

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

API 47-095-02206FH6A County Tyler District Centerville
Quad Shirley Pad Name SHR40HS Field/Pool Name SHR40HS
Farm Name NOBLE ENERGY, INC. Well Number SHR40AHS - Fracture
Operator (as registered with the OOG) CNX Gas Company LLC
Address P.O. Box 1248 City Jane Lew State WV Zip 26378

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top Hole Northing 4,362,847.112m Easting 514,245.737m
Landing Point of Curve Northing 4,362,825.993m Easting 514,815.771m
Bottom Hole Northing 4,360,268.645m Easting 515,796.890m

Elevation (ft) 771" 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

Drilled 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 08/01/2017 Date drilling commenced 04/15/2015 Date drilling ceased 06/22/2015
Date completion activities began 08/19/2017 Date completion activities ceased 08/27/2017
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 357 Open mine(s) (Y/N) depths N
Salt water depth(s) ft None Noted for Offsets Void(s) encountered (Y/N) depths N
Coal depth(s) ft N/A Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

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Reviewed by: AS
Reviewed
gcb 3/14/2018

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CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement Circulate (Y/N) * Provide details to the right *
Conductor	36"	30"	40'				
Surface	17 1/2"	13 3/8"	500.1'	New	J-55 54.5# / 500.1'		Y
Coal							
Intermediate 1	13 3/8"	9 5/8"	2221.7'	New	J-55 36# / 2221.7'		Y
Intermediate 2							
Intermediate 3							
Production	8 3/4"	5 1/2"	16187'	New	P-110 20# / 16187'		Y
Tubing	5 1/2"	2 3/8"	7087.70'	New	P-110 4.7# / 7087.70'		
Packer Type and Depth Set		None					

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	Type 1	420 sks	15.60	1.20	92.0	0'	8
Coal							
Intermediate 1	Class A	830 sks	15.60	1.18	165.0	0'	8
Intermediate 2							
Intermediate 3							
Production	Class A	720 sks / 2580 sks	13.50 / 14.50	1.57 / 1.27	207 / 601.0	2345.4'	8
Tubing							

Drillers TD (ft) 6387' Loggers TD (ft) 6381'

Deepest formation penetrated: Marcellus Plug back to (ft) Not a Pilot Hole

Plug back procedure: Not a Pilot Hole

Kick Off Depth (ft) 5584'

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 - 5 centralizers used, one every third joint. Intermediate - 26 centralizers used. Bow spring centralizers on every joint to KOP, on every third joint from KOP to 100' from surface casing. Production - 290 centralizers used. Rigid Bow spring centralizer every third joint from KOP to TOC, rigid bow spring centralizer every joint to KOP.

WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS Plug And Perforation Shot Hole

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WAS WELL COMPLETED OPEN HOLE Yes No DETAILS _____

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WERE TRACERS USE Yes No TYPES OF TRACER(S) USED _____

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PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number Of Perforations	Formation(s)
1	8/19/2017	15902	16024	40	Marcellus
2	8/19/2017	15694	15865	40	Marcellus
3	8/19/2017	15469	15651	40	Marcellus
4	8/20/2017	15244	15426	40	Marcellus
5	8/20/2017	15019	15201	40	Marcellus
6	8/20/2017	14794	14976	40	Marcellus
7	8/20/2017	14569	14751	40	Marcellus
8	8/21/2017	14344	14526	40	Marcellus
9	8/21/2017	14119	14301	40	Marcellus
10	8/21/2017	13894	14076	40	Marcellus
11	8/21/2017	13669	13581	40	Marcellus
12	8/21/2017	13444	13626	40	Marcellus
13	8/22/2017	13219	13401	40	Marcellus
14	8/22/2017	12994	13176	40	Marcellus
15	8/22/2017	12769	12951	40	Marcellus
16	8/22/2017	12544	12726	40	Marcellus
17	8/23/2017	12319	12501	40	Marcellus
18	8/23/2017	12094	12276	40	Marcellus
19	8/23/2017	11869	12072	40	Marcellus
20	8/23/2017	11644	11826	40	Marcellus
21	8/23/2017	11419	11601	40	Marcellus
22	8/24/2017	11194	11376	40	Marcellus
23	8/24/2017	10969	11151	40	Marcellus
24	8/24/2017	10744	10926	40	Marcellus
25	8/24/2017	10519	10701	40	Marcellus
26	8/25/2017	10294	10476	40	Marcellus
27	8/25/2017	10069	10251	40	Marcellus
28	8/25/2017	9844	10026	40	Marcellus
29	8/25/2017	9619	9801	40	Marcellus
30	8/25/2017	9394	9576	40	Marcellus
31	8/26/2017	9169	9351	40	Marcellus
32	8/26/2017	8944	9126	40	Marcellus
33	8/26/2017	8719	8901	40	Marcellus
34	8/26/2017	8494	8676	40	Marcellus
35	8/27/2017	8269	8451	40	Marcellus
36	8/27/2017	8044	8226	40	Marcellus
37	8/27/2017	7819	8001	40	Marcellus
38	8/27/2017	7594	7776	40	Marcellus
39	8/27/2017	7369	7551	40	Marcellus

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PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number Of Perforations	Formation(s)
40	8/27/2017	7144	7326	40	Marcellus

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Rev. 8/23/13

10/27/2017

API 47-095-02206FH6AFarm name NOBLE ENERGY, INC.WV Department of
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Well number SHR40AHS - Fracture

STIMULATION INFORMATION PER STAGE

Stage No.	Stimulations Date	Avg Pump Rate (BPM)	Avg Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen / other (gals)
1	8/19/2017	83	8455	7189	3668	397480	8367	4487
2	8/19/2017	82	7895	6686	3864	403400	8410	3369
3	8/19/2017	76	8215	7179	3401	400380	7344	3303
4	8/20/2017	81	8026	6346	3952	398400	7301	3370
5	8/20/2017	83	8235	5892	4039	401460	7232	3288
6	8/20/2017	83	8219	7008	3814	400900	7739	3315
7	8/20/2017	82	8306	6827	4010	402460	7221	3359
8	8/21/2017	85	8275	6865	3864	403560	7238	3246
9	8/21/2017	83	7996	6537	4419	397140	6854	3230
10	8/21/2017	81	8137	7079	3661	399680	7606	3373
11	8/21/2017	80	7930	6370	3806	399980	6808	3338
12	8/21/2017	84	8176	6768	3835	394000	6496	3384
13	8/22/2017	84	8227	6548	3893	397260	6430	3319
14	8/22/2017	84	8045	6836	4387	401180	6674	3266
15	8/22/2017	82	7972	6862	3893	399900	6416	3315
16	8/22/2017	84	8128	6405	4881	400680	6298	3270
17	8/23/2017	86	8244	6648	4010	395360	6329	3206
18	8/23/2017	83	8025	6861	3690	399600	6362	3253
19	8/23/2017	82	7851	6669	3923	397460	6206	3222
20	8/23/2017	81	7894	6881	4044	399860	6485	3171
21	8/23/2017	89	8227	6615	3991	402420	6353	3193
22	8/24/2017	87	8342	6538	4194	400700	6302	3334
23	8/24/2017	84	7924	6781	4097	404940	6285	3244
24	8/24/2017	91	8174	6833	4204	400320	7155	3335
25	8/24/2017	92	8190	6686	4198	404100	6369	3270
26	8/25/2017	85	7921	6766	4242	387740	6325	3210
27	8/25/2017	84	7560	8095	4068	399700	6407	3265
28	8/25/2017	83	7626	5881	4351	398880	6484	3229
29	8/25/2017	95	7780	6628	4568	400540	6148	3271
30	8/26/2017	90	8097	6649	4561	400640	7600	3466
31	8/26/2017	90	7604	6382	4039	401600	6156	3248
32	8/26/2017	84	7349	6689	3694	402760	6568	3309
33	8/26/2017	82	7254	6801	4533	398680	7597	3333
34	8/26/2017	96	8044	6374	5017	400160	5723	3169
35	8/27/2017	95	8018	6338	4920	378380	5364	3105
36	8/27/2017	85	7628	6324	4939	352680	6171	3325
37	8/27/2017	84	6901	6401	3815	400640	6395	3215
38	8/27/2017	85	6895	6565	4300	402920	6108	3288
39	8/27/2017	83	6787	5676	5112	398220	6113	3230

