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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

July 11, 2013

**WELL WORK PERMIT**

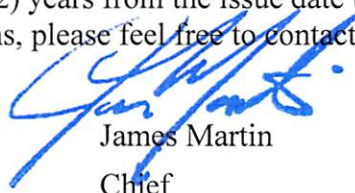
**Horizontal 6A Well**

This permit, API Well Number: 47-9703847, issued to CNX GAS COMPANY 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: CENT3AHS  
Farm Name: HELTON, RUSSELL  
**API Well Number: 47-9703847**  
**Permit Type: Horizontal 6A Well**  
Date Issued: 07/11/2013

**Promoting a healthy environment.**

**07/12/2013**

# 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

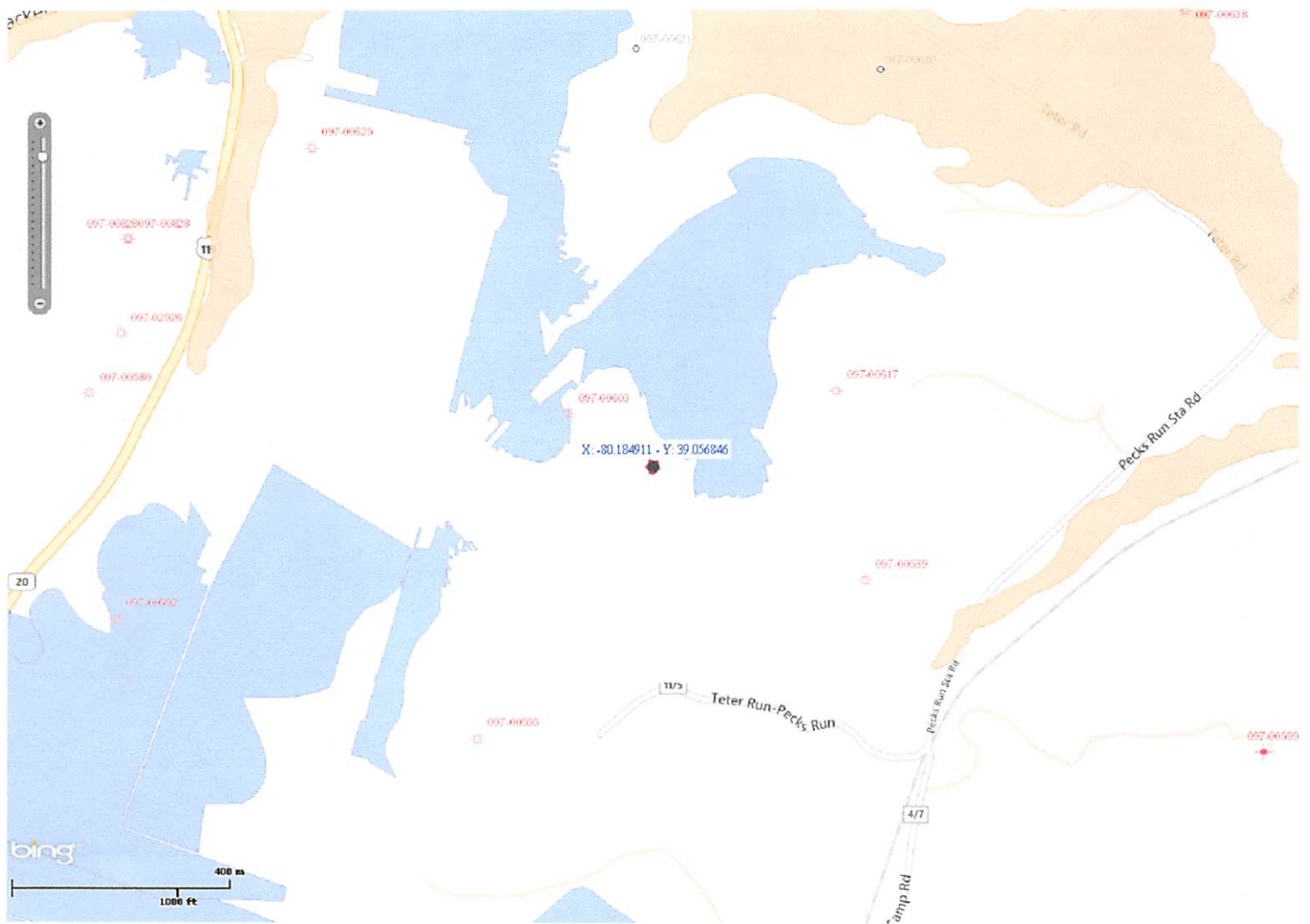
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1. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code § 22-6A-5a (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.
2. When compacting fills, each lift before compaction shall not be more than 12 inches in height, and the fill material shall be within plus or minus 2% (unless soil test results show a greater range of moisture content is appropriate and 95% compaction can still be achieved) of the optimum moisture content as determined by the standard proctor density test, ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort. Each lift must meet 95 % compaction of the optimum density based on results from the standard proctor density test of the actual soils used in specific engineered fill sites. 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.
3. 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.
4. 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.
5. 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.

07/12/2013

# Map from a Flex Viewer application

Powered by ArcGIS



Copyright 2010 ESRI. All rights reserved. Printed on Wed Jun 26 2013 10:37:38 AM.

