

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

API 47-009-00162 County BROOKE District CROSS CREEK
Quad STUEBENVILLE EAST WV Pad Name OV ROYALTY TRUST LLC-BRK-PAD1 Field/Pool Name PANHANDLE
Farm name THE TRUST OF GENE VALENTINE Well Number OV ROYALTY TRUST LLC BRK 1H
Operator (as registered with the OOG) SWN PRODUCTION COMPANY LLC
Address PO BOX 12359 City SPRING State TX Zip 77391-2359

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4,459,558.819 Easting 535,330.694
Landing Point of Curve Northing 4,459,607.612 Easting 534,994.925
Bottom Hole Northing 4,461,774.781 Easting 534,194.522

Elevation (ft) 1181' 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 07/28/2015 Date drilling commenced 08/14/2015 Date drilling completed 08/10/2015
Date completion activities began 07/27/2016 Date completion activities ceased 08/19/2016
Verbal plugging (Y/N) N Date permission granted _____ Granted by NOV 16 2016

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

Freshwater depth(s) ft 257' Open mine(s) (Y/N) depths _____
Salt water depth(s) ft 495' Void(s) encountered (Y/N) depths 210.5' - 216'
Coal depth(s) ft 210.50' Cavern(s) encountered (Y/N) depths _____

Is coal being mined in area (Y/N) N

APPROVED

NAME: Eric Blvd
DATE: 1.25.17

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Reviewed by:
WV Department of
Environmental Protection

API 47-009 - 00162 Farm name THE TRUST OF GENE VALENTINE Well number OV ROYALTY TRUST LLC BRK 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	28"	20"	135'	NEW	J-55/94#		Y
Surface	17.5"	13.375"	345'	NEW	J-55/54.5#	163'; 188'	Y, 1 BBL RETURNED
Coal	SEE SURFACE						
Intermediate 1	12.25"	9.625"	1,582'	NEW	J-55/40#		Y
Intermediate 2							
Intermediate 3							
Production	8.50"	5.5"	13,955'	NEW	HCP-110/20#		Y
Tubing		2.375"	6,134'	NEW	P-110/4.70#		N
Packer type and depth set							

Comment Details _____

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	CLASS A	150	17.20			SURFACE	24
Surface	CLASS A	287	15.60	1.20	344.4	SURFACE	8
Coal	SEE SURFACE						
Intermediate 1	CLASS A	597	15.60	1.20	716.40	SURFACE	8
Intermediate 2							
Intermediate 3							
Production	CLASS A	886/1,709	15.60	1.23/1.19	1,089.78/2,033.71	SURFACE	24
Tubing	N/A						

Drillers TD (ft) 13,955' Loggers TD (ft) 13,955'
 Deepest formation penetrated MARCELLUS Plug back to (ft) N/A
 Plug back procedure _____

Kick off depth (ft) 4,969' _____

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: 7 CENTRALIZERS - EVERY THIRD JOINT OF CASING

INTERMEDIATE: 24 CENTRALIZERS - EVERY THIRD JOINT OF CASING

PRODUCTION: 181 CENTRALIZERS - EVERY THIRD JOINT FROM SURFACE TO TOP OF CURVE, THEN EVERY JOINT UNTIL TD

WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS _____

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WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS _____

NOV 10 2016

WERE TRACERS USED Yes No TYPE OF TRACER(S) USED _____

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OV ROYALTY TRUST LLC BRK 1H

Perforation Information

STAGE NUM	Perf Date	Perf Top MD	Perf Bottom		# SHOTS PER STG
			MD	MD	
1	7/27/2016	13,628	13,828	42	
2	7/27/2016	13,364	13,564	42	
3	7/27/2016	13,100	13,300	42	
4	7/27/2016	12,836	13,036	42	
5	7/28/2016	12,572	12,772	75	
6	7/28/2016	12,308	12,508	42	
7	7/28/2016	12,044	12,244	42	
8	7/28/2016	11,780	11,980	42	
9	7/29/2016	11,516	11,716	42	
10	7/29/2016	11,252	11,455	42	
11	7/30/2016	10,988	11,188	42	
12	7/30/2016	10,724	10,924	42	
13	7/30/2016	10,460	10,660	42	
14	7/31/2016	10,196	10,396	42	
15	8/1/2016	9,904	10,101	42	
16	8/1/2016	9,644	9,841	42	
17	8/1/2016	9,396	9,584	42	
18	8/1/2016	9,148	9,336	42	
19	8/2/2016	8,900	9,088	42	
20	8/2/2016	8,652	8,840	42	
21	8/2/2016	8,404	8,592	42	
22	8/2/2016	8,156	8,344	42	
23	8/2/2016	7,908	8,096	42	
24	8/3/2016	7,660	7,848	42	
25	8/3/2016	7,409	7,600	42	
26	8/3/2016	7,164	7,352	42	
27	8/3/2016	6,916	7,104	42	
28	8/3/2016	6,668	6,856	42	
29	8/4/2016	6,420	6,608	42	
30	8/4/2016	6,172	6,363	42	

