

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

API 47-051-01897 County Marshall District Clay  
Quad Glen Easton Pad Name Hicks Field/Pool Name \_\_\_\_\_  
Farm name Thomas E. Hicks Well Number Hicks M01H  
Operator (as registered with the OOG) Chevron Appalachia, LLC (49449935)  
Address 700 Cherrington Parkway City Coraopolis State PA Zip 15108

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey  
Top hole Northing 501990.52 Easting 1626568.66  
Landing Point of Curve Northing 503442.04 Easting 1626055.60  
Bottom Hole Northing 512986.93 Easting 1618538.60

Elevation (ft) 1177' 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 -  
Barite, fluid loss, emulsifiers, rheological controls

Date permit issued 2/23/2017 Date drilling commenced 10/17/2017 Date drilling ceased 5/17/2019  
Date completion activities began 10/20/2019 Date completion activities ceased 2/16/2020  
Verbal plugging (Y/N) N Date permission granted \_\_\_\_\_ Granted by \_\_\_\_\_

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

Freshwater depth(s) ft n/a 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 698' and 1290' Cavern(s) encountered (Y/N) depths N  
Is coal being mined in area (Y/N) N

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Reviewed by:

*Jim Weeber*  
4/15/2020

API 47-051 - 01897 Farm name Thomas E. Hicks Well number Hicks M01H

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	26"	20"	60'	N	X-52 / 78.67		Y
Surface	17-1/2"	13-3/8"	473'	N	J-55 / 54.40		Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2014'	N	L-80 / 40		Y
Intermediate 2							
Intermediate 3							
Production	8-1/2"	5-1/2"	19354'	N	P-110EC / 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	Bulk	Cement					8
Surface	Class A	394	15.6	1.20	473	Surface	8
Coal							
Intermediate 1	Class A	675	15.6	1.19	804	Surface	8
Intermediate 2							
Intermediate 3							
Production	Class A	3293	14.5	1.17	3866	Surface	8
Tubing							

Drillers TD (ft) 19378 Loggers TD (ft) 19378

Deepest formation penetrated Marcellus Plug back to (ft) \_\_\_\_\_

Plug back procedure \_\_\_\_\_

Kick off depth (ft) 7350'

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 \_\_\_\_\_

Surface: (1) on shoe track with stop collar and (1) per joint over coupling to surface.  
Intermediate: (1) on shoe track with stop collar and (1) per 3 joints over coupling.  
Production: (1) centralizer every joint in the lateral and curve and (1) every other joint from KOP to surface.

WAS WELL COMPLETED AS SHOT HOLE  Yes  No DETAILS See attached Perforation and Stimulation reports.

WAS WELL COMPLETED OPEN HOLE?  Yes  No DETAILS \_\_\_\_\_

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

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API: 47-051-01897	Farm Name: Thomas E. Hicks	Well Number: Hicks M01H
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PERFORATION RECORD					
Stage No.	Perforation Date	Perforated From TMD Ft.	Perforated To TMD Ft.	Number of Perforations	Formation(s)
1	11/4/2019	19121	19219	47	Marcellus
2	11/5/2019	18919	19079	47	Marcellus
3	11/5/2019	18719	18879	47	Marcellus
4	11/5/2019	18519	18679	47	Marcellus
5	11/5/2019	18319	18479	47	Marcellus
6	11/6/2019	18119	18279	47	Marcellus
7	11/6/2019	17919	18079	47	Marcellus
8	11/6/2019	17719	17879	47	Marcellus
9	11/6/2019	17519	17679	47	Marcellus
10	11/8/2019	17319	17479	47	Marcellus
11	11/8/2019	17119	17279	47	Marcellus
12	11/8/2019	16919	17079	47	Marcellus
13	11/9/2019	16719	16879	47	Marcellus
14	11/9/2019	16519	16679	47	Marcellus
15	11/9/2019	16319	16479	47	Marcellus
16	11/9/2019	16119	16279	47	Marcellus
17	11/10/2019	15919	16079	47	Marcellus
18	11/10/2019	15719	15879	47	Marcellus
19	11/10/2019	15519	15679	47	Marcellus
20	11/10/2019	15319	15479	47	Marcellus
21	11/11/2019	15119	15279	47	Marcellus
22	11/11/2019	14919	15079	47	Marcellus
23	11/11/2019	14719	14879	47	Marcellus
24	11/12/2019	14519	14679	47	Marcellus
25	11/12/2019	14319	14479	47	Marcellus
26	11/12/2019	14119	14279	47	Marcellus
27	11/12/2019	13919	14079	47	Marcellus
28	11/12/2019	13719	13879	47	Marcellus
29	11/13/2019	13519	13679	47	Marcellus
30	11/13/2019	13319	13479	47	Marcellus
31	11/13/2019	13119	13279	47	Marcellus
32	11/14/2019	12919	13079	47	Marcellus
33	11/14/2019	12719	12879	47	Marcellus
34	11/14/2019	12519	12679	47	Marcellus
35	11/14/2019	12319	12479	47	Marcellus
36	11/15/2019	12119	12279	47	Marcellus
37	11/15/2019	11919	12079	47	Marcellus
38	11/15/2019	11719	11879	47	Marcellus
39	11/15/2019	11519	11679	47	Marcellus
40	11/16/2019	11319	11479	47	Marcellus
41	11/16/2019	11119	11279	47	Marcellus
42	11/16/2019	10919	11079	47	Marcellus
43	11/16/2019	10719	10879	47	Marcellus
44	11/17/2019	10519	10679	47	Marcellus
45	11/17/2019	10319	10479	47	Marcellus

Please insert additional copies of this page if additional rows/stages are needed.

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<b>STIMULATION INFORMATION / STAGE</b>								
Complete a separate record for each stimulation stage. (Please insert additional lines for additional stages or additional pages as applicable).								
Stg No.	Stimulation Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/ other (units)
1	11/4/2019	98.1	8655	6726	3609	39614	9335	n/a
2	11/5/2019	98.2	8766	5459	3937	400348	10242	n/a
3	11/5/2019	99.5	8794	5693	4219	401210	9843	n/a
4	11/5/2019	99.9	8566	5210	4382	402647	9810	n/a
5	11/5/2019	99.5	8431	4839	4186	400871	9934	n/a
6	11/6/2019	99.2	8555	4414	4074	400526	9989	n/a
7	11/6/2019	99.9	8735	5223	4397	402023	9780	n/a
8	11/6/2019	99.6	8538	4819	4162	404052	9824	n/a
9	11/6/2019	99.5	8456	5003	4350	400735	9863	n/a
10	11/8/2019	100.7	8789	6236	4328	400959	10207	n/a
11	11/8/2019	100	8511	4917	4236	401461	9784	n/a
12	11/8/2019	92.9	7731	4710	4145	400585	10353	n/a
13	11/9/2019	99.7	8268	5555	3993	400631	9757	n/a
14	11/9/2019	99.7	8239	5747	4178	400284	8752	n/a
15	11/9/2019	99.8	8032	4357	4242	400200	9768	n/a
16	11/9/2019	99.9	8075	4032	4175	400586	9763	n/a
17	11/10/2019	100.1	8046	3670	4185	400871	9709	n/a
18	11/10/2019	100.3	8167	5523	4061	400253	9789	n/a
19	11/10/2019	100.1	8316	4823	4060	400166	9902	n/a
20	11/10/2019	100.1	8368	5302	4444	401357	9699	n/a
21	11/11/2019	100.2	8210	4724	4286	401055	9699	n/a
22	11/11/2019	99.5	8190	4596	4174	399934	9649	n/a
23	11/11/2019	100.5	8246	4013	4229	401120	9637	n/a
24	11/12/2019	99.5	8258	5569	4251	400345	9639	n/a
25	11/12/2019	99.9	8291	5429	4127	399971	9805	n/a
26	11/12/2019	99.7	8132	4829	4110	399988	9726	n/a
27	11/12/2019	99.9	8090	5300	4433	400469	9612	n/a
28	11/12/2019	99.7	8218	5832	4460	400329	9607	n/a
29	11/13/2019	99.4	8292	5740	4733	400037	9617	n/a
30	11/13/2019	99.1	8198	6149	4526	400090	9533	n/a
31	11/13/2019	100.1	8176	5861	4097	402224	9579	n/a
32	11/14/2019	100.8	8255	4158	4341	402315	9480	n/a
33	11/14/2019	100.3	8284	5444	4505	400160	9598	n/a
34	11/14/2019	90.7	7724	6077	4583	401006	10031	n/a
35	11/14/2019	95	7908	6117	4513	400690	9070	n/a
36	11/15/2019	93.4	7915	5514	4400	400603	9380	n/a
37	11/15/2019	95.6	7965	5331	4238	399940	9451	n/a
38	11/15/2019	99.4	7803	4748	4584	399955	9520	n/a
39	11/15/2019	101.2	7986	5664	4416	403871	9424	n/a
40	11/16/2019	100.7	7880	5737	4417	399459	9287	n/a
41	11/16/2019	99.6	7645	5041	4470	399748	9553	n/a
42	11/16/2019	99	7565	4421	4804	399993	10173	n/a
43	11/16/2019	101.5	7813	5610	4422	401739	9355	n/a
44	11/17/2019	100.7	7543	5731	4373	400023	9318	n/a
45	11/17/2019	100.8	7492	5557	4390	400548	9521	n/a

