

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

API 47 - 051 - 01722 County Marshall District Webster  
Quad Majorsville Pad Name WEB22 Field/Pool Name NA  
Farm name Tim M. Turley and Tammy JF Well Number WEB 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 4419297.1 Easting 541050.0  
Landing Point of Curve Northing 4419425.5 Easting 541366.3  
Bottom Hole Northing 4418155.9 Easting 542286.6

Elevation (ft) 1338.99 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

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Date permit issued 12/13/2013 Date drilling commenced 2/13/2014 Date drilling ceased 5/16/2014  
Date completion activities began 10/23/2014 Date completion activities ceased 3/9/2015  
Verbal plugging (Y/N) N Date permission granted NA Granted by NA

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

Freshwater depth(s) ft 212', 295' Open mine(s) (Y/N) depths Near Bailey Mine - approx. 770'  
Salt water depth(s) ft None noted for Offsets Void(s) encountered (Y/N) depths none  
Coal depth(s) ft 761' to 771' Pittsburgh Cavern(s) encountered (Y/N) depths none  
Is coal being mined in area (Y/N) N

Reviewed by:  
AL. 5/26/15  
W.S. 6/11/15  
06/12/2015

API 47-051 - 01722 Farm name Tim M. Turley and Tammy JF Well number WEB 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	N	X-70		Y
Surface	24	20	434.0	N	J-55 94#		Y
Coal							
Intermediate 1	17 1/2	13 3/8	1251.0	N	J-55 54.5#		Y
Intermediate 2	12 1/4	9 5/8	3410.4	N	J-55 36#		Y
Intermediate 3							
Production	8 3/4	5 1/2	12692.5	N	P-110 20#		Y
Tubing							
Packer type and depth set							

Comment Details \_\_\_\_\_

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	GEL SPACER	700	15.6	1.22	854.0	0	8
Coal							
Intermediate 1	Class A	1053	15.8	1.16	1221.48	0	8
Intermediate 2	Class A	1185	16.2	1.09	1291.65	0	8
Intermediate 3							
Production	Lead ECONOCEM - Tail Class H	Lead 1020 Tail 1340	Lead 14.2 Tail 15.0	Lead 1.32 Tail 1.31	Lead 1346.4 Tail 1755.4	540.0	8
Tubing							

Drillers TD (ft) 12,706 Loggers TD (ft) 12,681  
 Deepest formation penetrated Marcellus Plug back to (ft) Not a Pilot Hole  
 Plug back procedure N/A

Kick off depth (ft) 6272

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. Fresh Water/Surface - 4 centralizers used, one every third joint with 2 Baskets Intermediate - 11 centralizers - Intermediate 2 - 27 bow string centralizers on every joint to KOP, on every third joint from KOP to 100' from surface. Production - 180 bow string 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 Received

WAS WELL COMPLETED OPEN HOLE?  Yes  No DETAILS APR 20 2015

WERE TRACERS USED  Yes  No TYPE OF TRACER(S) USED \_\_\_\_\_  
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PERFORMANCE RECORD

API: 47-051-0172z

Farm name: TIM M. TURLEY AND TAMMY JENKINS

Well Name: WEB-22 G

Stage No.	Perf Date	Top Perf	Bottom Perf	# of Perfs	Formation
1 Injection Test	1/0/1900	-	-	-	Marcellus
1	10/23/2014	12,335	12,537	54	Marcellus
2	10/23/2014	12,032	12,235	54	Marcellus
3	10/27/2014	11,739	12,002	54	Marcellus
4	10/28/2014	11,446	11,709	54	Marcellus
5	11/8/2014	11,153	11,416	54	Marcellus
6	11/8/2014	10,860	11,123	54	Marcellus
7	11/9/2014	10,567	10,830	54	Marcellus
8	11/10/2014	10,274	10,537	54	Marcellus
9 (screen out)	11/10/2014	9,981	10,244	54	Marcellus
9 Reperf	11/11/2014	10,000	10,077	48	Marcellus
10	11/12/2014	9,688	9,951	54	Marcellus
11	11/25/2014	9,395	9,658	54	Marcellus
12	11/25/2014	9,102	9,365	54	Marcellus
12 Reperf	11/26/2014	9,095	9,132	24	Marcellus
13	11/26/2014	8,809	9,072	54	Marcellus
14	11/27/2014	8,516	8,779	54	Marcellus
15	11/27/2014	8,223	8,486	54	Marcellus
16	11/28/2014	7,930	8,193	54	Marcellus
17	11/28/2014	7,637	7,900	54	Marcellus
18	11/29/2014	7,259	7,580	54	Marcellus
19	11/29/2014	6,966	7,229	54	Marcellus
20	11/30/2014	6,845	6,938	54	Marcellus

