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

API 47 - 043 - 1	03586	County LINCO	OLN	District DUVAL		
Quad GRIFFITHSVILLI		Pad Name MA		Field/Pool Name	GRIFFITHS	/ILLE
Farm name COOPER, Jo				Well Number 1		
Operator (as registered wit	h the OOG)	I.G. ENERGY I	LC			
Address 5260 DuPONT	ROAD	City P	ARKERSBURG	State WV	Zip 20	6101
As Drilled location NAI		Attach an as-dri	lled plat, profile view,	and deviation survey Easting 416,089 M	4	
Landing Point of		rthing	J	Easting		
Bottom	Hole No	rthing 4,232,919 M	1	Basting 416,141 M		
Elevation (ft) 804'	GL	Type of Well	■New □ Existing	Type of Rep	ort Interim	Final
Permit Type Deviate	ed 🗆 Hori	zontal Horiz	ontal 6A Vertical	d Depth Type	□ Deep	■ Shallow
Type of Operation Con	vert 🗆 Dee	pen 🛔 Drill	□ Plug Back □ Re	edrilling Rewor	k 🗆 Stimulate	
Well Type Brine Dispo	sal 🗆 CBM	□ Gas □ Oil ■ S	secondary Recovery	Solution Mining	Storage Oth	er
T	-1 - X C-14*	1 PL 11 D -	decid = Diles = C		- 0/1-	
Type of Completion ■ Sind Drilled with □ Cable ■	igle □ Multip Rotary	le Fluids Pro	duced □ Brine □G	as DNGL # Oi	Other	
Drilling Media Surface he Production hole Air Mud Type(s) and Additive N/A	□ Mud □ F			te hole ■ Air □ M	fud	ater □ Brine
	other c					
Date permit issued8	/21/18	Date drilling con	nmenced8/31/1	8 Date drillin	ng ceased	9/8/18
Date completion activities	began	9/18/18	Date completion	activities ceased	9/19/19	
Verbal plugging (Y/N)	N Dat	e permission gran	ted	Granted by		Office of Oil and
Please note: Operator is re	quired to subn	nit a plugging appl	ication within 5 days o	of verbal permission t	o plug	SEP 27 20
		200			En	WV Department vironmental Protein
Freshwater depth(s) ft		25'	Open mine(s) (Y/N			- rote
Salt water depth(s) ft	101		Void(s) encountered		None	
Coal depth(s) ft	378'- 3	-	Cavern(s) encounted	ered (Y/N) depths	None	3
Is coal being mined in area	(Y/N)	N				71
					Davisonic	of Lance

Reviewed by:

July Annul 11-19-18

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Kev. 8/23/13									
API 47- 043	03586	Farm :	name_COOPE	R, JOHN AN	D TAMMI	E ET_Well	number 15	0	
CASING	Hole	Casing		New or	Grade		Basket	Did ceme	ent circulate (Y/N)
STRINGS	Size	Size	Depth	Used	wt/ft		Depth(s)		e details below*
Conductor	15*	13 3/8"	8.	New	Į i	.s			Sand In
Surface	8 3/4"	7"	465.47'	New	Ĺ	.s	42'		Y
Coal					İ				
Intermediate 1									<u> </u>
Intermediate 2								1	
Intermediate 3						-		 	
Production	6 1/4"	4 1/2"	2648.62'	New		.s		+	Υ
Tubing		7 1/2	2040.02	 	<u> </u>	+		- 	
Packer type and de	nth set		I		!				
Comment Details	Circulated Est. 25	sks to surface on 7° su	rface cement job. Ci	irculated Est. 30 sks	s to surface on	4 1/2" cement j	cb.		
CEMENT DATA	Class/Type of Cement	Numb of Sac			rield t ³ /sks)	Volume (ft ¹)	Cem Top (N		WOC (hrs)
Conductor									
Surface	Reg Neat	115	15	i.6 '	1.18	136	Surfa	ace	8
Coal									
Intermediate 1									
Intermediate 2									
Intermediate 3									
Production	50:50 Pozmi	x 120/1:	25 13.2/	14.2 1.6	4/1.27	197/186	75	;	8
Tubing				-					
Drillers TD (ft)			.1.	_ Loggers T		,			
Deepest formati Plug back proc	•	Berea		_ Plug back	to (ft) <u>N/A</u>				
Kick off depth ((IJ)eoo.								
Check all wireli	ine logs run	🕏 caliper 🕏 neutron	■ density ■ resistivit		ed/directio a ray		duction emperature	□ѕопіс	
Well cored	Yes B No	Conventi	onal Side	ewall	We	re cuttings	collected =	Yes 🗆	No
		ZER PLACEM		OR EACH CA	ASING ST	RING		······································	
		process control of the control of th			· ·				Do-
			· · · · · · · · · · · · · · · · · · ·					<u>-</u>	Office of Oil an
WAS WELL C	OMPLETED A	AS SHOT HOLI	∃ □Yes ≣	No DE	TAILS _				SEP 27 20
WAS WELL C	OMPLETED (PEN HOLE?	□ Yes 🛔 1	No DETA	AILS	_		Ent	WV Department ironmental Prote
		_							
WERE TRACE	RS USED 🛛	Yes 🖪 No	TYPE OF T	TRACER(S) T	JSED				

