



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

November 25, 2014

WELL WORK PERMIT

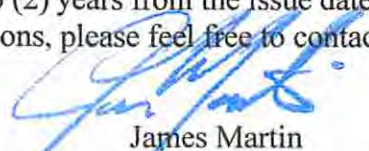
Horizontal 6A Well

This permit, API Well Number: 47-8510152, issued to TRIAD HUNTER, LLC, 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: STEPHENS 1409
Farm Name: LAYFIELD, P. SHELIA
API Well Number: 47-8510152
Permit Type: Horizontal 6A Well
Date Issued: 11/25/2014

Promoting a healthy environment.

11/28/2014

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. The operator will monitor drilling operations to identify possible fault planes or severely fractured areas. If identified, prior to conducting any completion operations, the operator shall communicate the findings in writing to the Office of Oil and Gas and shall also provide a fracturing design to compensate for the findings.
2. Operator shall take additional measures with this permitted activity to avoid communication with offset wells. Such additional measures are described in the attached addendum. This addendum is part of the terms of the well work permit, and includes a description of depth and completed formations of offset wells. Also included is a description of monitoring activities that will take place during fracturing operations of the permitted well work.
1. This proposed activity may require permit coverage from the United States Army Corps of Engineers (USACOE). Through this permit, you are hereby being advised to consult with USACOE 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

PERMIT CONDITIONS

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.

Triad Hunter Addendum Stephens Well #1409

Stephens Unit site proposed well procedures

- Intermediate casing extends below the Alexander (5,000 feet).
- Operators of all offset wells will be contacted for monitoring as per tables below:

Offset Wells:

API	TD	Lease	Current Operator	TVD_SS	Formation
085-09920	0	Rutherford et al	VIRCO	0	ND, Cancelled
085-08506	1510	Rutherford et al	VIRCO	-387	Maxton
085-00537	2007	Rutherford et al	VIRCO	-1085	Big Injun
085-08189	2007*	Rutherford et al	VIRCO	-1333*	Big Injun
085-01142	1930	Rutherford et al	Plugged	-1082	Big Injun
085-04111	1750*	Rutherford et al	VIRCO	-745*	Squaw

Note: * Indicates no TVD available on WVGES O&G website. Depth was estimated after speaking with field operators that indicated producing formation. Also, ND, Cancelled means the wells were never drilled.

- Triad Hunter will contact these operators prior to fracturing, offer to assess the surface pressure handling capabilities of their equipment and offer recommendation of upgrading prior to fracing operations commence.
- Triad Hunter will continuously keep the above offset well operators appraised about the proximity and progress in fracing the horizontal Marcellus wells underlying their deep vertical wells.
- Triad Hunter will offer to monitor the above wells during fracing operations within 500' of the vertical well location and notify all appropriate vested parties in the event of a watered out or anomalously high pressure detected.

Description of Monitoring

Pressure transducers, and/or visual monitoring of existing pressure gauges, shall be conducted no less frequently than once every four hours while fracing operations are being conducted within 500' of the vertical well in question. For the deepest wells in the Rhinestreet and Marcellus we may recommend shutting in the wells for pressure monitoring.

- Well communication will likely be in one of two forms: a) a higher than expected pressure is found at an offset well, or b) the offset well is watered out and indicates a zero pressure. Anything more than 100 psi above expected pressures or at 0 psi would be considered an event.
- Our fracturing treatments will be designed to reach close to 80 bpm, use a slick water formulation. Typically our sand volumes will be between 400,000 and 500,000 pounds of sand per stage.

- The plan is to fracture all of the laterals prior to flowback procedures. However, in the event of an event, we will cease pumping that frac stage and continue with the following stage until that lateral is fully stimulated. If we see high pressure in excess of 500 psi above normal flowingtubing pressure in any monitored well, we will immediately cease fracing operations and flow back the stimulated lateral to alleviate pressure seen in the offset well prior to commencing operations again.

Contingency:

- 1) Offset wells watering out – We are recommending that an affected offset operator wait for Triad Hunter to complete operations on that particular lateral including flowback to alleviate potential pressure surges before any offset operator intervenes to swab the affected well and bring it back on production.

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

1) Well Operator: Triad Hunter, LLC 494494833 Ritchie Grant Cairo
Operator ID County District Quadrangle

2) Operator's Well Number: Stephens # 1409 Well Pad Name: Stephens Pad 1

3) Farm Name/Surface Owner: Shelia P. Layfield Public Road Access: Oil Ridge Rd.(26) & Gillespie Run Rd.(17)

4) Elevation, current ground: 1097' Elevation, proposed post-construction: 1078'

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

Other _____

(b)If Gas Shallow Deep _____

Horizontal _____

6) Existing Pad: Yes or No No

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Associated Pressure(s):
Marcellus Shale, TVD= 6052', Reservoir Thickness @ 72', Bottom Hole Pressure @ 3,000 psi.

8) Proposed Total Vertical Depth: TVD = 6052'

9) Formation at Total Vertical Depth: Marcellus Shale

10) Proposed Total Measured Depth: TMD = 11,984'

11) Proposed Horizontal Leg Length: 4950'

12) Approximate Fresh Water Strata Depths: Surface to 400 feet.

13) Method to Determine Fresh Water Depths: Examination of area water wells.