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STIMULATION INFORMATION PER STAGE

Stage No.	Stimulations Date	Avg Pump Rate (BPM)	Avg Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen / other (gals)
40	8/27/2017	89	7162	5885	5000	400500	6049	3364

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PRODUCING FORMATION(S)	DEPTHS	
<u>MARCELLUS</u>	<u>6387'</u> TVD	<u>16202'</u> MD

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump
 SHUT-IN PRESSURE Surface 500 psi Bottom Hole 3018 psi DURATION OF TEST 4 hrs
 OPEN FLOW Gas 10267.26 mcfpd Oil 144 bpd NGL N/A bpd Water 288 bpd GAS MEASURED BY
 Estimated Orifice Pilot

LITHOLOGY / FORMATION	TOP DEPTH IN FT TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY TYPE OF FLUID (FRESHWATER, BRINE, GAS, H2S, ETC)
					SEE ATTACHED

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Please insert additional pages as applicable.

Drilling Contractor Precision Drilling Company
 Address 5400 D Big Tyler Road City Charleston State WV Zip 25313
 Logging Company Baker Hughes
 Address 400 Technology Drive City Canonsburg State PA Zip 15317
 Cementing Company Allied Cementing Company, LLC
 Address 100 Hope Street City Clarksburg State WV Zip 26301
 Stimulating Company Keane
 Address 14235 US Route 6 City Mansfield State PA Zip 16933

Please insert additional pages as applicable.

Completed by CNX Gas WV Operations Company, LLC - Drilling and Completions Telephone 304-884-2000
 Signature [Signature] Title Adam Shutler- Completions Superintendent-Gas WV Date 1/12/18

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LITHOLOGY / FORMATION	TOP	BOTTOM	TOP	BOTTOM	DESCRIBE ROCK TYPE AND RECORD QUANTITY TYPE OF FLUID (FRESHWATER,BRINE,GAS,H2S, ETC)
	DEPTH IN FT TVD	DEPTH IN FT TVD	DEPTH IN FT MD	DEPTH IN FT MD	
SHALE	0	1020			
SHALE AND SANDSTONE	1020	1743			
BIG LIME	1743	1871			
BIG INJUN	1871	1978			
PRICE	1978	2129			
WEIR	2129	2233			
SHALE	2233	2320			
BEREA	2320	2328			
SHALE	2328	2509			
SANDSTONE	2509	2611			
SHALE	2611	2747			
SANDSTONE	2747	2765			
SHALE	2765	3239			
WARREN	3239	3285			
SHALE AND SANDSTONE	3285	3637			
LOWER HURON	3637	4395			
SANDSTONE	4395	4433			
SHALE	4433	4627			
SANDSTONE	4627	4683			
SHALE	4683	4807			
BENSON	4807	4851			
SHALE	4851	5051			
ALEXANDER	5051	5109			
SHALE	5109	6050			
CASHAQUA	6050	6161			
MIDDLESEX	6161	6195			
WEST RIVER	6195	6263			
BURKETT	6263	6297			
TULLY	6297	6300			
HAMILTON	6300	6317			
MARCELLUS	6317	6381			
ONONDAGA	6381				

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ACTUAL WELLPATH REPORT (CSV version)
 Prepared by Baker Hughes
 Software System: WellArchitect® 4.0.1

REFERENCE WELLPATH IDENTIFICATION

Operator NOBLE ENERGY
 Area Tyler County, WV
 Field Tyler
 Facility SHR-40 Pad
 Slot Slot A
 Well SHR-40A-HS
 Wellbore SHR-40A-HS AWB
 Wellpath SHR-40A-HS AWP Proj: 16202'
 Sidetrack (none)

REPORT SETUP INFORMATION

Projection NAD27 / Lambert West Virginia SP, Northern Zone (4701), US feet
 North Refe Grid
 Scale 0.999947
 Convergen 0.85° West
 Software S WellArchitect® 4.0.1
 User Gotfbral
 Report Ger 22/Jun/2015 at 11:53
 DataBase/! WANorthEast/ev8889.xml

WELLPATH	Local North	Local East	Easting	Northing	Latitude	Longitude
	[ft]	[ft]	[US ft]	[US ft]		
Slot Locatic	0.26	0.3	1622923	336042.7	39°24'53.8	80°50'04.866"W
Facility Ref			1622923	336042.5	39°24'53.8	80°50'04.870"W
Field Refer			609601.2	0	38°23'48.7	84°21'09.765"W

WELLPATH DATUM

Calculation Minimum curvature
 Horizontal Slot
 Vertical Re Precision 542 (RKB)
 MD Refere Precision 542 (RKB)
 Field Vertic Mean Sea Level
 Precision 5 788.74ft
 Precision 5 788.74ft
 Precision 5 19.40ft
 Section Ori N 0.00, E 0.00 ft
 Section Azi 160.00°

WELLPATH DATA † = interpolated/extrapolated station

	MD	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir	DLS
	[ft]	[°]	[°]	[ft]	[ft]	[ft]	[ft]	[US ft]	[US ft]			[ft]	[°]	[*/100ft]
†	0	0	293.05	0	0	0	0	1622923	336042.7	39°24'53.8	80°50'04.8	0		0
SHL	19.4	0	293.05	19.4	0	0	0	1622923	336042.7	39°24'53.8	80°50'04.8	0		0
	104	0.12	293.05	104	-0.06	0.03	-0.08	1622923	336042.8	39°24'53.8	80°50'04.8	0.09		293.05
	204	0.11	135.92	204	-0.04	0.01	-0.11	1622923	336042.7	39°24'53.8	80°50'04.8	0.11		273.467
	304	0.18	231.51	304	0.09	-0.16	-0.17	1622923	336042.6	39°24'53.8	80°50'04.8	0.23		226.274
	404	0.35	181.12	404	0.43	-0.56	-0.3	1622923	336042.2	39°24'53.7	80°50'04.8	0.64		207.743
	504	0.56	147.9	504	1.19	-1.28	-0.04	1622923	336041.4	39°24'53.7	80°50'04.8	1.28		181.897
	604	0.2	142.41	603.99	1.83	-1.83	0.32	1622923	336040.9	39°24'53.7	80°50'04.8	1.86		169.995

