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**west virginia department of environmental protection**

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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](http://www.dep.wv.gov)

July 03, 2014

**WELL WORK PERMIT**

**Horizontal 6A Well**

This permit, API Well Number: 47-9502186, 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

A blue ink signature of James Martin, written in a cursive style, is placed over the name and title.

**Operator's Well No: EVERETT WEESE UNIT #1415**

**Farm Name: WEESE, EVERETT R. ,. ET AL**

**API Well Number: 47-9502186**

**Permit Type: Horizontal 6A Well**

**Date Issued: 07/03/2014**

**Promoting a healthy environment.**

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INSPECTORS PERMIT SUMMARY FORM

GPS YES [ ] NO [ ]

DATE STARTED/LOCATION: \_\_\_\_\_ OPERATOR: TRIAD HUNTER, LLC  
 DRILLING COMMENCED: \_\_\_\_\_ FARM: WEESE, EVERETT R., ET AL  
 TO DATE: \_\_\_\_\_ DEPTHS: \_\_\_\_\_ Well No: EVERETT WEESE UNIT #1415  
 WATER DEPTHS: \_\_\_\_\_ COAL DEPTHS \_\_\_\_\_

QUESTIONS FOR THIS REPORT ARE IN ACCORDANCE OF WV CODE 22-6-30 AND REGULATIONS 35CSR 4-12.1 AND 35CSR 4-16 AND THE GENERAL WATER POLLUTION CONTROL PERMIT.

POINTS ARE TO BE GIVEN UP TO MAXIMUM AS SHOWN BASED ON PERFORMANCE.

1. DID OPERATOR GIVE PROPER NOTICE TO INSPECTOR BEFORE THE FOLLOWING:
  - A. CONSTRUCTION YES [ ] NO [ ] (2\_PTS) (4\_PTS) \_\_\_\_\_
  - B. DRILLING YES [ ] NO [ ] (2\_PTS)
2. WAS THE TIMBER CUT, STACKED, AND BRUSH USED FOR SEDIMENT BARRIERS BEFORE DIRT WORK STARTED? YES [ ] NO [ ] (2\_PTS) (4\_PTS) \_\_\_\_\_
3. ARE ALL LOCATION AND/OR ROAD BANKS BEING SLOPED? YES [ ] NO [ ] (4\_PTS) (4\_PTS) \_\_\_\_\_
4. CONSTRUCTIONS:  
WERE THE FOLLOWING SEDIMENT CONTROL STRUCTURES PROPERLY INSTALLED/MAINTAINED?
  - A. ROAD DITCHES (1)\_ (2)\_ (3)\_ (4)\_ (PTS) B. CROSS DRAINS (1)\_ (2)\_ (3)\_ (4)\_ (5)\_ (PTS)
  - C. CULVERTS (1)\_ (2)\_ (3)\_ (4)\_ (5)\_ (PTS) D. CREEK CROSSINGS (1)\_ (2)\_ (3)\_ (PTS)
  - E. DIVERSION DITCHES (1)\_ (2)\_ (3)\_ (PTS) F. BARRIERS (1)\_ (2)\_ (3)\_ (PTS)
  - G. TEMPORARY SEEDING YES [ ] NO [ ] (10\_PTS)

POINTS AVAILABLE FOR QUESTION 4: (33\_PTS) \_\_\_\_\_

5. HAS TOP SOIL (IF ANY) BEEN STOCKED PILED? YES [ ] NO [ ] (2\_PTS) (2\_PTS) \_\_\_\_\_
6. IS THE PIT PROPERLY INSTALLED AND MAINTAINED? YES [ ] NO [ ] (9\_PTS) (9\_PTS) \_\_\_\_\_
7. RECLAMATION:
  - A. ROADWAY (1)\_ (2)\_ (3)\_ (PTS) B. LOCATION (1)\_ (2)\_ (3)\_ (PTS)
  - C. PITS (1)\_ (2)\_ (3)\_ (PTS) D. PIPELINES (1)\_ (2)\_ (3)\_ (PTS)
  - E. TANK DIKES (1)\_ (2)\_ (3)\_ (PTS) F. API INSTALLED YES [ ] NO [ ] (3\_PTS)
  - G. ADEQUATE SEEDING MATERIALS (1)\_ (2)\_ (3)\_ (PTS)
  - H. WAS SEED BED ADEQUATE (1)\_ (2)\_ (3)\_ (PTS)

