

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

API 47 - 033 - 05928 County Harrison District Union/Freeman's Creek
Quad West Milford, WV 7.5' Pad Name Stickel 1210 Field/Pool Name Fink Kennedy
Farm name Stickel Well Number Stickel 1210 S-5H
Operator (as registered with the OOG) HG Energy II Appalachia, LLC
Address 5260 Dupont Rd. City Parkersburg State WV Zip 26101

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4332728.147 Easting 546682.321
Landing Point of Curve Northing 4332568.484 Easting 547092.869
Bottom Hole Northing 4329633.976 Easting 548140.996

Elevation (ft) 994 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)
Air/Mud/OBM
KCL, Barite, Lime, CaCL, base oil, clay, sulfatone, safevert FLG, safevert WA

Date permit issued 10/25/2018 Date drilling commenced 12/20/2018 Date drilling ceased 8/20/2019
Date completion activities began 9/30/2019 Date completion activities ceased 2/23/2020
Verbal plugging (Y/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 80', 315' Open mine(s) (Y/N) depths N
Salt water depth(s) ft N/A Void(s) encountered (Y/N) depths N
Coal depth(s) ft 100,450, 480' Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by:
SDeO-10/19/2020

API 47-033 - 05928

Farm name Stickel

Well number Stickel 1210 S-5H

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	30"	30"	76	New	154.5 lbs/ft		N
Surface	26"	20"	500	New	94 lbs/ft J-55		Yes
Coal							
Intermediate 1	17.5"	13.375"	1797	New	68 lbs/ft J-55		Yes
Intermediate 2	12.25"	9.625"	2561	New	40 lbs/ft J-55		Yes
Intermediate 3							
Production	8.5	5.5	17083	New	23 lbs/ft P-11C		Yes
Tubing	5.5"	2.875"	6886.37	New	5 lbs/ft J-55 EL		No
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	Drilled in						
Surface	Class A	915	15.6	1.20	1100	surface	8
Coal							
Intermediate 1	Class A	1300/590	15.4/15.9	1.23/1.17	1527/657	Surface	24
Intermediate 2	Class A	820	15.6	1.19	977	Surface	8
Intermediate 3							
Production	Class A	1304/2225	14.6/14.9	1.29/1.33	1683/2960	Surface	8
Tubing	Not cemented						

Drillers TD (ft) 21692

Loggers TD (ft) _____

Deepest formation penetrated Marcellus

Plug back to (ft) _____

Plug back procedure _____

Kick off depth (ft) 6539'

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 _____

20" casing: Centralizer placed on the shoe joint and every other joint to surface

13.375" casing: centralizer run every joint to 20" casing then placed every 3 joints to surface

9.625" casing: Centralizers run every other joint to 13.375" casing then placed every 3 joints to surface

5.5" casing: Centralizer run every joint to top of curve (KOP) then centralizers placed every 3 joints to surface

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 _____

HG Energy II Appalachia, LLC
Stickel 1210 S-5H
Lithology/Formation Information

Formation	Top Depth TMD	Top Depth TVD	Bottom Depth TMD	Bottom Depth TVD	Rock Type, Type of Fluid, Gas, Oil	Oil, Gas, Water
Water shows	80	80	90	90	1" stream	Fresh Water
Water shows	310	310	315	315	1/4" stream	Fresh Water
Coals	100, 450, 480		102,455,485			
Greenbrier Big Lime	1172	1172	1272	1272	Limestone	
Pocono Big Injun	1272	1272	1350	1350	Sandstone	
Gantz	1538	1538	1600	1600	Sandstone/ Siltstone	
Fifty foot Sand	1648	1648	1700	1700	Sandstone	
Thirty foot Sand	1738	1731	1744	1744	Sandstone	
Gordon Stray sand	1785	1785	1828	1828	Sandstone	
Gordon sand	1851	1851	1928	1928	Sandstone	
5th sand	2035	2034	2065	2064	Sandstone	
Bayard sand	2129	2128	2147	2146	Sandstone	
Speechley	2745	2744	2763	2762	Sandstone/Siltstone	
Balltown	2965	2964	3005	3004	siltstone/Shale	
Benson	4111	4045	4147	4078	Sandstone	
Rhinestreet	5806	5652	6138	5970	Shale	
Cashaqua	6138	5970	6353	6166	shale	
Middlesex	6353	6166	6450	6251	shale	
West River	6450	6251	6573	6353	shale	
Burket	6573	6353	6600	6373	shale	
Tully	6600	6373	6742	6473	Limestone	
Hamilton	6742	6473	6869	6539	shale	
Marcellus shale	6869	6539	17115	6775	shale	

