

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



API 47-051-01789 County Marshall District Sandhill  
Quad Valley Grove Pad Name SHL 22 Field/Pool Name NA  
Farm name Consol Mining Co. (CONSOL) Well Number SHL 22 GHS  
Operator (as registered with the OOG) Noble Energy, Inc.  
Address 1000 Noble Energy Drive City Canonsburg State PA Zip 15317

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey  
Top hole Northing 4429067.887 Easting 536141.668  
Landing Point of Curve Northing 4429027.849 Easting 5364040.124  
Bottom Hole Northing 4427486.738 Easting 537523.398

Elevation (ft) 1322 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)  
Synthetic Oil Based

Date permit issued 01/26/2015 Date drilling commenced 04/17/2015 Date drilling ceased 06/17/2015  
Date completion activities began 12/21/2016 Date completion activities ceased 01/22/2017  
Verbal plugging (Y/N) N Date permission granted \_\_\_\_\_ Granted by \_\_\_\_\_

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

Freshwater depth(s) ft 210 Open mine(s) (Y/N) depths none  
Salt water depth(s) ft None noted for Offsets Void(s) encountered (Y/N) depths none  
Coal depth(s) ft no coal Cavern(s) encountered (Y/N) depths none

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

RECEIVED  
Office of Oil and Gas

APR 07 2017

WV Department of  
Environmental Protection

**APPROVED**

NAME: Jim Underwood  
DATE: 5/2/17

Reviewed by: [Signature]  
05/26/2017

API 47-051 - 01789 Farm name Consol Mining Co. (CONSOL) Well number SHL 22 GHS

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	36	30	40				
Surface	17 1/2	13 3/8	1235.7	N	J-55 54.5#		Y
Coal							
Intermediate 1	12 3/8	9 5/8	3195.5	N	HCK-55 36#		Y
Intermediate 2							
Intermediate 3							
Production	8 3/4	5 1/2	13,340.0	N	P-110 20#		Y
Tubing							
Packer type and depth set							

Comment Details Water String -Casing Size 20, Depth, 428.9 New Grade wt/ft J-55 94#

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft <sup>3</sup> /sks)	Volume (ft <sup>3</sup> )	Cement Top (MD)	WOC (hrs)
Conductor							
Surface	Class A	Water String 527 Surf 1084	Water String 15.6 Surf 15.6	Water String 1.20 Surf 1.20	Water String 113.0 Surf 232.0	0	8/8
Coal							
Intermediate 1	Class A	1281	15.6	1.10	251.0	0	8
Intermediate 2							
Intermediate 3							
Production	Class A	2345	14.5	1.31	547.0	939.0	8
Tubing							

Drillers TD (ft) 13,370 Loggers TD (ft) 13,293  
 Deepest formation penetrated Marcellus Plug back to (ft) Not a Pilot Hole  
 Plug back procedure Not a Pilot Hole

Kick off depth (ft) 6,126

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 Conductor - No centralizers used. Water String 4 Bow Spring Centralizers used. Fresh Water/  
 Surface - 10 bow spring centralizers used, one every third joint Intermediate - 53 bow spring centralizers on every third joint from KOP to 100' from surface.  
 Production - 205 Centrex Centralizers - rigid bow spring every third joint from KOP to TOC, rigid bow spring every joint to KOP.

