

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

API 47-009-00182 County BROOKE District BUFFALO
Quad BETHANY Pad Name JOHN HUPP BRK PAD Field/Pool Name PANHANDLE FIELD WET
Farm name JOHN W. HUPP & LINDA H. DOUBLE Well Number JOHN HUPP BRK 3H
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 4,447,435.708 Easting 536,688.128
Landing Point of Curve Northing 4,447,495.221 Easting 536,657.118
Bottom Hole Northing 4,449,320.648 Easting 535,944.166

Elevation (ft) 1275.6 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 02/02/2017 Date drilling commenced 05/13/2017 Date drilling ceased 09/13/2017
Date completion activities began 01/22/2018 Date completion activities ceased 03/09/2018
Verbal plugging (Y/N) N 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 450 Open mine(s) (Y/N) depths N
Salt water depth(s) ft 977 Void(s) encountered (Y/N) depths _____
Coal depth(s) ft 497 Cavern(s) encountered (Y/N) depths _____
Is coal being mined in area (Y/N) N

Reviewed

C. BLO Hales

N RECEIVED
Office of Oil and Gas
N
MAY 18 2018
Reviewed by Department of
Environmental Protection
SB 6/11/18
07/20/2018

API 47-009 - 00182 Farm name JOHN W. HUPP & LINDA H. DOUBLE Well number JOHN HUPP BRK 3H

| 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 | 26 | 20 | 126 | NEW | J-55/94# | | Y |
| Surface | 17.5 | 13.375 | 606 | NEW | J-55/54.50# | | Y |
| Coal | SEE SURFACE | | | | | | |
| Intermediate 1 | 12.25 | 9.625 | 1879 | NEW | J-55/36# | | Y, 33 BBLS |
| Intermediate 2 | | | | | | | |
| Intermediate 3 | | | | | | | |
| Production | 8.75/8.50 | 5.5 | 13180 | NEW | HCP-110/20# | | Y |
| Tubing | | 2.375 | 6623 | NEW | P-110/4.7# | | 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 | GROUT TO SURFACE | | | | SURFACE | 24 |
| Surface | CLASS A | 161/588 | 15.60 | 1.18/1.20 | 189.98/705.6 | SURFACE | 8 |
| Coal | SEE SURFACE | | | | | | |
| Intermediate 1 | CLASS A | 1246 | 15.60 | 1.18 | 1470.28 | SURFACE | 8 |
| Intermediate 2 | | | | | | | |
| Intermediate 3 | | | | | | | |
| Production | CLASS A | 875/1492 | 15.60 | 1.21/1.19 | 1058.75/1775.48 | SURFACE | 24 |
| Tubing | | | | | | | |

Drillers TD (ft) 13180 Loggers TD (ft) 13180
 Deepest formation penetrated MARCELLUS Plug back to (ft) N/A
 Plug back procedure N/A

Kick off depth (ft) 5270

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 _____

WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS _____

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

RECEIVED
Office of Oil and Gas

MAY 18 2018

WV Department of
Environmental Protection

API 47- 009 - 00182 Farm name JOHN W. HUPP & LINDA H. DOUBLE Well number JOHN HUPP BRK 3H

| PRODUCING FORMATION(S) | DEPTHS | |
|------------------------|--------|-------------|
| MARCELLUS | 6193 | TVD 6523 MD |
| | | |
| | | |

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump
 SHUT-IN PRESSURE Surface 1606 psi Bottom Hole _____ psi DURATION OF TEST _____ hrs
 OPEN FLOW Gas 4657 mcfpd Oil 590 bpd NGL _____ bpd Water 538 bpd GAS MEASURED BY 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 | |
| | 0 | | 0 | | |
| | SEE | ATTACHMENT | 3 | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Please insert additional pages as applicable.

Drilling Contractor SWN DRILLING COMPANY
 Address PO BOX 12359 City SPRING State TX Zip 77391-2359
 Logging Company WEATHERFORD
 Address 2000 St. James Place City Houston State TX Zip 77056
 Cementing Company SCHLUMBERGER WELL SERVICES
 Address 1080 US Hwy 33 East City Weston State WV Zip 26452
 Stimulating Company SWN WELL SERVICES
 Address PO BOX 12359 City SPRING State TX Zip 77391-2359

Please insert additional pages as applicable.

