



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

September 27, 2012

WELL WORK PERMIT

Horizontal 6A Well

This permit, API Well Number: 47-5101563, 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 of completion of drilling, 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: MICHAEL DUNN MSH 8H
Farm Name: DUNN, MICHAEL A.

API Well Number: 47-5101563

Permit Type: Horizontal 6A Well

Date Issued: 09/27/2012

Promoting a healthy environment.

PERMIT CONDITIONS

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

CONDITIONS

1. 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% of the optimum moisture content as determined by the standard proctor density test. 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 twenty-five 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.

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: Chesapeake Appalachia, LLC 494477557 51-Marshall 9-Webster 453-Majorsville
Operator ID County District Quadrangle

2) Operator's Well Number: Michael Dunn MSH 8H Well Pad Name: Michael Dunn MSH Pad

3 Elevation, current ground: 1260' Elevation, proposed post-construction: 1256'

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):
Proposed Target Formation- Marcellus, Marcellus top-6796' TVD, Marcellus Base-6846' TVD, Thickness- 50', Anticipated Pressure-4281

7) Proposed Total Vertical Depth: 6810'

8) Formation at Total Vertical Depth: Onondaga

9) Proposed Total Measured Depth: 13,200'

10) Approximate Fresh Water Strata Depths: 330'

11) Method to Determine Fresh Water Depth: Data was gathered from e-logs, drillers logs and from wells within a 2500' radius

12) Approximate Saltwater Depths: 1156'

13) Approximate Coal Seam Depths: 770'

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

15) Does land contain coal seams tributary or adjacent to, active mine? yes

16) Describe proposed well work:
Drill down to the Onondaga, run logs, and plug back from T.D. (6865') with a solid cement plug to the KOP, approx. 6333 and drill lateral leg'. Then stimulate and produce any potential zones between and including the Benson to the Marcellus. **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): 13.7

19) Area to be disturbed for well pad only, less access road (acres): 7.2

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20)

CASING AND TUBING PROGRAM

<u>TYPE</u>	<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"	New	J-55	94#	100'	100'	CTS
Fresh Water	13 3/8"	New	J-55	54.5#	430'	430'	410 sx/cts
Coal	9 5/8"	New	J-55	40#	2300'	2300'	880 sx/cts
Intermediate	7"	New	P-110	20#	If Needed	If Needed	If Needed/As Needed
Production	5 1/2"	New	P-110	20#	13,200'	13,200'	Lead 1070 sx Tail 1180 sx/100' inside intermediate
Tubing	2 3/8"	New	N-80	4.7#	Approx. 7083'	Approx. 7083'	
Liners							

<u>TYPE</u>	<u>Size</u>	<u>Wellbore Diameter</u>	<u>Wall Thickness</u>	<u>Burst Pressure</u>	<u>Cement Type</u>	<u>Cement Yield</u>
Conductor	20"	30"	0.25	2120	15.6 ppg	1.19/50% Excess
Fresh Water	13 3/8"	17.5"	0.380	2740	15.6 ppg	1.19/50% Excess
Coal	9 5/8"	12 1/4"	0.395	3950	15.6 ppg	1.19/50% Excess
Intermediate	7"	8 3/4"	0.317	4360	15.6 ppg	1.20/15% Excess
Production	5 1/2"	8 3/4"	0.361	12360	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'			

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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.