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STIMULATION INFORMATION PER STAGE

API: 47-051-01722

Farm name: TIM M. TURLEY AND TAMMY JENKINS

Well Name: WEB-22 G

Stage No.	Stim Date	Avg Rate (bpm)	ATP (psi)	Max BD Pressure	ISIP (psi)	Proppant (lbs)	Water (BBLs)	Amount of N <sup>2</sup> / other
1 Injection Test	1/0/1900	0.0	-	-	-	-	-	
1	10/23/2014	82.6	7,872	5,584	3,487	602,000	16,062.57	
2	10/23/2014	63.5	8,354	5,534	8,529	572,946	14,440.38	
3	10/27/2014	84.2	8,114	5,632	4,619	622,500	19,511.76	
4	10/28/2014	79.6	8,016	5,172	4,600	601,622	15,242.38	
5	11/8/2014	86.6	8,260	5,620	8,420	491,886	16,425.76	
6	11/8/2014	88.9	7,882	6,489	4,309	601,212	19,839.38	
7	11/9/2014	83.7	7,615	6,133	4,194	601,472	11,210.38	
8	11/10/2014	87.7	7,874	5,849	4,169	599,216	11,367.38	
9 (screen out)	11/10/2014	76.9	7,665	6,269	4,719	533,584	17,833.76	
9 Reperf	11/11/2014	78.7	8,083	-	5,209	-	4,060.38	
10	11/12/2014	83.1	7,952	6,230	4,151	601,527	20,323.76	
11	11/25/2014	79.2	7,665	6,230	4,252	530,874	16,142.38	
12	11/25/2014	90.0	7,503	6,181	4,827	363,334	10,357.38	
12 Reperf	11/26/2014	89.9	7,483	-	5,077	237,532	6,092.38	
13	11/26/2014	86.1	7,241	6,213	4,863	559,196	12,943.38	
14	11/27/2014	76.6	7,363	6,438	5,080	602,234	18,807.76	
15	11/27/2014	80.2	7,468	6,019	5,403	540,053	15,871.76	
16	11/28/2014	83.9	7,364	6,519	5,568	601,064	16,184.38	
17	11/28/2014	85.2	7,212	5,586	4,256	602,093	15,563.38	
18	11/29/2014	85.5	6,883	6,434	4,267	600,855	14,586.38	
19	11/29/2014	90.0	6,483	6,442	3,610	601,233	11,345.38	
20	11/30/2014	89.9	6,068	7,077	3,420	605,158	10,654.38	

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Formations	Top TVD	Base TVD	Top MD	Base MD	Fluid
Shale	0	780	0	780	
Pittsburgh Coal	780	790	780	790	
Shale and Sandstone	790	1308	790	1308	
Dunkard Sand	1308	1329	1308	1329	
Shale	1329	1470	1329	1470	
Gas Sand	1470	1518	1470	1518	
Shale	1518	1594	1518	1594	
1st Salt Sand	1594	1605	1594	1605	
Shale	1605	1730	1605	1730	
2nd Salt Sand	1730	1778	1730	1778	
Shale	1778	1798	1778	1798	
Maxton Sand	1798	1862	1798	1862	
Shale	1862	1905	1862	5409	
Big Lime	1905	1991	1905	6064	
Big Injun	1991	2147	1991	6637	
Price	2147	2492	2147	7111	
Murrysville	2492	2508	2492	7145	
Shale	2508	2694	2508	7221	
50' Sand	2694	2701	2694	5307	
Shale	2701	2808	2701	5409	
30' Sand	2808	2817	2808	6064	
Shale	2817	2869	2817	6637	
Gordon	2869	2873	2869	7111	
Shale	2873	2969	2873	7145	
Fifth Sand	2969	3008	2969	7221	
Shale	3008	3418	3008	7242	
Speechley Sand	3418	3438	3419	7274	
Shale	3438	4509	3440	7400	
Warren Sand	4509	4514	4521	not encountered	
Shale	4514	5180	4526	not encountered	
Java Shale	5180	5287	5199	not encountered	
Pipe Creek Shale	5287	5388	5307	not encountered	
Angola Shale	5388	6035	5409	6064	
Rhinestreet	6035	6495	6064	6637	
Cashaqua	6495	6603	6637	7111	
Middlesex	6603	6634	7111	7145	
West River	6634	6705	7145	7221	
Burkett	6705	6724	7221	7242	
Tully Limestone	6724	6754	7242	7274	
Hamilton	6754	6871	7274	7400	Gas
Marcellus	6871	6922	7400	not encountered	
Onondaga	6922	6930	not encountered	not encountered	
Huntersville	6930		not encountered	not encountered	

