



west virginia department of environmental protection

Office of Oil and Gas
601 57th Street, S.E.
Charleston, WV 25304
(304) 926-0450
fax: (304) 926-0452

Austin Caperton, Cabinet Secretary
www.dep.wv.gov

Wednesday, March 28, 2018
WELL WORK PERMIT
Horizontal / Re-Work

CUNNINGHAM ENERGY, LLC
3230 PENNSYLVANIA AVENUE

CHARLESTON, WV 25302

Re: Permit approval for KING 18H
47-015-02904-00-00

This well work permit 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 any additional specific conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas Inspector.

Please be advised that form WR-35, Well Operators Report of Well Work is to be submitted to this office within 90 days of completion of 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.

Per 35 CSR 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- 0450.

James A. Martin
Chief

Operator's Well Number: KING 18H
Farm Name: TAYLOR, ROBERT
U.S. WELL NUMBER: 47-015-02904-00-00
Horizontal Re-Work
Date Issued: 3/28/2018

PERMIT CONDITIONS

West Virginia Code §22-6-11 allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

CONDITIONS

1. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code §22-6-20, which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than fifty (50) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.
2. Pursuant to 35 CSR 4-19.1.a, at the request of the surface owner all water wells or springs within 1000 feet of the proposed well that are actually utilized for human consumption, domestic animals or other general use shall be sampled and analyzed.
3. Pursuant to 35 CSR 4-19.1.c, if the operator is unable to sample and analyze any water well or spring with one thousand (1,000) feet of the permitted well location, the Office of Oil and Gas requires the operator to sample, at a minimum, one water well or spring located between one thousand (1,000) feet and two thousand (2,000) feet of the permitted well location.
4. All pits must be lined with a minimum of 20 mil thickness synthetic liner.
5. In the event of an accident or explosion causing loss of life or serious personal injury in or about the well or while working on the well, the well operator or its contractor shall give notice, stating the particulars of the accident or explosion, to the oil and gas inspector and the Chief within twenty-four (24) hours.
6. During the surface casing and cementing process, in the event cement does not return to the surface, or any other casing string that is permitted to circulate cement to the surface and does not return to the surface, the oil and gas inspector shall be notified within twenty-four (24) hours.
7. Well work activities shall not constitute a hazard to the safety of persons.
8. Operator shall provide the Office of Oil & Gas notification of the date that drilling commenced, drilling ceased, completion of any other permitted well work and completion of the well. Such notice shall be provided by sending an email to DEPOOGNotify@wv.gov within 30 days of commencement of drilling.

WW - 2B
(Rev. 8/10)

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

1) Well Operator: CUNNINGHAM ENERGY LLC 494508594 CLAY UNION ELKHURST 7.5
Operator ID County District Quadrangle

2) Operator's Well Number: KING 18H 3) Elevation: 1,291

4) Well Type: (a) Oil or Gas _____
(b) If Gas: Production / Underground Storage _____
Deep _____ / Shallow

5) Proposed Target Formation(s): BIG INJUN Proposed Target Depth: 2,180 - Actual

6) Proposed Total Depth: 4,044' - Actual Feet Formation at Proposed Total Depth: BIG INJUN

7) Approximate fresh water strata depths: 200'

8) Approximate salt water depths: 1475' - 1525'

9) Approximate coal seam depths: NO COAL LISTED ON TITLE RECEIVED Office of Oil and Gas

10) Approximate void depths,(coal, Karst, other): NONE MAR 9 2018

11) Does land contain coal seams tributary to active mine? NONE WV Department of Environmental Protection

12) Describe proposed well work and fracturing methods in detail (attach additional sheets if needed)
FRAC EXISTING WELL - WE PLAN TO RUN A 25 STAGE SAND/HYDRO FRAC UTILIZING
PLUG AND PERF WIRELINE SERVICES

13) CASING AND TUBING PROGRAM

TYPE	SPECIFICATIONS			FOOTAGE INTERVALS		CEMENT
	Size	Grade	Weight per ft	For Drilling	Left in Well	Fill -up (Cu. Ft.)
Conductor	13 3/8"	LS	43.6LBS	30'	30'	CTS
Fresh Water	9 5/8"	LS	26LBS	425'	425'	CTS
Coal						
Intermediate	7"	AT-50	20LBS	2,651'	2,651'	CTS
Production	4 1/2"	N-80	11.6LBS	4,044'	4,044'	CTS
Tubing						
Liners						