14) Approximate Saltwater Depths: @ 1,000 feet

15) Approximate Coal Seam Depths: Multiple, thin, non-commercial seams between 1,300' and 1,800 feet

16) Approximate Depth to Possible Void (coal mine, karst, other): No coal mines in the area, No known voids

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

<u>TYPE</u>	<u>Size</u>	<u>New or Used</u>	<u>Grade</u>	<u>Weight per ft. (lb/ft)</u>	<u>FOOTAGE: For Drilling</u>	<u>INTERVALS: Left in Well</u>	<u>CEMENT: Fill-up (Cu. Ft.)</u>
Conductor	26"	new	A500	85 lb./ft.	100'	100'	144 cu. ft.-CTS
Fresh Water	20"	new	J-55	94 lb./ft.	450'	450'	562 cu. ft.-CTS
Coal	13 3/8"	new	J-55	68 lb./ft.	3,000'	3,000'	2501 cu. ft.-CTS
Intermediate	9 5/8"	new	N-80	43.5 lb./ft.	5,000'	5,000'	940 cu. ft.
Production	5 1/2"	new	P-110	20 lb./ft.	N/A	11,584'	3,436 cu. ft.
Tubing	2 3/8"	new	J-55	4.7 lb./ft.	N/A	5,800'	N/A
Liners							

<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 (cu. ft./k)</u>
Conductor	26"	30"	.375	N/A	Class A	1.18-1.20 cu.ft./sk.
Fresh Water	20"	24"	.438	2,110 psi.	Class A	1.18-1.20 cu.ft./sk.
Coal	13 3/8"	17 1/2"	.480	3,450 psi.	Class A	1.18-1.36 cu.ft./sk.
Intermediate	9 5/8"	12 1/4"	.435	6,330 psi.	Class A	1.18-1.51 cu.ft./sk.
Production	5 1/2"	8 1/2"	.415	12,360 psi.	Class A & H	1.51-2.42 cu.ft./sk.
Tubing	2 3/8"	4 3/4"	.380	7,700 psi.	N/A	N/A
Liners						

PACKERS

Kind:	N/A			
Sizes:	N/A			
Depths Set:	N/A			

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7-31-14

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

SEE ATTACHMENT: I-B

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

SEE ATTACHMENT: II-B

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 66.45 acres

22) Area to be disturbed for well pad only, less access road (acres): 3.75 acres

23) Describe centralizer placement for each casing string:

SEE ATTACHMENT: III-B

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

SEE ATTACHMENT: IV-B

25) Proposed borehole conditioning procedures:

SEE ATTACHMENT: V-B

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WV Dept. of Environmental Protection

*Note: Attach additional sheets as needed.

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#19 Proposed Well Work:

Drill and complete a new horizontal Marcellus Shale Well.

1. AIR/SOAP Drill a 30" conductor hole to 100 feet; run 26" casing to T.D., cement / grout to surface with Class A cement.
2. AIR/SOAP Drill a 24" surface hole to depth of 450 feet; run 20" casing to T.D. and cement to surface with Class A Cement.
3. AIR/SOAP Drill a 17 1/2" intermediate hole to a depth of 3,000 feet; run 13 3/8" casing to T.D. and cement to surface with Class A cement.
4. AIR / SOAP Drill a 12 1/4" intermediate hole to a depth of 5,000 feet; run 9 5/8" casing to T.D. and cement back to 2,500 feet with Class A cement.
5. Fluid Drill an 8 1/2" production hole to the projected total measured depth @ 13,500 feet.
6. Run and Cement 5 1/2" production casing to the TMD; cement casing back to the surface with Class A and Class H cement.
7. Run Cased-hole logs (Gamma-Ray, CCL, Bond).
8. Open toe sleeve and establish 15 BPM pump rate.
9. Perforate and stimulate multiple stages in Marcellus lateral section.
 - a. Perforations per stage = sixty to seventy
 - b. Average stage length = two hundred fifty feet
10. Clean-out 5 1/2" production casing using a coil tubing rig or a work over rig and snubbing unit.
11. Flow test well for seven to ten days to clean up wellbore and determine overall productivity.
12. Turn well into production.

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#20 Fracturing/Stimulation Methods:

Upon the successful cementation of the 5 ½" production casing, completion of the well will be performed as follows:

1. Run a GR/CCL/Bond log from the bottom of the curve to surface.
2. Pressure-up on casing, open the toe sleeve and establish pump rate of 15 bpm through the toe sleeve.
3. Run a GR/CCL log from the toe to the base of the curve and correlate with the GR/CCL/Bon log.
4. Pump down through the casing a solid bridge plug and perforating guns.
5. Set the solid bridge plug just above the toe sleeve and perforate the first stage with 60-70 perforations over a 200'-250' interval (stage#1).
6. Fracture stage #1 with a slick water/sand stimulation using approximately 8,000bbls of water and 450,000lbs of sand. Average treating pressure is expected to range between 6,000psi and 7,000psi and average treating rates are expected to range between 70bbls and 80bbls per minute. Upon completion of the stage, the five minute and ten minute shut in pressures are recorded.
7. Repeat the same methodology of perforating and fracturing on subsequent stages using composite frac plugs instead of solid bridge plugs. Once the heel is reached, completion operations are suspended. The average number of stages completed in each well range between twenty and thirty.
8. Upon completion of the last stage, solid bridge plugs are set in the casing, just above the top of the curve and just below the well head for safety purposes.
9. Well is shut in until clean out and flow back operations are initiated.

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#23 Centralizer Placement:

- A. (26") Conductor Casing – No centralizers used.
- B. (20") Surface Casing – Between two and four run based on setting depth of casing.
- C. (13 3/8") 1st Intermediate Casing- Between six and ten run based on setting depth of casing.
- D. (9 5/8") 2nd Intermediate Casing – Between ten and twenty run based on setting depth of casing.
- E. (5 1/2") Production Casing:
 - 1. Spiral centralizers run on every 3rd joint from the toe to KOP (Top of Curve). Roughly 50-60 spiral centralizers run.
 - 2. Bow centralizers run on every 10th joint from the KOP to surface. Roughly 10-15 bow centralizers run.

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(WW-6B)**#24 Cement Additives:**A. Conductor Cement Job (26" csg.)

1. All conductor casings are cemented with standard CLASS A CEMENT.
 - a) Average weight = 15.6lb./gal
 - b) Average yield = 1.18 ft³/5k.
 - c) No additional additives are used.

