

JK

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

API 47-033-05746 County HARRISON District TEN MILE
Quad SALEM 7.5' Pad Name LYNCH Field/Pool Name WOLF SUMMIT
Farm name JUNKINS, EARL & BELVA Well Number 139
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 4,347,677 M Easting 542,414 M
Landing Point of Curve Northing _____ Easting _____
Bottom Hole Northing 4,347,673 M Easting 542,236 M

Elevation (ft) 1307' 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 6/7/13 Date drilling commenced 9/10/13 Date drilling ceased 9/16/13
Date completion activities began 9/26/13 Date completion activities ceased 10/7/13
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 None Open mine(s) (Y/N) depths N
Salt water depth(s) ft None Void(s) encountered (Y/N) depths N
Coal depth(s) ft 696'-703' Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Received
JAN 2 2014
Reviewed by: _____
Office of Oil and Gas
WV Dept. of Environmental Protection
02/28/2014

API 47-033 - 05746 Farm name JUNKINS, EARL & BELVA Well number 139

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"	864'	New	LS	64'	Y
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production	6 1/2"	4 1/2"	3243.5'	New	J-55		Y
Tubing							
Packer type and depth set							

Comment Details Circulated Est. 10 bbls to surface on 7" surface cement job. Circulated 18 bbls cement to surface on 4 1/2".

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	225	15.6	1.18	265.5	Surface	8
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production	50:50 Poz / Econo	200/90	14.2/11.8	1.27/2.93	254/264	44'	8
Tubing							

Drillers TD (ft) 3294' Loggers TD (ft) 3281'
 Deepest formation penetrated Fifth Sand Plug back to (ft) N/A
 Plug back procedure N/A

Kick off depth (ft) 900'

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 _____

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WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS _____

WERE TRACERS USED Yes No TYPE OF TRACER(S) USED _____

API 47- 033 - 05746 Farm name JUNKINS, EARL & BELVA Well number 139

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
1	10/1/13	3109'	3111'	8	Fifth Sand
1	10/1/13	3116'	3120'	16	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	10/7/13	10	1755	2334	1663	10,000	262	

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Please insert additional pages as applicable.

API 47- 033 - 05746 Farm name JUNKINS, EARL & BELVA Well number 139

PRODUCING FORMATION(S)	DEPTHS	
Fifth Sand	3028'-3040'	3109'-3120'
	TVD	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	BOTTOM	TOP	BOTTOM	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC)
	DEPTH IN FT NAME TVD	DEPTH IN FT TVD	DEPTH IN FT MD	DEPTH IN FT MD	
Sand/Shale	0	696	0	696	
Pittsburgh Coal	696	703	696	703	
Sand/Shale	703	2053	703	2092	
Big Lime	2053	2132	2092	2176	
Big Injun	2132	2194	2176	2240	
Shale	2194	2609	2240	2673	
Fifty Foot	2609	2637	2673	2702	
Shale	2637	2703	2702	2770	
Sand	2703	2860	2770	2934	
Shale	2860	3028	2934	3109	
Fifth Sand	3028	3040	3109	3120	Drilled directional S 66 degrees W a distance of 530'
Shale	3040	3210	3120	3294	
TD	3210		3294		

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

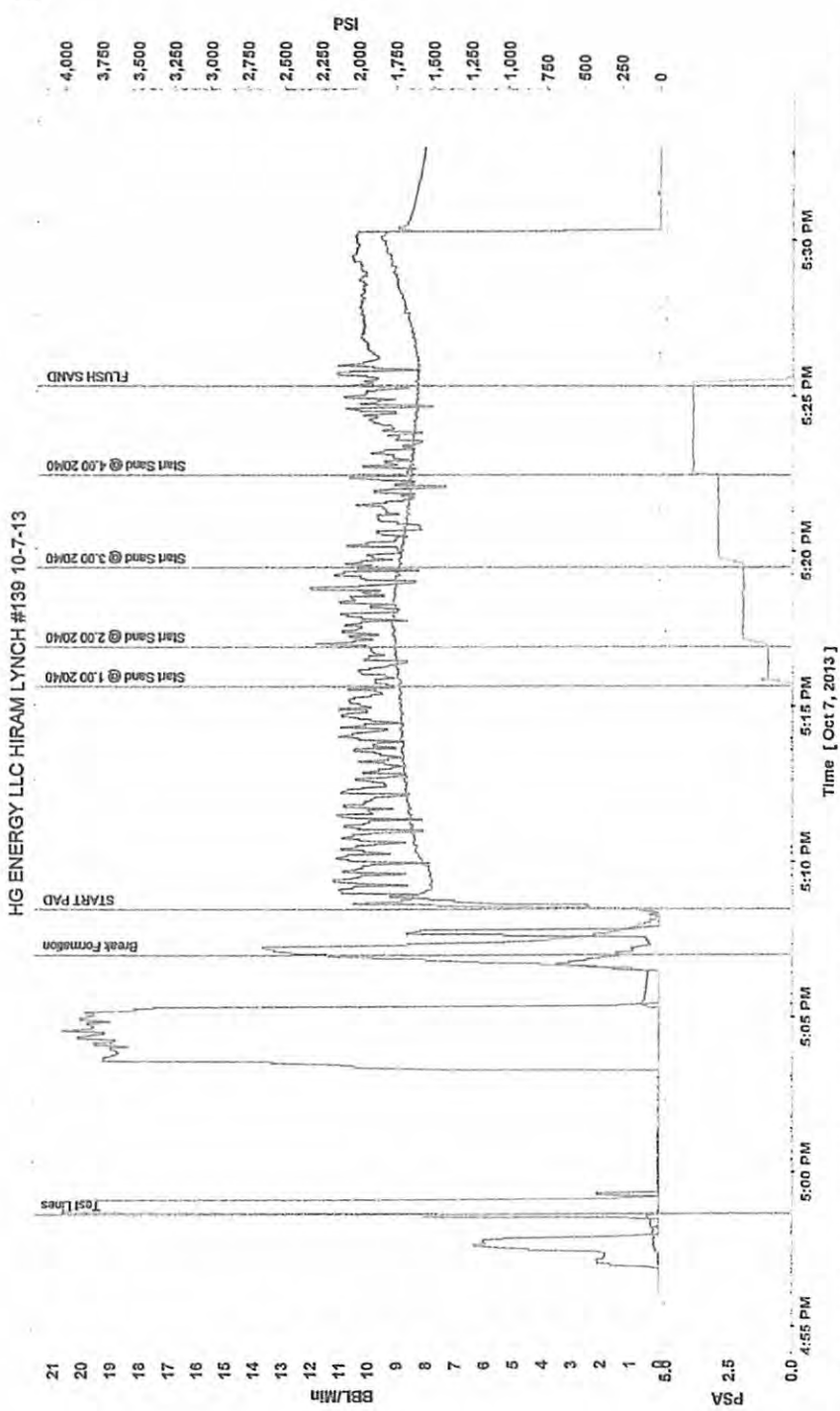
Stimulating Company Universal Services
Address 2489 Baumen Rd City Wooster State OH Zip 44691

Please insert additional pages as applicable.