Completed by BOBBY WILLIS Telephone 832-796-2884
 Signature [Signature] Title REGULATORY ANALYST Date 5/17/18

RECEIVED
Office of Oil and Gas
MAY 18 2018
WV Department of
Environmental Protection

Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry

07/20/2018

JOHN HUPP BRK 3H

| STAGE NUM | Perf Date | Perf Top MD | Perf Bottom MD | # SHOTS PER STG |
|-----------|-----------|-------------|----------------|-----------------|
| 1 | 1/24/2018 | 12,945 | 13,052 | 42 |
| 2 | 1/24/2018 | 12,805 | 12,912 | 42 |
| 3 | 1/25/2018 | 12,665 | 12,772 | 42 |
| 4 | 1/25/2018 | 12,525 | 12,632 | 42 |
| 5 | 1/25/2018 | 12,385 | 12,492 | 42 |
| 6 | 1/26/2018 | 12,245 | 12,352 | 42 |
| 7 | 1/26/2018 | 12,105 | 12,212 | 42 |
| 8 | 1/26/2018 | 11,965 | 12,072 | 42 |
| 9 | 1/27/2018 | 11,825 | 11,932 | 42 |
| 10 | 1/27/2018 | 11,685 | 11,792 | 42 |
| 11 | 1/27/2018 | 11,545 | 11,652 | 42 |
| 12 | 1/27/2018 | 11,405 | 11,512 | 42 |
| 13 | 1/28/2018 | 11,265 | 11,372 | 42 |
| 14 | 1/28/2018 | 11,125 | 11,232 | 42 |
| 15 | 1/28/2018 | 10,985 | 11,092 | 42 |
| 16 | 1/29/2018 | 10,845 | 10,952 | 42 |
| 17 | 1/29/2018 | 10,705 | 10,812 | 42 |
| 18 | 1/29/2018 | 10,565 | 10,672 | 42 |
| 19 | 1/29/2018 | 10,425 | 10,532 | 30 |
| 20 | 1/30/2018 | 10,285 | 10,392 | 42 |
| 21 | 1/30/2018 | 10,145 | 10,252 | 42 |
| 22 | 1/30/2018 | 10,005 | 10,112 | 42 |
| 23 | 1/31/2018 | 9,865 | 9,972 | 42 |
| 24 | 1/31/2018 | 9,725 | 9,832 | 42 |
| 25 | 2/1/2018 | 9,585 | 9,692 | 42 |
| 26 | 2/1/2018 | 9,445 | 9,552 | 42 |
| 27 | 2/1/2018 | 9,305 | 9,412 | 42 |
| 28 | 2/2/2018 | 9,168 | 9,272 | 33 |
| 29 | 2/2/2018 | 9,025 | 9,132 | 42 |
| 30 | 2/2/2018 | 8,885 | 8,992 | 42 |
| 31 | 2/3/2018 | 8,745 | 8,852 | 42 |
| 32 | 2/3/2018 | 8,605 | 8,712 | 42 |
| 33 | 2/4/2018 | 8,465 | 8,572 | 42 |
| 34 | 2/4/2018 | 8,325 | 8,432 | 42 |
| 35 | 2/4/2018 | 8,185 | 8,292 | 42 |
| 36 | 2/4/2018 | 8,045 | 8,152 | 42 |
| 37 | 2/5/2018 | 7,905 | 8,012 | 42 |
| 38 | 2/5/2018 | 7,765 | 7,872 | 42 |
| 39 | 2/5/2018 | 7,625 | 7,732 | 42 |
| 40 | 2/5/2018 | 7,485 | 7,592 | 42 |
| 41 | 2/6/2018 | 7,345 | 7,444 | 30 |
| 42 | 2/6/2018 | 7,205 | 7,312 | 42 |
| 43 | 2/7/2018 | 7,065 | 7,172 | 42 |
| 44 | 2/7/2018 | 6,925 | 7,032 | 42 |
| 45 | 2/7/2018 | 6,785 | 6,892 | 42 |
| 46 | 2/8/2018 | 6,645 | 6,752 | 42 |

RECEIVED
Office of Oil and Gas
MAY 18 2018
WV Department of
Environmental Protection

