



west virginia department of environmental protection

Office of Oil and Gas
601 57th Street SE
Charleston, WV 25304
(304) 926-0450
(304) 926-0452 fax

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

PERMIT MODIFICATION APPROVAL

January 09, 2014

CHESAPEAKE APPALACHIA, L.L.C.
POST OFFICE BOX 6070
CHARLESTON, WV 25362

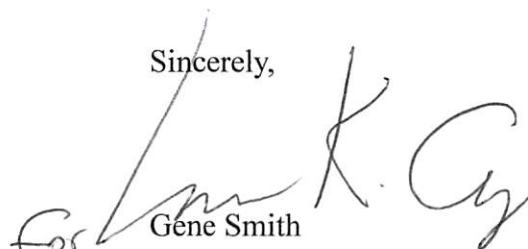
Re: Permit Modification Approval for API Number 6900114 , Well #: ROY FERRELL OHI 10H
Modified Casing

Oil and Gas Operator:

The Office of Oil and Gas has reviewed the attached permit modification for the above referenced permit. The attached modification has been approved and well work may begin. Please be reminded that the oil and gas inspector is to be notified twenty-four (24) hours before permitted well work is commenced.

Please call James Martin at 304-926-0499, extension 1654 if you have any questions.

Sincerely,


For Gene Smith
Regulatory/Compliance Manager
Office of Oil and Gas



Danielle Southall
Regulatory Analyst II

August 23, 2013

VIA UPS

Ms. Laura Cooper
Office of Oil & Gas
601 57th Street
Charleston, WV 25304

Re: Modification to Roy Ferrell OHI 10H. API# 47-069-00114

Dear Ms. Cooper:

Attached please find a revised WW-6B for the above captioned well. We would like to modify the 13 3/8" and 20" casing in order to be consistent with the other Roy Ferrell well and the 5 1/2" casing due to directional work. The BHL will remain the same. This well is situated on the Roy Ferrell property, in Triadelphia District, Wetzel County, West Virginia.

If you have any questions or require additional information, please contact me at 304-517-1416 ext 86024.

Sincerely,


Chesapeake Appalachia, LLC

Dee Southall

Enclosure(s)

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WV Department of
Environmental Protection

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
WELL WORK PERMIT APPLICATION

1) Well Operator: Chesapeake Appalachia, LLC 49447757 69- Ohio 7- Triadelphia 648-Valley Grove
Operator ID County District Quadrangle

2) Operator's Well Number: Roy Ferrell OHI 10H Well Pad Name: Roy Ferrell OHI Pad

3 Elevation, current ground: 1196' Elevation, proposed post-construction: 1196'

4) Well Type: (a) Gas Oil Underground Storage
Other _____
(b) If Gas: Shallow _____ Deep _____
Horizontal

5) Existing Pad? Yes or No: Yes

6) Proposed Target Formation(s), Depth(s), Anticipated Thicknesses and Associated Pressure(s):
Target formation- Marcellus, Target top TVD- 6630', Target base TVD- 6690', Anticipated thickness- 60', Associated Pressure- 4177

7) Proposed Total Vertical Depth: 6,640'

8) Formation at Total Vertical Depth: Marcellus
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9) Proposed Total Measured Depth: 14,400'

10) Approximate Fresh Water Strata Depths: 326' **AUG 26 2013**

11) Method to Determine Fresh Water Depth: Form a water well~4000' WNW of the pad

12) Approximate Saltwater Depths: 800'
WV Department of Environmental Protection

13) Approximate Coal Seam Depths: 646'

14) Approximate Depth to Possible Void (coal mine, karst, other): 646' void abandoned mine

15) Does proposed well location contain coal seams directly overlying or adjacent to an active mine? If so, indicate name and depth of mine: No.

16) Describe proposed well work: Drill and stimulate any potential zones between and including the Benson to the Marcellus. **If we should encounter a void, place basket above and below void area - balance cement to bottom of void and grout from basket to surface. Run casing not less than 20' below void nor more than 50' below void.
(*If freshwater is encountered deeper than anticipated it must be protected, set casing 50' below and cts)

17) Describe fracturing/stimulating methods in detail:
Well will be perforated within the target formation and stimulated with a slurry of water, sand, and chemical additives at a high rate. This will be performed in stages with the plug and perf method along the wellbore until the entire lateral has been stimulated within the target formation. All stage plugs are then drilled out and the well is flowed back to surface.
The well is produced through surface facilities consisting of high pressure production units, vertical separation units, water and oil storage tanks.

