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

January 28, 2014

WELL WORK PERMIT

Horizontal 6A Well

This permit, API Well Number: 47-10302973, issued to CHESAPEAKE APPALACHIA, L.L.C., 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: JAMES MESSENGER WTZ 3H U
Farm Name: CHESAPEAKE APPALACHIA, LL
API Well Number: 47-10302973
Permit Type: Horizontal 6A Well
Date Issued: 01/28/2014

west virginia department of environmental protection

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

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

December 5, 2013

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

RE: Application for Deep Well Permit – API #47-103-02973

COMPANY: Chesapeake Appalachia LLC

FARM: James Messenger WTZ 3H

COUNTY: Wetzel DISTRICT: Proctor QUAD: Wileyville

The deep well review of the application for the above company is **APPROVED FOR POINT PLEASANT.** If operator wishes to drill deeper than the POINT PLEASANT, additional approval must be obtained from the OGCC.

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

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 days of completion of a deep well.

1030293-

WW - 6B
(3/13)

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

681

1) Well Operator: Chesapeake Appalachia, LLC | 49447757 (Operator ID) | 103- Wetzel (County) | 7-Proctor (District) | 681- Wileyville (Quadrangle)

2) Operator's Well Number: James Messenger WTZ 3H U Well Pad Name: James Messenger WTZ Pad

3 Elevation, current ground: 1495' Elevation, proposed post-construction: 1495'

4) Well Type: (a) Gas ■ Oil _____ Underground Storage _____

Other _____

(b) If Gas: Shallow _____ Deep ■

Horizontal _____

DMH 10-15-13

5) Existing Pad? Yes or No: yes

6) Proposed Target Formation(s), Depth(s), Anticipated Thicknesses and Associated Pressure(s):

Target formation- Point Pleasant. Target top TVD- 12,139', Target base TVD- 12,265', Anticipated thickness- 126', Associated Pressure- 10,925

7) Proposed Total Vertical Depth: 12,215

8) Formation at Total Vertical Depth: Point Pleasant

9) Proposed Total Measured Depth: 19,200'

10) Approximate Fresh Water Strata Depths: 465'

11) Method to Determine Fresh Water Depth: From an analysis of water wells in the area

12) Approximate Saltwater Depths: 1,432'

13) Approximate Coal Seam Depths: 1335'

14) Approximate Depth to Possible Void (coal mine, karst, other): None that we are aware of.

15) Does proposed well location contain coal seams directly overlying or adjacent to an active mine? If so, indicate name and depth of mine: No.

16) Describe proposed well work: Drill and stimulate any potential zones between and including the Benson to the Utica. **If we should encounter a void, place basket above and below void area - balance cement to bottom of void and grout from basket to surface. Run casing not less than 20' below void nor more than 50' below void.

(*If freshwater is encountered deeper than anticipated it must be protected, set casing 50' below and cts)

17) Describe fracturing/stimulating methods in detail:

Well will be perforated within the target formation and stimulated with a slurry of water, sand, and chemical additives at a high rate. This will be performed in stages with the plug and perf method along the wellbore until the entire lateral has been stimulated within the target formation. All stage plugs are then drilled out and the well is flowed back to surface. The well is produced through surface facilities consisting of high pressure production units, vertical separation units, water and oil storage tanks.

18) Total area to be disturbed, including roads, stockpile area, pits, etc, (acres): 12.5

19) Area to be disturbed for well pad only, less access road (acres): 8.2

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(3/13)

20) **CASING AND TUBING PROGRAM**

TYPE	Size	New or Used	Grade	Weight per ft.	FOOTAGE: For Drilling	INTERVALS: Left in Well	CEMENT: Fill -up (Cu. Ft.)
Conductor	24"	New	J-55	95#	100'	100'	CTS
Fresh Water	16"	New	H40	65#	800'	800'	320 sx/CTS
Coal	10 3/4"	New	HCN-80	45.5#	2,895'	2,895'	1940 sx/CTS
Intermediate	7 5/8"	New	HCP-110	39#	7,365	7,365'	480 sx/CTS
Production	5 1/2"	New	P-110	23#	19,200'	19,200'	Lead 1,712 sx Tail 1,715 sx/100' Inside intermediate
Tubing	2 3/8"	New	N-80	4.7#	Approx. 12,488'	Approx. 12,488'	
Liners							

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TYPE	Size	Wellbore Diameter	Wall Thickness	Burst Pressure	Cement Type	Cement Yield
Conductor	24"	30"	0.25	2120	15.6 ppg	1.19/50% Excess
Fresh Water	16"	22"	0.380	1640	15.6 ppg	1.19/50% Excess
Coal	10 3/4"	14 3/4"	0.395	5210	15.6 ppg	1.19/40% Excess
Intermediate	7 5/8"	9 7/8"	.0317	12640	15.6 ppg	1.20/40% Excess
Production	~~5 1/2"~~	~~6 3/4"~~	~~0.361~~	~~14520~~	~~15.6 ppg~~	~~1.20/15% Excess~~
Tubing	2 3/8"	4.778"	0.190			
Liners						

PACKERS

Kind:	10K Arrowset AS1-X			
Sizes:	5 1/2"			
Depths Set:	Approx. 6,197'			

OK BWM

PRODUCTION CASING 5 1/2" TENARIS HYDRIL WITH WEDGE 513 CONNECTION

SIZE	WELLBORE	WALL THICKNESS	BURST PRESS	CEMENT TYPE	CEMENT YIELD
5 1/2"	6 3/4	0.415 IN	14530 PSI	15.6 PPG	1.20/15% EXCESS

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(3/13)

21) Describe centralizer placement for each casing string.

All casing strings will be ran with a centralizer at a minimum of 1 per every 3 joints of casing.

22) Describe all cement additives associated with each cement type.

**Please see attached sheets for Chemical Listing of Cement & Additives for Chesapeake Energy wells.

23) Proposed borehole conditioning procedures.

All boreholes will be conditioned with circulation and rotation for a minimum of one bottoms up and continuing until operator is satisfied with borehole conditions.

*Note: Attach additional sheets as needed.

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10-15-13

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WV Department of
Environmental Protection

10302973 HU

November 26 2013

TenarisHydril

Size: 5.500 in.
Wall: 0.415 in.
Weight: 23.00 lbs/ft
Grade: P110
Min. Wall Thickness: 87.5 %

Connection: Wedge 513™
Casing/Tubing: CAS

PIPE BODY DATA

GEOMETRY

Nominal OD	**5.500** in.	Nominal Weight	**23.00** lbs/ft	Standard Drift Diameter	**4.545** in.
Nominal ID	**4.670** in.	Wall Thickness	**0.415** in.	Special Drift Diameter	**N/A**
Plain End Weight	**22.56** lbs/ft				

PERFORMANCE

Body Yield Strength	**729** x 1000 lbs	Internal Yield	**14530** psi	SMYS	**110000** psi
Collapse	**14540** psi				

WEDGE 513™ CONNECTION DATA

GEOMETRY

Connection OD	**5.500** in.	Connection ID	**4.590** in.	Make-Up Loss	**4.420** in.
Critical Section Area	**4.210** sq. in.	Threads per in.	**3.29**		

PERFORMANCE

Tension Efficiency	**63.5** %	Joint Yield Strength	**463** x 1000 lbs	Internal Pressure Capacity	**14530** psi
Compression Strength	**540** x 1000 lbs	Compression Efficiency	**74.1** %	Bending	**58** °/100 ft
External Pressure Capacity	**14540** psi				

MAKE-UP TORQUES

Minimum	**8400** ft-lbs	Target	**10100** ft-lbs	Maximum (*)	**14700** ft-lbs

OPERATIONAL LIMIT TORQUES

Operating Torque	**27000** ft-lbs	Yield Torque	**41000** ft-lbs		

BLANKING DIMENSIONS

Blanking Dimensions

* If you need to use torque values that are higher than the maximum indicated, please contact a local Tenaris technical sales representative.