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 \_\_\_\_\_



Perforations SHL 22 GHS

API	Well Name	Date	Top (ftKB)	Btm (ftKB)	Com	Entered Shot Total	Est Hole Dia (in)
47-051-01789	SHL-22G-HS	1/22/2017	6,969.00	7,101.00	STG #29	45	
47-051-01789	SHL-22G-HS	1/21/2017	7,309.00	7,443.00	STG #27	45	
47-051-01789	SHL-22G-HS	1/21/2017	7,478.00	7,612.00	STG #26	44	
47-051-01789	SHL-22G-HS	1/20/2017	7,648.00	7,727.00	STG #25C	30	
47-051-01789	SHL-22G-HS	1/17/2017	8,430.00	8,573.00	STG #22C	44	
47-051-01789	SHL-22G-HS	1/17/2017	8,608.00	8,650.00	STG #22B	31	
47-051-01789	SHL-22G-HS	1/16/2017	8,668.00	8,820.00	STG #22	44	
47-051-01789	SHL-22G-HS	1/16/2017	8,857.00	9,012.00	STG #21	44	
47-051-01789	SHL-22G-HS	1/15/2017	9,042.00	9,194.00	STG #20	44	
47-051-01789	SHL-22G-HS	1/15/2017	9,613.00	9,765.00	STG #17	44	
47-051-01789	SHL-22G-HS	1/14/2017	9,802.00	9,954.00	STG #16	44	
47-051-01789	SHL-22G-HS	1/1/2017	10,965.00	11,103.00	STG #10	44	
47-051-01789	SHL-22G-HS	12/31/2016	11,137.00	11,275.00	STG #9	44	
47-051-01789	SHL-22G-HS	12/30/2016	11,309.00	11,351.00	STG #8B	31	
47-051-01789	SHL-22G-HS	12/30/2017	11,371.00	11,623.00	STG #8	44	
47-051-01789	SHL-22G-HS	12/29/2017	11,561.00	11,714.00	STG #7C	44	
47-051-01789	SHL-22G-HS	12/27/2016	11,752.00	11,794.00	STG #7B	31	
47-051-01789	SHL-22G-HS	12/26/2016	11,812.00	11,970.00	STG #7A	44	
47-051-01789	SHL-22G-HS	12/26/2016	12,009.00	12,051.00	STG #6B	31	
47-051-01789	SHL-22G-HS	12/24/2016	12,069.00	12,226.00	STG #6A	44	
47-051-01789	SHL-22G-HS	12/23/2017	12,267.00	12,422.00	STG #5	44	
47-051-01789	SHL-22G-HS	12/23/2016	12,461.00	12,618.00	STG #4	44	
47-051-01789	SHL-22G-HS	12/23/2016	12,657.00	12,808.00	STG #3	44	
47-051-01789	SHL-22G-HS	12/22/2016	12,853.00	13,011.00	STG #2	44	
47-051-01789	SHL-22G-HS	12/22/2016	13,050.00	13,205.00	STG #1	44	