POINTS AVAILABLE FOR QUESTION 7: (24\_PTS) \_\_\_\_\_

8. WAS RECLAMATION COMPLETED WITHIN:  
6 MTHS OF TD 6\_PTS ONLY; 4 MTHS OF TD 12\_PTS ONLY; 2 MTHS OF TD 19\_PTS ONLY;  
POINTS AVAILABLE FOR QUESTION 8: (19\_PTS) \_\_\_\_\_

TOTAL MAXIMUM POSSIBLE SCORE OF 99.

TOTAL RECLAMATION SCORE: \_\_\_\_\_

\_\_\_\_\_  
DATE RELEASED

\_\_\_\_\_  
INSPECTOR'S SIGNATURE



## 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

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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.
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(9/13)

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

95 05 607

1) Well Operator: TRIAD HUNTER,LLC

494494833	Tyler	McElroy	Shirley
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Operator ID County District Quadrangle

2) Operator's Well Number: E. Weese # 1415 H Well Pad Name: Everett Weese

3) Farm Name/Surface Owner: Everett and Patty Weese Public Road Access: State Route 23

4) Elevation, current ground: 750' Elevation, proposed post-construction: 752'

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

(b)If Gas Shallow  Deep \_\_\_\_\_  
Horizontal

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MDa*

6) Existing Pad: Yes or No YES

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Associated Pressure(s):  
Marcellus Shale, TVD = 6,345', Thickness = 52', BHP = 3,000 psi.

8) Proposed Total Vertical Depth: 6,345' ( At Landing Point )

9) Formation at Total Vertical Depth: Marcellus Shale

10) Proposed Total Measured Depth: 12,650'

11) Proposed Horizontal Leg Length: 4,835'

12) Approximate Fresh Water Strata Depths: Surface to 250 feet

13) Method to Determine Fresh Water Depths: Data from other wells in the area.

14) Approximate Saltwater Depths: 850' - 1,850'

15) Approximate Coal Seam Depths: 400' - 1,100'

16) Approximate Depth to Possible Void (coal mine, karst, other): No open 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**

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	A53B	90 lb.	100'	100'	Grout to Surface
Fresh Water	13 3/8"	new	J-55	48 lb.	450'	450'	To Surface
Coal							
Intermediate	9 5/8"	new	J-55	36 lb.	2,700'	2,700'	To Surface
Production	5 1/2"	new	P-110	20 lb.	N/A	12,650'	To Surface
Tubing	2 3/8"	new	J-55	4.70 lb.	N/A	unknown	N/A
Liners							

*DAH  
4-14-14 MDC*

TYPE	Size	Wellbore Diameter	Wall Thickness	Burst Pressure	Cement Type	Cement Yield (cu. ft./k)
Conductor	20"	24"	.375	1,380 psi.	Class A	1.18 - 1.21
Fresh Water	13 3/8"	17 1/2"	.760	2,730 psi.	Class A	1.20 - 1.24
Coal						
Intermediate	9 5/8"	12 1/4"	.704	3,520 psi.	Light / Class A	1.70 - 1.20
Production	5 1/2"	8 3/4"	.722	12,360 psi.	50:50 Poz / Class H	1.44 - 1.63
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			

WW-6B  
(9/13)

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

SEE ATTACHMENT

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

SEE ATTACHMENT

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 2.7

22) Area to be disturbed for well pad only, less access road (acres): 1.54

23) Describe centralizer placement for each casing string:

SEE ATTACHMENT

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

SEE ATTACHMENT

25) Proposed borehole conditioning procedures:

SEE ATTACHMENT

\*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 24" conductor hole to 100 feet; run 20" casing to T.D. and grout to surface.
2. AIR/SOAP Drill 17 1/2" surface hole to the projected depth; run 13 3/8" casing to T.D. and cement to surface with Class A Cement.
3. AIR/SOAP Drill 12 1/4" intermediate hole to the projected depth; run 9 5/8" casing to T.D. and cement to surface with Class A cement.
4. Fluid Drill 8 3/4" production hole to the projected total measured depth (TMD).
5. Run/Cement 5 1/2" production casing to the TMD; cement casing back to the surface with Class A and Class H cement.
6. Run Cased-hole logs.
7. Open toe sleeve and establish 15 BPM rate.
8. Perforate and stimulate multiple stages in Marcellus lateral section.
  - a. Perforations per stage = sixty to seventy
  - b. Average stage length = two hundred fifty feet
9. Clean-out 5 1/2" production casing using a coil tubing rig or a work over rig and snubbing unit.
10. Flow test well for seven to ten days to clean up wellbore and determine overall productivity.
11. 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. (20") Conductor Casing – No centralizers used.
- B. (13 3/8") Surface Casing – Between two and four run based on setting depth of casing.
- C. (9 5/8") Intermediate Casing – Between six and ten run based on setting depth of casing.
- D. (5 1/2") Production Casing:
  - 1. Spiral centralizers run on every 3<sup>rd</sup> joint from the toe to KOP (Top of Curve). Roughly 50-60 spiral centralizers run.
  - 2. Bow centralizers run on every 10<sup>th</sup> joint from the KOP to surface. Roughly 10-15 bow centralizers run.

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**#24 Cement Additives:**

A. Conductor Cement Job (20" csg.)

- 1. All conductor casings are cemented with standard CLASS A CEMENT.
  - a) Average weight = 15.6lb./gal
  - b) Average yield = 1.18 ft<sup>3</sup>/5k.
  - c) No additional additives are used.

B. Surface Cement Job (13 3/8" csg.)

- 1. Surface Cement Job (13 3/8" csg.)
  - a) Average weight = 15.4 to 15.6 lbs./gal
  - b) Average yield = 1.19 to 1.24 ft<sup>3</sup>/5k
- 2. Common Additives
  - a) ¼ lb./5k Cello Flake (Lost circulation material)
  - b) 28-38 Calcium Chloride (Accelerator)
  - c) 20-25 bbls Gel (bentonite) (Hole conditioner)

\*Note: Gel Sweep is usually pumped ahead of the cement.

C. Intermediate Cement Job

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 ft<sup>3</sup>/5k.

Common Additives

- a) ¼ lb./5k Cello Flake (Lost circulation material)
- b) 1% - 2% Calcium Chloride (Accelerator)
- c) 20-25 bbls Gel (bentonite) (hole conditioner)

\*Note: Gel Sweep is usually pumped ahead of the cement.

- 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 ft<sup>3</sup>/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)
- e) .75 gal. /100 5k. FP-12L (Defoamer)

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D. Longstring Cement Job (5 1/2" csg.)

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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  
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<sup>3</sup> / 5k.

Common Additives

- a) BA - 90 3lbs. /5k (Bonding Agent)
- b) R - 3 .258 bwoc (Retarder)
- c) FP - 12L .75 gals. /100 5ks. (Defoamer)
- d) 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<sup>3</sup>/5k

Common Additives

- a) R-3 .2% bwoc (Retarder)
- b) FP-12L .75 gals./200 5ks (Defoamer)
- c) CD-32 .75 % bwoc (Dispersant)
- d) ASA - 301 .35 % bwoc (Free water removal)
- e) BA-10A 1.25% bwoc (Bonding Agent)
- f) ASCA 30lbs. /5k (Solubility additive)
- e) 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:

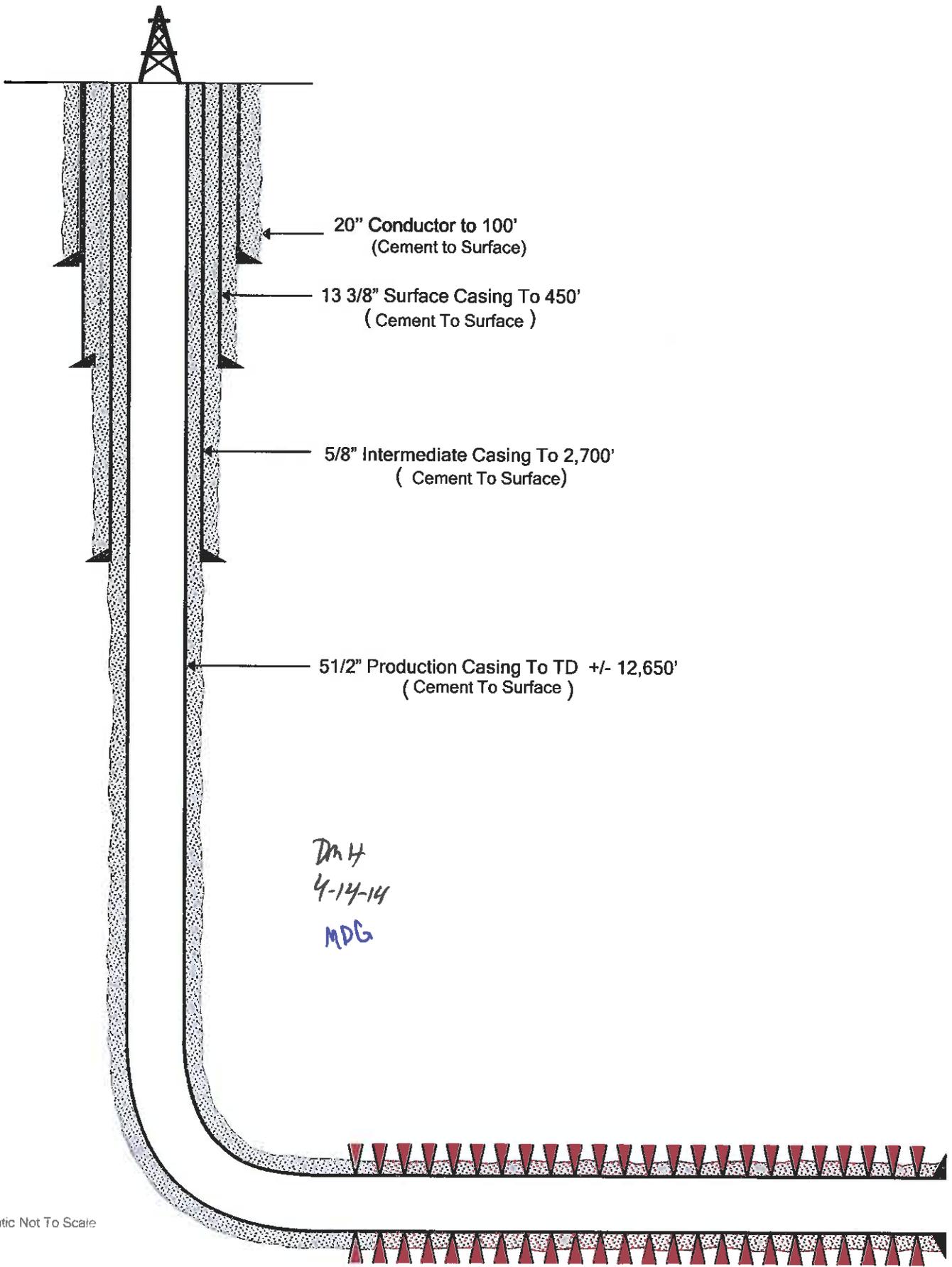
1. **High Viscosity Sweeps:** Sweeps are mixed and pumped after drilling every 3 joints during the drilling process. Sweeps generally run 20 cp over the active mud system viscosity for 20 bbls.
2. **Clean-Up Cycle:** "Clean-Up Cycles" are utilized every 500' in the lateral section of the well. During 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

MARCELLUS SHALE - EVERETT WEESE 1415  
WELLBORE SCHEMATIC 4709502186



4709502186

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) McElroy Creek Quadrangle Shirley

Elevation 752' County Tyler District McElroy

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: N/A

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 Ohio Disposal Well, 34-121-3995 )
- Reuse (at API Number \_\_\_\_\_)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain \_\_\_\_\_)

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Will closed loop system be used? If so, describe: Yes, cuttings, fluids + gases are separated through a series of vessels (gas beaters, centrifuges, shale shaker). 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. Air on top, synthetic based mud for lateral portion \_\_\_\_\_

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

Additives to be used in drilling medium? See MSDS for SBM

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? Wetzel County Landfill, SWPU ID 12-10-45

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.