HG Energy II Appalachia, LLC

Stickel 1210 S-5H

Perforation Record

Stage #	Date	Perforation from Depth	Perforation to Depth	Number of Perforations	Formation
Sleeve / 1	12/31/2019	16977	16931	2	Marcellus
2	12/31/2019	16,897	16,729	49	Marcellus
3	12/31/2019	16,701	16,533	49	Marcellus
4	12/31/2019	16,505	16,337	49	Marcellus
5	1/1/2020	16,309	16,141	49	Marcellus
6	1/1/2020	16,113	15,945	49	Marcellus
7	1/2/2020	15,917	15,749	49	Marcellus
8	1/2/2020	15,721	15,553	49	Marcellus
9	1/3/2020	15,525	15,357	49	Marcellus
10	1/3/2020	15,329	15,161	49	Marcellus
11	1/3/2020	15,133	14,965	49	Marcellus
12	1/4/2020	14,937	14,769	49	Marcellus
13	1/4/2020	14,741	14,573	49	Marcellus
14	1/4/2020	14,545	14,377	49	Marcellus
15	1/5/2020	14,349	14,181	49	Marcellus
16	1/5/2020	14,153	13,985	49	Marcellus
17	1/5/2020	13,957	13,789	49	Marcellus
18	1/5/2020	13,761	13,593	49	Marcellus
19	1/9/2020	13,565	13,397	49	Marcellus
20	1/19/2020	13,369	13,201	47	Marcellus
21	1/19/2020	13,173	13,005	47	Marcellus
22	1/20/2020	12,977	12,809	47	Marcellus
23	1/20/2020	12,781	12,613	47	Marcellus
24	1/20/2020	12,585	12,417	47	Marcellus
25	1/20/2020	12,389	12,221	47	Marcellus
26	1/20/2020	12,193	12,025	47	Marcellus
27	1/21/2020	11,997	11,829	47	Marcellus
28	1/21/2020	11,801	11,633	47	Marcellus
29	1/21/2020	11,605	11,437	47	Marcellus
30	1/21/2020	11,409	11,241	47	Marcellus
31	1/22/2020	11,213	11,045	47	Marcellus
32	1/22/2020	11,017	10,849	47	Marcellus
33	1/22/2020	10,821	10,653	47	Marcellus
34	1/23/2020	10,625	10,457	47	Marcellus
35	1/23/2020	10,429	10,261	47	Marcellus
36	1/23/2020	10,233	10,065	47	Marcellus
37	1/23/2020	10,037	9,869	47	Marcellus
38	1/24/2020	9,841	9,673	47	Marcellus
39	1/24/2020	9,645	9,477	47	Marcellus
40	1/24/2020	9,449	9,281	47	Marcellus
41	1/24/2020	9,253	9,085	47	Marcellus
42	1/25/2020	9,057	8,889	47	Marcellus
43	1/25/2020	8,861	8,693	47	Marcellus
44 (A)	1/25/2020	8,665	8,497	47	Marcellus
44 (B)	1/25/2020	8,665	8,470	87	Marcellus
45	1/26/2020	8,440	8,300	47	Marcellus
46	1/26/2020	8,273	8,105	47	Marcellus
47	1/26/2020	8,076	7,908	47	Marcellus
48	1/26/2020	7,878	7,710	47	Marcellus
49	1/26/2020	7,680	7,512	47	Marcellus
50	1/27/2020	7,482	7,314	47	Marcellus
51	1/27/2020	7,284	7,116	47	Marcellus
52	1/27/2020	7,086	6,918	47	Marcellus
KP	1/27/2020				

