

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

API 47 - 069 - 00182 County Ohio District Richland
Quad Tiltonsville Pad Name Rayle Coal Pad Field/Pool Name _____
Farm name Short Creek Coal Co Well Number Rayle Coal OHI 1H
Operator (as registered with the OOG) SWN Production Company, LLC
Address PO Box 1300 City Jane Lew State WV Zip 26378

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4445739.1 Easting 531778.4
Landing Point of Curve Northing 606980.9 Easting 1652489.8
Bottom Hole Northing 4447290.8 Easting 530912.3

Elevation (ft) 1064' GL Type of Well New Existing Type of Report Interim Final
Permit Type Deviated Horizontal Horizontal 6A Vertical Depth Type Deep Shallow
Type of Operation Convert Deepen Drill Plug Back Redrilling Rework Stimulate
Well Type Brine Disposal CBM Gas Oil Secondary Recovery Solution Mining Storage Other _____
Type of Completion Single Multiple Fluids Produced Brine Gas NGL Oil Other _____
Drilled with Cable Rotary

Drilling Media Surface hole Air Mud Fresh Water Intermediate hole Air Mud Fresh Water Brine
Production hole Air Mud Fresh Water Brine
Mud Type(s) and Additive(s)
SOBM

Date permit issued 10/14/2014 Date drilling commenced 11/04/2014 Date drilling ceased 11/13/2014
Date completion activities began 3/7/2015 Date completion activities ceased 3/30/2015
Verbal plugging (Y/N) N/A Date permission granted N/A Granted by N/A

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft 295' KBTVD Open mine(s) (Y/N) depths N
Salt water depth(s) ft 438' Void(s) encountered (Y/N) depths 248'
Coal depth(s) ft 248' KBTVD Cavern(s) encountered (Y/N) depths N

Is coal being mined in area (Y/N) No

APPROVED

NAME: Jacqueline Shurts

DATE: 4/1/16

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APR 25 2016

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Environmental Protection

Reviewed by:

07/15/2016
AX 07/15/16

API 47-069 - 00182 Farm name Short Creek Coal Co Well number Rayle Coal OHI 1H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/N) * Provide details below*
Conductor	30	20"	100'	New	J-55 94#	N/A	Y
Surface	17 1/2	13 3/8"	895'	New	J-55 54.5#	N/A	Y
Coal	12.1/4	9 5/8"	1698'	NEW	J-55	NA	
Intermediate 1	12 1/4	9 5/8"	2,230"	New	J-55 40#	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8 3/4" / 8 1/2"	5 1/2"	13,279'	New	P-110 20#	N/A	Y
Tubing		2 3/8"	Approx. 6,666'	New	N-80 4.7#	N/A	N
Packer type and depth set							

Comment Details *Conductor : Ready mix concrete in cellar and cement in rat hole casing.

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ³ /sks)	Volume (ft ³)	Cement Top (MD)	WOC (hrs)
Conductor							
Surface	Class A	820	15.6/15.6	1.20	984	Surface	8
Coal	Class A	810	15.6	1.20	972	Surface	8
Intermediate 1	Class A	666	15.6	1.24	826	Surface	8
Intermediate 2							
Intermediate 3							
Production	Class A; Class A	1040/1240	15.8	1.3; 1.19	1352/1476	1076'	10
Tubing	NA	NA		NA	NA	NA	

Drillers TD (ft) 1176' Loggers TD (ft) 1176'
 Deepest formation penetrated Marcellus Plug back to (ft) NA
 Plug back procedure NA

Kick off depth (ft) 6076'

Check all wireline logs run caliper density deviated/directional induction
 neutron resistivity gamma ray temperature sonic

Well cored Yes No Conventional Sidewall Were cuttings collected Yes No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING Surface-Run centralizers in the middle and top of the first joint, top of the top of the third joint and every 4th joint.
Intermediate-Run centralizers in the middle and top of the first joint, top of the top of the third joint and every 4th joint.
Run Free-Floating Solid Body Centralizers (Do Not Use Welded Blades) from TD to Top of Cement. Run 1st centralizer 3' from Shoe, 2nd at top of the first joint and then one every 3rd joint to TOC.

WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS RECEIVED
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WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS APR 25 2016

WERE TRACERS USED Yes No TYPE OF TRACER(S) USED WV Department of Environmental Protection

API 47- 069 - 00182 Farm name Short Creek Coal Co Well number Rayle Coal OHI 1H

PRODUCING FORMATION(S)	DEPTHS			
Marcellus	6378'	TVD	13,279'	MD

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 1503 psi Bottom Hole psi DURATION OF TEST 24 hrs

OPEN FLOW Gas Oil NGL Water GAS MEASURED BY

3237.5 mcfpd 342 bpd bpd bpd Estimated Orifice Pilot

LITHOLOGY/ FORMATION	TOP	BOTTOM	TOP	BOTTOM	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC)
	DEPTH IN FT NAME TVD	DEPTH IN FT TVD	DEPTH IN FT MD	DEPTH IN FT MD	
	<u>0</u>		<u>0</u>		
		SEE ATTACHMENT			

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Please insert additional pages as applicable.

Drilling Contractor Nomac Drilling
Address 171 Locust Ave Extension City Mt. Morris State PA Zip 15349

Logging Company Weatherford International
Address 515 Post Oak Blvd City Houston State TX Zip 77027

Cementing Company Schlumberger
Address 1325 S. Dairy Ashford Dr City Houston State TX Zip 77077

Stimulating Company Calfrac Well Services
Address 2001 Summit View Dr City Smithfield State PA Zip 15478

Please insert additional pages as applicable.

Completed by Cody Magby Telephone 8327966215
Signature _____ Title Sr. Regulatory Staff Date 6/29/15

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	3/7/2015
Job End Date:	3/13/2015
State:	West Virginia
County:	Ohio
API Number:	47-069-00182-00-00
Operator Name:	Southwestern Energy
Well Name and Number:	Rayle Coal OHI 1H
Longitude:	-80.62703400
Latitude:	40.16133800
Datum:	NAD83
Federal/ Tribal Well:	NO
True Vertical Depth:	5,827
Total Base Water Volume (gal):	5,937,015
Total Base Non-Water Volume:	0



Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	Customer & CWS	Base Fluid & Mix Water					
			Water	7732-18-5	100.00000	83.74460	
Sand (Proppant), DAP-925, DWP-602, Hydrochloric Acid	CWS	Propping Agent, Acid Corrosion Inhibitor, Friction Reducer, Clean Perforations					
			Crystalline silica (Quartz)	14808-60-7	100.00000	15.72136	
			Hydrochloric acid	7647-01-0	37.00000	0.38854	
			Polyacrylamide polymer	Proprietary	40.00000	0.03687	Proprietary CAS
			Paraffinic hydrocarbon solvent	64742-47-8	30.00000	0.02765	
			Calcite	471-34-1	1.00000	0.01992	
			Illite	12173-60-3	1.00000	0.01707	
			Goethite	1310-14-1	0.10000	0.00917	
			Biotite	1302-27-8	0.10000	0.00727	
			Apatite	64476-38-6	0.10000	0.00727	
			Ilmenite	98072-94-7	0.10000	0.00632	
			Polyoxyalkylenes surfactant	Proprietary	5.00000	0.00461	Proprietary CAS
			Nonionic surfactant	Proprietary	5.00000	0.00461	Proprietary CAS
			Calcium chloride	10043-52-4	100.00000	0.00400	
			Methanol	67-56-1	60.00000	0.00026	

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		Fatty acids	Proprietary	30.00000	0.00013	Proprietary CAS
		Polyoxyalkylenes	Proprietary	30.00000	0.00013	Proprietary CAS
		Modified thiourea polymer	68527-49-1	30.00000	0.00013	
		Propargyl Alcohol	107-19-7	10.00000	0.00004	
		Olefin	Proprietary	5.00000	0.00002	Proprietary CAS
		Formaldehyde	50-00-0	0.10000		
		Sodium chloride	7647-14-5	1.00000		

Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.

- * Total Water Volume sources may include fresh water, produced water, and/or recycled water
- ** Information is based on the maximum potential for concentration and thus the total may be over 100%

Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided. Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

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API #: 4706900182

FARM NAME: Short Creek Coal Co

WELL NAME: Rayle Coal OHI 1H

ATTACHMENT 1

Stage #	Stim Date	Top Perf	Bottom Perf	#of Perfs	Formation
1	3/7/2015	11,391	11,584	42	Marcellus
2	3/7/2015	11,131	11,324	42	Marcellus
3	3/8/2015	10,871	11,064	42	Marcellus
4	3/8/2015	10,609	10,806	42	Marcellus
5	3/8/2015	10,349	10,544	42	Marcellus
6	3/9/2015	10,089	10,284	42	Marcellus
7	3/9/2015	9,831	10,024	42	Marcellus
8	3/9/2015	9,571	9,764	42	Marcellus
9	3/9/2015	9,311	9,504	42	Marcellus
10	3/10/2015	9,051	9,244	42	Marcellus
11	3/10/2015	8,791	8,984	42	Marcellus
12	3/11/2015	8,531	8,724	42	Marcellus
13	3/11/2015	8,271	8,464	42	Marcellus
14	3/12/2015	8,011	8,204	42	Marcellus
15	3/12/2015	7,749	7,942	42	Marcellus
16	3/12/2015	7,491	7,684	42	Marcellus
17	3/13/2015	7,231	7,424	42	Marcellus
18	3/13/2015	6,971	7,164	42	Marcellus
19	3/13/2015	6,711	6,904	42	Marcellus