07/20/2018

JOHN HUPP BRK 3H
ATTACHMENT 2
STIM REPORT

| STAGE NUM | Stim 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 |
|-----------|-----------|---------------------|------------------------------|------------------------------|------------|--------------------------|----------------------|--------------------------|
| 1 | 1/24/2018 | 89 | 7,224 | 8,164 | 3,916 | 282,850 | 8,455 | |
| 2 | 1/25/2018 | 92 | 7,721 | 8,205 | 4,212 | 284,480 | 4,518 | |
| 3 | 1/25/2018 | 94 | 7,626 | 8,270 | 4,492 | 287,060 | 4,467 | |
| 4 | 1/25/2018 | 99 | 7,711 | 8,132 | 4,308 | 288,220 | 4,968 | |
| 5 | 1/26/2018 | 97 | 7,930 | 8,500 | 4,498 | 287,920 | 4,498 | |
| 6 | 1/26/2018 | 99 | 7,781 | 8,373 | 4,260 | 286,000 | 5,075 | |
| 7 | 1/26/2018 | 96 | 7,802 | 8,569 | 4,557 | 291,600 | 5,131 | |
| 8 | 1/27/2018 | 93 | 7,637 | 8,558 | 4,260 | 291,400 | 4,513 | |
| 9 | 1/27/2018 | 99 | 7,593 | 8,394 | 4,372 | 293,580 | 4,452 | |
| 10 | 1/27/2018 | 92 | 7,480 | 8,641 | 4,420 | 294,820 | 4,985 | |
| 11 | 1/27/2018 | 99 | 7,697 | 8,417 | 4,593 | 290,020 | 4,663 | |
| 12 | 1/28/2018 | 95 | 7,663 | 8,305 | 4,548 | 292,420 | 4,652 | |
| 13 | 1/28/2018 | 98 | 7,711 | 8,387 | 4,436 | 287,660 | 5,169 | |
| 14 | 1/28/2018 | 99 | 7,473 | 7,957 | 4,545 | 290,000 | 5,042 | |
| 15 | 1/29/2018 | 100 | 7,256 | 7,916 | 4,262 | 282,960 | 4,474 | |
| 16 | 1/29/2018 | 100 | 7,464 | 8,148 | 4,985 | 287,360 | 4,977 | |
| 17 | 1/29/2018 | 100 | 7,291 | 7,801 | 4,607 | 289,480 | 5,132 | |
| 18 | 1/29/2018 | 100 | 7,368 | 7,856 | 4,789 | 294,320 | 5,012 | |
| 19 | 1/30/2018 | 99 | 7,287 | 7,929 | 4,746 | 290,100 | 4,543 | |
| 20 | 1/30/2018 | 99 | 7,538 | 8,255 | 4,570 | 295,360 | 4,521 | |
| 21 | 1/30/2018 | 94 | 7,959 | 8,564 | 4,263 | 291,180 | 5,085 | |
| 22 | 1/31/2018 | 98 | 7,864 | 8,524 | 4,344 | 291,180 | 5,032 | |
| 23 | 1/31/2018 | 98 | 7,528 | 9,117 | 4,233 | 291,440 | 5,520 | |
| 24 | 2/1/2018 | 100 | 7,322 | 7,916 | 4,232 | 293,420 | 4,954 | |
| 25 | 2/1/2018 | 98 | 7,387 | 7,842 | 4,461 | 295,780 | 5,226 | |
| 26 | 2/1/2018 | 100 | 7,354 | 7,856 | 4,489 | 295,840 | 4,732 | |
| 27 | 2/2/2018 | 100 | 7,477 | 8,160 | 4,617 | 293,860 | 4,944 | |
| 28 | 2/2/2018 | 100 | 7,401 | 8,010 | 4,424 | 296,420 | 4,979 | |
| 29 | 2/2/2018 | 99 | 7,010 | 7,447 | 4,543 | 297,180 | 4,467 | |
| 30 | 2/3/2018 | 100 | 7,487 | 7,855 | 4,484 | 294,300 | 4,823 | |
| 31 | 2/3/2018 | 97 | 6,932 | 7,384 | 4,638 | 298,720 | 4,428 | |
| 32 | 2/4/2018 | 99 | 7,135 | 7,672 | 4,263 | 295,300 | 5,002 | |
| 33 | 2/4/2018 | 100 | 7,288 | 8,338 | 4,564 | 294,840 | 4,896 | |
| 34 | 2/4/2018 | 97 | 6,976 | 7,404 | 4,511 | 300,780 | 4,652 | |
| 35 | 2/4/2018 | 97 | 7,065 | 7,397 | 4,644 | 293,000 | 4,362 | |
| 36 | 2/5/2018 | 100 | 7,104 | 7,496 | 4,642 | 295,980 | 4,798 | |
| 37 | 2/5/2018 | 100 | 6,911 | 7,356 | 4,682 | 297,010 | 4,785 | |
| 38 | 2/5/2018 | 98 | 7,065 | 7,520 | 4,601 | 292,840 | 4,238 | |
| 39 | 2/5/2018 | 99 | 7,023 | 7,459 | 4,658 | 288,500 | 4,162 | |
| 40 | 2/6/2018 | 100 | 7,003 | 7,355 | 4,478 | 286,680 | 4,520 | |
| 41 | 2/6/2018 | 100 | 7,049 | 7,646 | 4,770 | 315,340 | 4,846 | |
| 42 | 2/7/2018 | 99 | 7,490 | 7,847 | 4,363 | 290,780 | 5,777 | |
| 43 | 2/7/2018 | 98 | 7,052 | 7,600 | 4,675 | 281,480 | 4,134 | |
| 44 | 2/7/2018 | 98 | 6,808 | 8,354 | 4,637 | 286,360 | 3,967 | |
| 45 | 2/8/2018 | 99 | 6,941 | 7,354 | 4,453 | 292,540 | 4,122 | |
| 46 | 2/8/2018 | 99 | 7,271 | 8,354 | 4,441 | 290,400 | 4,032 | |