Packers: Kind: _____
Sizes: _____
Depths Set _____

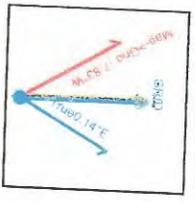
CHK# 11584
Amts 1100
Date 3/19/18

03/30/2018

15-02904 HW

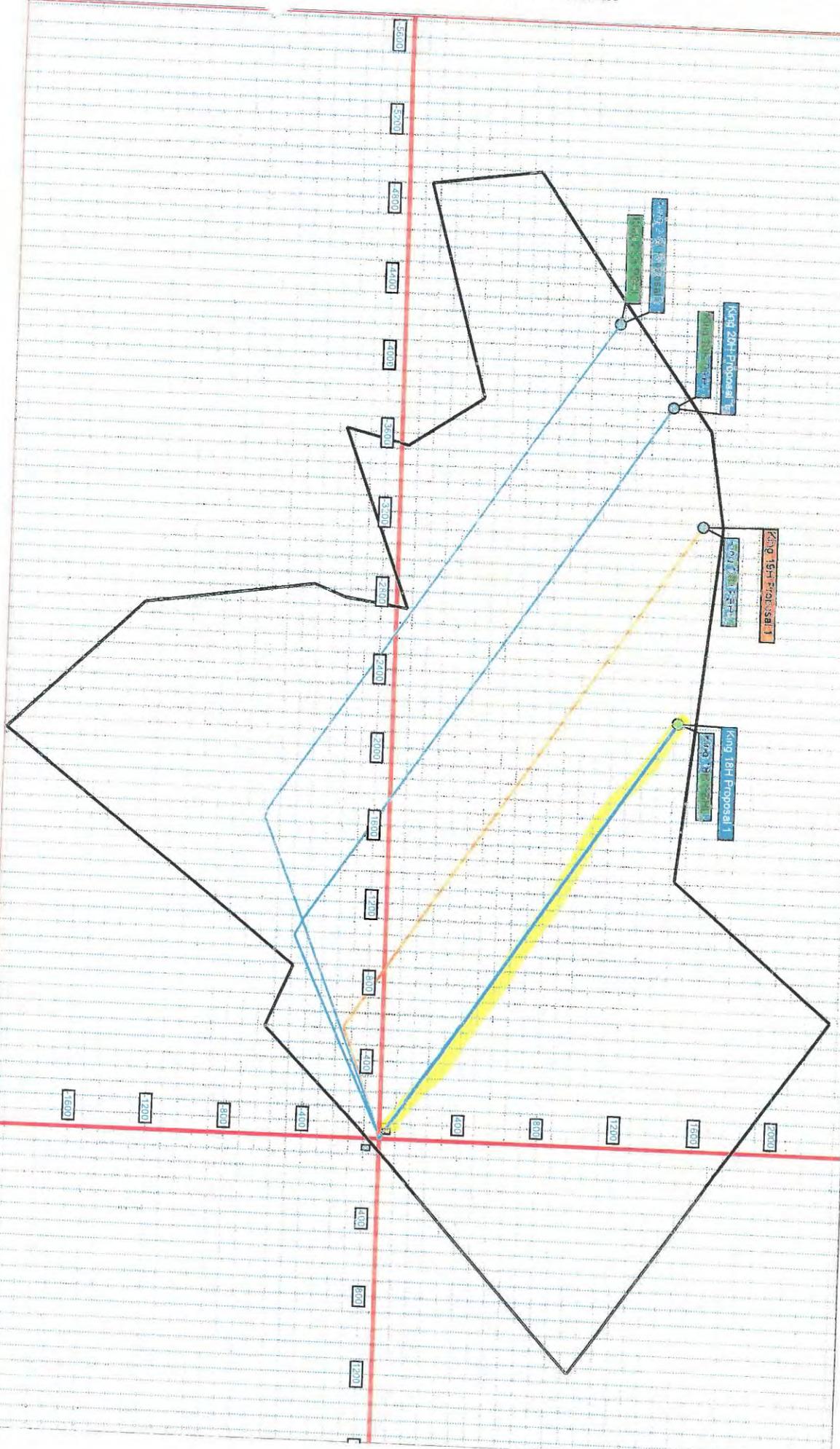


Job Number: King PAD
 Company: Cunningham Energy
 Lease/Well: King PAD
 Location: Southern Zone
 Rig Name:
 State/County: West Virginia/ Clay
 Country: USA
 API Number:



Elevation (To MSL): 1291.00 ft
 RKB: 9.00 ft
 Projection System: US State Plane 1927 (Exact solution)
 Projection Group: West Virginia South 4702
 Projection Datum: CLARKE 1866
 Magnetic Declination: -7.97
 Grid Convergence: -0.14041 W
 Date: Thursday, October 09, 2014

South - North



West - East

Performance Drilling Technology, Inc. - HawKeye™ ©2014

03/30/2018

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

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Office of Oil and Gas

MAR 9 2018

WV Department of
Environmental Protection

API 47 - 15 - 02904 County CLAY District UNION
Quad ELKHURST 7.5' Pad Name KING Field/Pool Name _____
Farm name ROBERT TAYLOR Well Number KING 18H
Operator (as registered with the OOG) CUNNINGHAM ENERGY, LLC
Address 3230 PENNSYLVANIA AVE City CHARLESTON State WV Zip 25302

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing _____ Easting _____
Landing Point of Curve Northing _____ Easting _____
Bottom Hole Northing _____ Easting _____

Elevation (ft) 1,291' GL Type of Well New Existing Type of Report Interim Final
Permit Type Deviated Horizontal Horizontal 6A Vertical Depth Type Deep Shallow
Type of Operation Convert Deepen Drill Plug Back Redrilling Rework Stimulate
Well Type Brine Disposal CBM Gas Oil Secondary Recovery Solution Mining Storage Other _____
Type of Completion Single Multiple Fluids Produced Brine Gas NGL Oil Other _____
Drilled with Cable Rotary

Drilling Media Surface hole Air Mud Fresh Water Intermediate hole Air Mud Fresh Water Brine
Production hole Air Mud Fresh Water Brine

Mud Type(s) and Additive(s)
CLAY STABILIZER; E-Z MUD

Date permit issued 11/19/2014 Date drilling commenced 9/25/2017 Date drilling ceased 10/5/2017
Date completion activities began N/A Date completion activities ceased N/A
Verbal plugging (Y/N) _____ Date permission granted _____ Granted by _____

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft 200' Open mine(s) (Y/N) depths N
Salt water depth(s) ft 1475'-1525' Void(s) encountered (Y/N) depths N
Coal depth(s) ft NONE OF RECORD Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by: _____

03/30/2018

API 47-15 - 02904 Farm name ROBERT TAYLOR Well number KING 18H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	14 1/4"	13 3/8"	30'	NEW	LS - 43.6LBS	NONE	YES
Surface	12 1/4"	9 5/8"	425'	NEW	LS- 26LBS	NONE	YES
Coal							
Intermediate 1	8 3/4"	7"	2,651'	NEW	AT50 - 20LBS	NONE	YES
Intermediate 2							
Intermediate 3							
Production	6 1/4"	4 1/2"	4,044'	NEW	N-80 - 11.6LBS	NONE	YES
Tubing							
Packer type and depth set							RECEIVED Office of Oil and Gas

Comment Details _____ MAR 9 2018

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ³ /sks)	Volume (ft ³)	WV Department of Environmental Protection	
						Cement Top (MD)	WOC (hrs)
Conductor	CLASS I	10 - RIG	-	-		GROUND LEVEL	8
Surface	CLASS I	25	15.6	1.18	29.5	SURFACE	8
Coal							
Intermediate 1	CLASS I	304	15.6	1.19	361.76	SURFACE	12
Intermediate 2							
Intermediate 3							
Production	CLASS I	250	14.3	1.27	317.50	SURFACE	12
Tubing							

Drillers TD (ft) 4,044' _____ Loggers TD (ft) 4,044' _____
 Deepest formation penetrated BIG INJUN _____ Plug back to (ft) _____
 Plug back procedure _____

Kick off depth (ft) 1,383' _____

Check all wireline logs run caliper density deviated/directional induction
 neutron resistivity gamma ray temperature sonic