Drilling near old mine (blue)

LKC

07/12/2013





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west virginia department of environmental protection

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Oil and Gas Conservation Commission  
601 57<sup>th</sup> Street, SE Charleston, WV 25304  
(304)926-0499, Ext 1656

Earl Ray Tomblin, Governor  
Randy C. Huffman, Cabinet Secretary  
dep.wv.org

June 25, 2013

Department of Environmental Protection  
Office of Oil and Gas  
Charleston, WV 25304

RE: Application for Deep Well Permit – API #47-097-03847

COMPANY: CNX Gas Company, LLC

FARM: Russell Helton Cent#3H

COUNTY: Upshur DISTRICT: Warren QUAD: Century

The application for the above company is APPROVED FOR HUNTERSVILLE CHERT ONLY. **If operator wishes to drill deeper than the HUNTERSVILLE CHERT, additional approval must be obtained from the OGCC. *Marcellus completion***

The applicant has complied with the provision of Chapter 22C-9, of the Code of West Virginia, nineteen hundred and thirty-one (1931), as amended, Oil and Gas Conservation Commission as follows:

1. Provided a certified copy of duly acknowledged and recorded consent and easement form from all surface owners; yes
2. Provided a tabulation of all deep wells within one mile of the proposed location, including the API number of all deep wells, well name, and the name and address of the operator; none
3. Provided a plat showing that the proposed location is a distance of 400+ feet from the nearest lease line or unit boundary and showing the following wells drilled to or capable of producing from the objective formation within 3,000 feet of the proposed location.

Sincerely,

Cindy Raines  
Executive Assistant

**To avoid enforcement action and per 39CSR1.4.6 and 4.10 filing of wells logs and directional surveys are due within 90/60 days of completion of a deep well.**

CERTIFICATE OF CONSENT AND EASEMENT

We, the undersigned, for valuable considerable, the receipt and sufficiency of which is hereby acknowledged, being all the owners of the surface of that certain lot, tract or parcel of land located in WARREN District, UPSHUR County, State of West Virginia, shown on the attached plat or survey, or hereby consent and grant an easement, pursuant to West Virginia Code, Section 22C-9-7(b) (4) and Operating Rule 4.4 of the Rules and Regulations of the West Virginia Oil and Gas Conservation Commission, to RUSSELL W. HELTON, it successors or assigns, for the drilling and operation of a deep well for the production of oil or gas at the location shown on the attached plat or survey.

Executed this 20<sup>TH</sup> day of JUNE, 2013.

Russell W. Helton

STATE OF WEST VIRGINIA

COUNTY OF UPSHUR To-Wit

I, DAVID M. YAZYAC, COMMISSIONER a ~~Notary Public~~ in and for the aforesaid County and State, do hereby certify that RUSSELL W. HELTON, whose name is signed to the writing above, bearing date on the 20<sup>TH</sup> day of JUNE, 2013, has this day acknowledged the same before me, in my said County and State.

Given under my hand this 20<sup>TH</sup> day of JUNE, 2013.

