



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

November 13, 2013

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

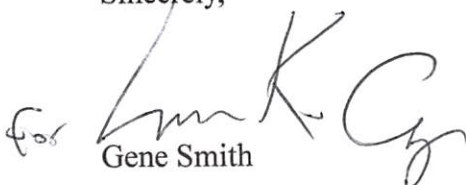
Re: Permit Modification Approval for API Number 6900128 , Well #: ESTHER WEEKS OHI 3H
Extended lateral and switched top hole location

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

June 20, 2013

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

Re: Modification to Esther Weeks OHI 3H API#47-069-00128

Dear Laura:

Enclosed please find a revised WW-6B, WW-6A1, topo, wbs and plat for the above captioned well. We would like to extend the lateral. This well is situated on the Weeks property, in Liberty District, Ohio County, West Virginia.

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

Sincerely,

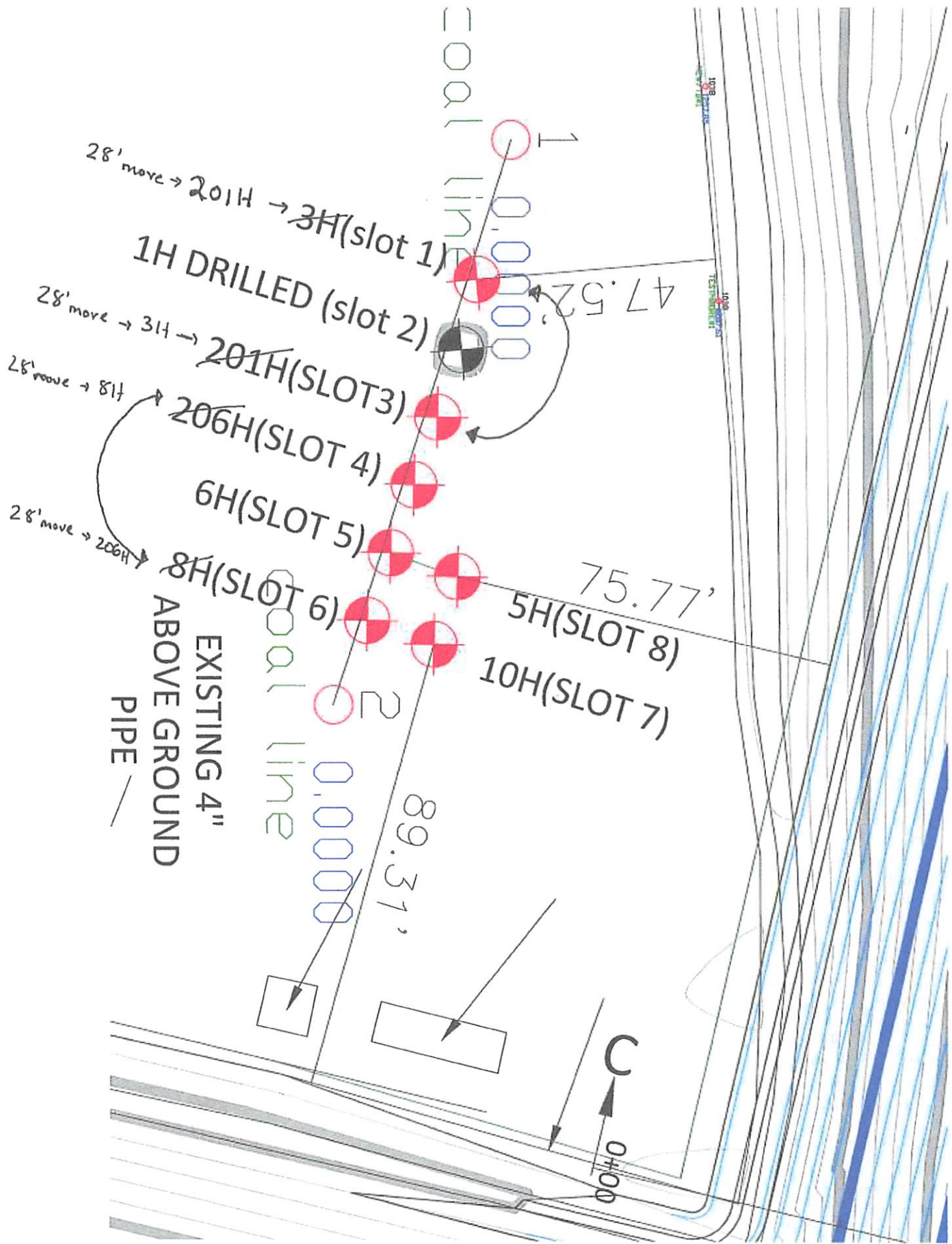
Chesapeake Appalachia, LLC

Dee Southall

Enclosure(s)

