



west virginia department of environmental protection

Office of Oil and Gas
601 57th Street, S.E.
Charleston, WV 25304
(304) 926-0450
fax: (304) 926-0452

Harold D. Ward, Cabinet Secretary
www.dep.wv.gov

Tuesday, August 9, 2022
PERMIT MODIFICATION APPROVAL
Horizontal 6A / New Drill

SWN PRODUCTION COMPANY, LLC
POST OFFICE BOX 12359
SPRING, TX 773914954

Re: Permit Modification Approval for ROTH OHI 10H
47-069-00339-00-00

Converting/Extending Lateral from Vertical Well Bore

SWN PRODUCTION COMPANY, LLC

The Office of Oil and Gas has reviewed the attached permit modification for the above referenced permit. The attached modification has been approved and well work may begin. Please be reminded that the oil and gas inspector is to be notified twenty-four (24) hours before permitted well work is commenced.

If there are any questions, please feel free to contact me at (304) 926- 0450.

A blue ink signature of James A. Martin, Chief, is written over a white background. The signature is stylized and cursive.

James A. Martin
Chief

Operator's Well Number: ROTH OHI 10H
Farm Name: ROTH FARMS, LLC
U.S. WELL NUMBER: 47-069-00339-00-00
Horizontal 6A New Drill
Date Modification Issued: 08/09/2022

Promoting a healthy environment.

08/12/2022

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
WELL WORK PERMIT APPLICATION

1) Well Operator: SWN Production Co., LLC 494512924 069-Ohio 005-Rich 641-Tiltonsville
Operator ID County District Quadrangle

2) Operator's Well Number: Roth OHI 10H Well Pad Name: Roth OHI

3) Farm Name/Surface Owner: Roth Farms, LLC Public Road Access: Clearview Avenue

4) Elevation, current ground: 1004.0 Elevation, proposed post-construction: 1010'

5) Well Type (a) Gas Oil _____ Underground Storage _____
Other _____

(b) If Gas Shallow Deep _____
Horizontal

6) Existing Pad: Yes or No No

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Target Formation- Marcellus, Down Dip Well to the South, Target Top TVD- 5743', Target Base TVD- 5799', Anticipated Thickness- 56', Associated Pressure- 3769

8) Proposed Total Vertical Depth: 5788'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 21460'

11) Proposed Horizontal Leg Length: 14985.37

12) Approximate Fresh Water Strata Depths: 452'

13) Method to Determine Fresh Water Depths: Nearby well 47-069-00012

14) Approximate Saltwater Depths: 1119' reported in nearby wells

15) Approximate Coal Seam Depths: 170'

16) Approximate Depth to Possible Void (coal mine, karst, other): None that we are aware of.

17) Does Proposed well location contain coal seams directly overlying or adjacent to an active mine? Yes No _____

(a) If Yes, provide Mine Info: Name: Valley Camp NO 1
Depth: 170 & 811'
Seam: Pittsburgh
Owner: Valley Camp Coal


STEVE JONES
7-28-22

WW-6B
(04/15)

4706900339
API NO. 47-009
OPERATOR WELL NO. Roth OHI 10H
Well Pad Name: Roth OHI

18) CASING AND TUBING PROGRAM

<u>TYPE</u>	<u>Size (in)</u>	<u>New or Used</u>	<u>Grade</u>	<u>Weight per ft. (lb/ft)</u>	<u>FOOTAGE: For Drilling (ft)</u>	<u>INTERVALS: Left in Well (ft)</u>	<u>CEMENT: Fill-up (Cu. Ft.)/CTS</u>
Conductor	20"	New	J-55	94#	110'	110'	CTS
Fresh Water	13 3/8"	New	J-55	54.4#	505'	505'	527 sx/CTS
Coal	See	Surface	Casing				
Intermediate	9 5/8"	New	J-55	36#	1606'	1606'	589 sx/CTS
Production	5 1/2"	New	P-110 HP	20#	21460'	21460'	Tail 3800sx/ 100' Inside Intermediate
Tubing							
Liners							