David M. Yazyac

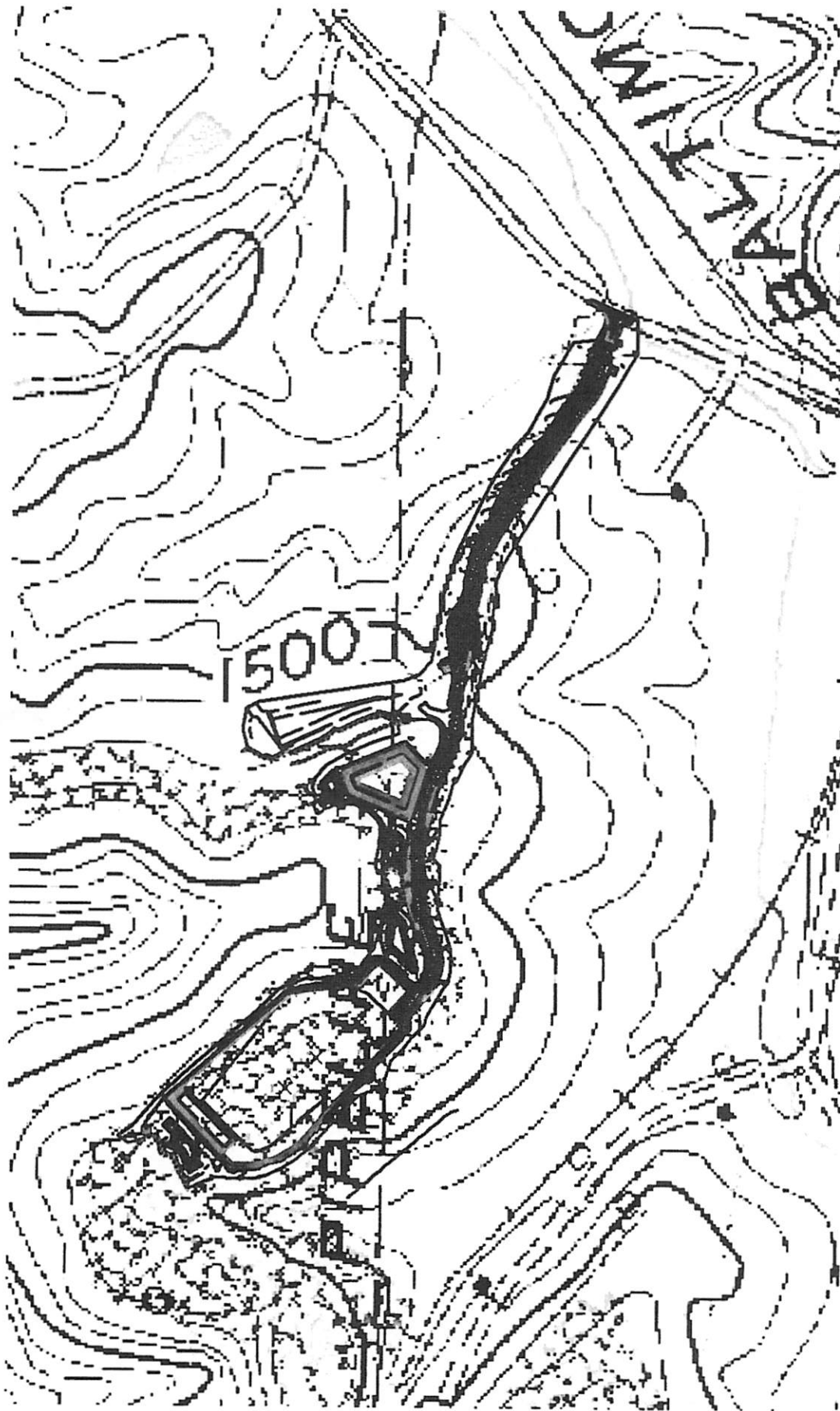


My Commission expires on: SEPT. 22, 2016

This instrument prepared by:  
WV Oil and Gas Conservation Commission  
601 57<sup>th</sup> Street  
Charleston, WV 25304

47-097-03847

07/12/2013



Debbie Thacker Wilfong  
UPSHUR County 02:59:06 PM  
Instrument No 2013010323  
Date Recorded 06/24/2013  
Document Type MISC

07/12/2013



**STATE OF WEST VIRGINIA**  
**DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS**  
**W.VA. CODE §22-6A - WELL WORK PERMIT APPLICATION**

1) Well Operator: CNX Gas Company LLC 494458046 Upshur Warren Century  
Operator ID County District Quadrangle

2) Operator's Well Number: CENT3AHS Well Pad Name: CENT3HS

3 Elevation, current ground: 1534' Elevation, proposed post-construction: 1536'

4) Well Type: (a) Gas  Oil   
Other \_\_\_\_\_  
(b) If Gas: Shallow \_\_\_\_\_ Deep   
Horizontal

5) Existing Pad? Yes or No: No

6) Proposed Target Formation(s), Depth(s), Anticipated Thicknesses and Associated Pressure(s):  
Formation - Marcellus, Depth - 7815', Thickness - 90', Pressure - 3000#

7) Proposed Total Vertical Depth: 8205'

8) Formation at Total Vertical Depth: Huntersville Chert

9) Proposed Total Measured Depth: 14921'

10) Approximate Fresh Water Strata Depths: 85', 852', 945'

11) Method to Determine Fresh Water Depth: Reference offset wells

12) Approximate Saltwater Depths: None Reported

13) Approximate Coal Seam Depths: 945'

14) Approximate Depth to Possible Void (coal mine, karst, other): None Anticipated

15) Does land contain coal seams tributary or adjacent to, active mine? No

16) Describe proposed well work: Drill and stimulate new horizontal Marcellus well. Well to be drilled to a TMD of 14921'. Well to be drilled to a TVD of 8205' for logging purposes, formation at TVD - Huntersville Chert. Well will be plugged back to an approximate depth of 7200' (approximate due to exact Kick of point being unknown). Plugging back will be done using the displacement method and Class A type cement, a solid cement plug will be set from TD to KOP. If an unexpected void is encountered, plan will be to setcasing at a minimum of 30' past void and cement to surface with approved Class A type cement.

17) Describe fracturing/stimulating methods in detail:  
The stimulation will be multiple stages divided over the lateral length of the well. Stage spacing is dependent upon engineering design. Slickwater fracturing technique will be utilized on each stage using sand, water, and chemicals.

18) Total area to be disturbed, including roads, stockpile area, pits, etc, (acres): 12.46 Acres

19) Area to be disturbed for well pad only, less access road (acres): 9.74 Acres

**Received**

MAY 20 2013

07/12/2013  
Rec'd 5/20/13

20)

**CASING AND TUBING PROGRAM**

<b>TYPE</b>	<u>Size</u>	<u>New or Used</u>	<u>Grade</u>	<u>Weight per ft.</u>	<u>FOOTAGE: For Drilling</u>	<u>INTERVALS: Left in Well</u>	<u>CEMENT: Fill -up (Cu. Ft.)</u>
Conductor	20"	N	L.S.	81.3#	80'	80'	Grout to Surface
Fresh Water	13 3/8"	N	J-55	54.5#	1000'	1000'	CTS w/ Approved Class A Type Cement
Coal							
Intermediate	9 5/8"	N	J-55	36#	2500'	2500'	CTS w/ Approved Class A Type Cement
Production	5 1/2"	N	P-110	20#	14921'	14921'	2400 cu. ft. W/ 50/50 POZ Lead & Class A Tail
Tubing	2 3/8"	N	J-55	4.7#	8405'	8405'	
Liners							

*Bill Halford 1/30/13*

<b>TYPE</b>	<u>Size</u>	<u>Wellbore Diameter</u>	<u>Wall Thickness</u>	<u>Burst Pressure</u>	<u>Cement Type</u>	<u>Cement Yield</u>
Conductor	20"	26"	0.438	2110	Class A Type	1.18
Fresh Water	13 3/8"	17 1/2"	0.380	2730	Class A Type	1.39
Coal						
Intermediate	9 5/8"	12 3/8"	0.352	3520	Class A Type	1.18
Production	5 1/2"	8 3/4" & 8 1/2"	0.361	12640	Class A Type	1.26
Tubing	2 3/8"	8 3/4" & 8 1/2"	0.190	7700	-----	-----
Liners						

**PACKERS**

Kind:	None		
Sizes:	None		
Depths Set:	None		

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Office of Oil and Gas  
FEB 04 2013  
www.Docketrent.com  
Ethics: Internal Protection



21) Describe centralizer placement for each casing string. Conductor - No centralizers used. Fresh Water & Coal - Bow spring centralizers on first joint then every fourth joint to 100 feet from surface. Intermediate - Bow spring centralizers one on the first two joints and every fourth joint until inside Surface casing. Production - Rigid bow spring centralizer on first joint then every 2 joints (free floating) through the lateral and the curve.  
 (Note: cementing the 5 1/2" casing completely in open hole lateral and curve.)

