

PM

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

API 47 - 001 - 03335 County BARBOUR District COVE
Quad THORNTON Pad Name WHITESCARVER HEIRS, GRACE Field/Pool Name _____
Farm name WHITESCARVER HEIRS, GRACE Well Number 1
Operator (as registered with the OOG) TEXAS KEYSTONE, INC
Address 560 EPSILON DRIVE City PITTSBURGH State PA Zip 15238

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4,349,625 Easting 595,341
Landing Point of Curve Northing _____ Easting _____
Bottom Hole Northing 4,349,625 Easting 595,341

Elevation (ft) 1,456' 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)

Date permit issued 2/14/2014 Date drilling commenced 3/24/2014 Date drilling ceased 4/4/2014
Date completion activities began 4/29/2014 Date completion activities ceased 4/29/2014
Verbal plugging (Y/N) _____ Date permission granted _____ Granted by _____

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

Freshwater depth(s) ft 85' & 625' Open mine(s) (Y/N) depths N
Salt water depth(s) ft None Void(s) encountered (Y/N) depths N
Coal depth(s) ft 164' Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

RECEIVED
Reviewed by:
Office of Oil and Gas

JUL 14 2014

08/15/2014

WV Department of
Environmental Protection

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CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/N) * Provide details below*
Conductor	17.5"	13.375"	34'	NEW	43.60#		SANDED IN
Surface	12.375"	9.625"	462'	NEW	26.00#		Y - 10 BBL
Coal							
Intermediate 1	8.875"	7.0"	1,561'	NEW	19.00#		Y - 10 BBL
Intermediate 2							
Intermediate 3							
Production	6.25"	4.50"	5,182'	NEW	10.50#	1,796' & 4,036'	N - TOC 1,206'
Tubing							
Packer type and depth set							

Comment Details _____

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ³ /sks)	Volume (ft ³)	Cement Top (MD)	WOC (hrs)
Conductor							
Surface	STANDARD TYPE 1	200	15.6	1.18	177	SURFACE	17
Coal							
Intermediate 1	CLASS A	250	15.6	1.18	236	SURFACE	118
Intermediate 2							
Intermediate 3							
Production	TD 171 & 151CEMENT	145 & 120	13.5 & 14.2	1.71 & 1.51	185 & 135	1,250'	360
Tubing							

Drillers TD (ft) 5,625' Loggers TD (ft) 5,650'
 Deepest formation penetrated 5TH ELK Plug back to (ft) _____
 Plug back procedure _____

Kick off depth (ft) _____

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 No centralizers were used with the
Conductor, Surface, or Intermediate casing. On the production casing, centralizers were placed at 4956', 4853', 4391', 4167', 1937', and 1644'.

WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS Perforations were shot in 5 different zones.

WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS _____

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

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<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>3RD ELK</u>	<u>5,036'</u> TVD	<u>5,036'</u> MD
<u>1ST ELK</u>	<u>4,617'</u>	<u>4,617'</u>
<u>ALEXANDER</u>	<u>4,365'</u>	<u>4,365'</u>
<u>BENSON</u>	<u>4,121'</u>	<u>4,121'</u>

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 950 psi Bottom Hole N/A psi DURATION OF TEST 72 hrs

OPEN FLOW Gas 599 mcfpd Oil 0 bpd NGL 0 bpd Water 0 bpd GAS MEASURED BY Estimated Orifice Pilot

<u>LITHOLOGY/ FORMATION</u>	<u>TOP</u>		<u>BOTTOM</u>		<u>DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H₂S, ETC)</u>
	<u>DEPTH IN FT NAME TVD</u>	<u>DEPTH IN FT TVD</u>	<u>DEPTH IN FT MD</u>	<u>DEPTH IN FT MD</u>	
Fill	0	9	0	9	
Sand	9	12	9	12	
Shale	12	30	12	30	
Sand	30	60	30	60	
Sand & Shale	60	85	60	85	
Shale	85	110	85	110	1/4" FW
Sand & Shale	110	164	110	164	
Coal	164	169	164	169	
Sand & Shale	169	300	169	300	
Sand	300	380	300	380	
Sand & Shale	380	800	380	800	1/2" FW
Shale	800	990	800	990	
Red Rock	990	1145	990	1145	
Little Lime	1145	1161	1145	1161	

Please insert additional pages as applicable.

Drilling Contractor WHIPSTOCK
Address 13646 Route 403 Hwy. N. City Clymer State PA Zip 15728

Logging Company NABORS Completion & Production Services
Address 1650 Hacker's Creek City Jane Lew State WV Zip 26378

Cementing Company NABORS Completion & Production Services
Address 1650 Hacker's Creek City Jane Lew State WV Zip 26378

Stimulating Company NABORS Completion & Production Services
Address 1650 Hacker's Creek City Jane Lew State WV Zip 26378

Please insert additional pages as applicable.

Completed by Jonathan M. Brady Telephone 412-434-5616 x. - 1207
Signature *Jonathan M. Brady* Title Geologist/Direction of Regulatory Affairs Date 7/10/2014

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

API 47-001-03335

Farm Name WHITESCARVER HEIRS, GRACE

Well Number 1

ADDITIONAL PRODUCING FORMATIONS

PRODUCING FORMATION(S)		DEPTHS			
GORDON		1927	TVD	1927	MD

ADDITIONAL LITHOLOGY DEPTHS

LITHOLOGY/ FORMATION	TOP DEPTH IN FT TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC)
PENCIL CAVE	1161	1190			
BIG LIME	1325	1481			
WEIR	1481	1618			
BEREA	1618	1647			
GANTZ	1647	1761			
FIFTY FOOT	1761	1905			
GORDON	1905	1932			
SAND & SHALE	1932	2368			
BAYARD	2368	2426			
SPEECHLEY	2426	2928			
BALLTOWN	2928	3207			
SAND & SHALE	3207	3874			
RILEY	3874	4122			
BENSON	4122	4348			
ALEXANDER	4348	4529			
1ST ELK	4529	4773			
2ND ELK	4773	5036			
3RD ELK	5036	5170			
4TH ELK	5170	5364			
5TH ELK	5364	5650			
		TD = 5650			