



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 01, 2015

WELL WORK PERMIT
Rework/Horizontal 6A Well

This permit, API Well Number: 47-900097, issued to SWN PRODUCTION COMPANY, LLC, is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to all conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas inspector.

Please be advised that form WR-35, Well Operators Report of Well Work is to be submitted to this office within 90 days completion of permitted well work, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

In addition to the applicable requirements of this permit, and the statutes and rules governing oil and gas activity in WV, this permit may contain specific conditions which must be followed. Permit conditions are attached to this cover letter.

Per 35CSR-4-5.2.g this permit will expire in two (2) years from the issue date unless permitted well work is commenced. If there are any questions, please feel free to contact me at (304) 926-0499 ext. 1654.


James Martin
Chief

Operator's Well No: LINDA GREATHOUSE BRK 3H 91
Farm Name: GREATHOUSE, LINDA REEVES

API Well Number: 47-900097

Permit Type: Rework/Horizontal 6A Well

Date Issued: 10/01/2015

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. 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.
2. 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.
3. 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.

10/02/2015

API NO. 47-008 - 00057
 OPERATOR WELL NO. Linda Greathouse Pad
 Well Pad Name: Linda Greathouse Pad

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

1) Well Operator: SWN Production Co., LLC 494512924 Brooke County District Bethany

2) Operator's Well Number: Linda Greathouse BRK 3H Well Pad Name: Linda Greathouse Pad

3) Farm Name/Surface Owner: Linda Greathouse Public Road Access: Windy Hill & Hukill Road

4) Elevation, current ground: 1150' Elevation, proposed post-construction: 1150'

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

(b) If Gas Shallow x Deep Horizontal x

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- 5816', Target Base TVD- 5878', Anticipated Thickness- 62', Associated Pressure- 3720

8) Proposed Total Vertical Depth: 5843'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 12,749'

11) Proposed Horizontal Leg Length: 6971'

12) Approximate Fresh Water Strata Depths: 62', 94'

13) Method to Determine Fresh Water Depths: from nearby water wells

14) Approximate Saltwater Depths: 1025'

15) Approximate Coal Seam Depths: 300'

16) Approximate Depth to Possible Void (coal mine, karst, other): 300' abandoned mine

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

(a) If Yes, provide Mine Info: Name: _____ Depth: _____ Seam: _____ Owner: _____

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9.9.15
 [Handwritten signature]

00000007

WW-6B
(10/14)

API NO. 47-000 - 0007
OPERATOR WELL NO. Linda Grothouse PDK 31
Well Pad Name: Linda Grothouse Pad

18) CASING AND TUBING PROGRAM

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
Conductor	26"	New	H-40	94#	110'	110'	Driven
Fresh Water	20"	New	H-40	94#	343'	343'	544 Cu. Ft.
Coal	13 3/8"	New	J-55	54.5#	731'	731'	931 Cu. Ft.
Intermediate	9 5/8"	New	J-55	40#	1781'	1781'	785 Cu. Ft.
Production	5 1/2"	New	P-110	20#	12,749'	12,749'	3750 Cu. Ft.
Tubing							
Liners							

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Max. Associated Surface Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	26"	30"	0.25	2120	81	Class A	1.19/50% Excess
Fresh Water	20"	30"	0.25	2120	81	Class A	1.19/50% Excess
Coal	13 3/8"	17.5"	0.380	2740	633	Class A	1.19/50% Excess
Intermediate	9 5/8"	12 1/4"	0.395	3950	1768	Class A	1.19/50% Excess
Production	5 1/2"	8 3/4"	0.361	12360	9500	Class A	1.20/15% Excess
Tubing							
Liners							

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E. H. O. 9.9.15

PACKERS

Kind:	10K Arrowset AS1-X			
Sizes:	5 1/2"			
Depths Set:				

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

Clean out existing well bore and run an expandable liner to isolate all existing perfs in the Marcellus.

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): 29.69

22) Area to be disturbed for well pad only, less access road (acres): 9.37

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.

*Note: Attach additional sheets as needed.

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OCT 22 2014

9-00097 W ←

WR-35
Rev (9-11)

State of West Virginia
Department of Environmental Protection
Office of Oil and Gas
Well Operator's Report of Well Work

DATE: 4-23-2014
API #: 47-009-00097

FINAL

Farm name: Linda Greathouse BRK 3H Operator Well No.: 833467

LOCATION: Elevation: 1150' Quadrangle: 247-Bethany

District: Buffalo County: Brooke
Latitude: 6620' Feet South of 40 Deg. 12 Min. 30 Sec.
Longitude 1520' Feet West of 80 Deg. 35 Min. 00 Sec.

Company: Chesapeake Appalachia, L.L.C.

Address:	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
P.O. Box 18496 Oklahoma City, OK 73154-0496	26"	110'	110'	Driven
Agent: Eric Gillespie	20"	343'	343'	544 Cu. Ft.
Inspector: Bill Hendershot	13 3/8"	731'	731'	931 Cu. Ft.
Date Permit Issued: 6-6-2011	9 5/8"	1781'	1781'	785 Cu. Ft.
Date Well Work Commenced: 11-19-2011	5 1/2"	12749'	12749'	3750 Cu. Ft.
Date Well Work Completed: 6-25-2012				
Verbal Plugging:				
Date Permission granted on:				
Rotary <input checked="" type="checkbox"/> Cable <input type="checkbox"/> Rig <input type="checkbox"/>				
Total Vertical Depth (ft): 5843'				
Total Measured Depth (ft): 12749'				
Fresh Water Depth (ft.): 62', 94'				
Salt Water Depth (ft.): 1025'				
Is coal being mined in area (N/Y)? N				
Coal Depths (ft.): 300'				
Void(s) encountered (N/Y) Depth(s) Y 300'				

OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)

Producing formation Marcellus Pay zone depth (ft) 8,125-12,817
Gas: Initial open flow 1,353 MCF/d Oil: Initial open flow 243 Bbl/d
Final open flow _____ MCF/d Final open flow _____ Bbl/d
Time of open flow between initial and final tests 72 Hours
Static rock Pressure 3,798 psig (surface pressure) after 72 Hours *Calculated

Second producing formation _____ Pay zone depth (ft) _____
Gas: Initial open flow _____ MCF/d Oil: Initial open flow _____ Bbl/d
Final open flow _____ MCF/d Final open flow _____ Bbl/d
Time of open flow between initial and final tests _____ Hours
Static rock Pressure _____ psig (surface pressure) after _____ Hours

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WV Department of
Environmental Protection

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the 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.

Markene Williams
Signature

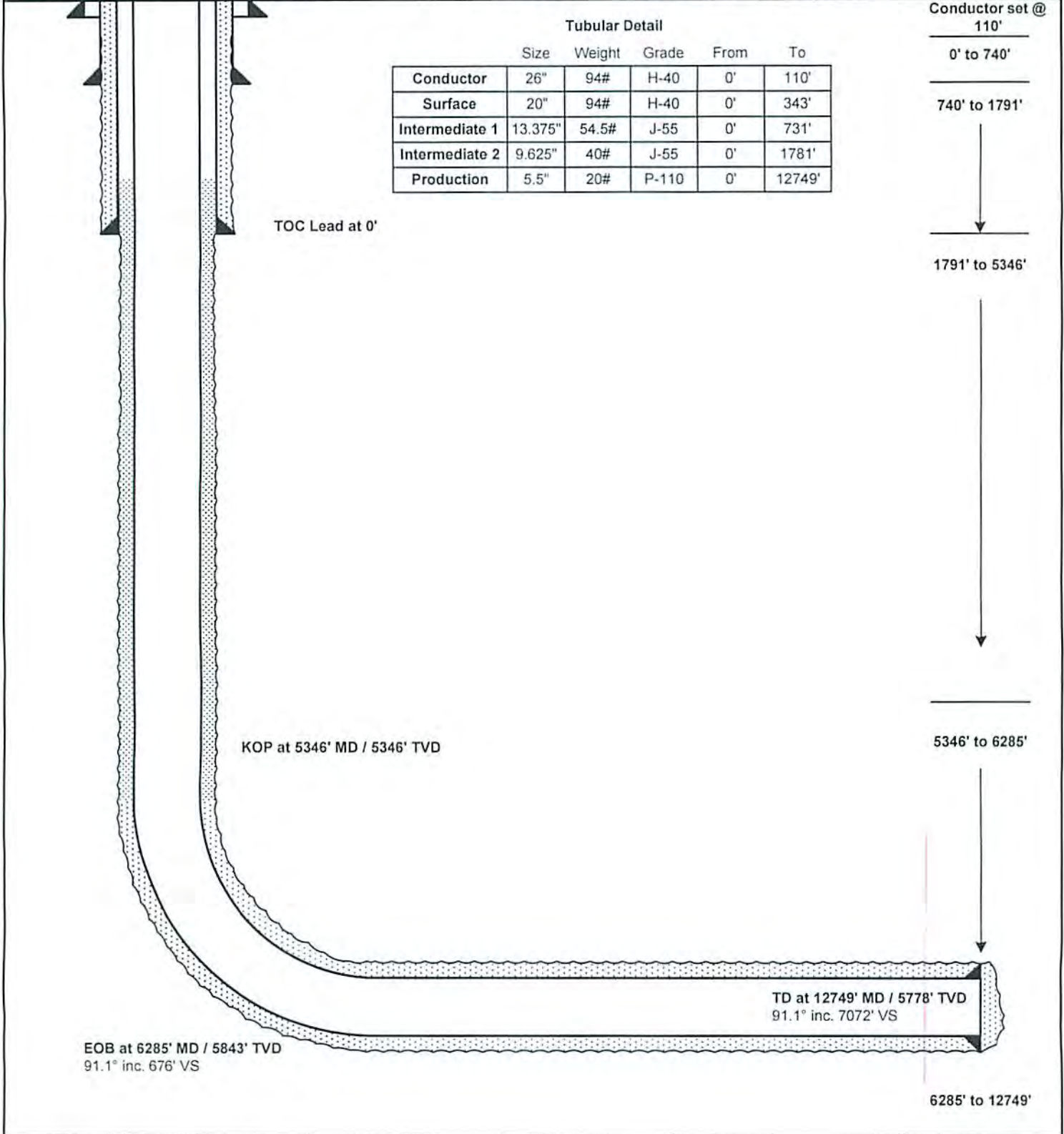
4-23-2014
Date

10/02/2015

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00900097

Southwestern Energy Company		Proposed Drilling Program			
Well	: LINDA GREATHOUSE BRK 3	Re-entry Rig	: TBD		
Field	: PANHANDLE FIELD	Prospect	: PANHANDLE		
County	: BROOKE	State	: WV		
SHL	: 40.2041633 Latitude -80.6069867 Longitude				
BHL	: 40.22224584 Latitude -80.6167946 Longitude				
KB Elev	: 1166 ft MSL	KB	: 16 ft AGL	GL Elev	: 1150 ft MSL



K:\EandP\WVD\Team Data\Drilling\Wells\Linda Greathouse Pad\Linda Greathouse BRK 3H\Drilling Program\Master SWN Well Input Sheet v E-0-1.xlsm

NOTE: This drawing was created for the Reentry Rig. The depths and lengths shown in the plot are referenced to Reentry Rig RKB.

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00900097

WW-9
(9/13)

API Number 47 - 009 - 00097
Operator's Well No. Linda Greathouse BRK 3H

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name SWN Production Co., LLC OP Code 49447757

Watershed (HUC 10) Upper Ohio South Quadrangle Bethany

Elevation 1150' County Brooke District Buffalo

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 drill to KOP, Fluid drill with SOBMM from KOP to TD

-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? Ormeadow SWF- 1032, SS Grading SWF-4902, Northwestern SWF- 1025, Short Creek 1034/WV0109517/CID28728, Carbon Limestone 28726/CID28728
Arden Landfill 10072, American 02-12954, Country wide 38390/CID38390, 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) Dee Southall

Company Official Title Regulatory Supervisor

Subscribed and sworn before me this 25 day of August, 2015

Elizabeth Blankenship

Notary Public

My commission expires 6/23/2024



00900097

Form WW-9

Operator's Well No. Linda Greathouse BRK 3H

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: *James Creech*
Comments: _____

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Title: Oil and Gas Inspector Date: 10/14/14

Field Reviewed? () Yes () No

10/02/2015

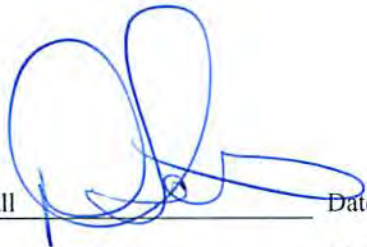
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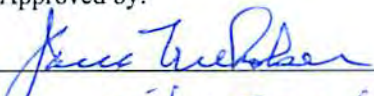
Marcellus Well Drilling Procedures
And Site Safety Plan

Chesapeake Appalachia, LLC

47 - 09 00900097

Well name: Linda Greathouse BRK 3H
Bethany, Quad
Buffalo, District
Brooke County, West Virginia

Submitted by:  Date: 9/23/2014
Danielle Southall
Title Regulatory Analyst II Chesapeake Appalachia, LLC

Approved by:  Date: 10/16/14
Title: Oil & Gas Corp -

Approved by: _____ Date: _____
Title: _____

Chesapeake Appalachia, L.L.C. – Confidential

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1. Contacts, Schedules, and Meetings

A. Chesapeake's 24 Hour Hotline: 1-800-566-9306

B(a). Emergency Telephone Numbers:

Agency Type	Name	Phone Number	Cell
County Police	Brooke County	304-737-3660 or 911	
State Police	Brooke County	304-737-3671 or 911	
Ambulance Service	Brooke County	304-737-5002 or 911	
Hospital		304-797-6000	
Fire Department	Brooke County	304-829-4504 or 911	
Kevin Ashley	Drilling Engineer Manager	405-935-6194	405-312-2872
Ryan Schuyler	Drilling Engineer	405-935-4411	405-593-6346
Cody Johnson	Drilling Superintendent	330-871-5005	580-606-9483
Craig Ballard	Drilling Superintendent		740-827-2168
Scott Glenn	Manger of Production	405-935-6865	405-213-5170
Kevin Patterson	EHS Field Specialist	304-517-1416 x 86015	304-641-0551
Chris Flanagan	Operations Manager	304-517-1416 x 86044	304-203-4985
Nathan Smarr	Field Service Superintendent	304-517-1416 x 86023	304-997-0600
	Field Service Manager		
Joseph Kennedy	Director of Health & Safety	405-935-8256	405-990-8126
Kurt Kehl	Manager EHS	304-517-1416 ext. 86025	304-941-7773
Jim Nicholson	WV Oil and Gas Inspector		304-552-3874
Joe McCourt	Inspector Supervisor		304-380-2467
James Martin	Chief	304-926-0499 x 1654	
WV DEP	Emergency Pollution and Spills	1-800-642-3074	
Contractor's	Company	Phone	
Well Control Co's	Boots & Coots	1-800-256-9688	
	Halliburton	1-800-409-6479	
Earthwork/Equipment	Triple J Contractors	304-472-3962	
Remediation/Cleanup	Weaverton Environmental	724-746-4850	
Remediation/Cleanup	Ryan Environmental	304-842-5578	
Remediation/Cleanup	Central Environmental Services	304-863-8867	
Heavy Equipment	Kanawha Stone	304-755-8271	
Heavy Equipment/Rouster	Arvilla Pipeline	304-665-2652	
Heavy Equipment	Hoy Contracting	724-627-0272	
Cleanup Supplies	McJunkin Supply	304-472-3565	

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B(b). All Schools and Public Facilities within 1 Mile Radius:

Name:	Address:	Phone:
None-See Attachment		

C. A formal pre-spud meeting will be held prior to this well being drilled. Discussions between the drilling rig toolpusher and CHK representatives will be held weekly regarding general safety and environmental issues.

