



west virginia department of environmental protection

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

Jim Justice, Governor
Austin Caperton, Cabinet Secretary
www.dep.wv.gov

PERMIT MODIFICATION APPROVAL
Horizontal 6A / Horizontal 6A Well - 1

EQT PRODUCTION COMPANY
120 PROFESSIONAL PLACE
BUILDING II
BRIDGEPORT, WV 26330

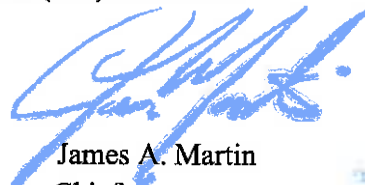
Re: Permit Modification Approval for 516208
47-085-10232-00-00

Changing azimuth of well-bore.

EQT PRODUCTION COMPANY

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.

If there are any questions, please feel free to contact me at (304) 926- 0450.



James A. Martin
Chief

Operator's Well Number: 516208
Farm Name: MORTON, JERRY
U.S. WELL NUMBER: 47-085-10232-00-00
Horizontal 6A / Horizontal 6A Well - 1
Date Issued: 1/23/2017

Promoting a healthy environment.

01/27/2017



August 18, 2016

Mr. Gene Smith
West Virginia Department of Environmental Protection
Office of Oil and Gas
601 57th Street SE
Charleston, WV 25304

Re: Modification of 47-085-10232

Dear Mr. Smith,

Enclosed is an updated WW-6B, schematics, WW-6A1, mylar plat and rec plan. The wellbore azimuth has been changed. The top hole has not moved.

If you have any questions, please do not hesitate to contact me at (304) 848-0076.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Vicki Roark'.

Vicki Roark
Permitting Supervisor-WV

Enc.

Received
Office of Oil & Gas
AUG 19 2016

01/27/2017

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

1) Well Operator: EQT Production Company 306686 Ritchie Clay Pennsboro/Pullman
Operator ID County District Quadrangle

2) Operator's Well Number: 516208 Well Pad Name: PEN54

3) Farm Name/Surface Owner: Jerry Morton etal Public Road Access: Rt. 50

4) Elevation, current ground: 1016' Elevation, proposed post-construction: 1016'

5) Well Type (a) Gas Oil Underground Storage
Other

(b) If Gas Shallow Deep
Horizontal

6) Existing Pad: Yes or No Yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Marcellus, 6305', 49', 2190 PSI

8) Proposed Total Vertical Depth: 6305

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 17863

11) Proposed Horizontal Leg Length: 10413

12) Approximate Fresh Water Strata Depths: 99,105,302,627,729,745,770

13) Method to Determine Fresh Water Depths: By offset wells

14) Approximate Saltwater Depths: 1350

15) Approximate Coal Seam Depths: 326,789,867,1078,1182

16) Approximate Depth to Possible Void (coal mine, karst, other): None reported

17) Does Proposed well location contain coal seams directly overlying or adjacent to an active mine? Yes No

(a) If Yes, provide Mine Info: Name: _____
Depth: _____
Seam: _____
Owner: _____

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18)

CASING AND TUBING PROGRAM

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
Conductor	20	New	A-500	78.6	40	40	60 ft ³ / CTS
Fresh Water	13 3/8	New	J-55	54.5	900	900	793 ft ³ / CTS
Coal							
Intermediate	9 5/8	New	P-110	40	5176	5176	2036 ft ³ / CTS
Production	5 1/2	New	P-110	20	17863	17863	TOC is 50' above top producing zone
Tubing	2 3/8		J-55	4.7		May not be run, if run set 40' above top perf or 80° inclination.	
Liners							

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	20	26	.375	1378	1102	Class A	1.18
Fresh Water	13 3/8	17 1/2	.38	2700	2160	See Variance	1.19
Coal							
Intermediate	9 5/8	12 3/8	.395	7900	6320	See Variance	1.19
Production	5 1/2	8 1/2	.361	12640	10112	Class H	1.07/1.86
Tubing	2 3/8	NA	.19	7700			
Liners							

PACKERS

Kind:				
Sizes:				
Depths Set:				