HG Energy II Appalachia, LLC

Stickel 1210 S-5H

Stimulation Record

Stage #	Date	Average Pump Rate (BPM)	Average Treatment Press (PSI)	Maximum Breakdown Pressure (PSI)	ISIP (PSI)	Proppant (LBS)	Water (BBLs)
Sleeve / 1	12/31/2019	62.6	10990	11724	3645	7240	1993
2	12/31/2019	85.4	8,578	9,273	4,619	511,720	11,043
3	12/31/2019	89.6	9,101	10,044	5,047	566,440	11,387
4	12/31/2019	87.8	8,997	9,718	5,005	577,240	11,486
5	1/1/2020	90.5	9,250	10,136	5,840	580,480	11,474
6	1/1/2020	89.2	9,388	10,279	5,556	586,120	11,615
7	1/2/2020	86.4	9,330	10,354	4,820	581,800	11,554
8	1/2/2020	91.6	9,676	10,488	5,542	574,480	11,525
9	1/3/2020	89.3	9,362	10,612	5,350	441,460	11,296
10	1/3/2020	96.6	9,344	10,206	5,134	577,120	11,184
11	1/3/2020	89.3	9,422	11,033	4,282	577,640	12,602
12	1/4/2020	87.4	9,433	10,483	5,731	577,260	10,684
13	1/4/2020	89.3	9,839	10,422	5,913	577,100	11,940
14	1/4/2020	92.5	9,965	10,637	5,176	583,970	10,707
15	1/5/2020	86.4	9,509	10,945	5,910	581,700	11,911
16	1/5/2020	91.4	9,637	10,434	5,354	537,860	9,958
17	1/5/2020	93.8	9,639	10,340	4,687	577,450	11,604
18	1/5/2020	88.9	9,058	10,178	4,840	577,960	11,375
19	1/9/2020	91.2	9,123	10,377	5,601	577,110	10,398
20	1/19/2020	91.4	9,136	9,817	5,760	530,780	9,773
21	1/19/2020	88.1	8,660	9,031	5,800	578,040	11,142
22	1/20/2020	89.9	8,533	9,520	5,041	576,120	9,716
23	1/20/2020	90.2	8,822	10,223	4,574	465,000	10,639
24	1/20/2020	89.9	8,381	8,858	4,850	578,560	10,194
25	1/20/2020	91.3	8,767	9,936	5,120	573,740	8,901
26	1/20/2020	93.5	8,958	10,011	5,386	572,320	8,343
27	1/21/2020	93.1	9,116	9,705	5,540	580,700	10,367
28	1/21/2020	91.9	8,805	9,620	5,510	579,960	7,824
29	1/21/2020	90.5	8,821	9,239	5,425	575,380	9,703
30	1/21/2020	86.8	8,895	9,733	5,193	575,790	9,486
31	1/22/2020	92.8	8,773	9,362	5,410	575,320	8,345
32	1/22/2020	91.1	8,606	9,658	5,460	575,500	9,555
33	1/22/2020	93.0	8,750	9,969	5,261	575,960	9,590
34	1/23/2020	93.3	8,801	9,710	5,372	575,910	10,373
35	1/23/2020	93.0	8,453	9,302	5,490	576,000	9,100
36	1/23/2020	92.8	8,689	9,192	6,180	576,120	9,354
37	1/23/2020	95.4	8,318	9,111	5,683	576,180	8,251
38	1/24/2020	95.0	8,381	9,183	5,883	575,180	8,270
39	1/24/2020	94.0	8,334	8,862	5,320	575,340	8,256
40	1/24/2020	94.0	8,318	9,421	5,928	574,300	8,160
41	1/24/2020	94.9	8,101	9,188	5,905	574,340	8,125
42	1/25/2020	96.6	7,984	8,712	5,447	576,120	8,294
43	1/25/2020	94.5	8,390	10,210	5,367	572,760	8,236
44 (A)	1/25/2020	7.6	8,901	11,719	5,780	3,370	2,140
44 (B)	1/25/2020	17.7	9,019	11,719	5,550	1,100	2,137
45	1/26/2020	95.4	8,025	8,891	5,143	602,700	9,756
46	1/26/2020	86.4	8,795	11,185	5,444	600,740	12,208
47	1/26/2020	90.3	7,959	8,922	5,100	553,770	9,183
48	1/26/2020	86.4	7,996	9,045	5,210	600,240	10,017
49	1/26/2020	93.1	8,047	8,902	5,290	602,000	10,815
50	1/27/2020	96.6	8,207	9,363	6,210	600,260	8,477
51	1/27/2020	88.4	7,669	8,455	5,380	600,400	9,379
52	1/27/2020	87.6	7,612	8,255	5,630	601,640	9,080
KP	1/27/2020						