- 1. Drilling Superintendents: ~~John Melville 304-380-7127~~
Rick Harless 304-807-3600

2. Inspector: *Jim Nickolsen*

3. Personnel in attendance for pre-spud meeting:

- Drilling
- Land
- Regulatory
- Coal
- Geology
- Field

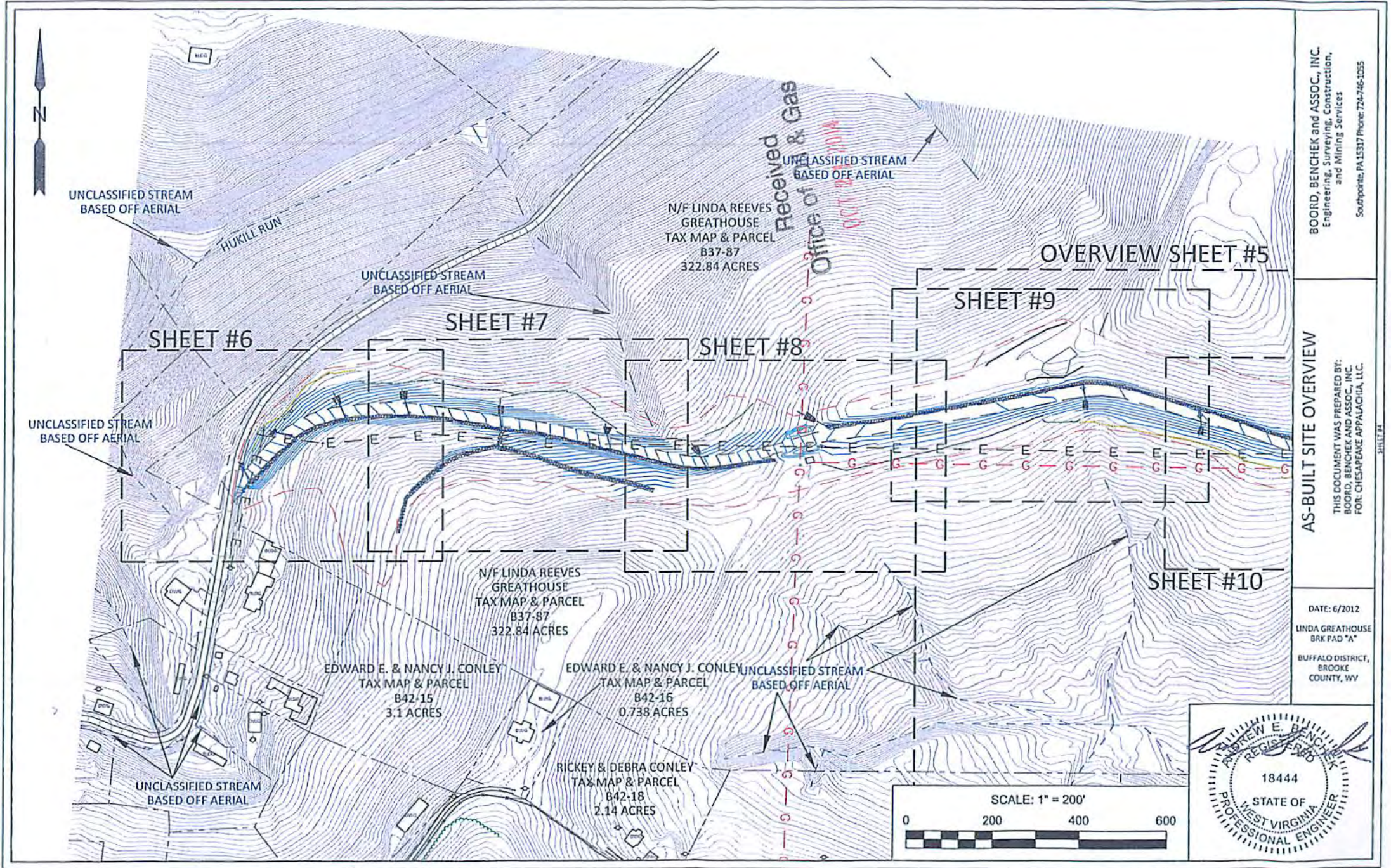
D. General safety and environmental awareness meetings will be held with the rig toolpusher weekly or more often if needed.

- 1. The highest ranking drilling contractor representative present shall keep an accurate count of all drilling personnel on the drilling location at all times. All non-drilling (i.e., non-CHK and non-drilling contractor) personnel will be required to sign the attached ACCESS CONTROL REPORT (see attachment #1). All non-essential persons will be kept off the drilling location at all times, and such access will be enforced by the highest ranking drilling contractor representative present.

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Attachment #3



BOARD, BENCHEK and ASSOC., INC.
 Engineering, Surveying, Construction,
 and Mining Services
 Southpointe, PA 15317 Phone: 724-746-1055

AS-BUILT SITE OVERVIEW
 THIS DOCUMENT WAS PREPARED BY:
 BOARD, BENCHEK and ASSOC., INC.
 FOR: CHESAPEAKE APPALACHIA, LLC

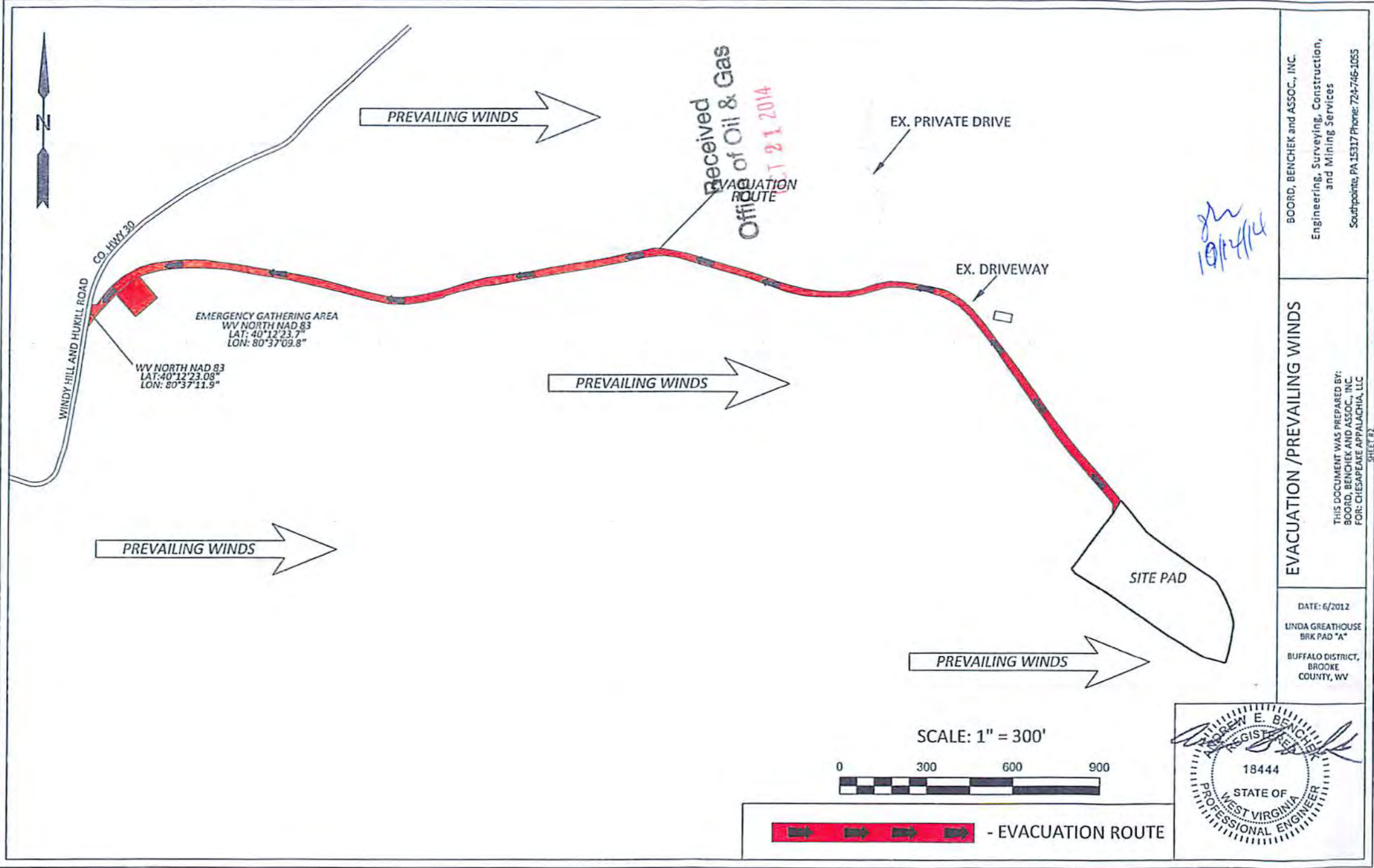
DATE: 6/2012
 LINDA GREATHOUSE
 BRK PAD "A"
 BUFFALO DISTRICT,
 BROOKE COUNTY, WV



SHEET #8

Attachment #5

00900097



BOORD, BENCHEK and ASSOC., INC.
 Engineering, Surveying, Construction,
 and Mining Services
 Southpointe, PA 15317 Phone: 724-746-1055

EVACUATION / PREVAILING WINDS

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 BOORD, BENCHEK AND ASSOC., INC.
 FOR: CHESAPEAKE APPALACHIA, LLC

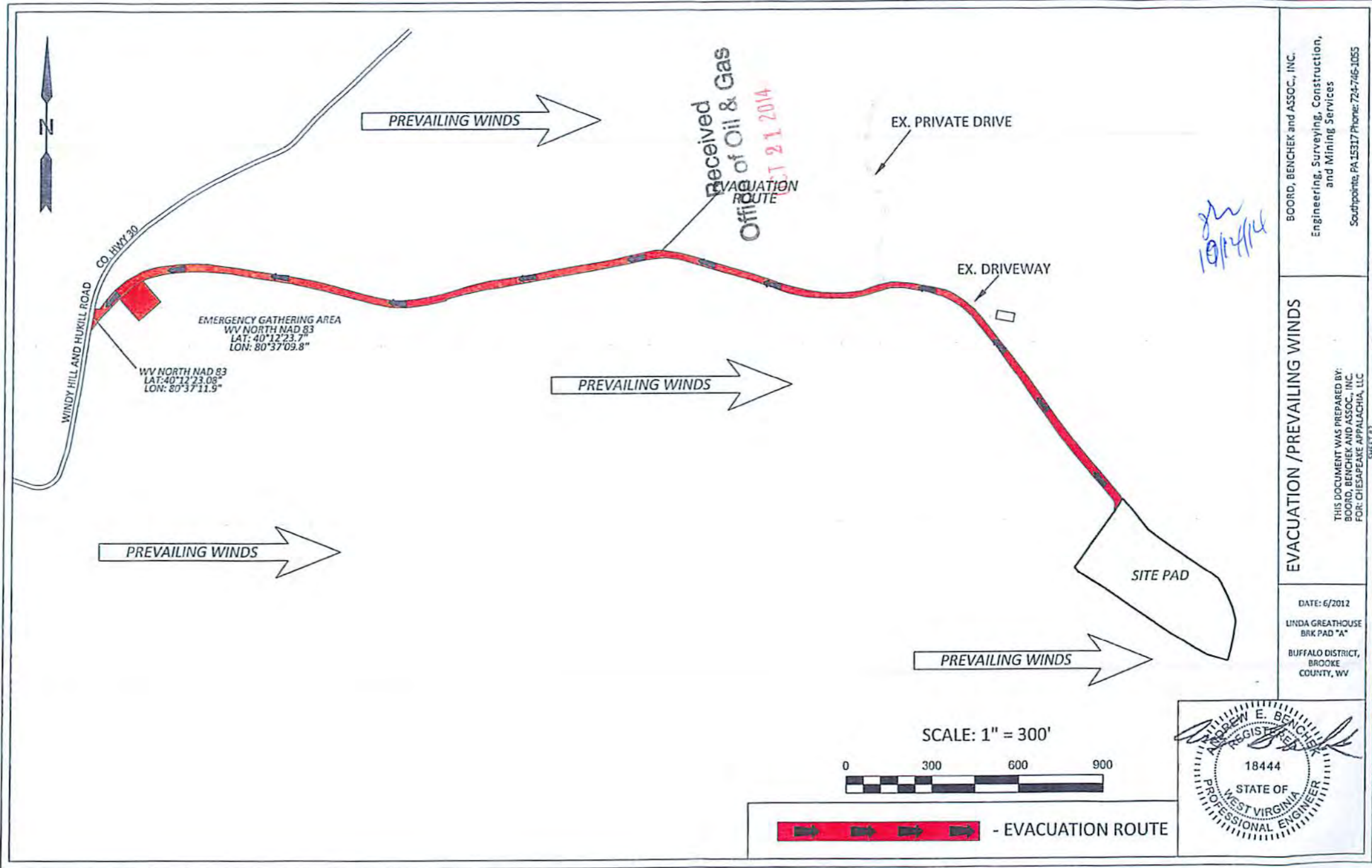
DATE: 6/2012
 LINDA GREATHOUSE
 BRK PAD "A"
 BUFFALO DISTRICT,
 BROOKE COUNTY, WV