Well Header  
 API: 47-051-01789

Well Name: SHL-22G-HS

WR-35 - Stimulation Information Per Stage		Start Date	Slurry Rate Avg (bbl/min)	P Treat Avg (psi)	P Breakdown (psi)	ISIP (psi)	Propanant Deliver (lb)	Vol Slurry Total (gal)
Int Des								
STG #1	INJ TEST	12/21/2016	13.6	8,430.00	6,125.00	6,520.00		64,638.00
STG #1		12/22/2016	81	8,109.00	6,360.00	4,106.00	68,176.00	195,925.80
STG #1B		12/22/2016	80.6	7,835.00	8,336.00	4,430.00	193,995.00	386,227.80
STG #2		12/22/2016	86.9	7,825.00	5,925.00	4,580.00	515,371.00	707,771.40
STG #3		12/23/2016	89.5	7,815.00	6,605.00	3,961.00	566,888.00	770,998.20
STG #4		12/23/2016	85.5	7,835.00	5,986.00	5,387.00	414,154.00	362,875.80
STG #5		12/24/2016	86.7	7,642.00	6,515.00	4,630.00	601,052.00	519,611.40
STG #6A		12/26/2016	84.5	7,640.00	6,644.00	4,341.00	426,983.00	537,373.20
STG #6B		12/26/2016	91.9	8,008.00	8,203.00	4,516.00	235,870.00	305,235.00
STG #7A		12/26/2016	86.6	7,759.00	6,784.00	8,615.00	437,421.00	451,353.00
STG #7B		12/28/2016	65.1	8,256.00	7,216.00	8,194.00	71,613.00	174,791.40
STG #7C		12/30/2016	90	7,456.00	6,941.00	4,706.00	604,955.00	646,228.80
STG #8A		12/30/2016	73.7	8,035.00	7,297.00	5,378.00	106,026.00	426,006.00
STG #8B		12/31/2016	82.1	7,460.00	6,693.00	4,893.00	450,175.00	539,418.60
STG #9		1/1/2017	88.9	7,567.00	5,765.00	4,763.00	597,437.00	593,993.40
STG #10		1/11/2017	82.6	7,261.00	6,666.00	4,809.00	601,842.00	493,193.40
STG #11		1/12/2017	92.3	7,577.00	6,744.00	4,969.00	602,080.00	586,189.80
STG #12		1/13/2017	92.9	7,433.00	6,392.00	5,064.00	601,897.00	574,324.80
STG #13A		1/13/2017	88.8	7,620.00	5,901.00	4,964.00	324,342.00	369,495.00
STG #13B		1/13/2017	93.1	7,604.00	5,975.00	4,252.00	309,112.00	381,574.20
STG #14		1/14/2017	94.4	7,489.00	6,557.00	4,663.00	508,371.00	559,671.00
STG #15		1/14/2017	92.3	7,744.00	6,606.00	4,785.00	514,638.00	573,085.80
STG #16		1/14/2017	90	7,530.00	5,968.00	4,604.00	659,706.00	710,971.80
STG #17		1/15/2017	86.4	6,852.00	5,731.00	5,002.00	598,329.00	663,159.00
STG #18		1/15/2017	97.5	7,358.00	6,087.00	4,928.00	596,374.00	587,958.00
STG #19		1/15/2017	93.5	7,428.00	6,434.00	4,978.00	601,554.00	559,167.00
STG #20		1/16/2017	96.2	7,490.00	6,035.00	4,111.00	600,310.00	647,123.40
STG #21		1/16/2017	95	7,317.00	5,908.00	5,095.00	599,768.00	473,054.40
STG #22A		1/17/2017	63.1	7,932.00	7,253.00		133,540.00	312,383.40
STG #22B		1/17/2017	69.2	8,333.00	7,314.00	5,600.00	3,276.00	9,575,622.00
STG #22C		1/17/2017	98.6	7,266.00	6,224.00	4,431.00	796,181.00	762,762.00
STG #23A		1/18/2017	91	7,759.00	5,703.00	5,297.00	324,235.00	606,085.20
STG #23B		1/18/2017	95.8	7,765.00	5,968.00	4,928.00	214,031.00	345,744.00
STG #24		1/19/2017	96.8	7,200.00	5,915.00	5,010.00	596,065.00	570,040.80
STG #25A		1/20/2017	42.8	8,447.00	6,118.00	5,467.00	4,545.00	108,960.60
STG #25B		1/20/2017	86	7,902.00	5,799.00	5,354.00	307,711.00	546,109.20
STG #25C		1/20/2017	95.6	7,386.00	6,138.00	4,790.00	514,233.00	669,862.20
STG #26		1/21/2017	93.9	7,286.00	5,798.00	4,575.00	601,979.00	664,360.20
STG #27		1/22/2017	93.4	7,367.00	5,880.00	4,861.00	499,885.00	569,759.40
STG #28		1/22/2017	96.7	7,983.00	6,284.00	4,910.00	602,048.00	603,691.20
STG #29		1/22/2017	95.3	6,916.00	6,240.00	4,596.00	535,684.00	654,171.00

05/26/2017



## SHL 22 GHS

Formations	Top	Base
Shale	0	782
Pittsburgh Coal	782	792
Shale and Sandstone	792	1253
Gas Sand	1253	1282
Shale	1282	1383
1st Salt Sand	1383	1464
Shale	1464	1570
2nd Salt Sand	1570	1584
Shale	1584	1616
3rd Salt Sand	1616	1634
Shale	1634	1663
Maxton Sand	1663	1794
Shale	1794	1850
Big Lime	1850	1968
Big Injun	1968	2095
Price	2095	2449
Murrysville	2449	2457
Shale	2457	2731
Gordon	2731	2738
Shale	2738	2839
Fifth Sand	2839	2866
Shale	2866	3266
Speechley Sand	3266	3290
Shale	3290	4174
Warren Sand	4174	4188
Shale	4188	5095
Java Shale	5095	5165
Pipe Creek Shale	5165	5209
Angola Shale	5209	5835
Rhinestreet	5835	6249
Cashaqua	6249	6341
Middlesex	6341	6378
West River	6378	6419
Burkett	6419	6452
Tully Limestone	6452	6480
Hamilton	6480	6594
Marcellus	6594	6645
Onondaga	6645	



**Hydraulic Fracturing Fluid Product Component Information Disclosure**

Fracture Date	2016-12-22
State:	West Virginia
County:	Marshall
API Number:	4705101789
Operator Name:	NOBLE ENERGY
Well Name and Number:	SHL 22 G
Longitude:	-80.57
Latitude:	40.01
Long/Lat Projection:	NAD83
Indian/Federal:	none
Production Type:	Gas
True Vertical Depth (TVD)	6,663
Total Water Volume (gal)*	19,553,208