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Stimulation Information

STAGE NUM	Stim Date	Ave Pump Rate (BPM)	Ave Treatmen t Pressure (PSI)	Max		Amount of Proppant (lbs)	Amount of water bbls	Amount of nitrogen/ other
				Breakdo wn Pressure (PSI)	ISIP (PSI)			
1	7/27/2016	2	7,285	8,520	5,200	500,960	9,836	N/A
2	7/27/2016	2	7,457	7,938	3,976	500,200	7,926	N/A
3	7/27/2016	2	7,660	8,867	3,884	500,280	7,852	N/A
4	7/27/2016	2	7,539	8,995	4,276	500,820	7,496	N/A
5	7/28/2016	2	7,911	9,149	4,487	501,220	10,976	N/A
6	7/28/2016	2	7,851	9,105	4,396	500,630	7,621	N/A
7	7/28/2016	2	7,552	8,811	4,276	501,060	7,521	N/A
8	7/28/2016	2	8,400	9,399	3,748	491,070	10,839	N/A
9	7/29/2016	2	7,635	8,555	3,795	501,000	7,748	N/A
10	7/29/2016	2	7,805	8,715	4,064	499,520	7,224	N/A
11	7/30/2016	2	7,312	9,018	3,877	501,580	8,788	N/A
12	7/30/2016	2	7,505	9,052	3,855	503,590	8,634	N/A
13	7/30/2016	2	7,197	8,584	4,012	500,680	8,695	N/A
14	7/31/2016	2	7,173	9,030	4,120	500,400	7,558	N/A
15	8/1/2016	2	7,358	7,782	3,932	498,520	7,329	N/A
16	8/1/2016	2	7,354	7,643	4,184	498,420	7,127	N/A
17	8/1/2016	2	7,150	7,667	4,488	499,320	7,079	N/A
18	8/1/2016	2	6,996	8,756	3,830	501,780	6,959	N/A
19	8/2/2016	2	7,038	8,723	3,895	499,940	7,032	N/A
20	8/2/2016	2	7,259	7,894	4,184	500,600	7,024	N/A
21	8/2/2016	2	7,305	7,657	4,011	501,580	7,148	N/A
22	8/2/2016	2	6,798	8,336	4,040	499,120	7,001	N/A
23	8/2/2016	2	6,886	8,170	3,952	498,220	8,440	N/A
24	8/3/2016	2	6,944	9,176	4,135	502,800	6,851	N/A
25	8/3/2016	2	6,552	6,838	4,847	501,480	7,152	N/A
26	8/3/2016	2	7,124	7,878	4,276	501,860	7,005	N/A
27	8/3/2016	2	6,753	8,080	4,032	502,920	6,825	N/A
28	8/3/2016	2	6,764	8,037	4,168	497,320	6,834	N/A
29	8/4/2016	2	6,589	8,279	3,997	501,340	6,811	N/A
30	8/4/2016	2	6,197	7,734	4,396	503,020	10,616	N/A

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Lithology

LITHOLOGY/FORMATION	TOP DEPTH, TVD (FT)	BOTTOM DEPTH, TVD (FT)	TOP DEPTH, MD (FT)	BOTTOM DEPTH, MD (FT)	QUANTITY AND TYPE OF FLUID
Base of Fresh Water	N.A.	257.00	N.A.	257.00	
Top of Salt Water	495.00	N.A.	495.00	N.A.	
Pittsburgh Coal	210.50	216.00	236.50	242.00	Void Encountered
Big Injun (ss)	1503.00	1821.00	1506.75	1826.50	
Berea (siltstone)	1821.00	5227.05	1826.50	5295.69	
Rhinestreet (shale)	5227.05	5464.55	5295.69	5562.52	
Cashagua (shale)	5464.55	5521.49	5562.52	5638.17	
Middlesex (shale)	5521.49	5567.34	5638.17	5705.71	
Burket (shale)	5567.34	5590.24	5705.71	5740.89	
Tully (ls)	5590.24	5641.61	5740.89	5826.80	
Mahantango (shale)	5641.61	5740.56	5826.80	6060.90	
Marcellus (shale)	5740.56	N.A.	6060.90	N.A.	Gas