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# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	10/23/2014
Job End Date:	11/30/2014
State:	West Virginia
County:	Marshall
API Number:	47-051-01722-00-00
Operator Name:	Noble Energy, Inc.
Well Name and Number:	WEB-22G
Longitude:	-80.51984100
Latitude:	39.92270300
Datum:	NAD27
Federal/Tribal Well:	NO
True Vertical Depth:	6,950
Total Base Water Volume (gal):	13,224,408
Total Base Non Water Volume:	0



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## Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	Operator	Carrier	Water	7732-18-5	100.00000	89.88740	
4070 White	FISI	proppant	Silica, Quartz	14808-60-7	100.00000	7.55360	
100 Mesh Sand	FISI	proppant	Silica, Quartz	14808-60-7	100.00000	1.95872	
Hydrochloric Acid (HCl)	FISI	Acid	Water	7732-18-5	63.00000	0.27189	
			Hydrogen Chloride	7647-01-0	37.00000	0.15968	
FRW-600	FISI	Friction Reducer	Acrylamide Polymer	Trade Secret	100.00000	0.07440	
			Hydrotreated light distillate	54742-47-8	30.00000	0.02232	
			Ammonium acetate	531-61-8	6.00000	0.00446	
CS-500 SI	FISI	Scale inhibitor	Water	7732-18-5	55.00000	0.02735	
			Acrylic Polymer	Proprietary	24.00000	0.01194	
			Ethylene glycol	107-21-1	10.00000	0.00497	
			Sodium chloride	7647-14-5	6.00000	0.00298	
			Sodium Polyacrylate	9003-04-7	5.00000	0.00249	



CI-3240	FTSI	Biocide	Water	7732-18-5	55.00000	0.02209
			Dazomet (Tetrahydro-3, 5-dimethyl-2H-1, 3, 5-thiadiazine-2-thione.	533-74-4	24.00000	0.00964
HVG-1	FTSI	Water Gelling Agent	Sodium Hydroxide	1310-73-2	23.00000	0.00924
			Petroleum Distillate	34742-47-8	55.00000	0.00100
			Guar Gum	9000-30-0	55.00000	0.00100
			Raffinates (Petroleum), Sorption Process	34741-85-1	50.00000	0.00091
			Clay	1302-78-9	5.00000	0.00009
			Surfactant	Proprietary	2.00000	0.00004
			Clay	14808-60-7	2.00000	0.00004
			Surfactant	9043-30-5	1.00000	0.00002
			Surfactant	24938-91-8	1.00000	0.00002
			Surfactant	154518-36-2	1.00000	0.00002
FE-100L	FTSI	Iron control	Water	7732-18-5	60.00000	0.00082
			Citric acid	77-92-9	55.00000	0.00075
CI-150	FTSI	Acid Corrosion Inhibitor	Ethylene Glycol	107-21-1	30.00000	0.00023
			Isopropanol	67-63-0	30.00000	0.00023
			Organic amine resin salt	Proprietary	30.00000	0.00023
			Alkyene Oxide Block Polymer	Proprietary	10.00000	0.00008
			Aromatic aldehyde	Proprietary	10.00000	0.00008
			Dimethylformamide	38-12-2	10.00000	0.00008
			Quaternary ammonium compound	Proprietary	10.00000	0.00008
			Water	7732-18-5	5.00000	0.00004
			Diethylene glycol	111-46-6	1.00000	0.00001
			Aliphatic alcohol	Proprietary	0.10000	0.00000
			Fatty Acid Salt	Proprietary	0.10000	0.00000
			Fatty Acid	Proprietary	0.10000	0.00000
NE-100	FTSI	Non-emulsifier	Water	7732-18-5	90.00000	0.00035
			2-Propanol	67-63-0	10.00000	0.00004
			2-Butoxyethanol	111-76-2	10.00000	0.00004
			Dodecylbenzenesulfonic acid	27176-87-0	5.00000	0.00002
			Benzene, C10-16 Alkyl Derivatives	68648-87-3	0.04000	0.00000
			Unsulphonated Matter	Proprietary	0.03000	0.00000
			Sulfuric Acid	7664-93-9	0.01000	0.00000
			Sulfur Dioxide	7446-09-5		0.00000
APB-1	FTSI	Gel breaker				