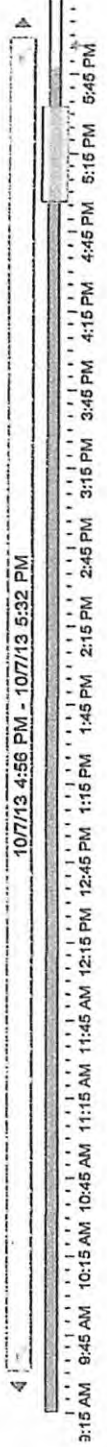
Completed by Roger Heldman Telephone 304 420 1107
Signature [Signature] Title Operations mgr Date 11/25/13

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

02/28/2014



- Density
- Well Head PSA
- Flow
- Well Head Slurry Flow
- Pressure
- Well Head Pressure



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JAN 20 2014

Office of Oil and Gas
WV Dept. of Environmental Protection

02/28/2014

HG Energy, LLC

Harrison County, West Virginia

Hiram Lynch #139

Hiram Lynch #139

Wellbore #1

Survey: MWD

DDC Survey Report

13 December, 2013

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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 **9/10/13** thru **9/14/13** conduct or supervise the taking of a **MWD Survey** from a depth of **800** feet to a depth of **3294** 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 **HG Energy, LLC** for the **Hiram Lynch #139** API No. **47-033-05746** 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: 2013.12.17 09:57:14 -06'00'

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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 Hiram Lynch #139
Project:	Harrison County, West Virginia	TVD Reference:	WELL @ 1315.0usft (Decker #6)
Site:	Hiram Lynch #139	MD Reference:	WELL @ 1315.0usft (Decker #6)
Well:	Hiram Lynch #139	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	Hiram Lynch #139				
Site Position:		Northing:	14,263,965.41 usft	Latitude:	39° 16' 38.300 N
From:	Lat/Long	Easting:	1,779,517.82 usft	Longitude:	80° 30' 30.400 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.31 °

Well	Hiram Lynch #139					
Well Position	+N/-S	0.0 usft	Northing:	14,263,965.41 usft	Latitude:	39° 16' 38.300 N
	+E/-W	0.0 usft	Easting:	1,779,517.82 usft	Longitude:	80° 30' 30.400 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	1,307.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	12/13/2013	-8.64	66.82	52,317

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	273.99	

Survey Program	Date	12/13/2013			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
800.0	3,294.0	MWD (Wellbore #1)			

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)
FIRST SURVEY @ 800' MD / 800' TVD									
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
805.0	1.59	105.23	805.0	0.0	0.1	-0.1	31.80	31.80	0.00
835.0	1.63	97.83	835.0	-0.2	0.9	-0.9	0.71	0.13	-24.67
865.0	1.48	94.73	865.0	-0.3	1.7	-1.7	0.57	-0.50	-10.33
895.0	1.01	76.30	895.0	-0.2	2.3	-2.4	2.04	-1.57	-61.43
925.0	1.33	17.99	925.0	0.1	2.7	-2.7	3.91	1.07	-194.37
955.0	2.41	4.77	954.9	1.1	2.9	-2.8	3.85	3.60	-44.07
985.0	3.49	357.91	984.9	2.6	2.9	-2.7	3.78	3.60	-22.87
1,015.0	5.50	350.74	1,014.8	5.0	2.6	-2.3	6.94	6.70	-23.90

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Well:	Hiram Lynch #139	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)
1,048.0	7.51	348.89	1,047.6	8.7	2.0	-1.3	6.12	6.09	-5.61
1,078.0	8.31	349.42	1,077.3	12.7	1.2	-0.3	2.68	2.67	1.77
1,108.0	9.71	345.81	1,106.9	17.3	0.2	1.0	5.03	4.67	-12.03
1,138.0	10.90	338.69	1,136.5	22.4	-1.5	3.0	5.80	3.97	-23.73
1,168.0	11.91	329.82	1,165.9	27.7	-4.1	6.0	6.74	3.37	-29.57
1,198.0	13.40	322.22	1,195.1	33.1	-7.8	10.1	7.44	4.97	-25.33
1,228.0	15.12	314.39	1,224.2	38.6	-12.7	15.3	8.60	5.73	-26.10
1,258.0	15.60	311.01	1,253.1	44.0	-18.5	21.5	3.39	1.60	-11.27
1,288.0	14.90	308.81	1,282.1	49.1	-24.6	27.9	3.03	-2.33	-7.33
1,318.0	14.81	306.00	1,311.1	53.7	-30.7	34.4	2.42	-0.30	-9.37
1,348.0	14.72	301.52	1,340.1	58.0	-37.0	41.0	3.82	-0.30	-14.93
1,378.0	13.89	296.42	1,369.2	61.6	-43.5	47.7	5.03	-2.77	-17.00
1,408.0	13.58	292.60	1,398.3	64.5	-50.0	54.4	3.19	-1.03	-12.73
1,438.0	14.19	289.52	1,427.4	67.1	-56.7	61.2	3.19	2.03	-10.27
1,468.0	14.81	286.53	1,456.5	69.4	-63.9	68.5	3.24	2.07	-9.97
1,498.0	15.29	282.40	1,485.5	71.4	-71.4	76.2	3.92	1.60	-13.77
1,528.0	15.82	277.13	1,514.4	72.7	-79.3	84.2	5.03	1.77	-17.57
1,558.0	16.30	271.41	1,543.2	73.3	-87.6	92.5	5.51	1.60	-19.07
1,588.0	17.18	266.23	1,571.9	73.2	-96.2	101.1	5.77	2.93	-17.27
1,618.0	16.39	261.00	1,600.6	72.2	-104.8	109.6	5.68	-2.63	-17.43
1,648.0	15.38	257.70	1,629.5	70.7	-112.9	117.5	4.52	-3.37	-11.00
1,678.0	15.21	258.23	1,658.4	69.0	-120.6	125.1	0.73	-0.57	1.77
1,708.0	15.29	260.43	1,687.4	67.6	-128.4	132.8	1.95	0.27	7.33
1,738.0	15.38	262.01	1,716.3	66.4	-136.2	140.5	1.42	0.30	5.27
1,768.0	15.60	262.80	1,745.2	65.3	-144.2	148.3	1.02	0.73	2.63
1,798.0	16.08	263.42	1,774.1	64.3	-152.3	156.4	1.70	1.60	2.07
1,828.0	16.61	261.79	1,802.9	63.2	-160.7	164.7	2.34	1.77	-5.43
1,858.0	17.89	258.71	1,831.5	61.7	-169.4	173.3	5.24	4.27	-10.27
1,888.0	19.29	257.92	1,860.0	59.8	-178.8	182.5	4.74	4.67	-2.63
1,918.0	19.20	258.89	1,888.3	57.8	-188.5	192.0	1.11	-0.30	3.23
1,948.0	18.81	258.71	1,916.6	55.9	-198.1	201.5	1.31	-1.30	-0.60
1,978.0	18.28	256.91	1,945.1	53.9	-207.4	210.6	2.60	-1.77	-6.00
2,008.0	18.59	256.12	1,973.5	51.7	-216.6	219.7	1.33	1.03	-2.63
2,038.0	18.81	258.41	2,002.0	49.6	-226.0	228.9	2.55	0.73	7.63
2,068.0	18.19	261.92	2,030.4	47.9	-235.4	238.1	4.25	-2.07	11.70
2,098.0	17.31	266.10	2,059.0	47.0	-244.4	247.1	5.16	-2.93	13.93
2,128.0	17.01	272.21	2,087.6	46.8	-253.3	255.9	6.09	-1.00	20.37
2,158.0	17.18	275.72	2,116.3	47.5	-262.1	264.7	3.49	0.57	11.70
2,188.0	17.58	276.20	2,145.0	48.4	-271.0	273.7	1.42	1.33	1.60
2,218.0	17.80	275.81	2,173.5	49.3	-280.1	282.8	0.83	0.73	-1.30
2,248.0	17.40	274.31	2,202.1	50.1	-289.1	291.9	2.02	-1.33	5.00
2,278.0	16.48	270.80	2,230.8	50.5	-297.8	300.6	4.58	-3.07	-1.70
2,308.0	16.30	269.00	2,259.6	50.5	-306.3	309.1	1.80	-0.60	-6.00
2,338.0	16.30	270.80	2,288.4	50.5	-314.7	317.5	1.68	0.00	6.00