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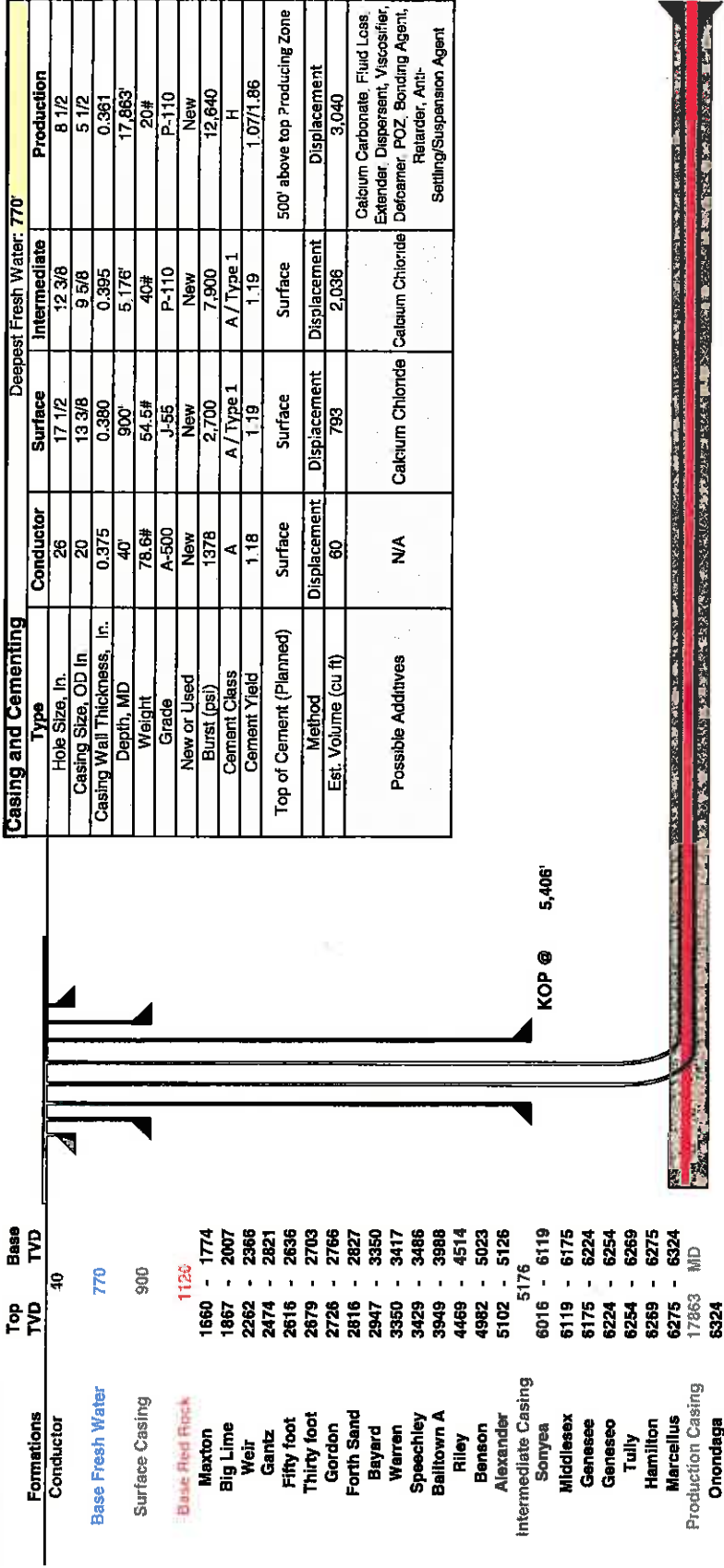
AUG 19 2016

Well 516208 (PEN54H11)

EQT Production
Pennsboro
Blitchie County, WV

Azimuth 155
 Vertical Section 10823

Note: Diagram is not to scale



Land curve @ 6,305' TVD
 7,450' MD

Est. TD @ 6,305' TVD
 17,863' MD

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AUG 19 2016

10,413' Lateral

Proposed Well Work:
 Drill and complete a new horizontal well in the Marcellus formation.
 Drill the vertical to an approximate depth of 5406'.
 Kick off and drill curve. Drill lateral in the Marcellus. Cement casing.

19) Describe proposed well work, including the drilling and plugging back of any pilot hole:

Drill and complete a new horizontal well in the Marcellus Formation. Drill the vertical to an approximate depth of 5406'. Kick off and drill curve. Drill the lateral in the Marcellus. Cement casing.

20) Describe fracturing/stimulating methods in detail, including anticipated max pressure and max rate:

Hydraulic fracturing is completed in accordance with state regulations using water recycled from previously fractured wells and obtained from freshwater sources. This water is mixed with sand and a small percentage (less than 0.3%) of chemicals (including 15% Hydrochloric acid, gelling agent, gel breaker, friction reducer, biocide, and scale inhibitor), referred to in the industry as a "slickwater" completion. Maximum anticipated internal casing pressure is expected to be approximately 10000 psi, maximum anticipated treating rates are expected to average approximately 100 bpm. Stage lengths vary from 150 to 300 feet. Average approximately 200,000 barrels of water per stage. Sand sizes vary from 100 mesh to 20/40 mesh. Average approximately 200,000 pounds of sand per stage.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): no additional

22) Area to be disturbed for well pad only, less access road (acres): no additional

23) Describe centralizer placement for each casing string:

- Surface: Bow spring centralizers – One at the shoe and one spaced every 500’
- Intermediate: Bow spring centralizers– One at the shoe and one spaced every 500’.
- Production: One solid body centralizer spaced every joint from production casing shoe to KOP

24) Describe all cement additives associated with each cement type:

Conductor: Class A no additives
Surface (Type 1 Cement): 0-3% Calcium Chloride Used to speed the setting of cement slurries. .25% Flake Loss Circulation Material (LCM) is used to combat the loss of the cement slurry to a thief zone.
Intermediate (Type 1 Cement): 0-3% Calcium Chloride. Salt is used in shallow, low temperature formations to speed the setting of cement slurries. 0.25% flake. Loss Circulation Material (LCM) is used to combat the loss of whole drilling fluid or cement slurry (not filtrate) to a thief zone.
Production: Lead (Type H Cement): 0.2% CD-20 (dispersant makes cement easier to mix). .15% SuperFL-300 (fluid loss/lengthens thickening time) .15% SEC-10 (fluid loss) 50:50 POZ (extender)
Tail (Type H Cement): 0.2% Super CR-1 (Retarder). Lengthens thickening time. .3% Super FL-200 (fluid loss) .2% SEC-10 (Fluid loss). .2% SuperFL-350 (fluid loss) Reduces amount of water lost to formation. 60 % Calcium Carbonate. Acid solubility.

25) Proposed borehole conditioning procedures:

Surface: Circulate hole clean while rotating & reciprocating the drill string until cuttings diminish at surface.
Intermediate: Circulate hole clean while rotating & reciprocating the drill string until cuttings diminish at surface.
Production: Pump marker sweep with nut plug to determine actual hole washout. Calculate a gauge holes bottoms up volume. Perform a cleanup cycle by pumping 3-5 bottoms up or until the shakers are clean. Check volume of cuttings coming across the shakers every 15 minutes.