BHL is located on topo map 3,809 feet south of Latitude: 39°07'30"
 SHL is located on topo map 8,805 feet south of Latitude: 39°10'00"

SEE PAGE 2 FOR PLAT DUE TO LENGTH OF LATERAL

BHL is located on topo map 7,504 feet west of Longitude: 80°25'00"
 SHL is located on topo map 418 feet west of Longitude: 80°27'30"

	LESSOR	DIST-TM/PAR
A	A. W. RHODES ET UX	20-444/19.2
		20-444/19.11
		20-444/19.3
		20-444/19.1
		20-444/19.13
		20-444/19.6
		20-444/19.4
		20-444/19.5
		20-444/19
		4-7B/1
B	BENJAMIN H. BOND ET AL	4-7B/2
C	R. A. BEEGHLEY ET UX	4-7B/2
D	SANDRA EDMISTON MCSEVENEY	4-7B/2
E	ANNA C BARB ET AL	3-7B/27.1
F	JAMES E. BEEGHLEY ET AL	3-7B/43
		3-7C/42
		3-7B/41
		3-7B/40
		3-7B/40.2
G	DOMINION ENERGY TRANSMISSION, INC. TO HG ENERGY, LLC	3-7B/37
H	DOMINION ENERGY TRANSMISSION, INC. TO HG ENERGY, LLC	3-7B/37
J	J. A. LIGHTBURN ET AL	4-7B/6.2
		4-7B/9.6
		4-7B/9.5
		4-7C/88
K	SARAH A. SMITH ET AL	4-7C/23
L	IDA M. SMITH ET AL	4-7C/23
		4-7C/11.11
		4-7C/11.6
		4-7C/11.4
		4-7C/11.11
M	IONA WYMER ET AL	4-7C/11.6
		4-7C/11.4
		4-7C/11.8
		4-7C/11.5
		4-7C/11.9
		4-7C/11.7
		4-7C/22.1
		4-7C/22.1
N	MAYME A. SMITH ET AL	4-7C/11.14
		4-7C/11.13



* - DENOTES PARCEL WITHIN 30 FEET OF PLANNED WELL BORE

AS DRILLED SURFACE HOLE LOCATION (SHL)
UTM 17-NAD83
N:4332728.147
E:546682.321
NAD27 WV NORTH
N:235430.169
E:1727715.574
LAT/LON DATUM-NAD83
LAT:39.142492
LON:-80.459808

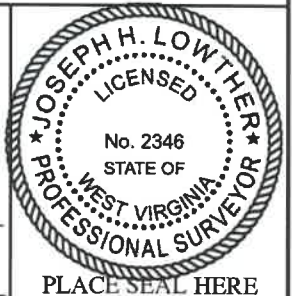
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UTM 17-NAD83
N:4332568.484
E:547092.869
NAD27 WV NORTH
N:234883.794
E:1729054.071
LAT/LON DATUM-NAD83
LAT:39.141031
LON:-80.455069

AS DRILLED BOTTOM HOLE LOCATION (BHL)
UTM 17-NAD83
N:4329633.976
E:548140.996
NAD27 WV NORTH
N:225196.831
E:1732333.214
LAT/LON DATUM-NAD83
LAT:39.114531
LON:-80.443149

