

WR-35
Rev (9-11)

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

DATE: 4-23-2014
API #: 47-069-00086

FINAL

Farm name: Thelma Hays OHI 5H Operator Well No.: 833464

LOCATION: Elevation: 1250 Quadrangle: Bethany

District: Liberty County: Ohio
Latitude: 3510' Feet South of 40 Deg. 10 Min. 00 Sec.
Longitude 5590' Feet West of 80 Deg. 32 Min. 30 Sec.

Company: Chesapeake Appalachia, L.L.C.

Address:	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
P.O. Box 18496 Oklahoma City, OK 73154-0496	20"	104'	104'	174 Cu. Ft.
Agent: Eric Gillespie	13 3/8"	649'	649'	696 Cu. Ft.
Inspector: Bill Hendershot	9 5/8"	2042'	2042'	892 Cu. Ft.
Date Permit Issued: 6-14-2011	5 1/2"	12703'	12703'	2677 Cu. Ft.
Date Well Work Commenced: 12-24-2011				
Date Well Work Completed: 5-18-2012				
Verbal Plugging:				
Date Permission granted on:				
Rotary <input checked="" type="checkbox"/> Cable <input type="checkbox"/> Rig <input type="checkbox"/>				
Total Vertical Depth (ft): 6386'				
Total Measured Depth (ft): 12703'				
Fresh Water Depth (ft.): 200'				
Salt Water Depth (ft.): 800'				
Is coal being mined in area (N/Y)? N				
Coal Depths (ft.): 589'				
Void(s) encountered (N/Y) Depth(s) Y 590'				

OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)

Producing formation Marcellus Pay zone depth (ft) 6,829'-12,571'
Gas: Initial open flow 1,615* MCF/d Oil: Initial open flow 143 Bbl/d
Final open flow _____ MCF/d Final open flow _____ Bbl/d
Time of open flow between initial and final tests 72 Hours
Static rock Pressure 4,151* psig (surface pressure) after 72 Hours *Calculated

Second producing formation _____ Pay zone depth (ft) _____
Gas: Initial open flow _____ MCF/d Oil: Initial open flow _____ Bbl/d
Final open flow _____ MCF/d Final open flow _____ Bbl/d
Time of open flow between initial and final tests _____ Hours
Static rock Pressure _____ psig (surface pressure) after _____ Hours

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete.

Marlene Williams
Signature

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Were core samples taken? Yes _____ No

Were cuttings caught during drilling? Yes No _____

Were Electrical, Mechanical or Geophysical logs recorded on this well? If yes, please list _____
LWD GR from 5258-12651' MD.

NOTE: IN THE AREA BELOW PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL DEPTH.

Perforated Intervals, Fracturing, or Stimulating:

(See Attached)

Plug Back Details Including Plug Type and Depth(s):

Formations Encountered:	Top Depth	/	Bottom Depth
Surface:			

(See Attached)

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PERFORATION RECORD ATTACHMENT

Well Number and Name: 833464 Thelma Hays OHI 5H

PERFORATION RECORD			STIMULATION RECORD							
Date	Interval Perforated		Date	Interval Treated		Fluid		Propping Agent		Average Injection
	From	To		Type	Amount	Type	Amount			
4/12/2012	12,149	12,571	5/9/2012	12,149	12,571	Slk wtr	7,870	Sand	443,880	74.0
5/9/2012	11,484	12,055	5/10/2012	11,484	12,055	Slk wtr	10,967	Sand	600,380	76.0
5/10/2012	10,819	11,390	5/13/2012	10,819	11,390	Slk wtr	10,181	Sand	598,900	80.0
5/13/2012	10,154	10,725	5/16/2012	10,154	10,725	Slk wtr	11,250	Sand	598,120	80.0
5/16/2012	9,489	10,060	5/16/2012	9,489	10,060	Slk wtr	9,913	Sand	602,960	78.0
5/16/2012	8,824	9,395	5/17/2012	8,824	9,395	Slk wtr	9,893	Sand	597,760	80.0
5/17/2012	8,159	8,730	5/18/2012	8,159	8,730	Slk wtr	9,909	Sand	596,360	80.0
5/18/2012	7,494	8,065	5/18/2012	7,494	8,065	Slk wtr	9,866	Sand	594,120	80.0
5/18/2012	6,829	7,400	5/18/2012	6,829	7,400	Slk wtr	9,785	Sand	598,200	80.0

