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

November 20, 2014

WELL WORK PERMIT

Horizontal 6A Well

This permit, API Well Number: 47-6900186, 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 10H
Farm Name: EDGE, ALICE MAE
API Well Number: 47-6900186
Permit Type: Horizontal 6A Well
Date Issued: 11/20/2014

Promoting a healthy environment.

API Number: 47 06 9 00 186

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. Mats and liners along with containment shall be provided in addition to the existing berm.

2. 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.

3. 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.

4. 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.

5. 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.

6. 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.

7. 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.

8. 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.

9. 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.

API Number: 4706900186

PERMIT CONDITIONS

10. 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.

WW-6B
(9/13)

4706900186

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

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

2) Operator's Well Number: Alice Edge OHI 10H 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-6397' Target base TVD-6458' Anticipated thickness- 61' Associated Pressure-4176

8) Proposed Total Vertical Depth: 6400'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 20,000'

11) Proposed Horizontal Leg Length: 12,254'

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 9-22-14

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WW-2B
(9/13)

4706900186

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#	2113'	2113'	720sx/CTS
Intermediate	7"	New	P-110	20#	If Needed	If Needed	If Needed/As Needed
Production	5 1/2"	New	P-110	20#	20,000'	20,000'	Lead 1200 sx Tail 1350 sx/100' Inside Int
Tubing	2 3/8"	New	N-80	4.7#	Approx. 7097'	Approx. 7097'	
Liners							

WRH
8-22-14

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:				

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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 barrells 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.

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SLB Cement Additives ***Ref: 2013-78

	Product Name	Product Use	Chemical Name	CAS Number
Surface	D046	antifoam	Fuller's earth (attapulgite)	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			
	D130	polyester flake - lcm	polyethylene terephthalate	25038-59-9
	D020	bentonite extender	bentonite	1302-78-9
Intermediate	D046	antifoam	Fuller's earth (attapulgite)	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	1302-78-9
	D130	polyester flake - lcm	polyethylene terephthalate	25038-59-9
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
	B220	surfactant	fatty acid amine	proprietary
			ethoxylated alcohol	proprietary
			glycerol	56-81-5
			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
	SPACER			
	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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% 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% BWOC
	0.8% BWOC
	0.2% BWOC
	0.2% BWOC
	0.3% BWOC
	0.2% BWOC
	0.35% BWOC
	0.25% BWOC
	0.2% BWOC
	0.2% BWOC
	proprietary
	proprietary
	7727-43-7
	proprietary
	proprietary
	56-81-5
	111-42-2

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Supplier Name	Product Name	Product Use	Chemical Name	CAS Number
BAKER HUGHES	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
FRAC TECH SERVICES	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

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Supplier Name	Product Name	Product Use	Chemical Name	CAS Number
NALCO ONESOURCE	EC6110A	Biocide	Ethanol	000064-17-5
			Glutaraldehyde (Pentanediol)	000111-30-8
			Quaternary Ammonium Compounds	N/A-063
	EC6629A	Biocide	No Hazardous Components	NONE
WEATHERFORD	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	Corsslinker	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
SCHLUMBERGER	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

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Supplier Name	Product Name	Product Use	Chemical Name	CAS Number
SCHLUMBERGER	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

