



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

October 08, 2013

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

Re: Permit Modification Approval for API Number 6900120 , Well #: GARY KESTNER OHI 1H
Extended Lateral

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,

A handwritten signature in black ink, appearing to read "Gene Smith", is written over a printed name.

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 Gary Kestner OHI 1H API# 47-069-00120

Dear Laura:

Enclosed please find a revised WW-6B, wbs, topo, and plat for the above captioned wells. We would like to extend the lateral. This well is situated on the Kestner's 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 86017.

Sincerely,

Chesapeake Appalachia, LLC

Dee Southall

Enclosure(s)

Received
Office of Oil & Gas

JUN 21 2013

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 3-Liberty 247-Bethany
Operator ID County District Quadrangle

2) Operator's Well Number: Gary Kestner OHI 1H 47-069-00120 Well Pad Name: Gary Kestner OHI

3 Elevation, current ground: 1292' Elevation, proposed post-construction: 1292'

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- 6419', Target base TVD- 6479', Anticipated thickness- 60', Associated Pressure- 4172

7) Proposed Total Vertical Depth: 6450'

8) Formation at Total Vertical Depth: Marcellus

9) Proposed Total Measured Depth: 13,800'

10) Approximate Fresh Water Strata Depths: 492'

11) Method to Determine Fresh Water Depth: Data was gathered from an analysis of freshwater wells in the area.

12) Approximate Saltwater Depths: 770'

13) Approximate Coal Seam Depths: 650'

14) Approximate Depth to Possible Void (coal mine, karst, other): 660' 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): 8.0

19) Area to be disturbed for well pad only, less access road (acres): 5.5

MSJK
6/20/2013

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JUN 21 2013

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#	✓ 710'	710'	650 sx/CTS
Coal	9 5/8"	New	J-55	40#	✓ 2140'	2140'	800 sx/CTS
Intermediate	7"	New	P-110	20#	✓ If Needed	If Needed	If needed/As Possible
Production	5 1/2"	New	P-110	20#	~ 13,800'	13,800'	Total 1100 on Trk 1235 and 100' inside Intermediate
Tubing	2 3/8"	New	N-80	4.7#	Approx. 7264'	Approx. 7264'	
Liners							

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

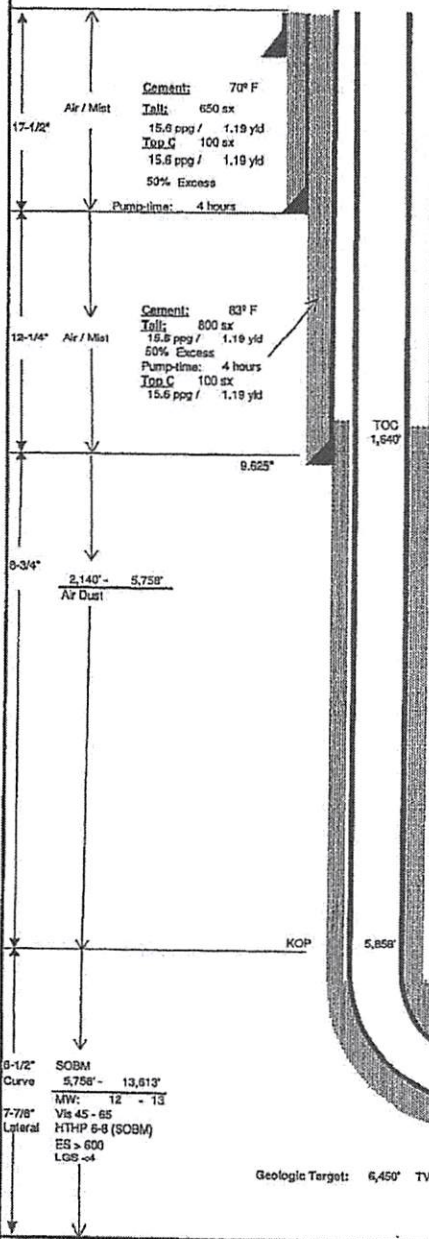
Kind:	10K Arrowset AS1-X			
Sizes:	5 1/2"			
Depths Set:	Approx. 6,197'			