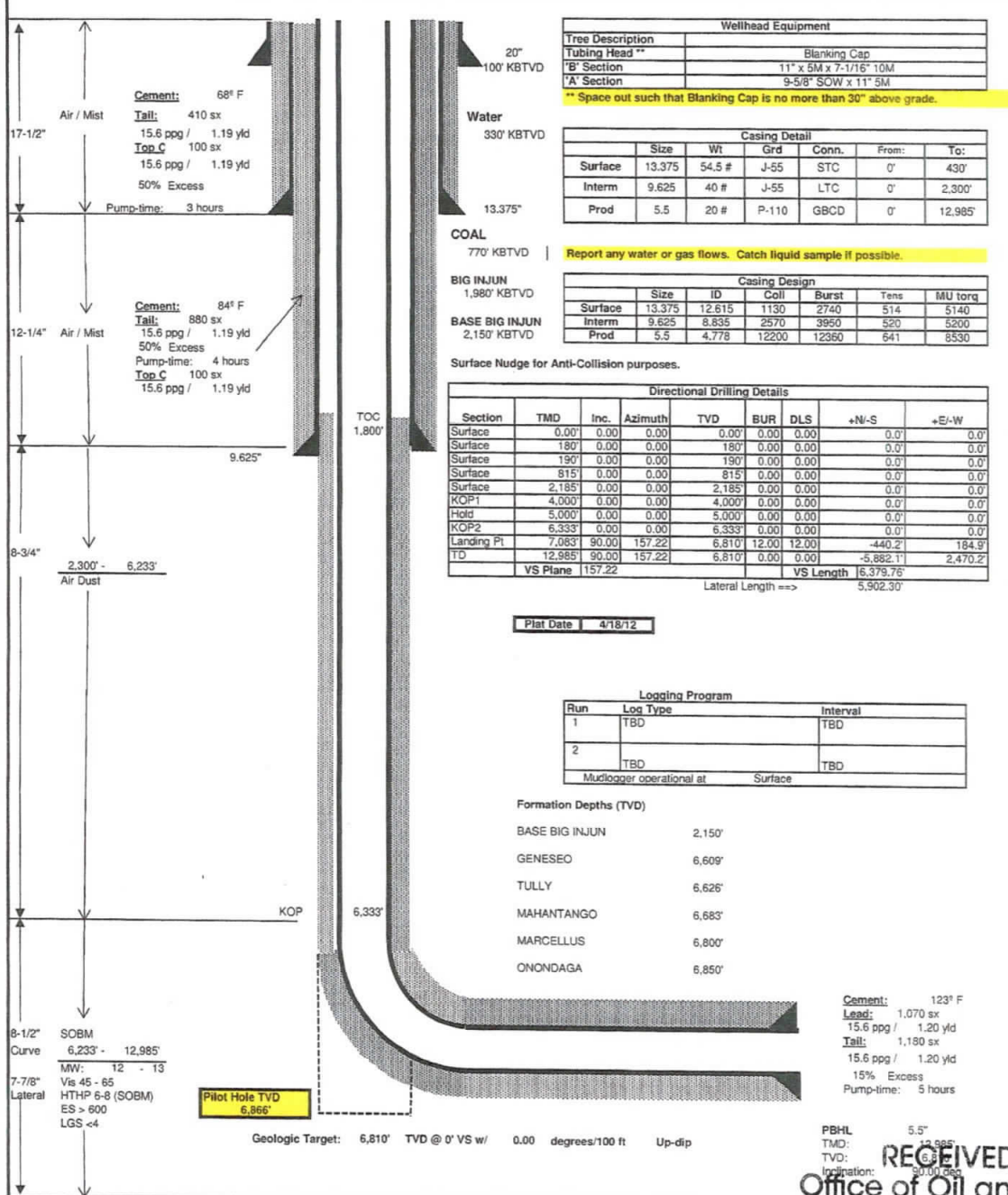
23) Proposed borehole conditioning procedures. _____

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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W.D. ... of
...

		Well Name: Michale Dunn MSH 8H	Drilling Rig: N/A
Drilling Engineer: TBD	Formation: Marcellus	Directional Drilling: N/A	Drilling Mud: N/A
Superintendent: N/A	County, State: Marshall, WV	Cement Surface: N/A	Cement Longstrings: N/A
Asset Manager: N/A	Surface Latitude: 39.897030	Surface Longitude: -80.554258	Wellhead: N/A
Geologist: N/A	BH Latitude: 39.880961	BH Longitude: -80.545213	AFE #: N/A
Land: N/A	KB Elevation: 1280'	Ground Elevation: 1260'	



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

Drawn by: **TBD**
 Date: **9/11/2012**

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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 Chesapeake Appalachia, LLC OP Code 494477557

Watershed Upper Ohio South Quadrangle 453-Majorsville

Elevation 1260' County 51-Marshall District 9-Webster

Description of anticipated Pit Waste: Closed loop system in place at this time - cuttings will be taken to a permitted landfill.

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

Will a synthetic liner be used in the pit? . If so, what mil.?

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.)