<u>TYPE</u>	<u>Size (in)</u>	<u>Wellbore Diameter (in)</u>	<u>Wall Thickness (in)</u>	<u>Burst Pressure (psi)</u>	<u>Anticipated Max. Internal Pressure (psi)</u>	<u>Cement Type</u>	<u>Cement Yield (cu. ft./k)</u>
Conductor	20"	30"	0.25	2120	81	Class A	1.20/30% Excess
Fresh Water	13 3/8"	17.5"	0.380	2730	633	Class A	1.20/30% Excess
Coal	See	Surface	Casing				
Intermediate	9 5/8"	12 1/4"	0.395	3950	1768	Class A	1.19/40% Excess
Production	5 1/2"	8 3/4"-8 1/2"	0.361	14360	10500	Class A	1.19/5% Excess
Tubing							
Liners							

PACKERS

Kind:				
Sizes:				
Depths Set:				

Steve Combs
STRAPPER CORP
7/29/22

19) Describe proposed well work, including the drilling and plugging back of any pilot hole:

ulate any potential zones between and including the Benson to Marcellus. **If we should encounter a void place basket above and below void area- balance cement to bottom of void and grout from basket to surface or run external casing packer/cementing stage tool above void interval and perform 2 stage cementing operation dependent upon depth of void. Run casing not less than 20' below void nor more than 75' below void. (*If freshwater is encountered deeper than anticipated it must be protected, set casing 50' below and cts.)

20) Describe fracturing/stimulating methods in detail, including anticipated max pressure and max rate:

Well will be perforated within the target formation and stimulated with a slurry of water, sand, and chemical additives at a high rate. This will be performed in stages with the plug and perf method along the wellbore until the entire lateral has been stimulated within the target formation. All stage plugs are then drilled out and the well is flowed back to surface. In some instances, additional toe prep may be performed by pumping additional water in the toe of the well prior to perforating and pumping Stage 1 to ensure that the toe guns/toe sleeves are fully open prior to pumping stage 1. The well is produced through surface facilities consisting of high pressure production unites, horizontal separation units, water and oil storage tanks. Max press and anticipated max rate- 12,500 psi @ 100 barrels a minute.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 24.35

22) Area to be disturbed for well pad only, less access road (acres): 10.46

23) Describe centralizer placement for each casing string:

All casing strings will be ran with a centralizer at a minimum of 1 per every 3 joints of casing.

24) Describe all cement additives associated with each cement type:

See Attachment ***

25) Proposed borehole conditioning procedures:

All boreholes will be conditioned with circulation and rotation for a minimum of one bottoms up and continuing until operator is satisfied with borehole conditions.

*Note: Attach additional sheets as needed.

Handwritten signature and notes:
STP/ADK/LOU
7-28-22

Southwestern Energy Company		Proposed Drilling Program	
Well:	ROTH OHI 10	Re-entry Rig:	SDC 40
Field:	PANHANDLE FIELD WET	Prospect:	Marcellus Shale
County:	OHIO	State:	WV
SHL:	40.1511 Latitude	-80.6870 Longitude	
BHL:	40.1132 Latitude	-80.6634 Longitude	
KB Elev:	1,130 ft MSL	KB: 126 ft AGL	GL Elev: 1,004 ft MSL



NO COAL VOID EXPECTED

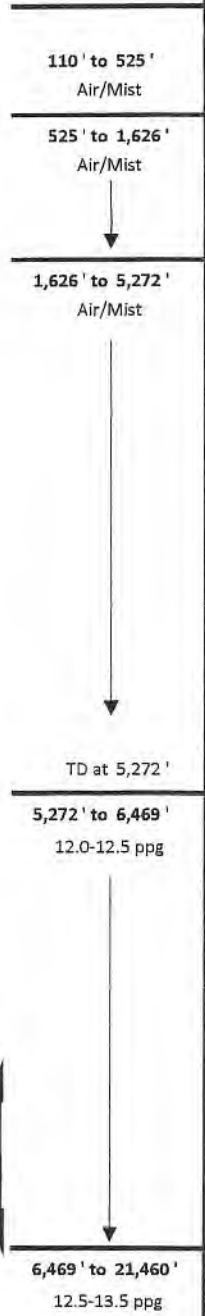
PROD TOC Lead @ 1,910' MD
 PROD TOC Tail @ 6,293' MD