B. Surface Cement Job (20" csg.)

1. Surface Cement Job (20" csg.)
 - a) Average weight = 15.4 to 15.6 lbs./gal
 - b) Average yield = 1.19 to 1.24 ft³/5k
2. Common Additives
 - a) ¼ lb./5k Cello Flake (Lost circulation material)
 - b) 2%-3% Calcium Chloride (Accelerator)

*Note: Gel Sweep is usually pumped ahead of the cement.
Gel Spacer consists of 6% gel w/cello Flake.

C. Intermediate Cement Job (13 3/8" csg. & 9 5/8" csg.)

Due to depth, most intermediate casings are cemented in two stages.

1. The upper (lead) stage cement job usually consists of CLASS A CEMENT or LIGHT CEMENT.
 - a) Average weight = 13.1 to 13.5 lbs. /gal.
 - b) Average yield = 1.54 to 1.70 ft³/5k.

Common Additives

 - a) ¼ lb./5k Cello Flake (Lost circulation material)
 - b) 1% - 2% Calcium Chloride (Accelerator)

*Note: Gel Sweep is usually pumped ahead of the cement.
Gel Spacer consists of 6% gel w/cello Flake.
2. The lower (tail) stage usually consists of standard CLASS A CEMENT.
 - a) Average weight = 15.4 to 15.6 lbs./gal
 - b) Average yield = 1.18 to 1.20 ft³/5k.

Common Additives

- a) ¼ lb./5k Cello Flake (Lost circulation material)
- b) 1% - 2% Calcium Chloride (Accelerator)
- c) 1% bwoc EC-1 (Bonding Agent)
- d) 55% bwoc BA-10A (Bonding Agent)

D. Longstring Cement Job (5 ½" csg.)

Depending on how far cement is brought back into the intermediate casing, the production casing is usually cemented in two stages and a heavy weighted spacer is pumped ahead of the cement to condition the well bore.

1. Weighted Spacer

Ultra Flush II	50 bbs. @ 13lbs. /gal	
a) Barite	@257 lbs. /bbl	(Weighting Material)
b) US-40	2 gals. /bbl	(Surface tension reducer)
c) ss-2	13 lbs. /gal	(Suractant)
2. Weighted Spacer

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- | | | |
|--|------------------------|-----------------------|
| a) Barite | @257 lbs. /bbl | (Weighting Material) |
| b) SS-2 | 1 lb. /gal | (Surfactant) |
| c) MPA-170 | 1 lb. /bbl | (Fluid loss additive) |
| 3. Lead Slurry | 50:50 POZ/Premium NE-1 | |
| a) Average Weight = 13.50 lbs. /gal | | |
| b) Average yield = 1.44 ft ³ / /5k. | | |
| Common Additives | | |
| a) BA – 90 | 3lbs. /5k | (Bonding Agent) |
| b) R – 3 | .258 bwoc | (Retarder) |
| c) MPA – 170 | 1 lb. / bbl | (Fluid loss additive) |
| 4. Tail Slurry | CLASS H CEMENT | |
| a) Average Weight = 15.2lbs. /gal | | |
| b) Average Yield = 1.64 ft ³ /5k | | |
| Common Additives | | |
| a) R-3 | .2% bwoc | (Retarder) |
| b) CD-32 | .75 % bwoc | (Dispersant) |
| c) ASA – 301 | .35 % bwoc | (Free water removal) |
| d) BA-10A | 1.25% bwoc | (Bonding Agent) |
| e) ASCA | 30lbs. /5k | (Solubility additive) |
| f) Sodium Metasilicate | .58 bwoc | (Extender) |

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#25 Borehole Conditioning Procedures:

17 ½" hole – Generally this section of the well is drilled on air with air compressors and boosters. It's imperative through this section of the well to have sufficient air volume and pressure on the borehole during drilling to ensure hole conditions remain clean and unobstructed. If a significant volume of freshwater is encountered during drilling "stiff foam" or soap is utilized to assist in lifting drill cuttings and freshwater out of the hole. "Red Rock" is a clay-dominant strata that is sensitive to freshwater in this area. Stiff foam is applied to the borehole when freshwater is encountered to prevent the clays from swelling and sloughing into the borehole.

12 1/4" hole - Generally this section of the well is drilled on air with air compressors and boosters. It's imperative through this section of the well to have sufficient air volume and pressure on the borehole during drilling to ensure hole conditions remain clean and unobstructed. If a significant volume of saltwater is encountered during drilling "stiff foam" or soap is utilized to assist in lifting drill cuttings and freshwater out of the hole. "Red Rock" is a clay-dominant strata that is sensitive to saltwater in this area. Stiff foam is applied to the borehole when saltwater is encountered to prevent the clays from swelling and sloughing into the borehole.

8 ¾" hole – Generally, this section of the well is drilled on fluid. In an effort to keep borehole conditions in good working order several mechanisms are used to condition the borehole:

1. **High Viscosity Sweeps:** Sweeps are mixed and pumped after drilling every 3 joints during the drilling process. Sweeps generally run 20 cp over the active mud system viscosity for 20 bbls.
2. **Clean-Up Cycle:** "Clean-Up Cycles" are utilized every 500' in the lateral section of the well. During this routine conditioning procedure drilling is halted for the amount of time it takes to circulate 2 sweeps to surface. Also, during this process the pipe is continuously rotated and reciprocated at this spot to help circulate out any "cutting beds" lying in the wellbore.
3. **Short Trips:** Short trips are utilized to work out tight spots and cutting beds from the borehole which cause increased torque and drag, and pressure. Two short trips are typically run during the drilling of this section of the wellbore. The first at the half-way point of the lateral. The drill pipe is pulled out of the hole to the "kick-off" point of the well. The second short trip is utilized at total depth (TD). At this point the drill pipe is pulled out of the wellbore to the half-way point of the lateral.
4. **At TOTAL DEPTH:** A clean-up cycle and short trip is utilized to condition the wellbore when total depth (TD) has been reached in preparation for running production casing.

