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

	Ige District Greenbrier
Quad Big Isaac 7.5' Pad Name Hugh	
Farm name Nelson, Eric E., et al	Well Number Richard Unit 2H
Operator (as registered with the OOG) Antero Resources	
Address 1615 Wynkoop Street City De	
Top hole Northing 4341190m	ed plat, profile view, and deviation survey Easting 532760m
Landing Point of Curve Northing 4341189.30m	
Bottom Hole Northing 4339105m	Easting 533989m
Elevation (ft) 1332' GL Type of Well	■New □ Existing Type of Report ■Interim Final has
Permit Type Deviated Horizontal Horizon	tal 6A 🛘 Vertical Depth Type 🔻 Deep 🗂 Shallow
Type of Operation Convert Deepen Drill	Plug Back Redrilling Rework Stimulate
Well Type □ Brine Disposal □ CBM ■ Gas □ Oil □ Sec	condary Recovery
Type of Completion D Single D Multiple Fluids Produ	
Drilled with □ Cable □ Rotary	occ a prince again a real a on a oner
,	
Drilling Media Surface hole ■ Air □ Mud □ Fresh Wa	ter Intermediate hole Air Mud Fresh Water Brine
Production hole □ Air ■ Mud □ Fresh Water □ Brine	
Mud Type(s) and Additive(s) Air - Foam & 4% KCL	
Mud - Polymer	
Date permit issued 10/28/2013 Date drilling comm	nenced 10/8/2014 Date drilling ceased 1/12/2015
Date permit issued 10/28/2013 Date drilling comm	Date diffillia charti
Date permit issued10/28/2013 Date drilling comm	Date completion activities ceased WOC
Date permit issued	Date completion activities ceased WOC N/A Granted by N/A
Date permit issued	Date completion activities ceased WOC N/A Granted by N/A
Date permit issued	Date completion activities ceased WOC N/A Granted by N/A stion within 5 days of verbal permission topples
Date permit issued	Date completion activities ceased WOC N/A Granted by N/A stion within 5 days of verbal permission topples
Date permit issued 10/28/2013 Date drilling community Date completion activities began WOC Verbal plugging (Y/N) N/A Date permission granted Please note: Operator is required to submit a plugging applications.	Date completion activities ceased WOC N/A Granted by N/A Attion within 5 days of verbal permission topplus CEIVED Office of Oil and Gas Open mine(s) (Y/N) depths
Date permit issued	Date completion activities ceased
Date permit issued	Date completion activities ceased
Date permit issued	Date completion activities ceased
Date permit issued	Date completion activities ceased

API 47- 017	06380	Farm name	Nelson, Eric	E., et al	Well	number_Richar	d Unit 2H
CASING STRINGS	Hole Size	Casing Size		ew or Grade Jsed wt/ft	:	Basket Die	d cement circulate (Y/N) Provide details below*
Conductor	30"	20"			.5#/J-55	N/A	Y
Surface	17-1/2"	13-3/8"			#/H-40	N/A	
Coal							<u> </u>
Intermediate 1	12-1/4"	9-5/8"	2522'	New 36	i#/J-55	N/A	Y
Intermediate 2				30	M70-00	1975	T
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	15305'	New 23	#/P-110	NIA	
Tubing			10000	239	*/F-110	N/A	Y
Packer type and d	epth set	N/A					
		N/A					
Comment Details							
CEMENT DATA	Class/Type of Cement	Number	Slurry	Yield	Volume	Cement	WOC
Conductor	Class A	of Sacks	wt (ppg) 15.6	(ft ³ /sks) 1.18	(fl. ³)	Top (MD)	(hrs)
Surface	Class A	718 sx	15.6	1.18	38	0'	8 Hrs.
Coal	Olado / t	71034	15.0	1.10	420	0.	8 Hrs.
Intermediate 1	Class A	870 sx	15.6	4.40	700		
Intermediate 2	ORGA A	010 5X	15.0	1.18	790	0'	8 Hrs.
Intermediate 3				<u> </u>			
Production	Closs H	4050 - 6 - 10 - 15		ļ			
Tubing	Class H	1253 8X (LR80) 11/3 5X (T2	iii) 14.5 (Lead), 15.2 (Tail)	1.3 (Lead), 1.86 (Tail)	3043	~500' into Intermediate Ca	ming 8 Hrs.
` '	tion penetrated	VD (BHL); 7365' TVD (Deepesi Marcellus		ggers TD (ft) 15/2 g back to (ft) 1/4			
Check all wirel		•		deviated/directi gamma ray		FINAL duction	will be submitted with Completion Report.
Well cored	Yes 🚪 No	Conventional	Sidewall	w	ere cuttings	college CEIVE	D No
DESCRIBE TH	IE CENTRALI	ZER PLACEMENT	USED FOR EA				
	le shoe, 1 above insert f	loat, 1 every 4th joint to surface					
		t collar, 1 every 4th joint to surfe				NOV 2 2 20	116
Production - 1 above fi	oat joint, 1 below float o	oller, 1 avery 3rd joint to top of c	ement				
WAS WELL C	OMPLETED A	S SHOT HOLE [Yes No	DETAILS	N/A-WOC Envi	/V Departm ronmental F	ent of Protection
WAS WELL C	OMPLETED O	PEN HOLE? 🗆 Y	es 🖺 No	DETAILS N/	A - WOC		
WERE TRACE	ERS USED 🗆	Yes No T	PE OF TRACE	ER(S) USED N	A - WOC		

