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

August 21, 2014

WELL WORK PERMIT

Horizontal 6A Well

This permit, API Well Number: 47-10303005, issued to TRANS ENERGY, INC., is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to all conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas inspector.

Please be advised that form WR-35, Well Operators Report of Well Work is to be submitted to this office within 90 days completion of permitted well work, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

In addition to the applicable requirements of this permit, and the statutes and rules governing oil and gas activity in WV, this permit may contain specific conditions which must be followed. Permit conditions are attached to this cover letter.

Per 35CSR-4-5.2.g this permit will expire in two (2) years from the issue date unless permitted well work is commenced. If there are any questions, please feel free to contact me at (304) 926-0499 ext. 1654.

James Martin
Chief

Operator's Well No: ANDERSON 11H
Farm Name: TRANS ENERGY, INC
API Well Number: 47-10303005
Permit Type: Horizontal 6A Well
Date Issued: 08/21/2014

Promoting a healthy environment.

API Number: 103-03005

PERMIT CONDITIONS

West Virginia Code § 22-6A-8(d) allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

CONDITIONS

1. This proposed activity may require permit coverage from the United States Army Corps of Engineers (USACE). Through this permit, you are hereby being advised to consult with USACE regarding this proposed activity.

2. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code § 22-6A-5a (12), which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than fifty (50) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.

3. When compacting fills, each lift before compaction shall not be more than 12 inches in height, and the moisture content of the fill material shall be within limits as determined by the Standard Proctor Density test of the actual soils used in specific engineered fill, ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort, to achieve 95 % compaction of the optimum density. Each lift shall be tested for compaction, with a minimum of two tests per lift per acre of fill. All test results shall be maintained on site and available for review.

4. Operator shall install signage per § 22-6A-8g (6) (B) at all source water locations included in their approved water management plan within 24 hours of water management plan activation.

5. Oil and gas water supply wells will be registered with the Office of Oil and Gas and all such wells will be constructed and plugged in accordance with the standards of the Bureau for Public Health set forth in its Legislative rule entitled *Water Well Regulations*, 64 C.S.R. 19. Operator is to contact the Bureau of Public Health regarding permit requirements. In lieu of plugging, the operator may transfer the well to the surface owner upon agreement of the parties. All drinking water wells within fifteen hundred feet of the water supply well shall be flow tested by the operator upon request of the drinking well owner prior to operating the water supply well.

6. Pursuant to the requirements pertaining to the sampling of domestic water supply wells/springs the operator shall, no later than thirty (30) days after receipt of analytical data provide a written copy to the Chief and any of the users who may have requested such analyses.

7. If any explosion or other accident causing loss of life or serious personal injury occurs in or about a well or well work on a well, the well operator or its contractor shall give notice, stating the particulars of the explosion or accident, to the oil and gas inspector and the Chief, within 24 hours of said accident.

8. During the casing and cementing process, in the event cement does not return to the surface, the oil and gas inspector shall be notified within 24 hours.

9. Operator shall provide the Office of Oil & Gas notification of the date that drilling commenced on this well. Such notice shall be provided by sending an email to DEPOOGNotify@wv.gov within 30 days of commencement of drilling.

103-03005

WW-6B
(9/13)

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

		103	4	349
1) Well Operator: Trans Energy Inc	494481575	Wetzel	Grant	Folsom
	Operator ID	County	District	Quadrangle

2) Operator's Well Number: Anderson 11H Well Pad Name: Anderson

3) Farm Name/Surface Owner: Trans Energy Inc Public Road Access: 84/1

4) Elevation, current ground: 1012' Elevation, proposed post-construction: 1012'

5) Well Type (a) Gas ■ Oil ____ Underground Storage ____
Other ____
(b)If Gas Shallow ■ Deep ____
Horizontal ■

DMH
4-24-14

6) Existing Pad: Yes or No Yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Associated Pressure(s):
Marcellus Shale - 7500' 60' thick 3000 psi

8) Proposed Total Vertical Depth: 7500'

9) Formation at Total Vertical Depth: Marcellus Shale

10) Proposed Total Measured Depth: 12,500'

11) Proposed Horizontal Leg Length: 5,000'

12) Approximate Fresh Water Strata Depths: 60', 150'

13) Method to Determine Fresh Water Depths: Water Wells drilled in the County, information provided by Health Dept.