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API 47- 043 - 03586	Farm name COOPER, JOHN AND TAMMIE ET Well number 150	
API 4/- 010 - 0000	rarm name well number	

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
1	9/18/18	2478'	2488'	40	Berea
				İ	
			<u> </u>		
					-
				 	
			<u> </u>	 	
					
			_	<u> </u>	
					,

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	9/19/18	4	1277	2230	1023	1,000	143	
				<u> </u>				
				 				
				· · · · · ·		 		
								
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				<u> </u>				
				1	-			Oct. RECEILman
								Office of Oil and
								SEP 2 7 2018
	L			1				2018
							i	nvironment o
	·	L		1				WV Department o

Please insert additional pages as applicable.

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ADI 47 043	_ 03586	Ecen	noma COOPE	R, JOHN AND	TAMMIE I	ET Wall numbe	- 150	
AFI 4/		ram	name 3 3 3 . =			wen numbe	r	
PRODUCING	FORMATION	<u>(S)</u> .	<u>DEPTHS</u>					
Berea			2289'- 2312'	TVD _24	75'- 2500'	MD		
								
	-							
		· -						
Please insert ac	lditional pages	as applicable.			-			
GAS TEST	□ Build up	n Drawdown	□ Open Flow	OI	LTEST 🗆	Flow 🗆 Pum)	
SHUT-IN PRE	SSURE Sur	face	_psi Botto	m Hole	psi	DURATION	OF TEST	hrs
OPEN FLOW	Gas	Oil		w		GAS MEAS		
	mc	fpd	bpd	_ bpd	bpd	□ Estimated	□ Orifice	□ Pilot
LITHOLOGY/	TOP	воттом	TOP	воттом				
FORMATION	DEPTH IN FT	DEPTH IN FT	DEPTH IN FT	DEPTH IN FT	DESCRIBE I	ROCK TYPE AND	RECORD QUAN	ITITYAND
	NAME TVD	TVD	MID	MID_			=	, GAS, H₂S, ETC)
Sand/Shale	0	378	0	378				
Pittsburgh Coal	378	384	378	384	_			
Sand/Shale	384	1570	384	1638				
Big Lime	1570	1770	1638	1883				
Big Injun	1770	1880	1883	2002				
Shale	1880	2269	2002	2452				
Coffee Shale	2269	2289	2452	2475				
Berea	2289	2312	2475	2500	Drille	ed directional N	12.95° E a dista	nce of 760'
Shale	2312	2462	2500	2677				
TD	2462		2677					
							-	
Please insert ad	ditional pages a	s applicable.			l			
Drilling Contra	ctor Noah Hom	Weli Drilling						
Address 1070 S	andy Valley Lane		City	Vansant		_ State _VA	Zip 24656	
I againa Ca	any Weatherford	l International						
Address 13211	Old Hwy 50			Flora		State IL	Zip 62839	
Light Cos		·	City			_ State <u></u>	Zip <u>02000</u>	
Cementing Cor	npany C&JEn	ergy Services						
Address 580 Ha	wthorn Dr		City	Norton		_ State _VA	Zip <u>24273</u>	Office of CEIN
Stimulating Co	mpany Produc	ers Service Cor	p .					Office of Oil
Address 109 So	uth Graham Street		City	Zanesville		State OH	Zip_43701	SEP 27
	ditional pages a		ONJ				2· _P	WV Departme Environmental Pro
Completed by	Boger Heldman	١,			Telephone	304-420-1107		"Sinal Pr
Signature /	11 11/01	1	77°-1 O	perations Manage		Date 5	100/40	

Prepared for:	应		1	Prepared by:	77
			1	Producers Service Corp	
IG Energy				Daniel L Graham	
	PRODUCERS SERVICE CORP.		1	09 S. Graham St.	
Oustin Hendershot	SERVICE CORP.		7	Canesville, OH 43702	
			7	40-454-6253	
INVOICE #: 21903	1				
WELL NAME: EJ May #150		-			
COUNTY/STATE: Lincoln/WV					4
TOWNSHIP/FIELD: Griffithsville					
DATE of SERVICE: 9/19/2018					
CUSTOMER PO#:					
escription	Notes	Amount	Units	Unit Cost	Total Cost
LUID PUMP CHARGE 0-3000 PSI MIN CHARGE 4 HRS					
LENDER CHARGE 0-10 BPM		1			
LEAGE CHARGE PER UNIT ONE WAY	2 Units @ 200 miles	1	MI		
ACID 15%		250			
RO HIB II CID DELIVERY		0.5	GAL		
O CLA FIDM LD		2	HR		
RO NE-21		6			
RO GEL 4	1 - 1	6	GAL LB		
JFFER I		50	LB		
AND 20/40 OTTAWA		10			
O CLEAR 750		2 1	LB		
ONTROL ATA VAN		50	LB		
AND DELIVERY / TON MILES			STAGE TMILE		
		100	INULE		
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We see that the state management are					
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stomer Approval:	719	20			
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		+	1	Office RE	CENT
				O.	CEIVED Oil and Gas
	3		17	SEPO	~ "Gas
				SEP 2	2010
				Environmental P	-018
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					Otection
					411



