

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

API 47-107-01752 Rev. County Wood District Steele  
Quad Rockport Pad Name Cox Field/Pool Name Rockport  
Farm name Cox, Sandra Well Number 12590  
Operator (as registered with the OOG) Columbia Gas Transmission, LLC  
Address 1700 MacCorkle Ave SE City Charleston State WV Zip 25325-1273

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey  
Top hole Northing 39.0727165 / 4,324,987.7 Easting -81.5455544 / 452,807.7  
Landing Point of Curve Northing N/A - not horizontal Easting N/A - not horizontal  
Bottom Hole Northing 39.072089 / 4,324,917.9 Easting -81.54516 / 452,843.8

Elevation (ft) 1036 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 Storage  
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)  
Intermediate: fresh water base w/ polymer + KCl + starch + atapulgit  
Production: fresh water base w/ polymer + starch

Date permit issued 7/29/14 Date drilling commenced 11/16/14 Date drilling ceased 12/21/14  
Date completion activities began 3/4/15 Date completion activities ceased 3/18/15  
Verbal plugging (Y/N) N Date permission granted N/A Granted by N/A

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

Received  
Office of Oil & Gas  
JUL 21 2015

Freshwater depth(s) ft none encountered Open mine(s) (Y/N) depths \_\_\_\_\_  
Salt water depth(s) ft 1903 - 2258 (estimated) Void(s) encountered (Y/N) depths N  
Coal depth(s) ft none encountered Cavern(s) encountered (Y/N) depths N  
Is coal being mined in area (Y/N) N

Reviewed by:  
JK 8/21/15

10/23/2015

API 47-107 - 01752

Farm name Cox, Sandra

Well number 12590

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	24"	20"	37' KB	New	B-35 / 59 ppf	none	Y
Surface	17.5"	13.375"	420' KB	New	H-40 / 48 ppf	none	Y
Coal							
Intermediate 1	12.25	9.625"	2314' KB	New	J-55 / 36 ppf	none	Y
Intermediate 2							
Intermediate 3							
Production	8.75	7"	5245' KB	New	N-80 / 23 ppf	None	N
Tubing							
Packer type and depth set							

Comment Details KB is 17 ft above GL.

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	Neat	34	15.6	1.18	42	0	4
Surface	Type I	400	15.6	1.19	476	0	8
Coal							
Intermediate 1	65-35 Poz / Type I	500 / 150	13.1 / 15.6	1.71 / 1.19	855 + 179	0	12
Intermediate 2							
Intermediate 3							
Production	Type I	100 / 70	15.6	1.19 / 1.22	119 + 85	3980	24
Tubing							

Drillers TD (ft) 5402

Loggers TD (ft) 5402

Deepest formation penetrated Helderberg limestone

Plug back to (ft) N/A

Plug back procedure N/A

Kick off depth (ft) 1460

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

13.375" csg: four bow-spring on jts 1, 2, 3, and 9

9.625" csg: six bow-spring on jts 1, 11, 21, 31, 41, and 51

7" csg: six spiral rigid on jts 1, 2, 3, 4, 5, and 6 - six bow-spring on jts 7, 8, 9, 10, 11, and 12.

Received  
Office of Oil & Gas

JUL 21 2015

WAS WELL COMPLETED AS SHOT HOLE  Yes  No DETAILS

WAS WELL COMPLETED OPEN HOLE?  Yes  No DETAILS 6.125" borehole from 5255 to 5402 ft.

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



API 47- 107 - 01752 Farm name Cox, Sandra Well number 12590

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>Oriskany Sandstone</u>	<u>5270 - 5314</u> TVD	<u>5290 - 5333</u> MD
_____	_____	_____
_____	_____	_____

Please insert additional pages as applicable.

GAS TEST  Build up  Drawdown  Open Flow OIL TEST  Flow  Pump

SHUT-IN PRESSURE Surface 1290 psi Bottom Hole \_\_\_\_\_ psi DURATION OF TEST \_\_\_\_\_ hrs

OPEN FLOW Gas 81,300 mcfpd Oil 0 bpd NGL 0 bpd Water 0 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 <sub>2</sub> S, ETC)
siltstone	0	55	0	55	* depths relative to KB (17' above GL), no shows
sand	55	422	55	422	none
shale, sand, siltstone	422	1903	422	1903	none
Salt Sand	1903	2258	1903	2258	salt water
Pocono shale	2258	2554	2258	2554	none
Coffee / Sunbury shale	2554	2572	2554	2572	none
Berea horizon	2572	2574	2572	2574	none
Devonian shale	2574	5141	2574	5160	none
Marcellus shale	5141	5153	5160	5172	none
Onondaga limestone	5153	5270	5172	5290	none
Oriskany sandstone	5270	5286	5290	5306	upper, storage gas
Oriskany sandstone	5286	5314	5306	5333	lower, storage gas
Helderberg limestone	5314	5381	5333	5402	none
TD		5382		5402	

Please insert additional pages as applicable.

Drilling Contractor Yost Drilling, LLC  
Address 313 Steele Hill Road City Mt. Morris State PA Zip 15349

Logging Company Baker Atlas Logging  
Address W Main St City Buckhannon State WV Zip 26201

Cementing Company Universal Well Service  
Address Route 5 Hall Rd City Buckhannon State WV Zip 26201

Stimulating Company C & J Energy Services  
Address 528 Industrial Park Rd City Jane Lew State WV Zip 26078

Please insert additional pages as applicable.

Completed by James Amos Telephone 304-483-0073  
Signature  Title Sr Well Services Engineer Date 7/15/15

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

Received  
Office of Oil & Gas  
JUL 21 2015