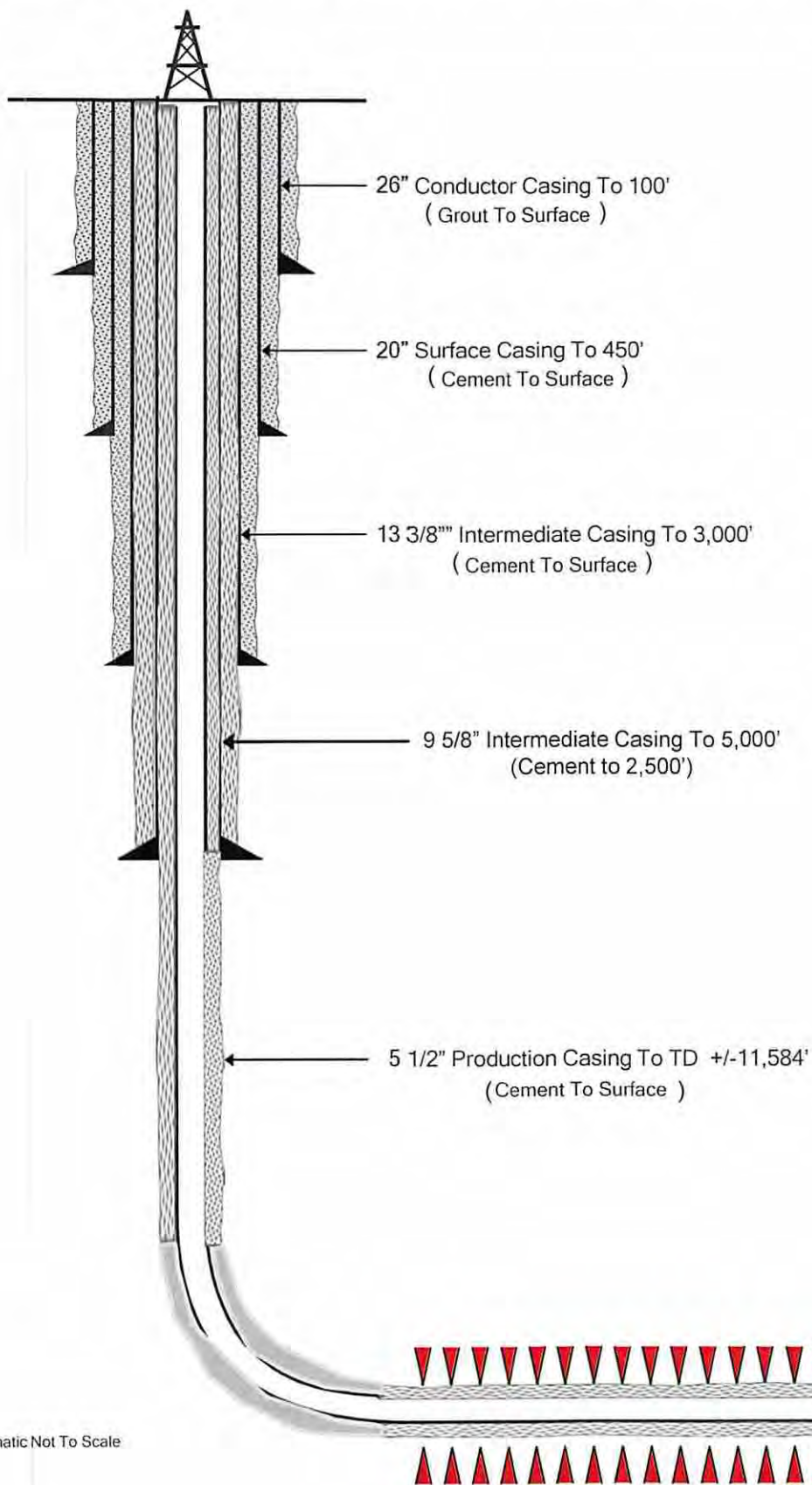
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Magnum Hunter Resources

STEPHENS 1409

MARCELLUS SHALE WELLBORE SCHEMATIC*



* Schematic Not To Scale

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(9/13)

API Number 47 - _____ - _____
Operator's Well No. Stephens 1409

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Triad Hunter, LLC OP Code 494494833

Watershed (HUC 10) Lower North Fork Hughes River Quadrangle Cairo

Elevation 1097' County Ritchie 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 47-085-05151)
- Reuse (at API Number _____)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain _____)

Will closed loop system be used? If so, describe: Yes, cuttings fluids+gases are separated through a series of vessels. Cuttings are then solidified in debris boxes and hauled to landfill. _____

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc. Top Hole-Air Drilled, Lateral-Syn Mud

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

Additives to be used in drilling medium? See Attachment I-A: Stephens Drilling Additives List

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. Landfill

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

-Landfill or offsite name/permit number? Northwestern Landfill, SWPU ID 03-54-107-00121

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 [Signature]

Company Official (Typed Name) Rocky Roberts

Company Official Title Senior VP Appalachian Operations

Subscribed and sworn before me this 29th day of July

Elizabeth R. Tebay

My commission expires 2-29-16



Office of Oil and Gas
WV Dept. of Environmental Protection
ELIZABETH R. TEBAY
NOTARY PUBLIC
In and For The State of Ohio
My Commission Expires
2-29-16
11/28/2014