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SLB Cement Additives

	Product Name	Product Use
Surface	D046	antifoam
	D130	polyester flake - lcm
	S001	calcium chloride
	SPACER	
	D130	polyester flake - lcm
	D020	bentonite extender
Intermediate	D046	antifoam
	D130	polyester flake - lcm
	D044	granulated salt
	D153	Anti-Settling Agent
	SPACER	
	D020	bentonite extender
	D130	polyester flake - lcm
Kick Off Plug	D080	cement liquid dispersant
	D801	mid-temp retarder
	D047	antifoam agent
	SPACER	
	B389	MUDPUSH* Express
	D206	Antifoaming Agent
	D031	barite
	B220	surfactant
Production - Lead	D167	UNIFLAC* S
	D154	low-temperature extender
	D400	EasyBLOK
	D046	antifoam
	D201	basic cements enabler
	D202	low-temperature solid dispersant
	D046	antifoam
	D167	UNIFLAC* S
	D065	TIC* Dispersant

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D201	basic cements enabler
D153	Anti-Settling Agent
SPACER	
B389	MUDPUSH* Express
D206	Antifoaming Agent
D031	barite
B220	surfactant

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Chemical Name	CAS Number	% Concentration Used
Fuller's earth (attapulgite)	8031-18-3	0.2% BWOC
Polypropylene glycol	25322-69-4	
polyethylene terephthalate	25038-59-9	0.125 lb/sk
calcium chloride	10043-52-4	2% BWOC
polyethylene terephthalate	25038-59-9	1 lb/bbl
bentonite	1302-78-9	20 lb/bbl
Fuller's earth (attapulgite)	8031-18-3	0.2% BWOC
Polypropylene glycol	25322-69-4	
polyethylene terephthalate	25038-59-9	0.125 lb/sk
sodium chloride	7647-14-5	10% BWOW
chrystalline silica	14808-60-7	0.15% BWOC
bentonite	1302-78-9	20 lb/bbl
polyethylene terephthalate	25038-59-9	1 lb/bbl
product classified as non-hazardous.		0.05 gal/sk
product classified as non-hazardous		0.01 gal/sk
polypropylene glycol	25322-69-4	0.02 gal/sk
Carbohydrate	proprietary	1 lb/bbl
Silica Organic Polymer	proprietary	0.1 gal/bbl
barium sulfate	7727-43-7	310 lb/bbl
fatty acid amine	proprietary	
ethoxylated alcohol	proprietary	
glycerol	56-81-5	
2.2'-Iminodiethanol	111-42-2	1 gal/bbl
aliphatic amide polymer	proprietary	0.35% BWOC
non-crystalline silica	7631-86-9	6% BWOC
boric acid	10043-35-3	0.8% BWOC
Fuller's earth (attapulgite)	8031-18-3	
Polypropylene glycol	25322-69-4	0.2% BWOC
chrystalline silica	14808-60-7	
metal oxide	proprietary	0.2% BWOC
sulphonated synthetic polymer	proprietary	
formaldehyde (impurity)	50-00-0	0.3% BWOC
Fuller's earth (attapulgite)	8031-18-3	
Polypropylene glycol	25322-69-4	0.2% BWOC
aliphatic amide polymer	proprietary	0.35% BWOC
Sodium Polynaphthalene Sulfonate	9008-63-3	
Sodium Sulfate	7757-82-6	0.25% BWOC

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chrystalline silica	14808-60-7	
metal oxide	proprietary	0.2% BWOC
chrystalline silica	14808-60-7	0.2% BWOC
Carbohydrate	proprietary	proprietary
Silica Organic Polymer	proprietary	proprietary
barium sulfate	7727-43-7	7727-43-7
fatty acid amine	proprietary	proprietary
ethoxylated alcohol	proprietary	proprietary
glycerol	56-81-5	56-81-5
2.2'-Iminodiethanol	111-42-2	111-42-2

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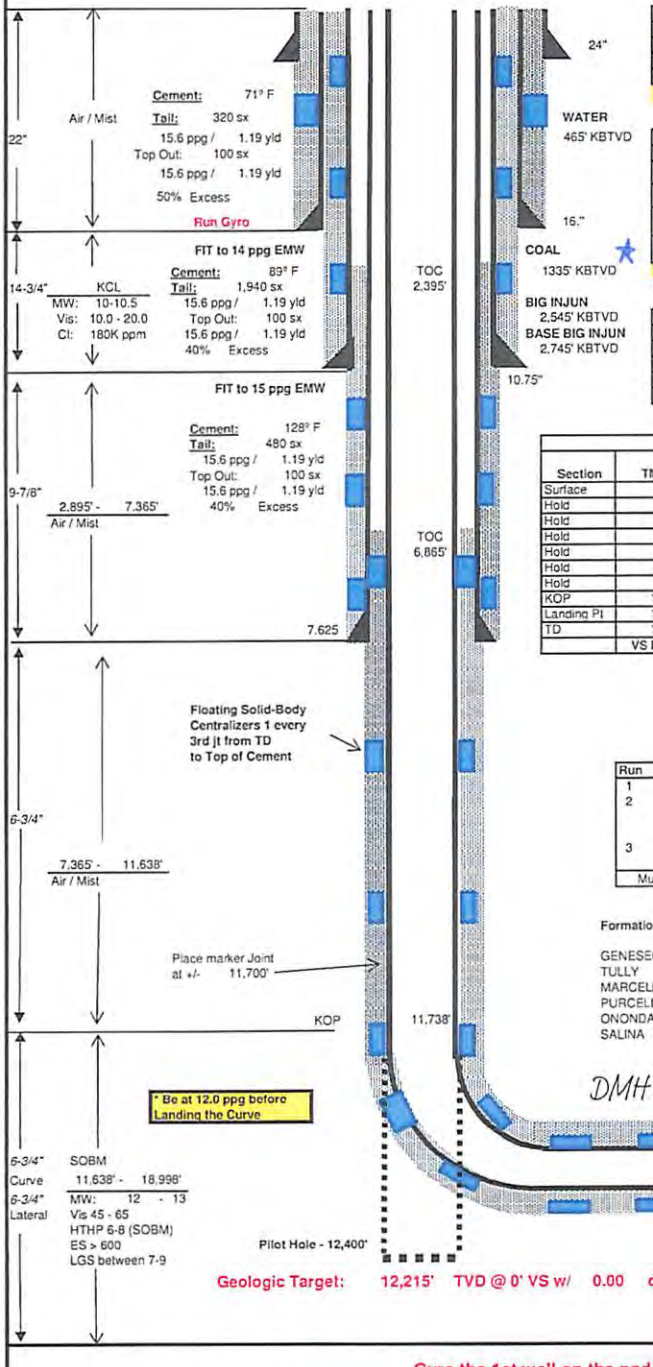
Chesapeake

Well Name:	James Messenger WTZ 3H U			Drilling Rig:	NA
				Directional Drilling:	NA
Drilling Engineer:	NA	Formation:	Utica	Drilling Mud:	NA
Superintendent:	NA	County, State:	Wetzel, WV	Cement Surface:	NA
Asset Manager:	NA	Surface Latitude:	39.673693	Surface Longitude: -80.690861	Cement Longstrings: NA
Geologist:	NA	BH Latitude:	39.685281	BH Longitude: -80.70837	Wellhead: NA
Land:	NA	KB Elevation:	1515'	Ground Elevation: 1495'	AFE #: NA Well #: NA



Geologic Target: 12,215' TVD @ 0' VS w/ 0.00 degrees/100 ft Up-dip

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Wellhead Equipment	
Tree Description	
Tubing Head **	Blanking Cap
'B' Section	11" x 5M x 7-1/16" 10M
'A' Section	9-5/8" SOW x 11" 5M

** Space out such that Blanking Cap is no more than 30" above grade.

Casing Detail

	Size	Wt	Grd	Conn.	From:	To:
Surface	16	65 #	H40	BTC	0'	800'
Interm	10.75	45.5 #	HCN-80	BTC	0'	2,895'
Interm 2	7.625	39 #	HCP-110	BTC	0'	7,365'
Prod	5.5	23 #	P-110	~~TXP~~	0'	18,998'

Report any Water flows and/or gas flows. Catch liquid sample if possible.