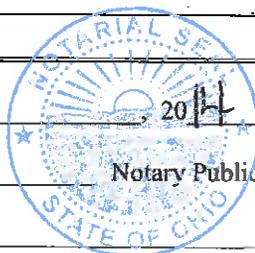
Company Official Signature *Rocky Roberts*

Company Official (Typed Name) Rocky Roberts

Company Official Title Senior VP of Appalachian Operations

Subscribed and sworn before me this 14<sup>th</sup> day of April

Elizabeth R. Tebay



ELIZABETH R. TEBAY  
NOTARY PUBLIC  
In and For The State of Ohio  
My Commission Expires  
2-29-16

My commission expires 2-29-16

**Triad Hunter, LLC**

Proposed Revegetation Treatment: Acres Disturbed No additional 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%	Common Orchard Grass	30%
Perennial Rye	35%	Perennial Rye	35%
Medium Red Clover	25%	Medium Red Clover	25%
Common Timothy	10%	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: Michael A. Goff 

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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

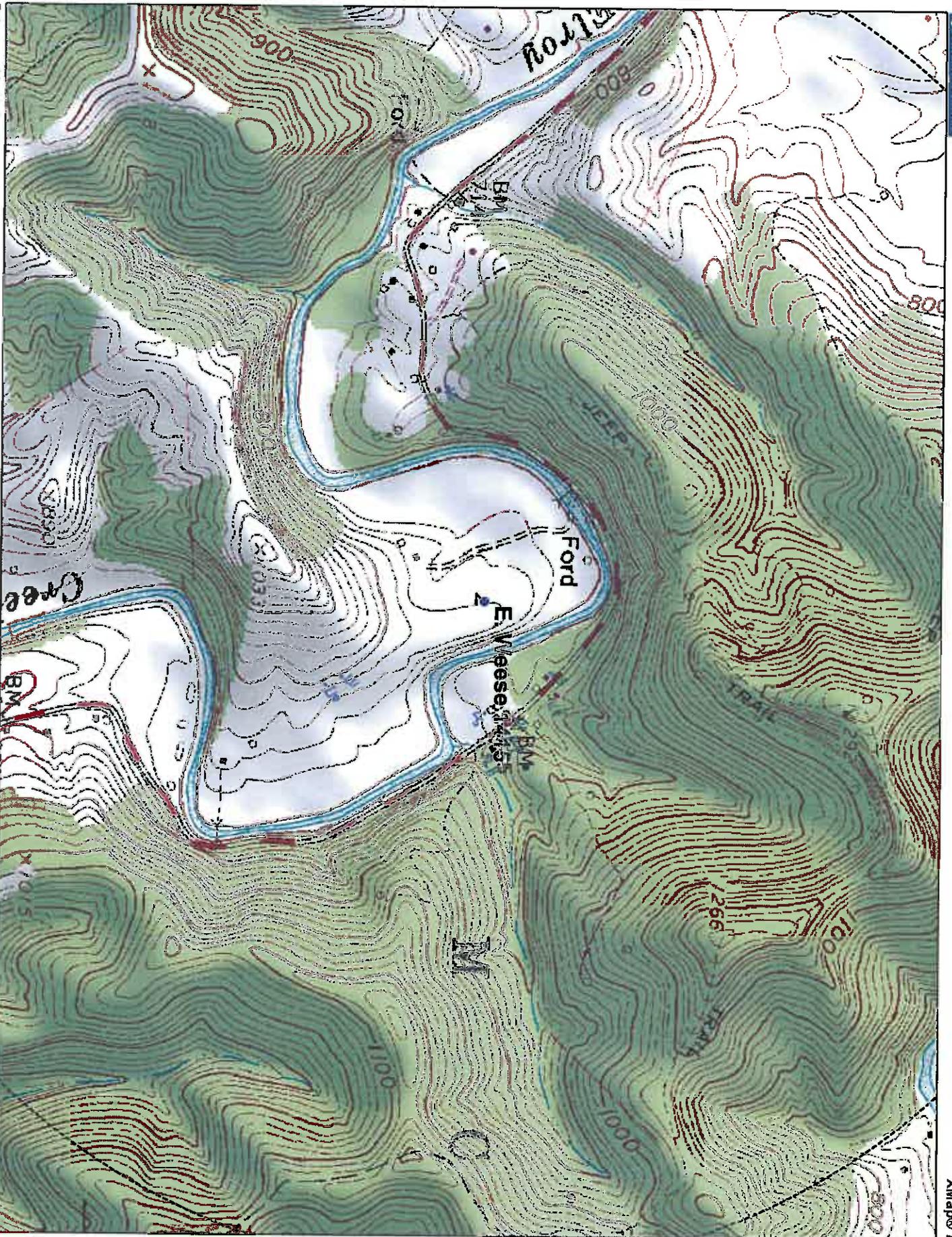
Field Reviewed? (  ) Yes (  ) No



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DELORME

XMap® 7



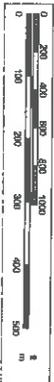
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TM

Scale 1 : 12,000



Data Zoom 14-1

LATITUDE 39°27'30"

5,001'

11,293' TO BOTTOM HOLE

LATITUDE 39°27'30"

LONGITUDE 80°47'30"

12,210'

LONGITUDE 80°47'30"

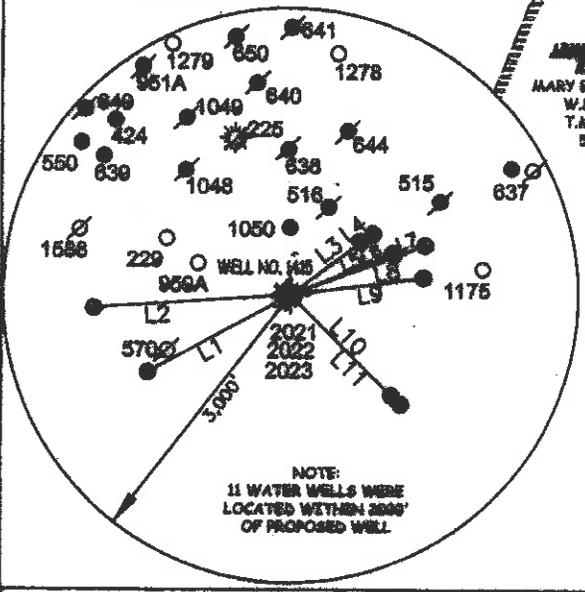
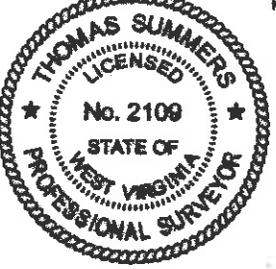
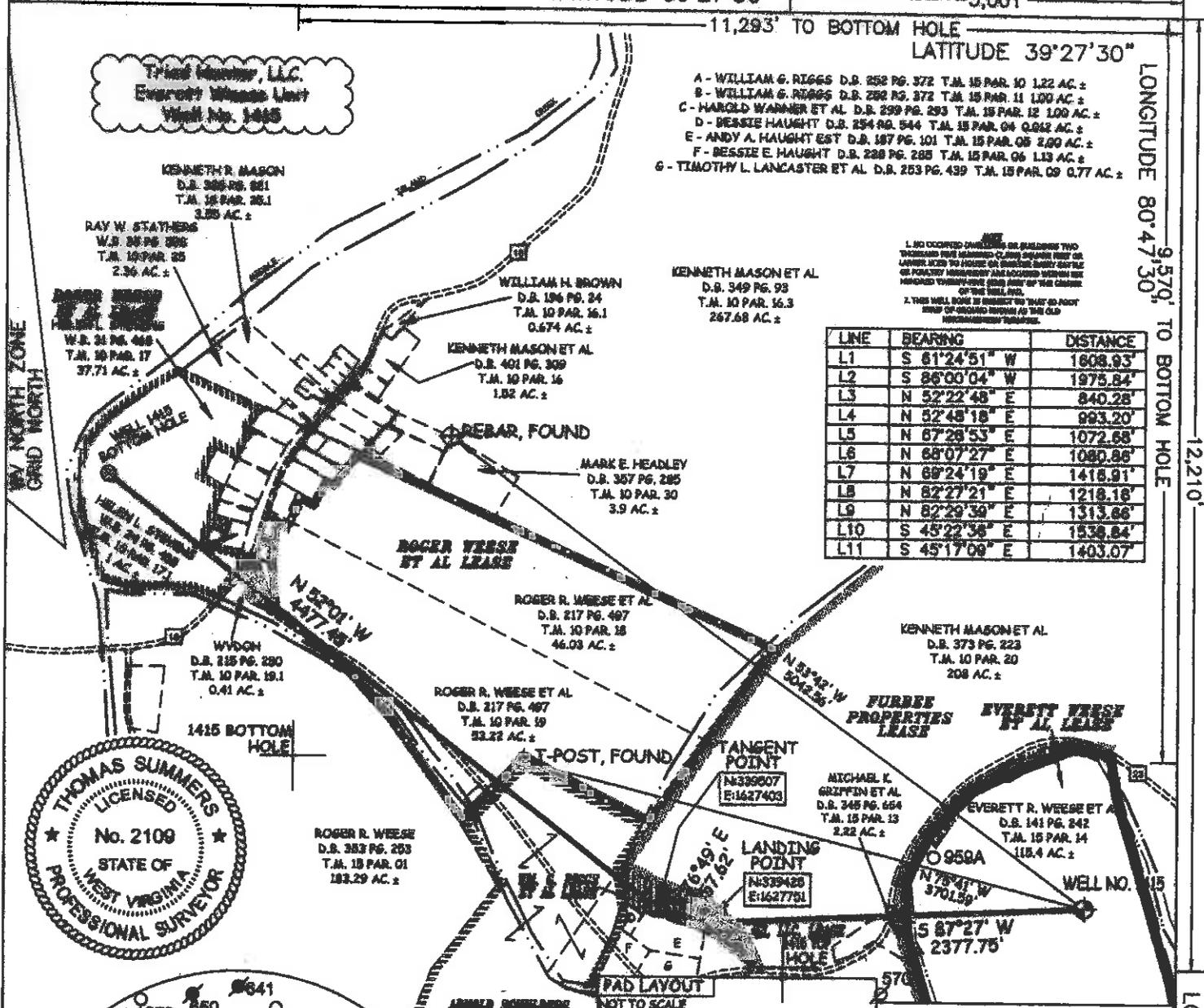
Trifid Hunter, LLC  
Everett Weese Unit  
Well No. 1415