Form WW-9

Operator's Well No. Stephens 1409

Triad Hunter, LLC

Proposed Revegetation Treatment: Acres Disturbed 3.75 Prevegetation pH 6-7

Lime 2-5 Tons/acre or to correct to pH 6.0-7.0

Fertilizer type 10-20-20

Fertilizer amount 500 lbs/acre

Mulch 2 Tons/acre

Seed Mixtures

Temporary

Permanent

Seed Type	lbs/acre	Seed Type	lbs/acre
Common Orchard Grass	30%	Same as temporary	
Perennial Rye	35%		
Medium Red Clover	25%		
Common Timothy	10%		

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: *Daniel Williams*

Comments: *prescribed a mulch at cut area no less than 2 tons per acre maintain all CMS during operation*

Title: *oil/gas inspector* Date: *7-31-14*

Field Reviewed? () Yes () No



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WW-9 Attachment: I-A

Stephens 1409 Drilling Additives List (API #:)

Chemical Name	Description
Barite	Drilling Fluid Additive
Calcium Chloride	Drilling Fluid Additive
Calcium Carbonate	Drilling Fluid Additive
Calcium Hydroxide (Lime)	PH Modifier
Gilsonite	Drilling Fluid Additive
Synthetic Hydrocarbons (Base Oil)	Drilling Fluid Additive

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WV Dept. of Environmental Protection

11/28/2014



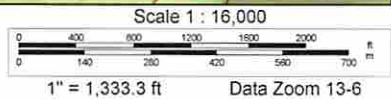
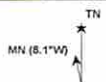
Office of Oil and Gas
MW Dept. of Environmental Protection

Received
JUL 13

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4708510152

TRIAD HUNTER LLC.

125 Putnam Street
Marietta, OH 45750

Site Safety Plan

Stephens 1409

Ritchie County
West Virginia

Approved:

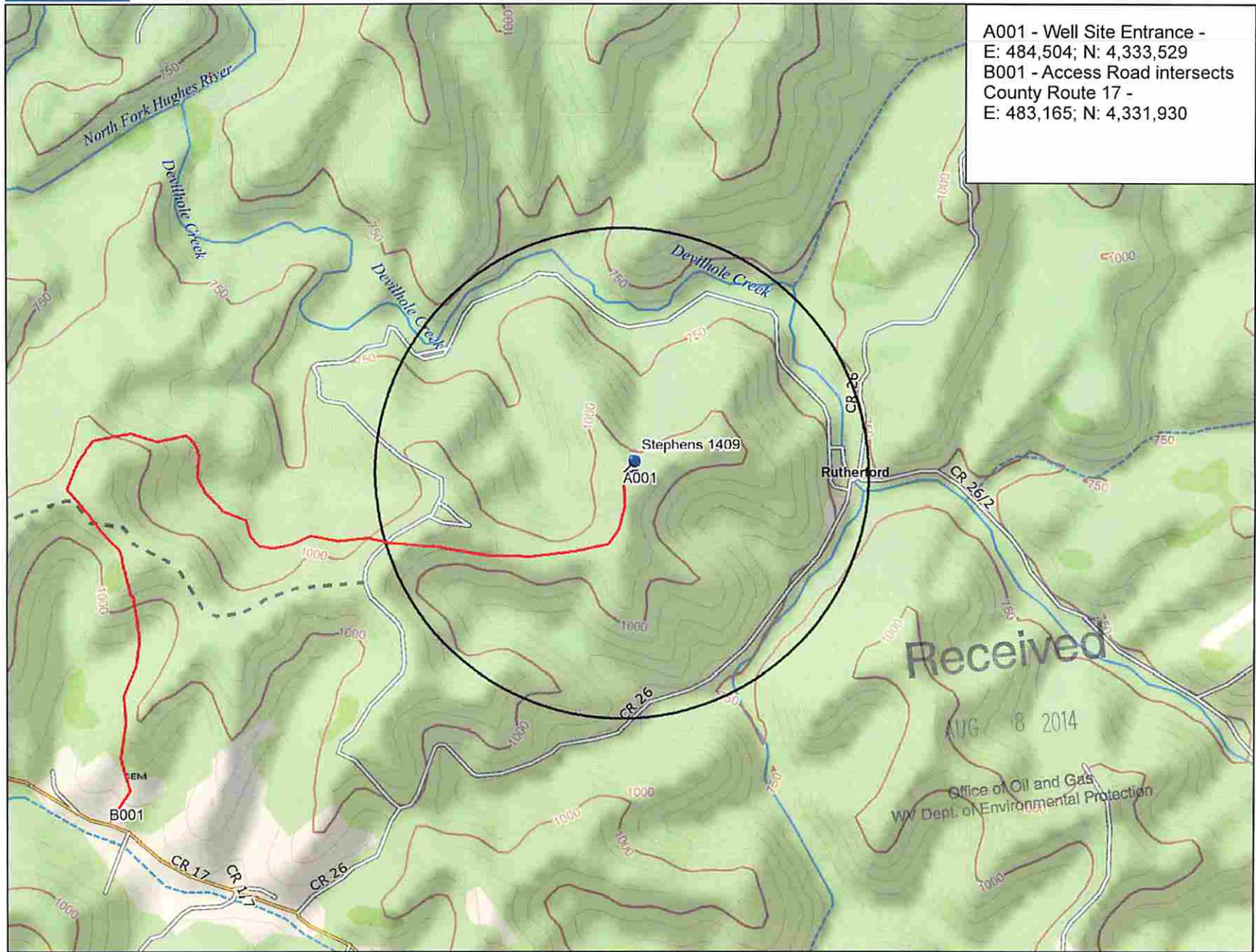
West Virginia DEP *David Williams* Date: 7-31-14

Triad Hunter LLC *[Signature]* Date: 7/29/2014

Received

JUL 31 2014

A001 - Well Site Entrance -
 E: 484,504; N: 4,333,529
 B001 - Access Road intersects
 County Route 17 -
 E: 483,165; N: 4,331,930

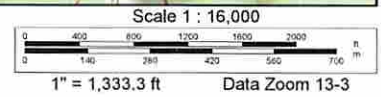


Received
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 Office of Oil and Gas
 WY Dept. of Environmental Protection