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RAYLE COAL OHI 1H API # 47-069-00182-00-00 ATTACHMENT 2 STIMULATION REPORT

WELL NAME	STAGE NUM	START TIME	STG TOP	STG BTM	AVG RATE (BPM)	AVG PSI (PSI)	MAX PSI (PSI)
RAYLE COAL OHI 1H	1	3/7/2015	11,391	11,584	94	7,849	9,269
RAYLE COAL OHI 1H	2	3/7/2015	11,131	11,324	92	7,179	8,512
RAYLE COAL OHI 1H	3	3/8/2015	10,871	11,064	96	7,817	9,265
RAYLE COAL OHI 1H	4	3/8/2015	10,609	10,806	99	7,249	8,481
RAYLE COAL OHI 1H	5	3/8/2015	10,349	10,544	98	7,641	9,201
RAYLE COAL OHI 1H	6	3/9/2015	10,089	10,284	99	7,572	9,132
RAYLE COAL OHI 1H	7	3/9/2015	9,831	10,024	99	7,416	8,974
RAYLE COAL OHI 1H	8	3/9/2015	9,571	9,764	99	7,472	9,317
RAYLE COAL OHI 1H	9	3/9/2015	9,311	9,504	99	7,475	9,334
RAYLE COAL OHI 1H	10	3/10/2015	9,051	9,244	99	7,360	8,444
RAYLE COAL OHI 1H	11	3/10/2015	8,791	8,984	100	7,571	9,353
RAYLE COAL OHI 1H	12	3/11/2015	8,531	8,724	92	6,991	9,087
RAYLE COAL OHI 1H	13	3/11/2015	8,271	8,464	99	7,276	8,695
RAYLE COAL OHI 1H	14	3/12/2015	8,011	8,204	100	7,223	8,463
RAYLE COAL OHI 1H	15	3/12/2015	7,749	7,942	98	7,020	9,265
RAYLE COAL OHI 1H	16	3/12/2015	7,491	7,684	99	6,989	7,851
RAYLE COAL OHI 1H	17	3/13/2015	7,231	7,424	100	6,925	7,832
RAYLE COAL OHI 1H	18	3/13/2015	6,971	7,164	100	6,920	7,349
RAYLE COAL OHI 1H	19	3/13/2015	6,711	6,904	100	6,646	8,461

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AVG ISIP (PSI)	Total Proppant	TOTAL FLUID VOLUME (BBLs)	N2	Perf Date	PERF TOP	PERF BTM	Total Shots
4,409	499,400	7756	0	3/31/2015	11,391	11,584	42
4,613	499,800	7865	0	3/7/2015	11,131	11,324	42
4,509	500,300	7651	0	3/8/2015	10,871	11,064	42
4,696	500,200	7414	0	3/8/2015	10,609	10,806	42
4,478	498,700	7655	0	3/8/2015	10,349	10,544	42
4,889	498,500	7310	0	3/8/2015	10,089	10,284	42
4,711	500,050	7628	0	3/9/2015	9,831	10,024	42
4,509	499,550	7455	0	3/9/2015	9,571	9,764	42
4,397	498,650	7436	0	3/9/2015	9,311	9,504	42
4,837	499,550	7906	0	3/10/2015	9,051	9,244	42
4,904	499,800	7138	0	3/10/2015	8,791	8,984	42
4,521	499,800	7513	0	3/10/2015	8,531	8,724	42
4,539	500,500	7347	0	3/11/2015	8,271	8,464	42
4,472	500,550	7203	0	3/11/2015	8,011	8,204	42
4,551	501,000	7568	0	3/12/2015	7,749	7,942	42
5,098	500,050	7092	0	3/12/2015	7,491	7,684	42
4,658	495,000	7050	0	3/12/2015	7,231	7,424	42
5,012	496,010	7048	0	3/13/2015	6,971	7,164	42
4,782	497,070	7323	0	3/13/2015	6,711	6,904	42