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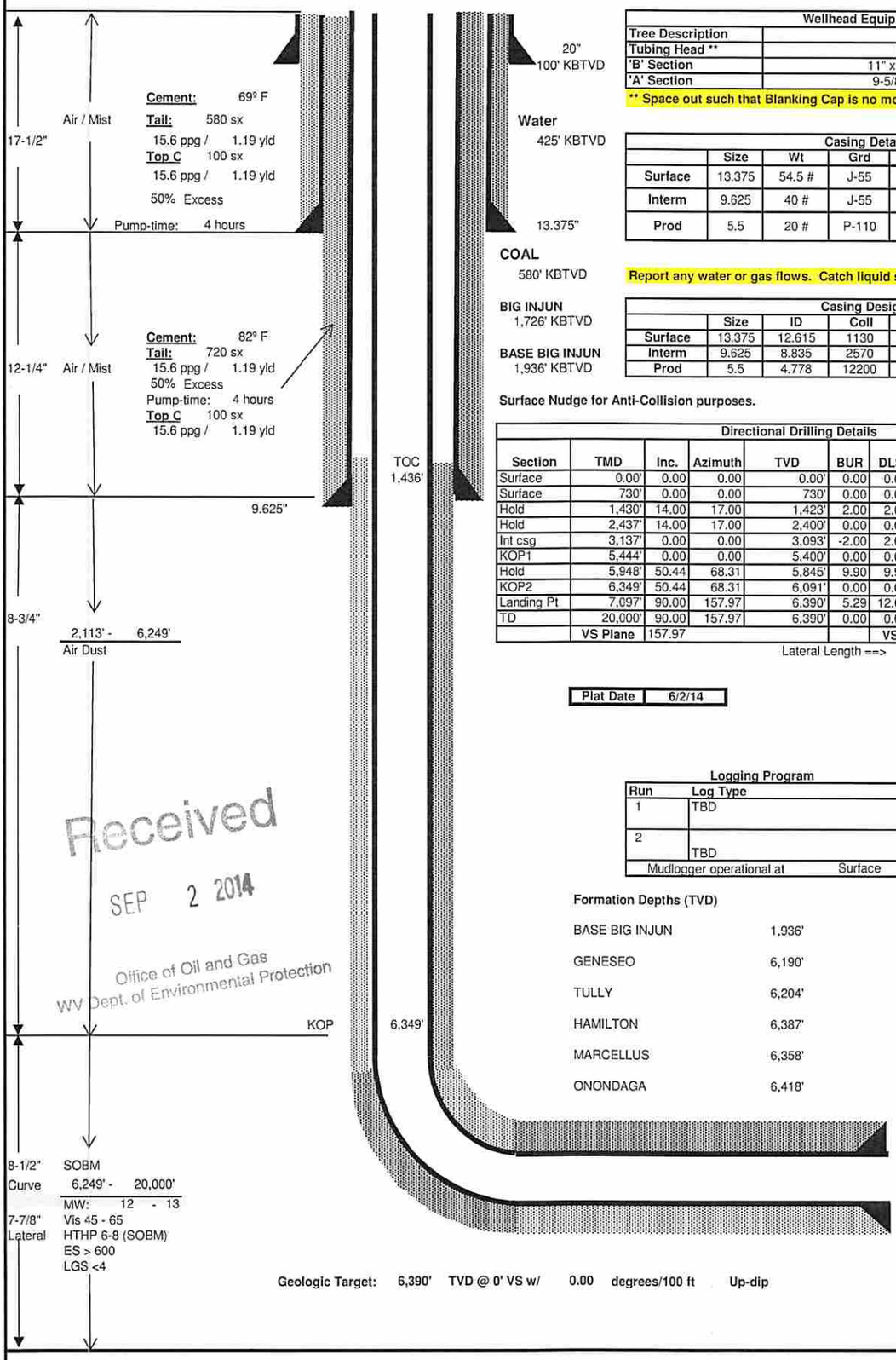
Chesapeake Energy

Well Name:	Alice Edge OHI 10H			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:	40.099849	Surface Longitude: -80.560573	Cement Longstrings: N/A
Geologist:	N/A	BH Latitude:	40.083111	BH Longitude: -80.548035	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'	2,113'
Prod	5.5	20 #	P-110	GBCD	0'	20,000'

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

Casing Design	Size	ID	Coll	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'
Surface	730'	0.00	0.00	730'	0.00	0.00	0.0'	0.0'
Hold	1,430'	14.00	17.00	1,423'	2.00	2.00	81.4'	24.9'
Hold	2,437'	14.00	17.00	2,400'	0.00	0.00	314.3'	96.1'
Int csg	3,137'	0.00	0.00	3,093'	-2.00	2.00	395.7'	121.0'
KOP1	5,444'	0.00	0.00	5,400'	0.00	0.00	395.7'	121.0'
Hold	5,948'	50.44	68.31	5,845'	9.90	9.90	473.4'	316.2'
KOP2	6,349'	50.44	68.31	6,091'	0.00	0.00	584.4'	595.5'
Landing Pt	7,097'	90.00	157.97	6,390'	5.29	12.00	279.3'	1,114.3'
TD	20,000'	90.00	157.97	6,390'	0.00	0.00	-11,681.4'	5,954.0'
	VS Plane	157.97				VS Length	13,061.83'	
						Lateral Length ==>	12,902.76'	