22) Describe all cement additives associated with each cement type. Conductor - 2% CaCl2. Fresh Water/Coal - 2% CaCl2. Intermediate - 2% CaCl2. Production: 2.6% Cement extender, 0.7% Fluid Loss Additive 0.5% High Temperature Retarder, 0.2% Friction Reducer.

23) Proposed borehole conditioning procedures. Conductor - The hole is augered or drilled w/ air and casing is ran in air. Apart from insuring the hole is clean via air circulation at TD there are no other conditioning procedures. Fresh Water/Coal - The hole is drilled w/ air and casing is ran in air. Once casing is on bottom the casing shoe will be cleared with fresh water and gel prior to cementing. Intermediate - The hole is drilled w/ air and casing is ran in air. Once casing is on bottom the casing shoe will be cleared with fresh water and gel prior to cementing. (Note: Drilling soap may be utilized if the hole gets wet/damp during the drilling of all air holes with the exception of the conductor). Production - The hole is drilled with synthetic oil base mud and once at TD the hole is circulated at a drilling pump rate until the hole is clean. Once casing is ran the hole is circulated for a minimum of one hole volume prior to pumping cement.

\*Note: Attach additional sheets as needed.

APPROVED  
 FEB 04 2013  
 [Signature]

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

**CONSTRUCTION AND RECLAMATION PLAN AND SITE REGISTRATION APPLICATION FORM  
GENERAL PERMIT FOR OIL AND GAS PIT WASTE DISCHARGE**

Operator Name CNX Gas Company, LLC OP Code 494495754

Watershed Pecks Run Quadrangle Century 7.5'

Elevation 1534.2' County Upshur District Warren

Description of anticipated Pit Waste: Fluids associated with the drilling of new gas wells

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

Will a synthetic liner be used in the pit? Yes. If so, what mil.? 60 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 Recycle on other well on same pad or adjacent pads)

Drilling medium anticipated for this well? Air, freshwater, oil based, etc. Air + Waterbased Mud

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

Additives to be used? Bactericide, Polymers and Weighting Agents

Will closed loop system be used? No

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, N/A

-Landfill or offsite name/permit number? Meadowfill, S & S Landfill, and Northwestern Landfill

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.

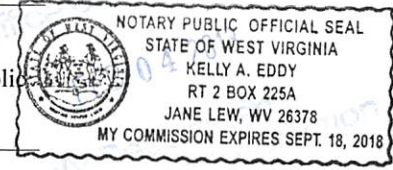
Company Official Signature [Handwritten Signature]

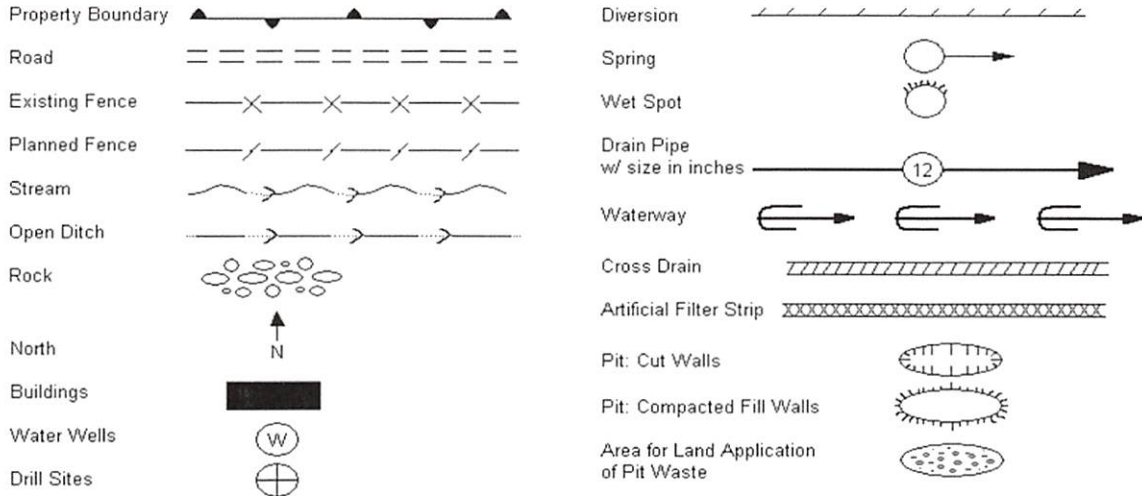
Company Official (Typed Name) Jeremy Jones

Company Official Title Designated Agent - General Manager WV Gas Operations

Subscribed and sworn before me this 29<sup>th</sup> day of January, 20 13

Kelly A. Eddy  
My commission expires September 18, 2018





Proposed Revegetation Treatment: Acres Disturbed 12.46 +/- Prevegetation pH 6.5

Lime according to pH test Tons/acre or to correct to pH 7.0

Fertilizer (10-20-20 or equivalent) 500 lbs/acre (500 lbs minimum)

Mulch Hay or Straw at 2 Tons/acre

Seed Mixtures

Area I		Area II	
Seed Type	lbs/acre	Seed Type	lbs/acre
Orchardgrass	25	Orchardgrass	25
Birdsfoot Trefoil	15	Birdsfoot Trefoil	15
Ladino Clover	10	Ladino Clover	10

Attach:  
Drawing(s) of road, location, pit and proposed area for land application.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: Bill Hatfield

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

Title: oil & gas inspector Date: 1/30/13

Field Reviewed?  Yes  No

RECEIVED  
Office of Oil and Gas  
FEB 04 2013  
Environmental and Safety





# Water Management Plan: Primary Water Sources



WMP-01090	API/ID Number:	047-097-03847	Operator:	Consol Energy - WV
		CENT3AHS		

**Important:**

For each proposed primary water source (including source intakes for purchased water sources) identified in your water management plan, and summarized herein, DEP has made an evaluation concerning water availability over the specified date range. DEP’s assessment is based on the following considerations:

- Statistical analysis of historical USGS stream gauge data (transferred to un-gauged locations as necessary);
- Identification of sensitive aquatic life (endangered species, mussels, etc.);
- Quantification of known existing demands on the water supply (Large Quantity Users);
- Minimum flows required by the Army Corps of Engineers; and
- Designated stream uses.

