

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

Monday, July 16, 2018 WELL WORK PERMIT Vertical / New Drill

KEYROCK ENERGY LLC PO BOX 2223

JOHNSON CITY, TN 37605

Re: Permit approval for COX 1 47-011-01002-00-00

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: COX 1

Farm Name: ROCKY & DIANA S. COX

U.S. WELL NUMBER: 47-011-01002-00-00

Vertical New Drill Date Issued: 7/16/2018

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.
- 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 on this well. Such notice shall be provided by sending an email to DEPOOGNotify@wv.gov within 30 days of commencement of drilling.
- 9. Operator shall send to the Office of Oil & Gas an "As Built" site plan and erosion and sediment control plan that identifies the chosen location road option (of two proposed), used to access the well site.

WW - 2B (Rev. 8/10)

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

1) Well Operato	^{or:} Ke	yrock En	ergy LLC	494507629	Cabell	Grant	Milton 7.5'
				Operator ID	County	District	Quadrangle
2) Operator's Well Number: Cox No. 1 3) Elevation: 690'							
4) Well Type: (a	a) Oil <u>X</u>	or Ga	IS				
(i	o) If Gas:	Produ	ction X / Und	derground Sto	rage		
		Deep	/ S	hallowX			
6) Proposed To7) Approximate	otal Depth fresh wa	: <u>3,650</u> ter strata	Lower Huron Feet a depths: 70' 760', 1,350' & 1,400'	Formation at F	Proposed Tar Proposed Tota	get Depth: _ al Depth: Low	3,600' er Huron
9) Approximate	coal sea	m depths	S: None				
10) Approximat	e void de	oths (coa	al, Karst, other):	None			
		•	,		_		
11) Does land	contain co	al seam	s tributary to act	ive mine? N	0		
•	•		id fracturing meth a new well (estima	•		l sheets if nee	eded)
Will not produce fro	om the Mar	cellus forn	nation.				
13)		CA	SING AND TU	BING PROGR	<u>AM</u>		
TYPE S	PECIFIC	ATIONS		FOOTAGE	INTERVALS	CEME	NT
	<u>Size</u>	<u>Grade</u>	Weight per ft	For Drilling	<u>Left in Well</u>	Fill -up (Cu	<u>. Ft.)</u>
Conductor	13 3/8"			30'	30'	Sand	in
Fresh Water	9 5/8"			680'	680'	PECEIVEL 191, 64 and	d, 6878
Coal					Om	JUN 0 6 20	
Intermediate							
Production	4 1/2"			3,500'	3,500' V	V Departm	Protestion
Tubing	2 3/8"			3,450'	3,450	Per WV De	p Rule
Liners							
Packers: Kind	 d:						
Size							07/00/0040
Der	the Sat				111-	1 2010	07/20/2018

(Rev. 6-14)		1). Date: <u>5</u>	5/14/2018	
(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		2.) Operator's	Well Number	Cox No. 1
		ш, оролого	State	County Permit
		2 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		
		3.) API Well No	D.: 41	Cabell -
	STATE	F WEST VIRGINIA		
DEP	ARTMENT OF ENVIRONMENT		DEFICE OF	OIL AND GAS
DLI	NOTICE AND APPLICAT			
	NOTICE AND AFFEICAT	ION I ON A WLLL I	VOKKELK	IVIII
4) Surface Ow	ner(s) to be served:	5) (a) Coal Operator		
(a) Name	Rocky & Diana S. Cox	Name n/a		
Address	2851 Little Fudges Creek Rd.	Address		
Address				
(h) Namo	Barboursville, WV 25504	(b) Coal Owner(s)	with Doclars	ation
(b) Name Address			Willi Deciara	ation
Address				
	-	Address		
Zav Nieuwa		Manage -		
(c) Name		Name		
Address		Address		
0) 1			5	
6) Inspector	Allen Flowers	_ (c) Coal Lessee w	ith Declaration	on
Address	165 Grassy Lick Ln.	Name <u>n/a</u>		
	Liberty, WV 25124	Address		
Telephone	304-552-8308			
	TO THE PERSONS NAM			
	ne lease or leases or other continuing	contract or contracts by v	which I hold the	e right to extract oil and gas
OR	ne information required by Chapter 22	Article C. Cention (I/d) or	the Code of V	Mast Missinia (and page 2)
	that as required under Chapter 22-6			
application, a loc	ation plat, and accompanying docume	ents pages 1 through	on the above	named parties by:
application, a loc	Personal Service (Affidavit attac			name parass sy
	X Certified Mail (Postmarked post			
<u> </u>	Publication (Notice of Publicatio			
	ad and understand Chapter 22-6 and	35 CSR 4, and I agree	to the terms	and conditions of any permit
issued under this				
	under penalty of law that I have personant and all attachments, and that ba			
	orm and all attachments, and that ba			ininediately responsible for
I am awa	are that there are significant penalties	for submitting false infor	mation, includi	ing the possibility of fine and
imprisonment	GILAE		,	, , , , , , , , , , , , , , , , , , , ,
	Well Operator	Keyrock Energy LLC	0,	
3418		Morgan Pate -	wiza	
= 5:	OF Its:	Geologist		
TE	NNESSEE Address:	PO Box 2223, 207 E		Suite 2-D
- 4:	1014	Johnson City, TN 37	7605	
= Pose	PUBLIC Telephone:	423-726-2070	WALL 0 0 100	RECEIVED
Subscribed and	Liliali.	mpate@keyrockene	ergy.com	Vreckfehillrand Gas
Subscribed and/s	worn before me this 30 day of	may		ALOCK ELIGIDA.
My Commission	Expires		Notary Public	: JUN 0 6 2018
Oil and Gas Privacy	District Control of the Control of t			0/0
on and Gas Privacy	HOUGE		VV	V Department of