Gas Storage Zone BIG INJUN 2545' - 2745'

Casing Design

	Size	ID	Coll	Burst	Tens	MU torq
Surface	16	15.25	670	1640	736	4390
Interm	10.75	9.95	3130	5210	104	5760
Interm 2	7.625	6.625	12180	12640	123	10660
Prod	5.5	4.67	16220	14520	729	6680

Directional Drilling Details

Section	TMD	Inc.	Azimuth	TVD	BUR	DLS	+N/-S	+E/-W
Surface	0.00'	0.00	0.00	0.00'	0.00	0.00	0.0'	0.0'
Hold	1,100'	0.00	0.00	1,100'	0.00	0.00	0.0'	0.0'
Hold	1,500'	0.00	0.00	1,500'	0.00	0.00	0.0'	0.0'
Hold	2,000'	0.00	0.00	2,000'	0.00	0.00	0.0'	0.0'
Hold	2,400'	0.00	0.00	2,400'	0.00	0.00	0.0'	0.0'
Hold	6,000'	0.00	0.00	6,000'	0.00	0.00	0.0'	0.0'
Hold	7,000'	0.00	0.00	7,000'	0.00	0.00	0.0'	0.0'
KOP	11,738'	0.00	0.00	11,738'	0.00	0.00	0.0'	0.0'
Landing Pt	12,488'	90.00	311.38	12,215'	12.00	12.00	315.6'	-358.3'
TD	18,998'	90.00	311.38	12,215'	0.00	0.00	4,619.6'	-5,243.6'
	VS Plane	311.38					VS Length	6,988.26'

Lateral Length ==> 6,510.80'

Plat Date 7/31/2013

Logging Program

Run	Log Type	Interval
1	Res/PN/Temp Audio	Surface
2	Triple Combo + GR/Neutron	Int TD to Surf. Csg: GR/Neutron to Surface
	CBL	Over Surface Casing
3	No CBL	KOP to Int. Csg Over Intermediate Casing
Mudlogger operational at		Surface

Formation Depths (TVD)

GENESEO	7,134'	CLINTON	9460.00
TULLY	7,166'	QUEENSTON	10040.00
MARCELLUS	7,192'	UTICA	11983.00
PURCELL	7,269'	MIDDLE UTICA	12019.00
ONONDAGA	7,315'	POINT PLEASANT	12139.00
SALINA	7,714'	TRENTON	12265.00

Cement: 170° F
Lead: 1,712 sx
15.6 ppg / 1.20 yld
Tail: 800 sx
15.6 ppg / 1.19 yld
15% Excess
Pump-time: 5 hours
Ensure Gas Block Additive is in Lead Slurry
PBHL 5.5"
TMD: 18,998'
TVD: 12,215'
Inclination: 90.00 deg

Gyro the 1st well on the pad at KOP.
Ensure all Surveys are referenced to Grid North!!

Drawn by: NA
Date: 10/31/2013

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NOV 26 2013
WV Department of Environmental Protection

★ 5.5" CONNECTION IS TENARUS HYDRIL "WEDGE 513"

103 02973 HU

WW-9
(5/13)

Page _____ of _____

API Number 47 - 103 - _____

Operator's Well No. James Messenger WTZ 3H U

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Chesapeake Appalachia, LLC OP Code 49447757

Watershed (HUC 10) Fish Creek Quadrangle 681- Wileyville

Elevation 1495' County 103- Wetzel District 7-Proctor

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

Will a pit be used for drill cuttings? Yes _____ No x

If so, please describe anticipated pit waste: Closed loop system in place at this time- cuttings will be taken to a permitted landfill.

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

Proposed Disposal Method For Treated Pit Wastes:

_____ Land Application
■ Underground Injection (UIC Permit Number 2D0072539/ 2D0413175/ 2D0610306/ 2D0610317)
■ Reuse (at API Number at next anticipated well, API# will be included with the WR-34/DDMR &/or permit addendum.)
_____ Off Site Disposal (Supply form WW-9 for disposal location)
■ Other (Explain Flow back fluids will be put in steel tanks and reused or taken to a permitted disposal facility.

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Will closed loop system be used? Yes

Drilling medium anticipated for this well? Air, freshwater, oil based, etc. Air and salt saturate mud

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

Additives to be used in drilling medium? see attached sheets

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)_____

-Landfill or offsite name/permit number? Meadowfill SWF-1032, SS Grading SWF-4902, Northwestern SWF-1025, Short Creek 1034/WV0109517/CID28726, Carbon Limestone 28726/CID 28726

Arden Landfill 10072, American 02-12954, Country Wide 38390/CID 38390, Pine Grove 13688

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

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment.

Company Official Signature _____

Company Official (Typed Name) Danielle Southall

Company Official Title Regulatory Analyst II

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Office of Oil and Gas

Subscribed and sworn before me this 27th day of August, 20 13

Brittany R Woody Notary Public

My commission expires 11/27/22

OFFICIAL SEAL
Notary Public, State of West Virginia
BRITTANY R WOODY
3302 Old Elkins Road
Buckhannon, WV 26201
My commission expires November 27, 2022

1030 2973 HU

Form WW-9

Operator's Well No. _____

Chesapeake Appalachia, LLC

Proposed Revegetation Treatment: Acres Disturbed 10+/- Prevegetation pH _____

Lime (as determined by pH test min. 2) _____ Tons/acre or to correct to pH 6.5

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

Mulch Hay/Straw 2.5 Tons/acre

Seed Mixtures

Area I		Area II	
Seed Type	lbs/acre	Seed Type	lbs/acre
White Clover	15	White Top	15
Red Top	15	Red Top	15
Orchard Grass	20	Orchard Grass	20

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

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: _____

Comments: _____

Title: Oil and Gas Inspector Date: 10-15-13

Field Reviewed? (✓) Yes ( ) No

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Office of Oil & Gas
OCT 2013
WV Department of Environmental Protection

Water Management Plan:
Primary Water Sources

WMP- 01673 | API/ID Number: 047-103-02973 | Operator: Chesapeake Energy

James Messenger WTZ 3H U - 838457

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.

APPROVED DEC 0 9 2013

Source Summary

WMP-01673 | API Number: 047-103-02973 | Operator: Chesapeake Energy

James Messenger WTZ 3H U - 838457

Stream/River

- Source **Ohio River WP 1 (Beech Bottom Staging Area)** Brooke Owner: **Brownlee Land Ventures**

Start Date	End Date	Total Volume (gal)	Max. daily purchase (gal)	Intake Latitude:	Intake Longitude:
10/1/2013	10/1/2014	5,460,000		40.226889	-80.658972

☑ Regulated Stream? Ohio River Min. Flow Ref. Gauge ID: 9999999 Ohio River Station: Willow Island Lock & Dam

Max. Pump rate (gpm): 6,000 **Min. Gauge Reading (cfs): 6,468.00** **Min. Passby (cfs)**

DEP Comments: Refer to the specified station on the National Weather Service's Ohio River forecast website: http://www.erh.noaa.gov/ohrfc//flows.shtml

- Source **Little Wheeling Creek WP 1 (Rt. 40 Staging Area)** Ohio Owner: **JDS Investments, LLC**

Start Date	End Date	Total Volume (gal)	Max. daily purchase (gal)	Intake Latitude:	Intake Longitude:
10/1/2013	10/1/2014	5,460,000		40.078324	-80.591145

☐ Regulated Stream? Ref. Gauge ID: 3112000 WHEELING CREEK AT ELM GROVE, WV

Max. Pump rate (gpm): 2,000 **Min. Gauge Reading (cfs): 64.80** **Min. Passby (cfs) 2.83**

DEP Comments:

Source Summary

WMP- 01673 API Number: 047-103-02973 Operator: Chesapeake Energy

James Messenger WTZ 3H U - 838457

Purchased Water

- Source **Ohio River @ J&R Excavating** **Marshall** Owner: **J&R Excavating**

Start Date	End Date	Total Volume (gal)	Max. daily purchase (gal)	Intake Latitude:	Intake Longitude:
10/1/2013	10/1/2014	5,460,000	1,890,000	39.998509	-80.737336