14) Approximate Saltwater Depths: 1525'

15) Approximate Coal Seam Depths: N/A

16) Approximate Depth to Possible Void (coal mine, karst, other): N/A ✓

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	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling	INTERVALS: Left in Well	CEMENT: Fill-up (Cu. Ft.)
Conductor	20	new	J-55	94	110'	110'	CTS
Fresh Water	13 3/8	new	J-55	54.5	400'	400'	CTS
Coal							
Intermediate	9 5/8	new	J-55	36	3000'	3000'	CTS
Production	5 1/2	new	P-110	20	12,500'	12,500'	CTS
Tubing							
Liners							

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TYPE	Size	Wellbore Diameter	Wall Thickness	Burst Pressure	Cement Type	Cement Yield (cu. ft./k)
Conductor	20	26	0.438	1530	Type 1	13 cu ft/sk
Fresh Water	13 3/8	17 1/2	.38	2730	Type 1	1.25 cu ft/sk
Coal						
Intermediate	9 5/8	12 1/2	.352	3520	Type 1	1.26 cu ft/sk
Production	5 1/2	8 3/4	.361	1360	Poz H Class H	1.18 cu ft/sk
Tubing						
Liners						

PACKERS

Kind:				
Sizes:				
Depths Set:				

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(9/13)

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

Drill and complete horizontal well in the Marcellus Shale. Lateral to be approximately 5,000' in length.

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

A water fracture treatment is proposed a mixture of sand and water will be used to stimulate the Marcellus Shale.

Max Pressure 10,000
Max Rate 100 bbl/min

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): As Built

22) Area to be disturbed for well pad only, less access road (acres): As Built

23) Describe centralizer placement for each casing string:

Fresh Water String - 1 centralizer every 160'
Intermediate String - 1 centralizer every 100' from 3300' to 900'
Production String - 1 centralizer evry 80' from TD to above ROP (7000')

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

Standard Type 1 cement - retarder and fluid loss (surface and interm)
Type 1 = 2% $CaCl_2$ + Y4# Flake - Surface Cement mixed @ 15.6 ppg $CaCl_2$, Flake (cellophane flake)
Type 1 = 2% $CaCl_2$ + Y4# Flake - Intermediate Cement mixed @ 15.6 ppg
Class H in lateral - retarder and fluid loss and free water additive

25) Proposed borehole conditioning procedures:

Before cement casing mud will be thinned and all gas will be circulated out of the mud before cementing.

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*Note: Attach additional sheets as needed.

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WELLBORE SCHEMATIC

Well Name:	Anderson 11H
County:	Wetzel
Latitude:	39.45744
Longitude:	-80.6102
TVD:	7,500 ft
TD:	12,500 ft

Type of Casing	Size	Footage
Conductor	20"	110'
Fresh Water	13-3/8"	400'
Intermediate	9-5/8"	3,000'
Produciton	5-1/2"	12,500'