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? see attached sheets

Will closed loop system be used? yes

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,

-Landfill or offsite name/permit number? Meadowfill SWF-1032, SS Grading SWF-4902, Northwestern SWF-1025

Short Creek 1034/WW0109517 / CID28726 , Arden Landfill 100172, Carbon Limestone 28726/CID 28726, 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 *[Signature]*

Company Official (Typed Name) Dee Swiger

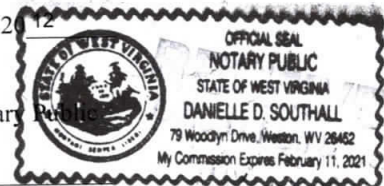
Company Official Title Regulatory Specialist I

Subscribed and sworn before me this 4th day of May, 2012

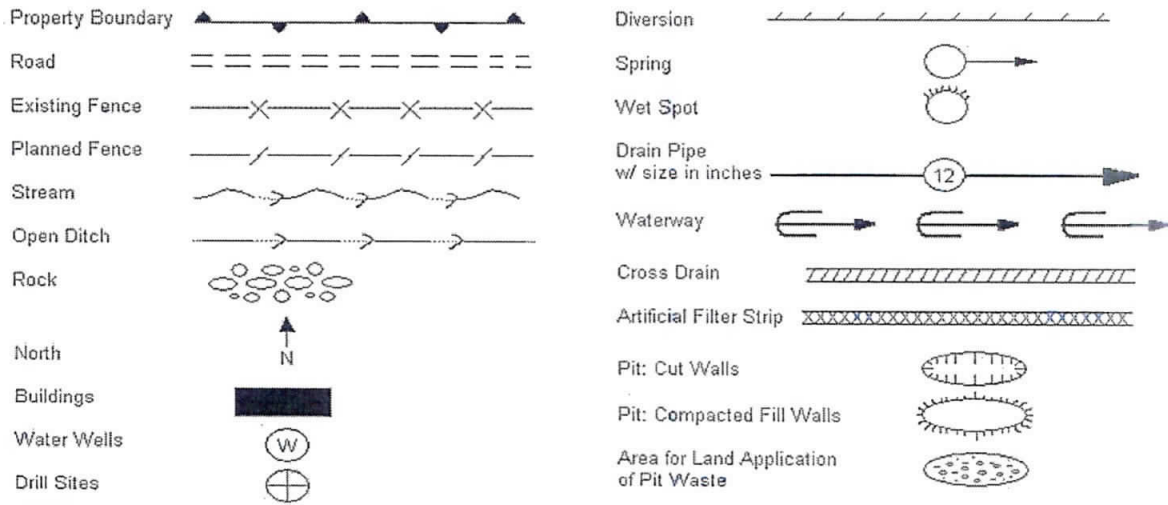
Danielle D. Southall

Notary

My commission expires February 11, 2021



[Handwritten notes and signatures]



Proposed Revegetation Treatment: Acres Disturbed 10 +/- 137 (LKC) 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

Seed Type	Area I lbs/acre	Seed Type	Area II lbs/acre
White Clover	15	White Clover	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: [Signature]

Comments: _____

Title: Oil and Gas Inspector Date: 5-21-12

Field Reviewed? Yes No

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MWH
[Signature]

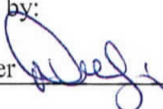
**Marcellus Well Drilling Procedures
And Site Safety Plan**

Chesapeake Appalachia, LLC

47 - 51 -
Well name: 833797 Michael Dunn MSH 8H
Majorsville, Quad
Webster, District
Marshall County, West Virginia

Submitted by:

Dee Swiger



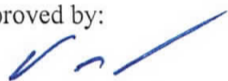
4/23/2012

Date:

Title Regulatory Specialist I

Chesapeake Appalachia, LLC

Approved by:



Date:

5-21-12

Title:

Inspector

Approved by:

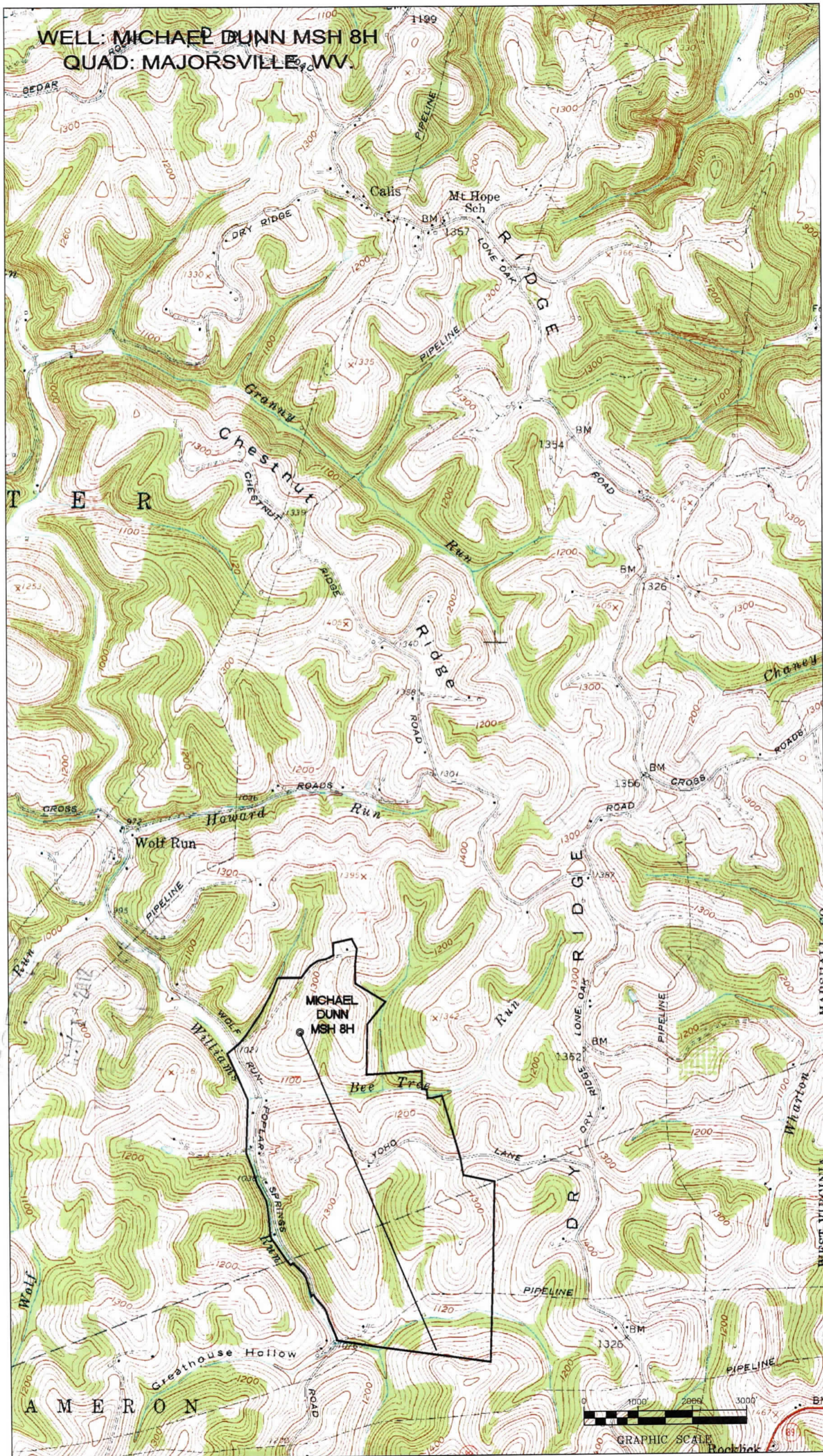
Date:

Title:

Chesapeake Appalachia, L.L.C. – Confidential

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12-1-12
MARSHALL COUNTY
ENVIRONMENTAL

WELL: MICHAEL DUNN MSH 8H
QUAD: MAJORSVILLE, WV.