SHEET #1

Attachment #5

00900097



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 Engineering, Surveying, Construction,
 and Mining Services
 Southpointe, PA 15317 Phone: 724-746-1055

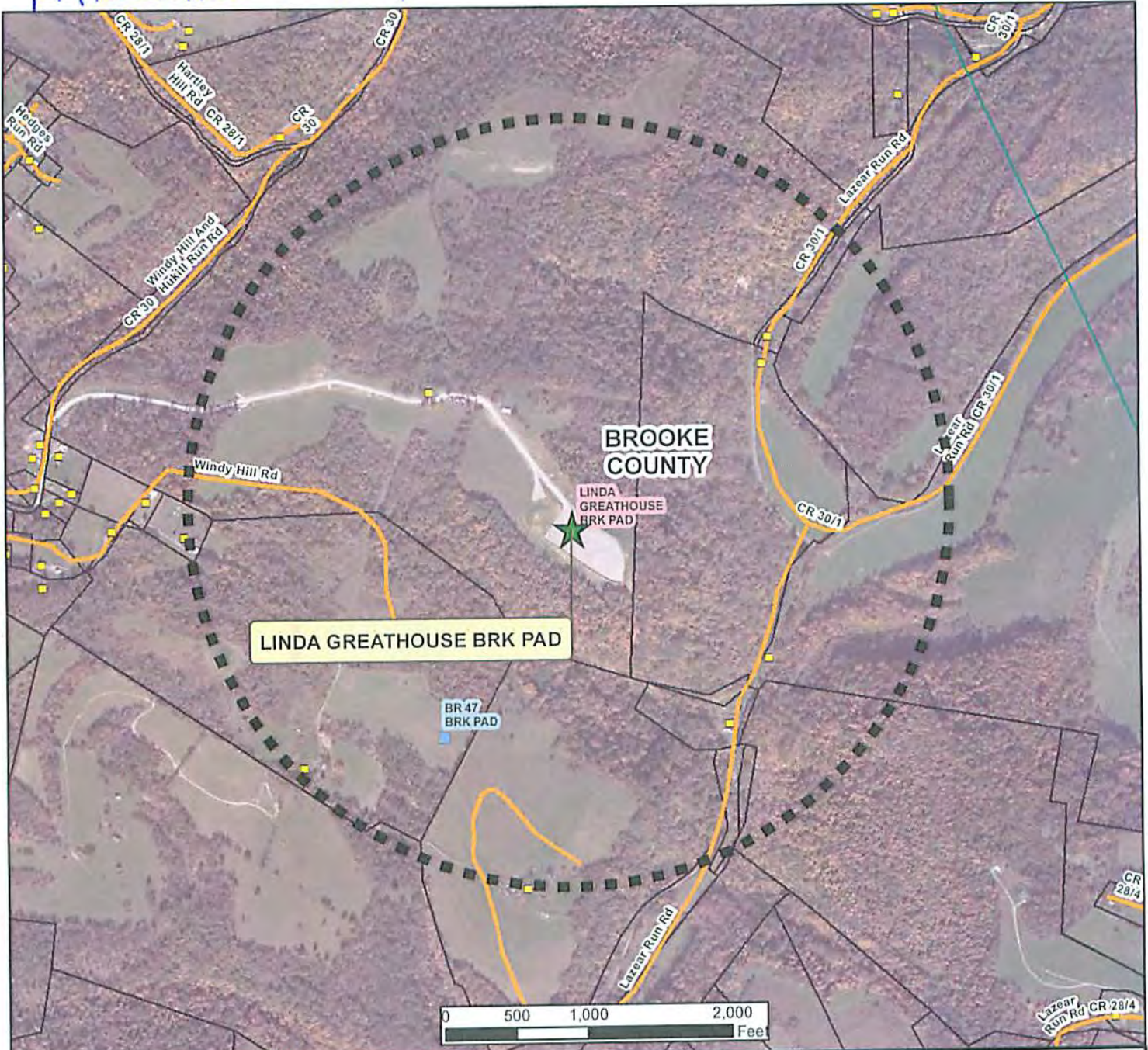
EVACUATION / PREVAILING WINDS

THIS DOCUMENT WAS PREPARED BY:
 BOORD, BENCHEK AND ASSOC., INC.
 FOR: CHESAPEAKE APPALACHIA, LLC

DATE: 6/2012
 LINDA GREATHOUSE
 BRK PAD "A"
 BUFFALO DISTRICT,
 BROOKE
 COUNTY, WV



SHEET #



<p>Legend</p> <ul style="list-style-type: none"> CHK Pad Site <ul style="list-style-type: none"> ACTIVE (Pink square) PROPOSED (Blue square) Commercial Building (Yellow square) County Line (Red outline) 1 Mile Radius (Dashed black line) 		
<p>Chesapeake ENERGY</p> <p>LINDA GREATHOUSE BRK PADS BROOKE COUNTY WEST VIRGINIA</p> <p>Pad Site Entry Coordinates: N 4450492.3 m, E 533456.0 m (UTM 17N) Access Road Coordinates: N 4450744.2 m, E 532344.4 m (UTM 17N)</p>		
Scale: 1:12,000	Coordinate System: NAD 1983 UTM Zone 17N	
Date: 9/11/2014	Author: Frank Frieri	

3. Well Work

A. Well Work and Procedures

1. -Well Work Detail: Drill and stimulate the Marcellus formation. If we should encounter a void, place a basket above and below the 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 at least 50' below but not more than 100' below freshwater and cts.
2. -All casing cemented will not be disturbed for at least 8 hours after cementing operations.
3. -Surface, Coal, and Intermediate strings will be pressure tested at a pressure 20% greater than what is expected to be exerted on each string throughout the remainder of the well operations.
4. -No oil or gas production or pressure should exist on the surface or coal protection strings.
5. -A Formation Integrity Test (FIT) will be performed immediately following the drill out of intermediate casing.
6. -Centralizers will be used in the well. However, the placement of the centralizers will be contingent on the final well log and directional data.
7. -Production casing will be pressure tested at a pressure 20% greater than what is expected to be exerted upon it during fracturing operations. Upon completion of fracturing operations the production casing will be pressure tested at a pressure 20% greater than expected shut in pressure.
8. -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.
9. See Attachment #1

B. A copy of the Site Safety Plan will be provided to the local county emergency office at least 7 days before dirt work or well work commences

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4. Chemical Inventory & MSDS

- A. MSDS- please refer to CD
- B. MSDS sheets will be available in the tool- pusher's office.
- C. Please see below:

SLB Cement Additives

	Product Name	Product Use	Chemical Name	CAS Number	% Concentration Used
Surface	D046	antifoam	Fuller's earth (attapulgite)	8031-18-3	0.2% BWOC
	D130	polyester flake - lcm	Polypropylene glycol	25322-69-4	
	S001	calcium chloride	polyethylene terephthalate	25038-59-9	0.125 lb/sk
			calcium chloride	10043-52-4	2% BWOC
	SPACER				
	D130	polyester flake - lcm	polyethylene terephthalate	25038-59-9	1 lb/bbl
Intermediate	D046	antifoam	Fuller's earth (attapulgite)	8031-18-3	0.2% BWOC
			Polypropylene glycol	25322-69-4	
	D130	polyester flake - lcm	polyethylene terephthalate	25038-59-9	0.125 lb/sk
	D044	granulated salt	sodium chloride	7647-14-5	10% BWOW
	D153	Anti-Settling Agent	chrystalline silica	14808-60-7	0.15% BWOC
		SPACER			
	D020	bentonite extender	bentonite	1302-78-9	20 lb/bbl
	D130	polyester flake - lcm	polyethylene terephthalate	25038-59-9	1 lb/bbl
Kick Off Plug	D080	cement liquid dispersant	product classified as non-hazardous		0.05 gal/sk
	D801	mid-temp retarder	product classified as non-hazardous		0.01 gal/sk
	D047	antifoam agent	polypropylene glycol	25322-69-4	0.02 gal/sk
		SPACER			
	B389	MJDPUSH* Express	Carbohydrate	proprietary	1 lb/bbl
	D206	Antifoaming Agent	Silica Organic Polymer	proprietary	0.1 gal/bbl
	D031	barite	barium sulfate	7727-43-7	310 lb/bbl
			fatty acid amine	proprietary	
			ethoxylated alcohol	proprietary	
		glycerol	56-81-5		
	B220	surfactant	2,2'-iminodiethanol	111-42-2	1 gal/bbl
Production - Lead	D167	UNIFLAC* S	aliphatic amide polymer	proprietary	0.35% BWOC
	D154	low-temperature extender	non-crystalline silica	7631-86-9	6% BWOC
	D400	EasyBLOK	boric acid	10043-35-3	0.8% BWOC
	D046	antifoam	Fuller's earth (attapulgite)	8031-18-3	
			Polypropylene glycol	25322-69-4	0.2% BWOC
	D201	basic cements enabler	chrystalline silica	14808-60-7	
			metal oxide	proprietary	0.2% BWOC
D202	low-temperature solid dispersant	sulphonated synthetic polymer	proprietary		
		formaldehyde (impurity)	50-00-0	0.3% BWOC	
			Fuller's earth (attapulgite)	8031-18-3	
	D046	antifoam	Polypropylene glycol	25322-69-4	0.2% BWOC
	D167	UNIFLAC* S	aliphatic amide polymer	proprietary	0.35% BWOC
	D065	TIC* Dispersant	Sodium Polynaphthalene Sulfonate	9008-63-3	
			Sodium Sulfate	7757-82-6	0.25% BWOC
	D201	basic cements enabler	chrystalline silica	14808-60-7	
			metal oxide	proprietary	0.2% BWOC
	D153	Anti-Settling Agent	chrystalline silica	14808-60-7	0.2% BWOC
		SPACER			
	B389	MJDPUSH* Express	Carbohydrate	proprietary	proprietary
	D206	Antifoaming Agent	Silica Organic Polymer	proprietary	proprietary
	D031	barite	barium sulfate	7727-43-7	7727-43-7
		fatty acid amine	proprietary	proprietary	
		ethoxylated alcohol	proprietary	proprietary	
		glycerol	56-81-5	56-81-5	
	B220	surfactant	2,2'-iminodiethanol	111-42-2	111-42-2

***Ref 2013-78

5. BOP and Well Control

A. The following is a list of the blow-out prevention equipment that will be utilized at during the drilling of the well:

13-3/8" Casing String
13- 5/8" Annular

9-5/8" Casing String
11" 5000 psi BOP Stack

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B. Testing of the BOP stack intermediate drilling phase will be conducted upon initial set up and the annular tested to 70% of capacity. For the Bottom and horizontal wellbore drilling phase, the BOP equipment will be tested upon initial installation – Annulars to 70% of capacity and rams to 80% of capacity. Bottom & Horizontal drilling phase also requires testing every 21 days and after every bit trip.

