

JA

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

API 47-033-05749 County HARRISON District TEN MILE
Quad WOLF SUMMIT 7.5' Pad Name W.F. WILLIAMS Field/Pool Name WOLF SUMMIT
Farm name HUFFMAN, BRIAN V. Well Number 130
Operator (as registered with the OOG) H.G. ENERGY LLC
Address 5260 DuPONT ROAD 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 4,347,493 M Easting 543,303 M
Landing Point of Curve Northing _____ Easting _____
Bottom Hole Northing 4,347,346 M Easting 543,442 M

Elevation (ft) 1306' 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)
N/A

Date permit issued 7/3/2013 Date drilling commenced 8/5/13 Date drilling ceased 8/10/13
Date completion activities began 11/1/13 Date completion activities ceased 11/8/13
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 50' Open mine(s) (Y/N) depths N
Salt water depth(s) ft None Void(s) encountered (Y/N) depths N
Coal depth(s) ft 596'-604' Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Received
Reviewed by: _____
Office of Oil and Gas
WV Dept. of Environmental Protection
02/28/2014

API 47- 033 - 05749 Farm name HUFFMAN, BRIAN V. Well number 130

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	12 1/4"	11 5/8"	30'	Used	LS		Sand In
Surface	8 3/4"	7"	676'	New	LS	64'	Yes
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production	6 1/2"	4 1/2"	3080'	New	J-55		No
Tubing							
Packer type and depth set							

Comment Details Circulated Est. 25 bbls to surface on 7" surface cement job.

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	Reg Neat	170	15.6	1.18	201	Surface	8
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production	50/50 Pozmix	200	14.2	1.27	254	750'	8
Tubing							

Drillers TD (ft) 3121' Loggers TD (ft) 3115'
 Deepest formation penetrated Fifth Sand Plug back to (ft) N/A
 Plug back procedure N/A

Kick off depth (ft) 700'

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 _____

15 Centralizers every 64' from bottom on 4 1/2", Centralizer placed mid string on 7"

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 _____

Received

API 47- 033 - 05749 Farm name HUFFMAN, BRIAN V. Well number 130

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
1	11/1/13	2968'	2973'	21	Fifth Sand
1	11/1/13	2975'	2978'	11	Fifth Sand

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations 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	11/5/13	10	1642	3050	1483	10,000	336	

Received

Please insert additional pages as applicable.

API 47- 033 - 05749 Farm name HUFFMAN, BRIAN V. Well number 130

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
Fifth Sand	2906'-2917'	TVD 2968'-2978' MD
_____	_____	_____
_____	_____	_____
_____	_____	_____

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface _____ psi Bottom Hole _____ psi DURATION OF TEST _____ hrs

OPEN FLOW Gas _____ mcfpd Oil _____ bpd NGL _____ bpd Water _____ bpd GAS MEASURED BY Estimated Orifice Pilot

LITHOLOGY/ FORMATION	TOP DEPTH IN FT NAME TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC)
Sand/Shale	0	596	0	596	
Pittsburgh Coal	596	604	596	604	
Sand/Shale	604	1944	604	1974	
Big Lime	1944	2016	1974	2048	
Big Injun	2016	2085	2048	2120	
Shale	2085	2592	2120	2644	
Fifty Foot	2592	2616	2644	2668	
Shale	2616	2630	2668	2683	
Sand	2630	2751	2683	2808	
Shale	2751	2906	2808	2968	
Fifth Sand	2906	2917	2968	2978	Drilled directional S 9 degrees E a distance of 503'
Shale	2917	3056	2978	3121	
TD	3056		3121		

Please insert additional pages as applicable.

Drilling Contractor Decker Drilling
Address 11565 State Route 676 City Vincent State OH Zip 45784

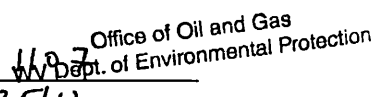
Logging Company Weatherford International
Address 777 North River Avenue City Weston State WV Zip 26452

Cementing Company Baker Hughes
Address 2228 Philippi Pike City Clarksburg State WV Zip 26301

Stimulating Company Producers Service Corp.
Address 109 South Graham Street City Zanesville State OH Zip 43701

Please insert additional pages as applicable.

Completed by Roger Heldman Telephone 304 420 1107
Signature Roger Heldman Title Operatives mgr Date 11/25/13



Submission of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry

02/28/2014

HG Energy, LLC

Harrison County, West Virginia

WF Williams #130

WF Williams #130

Wellbore #1

Survey: MWD

DDC Survey Report

11 December, 2013

Received

JAN 21 2014

Office of Oil and Gas
WV Dept. of Environmental Protection



02/28/2014



I **Larry Wright**, certify that I am employed by **The Appalachian Directional Drilling Company (ADC)**. That I did on the day(s) of **8/06/13** thru **8/09/13** conduct or supervise the taking of a **MWD Survey** from a depth of **700** feet to a depth of **3122** feet, that the data is true, correct, complete and within the limitations of the tool as set forth by **The Appalachian Directional Drilling Company (ADC)**.; that I am authorized and qualified to make this report; that this survey was conducted at the request of **H G Energy, LLC** for the **W.F. Williams #130** API No. **47-033-05749** in **Harrison, County WV**; and that I have reviewed this report and find that it conforms to the principles and procedures as set forth by **The Appalachian Directional Drilling Company (ADC)**.

Larry Wright

Digitally signed by Larry Wright
DN: cn=Larry Wright, o=The Directional
Drilling Company, ou=GM of Guidance
Services,
email=larryw@directionaldrillers.com,
c=US
Date: 2013.12.12 16:13:07 -06'00'

Received

JAN 21 2014
Office of Oil and Gas
WV Dept. of Environmental Protection

• 1200 Heavy Haul Road • Morgan Town, WV 26501 •
• PH 304-777-2310 • FAX 304-777-2317 •

02/28/2014

DDC
Survey Report



Company:	HG Energy, LLC	Local Co-ordinate Reference:	Well WF Williams #130
Project:	Harrison County, West Virginia	TVD Reference:	WELL @ 1314.0usft (Decker #6)
Site:	WF Williams #130	MD Reference:	WELL @ 1314.0usft (Decker #6)
Well:	WF Williams #130	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Project	Harrison County, West Virginia		
Map System:	Universal Transverse Mercator	System Datum:	Mean Sea Level
Geo Datum:	NAD83 West Virginia - HARN		
Map Zone:	Zone 17N (84 W to 78 W)		