Producers Service Corporation 109 South Graham Street Zanesville, OH 43701 (740) 454-6253 www.producersservicecorp.com

Frac **HG** Energy

Company Rep: Dustin Hendershot Treater: Daniel L Graham

9/19/2018

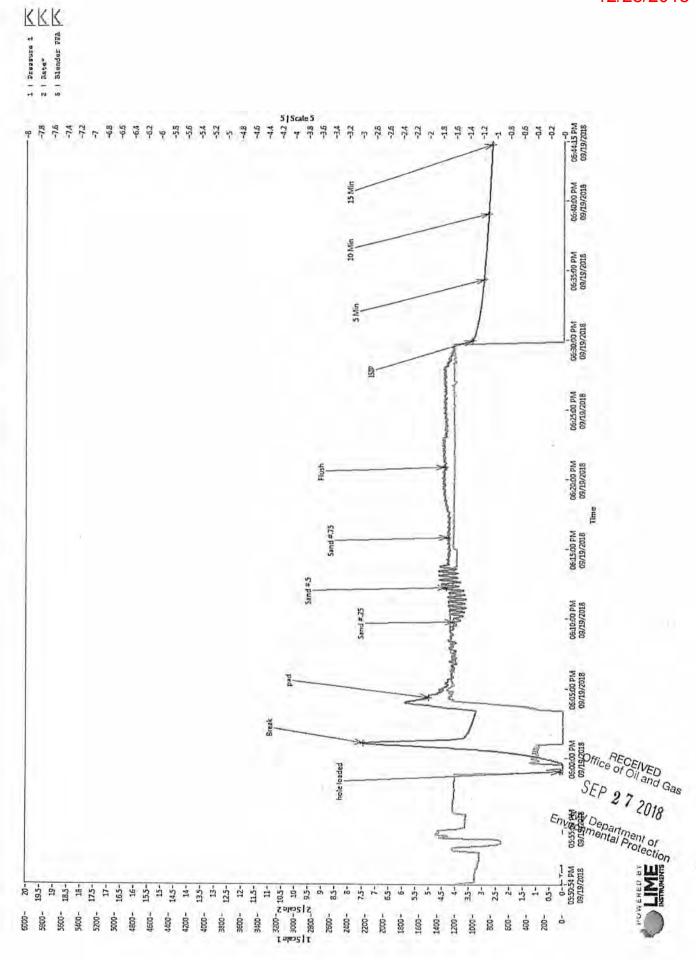
Well: E J May#150 Lincoln County, OH

Casing		Tubing	Packers
OD: 4.5"	OD: N/A	Size: N/A	Upper Make: N/A
ID: N/A	Weight: N/A	Depth: N/A	Upper Depth: N/A
Weight: 10.5 lb.	From: N/A		Lower Make: N/A
TD: 2677 ft.	To: N/A		Lower Depth: N/A
Pressures	Volumes:	Open Hole	Perforations
PSI Test: 3224 psi	Pad 25 BBL	Size: N/A	# of Shots: N/A
Breakdown: 2230 psi	Treatment: 45 BBL	From: N/A	Top Perf: N/A
Max: 1400 psi	0.15% Acid: 250 Gal	To: N/A	Bottom Perf: N/A
Average: 1275 psi	Total: 143 BBL	137.97	A Section of the Contract
Displacement: 1320 psi	Flush: 36 BBL		
Rates		Notes:	
Average: 4 bbl/min	Invoice #: 21903		

Max: 4 bbl/min







HG Energy EJ May#150 Inv#21903

				. =		
Timestamp	Annotation	Pressure 1	Rate	Stage Total (bbl)	Grand Total (bbl)	
9/19/2018 5:50:54 PM	Pressure Test	-13.88	3.93	3.30	3.30	•
9/19/2018 5:59:00 PM	hole loaded	33.63	0.41	32.64	32.64	:
9/19/2018 6:01:17 PM	Break	1578.70	0.00	0.49	0.49	
9/19/2018 6:04:21 PM	pad	1507.04	4.12	3.02	3.02	
9/19/2018 6:09:45 PM	Sand #.25	1230.14	4.21	25.51	25.51	-
9/19/2018 6:12:14 PM	Sand #.5	1307.03	4.12	10.40	35,97	
9/19/2018 6:15:48 PM	Sand #.75	1295.22	4.11	14.32	50.43	
9/19/2018 6:20:51 PM	Flush	1328.29	4.07	20.31	71.01	ļ
9/19/2018 6:29:56 PM	ISIP	1026.14	0.00	35.83	107.18	
9/19/2018 6:34:19 PM	5 Min	892.04	0.00	35.83	. 107.18	
9/19/2018 6:39:04 PM	10 Min	839.83	0.00	35.83	107.18	:
9/19/2018 6:44:02 PM	15 Min	801.16	0.00	35.83	107.18	