  
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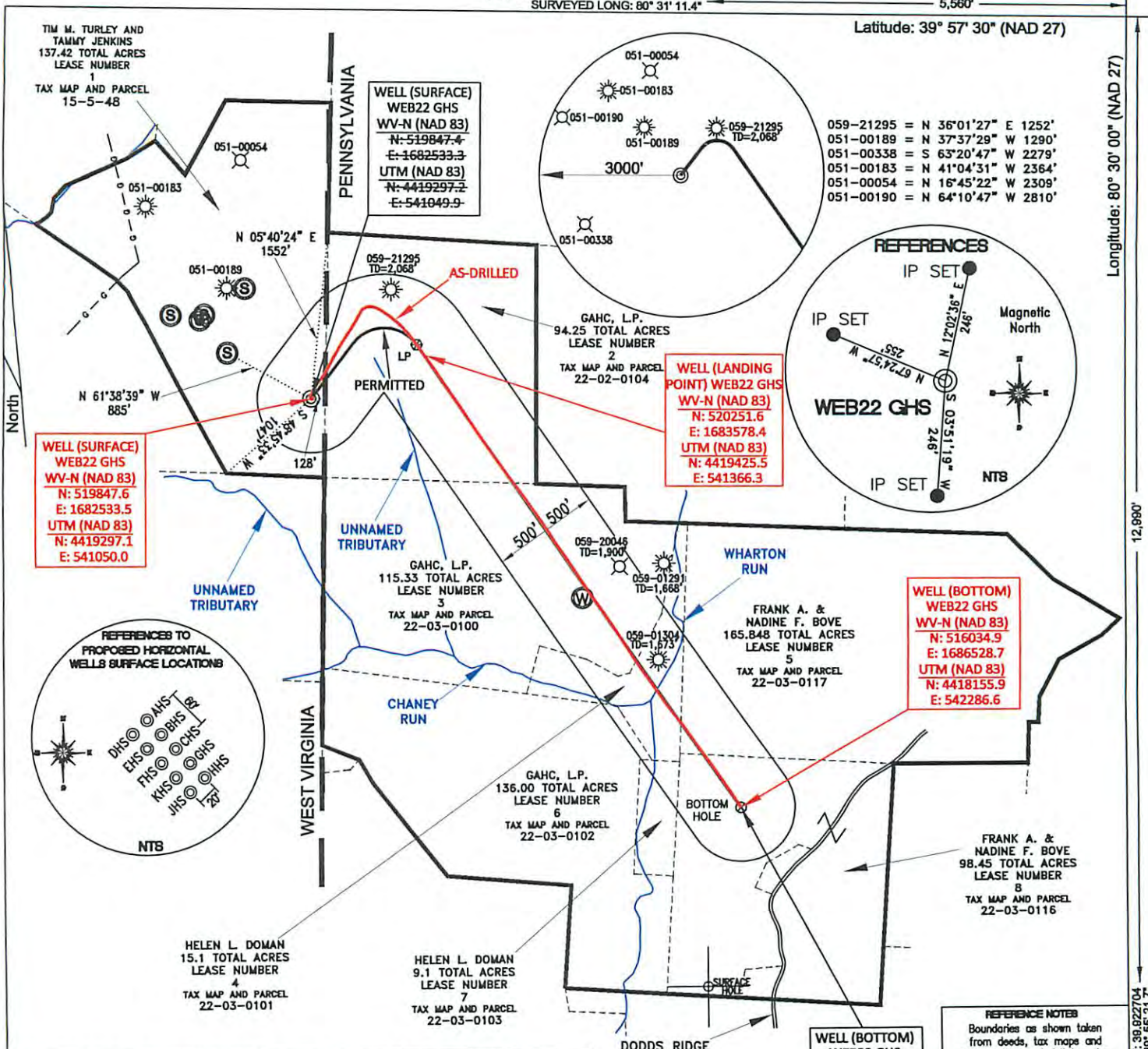
	Ammonium Persulfate	7727-54-0	100.00000	0.00008
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Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.