- A - WILLIAM G. RIGGS D.B. 252 PG. 372 T.M. 15 PAR. 10 1.22 AC. ±
- B - WILLIAM G. RIGGS D.B. 282 PG. 372 T.M. 15 PAR. 11 1.00 AC. ±
- C - HAROLD WANNER ET AL D.B. 299 PG. 293 T.M. 15 PAR. 12 1.00 AC. ±
- D - BESSIE HAUGHT D.B. 254 PG. 544 T.M. 15 PAR. 04 0.812 AC. ±
- E - ANDY A. HAUGHT EST D.B. 187 PG. 101 T.M. 15 PAR. 05 2.80 AC. ±
- F - BESSIE E. HAUGHT D.B. 228 PG. 285 T.M. 15 PAR. 06 1.13 AC. ±
- G - TIMOTHY L. LANCASTER ET AL D.B. 253 PG. 439 T.M. 15 PAR. 09 0.77 AC. ±

L AND OCCURRED ON THE SURFACE TWO  
THOUSAND FEET SEPARATELY ON EITHER SIDE OF  
LAPPELLED TO HOUSE OR OTHER BUILT UP  
OR PARTLY THEREON AND LOCATED WITHIN THE  
MARGED THEREWITH AND PART OF THE CORNER  
OF THE WELL.

2 THIS WELL BORE IS SUBJECT TO THE 10 FOOT  
RAMP OF RECORD FROM THE OLD  
REGISTRATION SURFACE.

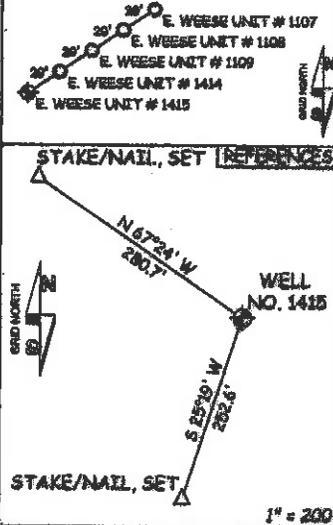
LINE	BEARING	DISTANCE
L1	S 81°24'51" W	1608.93'
L2	S 86°00'04" W	1975.84'
L3	N 52°22'48" E	840.28'
L4	N 52°48'18" E	993.20'
L5	N 67°28'53" E	1072.68'
L6	N 68°07'27" E	1080.86'
L7	N 80°24'19" E	1418.91'
L8	N 82°27'21" E	1218.18'
L9	N 82°29'39" E	1313.66'
L10	S 45°22'38" E	1538.84'
L11	S 45°17'09" E	1403.07'