Plat Date	6/2/14

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	6,190'
TULLY	6,204'
HAMILTON	6,387'
MARCELLUS	6,358'
ONONDAGA	6,418'

Cement: 119º F
Lead: 1,160 sx
15.6 ppg / 1.20 yld
Tail: 2,360 sx
15.6 ppg / 1.20 yld
15% Excess
Pump-time: 7 hours

Geologic Target: 6,390' TVD @ 0' VS w/ 0.00 degrees/100 ft Up-dip

PBHL 5.5"
TMD: 20,000'
TVD: 6,390'
Inclination: 90.00 deg

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

Drawn by: TBD
Date: 8/22/2014

4706900186

WW-9
(9/13)

API Number 47 - 69 -
Operator's Well No. Alice Edge OHI 10H

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-4902, Northwestern SWF-1025, Short Creek 1034/WV0109517/CID28726, Carbon Limestone 28726/CID 28726
Arden Landfill 100172, 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.

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Company Official Signature

Company Official (Typed Name) Dee Southall

Company Official Title Regulatory Analyst II

Subscribed and sworn before me this 18th day of August, 20 14

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

4706900186

Form WW-9

Operator's Well No. Alice Edge OHI 10H

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 Hankshaw

Comments:

Received
SEP 2 2014
Office of Oil and Gas
WV Dept. of Environmental Protection

Title: Oil and Gas Inspector Date: 8-22-14

Field Reviewed? (✓) Yes ( ) No

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Marcellus Well Drilling Procedures
And Site Safety Plan

Chesapeake Appalachia, LLC

47 - 69 -
Well name: Alice Edge OHI 10H
Valley Grove, Quad
Liberty, District
Ohio County, West Virginia

WFH
8-27-14

Submitted by:

Dee Southall Date: 8/8/2014

Title Regulatory Analyst II Chesapeake Appalachia, LLC

Approved by:

Date:

Title:

Approved by:

Date:

Title:

Chesapeake Appalachia, L.L.C. – Confidential

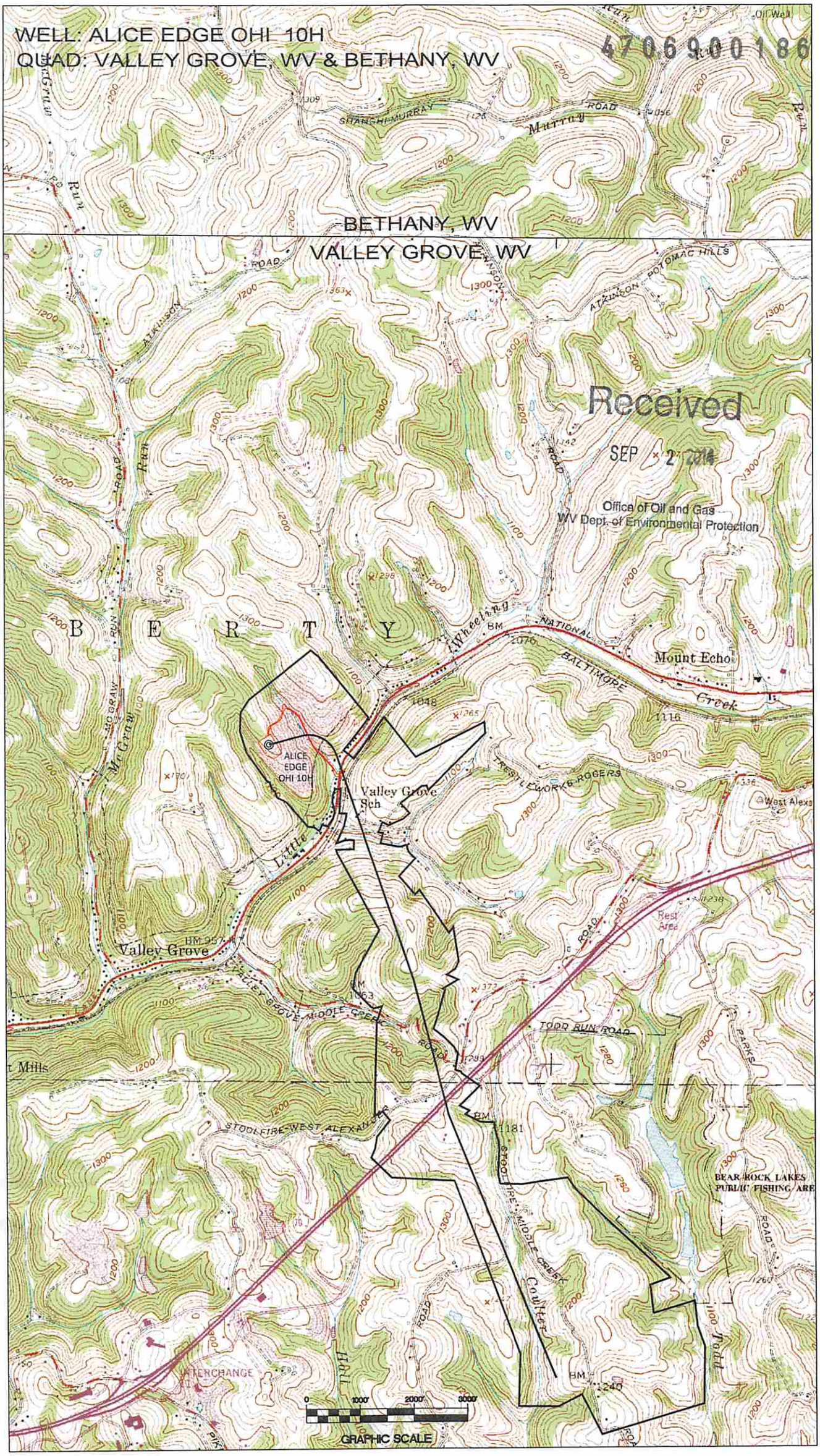
Received

SEP 2 2014

Office of Oil and Gas
WV Dept. of Environmental Protection

WELL: ALICE EDGE OHI 10H
QUAD: VALLEY GROVE, WV & BETHANY, WV

4706900186



Received
SEP 2 2014
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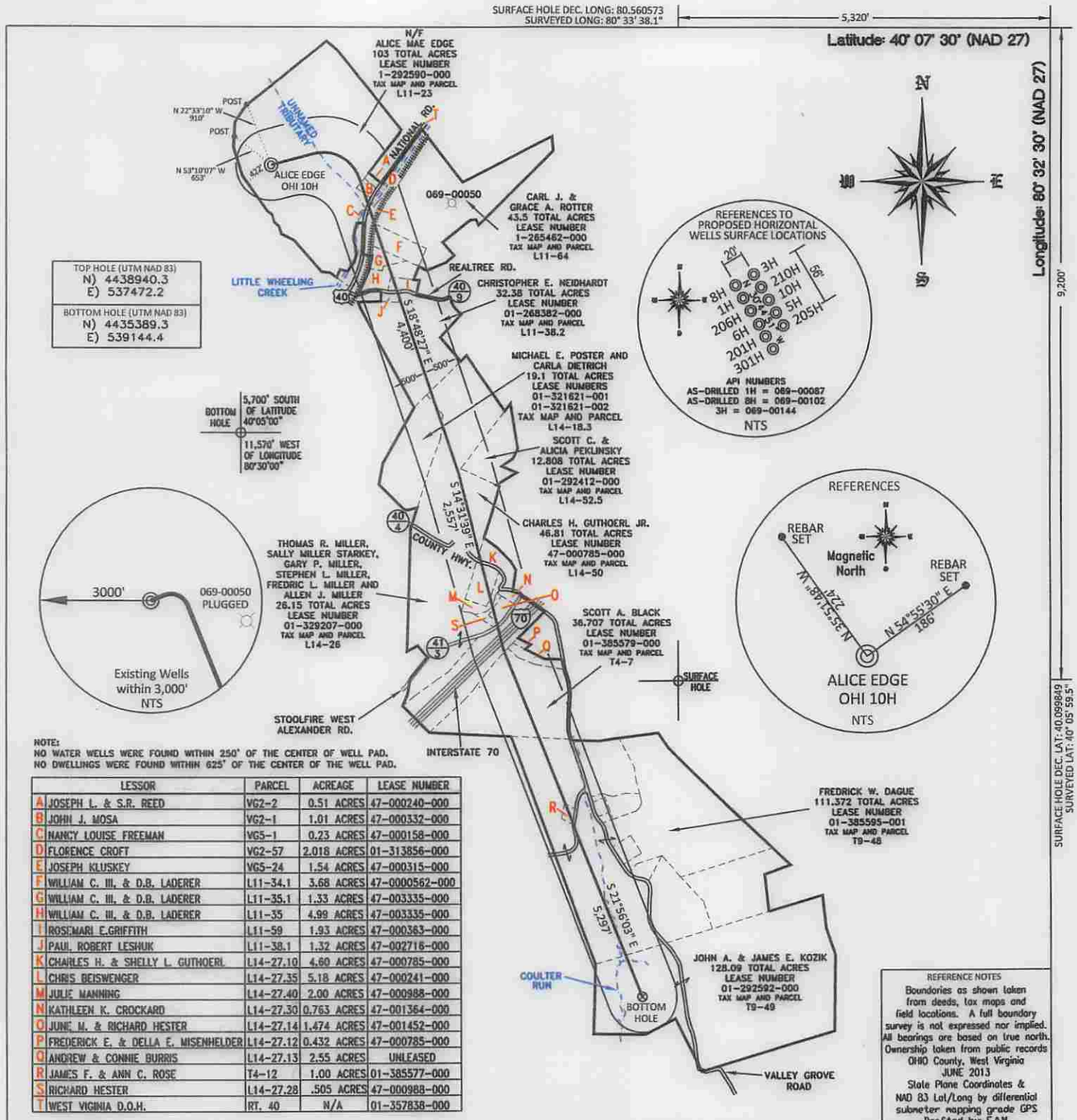