C. BOP equipment and assembly installation schedule:

BLOWOUT PREVENTER SCHEMATIC
CHESAPEAKE OPERATING INC

WELL :
FIELD :
RIG :
COUNTY :
OPERATION : 17 1/2" Surface Hole

STATE :
REVISION : : / /

Component Descriptions		
Size	Pressure	Description
A 13 1/4"	500 psi	Rotating Head
B		
C		
D		
E		
F		
G		
H		
DSA		
C Sec		
B Sec		
A Sec		

ID	Pressure	Description

ID	Pressure	Description

Kill Line		
ID	Pressure	Description

Choke Line		
ID	Pressure	Description

Testing Requirements		
Item	Pressure	Frequency
Rotating Head	250 / 500 psi	Once prior to DG shoe

Approved by	Date

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BLOWOUT PREVENTER SCHEMATIC CHESAPEAKE OPERATING INC

WELL :
 FIELD :
 RIG :
 COUNTY :
 OPERATION : 12 1/2" Intermediate Hole

STATE :
 REVISION : : / /

Component Descriptions

Size	Pressure	Description
A 13 1/2"	500 psi	Rotating Head
B 13 1/2"	3,000 psi	Annular
C 13 1/2"	3,000 psi	Mud Cross
D 13 1/2"	3,000 psi	Drilling Spool
E		
F		
G		
H		
DSA		
C Seo		
B Seo		
A Seo	13 1/2" 90W x 13 1/2" 3M w/ 2M Gate Valve	

Function	Description

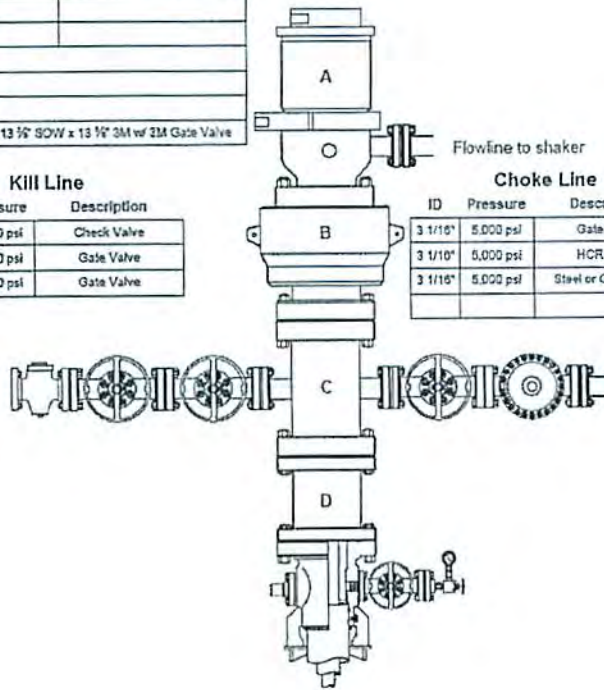
Trip Tank Required. Yes No

Kill Line

ID	Pressure	Description
2 1/16"	5,000 psi	Check Valve
2 1/16"	5,000 psi	Gate Valve
2 1/16"	5,000 psi	Gate Valve

Choke Line

ID	Pressure	Description
3 1/16"	5,000 psi	Gate Valve
3 1/16"	5,000 psi	HCR Valve
3 1/16"	5,000 psi	Steel or Coflex Line



Testing Requirements

Item	Pressure	Frequency
Rotating Head	250 / 500 psi	Once prior to OO shoe
Annular	250 / 1,500 psi	Every 21 Days
Choke Manifold	250 / 1,500 psi	Every 21 Days

• Function test on trips

Approved by _____ Date _____

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BLOWOUT PREVENTER SCHEMATIC
CHESAPEAKE OPERATING INC

WELL :
 FIELD :
 RIG :
 COUNTY :
 OPERATION : 8 1/4" or 7 1/4" Production Hole

STATE :
 REVISION : : / /

Component Descriptions

Size	Pressure	Description
A	11" 500 psi	Rotating Head
B	11" 5,000 psi	Annular
C	11" 5,000 psi	Pipe Ram
D	11" 5,000 psi	Blind Ram
E	11" 5,000 psi	Mud Cross
F		
G		
H		
DSA		
C Sec		
B Sec	13 3/4" 3M x 11" 5M w/ 6M Gate Valves	
A Sec	13 3/4" SOW x 13 3/4" 3M w/ 3M Gate Valve	

Excitation	Reference

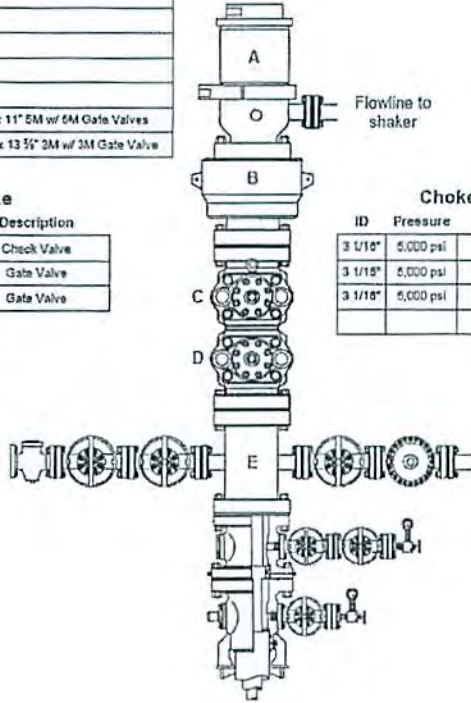
Trip Tank Required: Yes No

Kill Line

ID	Pressure	Description
2 1/16"	5,000 psi	Check Valve
2 1/16"	5,000 psi	Gate Valve
2 1/16"	5,000 psi	Gate Valve

Choke Line

ID	Pressure	Description
3 1/16"	5,000 psi	Gate Valve
3 1/16"	5,000 psi	HCR Valve
3 1/16"	5,000 psi	Steel or Colflex Line



Testing Requirements

Item	Pressure	Frequency
Rotating Head	250 / 500 psi	Once prior to DO shoe
Annular	250 / 1,500 psi	Every 21 Days
Rams	250 / 5,000 psi	Every 21 Days
Choke Manifold	250 / 5,000 psi	Every 21 Days

• Function test on trips

Approved by _____ Date _____

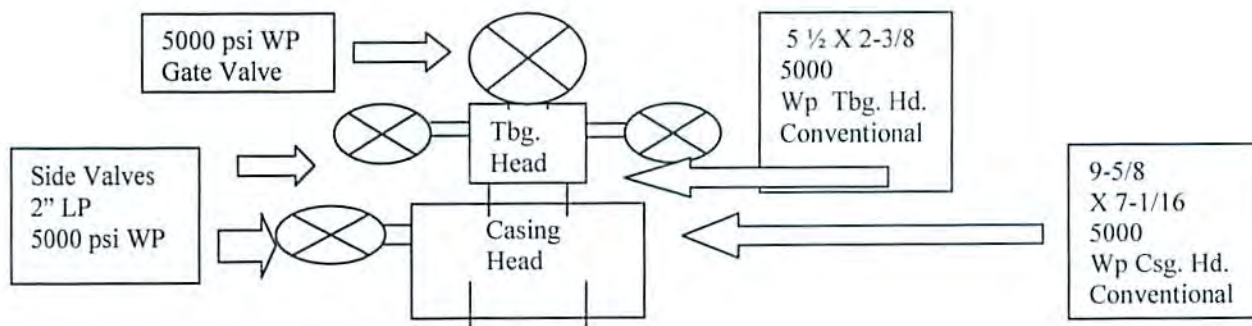
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D. The following persons that will be involved in the drilling operations are BOP certified:

Rig Toolpusher
Rig Morning Tour Driller
Rig Evening Tour Driller

E-G. See diagram below:



H. Well Killing Operations Method and Type

1. Barite and saturated brine will be available if necessary to weight up beyond the proposed compositions. Should a significant gas flow occur, historical data from the field shows that the brine is of sufficient weight to kill the well.
2. No mixing units will be required since only brine would be utilized in the unlikely event of a significant gas show.
3. Once it is confirmed that a significant gas flow has occurred, the wait and weight method will be employed. The mud weight required to kill the well will be calculated and the surface mud system density will be increased to the desired weight. A pumping schedule to circulate the kick out of the well will be calculated and followed once the surface mud system is of proper density.

6. Hydrogen Sulfide (H₂S)

1. A. Safety Equipment

1. (10) 5 – minute escape packs will be installed on the rig floor for a quick escape.
2. (1) 10 – minute escape pack will be installed on the board.
3. (4) 30 – minutes SCBA's will be on-site. Two SCBA's will be placed at the entrance to the location (Muster Point #1) and the other two placed at Muster Point #2 on the other side of the location. This will allow either equipment to be in area that is upwind.
4. (1) 4 – multichannel H₂S Monitor with sensors placed on the floor, shakers, bell nipple and other to be placed where needed.
5. (2) hand held multi-gas monitor or a box of H₂S tubes and a box of SO₂ tubes to be placed in the event a monitor has been sounded.
6. (2) Safety Area Signs
7. (1) Condition Sign
8. (2) Wind socks that are to be placed in areas that can be seen at all times on the rig and at an height with good wind flow.

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B. Training

1. Basic awareness training (either video or booklet review) will occur on-site and may require two trips in order to train all rig crew members
2. Each crew member will be given certification test to verify his competence to respond in an H2S situation.
3. Physically show members how to properly don a mask and perform a qualitative fit test (banana oil) if utilizing a tight fitting mask as an escape unit.
4. Identify and discuss the location of escape units, SCBA's and location of H2S monitors and sensors.

C. In the unlikely event that hydrogen sulfide would be present, all affected residents and agencies would be notified by telephone or in person by a Chesapeake Appalachia, LLC representative, and access would be controlled by a sign, color coded flags and a sign-in sheet. Oil and Gas Inspector, () will be called at 304-

D. In case of an emergency on the drilling site, all persons on location will exit via the access road and meet at the evacuation meeting area designated on the attached EVACUATION PLAN. The highest ranking drilling contractor representative will be responsible for comparing the persons that were present on location to those persons gathered at the designated evacuation meeting area. Any evacuation deemed necessary of residents in the surrounding area will be accomplished by telephone or door-to-door contact from a CHK representative.

E. We will establish Protection Zones while drilling that will be located at the predetermined muster points furthest upwind of the location of the H2S.

F. PPE Available

1. (10) 5 – minute escape packs will be installed on the rig floor for a quick escape.
2. (1) 10 – minute escape pack will be installed on the board.
3. (4) 30 – minutes SCBA's will be on-site. Two SCBA's will be placed at the entrance to the location (Muster Point #1) and the other two placed at Muster Point #2 on the other side of the location. This will allow either equipment to be in area that is upwind.

Detection, Warning, and Monitoring Equipment

1. (1) 4 – multichannel H2S Monitor with sensors placed on the floor, shakers, bell nipple and other to be placed where needed.
2. (2) hand held multi-gas monitor or a box of H2S tubes and a box of SO2 tubes to perform test in the event a monitor has been sounded.
3. (2) Safety Area Signs
4. (1) Condition Sign
5. (2) Wind socks that are to be placed in areas that can be seen at all times on the rig and at an height with good wind flow.

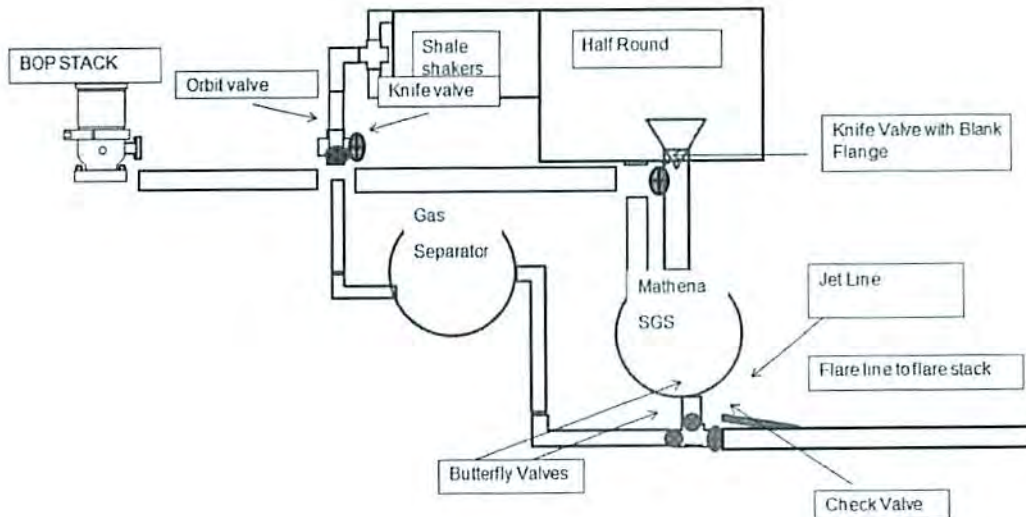
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7. Flaring

A. Well Flaring

1. No flaring is anticipated on this well and therefore no flare lines will be utilized. Based on offset well information no significant gas flows should be encountered during drilling. If a significant show is encountered the gas would be flared through the 7" flanged flowline. This flowline will be anchored to the ground using chains and deadman stakes, and will be approximately 75 feet long.
2. In the unlikely event that gas needs to be flared. The well would be shut-in, and a smudge pot would be set up as a primary ignition with a marine flare pistol used as a backup igniter.
3. All flammable material within a minimum distance of 50' from the end of the flow line will be cleared, in case a flare would be needed.
4. The fire department will be notified immediately prior to flaring.
5. The duration of flaring typically will not last more than 7 days.
6. Schematic:



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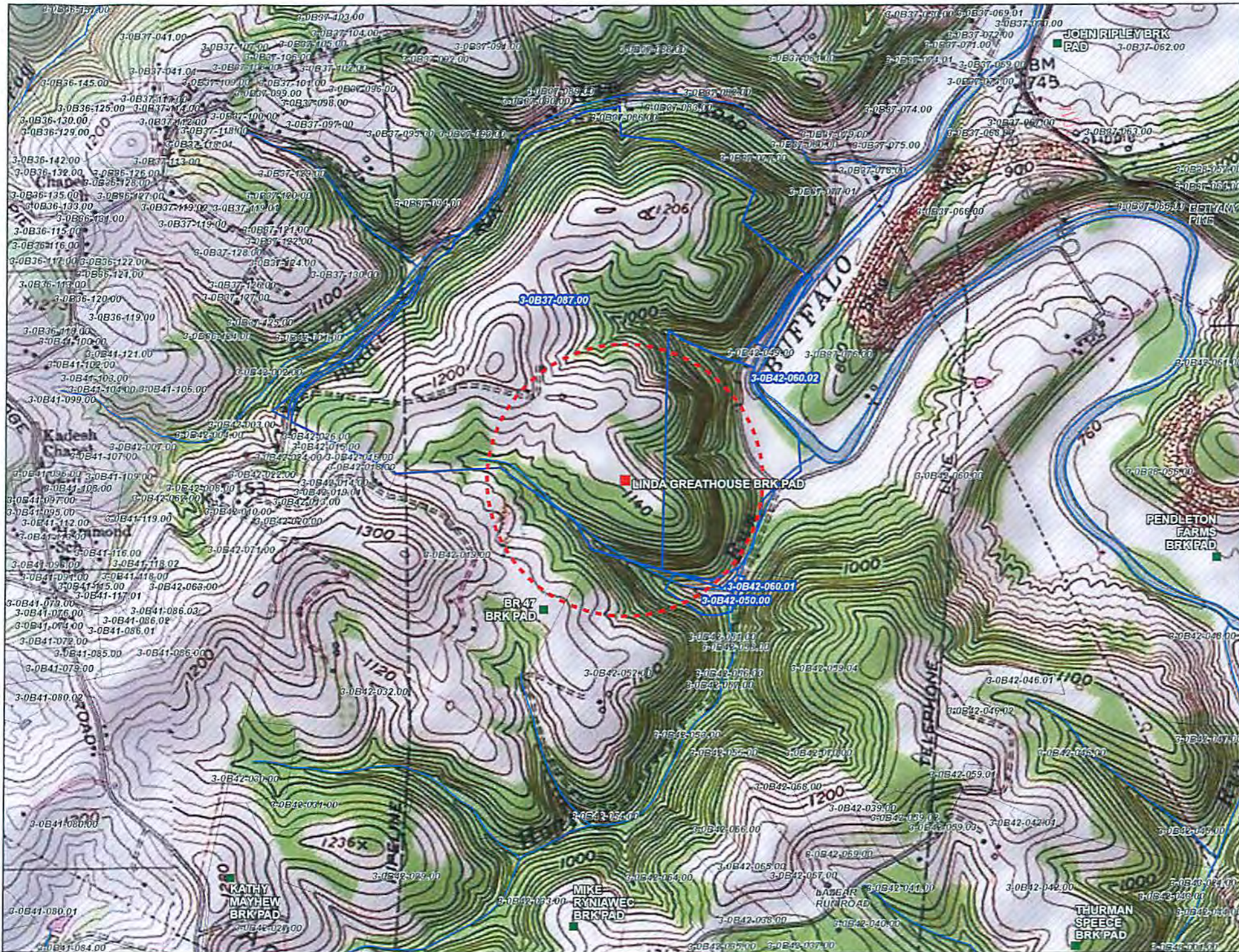
8. Collision Avoidance**A. Protocol and Safeguards**

1. Predrill – The well is planned in order to maintain a 2.0 or greater separation factor to the existing wells.
2. For all sections of the wellbore, surveys will be taken as needed to ensure well spacing gets no closer than 10'/1000' MD.
 - a. In the event that the separation breaches the 10'/1000' MD, drilling will halt and the situation will be discussed amongst the operator and all parties involved, in order to assess the risk and determine a plan going forward.

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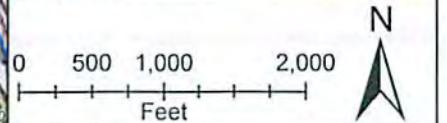
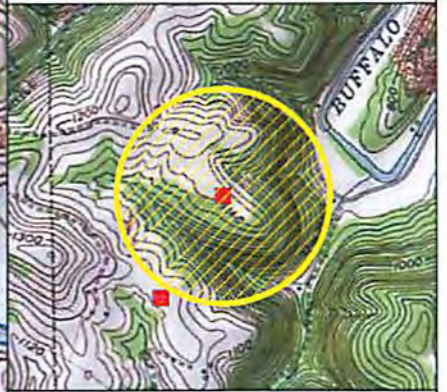
10/02/2015

00900097



- CHK Site of Interest
- Streams
- Parcels With Water Sources (1500' of Source)
- Other Parcels
- 1,500' Buffer Around Wells

Handwritten signature and date:
10/14/14

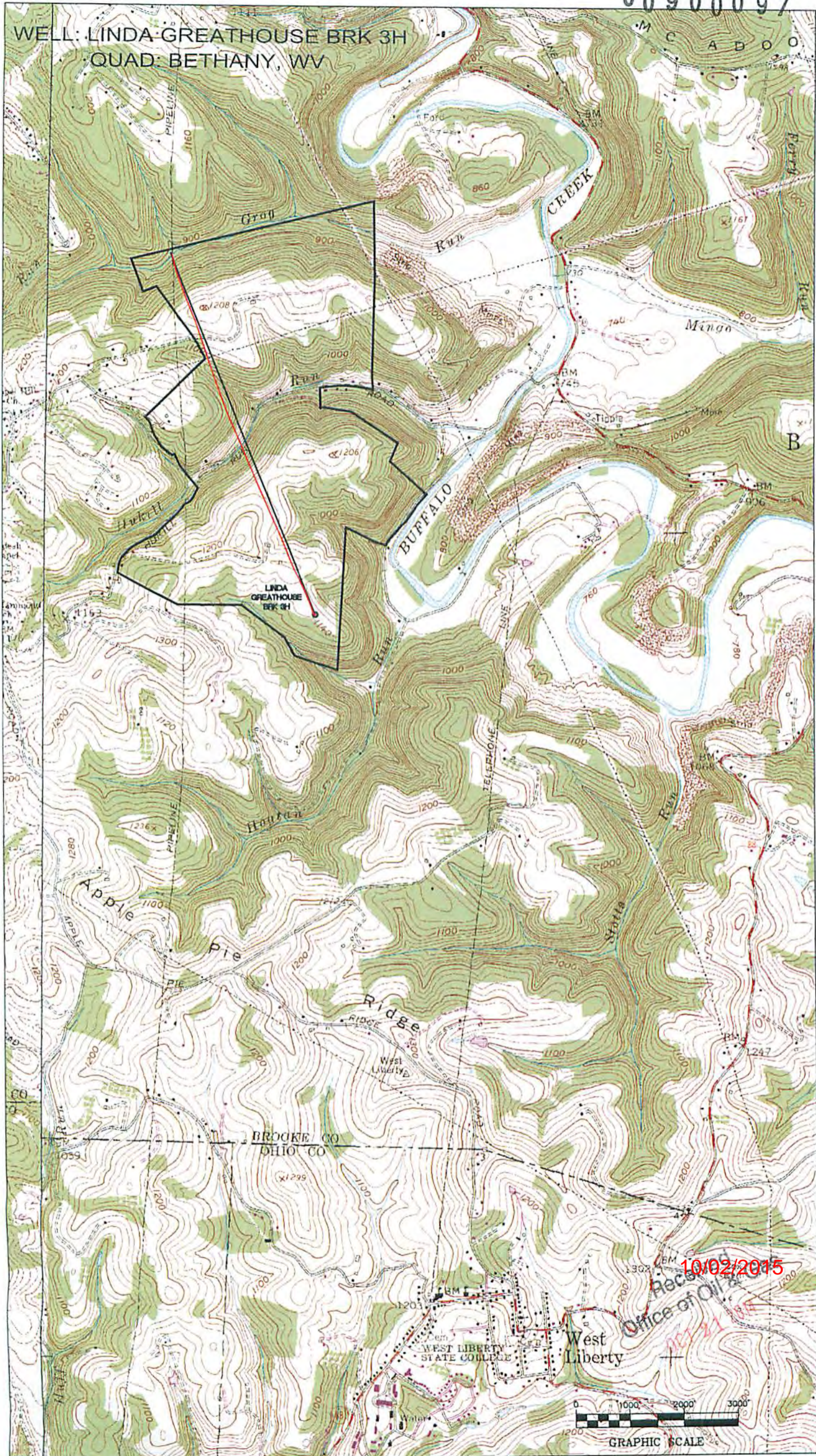


WV Water Purveyor Map
LINDA GREATHOUSE BRK PAD -
(913766)
 BROOKE COUNTY, WV
 Lat: 40.204092 / Long: -80.60719

Date: 9/12/2014
 Projection: WGS 1984 UTM Zone 17N
 Scale: 1 inch = 1,000 feet
 Author: Frank Frieri, Sr. GIS Analyst

00900097

WELL: LINDA GREATHOUSE BRK 3H
QUAD: BETHANY, WV



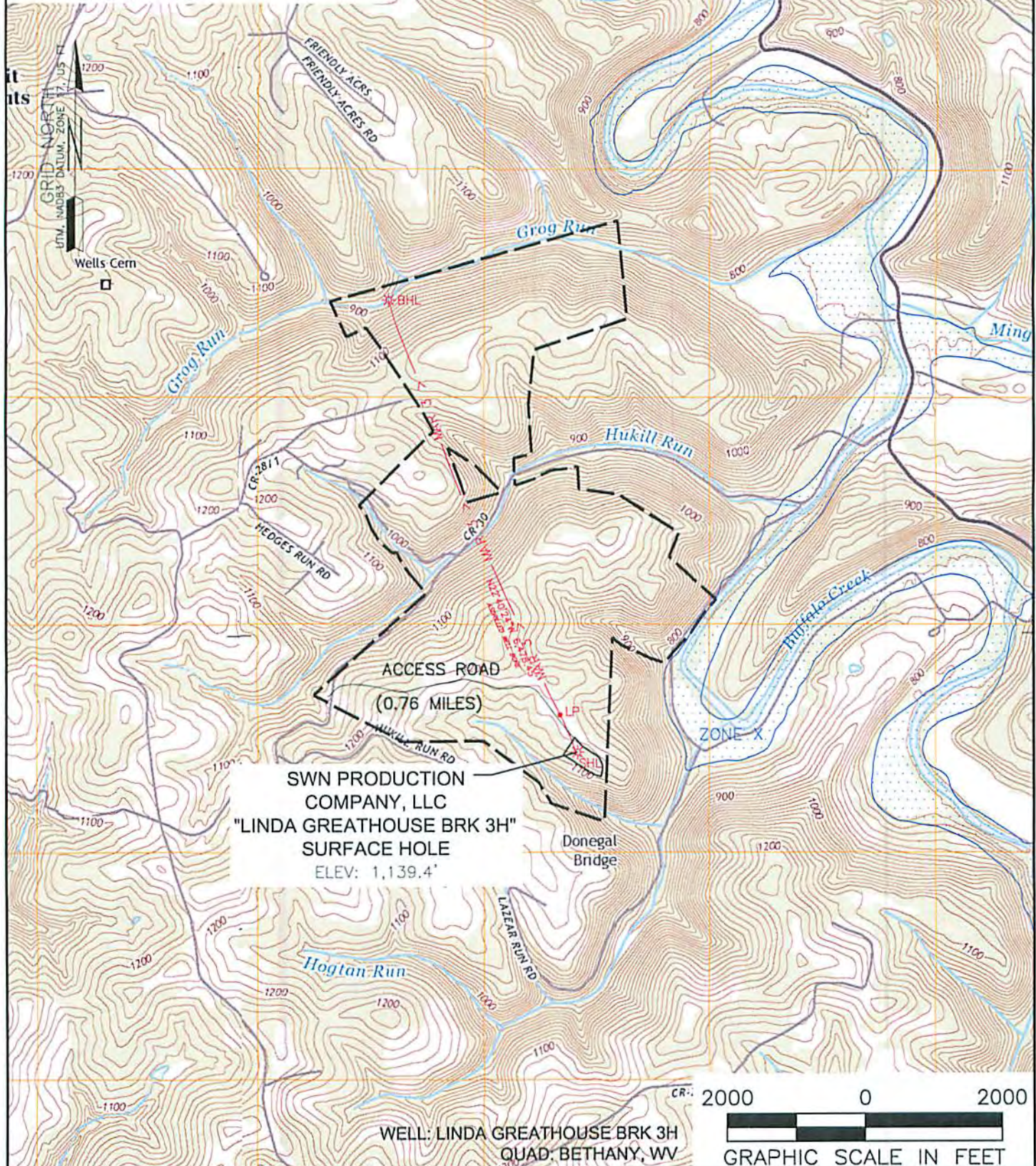
10/02/2015





RETTEW Associates, Inc.
 One Robinson Plaza, 6600 Steubenville Pike, Suite 200,
 Pittsburgh, PA 15205
 Phone (412) 446-1728 • Fax (412) 446-1733
 Engineers • Planners • Surveyors • Landscape Architects
 Environmental Consultants

ASDRILLED
 07-14-2015



NAME AND DISTANCE TO THE NEAREST STREAM: HOGTAN RUN IS LOCATED ±0.30 MILES SE OF THE CENTER OF THE DRILL PAD.		STREAM CROSSING COORDINATES (NAD 83): NO NEW CROSSINGS.		COMPANY: 	
WELL RESTRICTIONS: WELL PAD, LOD, & E & S CONTROL FEATURES TO PERENNIAL STREAM, LAKE, POND, RESERVOIR OR WETLAND: >100 FEET WELL PAD, LOD, & E & S CONTROL FEATURES TO NATURALLY PRODUCING TROUT STREAM: >300 FEET WELL PAD, LOD, & E & S CONTROL FEATURES TO GROUNDWATER INTAKE OR PUBLIC WATER SUPPLY: >1000 FEET WELL SHL TO EXISTING WATER WELL OR DEVELOPED SPRING: >250 FEET CENTER OF PAD TO OCCUPIED DWELLING STRUCTURE: >625 FEET CENTER OF PAD TO AGRICULTURAL BUILDINGS LARGER THAN 2500 SQ FT: >625 FEET		OPERATOR'S LINDA GREATHOUSE BRK		WELL #: 3H	
FEMA FLOOD INFORMATION: BY GRAPHIC PLOTTING ONLY FEMA FIRM INCORPORATED AREA OF BROOKE COUNTY, WEST VIRGINIA; MAP NUMBER 54009C0130D; EFFECTIVE DATE: 04-19-2010.		LOCATION: BUFFALO DISTRICT, BROOKE COUNTY, WEST VIRGINIA		SURFACE HOLE LOCATION: GEOGRAPHIC (NAD83): LATITUDE: 40.204165° LONGITUDE: -80.606986°	
LEGEND: ○ PROPOSED SURFACE HOLE / BOTTOM HOLE ✖ EXISTING / PRODUCING WELLHEAD ✖ ABANDONED WELL ✖ PLUGGED & ABANDONED WELL △ CUT CONDUCTOR ○ EXISTING SPRING ○ EXISTING WATER WELL — ACCESS ROAD — ACCESS ROAD TO PREV. SITE — HIGHWAY/INTERSTATE — COUNTY ROAD		BOTTOM HOLE LOCATION: GEOGRAPHIC (NAD83): LATITUDE: 40.222083° LONGITUDE: -80.616730°		REVISIONS: DATE: 07-13-2015 DRAWN BY: M. BOSSOM SCALE: 1" = 2000' DRAWING NO: 087569015 TOPOGRAPHIC MAP 3	