**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)**	Ingredient Mass lbs	Comments	Company	First Name	Last Name	Email	Phone
Fresh Water	Operator	Base Fluid	Water	7732-18-5	100.00%	89.60304%	162291079	Density = 8.300					
FE-1A ACIDIZING COMPOSITION	Halliburton	Additive	Listed Below	Listed Below			0	NA					
FR-78	Halliburton	Friction Reducer	Listed Below	Listed Below			0	NA					
FR-AT2	Halliburton	Additive	Listed Below	Listed Below			0	NA					
HAI-OS ACID INHIBITOR	Halliburton	Corrosion Inhibitor	Listed Below	Listed Below			0	NA					
HYDROCHLORIC ACID	Halliburton	Solvent	Listed Below	Listed Below			0	NA					
OILPERM A	Halliburton	Non-ionic Surfactant	Listed Below	Listed Below			0	NA					
SAND-COMMON WHITE-100 MESH SAND-PREMIUM	Halliburton	Proppant	Listed Below	Listed Below			0	NA					
WHITE-40/70 & 30/60	Halliburton	Proppant	Listed Below	Listed Below			0	NA					
MSDS and Non-MSDS ingredients are listed below the green line													
Ingredients	Added	Listed Above	1,2,4 Trimethylbenzene	95-63-6	1.00%	0.00001%	16						
			Acetic acid	64-19-7	60.00%	0.00153%	2769						
			Acetic anhydride	108-24-7	100.00%	0.00255%	4615						
			Alcohols, C12-16, ethoxylated	68551-12-2	5.00%	0.00335%	6077						
			Amide	Proprietary	5.00%	0.00335%	6077	Denise Tuck, 3000 N. Sam Houston Pkwy E., Houston, TX 77032, 281-871-6226	Halliburton	Denise	Tuck	Denise.Tuck@Halliburton.com	281-871-6226
			Ammonium chloride	12125-02-9	1.00%	0.00067%	1216						
			Crystalline silica, quartz	14808-60-7	100.00%	9.75225%	17663506						
			Ethanol	64-17-5	60.00%	0.00051%	931						
			Ethoxylated alcohols	Proprietary	30.00%	0.00013%	229		Halliburton	Denise	Tuck	Denise.Tuck@Halliburton.com	281-871-6226
			Fatty acid ester	Proprietary	1.00%	0.00067%	1216		Halliburton	Denise	Tuck	Denise.Tuck@Halliburton.com	281-871-6226
			Fatty acids, tall oil	Proprietary	30.00%	0.00013%	229		Halliburton	Denise	Tuck	Denise.Tuck@Halliburton.com	281-871-6226
			Glycerine	56-81-5	5.00%	0.00117%	2127						
			Heavy aromatic petroleum naphtha	64742-94-5	30.00%	0.00026%	466						
			Hydrochloric acid	7647-01-0	7.50%	0.04127%	74754.75						
			Hydroreated light petroleum distillate	64742-47-8	30.00%	0.02013%	36459						
			Inorganic salt	Proprietary	5.00%	0.00335%	6077		Halliburton	Denise	Tuck	Denise.Tuck@Halliburton.com	281-871-6226
			Methanol	67-56-1	60.00%	0.00025%	458						
			Naphthalene	91-20-3	5.00%	0.00004%	78						
			Olefins	Proprietary	5.00%	0.00005%	94		Halliburton	Denise	Tuck	Denise.Tuck@Halliburton.com	281-871-6226

05/26/2017





Well is located on topo map 11,160 feet south of Latitude: 40° 02' 30"

Well is located on topo map 9,768 feet west of Longitude: 80° 32' 30"

**LEGEND**

- TOPO MAP POINT
- WELL
- WATER SOURCE
- LEASED NUMBER BASED ON ATTACHED WVG6A1
- ALL ARE POINTS UNLESS OTHERWISE NOTED
- MINERAL TRACT BOUNDARY
- PARCEL LINES
- PROPOSED HORIZONTAL WELL
- WELL REFERENCE
- STREAM CENTERLINE
- ROAD
- AS-DRILLED HORIZONTAL WELL