MSD/K
6/20/2013 Page 2 of 3

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JUN 21 2013

		Well Name: Gary Kestner OHI 1H	Drilling Rig: N/A
Drilling Engineer: TBD	Formation: Marcellus	Directional Drilling: N/A	
Superintendent: N/A	County, State: Ohio, WV	Drilling Mud: N/A	
Asset Manager: N/A	Surface Latitude: 40.146539	Cement Surface: N/A	
Geologist: N/A	Surface Longitude: -80.541520	Cement Longstrings: N/A	
Land: N/A	BH Latitude: 40.163093	Wellhead: N/A	
	BH Longitude: -80.554263	AFE #: N/A	
	KB Elevation: 1312'		
	Ground Elevation: 1292'		



Wellhead Equipment	
Tubing Head	Blanking Cap
B Section	11" x 984 x 2-1/16" 10M
A Section	9-5/8" SOH x 11" 5M
** Space out such that Blanking Cap is no more than 30" above grade.	

Casing Detail						
Surface	Size	Wt	Grd	Cont.	From:	To:
Surface	13.375	54.5 #	J-55	STC	0'	710'
Interm	9.625	40 #	J-55	LTC	0'	2,140'
Prod	5.5	20 #	P-110	GBCD	0'	13,613'

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

Casing Design						
Surface	Size	ID	Coll	Burst	Tens	MU Torq
Surface	13.375	12.515	1130	2740	514	5140
Interm	9.625	8.835	2370	3950	520	5350
Prod	5.5	4.778	12200	12360	641	8530

Surface Nudge for Anti-Collision purposes.

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'	0.0'	0.0'
KOP 1	610'	0.00'	0.00'	810'	0.00'	0.00'	0.0'	0.0'	0.0'	0.0'
Hold	1,810'	8.00'	240.00'	1,209'	2.00'	2.00'	-13.9'	-24.1'		
Drop	1,810'	8.00'	240.00'	1,603'	0.00'	0.00'	-55.7'	-96.5'		
Hold	2,210'	0.00'	0.00'	2,202'	-2.00'	2.00'	+89.5'	-120.6'		
KOP2	5,858'	0.00'	0.00'	5,850'	0.00'	0.00'	+89.5'	-120.6'		
Hold Turn	8,478'	74.74'	245.42'	6,305'	12.00'	12.00'	-214.0'	-438.2'		
Build/Turn	8,513'	74.14'	245.42'	6,319'	0.00'	0.00'	-228.5'	-467.8'		
Landing Pt	7,264'	80.00'	335.58'	6,450'	2.11'	12.00'	15.9'	-1,094.5'		
TD	13,613'	90.00'	335.58'	6,450'	0.00'	0.00'	5,797.9'	-3,709.4'		
VS Plane	335.58'						VS Length	6,611.87'		
							Lateral Length	6,548.10'		

Plat Date: 4/19/13

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

Formation Depths (TVD)	
BASE BIG INJUN	1,983'
GENESEO	6,241'
TULLY	6,250'
HAMILTON	6,302'
MARCELLUS	6,419'
ONONDAGA	6,479'

Cement: 120° F	FBHL: 5.5"
Lead: 1,150 sx	TMD: 13,613'
15.6 ppg / 1.20 yd	TVD: 6,450'
Toll: 1,200 sx	Inclination: 90.00 deg
15.6 ppg / 1.20 yd	
15% Excess	
Pump-time: 5 hours	