47-051-01897  
 Thomas E. Hicks  
 Production





API: 47-051-01897	Farm Name: Thomas E. Hicks	Well Number: Hicks M01H
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DRILLING CONTRACTORS		
Driller	Driller	Driller
Name Rocky Mountain Drilling	Name Highlands Drilling LLC	Name Precision Drilling Holdings Company
Address 185 North Vernal Avenue, Suite 2	Address 900 Virginia Street East	Address 10350 Richmond Avenue, Suite 700
City - State - Zip Vernal, UT 84078	City - State - Zip Charlestown, wV 25301	City - State - Zip Houston, TX 77042

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2019  
Oil and Gas Division

API: 47-051-01897

Farm Name: Thomas E. Hicks

Well Number: Hicks M01H

Lithology/Tops	MD Top	MD Base	TVD Top	TVD Base	Describe rock type and record quantity and type of fluid (Freshwater, Brine, Oil, Gas, H2S, Etc.)
<b>Pittsburgh Coal</b>	698	704	676	682	coal
<b>Conemaugh</b>	704	1096	704	1096	shale & siltstone transitioning to shale & limestone at base; gas shows
<b>Allegheny</b>	1096	1304	1096	1304	limey siltstones and shales; oil show
<b>Clairion Coal</b>	1290	1,297	1290	1297	coal
<b>Salt Sands</b>	1,304	1,545	1304	1544	interbedded sands and shales; gas shows
<b>Mauch Chunk</b>	1,545	1,666	1544	1665	sandy/silty shales
<b>Big Lime</b>	1,666	1,733	1665	1731	siltstone transitioning to limestone base
<b>Burgoon</b>	1,733	1,952	1731	1947	sandstone
<b>Weir Shale</b>	1,952	2,070	1947	2070	shale; brine
<b>CHQA</b>	6235	6,351	6059	6134	siltstone/shale
<b>MDLX</b>	6351	6,391	6134	6157	shale
<b>PYAN</b>	6391	6,457	6157	6190	siltstone/shale
<b>BRKT</b>	6457	6,514	6190	6215	shale
<b>BRKT.a</b>	6514	6,544	6215	6228	shale
<b>TLLY</b>	6544	6,633	6228	6265	limestone
<b>S5</b>	6633	6,952	6265	6335	shale
<b>S3</b>	6952	7,070	6335	6349	shale
<b>STFD</b>	7070	7,079	6349	6350	limestone
<b>S2.B</b>	7079	7,148	6350	6357	shale
<b>S2.A</b>	7148		6357		shale

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# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	11/4/2019
Job End Date:	11/20/2019
State:	West Virginia
County:	Marshall
API Number:	47-051-01897-00-00
Operator Name:	Chevron USA Inc.
Well Name and Number:	Hicks M01H
Latitude:	39.87184800
Longitude:	-80.71829700
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,363
Total Base Water Volume (gal):	24,942,750
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	Chevron	Carrier/Base Fluid	Water	7732-18-5	100.00000	88.28409	None
Sand	JPP	Proppant	Crystalline Silica in the form of Quartz	14808-60-7	99.90000	10.53034	None
FR-11	JPP	Friction reducer	Water	7732-18-5	55.00000	0.03608	None
			Hydrotreated Petroleum Distillate	64742-47-8	25.00000	0.01640	None
			CHEMPLEX-Polymer_00019	Trade Secret	25.00000	0.01640	None
			Sodium Chloride	7647-14-5	15.00000	0.00984	None
			Oleic Acid Diethanolamide	93-83-4	3.00000	0.00197	None
			Alcohol Ethoxylate Surfactants	68551-12-2	3.00000	0.00197	None
			Ammonium Chloride	12125-02-9	2.00000	0.00131	None
			Polyoxyethylene Sorbitan Monooleate	9005-65-6	1.00000	0.00066	None
HCL Acid (7.5%)	JPP	Acidizing	Hydrochloric Acid	7647-01-0	7.50000	0.07872	None
K-BAC 1020	JPP	Bioocide					



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			Polyethylene glycol	25322-68-3	50.00000	0.01041	None	
			Water	7732-18-5	30.00000	0.00624	None	
			2,2-Dibromo-3-nitropropionamide	10222-01-2	21.00000	0.00437	None	
Scale Hib PE-18	JPP	Scale Inhibitor	Ethylene glycol	107-21-1	40.00000	0.00705	None	
			Proprietary Scale Inhibitor	Proprietary	30.00000	0.00529	None	
TL	JPP	Iron Control Agent	Ammonium glycolate	35249-89-9	20.00000	0.00413	None	
			Ethylene Glycol	107-21-1	20.00000	0.00413	None	
			Hydroxyacetic acid	79-14-1	5.00000	0.00103	None	
Unhib G	JPP	Acid Inhibitor	Butyl diglycol	112-34-5	75.00000	0.00061	None	
			Alcohol, C10-16, ethoxylated	68002-97-1	50.00000	0.00041	None	
			Methanol	67-56-1	5.00000	0.00004	None	
			Formaldehyde	50-00-0	1.00000	0.00001	None	
			Thiourea	62-56-6	1.00000	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	55.00000	0.03608		
			Hydrotreated Petroleum Distillate	64742-47-8	25.00000	0.01640		
			Polyethylene glycol	25322-68-3	50.00000	0.01041		
			Sodium Chloride	7647-14-5	15.00000	0.00984		
			Ethylene glycol	107-21-1	40.00000	0.00705		
			Water	7732-18-5	30.00000	0.00624		
			Ammonium glycolate	35249-89-9	20.00000	0.00413		
			Alcohol Ethoxylate Surfactants	68551-12-2	3.00000	0.00197		
			Oleic Acid Diethanolamide	93-83-4	3.00000	0.00197		
			Ammonium Chloride	12125-02-9	2.00000	0.00131		
			Hydroxyacetic acid	79-14-1	5.00000	0.00103		
			Polyoxyethylene Sorbitan Monooleate	9005-65-6	1.00000	0.00066		
			Alcohol, C10-16, ethoxylated	68002-97-1	50.00000	0.00041		
			Methanol	67-56-1	5.00000	0.00004		
			Thiourea	62-56-6	1.00000	0.00001		
			Formaldehyde	50-00-0	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 began 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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**Jackie M. Scholar**  
Regulatory Reporting Coordinator

February 17, 2020

**CERTIFIED MAIL: 7016 0340 0000 4903 6935**

WV DEP  
Office of Oil and Gas  
601 – 57<sup>th</sup> Street  
Charleston, WV 25304

RE: Well Operator's Report of Well Work WR-35  
**Hicks M01H**

Dear Sir/Madam,

Enclosed here within please find one (1) Well Operator's Report of Well Work WR-35, one (1) copy of the Plat on Mylar, one (1) copy of the FracFocus report, and one (1) copy of the Directional Survey for **Hicks M01H, (API 47-051-01897)**.

If you have any questions, please contact me at (412) 865-3422. Thank you.

Sincerely,  
Chevron Appalachia, LLC

Jackie M. Scholar

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REFERENCE WELLPATH IDENTIFICATION  
 Operator CHEVRON APPALACHIA, LLC  
 Area Marshall County, WV  
 Field Marshall County  
 Facility Hicks Pad  
 Slot Slot #01  
 Well Hicks M01H  
 Wellbore Hicks M01H AWB  
 Wellpath Hicks M01H AWP Proj: 19388'  
 Sidetrack (none)

REPORT SETUP INFORMATION  
 Projection NAD83 / Lambert West Virginia SP, Northern Zone (4701), US feet  
 North Refe TRUE  
 Scale 0.99995  
 Convergen 0.78° West  
 Software S WellArchitect® 5.1  
 User Mccreath  
 Report Gen 6/3/2019 at 11:24:47 AM  
 Database:\WA\_MPL\_EASTERNUS\_Defn\ev190.xml

WELLPATH Local North Local East  
 Slot Locatic [ft] [ft] [US ft] [US ft]  
 0 0 1626569 501990.5 39°52'18.6 80°43'05.869"W  
 Facility Ref 1626569 501990.5 39°52'18.6 80°43'05.869"W  
 Field Refer 1644569 516963.8 39°54'48.9 80°39'17.476"W

WELLPATH DATUM  
 Calculation Minimum curvature  
 Horizontal Slot  
 Vertical Re Precision 560 (RKB)  
 MD Refere Precision 560 (RKB)  
 Field Vertic Mean Sea Level  
 Precision 5 25.00ft  
 Precision 5 1165.00ft  
 Precision 5 25.00ft  
 Section Ori N 0.00, E 0.00 ft  
 Section Azi 320.96°

WELLPATH DATA t = interpolated/extrapolated station

MD	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure [ft]	Dis Closure [°]	Dir DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]	Comments
+	0	0	155.63	0	0	0	1626569	501990.5	39°52'18.6 80°43'05.8		0	0	0	0	0	
	25	0	155.63	25	0	0	1626569	501990.5	39°52'18.6 80°43'05.8		0	0	0	0	0	
	108	0.66	155.63	108	-0.46	-0.44	1626569	501990.1	39°52'18.6 80°43'05.8		0.48	155.63	0.8	0.8	187.51	SDI Gyro <17-1/2">(100'-450')
	133	0.36	143.4	133	-0.68	-0.63	1626569	501989.9	39°52'18.6 80°43'05.8		0.7	154.266	1.27	-1.2	-48.92	