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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)
2,368.0	16.61	274.01	2,317.2	50.9	-323.2	325.9	3.20	1.03	10.70
2,398.0	16.79	277.61	2,345.9	51.7	-331.8	334.6	3.50	0.60	12.00
2,428.0	17.18	279.02	2,374.6	53.0	-340.4	343.3	1.89	1.30	4.70
2,458.0	17.58	277.92	2,403.2	54.3	-349.3	352.2	1.73	1.33	-3.67
2,488.0	17.71	275.90	2,431.8	55.4	-358.3	361.3	2.09	0.43	-6.73
2,518.0	17.09	272.60	2,460.5	56.1	-367.3	370.3	3.88	-2.07	-11.00
2,548.0	16.22	270.80	2,489.2	56.3	-375.9	378.9	3.37	-2.90	-6.00
2,578.0	16.00	271.90	2,518.0	56.5	-384.2	387.2	1.25	-0.73	3.67
2,608.0	15.82	275.11	2,546.9	57.0	-392.4	395.4	2.99	-0.60	10.70
2,638.0	15.29	277.83	2,575.8	57.9	-400.4	403.4	3.00	-1.77	9.07
2,668.0	15.29	279.72	2,604.7	59.2	-408.2	411.3	1.66	0.00	6.30
2,698.0	15.82	279.72	2,633.6	60.5	-416.1	419.3	1.77	1.77	0.00
2,728.0	15.91	277.92	2,662.5	61.8	-424.2	427.5	1.67	0.30	-6.00
2,758.0	16.08	276.91	2,691.3	62.8	-432.4	435.7	1.09	0.57	-3.37
2,788.0	17.09	276.60	2,720.1	63.8	-440.9	444.3	3.38	3.37	-1.03
2,818.0	17.49	274.23	2,748.7	64.7	-449.8	453.2	2.70	1.33	-7.90
2,848.0	17.80	272.82	2,777.3	65.2	-458.9	462.3	1.76	1.03	-4.70
2,878.0	18.19	270.71	2,805.8	65.5	-468.1	471.6	2.53	1.30	-7.03
2,908.0	18.28	268.29	2,834.3	65.4	-477.5	480.9	2.54	0.30	-8.07
2,938.0	17.40	266.93	2,862.9	65.1	-486.7	490.1	3.25	-2.93	-4.53
2,968.0	16.00	263.72	2,891.6	64.4	-495.3	498.6	5.59	-4.67	-10.70
2,998.0	14.81	260.30	2,920.5	63.3	-503.2	506.4	4.99	-3.97	-11.40
3,028.0	14.02	256.91	2,949.6	61.8	-510.5	513.6	3.85	-2.63	-11.30
3,058.0	13.18	252.12	2,978.7	59.9	-517.3	520.2	4.68	-2.80	-15.97
3,088.0	12.61	248.52	3,008.0	57.7	-523.6	526.3	3.28	-1.90	-12.00
3,108.0	12.21	246.30	3,027.5	56.0	-527.6	530.2	3.11	-2.00	-11.10
3,118.0	12.00	245.22	3,037.3	55.2	-529.5	532.0	3.09	-2.10	-10.80
3,148.0	11.60	243.29	3,066.7	52.5	-535.0	537.4	1.87	-1.33	-6.43
3,178.0	11.21	241.62	3,096.1	49.8	-540.3	542.4	1.70	-1.30	-5.57
3,208.0	10.59	239.73	3,125.5	47.0	-545.2	547.2	2.39	-2.07	-6.30
3,238.0	10.11	237.62	3,155.0	44.2	-549.8	551.6	2.04	-1.60	-7.03
TD @ 3294' MD / 3210' TVD									
3,294.0	10.11	237.62	3,210.2	38.9	-558.1	559.5	0.00	0.00	0.00

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
800.0	800.0	0.0	0.0	FIRST SURVEY @ 800' MD / 800' TVD
3,294.0	3,210.2	38.9	-558.1	TD @ 3294' MD / 3210' TVD