☑ Regulated Stream? **Ohio River Min. Flow** Ref. Gauge ID: **9999999** **Ohio River Station: Willow Island Lock & Dam**

Max. Pump rate (gpm): **Min. Gauge Reading (cfs):** **6,468.00** **Min. Passby (cfs)**

DEP Comments: **Refer to the specified station on the National Weather Service's Ohio River forecast website: http://www.erh.noaa.gov/ohrfc//flows.shtml**

- Source **The Village of Valley Grove** **Ohio** Owner: **The Village of Valley Grove**

Start Date	End Date	Total Volume (gal)	Max. daily purchase (gal)	Intake Latitude:	Intake Longitude:
10/1/2013	10/1/2014	5,460,000	720,000	-	-

☑ Regulated Stream? **Ohio River Min. Flow** Ref. Gauge ID: **9999999** **Ohio River Station: Willow Island Lock & Dam**

Max. Pump rate (gpm): **Min. Gauge Reading (cfs):** **6,468.00** **Min. Passby (cfs)**

DEP Comments: **Refer to the specified station on the National Weather Service's Ohio River forecast website: http://www.erh.noaa.gov/ohrfc//flows.shtml**

- Source **Ohio County PSD** **Ohio** Owner: **Ohio county PSD**

Start Date	End Date	Total Volume (gal)	Max. daily purchase (gal)	Intake Latitude:	Intake Longitude:
10/1/2013	10/1/2014	5,460,000	720,000	-	-

☑ Regulated Stream? **Ohio River Min. Flow** Ref. Gauge ID: **9999999** **Ohio River Station: Willow Island Lock & Dam**

Max. Pump rate (gpm): **Min. Gauge Reading (cfs):** **6,468.00** **Min. Passby (cfs)**

DEP Comments: **Refer to the specified station on the National Weather Service's Ohio River forecast website: http://www.erh.noaa.gov/ohrfc//flows.shtml**

Source			Wetzel	Owner:	Grandview-Doolin Public Service District
Grandview-Doolin PSD					

Start Date	End Date	Total Volume (gal)	Max. daily purchase (gal)	Intake Latitude:	Intake Longitude:
10/1/2013	10/1/2014	5,460,000	60,480	-	-

☑ Regulated Stream? **Ohio River Min. Flow** Ref. Gauge ID: **9999999** **Ohio River Station: Willow Island Lock & Dam**

Max. Pump rate (gpm): **Min. Gauge Reading (cfs):** **6,468.00** **Min. Passby (cfs)**

DEP Comments: **Refer to the specified station on the National Weather Service's Ohio River forecast website: http://www.erh.noaa.gov/ohrfc//flows.shtml**

Source Detail

WMP- 01673 | API/ID Number: 047-103-02973 | Operator: Chesapeake Energy

James Messenger WTZ 3H U - 838457

Source ID: 31037 Source Name: Ohio River @ J&R Excavating
J&R Excavating

Source Latitude: 39.998509
Source Longitude: -80.737336

HUC-8 Code: 5030106

Drainage Area (sq. mi.): 25000 County: Marshall

Anticipated withdrawal start date: 10/1/2013
Anticipated withdrawal end date: 10/1/2014
Total Volume from Source (gal): 5,460,000
Max. Pump rate (gpm):
Max. Simultaneous Trucks: 0
Max. Truck pump rate (gpm)

- [ ] Endangered Species?
- [x] Mussel Stream?
- [ ] Trout Stream?
- [ ] Tier 3?
- [x] Regulated Stream?
- [ ] Proximate PSD?
- [x] Gauged Stream?

Ohio River Min. Flow

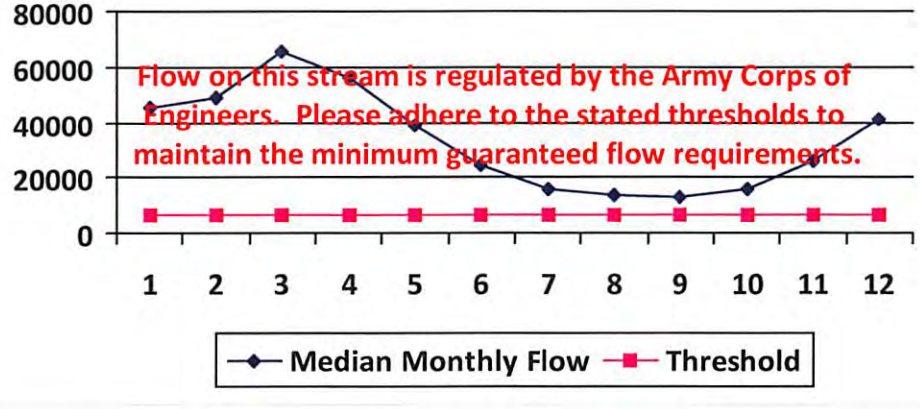
Reference Gaug: 9999999 Ohio River Station: Willow Island Lock & Dam

Drainage Area (sq. mi.): 25,000.00

Gauge Threshold (cfs): 6468

Month	Median monthly flow (cfs)	Threshold (+ pump	Estimated Available water (cfs)
1	45,700.00	-	-
2	49,200.00	-	-
3	65,700.00	-	-
4	56,100.00	-	-
5	38,700.00	-	-
6	24,300.00	-	-
7	16,000.00	-	-
8	13,400.00	-	-
9	12,800.00	-	-
10	15,500.00	-	-
11	26,300.00	-	-
12	41,300.00	-	-

Water Availability Profile



Water Availability Assessment of Location

Base Threshold (cfs):	-
Upstream Demand (cfs):	0.00
Downstream Demand (cfs):	0.00
Pump rate (cfs):	
Headwater Safety (cfs):	0.00
Ungauged Stream Safety (cfs):	0.00
Min. Gauge Reading (cfs):	-
Passby at Location (cfs):	-

"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.

Source Detail

WMP-01673 | API/ID Number: 047-103-02973 | Operator: Chesapeake Energy

James Messenger WTZ 3H U - 838457

Source ID: 31038 Source Name: The Village of Valley Grove
The Village of Valley Grove

Source Latitude: -
Source Longitude: -

HUC-8 Code: 5030106

Drainage Area (sq. mi.): 25000 County: Ohio

Anticipated withdrawal start date: 10/1/2013
Anticipated withdrawal end date: 10/1/2014
Total Volume from Source (gal): 5,460,000
Max. Pump rate (gpm):
Max. Simultaneous Trucks:
Max. Truck pump rate (gpm)

- [ ] Endangered Species?
- [x] Mussel Stream?
- [ ] Trout Stream?
- [ ] Tier 3?
- [x] Regulated Stream? Ohio River Min. Flow
- [x] Proximate PSD? Wheeling Water Department
- [x] Gauged Stream?