Received
Office of Oil & Gas

JUN 21 2013



WW - 6B
(3/13)

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

1) Well Operator: Chesapeake Appalachia, LLC 49447757 169- Ohio 7- Triadelphia 648- Valley Grove
Operator ID County District Quadrangle

2) Operator's Well Number: Esther Weeks OHI 3H Well Pad Name: Esther Weeks OHI Pad

3 Elevation, current ground: 1,257' Elevation, proposed post-construction: 1,257'

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- 6642' , Target base TVD- 6695', Anticipated thickness- 53', Associated Pressure-4450

7) Proposed Total Vertical Depth: 6,680'

8) Formation at Total Vertical Depth: Marcellus

9) Proposed Total Measured Depth: 13,300'

10) Approximate Fresh Water Strata Depths: 277'

11) Method to Determine Fresh Water Depth: Data was gathered from an analysis of freshwater wells in a 5000' radius

12) Approximate Saltwater Depths: 905'

13) Approximate Coal Seam Depths: 587'

14) Approximate Depth to Possible Void (coal mine, karst, other): 587' 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): 10.2

19) Area to be disturbed for well pad only, less access road (acres): 7.1

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Office of Oil and Gas

Page 1 of 3

NOV 13 2013

WV Department of

WW - 6B
(3/13)

20)

CASING AND TUBING PROGRAM

TYPE	Size	New or Used	Grade	Weight per ft.	FOOTAGE: For Drilling	INTERVALS: Left in Well	CEMENT: Fill -up (Cu. Ft.)
Conductor	20"	New	J-55	94#	√ 100'	100'	CTS
Fresh Water	13 3/8"	New	J-55	54.5#	√ 637'	637'	590 sx/CTS
Coal	9 5/8"	New	J-55	40#	√ 2,320'	2,320'	870 sx/CTS
Intermediate	7"	New	P-110	20#	√ If Needed	If Needed	If needed/As Possible
Production	5 1/2"	New	P-110	20#	√ 13,300'	13,300'	Limit 1,220 in TM 1,000 in 107 holes recommended
Tubing	2 3/8"	New	N-80	4.7#	√ Approx. 6,957'	Approx. 6,957'	
Liners							

MJIC 6/20/13

TYPE	Size	Wellbore Diameter	Wall Thickness	Burst Pressure	Cement Type	Cement Yield
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						