Well cored Yes No Conventional Sidewall Were cuttings collected Yes No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING _____

WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS _____

WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS FRAC HAS NOT BEEN COMPLETED TO DATE

WERE TRACERS USED Yes No TYPE OF TRACER(S) USED _____

API 47- 15 - 02904 Farm name ROBERT TAYLOR Well number KING 18H

PRODUCING FORMATION(S)	DEPTHS	
NONE TO DATE - AWAITING FRAC	TVD	MD

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface _____ psi Bottom Hole _____ psi DURATION OF TEST _____ hrs

OPEN FLOW Gas _____ mcfpd Oil _____ bpd NGL _____ bpd Water _____ bpd
GAS MEASURED BY Estimated Orifice Pilot

LITHOLOGY/ FORMATION	TOP DEPTH IN FT NAME TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC)
SAND/SHALE	0	416'	0		
SAND	416'	533'			
SAND/SHALE	533'	1383'			
SALT SANDS			1383'	1754'	
SAND/SHALE			1754'	1925'	
LITTLE LIME			1925'	1935'	
PENCIL CAVE			1935'	2010'	
BIG LIME			2010'	2180'	
BIG INJUN			2180'	4410'	

Please insert additional pages as applicable.

Drilling Contractor CUNNINGHAM ENERGY, LLC
Address 3230 PENN AVENUE City CHARLESTON State WV Zip 25302

Logging Company PRECISE WELL ANALYSIS, LLC
Address 276 BF GOODRICH RD City MARIETTA State OH Zip 45750

Cementing Company C&J ENERGY SERVICES
Address 580 HAWTHORN DRIVE City NORTON State VA Zip 24273

Stimulating Company _____
Address _____ City _____ State _____ Zip _____

Please insert additional pages as applicable.

Completed by DANIELLE BOGGS Telephone 304-344-9291
Signature *Dan N. Boggs* Title OPS MGR. Date 3/8/2018

Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry

COAL OPERATOR, OWNER, OR LESSEE WAIVER

County CLAY
Operator CUNNINGHAM ENERGY, LLC Operator's Well Number KING 18H

INSTRUCTIONS TO COAL OPERATOR, OWNER, OR LESSEE

To the coal operator, owner, or lessee named on page WW2-A. You are hereby notified that any objection you wish to make or are required to make by WV Code 22-6-15, 16 or 17, must be filed with the Chief of the Office of Oil and Gas within fifteen (15) days after the receipt of this application by the Office. Mail objections to:

Chief, Office of Oil and Gas
Department of Environmental Protection
601 57th St. SE
Charleston, WV 25304
(304) 926-0499 extension 1654

WAIVER

The undersigned coal operator ____ / owner ____ / lessee ____ / of the coal under this well location has examined this proposed well location. If a mine map exists which covers the area of well location, the well location has been added to the mine map. The undersigned has no objection to the work proposed to be done at this location, provided, the well operator has complied with all applicable requirements of the West Virginia Code and the governing regulations.

FOR EXECUTION BY A NATURAL PERSON

FOR EXECUTION BY A CORPORATION, ETC.

	Date		Company Name	
Signature			By	
			Its	Date
			Signature	Date

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MAR 9 2018

WV Department of
Environmental Protection

03/30/2018

WW-2A
(Rev. 6-14)

1.) Date: MARCH 8, 2018
2.) Operator's Well Number KING 18H
State County Permit
3.) API Well No.: 47- 15 - 02904

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

4) Surface Owner(s) to be served:	5) (a) Coal Operator
(a) Name <u>ROBERT TAYLOR</u>	Name _____
Address <u>1967 BOMONT RD.</u>	Address _____
<u>BOMONT, WV 25030</u>	_____
(b) Name _____	(b) Coal Owner(s) with Declaration
Address _____	Name _____
_____	Address _____
(c) Name _____	Name _____
Address _____	Address _____
6) Inspector <u>JEREMY JAMES</u>	(c) Coal Lessee with Declaration
Address <u>P.O. BOX 36</u>	Name _____
<u>CLENDENIN, WV 25045</u>	Address _____
Telephone <u>304-951-2596</u>	_____

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WV Department of
Environmental Protection

TO THE PERSONS NAMED ABOVE TAKE NOTICE THAT:

OR Included is the lease or leases or other continuing contract or contracts by which I hold the right to extract oil and gas

X Included is the information required by Chapter 22, Article 6, Section 8(d) of the Code of West Virginia (see page 2)

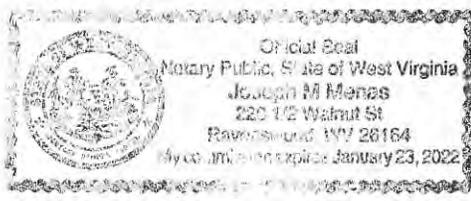
I certify that as required under Chapter 22-6 of the West Virginia Code I have served copies of this notice and application, a location plat, and accompanying documents pages 1 through ___ on the above named parties by:

- Personal Service (Affidavit attached)
- Certified Mail (Postmarked postal receipt attached)
- Publication (Notice of Publication attached)

I have read and understand Chapter 22-6 and 35 CSR 4, and I agree to the terms and conditions of any permit issued under this application.

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, 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 CUNNINGHAM ENERGY, LLC
 By: RYAN E.M. CUNNINGHAM
 Its: PRESIDENT
 Address: 3230 PENN. AVE.
CHARLESTON, WV 25302
 Telephone: 304-344-9291
 Email: dani.bays@cunninghamenergy.com

Subscribed and sworn before me this 8th day of MARCH, 2018
Joseph Menas Notary Public

My Commission Expires January 23, 2022

Oil and Gas Privacy Notice

The Office of Oil and Gas processes your personal information, such as name, address and phone number, as a 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 of your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov

WW-2A Surface Waiver
(4/16)

SURFACE OWNER WAIVER

County 15 - CLAY

Operator
Operator well number

Cunningham Energy
2048 47-1502904
KING 18H

INSTRUCTIONS TO SURFACE OWNERS NAMED ON PAGE WW2-A

The well operator named on page WW2A is applying for a permit from the State to do oil or gas well work. (Note: If the surface tract is owned by more than three persons, then these materials were served on you because your name appeared on the Sheriff's tax ticket on the land or because you actually occupy the surface tract. In either case, you may be the only owner who will actually receive these materials.) See Chapter 22 of the West Virginia Code. Well work permits are valid for 24 months. If you do not own any interest in the surface tract, please forward these materials to the true owner immediately if you know who it is. Also, please notify the well operator and the Office of Oil and Gas.