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Office of Oil & Gas

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*Note: Attach additional sheets as needed.

01/27/2017



4708510232

August 10, 2016

Mr. Gene Smith
West Virginia Department of Environmental Protection
Office of Oil and Gas
601 57th Street SE
Charleston, WV 25304

Re: Casing on Wells (PEN54)

Dear Mr. Smith,

EQT is requesting the 13-3/8" surface casing be set at 900' KB, 130' below the deepest fresh water and 33' below top of workable coal at 867' KB. We will set the 9-5/8" intermediate casing at 5176' KB, 50' below the Alexander formation.

If you have any questions, please do not hesitate to contact me at (304) 848-0076.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Vicki L'.

Vicki Roark
Permitting Supervisor

Enc.

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Office of Oil & Gas
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01/27/2017

WW-6A1
(5/13)

Operator's Well No. 516208

**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
see attached				

**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

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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: EQT Production Company
By: Victoria J. Roark
Its: Permitting Supervisor

Page 1 of 2

01/27/2017

Lease No.	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
105403	Ellen S. Francaviglia, et al (current royalty owner)		***	
	W.A. Flanagan, et al (original lessor)	The Philadelphia Company of West Virginia		LB63/295
	The Philadelphia Company of West Virginia	Pittsburgh and West Virginia Gas Company		DB55/362
	Pittsburgh and West Virginia Gas Company	Equitable Gas Company		DB 126/473 Doddridge
	Equitable Gas Company	Equitrans, Inc.		LB 201/253
	Equitrans, Inc.	Equitrans, LP.		AB269/182
	Equitrans, LP	Equitable Production/Eastern States, Inc.		DB234/830
	Equitable Production/Eastern States, Inc.	Equitable Production Company		CB557/56
Equitable Production Company	EQT Production Company		DB 281/346	
105412	Mable Broadwater, et al (current royalty owner)		***	
	Creed Collins and Susan Collins (original lessor)	W.A. Flanagan		LB24/317
	W.A. Flanagan	J.L. Newman		LB53/362
	J.L. Newman	The Philadelphia Company of West Virginia		LB53/363
	The Philadelphia Company of West Virginia	Pittsburgh and West Virginia Gas Company		LB55/362
	Pittsburgh and West Virginia Gas Company	Equitable Gas Company		DB126/473 Doddridge
	Equitable Gas Company	Equitrans, Inc.		LB201/697
	Equitrans, Inc.	Equitrans, LP.		AB269/182
	Equitrans, LP	Equitable Production/Eastern States, Inc.		DB234/830
	Equitable Production/Eastern States, Inc.	EQT Production Company		CB557/56
	Equitable Production/Eastern States, Inc.	EQT Production Company		DB281/346
105406	Jane Phillips, et al (current royalty owner)		***	
	Nathaniel Dodd and Jennie Dodd (original lessor)	W.A. Flanagan		LB29/337
	W.A. Flanagan	J.L. Newman		LB53/362
	J.L. Newman	The Philadelphia Company of West Virginia		LB53/363
	The Philadelphia Company of West Virginia	Pittsburgh and West Virginia Gas Company		LB55/359
	Pittsburgh and West Virginia Gas Company	Equitable Gas Company		DB126/473 Doddridge
	Equitable Gas Company	Equitrans, Inc		DB281/253
	Equitrans, Inc	Equitrans, LP		AB269/182
	Equitrans, LP	Equitable Production-Eastern States, Inc.		DB234/830
	Equitable Production/Eastern States, Inc.	Equitable Production Company		CB557/56
Equitable Production Company	EQT Production Company		DB281/346	
1005921	Dean E. Flanagan, et al (current royalty owner)		***	
	Robert F. Johnson, et al (original lessor)	Eastern American Energy Corporation		LB202/249
	Eastern American Energy Corporation	Energy Corporation of American (Merger)		CB6/450
	Energy Corporation of American	Antero Resources Corporation		LB257/377
	Antero Resources Corporation	EQT Production Company		LB277/1037
105675	Orma M. Johnson, et al (current royalty owner)		***	
	E.J. Taylor and Laura Taylor, his wife (original lessor)	J.L. Newman		LB30/149
	J.L. Newman	The Philadelphia Company of West Virginia		LB91/265
	E.J. Taylor et ux	The Philadelphia Company of West Virginia		LB30/151
	The Philadelphia Company of West Virginia	Pittsburgh and West Virginia Gas Company		LB55/362
	Pittsburgh and West Virginia Gas Company	Equitable Gas Company		DB126/515
	Equitable Gas Company	Equitrans, Inc.		LB201/253
	Equitrans, Inc.	Equitrans, LP.		AB269/182
	Equitrans, LP	Equitable Production/Eastern States, Inc.		DB234/830
	Equitable Production/Eastern States, Inc.	EQT Production Company		CB557/56
	Equitable Production/Eastern States, Inc.	EQT Production Company		DB281/346

*** We will pay one-eighth of the total amount paid to or received by or allowed to the owner of the working interest at the wellhead for the oil or gas so extracted, produced, or marketed before deducting the amount to be paid to or set aside for the owner of the oil or gas in place, on all such oil or gas to be extracted, produced, or marketed from the well.