Received

Checked By: _____ Approved By: _____ Date: _____

HG Energy, LLC

Harrison County, West Virginia

Hiram Lynch #139

Hiram Lynch #139

Wellbore #1

Design: Wellbore #1

Survey Report - Geographic

07 January, 2014



Office of Oil and Gas
WV Dept. of Environmental Protection

02/28/2014

DDC
Survey Report - Geographic



Company:	HG Energy, LLC	Local Co-ordinate Reference:	Well Hiram Lynch #139
Project:	Harrison County, West Virginia	TVD Reference:	WELL @ 1315.0usft (Decker #6)
Site:	Hiram Lynch #139	MD Reference:	WELL @ 1315.0usft (Decker #6)
Well:	Hiram Lynch #139	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	Hiram Lynch #139				
Site Position:		Northing:	14,263,965.41 usft	Latitude:	39° 16' 38.300 N
From:	Lat/Long	Easting:	1,779,517.82 usft	Longitude:	80° 30' 30.400 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.31 °

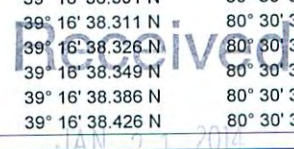
Well	Hiram Lynch #139					
Well Position	+N/-S	0.0 usft	Northing:	14,263,965.41 usft	Latitude:	39° 16' 38.300 N
	+E/-W	0.0 usft	Easting:	1,779,517.82 usft	Longitude:	80° 30' 30.400 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	1,307.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	12/13/2013	-8.64	66.82	52,317

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	273.99	

Survey Program	Date	12/13/2013			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
800.0	3,294.0	MWD (Wellbore #1)			

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
800.0	0.00	0.00	800.0	0.0	0.0	14,263,965.41	1,779,517.82	39° 16' 38.300 N	80° 30' 30.400 W	
FIRST SURVEY @ 800' MD / 800' TVD										
805.0	1.59	105.23	805.0	0.0	0.1	14,263,965.39	1,779,517.89	39° 16' 38.300 N	80° 30' 30.399 W	
835.0	1.63	97.83	835.0	-0.2	0.9	14,263,965.22	1,779,518.71	39° 16' 38.298 N	80° 30' 30.389 W	
865.0	1.48	94.73	865.0	-0.3	1.7	14,263,965.13	1,779,519.52	39° 16' 38.297 N	80° 30' 30.378 W	
895.0	1.01	76.30	895.0	-0.2	2.3	14,263,965.17	1,779,520.16	39° 16' 38.297 N	80° 30' 30.370 W	
925.0	1.33	17.99	925.0	0.1	2.7	14,263,965.56	1,779,520.53	39° 16' 38.301 N	80° 30' 30.366 W	
955.0	2.41	4.77	954.9	1.1	2.9	14,263,966.52	1,779,520.69	39° 16' 38.311 N	80° 30' 30.363 W	
985.0	3.49	357.91	984.9	2.6	2.9	14,263,968.06	1,779,520.71	39° 16' 38.326 N	80° 30' 30.363 W	
1,015.0	5.50	350.74	1,014.8	5.0	2.6	14,263,970.39	1,779,520.44	39° 16' 38.349 N	80° 30' 30.366 W	
1,048.0	7.51	348.89	1,047.6	8.7	2.0	14,263,974.07	1,779,519.77	39° 16' 38.386 N	80° 30' 30.375 W	
1,078.0	8.31	349.42	1,077.3	12.7	1.2	14,263,978.12	1,779,518.99	39° 16' 38.426 N	80° 30' 30.384 W	