Based on these factors, DEP has provided, for each intake location (and origination point for purchased water), a reference gauge location and discharge flow reading which must be surpassed prior to withdrawals. Additionally, DEP has established a minimum passby flow at the withdrawal location which must also be surpassed prior to withdrawals. These thresholds are considered terms of the permit and are enforceable as such.

**DEP is aware that some intake points will be used for mutiple wells and well sites. In these cases, the thresholds set by the Water Management Plan are to be interepreted as total withdrawal limits for each location over the specified date range regardless of how many wells are supported by that intake.**

For all purchased water intakes, determinations of water availability are made at the original source intake location. It is the responsibility of the Oil and Gas Operator, not the seller, to cease withdrawal of water from the seller when flows are less than the minimum gauge reading at the stream gauge referenced by the Water Management Plan in order to protect stream uses.

Note that the determinations made herein are based on the best available data, but it is impossible to predict water availability in the future. While the DEP has carefully established these minimum withdrawal thresholds, it remains the operator’s responsibility to protect aquatic life at all times. Approval to withdrawal is contingent upon permission from the land owner. It is the responsibility of the operator to secure and maintain permission prior to any withdrawals.

The operator is reminded that 24-48 hours prior to withdrawing (or purchasing) water, DEP must be notified by email at [DEP.water.use@wv.gov](mailto:DEP.water.use@wv.gov).

**APPROVED MAY 13 2013**

## Source Summary

WMP- 01090

API Number: 047-097-03847

Operator: Consol Energy - WV

CENT3AHS

### Stream/River

● Source **Tygart Valley River** Owner: **Consol Energy**

Start Date	End Date	Total Volume (gal)	Max. daily purchase (gal)	Intake Latitude:	Intake Longitude:
8/1/2013	8/1/2014	11,089,400		39.190421	-80.017423

Regulated Stream? Ref. Gauge ID: 3054500 TYGART VALLEY RIVER AT PHILIPPI, WV

Max. Pump rate (gpm):	<b>1,470</b>	Min. Gauge Reading (cfs):	<b>355.01</b>	Min. Passby (cfs)	<b>344.41</b>
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DEP Comments:

**07/12/2013**

## Source Detail

WMP-01090

API/ID Number: 047-097-03847

Operator:

Consol Energy - WV

CENT3AHS

Source ID: 14049 Source Name Tygart Valley River

Source Latitude: 39.190421

Consol Energy

Source Longitude: -80.017423

HUC-8 Code: 5020001

Drainage Area (sq. mi.): 931.43

County: Barbour

Anticipated withdrawal start date: 8/1/2013

Anticipated withdrawal end date: 8/1/2014

Endangered Species?  Mussel Stream?

Total Volume from Source (gal): 11,089,400

Trout Stream?

Tier 3?

Max. Pump rate (gpm): 1,470

Regulated Stream?

Max. Simultaneous Trucks: 0

Proximate PSD?

Taylor County PSD

Max. Truck pump rate (gpm)

Gauged Stream?

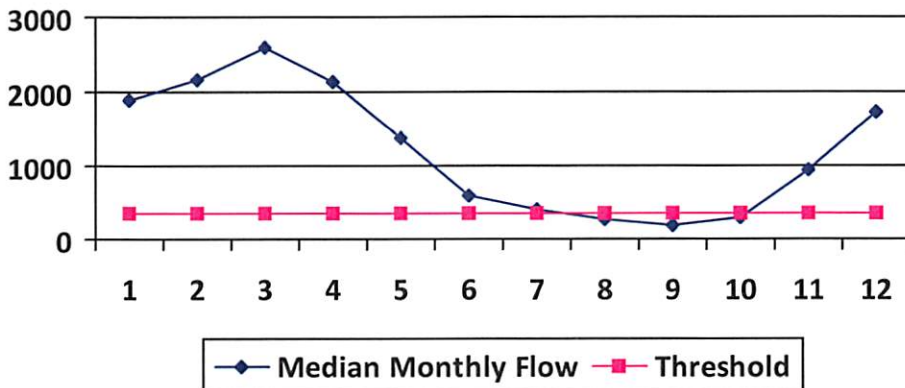
Reference Gaug 3054500 TYGART VALLEY RIVER AT PHILIPPI, WV

Drainage Area (sq. mi.) 914.00

Gauge Threshold (cfs): 341

Month	Median monthly flow (cfs)	Threshold (+ pump)	Estimated Available water (cfs)
1	1,901.06	361.51	1,542.64
2	2,155.51	361.51	1,797.09
3	2,600.93	361.51	2,242.51
4	2,132.23	361.51	1,773.82
5	1,375.48	361.51	1,017.07
6	586.10	361.51	227.69
7	402.01	361.51	43.59
8	280.57	361.51	-77.84
9	177.42	361.51	-181.00
10	286.75	361.51	-71.66
11	950.89	361.51	592.48
12	1,738.34	361.51	1,379.92

### Water Availability Profile



### Water Availability Assessment of Location

Base Threshold (cfs): 347.50

Upstream Demand (cfs): 10.73

Downstream Demand (cfs): 0.00

Pump rate (cfs): 3.28

Headwater Safety (cfs): 0.00

Ungauged Stream Safety (cfs): 0.00

Min. Gauge Reading (cfs): 355.01

Passby at Location (cfs): 347.50

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.