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158	0.34	153.27	158	-0.83	-0.76	0.38	1626569	501989.8	39°52'18.6	80°43'05.8	0.85	153.182	0.25	-0.08	39.48
183	0.55	157.37	183	-1.02	-0.94	0.46	1626569	501989.6	39°52'18.6	80°43'05.8	1.04	153.669	0.85	0.84	16.4
208	0.38	150.61	208	-1.22	-1.12	0.55	1626569	501989.4	39°52'18.6	80°43'05.8	1.25	153.821	0.71	-0.68	-27.04
233	0.38	160.59	232.99	-1.38	-1.27	0.62	1626569	501989.2	39°52'18.6	80°43'05.8	1.41	154.029	0.26	0	39.92
258	0.28	171.13	257.99	-1.51	-1.41	0.66	1626569	501989.1	39°52'18.6	80°43'05.8	1.55	155.042	0.47	-0.4	42.16
283	0.29	190.68	282.99	-1.6	-1.53	0.65	1626569	501989	39°52'18.6	80°43'05.8	1.66	156.894	0.39	0.04	78.2
308	0.24	193.79	307.99	-1.67	-1.64	0.63	1626569	501988.9	39°52'18.6	80°43'05.8	1.76	159.064	0.21	-0.2	12.44
333	0.37	199.06	332.99	-1.75	-1.77	0.59	1626569	501988.7	39°52'18.6	80°43'05.8	1.87	161.573	0.53	0.52	21.08
358	0.43	198.68	357.99	-1.84	-1.94	0.53	1626569	501988.6	39°52'18.6	80°43'05.8	2.01	164.591	0.24	0.24	-1.52
383	0.46	193.99	382.99	-1.95	-2.12	0.48	1626569	501988.4	39°52'18.6	80°43'05.8	2.18	167.275	0.19	0.12	-18.76
408	0.28	222.16	407.99	-2.02	-2.26	0.41	1626569	501988.3	39°52'18.6	80°43'05.8	2.3	169.642	1	-0.72	112.68
433	0.39	183.32	432.99	-2.09	-2.39	0.37	1626569	501988.1	39°52'18.6	80°43'05.8	2.42	171.264	0.98	0.44	-155.36
458	0.62	181.17	457.99	-2.26	-2.62	0.36	1626569	501987.9	39°52'18.6	80°43'05.8	2.64	172.155	0.92	0.92	-8.6
562	0.84	196.3	561.98	-3.12	-3.91	0.13	1626569	501986.6	39°52'18.6	80°43'05.8	3.91	178.024	0.28	0.21	14.55
583	0.74	189.49	582.98	-3.3	-4.19	0.07	1626569	501986.3	39°52'18.6	80°43'05.8	4.19	179.052	0.65	-0.48	-32.43
607	0.88	189.48	606.98	-3.52	-4.53	0.01	1626569	501986	39°52'18.6	80°43'05.8	4.53	179.83	0.58	0.58	-0.04
677	0.58	216.13	676.97	-3.97	-5.34	-0.28	1626568	501985.2	39°52'18.6	80°43'05.8	5.35	183.044	0.64	-0.43	38.07
708	0.63	236.64	707.97	-3.99	-5.56	-0.52	1626568	501985	39°52'18.6	80°43'05.8	5.59	185.33	0.71	0.16	66.16
739	0.66	253.47	738.97	-3.91	-5.71	-0.83	1626568	501984.8	39°52'18.5	80°43'05.8	5.77	188.299	0.62	0.1	54.29
770	0.77	306.5	769.97	-3.64	-5.63	-1.17	1626567	501984.9	39°52'18.5	80°43'05.8	5.75	191.742	2.08	0.35	171.06
801	0.9	317.06	800.96	-3.19	-5.33	-1.5	1626567	501985.2	39°52'18.6	80°43'05.8	5.54	195.756	0.65	0.42	34.06
833	1.15	336.09	832.96	-2.63	-4.85	-1.81	1626567	501985.7	39°52'18.6	80°43'05.8	5.18	200.405	1.31	0.78	59.47
864	1.44	2.13	863.95	-2.04	-4.18	-1.92	1626567	501986.4	39°52'18.6	80°43'05.8	4.6	204.638	2.09	0.94	84
895	1.4	7	894.94	-1.48	-3.42	-1.86	1626567	501987.1	39°52'18.6	80°43'05.8	3.89	208.53	0.41	-0.13	15.71
926	1.31	20.63	925.93	-1.04	-2.71	-1.69	1626567	501987.8	39°52'18.6	80°43'05.8	3.19	211.903	1.08	-0.29	43.97
957	0.98	38.38	956.93	-0.8	-2.17	-1.4	1626567	501988.4	39°52'18.6	80°43'05.8	2.58	212.778	1.55	-1.06	57.26
1020	1.18	116.24	1019.92	-1.28	-2.03	-0.48	1626568	501988.5	39°52'18.6	80°43'05.8	2.09	193.281	2.17	0.32	123.59
1082	0.77	117.72	1081.91	-2.24	-2.51	0.46	1626569	501988	39°52'18.6	80°43'05.8	2.55	169.575	0.66	-0.66	2.39
1114	0.45	139.98	1113.91	-2.56	-2.71	0.73	1626569	501987.8	39°52'18.6	80°43'05.8	2.8	164.843	1.23	-1	69.56
1145	0.2	245.57	1144.91	-2.67	-2.82	0.76	1626569	501987.7	39°52'18.6	80°43'05.8	2.92	164.887	1.74	-0.81	340.61
1176	0.81	294.54	1175.9	-2.46	-2.75	0.51	1626569	501987.8	39°52'18.6	80°43'05.8	2.8	169.437	2.24	1.97	157.97
1207	1.37	308.91	1206.9	-1.9	-2.43	0.03	1626569	501988.1	39°52'18.6	80°43'05.8	2.43	179.399	2	1.81	46.35
1270	2.33	314.65	1269.87	0.11	-1.06	-1.47	1626567	501989.5	39°52'18.6	80°43'05.8	1.81	234.359	1.55	1.52	9.11
1301	2.25	313.83	1300.84	1.34	-0.19	-2.36	1626566	501990.4	39°52'18.6	80°43'05.8	2.37	265.373	0.28	-0.26	-2.65
1332	2.59	305.76	1331.81	2.62	0.64	-3.37	1626565	501991.2	39°52'18.6	80°43'05.9	3.43	280.762	1.55	1.1	-26.03
1363	2.73	301.64	1362.78	3.99	1.44	-4.56	1626564	501992	39°52'18.6	80°43'05.9	4.78	287.473	0.76	0.45	-13.29
1395	3.14	298.12	1394.74	5.52	2.25	-5.98	1626563	501992.9	39°52'18.6	80°43'05.9	6.39	290.597	1.4	1.28	-11
1426	3.62	294.29	1425.68	7.17	3.05	-7.63	1626561	501993.7	39°52'18.6	80°43'05.9	8.21	291.812	1.71	1.55	-12.35
1457	4.15	293.22	1456.61	9.04	3.9	-9.55	1626559	501994.5	39°52'18.6	80°43'05.9	10.31	292.201	1.73	1.71	-3.45
1488	4.81	293.98	1487.52	11.19	4.87	-11.77	1626557	501995.5	39°52'18.7	80°43'06.0	12.73	292.472	2.14	2.13	2.45
1519	5.49	294.03	1518.39	13.67	6	-14.31	1626554	501996.7	39°52'18.7	80°43'06.0	15.52	292.747	2.19	2.19	0.16
1550	6.22	295.09	1549.23	16.51	7.32	-17.18	1626552	501998.1	39°52'18.7	80°43'06.0	18.68	293.06	2.38	2.35	3.42
1581	6.74	295.97	1580.03	19.67	8.82	-20.34	1626548	501999.6	39°52'18.7	80°43'06.1	22.17	293.452	1.71	1.68	2.84
1613	7	298.2	1611.8	23.17	10.57	-23.75	1626545	502001.4	39°52'18.7	80°43'06.1	25.99	293.99	1.16	0.81	6.97
1644	6.73	299.37	1642.58	26.6	12.35	-27	1626542	502003.2	39°52'18.7	80°43'06.2	29.69	294.586	0.98	-0.87	3.77
1675	6.61	300.32	1673.37	29.96	14.14	-30.12	1626539	502005.1	39°52'18.7	80°43'06.2	33.27	295.154	0.53	-0.39	3.06
1706	6.61	299.34	1704.16	33.28	15.92	-33.21	1626536	502006.9	39°52'18.8	80°43'06.2	36.83	295.606	0.36	0	-3.16
1737	7.27	299.93	1734.94	36.77	17.77	-36.47	1626532	502008.8	39°52'18.8	80°43'06.3	40.57	295.979	2.14	2.13	1.9
1769	8.47	300.47	1766.64	40.87	19.98	-40.26	1626529	502011	39°52'18.8	80°43'06.3	44.94	296.392	3.76	3.75	1.69
1800	9.39	301.21	1797.26	45.39	22.44	-44.39	1626525	502013.6	39°52'18.8	80°43'06.4	49.74	296.824	2.99	2.97	2.39
1831	9.55	300.97	1827.84	50.19	25.08	-48.75	1626520	502016.3	39°52'18.9	80°43'06.4	54.83	297.221	0.53	0.52	-0.77

APS EM + MagVAR MSA <12-1/4"> (458)(562-2008)