07/20/2018



Well Name: John Hupp BRK 3H

47009001820000

| LITHOLOGY/FORMATION | TOP DEPTH, MD (FT) | TOP DEPTH, TVD (FT) | BOTTOM DEPTH, MD (FT) | BOTTOM DEPTH, TVD (FT) | QUANTITY AND TYPE OF FLUID |
|---------------------|--------------------|---------------------|-----------------------|------------------------|----------------------------|
| Base of Fresh Water | 0.00 | 0.00 | 450.00 | 450.00 | |
| Top of Salt Water | 977.00 | 977.00 | NA | NA | |
| Pittsburgh Coal | 497.00 | 497.00 | 502.00 | 502.00 | |
| Pottsville (ss) | 617.00 | 617.00 | 744.00 | 744.00 | |
| Mauch Chunk (shale) | 852.00 | 852.00 | 1536.00 | 1536.00 | |
| Raven Cliff (ss) | 959.00 | 959.00 | 1226.00 | 1226.00 | |
| Maxton (ss) | 1311.00 | 1311.00 | 1434.00 | 1434.00 | |
| Greenbriar (ls) | 1536.00 | 1536.00 | 1678.00 | 1678.00 | |
| Big Injun (ss) | 1678.00 | 1678.00 | 1813.00 | 1813.00 | |
| Berea (siltstone) | 2167.00 | 2167.00 | 2210.00 | 2210.00 | |
| Rhinestreet (shale) | 5812.00 | 5735.00 | 5992.00 | 5888.00 | |
| Cashaqua (shale) | 5992.00 | 5888.00 | 6060.00 | 5940.00 | |
| Middlesex (shale) | 6060.00 | 5940.00 | 6158.00 | 6009.00 | |
| Burket (shale) | 6158.00 | 6009.00 | 6181.00 | 6025.00 | |
| Tully (ls) | 6181.00 | 6025.00 | 6254.00 | 6073.00 | |
| Mahantango (shale) | 6254.00 | 6073.00 | 6523.00 | 6193.00 | |
| Marcellus (shale) | 6523.00 | 6193.00 | NA | NA | GAS |

RECEIVED
 Office of Oil and Gas
 MAY 18 2018
 WV Department of
 Environmental Protection

Hydraulic Fracturing Fluid Product Component Information Disclosure

| | |
|--------------------------------|---------------------|
| Job Start Date: | 1/24/2018 |
| Job End Date: | 2/8/2018 |
| State: | West Virginia |
| County: | Brooke |
| API Number: | 47-009-00182-00-00 |
| Operator Name: | Southwestern Energy |
| Well Name and Number: | John Hupp BRK 3 |
| Latitude: | 40.17649468 |
| Longitude: | -80.56908300 |
| Datum: | NAD83 |
| Federal Well: | NO |
| Indian Well: | NO |
| True Vertical Depth: | 6,168 |
| Total Base Water Volume (gal): | 8,993,428 |
| Total Base Non Water Volume: | 147,000 |



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 |
|------------|-------------------|---------|-------------|--|--|--|----------|
| HCL | SWN Well Services | Solvent | | | | | |
| | | | | Listed Below | | | |
| BIOC11219A | Enviroco | Biocide | | | | | |
| | | | | Listed Below | | | |