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Office of Oil & Gas
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01/27/2017

BOTTOM HOLE LATITUDE 39°15'00"

PEN54
WV 516208
EQT PRODUCTION COMPANY

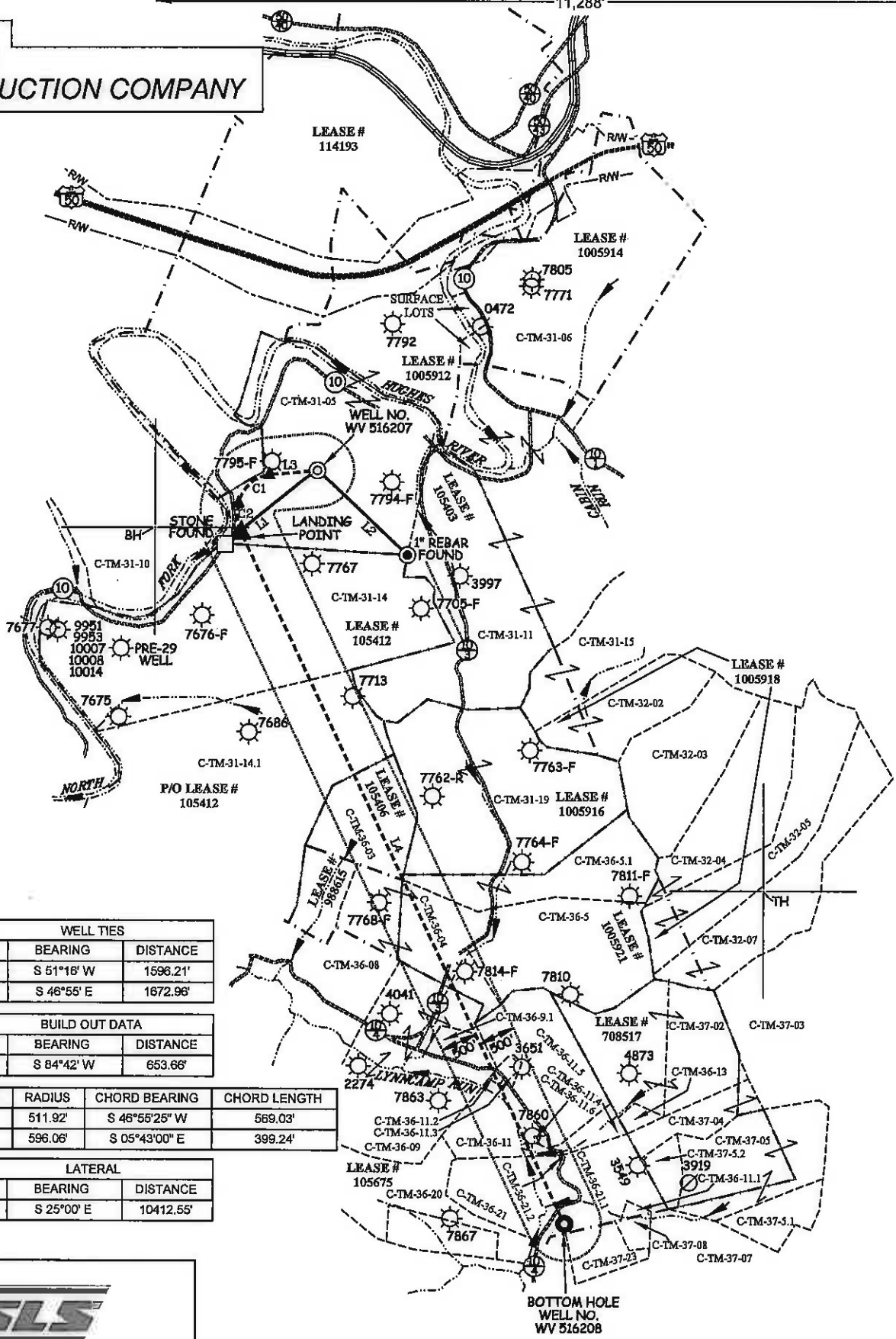
NAD'27 GRID NORTH

7,525'

12,473'

BOTTOM HOLE LONGITUDE 80°52'30"

BOTTOM HOLE LONGITUDE 80°55'00"



WELL TIES		
ID	BEARING	DISTANCE
L1	S 51°16' W	1596.21'
L2	S 48°55' E	1672.96'

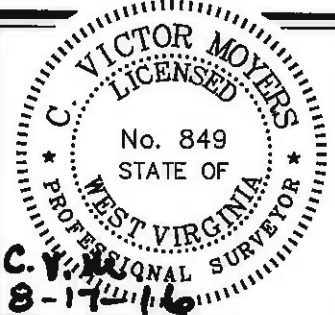
BUILD OUT DATA		
ID	BEARING	DISTANCE
L3	S 84°42' W	653.66'

CURVE	ARC LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C1	603.36'	511.92'	S 48°55'25" W	569.03'
C2	407.10'	596.06'	S 05°43'00" E	399.24'

LATERAL		
ID	BEARING	DISTANCE
L4	S 25°00' E	10412.55'

SLS
Land & Energy Development
Solutions from the ground up.
P.O. Box 150 • 12 Vanhorn Drive • Glenville, WV 26351 • (304) 462-5634
www.slsurveyors.com

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)
 NAD'27 S.P.C.(FT) N. 279,079.34 E. 1,596,838.47
 NAD'27 GEO. LAT-(N) 39.257423 LONG-(W) 80.927333
 NAD'83 UTM (M) N. 4,345,355.20 E. 506,284.13
LANDING POINT
 NAD'27 S.P.C.(FT) N. 278,293.02 E. 1,594,811.72
 NAD'27 GEO. LAT-(N) 39.255054 LONG-(W) 80.930911
 NAD'83 UTM (M) N. 4,345,092.14 E. 505,975.64
BOTTOM HOLE
 NAD'27 S.P.C.(FT) N. 288,796.04 E. 1,599,212.26
 NAD'27 GEO. LAT-(N) 39.229339 LONG-(W) 80.914848
 NAD'83 UTM (M) N. 4,342,239.61 E. 507,364.25



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.