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704	0.63	139.92	703.99	2.52	-2.39	0.78	1622924	336040.3	39°24'53.7	80°50'04.8	2.52	161.862	0.43
804	0.4	163.93	803.99	3.38	-3.15	1.23	1622924	336039.6	39°24'53.7	80°50'04.8	3.38	158.595	0.31
904	0.44	109.52	903.98	3.97	-3.61	1.69	1622925	336039.1	39°24'53.7	80°50'04.8	3.99	154.893	0.39
1004	0.48	120.39	1003.98	4.54	-3.95	2.42	1622925	336038.8	39°24'53.7	80°50'04.8	4.63	148.567	0.1
1104	0.05	218.13	1103.98	4.89	-4.2	2.75	1622926	336038.5	39°24'53.7	80°50'04.8	5.02	146.776	0.49
1204	0.22	44.09	1203.98	4.83	-4.1	2.86	1622926	336038.6	39°24'53.7	80°50'04.8	4.99	145.102	0.27
1304	0.16	178.11	1303.98	4.88	-4.1	3	1622926	336038.6	39°24'53.7	80°50'04.8	5.08	143.833	0.35
1404	0.14	242.82	1403.98	5.02	-4.29	2.89	1622926	336038.4	39°24'53.7	80°50'04.8	5.18	146.04	0.16
1504	0.21	10.08	1503.98	4.88	-4.17	2.81	1622926	336038.6	39°24'53.7	80°50'04.8	5.03	145.97	0.32
1604	0.2	192.42	1603.98	4.87	-4.16	2.81	1622926	336038.6	39°24'53.7	80°50'04.8	5.02	145.958	0.41
1704	0.28	258.14	1703.98	4.98	-4.38	2.53	1622925	336038.3	39°24'53.7	80°50'04.8	5.06	149.957	0.27
1804	0.25	325.8	1803.98	4.74	-4.25	2.17	1622925	336038.5	39°24'53.7	80°50'04.8	4.77	152.936	0.3
1904	0.21	325.99	1903.98	4.35	-3.92	1.95	1622925	336038.8	39°24'53.7	80°50'04.8	4.37	153.581	0.04
2004	0.17	12.14	2003.98	4.04	-3.62	1.87	1622925	336039.1	39°24'53.7	80°50'04.8	4.08	152.621	0.15
2104	0.08	271.34	2103.98	3.89	-3.47	1.84	1622925	336039.3	39°24'53.7	80°50'04.8	3.93	152.138	0.2
2204	0.08	157.4	2203.98	3.94	-3.54	1.79	1622925	336039.2	39°24'53.7	80°50'04.8	3.96	153.111	0.13
2304	0.36	167.47	2303.97	4.32	-3.91	1.89	1622925	336038.8	39°24'53.7	80°50'04.8	4.34	154.209	0.28
2404	0.53	181.95	2403.97	5.06	-4.68	1.94	1622925	336038	39°24'53.7	80°50'04.8	5.06	157.462	0.2
2504	0.62	192.33	2503.97	5.94	-5.67	1.81	1622925	336037.1	39°24'53.7	80°50'04.8	5.95	162.294	0.14
2604	0.48	213.16	2603.96	6.65	-6.55	1.46	1622924	336036.2	39°24'53.7	80°50'04.8	6.71	167.389	0.24
2704	0.37	221.37	2703.96	7.06	-7.14	1.02	1622924	336035.6	39°24'53.7	80°50'04.8	7.21	171.853	0.13
2804	0.32	228.07	2803.96	7.32	-7.57	0.6	1622923	336035.2	39°24'53.7	80°50'04.8	7.59	175.46	0.06
2904	0.48	181.97	2903.96	7.81	-8.17	0.38	1622923	336034.6	39°24'53.7	80°50'04.8	8.18	177.347	0.35
3002	0.11	133.78	3001.95	8.27	-8.65	0.43	1622923	336034.1	39°24'53.7	80°50'04.8	8.66	177.137	0.42
3021	0.63	77.13	3020.95	8.3	-8.64	0.55	1622923	336034.1	39°24'53.7	80°50'04.8	8.66	176.373	3.04
3066	1.8	73.44	3065.94	8.38	-8.38	1.47	1622924	336034.3	39°24'53.7	80°50'04.8	8.51	170.077	2.6
3110	2.84	73.52	3109.91	8.49	-7.88	3.17	1622926	336034.9	39°24'53.7	80°50'04.8	8.49	158.049	2.36
3154	3.93	73.49	3153.83	8.64	-7.14	5.66	1622929	336035.6	39°24'53.7	80°50'04.7	9.11	141.562	2.48
3198	5.36	73.52	3197.68	8.86	-6.13	9.08	1622932	336036.6	39°24'53.7	80°50'04.7	10.95	124.002	3.25
3242	6.98	73.15	3241.43	9.14	-4.77	13.61	1622937	336038	39°24'53.7	80°50'04.6	14.42	109.305	3.68
3287	8.7	73.1	3286	9.47	-2.99	19.48	1622942	336039.7	39°24'53.7	80°50'04.6	19.71	98.712	3.82
3375	11.04	73.92	3372.7	10.41	1.28	33.95	1622957	336044	39°24'53.8	80°50'04.4	33.98	87.835	2.66
3463	13.46	72.24	3458.69	11.38	6.74	51.8	1622975	336049.5	39°24'53.8	80°50'04.2	52.24	82.585	2.78
3552	15.34	73.1	3544.89	12.42	13.32	72.93	1622996	336056	39°24'53.9	80°50'03.9	74.14	79.647	2.13
3640	17.36	75.67	3629.32	14.35	19.96	96.79	1623020	336062.7	39°24'54.0	80°50'03.6	98.83	78.349	2.44
3728	19.07	78.32	3712.91	17.73	26.12	123.59	1623046	336068.8	39°24'54.0	80°50'03.2	126.32	78.068	2.16
3817	21.63	78.1	3796.35	22.14	32.45	153.89	1623077	336075.2	39°24'54.1	80°50'02.9	157.27	78.094	2.88
3905	24.7	76.67	3877.25	26.57	40.03	187.66	1623111	336082.8	39°24'54.2	80°50'02.4	191.88	77.958	3.55
3994	28.73	75.79	3956.73	30.89	49.57	226.5	1623149	336092.3	39°24'54.3	80°50'01.9	231.87	77.655	4.55
4082	32.99	73.74	4032.26	34.58	61.48	270.03	1623193	336104.2	39°24'54.4	80°50'01.4	276.94	77.174	4.99
4170	33.2	70.56	4105.99	36.38	76.21	315.75	1623239	336118.9	39°24'54.6	80°50'00.8	324.82	76.431	1.99
4259	32.64	67.77	4180.7	35.69	93.4	360.95	1623284	336136.1	39°24'54.7	80°50'00.2	372.84	75.493	1.82
4347	30.73	69.19	4255.58	34.45	110.37	403.94	1623327	336153.1	39°24'54.9	80°49'59.7	418.74	74.718	2.33
4435	28.85	72	4331.95	34.87	124.92	445.15	1623368	336167.6	39°24'55.1	80°49'59.2	462.35	74.325	2.66
4524	29.41	74.71	4409.7	37.41	137.31	486.65	1623410	336180	39°24'55.2	80°49'58.6	505.65	74.243	1.61
4612	29.49	74.06	4486.33	40.72	148.96	528.32	1623451	336191.7	39°24'55.3	80°49'58.1	548.92	74.254	0.37
4700	31.49	76.26	4562.16	44.76	160.37	571.48	1623494	336203.1	39°24'55.4	80°49'57.6	593.56	74.325	2.6
4789	32.83	75.81	4637.5	49.74	171.81	617.45	1623540	336214.5	39°24'55.5	80°49'57.0	640.91	74.451	1.53
4877	34.32	74.49	4710.82	54.09	184.29	664.49	1623587	336227	39°24'55.7	80°49'56.4	689.57	74.499	1.89
4966	35.93	73.99	4783.61	57.88	198.2	713.77	1623637	336240.9	39°24'55.8	80°49'55.8	740.77	74.481	1.84
5054	36.43	73.62	4854.64	61.32	212.69	763.65	1623687	336255.4	39°24'56.0	80°49'55.1	792.72	74.437	0.62
5142	35.98	72.62	4925.65	64.15	227.78	813.39	1623736	336270.5	39°24'56.1	80°49'54.5	844.68	74.356	0.84
5231	33.69	71.03	4998.69	65.79	243.62	861.69	1623785	336286.3	39°24'56.3	80°49'53.9	895.47	74.213	2.77
5319	32.48	72.42	5072.43	67.23	258.69	907.3	1623830	336301.4	39°24'56.4	80°49'53.3	943.46	74.086	1.62
5407	30.84	73.71	5147.33	69.69	272.15	951.48	1623874	336314.9	39°24'56.6	80°49'52.7	989.64	74.038	2.02