NOTE: YOU ARE NOT REQUIRED TO FILE ANY COMMENT.

WHERE TO FILE COMMENTS AND OBTAIN ADDITIONAL INFORMATION:

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

Time Limits and methods for filing comments. The law requires these materials to be served on or before the date the operator files his Application. You have **FIFTEEN (15) 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.

Comments must be in writing. Your comments must 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.

The Chief has the power to deny or condition a well work permit based on comments on the following grounds:

- 1) The proposed well work will constitute a hazard to the safety of persons.
- 2) The soil erosion and sediment control plan is not adequate or effective;
- 3) Damage would occur to publicly owned lands or resources;
- 4) The proposed well work fails to protect fresh water sources or supplies;
- 5) The applicant has committed a substantial violation of a previous permit or a substantial violation of one or more of the rules promulgated under Chapter 22, and has failed to abate or seek review of the violation..."

If you want a copy of the permit as it is issued or a copy of the order denying the permit, you should request a copy from the Chief.

List of Water Testing Laboratories. The Office maintains a list of water testing laboratories which you can hire to test your water to establish water quality prior to and after drilling. Contact the Chief to obtain a copy.

VOLUNTARY STATEMENT OF NO OBJECTION

I hereby state that I have read the instructions to surface owners and that I have received copies of a Notice and Application for a Well Work Permit on Form WW2-A, and attachments consisting of pages 1 through ___ including a work order on Form WW2-B, a survey plat, WW-9, and a soil and erosion plan, all for proposed well work on my surface land as described therein.

I further state that I have no objection to the planned work described in these materials, and I have no objection to a permit being issued on those materials.

FOR EXECUTION BY A NATURAL PERSON

FOR EXECUTION BY A CORPORATION, ETC.

Signature _____ Date 03/08/201
02905

Print Name

Company Name _____
By _____
Its _____

RECEIVED
Office of
MAR 9 2018
WV Department of
Environmental Protection
Date

Signature

Date

03/30/2018

**INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE
Chapter 22, Article 6, Section 8(d)
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:

Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
CUNNINGHAM ENERGY, LLC	CUNNINGHAM ENERGY, LLC	1/8	210/58

**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

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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:
By: Its:


CUNNINGHAM ENERGY, LLC
PRESIDENT

WW-2B1
(5-12)

Well No. KING 18H

West Virginia Department of Environmental Protection
Office of Oil and Gas

NOTICE TO SURFACE OWNERS

The well operator named below is preparing to file for a permit from the state to drill a new well. Before a well work permit can be filed with the Chief of the Office of Oil and Gas, the well operator is required to have given notice of the right to request water well or spring analytical testing. This notice shall be given to the owners or occupants of land which have a water well or spring being utilized for human consumption, domestic animals, or other general use and which is located within 1000 feet of the proposed well site.

With this form, the operator is giving you notice of your right to request analytical testing. The operator is required to sample and analyze the water wells or springs of all owners or occupants who request it. Therefore, if you wish to have your water well or spring tested, contact the operator named below.

All sampling shall be completed prior to drilling. Within thirty (30) days of the receipt of such sample analyses the operator shall submit the results to the Chief of the Office of Oil and Gas and to the owners or occupants who may have requested them.

Be advised, you have the right to sample and analyze any water supply at your own expense.

Listed below is the laboratory chosen by operator to perform analysis, and contactor chosen to collect sample.

Certified Laboratory Name STURM ENVIRONMENTAL
Sampling Contractor HUPP SURVEYING

Well Operator CUNNINGHAM ENERGY, LLC
Address 3230 PENN. AVE.
CHARLESTON, WV 25302
Telephone 304-344-9291

FOR OPERATOR'S USE ONLY: Below, or on an attached page, list those persons which were given this notice. Place an asterisk beside the one(s) that contacted you and requested sampling and analyses. If there were no requests made, indicate by underling which one you have selected to sample and analyze. If there are no water wells or springs within 1000 feet of the proposed site, the Chief may require the operator to test wells up to 2000 feet from the proposed site.

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03/30/2018

HUPP Surveying & Mapping
P.O. BOX 647
GRANTSVILLE, WV 26147
(304) 354-7035 hupp@frontiernet.net FAX: (304) 354-6548

June 2, 2014

RE: Water Samples for King 18H

There appears to be one (1) potable water sources within 1,500' of King 18H, therefore tests should be offered and samples taken as required.

1. Robert Wayne Taylor
1967 Bomont Rd.
Bomont, WV 25030
Tax Map 17 Parcels 46 & 47

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WV Department of
Environmental Protection

03/30/2018

WW-9
(5/16)

API Number 47 - 015 02904
Operator's Well No. KING 18H

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS
FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name CUNNINGHAM ENERGY, LLC OP Code 494508594

Watershed (HUC 10) TRIBUTARY OF WADE FORK Quadrangle ELKHURST 7.5'

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: N/A - PITS EXISTING FOR THIS PAD ARE CLOSED.

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

Proposed Disposal Method For Treated Pit Wastes:

- Land Application (if selected provide a completed form WW-9-GPP)
- Underground Injection (UIC Permit Number _____)
- Reuse (at API Number _____)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain NO LAND APPLICATION)

ANY WELL EFFLUENT MUST BE DISPOSED OFF SITE, PROPERLY.

Will closed loop system be used? If so, describe: STEEL PITS WILL BE UTILIZED FOR FRAC PURPOSES

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc. WELL PREV. DRILLED

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

Additives to be used in drilling medium? N/A

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. N/A

-If left in pit and plan to solidify what medium will be used? (cement, lime, sawdust) _____

-Landfill or offsite name/permit number? _____

Permittee shall provide written notice to the Office of Oil and Gas of any load of drill cuttings or associated waste rejected at any West Virginia solid waste facility. The notice shall be provided within 24 hours of rejection and the permittee shall also disclose where it was properly disposed.