SURFACE HOLE LOCATION (SHL)	APPROX. LANDING POINT	SURFACE HOLE LOCATION (SHL)	APPROX. LANDING POINT
UTM 17 - NAD83 N: 4429067.887 E: 536141.668 NAD27, WV NORTH N: 552142.890 E: 1698398.040 LAT/LON DATUM-NAD83 LAT: 40.011035 LON: -80.576528	UTM 17 - NAD83 N: 4429027.849 E: 536404.124 NAD27, WV NORTH N: 551997.080 E: 1699257.070 LAT/LON DATUM-NAD83 LAT: 40.010663 LON: -80.573455	UTM 17 - NAD83 N: 4429067.178 E: 536142.388 NAD27, WV NORTH N: 552140.522 E: 1698400.366 LAT/LON DATUM-NAD83 LAT: 40.011029 LON: -80.57652	UTM 17 - NAD83 N: 4429016.545 E: 536413.406 NAD27, WV NORTH N: 551959.476 E: 1699286.907 LAT/LON DATUM-NAD83 LAT: 40.010561 LON: -80.573347

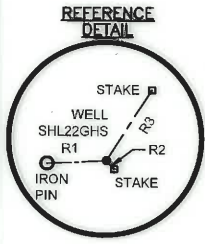
**BOTTOM HOLE LOCATION**

UTM 17 - NAD83  
N: 4427486.643  
E: 537523.266  
NAD27, WV NORTH  
N: 546878.093  
E: 1702844.811  
LAT/LON DATUM-NAD83  
LAT: 39.996729  
LON: -80.560432

**BOTTOM HOLE LOCATION**

UTM 17 - NAD83  
N: 4427486.738  
E: 537523.398  
NAD27, WV NORTH  
N: 546878.400  
E: 1702845.250  
LAT/LON DATUM-NAD83  
LAT: 39.996729  
LON: -80.560430

**WATER WELLS:**  
NONE FOUND



- NOTES:**
- There are no water wells or developed springs within 250' of proposed well.
  - There are no existing buildings within 625' of proposed well.
  - Proposed well is greater than 100' from perennial stream, wetland, pond, reservoir or lake.
  - There are no native trout streams within 300' of proposed well.
  - Proposed well is greater than 1000' from surface/groundwater intake or public water supply.
  - It is not the purpose or intention of this plat to represent surveyed locations of the surface or mineral parcels depicted hereon. The location of the boundary lines, as shown, and based on record deed descriptions, field evidence found and/or tax map position, unless otherwise noted.

**Sheffler & Company, Inc.**  
ENGINEERING • SURVEYING

1712 Mount Nebo Road  
Sewickley, PA 15143-8780  
Phone: 412-219-4509  
E-mail: info@shefflerco.com

**LINE TABLE**

LINE	BEARING	DISTANCE
R1	N87°08'59"E	309.02'
R2	N42°20'02"W	60.10'
R3	S32°37'45"W	435.58'
R4	N87°08'59"E	309.02'
R5	N83°02'32"W	1618.63'

**WELLS WITHIN 3000'**

PLUGGED WELL

**AS-DRILLED PLAT**

FILE #: SHL 22 GHS

DRAWING #: SHL 22 GHS

SCALE: 1"=1500'

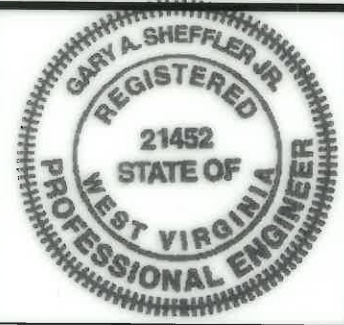
MINIMUM DEGREE OF ACCURACY: 1/2500

PROVEN SOURCE OF ELEVATION: U.S.G.S. MONUMENT WILSON KNOB 1462.02

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 THE REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

SIGNED:

R.P.E.: 21452 L.L.S.: P.S. NO.



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS WVDEP OFFICE OF OIL & GAS 601 57TH STREET CHARLESTON, WV 25304

Well Type:  Oil  Waste Disposal  Production  Deep  Gas  Liquid Injection  Storage  Shallow

WATERSHED: WHEELING CREEK ELEVATION: 1322'

COUNTY/DISTRICT: MARSHALL / SAND HILL QUADRANGLE: VALLEY GROVE, W. VA.