FILE #: STICKEL 5H
 DRAWING #: STICKEL 5H
 SCALE: 1" = 2000'
 MINIMUM DEGREE OF ACCURACY: 1/2500
 PROVEN SOURCE OF ELEVATION: U.S.G.S. MONUMENT THOMAS 1498.81'

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: *Joseph H. Lowther*
 R.P.E.: _____ L.L.S.: P.S. No. 2346



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



DATE: MAY 5, 2020
 OPERATOR'S WELL #: STICKEL 5H
 API WELL #: 47 33 05928
 STATE COUNTY PERMIT

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

WATERSHED: MIDDLE WEST FORK CREEK ELEVATION: 994'±

COUNTY/DISTRICT: HARRISON / UNION QUADRANGLE: WEST MILFORD, WV 7.5'

SURFACE OWNER: DANNY LEE & ALICIA A. STICKEL ACREAGE: 35.00±

OIL & GAS ROYALTY OWNER: A. W. RHODES ET UX ACREAGE: 473.287±

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

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: TVD: 6,775'± TMD: 17,115'±

WELL OPERATOR HG ENERGY II APPALACHIA, LLC DESIGNATED AGENT DIANE C. WHITE
 Address 5260 DUPONT ROAD Address 5260 DUPONT ROAD
 City PARKERSBURG State WV Zip Code 26101 City PARKERSBURG State WV Zip Code 26101

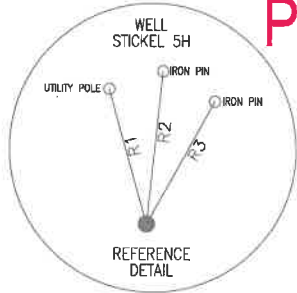
AS DRILLED

PLAT

STICKEL

5H

PAGE 2 OF 2



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, are based on record deed descriptions, field evidence found and/or tax map position, unless otherwise noted.

LINE	BEARING	DISTANCE
R1	N 15°36'46" W	194.37'
R2	N 06°17'24" E	213.11'
R3	N 29°21'37" E	195.31'
R4	S 87°37'44" W	1047.47'
R5	S 05°21'49" E	1323.98'
R6	S 61°05'53" E	746.04'

LEGEND

- TOPO MAP POINT
- WELL
- ALL ARE POINTS UNLESS OTHERWISE NOTED.
- MINERAL TRACT BOUNDARY
- LESSORS
- SURFACE OWNERS
- PARCEL LINES
- LEASE BOUNDARY
- WELL REFERENCE
- AS-DRILLED ROAD
- STREAM CENTER LINE

WELLS WITHIN 2400'

- EXISTING WELLS
- PLUGGED WELLS
- ABANDONED WELLS

AS DRILLED SURFACE HOLE LOCATION (SHL)