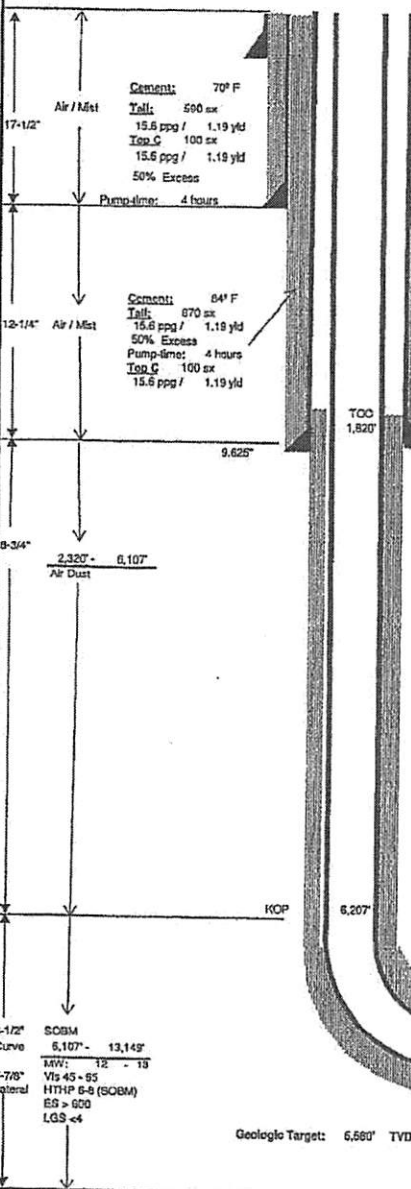
PACKERS

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

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Office of Oil & Gas

JUL 2 2013

		Well Name: Esther Weeks OHI 3H	Drilling Rig: N/A
Drilling Engineer: TBD	Formation: Marcellus	County, State: Ohio, WV	Directional Drilling: N/A
Superintendent: N/A	Surface Latitude: 40.025333	Surface Longitude: -80.552756	Drilling Mud: N/A
Asset Manager: N/A	BH Latitude: 40.0404	BH Longitude: -80.563172	Cement Surface: N/A
Geologist: N/A	KB Elevation: 1277	Ground Elevation: 1257	Cement Longstrings: N/A
Land: N/A			Wellhead: N/A
			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
** Space out such that Blanking Cap is no more than 30" above grade.	

Casing Detail					
Size	Wt	Grid	Conn.	From	To
Surface 13.375	84.5 #	J-95	STC	0'	637'
Interm 9.625	40 #	J-95	LTC	0'	2,320'
Prod 5.5	20 #	P-110	GBCD	0'	13,149'

Report any water or gas flows. Catch liquid sample if possible.

Casing Design						
Size	ID	Coll	Surat	Tens	MIU form	
Surface 13.375	12.615	1130	2740	514	5140	
Interm 9.625	6.835	2570	3950	520	5200	
Prod 5.5	4.778	12200	12380	641	6530	

Surface Nudge for Anti-Collision purposes.

Directional Drilling Details								
Section	TMD	Incl	Azimuth	TVD	BUF	DLS	+N-S	+E-W
Surface	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0
KOP 1	737'	0.00	0.00	737'	0.00	0.00	0.07	0.0
Hold	987'	5.00	270.00	987'	2.00	2.00	0.07	-10.9'
Drop	1,987'	5.00	270.00	1,989'	0.00	0.00	0.07	-99.1'
Hold	2,237'	0.00	0.00	2,233'	-2.50	2.00	0.07	-159.3'
KOP2	6,207'	0.00	0.00	6,202'	0.00	0.00	0.07	-199.7'
Landing Pt	6,957'	90.00	337.95	6,680'	12.00	12.00	442.5'	-288.2'
Hold	7,457'	90.00	337.95	6,680'	0.00	0.00	506.0'	-475.9'
Turn	7,720'	80.00	332.69	6,680'	0.00	2.00	1,144.9'	-565.7'
TD	13,149'	90.00	332.99	6,680'	0.00	0.00	5,963.1'	-3,076.7'
VS Plane 332.69				VS Length 10,715.37		Lateral Length 6,192.40'		

Plot Date: 6/17/13

Logging Program		
Run	Log Type	Interval
1	TBD	TBD
2	TBD	TBD
Mudlogger operational at Surface		

Formation Depths (TVD)

BASE BIG INJUN	2,161'
GENESSEO	6,472'
TULLY	6,490'
HAMILTON	6,522'
MARCELLUS	6,542'
ONONDAGA	6,695'

Geologic Target: 6,580' TVD @ 0° VS w/ 0.00 degrees/100 ft Up-dip

PEHL 5.5'
 TVD: 13,149'
 Inclin: 6,680'
 Inclination: 90.00 deg

MJK
 6/20/13

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

Drawn by: TBD
 Date: 6/3/2013

Received
 Office of Oil & Gas

JUN 21 2013

**INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE
Chapter 22, Article 6A, Section 5(a)(5)
IN LIEU OF FILING LEASE(S) AND OTHER CONTINUING CONTRACT(S)**

Under the oath required to make the verification on page 1 of this Notice and Application, I depose and say that I am the person who signed the Notice and Application for the Applicant, and that -