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on April 1, 2016, 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) RYAN E. M. CUNNINGHAM
Company Official Title PRESIDENT

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Office of Oil and Gas
MAR 9 2018

Subscribed and sworn before me this 8TH day of MARCH, 2018

Joseph Menas
My commission expires January 23, 2022

Notary Public
Official Seal
Notary Public, State of West Virginia
Joseph M Menas
222 1/2 Walnut St
Martinsburg, WV 26154
Commission Expires January 23, 2022

03/30/2018

Proposed Revegetation Treatment: Acres Disturbed 2.75 Prevegetation pH _____

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer type 10-20-20 OR EQUIVALENT

Fertilizer amount 1/3 TON lbs/acre

Mulch HAY - 2 Tons/acre

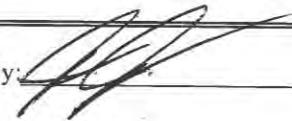
Seed Mixtures

Temporary		Permanent	
Seed Type	lbs/acre	Seed Type	lbs/acre
KY 31	40	ORCHID GRASS	15
ALSIKE CLOVER	5	ALSIKE CLOVER	5
ANNUAL RYE	15		

Attach:

Maps(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided). If water from the pit will be land applied, provide water volume, include dimensions (L, W, D) of the pit, and dimensions (L, W), and area in acres, of the land application area.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: 

Comments: _____

Title: inspector OOG Date: 03/08/2018

Field Reviewed? () Yes () No

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

Operator Name: CUNNINGHAM ENERGY, LLC

Watershed (HUC 10): TRIBUTARY OF PORTER CREEK, TRIBUTARY OF WADE FORK OF LITTLE SYCAMORE, IN THE ELK WATERSHED Quad: ELKHURST 7.5

Farm Name: ROBERT TAYLOR

1. List the procedures used for the treatment and discharge of fluids. Include a list of all operations that could contaminate the groundwater.

There will be no pit utilized on this permit. Steel tanks will be utilized.

NO LAND APPLICATION OF FLUIDS. *gwm*

2. Describe procedures and equipment used to protect groundwater quality from the list of potential contaminant sources above.

Steel tanks will be utilized for the proposed well work and will be monitored during the entire process.

3. List the closest water body, distance to closest water body, and distance from closest Well Head Protection Area to the discharge area.

The pad for this well is positioned upon a ridgetop area near the topographic drainage divide, at an approximate equidistant 1000 feet from the headwater area of an unnamed tributary of Porter Creek to the Northwest.

4. Summarize all activities at your facility that are already regulated for groundwater protection.

Well drilling, associated casing installation and cementing, well stimulation, and other typical activities.

5. Discuss any existing groundwater quality data for your facility or an adjacent property.

No existing groundwater quality data is known to be currently available for this site.

6. Provide a statement that no waste material will be used for deicing or fill material on the property.

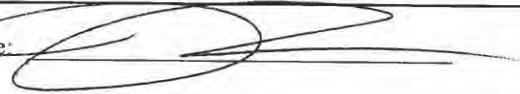
No waste material originating from this well wite will be used for either deicing purposes or as fill material upon the property.

7. Describe the groundwater protection instruction and training to be provided to the employees. Job procedures shall provide direction on how to prevent groundwater contamination.

The groundwater protection instruction and training for employees will include required reading of this GPP. The GPP will also be discussed in employee meetings and new employees will be required to review the GPP.

8. Provide provisions and frequency for inspections of all GPP elements and equipment.

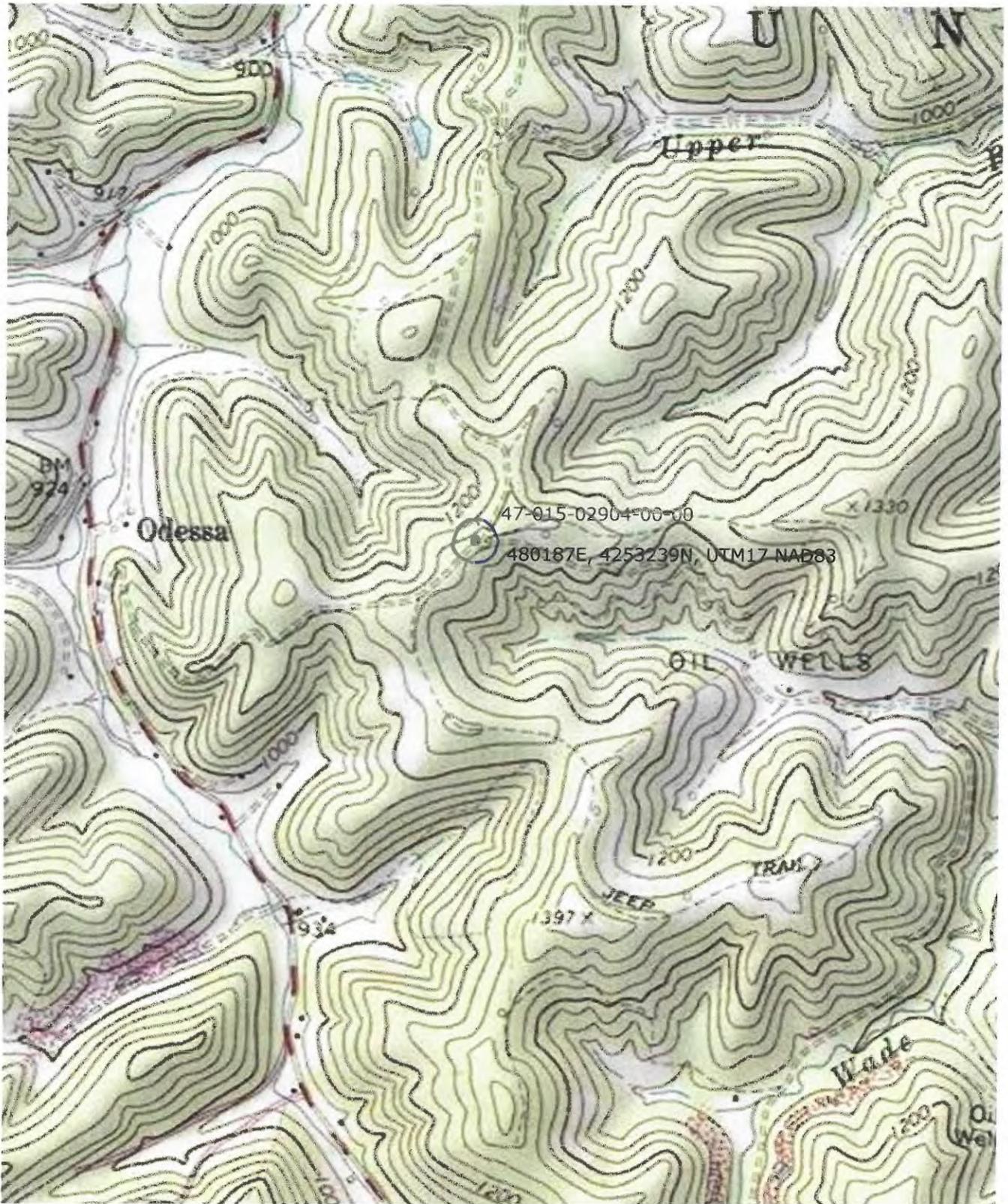
The well operator will perform quarterly self-inspections of respsective equipment and all GPP elements.