TUBULAR DETAIL

Casing String	Casing Size (in)	Weight (Min)	Grade (Min)	Planned Interval	
				From	To
Conductor	20	94.0 #	J-55	0'	110'
Surface/Coal	13.375	54.4 #	J-55	0'	505'
Intermediate	9.625	36.0 #	J-55	0'	1,606'
Production	5.5	20.0 #	P-110 HP	0'	21,460'

CEMENT DETAIL

	Sacks	Class	Density
Conductor	140	A	19.3
Surface	527	A	15.6
Intermediate	589	A	15.6
Production	3800	A	14.5-15.0



KOP at 5,272' MD

Freshwater Depth - 452' TVD
 Coal Void Depth - 170' TVD
 Saltwater Depth - 1,119' TVD
 TVD - 5,788'
 TMD - 21,460'

5,668' Target Center

TD at 21,460' MD
 5,788' TVD

EOB at 6,469' MD

SHL Onondaga 5,679' TVD

Onondaga 5,799' TVD

6,469' to 21,460'
 12.5-13.5 ppg

Handwritten signature and notes:
 STRAUBER
 7-28-22



SWN Production Company, LLC
1300 Fort Pierpont Dr, Ste 201
Morgantown, WV 26508
Tel: 304 884 1610
Fax: 304 471 2497
www.swn.com

July 18, 2022

Mr. Charles Brewer
Office of Oil & Gas
601 57th Street
Charleston, WV 25304

RE: Proposed New Well: Roth OHI 10H

Dear Mr. Brewer

SWN has reviewed the area of the above mentioned well and discovered no shallow wells within 500' of the lateral. This well is situated on the Roth's property, in Tiltonsville District, Ohio County, West Virginia.

If you have any questions or desire additional information, please me at 304-884-1613.

Thank you.

Sincerely,

A handwritten signature in blue ink that reads "Brittany Woody".

Brittany Woody
Senior Regulatory Analyst
Southwestern Energy Production Company, LLC

A logo consisting of the letters "R", "A", and "V" in a stylized, overlapping arrangement, with a plus sign to the right.

08/12/2022



4706900339

SWN Production Company, LLC
1300 Fort Pierpont Dr, Ste 201
Morgantown, WV 26508
Tel: 304 884 1610
Fax: 304 471 2497
www.swn.com

July 20, 2022

Mr. Charles Brewer
WV DEP Office of Oil & Gas
601 57th St., SE
Charleston, WV 25304

RE: SWN’s proposed New Well: Roth OHI 10H in Ohio County, West Virginia, Drilling under Reilly Delaplain Road, Cherry Hill Road, State Rt 3/1, Shawnee Road, Hallpen Drive, and Cabin Road.

Dear Mr. Brewer:

SWN Production Company, LLC (“SWN”) is applying for a drilling permit for the above referenced well. The State of West Virginia has raised some concern as to SWN’s right to drill under Reilly Delaplain Road, Cherry Hill Road, State Rt 3/1, Shawnee Road, Hallpen Drive, and Cabin Road. Be advised that SWN has leased all mineral owners under said route as it relates to the above-referenced well and unit.