LEGEND

- LEASE LINE
- SURFACE LINE
- WELL LATERAL
- OFFSET LINE
- TIE LINE
- CREEK
- ROAD
- COUNTY ROUTE
- STATE ROUTE
- PROPOSED WELL
- EXISTING WELL
- PERMITTED WELL
- CLAY DISTRICT
- TAX MAP-PARCEL

01/27/2017

SCALE 1" = 2000' FILE NO. 8083P516208R2
 DATE JUNE 25, 20 15
 REVISED 07/01/15 & 08/17/16
 OPERATORS WELL NO. WV 516208
 API WELL NO. 47 - OXY - 10232
 STATE COUNTY PERMIT

STATE OF WEST VIRGINIA
 DIVISION OF ENVIRONMENTAL PROTECTION
 OFFICE OF OIL AND GAS

WELL OPERATOR **EQT PRODUCTION COMPANY** DESIGNATED AGENT **REX C. RAY**
 ADDRESS **115 PROFESSIONAL PLACE P.O. BOX 280** ADDRESS **115 PROFESSIONAL PLACE P.O. BOX 280**
BRIDGEPORT, WV 26330 **BRIDGEPORT, WV 26330**

COUNTY NAME
PERMIT

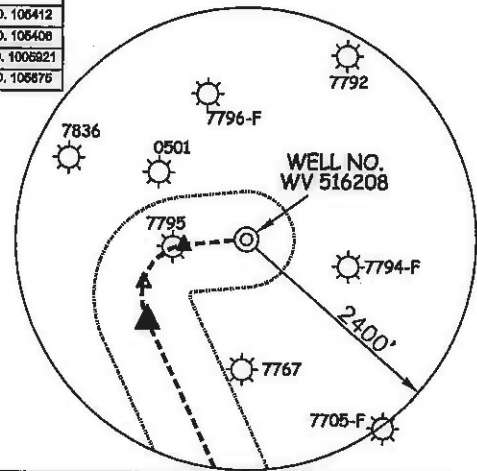
BOTTOM HOLE LATITUDE 39°15'00"

11,288'

PEN54
WV 516208
EQT PRODUCTION COMPANY

ROYALTY OWNERS		
MABLE BROADWATER ET AL	380 AC±	LEASE NO. 106412
JANE PHILLIPS ET AL	86 AC±	LEASE NO. 106408
DEAN E. FLANAGAN ET AL	153 AC±	LEASE NO. 106621
ORMA M. JOHNSON ET AL	667.5 AC±	LEASE NO. 106676

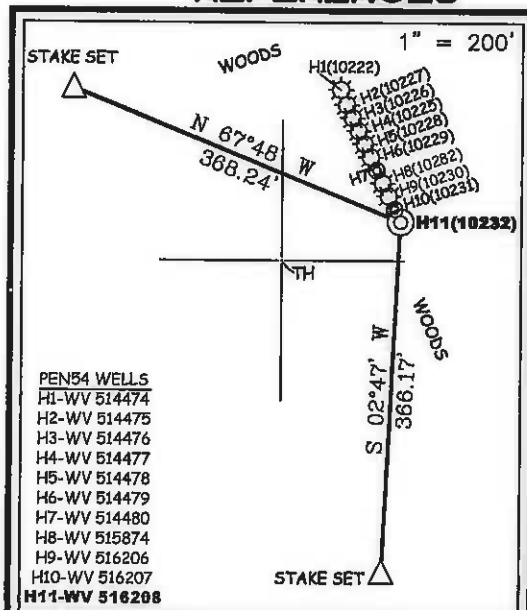
C-TM-31-05	JERRY MORTON ET AL	243.50 ACRES±
C-TM-31-14	HEARTWOOD FORESTLAND FUND IV LP	185.30 ACRES±
C-TM-31-11	HEARTWOOD FORESTLAND FUND IV LP	351.89 ACRES±
C-TM-31-15	HEARTWOOD FORESTLAND FUND IV LP	53 ACRES±
C-TM-31-19	RANDAL LAMM	126.32 ACRES±
C-TM-32-02	COASTAL FOREST RESOURCES COMPANY d/b/a COASTAL TIMBERLANDS COMPANY	42.51 ACRES±
C-TM-32-03	COASTAL FOREST RESOURCES COMPANY d/b/a COASTAL TIMBERLANDS COMPANY	56.14 ACRES±
C-TM-32-04	COASTAL FOREST RESOURCES COMPANY d/b/a COASTAL TIMBERLANDS COMPANY	47 ACRES±
C-TM-36-5.1	RANDAL LAMM	44 ACRES±
C-TM-36-05	RONNIE WAGES	66.95 ACRES±
C-TM-32-05	COASTAL FOREST RESOURCES COMPANY d/b/a COASTAL TIMBERLANDS COMPANY	66.45 ACRES±
C-TM-32-07	COASTAL FOREST RESOURCES COMPANY d/b/a COASTAL TIMBERLANDS COMPANY	57.60 ACRES±
C-TM-37-03	JACK MACKAY ET AL	235.03 ACRES±
C-TM-37-02	RONALD DUDD ET AL	70.40 ACRES±
C-TM-37-04	JEFFERY JETT	18.31 ACRES±
C-TM-37-05	EDWIN G. WILLIAMS	40.77 ACRES±
C-TM-37-5.1	EDWIN G. WILLIAMS ET AL	23 ACRES±
C-TM-37-07	MARY SIMMONS (LIFE) ET AL	30 ACRES±
C-TM-37-08	REBECCA COTTRILL ET AL	4.3 ACRES±
C-TM-36-23	CHARLES E. COTTRILL ET AL	16.15 ACRES±
C-TM-37-5.2	ROGER & MARY WILLIAMS	8.068 ACRES±
C-TM-36-21.1	JEFFERY JETT	25.015 ACRES±
C-TM-36-21	JUNIOR COTTRILL ET AL	33.065 ACRES±
C-TM-36-21.2	JEFFERY JETT	0.472 ACRES±
C-TM-36-11.4	GARY COTTRILL	5.051 ACRES±
C-TM-36-13	ROY DODD	2.51 ACRES±
C-TM-36-11.5	GARY COTTRILL	40.847 ACRES±
C-TM-36-11	GARY COTTRILL ET AL	23.322 ACRES±
C-TM-36-11.1	PAUL COTTRILL	1.07 ACRES±
C-TM-36-11.2	JEFFERY & HEATHER MACE	0.50 ACRES±
C-TM-36-11.3	SHAWN GIBBONS	1.563 ACRES±
C-TM-36-11.6	GARY COTTRILL	0.94 ACRES±
C-TM-36-20	EVERETT McATEE ET AL	48.88 ACRES±
C-TM-36-09	PAUL HILVERS	90.70 ACRES±
C-TM-36-9.1	RANDALL & CYNTHIA OWENS	3.9997 ACRES±
C-TM-36-08	FOUSS FARMS LLC	19 ACRES±
C-TM-36-04	JACK HARGIS ET AL	45.47 ACRES±
C-TM-36-03	RANDAL LAMM	45.5 ACRES±
C-TM-31-14.1	HEARTWOOD FORESTLAND FUND IV LP	168.20 ACRES±
C-TM-31-10	DONALD DEEM ET AL	133.07 ACRES±
C-TM-31-06	HEARTWOOD FORESTLAND FUND IV LP	79.88 ACRES±