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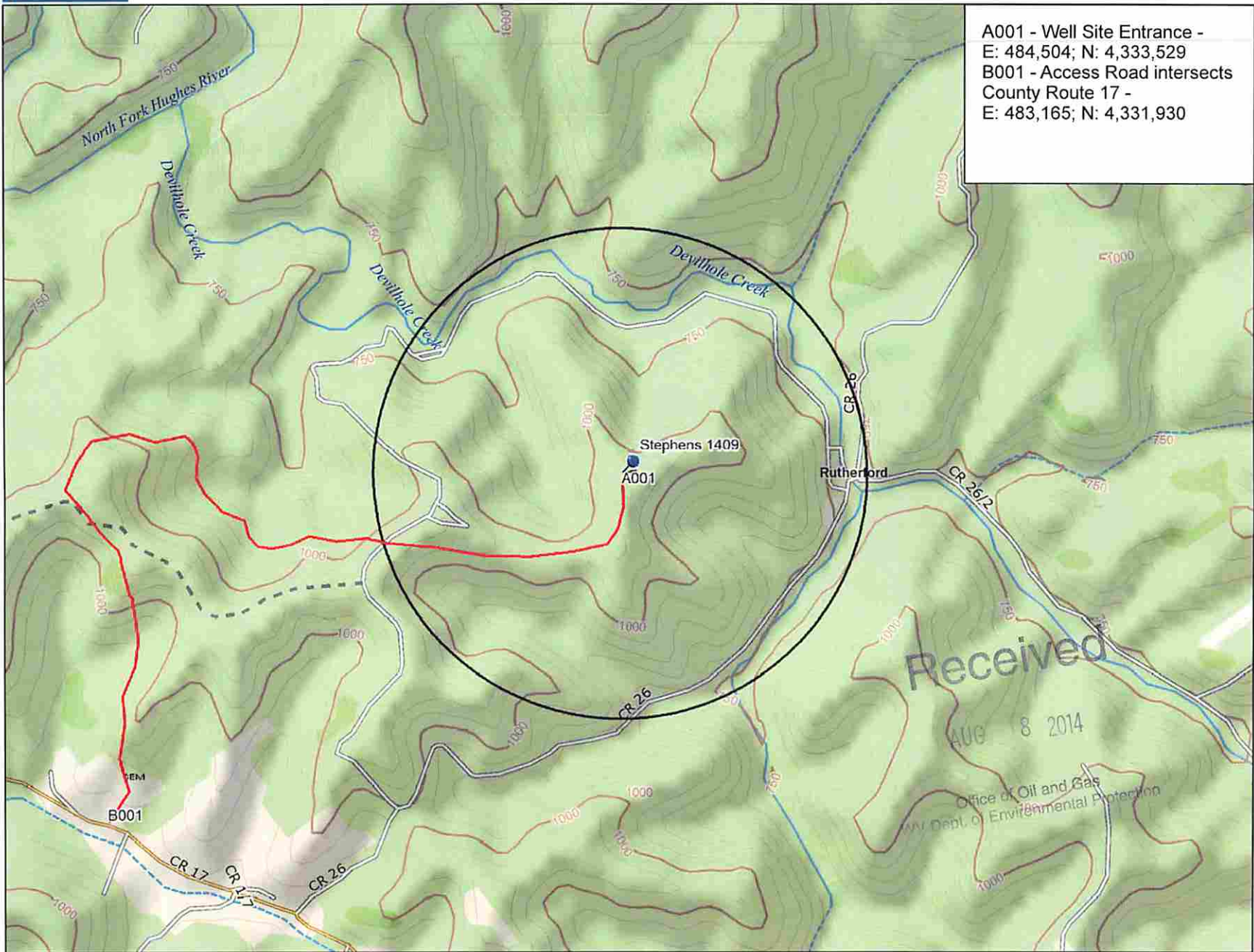
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4708510152

A001 - Well Site Entrance -
 E: 484,504; N: 4,333,529
 B001 - Access Road intersects
 County Route 17 -
 E: 483,165; N: 4,331,930



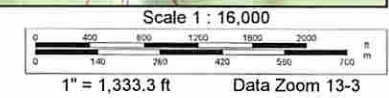
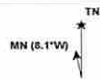
Received
 AUG 8 2014