DATE: 10/16/2009  
 TIME: 10:50:00  
 ELEVATION: 1000.00  
 MAGVAR: 10.00  
 MSA: 10.00

1862	9.21	301.45	1858.42	54.94	27.7	-53.08	1626516	502018.9	39°52'18.9	80°43'06.5	59.87	297.557	1.13	-1.1	1.55
1893	8.07	301.72	1889.07	59.33	30.13	-57.04	1626512	502021.4	39°52'18.9	80°43'06.6	64.51	297.847	3.68	-3.68	0.87
1925	7.18	303.78	1920.79	63.37	32.43	-60.62	1626508	502023.8	39°52'18.9	80°43'06.6	68.74	298.145	2.91	-2.78	6.44
1956	6.48	304.99	1951.57	66.9	34.51	-63.66	1626505	502025.9	39°52'18.9	80°43'06.6	72.41	298.461	2.31	-2.26	3.9
1987	6.37	305.26	1982.37	70.24	36.5	-66.5	1626503	502027.9	39°52'19.0	80°43'06.7	75.86	298.765	0.37	-0.35	0.87
2008	6.42	305.11	2003.24	72.49	37.85	-68.41	1626501	502029.3	39°52'19.0	80°43'06.7	78.18	298.956	0.25	0.24	-0.71
2089	5.89	303.15	2083.77	80.8	42.73	-75.59	1626494	502034.3	39°52'19.0	80°43'06.8	86.83	299.477	0.7	-0.65	-2.42
2178	6.33	302.21	2172.27	89.79	47.84	-83.57	1626486	502039.5	39°52'19.1	80°43'06.9	96.29	299.791	0.51	0.49	-1.06
2268	7.22	300.88	2261.64	99.8	53.39	-92.62	1626477	502045.2	39°52'19.1	80°43'07.0	106.9	299.96	1	0.99	-1.48
2357	6.79	300.42	2349.97	109.98	58.92	-101.96	1626468	502050.8	39°52'19.2	80°43'07.1	117.76	300.025	0.49	-0.48	-0.52
2447	6.11	305.02	2439.4	119.57	64.37	-110.47	1626459	502056.4	39°52'19.2	80°43'07.2	127.85	300.228	0.95	-0.76	5.11
2536	4.9	300.92	2527.99	127.7	69.04	-117.61	1626452	502061.1	39°52'19.3	80°43'07.3	136.37	300.414	1.43	-1.36	-4.61
2625	3.8	306.9	2616.74	134.13	72.76	-123.23	1626446	502064.9	39°52'19.3	80°43'07.4	143.1	300.56	1.34	-1.24	6.72
2715	3	303.72	2706.58	139.27	75.86	-127.57	1626442	502068.1	39°52'19.4	80°43'07.5	148.42	300.738	0.91	-0.89	-3.53
2804	2.68	300.76	2795.47	143.45	78.22	-131.29	1626438	502070.5	39°52'19.4	80°43'07.5	152.83	300.783	0.4	-0.36	-3.33
2893	2.2	294.87	2884.39	146.94	80	-134.63	1626435	502072.3	39°52'19.4	80°43'07.5	156.61	300.719	0.61	-0.54	-6.62
2983	1.79	290.65	2974.33	149.7	81.22	-137.52	1626432	502073.6	39°52'19.4	80°43'07.6	159.71	300.567	0.48	-0.46	-4.69
3072	1.29	284.39	3063.3	151.7	81.96	-139.79	1626430	502074.4	39°52'19.4	80°43'07.6	162.04	300.384	0.59	-0.56	-7.03
3162	0.66	336.06	3153.29	153.02	82.69	-140.98	1626429	502075.1	39°52'19.4	80°43'07.6	163.44	300.392	1.14	-0.7	57.41
3252	0.93	22.24	3243.28	153.87	83.84	-140.91	1626429	502076.3	39°52'19.4	80°43'07.6	163.96	300.75	0.75	0.3	51.31
3341	0.37	140.78	3332.28	153.93	84.28	-140.46	1626429	502076.7	39°52'19.4	80°43'07.6	163.8	300.966	1.3	-0.63	133.19
3431	0.48	193.14	3422.27	153.41	83.69	-140.36	1626429	502076.1	39°52'19.4	80°43'07.6	163.41	300.805	0.43	0.12	58.18
3520	0.48	212.24	3511.27	153.06	83.01	-140.64	1626429	502075.4	39°52'19.4	80°43'07.6	163.31	300.55	0.18	0	21.46
3609	0.44	245.17	3600.27	153.02	82.55	-141.15	1626429	502075.3	39°52'19.4	80°43'07.6	163.52	300.321	0.3	-0.04	37
3700	0.69	354.96	3691.26	153.56	82.95	-141.52	1626428	502075.4	39°52'19.4	80°43'07.6	164.04	300.377	1.03	0.27	120.65
3789	0.94	8.68	3780.26	154.5	84.21	-141.45	1626428	502076.6	39°52'19.4	80°43'07.6	164.62	300.765	0.35	0.28	15.42
3878	0.9	344.48	3869.24	155.63	85.6	-141.53	1626428	502078.3	39°52'19.5	80°43'07.6	165.4	301.167	0.44	-0.04	-27.19
3968	0.81	348.48	3959.23	156.84	86.91	-141.85	1626428	502079.3	39°52'19.5	80°43'07.6	166.35	301.495	0.12	-0.1	4.44
4057	0.47	331.83	4048.23	157.76	87.84	-142.14	1626428	502080.3	39°52'19.5	80°43'07.6	167.1	301.716	0.43	-0.38	-18.71
4146	0.46	328.95	4137.23	158.47	88.47	-142.5	1626427	502080.9	39°52'19.5	80°43'07.6	167.73	301.834	0.03	-0.01	-3.24
4236	0.51	314.71	4227.22	159.23	89.06	-142.97	1626427	502081.5	39°52'19.5	80°43'07.7	168.44	301.92	0.14	0.06	-15.82
4325	0.44	321.12	4316.22	159.96	89.61	-143.47	1626426	502082.1	39°52'19.5	80°43'07.7	169.15	301.988	0.1	-0.08	7.72
4415	0.36	319.18	4406.22	160.59	90.09	-143.87	1626426	502082.6	39°52'19.5	80°43'07.7	169.75	302.055	0.09	-0.09	-2.16
4504	0.55	284.23	4495.22	161.21	90.41	-144.47	1626425	502082.9	39°52'19.5	80°43'07.7	170.42	302.038	0.37	0.21	-39.27
4594	0.71	292.08	4585.21	162.05	90.72	-145.4	1626425	502083.2	39°52'19.5	80°43'07.7	171.38	301.962	0.2	0.18	8.72
4684	0.84	284.15	4675.2	163.07	91.09	-146.56	1626423	502083.6	39°52'19.5	80°43'07.7	172.56	301.863	0.19	0.14	-8.81
4773	0.74	284.63	4764.19	164.05	91.4	-147.75	1626422	502083.9	39°52'19.5	80°43'07.7	173.73	301.742	0.11	-0.11	0.54
4862	0.74	287.97	4853.19	165	91.72	-148.85	1626421	502084.2	39°52'19.5	80°43'07.7	174.84	301.641	0.05	0	3.75
4907	0.72	285.4	4898.18	165.47	91.89	-149.4	1626421	502084.4	39°52'19.5	80°43'07.7	175.39	301.593	0.09	-0.04	-5.71
4965	0.61	287.43	4956.18	166.02	92.08	-150.04	1626420	502084.6	39°52'19.5	80°43'07.7	176.04	301.535	0.19	-0.19	3.5
5055	5.5	353.37	5046.03	170.07	96.51	-151	1626419	502089.1	39°52'19.6	80°43'07.8	179.21	302.583	5.87	5.43	73.27
5144	11.88	358.29	5133.97	180.96	109.91	-151.77	1626418	502102.5	39°52'19.7	80°43'07.8	187.39	305.913	7.21	7.17	5.53
5234	15.27	359.58	5221.44	197.59	131.03	-152.13	1626418	502123.6	39°52'19.9	80°43'07.8	200.78	310.738	3.78	3.77	1.43
5323	19	6.07	5306.48	216.98	157.17	-150.68	1626420	502149.7	39°52'20.2	80°43'07.8	217.73	316.207	4.7	4.19	7.29
5412	21.94	7.17	5389.85	238.72	188.08	-147.08	1626424	502180.6	39°52'20.5	80°43'07.7	238.76	321.975	3.33	3.3	1.24
5502	26.19	7.45	5472.01	264.04	224.47	-142.4	1626429	502216.9	39°52'20.8	80°43'07.6	265.83	327.61	4.72	4.72	0.31
5591	29.03	6.4	5550.87	292.72	265.41	-137.45	1626435	502257.8	39°52'21.1	80°43'07.6	298.89	332.622	3.24	3.19	-1.18
5681	33.73	4.87	5627.68	326.06	312.04	-132.89	1626440	502304.3	39°52'21.7	80°43'07.5	339.16	336.932	5.3	5.22	-1.7
5770	37.33	1.9	5700.11	364.26	363.65	-129.89	1626444	502355.9	39°52'22.2	80°43'07.5	386.15	340.344	4.48	4.04	-3.34
5860	37.41	0.3	5771.63	406.02	418.26	-128.85	1626446	502410.5	39°52'22.7	80°43'07.5	437.66	342.879	1.08	0.09	-1.78
5949	37.45	0.97	5842.31	447.66	472.35	-128.25	1626447	502464.5	39°52'23.3	80°43'07.5	489.45	344.81	0.46	0.04	0.75