320 O'Bryan Lane • Van Buren, AR 72956
 Office: 479.474.7916 • Fax: 479.474.2450
 Surveying • handa-inc.com

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 OF 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

TRACT	SURFACE OWNER (S)/ROYALTY OWNER (R)	TAX PARCEL	ACRES	LEASE NUMBER
2	DALE E ADAMS & MARY K ADAMS (S/R)	CC22-30	2.30	47-000493-000
3	JIMMIE D GEORGE & ROBIN J GEORGE (S/R)	CC22-31	4.00	1-329256-000
4	PAUL DONALD MORRIS (S)	CC22-34	2.00	
	FIRST PRESBYTERIAN CHURCH (R)	CC22-34	2.00	47-0000826-000
5	ROBERT E LOUDIN (S/R)	CC22-13	1.83	1-358252-000
6	JOSEPH B HAUGHT & LISA HAUGHT (S/R)	CC22-15	0.40	47-001040-000
7	JOSEPH B HAUGHT & LISA HAUGHT (S/R)	CC22-14	0.28	47-001040-000
8	DAVID W YAUSSY (S/R)	CC22-5	0.32	47-000568-000
9	GERALD W DULANEY (S/R)	CC22-6	0.27	47-000915-000
10	NOT CROSSED			
11	DUANE TAYLOR (S/R)	CC22-4	3.00	1-313770-000
12	CAROL REED (S/R)	CC22-1	11.25	1-313835-000
13	DONALD C. TAYLOR & CHRISTINA M. TAYLOR (S/R)	CC22-2	2.00	1-313819-001
	DUANE RAY TAYLOR SR. (S/R)			1-313819-002
14	LISA ANN GREEN (S/R)	CC22-3	0.96	47-000574-000
15	NOT CROSSED			
16	THOMAS M BOYD, RICHARD A BOYD, & DAVID S BOYD TRUSTEES IN TRUST (S)	CC18-57	34.84	47-001427-000
	THE THOMAS J BOYD TRUST (R)			
17	THOMAS M BOYD, RICHARD A BOYD, & DAVID S BOYD TRUSTEES IN TRUST (S)	CC18-58	27.38	47-001459-000
	THE THOMAS J BOYD TRUST (R)			
18	CHARLES MELVIN ULRICH & AURETTA MINA ULRICH KEADLE (S/R)	CC18-59	1.00	1-329411-001
				1-382481-001
19	NURMI MYRTLE COX & OTHERS (S)	CC18-39	68.18	1-329412-001
	CHARLES MELVIN ULRICH (R)			47-000780-001
	ARETTA MINA ULRICH KEADLE (R)			47-000780-002
	JAMES M SIMPSON II (R)			47-000780-003
	PRISCILLA GAYE BUCHANAN (R)			47-000780-004
	M L BUCHANAN JR (R)			47-000780-005
	DAVID NURMI (R)			47-000780-006
	CHARLES M NURMI (R)			47-000780-007
	CHRISTINE ISABEL HARVEY (R)			47-000780-008
	HEATHER MARIE RUSCHMAN (R)			47-000780-009

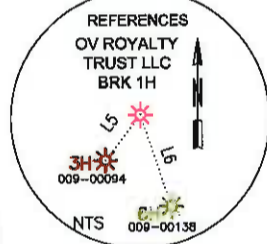
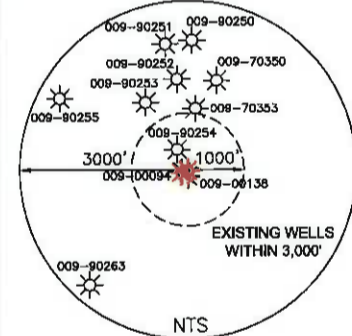
LINE	DESCRIPTION	DISTANCE	DESCRIPTION	MONUMENT
L1	N 33°34'45" W	3206.85'	SHL TO LANDMARK	FOUND IRON PIN
L2	N 36°13'10" W	4011.87'	SHL TO LANDMARK	FOUND IRON PIN
L3	N 81°43'35" W	1113.17'	SHL TO LPL	
L4	N 20°16'15" W	7579.55'	TPL TO BHL	
L5	S 38°28'15" W	19.83'	SHL TO REF. PNT.	OV ROYALTY TRUST LLC BRK 3H WELL HEAD 009-00094
L6	S 18°20'43" E	33.20'	SHL TO REF. PNT.	OV ROYALTY TRUST LLC BRK 6H WELL HEAD 009-00138
L7	N 65°38'28" W	1901.956'	SHL TO WATER WELL	
L8	N 78°41'09" W	2187.20'	SHL TO SPRING	