LATERAL SIDETRACK WELLBORE (no vertical pilot hole associated with this well)**Maximum TVD of wellbore: 6386 ft TVD @ 6802 ft MD**

Formation/Lithology	Top Depth, MD (ft)	Top Depth, TVD (ft)	Bottom Depth, MD (ft)	Bottom Depth, TVD (ft)
LS/SH	0	0	300	300
SS/LS	300	300	589	589
PITTSBURG COAL	589	589	595	595
LS/SH/SS	595	595	790	790
SS	790	790	1510	1510
SH/SS	1510	1510	1620	1620
BIG LIME (LS)	1620	1620	1646	1646
BIG INJUN (SS)	1646	1646	1920	1920
SHALE	1920	1920	6371	6181
GENESEO (SH)	6371	6181	6390	6196
TULLY (LS)	6390	6196	6445	6236
HAMILTON (SH)	6445	6236	6640	6349
MARCELLUS (SH)	6640	6349		
TD OF LATERAL			12651	6206

Hydraulic Fracturing Fluid Product Component Information Disclosure

64-00086

Fracture Date:	5/9/2012
State:	WEST VIRGINIA
County:	OHIO
API Number:	4706900086
Operator Name:	CHESAPEAKE APPALACHIA LLC
Well Name and Number:	THELMA HAYS OHI 5H
Longitude:	-80.554415
Latitude:	40.151271
Long/Lat Projection:	NAD27
Production Type:	GAS
True Vertical Depth (TVD):	
Total Water Volume (gal)*:	3,776,472

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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
Fresh Water		Carrier/Base Fluid				85.26728%	
Ottawa Sand		Proppant	Crystalline Silica (Quartz Sand, Silicon Dioxide)	014808-60-7	100.00%	11.20521%	
100 Mesh Sand		Proppant	Crystalline Silica (Quartz Sand, Silicon Dioxide)	014808-60-7	100.00%	2.80406%	
Acid, Hydrochloric 15pct	SCHLUMBERGER	Acid	Water	007732-18-5	85.00%	0.49286%	
			Hydrogen Chloride	007647-01-0	15.00%	0.08698%	
L058	SCHLUMBERGER	Iron Control Agent	Sodium Erythorbate	006381-77-7	100.00%	0.00039%	
A264	SCHLUMBERGER	Corrosion Inhibitor	Methanol (Methyl Alcohol)	000067-56-1	40.00%	0.00045%	
			Aliphatic acid	N/A	30.00%	0.00034%	
			Aliphatic alcohols, ethoxylated # 1	N/A	30.00%	0.00034%	
			Propargyl Alcohol (2-Propynol)	000107-19-7	10.00%	0.00011%	
EC6110A	NALCO	Anti-Bacterial Agent	Glutaraldehyde	000111-30-8	60.00%	0.01615%	
			Quaternary Ammonium Compounds	N/A	10.00%	0.00269%	
			Ethanol	000064-17-5	5.00%	0.00135%	
EC6629A	NALCO	Scale Inhibitor	No Hazardous Components	NONE		0.00000%	
J580	SCHLUMBERGER	Gelling Agent	Carbohydrate polymer	N/A	100.00%	0.04005%	

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J218	SCHLUMBE RGER	Breaker	Ammonium Persulfate	007727-54-0	100.00%	0.00468%	
B315	SCHLUMBE RGER	Friction Reducer	Petroleum Distillate Hydro-treated Light	064742-47-8	30.00%	0.01866%	
D047	SCHLUMBE RGER	Defoaming Agent	Aliphatic alcohol polyglycol ether Polypropylene glycol	N/A 025322-69-4	1.50% 100.00%	0.00093% 0.00045%	

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* 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%

"Additional Ingredients Not Listed on MSDS" component information were obtained directly from the supplier. As such, the Operator is not responsible for inaccurate and/or incomplete information. Any questions regarding the content of this information should be directed to the supplier who provided it.