(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)

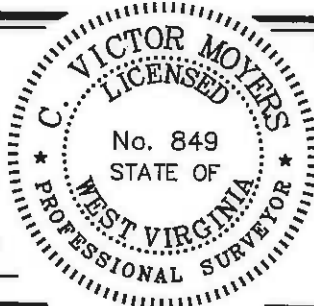
NAD'27 S.P.C.(FT)	N. 279,079.34	E. 1,595,838.47
NAD'27 GEO.	LAT-(N) 39.257423	LONG-(W) 80.927333
NAD'83 UTM (M)	N. 4,345,355.20	E. 506,284.13
LANDING POINT		
NAD'27 S.P.C.(FT)	N. 278,233.02	E. 1,594,811.72
NAD'27 GEO.	LAT-(N) 39.255054	LONG-(W) 80.930911
NAD'83 UTM (M)	N. 4,345,092.14	E. 505,975.64
BOTTOM HOLE		
NAD'27 S.P.C.(FT)	N. 268,796.04	E. 1,599,212.26
NAD'27 GEO.	LAT-(N) 39.229339	LONG-(W) 80.914848
NAD'83 UTM (M)	N. 4,342,239.61	E. 507,364.25

REFERENCES



NOTES ON SURVEY

1. NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS ≥ 2500 SQ. FT. OR DWELLINGS WERE FOUND WITHIN 625' OF THE CENTER OF PROPOSED WELL PAD.
2. WELL SPOT CIRCLE & TOPO MARK SCALE IS 1"=2000'



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 DIVISION OF ENVIRONMENTAL PROTECTION.

P.S. 849 *C. Victor Moyers*

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.
 DATE JUNE 25, 20 15
 REVISED 07/01/15 & 08/17/16
 OPERATORS WELL NO. WV 516208
 API WELL NO. 47-085-10232
 STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 8083P516208R2.dwg
 HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK) SCALE SEE NOTE 2

STATE OF WEST VIRGINIA
 DIVISION OF ENVIRONMENTAL PROTECTION
 OFFICE OF OIL AND GAS



WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL IF "GAS" PRODUCTION STORAGE DEEP SHALLOW

LOCATION: PAD ELEVATION 1,016' WATERSHED NORTH FORK HUGHES RIVER
 DISTRICT CLAY COUNTY RITCHIE QUADRANGLES PENNSBORO & PULLMAN 7.5'

SURFACE OWNER JERRY MORTON ET AL ACREAGE 243.50±
 ROYALTY OWNER ELLEN S. FRANCAVIGLIA ET AL ACREAGE 268±
 PROPOSED WORK: LEASE NO. 105403 **01/27/201**

DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION PERFORATE NEW FORMATION PLUG AND ABANDON CLEAN OUT AND REPLUG OTHER

PHYSICAL CHANGE IN WELL (SPECIFY) _____ TARGET FORMATION MARCELLUS
 ESTIMATED DEPTH 6,305'

WELL OPERATOR EQT PRODUCTION COMPANY DESIGNATED AGENT REX C. RAY
 ADDRESS 115 PROFESSIONAL PLACE P.O. BOX 280 BRIDGEPORT, WV 26330 ADDRESS 115 PROFESSIONAL PLACE P.O. BOX 280 BRIDGEPORT, WV 26330

7,525'

12,473'