NOTE:  
11 WATER WELLS WERE  
LOCATED WITHIN 2000'  
OF PROPOSED WELL

NOTES:  
WELL 1415 TOP HOLE INFORMATION:  
N: 339,531ft E: 1,630,126ft  
LAT: 39°25'29.32" LON: 80°48'33.74"  
BOTTOM HOLE INFORMATION:  
N: 342,262ft E: 1,623,874ft  
LAT: 39°25'55.41" LON: 80°49'53.92"  
WEST VIRGINIA COORDINATE  
SYSTEM OF 1927 NORTH ZONE.  
ZONE WAS DERIVED FROM  
MEASUREMENTS TAKEN WITH  
TRIMBLE GEOXT SUBMETER  
MAPPING GRADE GPS UNIT.  
PLAT ORIENTATION, CORNER,  
AND WELL REFERENCE TIE LINES  
ARE BASED ON GRID NORTH.

(NAD) 83 (UTM) ZONE 17 COORDS:  
WELL 1415 TOP HOLE INFORMATION:  
N: 4,363,947m E: 546,423m  
BOTTOM HOLE INFORMATION:  
N: 4,364,747m E: 544,504m



JOB # 13-083WT  
DRAWING # E.WEES1415  
SCALE 1" = 1000'  
MINIMUM DEGREE OF ACCURACY SUBMETER  
PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAN IS CORRECT AND TRULY REPRESENTS ALL THE SURVEY DATA AND RECORDS IN MY POSSESSION OF ENVIRONMENTAL PROTECTION.



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

WILLOW LAND SURVEYING PLLC  
220 MASONIC AVE. PENNSBORO WEST VIRGINIA 26415

LEGEND  
--- Surface Owner Boundary Lines +/-  
--- Interior Surface Tracts +/-  
X Existing Pecos  
O Found monument, as noted

THOMAS SUMMERS P.S. 2109

DATE 12/06/14  
OPERATOR'S WELL # EVERETT WEESE UNIT #1415

API. WELL # 47-095-02186  
STATE COUNTY PERMIT

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

WELL TYPE: OIL GAS X LIQUID INJECTION WASTE DISPOSAL  
(IF "GAS") PRODUCTION X STORAGE DEEP X SHALLOW  
LOCATION: ELEVATION 752 WATERSHED McELROY CREEK

QUADRANGLE SHIRLEY 7.5 DISTRICT McELROY COUNTY TYLER  
SURFACE OWNER EVERETT R. WEESE ET AL ACREAGE 115.4 ACRES +/-

OIL & GAS ROYALTY OWNER EVERETT WEESE ET AL; FURBER PROPERTIES; LEASE ACREAGE 163.28 ACRES +/-; 316 ACRES +/-  
H3, LLC; WILLIAM G. RIGGS ET AL; ARNOLD SCHULBERG ET AL; ROGER WEESE ET AL; ROGER WEESE ET AL 1 ACRE +/-; 2.35 ACRES +/-; 12.80 ACRES +/-; 14.48 ACRES +/-; 37.71 ACRES +/-

PROPOSED WORK: DRILL X CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE X  
PLUG OFF OLD FORMATION PERFORATE NEW FORMATION X OTHER PHYSICAL CHANGE IN WELL  
(SPECIFY) PLUG & ABANDON CLEAN OUT & REPLUG  
TARGET FORMATION MARCELLUS ESTIMATED DEPTH 6,370' TVD 12,850' MD

WELL OPERATOR TRAD HUNTER, LLC DESIGNATED AGENT KIMBERLY ARNOLD  
ADDRESS 777 POST OAK BLVD., SUITE 910 ADDRESS P.O. BOX 154  
HOUSTON, TX 77068 WAVERLY, WV 26184

COUNTY NAME PERMIT