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	5496	29.93	75.93	5224.1	73.46	283.95	994.91	1623918	336326.7	39°24'56.7	80°49'52.2		1034.64		74.071	1.62
	5584	29.2	78.59	5300.65	78.93	293.53	1037.25	1623960	336336.2	39°24'56.8	80°49'51.7		1077.99		74.199	1.71
	5672	29.86	78.46	5377.22	85.36	302.16	1079.76	1624003	336344.9	39°24'56.9	80°49'51.1		1121.24		74.366	0.75
	5761	29.75	77.7	5454.45	91.58	311.3	1123.04	1624046	336354	39°24'57.0	80°49'50.6		1165.39		74.507	0.44
	5849	29.89	76.39	5530.79	96.94	321.11	1165.69	1624089	336363.8	39°24'57.1	80°49'50.0		1209.11		74.599	0.76
	5937	30.8	74.82	5606.74	101.28	332.17	1208.74	1624132	336374.9	39°24'57.2	80°49'49.5		1253.55		74.634	1.37
	6026	31.33	74.03	5682.97	104.82	344.5	1252.98	1624176	336387.2	39°24'57.3	80°49'48.9		1299.48		74.627	0.75
	6114	31.33	74.96	5758.14	108.4	356.73	1297.07	1624220	336399.4	39°24'57.5	80°49'48.4		1345.23		74.622	0.55
	6132	31.2	75.21	5773.53	109.23	359.14	1306.1	1624229	336401.8	39°24'57.5	80°49'48.2		1354.57		74.625	1.02
	6215	30.36	73.52	5844.84	112.47	370.58	1347	1624270	336413.3	39°24'57.6	80°49'47.7		1397.04		74.618	1.45
	6259	31.17	76.58	5882.65	114.46	376.37	1368.74	1624292	336419.1	39°24'57.7	80°49'47.5		1419.54		74.625	4
KOP	6305	32.31	83.91	5921.78	118.78	380.44	1392.55	1624315	336423.1	39°24'57.7	80°49'47.1		1443.59		74.72	8.74
	6350	34.37	91.82	5959.39	126.4	381.32	1417.22	1624340	336424	39°24'57.7	80°49'46.8		1467.62		74.941	10.68
	6395	35.91	97.84	5996.2	137.29	379.11	1443	1624366	336421.8	39°24'57.7	80°49'46.5		1491.97		75.28	8.42
	6440	37.4	103.83	6032.31	151.06	374.04	1469.35	1624392	336416.7	39°24'57.7	80°49'46.2		1516.21		75.718	8.61
	6484	39.38	108.27	6066.81	167.15	366.47	1495.59	1624418	336409.2	39°24'57.6	80°49'45.8		1539.83		76.232	7.71
	6529	41.5	112.63	6101.06	186.1	356.26	1522.91	1624446	336399	39°24'57.5	80°49'45.5		1564.03		76.834	7.85
	6574	43.79	117.78	6134.17	207.73	343.26	1550.46	1624473	336386	39°24'57.4	80°49'45.1		1588.01		77.517	9.27
	6619	46.18	122.95	6166	232.23	327.16	1577.88	1624501	336369.9	39°24'57.2	80°49'44.8		1611.44		78.286	9.7
	6664	48.54	128.54	6196.5	259.59	307.81	1604.7	1624528	336350.5	39°24'57.0	80°49'44.4		1633.96		79.141	10.53
	6709	52.04	133.1	6225.25	289.81	285.17	1630.86	1624554	336327.9	39°24'56.8	80°49'44.1		1655.61		80.082	11.01
	6754	54.62	136.23	6252.13	322.43	259.8	1656.51	1624579	336302.5	39°24'56.6	80°49'43.8		1676.76		81.087	8
	6799	58.9	139.51	6276.8	357.29	231.88	1681.73	1624605	336274.6	39°24'56.3	80°49'43.4		1697.64		82.15	11.3
	6843	62.71	142.65	6298.26	393.62	201.99	1705.84	1624629	336244.7	39°24'56.0	80°49'43.1		1717.75		83.247	10.67
	6888	66.45	145.08	6317.57	432.65	169.17	1729.79	1624653	336211.9	39°24'55.7	80°49'42.8		1738.04		84.414	9.64
	6933	69.7	147.41	6334.38	473.2	134.46	1752.97	1624676	336177.2	39°24'55.3	80°49'42.5		1758.12		85.614	8.67
	6978	72.49	149.2	6348.95	514.88	98.24	1775.33	1624698	336141	39°24'55.0	80°49'42.2		1778.04		86.833	7.25
	7023	75.09	150.94	6361.52	557.44	60.8	1796.88	1624720	336103.5	39°24'54.6	80°49'41.9		1797.91		88.062	6.87
	7068	79.14	154.12	6371.55	600.92	21.89	1817.1	1624740	336064.6	39°24'54.2	80°49'41.7		1817.23		89.31	11.33
	7112	82.75	156.58	6378.48	644.22	-17.6	1835.21	1624758	336025.1	39°24'53.8	80°49'41.4		1835.3		90.549	9.89
	7157	87.23	157.67	6382.41	688.98	-58.89	1852.63	1624775	335983.8	39°24'53.4	80°49'41.2		1853.57		91.821	10.24
LP	7202	89.05	158.22	6383.87	733.92	-100.57	1869.52	1624792	335942.2	39°24'53.0	80°49'41.0		1872.22		93.079	4.22
	7291	88.92	157.84	6385.44	822.86	-183.1	1902.81	1624826	335859.6	39°24'52.2	80°49'40.5		1911.6		95.496	0.45
	7381	89.75	159.15	6386.49	912.82	-266.82	1935.8	1624859	335775.9	39°24'51.4	80°49'40.1		1954.1		97.848	1.72
	7470	89.11	160.95	6387.37	1001.81	-350.48	1966.17	1624889	335692.3	39°24'50.6	80°49'39.7		1997.16		100.107	2.15
	7560	88.77	164.31	6389.04	1091.68	-436.34	1993.03	1624916	335606.4	39°24'49.7	80°49'39.3		2040.23		102.349	3.75
	7650	88.92	160.49	6390.85	1181.57	-522.1	2020.23	1624943	335520.7	39°24'48.9	80°49'39.0		2086.6		104.49	4.25
	7739	89.32	159.69	6392.22	1270.56	-605.77	2050.53	1624973	335437	39°24'48.1	80°49'38.6		2138.14		106.458	1
	7829	90.18	160.95	6392.61	1360.55	-690.51	2080.84	1625004	335352.3	39°24'47.2	80°49'38.2		2192.42		108.358	1.69
	7918	90.28	161.34	6392.26	1449.53	-774.73	2109.6	1625032	335268	39°24'46.4	80°49'37.8		2247.36		110.165	0.45
	8008	90.25	162.15	6391.84	1539.49	-860.2	2137.79	1625061	335182.6	39°24'45.6	80°49'37.4		2304.37		111.919	0.9
	8097	90.25	161.7	6391.45	1628.44	-944.81	2165.41	1625088	335098	39°24'44.7	80°49'37.1		2362.55		113.573	0.51
	8187	89.85	160.25	6391.37	1718.42	-1029.89	2194.74	1625118	335012.9	39°24'43.9	80°49'36.7		2424.37		115.138	1.67
	8277	89.94	160.01	6391.54	1808.42	-1114.53	2225.33	1625148	334928.3	39°24'43.1	80°49'36.3		2488.83		116.603	0.28
	8366	90.06	160.24	6391.54	1897.42	-1198.23	2255.59	1625178	334844.6	39°24'42.2	80°49'35.9		2554.1		117.978	0.29
	8456	90.06	159.05	6391.44	1987.42	-1282.61	2286.9	1625210	334760.2	39°24'41.4	80°49'35.4		2622.02		119.286	1.32
	8545	90	157.88	6391.4	2076.39	-1365.39	2319.57	1625242	334677.4	39°24'40.6	80°49'35.0		2691.59		120.483	1.32
	8635	89.91	157.94	6391.47	2166.33	-1448.79	2353.41	1625276	334594	39°24'39.8	80°49'34.6		2763.61		121.617	0.12
	8724	90.22	159.89	6391.37	2255.31	-1531.82	2385.43	1625308	334511	39°24'39.0	80°49'34.1		2834.91		122.707	2.22
	8814	90.18	161.78	6391.05	2345.29	-1616.83	2414.97	1625338	334426	39°24'38.1	80°49'33.7		2906.24		123.802	2.1
	8903	89.97	161.95	6390.94	2434.24	-1701.41	2442.67	1625365	334341.4	39°24'37.3	80°49'33.4		2976.82		124.859	0.3
	8993	90.06	161.26	6390.91	2524.21	-1786.81	2471.07	1625394	334256	39°24'36.5	80°49'33.0		3049.41		125.87	0.77
	9083	90.03	160.61	6390.84	2614.2	-1871.87	2500.47	1625423	334171	39°24'35.6	80°49'32.6		3123.5		126.819	0.72
	9172	90.09	160.47	6390.75	2703.19	-1955.79	2530.12	1625453	334087	39°24'34.8	80°49'32.2		3197.91		127.704	0.17
	9261	90.12	159.69	6390.58	2792.19	-2039.46	2560.44	1625483	334003.4	39°24'34.0	80°49'31.8		3273.42		128.538	0.88

