

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

API 47-051-01723 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 JHS
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 4419288.5 Easting 541050.1
Landing Point of Curve Northing 4419054.6 Easting 541058.0
Bottom Hole Northing 4417850.7 Easting 541935.2

Elevation (ft) 1339.28 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 12/13/2013 Date drilling commenced 2/27/2014 Date drilling ceased 7/8/2014
Date completion activities began 1/17/2015 Date completion activities ceased 3/3/2015
Verbal plugging (Y/N) N Date permission granted NA Granted by NA

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

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W.V. Dept. of Environmental Protection
Reviewed by:
A.W. 5/26/15
W.S. 6/10/15
06/12/2015

API 47-051 - 01723 Farm name Tim M. Turley and Tammy JF Well number WEB 22 JHS

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	439.0	N	J-55 94#		Y
Coal							
Intermediate 1	17 1/2	13 3/8	1254.0	N	J-55 54.5#		Y
Intermediate 2	12 1/4	9 5/8	3416.7	N	J-55 36#		Y
Intermediate 3							
Production	8 3/4	5 1/2	12263.7	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 ³ /sks)	Volume (ft ³)	Cement Top (MD)	WOC (hrs)
Conductor							
Surface	GEL SPACER	640	15.6	1.22	780.8	0	8
Coal							
Intermediate 1	Class A	1054	15.8	1.16	1222.64	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	480.0	8
Tubing							

Drillers TD (ft) 12,280 Loggers TD (ft) 12,255
 Deepest formation penetrated Marcellus Plug back to (ft) Not a Pilot Hole
 Plug back procedure N/A

Kick off depth (ft) 7195

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-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 _____

PERFORMANCE RECORD

API: 47-051-01723

Farm name: TIM M. TURLEY AND TAMMY JENKINS

Well Name: WEB-22 J

Stage No.	Perf Date	Top Perf	Bottom Perf	# of Perfs	Formation
1 Injection Test	1/17/2015	-	-	-	Marcellus
1	1/18/2015	11,996	12,118	50	Marcellus
2	1/18/2015	11,844	11,966	50	Marcellus
3	1/19/2015	11,692	11,814	50	Marcellus
4	1/19/2015	11,540	11,662	50	Marcellus
5	1/19/2015	11,388	11,510	50	Marcellus
6	1/20/2015	11,236	11,358	50	Marcellus
7	1/20/2015	11,084	11,206	50	Marcellus
8	1/20/2015	10,932	11,054	50	Marcellus
9	1/20/2015	10,780	10,902	50	Marcellus
10	1/20/2015	10,628	10,750	50	Marcellus
11	1/21/2015	10,476	10,598	50	Marcellus
12	1/21/2015	10,324	10,446	50	Marcellus
13	1/21/2015	10,172	10,294	50	Marcellus
14	1/21/2015	10,020	10,142	50	Marcellus
15	1/21/2015	9,868	9,990	50	Marcellus
16	1/21/2015	9,716	9,838	50	Marcellus
17	1/22/2015	9,564	9,686	50	Marcellus
18	1/22/2015	9,412	9,534	50	Marcellus
19	1/22/2015	9,260	9,382	50	Marcellus
20	1/22/2015	9,108	9,230	50	Marcellus
21	1/22/2015	8,956	9,078	50	Marcellus
22	1/23/2015	8,804	8,926	50	Marcellus
23	1/23/2015	8,652	8,774	50	Marcellus
24	1/23/2015	8,500	8,622	50	Marcellus
25	1/23/2015	8,348	8,470	50	Marcellus
26	1/23/2015	8,196	8,318	50	Marcellus
27	1/24/2015	8,044	8,166	50	Marcellus
28	1/24/2015	7,892	8,014	50	Marcellus
29	1/24/2015	7,740	7,862	50	Marcellus
30	1/24/2015	7,588	7,710	50	Marcellus
31	1/24/2015	7,436	7,558	50	Marcellus
32	1/24/2015	7,284	7,406	50	Marcellus
33	1/25/2015	7,132	7,254	50	Marcellus