RECEIVED
 Office of Oil and Gas
 MAY 18 2018
 Environmental Protection
 Department of

| | | | | | | | |
|-------------------|-------------------|---------------------|--|--------------|--|--|--|
| FLOJET DR 9000LPP | SWN Well Services | Friction Reducer | | | | | |
| | | | | Listed Below | | | |
| Ingredients | Listed Above | Listed Above | | | | | |
| | | | | Listed Below | | | |
| Econo-CI200 | SWN Well Services | Corrosion Inhibitor | | | | | |
| | | | | Listed Below | | | |
| Base Water | Operator | Base Fluid | | | | | |
| | | | | Listed Below | | | |
| Ecopol-FEAC | SWN Well Services | Iron Control | | | | | |
| | | | | Listed Below | | | |
| SCAL16486A | Nalco | Scale Inhibitor | | | | | |
| | | | | Listed Below | | | |
| Sand | SWN Well Services | Proppant | | | | | |
| | | | | Listed Below | | | |

Items above are Trade Names with the exception of Base Water . Items below are the individual ingredients.

| | | | | | | | |
|--|--|--|-------------------------------------|------------|-----------|----------|-----------------|
| | | | Water | 7732-18-5 | 100.00000 | 83.48376 | Density = 8.345 |
| | | | Crystalline Silica, quartz | 14808-60-7 | 100.00000 | 14.93550 | |
| | | | Water | 7732-18-5 | 85.00000 | 1.27923 | |
| | | | Hydrochloric Acid | 7647-01-0 | 15.00000 | 0.21901 | |
| | | | Petroleum Distillates, Hydrotreated | 64742-47-8 | 45.00000 | 0.03604 | |

RECEIVED
 Office of Oil and Gas
 MAY 18 2018
 WV Department of
 Environmental Protection

| | | | | | | | |
|--|--|--|---|-------------|----------|---------|--|
| | | | Methanol | 67-56-1 | 60.00000 | 0.01503 | |
| | | | Ethylene glycol | 107-21-1 | 10.00000 | 0.00966 | |
| | | | Benzyl-(C12-C16 Alky)- Dimethyl-Ammonium | 68424-85-1 | 30.00000 | 0.00751 | |
| | | | Acetic Acid | 64-19-7 | 37.50000 | 0.00292 | |
| | | | Chloride Glutaraldehyde | 111-30-8 | 10.00000 | 0.00250 | |
| | | | Methanol | 67-56-1 | 80.00000 | 0.00179 | |
| | | | Citric Acid | 77-92-9 | 22.50000 | 0.00175 | |
| | | | Amine Triphosphate | Proprietary | 30.00000 | 0.00165 | |
| | | | Alcohols, C12- C16,Ethoxylated propoxylated | 68213-24-1 | 2.00000 | 0.00160 | |
| | | | Fatty alcohols ethoxylated | Proprietary | 2.00000 | 0.00160 | |
| | | | Oxyalkylated fatty acid | 68951-67-7 | 9.67400 | 0.00022 | |
| | | | Fatty acids | 61790-12-3 | 5.02700 | 0.00011 | |
| | | | Modified thiourea polymer | 68527-49-1 | 4.74600 | 0.00011 | |
| | | | Potassium acetate | 127-08-2 | 0.02200 | 0.00000 | |
| | | | Formaldehyde | 50-00-0 | 0.00400 | 0.00000 | |

* Total Water Volume sources may include various types of water including fresh water, produced water, and recycled water

** Information is based on the maximum potential for concentration and thus the total may be over 100%

*** If you are calculating a percentage of total ingredients do not add the water volume below the green line to the water volume above the green line

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)

RECEIVED
Office of Oil and Gas
MAY 18 2018
WV Department of
Environmental Protection