SURFACE OWNER: CONSOL MINING CO. (CONSOL ENERGY) ACREAGE: 170.55

OIL & GAS ROYALTY OWNER: CNX GAS COMPANY, LLC, ET AL. ACREAGE: 170.55

DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION  PERFORATE NEW FORMATION  PLUG AND ABANDON  CLEAN OUT & REPLUG  OTHER CHANGE  (SPECIFY)

TARGET FORMATION: MARCELLUS

WELL OPERATOR: NOBLE ENERGY, INC.

Address: 1000 NOBLE ENERGY DRIVE, CANONSBURG, PA 15317

City CANNONSBURG State PA Zip Code 15317



DATE: MARCH 13, 2017

OPERATOR'S WELL #: SHL 22 GHS - AS DRILLED

API WELL #	<u>47</u>	<u>051</u>	<u>01789</u>
	STATE	COUNTY	PERMIT

05/26/2017

ESTIMATED DEPTH: TVD: 6,680' ± TMD: 13,471' ±

DESIGNATED AGENT: STEVEN M. GREEN

Address: 500 VIRGINIA STREET EAST, UNITED CENTER SUITE 590

City CHARLESTON State WV Zip Code 25301



Well is located on topo map 11,160 feet south of Latitude: 40° 02' 30"

Well is located on topo map 9,768 feet west of Longitude: 80° 32' 30"

**LEGEND**

	TOPO MAP POINT
	WELL
	WATER SOURCE
	LEASED NUMBER
	ATTACHED WMA#1
	ALL ARE POINTS UNLESS OTHERWISE NOTED
	MINERAL TRACT BOUNDARY
	PARCEL LINES
	PROPOSED HORIZONTAL WELL
	WELL REFERENCE
	STREAM CENTERLINE
	ROAD
	AS-DRILLED HORIZONTAL WELL

SURFACE HOLE LOCATION (SHL)	APPROX. LANDING POINT	SURFACE HOLE LOCATION (SHL)	APPROX. LANDING POINT
UTM 17 - NAD83 N: 4429067.887 E: 536141.668 NAD27, WV NORTH N: 552142.890 E: 1698398.040 LAT/LON DATUM-NAD83 LAT: 40.011035 LON: -80.576528	UTM 17 - NAD83 N: 4429027.849 E: 536404.124 NAD27, WV NORTH N: 551997.080 E: 1699257.070 LAT/LON DATUM-NAD83 LAT: 40.010663 LON: -80.573455	UTM 17 - NAD83 N: 4429067.178 E: 536142.388 NAD27, WV NORTH N: 552140.522 E: 1698400.366 LAT/LON DATUM-NAD83 LAT: 40.011029 LON: -80.57652	UTM 17 - NAD83 N: 4429016.545 E: 536413.406 NAD27, WV NORTH N: 551959.476 E: 1699286.907 LAT/LON DATUM-NAD83 LAT: 40.010561 LON: -80.573347

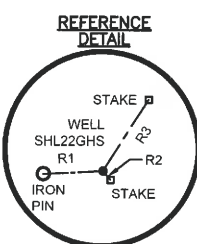
**BOTTOM HOLE LOCATION**

UTM 17 - NAD83  
N: 4427486.643  
E: 537523.266  
NAD27, WV NORTH  
N: 546878.093  
E: 1702844.811  
LAT/LON DATUM-NAD83  
LAT: 39.996729  
LON: -80.560432

**BOTTOM HOLE LOCATION**

UTM 17 - NAD83  
N: 4427486.738  
E: 537523.398  
NAD27, WV NORTH  
N: 546878.400  
E: 1702845.250  
LAT/LON DATUM-NAD83  
LAT: 39.996729  
LON: -80.560430

WATER WELLS:  
NONE FOUND



- NOTES:
- There are no water wells or developed springs within 250' of proposed well.
  - There are no existing buildings within 625' of proposed well.
  - Proposed well is greater than 100' from perennial stream, wetland, pond, reservoir or lake.
  - There are no native trout streams within 300' of proposed well.
  - Proposed well is greater than 1000' from surface/groundwater intake or public water supply.
  - It is not the purpose or intention of this plat to represent surveyed locations of the surface or mineral parcels depicted hereon. The location of the boundary lines, as shown, and based on record deed descriptions, field evidence found and/or tax map position, unless otherwise noted.