Office of Oil and Gas
 MN Dept. of Environmental Protection

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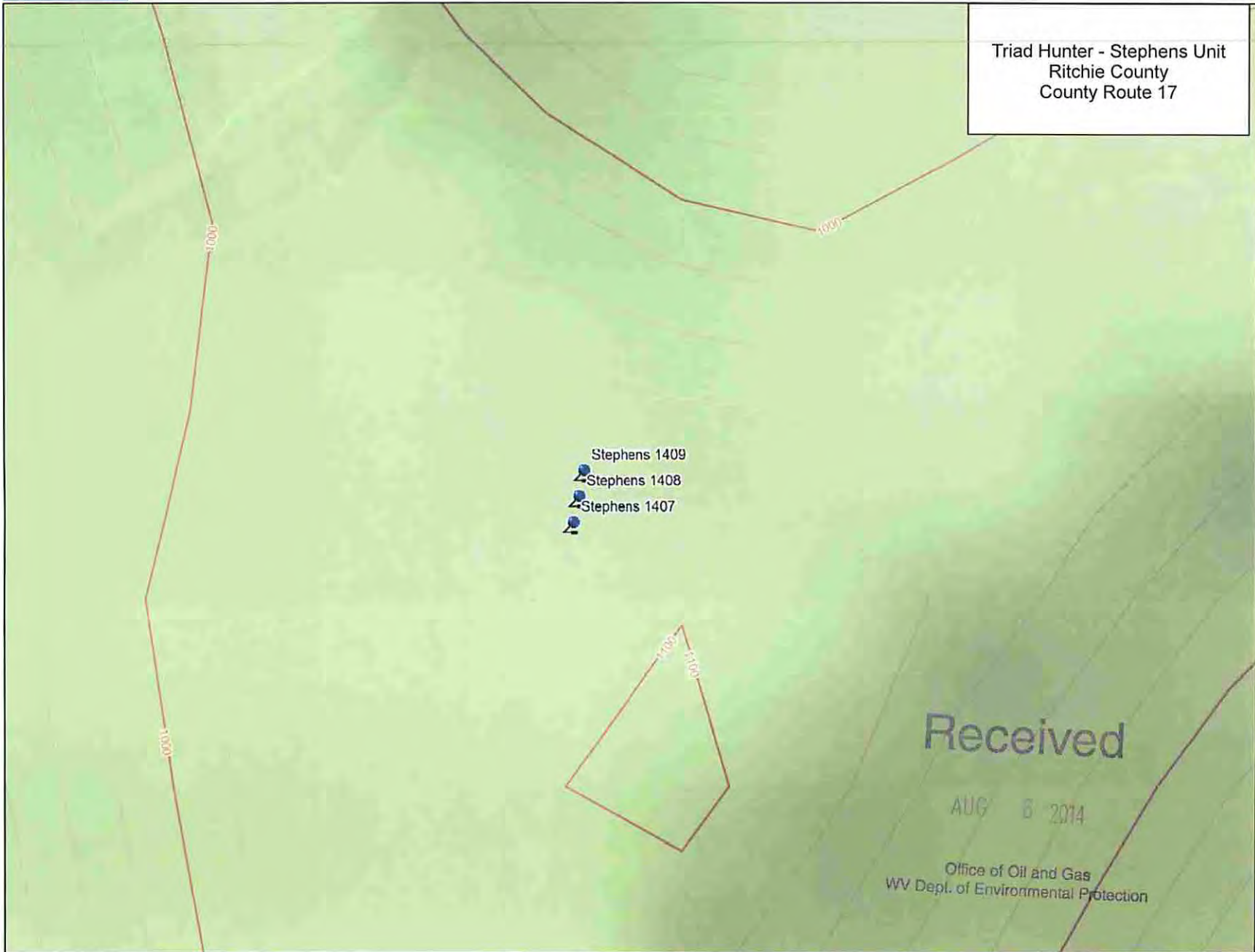
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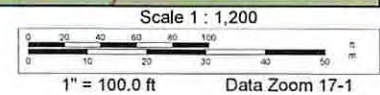
Triad Hunter - Stephens Unit
Ritchie County
County Route 17



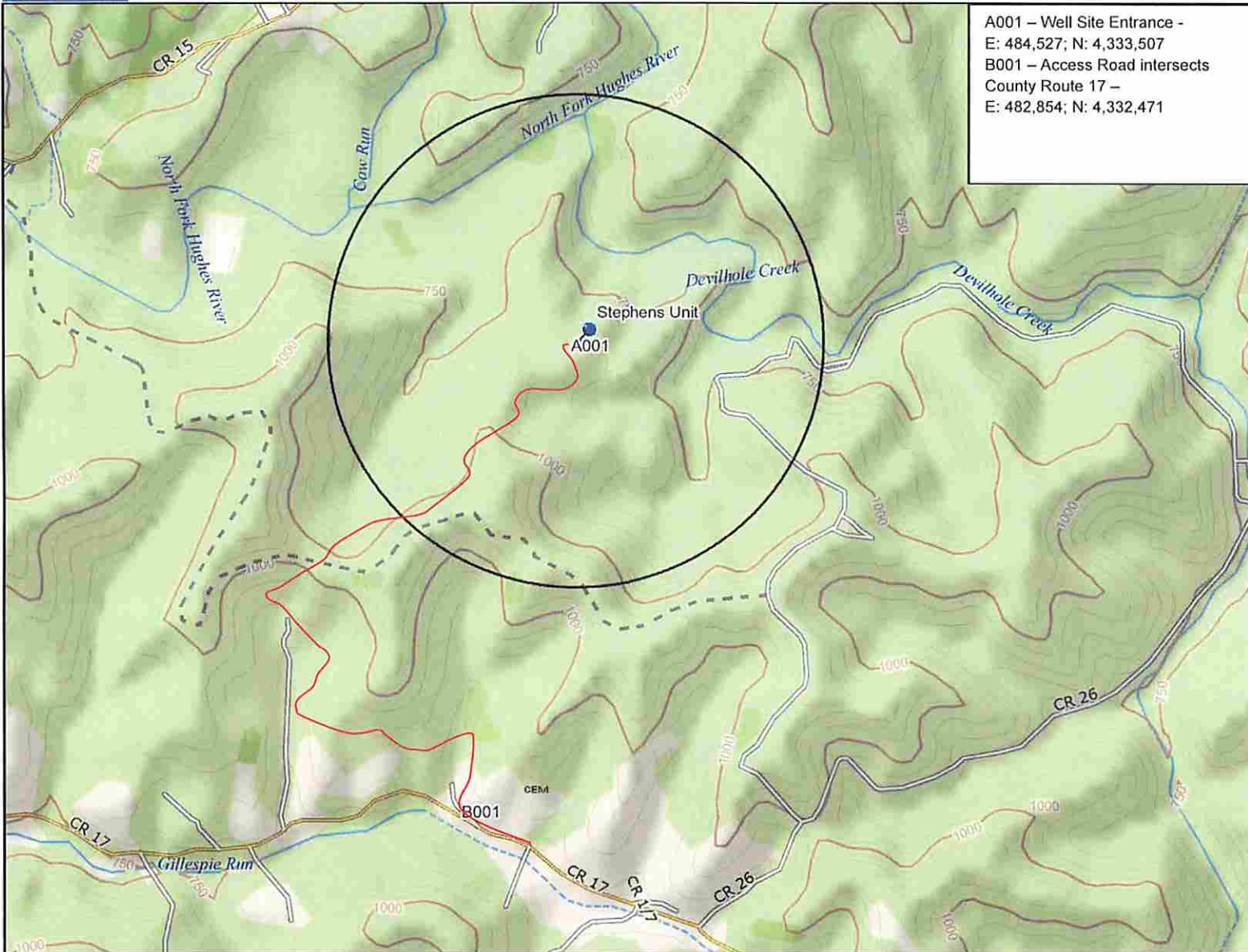
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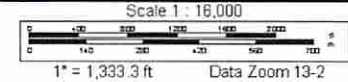


