



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

October 08, 2014

WELL WORK PERMIT

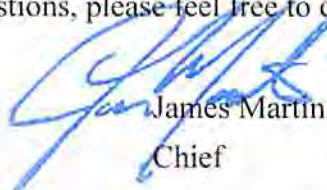
Horizontal 6A Well

This permit, API Well Number: 47-6900181, 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: ALICE EDGE OHI 201H

Farm Name: EDGE, ALICE MAE

API Well Number: 47-6900181

Permit Type: Horizontal 6A Well

Date Issued: 10/08/2014

PERMIT CONDITIONS

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

CONDITIONS

1. This proposed activity may require permit coverage from the United States Army Corps of Engineers (USACE). Through this permit, you are hereby being advised to consult with USACE regarding this proposed activity.
2. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code § 22-6A-5a (12), which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than fifty (50) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.
3. When compacting fills, each lift before compaction shall not be more than 12 inches in height, and the moisture content of the fill material shall be within limits as determined by the Standard Proctor Density test of the actual soils used in specific engineered fill, ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort, to achieve 95 % compaction of the optimum density. Each lift shall be tested for compaction, with a minimum of two tests per lift per acre of fill. All test results shall be maintained on site and available for review.
4. Operator shall install signage per § 22-6A-8g (6) (B) at all source water locations included in their approved water management plan within 24 hours of water management plan activation.
5. Oil and gas water supply wells will be registered with the Office of Oil and Gas and all such wells will be constructed and plugged in accordance with the standards of the Bureau for Public Health set forth in its Legislative rule entitled *Water Well Regulations*, 64 C.S.R. 19. Operator is to contact the Bureau of Public Health regarding permit requirements. In lieu of plugging, the operator may transfer the well to the surface owner upon agreement of the parties. All drinking water wells within fifteen hundred feet of the water supply well shall be flow tested by the operator upon request of the drinking well owner prior to operating the water supply well.
6. Pursuant to the requirements pertaining to the sampling of domestic water supply wells/springs the operator shall, no later than thirty (30) days after receipt of analytical data provide a written copy to the Chief and any of the users who may have requested such analyses.
7. If any explosion or other accident causing loss of life or serious personal injury occurs in or about a well or well work on a well, the well operator or its contractor shall give notice, stating the particulars of the explosion or accident, to the oil and gas inspector and the Chief, within 24 hours of said accident.
8. During the casing and cementing process, in the event cement does not return to the surface, the oil and gas inspector shall be notified within 24 hours.
9. Operator shall provide the Office of Oil & Gas notification of the date that drilling commenced on this well. Such notice shall be provided by sending an email to DEPOOGNotify@wv.gov within 30 days of commencement of drilling.

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

1) Well Operator: Chesapeake Appalachia, LLC 49447757 69-Ohio 3-Liberty 648-Valley Grove
Operator ID County District Quadrangle

2) Operator's Well Number: Alice Edge OHI 201H Well Pad Name: Alice Edge Pad

3) Farm Name/Surface Owner: Alice Mae Edge Public Road Access: State Route 40

4) Elevation, current ground: 1198' Elevation, proposed post-construction: 1198'

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

(b) If Gas Shallow Deep
Horizontal

6) Existing Pad: Yes or No Yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Associated Pressure(s):
Target formation- Marcellus Target top TVD- 6347' Target base TVD- 6408' Anticipated thickness- 61' Associated Pressure- 4176

8) Proposed Total Vertical Depth: 6410'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 19,500'

11) Proposed Horizontal Leg Length: 3894'

12) Approximate Fresh Water Strata Depths: 425'

13) Method to Determine Fresh Water Depths: from log analysis of nearby wells

14) Approximate Saltwater Depths: 1050'

15) Approximate Coal Seam Depths: 580'

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

17) Does Proposed well location contain coal seams directly overlying or adjacent to an active mine? Yes No