Geologic Target: 6,450' TVD @ 0° VS w/ 0.00 degrees/100 ft Up-dip

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

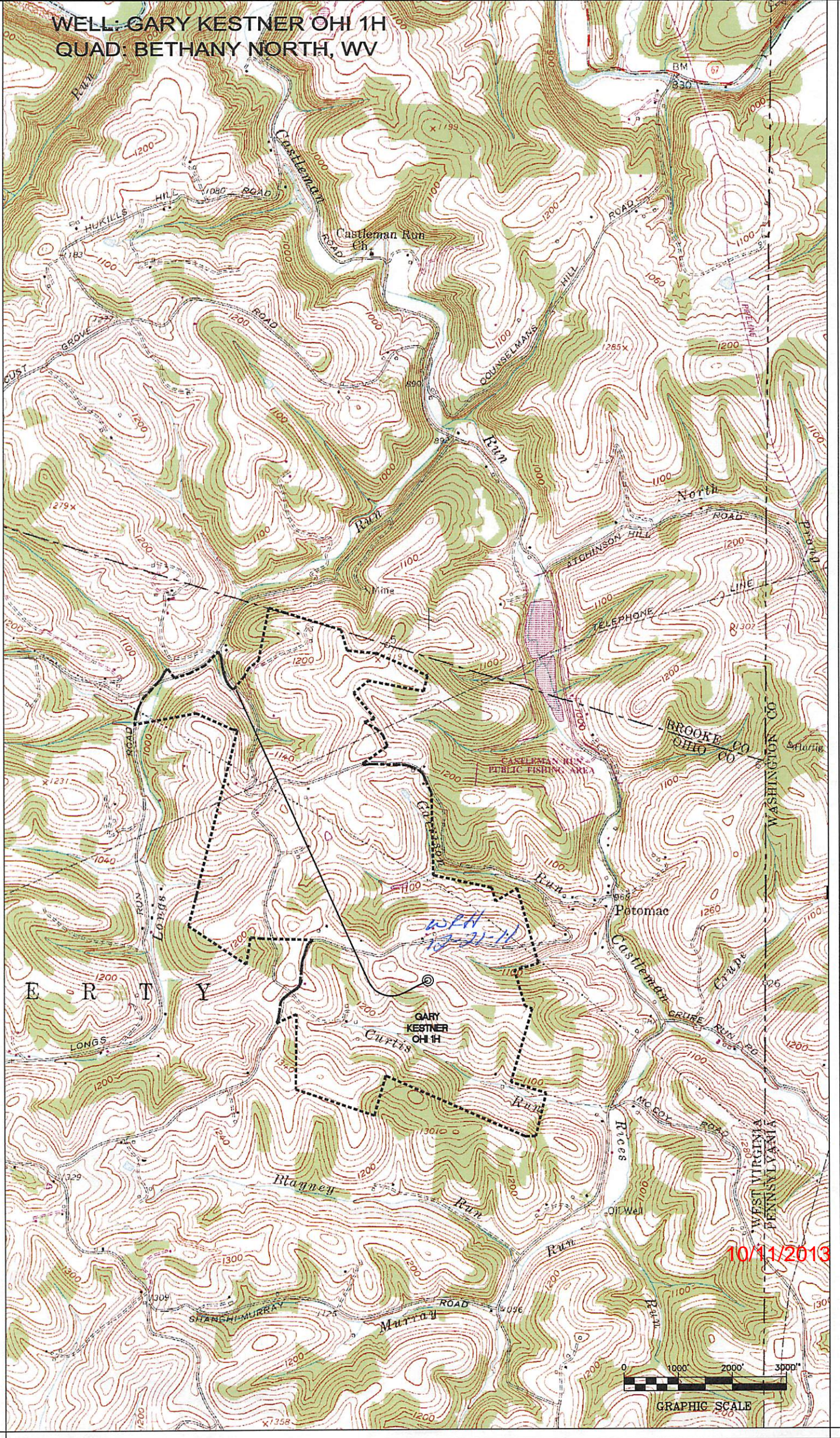
Drawn by: TBD
Date: 6/4/2013