Signature: 

Date: 03/08/2018

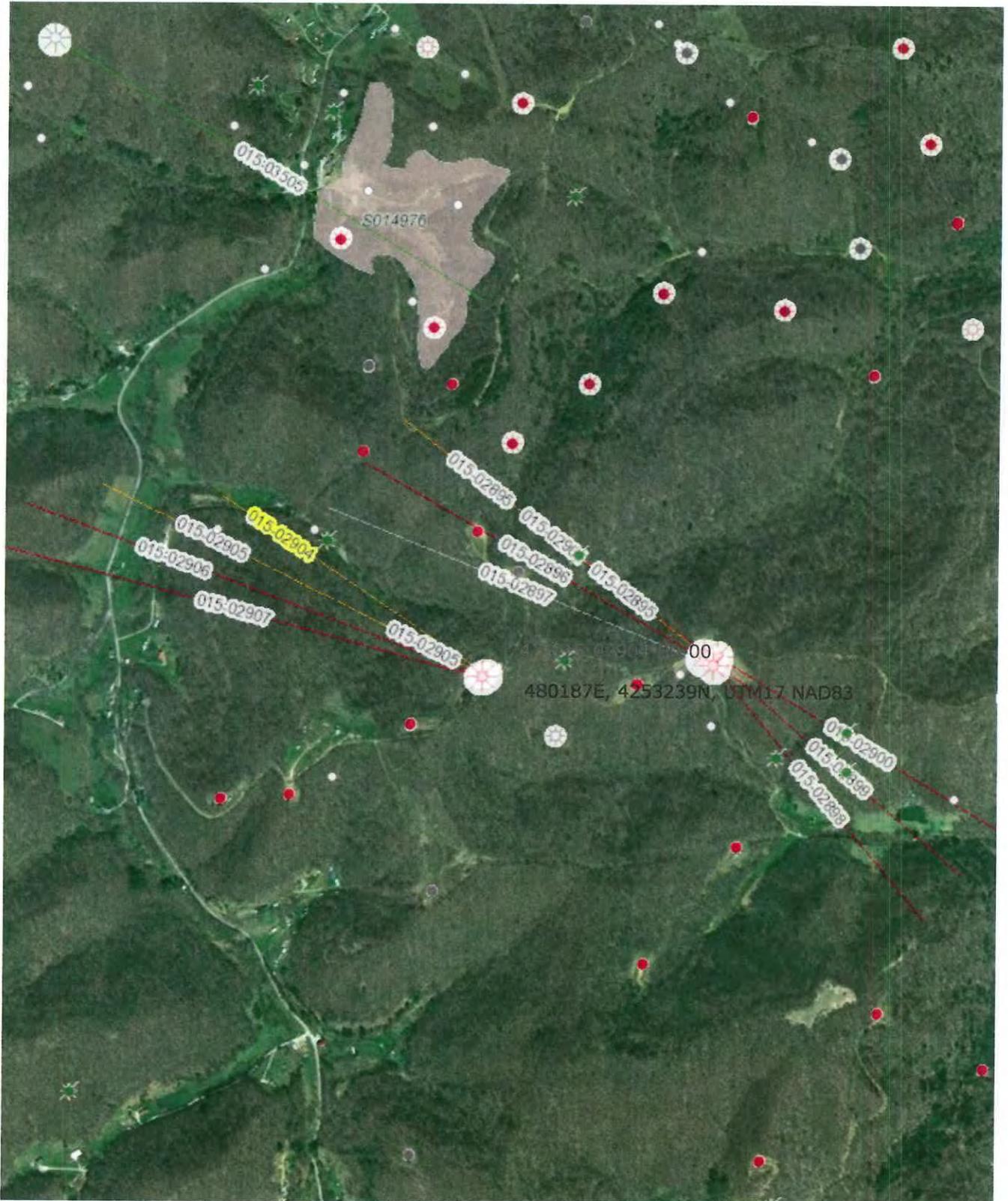
RECEIVED
Office of Oil and Gas
MAR 9 2018
WV Department of
Environmental Protection

03/30/2018



<http://deparcgis1/oogis/index.html?x=480187&y=4253239&datum=NAD83&pntlabel=4...> 3/26/2018

