## State of West Virginia Department of Environmental Protection - Office of Oil and Gas Well Operator's Report of Well Work

API <u>47</u> - <u>590</u> - <u>2246</u> County _	MINGO D	istrict <u>MAGNOL</u>	JA	
Quad MAJESTIC Pad Name	F	eld/Pool Name		
Farm name LOGAN COAL AND TIMBER COR	PORATION V	Vell Number 235	i3	
Operator (as registered with the OOG)QUALITY	NATURAL GAS, LLC			
Address P.O. BOX 480 C	ity ALLEN	State KY	Zip _	41601
Top hole Northing Landing Point of Curve Northing	Eastin	leviation survey g g		
Elevation (ft) 740.8 GL Type of	Well New Dexisting	Type of Report	□Interim	<b>≜</b> Final
Permit Type   Deviated   Horizontal	Horizontal 6A	Depth Type	□ Deep	■ Shallow
Type of Operation □ Convert □ Deepen ■ Dri	ll □ Plug Back □ Redrilli	ng 🗆 Rework	□ Stimulat	te 
Well Type □ Brine Disposal □ CBM ■ Gas □ Oi	□ Secondary Recovery □ Solu	ntion Mining 🗆 St	orage 🗆 Ot	her
Type of Completion □ Single ■ Multiple Fluid  Drilled with □ Cable ■ Rotary	s Produced □ Brine ■Gas	□ NGL □ Oil	□ Other	
Drilling Media Surface hole ■ Air □ Mud □Fi	resh Water Intermediate ho	le BAir □ Muo	i □ Fresh V	Vater □ Brine
Production hole  Air  Mud  Fresh Water	□ Brine			
Mud Type(s) and Additive(s) N/A				
•	ng commenced 10/28/2014  Date completion activi		ceased12/15/2014	11/03/2014
Verbal plugging (Y/N) N/A Date permission	granted	Granted by		
Please note: Operator is required to submit a plugging	g application within 5 days of ver	bal permission to p	olug	
Freshwater depth(s) ft NONE	Open mine(s) (Y/N) dep	oths	NONE	
Salt water depth(s) ft NONE	Void(s) encountered (Y	N) depths	NON	E
Coal depth(s) ftNONE	CROCIVE of Intered (	Y/N) depths	NON	VE
	Office of Oil & Gas			
	JAN 2 2 2015		Reviev	ved by:

API 47- <u>590</u>	- 2246	Farm nai	me_LOGAN CO	AL AND TIMBE	R CORPOR	RATION We	ll number_	2353	
CASING STRINGS	Hole Size	Casing Size	Depth	New or Grade Depth Used wt/ft			Basket Depth(s)		ment circulate (Y/N) ride details below*
Conductor	17 1/2"	13 3/8"	42'	New		LS	1 1		
Surface	12 1/4"	9 5/8"	309'	New		LS	44', 265'		YES
Coal				1	<del>                                     </del>				
Intermediate 1	8 7/8"	7"	2035'	New		LS			YES
Intermediate 2	- 0.70	-			1				
Intermediate 3	<del> </del>								
Production	6 3/8"	4 1/2"	4217'	New	1	65			500' up in 7"
Tubing	0 0/0		1211		<del>                                     </del>				
Packer type and d	lepth set							1	
- Lucker type and t	Jopan Joh								
Comment Details	s	·	<b>.</b>						
	<u> </u>			<del></del>					
CEMENT	Class/Type	Number	Slur		Yield	Volume		Cement	WOC
DATA	of Cement	of Sacks	wt (p	pg) (1	ft <sup>3</sup> /sks)	(ft.².)	To	p (MD)	(hrs)
Conductor	Class A								
Surface	Class A	110	15.	5	1.18	129.8	S	urface	8
Coal	L								
Intermediate 1	Class A	100, 160	15.6, 1	12.3 1.1	8, 1.84	118, 29	4.4 S	urface	8
Intermediate 2									
Intermediate 3									
Production	Class A	180	13.0	6	1.90	342	500	)' up in 7"	8
Tubing									
Drillers TD (f Deepest forma Plug back pro	ation penetrated	HARRELL SHALE		Loggers 1 Plug back					
Kick off depth	n (ft) N/A								
Check all wire	eline logs run	<b>■</b> caliper □ neutron	■ density □ resistivity		ted/direct		induction temperatur	e <b>E</b> son	ic
Well cored	□ Yes 🖪 No	□ Convention	nal □ Side	ewall	W	ere cutting	gs collected		□ No g purposes only.
	THE CENTRAL 2979.4", 2802.6" and 2625.80	IZER PLACEME	NT USED FO	OR EACH C	ASING S	STRING 4	1/2" CASING -		
						-			
WAS WELL	COMPLETED	AS SHOT HOLE	□ Yes 🛔	No D	ETAILS				
WAS WELL	COMPLETED	OPEN HOLE?	□ Yes ■ N	No DEI					
				<del></del>	•				
WERE TRAC	ERS USED [	Yes 🛢 No	TYPE OF T	TRACER(S)	USED				