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ATTACHMENT 3

Rayle Coal OHI 1H	API # 47-069-00182-00-00		Supplemental Formation Record		
Formation	Top Depth, MD (ft)	Top Depth, TVD (ft)	Bottom Depth, MD (ft)	Bottom Depth, TVD (ft)	Rock Type
Undifferentiated Sandstones, Siltstones, and Shales	0	0	247	247	Sandstone, Siltstone and Shale
Pittsburgh Coal	247	247	253	253	Coal Seam
Undifferentiated Sandstones, Siltstones, and Shales	253	253	1296	1289	Sandstone, Siltstone and Shale
Maxton	1296	1289	1385	1377	Sandstone
Big Lime	1385	1377	1627	1619	Limestone
Big Injun	1627	1619	1748	1740	Sandstone
Shale and Siltstones	1748	1740	1869	1861	Shale and Siltstone
Berea	1869	1861	1955	1946	Sandstone and Siltstone
Undifferentiated Sandstones, Siltstones, and Shales	1955	1946	5258	5248	Sandstone, Siltstone and Shale
Rhinestreet	5258	5248	5549	5507	Shale
Cashaqua	5549	5507	5606	5553	Shale
Middlesex	5606	5553	5701	5620	Shale
Burket	5701	5620	5728	5637	Black Shale
Tully	5728	5637	5825	5691	Limestone
Mahantango	5825	5691	6394	5790	Gray and Black Shale
Marcellus	6394	5790	11766	5783	Black Shale

Subject well was drilled by Chesapeake Operating INC. and completed by SWN Production Company, LLC Lithology and formation information is based on professional interpretation of analogous offset well data.

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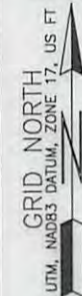
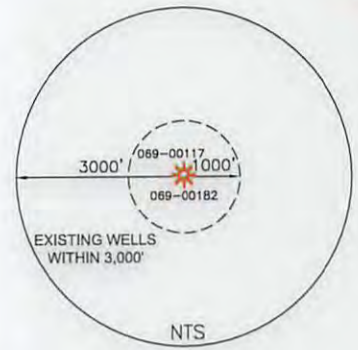
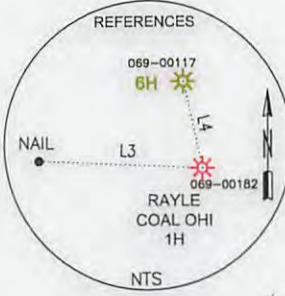
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LINE	DESCRIPTION	DISTANCE	DESCRIPTION	MONUMENT
L1	N 20°25'36" E	1978.61'	SHL TO LANDMARK	
L2	S 30°45'34" W	410.62'	SHL TO LANDMARK	
L3	N 87°21'50" W	170.75'	SHL TO REF. PNT.	SET NAIL
L4	N 12°15'51" W	27.69'	SHL TO REF. PNT.	RAYLE COAL OH 6H WELL HEAD (069-00117)

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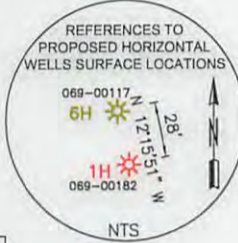
NOTES ON SURVEY

- COORDINATES SYSTEM IS UTM, NAD 83 DATUM, ZONE 17, U.S. FOOT AND WELL COORDINATES ESTABLISHED USING SURVEY GRADE GPS.
- SURFACE AND ROYALTY OWNER INFORMATION AND THEIR BOUNDARIES SHOWN HEREON WERE PLOTTED FROM DEEDS AND/OR TAX PARCEL MAPS PROVIDED BY CLIENT AND FIELD LOCATIONS.
- THIS PLAT DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARCELS SHOWN HEREON.
- NO DWELLINGS AND BUILDINGS WITHIN 625 FEET OF PROPOSED CENTER OF PAD.
- NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250 FEET OF PROPOSED WELL.
- NO PERENNIAL STREAMS, LAKES, PONDS, RESERVOIRS OR WETLANDS WITHIN 1000 FEET OF THE LIMITS OF DISTURBANCE.
- NO NATURALLY PRODUCING TROUT STREAM WITHIN 300 FEET OF LIMITS OF DISTURBANCE.