Site	WF Williams #130				
Site Position:		Northing:	14,263,374.28 usft	Latitude:	39° 16' 32.300 N
From:	Lat/Long	Easting:	1,782,382.45 usft	Longitude:	80° 29' 54.000 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.32 °

Well	WF Williams #130					
Well Position	+N/-S	0.0 usft	Northing:	14,263,374.28 usft	Latitude:	39° 16' 32.300 N
	+E/-W	0.0 usft	Easting:	1,782,382.45 usft	Longitude:	80° 29' 54.000 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	1,305.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	12/11/2013	-8.65	66.81	52,315

Design	Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	177.43	

Survey Program	Date	12/11/2013			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
700.0	3,122.0	MWD (Wellbore #1)			

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
TIE IN @ 700' MD / 700' TVD										
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00	
726.0	0.88	151.08	726.0	-0.2	0.1	0.2	3.38	3.38	0.00	
756.0	1.32	158.42	756.0	-0.7	0.3	0.7	1.54	1.47	24.47	
786.0	2.20	159.30	786.0	-1.6	0.7	1.6	2.93	2.93	2.93	
816.0	3.12	156.51	815.9	-2.8	1.2	2.9	3.10	3.07	9.30	
846.0	4.31	164.09	845.9	-4.7	1.8	4.8	4.28	3.97	25.27	
876.0	5.19	169.41	875.8	-7.1	2.4	7.2	3.28	2.93	17.73	
906.0	6.02	170.59	905.6	-10.0	2.9	10.1	2.79	2.77	3.93	
936.0	6.90	168.70	935.4	-13.3	3.5	13.4	3.02	2.93	-6.30	

DDC
Survey Report



Company:	HG Energy, LLC	Local Co-ordinate Reference:	Well WF Williams #130
Project:	Harrison County, West Virginia	TVD Reference:	WELL @ 1314.0usft (Decker #6)
Site:	WF Williams #130	MD Reference:	WELL @ 1314.0usft (Decker #6)
Well:	WF Williams #130	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
966.0	7.38	167.21	965.2	-16.9	4.3	17.1	1.71	1.60	-4.97
996.0	7.78	171.38	995.0	-20.8	5.0	21.0	2.27	1.33	13.90
1,026.0	7.91	176.22	1,024.7	-24.9	5.5	25.1	2.24	0.43	16.13
1,056.0	8.00	177.49	1,054.4	-29.0	5.7	29.3	0.66	0.30	4.23
1,086.0	8.70	176.70	1,084.1	-33.4	5.9	33.6	2.36	2.33	-2.63
1,116.0	9.58	176.70	1,113.7	-38.2	6.2	38.4	2.93	2.93	0.00
1,146.0	10.20	178.11	1,143.2	-43.3	6.4	43.5	2.22	2.07	4.70
1,176.0	10.50	181.18	1,172.7	-48.7	6.4	48.9	2.09	1.00	10.23
1,206.0	10.99	182.68	1,202.2	-54.3	6.3	54.5	1.88	1.63	5.00
1,236.0	11.51	182.59	1,231.6	-60.1	6.0	60.3	1.73	1.73	-0.30
1,266.0	11.82	181.32	1,261.0	-66.2	5.8	66.4	1.34	1.03	-4.23
1,296.0	12.22	183.82	1,292.3	-72.8	5.5	73.0	2.05	1.25	7.81
1,326.0	13.01	186.81	1,321.6	-79.4	4.9	79.5	3.42	2.63	9.97
1,356.0	14.59	189.01	1,350.7	-86.4	3.9	86.5	5.55	5.27	7.33
1,386.0	15.91	191.60	1,379.7	-94.2	2.5	94.2	4.95	4.40	8.63
1,418.0	15.82	187.60	1,408.5	-102.3	1.1	102.2	3.66	-0.30	-13.33
1,448.0	15.29	184.00	1,437.4	-110.3	0.3	110.2	3.67	-1.77	-12.00
1,478.0	14.41	177.58	1,466.4	-118.0	0.2	117.9	6.22	-2.93	-21.40
1,508.0	14.99	174.90	1,495.5	-125.6	0.7	125.5	2.98	1.93	-8.93
1,538.0	15.29	173.41	1,524.4	-133.4	1.5	133.3	1.64	1.00	-4.97
1,568.0	16.00	175.90	1,553.3	-141.4	2.2	141.4	3.26	2.37	8.30
1,598.0	16.92	169.41	1,582.1	-149.8	3.3	149.8	6.85	3.07	-21.63
1,628.0	17.49	166.90	1,610.7	-158.5	5.1	158.6	3.12	1.90	-8.37
1,658.0	17.40	167.30	1,639.4	-167.3	7.1	167.4	0.50	-0.30	1.33
1,688.0	16.39	168.70	1,666.1	-175.2	8.8	175.5	3.89	-3.61	5.00
1,716.0	15.21	170.59	1,695.0	-183.3	10.3	183.5	4.29	-3.93	6.30
1,746.0	14.19	172.40	1,724.0	-190.8	11.4	191.1	3.73	-3.40	6.03
1,776.0	14.11	173.58	1,753.1	-198.1	12.3	198.4	1.00	-0.27	3.93
1,806.0	14.50	174.11	1,782.2	-205.4	13.1	205.8	1.37	1.30	1.77
1,836.0	14.72	177.01	1,811.2	-213.0	13.7	213.4	2.55	0.73	9.67
1,866.0	14.90	180.70	1,840.2	-220.6	13.9	221.0	3.20	0.60	12.30
1,896.0	15.29	180.92	1,869.2	-228.5	13.7	228.8	1.31	1.30	0.73
1,926.0	15.29	182.59	1,898.1	-236.4	13.5	236.7	1.47	0.00	5.57
1,956.0	15.12	185.49	1,927.1	-244.2	12.9	244.5	2.60	-0.57	9.67
1,986.0	15.38	186.41	1,956.0	-252.1	12.1	252.3	1.18	0.87	3.07
2,016.0	15.82	186.19	1,984.9	-260.1	11.2	260.3	1.48	1.47	-0.73
2,046.0	16.22	185.10	2,013.7	-268.3	10.4	268.5	1.67	1.33	-3.63
2,076.0	16.61	185.80	2,042.5	-276.8	9.6	276.9	1.46	1.30	2.33
2,106.0	17.09	185.10	2,071.2	-285.4	8.8	285.5	1.74	1.60	-2.33
2,136.0	16.30	182.81	2,100.0	-294.0	8.2	294.1	3.43	-2.63	-7.63
2,166.0	14.99	179.51	2,128.9	-302.1	8.0	302.1	5.28	-4.37	-11.00
2,196.0	13.80	177.10	2,157.9	-309.5	8.2	309.6	4.44	-3.97	-8.03
2,226.0	13.80	176.09	2,187.1	-316.7	8.7	316.8	0.80	0.00	-3.37
2,256.0	13.89	176.70	2,216.2	-323.9	9.1	323.9	0.57	0.30	2.03