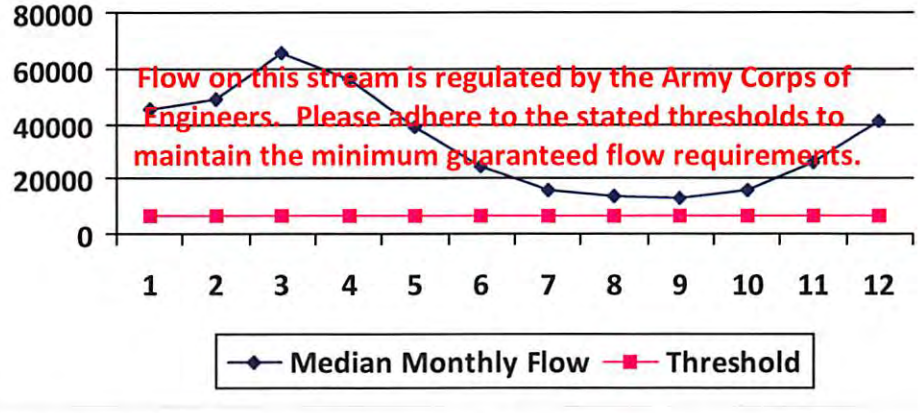
Reference Gaug: 9999999 Ohio River Station: Willow Island Lock & Dam

Drainage Area (sq. mi.): 25,000.00

Gauge Threshold (cfs): 6468

Month	Median monthly flow (cfs)	Threshold (+ pump	Estimated Available water (cfs)
1	45,700.00	-	-
2	49,200.00	-	-
3	65,700.00	-	-
4	56,100.00	-	-
5	38,700.00	-	-
6	24,300.00	-	-
7	16,000.00	-	-
8	13,400.00	-	-
9	12,800.00	-	-
10	15,500.00	-	-
11	26,300.00	-	-
12	41,300.00	-	-

Water Availability Profile



Water Availability Assessment of Location

Base Threshold (cfs):	-
Upstream Demand (cfs):	
Downstream Demand (cfs):	
Pump rate (cfs):	
Headwater Safety (cfs):	0.00
Ungauged Stream Safety (cfs):	0.00
Min. Gauge Reading (cfs):	-
Passby at Location (cfs):	-

"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.

Source Detail

WMP-01673 | API/ID Number: 047-103-02973 | Operator: Chesapeake Energy

James Messenger WTZ 3H U - 838457

Source ID: 31039 | Source Name: Ohio County PSD / Ohio county PSD | Source Latitude: - | Source Longitude: -

HUC-8 Code: 5030106

Drainage Area (sq. mi.): 25000 | County: Ohio

Anticipated withdrawal start date: 10/1/2013

Anticipated withdrawal end date: 10/1/2014

Total Volume from Source (gal): 5,460,000

- [ ] Endangered Species?
- [x] Mussel Stream?
- [ ] Trout Stream?
- [ ] Tier 3?
- [x] Regulated Stream? — Ohio River Min. Flow
- [x] Proximate PSD? — Wheeling Water Department
- [x] Gauged Stream?

Max. Pump rate (gpm):

Max. Simultaneous Trucks:

Max. Truck pump rate (gpm)

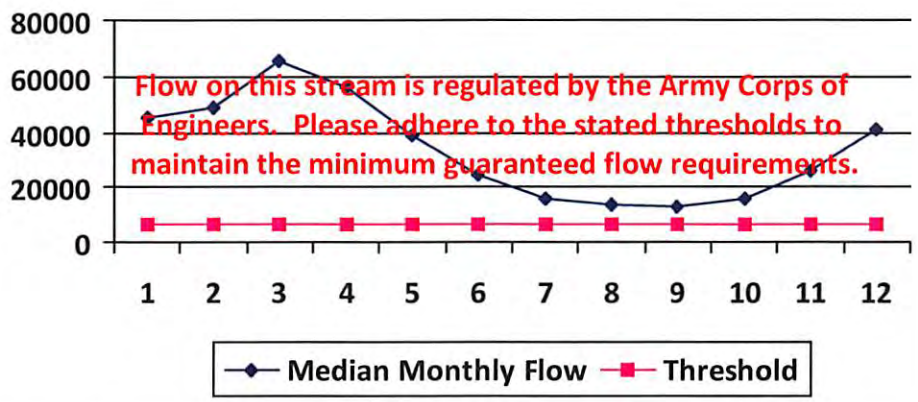
Reference Gaug: 9999999 — Ohio River Station: Willow Island Lock & Dam

Drainage Area (sq. mi.): 25,000.00

Gauge Threshold (cfs): 6468

Month	Median monthly flow (cfs)	Threshold (+ pump	Estimated Available water (cfs)
1	45,700.00	-	-
2	49,200.00	-	-
3	65,700.00	-	-
4	56,100.00	-	-
5	38,700.00	-	-
6	24,300.00	-	-
7	16,000.00	-	-
8	13,400.00	-	-
9	12,800.00	-	-
10	15,500.00	-	-
11	26,300.00	-	-
12	41,300.00	-	-

Water Availability Profile



Water Availability Assessment of Location

Base Threshold (cfs):	-
Upstream Demand (cfs):	
Downstream Demand (cfs):	
Pump rate (cfs):	
Headwater Safety (cfs):	0.00
Ungauged Stream Safety (cfs):	0.00
Min. Gauge Reading (cfs):	-
Passby at Location (cfs):	-

"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.

Source Detail

WMP- 01673 | API/ID Number: 047-103-02973 | Operator: Chesapeake Energy

James Messenger WTZ 3H U - 838457

Source ID: 31044 | Source Name: Grandview-Doolin PSD
Grandview-Doolin Public Service District

Source Latitude: -
Source Longitude: -

HUC-8 Code:

Drainage Area (sq. mi.): 25000 | County: Wetzel

Anticipated withdrawal start date: 10/1/2013
Anticipated withdrawal end date: 10/1/2014
Total Volume from Source (gal): 5,460,000

- [ ] Endangered Species?
- [x] Mussel Stream?
- [ ] Trout Stream?
- [ ] Tier 3?
- [x] Regulated Stream? Ohio River Min. Flow
- [x] Proximate PSD? Grandview-Doolin PSD
- [x] Gauged Stream?

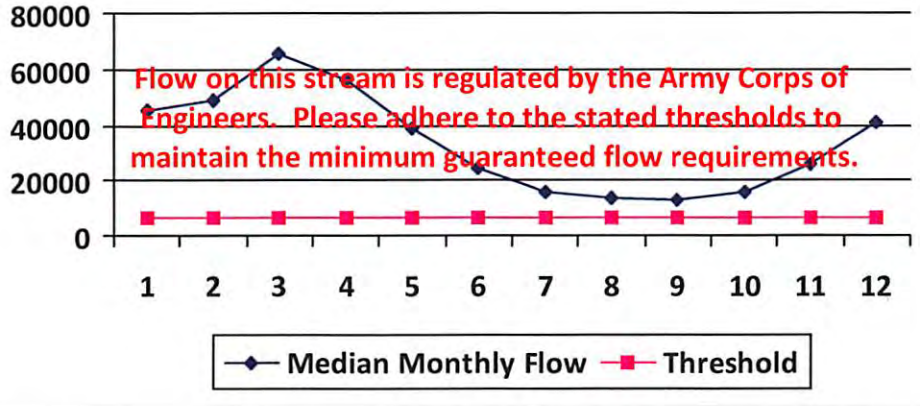
Max. Pump rate (gpm):
Max. Simultaneous Trucks:
Max. Truck pump rate (gpm)

Reference Gaug: 9999999 | Ohio River Station: Willow Island Lock & Dam

Drainage Area (sq. mi.): 25,000.00 | Gauge Threshold (cfs): 6468

Month	Median monthly flow (cfs)	Threshold (+ pump	Estimated Available water (cfs)
1	45,700.00	-	-
2	49,200.00	-	-
3	65,700.00	-	-
4	56,100.00	-	-
5	38,700.00	-	-
6	24,300.00	-	-
7	16,000.00	-	-
8	13,400.00	-	-
9	12,800.00	-	-
10	15,500.00	-	-
11	26,300.00	-	-
12	41,300.00	-	-

Water Availability Profile



Water Availability Assessment of Location

Base Threshold (cfs):	-
Upstream Demand (cfs):	
Downstream Demand (cfs):	
Pump rate (cfs):	
Headwater Safety (cfs):	0.00
Ungauged Stream Safety (cfs):	0.00
Min. Gauge Reading (cfs):	-
Passby at Location (cfs):	-

"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.