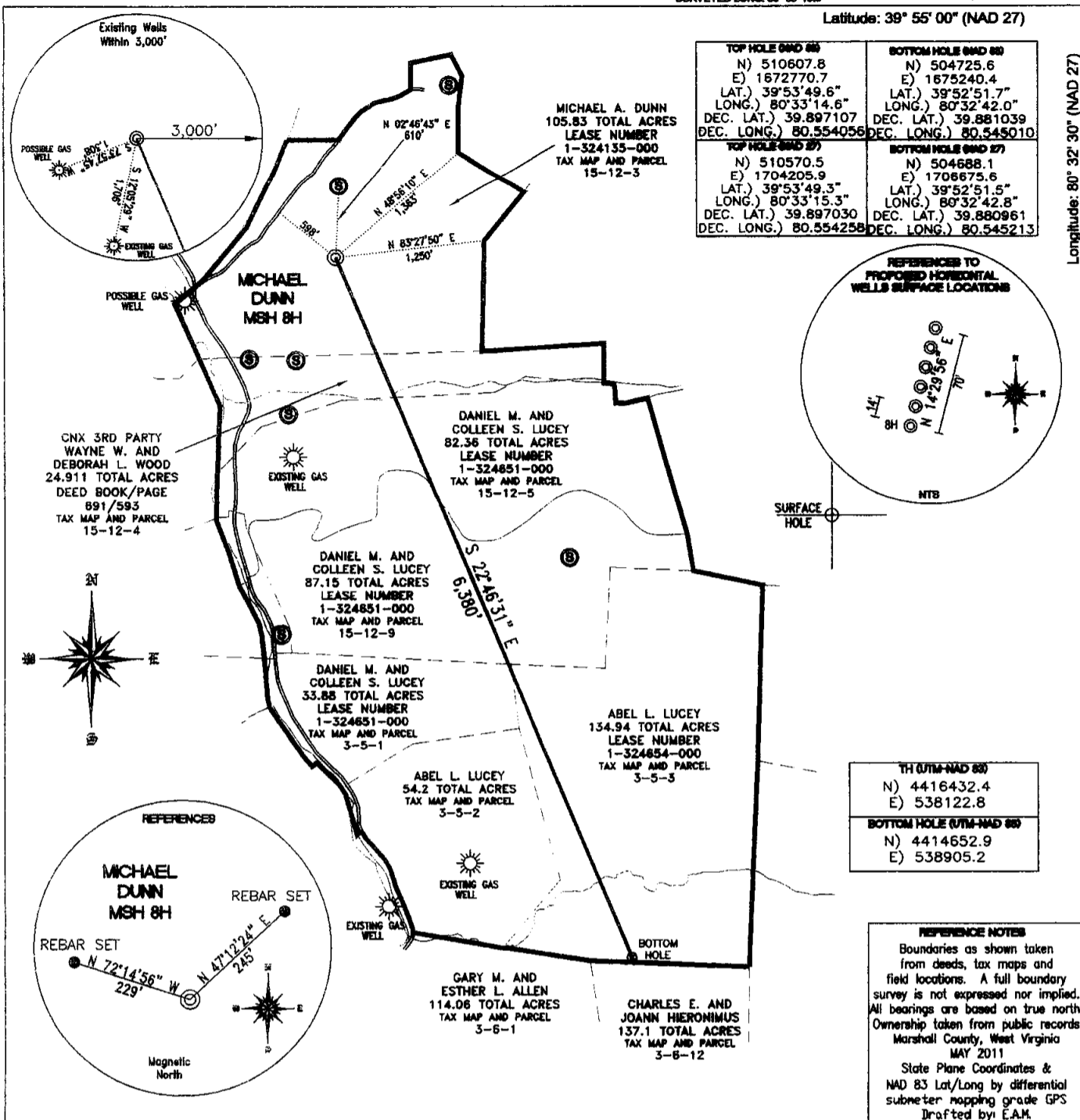
SURFACE HOLE DEC. LONG: 80.554258
 SURVEYED LONG: 80° 33' 15.3"

3,530'

Latitude: 39° 55' 00" (NAD 27)

Longitude: 80° 32' 30" (NAD 27)

SURFACE HOLE DEC. LAT: 39.917030
 SURVEYED LAT: 39° 55' 49.3"



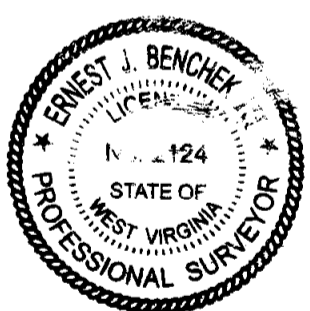
TOP HOLE (80D 86) N) 510607.8 E) 1672770.7 LAT.) 39°53'49.6" LONG.) 80°33'14.6" DEC. LAT.) 39.897107 DEC. LONG.) 80.554056	BOTTOM HOLE (80D 86) N) 504725.6 E) 1675240.4 LAT.) 39°52'51.7" LONG.) 80°32'42.0" DEC. LAT.) 39.881039 DEC. LONG.) 80.545010
TOP HOLE (80D 87) N) 510570.5 E) 1704205.9 LAT.) 39°53'49.3" LONG.) 80°33'15.3" DEC. LAT.) 39.897030 DEC. LONG.) 80.554258	BOTTOM HOLE (80D 87) N) 504688.1 E) 1706675.6 LAT.) 39°52'51.5" LONG.) 80°32'42.8" DEC. LAT.) 39.880961 DEC. LONG.) 80.545213