Received
JAN 21 2014
Office of Oil and Gas
WV Dept. of Environmental Protection

DDC
Survey Report



Company:	HG Energy, LLC	Local Co-ordinate Reference:	Well WF Williams #130
Project:	Harrison County, West Virginia	TVD Reference:	WELL @ 1314.0usft (Decker #6)
Site:	WF Williams #130	MD Reference:	WELL @ 1314.0usft (Decker #6)
Well:	WF Williams #130	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
2,286.0	14.11	177.49	2,245.3	-331.1	9.5	331.2	0.97	0.73	2.63
2,316.0	14.11	179.38	2,274.4	-338.4	9.7	338.5	1.54	0.00	6.30
2,346.0	14.11	181.32	2,303.5	-345.7	9.6	345.8	1.58	0.00	6.47
2,376.0	13.89	180.79	2,332.6	-353.0	9.5	353.1	0.85	-0.73	-1.77
2,406.0	13.58	179.12	2,361.7	-360.1	9.5	360.2	1.68	-1.03	-5.57
2,436.0	14.11	178.59	2,390.9	-367.3	9.7	367.3	1.82	1.77	-1.77
2,466.0	14.99	178.90	2,419.9	-374.8	9.8	374.9	2.94	2.93	1.03
2,496.0	15.51	180.22	2,448.8	-382.7	9.9	382.8	2.08	1.73	4.40
2,526.0	15.21	178.81	2,477.8	-390.7	9.9	390.7	1.60	-1.00	-4.70
2,556.0	14.90	174.29	2,506.7	-398.4	10.4	398.5	4.05	-1.03	-15.07
2,586.0	14.41	168.48	2,535.8	-405.9	11.5	406.0	5.16	-1.63	-19.37
2,616.0	13.80	167.21	2,564.9	-413.1	13.1	413.2	2.28	-2.03	-4.23
2,646.0	13.80	171.78	2,594.0	-420.1	14.4	420.3	3.63	0.00	15.23
2,676.0	13.58	176.22	2,623.1	-427.2	15.1	427.4	3.58	-0.73	14.80
2,706.0	14.19	179.91	2,652.3	-434.3	15.4	434.6	3.58	2.03	12.30
2,736.0	15.38	182.81	2,681.3	-442.0	15.2	442.2	4.67	3.97	9.67
2,766.0	16.22	183.38	2,710.1	-450.2	14.7	450.4	2.85	2.80	1.90
2,796.0	16.30	182.99	2,738.9	-458.5	14.3	458.7	0.45	0.27	-1.30
2,826.0	15.82	182.02	2,767.8	-466.8	13.9	467.0	1.83	-1.60	-3.23
2,856.0	14.81	180.31	2,796.7	-474.8	13.7	474.9	3.69	-3.37	-5.70
2,886.0	14.11	178.11	2,825.8	-482.2	13.8	482.4	2.97	-2.33	-7.33
2,916.0	13.32	175.60	2,854.9	-489.3	14.2	489.5	3.30	-2.63	-8.37
2,946.0	13.01	173.58	2,884.1	-496.1	14.9	496.3	1.85	-1.03	-6.73
2,976.0	12.70	170.81	2,913.4	-502.8	15.8	503.0	2.30	-1.03	-9.23
3,006.0	12.39	166.59	2,942.6	-509.1	17.0	509.4	3.22	-1.03	-14.07
3,036.0	12.00	163.08	2,972.0	-515.3	18.7	515.6	2.79	-1.30	-11.70
TD @ 3122' MD / 3056' TVD									
3,122.0	12.00	163.00	3,056.1	-532.4	23.9	532.9	0.02	0.00	-0.09

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
700.0	700.0	0.0	0.0	TIE IN @ 700' MD / 700' TVD
3,122.0	3,056.1	-532.4	23.9	TD @ 3122' MD / 3056' TVD

Checked By: _____ Approved By: _____ Date: _____

Received

JAN 21 2014

HG Energy, LLC
Harrison County, West Virginia
WF Williams #130
WF Williams #130

Wellbore #1

Design: Wellbore #1

Survey Report - Geographic

07 January, 2014

Received

JAN 2 - 2014

Office of Oil and Gas
WV Dept. of Environmental Protection



02/28/2014

DDC
Survey Report - Geographic



Company: HG Energy, LLC
 Project: Harrison County, West Virginia
 Site: WF Williams #130
 Well: WF Williams #130
 Wellbore: Wellbore #1
 Design: Wellbore #1

Local Co-ordinate Reference: Well WF Williams #130
 TVD Reference: WELL @ 1314.0usft (Decker #6)
 MD Reference: WELL @ 1314.0usft (Decker #6)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Database: EDM 5000.1 Single User Db

Project	Harrison County, West Virginia		
Map System:	Universal Transverse Mercator	System Datum:	Mean Sea Level
Geo Datum:	NAD83 West Virginia - HARN		
Map Zone:	Zone 17N (84 W to 78 W)		

Site	WF Williams #130				
Site Position:		Northing:	14,263,374.28 usft	Latitude:	39° 16' 32.300 N
From:	Lat/Long	Easting:	1,782,382.45 usft	Longitude:	80° 29' 54.000 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.32 °

Well	WF Williams #130					
Well Position	+N/-S	0.0 usft	Northing:	14,263,374.28 usft	Latitude:	39° 16' 32.300 N
	+E/-W	0.0 usft	Easting:	1,782,382.45 usft	Longitude:	80° 29' 54.000 W
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft	Ground Level:	1,306.0 usft	

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
	IGRF2010	12/11/2013	(°)	(°)	(nT)
			-8.65	66.81	52,315

Design	Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(usft)	(usft)	(usft)	(°)	
	0.0	0.0	0.0	177.43	

Survey Program	Date 12/11/2013				
From	To	Survey (Wellbore)	Tool Name	Description	
(usft)	(usft)				
700.0	3,122.0	MWD (Wellbore #1)			

