marcellus, LLC	Ascent Resources - Marcellus, LLC	Cert. of Name Change	WV Sec. of State re
-	5-20-49	16103-50	Louisa J. Fluharty	South Penn Oil Company	1/8	49/44
_	3-20-43	10103-30	South Penn Oil Company	South Penn Natural Gas Company	Assignment	33A/455
			South Penn Natural Gas Company	South Penn Oil Company	Assignment	215/478
			South Penn Oil Company	Pennzoil Company	Cert. of Name Change	WV Sec. of State re
			Pennzoil Company	Pennzoil United, Inc.	Assignment	246/491
			Pennzoil United, Inc.	Pennzoil Company	Cert. of Name Change	WV Sec. of State re
			Pennzoil Company	Pennzoil Products Company	Assn. & Supp. Assn.	319/397 & 322/5
_			Pennzoil Products Company	Pennzoil Exploration and Production Company PennzEnergy Exploration and Production, L.L.C.	Assignment Cort of Morger	363/384
			Pennzoil Exploration and Production Company PennzEnergy Exploration and Production, L.L.C.	Devon Energy Production Company, L.P.	Cert. of Merger Cert. of Merger	12/177 12/278
			Devon Energy Production Company, L.P.	East Resources, Inc.	Assignment	370/580
			East Resources, Inc.	HG Energy, LLC	Assignment	118A/253
			East Resources, Inc. and HG Energy, LLC	American Energy - Marcellus, LLC	Assignment	153A/238
			American Energy - Marcellus, LLC	Ascent Resources - Marcellus, LLC	Cert. of Name Change	WV Sec. of State re
_			Josephine Brast; A.E. Brast; William Brast & S. L., his wife;			
	5-20-37.1	EQT-001	Jacob Brast & Ida, his wife; M.A. Brast & M.E., his wife	South Penn Oil Company	1/8	49/591
			South Penn Oil Company	Hope Natural Gas Company	Assignment	9A/230
			Hope Natural Gas Company	Hope Construction & Refining Company	Assignment	14A/195
			Hope Construction & Refining Company	Hope Natural Gas Company	Consolidation/Merger	175/23
			Uses Natural Co. Co.	NY State Natrual Gas Corp merged with Hope Natural Gas Co and	Merce	0404000
-			Hope Natural Gas Company Consolidated Gas Supply Corporation	changed name to Consolidated Gas Supply Corporation Consolidated Gas Transmission Corporation	Merger Assignment	243/332 66A/69
_			Consolidated Gas Supply Corporation Consolidated Gas Transmission Corporation	Eastern States Oil and Gas, Inc (now EQT Production Company)	Assignment Assignment	76A/232
_			EQT Production Compnay	Ascent Resources - Marcellus, LLC	Memo Agreement	166A/38
				The state of the s	コレリレー	325
	1723300000	ANTIGNA POST	Josephine Brast; A.E. Brast; William Brast & S. L., his wife;	52 PMO - SAMS	in anu	Market Street
	5-20-37	EQT-001	Jacob Brast & Ida, his wife; M.A. Brast & M.E., his wife	South Penn Oil Company	07 /10	49/591
	1		South Penn Oil Company	Hope Natural Gas Company	Assignment	9A/230
			Hope Natural Gas Company	Hope Construction & Refining Company	Assignment o CAN	14A/195
			Hope Construction & Refining Company	Hope Natural Gas Company	Consolidation/Merger	175/23
				NY State Natrual Gas Corp merged with Hope Natural Gas Co and	SEPO	
			Hope Natural Gas Company	changed name to Consolidated Gas Supply Corporation	Merger	243/332

		Consolidated Gas Transmission Corporation	Eastern States Oil and Gas, Inc (now EQT Production Company)	Assignment	76A/232
	1	EQT Production Compnay	Ascent Resources - Marcellus, LLC	Memo Agreement	166A/38



Environmental Protection 11/06/2015





August 20, 2015

West Virginia Department of Environmental Protect Office of Oil and Gas Attn: Laura Adkins or whomever concerned 601 57th Street Charleston, West Virginia 25304

Re: Application for a Permit to Drill Wiley N GRN WZ 3H, 5H and 7H

Dear Ms. Adkins,

Ascent Resources – Marcellus, LLC has not included any new parcels in the extension of these laterals, therefore the ownership notification submitted with the original application remain valid for these laterals.

If you have any questions, please feel free to contact me.

Best Regards,

Ariel Bravo

Regulatory Technician

ariel.bravo@ascentresources.com

Cell 405-403-4803 Office 405-607-5529

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Office of Oil and Gas

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