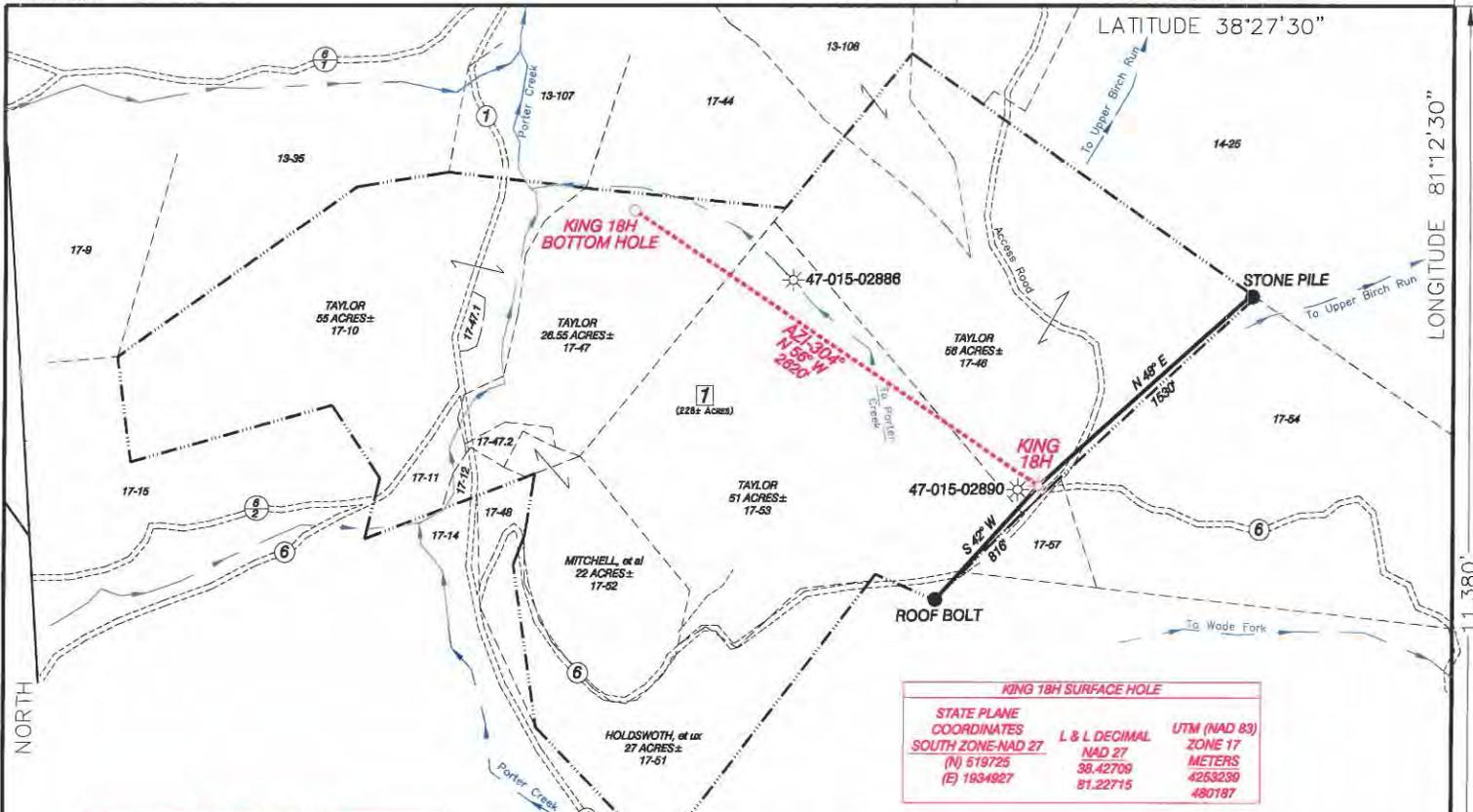
03/30/2018



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03/30/2018

15-02904HW



KING 18H BOTTOM HOLE

STATE PLANE COORDINATES SOUTH ZONE-NAD 27	L & L DECIMAL NAD 27	UTM (NAD 83) ZONE 17 METERS
(N) 521184	38.43108	4253683
(E) 1932751	81.23475	479524

KING 18H SURFACE HOLE

STATE PLANE COORDINATES SOUTH ZONE-NAD 27	L & L DECIMAL NAD 27	UTM (NAD 83) ZONE 17 METERS
(N) 519725	38.42709	4253239
(E) 1934927	81.22715	480187

RECEIVED Office of Oil and Gas

MAR 13 2018

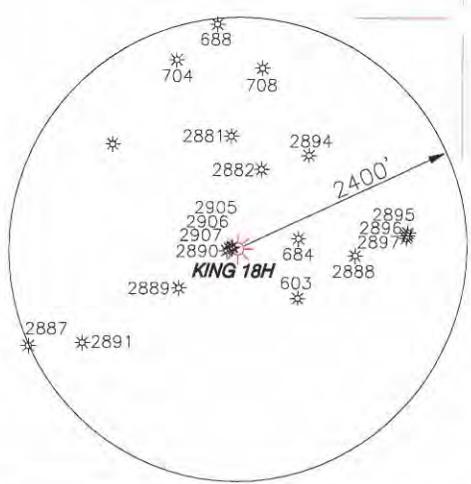
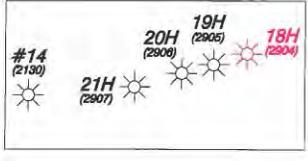
WV Department of Environmental Protection

KING 18H

LEASE	LESSOR	ACREAGE
1	CUNNINGHAM ENERGY, LLC.	228±

LINE LEGEND

LEASE BOUNDARY	---
SURFACE BOUNDARY	----
CREEK/STREAM	~~~~~
ROADS	==>==>
PROPOSED LATERAL
500' LATERAL OFFSET

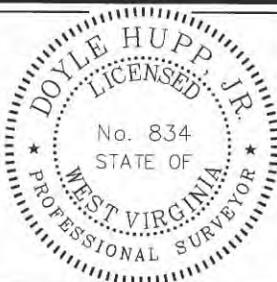


NOTES ON SURVEY

- NO DWELLINGS WITHIN 625' WERE FOUND.
- NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250' WERE FOUND.
- TIES TO WELLS AND CORNERS ARE BASED ON STATE PLANE GRID NORTH WV SOUTH ZONE NAD '27.
- WELL LAT./LONG. ESTABLISHED BY SG-GPS(OPUS).
- SURFACE OWNER AND ADJOINER INFORMATION TAKEN FROM THE ASSESSOR AND COUNTY CLERK RECORDS OF CLAY COUNTY IN JANUARY, 2014 AND INFORMATION PROVIDED BY CUNNINGHAM ENERGY, LLC.
- WELLS SHOWN ARE TAKEN FROM RECORDS OF WVDEP.