RETTEW Associates, Inc.
 One Robinson Plaza, 6600 Steubenville Pike, Suite 200,
 Pittsburgh, PA 15205
 Phone (412) 446-1728 · Fax (412) 446-1733
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 Environmental Consultants

NOTES ON SURVEY

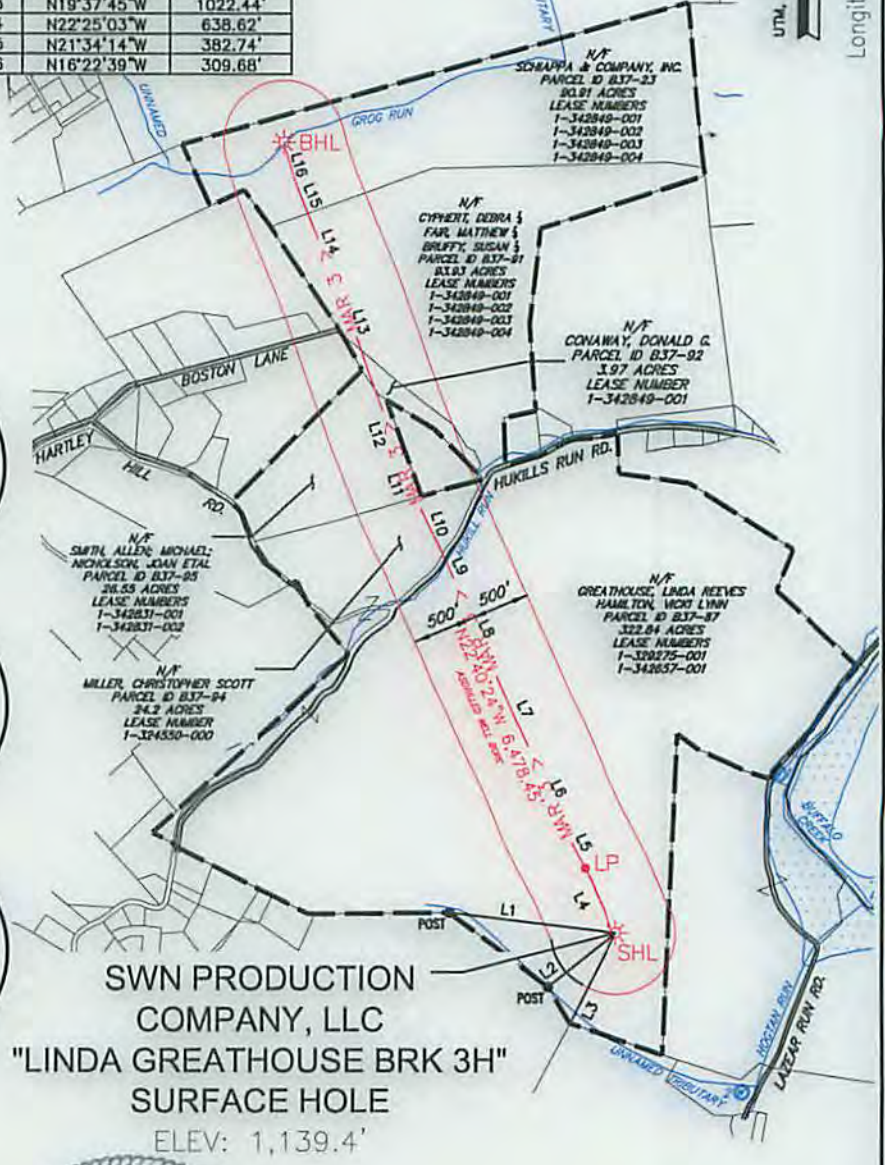
- COORDINATES SYSTEM IS UTM, NAD 83 DATUM, ZONE 17, U.S. FOOT AND WELL COORDINATES ESTABLISHED USING SURVEY GRADE GPS.
- SURFACE AND ROYALTY OWNER INFORMATION AND THEIR BOUNDARIES SHOWN HEREON WERE PLOTTED FROM DEEDS AND/OR TAX PARCEL MAPS PROVIDED BY CLIENT AND FIELD LOCATIONS.
- THIS PLAT DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARCELS SHOWN HEREON.
- NO DWELLINGS AND BUILDINGS WITHIN 625 FEET OF PROPOSED CENTER OF PAD.
- NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250 FEET OF PROPOSED WELL.
- NO PERENNIAL STREAMS, LAKES, PONDS, RESERVOIRS OR WETLANDS WITHIN 1000 FEET OF THE LIMITS OF DISTURBANCE.
- NO NATURALLY PRODUCING TROUT STREAM WITHIN 300 FEET OF LIMITS OF DISTURBANCE.
- THE HORIZONTAL LATERAL SHOWN HERE ON IS BASED ON AS-DRILLED DIRECTIONAL REPORT PROVIDED BY OTHERS.

LINE	DESCRIPTION	DISTANCE	DESCRIPTION	MONUMENT
L1	N83°05'08"W	1381'	SHL TO LANDMARK	POST
L2	S51°45'52"W	710'	SHL TO LANDMARK	POST
L3	S27°02'34"W	826'	SHL TO LANDMARK	STONE
L4	N25°09'17"W	591.65'	SHL TO LP	
L5	N27°50'44"W	340.80'		
L6	N23°36'20"W	766.57'		
L7	N24°59'38"W	767.52'		
L8	N23°53'22"W	637.63'		
L9	N23°40'48"W	383.78'		
L10	N25°47'06"W	340.78'		
L11	N23°03'46"W	255.73'		
L12	N21°12'35"W	638.57'		
L13	N19°37'45"W	1022.44'		
L14	N22°25'03"W	638.62'		
L15	N21°34'14"W	382.74'		
L16	N16°22'39"W	309.68'		

Latitude: 40°12'30"(NAD27)

GRID NORTH
 UTM, NAD83 DATUM, ZONE 17, US FT
 Longitude: 80°35'00"(NAD27)

SURFACE HOLE LOCATION (SHL):
GEOGRAPHIC (NAD83): LATITUDE: 40.204165° LONGITUDE: -80.606986°
UTM (NAD83, ZONE 17, FEET): NORTHING: 14,601,322.321' EASTING: 1,750,152.274'
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,450,491.944 EASTING: 533,447.480
"LANDING POINT" LOCATION (LPL):
GEOGRAPHIC (NAD83): LATITUDE: 40.205638° LONGITUDE: -80.607878°
UTM (NAD83, ZONE 17, FEET): NORTHING: 14,601,857.859' EASTING: 1,749,900.785'
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,450,655.177 EASTING: 533,370.826
BOTTOM HOLE LOCATION (BHL):
GEOGRAPHIC (NAD83): LATITUDE: 40.222083° LONGITUDE: -80.616730°
UTM (NAD83, ZONE 17, FEET): NORTHING: 14,607,835.642' EASTING: 1,747,403.502'
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,452,477.209 EASTING: 532,609.653



SWN PRODUCTION COMPANY, LLC
"LINDA GREATHOUSE BRK 3H"
SURFACE HOLE
 ELEV: 1,139.4'

ASDRILLED

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 REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.



P.S. *[Signature]*

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

WVDEP
 OFFICE OF OIL & GAS
 601 57TH STREET
 CHARLESTON, WV 25034

MINIMUM DEGREE OF ACCURACY: 1/200

PROVEN SURVEY SOURCE OF GRADE GPS ELEVATION: (NAVD 88, US FT)

COMPANY: **SWN** Production Company, LLC

LINDA GREATHOUSE BRK

OPERATOR'S WELL #: 3H

API WELL #: 47 09 00097

STATE COUNTY PERMIT

WELL TYPE: OIL WASTE DISPOSAL PRODUCTION DEEP GAS LIQUID INJECTION STORAGE SHALLOW

WATERSHED: UPPER OHIO SOUTH ELEVATION: 1138'

DISTRICT: BUFFALO COUNTY: BROOKE, WV QUADRANGLE: BETHANY, WV.

SURFACE OWNER: LINDA REEVES GREATHOUSE ACREAGE: 322.84±

OIL & GAS ROYALTY OWNER: LINDA REEVES GREATHOUSE ACREAGE: 760.602±

DRILL DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION PERFORATE NEW FORMATION

CONVERT PLUG & ABANDON CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY) ASDRILLED *Rework*

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: 5,820 TO 12,733 TMD

WELL OPERATOR: SWN PRODUCTION COMPANY, LLC DESIGNATED AGENT: DEE SOUTHALL

ADDRESS: P.O. BOX 1300 ADDRESS: P.O. BOX 1300

CITY: JANE LEW STATE: WV ZIP CODE: 26378 CITY: JANE LEW STATE: WV ZIP CODE: 26378

LEGEND:

- PROPOSED SURFACE HOLE / BOTTOM HOLE
- ⊙ EXISTING / PRODUCING WELLHEAD
- ⊘ ABANDONED WELL
- ⊙ PLUGGED & ABANDONED WELL
- △ CUT CONDUCTOR
- LEASE BOUNDARY
- 500' DHP BUFFER
- MAR 3 --- MARCELLUS DHP
- ABANDONED PATH

REVISIONS:

DATE: 07-13-2015

DRAWN BY: M. BOSSOM

SCALE: 1" = 1600'

DRAWING NO: 087569015

WELL LOCATION PLAT 3

00900007

WW-6A1
(5/13)

Operator's Well No. Linda Greathouse BRK 3H

INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE
Chapter 22, Article 6A, Section 5(a)(5)
IN LIEU OF FILING LEASE(S) AND OTHER CONTINUING CONTRACT(S)

Under the oath required to make the verification on page 1 of this Notice and Application, I depose and say that I am the person who signed the Notice and Application for the Applicant, and that -

- (1) the tract of land is the same tract described in this Application, partly or wholly depicted in the accompanying plat, and described in the Construction and Reclamation Plan;
- (2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
----------------------	-----------------------	-----------------------	---------	-----------

See Exhibit "A" Attached Hereto

Acknowledgement of Possible Permitting/Approval
In Addition to the Office of Oil and Gas

The permit applicant for the proposed well work addressed in this application hereby acknowledges the possibility of the need for permits and/or approvals from local, state, or federal entities in addition to the DEP, Office of Oil and Gas, including but not limited to the following:

- WV Division of Water and Waste Management
- WV Division of Natural Resources WV Division of Highways
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- County Floodplain Coordinator

The applicant further acknowledges that any Office of Oil and Gas permit in no way overrides, replaces, or nullifies the need for other permits/approvals that may be necessary and further affirms that all needed permits/approvals should be acquired from the appropriate authority before the affected activity is initiated.

Well Operator: Chesapeake Appalachia, LLC
 By: *Matt Johnson*
 Its: Matt Johnson - Landman II

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 Office of Oil & Gas
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10/02/2015

Tract #	TMP	Surface Owner	Vesting BK/PG	Mineral Deed	Lessor	Lessee	Royalty	BK/PG
1)	3-B37-87	Linda Reeves Greathouse	DB 328-297		Linda Reeves Greathouse	Chesapeake Appalachia, LLC	18.00%	11/162
					Chesapeake Appalachia LLC	SWN Production Company LLC		30/480
					Vicki Lynn Greathouse Hamilton	Chesapeake Appalachia LLC	18.00%	11/162
					Chesapeake Appalachia LLC	SWN Production Company LLC		30/480
					Kentucky Christian Univeristy, Inc.	Chesapeake Appalachia LLC	18.00%	15/270
					Chesapeake Appalachia LLC	SWN Production Company LLC		30/480
2)	3-B37-94	Christopher Scott Miller	DB 281/335		Christopher Scott Miller and Christina ✓ Ann Miller ✓	Chesapeake Appalachia, LLC.	12.50%	10/136
					Great Lakes Energy Partners	Range Resources LLC		20/733
					Range Resources LLC	Chesapeake Appalachia LLC		10/552
					Chesapeake Appalachia LLC	SWN Production Company LLC		30/480
3)	3-B37-95	Allen Lee Smith	DB 321/124		Allen Lee Smith	Chesapeake Appalachia LLC	18.00%	17/28
					Chesapeake Appalachia LLC	SWN Production Company LLC		30/480
					Patty Elizabeth Smith	Chesapeake Appalachia LLC	18.00%	17/33
					Chesapeake Appalachia LLC	SWN Production Company LLC		30/480
4)	3-B37-92	Donald G. Conaway	DB 209/23	DB 125/488	Matthew H Fair	Chesapeake Appalachia, LLC	18.00%	17/278
					Chesapeake Appalachia LLC	SWN Production Company, LLC		30/480
				DB 125/488	Susan S. Fair, fka Susan Fair Bruffy	Chesapeake Appalachia, LLC	18.00%	17/266
					Chesapeake Appalachia, LLC	SWN Production Company, LLC		30/480
				DB 125/488	Diane Courtwright	Chesapeake Appalachia, LLC	18.00%	17/272
					Chesapeake Appalachia, LLC	SWN Production Company, LLC		30/480
	DB 125/488	Debra R Cyphert and Robert Cyphert	Chesapeake Appalachia, LLC	18.00%	17/284			
		Chesapeake Appalachia, LLC	SWN Production Company, LLC		30/480			
5)	3-B37-91	Michael H. Fair et al	DB 279/513	DB 125/488	Matthew H Fair	Chesapeake Appalachia, LLC	18%	17/278
			DB 268/605		Chesapeake Appalachia LLC	SWN Production Company, LLC		30/480
				DB 125/488	Susan S. Fair, fka Susan Fair Bruffy	Chesapeake Appalachia, LLC	18%	17/266
					Chesapeake Appalachia, LLC	SWN Production Company, LLC		30/480
				DB 125/488	Diane Courtwright	Chesapeake Appalachia, LLC	18%	17/272
					Chesapeake Appalachia, LLC	SWN Production Company, LLC		30/480
	DB 125/488	Debra R Cyphert and Robert Cyphert	Chesapeake Appalachia, LLC	18%	17/284			
		Chesapeake Appalachia, LLC	SWN Production Company, LLC		30/480			