BH NavTrak+MagVAR MSA <8-1/2"> (2008)(2089)(4907)

BH AT Curve+MagVAR MSA <8-1/2"> (4907)(4965)(19362)

Direction of  
 Earth's magnetic field  
 is shown by  
 the arrow  
 pointing  
 towards  
 the  
 center  
 of  
 the  
 Earth  
 (0°)



10600	90.49	330.11	6323.53	4843.76	4087.35	-2649.93	1623975	506113.2	39*52*59.0	80*43*39.8	4871.19	327.044	0.89	-0.48	-0.76
10689	90.8	321.92	6322.52	4932.33	4161.08	-2699.63	1623926	506187.6	39*52*59.7	80*43*40.4	4960.1	327.025	9.21	0.35	-9.2
10778	90.62	322.62	6321.42	5021.3	4231.46	-2754.09	1623872	506258.7	39*53*00.4	80*43*41.1	5048.79	326.941	0.81	-0.2	0.79
10868	90.86	323.48	6320.26	5111.23	4303.38	-2808.19	1623819	506331.4	39*53*01.1	80*43*41.8	5138.58	326.873	0.99	0.27	0.96
10957	90.71	323.06	6319.04	5200.15	4374.7	-2861.41	1623767	506403.4	39*53*01.8	80*43*42.5	5227.4	326.812	0.5	-0.17	-0.47
11047	91.05	314.87	6317.65	5290.01	4442.52	-2920.44	1623709	506472	39*53*02.5	80*43*43.3	5316.48	326.68	9.11	0.38	-9.1
11136	90.55	315.32	6316.41	5378.54	4505.55	-2983.26	1623647	506535.9	39*53*03.1	80*43*44.1	5403.69	326.49	0.76	-0.56	0.51
11226	90.58	313.65	6315.52	5467.96	4568.61	-3047.46	1623584	506599.8	39*53*03.8	80*43*44.9	5491.75	326.295	1.86	0.03	-1.86
11315	90.68	309.86	6314.54	5555.79	4627.87	-3113.84	1623518	506659.9	39*53*04.3	80*43*45.8	5577.92	326.066	4.26	0.11	-4.26
11404	90.49	307.51	6313.63	5642.74	4683.49	-3183.3	1623449	506716.5	39*53*04.9	80*43*46.7	5662.91	325.797	2.65	-0.21	-2.64
11493	90.18	315.58	6313.11	5730.47	4742.47	-3249.86	1623384	506776.4	39*53*05.5	80*43*47.5	5749.14	325.578	9.07	-0.35	9.07
11583	90.55	317.36	6312.54	5820.19	4807.71	-3311.84	1623322	506842.5	39*53*06.1	80*43*48.3	5838.01	325.439	2.02	0.41	1.98
11672	90.58	317.36	6311.66	5909.01	4873.18	-3372.13	1623263	506908.7	39*53*06.8	80*43*49.1	5926.14	325.318	0.03	0.03	0
11761	89.82	321.07	6311.35	5997.95	4940.56	-3430.25	1623206	506976.9	39*53*07.4	80*43*49.8	6014.63	325.228	4.26	-0.85	4.17
11851	88.86	325.75	6312.39	6087.84	5012.79	-3483.88	1623153	507049.8	39*53*08.1	80*43*50.5	6104.55	325.201	5.31	-1.07	5.2
11940	88.28	329.24	6314.61	6176.22	5087.82	-3531.68	1623106	507125.5	39*53*08.9	80*43*51.1	6193.44	325.234	3.97	-0.65	3.92
12030	91.63	336.66	6314.68	6264.18	5167.9	-3572.58	1623067	507206.1	39*53*09.7	80*43*51.6	6282.56	325.344	9.04	3.72	8.24
12119	92.59	332.91	6311.4	6350.52	5248.35	-3610.46	1623030	507287.1	39*53*10.5	80*43*52.1	6370.29	325.475	4.35	4.35	-4.21
12208	95.02	328.91	6305.5	6437.97	5325.94	-3653.62	1622988	507365.2	39*53*11.2	80*43*52.7	6458.68	325.55	5.25	2.73	-4.49
12298	93.39	324.14	6298.89	6527.27	5400.78	-3703.11	1622939	507440.7	39*53*12.0	80*43*53.3	6548.39	325.563	5.59	-1.81	-5.3
12387	89.05	320.19	6297	6616.19	5471.02	-3757.67	1622886	507511.7	39*53*12.7	80*43*54.0	6637.18	325.517	6.59	-4.88	-4.44
12477	89.54	318.8	6298.11	6706.16	5539.44	-3816.12	1622828	507580.9	39*53*13.3	80*43*54.8	6726.68	325.437	1.64	0.54	-1.54
12566	89.32	316.16	6298.98	6794.98	5605.03	-3876.26	1622769	507647.3	39*53*14.0	80*43*55.5	6814.82	325.333	2.98	-0.25	-2.97
12656	88.4	318.08	6300.78	6884.75	5670.97	-3937.49	1622709	507714.1	39*53*14.6	80*43*56.3	6903.89	325.227	2.37	-1.02	2.13
12745	90.55	320.94	6301.6	6973.71	5738.64	-3995.27	1622652	507782.5	39*53*15.3	80*43*57.1	6992.43	325.154	4.02	2.42	3.21
12834	90.49	319.73	6300.79	7062.7	5807.15	-4052.07	1622596	507851.8	39*53*16.0	80*43*57.8	7081.12	325.094	1.36	-0.07	-1.36
12924	90.95	320.09	6299.66	7152.67	5875.99	-4110.03	1622539	507921.4	39*53*16.7	80*43*58.5	7170.75	325.029	0.65	0.51	0.4
13013	91.08	320.79	6298.08	7241.66	5944.6	-4166.7	1622483	507990.8	39*53*17.3	80*43*59.3	7259.45	324.973	0.8	0.15	0.79
13103	90.98	319.66	6296.46	7331.63	6013.75	-4224.27	1622427	508060.7	39*53*18.0	80*44*00.0	7349.13	324.914	1.26	-0.11	-1.26
13192	91.05	320.62	6294.89	7420.61	6082.06	-4281.3	1622370	508129.8	39*53*18.7	80*44*00.7	7437.81	324.857	1.08	1.08	1.08
13281	91.05	320.93	6293.26	7509.59	6150.99	-4337.57	1622315	508199.5	39*53*19.4	80*44*01.5	7526.57	324.809	0.35	0	0.35
13371	90.15	321.44	6292.31	7599.59	6221.12	-4393.98	1622260	508270.3	39*53*20.1	80*44*02.2	7616.39	324.766	1.15	-1	0.57
13460	91.05	323.01	6291.38	7688.56	6291.46	-4448.5	1622206	508341.4	39*53*20.8	80*44*02.9	7705.29	324.737	2.03	1.01	1.76
13549	89.38	323.58	6291.05	7777.48	6362.81	-4501.69	1622154	508413.5	39*53*21.5	80*44*03.6	7794.26	324.721	1.98	-1.88	0.64
13639	90.89	327.54	6290.84	7867.17	6437.01	-4552.57	1622104	508488.3	39*53*22.2	80*44*04.2	7884.23	324.73	4.71	1.68	4.4
13728	91.35	326.37	6289.1	7955.66	6511.6	-4601.1	1622057	508563.6	39*53*23.0	80*44*04.8	7973.15	324.755	1.41	0.52	-1.31
13818	90.49	323	6287.65	8045.45	6585.02	-4653.11	1622006	508637.7	39*53*23.7	80*44*05.5	8063.12	324.754	3.86	-0.96	-3.74
13907	91.42	320.46	6286.17	8134.42	6654.88	-4708.22	1621951	508708.3	39*53*24.4	80*44*06.2	8151.98	324.721	3.04	1.04	-2.85
13997	89.82	318.77	6285.19	8224.38	6723.42	-4766.52	1621894	508777.6	39*53*25.0	80*44*07.0	8241.61	324.666	2.59	-1.78	-1.88
14086	89.08	319.17	6286.05	8313.32	6790.56	-4824.95	1621836	508845.5	39*53*25.7	80*44*07.7	8330.17	324.605	0.95	-0.83	0.45
14176	89.88	324.46	6286.86	8403.28	6861.27	-4880.56	1621782	508917	39*53*26.4	80*44*08.4	8420.03	324.575	5.94	0.89	5.88
14265	90.8	323.59	6286.34	8492.15	6933.29	-4932.84	1621731	508989.7	39*53*27.1	80*44*09.1	8509.02	324.569	1.42	1.03	-0.98
14355	90.86	319.67	6285.03	8582.11	7003.83	-4988.69	1621676	509061	39*53*27.8	80*44*09.8	8598.88	324.538	4.36	0.07	-4.36
14444	90.8	316.48	6283.74	8670.98	7070.04	-5048.14	1621617	509128	39*53*28.5	80*44*10.6	8687.3	324.472	3.58	-0.07	-3.58
14534	91.05	313.85	6282.29	8760.5	7133.84	-5111.58	1621555	509192.7	39*53*29.1	80*44*11.4	8776.11	324.377	2.94	0.28	-2.92
14624	89.51	313.83	6281.85	8849.8	7196.18	-5176.5	1621490	509255.9	39*53*29.7	80*44*12.2	8864.6	324.271	1.71	-1.71	-0.02
14713	89.75	319.55	6282.43	8938.52	7260.91	-5237.52	1621430	509321.4	39*53*30.4	80*44*13.0	8952.79	324.196	6.43	0.27	6.43
14802	89.91	322.26	6282.69	9027.51	7329.98	-5293.64	1621375	509391.2	39*53*31.0	80*44*13.7	9041.64	324.164	3.05	0.18	3.04
14892	90.03	320.93	6282.74	9117.5	7400.51	-5349.55	1621320	509462.5	39*53*31.7	80*44*14.5	9131.55	324.138	1.48	0.13	-1.48
14981	90.06	319.26	6282.67	9206.49	7468.78	-5406.64	1621264	509531.5	39*53*32.4	80*44*15.2	9220.32	324.099	1.88	0.03	-1.88
15070	89.97	318.54	6282.64	9295.43	7535.84	-5465.14	1621206	509599.4	39*53*33.1	80*44*15.9	9308.96	324.05	0.82	-0.1	-0.81