TH (UTM-NAD 83) N) 4416432.4 E) 538122.8
BOTTOM HOLE (UTM-NAD 83) N) 4414652.9 E) 538905.2

REFERENCE NOTES
 Boundaries as shown taken from deeds, tax maps and field locations. A full boundary survey is not expressed nor implied. All bearings are based on true north. Ownership taken from public records Marshall County, West Virginia MAY 2011
 State Plane Coordinates & NAD 83 Lat/Long by differential submeter mapping grade GPS
 Drafted by E.A.M.

FILE #: CHE 070
 DRAWING #: 1673
 SCALE: 1" = 1200'
 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



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

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

Well Type: Oil Waste Disposal Production Deep
 Gas Liquid Injection Storage Shallow

WATERSHED: UPPER OHIO SOUTH ELEVATION: 1,260'

COUNTY/DISTRICT: MARSHALL / WEBSTER QUADRANGLE: MAJORSVILLE, WV.

SURFACE OWNER: MICHAEL A. DUNN ACREAGE: 105.83 +/-
 OIL & GAS ROYALTY OWNER: MICHAEL A. DUNN ACREAGE: 435.19 +/-
 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: MARCELLUS ESTIMATED DEPTH: TVD: 6,810' TMD: 13,166'
 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: 25301

DATE: APRIL 18, 2012
 OPERATOR'S WELL #: MICHAEL DUNN MSH 8H
 API WELL #: 47 51 01563 H6A
 STATE COUNTY PERMIT

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

Date of Notice Certification: - 05/04/2012

API No. 47- 51-Marshall -
Operator's Well No. Michael Dunn MSH 8H
Well Pad Name: Michael Dunn MSH Pad

Notice has been given:

Pursuant to the provisions in West Virginia Code § 22-6A, the Operator has provided the required parties with the Notice Forms listed below for the tract of land as follows:

State:	West Virginia	UTM NAD 83	Easting:	538122.8
County:	51-Marshall		Northing:	4416432.4
District:	9-Webster	Public Road Access:	Wolf Run-Popular Springs Road	
Quadrangle:	453-Majorsville	Generally used farm name:	Michael Dunn	
Watershed:	Upper Ohio South			

Pursuant to West Virginia Code § 22-6A-7(b), every permit application filed under this section shall be on a form as may be prescribed by the secretary, shall be verified and shall contain the following information: (14) A certification from the operator that (i) it has provided the owners of the surface described in subdivisions (1), (2) and (4), subsection (b), section ten of this article, the information required by subsections (b) and (c), section sixteen of this article; (ii) that the requirement was deemed satisfied as a result of giving the surface owner notice of entry to survey pursuant to subsection (a), section ten of this article six-a; or (iii) the notice requirements of subsection (b), section sixteen of this article were waived in writing by the surface owner; and Pursuant to West Virginia Code § 22-6A-11(b), the applicant shall tender proof of and certify to the secretary that the notice requirements of section ten of this article have been completed by the applicant.

Pursuant to West Virginia Code § 22-6A, the Operator has attached proof to this Notice Certification that the Operator has properly served the required parties with the following:

*PLEASE CHECK ALL THAT APPLY

- 1. NOTICE OF SEISMIC ACTIVITY or NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED
- ✓ 2. NOTICE OF ENTRY FOR PLAT SURVEY or NO PLAT SURVEY WAS CONDUCTED
- 3. NOTICE OF INTENT TO DRILL or NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)
- ✓ 4. NOTICE OF PLANNED OPERATION
- ✓ 5. PUBLIC NOTICE
- ✓ 6. NOTICE OF APPLICATION

OOG OFFICE USE ONLY

- RECEIVED/ NOT REQUIRED
- ✓ RECEIVED
- RECEIVED/ NOT REQUIRED
- ✓ RECEIVED
- ✓ RECEIVED
- ✓ RECEIVED

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Office of Oil & Gas
MAY 11 2012
WV Department of
Environmental Protection

Required Attachments:

The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication date verification or the associated Affidavit of Publication. The attached Notice Forms and Certifications of Notice shall serve as proof that the required parties have been noticed as required under West Virginia Code § 22-6A. Pursuant to West Virginia Code § 22-6A-11(b), the Certification of Notice to the person may be made by affidavit of personal service, the return receipt card or other postal receipt for certified mailing.