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9351	89.94	160.45	6390.54	2882.19	-2124.07	2591.12	1625514	333918.8	39°24'33.1	80°49'31.4	3350.46	129.343	0.87
9440	89.97	162.49	6390.61	2971.16	-2208.45	2619.41	1625542	333834.4	39°24'32.3	80°49'31.0	3426.16	130.135	2.29
9530	89.97	160.88	6390.65	3061.11	-2293.89	2647.69	1625570	333749	39°24'31.5	80°49'30.7	3503.17	130.905	1.79
9620	90.03	160.87	6390.65	3151.1	-2378.92	2677.17	1625600	333663.9	39°24'30.6	80°49'30.3	3581.42	131.624	0.07
9709	90.28	159.78	6390.41	3240.1	-2462.73	2707.14	1625630	333580.1	39°24'29.8	80°49'29.9	3659.73	132.293	1.26
9798	90.31	159.01	6389.96	3329.09	-2546.03	2738.46	1625661	333496.8	39°24'29.0	80°49'29.5	3739.17	132.915	0.87
9888	90.15	158.84	6389.59	3419.08	-2630.01	2770.82	1625694	333412.9	39°24'28.2	80°49'29.0	3820.26	133.507	0.26
9977	90.25	158.29	6389.28	3508.05	-2712.85	2803.35	1625726	333330	39°24'27.4	80°49'28.6	3901.07	134.06	0.63
10067	90.37	158.66	6388.8	3598.02	-2796.58	2836.37	1625759	333246.3	39°24'26.5	80°49'28.2	3983.19	134.595	0.43
10156	90.03	157.99	6388.49	3686.98	-2879.28	2869.24	1625792	333163.6	39°24'25.7	80°49'27.7	4064.82	135.1	0.84
10246	90.03	159.61	6388.44	3776.95	-2963.19	2901.78	1625825	333079.7	39°24'24.9	80°49'27.3	4147.39	135.6	1.8
10335	90.09	159.8	6388.35	3865.95	-3046.66	2932.65	1625855	332996.2	39°24'24.1	80°49'26.9	4228.78	136.092	0.22
10425	90.06	158.57	6388.23	3955.94	-3130.79	2964.63	1625887	332912.1	39°24'23.2	80°49'26.5	4311.71	136.561	1.37
10514	90.34	158.5	6387.92	4044.91	-3213.61	2997.2	1625920	332829.3	39°24'22.4	80°49'26.0	4394.37	136.996	0.32
10604	90.18	159.21	6387.51	4134.89	-3297.55	3029.67	1625952	332745.4	39°24'21.6	80°49'25.6	4478.03	137.424	0.81
10694	90.12	158.62	6387.27	4224.88	-3381.53	3062.04	1625985	332661.4	39°24'20.8	80°49'25.2	4561.89	137.838	0.66
10784	89.88	157.3	6387.27	4314.82	-3464.95	3095.82	1626019	332578	39°24'20.0	80°49'24.7	4646.5	138.22	1.49
10873	89.91	157.08	6387.44	4403.71	-3546.99	3130.32	1626053	332495.9	39°24'19.2	80°49'24.3	4730.75	138.571	0.25
10962	89.82	157.31	6387.65	4492.6	-3629.03	3164.81	1626088	332413.9	39°24'18.4	80°49'23.8	4815.17	138.909	0.28
11052	89.75	155.71	6387.98	4582.43	-3711.57	3200.69	1626123	332331.4	39°24'17.5	80°49'23.3	4901.03	139.227	1.78
11142	89.48	159.93	6388.59	4672.34	-3794.89	3234.65	1626157	332248	39°24'16.7	80°49'22.9	4986.4	139.557	4.7
11231	89.48	163.82	6389.4	4761.28	-3879.45	3262.34	1626185	332163.5	39°24'15.9	80°49'22.5	5068.82	139.939	4.37
11320	89.48	165.83	6390.2	4849.95	-3965.34	3285.63	1626208	332077.6	39°24'15.0	80°49'22.2	5149.69	140.355	2.26
11410	90.03	165.55	6390.59	4939.51	-4052.55	3307.88	1626231	331990.4	39°24'14.2	80°49'21.9	5231.17	140.777	0.69
11500	89.94	163.66	6390.61	5029.21	-4139.31	3331.77	1626254	331903.6	39°24'13.3	80°49'21.6	5313.62	141.169	2.1
11590	89.78	162.77	6390.83	5119.07	-4225.48	3357.76	1626280	331817.5	39°24'12.5	80°49'21.2	5397.15	141.528	1
11679	89.72	161.32	6391.22	5208.01	-4310.14	3385.19	1626308	331732.8	39°24'11.7	80°49'20.9	5480.59	141.854	1.63
11769	89.42	157.29	6391.9	5297.98	-4394.31	3416.99	1626340	331648.7	39°24'10.8	80°49'20.5	5566.49	142.132	4.49
11858	89.38	159.1	6392.83	5386.93	-4476.94	3450.05	1626373	331566	39°24'10.0	80°49'20.0	5652.06	142.381	2.03
11948	89.42	160.8	6393.77	5476.92	-4561.47	3480.9	1626404	331481.5	39°24'09.2	80°49'19.6	5737.92	142.652	1.89
12037	90.4	161.01	6393.91	5565.91	-4645.58	3510.01	1626433	331397.4	39°24'08.4	80°49'19.2	5822.51	142.927	1.13
12127	91.05	159.39	6392.77	5655.9	-4730.25	3540.5	1626463	331312.7	39°24'07.5	80°49'18.8	5908.5	143.186	1.94
12217	89.57	152.71	6392.29	5745.63	-4812.45	3577.01	1626500	331230.5	39°24'06.7	80°49'18.3	5996.22	143.377	7.6
12306	89.63	155.05	6392.91	5834.11	-4892.35	3616.19	1626539	331150.6	39°24'05.9	80°49'17.8	6083.74	143.53	2.63
12396	89.91	155.99	6393.27	5923.84	-4974.26	3653.48	1626576	331068.7	39°24'05.1	80°49'17.3	6171.8	143.704	1.09
12486	89.72	157.43	6393.56	6013.69	-5056.92	3689.06	1626612	330986.1	39°24'04.3	80°49'16.9	6259.52	143.889	1.61
12575	89.42	162.57	6394.23	6102.65	-5140.52	3719.49	1626642	330902.5	39°24'03.5	80°49'16.5	6345.05	144.112	5.78
12665	89.82	164.75	6394.82	6192.46	-5226.88	3744.81	1626668	330816.1	39°24'02.6	80°49'16.1	6429.92	144.38	2.46
12754	89.66	165.22	6395.23	6281.12	-5312.84	3767.87	1626691	330730.2	39°24'01.8	80°49'15.8	6513.3	144.656	0.56
12844	90.12	163.75	6395.4	6370.85	-5399.56	3791.94	1626715	330643.5	39°24'00.9	80°49'15.5	6598.03	144.921	1.71
12933	89.91	160.63	6395.38	6459.77	-5484.28	3819.16	1626742	330558.7	39°24'00.1	80°49'15.1	6683.06	145.147	3.51
13023	89.88	158.26	6395.54	6549.76	-5568.55	3850.76	1626773	330474.5	39°23'59.3	80°49'14.7	6770.31	145.335	2.63
13113	89.82	156.33	6395.78	6639.65	-5651.57	3885.49	1626808	330391.5	39°23'58.5	80°49'14.3	6858.37	145.491	2.15
13203	89.91	155.6	6395.99	6729.43	-5733.76	3922.15	1626845	330309.3	39°23'57.7	80°49'13.8	6946.89	145.626	0.82
13292	90.43	156.44	6395.73	6818.21	-5815.08	3958.32	1626881	330228	39°23'56.9	80°49'13.3	7034.45	145.757	1.11
13382	90.34	156.71	6395.12	6908.05	-5897.66	3994.1	1626917	330145.4	39°23'56.1	80°49'12.8	7122.87	145.893	0.32
13471	90.4	155.43	6394.55	6996.84	-5979.01	4030.2	1626953	330063	39°23'55.3	80°49'12.4	7210.48	146.018	1.44
13561	90.25	154.87	6394.04	7086.51	-6060.67	4068.02	1626991	329982.4	39°23'54.5	80°49'11.9	7299.35	146.13	0.64
13650	90.18	159.12	6393.7	7175.37	-6142.58	4102.79	1627025	329900.5	39°23'53.6	80°49'11.4	7386.75	146.26	4.78
13740	90.09	160.66	6393.49	7265.37	-6227.09	4133.74	1627056	329816	39°23'52.8	80°49'11.0	7474.25	146.423	1.71
13829	90.12	162.15	6393.33	7354.34	-6311.44	4162.11	1627085	329731.6	39°23'52.0	80°49'10.6	7560.25	146.597	1.67
13919	90.09	163.4	6393.16	7444.23	-6397.4	4188.77	1627111	329645.7	39°23'51.1	80°49'10.3	7646.73	146.785	1.39
14009	90.37	167.09	6392.8	7533.84	-6484.42	4211.68	1627134	329558.7	39°23'50.3	80°49'09.9	7732.14	146.996	4.11
14098	90.8	168.42	6391.89	7622.02	-6571.38	4230.56	1627153	329471.7	39°23'49.4	80°49'09.7	7815.41	147.227	1.57
14188	91.2	165.77	6390.32	7711.31	-6659.09	4250.65	1627173	329384	39°23'48.6	80°49'09.4	7900.1	147.449	2.98