15070 89.97 318.54 6282.64 9295.43 7535.84 -5465.14 1621206 509599.4 39\*53\*33.1 80\*44\*15.9 9308.96 324.05 0.82 -0.1 -0.81

15160	89.91	318.67	6282.74	9385.35	7603.36	-5524.66	1621148	509667.7	39°53'33.7	80°44'16.7	9398.56	323.998	0.16	-0.07	0.14
15250	90.4	320.58	6282.49	9475.32	7671.92	-5582.95	1621091	509737	39°53'34.4	80°44'17.4	9488.29	323.956	2.19	0.54	2.12
15339	90.62	323.62	6281.7	9564.29	7742.14	-5637.62	1621037	509808	39°53'35.1	80°44'18.1	9577.23	323.939	3.42	0.25	3.42
15428	90.55	321.45	6280.79	9653.25	7812.77	-5691.75	1620984	509879.3	39°53'35.8	80°44'18.8	9666.2	323.926	2.44	-0.08	-2.44
15517	90.55	319.57	6279.94	9742.24	7881.45	-5748.34	1620928	509948.8	39°53'36.5	80°44'19.6	9755.03	323.895	2.11	0	-2.11
15607	91.85	319.8	6278.05	9832.19	7950.06	-5806.56	1620871	510018.2	39°53'37.2	80°44'20.3	9844.77	323.856	1.47	1.44	0.26
15696	90.58	318.71	6276.17	9921.13	8017.47	-5864.63	1620814	510086.4	39°53'37.8	80°44'21.1	9933.46	323.815	1.88	-1.43	-1.22
15786	90.49	319.13	6275.33	10011.07	8085.3	-5923.77	1620755	510155	39°53'38.5	80°44'21.8	10023.13	323.771	0.48	-0.1	0.47
15875	90.28	316.13	6274.73	10099.91	8151.05	-5983.74	1620696	510221.5	39°53'39.2	80°44'22.6	10111.61	323.717	3.38	-0.24	-3.37
15965	90.34	316.15	6274.24	10189.59	8215.94	-6046.1	1620635	510287.3	39°53'39.8	80°44'23.4	10200.83	323.651	0.07	0.07	0.02
16054	90.31	320.09	6273.74	10278.46	8282.19	-6105.5	1620576	510354.3	39°53'40.4	80°44'24.2	10289.4	323.603	4.43	-0.03	4.43
16143	90.34	320.19	6273.23	10367.45	8350.51	-6162.54	1620520	510423.4	39°53'41.1	80°44'24.9	10378.24	323.573	0.12	0.03	0.11
16233	90.28	323.09	6272.74	10457.43	8421.07	-6218.39	1620465	510494.7	39°53'41.8	80°44'25.6	10468.18	323.557	3.22	-0.07	3.22
16322	90.22	328.06	6272.36	10546.11	8494.46	-6268.69	1620416	510568.8	39°53'42.5	80°44'26.2	10557.1	323.574	5.58	-0.07	5.58
16412	90.34	326.83	6271.92	10635.54	8570.32	-6317.11	1620369	510645.3	39°53'43.3	80°44'26.9	10646.89	323.606	1.37	0.13	-1.37
16501	90.55	327.76	6271.22	10723.99	8645.2	-6365.2	1620322	510720.8	39°53'44.0	80°44'27.5	10735.7	323.637	1.07	0.24	1.04
16590	90.4	325.05	6270.49	10812.58	8719.33	-6414.44	1620273	510795.6	39°53'44.8	80°44'28.1	10824.59	323.66	3.05	-0.17	-3.04
16680	90.43	323.84	6269.83	10902.4	8792.55	-6466.77	1620222	510869.5	39°53'45.5	80°44'28.8	10914.58	323.666	1.34	0.03	-1.34
16769	90.43	320.31	6269.17	10991.37	8862.74	-6521.46	1620168	510940.4	39°53'46.2	80°44'29.5	11003.53	323.653	3.97	0	-3.97
16859	90.58	318.66	6268.37	11081.33	8931.15	-6579.93	1620111	511009.6	39°53'46.9	80°44'30.2	11093.28	323.619	1.84	0.17	-1.83
16948	90.52	317.88	6267.52	11170.23	8997.57	-6639.16	1620052	511076.8	39°53'47.5	80°44'31.0	11181.89	323.577	0.88	-0.07	-0.88
17037	90.55	317.79	6266.69	11259.1	9063.53	-6698.9	1619994	511143.6	39°53'48.2	80°44'31.8	11270.45	323.532	0.11	0.03	-0.1
17127	92.19	321.77	6264.53	11349.03	9132.22	-6756.92	1619936	511213.1	39°53'48.8	80°44'32.5	11360.21	323.502	4.78	1.82	4.42
17216	93.11	324.08	6260.42	11437.88	9203.15	-6810.58	1619884	511284.7	39°53'49.5	80°44'33.2	11449.1	323.498	2.79	1.03	2.6
17306	92.46	322.6	6256.04	11527.69	9275.26	-6864.25	1619831	511357.5	39°53'50.3	80°44'33.9	11538.99	323.496	1.79	-0.72	-1.64
17395	90.12	320.24	6254.04	11616.65	9344.8	-6919.73	1619777	511427.8	39°53'50.9	80°44'34.6	11627.9	323.48	3.73	-2.63	-2.65
17484	90.06	319.55	6253.9	11705.63	9412.87	-6977.07	1619720	511496.7	39°53'51.6	80°44'35.3	11716.73	323.453	0.78	-0.07	-0.78
17574	90.83	319.82	6253.2	11795.61	9481.5	-7035.29	1619663	511566.1	39°53'52.3	80°44'36.1	11806.53	323.425	0.91	0.86	0.3
17664	90.68	319.97	6252.02	11885.59	9550.33	-7093.26	1619606	511635.7	39°53'53.0	80°44'36.8	11896.35	323.398	0.24	0.24	0.17
17753	90.77	319.59	6250.89	11974.56	9618.28	-7150.73	1619549	511704.4	39°53'53.6	80°44'37.6	11985.17	323.371	0.44	0.1	-0.43
17842	90.68	320.43	6249.77	12063.54	9686.46	-7207.92	1619493	511773.3	39°53'54.3	80°44'38.3	12074.01	323.346	0.95	-0.1	0.94
17932	90.74	320.34	6248.65	12153.53	9755.79	-7265.3	1619437	511843.4	39°53'55.0	80°44'39.0	12163.88	323.324	0.12	0.07	-0.1
18021	90.65	319.41	6247.57	12242.5	9823.84	-7322.65	1619380	511912.2	39°53'55.7	80°44'39.8	12252.71	323.299	1.05	-0.1	-1.04
18110	90.89	320.11	6246.37	12331.48	9891.77	-7380.14	1619324	511980.9	39°53'56.3	80°44'40.5	12341.54	323.274	0.83	0.27	0.79
18200	90.74	320.31	6245.09	12421.46	9960.92	-7437.73	1619267	512050.9	39°53'57.0	80°44'41.3	12431.4	323.252	0.28	-0.17	0.22
18289	91.72	321.93	6243.18	12510.43	10030.18	-7493.58	1619212	512120.9	39°53'57.7	80°44'42.0	12520.32	323.236	2.13	1.1	1.82
18378	90.74	322.06	6241.27	12599.4	10100.29	-7548.37	1619158	512191.7	39°53'58.4	80°44'42.7	12609.27	323.228	1.11	-1.1	0.15
18468	90.74	322.82	6240.11	12689.36	10171.63	-7603.23	1619104	512263.8	39°53'59.1	80°44'43.4	12699.26	323.222	0.84	0	0.84
18558	90.55	323.37	6239.1	12779.29	10243.59	-7657.27	1619051	512336.5	39°53'59.8	80°44'44.1	12789.25	323.221	0.65	-0.21	0.61
18647	90.71	325.61	6238.12	12868.11	10316.03	-7708.96	1619001	512409.6	39°54'00.5	80°44'44.7	12878.22	323.23	2.52	0.18	2.52
18736	90.83	326.9	6236.92	12956.72	10390.03	-7758.39	1618952	512484.3	39°54'01.3	80°44'45.4	12967.08	323.251	1.46	0.13	1.45
18826	90.74	323.85	6235.69	13046.44	10464.07	-7809.52	1618902	512559	39°54'02.0	80°44'46.0	13057	323.265	3.39	-0.1	-3.39
18915	90.65	321.19	6234.61	13135.39	10534.69	-7863.66	1618849	512630.3	39°54'02.7	80°44'46.7	13145.98	323.26	2.99	-0.1	-2.99
19005	90.74	319.17	6233.52	13225.37	10603.8	-7921.29	1618792	512700.2	39°54'03.4	80°44'47.5	13235.84	323.239	2.25	0.1	-2.24
19094	90.77	317.79	6232.35	13314.28	10670.43	-7980.28	1618734	512767.6	39°54'04.1	80°44'48.2	13324.53	323.208	1.55	0.03	-1.55
19184	90.77	316.03	6231.14	13404.04	10736.15	-8041.76	1618674	512834.2	39°54'04.7	80°44'49.0	13413.98	323.165	1.96	0	-1.96
19273	90.74	316.51	6229.96	13492.73	10800.45	-8103.27	1618613	512899.3	39°54'05.3	80°44'49.8	13502.33	323.12	0.54	-0.03	0.54
19362	90.65	320.39	6228.88	13581.62	10867.04	-8162.29	1618555	512966.7	39°54'06.0	80°44'50.6	13591.01	323.09	4.36	-0.1	4.36
19388	90.65	320.39	6228.59	13607.62	10887.07	-8178.86	1618539	512986.9	39°54'06.2	80°44'50.8	13616.98	323.084	0	0	0 Projected 388'