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A001 – Well Site Entrance -
E: 484,527; N: 4,333,507
B001 – Access Road intersects
County Route 17 –
E: 482,854; N: 4,332,471

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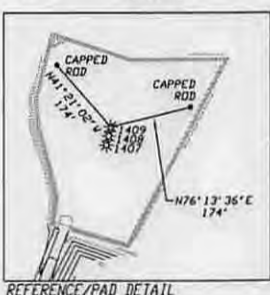
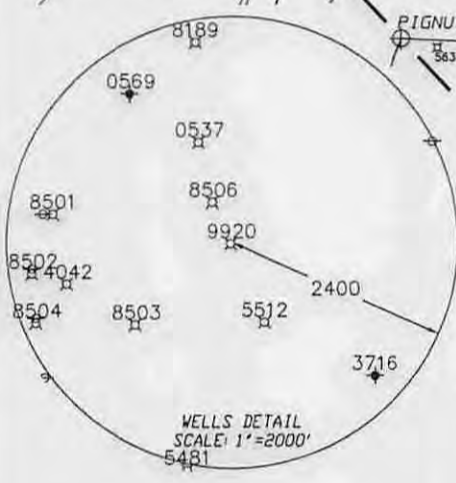
4708510152

-3528'
LATITUDE 39°10'00"

LONGITUDE 81°10'00"
5620'

SURFACE LOC.	LANDING POINT LOC.	BOTTOM HOLE LOC.
UTM 17-NAD 83 METERS	UTM 17-NAD 83 METERS	UTM 17-NAD 83 METERS
N: 4333546.32' E: 484536.27'	N: 4333825.19' E: 484624.33'	N: 4334911.09' E: 483544.93'
NAD 83	NAD 83	NAD 83
LAT: 39.15079940 LON: -81.17893416	LAT: 39.15349319 LON: -81.17795018	LAT: 39.16325858 LON: -81.19046887

LEGEND	
+	TOPO MAP POINT
⊗	EXISTING WELLS
⊙	PRE-29 WELLS
◆	PLUGGED WELL
—	MINERAL TRACT
- - -	PARCEL LINES
☼	PROPOSED WELL
—	ROAD
~	STREAM



- NOTES:
1. THERE ARE NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250' OF PROPOSED WELL.
 2. THERE ARE NO EXISTING BUILDINGS WITHIN 625' OF PROPOSED WELL.
 3. PROPOSED WELL IS GREATER THAN 100' FROM PERENNIAL STREAM, WETLAND, POND, RESERVOIR, OR LAKE.
 4. THERE ARE NO NATIVE TROUT STREAMS WITHIN 300' OF PROPOSED WELL.
 5. PROPOSED WELL IS GREATER THAN 1000' FROM SURFACE/GROUNDWATER INTAKE OR PUBLIC WATER SUPPLY.
 6. IT IS NOT THE INTENTION OF THIS PLAT TO REPRESENT SURVEYED LOCATIONS OF THE SURFACE OR MINERAL PARCELS DEPICTED HEREON. THE LOCATION OF THE BOUNDARY LINES, AS SHOWN, ARE BASED ON RECORD DEED DESCRIPTIONS, FIELD EVIDENCE FOUND, AND/OR TAX MAP POSITION, UNLESS OTHERWISE NOTED.

PICKERING ASSOCIATES
the art of engineering
11283 Emerson Avenue Phone: (304) 464-5305
Parkersburg, West Virginia 26104 Fax: (304) 464-4428

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 RULES ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.
SIGNED: *[Signature]* PS# 2141

FILE#:	2139133
DRAWING#:	TRH-STEPHENS MASTER
SCALE:	1"=1000'
ACCURACY:	1/2500
ELEVATION:	OPUS SOLUTION
DATE:	10/27/14

WELL TYPE: OIL WASTE DISPOSAL PRODUCTION DEEP OPERATOR'S WELL#: **STEPHENS 1409**
 GAS LIQUID INJECTION STORAGE SHALLOW API WELL#: 47 085 10152 HGA
 WATERSHED: LOWER NORTH COUNTY/DISTRICT: RITCHIE/GRANT STATE COUNTY PERMIT
 FORK HUGHES RIVER QUADRANGLE: CAIRO 11/28/2014
 SURFACE OWNER: SHEILA P. LAYFIELD ACREAGE: 1119.38AC
 OIL & GAS ROYALTY OWNERS: STUART G. RUTHERFORD et al.; SHEILA P. LAYFIELD ACREAGE: 1119.38AC; 13AC

DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE
 PLUG OFF OLD FORMATION PERFORATE NEW FORMATION PLUG & ABANDON
 PAD ELEVATION 1078' CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY):
 TARGET FORMATION MARCELLUS ESTIMATED DEPTH TVD. 6052' ± MD. 11984' ±
 WELL OPERATOR TRIAD HUNTER, LLC. DESIGNATED AGENT KIMBERLY ARNOLD
 ADDRESS 125 PUTNAM ST. ADDRESS PO BOX 154
 CITY MARIETTA STATE OH ZIP CODE 45750 CITY WAVERLY STATE WV ZIP CODE 26184