WW-6A1 LEGEND

(S)	SURFACE OWNER
(R)	ROYALTY OWNER
(TMP)	TAX MAP PARCEL NUMBER
(L)	LEASE NUMBER



DIRECTIONAL PATH

LINE	CHORD BEARING	CHORD DIST
L5	S 62°07'56" W	120.79'
L6	N 84°49'14" W	694.83'
L7	N 54°51'24" W	532.79'
L8	N 17°54'31" W	1290.57'
L9	N 20°32'06" W	379.82'
L10	N 21°07'53" W	283.58'
L11	N 18°59'49" W	851.69'
L12	N 18°40'35" W	942.95'
L13	N 19°06'20" W	656.30'
L14	N 16°20'16" W	283.56'
L15	N 18°22'40" W	366.78'

SURFACE HOLE LOCATION (SHL):

GEOGRAPHIC (NAD83):
LATITUDE: 40.161411'
LONGITUDE: -80.626831'

UTM (NAD83, ZONE 17, FEET):
NORTHING: 14,585,729.445
EASTING: 1,744,676.759

UTM (NAD83, ZONE 17, METERS):
NORTHING: 4,445,739.226
EASTING: 531,778.540

BOTTOM HOLE LOCATION (BHL):

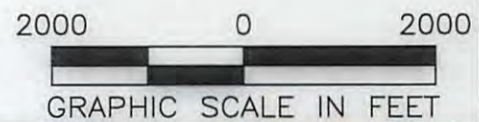
GEOGRAPHIC (NAD83):
LATITUDE: 40.175449'
LONGITUDE: -80.636979'

UTM (NAD83, ZONE 17, FEET):
NORTHING: 14,590,829.583
EASTING: 1,741,820.584

UTM (NAD83, ZONE 17, METERS):
NORTHING: 4,447,293.752
EASTING: 530,907.976

I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

P.S. 2315



COMPANY: **SWN** Production Company, LLC

<p>(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS</p> <p>WVDEP OFFICE OF OIL & GAS 601 57TH STREET CHARLESTON, WV 25034</p>	MINIMUM DEGREE OF ACCURACY: 1/200 PROVEN SOURCE OF ELEVATION: SURVEY GRADE GPS (NAVD 88, US FT)	COMPANY: SWN Production Company, LLC RAYLE COAL OHI OPERATOR'S WELL #: 1H API WELL #: 47 STATE 69 COUNTY 00182H64 PERMIT
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WELL TYPE: OIL WASTE DISPOSAL PRODUCTION DEEP GAS LIQUID INJECTION STORAGE SHALLOW

WATERSHED: OHIO RIVER DIRECT DRAINS ELEVATION: 1064.1'

DISTRICT: RICHLAND COUNTY: OHIO QUADRANGLE: TILTONSVILLE, WV

SURFACE OWNER: SHORT CREEK COAL CO. C/O RAYLE COAL ACREAGE: ±61.53

OIL & GAS ROYALTY OWNER: SHORT CREEK COAL CO. C/O RAYLE COAL ACREAGE: ±394.05

DRILL DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION PERFORATE NEW FORMATION

CONVERT PLUG & ABANDON CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY)

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: 5,783' TVD 11,766' TMD

WELL OPERATOR: SWN PRODUCTION COMPANY, LLC DESIGNATED AGENT: DEE SOUTHALL
ADDRESS: P.O. BOX 1300 ADDRESS: P.O. BOX 1300
CITY: JANE LEW STATE: WV ZIP CODE: 26378 CITY: JANE LEW STATE: WV ZIP CODE: 26378

LEGEND: ○ PROPOSED SURFACE HOLE / BOTTOM HOLE ✱ EXISTING / PRODUCING WELLHEAD ✕ ABANDONED WELL ✕ PLUGGED & ABANDONED WELL △ CUT CONDUCTOR	REVISIONS: --- LEASE BOUNDARY --- 500' DHP BUFFER --- MAR 1 --- MARCELLUS DHP --- ABANDONED PATH	DATE: 05-07-2015 DRAWN BY: S. HUTSON SCALE: 1" = 2000' DRAWING NO: 58659 WELL LOCATION PLAT
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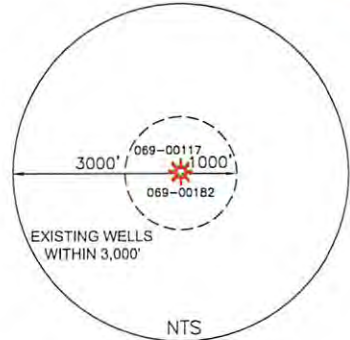
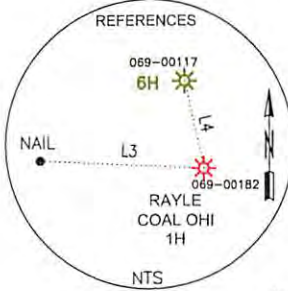
LINE	DESCRIPTION	DISTANCE	DESCRIPTION	MONUMENT
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L2	S 30°45'34" W	410.62'	SHL TO LANDMARK	
L3	N 87°21'50" W	170.75'	SHL TO REF. PNT.	SET NAIL
L4	N 12°15'51" W	27.69'	SHL TO REF. PNT.	RAYLE COAL OH 6H WELL HEAD (069-00117)