	LESSOR	PARCEL	ACREAGE	LEASE NUMBER
A	JOSEPH L. & S.R. REED	VG2-2	0.51 ACRES	47-000240-000
B	JOHN J. MOSA	VG2-1	1.01 ACRES	47-000332-000
C	NANCY LOUISE FREEMAN	VG5-1	0.23 ACRES	47-000158-000
D	FLORENCE CROFT	VG2-57	2.018 ACRES	01-313856-000
E	JOSEPH KLUSKEY	VG5-24	1.54 ACRES	47-000315-000
F	WILLIAM C. III, & D.B. LADERER	L11-34.1	3.68 ACRES	47-0000562-000
G	WILLIAM C. III, & D.B. LADERER	L11-35.1	1.33 ACRES	47-003335-000
H	WILLIAM C. III, & D.B. LADERER	L11-35	4.99 ACRES	47-003335-000
I	ROSEMARI E.GRIFFITH	L11-59	1.93 ACRES	47-000363-000
J	PAUL ROBERT LESHUK	L11-38.1	1.32 ACRES	47-002716-000
K	CHARLES H. & SHELLY L. GUTHOERL	L14-27.10	4.60 ACRES	47-000785-000
L	CHRIS BEISWENGER	L14-27.35	5.18 ACRES	47-000241-000
M	JULIE MANNING	L14-27.40	2.00 ACRES	47-000988-000
N	KATHLEEN K. CROCKARD	L14-27.30	0.763 ACRES	47-001364-000
O	JUNE M. & RICHARD HESTER	L14-27.14	1.474 ACRES	47-001452-000
P	FREDERICK E. & DELLA E. MISENHELDER	L14-27.12	0.432 ACRES	47-000785-000
Q	ANDREW & CONNIE BURRIS	L14-27.13	2.55 ACRES	UNLEASED
R	JAMES F. & ANN C. ROSE	T4-12	1.00 ACRES	01-385577-000
S	RICHARD HESTER	L14-27.28	.505 ACRES	47-000988-000
T	WEST VIGINIA D.O.H.	RT. 40	N/A	01-357838-000

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 #: 1657

SCALE: PLAT: 1" = 2000' 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: SEPTEMBER 29, 2014

OPERATOR'S WELL #: ALICE EDGE OHI 10H

API WELL #: 47 (STATE) 69 (COUNTY) 00186 H6A (PERMIT)

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

WATERSHED: UPPER OHIO SOUTH

ELEVATION: 1,198'

COUNTY/DISTRICT: OHIO / LIBERTY

QUADRANGLE: VALLEY GROVE, WV

SURFACE OWNER: ALICE MAE EDGE

ACREAGE: 103 +/-

OIL & GAS ROYALTY OWNER: ALICE MAE EDGE

ACREAGE: 498.478 +/-

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: 6,400' TMD: 19,675'

WELL OPERATOR: CHESAPEAKE APPALACHIA, LLC.

DESIGNATED AGENT: ERIC B. 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