**LINE TABLE**

LINE	BEARING	DISTANCE
R1	N87°08'59"E	309.02'
R2	N42°20'02"W	60.10'
R3	S32°37'45"W	435.58'
R4	N87°08'59"E	309.02'
R5	N83°02'32"W	1618.63'

**WELLS WITHIN 3000'**

PLUGGED WELL

**Sheffler & Company, Inc.**  
ENGINEERING • SURVEYING  
1712 Mount Nebo Road  
Sewickley, PA 15143-8780  
Phone: 412-219-4509  
E-mail: info@shefflerco.com

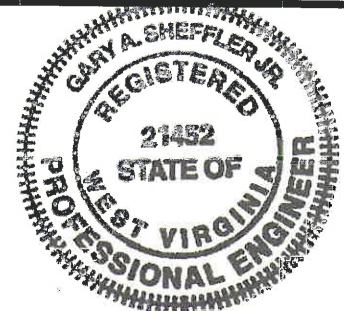
**AS-DRILLED PLAT**

FILE #: SHL 22 GHS  
DRAWING #: SHL 22 GHS  
SCALE: 1"=1500'  
MINIMUM DEGREE OF ACCURACY: 1/2500  
PROVEN SOURCE OF ELEVATION: U.S.G.S. MONUMENT WILSON KNOB 1462.02

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 THE REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

SIGNED:

R.P.E.: 21452 L.L.S.: P.S. NO.



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS WVDEP OFFICE OF OIL & GAS 601 57TH STREET CHARLESTON, WV 25304



DATE: MARCH 13, 2017  
OPERATOR'S WELL #: SHL 22 GHS - AS DRILLED  
API WELL # 47 051 01789  
STATE COUNTY PERMIT

Well Type:  Oil  Waste Disposal  Production  Deep  
 Gas  Liquid Injection  Storage  Shallow

WATERSHED: WHEELING CREEK ELEVATION: 1322'  
COUNTY/DISTRICT: MARSHALL / SAND HILL QUADRANGLE: VALLEY GROVE, W. VA.  
SURFACE OWNER: CONSOL MINING CO. (CONSOL ENERGY) ACREAGE: 170.55  
OIL & GAS ROYALTY OWNER: CNX GAS COMPANY, LLC, ET AL. ACREAGE: 170.55

05/26/2017

DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE   
PLUG OFF OLD FORMATION  PERFORATE NEW FORMATION  PLUG AND ABANDON   
CLEAN OUT & REPLUG  OTHER CHANGE  (SPECIFY)

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: TVD: 6,680' ± TMD: 13,471' ±  
WELL OPERATOR: NOBLE ENERGY, INC. DESIGNATED AGENT: STEVEN M. GREEN  
Address: 1000 NOBLE ENERGY DRIVE, CANONSBURG, PA 15317 Address: 500 VIRGINIA STREET EAST, UNITED CENTER SUITE 590  
City CANNONSBURG State PA Zip Code 15317 City CHARLESTON State WV Zip Code 25301

Well is located on topo map 11,160 feet south of Latitude: 40° 02' 30"

Well is located on topo map 9,768 feet west of Longitude: 80° 32' 30"

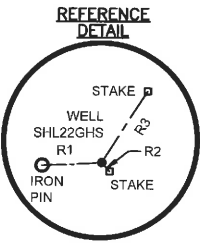
LEGEND	
	TOPO MAP POINT
	WELL
	WATER SOURCE
	LEASED NUMBER
	BASED ON ATTACHED WW6A1
	ALL ARE POINTS UNLESS OTHERWISE NOTED
	MINERAL TRACT BOUNDARY
	PARCEL LINES
	PROPOSED HORIZONTAL WELL
	WELL REFERENCE
	STREAM CENTERLINE
	ROAD
	AS-DRILLED HORIZONTAL WELL