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6)	3-B37-23	Schiappa and Co.	317/630	DB 125/488	Matthew H Fair Chesapeake Appalachia LLC	Chesapeake Appalachia, LLC SWN Production Company, LLC	18%	17/278 30/480
				DB 125/488	Susan S. Fair, fka Susan Fair Bruffy Chesapeake Appalachia, LLC	Chesapeake Appalachia, LLC SWN Production Company, LLC	18%	17/266 30/480
				DB 125/488	Diane Courtwright Chesapeake Appalachia, LLC	Chesapeake Appalachia, LLC SWN Production Company, LLC	18%	17/272 30/480
				DB 125/488	Debra R Cyphert and Robert Cyphert Chesapeake Appalachia, LLC	Chesapeake Appalachia, LLC SWN Production Company, LLC	18%	17/284 30/480
ADJOINING TRACTS								
7)	3-B42-19	Rocco A. Basil, Jr.	DB 331/812					
8)	3-B42-18	Rickey Conley and Debra Conley	DB 306/86					
9)	3-B42-16	Edward J. and Nancy J. Conley	DB 209/140					
10)	3-B42-15	Edward J. and Nancy J. Conley	DB 209/140					
11)	3-B42-26	Daniel R. Gorby	DB 256/303					
12)	3-B42-3	Daniel R. Gorby	DB 317/816					
13)	3-B42-1	Samuel Merle Hall	WB 38/565					
14)	3-B37-130	Victor Charles Smith	WB 51/283, 46/538, 38/372					
15)	3-B37-129	Reva L. Guglielmotti et al	Fid 18/680					
16)	3-B37-93	Kevin Chumney	DB 334/93					
17)	3-B37-96	Wayne Allen Richmond	WB 29/73					
18)	3-B37-103	Vickie C. Loughery and Sheena R. Loughery	DB 321/849					
19)	3-B42-60.2	Jo Ellen and James Haizlett	DB 338/33					
20)	3-B42-49	Cecelia M. and Edgar S. Erdman	DB 272/154					
21)	3-B37-76	Ellen B. Sanford et all	DB 324/797, 324/693, 324/783, 324/686, 324/700					
22)	3-B37-77	Brian K. and Gina M. Haney	DB 315/796					
23)	3-B37-86	Carl R. and Sandra S. Clark	DB 236/9					
24)	3-B37-90	Jessica Ann Koren	DB 242/289					

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25)	3-B37-88	Matthew H. Fair et al	DB 279/513, 268/605
26)	3-B37-50	William E. and Hazel E. Johnston	284/642

16000-10



00900097

Matt W. Johnson
Landman

October 6, 2014

Ms. Laura Cooper
WV DEP Office of Oil & Gas
601 57th St., SE
Charleston, WV 25304

Re: Chesapeake's Proposed Linda Greathouse BRK 3H in Brooke County, West Virginia Drilling Under Windy Hill & Hukill Road

Dear Ms. Cooper:

Chesapeake Appalachia, L.L.C. ("CHK") is applying for a drilling permit for the above referenced well. The State of West Virginia has raised some concern as to CHK's right to drill under Windy Hill & Hukill Road. Please be advised that CHK has leased all mineral owners under said route as it relates to the above-referenced well and unit.

Sincerely,

A handwritten signature in blue ink that reads "Matt Johnson".

Matt Johnson
Landman
Chesapeake Appalachia, LLC

MJ/dds

Received
Office of Oil & Gas
OCT 21 2014

10/02/2015

00900097

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

Date of Notice Certification: 10/20/14

API No. 47- 009 - 00047
Operator's Well No. Linda Greathouse BRK 3H
Well Pad Name: Linda Greathouse 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: <u>WV</u>	UTM NAD 83	Easting: <u>533447.4</u>
County: <u>Brooke</u>		Northing: <u>4450491.8</u>
District: <u>Buffalo</u>	Public Road Access: <u>Windy Hill & Hukill Road</u>	
Quadrangle: <u>Bethany</u>	Generally used farm name: <u>Linda Greathouse</u>	
Watershed: <u>Upper Ohio South</u>		

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 <input type="checkbox"/> 1. NOTICE OF SEISMIC ACTIVITY or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED <input type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input checked="" type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED <input checked="" type="checkbox"/> 3. NOTICE OF INTENT TO DRILL or <input type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or <input type="checkbox"/> WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH) <input checked="" type="checkbox"/> 4. NOTICE OF PLANNED OPERATION <input checked="" type="checkbox"/> 5. PUBLIC NOTICE <input checked="" type="checkbox"/> 6. NOTICE OF APPLICATION		OOG OFFICE USE ONLY <input type="checkbox"/> RECEIVED/ NOT REQUIRED <input type="checkbox"/> RECEIVED <input checked="" type="checkbox"/> RECEIVED/ NOT REQUIRED <i>Office of Oil & Gas</i> OCT 21 2014 <input type="checkbox"/> RECEIVED <input type="checkbox"/> RECEIVED <input type="checkbox"/> RECEIVED
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Required Attachments:

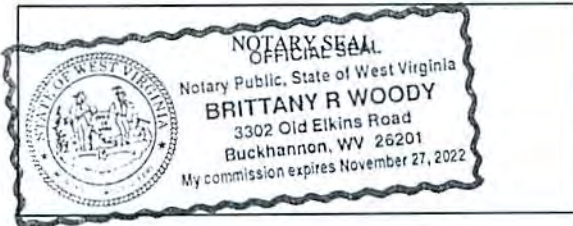
The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication 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.

10/02/2015

Certification of Notice is hereby given:

THEREFORE, I Dee Southall, 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:	<u>Chesapeake Appalachia, LLC</u>	Address:	<u>PO Box 1300</u>
By:	<u>Dee Southall</u>		<u>Jane Lew, WV 26378</u>
Its:	<u>Regulatory Analyst II</u>	Facsimile:	<u>304-471-2497</u>
Telephone:	<u>304-517-1416</u>	Email:	<u></u>



Subscribed and sworn before me this 20th day of October 2014.
Brittany R. Woody Notary Public
 My Commission Expires 11/27/22

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.

Received
Office of Oil & Gas
OCT 21 2014

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

Notice Time Requirement: notice shall be provided no later than the filing date of permit application.

Date of Notice: 10/20/14 Date Permit Application Filed: 10/20/14

Notice of:

- PERMIT FOR ANY WELL WORK
- CERTIFICATE OF APPROVAL FOR THE CONSTRUCTION OF AN IMPOUNDMENT OR PIT

Delivery method pursuant to West Virginia Code § 22-6A-10(b)

- PERSONAL SERVICE
- REGISTERED MAIL
- METHOD OF DELIVERY THAT REQUIRES A RECEIPT OR SIGNATURE CONFIRMATION

Pursuant to W. Va. Code § 22-6A-10(b) no later than the filing date of the application, the applicant for a permit for any well work or for a certificate of approval for the construction of an impoundment or pit as required by this article shall deliver, by personal service or by registered mail or by any method of delivery that requires a receipt or signature confirmation, copies of the application, the erosion and sediment control plan required by section seven of this article, and the well plat to each of the following persons: (1) The owners of record of the surface of the tract on which the well is or is proposed to be located; (2) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for roads or other land disturbance as described in the erosion and sediment control plan submitted pursuant to subsection (c), section seven of this article; (3) The coal owner, operator or lessee, in the event the tract of land on which the well proposed to be drilled is located [sic] is known to be underlain by one or more coal seams; (4) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for the placement, construction, enlargement, alteration, repair, removal or abandonment of any impoundment or pit as described in section nine of this article; (5) Any surface owner or water purveyor who is known to the applicant to have a water well, spring or water supply source located within one thousand five hundred feet of the center of the well pad which is used to provide water for consumption by humans or domestic animals; and (6) The operator of any natural gas storage field within which the proposed well work activity is to take place. (c)(1) If more than three tenants in common or other co-owners of interests described in subsection (b) of this section hold interests in the lands, the applicant may serve the documents required upon the person described in the records of the sheriff required to be maintained pursuant to section eight, article one, chapter eleven-a of this code. (2) Notwithstanding any provision of this article to the contrary, notice to a lien holder is not notice to a landowner, unless the lien holder is the landowner. W. Va. Code R. § 35-8-5.7.a requires, in part, that the operator shall also provide the Well Site Safety Plan ("WSSP") to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

Application Notice WSSP Notice E&S Plan Notice Well Plat Notice is hereby provided to:

SURFACE OWNER(s)

Name: Linda Reeves Greathouse
Address: 750 Mountainview Drive
Bethany, WV 26032

Name: Vicki Lynn Greathouse
Address: 270 Mountainview Drive
Bethany, WV 26032

SURFACE OWNER(s) (Road and/or Other Disturbance)

Name: _____
Address: _____

Name: _____
Address: _____

SURFACE OWNER(s) (Impoundments or Pits)

Name: _____
Address: _____

COAL OWNER OR LESSEE

Name: Windsor Coal Company
Address: 1000 Consol Energy Drive
Canonsburg, PA 26059

COAL OPERATOR

Name: _____
Address: _____

SURFACE OWNER OF WATER WELL AND/OR WATER PURVEYOR(s)

Name: See Attachment
Address: _____

OPERATOR OF ANY NATURAL GAS STORAGE FIELD

Name: _____
Address: _____

*Please attach additional forms if necessary

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Office of Oil & Gas
OCT 21 2014

WW-6A
(8-13)

API NO. 47- 009 -
OPERATOR WELL NO. Linda Greathouse BRK 3H
Well Pad Name: Linda Greathouse Pad

Notice is hereby given:

Pursuant to West Virginia Code § 22-6A-10(b), notice is hereby given that the undersigned well operator has applied for a permit for well work or for a certificate of approval for the construction of an impoundment or pit.

This Notice Shall Include:

Pursuant to W. Va. Code § 22-6A-10(b), this notice shall include: (1) copies of the application; (2) the erosion and sediment control plan required by section seven of this article; and (3) the well plat.

Pursuant to W. Va. Code § 22-6A-10(f), this notice shall include: (1) a statement of the time limits for filing written comments; (2) who may file written comments; (3) the name and address of the secretary for the purpose of filing the comments and obtaining additional information; and (4) a statement that the persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

Pursuant to W. Va. Code R. § 35-8-5.7.a, the operator shall provide the Well Site Safety Plan to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

Pursuant to W. Va. Code R. § 35-8-15.2.c, this notice shall: (1) contain a statement of the surface owner's and water purveyor's right to request sampling and analysis; (2) advise the surface owner and water purveyor of the rebuttable presumption for contamination or deprivation of a fresh water source or supply; advise the surface owner and water purveyor that refusal to allow the operator to conduct a pre-drilling water well test constitutes a method to rebut the presumption of liability; (3) advise the surface owner and water purveyor of his or her independent right to sample and analyze any water supply at his or her own expense; advise the surface owner and water purveyor whether or not the operator will utilize an independent laboratory to analyze any sample; and (4) advise the surface owner and or water purveyor that he or she can obtain from the Chief a list of water testing laboratories in the subject area capable of and qualified to test water supplies in accordance with standard acceptable methods.

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 Location Restrictions

Pursuant to W. Va. Code § 22-6A-12, Wells may not be drilled within two hundred fifty feet measured horizontally from any existing water well or developed spring used for human or domestic animal consumption. The center of well pads may not be located within six hundred twenty-five feet of an occupied dwelling structure, or a building two thousand five hundred square feet or larger used to house or shelter dairy cattle or poultry husbandry. This limitation is applicable to those wells, developed springs, dwellings or agricultural buildings that existed on the date a notice to the surface owner of planned entry for surveying or staking as provided in section ten of this article or a notice of intent to drill a horizontal well as provided in subsection (b), section sixteen of this article was provided, whichever occurs first, and to any dwelling under construction prior to that date. This limitation may be waived by written consent of the surface owner transmitted to the department and recorded in the real property records maintained by the clerk of the county commission for the county in which such property is located. Furthermore, the well operator may be granted a variance by the secretary from these distance restrictions upon submission of a plan which identifies the sufficient measures, facilities or practices to be employed during well site construction, drilling and operations. The variance, if granted, shall include terms and conditions the department requires to ensure the safety and protection of affected persons and property. The terms and conditions may include insurance, bonding and indemnification, as well as technical requirements. (b) No well pad may be prepared or well drilled within one hundred feet measured horizontally from any perennial stream, natural or artificial lake, pond or reservoir, or a wetland, or within three hundred feet of a naturally reproducing trout stream. No well pad may be located within one thousand feet of a surface or ground water intake of a public water supply. The distance from the public water supply as identified by the department shall be measured as follows: (1) For a surface water intake on a lake or reservoir, the distance shall be measured from the boundary of the lake or reservoir. (2) For a surface water intake on a flowing stream, the distance shall be measured from a semicircular radius extending upstream of the surface water intake. (3) For a groundwater source, the distance shall be measured from the wellhead or spring. The department may, in its discretion, waive these distance restrictions upon submission of a plan identifying sufficient measures, facilities or practices to be employed during well site construction, drilling and operations to protect the waters of the state. A waiver, if granted, shall impose any permit conditions as the secretary considers necessary. (c) Notwithstanding the foregoing provisions of this section, nothing contained in this section prevents an operator from conducting the activities permitted or authorized by a Clean Water Act Section 404 permit or other approval from the United States Army Corps of Engineers within any waters of the state or within the restricted areas referenced in this section. (d) The well location restrictions set forth in this section shall not apply to any well on a multiple well pad if at least one of the wells was permitted prior to the effective date of this article. (e) The secretary shall, by December 31, 2012, report to the Legislature on the noise, light, dust and volatile organic compounds generated by the drilling of horizontal wells as they relate to the well location restrictions regarding occupied dwelling structures pursuant to this section. Upon a finding, if any, by the secretary that the well location restrictions regarding occupied dwelling structures are inadequate or otherwise require alteration to address the items

Approved
Oil & Gas
10/2/15

examined in the study required by this subsection, the secretary shall have the authority to propose for promulgation legislative rules establishing guidelines and procedures regarding reasonable levels of noise, light, dust and volatile organic compounds relating to drilling horizontal wells, including reasonable means of mitigating such factors, if necessary.