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14278	90.58	160.88	6388.92	7801.12	-6745.27	4276.47	1627199	329297.8	39°23'47.7	80°49'09.1	7986.66	147.626	5.48	
14367	90.25	159.47	6388.28	7890.11	-6828.99	4306.65	1627229	329214.1	39°23'46.9	80°49'08.7	8073.56	147.763	1.63	
14456	90.25	161.38	6387.89	7979.1	-6912.84	4336.47	1627259	329130.3	39°23'46.1	80°49'08.3	8160.41	147.9	2.15	
14546	90.06	160.77	6387.65	8069.09	-6997.97	4365.66	1627288	329045.1	39°23'45.2	80°49'07.9	8248.07	148.042	0.71	
14636	90	161.05	6387.6	8159.08	-7083.02	4395.09	1627318	328960.1	39°23'44.4	80°49'07.5	8335.83	148.18	0.32	
14725	90.31	160.11	6387.36	8248.07	-7166.96	4424.68	1627347	328876.2	39°23'43.6	80°49'07.1	8422.77	148.31	1.11	
14815	90.18	159.9	6386.97	8338.07	-7251.53	4455.46	1627378	328791.6	39°23'42.7	80°49'06.7	8510.92	148.433	0.27	
14904	90.71	160.63	6386.28	8427.06	-7335.3	4485.51	1627408	328707.8	39°23'41.9	80°49'06.3	8598.05	148.554	1.01	
14994	89.94	162.65	6385.77	8517.02	-7420.71	4513.85	1627437	328622.4	39°23'41.1	80°49'05.9	8685.73	148.689	2.4	
15084	89.88	162.16	6385.91	8606.94	-7506.5	4541.06	1627464	328536.6	39°23'40.2	80°49'05.6	8773.19	148.828	0.55	
15173	89.45	161.04	6386.43	8695.9	-7590.95	4569.15	1627492	328452.2	39°23'39.4	80°49'05.2	8860	148.955	1.35	
15263	89.48	157.1	6387.27	8785.87	-7674.99	4601.29	1627524	328368.2	39°23'38.6	80°49'04.8	8948.6	149.057	4.38	
15352	89.78	155.12	6387.85	8874.66	-7756.36	4637.33	1627560	328286.8	39°23'37.8	80°49'04.3	9036.93	149.126	2.25	
15442	90.22	157.26	6387.85	8964.45	-7838.7	4673.67	1627596	328204.5	39°23'37.0	80°49'03.8	9126.24	149.195	2.43	
15532	90.31	160.01	6387.43	9054.42	-7922.5	4706.45	1627629	328120.7	39°23'36.1	80°49'03.4	9215.03	149.287	3.06	
15621	90.22	160.28	6387.02	9143.42	-8006.21	4736.68	1627659	328037	39°23'35.3	80°49'03.0	9302.45	149.39	0.32	
15711	90.22	159.71	6386.67	9233.42	-8090.78	4767.47	1627690	327952.4	39°23'34.5	80°49'02.6	9390.92	149.491	0.63	
15800	90.22	158.64	6386.33	9322.4	-8173.96	4799.11	1627722	327869.2	39°23'33.7	80°49'02.1	9478.67	149.582	1.2	
15890	90	156.09	6386.16	9412.3	-8257.02	4833.74	1627756	327786.2	39°23'32.9	80°49'01.7	9567.84	149.655	2.84	
15980	90.06	157.09	6386.11	9502.14	-8339.61	4869.5	1627792	327703.6	39°23'32.0	80°49'01.2	9657.18	149.719	1.11	
16069	89.72	159.19	6386.28	9591.09	-8422.21	4902.64	1627825	327621	39°23'31.2	80°49'00.8	9745.23	149.796	2.39	
16159	89.69	159.57	6386.75	9681.08	-8506.44	4934.33	1627857	327536.7	39°23'30.4	80°49'00.4	9833.98	149.883	0.42	
16175	89.63	159.82	6386.84	9697.08	-8521.45	4939.88	1627863	327521.7	39°23'30.3	80°49'00.3	9849.75	149.899	1.61	
BHL	16202	89.63	159.82	6387.02	9724.08	-8546.79	4949.2	1627872	327496.4	39°23'30.0	80°49'00.2	9876.34	149.926	0

TARGETS

Name	MD	TVD	North	East	Grid East	Grid North	Latitude	Longitude	Shape	Comment
	[ft]	[ft]	[ft]	[ft]	[US ft]	[US ft]				
SHR-40A-HS BHL Rev-2		6374.29	-8551.32	4939.41	1627862	327491.9	39°23'30.0	80°49'00.3	point	
SHR-40A-HS LP Plat		6376.9	-103.48	1864.65	1624787	335939.3	39°24'53.0	80°49'41.0	point	
SHR-40A-HS LP Rev-2		6390	-94.19	1861.27	1624784	335948.5	39°24'53.1	80°49'41.1	point	
SHR-40 Pad LL		6599.24	-0.26	-0.3	1622923	336042.5	39°24'53.8	80°50'04.8	polygon	