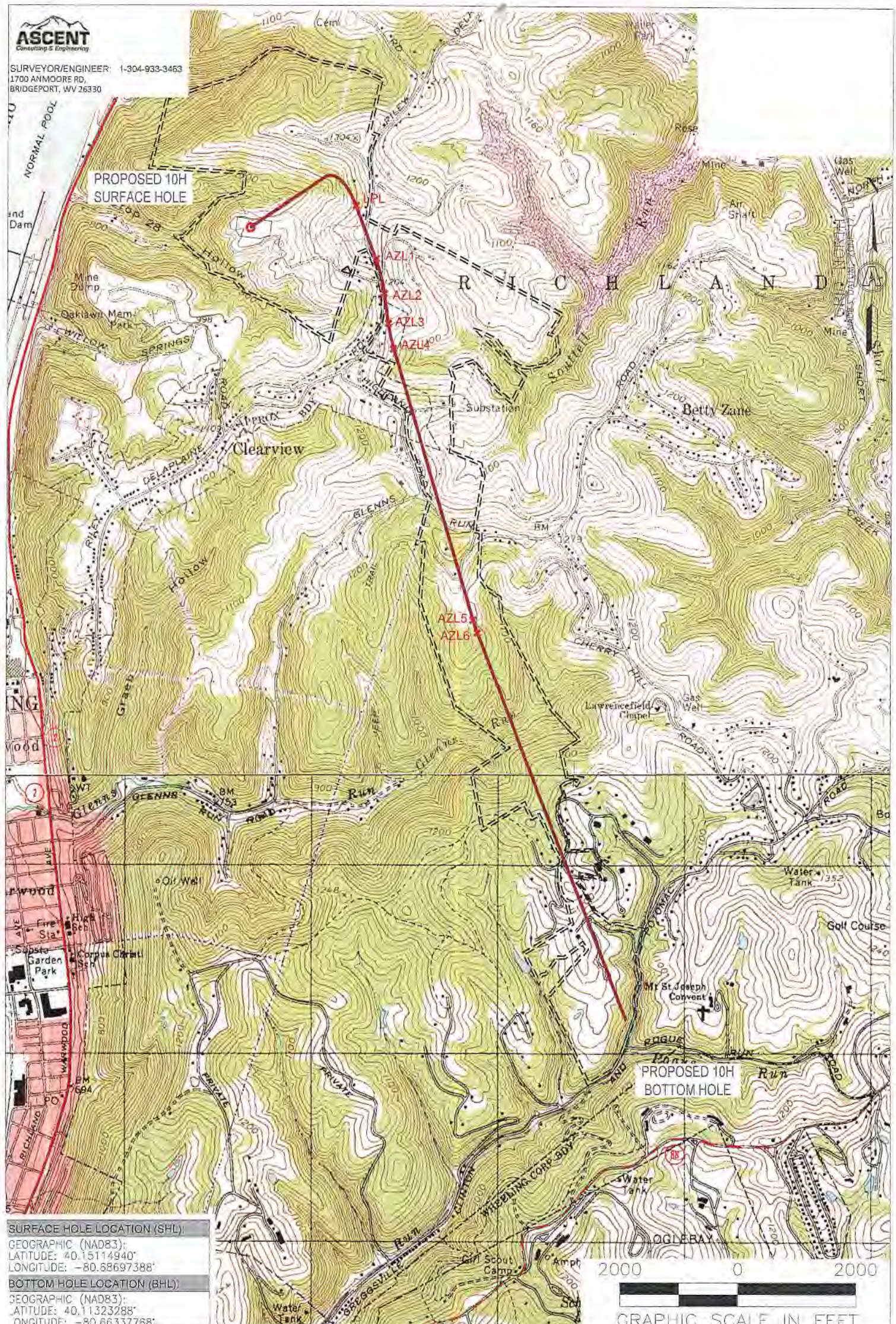
Respectfully,

SWN Production Company, LLC

Gavin Nadeau, RPL
Landman



The Right People doing the Right Things,
wisely investing the cash flow from our
underlying Assets. **08/12/2022**



SURFACE HOLE LOCATION (SHL):
 GEOGRAPHIC (NAD83):
 LATITUDE: 40.15114940°
 LONGITUDE: -80.68697388°
BOTTOM HOLE LOCATION (BHL):
 GEOGRAPHIC (NAD83):
 LATITUDE: 40.11323288°
 LONGITUDE: -80.66337768°