WW-2A

The Office of Oil and Gas processes your personal information, such as name, address and phone number distributed to the State agencies or third parties in the normal course such 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

WATER NOTICE FOR KEYROCK ENERGY, LLC WELL COX 1

WATER SOURCES IDENTIFIED WITHIN 1,000' OF PROPOSED WELL SITE:

Rocky & Diana S. Cox 2851 Little Fudges Creek Rd. Barboursville, WV 25504 304 736-2867

Ronnie Bates 3026 Lower Tom Creek Rd. Barboursville, WV 25504 304 736-5317

MUST ANALYZE AT LEAST ONE OF THE ABOUR,

5/9/2018 TRUE LINE SURVEYING, INC.

WW-2A1 (Rev. 1/11)

Operator's Well Number Cox No. 1

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
Rocky Cox and Diana S. Cox, or the survivor	Keyrock Energy LLC	1/8	393/410

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 he reby a cknowledges 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 ac quired from the appr opriate aut hority before the affected rectivity is initiated. Environmental Protection initiated.

Well Operator:

Keyrock Energy LLC

By: Its:

Geologist

Morgan Pate

WW-2B1	
(5-12)	

Well No.	Cox No. 1

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 Pace Analytical

Sampling Contractor

True Line Surveying

Well Operator

Keyrock Energy

Address

PO BOX 2223

Johnson City, TN 37605

Telephone

423-726-2070

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.

SEC ATTACHEO

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JUN 0 6 2018

WV Department of Environmental Protection WW-9 (5/16)

API Number	47 -	Cabell		
Operator's W	ell No	. Cox No	. 1	

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Keyrock Energy LLC	OP Code 494507629
Watershed (HUC 10) Lower Tom Creek	Quadrangle Milton WV 7.5'
Do you anticipate using more than 5,000 bbls of water to	o complete the proposed well work? Yes No
Will a pit be used? Yes ✓ No	
If so, please describe anticipated pit waste: Dr	
Will a synthetic liner be used in the pit? Yes	No If so, what ml.? 20 .
Proposed Disposal Method For Treated Pit Was	ites:
	provide a completed form WW-9-GPP)
Underground Injection (UIC Reuse (at API Number	Permit Number)
Off Site Disposal (Supply for	m WW-9 for disposal location)
0.1	
Will closed loop system be used? If so, describe: No	
Drilling medium anticipated for this well (vertical and ho	orizontal)? Air, freshwater, oil based, etc. Vertical, Air & Mud
-If oil based, what type? Synthetic, petroleum, of	etc. n/a
Additives to be used in drilling medium?n/a	
Drill cuttings disposal method? Leave in pit, landfill, ren	noved offsite, etc leave in pit
-If left in pit and plan to solidify what medium v	will be used? (cement, lime, sawdust) Lime and Sawdust
-Landfill or offsite name/permit number?	
	l and Gas of any load of drill cuttings or associated waste rejected at any ovided within 24 hours of rejection and the permittee shall also disclose
on April 1, 2016, by the Office of Oil and Cas of the W provisions of the permit are enforceable by law. Violation or regulation can lead to enforcement action. I certify under penalty of law that I have personal to the control of	Fine or imprisonment. STATE OF TENNESSEE NOTARY PUBLIC VGTON
Subscribed and sworn before me this 30 h day	yof M MY RECEIVED
Marino Collects	Office of Oil and Gas
My commission expires MMUH 30 2019	JUN 0 6 2018
	WV Depath20/201 Environmental Protecti