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API	47- 017	06380)	_ Farm nar	_{ne_} Nelsor	n, Eric E.,	et al	Well numb	er_Richard	Unit 2H
PERFORATION RECORD										
Stage No.	Perforatio	n date		orated from MD ft.	Perforate MD 1		Number of Perforations		Formation((a
										-
WELL IS WAITING ON COMPLETION Information will be updated on FINAL WR-35 once completed										
	I	Into	1 11124(1	 - ОН WILL DO	e upaati	ea on F	INAL W	R-35 once c	ompleted	Į.
\vdash										
					<u></u>					
Pleace	insert additie	onal page	90 DE 000	alianhia						
110030	moort addriv	onar pag	es as ap	oncaore.						
				STIM	ULATION	INFORMA	ATION PER S	STAGE		
Compl	ete a separat	e record	for each	stimulation s	tage.					
Stage No.	Stimulations Date	Ave Pi Rate (B		Ave Treatmer Pressure (PSI		Breakdown ssure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
	-		*	WELL IS	WAIT	INC O	N COMP	LETION*	-	
		Infor						R-35 once co	mpleted	
									_	
									RECEI	
								Off		and Gas
							-		NUV 2 2	, 2016
								V	V Depai	tment of
								Envi	onmenta	l Protection

Please insert additional pages as applicable.

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API 47- 017	7 = 06380	Farm	name Nelson	, Eric E., e	et al	Well number Richard Unit 2H
PRODUCING	FORMATION	<u>(S)</u>	<u>DEPTHS</u>			
Marcellus			7315' (TOP)	TVD	7811' (TOP)	MD
						
Please insert ac	dditional pages	as applicable.			7,	
GAS TEST	□ Build up	⊐ Drawdown	□ Open Flow		OIL TEST -F	Flow Dump
SHUT-IN PRE	SSURE Sur	face <u> </u>	_psi Botte	om Hole	psi	DURATION OF TEST hrs
OPEN FLOW	Gas	Oil fpd <u>—</u>	NGL		Water	GAS MEASURED BY □ Estimated ■ Orifice □ Pilot
LITHOLOGY/ FORMATION	TOP DEPTH IN FT NAME TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD		FT DESCRIBE R	ROCK TYPE AND RECORD QUANTITYAND
	0	140	0	MD_	TYPE OF FL	UID (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC)
					EXHIBI	
			<u> </u>			
lease insert add	ditional pages as	s applicable.				
	ctor Precision D	rilling Company	LP			
Address 2640 Re	each Rd.		City	Williamspor	t	State PA Zip 17701
ogging Compa						
Address			City			State Zip REGEIVED
Cementing Com Address 1650 Ha	pany Nabors Co	ompletion & Pro		s, Co. Jane Lew		State Office of Oil and Gas
Stimulating Con	npany					NOV 2 2 2016
Address			City			*** <u>***</u>
lease insert add	litional pages as	applicable.				WV Department of
Completed by Signature	Kara Quackenbu	ush W//WX	Title Pe	rmitting Agen	Telephone 3	Date 3/2/2016
1						Date

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API <u>4</u>	7-017-006380 Farm Nam	e <u>Nelson, Eric E., et al</u> Well N	umber Richard Unit 2H						
EXHIBIT 3									
TOP DEPTH (TVD) BOTTOM DEPTH (TVD) TOP DEPTH (MD) BOTTOM DEPTH (N									
LITHOLOGY/ FORMATION	From Surface	From Surface	From Surface	From Surface					
Fresh Water	109'	N/A	109'	N/A					
Fresh Water	112'	N/A	112'	N/A					
Shale	0	188	0	188					
Sandy siltstone	188	390	188	390					
Coal	390	408	390	408					
Shale	408	488	408	488					
Siltstone	488	828	488	828					
Shale	828	908	828	908					
Sandstone	908	943	908	943					
Shale	943	964	943	964					
Trace coal	964	986	964	986					
Sandy siltstone	986	1348	986	1348					
Shale	1,348	1588	1,348	1588					
Sandy shale	1588	1648	1588	1648					
Trace coal	1648	1668	1648	1668					
Shale	1668	1708	1668	1708					
Sandstone	1708	1808	1708	1808					
Silty sandstone	1808	1948	1808	1948					
Trace coal	1948	1988	1948	1988					
Silty sandstone	1988	2248	1988	2248					
Shale	2248	N/A	2248	N/A					
Big Lime**	N/A	N/A	N/A	N/A					
Big Injun**	N/A	N/A	N/A	N/A					
Weir**	N/A	N/A	N/A	N/A					
Fifty Foot Sandstone**	N/A	N/A	N/A	N/A					
Gordon**	N/A	N/A	N/A	N/A					
Fifth Sandstone**	N/A	N/A	N/A	N/A					
Bayard**	N/A	N/A	N/A	N/A					
Speechley**	N/A	N/A	N/A	N/A					
Baltown**	N/A	N/A	N/A	N/A					
Bradford**	N/A	N/A	N/A	N/A					
Rlley**	N/A	N/A	N/A	N/A					
Benson**	N/A	N/A	N/A	N/A					
Alexander**	N/A	6834	N/A						
ycamore	6834	7007	7170	7170 7363					
Middlesex	7007	7156	7363						
Burkett	7156	7187	7538	7538					
ully	7187	7315	7579	7579					
Marcellus	7315	N/A		7811 RECEINAD					

^{**}Depths for these formations are recorded with the cement bond log for each individual well. Office of Oil and Gas provided, along with the cement bond log, in the final report for this well.

NOV 2 2 2016

WV Department of Environmental Protection