- (1) the tract of land is the same tract described in this Application, partly or wholly depicted in the accompanying plat, and described in the Construction and Reclamation Plan;
- (2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
✓ 1-313597-001	Esther H. Weeks	Fortuna Energy Inc to Chesapeake Appalachia, LLC	1/8	849/767
✓ 1-313599-001	John E. & Marimar Weeks	Fortuna Energy Inc to Chesapeake Appalachia, LLC	1/8	767/158
1-329578-000	Dena Eugene Clovis, Married- Dealing in his solo	Chesapeake Exploration, LLC	18%	813/344
47-000239-000	Darlene J. Ward F/K/A Darlene J. Alderman	Chesapeake Appalachia, LLC	18%	818/623
✓ 47-002205-000	Girl Scouts of Black Diamond Council, INC.	Chesapeake Appalachia, LLC	1/8	840/133
✓ 1-325610-000	Mary J. Zink F/K/A Mary J Blosser	Chesapeake Appalachia, LLC	18%	815/225

**Acknowledgement of Possible Permitting/Approval
In Addition to the Office of Oil and Gas**

The permit applicant for the proposed well work addressed in this application hereby acknowledges the possibility of the need for permits and/or approvals from local, state, or federal entities in addition to the DEP, Office of Oil and Gas, including but not limited to the following:

- WV Division of Water and Waste Management
- WV Division of Natural Resources WV Division of Highways
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- County Floodplain Coordinator

The applicant further acknowledges that any Office of Oil and Gas permit in no way overrides, replaces, or nullifies the need for other permits/approvals that may be necessary and further affirms that all needed permits/approvals should be acquired from the appropriate authority before the affected activity is initiated.

Well Operator: Chesapeake Appalachia, LLC
By: Danielle Southall
Its: Regulatory Analyst II