DDC
Survey Report - Geographic



Company:	HG Energy, LLC	Local Co-ordinate Reference:	Well Hiram Lynch #139
Project:	Harrison County, West Virginia	TVD Reference:	WELL @ 1315.0usft (Decker #6)
Site:	Hiram Lynch #139	MD Reference:	WELL @ 1315.0usft (Decker #6)
Well:	Hiram Lynch #139	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	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	
1,108.0	9.71	345.81	1,106.9	17.3	0.2	14,263,982.71	1,779,517.98	39° 16' 38.471 N	80° 30' 30.397 W	
1,138.0	10.90	338.69	1,136.5	22.4	-1.5	14,263,987.80	1,779,516.33	39° 16' 38.521 N	80° 30' 30.417 W	
1,168.0	11.91	329.82	1,165.9	27.7	-4.1	14,263,993.12	1,779,513.74	39° 16' 38.574 N	80° 30' 30.450 W	
1,198.0	13.40	322.22	1,195.1	33.1	-7.8	14,263,998.55	1,779,510.05	39° 16' 38.628 N	80° 30' 30.497 W	
1,228.0	15.12	314.39	1,224.2	38.6	-12.7	14,264,004.03	1,779,505.13	39° 16' 38.683 N	80° 30' 30.559 W	
1,258.0	15.60	311.01	1,253.1	44.0	-18.5	14,264,009.42	1,779,499.29	39° 16' 38.736 N	80° 30' 30.633 W	
1,288.0	14.90	308.81	1,282.1	49.1	-24.6	14,264,014.48	1,779,493.24	39° 16' 38.786 N	80° 30' 30.709 W	
1,318.0	14.81	306.00	1,311.1	53.7	-30.7	14,264,019.15	1,779,487.13	39° 16' 38.833 N	80° 30' 30.787 W	
1,348.0	14.72	301.52	1,340.1	58.0	-37.0	14,264,023.40	1,779,480.78	39° 16' 38.875 N	80° 30' 30.867 W	
1,378.0	13.89	296.42	1,369.2	61.6	-43.5	14,264,026.99	1,779,474.30	39° 16' 38.911 N	80° 30' 30.949 W	
1,408.0	13.58	292.60	1,398.3	64.5	-50.0	14,264,029.95	1,779,467.83	39° 16' 38.941 N	80° 30' 31.032 W	
1,438.0	14.19	289.52	1,427.4	67.1	-56.7	14,264,032.53	1,779,461.11	39° 16' 38.967 N	80° 30' 31.117 W	
1,468.0	14.81	286.53	1,456.5	69.4	-63.9	14,264,034.85	1,779,453.97	39° 16' 38.990 N	80° 30' 31.207 W	
1,498.0	15.29	282.40	1,485.5	71.4	-71.4	14,264,036.79	1,779,446.43	39° 16' 39.010 N	80° 30' 31.303 W	
1,528.0	15.82	277.13	1,514.4	72.7	-79.3	14,264,038.15	1,779,438.51	39° 16' 39.023 N	80° 30' 31.404 W	
1,558.0	16.30	271.41	1,543.2	73.3	-87.6	14,264,038.76	1,779,430.24	39° 16' 39.030 N	80° 30' 31.509 W	
1,588.0	17.18	266.23	1,571.9	73.2	-96.2	14,264,038.57	1,779,421.61	39° 16' 39.029 N	80° 30' 31.619 W	
1,618.0	16.39	261.00	1,600.6	72.2	-104.8	14,264,037.62	1,779,413.01	39° 16' 39.020 N	80° 30' 31.728 W	
1,648.0	15.38	257.70	1,629.5	70.7	-112.9	14,264,036.11	1,779,404.94	39° 16' 39.005 N	80° 30' 31.831 W	
1,678.0	15.21	258.23	1,658.4	69.0	-120.6	14,264,034.46	1,779,397.20	39° 16' 38.989 N	80° 30' 31.930 W	
1,708.0	15.29	260.43	1,687.4	67.6	-128.4	14,264,033.00	1,779,389.45	39° 16' 38.975 N	80° 30' 32.028 W	
1,738.0	15.38	262.01	1,716.3	66.4	-136.2	14,264,031.79	1,779,381.61	39° 16' 38.964 N	80° 30' 32.128 W	
1,768.0	15.60	262.80	1,745.2	65.3	-144.2	14,264,030.73	1,779,373.66	39° 16' 38.954 N	80° 30' 32.229 W	
1,798.0	16.08	263.42	1,774.1	64.3	-152.3	14,264,029.75	1,779,365.53	39° 16' 38.944 N	80° 30' 32.333 W	
1,828.0	16.61	261.79	1,802.9	63.2	-160.7	14,264,028.66	1,779,357.16	39° 16' 38.934 N	80° 30' 32.439 W	
1,858.0	17.89	258.71	1,831.5	61.7	-169.4	14,264,027.14	1,779,348.40	39° 16' 38.919 N	80° 30' 32.551 W	
1,888.0	19.29	257.92	1,860.0	59.8	-178.8	14,264,025.21	1,779,339.04	39° 16' 38.901 N	80° 30' 32.670 W	
1,918.0	19.20	258.89	1,888.3	57.8	-188.5	14,264,023.22	1,779,329.35	39° 16' 38.882 N	80° 30' 32.794 W	
1,948.0	18.81	258.71	1,916.6	55.9	-198.1	14,264,021.32	1,779,319.77	39° 16' 38.863 N	80° 30' 32.916 W	
1,978.0	18.28	256.91	1,945.1	53.9	-207.4	14,264,019.31	1,779,310.44	39° 16' 38.844 N	80° 30' 33.034 W	
2,008.0	18.59	256.12	1,973.5	51.7	-216.6	14,264,017.09	1,779,301.22	39° 16' 38.823 N	80° 30' 33.152 W	
2,038.0	18.81	258.41	2,002.0	49.6	-226.0	14,264,014.98	1,779,291.84	39° 16' 38.802 N	80° 30' 33.271 W	
2,068.0	18.19	261.92	2,030.4	47.9	-235.4	14,264,013.35	1,779,282.46	39° 16' 38.787 N	80° 30' 33.391 W	
2,098.0	17.31	266.10	2,059.0	47.0	-244.4	14,264,012.38	1,779,273.37	39° 16' 38.778 N	80° 30' 33.506 W	
2,128.0	17.01	272.21	2,087.6	46.8	-253.3	14,264,012.25	1,779,264.53	39° 16' 38.777 N	80° 30' 33.619 W	
2,158.0	17.18	275.72	2,116.3	47.5	-262.1	14,264,012.86	1,779,255.74	39° 16' 38.783 N	80° 30' 33.731 W	
2,188.0	17.58	276.20	2,145.0	48.4	-271.0	14,264,013.79	1,779,246.83	39° 16' 38.793 N	80° 30' 33.844 W	
2,218.0	17.80	275.81	2,173.5	49.3	-280.1	14,264,014.75	1,779,237.76	39° 16' 38.803 N	80° 30' 33.959 W	
2,248.0	17.40	274.31	2,202.1	50.1	-289.1	14,264,015.55	1,779,228.73	39° 16' 38.811 N	80° 30' 34.074 W	
2,278.0	16.48	270.80	2,230.8	50.5	-297.8	14,264,015.94	1,779,220.00	39° 16' 38.816 N	80° 30' 34.185 W	
2,308.0	16.30	269.00	2,259.6	50.5	-306.3	14,264,015.93	1,779,211.53	39° 16' 38.816 N	80° 30' 34.293 W	
2,338.0	16.30	270.80	2,288.4	50.5	-314.7	14,264,015.91	1,779,203.11	39° 16' 38.816 N	80° 30' 34.400 W	
2,368.0	16.61	274.01	2,317.2	50.9	-323.2	14,264,016.27	1,779,194.63	39° 16' 38.820 N	80° 30' 34.508 W	
2,398.0	16.79	277.61	2,345.9	51.7	-331.8	14,264,017.15	1,779,186.06	39° 16' 38.829 N	80° 30' 34.617 W	
2,428.0	17.18	279.02	2,374.6	53.0	-340.4	14,264,018.42	1,779,177.38	39° 16' 38.842 N	80° 30' 34.727 W	
2,458.0	17.58	277.92	2,403.2	54.3	-349.3	14,264,019.73	1,779,168.52	39° 16' 38.856 N	80° 30' 34.840 W	
2,488.0	17.71	275.90	2,431.8	55.4	-358.3	14,264,020.83	1,779,159.49	39° 16' 38.867 N	80° 30' 34.954 W	
2,518.0	17.09	272.60	2,460.5	56.1	-367.3	14,264,021.50	1,779,150.55	39° 16' 38.874 N	80° 30' 35.068 W	
2,548.0	16.22	270.80	2,489.2	56.3	-375.9	14,264,021.75	1,779,141.96	39° 16' 38.877 N	80° 30' 35.178 W	
2,578.0	16.00	271.90	2,518.0	56.5	-384.2	14,264,021.95	1,779,133.64	39° 16' 38.880 N	80° 30' 35.283 W	
2,608.0	15.82	275.11	2,546.9	57.0	-392.4	14,264,022.45	1,779,125.43	39° 16' 38.885 N	80° 30' 35.388 W	
2,638.0	15.29	277.83	2,575.8	57.9	-400.4	14,264,023.35	1,779,117.44	39° 16' 38.894 N	80° 30' 35.489 W	
2,668.0	15.29	279.72	2,604.7	59.2	-408.2	14,264,024.56	1,779,109.62	39° 16' 38.907 N	80° 30' 35.589 W	
2,698.0	15.82	279.72	2,633.6	60.5	-416.1	14,264,025.92	1,779,101.69	39° 16' 38.921 N	80° 30' 35.689 W	
2,728.0	15.91	277.92	2,662.5	61.8	-424.2	14,264,027.18	1,779,093.59	39° 16' 38.933 N	80° 30' 35.792 W	