07/12/2013





## Water Management Plan: Secondary Water Sources



WMP- 01090	API/ID Number	047-097-03847	Operator:	Consol Energy - WV
		CENT3AHS		

**Important:**

For each proposed secondary water source identified in your water management plan (i.e., groundwater well, lake/reservoir, recycled frac water, multi-site impoundment, out-of-state source), DEP makes no estimation of the availability of water. These sources may prove to be unsuitable water supplies. Please review the following notes:

- For groundwater supply wells, DEP recommends that the operator contact the local health department prior to drilling any new well; and reminds the operator that all drinking water wells within 1,500 feet of a water supply well shall be flow- and quality-tested by the operator at the request of the drinking well owner prior to operation of the water supply well.
- For each proposed multi-site impoundment water source identified in your water management plan (if applicable), DEP will review the withdrawal limits established in the referenced Water Management Plan for current suitability and provide to the operator these limits for each identified intake. Note that withdrawal limits may be modified as necessary based on changing demands upon that water supply.

### Multi-site impoundment

Source ID:	14050	Source Name	Warder North Impoundment		Source start date:	8/1/2013
					Source end date:	8/1/2014
Source Lat:	39.192505	Source Long:	-80.025198	County	Barbour	
Max. Daily Purchase (gal)		Total Volume from Source (gal):	9,100,000			
DEP Comments:						

The intake identified above has been defined in a previous water management plan. The thresholds established in that plan govern this water management plan unless otherwise noted.

Reference: WMP-189

WMP-01090

API/ID Number

047-097-03847

Operator:

Consol Energy - WV

CENT3AHS

**Important:**

For each proposed secondary water source identified in your water management plan (i.e., groundwater well, lake/reservoir, recycled frac water, multi-site impoundment, out-of-state source), DEP makes no estimation of the availability of water. These sources may prove to be unsuitable water supplies. Please review the following notes:

- For groundwater supply wells, DEP recommends that the operator contact the local health department prior to drilling any new well; and reminds the operator that all drinking water wells within 1,500 feet of a water supply well shall be flow- and quality-tested by the operator at the request of the drinking well owner prior to operation of the water supply well.
- For each proposed multi-site impoundment water source identified in your water management plan (if applicable), DEP will review the withdrawal limits established in the referenced Water Management Plan for current suitability and provide to the operator these limits for each identified intake. Note that withdrawal limits may be modified as necessary based on changing demands upon that water supply.

Source ID:	14051	Source Name	Warder South Impoundment		Source start date:	8/1/2013
					Source end date:	8/1/2014
	Source Lat:	39.19097	Source Long:	-80.025198	County	Barbour
	Max. Daily Purchase (gal)		Total Volume from Source (gal):	11,089,400		
DEP Comments:						

The intake identified above has been defined in a previous water management plan. The thresholds established in that plan govern this water management plan unless otherwise noted.

Reference: WMP-190

**Recycled Frac Water**

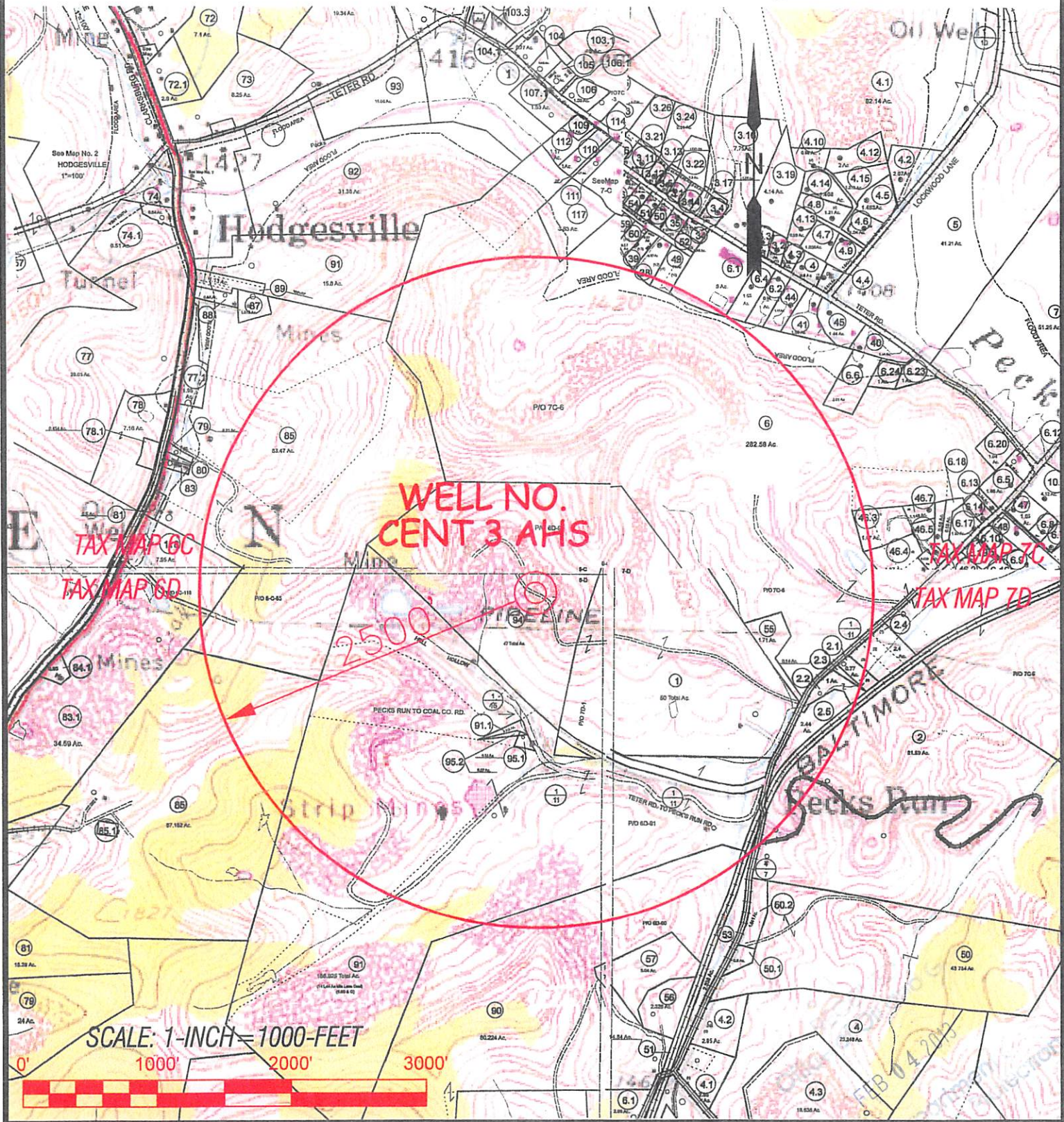
Source ID:	14052	Source Name	PHL13 Flowback Pit; PHL 4		Source start date:	8/1/2013
					Source end date:	8/1/2014
	Source Lat:		Source Long:		County	
	Max. Daily Purchase (gal)		Total Volume from Source (gal):	11,089,400		
DEP Comments:						