18) Total area to be disturbed, including roads, stockpile area, pits, etc, (acres): 11

19) Area to be disturbed for well pad only, less access road (acres): 7

20)

CASING AND TUBING PROGRAM

<u>TYPE</u>	<u>Size</u>	<u>New or Used</u>	<u>Grade</u>	<u>Weight per ft.</u>	<u>FOOTAGE: For Drilling</u>	<u>INTERVALS: Left in Well</u>	<u>CEMENT: Fill -up (Cu. Ft.)</u>
Conductor	20"	New	J-55	94#	✓ 100'	100'	CTS
Fresh Water	13 3/8"	New	J-55	54.5#	✓ 741'	741'	680'sx/CTS
Coal	9 5/8"	New	J-55	40#	✓ 2200'	2200'	820 sx/CTS
Intermediate	7"	New	P-110	20#	✓ If Needed	If Needed	If needed/As Possible
Production	5 1/2"	New	P-110	20#	✓ 14,400'	14,400'	Lead 1050 sx Tail 1440 sx/100' inside intermediate
Tubing	2 3/8"	New	N-80	4.7#	✓ Approx. 7,181'	Approx. 7,181'	
Liners							

MSGK 8/22/2013

<u>TYPE</u>	<u>Size</u>	<u>Wellbore Diameter</u>	<u>Wall Thickness</u>	<u>Burst Pressure</u>	<u>Cement Type</u>	<u>Cement Yield</u>
Conductor	20"	30"	0.25	2120	15.6 ppg	1.19/50% Excess
Fresh Water	13 3/8"	17.5"	0.380	2740	15.6 ppg	1.19/50% Excess
Coal	9 5/8"	12 1/4"	0.395	3950	15.6 ppg	1.19/50% Excess
Intermediate	7"	8 3/4"	.0317	4360	15.6 ppg	1.20/15% Excess
Production	5 1/2"	8 3/4"	0.361	12360	15.6 ppg	1.20/15% Excess
Tubing	2 3/8"	4.778"	0.190			
Liners						

PACKERS

Kind:	10K Arrowset AS1-X		
Sizes:	5 1/2"		
Depths Set:	Approx. 6,197'		

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Well Name: **Roy Ferrell OHI 10H**