Source Detail

WMP- 01673 | API/ID Number: 047-103-02973 | Operator: Chesapeake Energy

James Messenger WTZ 3H U - 838457

Source ID: 31035 | Source Name: Ohio River WP 1 (Beech Bottom Staging Area)
Brownlee Land Ventures

Source Latitude: 40.226889
Source Longitude: -80.658972

HUC-8 Code: 5030106

Drainage Area (sq. mi.): 25000 | County: Brooke

Anticipated withdrawal start date: 10/1/2013
Anticipated withdrawal end date: 10/1/2014
Total Volume from Source (gal): 5,460,000
Max. Pump rate (gpm): 6,000
Max. Simultaneous Trucks: 0
Max. Truck pump rate (gpm) 0

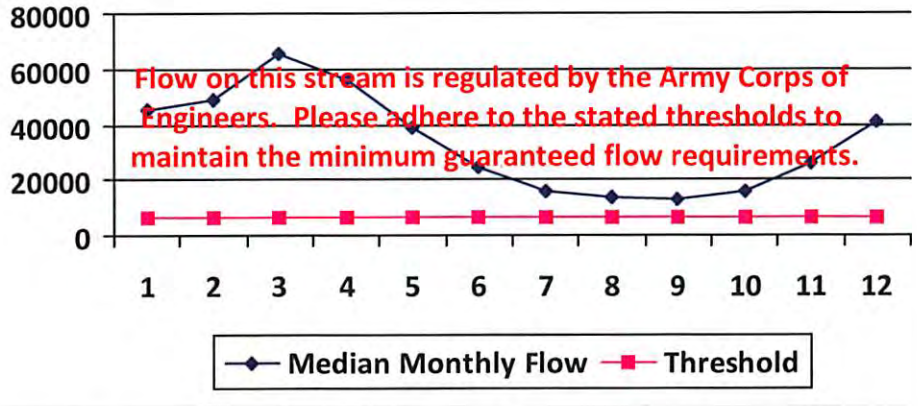
- [ ] Endangered Species?
- [x] Mussel Stream?
- [ ] Trout Stream?
- [ ] Tier 3?
- [x] Regulated Stream? — Ohio River Min. Flow
- [x] Proximate PSD? — Beech Bottom Water Dept.
- [x] Gauged Stream?

Reference Gaug: 9999999 | Ohio River Station: Willow Island Lock & Dam

Drainage Area (sq. mi.): 25,000.00 | Gauge Threshold (cfs): 6468

Month	Median monthly flow (cfs)	Threshold (+ pump	Estimated Available water (cfs)
1	45,700.00	-	-
2	49,200.00	-	-
3	65,700.00	-	-
4	56,100.00	-	-
5	38,700.00	-	-
6	24,300.00	-	-
7	16,000.00	-	-
8	13,400.00	-	-
9	12,800.00	-	-
10	15,500.00	-	-
11	26,300.00	-	-
12	41,300.00	-	-

Water Availability Profile



Water Availability Assessment of Location

Base Threshold (cfs):	-
Upstream Demand (cfs):	
Downstream Demand (cfs):	
Pump rate (cfs):	13.37
Headwater Safety (cfs):	0.00
Ungauged Stream Safety (cfs):	0.00
Min. Gauge Reading (cfs):	-
Passby at Location (cfs):	-

"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.

Source Detail

WMP-01673 | API/ID Number: 047-103-02973 | Operator: Chesapeake Energy

James Messenger WTZ 3H U - 838457

Source ID: 31036 | Source Name: Little Wheeling Creek WP 1 (Rt. 40 Staging Area)
JDS Investments, LLC

Source Latitude: 40.078324
Source Longitude: -80.591145

HUC-8 Code: 5030106

Drainage Area (sq. mi.): 13.94 | County: Ohio

Anticipated withdrawal start date: 10/1/2013
Anticipated withdrawal end date: 10/1/2014
Total Volume from Source (gal): 5,460,000
Max. Pump rate (gpm): 2,000
Max. Simultaneous Trucks:
Max. Truck pump rate (gpm)

- [ ] Endangered Species?
- [x] Mussel Stream?
- [ ] Trout Stream?
- [ ] Tier 3?
- [ ] Regulated Stream?
- [ ] Proximate PSD?
- [ ] Gauged Stream?

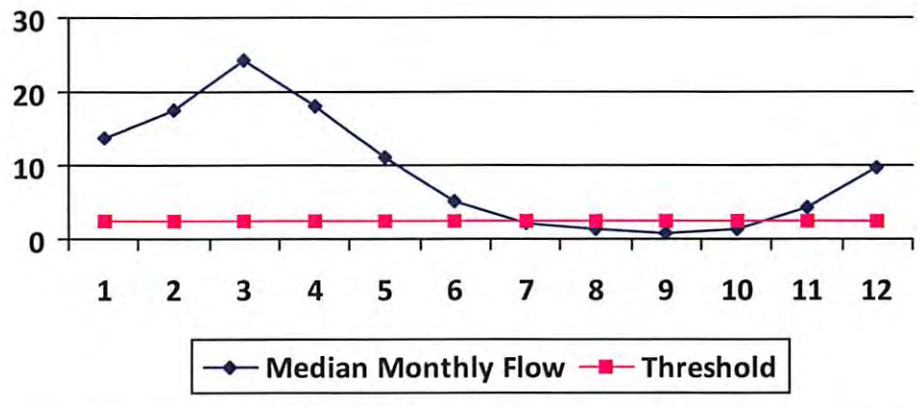
Reference Gaug: 3112000 WHEELING CREEK AT ELM GROVE, WV

Drainage Area (sq. mi.): 281.00

Gauge Threshold (cfs): 38

Month	Median monthly flow (cfs)	Threshold (+ pump	Estimated Available water (cfs)
1	13.81	10.62	3.55
2	17.62	10.62	7.36
3	24.44	10.62	14.18
4	18.14	10.62	7.88
5	11.06	10.62	0.80
6	5.03	10.62	-5.23
7	2.22	10.62	-8.03
8	1.30	10.62	-8.96
9	0.83	10.62	-9.43
10	1.37	10.62	-8.89
11	4.31	10.62	-5.95
12	9.77	10.62	-0.49

Water Availability Profile



Water Availability Assessment of Location

Base Threshold (cfs):	1.89
Upstream Demand (cfs):	3.34
Downstream Demand (cfs):	0.00
Pump rate (cfs):	4.46
Headwater Safety (cfs):	0.47
Ungauged Stream Safety (cfs):	0.47
Min. Gauge Reading (cfs):	**64.80**
Passby at Location (cfs):	**2.83**

"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.

Water Management Plan:
Secondary Water Sources

WMP-01673 | API/ID Number 047-103-02973 | Operator: Chesapeake Energy

James Messenger WTZ 3H U - 838457

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: 31045 Source Name: Schostag Freshwater Impoundment (Chesapeake En Industrial Facility

Source start date: 10/1/2013

Source end date: 10/1/2014

Source Lat: 39.72385 Source Long: -80.664395 County: Marshall

Max. Daily Purchase (gal): 864,000 Total Volume from Source (gal): 5,460,000

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-77

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.

Purchased Water

Source ID: 31040 Source Name: Pennsylvania American Water
Public Water Provider
Source start date: 10/1/2013
Source end date: 10/1/2014

Source Lat: Source Long: County

Max. Daily Purchase (gal): 720,000 Total Volume from Source (gal): 5,460,000

DEP Comments: Please ensure that the sourcing of this water confirms to all rules and guidance provided by PA DEP.

Source ID: 31041 Source Name: Elite Gasfield Services, Midland Borough
Commercial Supplier
Source start date: 10/1/2013
Source end date: 10/1/2014

Source Lat: 40.644598 Source Long: -80.469382 County

Max. Daily Purchase (gal): 8,640,000 Total Volume from Source (gal): 5,460,000

DEP Comments: Please ensure that the sourcing of this water confirms to all rules and guidance provided by PA DEP.

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.