WELLPATH COMPOSITION Ref Wellbore: SHR-40A-HS AWB Ref Wellpath: SHR-40A-HS AWP Proj: 16202'

Log Name/	Start MD	End MD	Pos Unc	Model
	[ft]	[ft]		
O1_MS Gyro	19.4	3002		Generic gyro - northseeking (Standard)
O2_SDI MV	3002	6114		ISCSWA MWD, Rev. 2 (Standard)
O3_BHI AT	6114	16175		NaviTrak (AT Curve Short Spaced)
Projection	16175	16202		Blind Drilling (std)

COMMENTS

Wellpath general comments
 API: 47-095-02206-0000
 BHI Job #: 7301310
 Rig: Precision 542
 Duration: 06.12.2015 - 06.19.2015
 MS Gyro <8-3/4> (100'-2998")
 SDI MWD <8-3/4> (2998')[(3017'-6110)"]
 BHI AT Curve <8-1/2> (6114')[(6132'-16175)"]
 Projected MD at TD: 16202'

Hydraulic Fracturing Fluid Product Component Information Disclosure

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Job Start Date:	8/19/2017
Job End Date:	8/27/2017
State:	West Virginia
County:	Tyler
API Number:	47-095-02206-00-00
Operator Name:	CONSOL Energy Inc.
Well Name and Number:	SHRL40AHS
Latitude:	39.41502550
Longitude:	-80.83451280
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,396
Total Base Water Volume (gal):	11,664,744
Total Base Non Water Volume:	0

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	Ascent	Carrier/Base Fluid					
			Water	7732-18-5	100.00000	85.07120	None
Sand (Proppant)	Keane	Proppant					
			Crystalline silica: Quartz (SiO2)	14808-60-7	100.00000	13.91893	None
Hydrochloric Acid (7.5%)	Keane	Acid Inhibitor					
			Water	7732-18-5	92.50000	0.82047	None
			Hydrochloric Acid	7647-01-0	7.50000	0.06652	None
KFR-23	Keane	Friction Reducer					
			Distillates (petroleum), hydrotreated light	64742-47-8	45.00000	0.03087	None
			copolymer of 2-propenamide	Proprietary	10.00000	0.00686	None
			oleic acid diethanolamide	93-83-4	2.00000	0.00137	None
			Alcohols, C12-16, ethoxylated	68551-12-2	2.00000	0.00137	None
Hydrochloric Acid (15%)	Keane	Acidizing					
			Water	7732-18-5	85.00000	0.02661	None
			Hydrochloric Acid	7647-01-0	15.00000	0.00470	None
KFEAC-30	Keane	Iron Control					

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			acetic acid	64-19-7	60.00000	0.00308	None
			Citric acid	77-92-9	40.00000	0.00205	None
MBC-516	Keane	Biocide					
			glutaral	111-30-8	26.70000	0.00224	None
			didecyldimethylammonium chloride	7173-51-5	8.00000	0.00067	None
			quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides	68424-85-1	5.30000	0.00044	None
KSI-19	Keane	Scale Inhibitor					
			Methanol	67-56-1	30.00000	0.00244	None
KAI-12	Keane	Acid Inhibitor					
			Methanol	67-56-1	90.00000	0.00091	None
			xylene	1330-20-7	5.00000	0.00005	None
			isoproyl alcohol	67-63-0	5.00000	0.00005	None
			Fatty imidazoline	61790-69-0	5.00000	0.00005	None
			prop-2-yn-1-ol	107-19-7	5.00000	0.00005	None
			Alcohols, C7-9-iso-, C8-rich	68526-83-0	5.00000	0.00005	None
			ethylbenzene	100-41-4	1.00000	0.00001	None
KWG-111LS	Keane	Gel					
			Distillates (petroleum), hydrotreated light	64742-47-8	55.00000	0.00017	None
			Guar gum	9000-30-0	55.00000	0.00017	None
KWBO-2	Keane	Breaker					
			Sodium persulfate	7775-27-1	99.00000	0.00001	None
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.							
Other Chemical(s)	Listed Above	See Trade Name(s) List					
			Water	7732-18-5	92.50000	0.82047	
			Water	7732-18-5	85.00000	0.02661	
			copolymer of 2-propenamide	Proprietary	10.00000	0.00686	
			Citric acid	77-92-9	40.00000	0.00205	
			oleic acid diethanolamide	93-83-4	2.00000	0.00137	
			Alcohols, C12-16, ethoxylated	68551-12-2	2.00000	0.00137	
			didecyldimethylammonium chloride	7173-51-5	8.00000	0.00067	
			quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides	68424-85-1	5.30000	0.00044	
			Distillates (petroleum), hydrotreated light	64742-47-8	55.00000	0.00017	
			xylene	1330-20-7	5.00000	0.00005	
			Alcohols, C7-9-iso-, C8-rich	68526-83-0	5.00000	0.00005	
			prop-2-yn-1-ol	107-19-7	5.00000	0.00005	
			Fatty imidazoline	61790-69-0	5.00000	0.00005	
			isoproyl alcohol	67-63-0	5.00000	0.00005	
			ethylbenzene	100-41-4	1.00000	0.00001	

* 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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SURFACE HOLE LOCATION (SHL)
 UTM 17 - NAD83
 N: 4362847.112
 E: 514245.737
 NAD27, WV NORTH
 N: 336042.720
 E: 1622922.890
 LAT/LON - NAD83
 LAT: N39.415026
 LON: W80.8345126

BOTTOM HOLE LOCATION
 UTM 17 - NAD83
 N: 4360267.218
 E: 515793.930
 NAD27, WV NORTH
 N: 327491.870
 E: 1627871.820
 LAT/LON - NAD83
 LAT: N39.391752
 LON: W80.8165547

Well is located on topo map 601 feet south of Latitude: 39° 25' 00"