SURFACE HOLE LOCATION (SHL)
 UTM (NAD83, ZONE 17, METERS):
 NORTHING: 4,459,558.819
 EASTING: 535,330.694

LANDING POINT LOCATION (LPL)
 UTM (NAD83, ZONE 17, METERS):
 NORTHING: 4,459,607.612
 EASTING: 534,994.925

BOTTOM HOLE LOCATION (BHL)
 UTM (NAD83, ZONE 17, METERS):
 NORTHING: 4,461,774.781
 EASTING: 534,194.522

WV-8A1 LEGEND
 (S) SURFACE OWNER
 (R) ROYALTY OWNER
 (TMP) TAX MAP PARCEL NUMBER
 (L) LEASE NUMBER



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. 1333

[Signature] 09-20-16

COMPANY: **SWN** Production Company, LLC

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS WVDEP OFFICE OF OIL & GAS 601 57TH STREET CHARLESTON, WV 25034	MINIMUM DEGREE OF ACCURACY: 1/200 PROVEN SOURCE OF ELEVATION: SURVEY GRADE GPS (NAVD 88, US FT)	COMPANY: SWN OPERATOR'S WELL #: 1H API WELL #: 47 09 00162 STATE COUNTY PERMIT
	OIL & GAS ROYALTY OWNER: THE TRUST OF GENE VALENTINE	OIL & GAS ROYALTY OWNER: THE TRUST OF GENE VALENTINE

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

WATERSHED: BUFFALO CREEK ELEVATION: 1181.0'