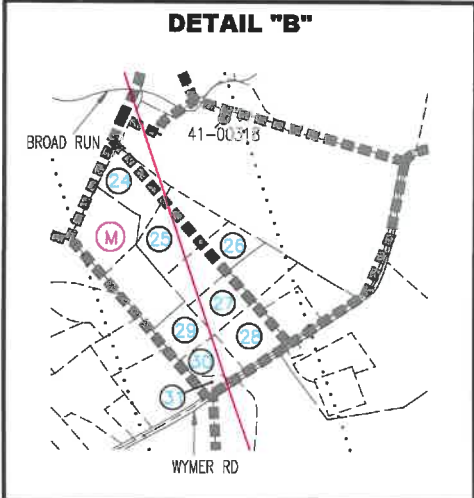
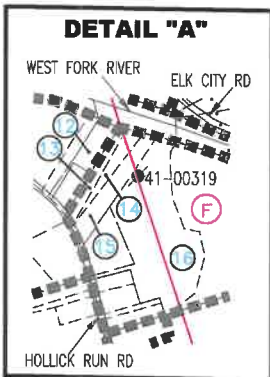
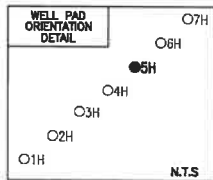
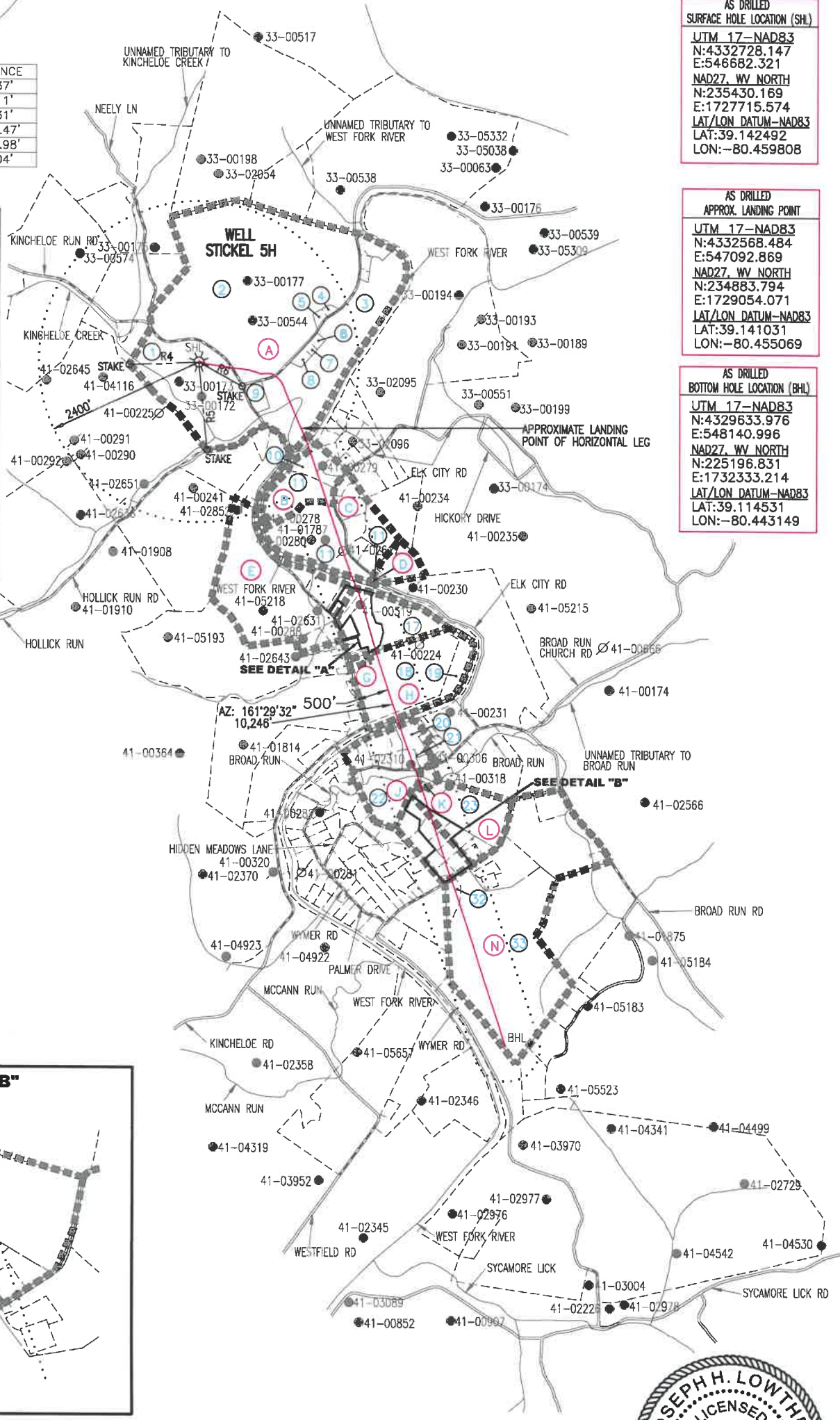
UTM 17-NAD83
 N:4332728.147
 E:546682.321
 NAD27, WV NORTH
 N:235430.169
 E:1727715.574
 LAT/LON DATUM-NAD83
 LAT:39.142492
 LON:-80.459808