- NOTES ON SURVEY**
1. SURFACE AND ROYALTY OWNER INFORMATION AND THEIR BOUNDARIES SHOWN HEREON WERE PLOTTED FROM DEEDS AND/OR TAX PARCEL MAPS PROVIDED BY CLIENT AND/OR FIELD LOCATIONS.
 2. THIS PLAT DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARCELS SHOWN HEREON.
 4. ALL INSETS ARE GRID NORTH UNLESS OTHERWISE DEPICTED.

- LEGEND:**
- PROPOSED SURFACE HOLE / BOTTOM HOLE
 - EXISTING / PRODUCING WELLHEAD
 - LPL LANDING POINT LOCATION
 - FLOOD PLAN
 - ACCESS ROAD
 - PUBLIC ROAD
 - ACCESS ROAD TO PREV. SITE
 - LEASE BOUNDARY
 - PROPOSED PATH

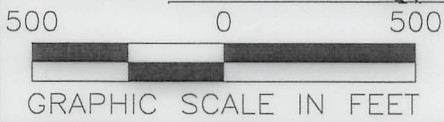
WELL OPERATOR:
 SWN PRODUCTION COMPANY, LLC
 ADDRESS:
 1300 FORT PIERPONT DRIVE, SUITE 201
SURFACE OWNER:
 10TH FARMS, LLC
PROJECT 7988 SWN-ROTH\SURVEY\DRAWINGS\ WELL PLAT FILES\10H\ROTH OHI 10H DRAFT 7-12-2022.DWG
 11:47 JULY 22 2022 03:36PM

WELL (FARM) NAME: ROTH OHI	WELL # 10H	SERIAL # XXXX
COUNTY - CODE OHIO - 35	DISTRICT: RICHLAND	
USGS 7 1/2 QUADRANGLE MAP NAME TILTONSVILLE		