DDC
Survey Report - Geographic



Company:	HG Energy, LLC	Local Co-ordinate Reference:	Well Hiram Lynch #139
Project:	Harrison County, West Virginia	TVD Reference:	WELL @ 1315.0usft (Decker #6)
Site:	Hiram Lynch #139	MD Reference:	WELL @ 1315.0usft (Decker #6)
Well:	Hiram Lynch #139	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	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
2,758.0	16.08	276.91	2,691.3	62.8	-432.4	14,264,028.24	1,779,085.39	39° 16' 38.944 N	80° 30' 35.897 W
2,788.0	17.09	276.60	2,720.1	63.8	-440.9	14,264,029.25	1,779,076.89	39° 16' 38.955 N	80° 30' 36.005 W
2,818.0	17.49	274.23	2,748.7	64.7	-449.8	14,264,030.09	1,779,068.01	39° 16' 38.964 N	80° 30' 36.118 W
2,848.0	17.80	272.82	2,777.3	65.2	-458.9	14,264,030.65	1,779,058.94	39° 16' 38.970 N	80° 30' 36.233 W
2,878.0	18.19	270.71	2,805.8	65.5	-468.1	14,264,030.93	1,779,049.68	39° 16' 38.973 N	80° 30' 36.351 W
2,908.0	18.28	268.29	2,834.3	65.4	-477.5	14,264,030.85	1,779,040.29	39° 16' 38.973 N	80° 30' 36.470 W
2,938.0	17.40	266.93	2,862.9	65.1	-486.7	14,264,030.47	1,779,031.11	39° 16' 38.969 N	80° 30' 36.587 W
2,968.0	16.00	263.72	2,891.6	64.4	-495.3	14,264,029.78	1,779,022.52	39° 16' 38.963 N	80° 30' 36.696 W
2,998.0	14.81	260.30	2,920.5	63.3	-503.2	14,264,028.68	1,779,014.63	39° 16' 38.952 N	80° 30' 36.797 W
3,028.0	14.02	256.91	2,949.6	61.8	-510.5	14,264,027.21	1,779,007.31	39° 16' 38.938 N	80° 30' 36.890 W
3,058.0	13.18	252.12	2,978.7	59.9	-517.3	14,264,025.33	1,779,000.52	39° 16' 38.920 N	80° 30' 36.977 W
3,088.0	12.61	248.52	3,008.0	57.7	-523.6	14,264,023.09	1,778,994.21	39° 16' 38.898 N	80° 30' 37.057 W
3,108.0	12.21	246.30	3,027.5	56.0	-527.6	14,264,021.44	1,778,990.25	39° 16' 38.882 N	80° 30' 37.108 W
3,118.0	12.00	245.22	3,037.3	55.2	-529.5	14,264,020.57	1,778,988.33	39° 16' 38.874 N	80° 30' 37.132 W
3,148.0	11.60	243.29	3,066.7	52.5	-535.0	14,264,017.91	1,778,982.81	39° 16' 38.848 N	80° 30' 37.202 W
3,178.0	11.21	241.62	3,096.1	49.8	-540.3	14,264,015.17	1,778,977.55	39° 16' 38.821 N	80° 30' 37.269 W
3,208.0	10.59	239.73	3,125.5	47.0	-545.2	14,264,012.39	1,778,972.60	39° 16' 38.794 N	80° 30' 37.333 W
3,238.0	10.11	237.62	3,155.0	44.2	-549.8	14,264,009.59	1,778,968.00	39° 16' 38.766 N	80° 30' 37.391 W
3,294.0	10.11	237.62	3,210.2	38.9	-558.1	14,264,004.33	1,778,959.69	39° 16' 38.715 N	80° 30' 37.497 W

TD @ 3294' MD / 3210' TVD

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
3,294.0	3,210.2	38.9	-558.1	TD @ 3294' MD / 3210' TVD

Checked By: _____ Approved By: _____ Date: _____

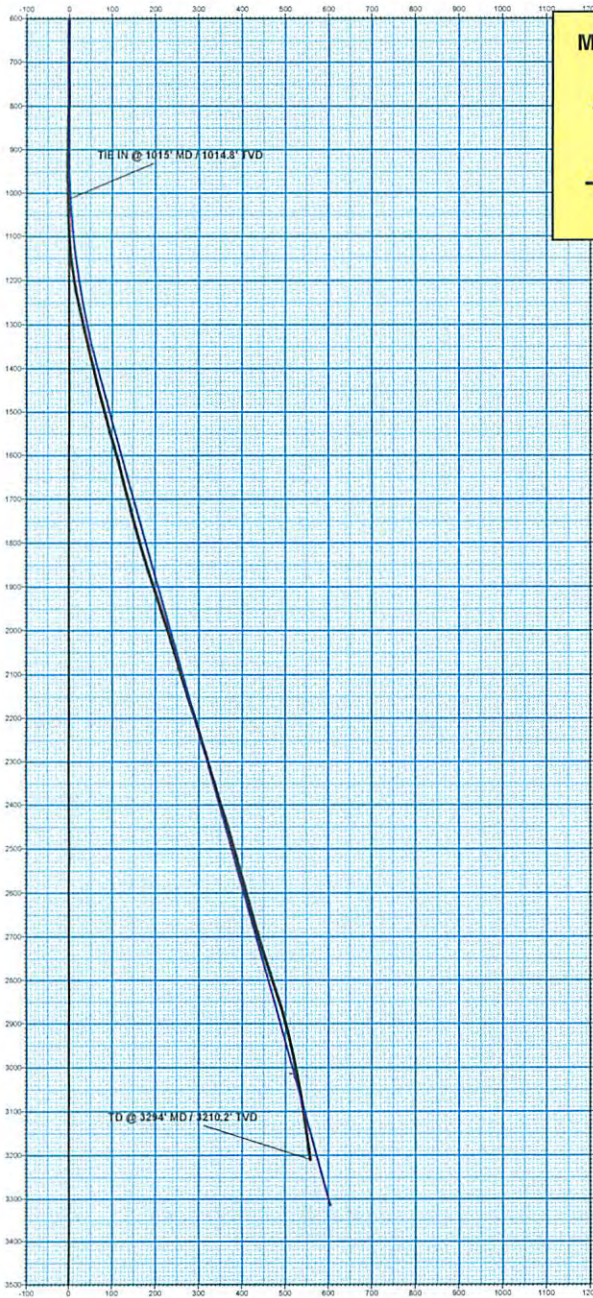
Received

JAN 21 2014

Well #1
 Harrison County, West Virginia
 Q130710 & AM-13711
 Design #1

Company Name: HG Energy, LLC
 Well #1
 Harrison County, West Virginia
 Rig: Original Well Elev
 Created By: TIFFANI MIZELL
 Date: 09/17/2013