Recycled Frac Water

Source ID: 31046 Source Name Various

Source start date: 10/1/2013
Source end date: 10/1/2014

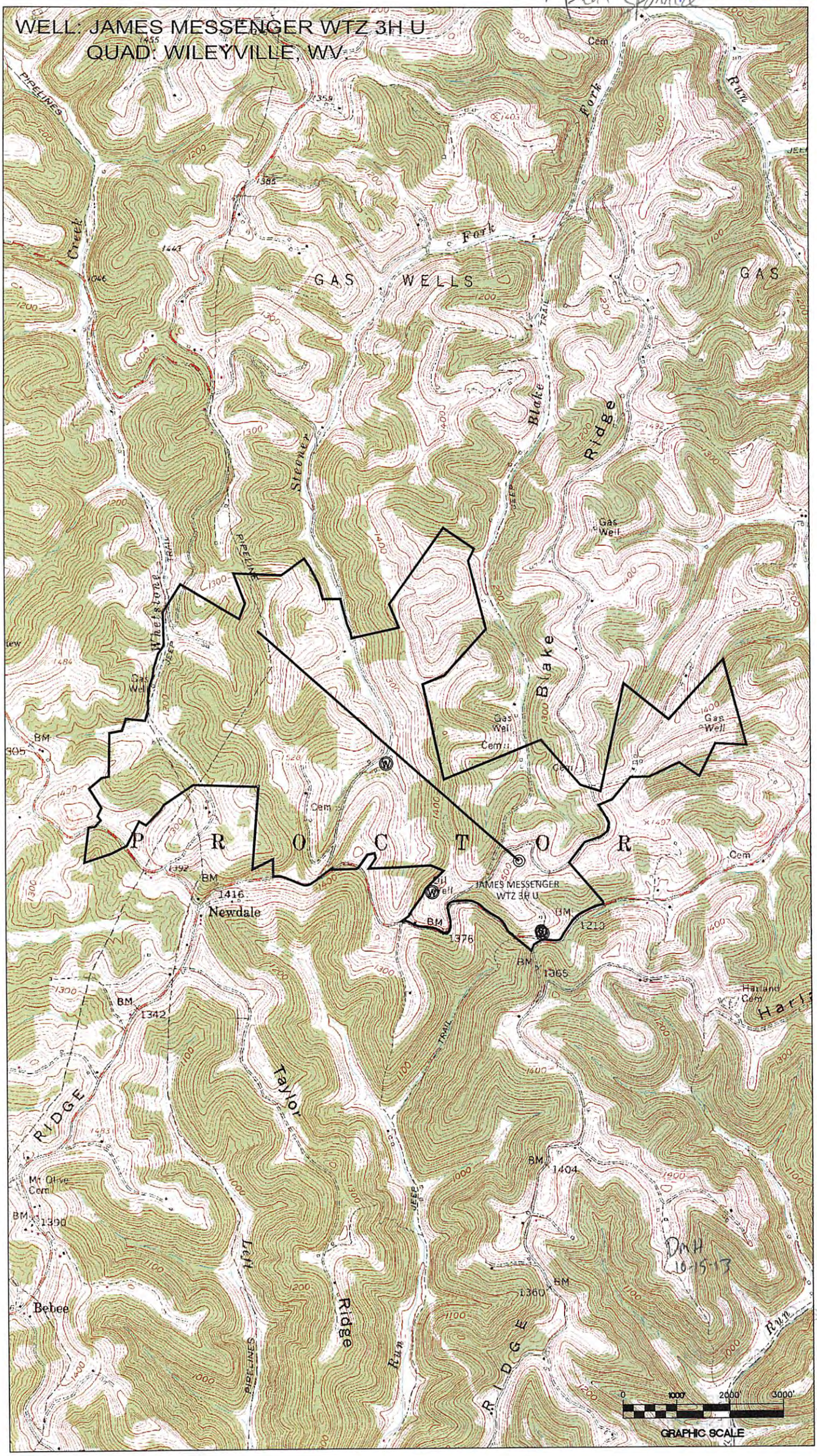
Source Lat: Source Long: County

Max. Daily Purchase (gal) Total Volume from Source (gal): 5,460,000

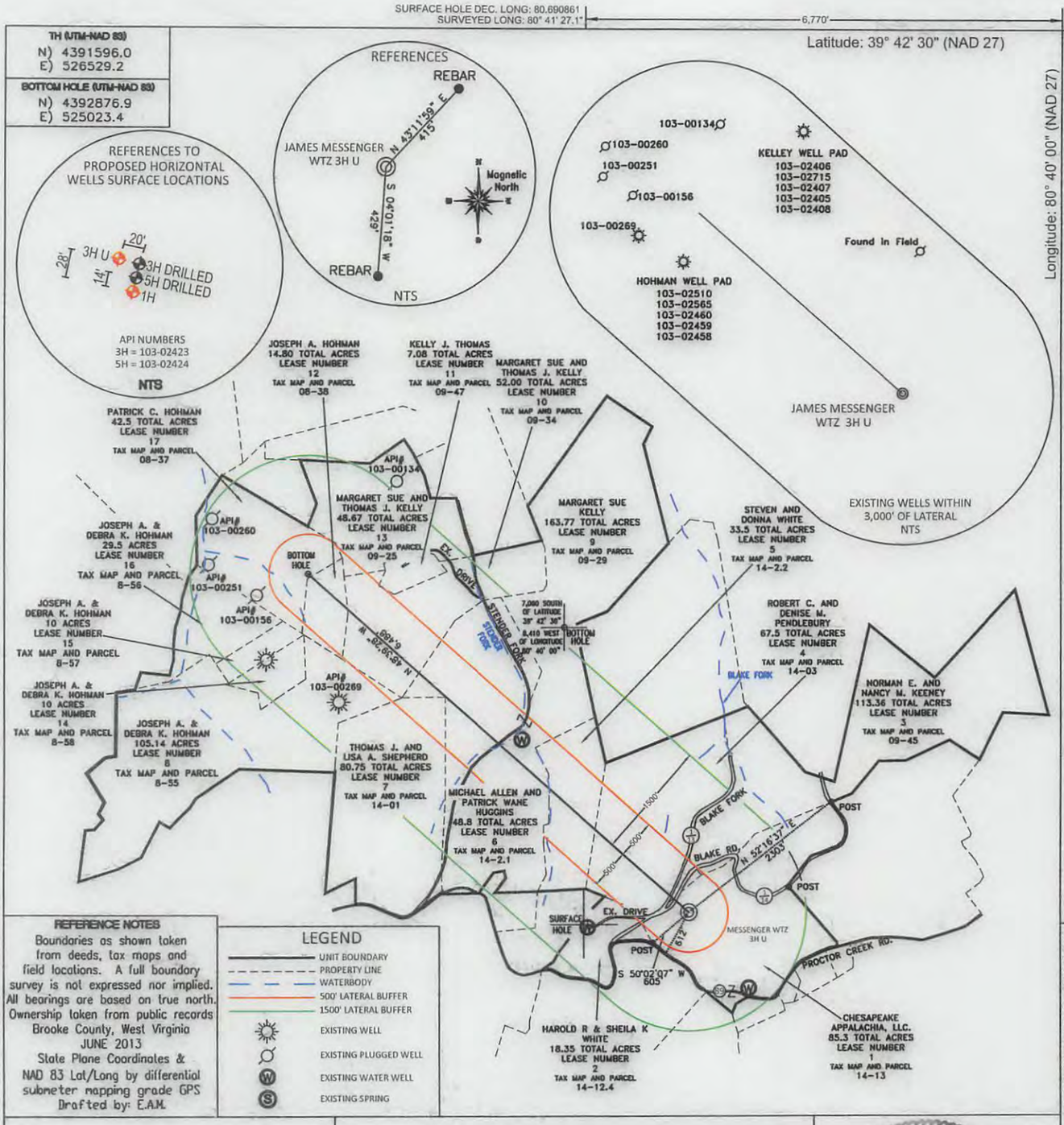
DEP Comments: Sources include, but are not limited to, Roy Ferrell OHI 5H

✓Plat spotted 03 02973A W

WELL: JAMES MESSENGER WTZ 3H U
QUAD: WILEYVILLE, WV.