HOLE AND CASING SECTIONS Ref Wellbore: Hicks M01H AWB Ref Wellpath: Hicks M01H AWP Proj: 193388'





SDI Gyro <17-1/2>(100'-450)''

APS EM + MagVAR MSA <12-1/4> (458')(562'-2008)''

BH NavITrak+MagVAR MSA <8-1/2> (2008')(2089'-4907)''

BH AT Curve+MagVAR MSA <8-1/2> (4907')(4965'-19362)''

Projected MD at TD: 19,388'

PRECISION 560

0.0000000000000000

0.0000000000000000  
0.0000000000000000

# AS DRILLED PLAT

BHL is located on topo map 5,445 feet south of Latitude: 39° 55' 00"  
 SHL is located on topo map 1,148 feet south of Latitude: 39° 52' 30"

PERMITTED  
 BOTTOM HOLE LOCATION (BHL)  
 UTM 17-NAD83(M)  
 N:4416879.49  
 E:521586.26  
 NAD83, WV NORTH  
 N:512982.218  
 E:1618530.763  
 LAT/LON-NAD83  
 LAT:39°54'06.19"  
 LON:80°44'06.19"

AS DRILLED  
 BOTTOM HOLE LOCATION (SHL)  
 UTM 17-NAD83(M)  
 N:4416880.96  
 E:521588.62  
 NAD83, WV NORTH  
 N:512986.93  
 E:1618533.60  
 LAT/LON-NAD83  
 LAT:39°54'06.23"  
 LON:80°44'50.81"

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

WELL PAD ORIENTATION DETAIL

M01H	M14H	M15H	U28H	U29H
M02H	M13H	M16H	U27H	U30H
M03H	M12H	M17H	U26H	U31H
M04H	M11H	U18H	U25H	U32H
M05H	M10H	U19H	U24H	U33H
M06H	M09H	U20H	U23H	U34H
M07H	M08H	U21H	U22H	U35H

N.T.S.

PERMITTED  
 APPROX. LANDING POINT  
 UTM 17-NAD83(M)  
 N:4413948.51  
 E:523978.21  
 NAD83, WV NORTH  
 N:503233.008  
 E:1626219.198  
 LAT/LON-NAD83  
 LAT:39°52'30.89"  
 LON:80°43'10.57"

AS DRILLED  
 APPROX. LANDING POINT  
 UTM 17-NAD83(M)  
 N:4414011.36  
 E:523927.30  
 NAD83, WV NORTH  
 N:503442.04  
 E:1626055.60  
 LAT/LON-NAD83  
 LAT:39°52'32.93"  
 LON:80°43'12.70"

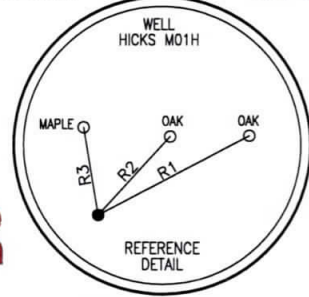
AS DRILLED  
 SURFACE HOLE LOCATION (SHL)  
 UTM 17-NAD83(M)  
 N:4413571.76  
 E:524091.00  
 NAD83, WV NORTH  
 N:501990.52  
 E:1626568.66  
 LAT/LON-NAD83  
 LAT:39°52'18.65"  
 LON:80°43'05.87"

PERMITTED  
 SURFACE HOLE LOCATION (SHL)  
 UTM 17-NAD83(M)  
 N:4413571.769  
 E:524090.986  
 NAD83, WV NORTH  
 N:501990.544  
 E:1626568.620  
 LAT/LON-NAD83  
 LAT:39°52'18.654"  
 LON:80°43'05.869"

**LEGEND**

- TOPO MAP POINT
- WELL
- ALL ARE POINTS UNLESS OTHERWISE NOTED.
- MINERAL TRACT BOUNDARY
- PARCEL LINES
- WELL REFERENCE
- AS-DRILLED LATERAL
- PROPOSED HORIZONTAL WELL
- ROAD
- STREAM CENTER LINE
- (A) - LESSORS
- (1) - SURFACE OWNERS
- LOCATE & AVOID
- GAS WELLS
- EXISTING WELLS
- PLUGGED WELLS

LINE	BEARING	DISTANCE
R1	N 62°19'35" E	168.01'
R2	N 42°35'04" E	104.62'
R3	N 09°22'32" W	87.20'
R4	N 07°54'19" E	835.23'
R5	N 47°27'55" E	1571.47'
R6	S 00°04'02" W	1157.73'



**THRASHER**  
 CIVIL • ENVIRONMENTAL • CONSULTING • FIELD SERVICES  
 600 WHITE OAKS BOULEVARD, BRIDGEPORT, WV 28330  
 PHONE (304) 624-4108 FAX (304) 624-7831

SEE PAGE 2 FOR SURFACE OWNERS AND LESSORS

FILE #: HICKS M01H-AS DRILLED  
 DRAWING #: HICKS M01H-AS DRILLED  
 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: *George D. Six*  
 R.P.E.: \_\_\_\_\_ L.L.S.: P.S. No. 2000

GEORGE D. SIX  
 LICENSED  
 No. 2000  
 STATE OF WEST VIRGINIA  
 PROFESSIONAL SURVEYOR  
 PLACE SEAL HERE

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



DATE: JANUARY 31, 2020  
 OPERATOR'S WELL #: HICKS M01H-AS DRILLED  
 API WELL #: 47 51 01897  
 STATE COUNTY PERMIT

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

WATERSHED: MIDDLE GRAVE CREEK-GRAVE CREEK ELEVATION: 1177.18'

COUNTY/DISTRICT: MARSHALL / CLAY QUADRANGLE: GLEN EASTON, WV 7.5'

SURFACE OWNER: THOMAS E. HICKS ACREAGE: 172.100±

OIL & GAS ROYALTY OWNER: CHRISTA DAWN HICKS, ET AL. ACREAGE: 846.808±

DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION

PERFORATE NEW FORMATION  PLUG & ABANDON  CLEAN OUT & REPLUG  OTHER CHANGE

(SPECIFY): AS DRILLED

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: TVD: 6,600'± TMD: 19,619.85'±

WELL OPERATOR CHEVRON APPALACHIA, LLC DESIGNATED AGENT KENNETH E. TAWNEY  
 Address 800 MOUNTAIN VIEW DRIVE Address 500 LEE STREET, EAST SUITE 1600  
 City SMITHFIELD State PA Zip Code 15478 City CHARLESTON State WV Zip Code 25301-3202

BHL is located on topo map 10,981 feet west of Longitude: 80° 42' 30"  
 SHL is located on topo map 2,796 feet west of Longitude: 80° 42' 30"

RECEIVED  
WATER AND GAS

FEB 2 1977

Environmental Protection



# HICKS

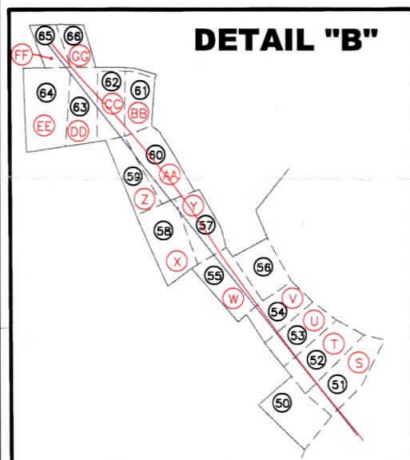
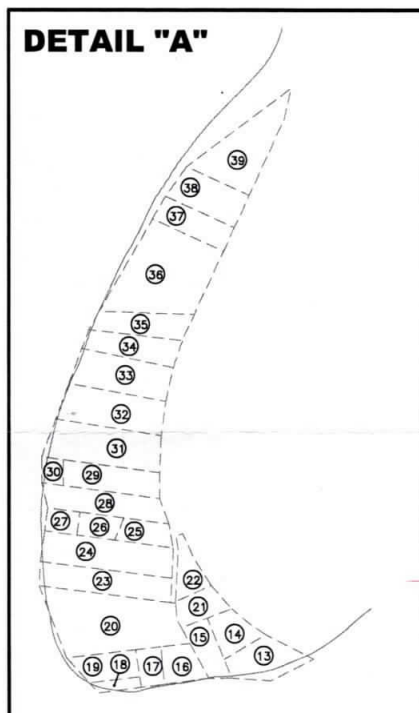
## M01H