(a) If Yes, provide Mine Info: Name: Tunnel Ridge
Depth: 558'
Seam: Pittsburgh #8
Owner: Tunnel Ridge

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WRH
7-25-14

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18)

CASING AND TUBING PROGRAM

TYPE	Size	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling	INTERVALS: Left in Well	CEMENT: Fill-up (Cu. Ft.)
Conductor	20"	New	J-55	94#	100'	100'	CTS
Fresh Water	13 3/8"	New	J-55	54.5#	630'	630'	580 sx/CTS
Coal	9 5/8"	New	J-55	40#	2122'	2122'	800 sx/CTS
Intermediate	7"	New	P-110	20#	If Needed	If Needed	If Needed/As Needed
Production	5 1/2"	New	P-110	20#	19,500'	19,500'	Lead 1330 in Tall 1630 out 1007 in
Tubing	2 3/8"	New	N-80	4.7#	Approx. 7,218'	Approx. 7,218'	
Liners							

WRH
7-23-14

TYPE	Size	Wellbore Diameter	Wall Thickness	Burst Pressure	Cement Type	Cement Yield (cu. ft./k)
Conductor	20"	30"	0.25	2120	Class A	1.19/50% Excess
Fresh Water	13 3/8"	17.5"	0.380	2740	Class A	1.19/50% Excess
Coal	9 5/8"	12 1/4"	0.395	3950	Class A	1.19/50% Excess
Intermediate	7"	8 3/4"	0.317	4360	Class A	1.20/15% Excess
Production	5 1/2"	8 3/4"	0.361	12360	Class A	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:				Received

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

Drill and stimulate 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)

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

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. Max press and anticipated max rate-9000 lbs @ 80 barrels a minute.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 18.4

22) Area to be disturbed for well pad only, less access road (acres): 6.1

23) 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.

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

See Attachment**

25) 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.

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*Note: Attach additional sheets as needed.



Coal / Marcellus South
 Alice Edge Pad
 Ohio County, WV

Updated: 4/2/2014
 Author: jacob...
 Editor: Rick Neukirchner
 Project#: 4706900181

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WEST VIRGINIA
 VIRGINIA

Alice Edge Pad

Legend
 Mining Operations
 STATUS

- ABANDONED
- ACTIVE
- PROPOSED
- PENDING

10/10/2014



SLB Cement Additives

***Ref: 2013-78

	<u>Product Name</u>	<u>Product Use</u>	<u>Chemical Name</u>	<u>CAS Number</u>
Surface	D046	antifoam	Fuller's earth (attapulгите)	8031-18-3
			Polypropylene glycol	25322-69-4
	D130	polyester flake - lcm	polyethylene terephthalate	25038-59-9
	S001	calcium chloride	calcium chloride	10043-52-4
		SPACER		
Intermediate	D046	antifoam	Fuller's earth (attapulгите)	8031-18-3
			Polypropylene glycol	25322-69-4
	D130	polyester flake - lcm	polyethylene terephthalate	25038-59-9
	D044	granulated salt	sodium chloride	7647-14-5
	D153	Anti-Settling Agent	chrystalline silica	14808-60-7
		SPACER		
		D020	bentonite extender	bentonite
Kick Off Plug				
	D080	cement liquid dispersant	product classified as non-hazardous.	
	D801	mid-temp retarder	product classified as non-hazardous	
	D047	antifoam agent	polypropylene glycol	25322-69-4
		SPACER		
	B389	MUDPUSH* Express	Carbohydrate	proprietary
	D206	Antifoaming Agent	Silica Organic Polymer	proprietary
	D031	barite	barium sulfate	7727-43-7
			fatty acid amine	proprietary
		ethoxylated alcohol	proprietary	
		glycerol	56-81-5	
B220	surfactant	2,2'-Iminodiethanol	111-42-2	
	D167	UNIFLAC* S	aliphatic amide polymer	proprietary