07/12/2013



WATER SAMPLES

# V. LEASE WELL NO. CENT 3 AHS



**Professional Energy Consultants**  
A DIVISION OF SMITH LAND SURVEYING

**SLS**

229 West Main St.  
P.O. Box 120  
Charleston, WV 26331  
(304) 452-5515

51005 Dunes Bottom Road  
Shady Side, OH 43147  
(740) 671-9511

HOONERSY INTEGRITY QUALITY

DRAWN BY: K.D.W. FILE NO.: 7898 DATE: 01-25-13 CADD FILE: 7898WS3AHS.dwg

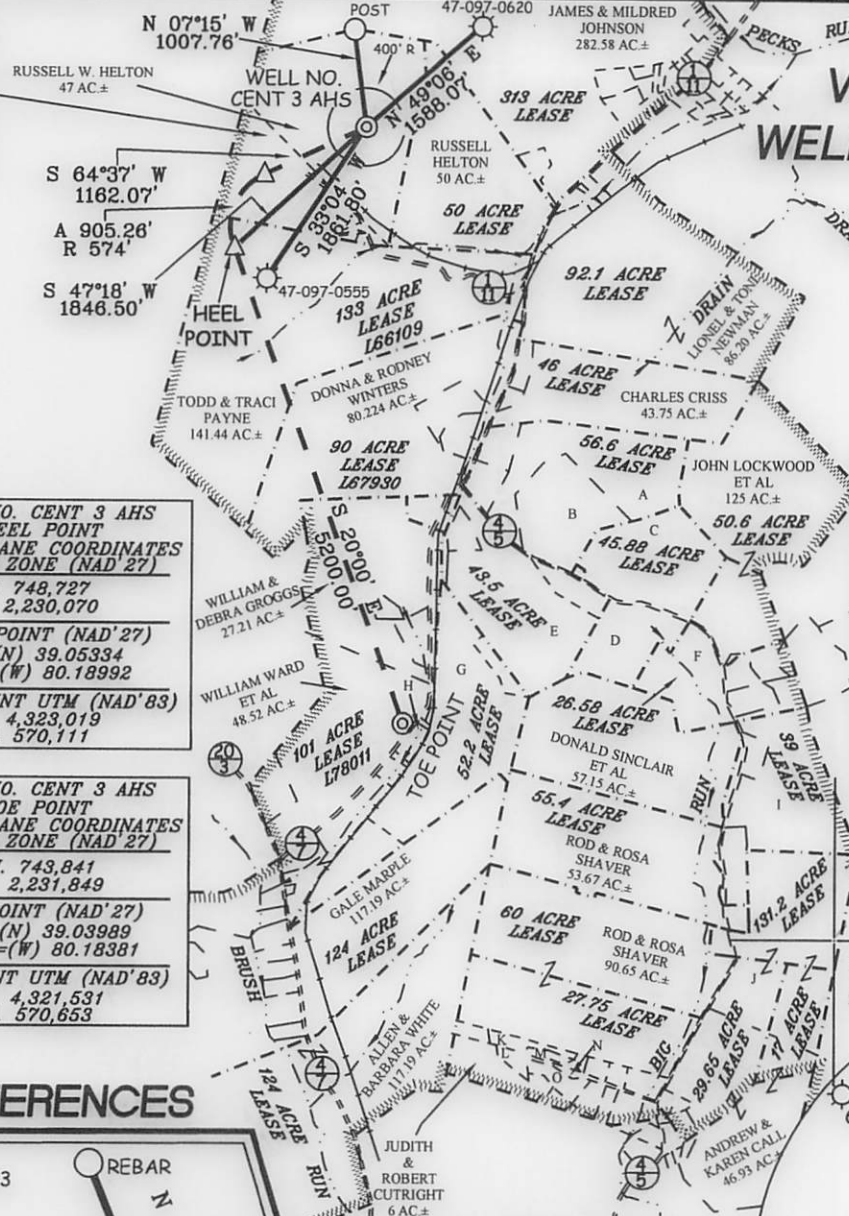
TOPO SECTION OF:  
CENTURY, WV 7.5' QUAD.