08/12/2022



SURVEYOR/ENGINEER: 1-304-933-3463
 1700 ANMOORE RD,
 BRIDGEPORT, WV 26330

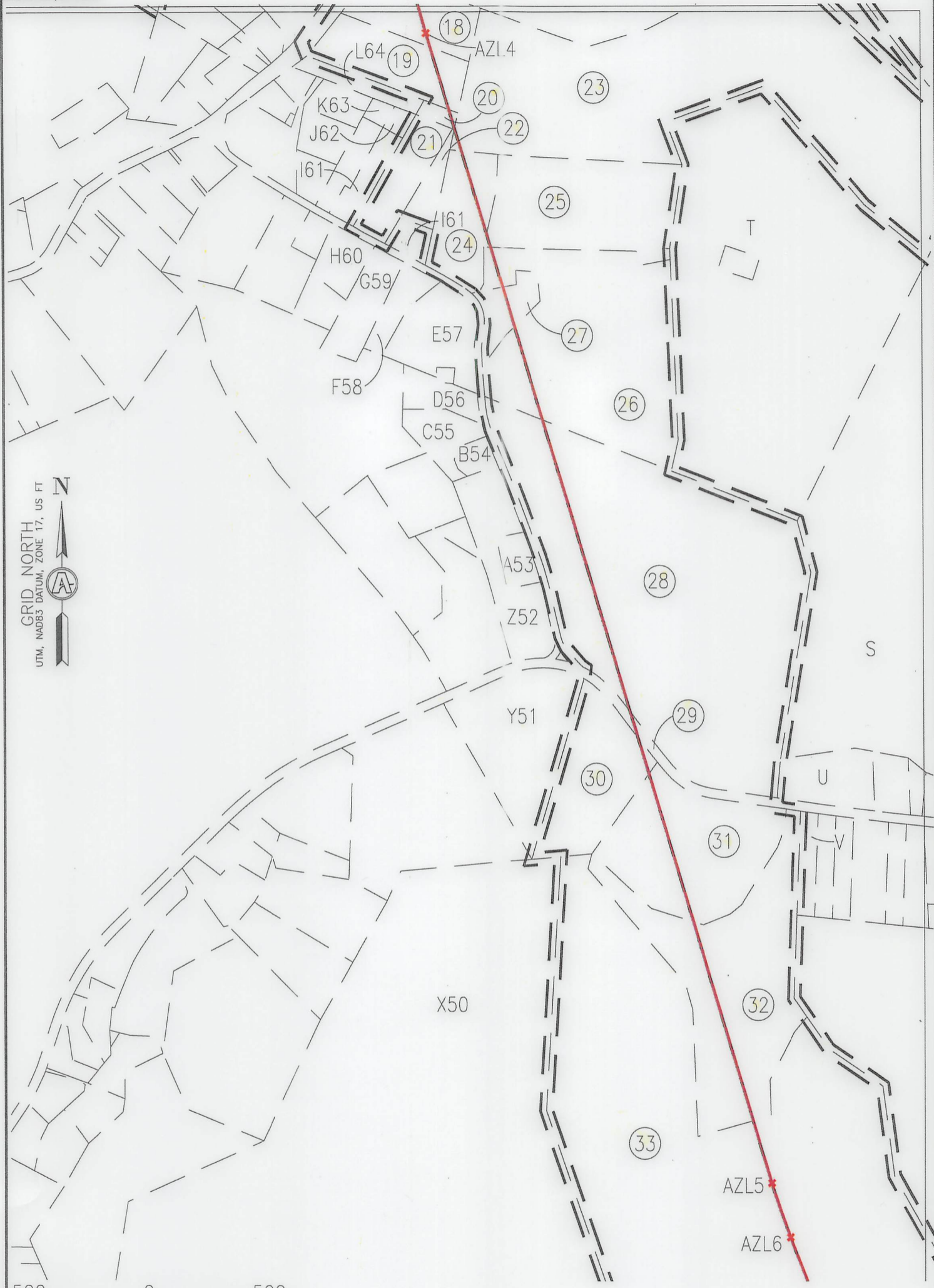


08/12/2022

REVISIONS:	COMPANY:			DATE: 07/22/2022
	OPERATOR'S			ROTH
	WELL #: 47-061-00331		10H	DRAWN BY: TMF
	DISTRICT:	COUNTY:	STATE:	SCALE: 1"=500'
RICHLAND	OHIO	WV	DRAWING NO: ACE-2598	
				WELL LOCATION PLAT



SURVEYOR/ENGINEER: 1-304-933-3463
 1700 ANMOORE RD,
 BRIDGEPORT, WV 26330



08/12/2022

INSET "B"

REVISIONS:

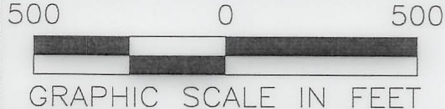
COMPANY:			
OPERATOR'S		ROTH	
WELL #:		47-061-00339	
DISTRICT:	COUNTY:	STATE:	DATE:
RICHLAND	OHIO	WV	07/22/2022
DRAWN BY:		TMF	
SCALE:		1"=500'	
DRAWING NO:		ACE-2598	
WELL LOCATION PLAT			



SURVEYOR/ENGINEER: 1-304-933-3463
 1700 ANMOORE RD,
 BRIDGEPORT, WV 26330





**PROPOSED 10H
 BOTTOM HOLE**



INSET "C"

08/12/2022

REVISIONS: 		COMPANY:  	
OPERATOR'S WELL #: 47-069-00331		ROTH 10H	
DISTRICT: RICHLAND		COUNTY: OHIO	STATE: WV
		DATE: 07/22/2022 DRAWN BY: TMF SCALE: 1"=500' DRAWING NO: ACE-2598 WELL LOCATION PLAT	