HG Energy



M G T Azimuths to Grid North

Correction: -7.99°

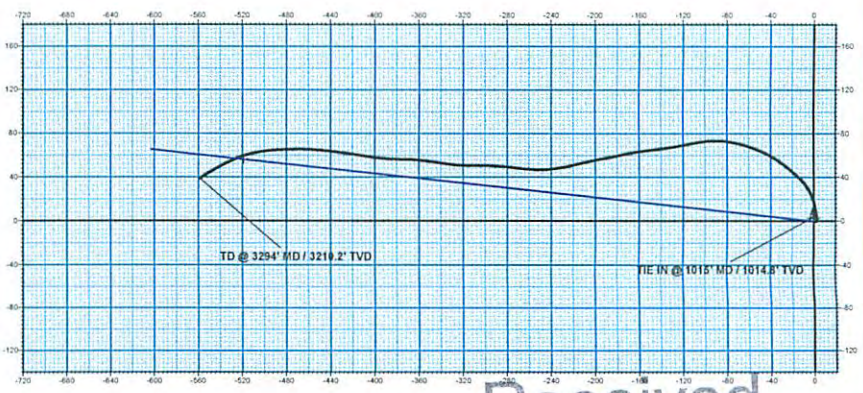
Magnetic Field
 Strength: 52357.2snT
 Dip Angle: 66.85°
 Date: 8/14/2013
 Model: IGRF2010

PROJECT DETAILS:	Harrison County, West Virginia
Geodetic System:	US State Plane 1927 (Exact solution)
Datum:	NAD 1927 (NADCON CONUS)
Ellipsoid:	Clarke 1866
Zone:	West Virginia North 4701
System Datum:	Mean Sea Level

WELL DETAILS:	Well #1
Ground Level:	1307.0
+N/-S	0.0
+E/-W	0.0
Northing	284712.66
Easting	1714525.63
Latitude	39° 16' 38.300 N
Longitude	80° 30' 30.400 W

ANNOTATIONS								
MD	Inc	Azi	TVD	+N/-S	+E/-W	Vsect	Departure	Annotation
1015.0	5.50	350.74	1014.8	6.0	2.6	-2.3	7.9	TIE IN @ 1015' MD / 1014.8' TVD
3294.0	10.11	237.62	3210.2	38.8	-568.1	698.5	610.1	TD @ 3294' MD / 3210.2' TVD

DESIGN TARGET DETAILS							
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Target - Hiram Lynch #139 D#1	3014.5	66.4	-518.4	284769.07	1714007.23	39° 16' 38.900 N	80° 30' 37.000 W
- plan hits target center							

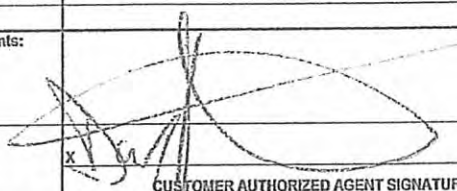


Received

JAN 2 2014



HL 139

Field Ticket - (This is not an Invoice)				End Date -		Date -	
Customer HG ENERGY LLC 6260 DUPONT RD PARKERSBURG, WV, 26101				Customer No. 6069		Project No. 1177501942	
District Wooster				AFE / PO No.		Formation Upper Devonian	
Well Name and No. HIRAM LYNCH #139				Job Type Frac		Job Type Description CROSSLINK FRAC	
Well Type Gas				Casing		Operator Name SHIREY	
Township: API # WV 47-033-05746				New/Used		From	
				Size		To	
				Weight			
				Tubing		Arrived on Location	
				Left Location			
				Open Hole		Time	
				Date		Time	
				Date		No. of Shots	
				Perforations		No. of Shots	
				Perforations		No. of Shots	
				Depth		Drilling Contractor	
				Max PSI Allowed			
Product Code	Description	Unit of Measure	Quantity	List Price/Unit	Gross Amount	Item Discount	Net Amount
800051	Transport Delivery Charge (4 Hr Minimum), Per Hr	Hrs	4.000				
800070	Proppant and Bulk Delivery Charges, Per Ton Mile	TM	350.000				
802306	Minimum Pump Charge, <1500 HP, 1st 4 Hrs	Ea	1.000				
803401	0 - 10 BPM Computerized Blender, 1st 4 Hrs	Ea	1.000				
805520	Frac Ball Dropping Head	Ea	1.000				
810010	Treatment Van, (WINFRAC Data Monitoring or Similar)	Job	1.000				
820035	Unihub G	Gal	0.500				
820505	LEB 10X - Liquid Enzyme Breaker	Qts	2.200				
820915	EC6116A, BACTERIACIDE	Gal	2.000				
820955	Cla-Chek G	Gal	15.000				
821125	Unilink 8.5 Crosslinker (Borate)	Gal	15.000				
822235	Unigel 19 XL	Lb	300.000				
822935	NE-S0, Non-Emulsifier (Non-Ionic)	Gal	0.400				
827945	15% Iron Chek Acid	Gal	300.000				
833000	20-40 mesh White Sand, Area 1	CWT	100.000				
837000	Proppant Pumping Charge, 20/40 mesh or smaller	CWT	100.000				
						0.00%	
						0.00%	
Mileage Calculation Section			Unit of Measure	Quantity			
800000	Unit Mileage Charge Trucks and Vans (Except Bulk Units), Per Unit Mile	Mi					
		UNITS					
800070	Proppant and Bulk Delivery Charges, Per Ton Mile	TM					
		Loaded Total Miles					
860050	Cement Delivery Charge	TM					
		Loaded Total Miles					
Comments:				Customer Representative:			
 CUSTOMER AUTHORIZED AGENT SIGNATURE				UWS Authorized Agent:			
				Date:			
I have read, understood and agreed to the terms and conditions printed on the second page thereof and represent that I have full power and authority to execute this service order.							