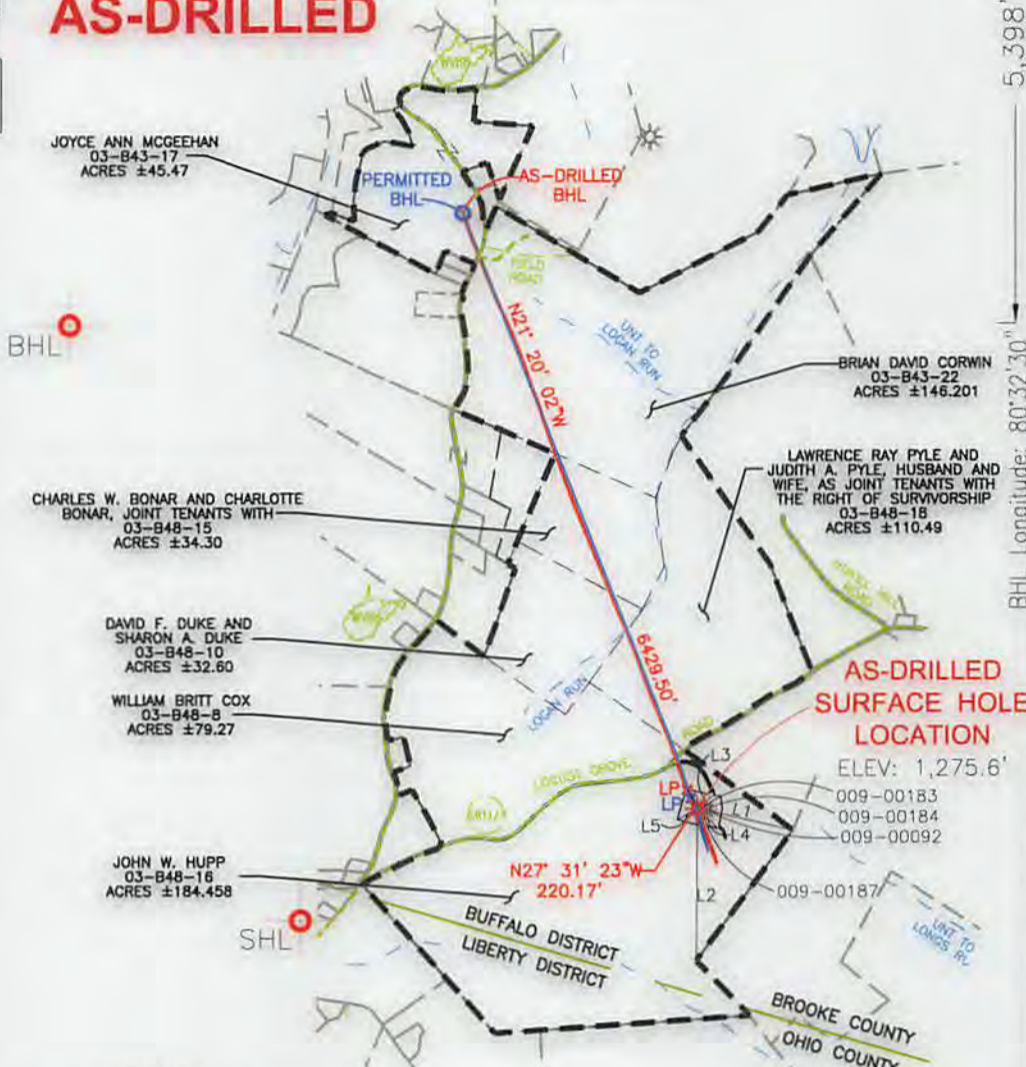
RETTEW Associates, Inc.
27 Travato Street, Suite 101
Bridgeport, WV 26330
Phone (800) 738-8395
Email: rettetw@rettetw.com
Website: www.rettetw.com

Table with 2 columns: Location Type (SHL, LPL, BHL) and UTM Coordinates (NORTHING, EASTING).

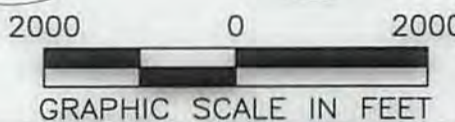
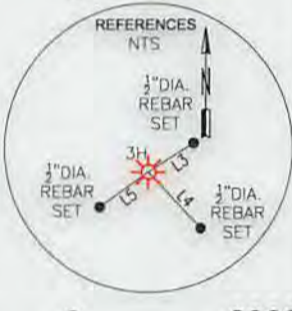
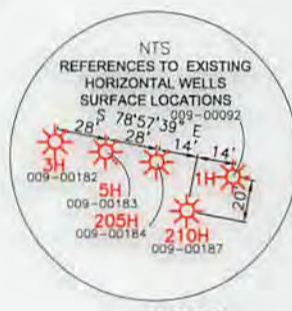
GRID NORTH
UTM, NAD83 DATUM, ZONE 17, US FT

Table with 5 columns: LINE, BEARING, DISTANCE, DESCRIPTION, MONUMENT.