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1-03-03005

CEMENTING ADDITIVES

Type		Product no.	Product properties						
			Usage	Properties	Application temperature	Salt resistance	Anti-freezing	Solubility	Specification
Multi-functional fluid loss additives	AMPS quadripolymer	CG610L Liquid	Water mixed	White or faint yellow viscous liquid	≤180℃	Saturated salt water	-15℃	Soluble in cold water	Cement slurry has good fluidity, and it is not extended.
		CG610S-P Powder	Dry & water mixed dual purpose	White or faint yellow powder	≤180℃	Saturated salt water	—	Soluble in cold water	High purity, small dosage, good slurry fluidity and not extended.
		CG610S-D High purity powder	Dry mixed	Pray powder	≤180℃	Saturated salt water	—	Partly water soluble	Easy storage, long durability good slurry fluidity and not extended.
		CG610S-T Powder	Dry & water mixed dual purpose	White powder	≤180℃	Saturated salt water	—	Soluble in cold water	Using flexibly and conveniently, slurry's fluidity is good and not extended.
	AMPS terpolymer	CG510L Liquid	Water mixed	White or faint yellow viscous liquid	≤150℃	18% salt water	-15℃	Soluble in cold water	Slurry's fluidity is good, slight extend.
		CG510S-P High purity powder	Dry & water mixed dual purpose	White or faint yellow powder	≤150℃	18% salt water	—	Soluble in cold water	High purity, small dosage, good slurry fluidity and slight extended.
		CF510S Powder	water mixed dual purpose	faint yellow powder	≤150℃	18% salt water	—	Partly Soluble in cold water	Easy storage, long compatibility with all kinds cement and it has the properties of fluid loss controlling. Cement slurry with it is slight extended.
Moderate temperature retarder		CH210L Liquid	Water mixed	Colorless liquid	55-110℃	18% salt water	-2℃	Soluble in cold water	—
		CH210S-P High purity powder	Dry & water mixed dual purpose	White powder	55-110℃	18% salt water	—	Soluble in cold water	High purity and low dosage.
		CH210S-D Powder	Dry mixed	Gray powder	55-110℃	18% salt water	—	Partly water soluble	Easy storage and long durability.
		CH210S-T Powder	Dry & water mixed dual purpose	White powder	55-110℃	18% salt water	—	Soluble in cold water	Using flexibly and conveniently.
High temperature retarder		CH310L Liquid	Water mixed	Brownish black liquid	90-150℃	18% salt water	-12℃	Soluble in cold water	Have certain dispersion.
		CH410L Liquid	Water mixed	Brown liquid	90-150℃	18% salt water	-9℃	Soluble in cold water	Have certain dispersion.
		CH510S-D Powder	Dry mixed	Gray powder	90-150℃	18% salt water	—	Partly water soluble	Easy storage, long durability, strengthen grow is rapid.

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WW-9
(9/13)

API Number 47 - 103 - 03005
Operator's Well No. Anderson 11H

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Trans Energy Inc OP Code 494481575

Watershed (HUC 10) Slabcamp Run Quadrangle Folsom

Elevation 1012' County Wetzel District Grant

Do you anticipate using more than 5,000 bbls of water to complete the proposed well work? Yes ☑ No ☐

Will a pit be used? Yes ☐ No ☑

If so, please describe anticipated pit waste: _____

Will a synthetic liner be used in the pit? Yes ☐ No ☑ If so, what ml.? _____

Proposed Disposal Method For Treated Pit Wastes:

- ____ Land Application
- ____ Underground Injection (UIC Permit Number _____)
- ____ Reuse (at API Number _____)
- ____ Off Site Disposal (Supply form WW-9 for disposal location)
- ■ Other (Explain All frac fluids will be flowed back into storage containers and Buckeye Water Service Company will haul to an approved water disposal facilites

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Will closed loop system be used? If so, describe: yes

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc. Freshwater mud until reaching Marcellus then synthetic

-If oil based, what type? Synthetic, petroleum, etc. Synthetic

Additives to be used in drilling medium? None

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. All cuttings will be hauled to approved landfill

-If left in pit and plan to solidify what medium will be used? (cement, lime, sawdust) Sawdust

-Landfill or offsite name/permit number? Short Creek Landfill SWF - 1034

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action.

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto 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. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment.