KING 18H (47-015-02904)

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



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.
 DATE MARCH 12, 20 18
 OPERATORS WELL NO. KING 18H
 API WELL NO. 47-015-02904
 STATE COUNTY PERMIT

P.S. 834
HUPP Surveying & Mapping
 P.O. Box 647 Grantsville, WV 26147
 (304) 354-7035 EMAIL: hupp@frontiernet.net

MINIMUM DEGREE OF ACCURACY 1/2500 FILE NO. W2138 (BK71-1)
 PROVEN SOURCE OF ELEVATION SG-GPS (OPUS) SCALE 1" = 1000'

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



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

LOCATION : ELEVATION 1288' WATERSHED TRIBUTARY OF PORTER CREEK
 DISTRICT UNION COUNTY CLAY QUADRANGLE ELKHURST 7.5'

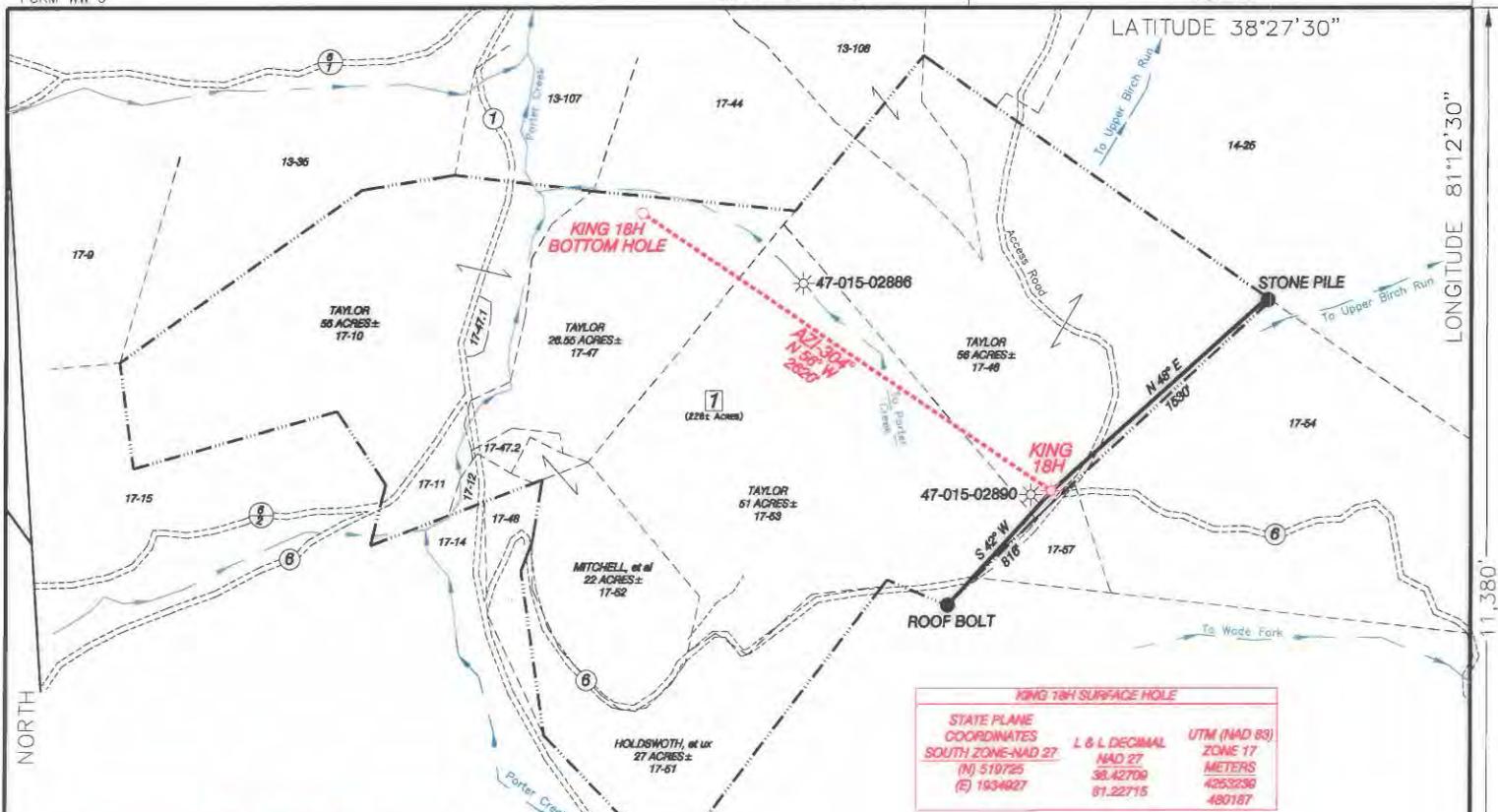
SURFACE OWNER ROBERT TAYLOR ACREAGE 51±
 ROYALTY OWNER CUNNINGHAM ENERGY, LLC. LEASE ACREAGE 228±

PROPOSED WORK : LEASE NO. _____
 DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION PERFORATE NEW FORMATION PLUG AND ABANDON CLEAN OUT AND REPLUG OTHER _____
 PHYSICAL CHANGE IN WELL (SPECIFY) _____ TARGET FORMATION BIG INJUN
 ESTIMATED DEPTH TVD- 2,150' MD-5,200'

WELL OPERATOR CUNNINGHAM ENERGY, LLC. DESIGNATED AGENT RYAN CUNNINGHAM
 ADDRESS 3230 PENNSYLVANIA AVE. CHARLESTON, WV 25302 ADDRESS 3230 PENNSYLVANIA AVE. CHARLESTON, WV 25302

COUNTY NAME PERMIT

03/30/2018



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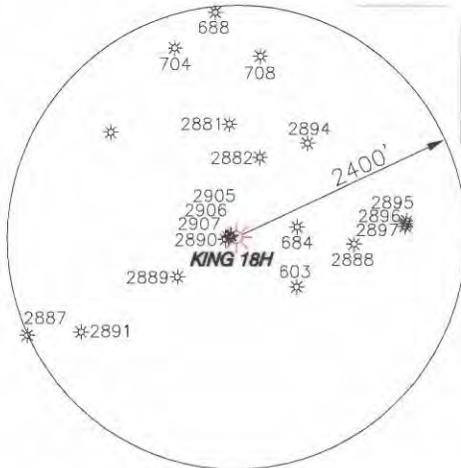
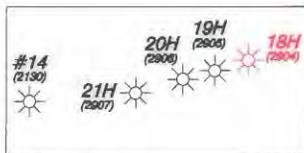
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KING 18H

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CREEK/STREAM	~ ~ ~ ~
ROADS	—+—+—+—+—
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P.S. 834

[Signature]
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 (304) 354-7035 EMAIL: hupp@frontiernet.net



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

DATE MARCH 12, 2018
 OPERATORS WELL NO. KING 18H
 API WELL NO. 47-015-02904 HW
 STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1/2500 FILE NO. W2138 (BK71-1)
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 DIVISION OF ENVIRONMENTAL PROTECTION
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