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Office of Oil & Gas

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Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
1-329224-000	Mark & Amy Foster	Chesapeake Appalachia, LLC	18%	815/641
1-313599-001	John & Marimar Weeks	Fortuna Energy, INC to Chesapeake Appalachia, LLC	1/8	767/158
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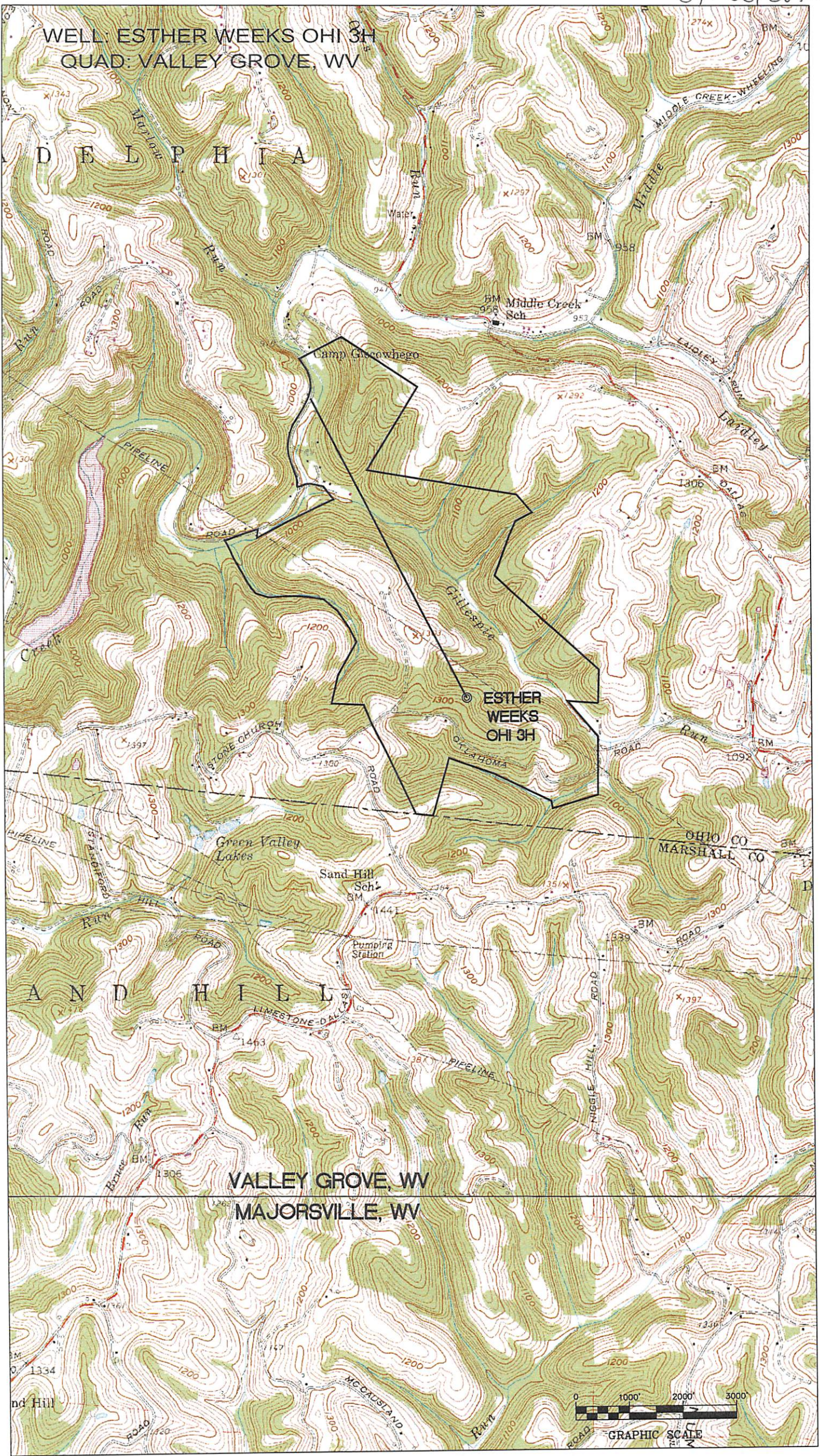
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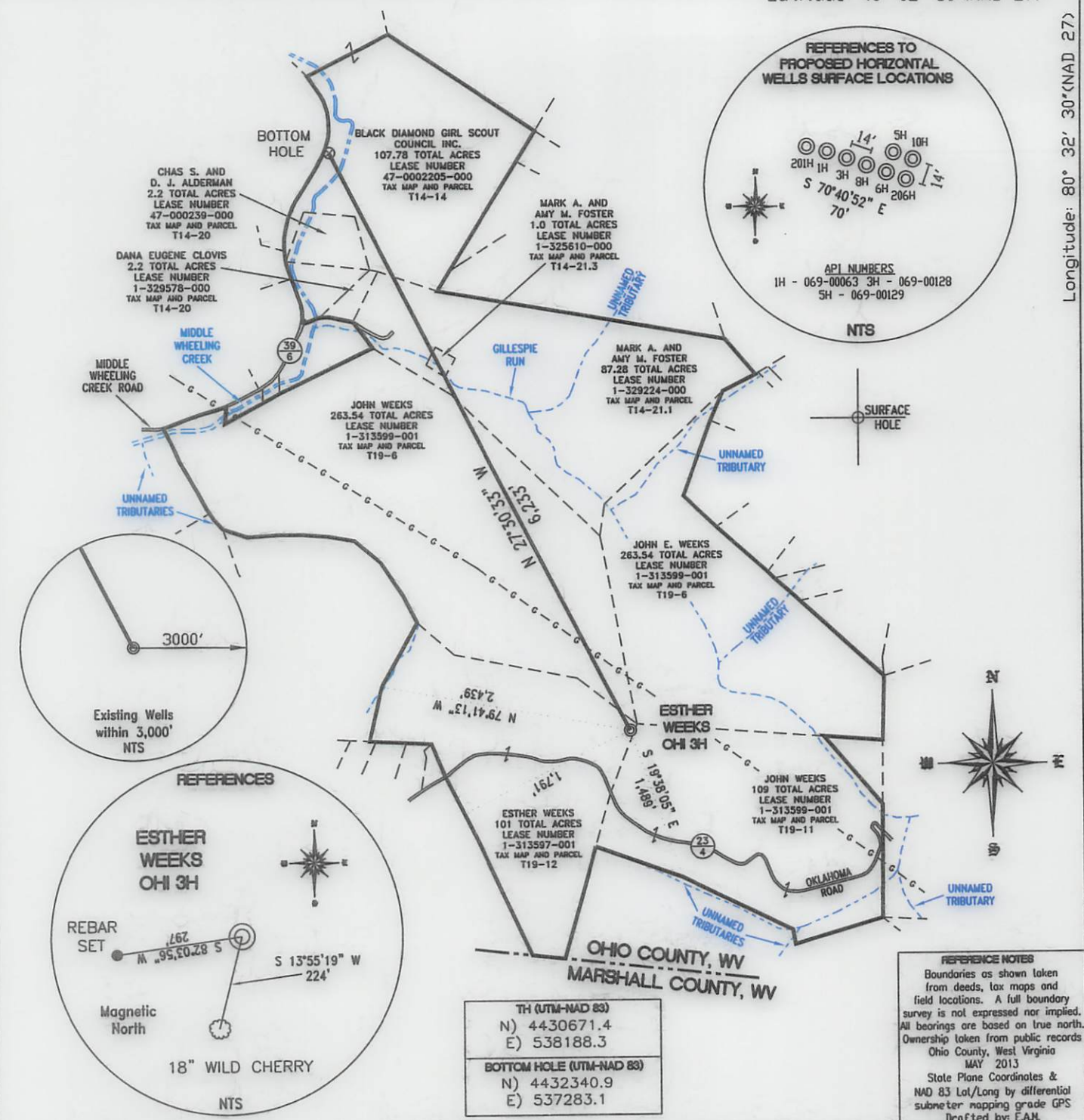
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WELL: ESTHER WEEKS OHI 3H
QUAD: VALLEY GROVE, WV