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Handwritten: MOK 6/20/2013

JUN 21 2013

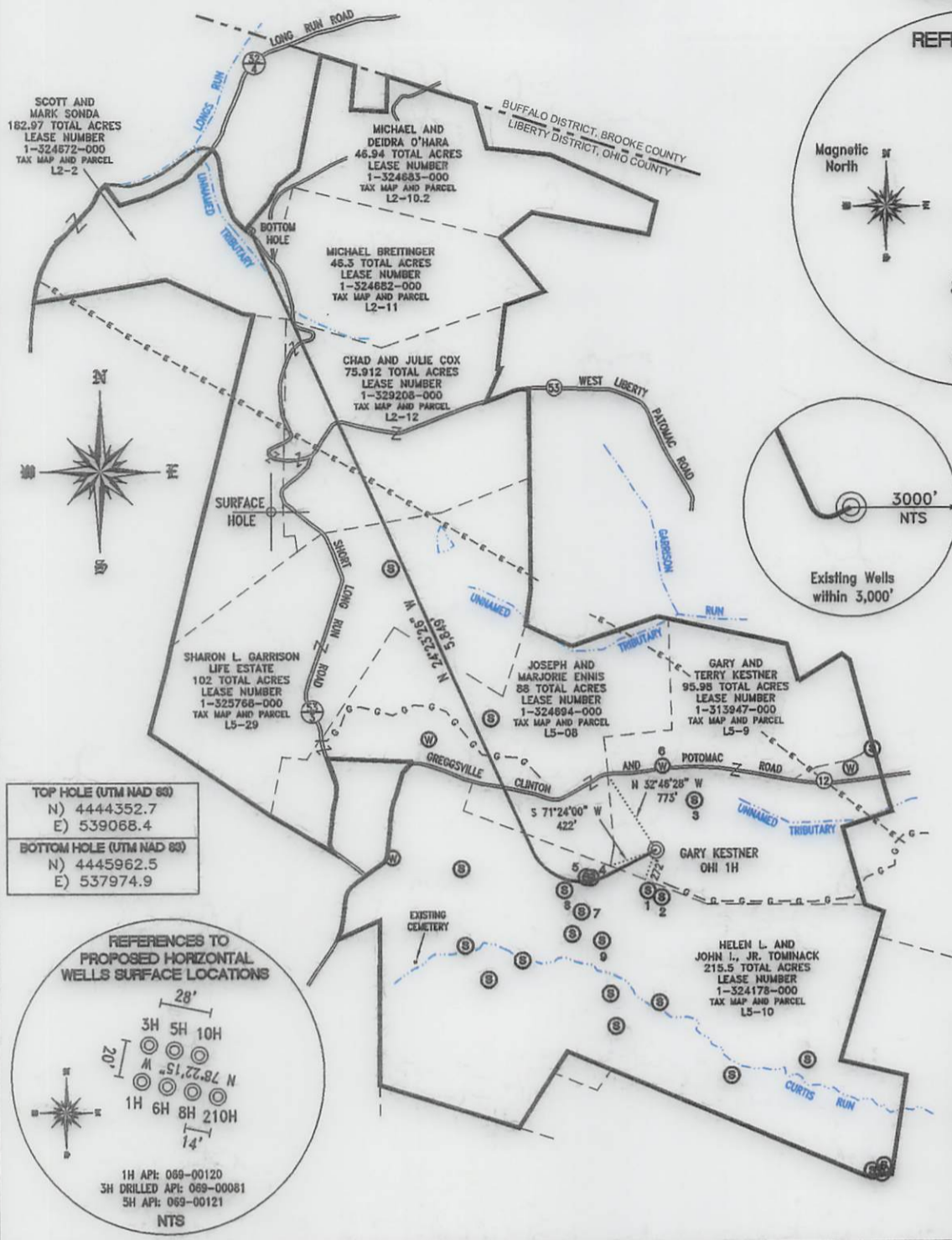
WELL: GARY KESTNER OH 1H
QUAD: BETHANY NORTH, WV