SURVEYOR/ENGINEER: 1-304-933-3463
 1700 ANMOORE RD.
 BRIDGEPORT, WV 26330

WELL BORE TABLE FOR SURFACE/ROYALTY OWNERS		
TRACT	SURFACE OWNER (S)/ROYALTY OWNER (R)	TAX PARCEL
1	ROTH FARMS, LLC (S)/ROTH FARMS, LLC (R)	4-R7-24
TRACT	SURFACE OWNER (S)	TAX PARCEL
2	MCCLURE WM H & MARG A	4-R4-07
3	MCCLURE WM H & MARGARET A	4-R7-26.1
4	LEFKAY SCOTT A & TRACY L	4-R8-2.3
5	FELDNER CHARLENE M - TOD	4-R8-2.1
6	CALDWELL SHANE J & CALDWELL SUZANNE M	4-R7-24.1
7	CALDWELL SUZANNE & SHANE	4-R7-24.2
8	OLEJASZ JR JOSEPH R OLEJASZ JR SR & G (RT-OCC)	4-R8-2.2
9	MCKEE JAMES F JR & EILEEN B	4-R8-77
10	TUNNEL RIDGE LLC	4-R8-4.18
11	BAKER STEVEN P (LE); STEVEN P BAKER ET AL	4-R8-4
12	BROWN CHAD & YEKATERINA	4-R8-4.17
13	BROWN CHAD & YEKATERINA	4-R8-4.19
14	KINNEER VERNON A JR & CARLA C	2-CV1-7
15	KINNEER VERNON A JR & CARLA C	2-CV1-8
16	BAKER VINCENT L	2-CV1-9
17	BAKER VINCENT L	2-CV1-6
18	TRACY JOHN A & MARY ANN E	2-CV4-21
19	TRACY JOHN A & M A	2-CV4-21.3
20	STANLEY GEORGE DAVID STANLEY SUSAN M	2-CV4-8.1
21	STANLEY GEORGE D & SUSAN M	2-CV4-14.1
22	STANLEY GEORGE DAVID AND SUSAN	2-CV4-14.2
23	CRAFT JOSEPH W III FOUNDATION	4-R8-63.2
24	TUNNEL RIDGE LLC	2-CV4-15.2
25	TUNNEL RIDGE LLC	4-R8-63
26	TUNNEL RIDGE LLC	2-CV4-15
27	KING CHARLES R JR & B M	2-CV4-15.1
28	TUNNEL RIDGE LLC	4-R8-67
29	STATE OF WEST VIRGINIA, DEPARTMENT OF TRANSPORTATION	CHERRY HILL ROAD
30	MEREDITH DONALD R II AND J K	4-R8-69.3
31	MEREDITH RICHARD T AND S F	4-R8-69
32	FROME STEPHEN D & REBECCA T-LE FROME S & R IRREVOCABLE TRUST	4-R8-69.2
33	MARY ANN HESS REALTY LLC C/O HANNIG & ASSOCIATES PLLC	4-R8-52
34	MARY ANN HESS REALTY LLC C/O HANNIG & ASSOCIATES PLLC	4-R11-11
35	PENN HOLDING LIMITED LIABILITY COMPANY	4-R11-6.3
36	NEIS THOMAS	4-R11-6.2
37	BROWN GEOFFREY C & ELIZABETH W	4-R11K-4.1
38	BROWN GEOFFREY C & ELIZABETH W	4-R11K-4
39	HOBBS ROLAND L	4-R11K-10
40	GEORGES NANCY A	4-R11K-10.3
41	MEAD ARMINA S	4-R11K-10.2
42	GEORGES NANCY A	4-R11K-38.1
43	WARD JEREMY D & KAUFMAN AMANDA J	4-R11K-38
44	GEORGES NANCY A	4-R11-6.6
45	YURKO JENNIFER G & KARLE E	4-R11P-4
46	BLISS CHARLIE A SR BLISS MARY ELLEN	4-R14-90.2
47	JONES WILBUR S JR AND JEFFERSON JOYCE P	4-R14-90.1
48	JONES WILBUR S JR JEFFERSON JOYCE P	4-R14-90

