

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

June 19, 2014

TRIANA ENERGY, LLC 900 VIRGINIA STREET, EAST - SUITE 400 CHARLESTON, WV 25301

Re: Permit Modification Approval for API Number 9101285 , Well #: DUNHAM 2H Change 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.

Gene Smith

Regulatory/Compliance Manager

Office of Oil and Gas

1957

4709101285



June 13, 2014

Mr. James Martin Chief Office of Oil and Gas West Virginia Department of Environmental Protection 601 57th Street, S. E. Charleston, West Virginia 25304

Re: Triana Energy, LLC - Horizontal Well Work Permit Modification Request

API # 47-9101290 Dunham 1H, API # 47-9101285 Dunham 2H, API # 47-9101292 Dunham 5H,

Booth's Creek District, Taylor County, West Virginia

Dear Mr. Martin:

Triana Energy, LLC hereby requests to modify the Well Work Permit for the referenced wells located in Booth's District, Taylor County, West Virginia. During the drilling of the vertical section of the Dunham 1H, bore-hole conditions caused a natural deviation in the planned well bore path. Our evaluation of directional drilling survey data shows that it would be more economically beneficial to Triana and the mineral owners if the horizontal section of the original 2H well lateral path is drilled from the current 1H kick-off point. Conversely, the same is true for the drilling the original horizontal section of the 1H well lateral path from the current 2H kick-off point. The original well surface locations have not changed.

Therefore, Triana respectfully requests the Office of Oil and Gas to approve this request to modify the horizontal well lateral paths, effectively swapping the original Dunham 1H and 2H lateral sections with each other. Please find enclosed revised Forms WW-6B and WW-6A1 for the respective wells, as well as revised well plats reflecting the change.



Additionally, upon further evaluation of the Dunham 5H well bore path, Triana believes the vertical section travels through a portion of parcel 3-16-2 (West Virginia Department of Agriculture), which lease was not listed on the original Dunham 5H WW-6A1 in the well work application. Therefore, please also find enclosed a revised WW-6A1 that now includes the West Virginia Department of Agriculture as lessor.

Please feel free to contact me should you have any questions or need additional information. Thank you for your attention to this matter.

Sincerely,

Walter C. Showen, III Manager, Permitting

Cc: Mr. Gene Smith

Mr. Chad Carmichael

WW-6B (9/13)

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

1) Well Operator: Triana Ener	gy, LLC	494486431	Taylor	Baciff's Creck, Courbourse	Rosemont, Grafton	
		Operator ID	County	District	Quadrangle	
2) Operator's Well Number: Dunham 2H Well Pad Name: Dunham						
3) Farm Name/Surface Owner:	Carl Mitchell Dun	ham Public Road	d Access: CR1	0		
4) Elevation, current ground:	1,420' Eld	vation, proposed p	oost-constructio	n: <u>1,420'</u>		
5) Well Type (a) Gas	Oil	Unde	rground Storag	e		
(b)If Gas Shal	llow =	Deep				
Hor	izontal 💻					
6) Existing Pad: Yes or No Yes	(under construction)				
 Proposed Target Formation(s) Marcellus Shale, 7,500' TVD, Thi 	• • • •	-		Pressure(s):		
8) Proposed Total Vertical Depth	1: 7,500					
9) Formation at Total Vertical De	epth: Marcellus S	hale				
10) Proposed Total Measured De	epth: 13,450°					
11) Proposed Horizontal Leg Lei	ngth: 5,100'					
12) Approximate Fresh Water Strata Depths: 50, 350, 530, 790						
13) Method to Determine Fresh Water Depths: Well records and USGS data						
14) Approximate Saltwater Depths: None indicated						
15) Approximate Coal Seam Depths: 400, 455, 530, 565						
16) Approximate Depth to Possible Void (coal mine, karst, other): NA						
17) Does Proposed well location directly overlying or adjacent to		ns Yes	No	7		
(a) If Yes, provide Mine Info:	Name:					
	Depth:					
	Seam:					
	Owner:					

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18)

CASING AND TUBING PROGRAM

TYPE	Size	New or Used	<u>Grade</u>	Weight per ft. (lb/ft)	FOOTAGE: For Drilling	INTERVALS: Left in Well	CEMENT: Fill-up (Cu. Ft.)
Conductor	20"	New	LS	55#	80	80	Grout to surface
Fresh Water	13-3/8"	New	H-40	48#	995	936	C.T.S.
Coal	NA						
Intermediate	9-5/8"	New	J-55	40#	2,450	2,450	C.T.S
Production	5-1/2"	New	P-110	20#	13,450	13,450	Top @ 5,500'
Tubing	2-3/8"	New	N-80	4.7#		8,250	None
Liners	NA						

ТҮРЕ	Size	Wellbore Diameter	Wall Thickness	Burst Pressure	Cement Type	Cement Yield (cu. ft./k)
Conductor	20"	24"	0.25	340	Class A	NA
Fresh Water	13-3/8"	17-1/2"	0.33	1,730	Class A w/additives	1.18 - 1.54
Coal	NA					
Intermediate	9-5/8"	12-3/8" - 12-1/4"	0.395	3,950	Class A w/additives	1.18 - 1.54
Production	5-1/2"	8-3/4" - 7-7/8"	0.361	12,360	Type 1 w/additives	1.37 - 1.65
Tubing	2-3/8"	NA	1.19	11,200	None	None
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 vertical hole to kick-off point, set casing, drill deviated hole to TD and set casing.				
20) Describe fracturing/stimulating methods in detail, including anticipated max pressure and max rate:				
Perforate the production casing and production zone with perforating guns at predetermined locations, isolate treatment zones in stages and perform high pressure slick-water fracture, introducing proppant to retain fractures.				
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): Pad and AST Area = 11.8				
23) Describe centralizer placement for each casing string:				
Centralizers will be used as needed. The number and type is dependent on hole conditions. Rigid-style centralizers will be used in the lateral and curve sections of the well bore.				
24) Describe all cement additives associated with each cement type:				
Cement additives will be used as needed. The amount and type is dependent on hole conditions. Possible additives may include: Lost Circulation Material - granular, flake or fibrous, depending on the situation; Accelerant - CaCl2 up to 2%.				
25) Proposed borehole conditioning procedures:				
Proposed bore hole conditioning procedures will depend on hole conditions. These may include, but are not limited to: weighted or high viscosity fluid sweeps, mud solvent fluid sweeps, surfacant sweeps, scouring sweeps, high-rate or extended circulation, pipe rotation and reciprocation, short trips and other appropriate methods.				
*Note: Attach additional sheets as needed.				

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WW-6A1
(5/13)

Operator's Well No.	Dunham 2H	

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
	Ronald Lee Carder and Jenny L. Carder	Triana Energy, LLC	=>12.5%	62/483
	Paul J. Tennant	Triana Energy, LLC	=>12.5%	63/341
	Ronald Lee Carder and Jenny L. Carder	Triana Energy, LLC	=>12.5%	Not Yet Recorded
	Mary Romino	Triana Energy, LLC	=>12.5%	Not Yet Recorded
	West Virginia Department of Agriculture	Triana Energy, LLC	=>12.5%	62/188

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: Triana Energy, LLC

By: Walter C. Showen, III Walts Carreller

Its: Manager of Permitting

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