Received

Survey	Office of Oil and Gas WV Dept. of Environmental Protection									
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Map	Map	Latitude	Longitude	
Depth	(°)	(°)	Depth	(usft)	(usft)	Northing	Easting			
(usft)			(usft)			(usft)	(usft)			
700.0	0.00	0.00	700.0	0.0	0.0	14,263,374.28	1,782,382.45	39° 16' 32.300 N	80° 29' 54.000 W	
TIE IN @ 700' MD / 700' TVD										
726.0	0.88	151.08	726.0	-0.2	0.1	14,263,374.11	1,782,382.55	39° 16' 32.298 N	80° 29' 53.999 W	
756.0	1.32	158.42	756.0	-0.7	0.3	14,263,373.58	1,782,382.79	39° 16' 32.293 N	80° 29' 53.996 W	
786.0	2.20	159.30	786.0	-1.6	0.7	14,263,372.72	1,782,383.12	39° 16' 32.285 N	80° 29' 53.992 W	
816.0	3.12	156.51	815.9	-2.8	1.2	14,263,371.44	1,782,383.65	39° 16' 32.272 N	80° 29' 53.985 W	
846.0	4.31	164.09	845.9	-4.7	1.8	14,263,369.60	1,782,384.28	39° 16' 32.254 N	80° 29' 53.977 W	
876.0	5.19	169.41	875.8	-7.1	2.4	14,263,367.19	1,782,384.84	39° 16' 32.230 N	80° 29' 53.970 W	
906.0	6.02	170.59	905.6	-10.0	2.9	14,263,364.30	1,782,385.35	39° 16' 32.201 N	80° 29' 53.964 W	
936.0	6.90	168.70	935.4	-13.3	3.5	14,263,360.98	1,782,385.96	39° 16' 32.168 N	80° 29' 53.956 W	
966.0	7.38	167.21	965.2	-16.9	4.3	14,263,357.33	1,782,386.74	39° 16' 32.132 N	80° 29' 53.947 W	
996.0	7.78	171.38	995.0	-20.8	5.0	14,263,353.45	1,782,387.47	39° 16' 32.094 N	80° 29' 53.938 W	