AS-DRILLED



- NOTES ON SURVEY
1. COORDINATES SYSTEM IS UTM, NAD 83 DATUM, ZONE 17, U.S. FOOT AND WELL COORDINATES ESTABLISHED USING SURVEY GRADE GPS.
2. 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.
3. THIS PLAT DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARCELS SHOWN HEREON.
4. NO DWELLINGS AND BUILDINGS WITHIN 625 FEET OF PROPOSED CENTER OF PAD.
5. NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250 FEET OF PROPOSED WELL.
6. NO PERENNIAL STREAMS, LAKES, PONDS, RESERVOIRS OR WETLANDS WITHIN 100 FEET OF THE LIMITS OF DISTURBANCE.
7. NO NATURALLY PRODUCING TROUT STREAM WITHIN 300 FEET OF LIMITS OF DISTURBANCE.



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. 2241 [Signature]

COMPANY: SWN Production Company, LLC

Table with well details: (+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS, MINIMUM DEGREE OF ACCURACY: 1/200, OPERATOR'S WELL #: JOHN HUPP BRK 3H, API WELL #: 47 009 00182.

WELL TYPE: OIL WASTE DISPOSAL PRODUCTION X DEEP GAS LIQUID INJECTION STORAGE SHALLOW X
WATERSHED: UPPER OHIO NORTH DISTRICT: BUFFALO COUNTY: BROOKE
SURFACE OWNER: JOHN W. HUPP & LINDA H. DOUBLE
OIL & GAS ROYALTY OWNER: JOHN W. HUPP & LINDA H. DOUBLE
DRILL DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION PERFORATE NEW FORMATION
CONVERT PLUG & ABANDON CLEAN OUT & REPLUG OTHER CHANGE X (SPECIFY) As-Drilled
TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: 6,215' TVD 13,180' TMD

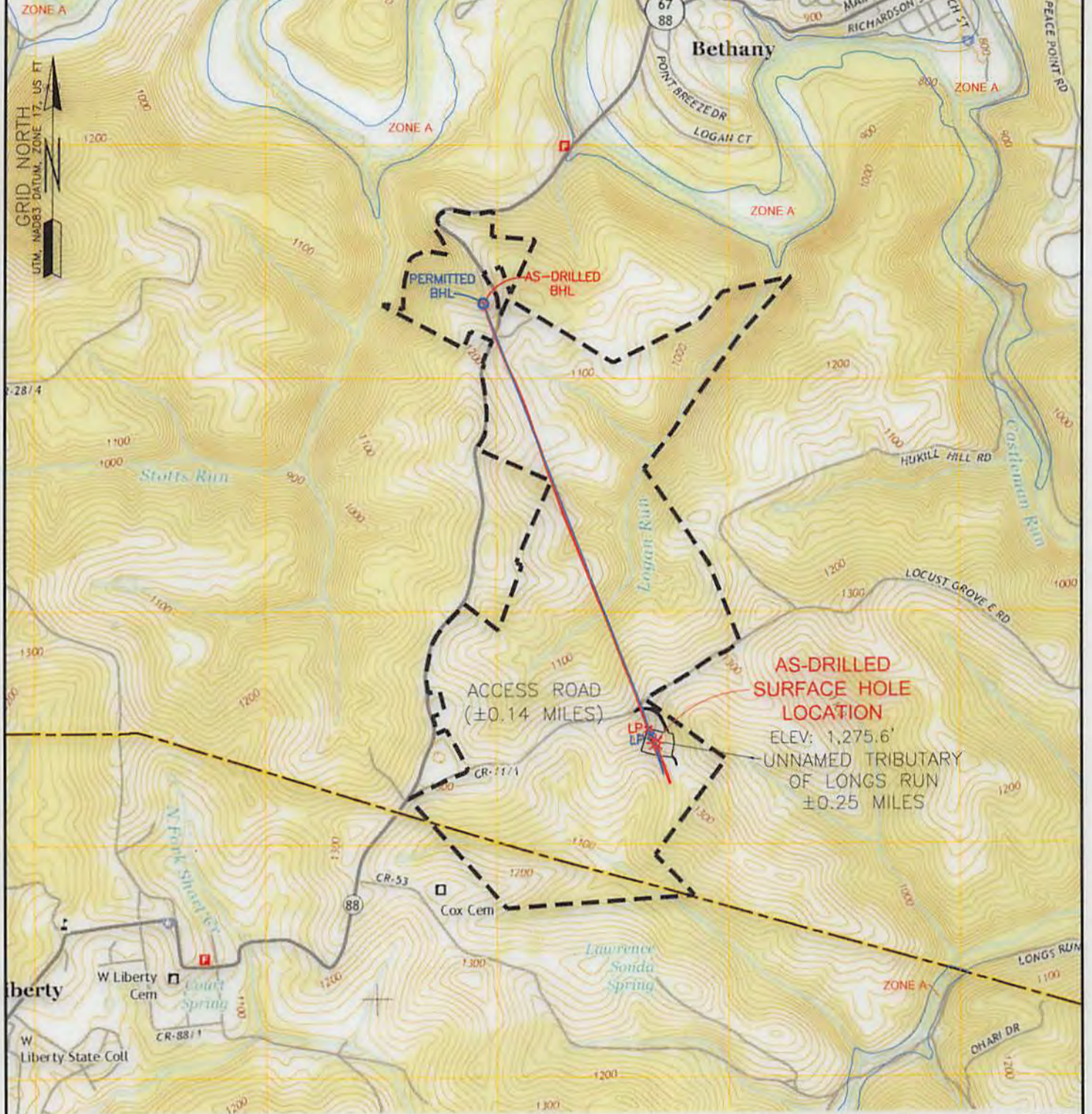
WELL OPERATOR: SWN PRODUCTION COMPANY, LLC ADDRESS: P.O. BOX 1300 CITY: JANE LEW STATE: WV ZIP CODE: 26378
DESIGNATED AGENT: DEE SOUTHALL ADDRESS: P.O. BOX 1300 CITY: JANE LEW STATE: WV ZIP CODE: 26378