Company Official Signature _____

Company Official (Typed Name) Leslie Gearhart

Company Official Title VP Operations

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Subscribed and sworn before me this 11th day of April, 20 14

Debra A Martin Notary Public

My commission expires 11/29/2020

WV Department of Environmental Protection

OFFICIAL SEAL
STATE OF WEST VIRGINIA
NOTARY PUBLIC
Debra A. Martin
Trans Energy Incorporated
210 2nd Street
St. Mary's, WV 26170
My Commission Expires Nov. 29, 2020

103-03005

Form WW-9

Operator's Well No. Anderson 11H

Trans Energy Inc

Proposed Revegetation Treatment: Acres Disturbed Existing Pad Prevegetation pH _____

Lime 2 Tons/acre or to correct to pH 65

Fertilizer type _____

Fertilizer amount 600 lbs/acre

Mulch 90 Bales Tons/acre

Seed Mixtures

Temporary		Permanent	
Seed Type	lbs/acre	Seed Type	lbs/acre
Meadow Mix	100	Meadow Mix	100
Oats or Rye	50	Oats or Rye	50

Attach:
Drawing(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided)

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: [signature]

Comments: _____

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Title: Oil + Gas Inspector Date: 4-24-14

Field Reviewed? (✓) Yes ( ) No

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TRANS ENERGY, INC.

Well Site Safety Plan

Anderson Pad

Wetzel County

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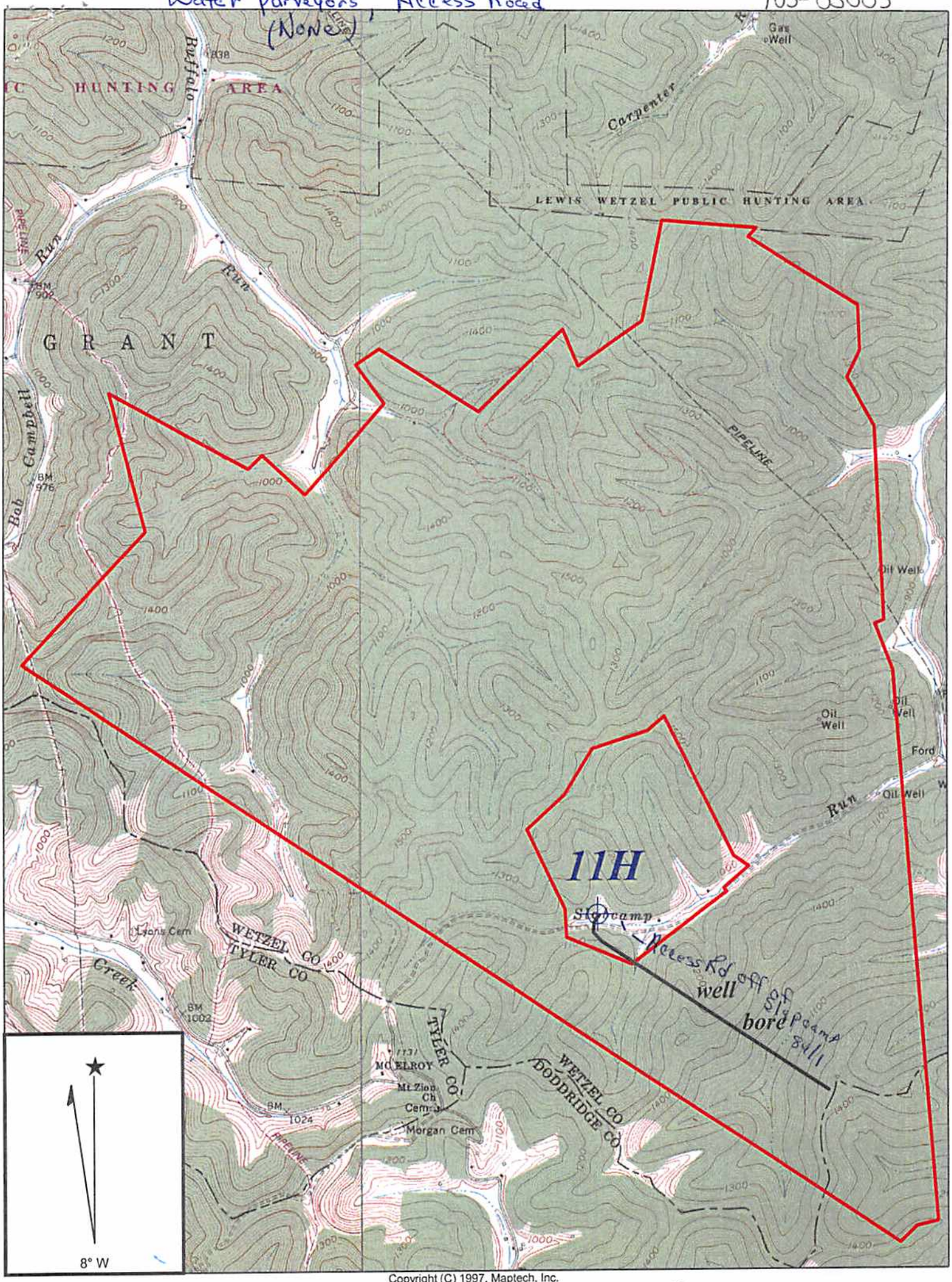
4/9/14