AS DRILLED APPROX. LANDING POINT

UTM 17-NAD83
 N:4332568.484
 E:547092.869
 NAD27, WV NORTH
 N:234883.794
 E:1729054.071
 LAT/LON DATUM-NAD83
 LAT:39.141031
 LON:-80.455069

AS DRILLED BOTTOM HOLE LOCATION (BHL)

UTM 17-NAD83
 N:4329633.976
 E:548140.996
 NAD27, WV NORTH
 N:225196.831
 E:1732333.214
 LAT/LON DATUM-NAD83
 LAT:39.114531
 LON:-80.443149



MAY 5, 2020



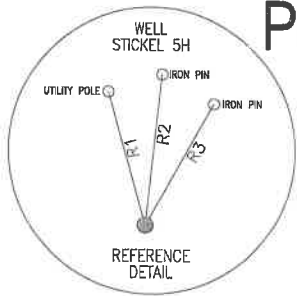
AS DRILLED

PLAT

STICKEL

5H

PAGE 2 OF 2



LINE	BEARING	DISTANCE
R1	N 15°36'46" W	194.37'
R2	N 06°17'24" E	213.11'
R3	N 29°21'37" E	195.31'
R4	S 87°37'44" W	1047.47'
R5	S 05°21'49" E	1323.98'
R6	S 61°05'53" E	746.04'

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, are based on record deed descriptions, field evidence found and/or tax map position, unless otherwise noted.