LEGEND: PROPOSED SURFACE HOLE / BOTTOM HOLE, EXISTING / PRODUCING WELLHEAD, ABANDONED WELL, PLUGGED & ABANDONED WELL, PERMITTED NOT DRILLED, CUT-CONDUCTOR, EXISTING SPRING, EXISTING WATER WELL, LEASE BOUNDARY, ASDRILLED WELLPATH, PERMITTED WELLPATH, STREAM, REVISIONS, DATE: 11-13-2017, DRAWN BY: W. MCCLEAF, SCALE: 1" = 2000', DRAWING NO: 087569048, WELL LOCATION PLAT

RETTEW

RETTEW Associates, Inc.
27 Travato Street, Suite 101
Bridgeport, WV 26330
Phone (800) 738-8395
Email: rettetw@rettetw.com
Website: www.rettetw.com

AS-DRILLED



WELL: JOHN HUPP BRK 3H
QUAD: BETHANY, WV-PA

| | | |
|--|--|--|
| <p>NAME AND DISTANCE TO THE NEAREST STREAM: UN-NAMED TRIBUTARY TO LONGS RUN IS LOCATED ±0.25 MILES SOUTH EAST OF THE CENTER OF THE DRILL PAD.</p> | <p>STREAM CROSSING COORDINATES (NAD 83): NO NEW CROSSINGS.</p> | <p>COMPANY: SWN Production Company, LLC</p> <p>SWN Production Company™</p> |
| <p>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</p> | | <p>OPERATOR'S: JOHN HUPP BRK WELL #: 3H LOCATION: BUFFALO DISTRICT, BROOKE COUNTY, WEST VIRGINIA</p> |
| <p>FEMA FLOOD INFORMATION: BY GRAPHIC PLOTTING ONLY FEMA FIRM INCORPORATED AREA OF BROOKE COUNTY, WEST VIRGINIA; MAP NUMBERS 54009C0130D, 54009C0135D, 54009C0140D, 54009C0141D, 54009C0145D; EFFECTIVE DATE: APRIL 19, 2010. NO FLOOD ZONES ARE SITUATED WITHIN THE UNIT.</p> | | <p>SURFACE HOLE LOCATION: GEOGRAPHIC (NAD83): LATITUDE: 40.176495° LONGITUDE: -80.569083° 07/20/2018</p> <p>BOTTOM HOLE LOCATION: GEOGRAPHIC (NAD83): LATITUDE: 40.193509° LONGITUDE: -80.577716°</p> |
| <p>LEGEND: ○ PROPOSED SURFACE HOLE / BOTTOM HOLE * EXISTING / PRODUCING WELLHEAD</p> | <p>--- LEASE BOUNDARY --- ASDRILLED WELLPATH --- PERMITTED WELLPATH --- ACCESS ROAD --- HIGHWAY/INTERSTATE --- COUNTY ROAD</p> | <p>REVISIONS:</p> <p>DATE: 11-13-2017</p> <p>DRAWN BY: W. MCCLEAF SCALE: 1" = 2000' DRAWING NO: 087569048 TOPOGRAPHIC MAP</p> |