SURFACE HOLE LOCATION (SHL)	APPROX. LANDING POINT	SURFACE HOLE LOCATION (SHL)	APPROX. LANDING POINT
UTM 17 - NAD83 N: 4429067.887 E: 536141.668 NAD27, WV NORTH N: 552142.890 E: 1698398.040 LAT/LON DATUM-NAD83 LAT: 40.011035 LON: -80.576528	UTM 17 - NAD83 N: 4429027.849 E: 536404.124 NAD27, WV NORTH N: 551997.080 E: 1699257.070 LAT/LON DATUM-NAD83 LAT: 40.010663 LON: -80.573455	UTM 17 - NAD83 N: 4429067.178 E: 536142.388 NAD27, WV NORTH N: 552140.522 E: 1698400.366 LAT/LON DATUM-NAD83 LAT: 40.011029 LON: -80.57652	UTM 17 - NAD83 N: 4429016.545 E: 536413.406 NAD27, WV NORTH N: 551959.476 E: 1699286.907 LAT/LON DATUM-NAD83 LAT: 40.010561 LON: -80.573347

BOTTOM HOLE LOCATION
UTM 17 - NAD83 N: 4427486.643 E: 537523.266 NAD27, WV NORTH N: 546878.093 E: 1702844.811 LAT/LON DATUM-NAD83 LAT: 39.996729 LON: -80.560432

BOTTOM HOLE LOCATION
UTM 17 - NAD83 N: 4427486.738 E: 537523.398 NAD27, WV NORTH N: 546878.400 E: 1702845.250 LAT/LON DATUM-NAD83 LAT: 39.996729 LON: -80.560430

WATER WELLS:  
NONE FOUND



- NOTES:
- There are no water wells or developed springs within 250' of proposed well.
  - There are no existing buildings within 625' of proposed well.
  - Proposed well is greater than 100' from perennial stream, wetland, pond, reservoir or lake.
  - There are no native trout streams within 300' of proposed well.
  - Proposed well is greater than 1000' from surface/groundwater intake or public water supply.
  - It is not the purpose or intention of this plat to represent surveyed locations of the surface or mineral parcels depicted hereon. The location of the boundary lines, as shown, and based on record deed descriptions, field evidence found and/or tax map position, unless otherwise noted.

LINE TABLE		
LINE	BEARING	DISTANCE
R1	N87°08'59"E	309.02'
R2	N42°20'02"W	60.10'
R3	S32°37'45"W	435.58'
R4	N87°08'59"E	309.02'
R5	N83°02'32"W	1618.63'

WELLS WITHIN 3000'	
	PLUGGED WELL

**Sheffler & Company, Inc.**  
ENGINEERING • SURVEYING  
1712 Mount Nebo Road  
Sewickley, PA 15143-8780  
Phone: 412-219-4509  
E-mail: info@shefflerco.com

## AS-DRILLED PLAT

FILE #: SHL 22 GHS  
DRAWING #: SHL 22 GHS  
SCALE: 1"=1500'  
MINIMUM DEGREE OF ACCURACY: 1/2500  
PROVEN SOURCE OF ELEVATION: U.S.G.S. MONUMENT WILSON KNOB 1462.02

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 THE REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

SIGNED:

R.P.E.: 21452 L.L.S.: P.S. NO.



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS WVDEP OFFICE OF OIL & GAS 601 57TH STREET CHARLESTON, WV 25304



DATE: MARCH 13, 2017  
OPERATOR'S WELL #: SHL 22 GHS - AS DRILLED  
API WELL # 47 051 01789  
STATE COUNTY PERMIT

Well Type:  Oil  Waste Disposal  Production  Deep  
 Gas  Liquid Injection  Storage  Shallow

WATERSHED: WHEELING CREEK ELEVATION: 1322'  
COUNTY/DISTRICT: MARSHALL / SAND HILL QUADRANGLE: VALLEY GROVE, W. VA.  
SURFACE OWNER: CONSOL MINING CO. (CONSOL ENERGY) ACREAGE: 170.55  
OIL & GAS ROYALTY OWNER: CNX GAS COMPANY, LLC, ET AL. ACREAGE: 170.55

05/26/2017

DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE   
PLUG OFF OLD FORMATION  PERFORATE NEW FORMATION  PLUG AND ABANDON   
CLEAN OUT & REPLUG  OTHER CHANGE  (SPECIFY)

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: TVD: 6,680' ± TMD: 13,471'±  
WELL OPERATOR: NOBLE ENERGY, INC. DESIGNATED AGENT: STEVEN M. GREEN  
Address: 1000 NOBLE ENERGY DRIVE, CANONSBURG, PA 15317 Address: 500 VIRGINIA STREET EAST, UNITED CENTER SUITE 590  
City CANNONSBURG State PA Zip Code 15317 City CHARLESTON State WV Zip Code 25301