Water Well Testing:

Pursuant to West Virginia Code § 22-6A-10(d), notification shall be made, with respect to surface landowners identified in subsection (b) or water purveyors identified in subdivision (5), subsection (b) of this section, of the opportunity for testing their water well. The operator shall provide an analysis to such surface landowner or water purveyor at their request.

Water Testing Laboratories:

Pursuant to West Virginia Code § 22-6A-10(i), persons entitled to notice pursuant to subsection (b) of this section may contact the department to ascertain the names and locations of water testing laboratories in the subject area capable and qualified to test water supplies in accordance with standard accepted methods. In compiling that list of names the department shall consult with the state Bureau for Public Health and local health departments. A surface owner and water purveyor has an independent right to sample and analyze any water supply at his or her own expense. The laboratory utilized by the operator shall be approved by the agency as being certified and capable of performing sample analyses in accordance with this section.

Rebuttable Presumption for Contamination or Deprivation of a Fresh Water Source or Supply:

W. Va. Code § 22-6A-18 requires that (b) unless rebutted by one of the defenses established in subsection (c) of this section, in any action for contamination or deprivation of a fresh water source or supply within one thousand five hundred feet of the center of the well pad for horizontal well, there is a rebuttable presumption that the drilling and the oil or gas well or either was the proximate cause of the contamination or deprivation of the fresh water source or supply. (c) In order to rebut the presumption of liability established in subsection (b) of this section, the operator must prove by a preponderance of the evidence one of the following defenses: (1) The pollution existed prior to the drilling or alteration activity as determined by a predrilling or prealteration water well test. (2) The landowner or water purveyor refused to allow the operator access to the property to conduct a predrilling or prealteration water well test. (3) The water supply is not within one thousand five hundred feet of the well. (4) The pollution occurred more than six months after completion of drilling or alteration activities. (5) The pollution occurred as the result of some cause other than the drilling or alteration activity. (d) Any operator electing to preserve its defenses under subdivision (1), subsection (c) of this section shall retain the services of an independent certified laboratory to conduct the predrilling or prealteration water well test. A copy of the results of the test shall be submitted to the department and the surface owner or water purveyor in a manner prescribed by the secretary. (e) Any operator shall replace the water supply of an owner of interest in real property who obtains all or part of that owner's supply of water for domestic, agricultural, industrial or other legitimate use from an underground or surface source with a comparable water supply where the secretary determines that the water supply has been affected by contamination, diminution or interruption proximately caused by the oil or gas operation, unless waived in writing by that owner. (f) The secretary may order the operator conducting the oil or gas operation to: (1) Provide an emergency drinking water supply within twenty-four hours; (2) Provide temporary water supply within seventy-two hours; (3) Within thirty days begin activities to establish a permanent water supply or submit a proposal to the secretary outlining the measures and timetables to be used in establishing a permanent supply. The total time in providing a permanent water supply may not exceed two years. If the operator demonstrates that providing a permanent replacement water supply cannot be completed within two years, the secretary may extend the time frame on case-by-case basis; and (4) Pay all reasonable costs incurred by the real property owner in securing a water supply. (g) A person as described in subsection (b) of this section aggrieved under the provisions of subsections (b), (e) or (f) of this section may seek relief in court... (i) Notwithstanding the denial of the operator of responsibility for the damage to the real property owner's water supply or the status of any appeal on determination of liability for the damage to the real property owner's water supply, the operator may not discontinue providing the required water service until authorized to do so by the secretary or a court of competent jurisdiction.

Written Comment:

Pursuant to West Virginia Code § 22-6A-11(a), all persons described in subsection (b), section ten of this article may file written comments with the secretary as to the location or construction of the applicant's proposed well work within thirty days after the application is filed with the secretary. All persons described in West Virginia Code § 22-6A-10(b) may file written comments as to the location or construction of the applicant's proposed well work to the Secretary at:

Chief, Office of Oil and Gas
Department of Environmental Protection
601 57th St. SE
Charleston, WV 25304
(304) 926-0450

Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water. **NOTE: YOU ARE NOT REQUIRED TO FILE ANY COMMENT.**

Received
Office of Oil & Gas
OCT 21 2014

Time Limits and Methods for Filing Comments.

The law requires these materials to be served on or before the date the operator files its Application. You have **THIRTY (30) DAYS** after the filing date to file your comments. Comments must be filed in person or received in the mail by the Chief's office by the time stated above. You may call the Chief's office to be sure of the date. Check with your postmaster to ensure adequate delivery time or to arrange special expedited handling. If you have been contacted by the well operator and you have signed a "voluntary statement of no objection" to the planned work described in these materials, then the permit may be issued at any time.

Pursuant to West Virginia Code § 22-6A-11(c)(2), Any objections of the affected coal operators and coal seam owners and lessees shall be addressed through the processes and procedures that exist under sections fifteen, seventeen and forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article. The written comments filed by the parties entitled to notice under subdivisions (1), (2), (4), (5) and (6), subsection (b), section ten of this article shall be considered by the secretary in the permit issuance process, but the parties are not entitled to participate in the processes and proceedings that exist under sections fifteen, seventeen or forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article.

Comment Requirements

Your comments must be in writing and include your name, address and telephone number, the well operator's name and well number and the approximate location of the proposed well site including district and county from the application. You may add other documents, such as sketches, maps or photographs to support your comments.

Disclaimer: All comments received will be placed on our web site <http://www.dep.wv.gov/oil-and-gas/Horizontal-Permits/Pages/default.aspx> and the applicant will automatically be forwarded an email notice that such comments have been submitted. The applicant will be expected to provide a response to comments submitted by any surface owner, water purveyor or natural gas storage operator noticed within the application.

Permit Denial or Condition

The Chief has the power to deny or condition a well work permit. Pursuant to West Virginia Code § 22-6A-8(d), the permit may not be issued or be conditioned, including conditions with respect to the location of the well and access roads prior to issuance if the director determines that:

- (1) The proposed well work will constitute a hazard to the safety of persons;
- (2) The plan for soil erosion and sediment control is not adequate or effective;
- (3) Damage would occur to publicly owned lands or resources; or
- (4) The proposed well work fails to protect fresh water sources or supplies.

A permit may also be denied under West Virginia Code § 22-6A-7(k), the secretary shall deny the issuance of a permit if the secretary determines that the applicant has committed a substantial violation of a previously issued permit for a horizontal well, including the applicable erosion and sediment control plan associated with the previously issued permit, or a substantial violation of one or more of the rules promulgated under this article, and in each instance has failed to abate or seek review of the violation within the time prescribed by the secretary pursuant to the provisions of subdivisions (1) and (2), subsection (a), section five of this article and the rules promulgated hereunder, which time may not be unreasonable.

Pursuant to West Virginia Code § 22-6A-10(g), any person entitled to submit written comments to the secretary pursuant to subdivision (a), section eleven of this article, shall also be entitled to receive from the secretary a copy of the permit as issued or a copy of the order modifying or denying the permit if the person requests receipt of them as a part of the written comments submitted concerning the permit application. Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

received
Office of Oil & Gas
10/2/2015

WW-6A
(8-13)

API NO. 00900097
OPERATOR WELL NO. Linda Greathouse BRK 3H
Well Pad Name: Linda Greathouse Pad

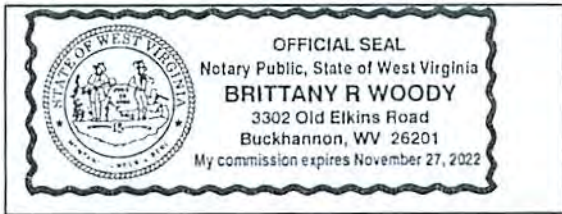
Notice is hereby given by:

Well Operator: Chesapeake Appalachia, LLC
Telephone: 304-517-1416
Email: Danielle.Southall@chk.com

Address: PO Box 1300
Jane Lew, WV 26378
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 depprivacyofficer@wv.gov.



Subscribed and sworn before me this 17th day of 2014, October.

Brittany R. Woody Notary Public

My Commission Expires 11/27/22

Received
Office of Oil & Gas
OCT 21 2014

10/02/2015

00900097

WW-6A5
(1/12)

Operator Well No. Linda Greathouse BRK 3H

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: 9/29/14 Date Permit Application Filed: 10/20/14

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

CERTIFIED MAIL RETURN RECEIPT REQUESTED HAND DELIVERY

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: Linda Reeves Greathouse
Address: 750 Mountainview Dr.
Bethany, WV 26032

Name: Vicki Lynn Greathouse
Address: 270 Mountainview Dr.
Bethany, WV 26032

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: WV UTM NAD 83 Easting: 1659289.3
County: BROCKE Northing: 622631.7
District: BUFFALO Public Road Access: CR 30 Hukill run Road
Quadrangle: BETHANY WV Generally used farm name: _____
Watershed: UPPER OHIO SOUTH

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, LLC
Telephone: 304-517-1418
Email: stave.perkins@chc.com

Address: PO Box 1300
Jane Lew, WV 26378
Facsimile: 304-471-2497

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Received
Office of Oil & Gas
SEP 29 2014

10/02/2015

WW-6A4
(1/12)

Operator Well No. Linda Grealhouse BRK 3H

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF INTENT TO DRILL

Pursuant to W. Va. Code § 22-6A-16(b), the Notice of Intent to Drill is only required if the notice requirements of W. Va. Code § 22-6A-10(a) have NOT been met or if the Notice of Intent to Drill requirement has NOT been waived in writing by the surface owner.

Notice Time Requirement: Notice shall be provided at least TEN (10) days prior to filing a permit application.
Date of Notice: 9/29/14 Date Permit Application Filed: 10/20/14

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

- HAND DELIVERY CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Pursuant to W. Va. Code § 22-6A-16(b), at least ten days prior to filing a permit application, an operator shall, by certified mail return receipt requested or hand delivery, give the surface owner notice of its intent to enter upon the surface owner's land for the purpose of drilling a horizontal well: *Provided*, That notice given pursuant to subsection (a), section ten of this article satisfies the requirements of this subsection as of the date the notice was provided to the surface owner: *Provided, however*, That the notice requirements of this subsection may be waived in writing by the surface owner. The notice, if required, shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative.

Notice is hereby provided to the SURFACE OWNER(s):

Name: Linda Reeves Grealhouse Hamilton
Address: 750 Mountainview Dr.
Bethany, WV 26032

Name: Vickie Lynn Grealhouse Hamilton
Address: 270 Mountainview Dr.
Bethany, WV 26032

Notice is hereby given:

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

State: WV UTM NAD 83 Easting: 1659299.3
County: BROOKE Northing: 622631.7
District: BUFFALO Public Road Access: CR 30 Hukill Run Road
Quadrangle: BETHANY WV Generally used farm name: _____
Watershed: UPPER OHIO SOUTH

This Notice Shall Include:

Pursuant to West Virginia Code § 22-6A-16(b), this notice shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative. 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.

Notice is hereby given by:

Well Operator: Chesapeake Appalachia, LLC
Address: PO Box 1300
Jane Lew, WV 26378
Telephone: 304-517-1416
Email: steve.perkins@chk.com
Facsimile: 304-471-2497

Authorized Representative: Danielle Southall
Address: PO Box 1300, 179 Chesapeake Drive
Jane Lew, WV 26378
Telephone: 304-517-1416
Email: Danielle.Southall@chk.com
Facsimile: 304-471-2497

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OCT 21 2014

Oil and Gas Privacy Notice:

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00900097

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
Division of Highways

1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505

Earl Ray Tomblin
Governor

Paul A. Mattox, Jr., P. E.
Secretary of Transportation/
Commissioner of Highways

October 14, 2014

James A. Martin, Chief
Office of Oil and Gas
Department of Environmental Protection
601 57th Street, SE
Charleston, WV 25304

Subject: DOH Permit for the Linda Greathouse Pad, Brooke County
Linda Greathouse BRK 3H

Dear Mr. Martin,

The West Virginia Division of Highways issued Permit #06-2011-0232 for the subject site to Chesapeake Appalachia, LLC for access to the State Road for the well site located off of Brooke County Route 30 SLS.

The operator has signed an OIL AND GAS ROAD MAINTENANCE BONDING AGREEMENT and provided the required Bond. This operator is currently in compliance with the DOH OIL AND GAS POLICY dated January 3, 2012.

Received
Office of Oil & Gas
Very Truly Yours,
OCT 21 2014

Gary K. Clayton
Regional Maintenance Engineer
Central Office Oil & Gas Coordinator

Cc: Danielle Southall
Chesapeake Appalachia, LLC
CH, OM, D-6
File

00900097

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	000084-19-7
	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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OCT 21 2014

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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
			Ammonium Sulfate	7783-20-2
Friction Reducer J609				

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OCT 21 2014

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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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OCT 21 2014

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