\* 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)

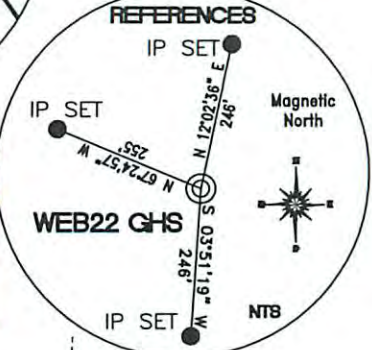
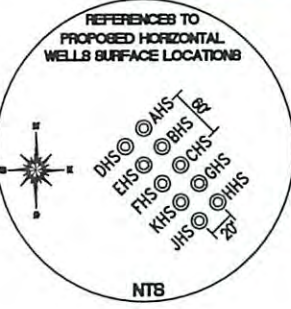


**WELL (SURFACE)  
 WEB22 GHS  
 WV-N (NAD 83)  
 N: 519847.6  
 E: 1682533.5  
 UTM (NAD 83)  
 N: 4419297.1  
 E: 541050.0**

**WELL (LANDING  
 POINT) WEB22 GHS  
 WV-N (NAD 83)  
 N: 520251.6  
 E: 1683578.4  
 UTM (NAD 83)  
 N: 4419425.5  
 E: 541366.3**

**WELL (BOTTOM)  
 WEB22 GHS  
 WV-N (NAD 83)  
 N: 516034.9  
 E: 1686528.7  
 UTM (NAD 83)  
 N: 4418155.9  
 E: 542286.6**

**WELL (BOTTOM)  
 WEB22 GHS  
 WV-N (NAD 83)  
 N: 516034.3  
 E: 1686528.5  
 UTM (NAD 83)  
 N: 4418155.8  
 E: 542286.5**



SURFACE HOLE LOCATION	LANDING POINT LOCATION	BOTTOM HOLE LOCATION
UTM 17-NAD 83 N) 4419297.15 E) 541049.92	UTM 17-NAD 83 N) 4419454.47 E) 541344.37	UTM 17-NAD 83 N) 4418155.78 E) 542286.52
NAD 27, WV NORTH N) 519810.28 E) 1713967.96	NAD 27, WV NORTH N) 519496.01 E) 1714596.97	NAD 27, WV NORTH N) 515512.66 E) 1717386.14

**REFERENCE NOTES**  
 Boundaries as shown taken from deeds, tax maps and field locations. A full boundary survey is not expressed nor implied. All bearings are based on true north. Ownership taken from public records Ohio County, West Virginia MARCH 2013 State Plane Coordinates & NAD 83 Lat/Long by differential submeter mapping grade GPS Drafted by: E.A.M.

FILE #: NOB 001  
 DRAWING #: 2263  
 SCALE: PLAT - 1"=1400'  
TICK MARK - 1"=2000'  
 MINIMUM DEGREE OF ACCURACY: 1/200  
 PROVEN SOURCE OF ELEVATION: SUBMETER MAPPING GRADE GPS

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:   
 L.L.S. #2124 : Ernest J. Benchek III



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

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

WATERSHED: DUNKARD FORK ELEVATION: 1,338.99'

COUNTY/DISTRICT: MARSHALL / WEBSTER QUADRANGLE: MAJORSVILLE WV-PA

SURFACE OWNER: TIM M. TURLEY AND TAMMY JENKINS ACREAGE: 137.42 +/-

OIL & GAS ROYALTY OWNER: TIM M. TURLEY AND TAMMY JENKINS ACREAGE: 626.398 +/-

LEASE NUMBERS: \_\_\_\_\_

DATE: JANUARY 27, 2015

OPERATOR'S WELL #: WEB22 GHS AS-DRILLED PLAT

API WELL #: 47 51 01722  
 STATE COUNTY PERMIT

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: TVD: 6,913' TMD: 12,826'

WELL OPERATOR: NOBLE ENERGY, INC. DESIGNATED AGENT: STEVEN M. GREEN

ADDRESS: 333 TECHNOLOGY DRIVE SUITE 116 ADDRESS: 500 VIRGINIA STREET EAST

CITY: CANONSBURG STATE: PA ZIP CODE: 15317 CITY: CHARLESTON STATE: WV ZIP CODE: 25301

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

06/12/2015