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Production - Lead	D154	low-temperature extender	non-crystalline silica	7631-86-9
	D400	EasyBLOK	boric acid	10043-35-3
	D046	antifoam	Fuller's earth (attapulgite)	8031-18-3
			Polypropylene glycol	25322-69-4
	D201	basic cements enabler	chrystalline silica	14808-60-7
			metal oxide	proprietary
	D202	low-temperature solid dispersant	sulphonated synthetic polymer	proprietary
			formaldehyde (impurity)	50-00-0
	D046	antifoam	Fuller's earth (attapulgite)	8031-18-3
			Polypropylene glycol	25322-69-4
D167	UNIFLAC* S	aliphatic amide polymer	proprietary	
D065	TIC* Dispersant	Sodium Polynaphthalene Sulfonate	9008-63-3	
		Sodium Sulfate	7757-82-6	
D201	basic cements enabler	chrystalline silica	14808-60-7	
		metal oxide	proprietary	
D153	Anti-Settling Agent	chrystalline silica	14808-60-7	
<u>SPACER</u>				
B389	MUDPUSH* Express	Carbohydrate	proprietary	
D206	Antifoaming Agent	Silica Organic Polymer	proprietary	
D031	barite	barium sulfate	7727-43-7	
B220	surfactant	fatty acid amine	proprietary	
		ethoxylated alcohol	proprietary	
		glycerol	56-81-5	
		2.2'-Iminodiethanol	111-42-2	

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WV Dept. of Environmental Protection

% Concentration Used

0.2% BWOC
0.125 lb/sk
2% BWOC
1 lb/bbl
20 lb/bbl
0.2% BWOC
0.125 lb/sk
10% BWOW
0.15% BWOC
20 lb/bbl
1 lb/bbl
0.05 gal/sk
0.01 gal/sk
0.02 gal/sk
1 lb/bbl
0.1 gal/bbl
310 lb/bbl
1 gal/bbl
0.35% BWOC

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6% BWO
0.8% BWO
0.2% BWO
0.2% BWO
0.3% BWO
0.2% BWO
0.35% BWO
0.25% BWO
0.2% BWO
0.2% BWO
proprietary
proprietary
7727-43-7
proprietary
proprietary
56-81-5
111-42-2