DISTRICT: CROSS CREEK COUNTY: BROOKE QUADRANGLE: STUEBENVILLE EAST WV

SURFACE OWNER: THE TRUST OF GENE VALENTINE ACREAGE: ±494.38

OIL & GAS ROYALTY OWNER: THE TRUST OF GENE VALENTINE ACREAGE: ±494.38

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

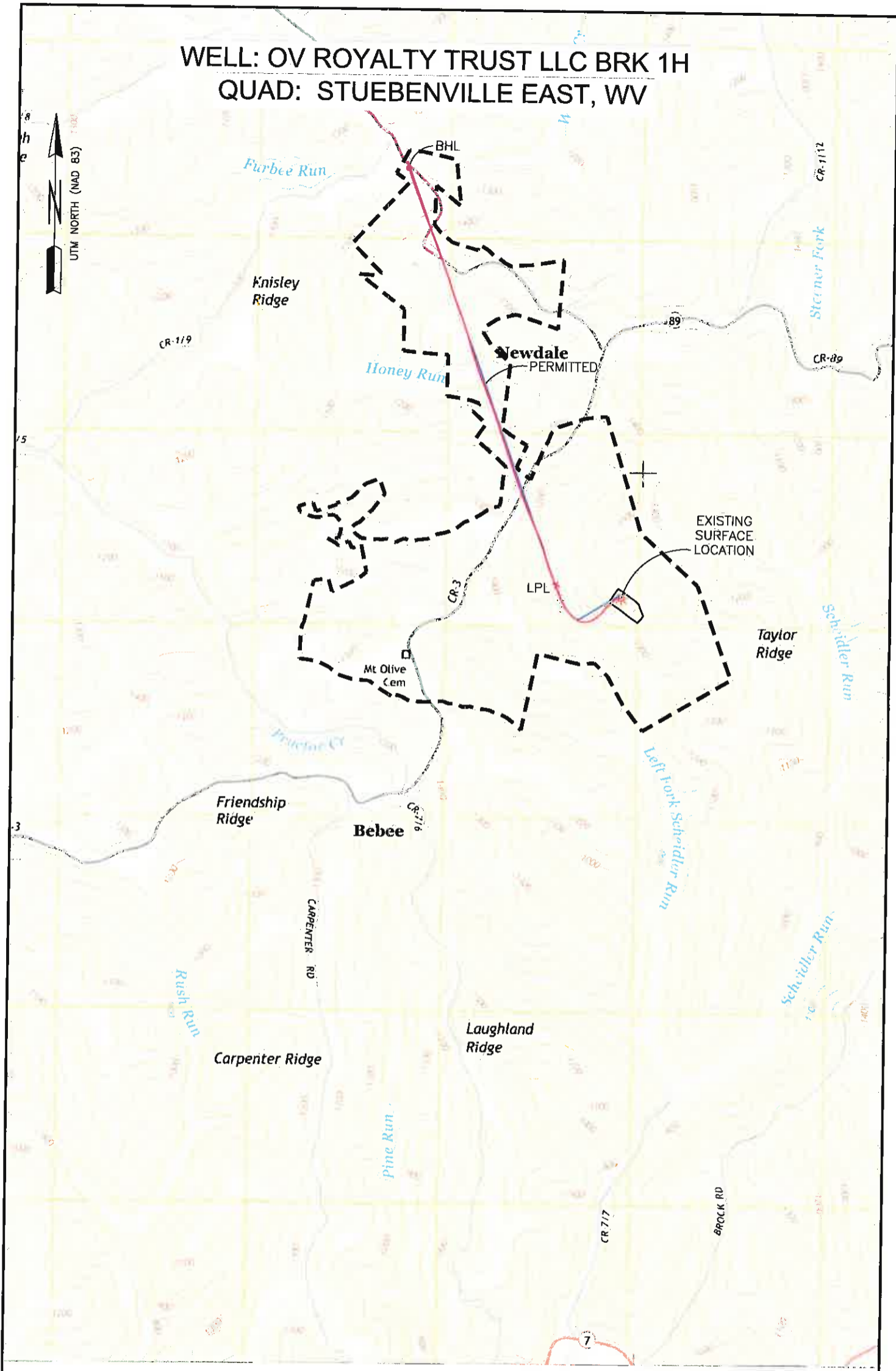
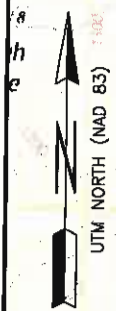
CONVERT PLUG & ABANDON CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY) AS-DRILLED

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: 5,777' TVD 13,955' 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	--- LEASE BOUNDARY --- AS-DRILLED PATH --- PERMITTED DIRECTIONAL PATH	REVISIONS: △ UPDATED WITH AS-DRILLED DIRECTIONAL PATH 07-26-2016	DATE: 07-20-2016 DRAWN BY: S SMITH SCALE: 1" = 2000' DRAWING NO: 59472 WELL LOCATION PLAT
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WELL: OV ROYALTY TRUST LLC BRK 1H QUAD: STUEBENVILLE EAST, WV