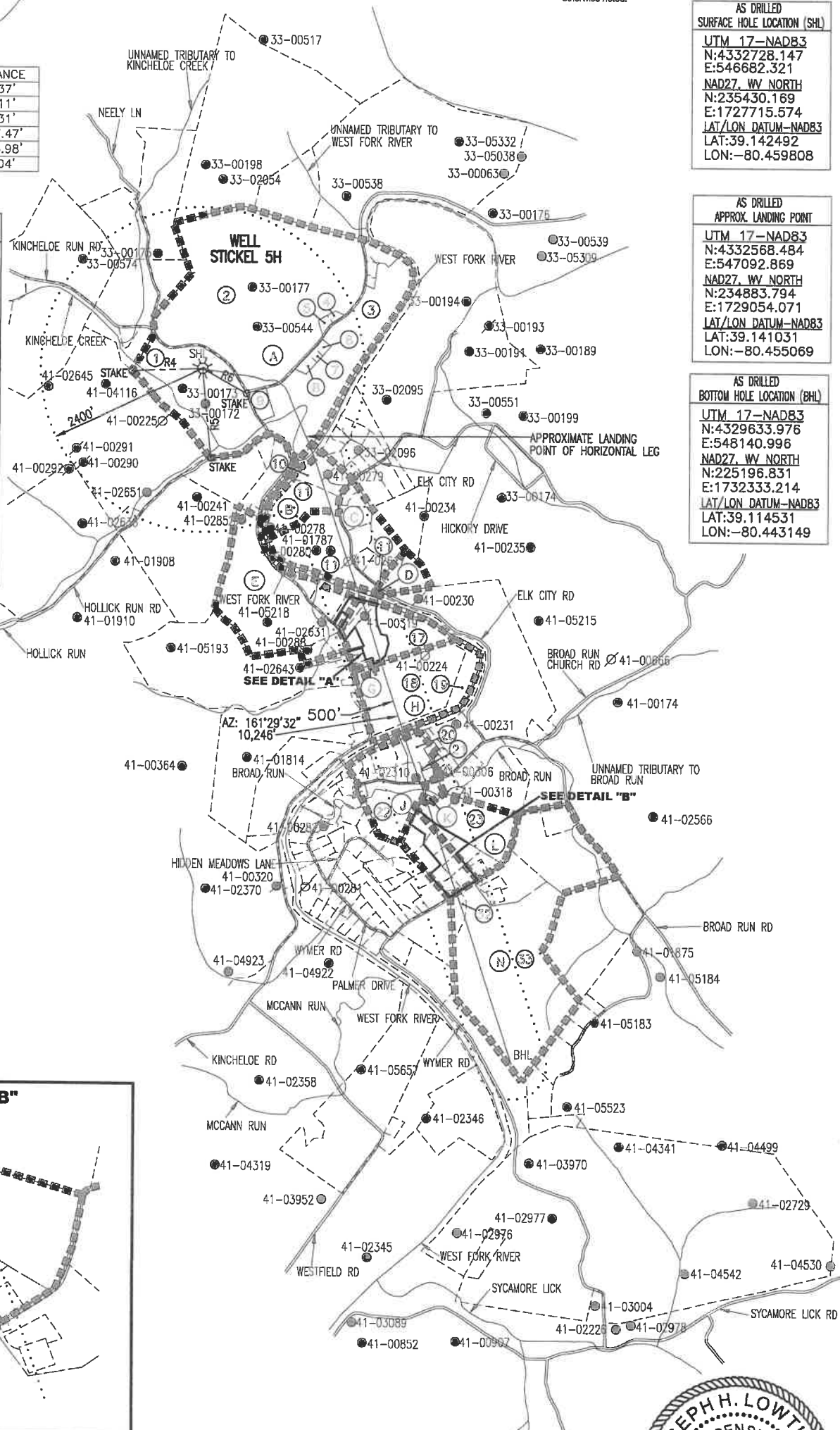
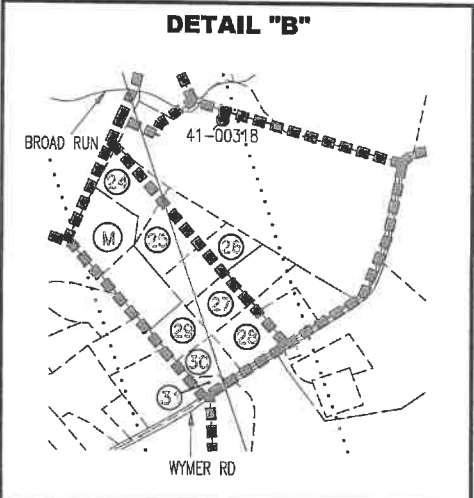
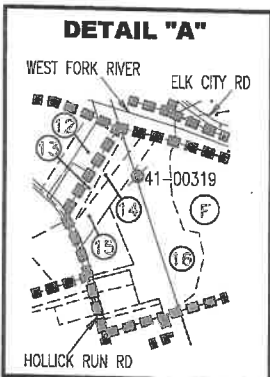
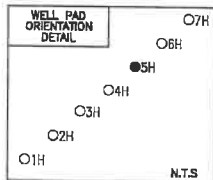
AS DRILLED
SURFACE HOLE LOCATION (SHL)
UTM 17-NAD83
N:4332728.147
E:546682.321
NAD27, WV NORTH
N:235430.169
E:1727715.574
LAT/LON DATUM-NAD83
LAT:39.142492
LON:-80.459808

AS DRILLED
APPROX. LANDING POINT
UTM 17-NAD83
N:4329633.976
E:547092.869
NAD27, WV NORTH
N:234883.794
E:1729054.071
LAT/LON DATUM-NAD83
LAT:39.141031
LON:-80.455069

AS DRILLED
BOTTOM HOLE LOCATION (BHL)
UTM 17-NAD83
N:4329633.976
E:548140.996
NAD27, WV NORTH
N:225196.831
E:1732333.214
LAT/LON DATUM-NAD83
LAT:39.114531
LON:-80.443149

LEGEND

- TOPO MAP POINT
 - WELL
 - ALL ARE POINTS UNLESS OTHERWISE NOTED.
 - MINERAL TRACT BOUNDARY
 - LESSORS
 - SURFACE OWNERS
 - PARCEL LINES
 - LEASE BOUNDARY
 - WELL REFERENCE
 - AS-DRILLED
 - ROAD
 - STREAM CENTER LINE
- WELLS WITHIN 2400'
- EXISTING WELLS
 - PLUGGED WELLS
 - ABANDONED WELLS



MAY 5, 2020