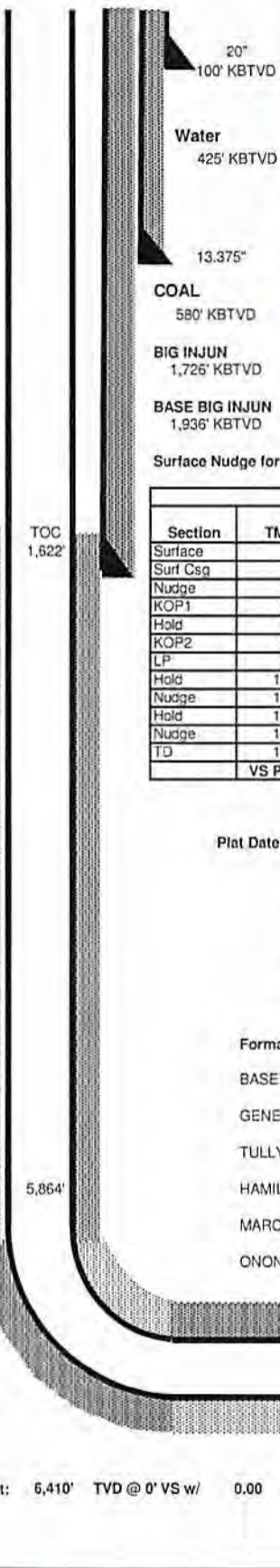
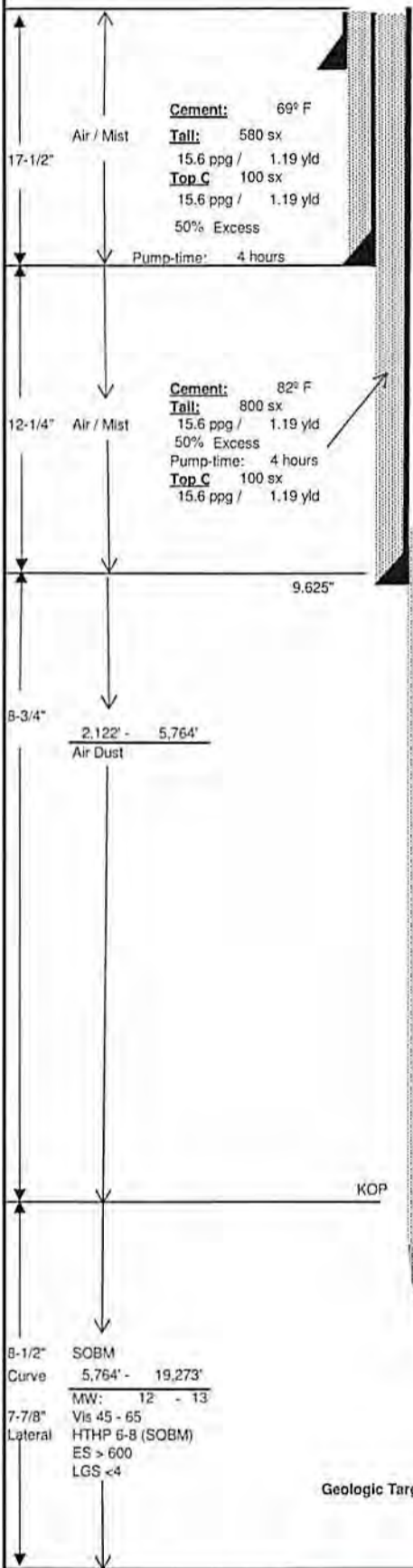
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4706900181

		Well Name: Alice Edge OHI 201H	Drilling Rig: N/A
			Directional Drilling: N/A
Drilling Engineer: TBD	Formation: Marcellus	Drilling Mud: N/A	
Superintendent: N/A	County, State: Ohio, WV	Cement Surface: N/A	
Asset Manager: N/A	Surface Latitude: 40.099755	Surface Longitude: -80.560582	Cement Longstrings: N/A
Geologist: N/A	BH Latitude: 40.12862	BH Longitude: -80.57958	Wellhead: N/A
Land: N/A	KB Elevation: 1218'	Ground Elevation: 1198'	AFE #: N/A



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	13.375	54.5 #	J-55	STC	0' 630'
Interm	9.625	40 #	J-55	LTC	0' 2,122'
Prod	5.5	20 #	P-110	GBCD	0' 19,273'

Report any water or gas flows. Catch liquid sample if possible.

Casing Design						
	Size	ID	Coil	Burst	Tens	MU torq
Surface	13.375	12.615	1130	2740	514	5140
Interm	9.625	8.835	2570	3950	520	5200
Prod	5.5	4.778	12200	12360	641	8530

Surface Nudge for Anti-Collision purposes.

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'
Surf Csg	730'	0.00	0.00	730'	0.00	0.00	0.0'	0.0'
Nudge	1,230'	15.00	240.00	1,224'	3.00	3.00	-32.5'	-56.4'
KOP1	5,864'	15.00	240.00	5,700'	0.00	0.00	-632.2'	-1,095.0'
Hold	6,281'	56.50	231.64	6,031'	9.95	10.00	-773.3'	-1,286.5'
KOP2	6,339'	56.50	231.64	6,063'	0.00	0.00	-803.3'	-1,324.4'
LP	7,218'	90.00	340.37	6,410'	3.81	12.00	-536.7'	-1,946.3'
Hold	11,018'	90.00	340.37	6,410'	0.00	0.00	3,042.5'	-3,222.9'
Nudge	11,204'	90.00	344.10	6,410'	0.00	2.00	3,219.8'	-3,279.8'
Hold	15,904'	90.00	344.10	6,410'	0.00	0.00	7,740.0'	-4,567.4'
Nudge	16,098'	90.00	347.97	6,410'	0.00	2.00	7,927.6'	-4,614.0'
TD	19,273'	90.00	347.97	6,410'	0.00	0.00	11,032.9'	-5,275.8'
VS Plane	344.10						VS Length	12,056.10'