Drilling Rig: **N/A**

Directional Drilling: **N/A**

Drilling Engineer: **N/A**

Formation: **Marcellus**

Drilling Mud: **N/A**

Superintendent: **N/A**

County, State: **Ohio, WV**

Cement Surface: **N/A**

Asset Manager: **N/A**

Surface Latitude: **40.043114**

Surface Longitude: **-80.531168**

Cement Longstrings: **N/A**

Geologist: **N/A**

BH Latitude: **40.026513**

BH Longitude: **-80.519479**

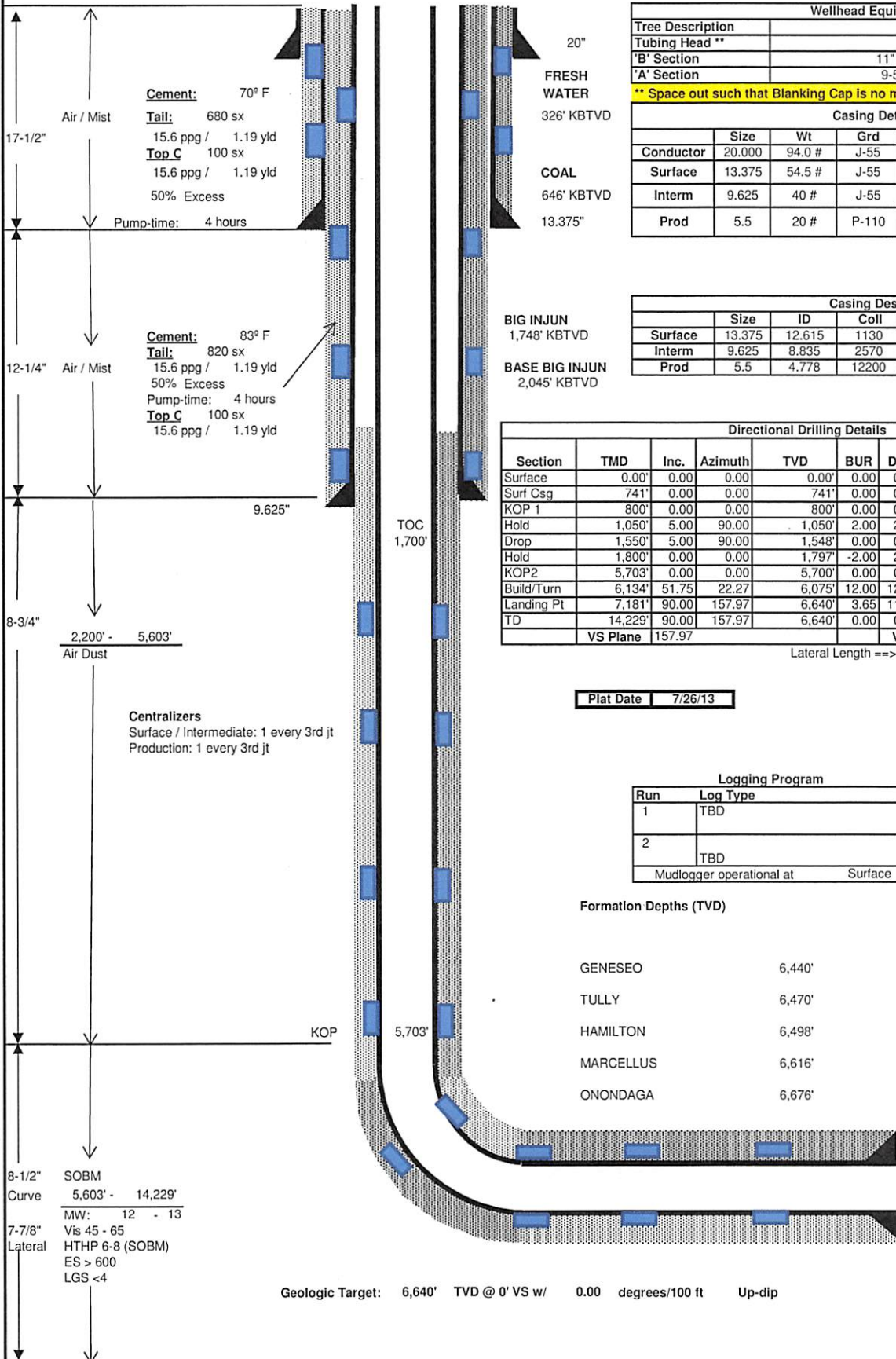
Wellhead: **N/A**

Land: **N/A**

KB Elevation: **1216'**

Ground Elevation: **1196'**

AFE #: **N/A**



Wellhead Equipment	
Tree Description	
Tubing Head **	Blanking Cap
'B' Section	11" x 5M x 7-1/16" 10M
'A' Section	9-5/8" SOW x 11" 5M

Casing Detail					
	Size	Wt	Grd	Conn.	From: To:
Conductor	20.000	94.0 #	J-55	STC	0' 100'
Surface	13.375	54.5 #	J-55	STC	0' 741'
Interm	9.625	40 #	J-55	LTC	0' 2,200'
Prod	5.5	20 #	P-110	GBCD	0' 14,229'

Casing Design						
	Size	ID	Coll	Burst	Tens	MU torq
Surface	13.375	12.615	1130	2740	514	5140
Interm	9.625	8.835	2570	3950	520	5200
Prod	5.5	4.778	12200	12360	641	8530

Directional Drilling Details								
Section	TMD	Inc.	Azimuth	TVD	BUR	DLS	+N/-S	+E/-W
Surface	0.00'	0.00	0.00	0.00'	0.00	0.00	0.0'	0.0'
Surf Csg	741'	0.00	0.00	741'	0.00	0.00	0.0'	0.0'
KOP 1	800'	0.00	0.00	800'	0.00	0.00	0.0'	0.0'
Hold	1,050'	5.00	90.00	1,050'	2.00	2.00	0.0'	10.9'
Drop	1,550'	5.00	90.00	1,548'	0.00	0.00	0.0'	54.5'
Hold	1,800'	0.00	0.00	1,797'	-2.00	2.00	0.0'	65.4'
KOP2	5,703'	0.00	0.00	5,700'	0.00	0.00	0.0'	65.4'
Build/Turn	6,134'	51.75	22.27	6,075'	12.00	12.00	168.3'	134.3'
Landing Pt	7,181'	90.00	157.97	6,640'	3.65	11.86	-14.4'	748.3'
TD	14,229'	90.00	157.97	6,640'	0.00	0.00	-6,547.6'	3,391.8'
	VS Plane	157.97					VS Length	7,341.78'

Lateral Length ==> 7,047.70'

Plat Date: 7/26/13

Logging Program		
Run	Log Type	Interval
1	TBD	TBD
2	TBD	TBD

Mudlogger operational at Surface

Formation Depths (TVD)

GENESEO	6,440'
TULLY	6,470'
HAMILTON	6,498'
MARCELLUS	6,616'
ONONDAGA	6,676'

Cement: 122° F
Lead: 1,050 sx
15.6 ppg / 1.20 yld
Tail: 1,440 sx
15.6 ppg / 1.20 yld
15% Excess
Pump-time: 5 hours

PBHL: 5.5"
TMD: 14,229'
TVD: 6,640'
Inclination: 90.00 deg

01/10/2014

Gyro the 1st well on the pad at KOP. Ensure all Surveys are referenced to Grid North!!