DNH
10-15-13



FILE #: CHE 117
DRAWING #: 2272
SCALE: PLAT - 1" = 1800'
TICK MARK - 1" = 2000'
MINIMUM DEGREE OF ACCURACY: 1/200
PROVEN SOURCE OF ELEVATION: SUBMETER MAPPING GRADE GPS

I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

Signed: _____

L.L.S. #2124 : Ernest J. Benchek III

ERNEST J. BENCHEK III LICENSED No. 2124 STATE OF WEST VIRGINIA PROFESSIONAL SURVEYOR

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

WVDEP
OFFICE OF OIL & GAS
601 57TH STREET
CHARLESTON, WV 25304

DATE: NOVEMBER 7. 2013

OPERATOR'S WELL #: James Messenger WTZ 3H U

API WELL #: 47 (STATE) 103 (COUNTY) 02973 H U (PERMIT)

Well Type: ☐ Oil ☐ Waste Diposal ☐ Production ☒ Deep
☒ Gas ☐ Liquid Injection ☐ Storage ☐ Shallow AS-BUILT

WATERSHED: FISH CREEK PAD ELEVATION : 1495'

COUNTY/DISTRICT: WETZEL / PROCTOR QUADRANGLE: WILEYSVILLE, WV.

SURFACE OWNER: CHESAPEAKE APPALACHIA, LLC. ACREAGE: 85.3 +/-

OIL & GAS ROYALTY OWNER: CHESAPEAKE APPALACHIA, LLC. ACREAGE: 931.02 +/-

LEASE NUMBERS: _____

DRILL ☒ CONVERT ☐ DRILL DEEPER ☐ REDRILL ☐ FRACTURE OR STIMULATE ☒
PLUG OFF FORMATION ☐ PERFORATE NEW FORMATION ☐ PLUG & ABANDON ☐
CLEAN OUT & REPLUG ☐ OTHER CHANGE ☐ (SPECIFY): _____

TARGET FORMATION: UTICA ESTIMATED DEPTH: TVD: 12,215' TMD: 18,990'

WELL OPERATOR: CHESAPEAKE APPALACHIA, LLC. DESIGNATED AGENT: ERIC GILLESPIE

ADDRESS: PO BOX 18496 ADDRESS: PO BOX 6070

CITY: OKLAHOMA CITY STATE: OK ZIP CODE: 73154-0496 CITY: CHARLESTON STATE: WV ZIP CODE: 25362

MESSENGER WTZ PAD "A"
PROCTOR DISTRICT, WETZEL COUNTY, WV
JANUARY 2014
ADDENDUM #1

APPROVED
WVDEP OOG
SAY 1/24/2014

WEST VIRGINIA 811

TWO WORKING DAYS PRIOR TO EXCAVATION, THE CONTRACTOR MUST CONTACT THE WV ONE CALL SYSTEM, INC., 1-800-245-4848
(WV ONE CALL TICKET# 1323362326)

PLANS PREPARED BY:

BOORD BENCHEK & ASSOCIATES, INC.
ENGINEERING,SURVEYING, CONSTRUCTION AND MINING SERVICES
SOUTHPOINTE, PA 15317 PHONE: 724-746-1055

OWNER

Chesapeake ENERGY

CHESAPEAKE APPALACHIA, LLC
P.O. BOX 1300
JANE LEW, WV 26378
(304)-517-1416

SHEET INDEX
1. TITLE SHEET
2-3. EVACUATION ROUTE/PREVAILING WIND
4. E&S CONTROL LAYOUT OVERVIEW
5. E&S CONTROL AND SITE PLAN OVERVIEW
6. WELL PAD CROSS-SECTIONS, ACCESS ROAD A PROFILE AND ACCESS ROAD A CROSS-SECTIONS
7. PROFILES C-C' AND D-D'
8-9. DETAIL SHEET
10. RECLAMATION PLAN

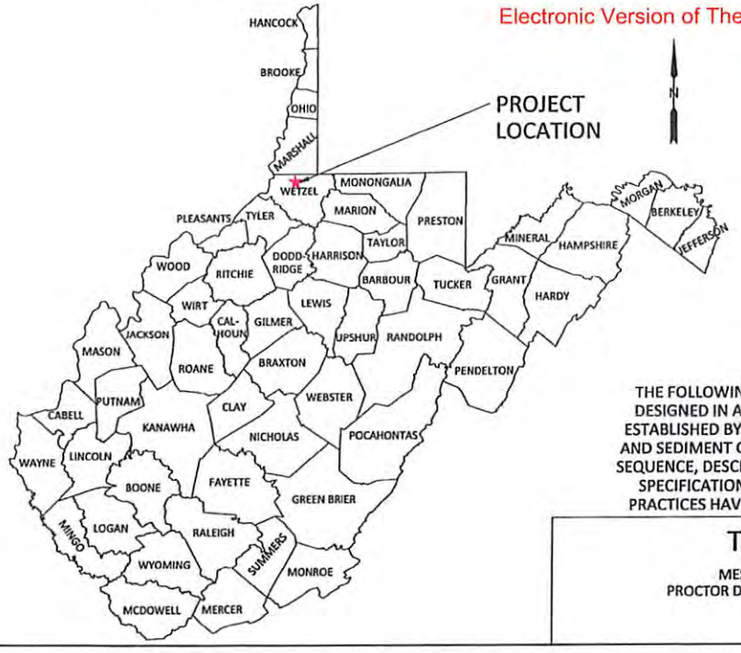
TOTAL DISTURBED AREA: 12.5 AC.
ROAD DISTURBED AREA: 4.3 AC.
WELL PAD DISTURBED AREA: 8.2 AC.

EXISTING WELLS:
MESSENGER 3H (API #103-02423)
MESSENGER 5H (API #103-02424)

ANDREW E. BENCHEK REGISTERED 18444 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER

1-23-14
ANDREW BENCHEK, P.E. — DATE

Electronic Version of These Plans May Be Viewed at: Q\OIL_GAS\SAY FILES\REVIEWS

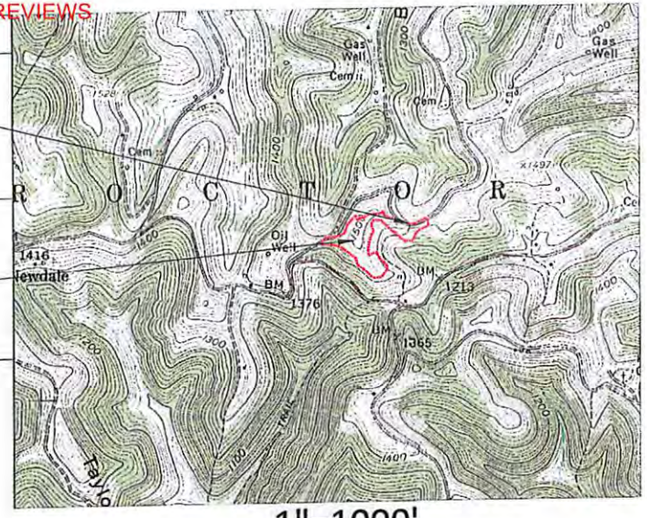


IN ACCORDANCE WITH WV 35 CSR 8
THE FOLLOWING EROSION & SEDIMENT CONTROL PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH BEST MANAGEMENT PRACTICES ESTABLISHED BY THE CHIEF AND PROVIDED IN THE OFFICE'S EROSION AND SEDIMENT CONTROL FIELD MANUAL. A GENERAL CONSTRUCTION SEQUENCE, DESCRIPTION OF STABILIZATION METHODS, AND DETAILS & SPECIFICATIONS FOR EROSION & SEDIMENT BEST MANAGEMENT PRACTICES HAVE BEEN INCLUDED IN THE PROVIDED DETAIL SHEETS.

COORDINATES

SITE ENTRANCE
(NAD 83)
LAT: 39° 40' 27.4"
LONG: 80° 41' 14.8"
(NAD 27)
LAT: 39° 40' 27.1"
LONG: 80° 41' 15.4"

CENTER OF WELLS
(NAD 83)
LAT: 39° 40' 25.4"
LONG: 80° 41' 26.3"
(NAD 27)
LAT: 39° 40' 25.1"
LONG: 80° 41' 26.9"



1"=1000'

0' 1000' 2000' 3000'

TITLE SHEET	SHEET
MESSENGER WTZ PAD "A" PROCTOR DISTRICT, WETZEL COUNTY, WV	1 OF 10