Full copy of Site Safety Plan stored on OOG network drive:

Q://OIL GAS/Permit Scanned Copies

Water purveyors, Access Road (None)

103-03005



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FOLSOM QUADRANGLE

SCALE 1" = 2000'

TRANS ENERGY, INC.

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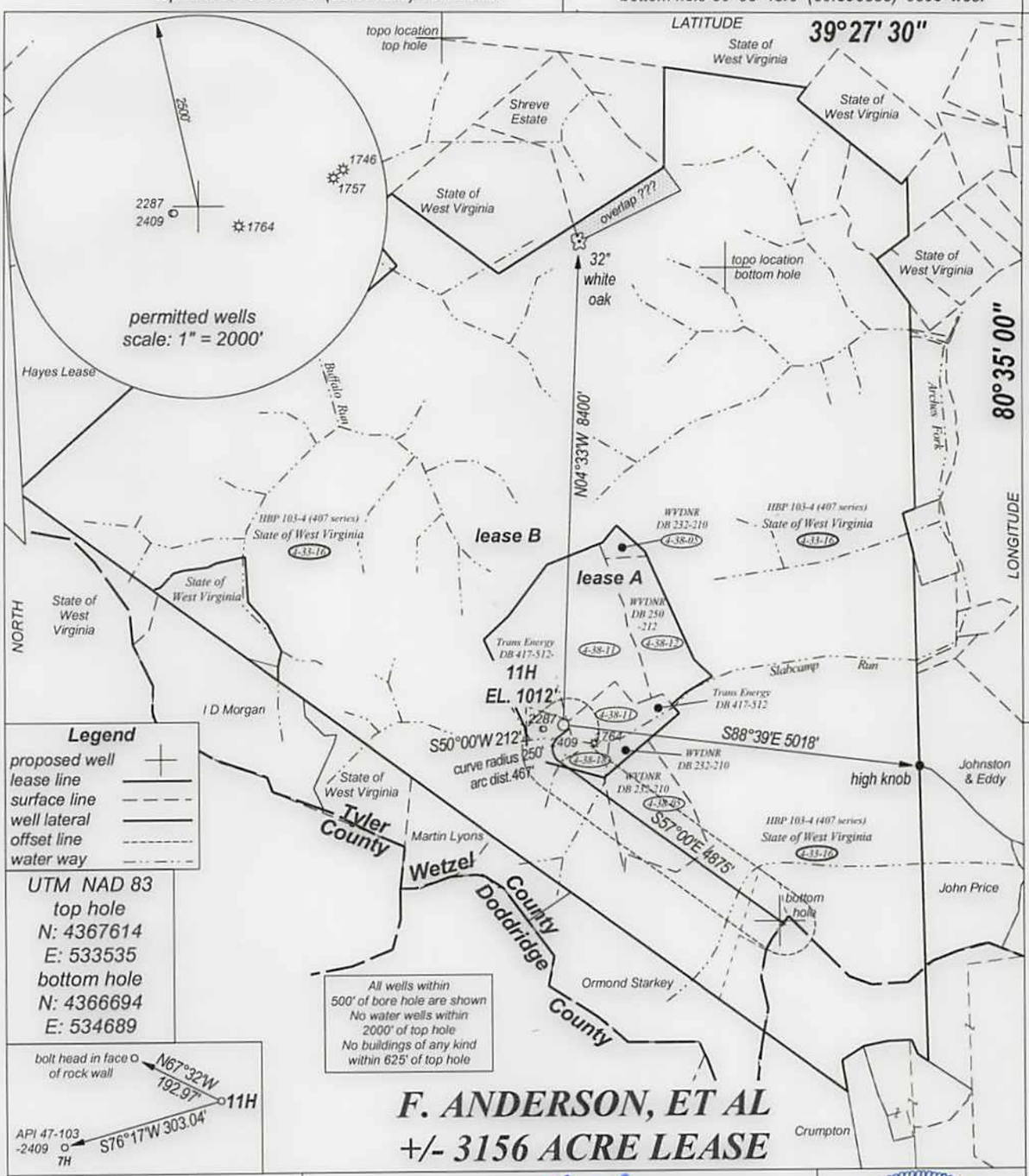
WELL: ANDERSON 11H
F. ANDERSON, ET AL +/- 3156 ACRE UNIT