08/12/2022

REVISIONS:	COMPANY:		
	OPERATOR'S	ROTH	DATE: 07/22/2022
	WELL #:	47-061-00331	10H
	DISTRICT:	RICHLAND	COUNTY: OHIO
			STATE: WV
			DRAWN BY: TMF
			SCALE: N/A
			DRAWING NO: ACE-2598
			WELL LOCATION PLAT

WW-6A1
(5/13)

Operator's Well No. ROTH OHI 10H

**INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE
Chapter 22, Article 6A, Section 5(a)(5)
IN LIEU OF FILING LEASE(S) AND OTHER CONTINUING CONTRACT(S)**

Under the oath required to make the verification on page 1 of this Notice and Application, I depose and say that I am the person who signed the Notice and Application for the Applicant, and that –

- (1) the tract of land is the same tract described in this Application, partly or wholly depicted in the accompanying plat, and described in the Construction and Reclamation Plan;
- (2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
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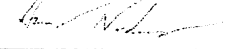
See Exhibit A

**Acknowledgement of Possible Permitting/Approval
In Addition to the Office of Oil and Gas**

The permit applicant for the proposed well work addressed in this application hereby acknowledges the possibility of the need for permits and/or approvals from local, state, or federal entities in addition to the DEP, Office of Oil and Gas, including but not limited to the following:

- WV Division of Water and Waste Management
- WV Division of Natural Resources WV Division of Highways
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- County Floodplain Coordinator

The applicant further acknowledges that any Office of Oil and Gas permit in no way overrides, replaces, or nullifies the need for other permits/approvals that may be necessary and further affirms that all needed permits/approvals should be acquired from the appropriate authority before the affected activity is initiated.

Well Operator: SWN Production Co., LLC 
 By: _____ Gavin Nadeau, RPL
 Its: _____ Landman

August 4, 2022

Mr. Charles Brewer
Office of Oil & Gas
601 57th Street
Charleston, WV 25304

RECEIVED
Office of Oil and Gas

AUG 05 2022

WV Department of
Environmental Protection

RE: Proposed Expedited Modification: Roth OHI 10H

Dear Mr. Brewer:

Enclosed please find the required documents to modify this well. We would like to modify this well from a vertical to a horizontal. This well is situated on the Roth's property, in Richland District, Ohio County, West Virginia.

Enclosed you will find:

- 6B
- WBD
- Mylar
- 6A1

If you have any questions or desire additional information, please me at 304-884-1613

Thank you.

Sincerely,

Brittany Woody
Senior Regulatory Analyst
Southwestern Energy Production Company, LLC

Using \$5000.00
on file to
expedite
this modification

I would like to
expedite this mod. Please
use \$5000.00 of our
Credit you have on file
Thanks!

Youcum 8/4

\$20,000
- \$5,000
\$15,000

08/12/2022



Stansberry, Wade A <wade.a.stansberry@wv.gov>

Expedited Modification Horizontal H6A Well Work Permits API: (47-069-00339)

1 message

Stansberry, Wade A <wade.a.stansberry@wv.gov>

Tue, Aug 9, 2022 at 1:29 PM

To: Brittany Woody <Brittany_Woody@swn.com>, Liz Gee <liz_gee@swn.com>, THOFFMAN@wvassessor.com, mpowell@wvassessor.com, Strader C Gower <strader.c.gower@wv.gov>

I have attached a copy of the newly issued well [permit](#) numbers:

47-069-00339 - ROTH OHI 10H

These will serve as your copy.

Thank you,

Wade A. Stansberry

Environmental Resource Specialist 3

West Virginia Department of Environmental Protection

Office of Oil & Gas


601 57th St. SE

Charleston, WV 25304

(304) 926-0499 ext. 41115

(304) 926-0452 fax

Wade.A.Stansberry@wv.gov

 **47-069-00339 - mod.pdf**
5721K

08/12/2022