ASDRILLED

Longitude: 80°37'30"

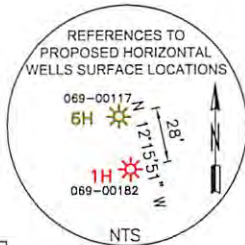
NOTES ON SURVEY

- COORDINATES SYSTEM IS UTM, NAD 83 DATUM, ZONE 17, U.S. FOOT AND WELL COORDINATES ESTABLISHED USING SURVEY GRADE GPS.
- SURFACE AND ROYALTY OWNER INFORMATION AND THEIR BOUNDARIES SHOWN HEREON WERE PLOTTED FROM DEEDS AND/OR TAX PARCEL MAPS PROVIDED BY CLIENT AND FIELD LOCATIONS.
- THIS PLAT DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARCELS SHOWN HEREON.
- NO DWELLINGS AND BUILDINGS WITHIN 625 FEET OF PROPOSED CENTER OF PAD.
- NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250 FEET OF PROPOSED WELL.
- NO PERENNIAL STREAMS, LAKES, PONDS, RESERVOIRS OR WETLANDS WITHIN 1000 FEET OF THE LIMITS OF DISTURBANCE.
- NO NATURALLY PRODUCING TROUT STREAM WITHIN 300 FEET OF LIMITS OF DISTURBANCE.



GRID NORTH
UTM, NAD83 DATUM, ZONE 17, US FT

WW-6A1 LEGEND
(S) SURFACE OWNER
(R) ROYALTY OWNER
(TMP) TAX MAP PARCEL NUMBER
(L) LEASE NUMBER



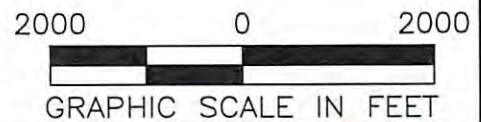
DIRECTIONAL PATH

LINE	CHORD BEARING	CHORD DIST
L5	S 62°07'56" W	120.79'
L6	N 84°49'14" W	694.83'
L7	N 54°51'24" W	532.79'
L8	N 17°54'31" W	1290.57'
L9	N 20°32'06" W	379.82'
L10	N 21°07'53" W	283.58'
L11	N 18°59'49" W	851.69'
L12	N 18°40'35" W	942.95'
L13	N 19°06'20" W	656.30'
L14	N 16°20'16" W	283.56'
L15	N 18°22'40" W	366.78'

SURFACE HOLE LOCATION (SHL):	
GEOGRAPHIC (NAD83):	LATITUDE: 40.161411°
	LONGITUDE: -80.626831°
UTM (NAD83, ZONE 17, FEET):	NORTHING: 14,585,729.445
	EASTING: 1,744,676.759
UTM (NAD83, ZONE 17, METERS):	NORTHING: 4,445,739.226
	EASTING: 531,778.540
BOTTOM HOLE LOCATION (BHL):	
GEOGRAPHIC (NAD83):	LATITUDE: 40.175449°
	LONGITUDE: -80.636979°
UTM (NAD83, ZONE 17, FEET):	NORTHING: 14,590,829.583
	EASTING: 1,741,820.584
UTM (NAD83, ZONE 17, METERS):	NORTHING: 4,447,293.752
	EASTING: 530,907.976

I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

P.S. 2315



COMPANY: **SWN** Production Company, LLC **SWN** Production Company™

<p>(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS</p> <p>WVDEP OFFICE OF OIL & GAS 601 57TH STREET CHARLESTON, WV 25034</p>	MINIMUM DEGREE OF ACCURACY: 1/200 PROVEN SURVEY SOURCE OF GRADE GPS ELEVATION: (NAVD 88, US FT)	COMPANY: SWN Production Company, LLC SWN Production Company™ OPERATOR'S WELL #: RAYLE COAL OHI 1H API WELL #: 47 69 00182H64 STATE COUNTY PERMIT
---	--	---

WELL TYPE: OIL WASTE DISPOSAL PRODUCTION DEEP GAS LIQUID INJECTION STORAGE SHALLOW

WATERSHED: OHIO RIVER DIRECT DRAINS ELEVATION: 1064.1'