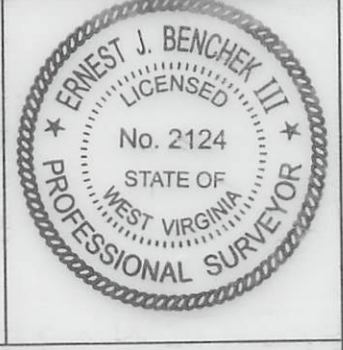


TH (UTM-NAD 83)
N) 4430671.4
E) 538188.3
BOTTOM HOLE (UTM-NAD 83)
N) 4432340.9
E) 537283.1

REFERENCE NOTES
Boundaries as shown taken from deeds, tax maps and field locations. A full boundary survey is not expressed nor implied. All bearings are based on true north. Ownership taken from public records Ohio County, West Virginia MAY 2013
State Plane Coordinates & NAD 83 Lat/Long by differential submeter mapping grade GPS
Drafted by: EAH

FILE #: CHE 021
DRAWING #: 1888
SCALE: 1" = 1400'
MINIMUM DEGREE OF ACCURACY: 1/200
PROVEN SOURCE SUBMETER MAPPING OF ELEVATION: GRADE GPS

I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.
Signed: _____
L.L.S. #2124 : Ernest J. Benchek III



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS WVDEP
OFFICE OF OIL & GAS
601 57TH STREET
CHARLESTON, WV 25304
Well Type: Oil Waste Disposal Production Deep
 Gas Liquid Injection Storage Shallow
WATERSHED: UPPER OHIO SOUTH
COUNTY/DISTRICT: OHIO / TRIADELPHIA
SURFACE OWNER: ESTHER WEEKS
OIL & GAS ROYALTY OWNER: ESTHER WEEKS
LEASE NUMBERS: _____

DATE: June 10, 2013
OPERATOR'S WELL #: ESTHER WEEKS OHI 3H
API WELL #: 47 69 00128 H6A
STATE COUNTY PERMIT
ELEVATION: 1,257'
QUADRANGLE: VALLEY GROVE, WV.
ACREAGE: 101.00 +/-
ACREAGE: 560.6 +/-

TARGET FORMATION: MARCELLUS
WELL OPERATOR: CHESAPEAKE APPALACHIA, LLC.
ADDRESS: PO BOX 18496
CITY: OKLAHOMA CITY STATE: OK ZIP CODE: 73154-0496

DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE
PLUG OFF FORMATION PERFORATE NEW FORMATION PLUG & ABANDON
CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY): _____
ESTIMATED DEPTH: TVD: 6,680' TMD: 12,649'
DESIGNATED AGENT: ERIC GILLESPIE
ADDRESS: PO BOX 6070
CITY: CHARLESTON STATE: WV ZIP CODE: 25362