COUNTY	DISTRICT	TAX MAP-PARCEL NO.
UPSHUR	WARREN	6D-94

OPERATOR:  
CNX GAS COMPANY, LLC.  
P.O. BOX 1248  
JANE LEW, WV 26379  
07/12/2013



64 ACRE LEASE (L66851) 18.8 OF 64 ACRES (L66850) 5 OF 64 ACRES (L67849)



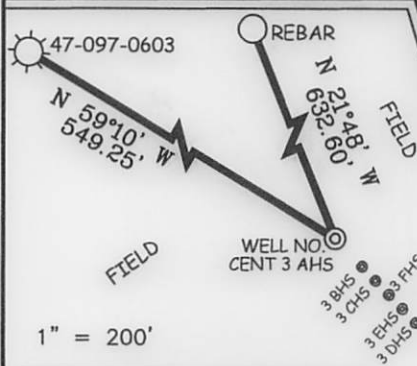
WELL NO. CENT 3 AHS STATE PLANE COORDINATES SOUTH ZONE (NAD'27) N. 749,980 E. 2,231,427 LAT=(N) 39.05675 LONG=(W) 80.18510 UTM (NAD'83) N. 4,323,401 E. 570,524

WELL NO. CENT 3 AHS HEEL POINT STATE PLANE COORDINATES SOUTH ZONE (NAD'27) N. 748,727 E. 2,230,070 HEEL POINT (NAD'27) LAT=(N) 39.05334 LONG=(W) 80.18992 HEEL POINT UTM (NAD'83) N. 4,323,019 E. 570,111

WELL NO. CENT 3 AHS TOE POINT STATE PLANE COORDINATES SOUTH ZONE (NAD'27) N. 743,841 E. 2,231,849 TOE POINT (NAD'27) LAT=(N) 39.03989 LONG=(W) 80.18381 TOE POINT UTM (NAD'83) N. 4,321,531 E. 570,653

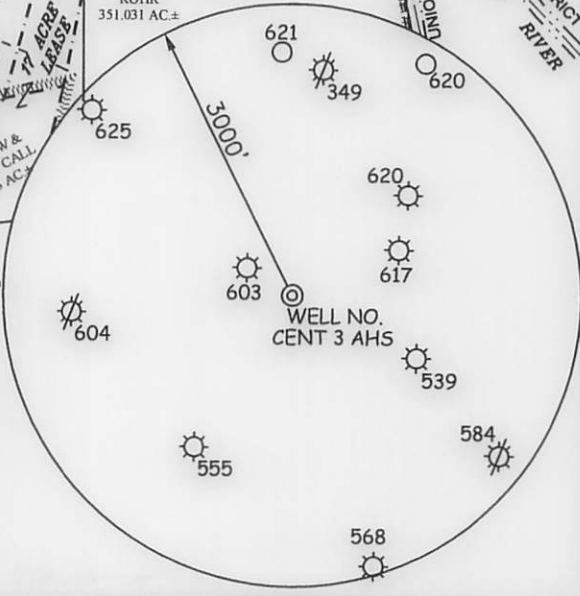
Table with 3 columns: Leaseholder Name, Acreage, and Well No. Includes entries for Marcie & Randall Kirchberg, Kyle & Marilyn Linger, etc.

REFERENCES



NOTES ON SURVEY

- 1. TIES TO WELLS, REFERENCES, AND CORNERS ARE BASED ON GRID SOUTH FOR THE WV STATE PLANE COORDINATE SYSTEM SOUTH ZONE NAD '27.
2. LEASE BOUNDARY SHOWN HEREON TAKEN FROM A DEED BOOK 37 PAGE 342 AND ADJOINING DEEDS AND WELL PLATS.
3. SURFACE OWNER AND ADJOINER INFORMATION TAKEN FROM THE ASSESSOR AND COUNTY CLERK RECORDS OF UPSHUR COUNTY IN JULY, 2012.
4. WELL LAT./LONG. (NAD'27) ESTABLISHED BY DGPS(SURVEY GRADE).



I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECTED 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. 677 Gregory A. Smith



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS. DATE FEBRUARY 7, 20 13 OPERATORS WELL NO. CENT 3 AHS API WELL NO. 47 - 97 - 03847 STATE COUNTY PERMIT H6A

MINIMUM DEGREE OF ACCURACY 1/200 FILE NO. 7898P3AHSR4 (422-67) SCALE 1" = 2000' PROVEN SOURCE OF ELEVATION DGPS (SURVEY GRADE)

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

WELL TYPE: OIL GAS X INJECTION WASTE DISPOSAL IF "GAS" PRODUCTION X STORAGE DEEP X SHALLOW LOCATION: ELEVATION 1534.2' WATERSHED PECKS RUN DISTRICT WARREN COUNTY UPSHUR QUADRANGLE CENTURY 7.5' SURFACE OWNER RUSSELL HELTON ACREAGE 47± ROYALTY OWNER V. WHITE ET AL LEASE ACREAGE 64, 133, 90, & 100± PROPOSED WORK: DRILL X CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE X 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 TVD 8,205' / TMD 14,921'

WELL OPERATOR CNX GAS COMPANY, LLC. DESIGNATED AGENT JEREMY JONES ADDRESS P.O. BOX 1248 JANE LEW, WV 26378 ADDRESS P.O. BOX 1248 JANE LEW, WV 26378

COUNTY NAME PERMIT

07/12/2013