### AS DRILLED PLAT

## PAGE 2 OF 2

	LESSOR	DIST-TM/PAR
A	CHRISTA DAWN HICKS, ET AL.	4-8/37
B	CHESAPEAKE APPALACHIA, LLC.	4-8/35
C	LESLIE SCHABER, ET AL.	4-8/34
D	CNX GAS COMPANY LLC	4-4/30
E	LESTER ALLEN RICHMOND, ET AL.	4-4/29
F	CNX GAS COMPANY LLC	4-4/74
G	JANET RICHMOND, ET VIR.	4-4/72
H	MARSHALL COUNTY AIRPORT AUTHORITY	4-4/2
J	VERNON L. HYDE	4-4/70
K	JOHN L. FOX	4-5/54.5
	KAREN M. FOX	
	CHRISTI F. PRESTON	
	JOHN L. FOX, II	
	CYNTHIA S. HAMILTON	
	DOROTHY A. ARGENTA	
	MARY E. PERSINGER	
	KAREN FOX EVANS	
	BRAD FOX	
	LINDA SMITH	
	ANN MACHELE MILLER	
	JANET C. HUNNELL	
	MICHAEL PERSINGER	
	BETH BLAKE	
	WILLIAM P. ARGENTA	
	PAUL T. ARGENTA	
	JOAN E. KRESS	
L	JOHN D. LIGHTNER, JR., ET UX.	4-4/1.2
M	THOMAS P. WOOD, ET UX.	4-5/45
N	PATRICIA A. BUNGARD	4-4/1.5
P	PATRICIA A. BUNGARD	4-4/1.6
Q	DOUGLAS J. HUDSON, ET UX.	4-4/1.4
R	CHAPLIN REAL ESTATE CO.	4-2/49
S	RICHARD P. CARTER	4-2B/87
T	RICHARD P. CARTER	4-2B/86
U	RICHARD P. CARTER	4-2B/85
V	ROSEMARY MORRIS	4-2B/84
W	PETE S. ZUKOFF, ET UX.	4-2B/49
X	ROGER R. KING, ET UX.	4-2B/52
Y	ROGER R. KING, ET UX.	4-2B/53
Z	SIDNEY L. RAPER	4-2B/59
AA	CHAPLIN REAL ESTATE COMPANY	4-2B/60
BB	CHAPLIN REAL ESTATE COMPANY	4-2B/63
CC	GEORGE F. LANDERS, ET UX.	4-2B/64
DD	GEORGE F. LANDERS, ET UX.	4-2B/65
EE	GEORGE F. LANDERS, ET UX.	4-2B/66
FF	CHAPLIN REAL ESTATE CO.	4-2B/70
GG	*CHAPLIN REAL ESTATE COMPANY	4-2B/71

	SURFACE OWNER	DIST-TM/PAR
1	THOMAS E. HICKS	4-8/37
2	RONALD ELWOOD STERN ET UX	4-8/35
3	CONSOLIDATION COAL COMPANY/MURRAY ENERGY C/O LAND DEPT	4-8/39
4	CHEVRON USA INC	4-8/34
5	MOUNTAINEER ENTERPRISES LLC	4-4/30
6	LESTER ALLEN & JANET E. RICHMOND	4-4/29
7	CONSOLIDATION COAL COMPANY/MURRAY ENERGY C/O LAND DEPT	4-4/74
8	JANET ELOWISE RICHMOND - LIFE	4-4/72
9	VERNON L. HYDE	4-4/71
10	WILLARD L. ATWELL ET UX	4-4/73
11	MARSHALL CO AIRPORT AUTHORITY	4-4/2
12	VERNON L. HYDE	4-4/70
13	DANIEL L. & REBECCA L. WILLIAMS	4-4/70.1
14	CARL E., JR. & DARLENE LUCAS	4-4/4.5
15	AMANDA ROBERTS - LIFE	4-4/4.4
16	THOMAS E., JR. & CRYSTAL M. ROGERSON	4-4/4.10
17	THOMAS E. ROGERSON JR.	4-4/4.12
18	ROBERT HAYWOOD MCCARTNEY ET UX	4-4/4.9
19	THOMAS E. ROGERSON JR.	4-4/4.3
20	JOSEPH CHARLES RUDISH	4-4/4
21	DANIEL R. TURKLEY	4-4/4.6
22	JON D. WAYT ET UX	4-4/4.7
23	CHARLES JOSEPH DARMAFALL	4-4/4.2
24	RAYMOND V. CLAYTON	4-4/4.1
25	NANCY L. PARKS	4-4/6.1
26	JOHN T. PARKS EST	4-4/6
27	JOHN T. PARKS EST	4-4/5
28	LYLE R. MCMASTERS	4-4/7
29	GLEN MICHAEL SCHMID ET UX	4-4/8
30	GLEN MICHAEL SCHMID ET UX	4-4/9
31	ROBERT LEE HALL	4-4/10
32	JOS W. GOULDSBERRY JR. ET UX	4-4/11
33	JOS W. GOULDSBERRY JR. ET UX	4-4/12
34	SHERRI J. & GEORGE C. ANDERSON	4-4/13
35	GEORGE C. & SHERRI J. ANDERSON	4-4/14
36	WILLIAM J. & CAROL M. FRITZMAN	4-4/15
37	ROBERT L. & PATSY CLARK	4-4/16
38	ROBERT L. CLARK	4-4/17.1
39	GEORGE R. FINNEGAN	4-4/17
40	PAUL WAYNE LIGHTNER	4-4/1.1
41	JOHN D. & CATHY L. LIGHTNER	4-4/1.7
42	LENEE J. CURITTI ET UX	4-5/54.5
43	JOHN D., JR. & CATHY L. LIGHTNER	4-4/1.2
44	THOMAS P. & TAMARA R. WOOD	4-5/45
45	THOMAS P. & TAMARA R. WOOD	4-5/45.6
46	JOHN D. & CATHY L. LIGHTNER	4-4/1.5
47	PAUL W. & AMANDA LIGHTNER	4-4/1.6
48	PAUL W. & AMANDA LIGHTNER	4-4/1.4
49	CHAPLIN REAL ESTATE CO.	4-2/49
50	CHAPLIN REAL ESTATE CO.	4-2B/106
51	RICHARD P. CARTER	4-2B/87
52	RICHARD P. CARTER	4-2B/86
53	RICHARD P. CARTER	4-2B/85
54	ROSEMARY MORRIS	4-2B/84
55	PETE STEVEN ZUKOFF ET UX	4-2B/49
56	WILLIAM I. JEFFRIES ET UX	4-2B/50
57	LINDA J. KING	4-2B/52
58	LINDA J. KING	4-2B/53
59	CODY T. & ANGELA D. ZUK	4-2B/59
60	JOHN & CYNTHIA MCCUTCHEON	4-2B/60
61	*NICHOLAS ADAM & MELISSA JO CHAPLIN	4-2B/63
62	GEORGE & BARBARA LANDERS	4-2B/64
63	GEORGE & BARBARA LANDERS	4-2B/65
64	GEORGE & BARBARA LANDERS	4-2B/66
65	KEVIN M. & DEBORAH L. JARRETT	4-2B/70
66	*CHAPLIN REAL ESTATE CO.	4-2B/71



PERMITTED SURFACE HOLE LOCATION (SHL)	PERMITTED APPROX. LANDING POINT	PERMITTED BOTTOM HOLE LOCATION (BHL)
UTM 17-NAD83(M) N:4413571.769 E:524090.986	UTM 17-NAD83(M) N:4413948.51 E:523978.21	UTM 17-NAD83(M) N:4416879.49 E:521586.26
NAD83, WV NORTH N:501990.544 E:1626568.620	NAD83, WV NORTH N:503233.008 E:1626219.198	NAD83, WV NORTH N:512982.218 E:1618530.763
LAT/LON-NAD83 LAT:39°52'18.654" LON:80°43'05.869"	LAT/LON-NAD83 LAT:39°52'30.89" LON:80°43'10.57"	LAT/LON-NAD83 LAT:39°54'06.19" LON:80°44'06.19"
AS DRILLED SURFACE HOLE LOCATION (SHL)	AS DRILLED APPROX. LANDING POINT	AS DRILLED BOTTOM HOLE LOCATION (BHL)
UTM 17-NAD83(M) N:4413571.76 E:524091.00	UTM 17-NAD83(M) N:4414011.36 E:523927.30	UTM 17-NAD83(M) N:4416880.96 E:521588.62
NAD83, WV NORTH N:501990.52 E:1626568.66	NAD83, WV NORTH N:503442.04 E:1626055.60	NAD83, WV NORTH N:512986.93 E:1618538.60
LAT/LON-NAD83 LAT:39°52'18.65" LON:80°43'05.87"	LAT/LON-NAD83 LAT:39°52'32.93" LON:80°43'12.70"	LAT/LON-NAD83 LAT:39°54'06.23" LON:80°44'50.81"

# THRASHER

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800 WHITE OAKS BOULEVARD, BRIDGEPORT, WV 26330  
PHONE (304) 624-4108 FAX (304) 624-7851

\* - DENOTES PARCEL WITHIN 30 FEET OF PLANNED WELL BORE

**JANUARY 31, 2020**

SECRET  
Office of Gas

10/10/10

Department of  
Internal Protection