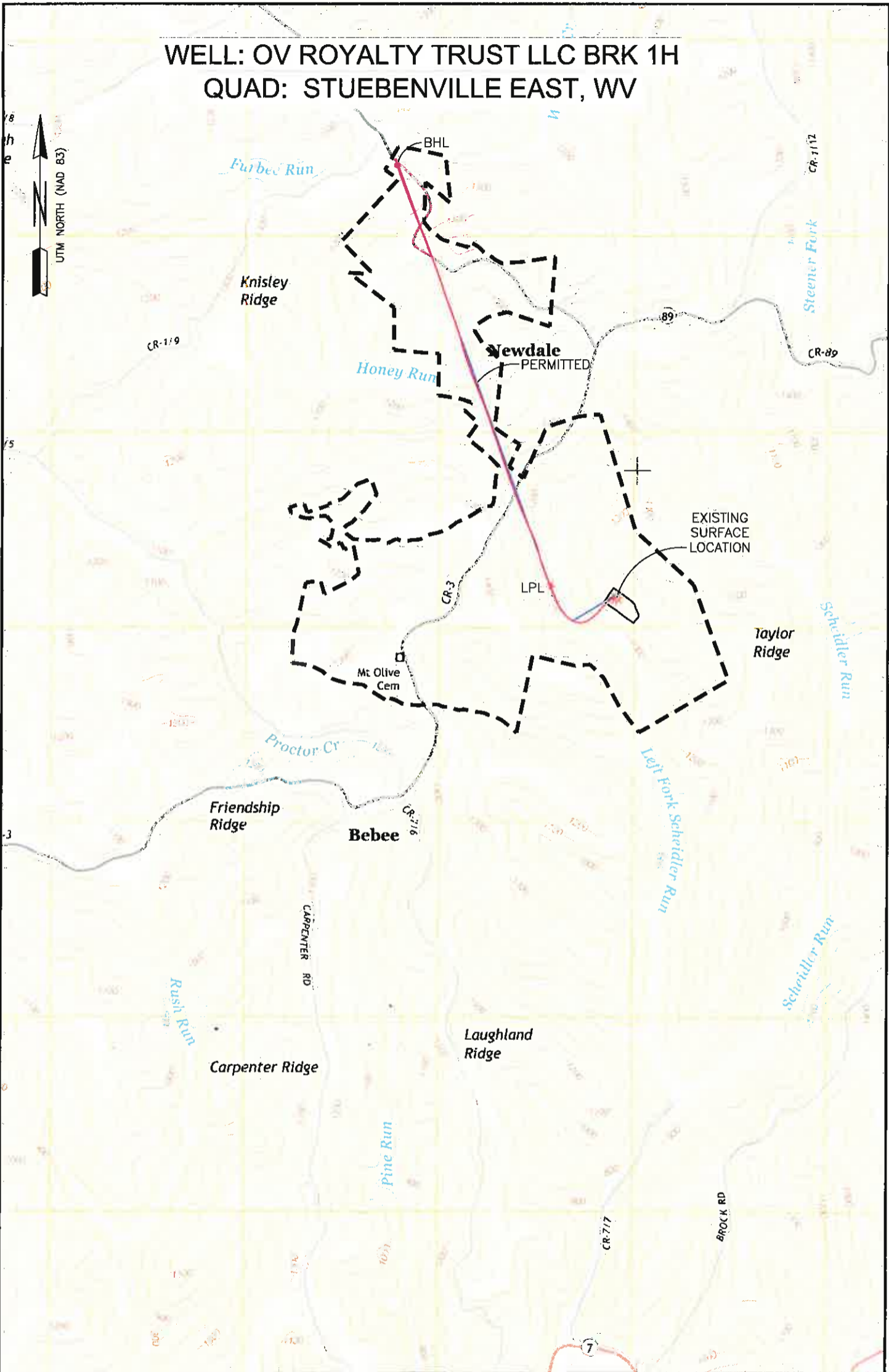


NOTE:
THE PURPOSE OF THIS PLAT IS FOR THE LOCATION OF PROPOSED GAS
WELLS AND DOES NOT REPRESENT A CLOSED BOUNDARY SURVEY.
PROPERTY LINE AND OWNERS WERE OBTAINED FROM VARIOUS FIELD
EVIDENCE, TAX RECORDS AND AERIAL MAPPING.

LEGEND
----- EXTERNAL LEASE LINE

Applicant / Well Operator Name SWN PRODUCTION COMPANY, LLC		Well (Farm) Name OV ROYALTY TRUST LLC BRK		Well # 1H	Serial #
Address PO BOX 1300, JANE LEW, WV 76378		County - Code BROOKE - 009	District CROSS CREEK		
Surface Landowner / Lessor THE TRUST OF GENE VALENTINE		USGS 7 1/2 Quadrangle Map Name STUEBENVILLE EAST, WV			

WELL: OV ROYALTY TRUST LLC BRK 1H QUAD: STUEBENVILLE EAST, WV



NOTE:
THE PURPOSE OF THIS PLAT IS FOR THE LOCATION OF PROPOSED GAS WELLS AND DOES NOT REPRESENT A CLOSED BOUNDARY SURVEY. PROPERTY LINE AND OWNERS WERE OBTAINED FROM VARIOUS FIELD EVIDENCE, TAX RECORDS AND AERIAL MAPPING.

LEGEND

----- EXTERNAL LEASE LINE

Applicant / Well Operator Name SWN PRODUCTION COMPANY, LLC	Well (Farm) Name OV ROYALTY TRUST LLC BRK	Well # 1H	Serial #
Address PO BOX 1300, JANE LEW, WV 76378	County - Code BROOKE - 009	District CROSS CREEK	
Surface Landowner / Lessor THE TRUST OF GENE VALENTINE	USGS 7 1/2 Quadrangle Map Name STUEBENVILLE EAST, WV		