DDC
Survey Report - Geographic



Company: HG Energy, LLC
Project: Harrison County, West Virginia
Site: WF Williams #130
Well: WF Williams #130
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well WF Williams #130
TVD Reference: WELL @ 1314.0usft (Decker #6)
MD Reference: WELL @ 1314.0usft (Decker #6)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
1,026.0	7.91	176.22	1,024.7	-24.9	5.5	14,263,349.38	1,782,387.91	39° 16' 32.053 N	80° 29' 53.932 W
1,056.0	8.00	177.49	1,054.4	-29.0	5.7	14,263,345.24	1,782,388.14	39° 16' 32.013 N	80° 29' 53.930 W
1,086.0	8.70	176.70	1,084.1	-33.4	5.9	14,263,340.88	1,782,388.36	39° 16' 31.969 N	80° 29' 53.927 W
1,116.0	9.58	176.70	1,113.7	-38.2	6.2	14,263,336.13	1,782,388.63	39° 16' 31.922 N	80° 29' 53.924 W
1,146.0	10.20	178.11	1,143.2	-43.3	6.4	14,263,330.98	1,782,388.87	39° 16' 31.872 N	80° 29' 53.922 W
1,176.0	10.50	181.18	1,172.7	-48.7	6.4	14,263,325.59	1,782,388.90	39° 16' 31.818 N	80° 29' 53.921 W
1,206.0	10.99	182.68	1,202.2	-54.3	6.3	14,263,320.00	1,782,388.71	39° 16' 31.763 N	80° 29' 53.924 W
1,236.0	11.51	182.59	1,231.6	-60.1	6.0	14,263,314.16	1,782,388.44	39° 16' 31.705 N	80° 29' 53.928 W
1,266.0	11.82	181.32	1,261.0	-66.2	5.8	14,263,308.09	1,782,388.23	39° 16' 31.645 N	80° 29' 53.931 W
1,296.0	12.22	183.82	1,292.3	-72.8	5.5	14,263,301.44	1,782,387.93	39° 16' 31.579 N	80° 29' 53.935 W
1,326.0	13.01	186.81	1,321.6	-79.4	4.9	14,263,294.92	1,782,387.32	39° 16' 31.515 N	80° 29' 53.944 W
1,356.0	14.59	189.01	1,350.7	-86.4	3.9	14,263,287.83	1,782,386.33	39° 16' 31.445 N	80° 29' 53.957 W
1,386.0	15.91	191.60	1,379.7	-94.2	2.5	14,263,280.07	1,782,384.91	39° 16' 31.368 N	80° 29' 53.975 W
1,416.0	15.82	187.60	1,408.5	-102.3	1.1	14,263,271.99	1,782,383.54	39° 16' 31.289 N	80° 29' 53.993 W
1,446.0	15.29	184.00	1,437.4	-110.3	0.3	14,263,263.99	1,782,382.72	39° 16' 31.210 N	80° 29' 54.004 W
1,476.0	14.41	177.58	1,466.4	-118.0	0.2	14,263,256.31	1,782,382.60	39° 16' 31.134 N	80° 29' 54.006 W
1,506.0	14.99	174.90	1,495.5	-125.6	0.7	14,263,248.72	1,782,383.11	39° 16' 31.059 N	80° 29' 54.001 W
1,536.0	15.29	173.41	1,524.4	-133.4	1.5	14,263,240.93	1,782,383.91	39° 16' 30.981 N	80° 29' 53.991 W
1,566.0	16.00	175.90	1,553.3	-141.4	2.2	14,263,232.87	1,782,384.66	39° 16' 30.902 N	80° 29' 53.982 W
1,596.0	16.92	169.41	1,582.1	-149.8	3.3	14,263,224.46	1,782,385.75	39° 16' 30.818 N	80° 29' 53.969 W
1,626.0	17.49	166.90	1,610.7	-158.5	5.1	14,263,215.77	1,782,387.58	39° 16' 30.733 N	80° 29' 53.946 W
1,656.0	17.40	167.30	1,639.4	-167.3	7.1	14,263,207.01	1,782,389.59	39° 16' 30.646 N	80° 29' 53.921 W
1,686.0	16.39	168.70	1,666.1	-175.2	8.8	14,263,199.05	1,782,391.28	39° 16' 30.567 N	80° 29' 53.900 W
1,716.0	15.21	170.59	1,695.0	-183.3	10.3	14,263,191.02	1,782,392.75	39° 16' 30.487 N	80° 29' 53.882 W
1,746.0	14.19	172.40	1,724.0	-190.8	11.4	14,263,183.49	1,782,393.88	39° 16' 30.413 N	80° 29' 53.868 W
1,776.0	14.11	173.58	1,753.1	-198.1	12.3	14,263,176.21	1,782,394.78	39° 16' 30.341 N	80° 29' 53.857 W
1,806.0	14.50	174.11	1,782.2	-205.4	13.1	14,263,168.84	1,782,395.57	39° 16' 30.268 N	80° 29' 53.848 W
1,836.0	14.72	177.01	1,811.2	-213.0	13.7	14,263,161.30	1,782,396.16	39° 16' 30.193 N	80° 29' 53.841 W
1,866.0	14.90	180.70	1,840.2	-220.6	13.9	14,263,153.64	1,782,396.31	39° 16' 30.118 N	80° 29' 53.839 W
1,896.0	15.29	180.92	1,869.2	-228.5	13.7	14,263,145.82	1,782,396.20	39° 16' 30.040 N	80° 29' 53.841 W
1,926.0	15.29	182.59	1,898.1	-236.4	13.5	14,263,137.92	1,782,395.96	39° 16' 29.962 N	80° 29' 53.845 W
1,956.0	15.12	185.49	1,927.1	-244.2	12.9	14,263,130.07	1,782,395.40	39° 16' 29.885 N	80° 29' 53.853 W
1,986.0	15.38	186.41	1,956.0	-252.1	12.1	14,263,122.22	1,782,394.58	39° 16' 29.807 N	80° 29' 53.863 W
2,016.0	15.82	186.19	1,984.9	-260.1	11.2	14,263,114.20	1,782,393.70	39° 16' 29.728 N	80° 29' 53.875 W
2,046.0	16.22	185.10	2,013.7	-268.3	10.4	14,263,105.97	1,782,392.89	39° 16' 29.647 N	80° 29' 53.886 W
2,076.0	16.61	185.80	2,042.5	-276.8	9.6	14,263,097.53	1,782,392.08	39° 16' 29.563 N	80° 29' 53.897 W
2,106.0	17.09	185.10	2,071.2	-285.4	8.8	14,263,088.87	1,782,391.25	39° 16' 29.478 N	80° 29' 53.908 W
2,136.0	16.30	182.81	2,100.0	-294.0	8.2	14,263,080.27	1,782,390.66	39° 16' 29.393 N	80° 29' 53.916 W
2,166.0	14.99	179.51	2,128.9	-302.1	8.0	14,263,072.19	1,782,390.48	39° 16' 29.313 N	80° 29' 53.919 W
2,196.0	13.80	177.10	2,157.9	-309.5	8.2	14,263,064.73	1,782,390.70	39° 16' 29.239 N	80° 29' 53.917 W
2,226.0	13.80	176.09	2,187.1	-316.7	8.7	14,263,057.59	1,782,391.12	39° 16' 29.168 N	80° 29' 53.912 W
2,256.0	13.89	176.70	2,216.2	-323.9	9.1	14,263,050.43	1,782,391.57	39° 16' 29.098 N	80° 29' 53.907 W
2,286.0	14.11	177.49	2,245.3	-331.1	9.5	14,263,043.18	1,782,391.94	39° 16' 29.026 N	80° 29' 53.903 W
2,316.0	14.11	179.38	2,274.4	-338.4	9.7	14,263,035.87	1,782,392.14	39° 16' 28.954 N	80° 29' 53.901 W
2,346.0	14.11	181.32	2,303.5	-345.7	9.6	14,263,028.56	1,782,392.10	39° 16' 28.881 N	80° 29' 53.902 W
2,376.0	13.89	180.79	2,332.6	-353.0	9.5	14,263,021.30	1,782,391.96	39° 16' 28.809 N	80° 29' 53.904 W
2,406.0	13.58	179.12	2,361.7	-360.1	9.5	14,263,014.18	1,782,391.97	39° 16' 28.739 N	80° 29' 53.904 W
2,436.0	14.11	178.59	2,390.9	-367.3	9.7	14,263,007.00	1,782,392.11	39° 16' 28.668 N	80° 29' 53.903 W
2,466.0	14.99	178.90	2,419.9	-374.8	9.8	14,262,999.47	1,782,392.28	39° 16' 28.591 N	80° 29' 53.902 W
2,496.0	15.51	180.22	2,448.8	-382.7	9.9	14,262,991.58	1,782,392.43	39° 16' 28.511 N	80° 29' 53.901 W
2,526.0	15.21	178.81	2,477.8	-390.7	9.9	14,262,983.63	1,782,392.40	39° 16' 28.437 N	80° 29' 53.901 W
2,556.0	14.90	174.29	2,506.7	-398.4	10.4	14,262,975.86	1,782,392.87	39° 16' 28.360 N	80° 29' 53.896 W
2,586.0	14.41	168.48	2,535.8	-405.9	11.5	14,262,968.36	1,782,394.00	39° 16' 28.286 N	80° 29' 53.882 W
2,616.0	13.80	167.21	2,564.9	-413.1	13.1	14,262,961.21	1,782,395.53	39° 16' 28.215 N	80° 29' 53.863 W
2,646.0	13.80	171.78	2,594.0	-420.1	14.4	14,262,954.18	1,782,396.84	39° 16' 28.146 N	80° 29' 53.847 W

DDC
Survey Report - Geographic



Company: HG Energy, LLC
 Project: Harrison County, West Virginia
 Site: WF Williams #130
 Well: WF Williams #130
 Wellbore: Wellbore #1
 Design: Wellbore #1

Local Co-ordinate Reference:
 TVD Reference:
 MD Reference:
 North Reference:
 Survey Calculation Method:
 Database:

Well WF Williams #130
 WELL @ 1314.0usft (Decker #6)
 WELL @ 1314.0usft (Decker #6)
 Grid
 Minimum Curvature
 EDM 5000.1 Single User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
2,676.0	13.58	176.22	2,623.1	-427.2	15.1	14,262,947.13	1,782,397.58	39° 16' 28.076 N	80° 29' 53.838 W	
2,706.0	14.19	179.91	2,652.3	-434.3	15.4	14,262,939.94	1,782,397.82	39° 16' 28.005 N	80° 29' 53.835 W	
2,736.0	15.38	182.81	2,681.3	-442.0	15.2	14,262,932.29	1,782,397.63	39° 16' 27.929 N	80° 29' 53.838 W	
2,766.0	16.22	183.38	2,710.1	-450.2	14.7	14,262,924.13	1,782,397.19	39° 16' 27.848 N	80° 29' 53.844 W	
2,796.0	16.30	182.99	2,738.9	-458.5	14.3	14,262,915.74	1,782,396.72	39° 16' 27.766 N	80° 29' 53.851 W	
2,826.0	15.82	182.02	2,767.8	-466.8	13.9	14,262,907.45	1,782,396.36	39° 16' 27.684 N	80° 29' 53.856 W	
2,856.0	14.81	180.31	2,796.7	-474.8	13.7	14,262,899.53	1,782,396.19	39° 16' 27.605 N	80° 29' 53.859 W	
2,886.0	14.11	178.11	2,825.8	-482.2	13.8	14,262,892.04	1,782,396.29	39° 16' 27.531 N	80° 29' 53.858 W	
2,916.0	13.32	175.60	2,854.9	-489.3	14.2	14,262,884.94	1,782,396.68	39° 16' 27.461 N	80° 29' 53.854 W	
2,946.0	13.01	173.58	2,884.1	-496.1	14.9	14,262,878.14	1,782,397.32	39° 16' 27.394 N	80° 29' 53.846 W	
2,976.0	12.70	170.81	2,913.4	-502.8	15.8	14,262,871.53	1,782,398.22	39° 16' 27.328 N	80° 29' 53.835 W	
3,006.0	12.39	168.59	2,942.6	-509.1	17.0	14,262,865.14	1,782,399.50	39° 16' 27.265 N	80° 29' 53.819 W	
3,036.0	12.00	163.08	2,972.0	-515.3	18.7	14,262,859.03	1,782,401.15	39° 16' 27.205 N	80° 29' 53.798 W	
3,122.0	12.00	163.00	3,056.1	-532.4	23.9	14,262,841.92	1,782,406.37	39° 16' 27.035 N	80° 29' 53.733 W	

TD @ 3122' MD / 3056' TVD

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
3,122.0	3,056.1	-532.4	23.9	TD @ 3122' MD / 3056' TVD

Checked By: _____ Approved By: _____ Date: _____

Received

Office of Oil and Gas
 WV Dept. of Environmental Protection


Company Name: HG Energy, LLC
 W.F. Williams #130
 Harrison County, West Virginia
 Rig: Original Well Elev
 Created By: James Dawson
 Date: 08/09/2013

W.F. Williams #130
 Harrison County, West Virginia
 Q130543 & AM-13610
 Design #1

Azimuths to Grid North

Correction: -8.00°

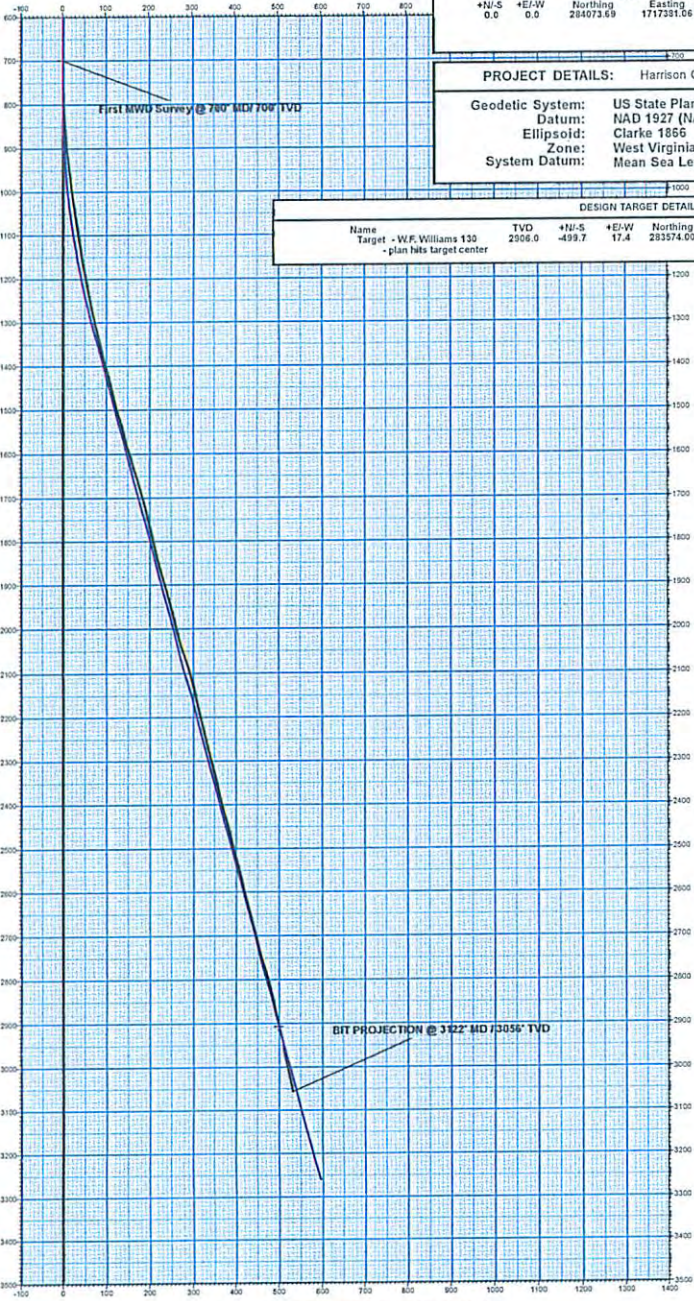
Magnetic Field
 Strength: 52362.2snT
 Dip Angle: 66.85°
 Date: 7/24/2013
 Model: IGRF2010



WELL DETAILS: W.F. Williams #130					
Ground Level:	1306.0				
+N-S	+E-W	North	East	Latitude	Longitude
0.0	0.0	284073.69	1717389.06	39° 16' 22.300 N	80° 29' 54.000 W

PROJECT DETAILS: Harrison County, West Virginia	
Geodetic System:	US State Plane 1927 (Exact solution)
Datum:	NAD 1927 (NADCON CONUS)
Ellipsoid:	Clarke 1856
Zone:	West Virginia North 4701
System Datum:	Mean Sea Level

DESIGN TARGET DETAILS						
Name	TVD	+N-S	+E-W	North	East	Latitude
Target - W.F. Williams 130 - plan hits target center	2906.0	-499.7	17.4	283274.00	1717389.51	39° 16' 27.363 N
						80° 29' 53.708 W