Lateral Length ==> 12,054.60'

Plot Date **7/22/14**

Logging Program		
Run	Log Type	Interval
1	TBD	TBD
2	TBD	TBD

Mudlogger operational at Surface

Formation Depths (TVD)

BASE BIG INJUN	1,936'
GENESEO	6,178'
TULLY	6,204'
HAMILTON	6,235'
MARCELLUS	6,349'
ONONDAGA	6,418'

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Cement: 120° F
Lead: 1,330 sx
 15.6 ppg / 1.20 yld
Tall: 1,690 sx
 15.6 ppg / 1.20 yld
 15% Excess
 Pump-time: 6 hours

Geologic Target: 6,410' TVD @ 0° VS w/ 0.00 degrees/100 ft Up-dip

PBHL 5.5"
TMD: 19,273'
TVD: 6,410'
Inclination: 90.00 deg

10/10/2014

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

Drawn by: **TBD**
 Date: **7/24/2014**

WW-9
(9/13)

API Number 47 - 69 -
Operator's Well No. Alice Edge OHI 201H

4706900181

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) Upper Ohio South Quadrangle 648-Valley Grove

Elevation 1198' County 69-Ohio District 3-Liberty

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

Will a pit be used? Yes No

If so, please describe anticipated pit waste: 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 No 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.)

Will closed loop system be used? If so, describe: Yes

Drilling medium anticipated for this well (vertical and horizontal)? 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-4992, Northwestern SWF-1025, Short Creek 1034/WV0109517/CID26726, Carbon Limestone 26726/CID 26726
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 [Signature]

JUL 31 2014

Company Official (Typed Name) Dee Southall

Company Official Title Regulatory Analyst II

Office of Oil and Gas
WV Dept. of Environmental Protection

Subscribed and sworn before me this 29th day of July

Brittany R Woody
11/27/2014

My commission expires _____



4706900181

Form WW-9

Operator's Well No. Alice Edge OHI 201H

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 type 10-20-20

Fertilizer amount 600 lbs/acre

Mulch Hay/Straw 2.5 Tons/acre

Seed Mixtures

Temporary		Permanent	
Seed Type	lbs/acre	Seed Type	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 (unless engineered plans including this info have been provided)

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: *Bill Henschel*

Comments: _____

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WV Dept. of Environmental Protection

Title: Oil and Gas Inspector

Date: 7-25-14

Field Reviewed? Yes No

10/10/2014

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

Chesapeake Appalachia, LLC

47 - 69 -
Well name: Alice Edge OHI 201H
Valley Grove, Quad
Liberty, District
Ohio County, West Virginia

*WRH
7-25-14*

Submitted by:

Dee Southall

7/17/2014

Date:

Title Regulatory Analyst II

Chesapeake Appalachia, LLC

Approved by:

Date:

Title:

Approved by:

Date:

Title:

Chesapeake Appalachia, L.L.C. – Confidential

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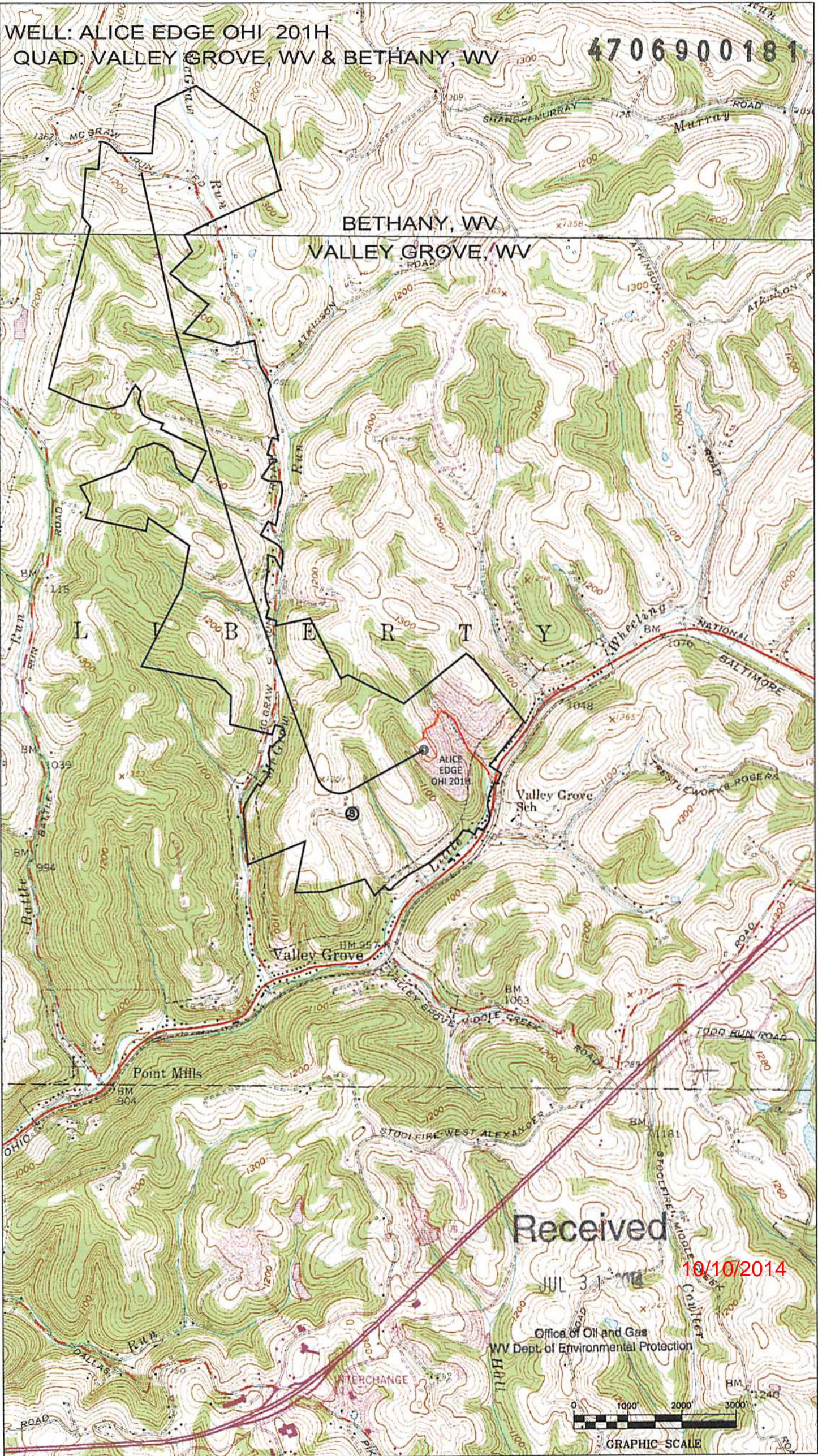
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WV Dept. of Environmental Protection