API 47- <u>590</u> - <u>2246</u>

Farm name LOGAN COAL AND TIMBER CORPORATION Well number 2353

## PERFORATION RECORD

Stage		Perforated from	Perforated to	Number of	F
No.	Perforation date	MD ft.	MD ft.	Perforations	Formation(s)
1	11/25/2014	4025	4127	35	SHALE
2	11/25/2014	2965	2978	20	BEREA
3	12/15/2014	2228	2275	26	LIME
		·			
		_			

Please insert additional pages as applicable.

## STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
1	11/25/14	94,636cfm	3,101	3,722	1,216	NONE	NONE	901,395
2	11/25/14	99,677cfm	3,331	3,450	1,268	NONE	NONE	901,320
3	12/15/14	4,863cfm	1,323	2,120		NONE	NONE	NONE
			•••					

Please insert additional pages as applicable.

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API 47- 590	_ 2246	Farm	name_LOGAN CO	AL AND TIME	BER CORPORATION	ON Well num	ber_2353	3
PRODUCING	FORMATION(	<u>S)</u>	<u>DEPTHS</u>					
BIG LIME			2140-2290'	_TVD		MD		
BEREA			2960-2980'		Alexander of			
DEVONIAN/BR	OWN SHALE		4020-4130'			_		
Please insert ac	lditional pages a	as applicable.		-		_		
GAS TEST	□ Build up □	Drawdown	Open Flow		OIL TEST 🗆 🛚	Flow □ Pu	mp	
SHUT-IN PRE	SSURE Surf	720 ace	psi Botto	m Hole	psi	DURATIO	N OF TES	ST 30 hrs
OPEN FLOW	Gas 730 mcf	Oil	NGL bpd	_ bpd _	Water bpd	GAS MEA		
LITHOLOGY/ FORMATION	TOP DEPTH IN FT NAME TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN I MD	FT DESCRIBE			RD QUANTITYAND INE, OIL, GAS, H <sub>2</sub> S, ETC)
SEE ATTACHED	0		0					
SEL ATTACHED							-	
				· ·				
					_			
					N			
Please insert ad	lditional pages a	s applicable.						
Drilling Contra	ictor MOUNTAIN	NRIDGE						
Address 72 OLD	O 25 E		City	BARBOUR	VILLE	_ State K	Zip Zip	40906
	WEATHER!	FORD						
Address	any WEATHER	TOND	City	LONDON		State K	/ Zir	, 40741
						51410		-
Cementing Cor	npany NABORS	COMPLETION	& PRODUCTION S					
Address 580 HA	AWTHORN DR		City	NORTON		State _VA	Zir Zir	24273
Stimulating Co	mpany UNIVE	RSAL WELL	SERVICES INC					
Address PO BO	inpuny		City	ALLEN		State KY	Zir	41601
	lditional pages a	s applicable.						
						606 974 90	11	
	Darrell Fluharty		mit F	eld Superviso	Telephone	606-874-80		2015
Signature	1		litle F	eiu Gupervisc	a soffici	Dat	le 1-16	-2015

WELL # 2353 API#47-5902109

WELL # 2353			API#47-59021	.09	
LITHOLOGY/ FORMATION	TOP DEPTH IN FT NAME TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H2S, ETC)
SAND/SHALE	0	735			
SAND	735	1095			
SAND/SHALE	1095	1320			
SAND	1320	1470			
SAND/SLATE	1470	1530			
RED ROCK	1530	1560			
RED ROCK/SAND/LIME	1560	1590			
RED ROCK/SAND	1590	1620			
RED ROCK/SLATE/LIME	1620	1650			
SAND/SLATE	1650	1710			
SAND	1710	1830			
SAND/SHALE	1830	1975			
LITTLE LIME	1975	2020			
BIG LIME	2020	2278		, .	
INJUN	2278	2490			
WEIR	2490	2870			
COFFEE SHALE	2870	2920			
BEREA	2920	3020			
BROWN SHALE	3020	3690			
GRAY SHALE	3690	3835			
BROWN SHALE	3835	4115			
HARRELL SHALE	4115	4230			
		R	eceived		

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