Check # 17744205
\$ 10,250.00

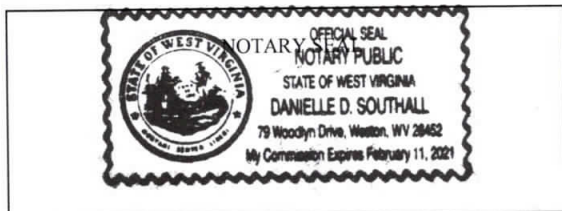
WW-6AC
(1/12)

Certification of Notice is hereby given:

THEREFORE, I Dee Swiger, have read and understand the notice requirements within West Virginia Code § 22-6A. I certify that as required under West Virginia Code § 22-6A, I have served the attached copies of the Notice Forms, identified above, to the required parties through personal service, by registered mail or by any method of delivery that requires a receipt or signature confirmation. I certify under penalty of law that I have personally examined and am familiar with the information submitted in this Notice Certification and all attachments, 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 and imprisonment.

Well Operator: Chesapeake Appalachia, LLC
By: Dee Swiger
Its: Regulatory Specialist I
Telephone: 304-517-1416

Address: PO Box 1300
Jane Lew, WV 26378
Facsimile: 304-471-2497
Email: dee.swiger@chk.com



Subscribed and sworn before me this 4th day of May.
Danielle Southall Notary Public
My Commission Expires February 11, 2021

Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.

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Office of Oil & Gas
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WV Department of
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1. The first part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes that this is crucial for ensuring transparency and accountability in the organization's operations.

2. The second part of the document outlines the various methods and tools used to collect and analyze data. It highlights the need for consistent data collection procedures and the use of advanced analytical techniques to derive meaningful insights from the data.

3. The third part of the document focuses on the interpretation and communication of the results. It stresses the importance of presenting the data in a clear and concise manner, using visual aids such as charts and graphs to enhance understanding.

4. The final part of the document provides a summary of the key findings and conclusions. It reiterates the significance of the data and offers recommendations for future actions based on the analysis.

WW-6A5
(1/12)

Operator Well No. Michael Dunn MSH 8H

**STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF PLANNED OPERATION**

Notice Time Requirement: notice shall be provided no later than the **filing date of permit application.**
Date of Notice: 04/18/2012 **Date Permit Application Filed:** 5/4/12

Delivery method pursuant to West Virginia Code § 22-6A-16(c)

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

HAND DELIVERY 4-19-12

Pursuant to W. Va. Code § 22-6A-16(c), no later than the date for filing the permit application, an operator shall, by certified mail return receipt requested or hand delivery, give the surface owner whose land will be used for the drilling of a horizontal well notice of the planned operation. The notice required by this subsection shall include: (1) A copy of this code section; (2) The information required to be provided by subsection (b), section ten of this article to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. (d) The notices required by this section shall be given to the surface owner at the address listed in the records of the sheriff at the time of notice.

Notice is hereby provided to the SURFACE OWNER(s)

(at the address listed in the records of the sheriff at the time of notice):

Name: Michael A. Dunn & Kandy R. Dunn
Address: RR 4 Box 56
Cameron, WV 26033

Name: _____
Address: _____

Notice is hereby given:

Pursuant to West Virginia Code § 22-6A-16(c), notice is hereby given that the undersigned well operator has developed a planned operation on the surface owner's land for the purpose of drilling a horizontal well on the tract of land as follows:

State: <u>West Virginia</u>	UTM NAD 83	Easting: <u>538122.8</u>
County: <u>Marshall</u>		Northing: <u>4416432.4</u>
District: <u>Webster</u>	Public Road Access: <u>CR (Wolf Run Road)</u>	
Quadrangle: <u>Majorsville</u>	Generally used farm name: <u>Dunn</u>	
Watershed: <u>Upper Ohio South</u>		

This Notice Shall Include:

Pursuant to West Virginia Code § 22-6A-16(c), this notice shall include: (1) A copy of this code section; (2) The information required to be provided by **W. Va. Code § 22-6A-10(b)** to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

Well Operator: Chesapeake Appalachia, L.L.C.
Telephone: 304-517-1416
Email: dee.swiger@chk.com

Address: P.O. Box 6070
Charleston, WV 25362
Facsimile: 304-471-2497

Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at deprivacyofficer@wv.gov.