DISTRICT: RICHLAND COUNTY: OHIO QUADRANGLE: TILTONSVILLE, WV

SURFACE OWNER: SHORT CREEK COAL CO. C/O RAYLE COAL ACREAGE: ±61.53

OIL & GAS ROYALTY OWNER: SHORT CREEK COAL CO. C/O RAYLE COAL ACREAGE: ±394.05

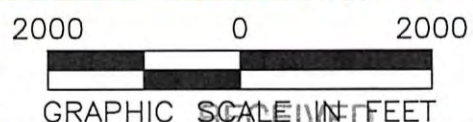
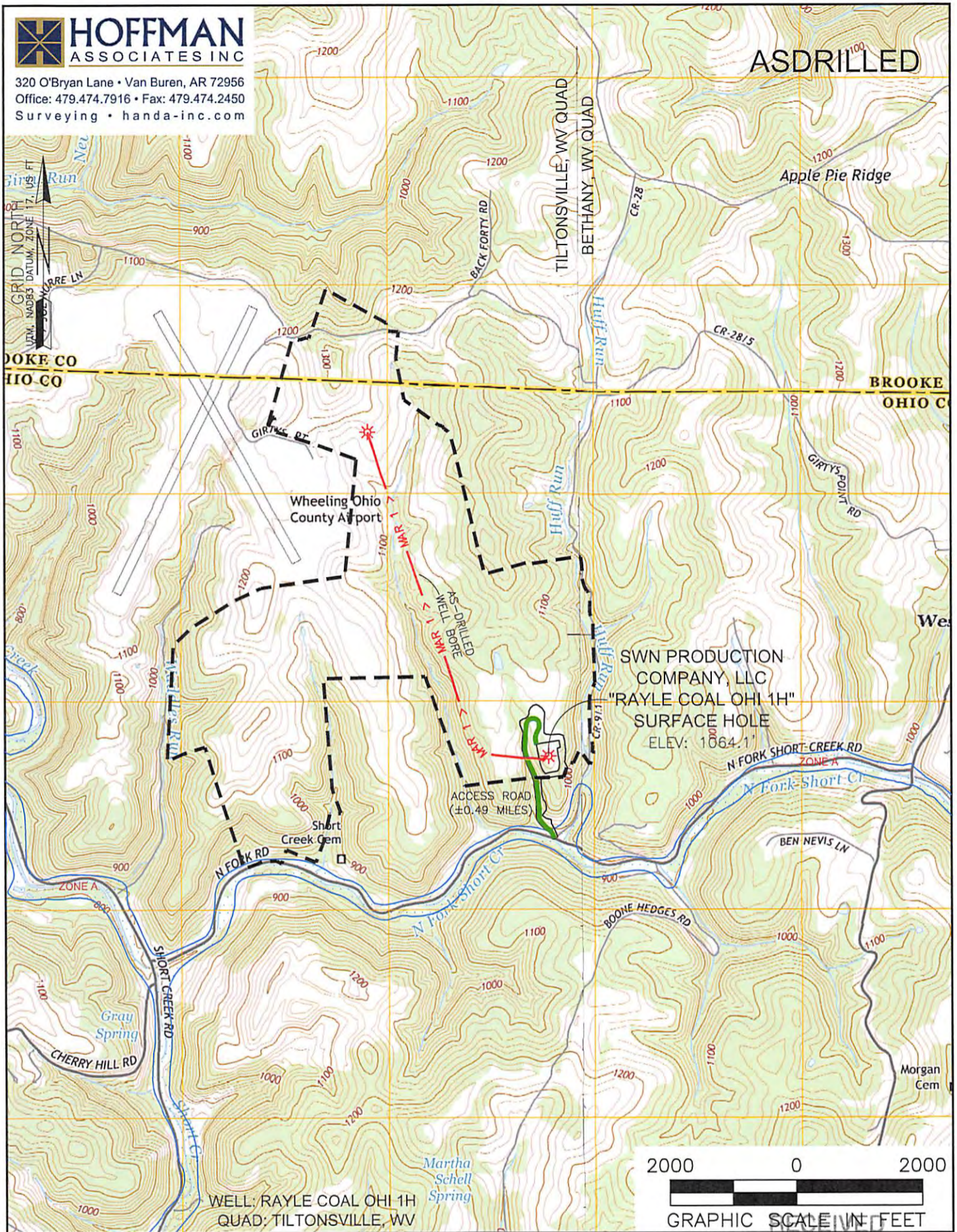
DRILL DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION PERFORATE NEW FORMATION

CONVERT PLUG & ABANDON CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY)