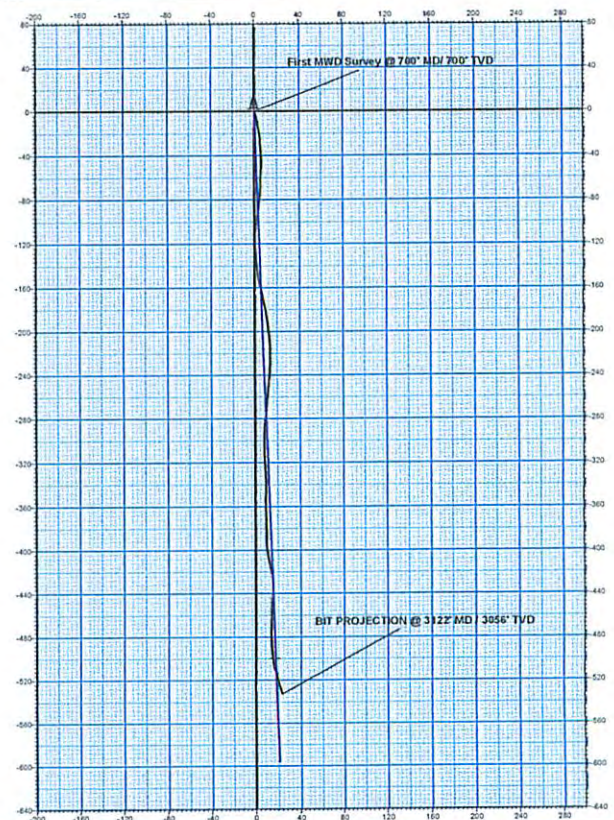


Vertical Section at 178.00° (100 usft/in)



HG Energy

ANNOTATIONS							
MD	Inc	Azi	TVD	+N-S	+E-W	Vsect	Departure
3122.0	12.00	163.00	3056.1	-532.4	23.9	632.9	636.7
							Annotation
							BIT PROJECTION @ 3122' MD / 3056' TVD



Received

02/28/2014



Producers Service Corporation
109 South Graham Street
Zanesville, OH 43701
(740) 454-6253
FAX (740) 454-0775
www.producerservicecorp.com

X - Link Frac

HG Energy
Dustin Hendershot

Treater: Jason Stanbery
11/5/2013
Well: WF Williams #130
Field: Wolf Summit
Harrison, WV

Casing O.D.: 4.5 Wt.: 10.5 Depth: 3121'

Casing Perforations	No. Shots	From	To
	32	2968'	2978'

Formation: Fifth Sand

Load/Break	58	Pad	100
Treatment	130	Flush	48
Total	336	Avg Rate	10
Avg PSI	1642	Break	3050
ISIP	1483	5 Min Shut In	1431
10 Min Shut In	1391	15 Min Shut In	1364