Received

JAN 28 2014

TREATMENT SUMMARY

Customer Name: **HG ENERGY LLC** 10/7/2013

Well Name: **HIRAM LYNCH #139**

PRESSURES IN PSI

BREAKDOWN 2334 TOP PERF MD _____
 AVERAGE 1755 BTM PERF MD _____
 INSTANT 1663 5-MIN 1502 10-MIN 1440

CLEAN VOLUMES IN GAL

TOP PERF TVD _____ PAD _____
 BTM PERF TVD _____
 TREATMENT _____ TTL VOL _____

HYDRAULIC HORSEPOWER

USED _____


RATES IN B.P.M.

AVG TREATING _____ MAXIMUM _____

DESCRIPTION OF JOB WATER SAND FRAC W N/2 ASSIST

Time	Rate (bpm)	Slurry Volume (gal)	Pressure (psi)	Description of Stage or Event
15:21				SAFETY MEETING
15:25				PU PUMPS
15:26			4400	TEST LINES
15:33		1815/300 ACID	VACUUM	LOAD HOLE/PUMP ACID
15:36	1.2	1844	2334	BREAK FORMATION
15:41	10	1844	1800	START PAD
15:43	10	3126	1790	START CROSSLINK
15:46	11.6	4890	1773	SAND 1 PSA
15:49	10.5	5484	1802	SAND 2 PSA
15:52	10.7	6,580	1760	SAND 3 PSA
15:54	10.6	7,687	1688	SAND 4 PSA
15:57	12.2	9,000	1614	FLUSH SAND
16:02			1663	COMPLETE JOB
16:07			1502	5 MIN
16:12			1440	10 MIN
16:17			1403	15 MIN

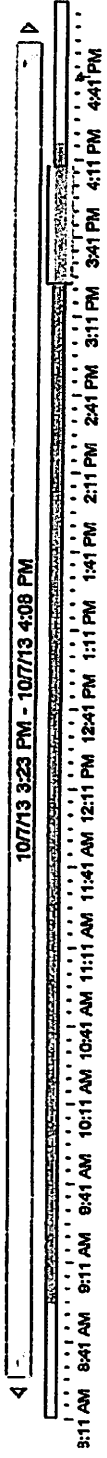
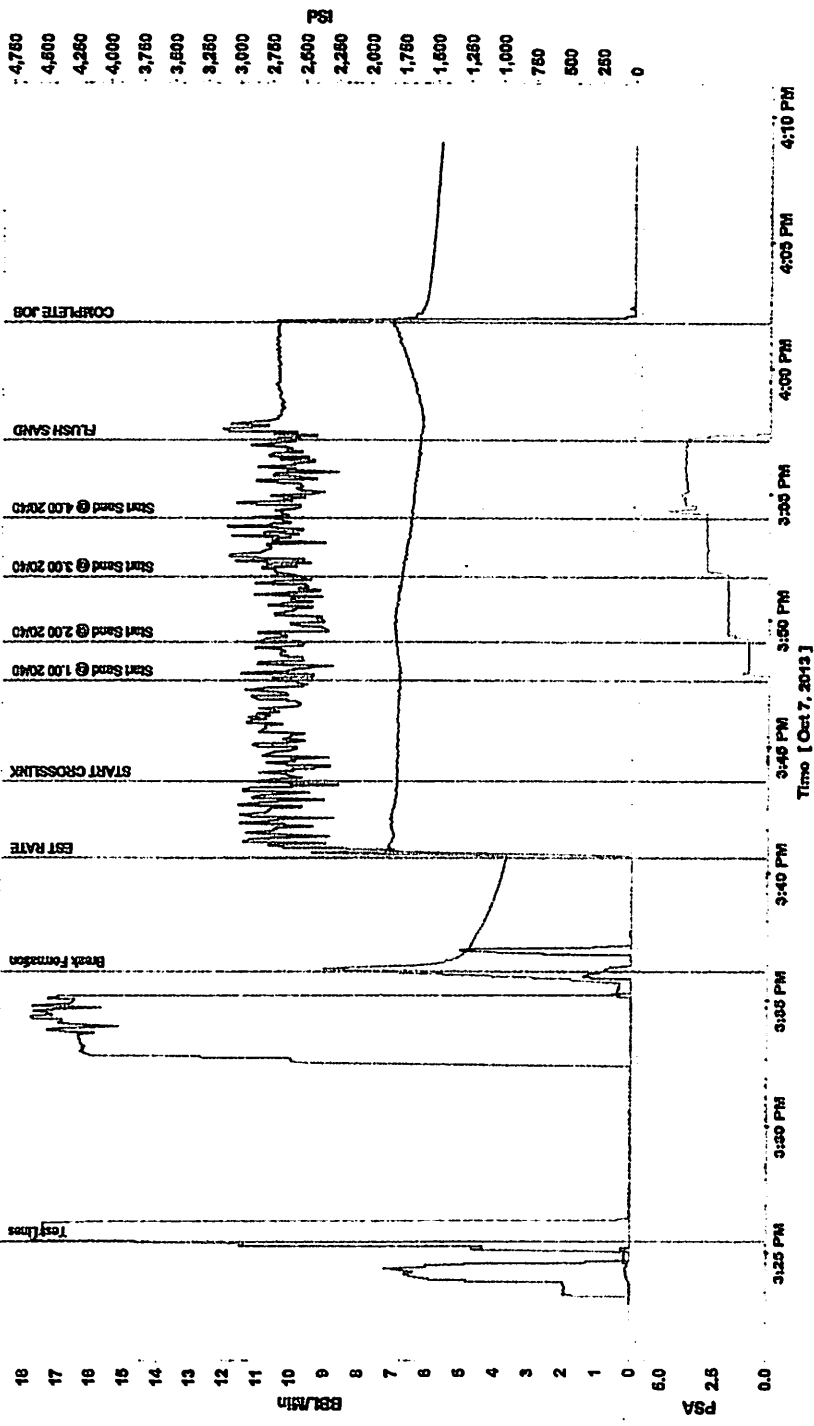
Totals

Sand	20/40		Sks	 Received JAN 27 2014
Chemicals	Unigel 5F		Lbs	
	LEB 10X Breaker		Qts	
	SuperSurf		Gals	
	FloMax 50		Gals	
	ClA Chek		Gals	
	Iron Sta IIC		Gals	
	15% HCL		Gals	



HG ENERGY LLC HIRAM LYNCH #139 10-7-13

- Density
- Well Head PSA
- Flow
- Well Head Slurry Flow
- Pressure
- Well Head Pressure



Received

Office of Oil and Gas
WV Dept. of Environmental Protection

02/28/2014