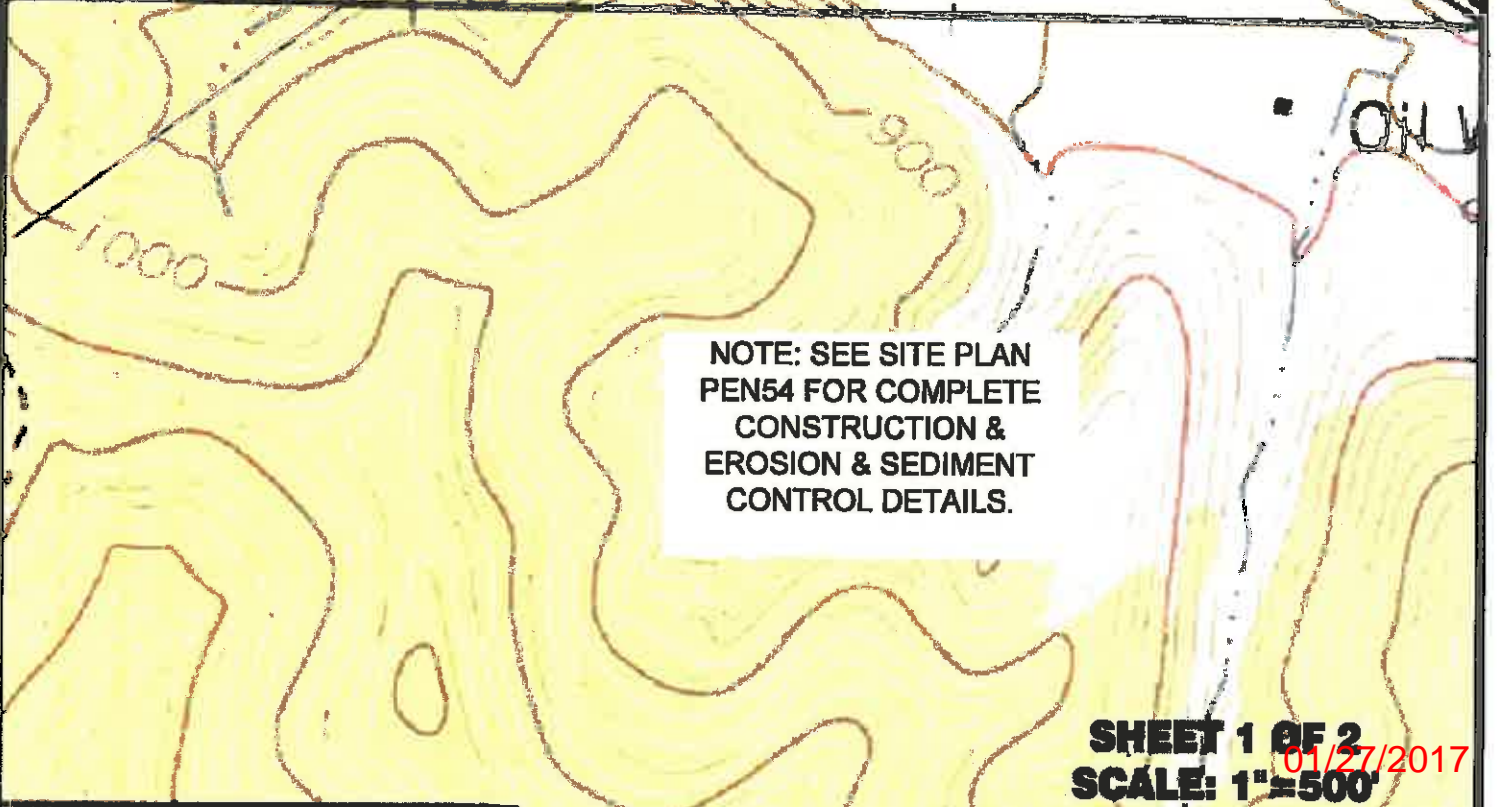
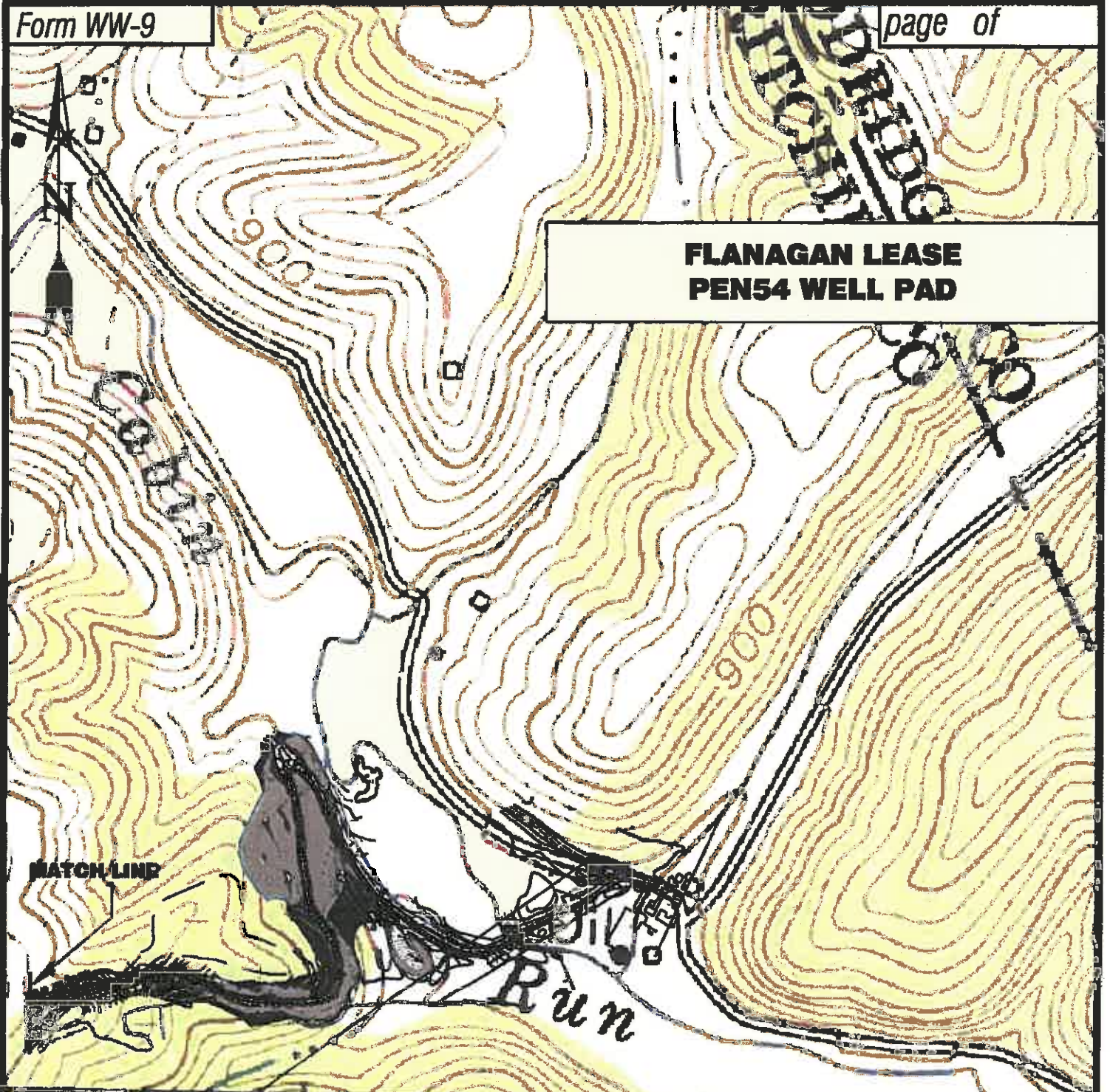
BOTTOM HOLE LONGITUDE 80°52'30"