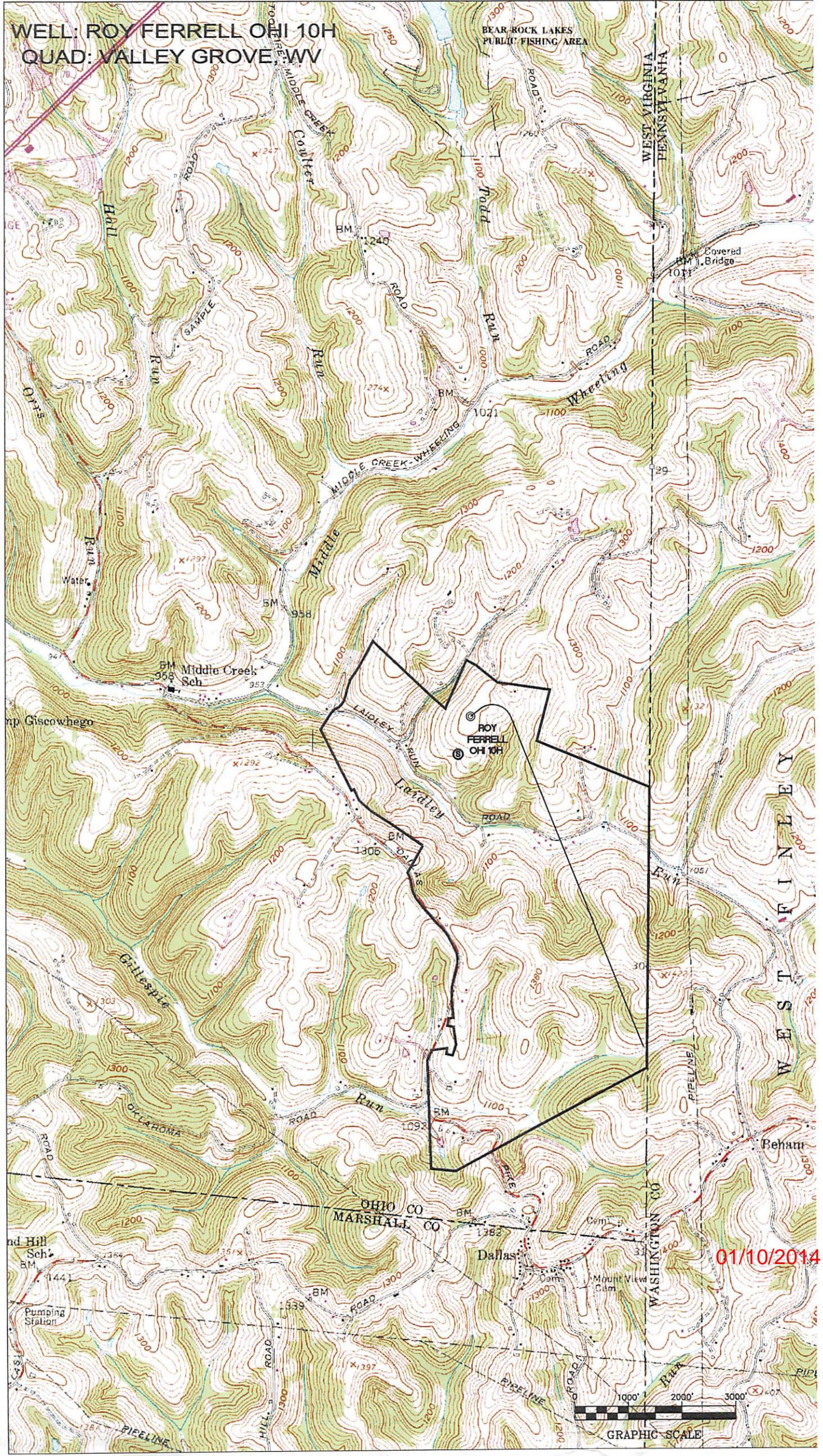
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Drawn by: N/A
Date: 8/21/2013

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WELL: ROY FERRELL OHI 10H
QUAD: VALLEY GROVE WV



01/10/2014