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: 5,783' TVD 11,766' TMD

WELL OPERATOR: SWN PRODUCTION COMPANY, LLC DESIGNATED AGENT: DEE SOUTHALL
ADDRESS: P.O. BOX 1300 ADDRESS: P.O. BOX 1300
CITY: JANE LEW STATE: WV ZIP CODE: 26378 CITY: JANE LEW STATE: WV ZIP CODE: 26378

LEGEND:	REVISIONS:	DATE:
<ul style="list-style-type: none"> ○ PROPOSED SURFACE HOLE / BOTTOM HOLE ⊙ EXISTING / PRODUCING WELLHEAD ⊘ ABANDONED WELL ⊗ PLUGGED & ABANDONED WELL △ CUT CONDUCTOR --- LEASE BOUNDARY --- 500' DHP BUFFER - MAR 1 > - MARCELLUS DHP - - - ABANDONED PATH 		05-07-2015
		DRAWN BY: S. HUTTON
		SCALE: 1" = 2000'
		DRAWING NO: 58659
		WELL LOCATION PLAT



NAME AND DISTANCE TO THE NEAREST STREAM: HUFF RUN IS LOCATED ±0.11 MILES EAST OF THE CENTER OF THE DRILL PAD.		STREAM CROSSING COORDINATES (NAD 83): NO NEW CROSSINGS.		COMPANY: SWN Production Company, LLC 	
WELL RESTRICTIONS: WELL PAD, LOD, & E & S CONTROL FEATURES TO PERENNIAL STREAM, LAKE, POND, RESERVOIR OR WETLAND: >100 FEET WELL PAD, LOD, & E & S CONTROL FEATURES TO NATURALLY PRODUCING TROUT STREAM: >300 FEET WELL PAD, LOD, & E & S CONTROL FEATURES TO GROUNDWATER INTAKE OR PUBLIC WATER SUPPLY: >1000 FEET WELL SHL TO EXISTING WATER WELL OR DEVELOPED SPRING: >250 FEET CENTER OF PAD TO OCCUPIED DWELLING STRUCTURE: >625 FEET CENTER OF PAD TO AGRICULTURAL BUILDINGS LARGER THAN 2500 SQ FT: >625 FEET		OPERATOR'S RAYLE COAL OHI		WELL #: 1H WV Department of Environmental Protection	
FEMA FLOOD INFORMATION: BY GRAPHIC PLOTTING ONLY FEMA FIRM INCORPORATED AREA OF OHIO COUNTY, WEST VIRGINIA; MAP NUMBER 05069C0020D & 05069C0040D; EFFECTIVE DATE: JULY 17, 2006.		LOCATION: RICHLAND DISTRICT, OHIO COUNTY, WEST VIRGINIA		SURFACE HOLE LOCATION: GEOGRAPHIC (NAD83): LATITUDE: 40.161411° LONGITUDE: -80.626831° 07/15/2016	
LEGEND: ○ PROPOSED SURFACE HOLE / BOTTOM HOLE ✱ EXISTING / PRODUCING WELLHEAD ✕ ABANDONED WELL ✖ PLUGGED & ABANDONED WELL △ CUT CONDUCTOR		(S) EXISTING SPRING (W) EXISTING WATER WELL ACCESS ROAD ACCESS ROAD TO PREV. SITE HIGHWAY/INTERSTATE COUNTY ROAD		BOTTOM HOLE LOCATION: GEOGRAPHIC (NAD83): LATITUDE: 40.175449° LONGITUDE: -80.636979°	
REVISIONS:		DATE: 05-07-2015		DRAWN BY: S. HUTSON SCALE: 1" = 2000' DRAWING NO: 58659 TOPOGRAPHIC MAP	

COPY

VIA FEDERREAL EXPRESS OVERNIGHT

June 30, 2015

West Virginia Department of Environmental Protection- Office of Oil and Gas
601 57th Street SE
Charleston, WV 25304

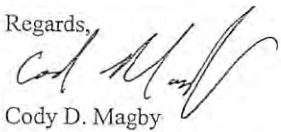
RE: Rayle Coal 1H

Dear Sir and/or Madam,

Enclosed please find the original Well Operator's Report of Well Work and the frac focus report for the above referenced well.

If there are any errors or questions feel free to reach out to me either by phone or email.

Regards,



Cody D. Magby

Sr. Regulatory Analyst

Cody_magby@swn.com

8327966215

Enclosure; Robert Shorts 5H completion report, 5H Frac Focus Report

RECEIVED
Office of Oil and Gas
APR 21 2016 07/15/2016

WV Department of