INV# 16023

Received

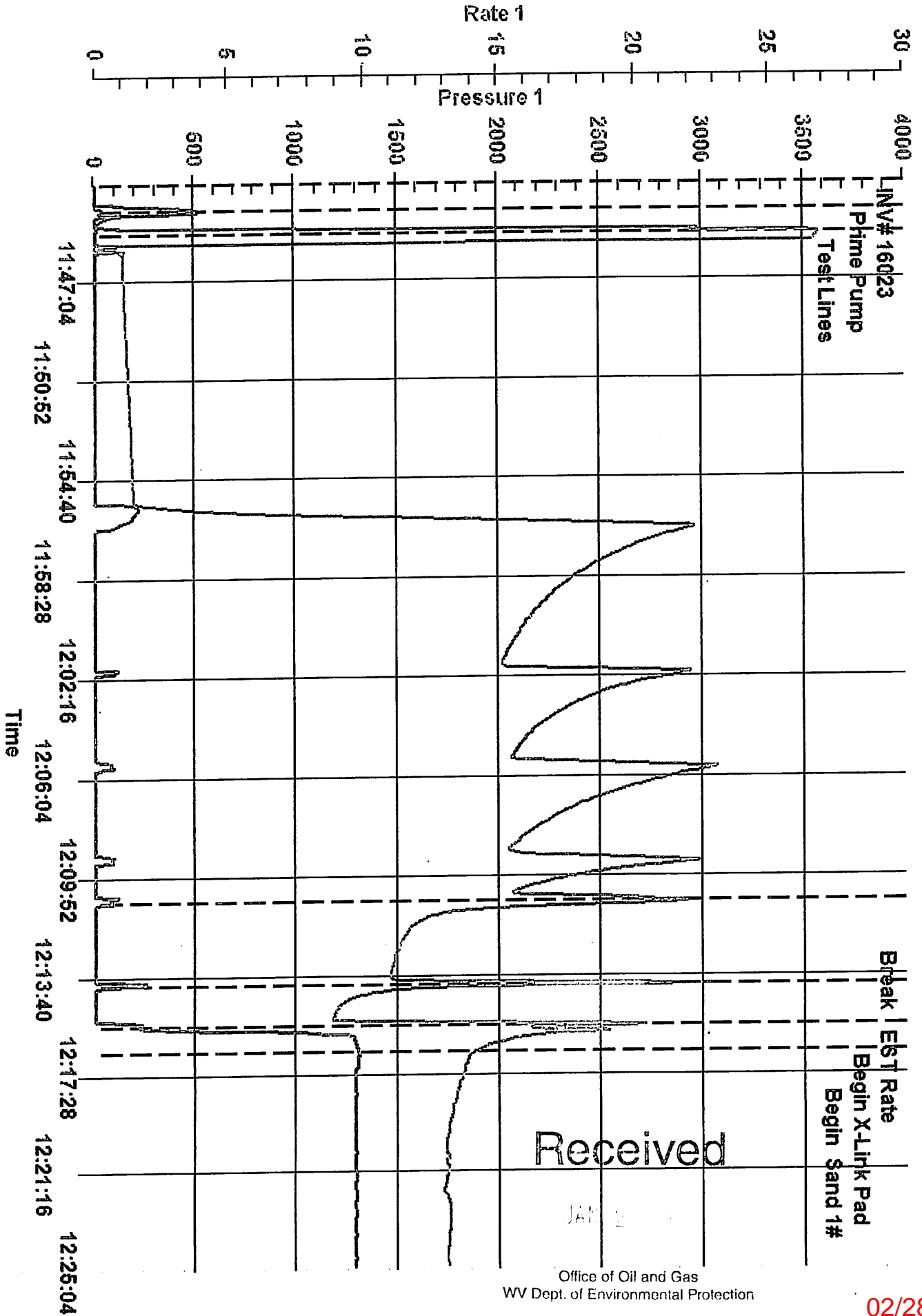
JAN 21 2014

Office of Oil and Gas
WV Dept. of Environmental Protection

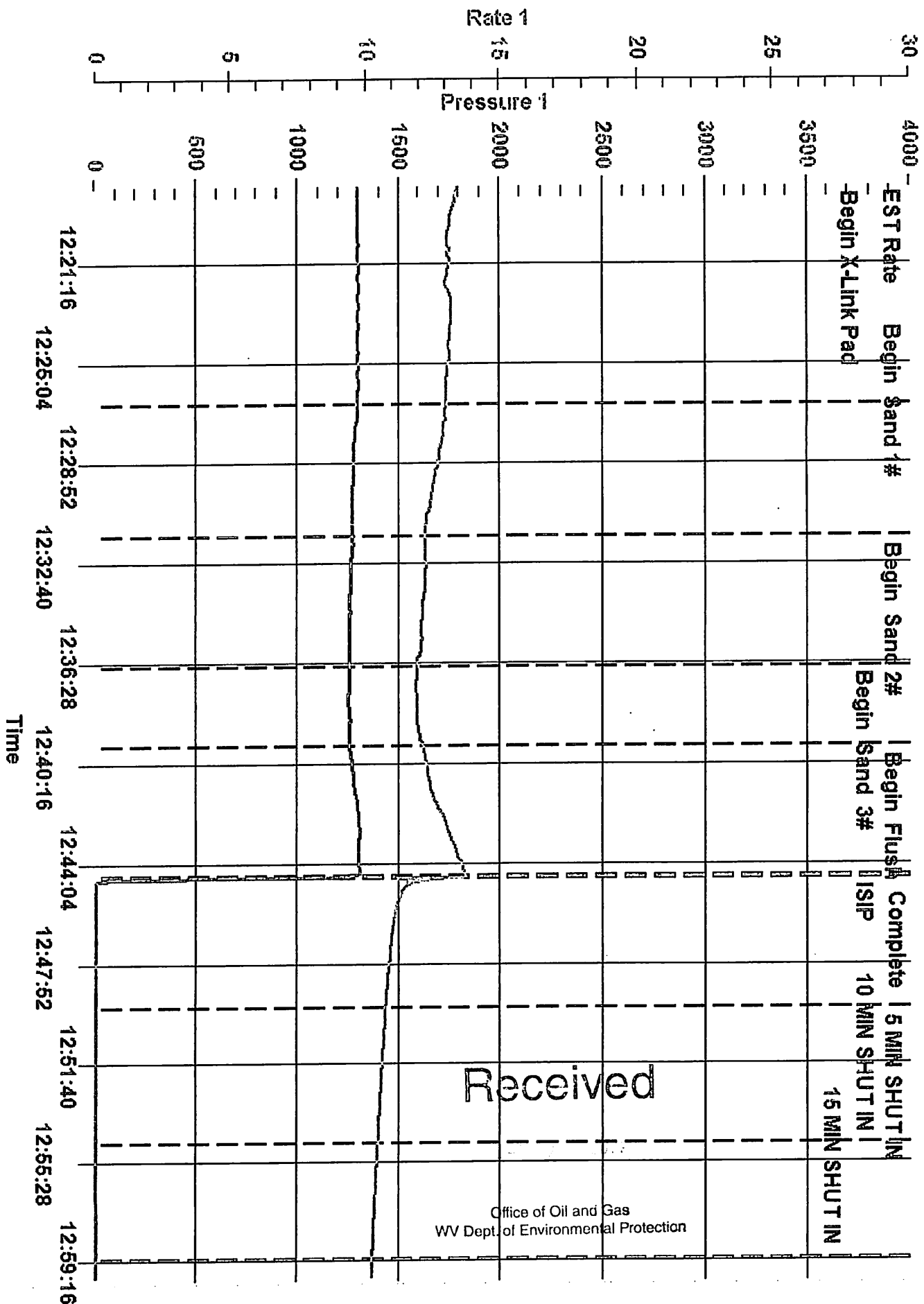


02/28/2014

X-Link



X-Link



Received

Office of Oil and Gas
WV Dept. of Environmental Protection

Time	Comment	Pressure 1	Rate 1	Rate 1 GT
11/5/2013 11:43 AM	INV# 16023	0.41	0	0
11/5/2013 11:44 AM	Prime Pump	44.33	3.79	0.65
11/5/2013 11:45 AM	Test Lines	3581.25	0	1.11
11/5/2013 12:10 PM		2923.29	0.75	3.2
11/5/2013 12:14 PM	Break	3050.53	1.69	3.53
11/5/2013 12:15 PM	EST Rate	2682.35	1.61	3.89
11/5/2013 12:16 PM	Begin X-Link Pad	1884.42	9.79	0
11/5/2013 12:26 PM	Begin Sand 1#	1727.21	9.7	97.05
11/5/2013 12:31 PM	Begin Sand 2#	1630.75	9.5	144.72
11/5/2013 12:36 PM	Begin Sand 3#	1592.17	9.41	191.94
11/5/2013 12:39 PM	Begin Flush	1619.26	9.4	219.89
11/5/2013 12:44 PM	Complete	1834.75	9.77	267.38
11/5/2013 12:44 PM	ISIP	1483.4	3.43	268.18
11/5/2013 12:49 PM	5 MIN SHUT IN	1430.86	0	268.29
11/5/2013 12:54 PM	10 MIN SHUT IN	1392.28	0	268.29
11/5/2013 12:59 PM	15 MIN SHUT IN	1363.13	0	268.29

Received

Office of Oil and Gas
 WV Dept. of Environmental Protection

02/28/2014

Prepared for:
H G Energy



Prepared by:
Producers Service Corp
Jason Stanbery
109 S. Graham St.
Zanesville, OH 43702
740-454-6253

INVOICE #:	16023
WELL NAME:	WF Williams #130
STATE & COUNTY:	WV / Harrison
TOWNSHIP/FIELD:	Wolfe Summit
DATE of SERVICE:	11/5/2013
CUSTOMER PO#	

Description	Notes	Amount	Units	
FLUID PUMP CHARGE 0-3000 PSI MIN CHARGE 4 HRS		1	EA	\$
BLENDER CHARGE 0-10 BPM		1	EA	\$
MILEAGE CHARGE PER UNIT ONE WAY	2 Units @ 70 Miles	0	MI	\$
IC ACID 15%		300	GAL	\$
PRO HIB II		0.5	GAL	\$
ACID DELIVERY		2	HR	\$
PRO CLA LOK (KCL SUBSTITUTE)		20	GAL	\$
PRO NE-21		10	GAL	\$
PRO GEL 4		250	LB	\$
BUFFER I		50	LB	\$
BUFFER II		50	LB	\$
BIO CLEAR 750		2	LB	\$
AP BREAKER		22	LB	\$
BXL-A		15	GAL	\$
BXL-10C		15	GAL	\$
SAND 20/40 ECONOPROP		100	CWT	\$
SAND DELIVERY / TON MILES		350	TMILE	\$
DATA VAN		1	STAGE	\$

Customer Approval: _____

Received

JAN 2
Office of Oil and Gas
WV Dept. of Environmental Protection

02/28/2014