GRANTDISTRICT WETZEL COUNTY WEST VIRGINIA

top hole 39°27' 26.79" (39.457442) 340' south
top hole 80°36' 36.73" (80.610203) 7685' west

plat well location

bottom hole 39°26' 56.8" (39.449111) 3350' south
bottom hole 80°35' 48.6" (80.596833) 3890' west



Legend

proposed well	+
lease line	———
surface line	— — —
well lateral	———
offset line	- - - - -
water way	—·—·—

UTM NAD 83
top hole
N: 4367614
E: 533535
bottom hole
N: 4366694
E: 534689

All wells within 500' of bore hole are shown
No water wells within 2000' of top hole
No buildings of any kind within 625' of top hole

bolt head in face of rock wall — N67°32'W 192.97' — 11H
API 47-103 -2409 — S76°17'W 303.04' — 7H

F. ANDERSON, ET AL
+/- 3156 ACRE LEASE

FILE NO.
DRAWING NO.
SCALE 1" = 2500'
MINIMUM DEGREE OF ACCURACY 1 : 200
PROVEN SOURCE OF ELEVATION GPS' OBSERVATION

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 ENERGY.

(SIGNED) _____
PROFESSIONAL SURVEYOR: 551

WILLIAM R. MOSSOR LICENSED No. 551 STATE OF WEST VIRGINIA PROFESSIONAL SURVEYOR

STATE OF WEST VIRGINIA
DEPARTMENT OF ENERGY
DIVISION OF OIL AND GAS

DATE AUGUST 15TH, 2014
OPERATORS WELL NO. ANDERSON 11H

API 47 - 103 - 03005 H6A
STATE COUNTY PERMIT

WELL TYPE: OIL XX GAS XX LIQUID INJECTION ___ WASTE DISPOSAL ___
(IF GAS) PRODUCTION XX STORAGE ___ DEEP ___ SHALLOW XX

LOATION: ELEVATION 1012' WATER SHED SLABCAMP RUN
DISTRICT GRANT COUNTY WETZEL QUADRANGLE FOLSOM

SURFACE OWNER TRANS ENERGY, INC. ACREAGE +/- 166
OIL & GAS ROYALTY F.ANDERSON,ET AL LEASE AC. +/- 3156

PROPOSED WORK: DRILL XX CONVERT ___ DRILL DEEPER ___ REDRILL ___
FRACTURE OR STIMULATE ___ PLUG OFF OLD FORMATION ___
PERFORATE NEW FORMATION ___
OTHER PHYSICAL CHANGE IN WELL DRILL HORIZONTAL
PLUG AND ABANDON ___ CLEAN OUT AND REPLUG ___

TARGET FORMATION MARCELLUS SHALE ESTIMATED DEPTH 7500'

WELL OPERATOR TRANS ENERGY, INC.
ADDRESS P. O. BOX 393
ST. MARYS, WV 26170

DESIGNATED AGENT LOREN BAGLEY
ADDRESS P. O. BOX 393
ST. MARYS, WV 26170

COUNTY NAME
PREMIT

FORM WW - 6