BOTTOM HOLE LONGITUDE 80°55'00"

COUNTY NAME

PERMIT

**FLANAGAN LEASE
PEN54 WELL PAD**



**NOTE: SEE SITE PLAN
PEN54 FOR COMPLETE
CONSTRUCTION &
EROSION & SEDIMENT
CONTROL DETAILS.**

SHEET 1 OF 2
SCALE: 1"=500'



Professional Energy Consultants
A DIVISION OF BATH LAND SURVEYING, INC.



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(804) 452-5814
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**TOPO SECTIONS OF PENNSBORO 7.5'
TOPO QUADRANGLE**

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NOTE: SEE SITE PLAN PEN54 FOR COMPLETE CONSTRUCTION & EROSION & SEDIMENT CONTROL DETAILS.

**FLANAGAN LEASE
PEN54 WELL PAD**

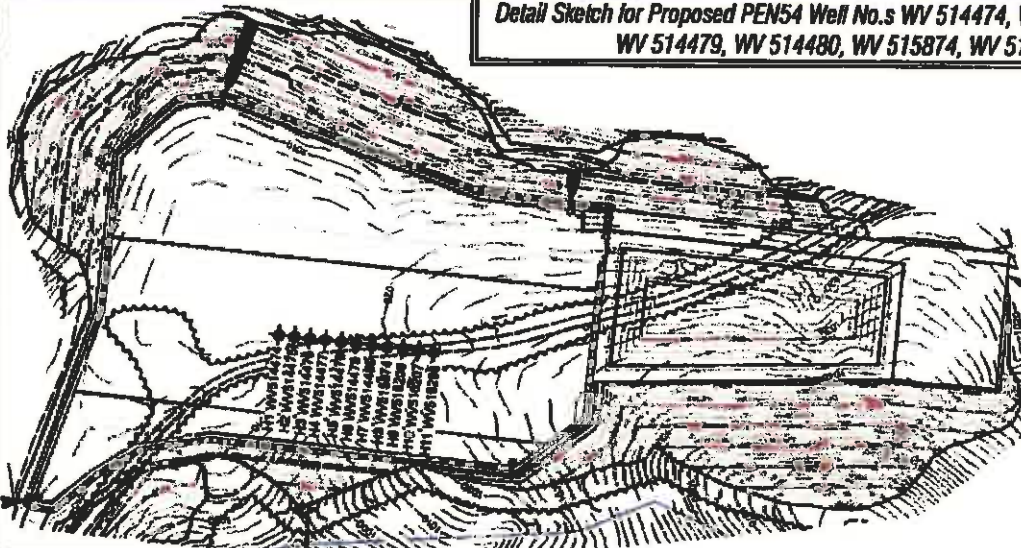
**SHEET 2 OF 2
SCALE: 1"=500'**



MATCH LINE

0908

Detail Sketch for Proposed PEN54 Well No.s WV 514474, WV 514475, WV 514476, WV 514477, WV 514478, WV 514479, WV 514480, WV 515874, WV 516206, WV 516207 & WV 516208



NOTE: SEE SITE PLAN PEN54 FOR COMPLETE CONSTRUCTION & EROSION & SEDIMENT CONTROL DETAILS. 01/27/2017

Professional Energy Consultants
ADVISOR OF STATE LAND SURVEYING, INC.

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PROJECT MGMT.
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TOPO SECTIONS OF PENNSBORO 7.5' TOPO QUADRANGLE

DRAWN BY K.E.S.	FILE NO. 8083	DATE 02/08/16	CADD FILE: 808PEN54WG-2.dwg
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Not To Scale