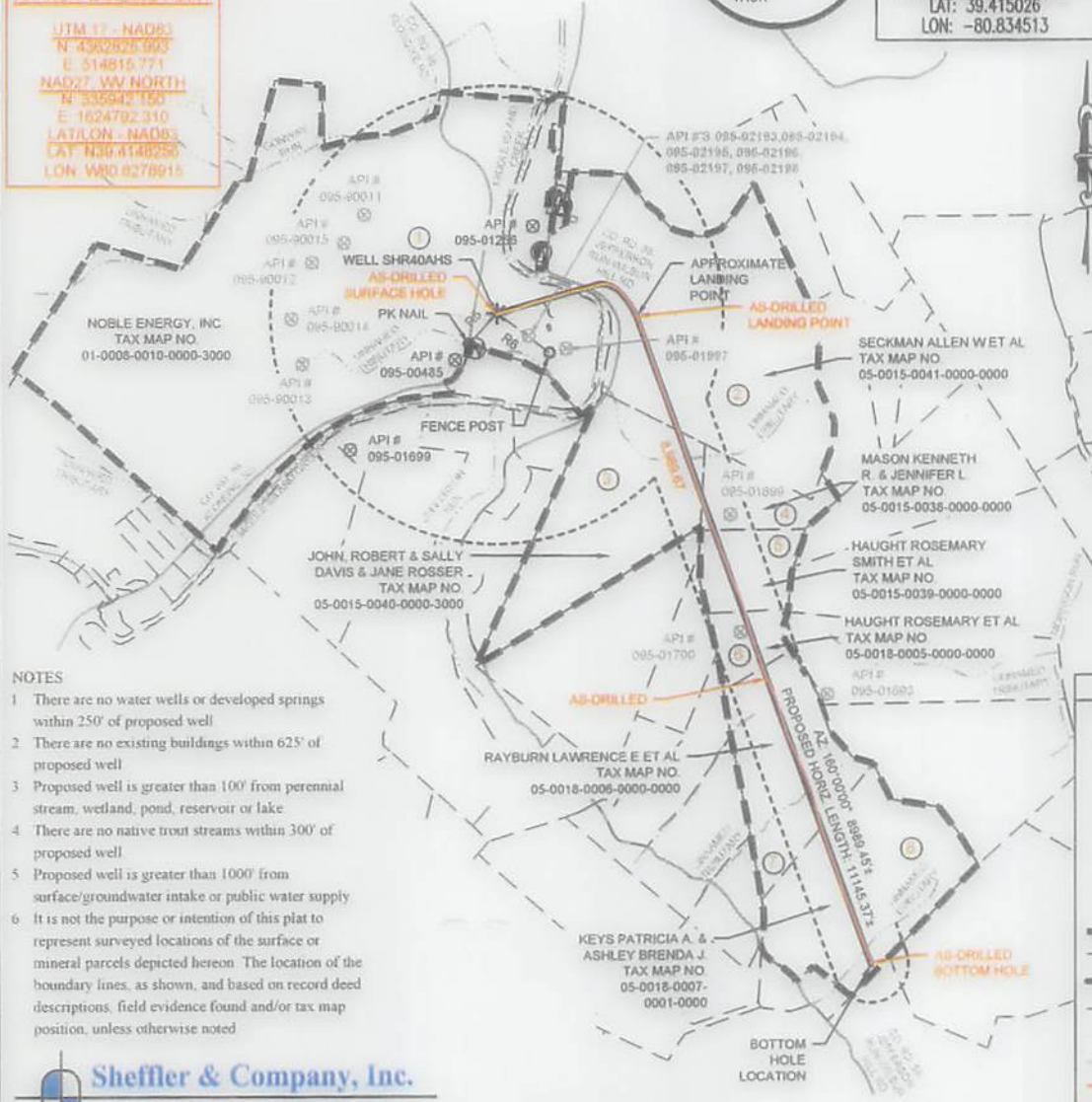
APPROX. LANDING POINT
 UTM 17 - NAD83
 N: 4361677.1
 E: 514816.771
 NAD27, WV NORTH
 N: 335942.190
 E: 1624702.310
 LAT/LON - NAD83
 LAT: N39.4148256
 LON: W80.8278915



SURFACE HOLE LOCATION (SHL)
 UTM 17 - NAD83
 N: 4362847.122
 E: 514245.726
 NAD27, WV NORTH
 N: 336042.755
 E: 1622922.854
 LAT/LON DATUM-NAD83
 LAT: 39.415026
 LON: -80.834513

APPROX. LANDING POINT
 UTM 17 - NAD83
 N: 4362825.085
 E: 514814.302
 NAD27, WV NORTH
 N: 335939.250
 E: 1624787.440
 LAT/LON DATUM-NAD83
 LAT: 39.414817
 LON: -80.827909

BOTTOM HOLE LOCATION
 UTM 17 - NAD83
 N: 4360267.218
 E: 515793.930
 NAD27, WV NORTH
 N: 327491.870
 E: 1627862.030
 LAT/LON DATUM-NAD83
 LAT: 39.391752
 LON: -80.816589



LINE TABLE

LINE	BEARING	DISTANCE
R2	S39°24'41"E	251.37'
R3	S88°41'55"E	252.97'
R4	N23°26'07"E	323.94'
R5	N43°28'50"E	553.44'
R6	N53°08'16"W	861.96'

- NOTES**
- 1 There are no water wells or developed springs within 250' of proposed well
 - 2 There are no existing buildings within 625' of proposed well
 - 3 Proposed well is greater than 100' from perennial stream, wetland, pond, reservoir or lake
 - 4 There are no native trout streams within 300' of proposed well
 - 5 Proposed well is greater than 1000' from surface/groundwater intake or public water supply
 - 6 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

LEGEND

- TOPO MAP POINT
- TOPO MAP BOTTOM HOLE
- PROPOSED WELL
- WATER SOURCE
- LEASED NUMBER BASED ON ATTACHED WMA1
- ALL ARE POINTS UNLESS OTHERWISE NOTED
- MINERAL TRACT BOUNDARY
- PARCEL LINES
- PROPOSED HORIZONTAL WELL
- WELL REFERENCE
- STREAM/WATERWAY
- ROAD
- AS-DRILLED HORIZONTAL WELL

WELLS WITHIN 3000'

- EXISTING GAS WELL
- RECORD GAS WELL

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

AS-DRILLED PLAT

FILE # SHR 40 AHS
 DRAWING # SHR 40 AHS
 SCALE: 1"=2500'
 MINIMUM DEGREE OF ACCURACY: 1/2500
 PROVEN SOURCE OF ELEVATION: USGS MONUMENT A 142. 724.61'

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: [Signature]
 R.P.E.: _____ 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: SEPTEMBER 4, 2014, OCTOBER 27, 2017

OPERATOR'S WELL #: SHR 40 AHS

API WELL # 47 095 2206
 STATE COUNTY PERMIT

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

WATERSHED: MIDDLE ISLAND CREEK ELEVATION: 771'
 COUNTY/DISTRICT: CENTERVILLE / TYLER QUADRANGLE: SHIRLEY, W. VA
 SURFACE OWNER: NOBLE ENERGY, INC ACREAGE: 543.35
 OIL & GAS ROYALTY OWNER: DAVID L. MAPLE, ET AL. ACREAGE: 351.16

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: 6,387' ± TMD: 16,202' ±
 WELL OPERATOR: CNX GAS COMPANY, LLC DESIGNATED AGENT: CHRIS TURNER
 Address: 1000 CONSOL ENERGY DRIVE, CANNONSURG, PA 15317 Address: 1 DOMINION DRIVE
 City CANNONSURG State PA Zip Code 15317 City JANE LEW State WV Zip Code 26378

Well is located on topo map 9,081 feet south of Latitude: 39° 25' 00"

Well is located on topo map 7,044 feet west of Longitude: 80° 47' 30"



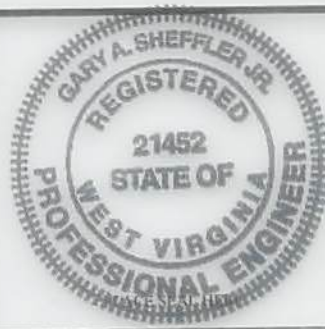
1712 Mount Nebo Road Phone: 412-219-4509
Sewickley, PA 15143 Email: Info@shefflerCo.com



FILE # SHR 40 AHS
DRAWING # SHR 40 AHS
SCALE: 1"=2500'
MINIMUM DEGREE OF ACCURACY 1/2500
PROVEN SOURCE OF ELEVATION USGS MONUMENT A 142 724.61'

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DATE: SEPTEMBER 4, 2014, OCTOBER 27, 2017
OPERATOR'S WELL #: SHR 40 AHS
API WELL # 47 095 2206
STATE COUNTY PERMIT

Well Type: Oil Waste Disposal Production Deep
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WATERSHED: MIDDLE ISLAND CREEK ELEVATION: 771'
COUNTY/DISTRICT: CENTERVILLE / TYLER QUADRANGLE: SHIRLEY, W. VA
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OIL & GAS ROYALTY OWNER: DAVID L. MAPLE, ET AL ACREAGE: 351.16

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: 6,387' ± TMD: 16,202' ±
WELL OPERATOR: CNX GAS COMPANY, LLC DESIGNATED AGENT: CHRIS TURNER
Address: 1000 CONSOL ENERGY DRIVE, CANNONBURG, PA 15317 Address: 1 DOMINION DRIVE
City CANONSBURG State PA Zip Code 15317 City JANE LEW State WV Zip Code 26378