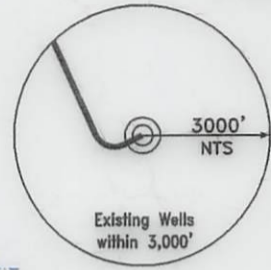
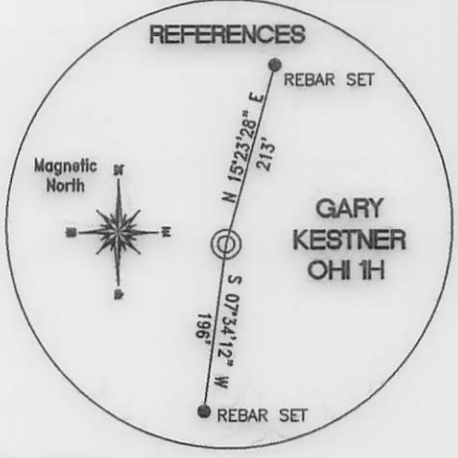
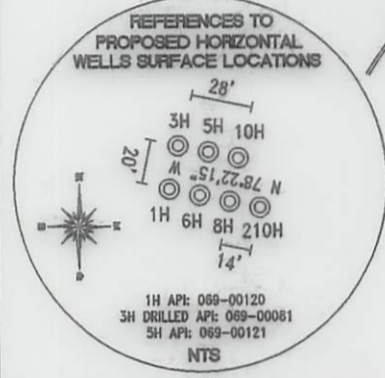
10/11/2013



GRAPHIC SCALE



TOP HOLE (UTM NAD 83)
N) 4444352.7
E) 539088.4
BOTTOM HOLE (UTM NAD 83)
N) 4445962.5
E) 537974.9



Ⓢ1	S 11°40'35\" W 357'
Ⓢ2	S 06°58'05\" E 410'
Ⓢ3	N 38°10'15\" E 547'
Ⓢ4	S 67°36'23\" W 616'
Ⓢ5	S 89°26'45\" W 651'
Ⓢ6	N 04°51'13\" E 733'
Ⓢ7	S 50°54'51\" W 839'
Ⓢ8	S 66°53'53\" W 869'
Ⓢ9	S 31°23'30\" W 912'

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 FEBRUARY 2011
State Plane Coordinates & NAD 83 Lat/Long by differential submeter mapping grade GPS
Drafted by: E.A.M.

FILE #: CHE 049
DRAWING #: 1858
SCALE: PLAT 1" = 1400'
TICK MARK 1" = 2,000'
MINIMUM DEGREE OF ACCURACY: 1/200
PROVEN SOURCE OF ELEVATION: SUBMETER MAPPING 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 Dipsal Production Deep
 Gas Liquid Injection Storage Shallow

WATERSHED: UPPER OHIO SOUTH ELEVATION: 1,292'
COUNTY/DISTRICT: OHIO / LIBERTY QUADRANGLE: BETHANY, WV
SURFACE OWNER: GARY AND TERRY KESTNER ACREAGE: 95.98 +/-
OIL & GAS ROYALTY OWNER: GARY AND TERRY KESTNER ACREAGE: 807.302 +/-

LEASE NUMBERS: _____

DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE
PLUG OFF FORMATION PERFORATE NEW FORMATION PLUG & ABANDON
CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY): _____

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: TVD: 6,450' TMD: 13,113'
WELL OPERATOR: CHESAPEAKE APPALACHIA, LLC DESIGNATED AGENT: ERIC GILLESPIE
ADDRESS: PO BOX 18496 ADDRESS: PO BOX 6070
CITY: OKLAHOMA CITY STATE: OK ZIP CODE: 73154-0496 CITY: CHARLESTON STATE: WV ZIP CODE: 25301

DATE: JUNE 7, 2013
OPERATOR'S WELL #: GARY KESTNER OHI 1H
API WELL #: 47 69 00120H6A MOD
STATE COUNTY PERMIT

10/11/2013