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Attachment V - Planned Additives to be used in Fracturing or Stimulations

Product Name	Product Use	Chemical Name	CAS Number
ALPHA 1427	Biocide	Didecyl Dimethyl Ammonium Chloride	007173-51-1
		Ethanol	000064-17-5
		Glutaraldehyde (Pentanediol)	000111-30-8
		Quaternary Ammonium Compound	068424-85-1
		Water	007732-18-5
BF-7L	Buffer	Potassium Carbonate	000584-08-7
ClayCare	Clay Stabilizer	Choline Chloride	000067-48-1
		Water	007732-18-5
Enzyme G-I	Breaker	No Hazardous Components	NONE
ENZYME G-NE	Breaker	No Hazardous Components	NONE
FRW-18	Friction Reducer	Petroleum Distillate Hydrotreated Light	064742-47-8
GW-3LDF	Gel	Petroleum Distillate Blend	N/A-014
		Polysaccharide Blend	N/A-021
SCALETROL 720	Scale Inhibitor	Diethylene Glycol	000111-46-6
		Ethylene Glycol	000107-21-1
XLW-32	Crosslinker	Boric Acid	010043-35-3
		Methanol (Methyl Alcohol)	000067-56-1
APB01 (AMMONIUM PERSUFATE BREAKER)	Breaker	Ammonium Persulfate	007727-54-0
B05 (LOW PH BUFFER)	Buffer	Acetic acid	000064-19-7
BXL03 Borate XL Delayed High Temp	Crosslinker	No Hazardous Components	NONE
FRW-200	Friction Reducer	No Hazardous Components	NONE
HVG01 (TURQUOISE-1 BULK)	Gelling Agent	Petroleum Distillate Hydrotreated Light	064742-47-8
KCLS-4	Clay Stabilizer	No Hazardous Components	NONE
LTB-1	Breaker	Ammonium Persulfate	N/A
		Ethanol	000064-17-5

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EC6110A	Biocide	Glutaraldehyde (Pentanediol)	000111-30-8
		Quaternary Ammonium Compounds	N/A-063
EC6629A	Biocide	No Hazardous Components	NONE
WBK-133 OXIDIZER	Breaker	Ammonium Persulfate	007727-54-0
WBK-134	Breaker	Ammonium Persulfate	007727-54-0
		Crystalline Silica (Quartz Sand, Silicon Dioxide)	014808-60-7
WCS-631LC	Clay Stabilizer	Proprietary Non Hazardous Salt	N/A-229
		Water	007732-18-5
WFR-55LA	Friction Reducer	No Hazardous Components	NONE
WGA-15L	Gel	Petroleum Distillate Hydrotreated Light	064742-47-8
WPB-584-L	Buffer	Potassium Carbonate	000584-08-7
		Potassium Hydroxide	001310-58-3
WXL-101LE	Crosslinker	No Hazardous Components	NONE
WXL-101LM	Crosslinker	Petroleum Distillate Hydrotreated Light	064742-47-8
WXL-105L	Crosslinker	Water	007732-18-5
		Ethylene Glycol	000107-21-1
		Boric Acid	010043-35-3
		Ethanolamine	000141-43-5
B244 Green-Cide 25G	Biocide	Glutaraldehyde	111-30-8
L071 Temporary Clay Stabilizer	Clay Stabilizer	Cholinium Chloride	67-48-1
Breaker J218	Breaker	Diammonium Peroxidisulphate	7727-54-0
EB-Clean* J475 Breaker		Diammonium Peroxidisulphate	7727-54-0
Friction Reducer B315	Friction Reducer	Distillates (petroleum), Hydrotreated light Aliphatic Alcohol Glycol Ether	64742-47-8 Proprietary
Friction Reducer J609		Ammonium Sulfate	7783-20-2
Water Gelling Agent J580	Gel	Carbohydrate Polymer	Proprietary
Scale Inhibitor B317	Scale Inhibitor	Trisodium ortho phosphate Ethane-1, 2-diol	7601-54-9 107-21-1
Borate Crosslinker J532	Crosslinker	Aliphatic polyol Sodium tetraborate decahydrate	Proprietary 1303 96-4
Crosslinker J610		Aliphatic polyol Potassium hydroxide	Proprietary 1310 58-3