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APR 20 2015

STIMULATION INFORMATION PER STAGE

API: 47-051-01723

Farm name: TIM M. TURLEY AND TAMMY JENKINS

Well Name: WEB-22 J

Stage No.	Stim Date	Avg Rate (bpm)	ATP (psi)	Max BD Pressure	ISIP (psi)	Proppant (lbs)	Water (BBLs)	Amount of N ² / other
1 Injection Test	1/17/2015	0.0	-	-	-	-	111.00	
1	1/18/2015	85.2	8,172	6,868	4,183	300,333	7,222.67	
2	1/18/2015	88.8	8,123	6,065	4,853	300,481	7,822.29	
3	1/19/2015	89.6	7,822	6,494	5,363	302,264	7,774.29	
4	1/19/2015	88.4	7,938	6,600	5,271	303,597	7,343.29	
5	1/19/2015	89.9	8,006	6,331	5,446	300,994	7,186.29	
6	1/20/2015	86.0	7,706	6,227	5,213	300,670	8,223.29	
7	1/20/2015	89.1	7,699	6,255	4,989	300,122	7,224.29	
8	1/20/2015	89.6	7,875	6,327	5,354	300,784	6,705.29	
9	1/20/2015	89.4	7,775	5,929	5,364	301,521	7,161.29	
10	1/20/2015	85.8	7,799	6,740	5,138	297,677	7,282.29	
11	1/21/2015	88.0	7,588	6,308	5,257	300,773	6,893.29	
12	1/21/2015	88.9	7,806	5,926	5,194	301,131	6,901.29	
13	1/21/2015	89.9	7,268	5,471	5,256	300,628	6,614.29	
14	1/21/2015	89.9	7,406	5,872	5,163	300,029	6,777.29	
15	1/21/2015	89.8	7,310	6,632	5,142	300,521	6,655.29	
16	1/21/2015	87.7	7,424	6,874	5,309	300,459	6,661.29	
17	1/22/2015	89.3	7,312	6,691	5,176	300,691	6,646.29	
18	1/22/2015	89.8	7,863	6,376	5,397	300,395	6,806.29	
19	1/22/2015	90.1	7,566	6,796	5,341	300,091	6,663.29	
20	1/22/2015	89.9	7,595	6,082	5,153	300,133	6,673.29	
21	1/22/2015	88.7	7,304	6,255	5,274	300,773	6,783.29	
22	1/23/2015	90.1	7,448	6,582	5,026	300,531	6,597.29	
23	1/23/2015	89.9	7,302	5,317	5,073	300,911	6,786.29	
24	1/23/2015	89.3	7,240	5,247	5,118	300,290	6,607.29	
25	1/23/2015	90.1	7,323	6,643	5,053	301,205	6,792.29	
26	1/23/2015	89.2	7,146	5,624	5,160	300,512	7,597.29	
27	1/24/2015	89.0	7,015	5,457	5,151	300,574	6,642.29	
28	1/24/2015	90.4	7,143	5,232	5,282	300,595	6,573.29	
29	1/24/2015	83.4	7,465	5,983	5,179	301,038	9,917.29	
30	1/24/2015	90.2	7,046	5,626	5,273	300,082	6,601.29	
31	1/24/2015	80.5	7,605	6,121	5,423	300,589	11,646.29	
32	1/24/2015	85.9	7,393	5,595	5,181	300,333	6,944.29	
33	1/25/2015	82.5	7,518	6,140	4,712	300,659	7,899.29	

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06/12/2015

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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APR 20 2015

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	1/17/2015
Job End Date:	1/25/2015
State:	West Virginia
County:	Marshall
API Number:	47-051-01723-00-00
Operator Name:	Noble Energy, Inc.
Well Name and Number:	WEB-22J
Longitude:	-80.51984000
Latitude:	39.92262600
Datum:	NAD27
Federal/Tribal Well:	NO
True Vertical Depth:	6,962
Total Base Water Volume (gal):	10,026,988
Total Base Non Water Volume:	0



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APR 20 2015

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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
Water	Operator	Carrier	Water	7732-18-5	100.00000	88.81359	
40/70 White	FTSI	proppant	Silica, Quartz	14808-60-7	100.00000	8.42026	
100 Mesh Sand	FTSI	proppant	Silica, Quartz	14808-60-7	100.00000	2.11670	
Hydrochloric Acid (HCl)	FTSI	Acid	Water	7732-18-5	63.00000	0.32012	
			Hydrogen Chloride	7647-01-0	37.00000	0.18800	
FRW-600	FTSI	Friction Reducer	Acrylamide Polymer	Trade Secret	100.00000	0.05003	
			Hydrotreated light distillate	54742-47-8	30.00000	0.01501	
			Ammonium acetate	531-61-8	6.00000	0.00300	
CS-500 SI	FTSI	Scale inhibitor	Water	7732-18-5	55.00000	0.02692	
			Acrylic Polymer	Proprietary	24.00000	0.01175	
			Ethylene glycol	107-21-1	10.00000	0.00489	
			Sodium chloride	7647-14-5	6.00000	0.00294	
			Sodium Polyacrylate	9003-04-7	5.00000	0.00245	

06/12/2015

CI-3240	FTSI	Biocide	Water	7732-18-5	55.00000	0.02149
			Dazomet (Tetrahydro-3, 5-dimethyl-2H-1, 3, 5-thiadiazine-2-thione.	533-74-4	24.00000	0.00938
FE-100L	FTSI	Iron control	Sodium Hydroxide	1310-73-2	23.00000	0.00899
			Water	7732-18-5	60.00000	0.00107
			Citric acid	77-92-9	55.00000	0.00098
CI-150	FTSI	Acid Corrosion Inhibitor	Isopropanol	57-63-0	30.00000	0.00027
			Ethylene Glycol	107-21-1	30.00000	0.00027
			Organic amine resin salt	Proprietary	30.00000	0.00027
			Quaternary ammonium compound	Proprietary	10.00000	0.00009
			Alkyene Oxide Block Polymer	Proprietary	10.00000	0.00009
			Aromatic aldehyde	Proprietary	10.00000	0.00009
			Dimethylformamide	38-12-2	10.00000	0.00009
			Water	7732-18-5	5.00000	0.00004
			Diethylene glycol	111-46-6	1.00000	0.00001
			Fatty Acid	Proprietary	0.10000	0.00000
			Fatty Acid Salt	Proprietary	0.10000	0.00000
			Aliphatic alcohol	Proprietary	0.10000	0.00000
NE-100	FTSI	Non-emulsifier	Water	7732-18-5	90.00000	0.00054
			2-Propanol	57-63-0	10.00000	0.00006
			2-Butoxyethanol	111-76-2	10.00000	0.00006
			Dodecylbenzenesulfonic acid Derivatives	27176-87-0	5.00000	0.00003
			Benzene, C10-16 Alkyl	38648-87-3	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

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)

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