10/10/2014

WELL: ALICE EDGE OHI 201H
QUAD: VALLEY GROVE, WV & BETHANY, WV

4706900181

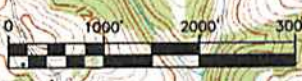


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10/10/2014

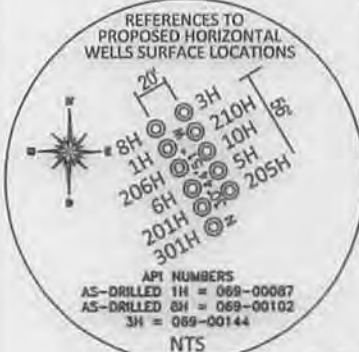
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GRAPHIC SCALE

NOTE:
NO WATER WELLS WERE FOUND WITHIN 250' OF THE CENTER OF WELL PAD.
NO DWELLINGS WERE FOUND WITHIN 825' OF THE CENTER OF THE WELL PAD.

LESSOR	PARCEL	ACREAGE	LEASE NUMBER
A MICHAEL D. & MELISSA JEAN VARGO	L11-10.7	1.22 ACRES	01-324194-000
B SHARON L. EDGE	L11-9	1.78 ACRES	47-000321-000
C ROBERT J. & TORIA L. LEMASTERS	L11E-24	0.321 ACRES	47-001858-000
D ROBERT J. & TORIA L. LEMASTERS	L11E-24.1	0.321 ACRES	47-001858-000
E ROBERT J. & TORIA L. LEMASTERS	L11E-24.2	0.317 ACRES	47-002570-000
F GERALD C. BIRD & KYLEA J. SIMPKS	L11-2	9.50 ACRES	01-325791-000
G TIM B. & L.L. REED	L11-2.6	72.423 ACRES	01-325754-000
H JAMES C. & CHANDRA D. CARRINGTON	18-24.5	4.00 ACRES	01-329128-000
I MICHELLE BOHMAN	18-24.1	4.00 ACRES	01-313753-000
J MICHELLE BOHMAN	18-24.10	4.00 ACRES	01-313741-000
K JOHN F. & SANTA SCHUTZ	18-24.5	2.00 ACRES	01-327243-000
L DANIEL MOORE	18-24.8	9.26 ACRES	01-329244-000
M JOSEPH F. BIPPUS, Sr	18-1.4	1.45 ACRES	UNLEASED
N BETTY JANE MYERS	17-8.1	2.81 ACRES	01-385504-000
O W.V. DEPARTMENT OF TRANSPORTATION	ROAD	N/A	47-000072-000



TOP HOLE (UTM NAD 83)	N) 4438929.9	E) 537471.5
BOTTOM HOLE (UTM NAD 83)	N) 4442125.8	E) 535836.9

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 OHIO County, West Virginia JUNE 2013
State Plane Coordinates & NAD 83 Lat/Long by differential submeter mapping grade GPS Drafted by: EAM

FILE #: CHE 036
DRAWING #: 2370
SCALE: PLAT: 1" = 2000'
THICK 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: *[Signature]*
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

DATE: SEPTEMBER 29, 2014
OPERATOR'S WELL #: ALICE EDGE OHI 201H
API WELL #: 47 69 00181H6A
STATE COUNTY PERMIT

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

WATERSHED: UPPER OHIO SOUTH
COUNTY/DISTRICT: OHIO / LIBERTY
SURFACE OWNER: ALICE MAE EDGE
OIL & GAS ROYALTY OWNER: ALICE MAE EDGE
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
WELL OPERATOR: CHESAPEAKE APPALACHIA, LLC.
ADDRESS: PO BOX 18496
CITY: OKLAHOMA CITY STATE: OK ZIP CODE: 73154-0496

ELEVATION: 1,198'
QUADRANGLE: VALLEY GROVE & BETHANY, WV
ACREAGE: 103 +/-
ACREAGE: 965.052 +/-

ESTIMATED DEPTH: TVD: 6,410' TMD: 19,275'
DESIGNATED AGENT: ERIC B. GILLESPIE
ADDRESS: PO BOX 6070
CITY: CHARLESTON STATE: WV ZIP CODE: 25362

10/10/2014