		Operator's W	ell No. Cox No. 1
			J. 1.0.
Proposed Revegetation Tre	atment: Acres Disturbed <	1.5 acres Preveg etation pl	-l 6.2
Lime 3	Tons/acre or to corre	ct 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	
ר	Cemporar y	Permai	nent
Seed Type	lbs/acre	Seed Type	lbs/acre
KY-31	40	Orchard Grass	15
Alsike Clover	5	Alsike Clover	5
Annual Rye	15		
		d application (unless engineered plans include	
Maps(s) of road, location, provided). If water from the (L, W), and area in acres, o		ovide water volume, include dimensions (L,	
Maps(s) of road, location, provided). If water from the (L, W), and area in acres, o	e pit will be land applied, profithe land application area.	ovide water volume, include dimensions (L,	
Maps(s) of road, location, provided). If water from the (L, W), and area in acres, or Photocopied section of inverse Plan Approved by:	e pit will be land applied, proof the land application area. olved 7.5' topographic sheet.	ovide water volume, include dimensions (L,	
Maps(s) of road, location, provided). If water from the (L, W), and area in acres, or Photocopied section of investigations.	e pit will be land applied, proof the land application area. olved 7.5' topographic sheet.	ovide water volume, include dimensions (L,	W, D) of the pit, and dimen
Maps(s) of road, location, provided). If water from the (L, W), and area in acres, or Photocopied section of inverse Plan Approved by:	e pit will be land applied, proof the land application area. olved 7.5' topographic sheet.	Elowers.	W, D) of the pit, and dimen
Maps(s) of road, location, provided). If water from the (L, W), and area in acres, or Photocopied section of involved Plan Approved by:	e pit will be land applied, proof the land application area. olved 7.5' topographic sheet.	Thuers:	W, D) of the pit, and dimen
Maps(s) of road, location, provided). If water from the (L, W), and area in acres, or Photocopied section of involved Plan Approved by:	e pit will be land applied, proof the land application area. olved 7.5' topographic sheet.	Elowers.	W, D) of the pit, and dimen
Maps(s) of road, location, provided). If water from the (L, W), and area in acres, or Photocopied section of involved Plan Approved by:	e pit will be land applied, proof the land application area. olved 7.5' topographic sheet.	Thuers:	W, D) of the pit, and dimen
Maps(s) of road, location, provided). If water from the (L, W), and area in acres, or Photocopied section of involved Plan Approved by:	e pit will be land applied, proof the land application area. olved 7.5' topographic sheet.	Thuers:	W, D) of the pit, and dimen
Maps(s) of road, location, provided). If water from the (L, W), and area in acres, of the photocopied section of inverse Plan Approved by: Comments:	e pit will be land applied, proof the land application area. olved 7.5' topographic sheet.	Flowers.	W, D) of the pit, and dimen

Field Reviewed?

WV Department of Environmental Protection WW-9- GPP Rev. 5/16

	Page		of
API Number 47	- Cabell		Keyrock Energy
Operator's Well 1	No. Cox No.	1	•

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

Derator Name: Keyrock Energy LLC	
Vatershed (HUC 10): Lower Tom Creek	Quad: Milton 7.5'
arm Name: Rocky and Diana S. Cox	
. List the procedures used for the treatment and discharge of groundwater.	fluids. Include a list of all operations that could contaminate the
Pit water will be tested, then aerated with lime be event of excessive chlorides, the pit fluids will be hauled to an approved disposal facility. Pit watedrop out.	- · · · · · · · · · · · · · · · · · · ·
. Describe procedures and equipment used to protect groundv	vater quality from the list of potential contaminant sources above.
Once the drilling pit fluids are at acceptable level be floated approximately 12" below the water le	els for discharge, then the pumps intake line will evel and the discharge line will be set up.
. List the closest water body, distance to closest water body discharge area.	y, and distance from closest Well Head Protection Area to the
See letter from surveyors.	
Summarize all activities at your facility that are already regu	ulated for groundwater protection.
n/a	
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	JUN 0 6 2018

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

WV Department of

WW-9- GPP Rev. 5/16

	Page _		of	
API Number 47				
Operator's Well 1	No. Cox N	lo. 1		

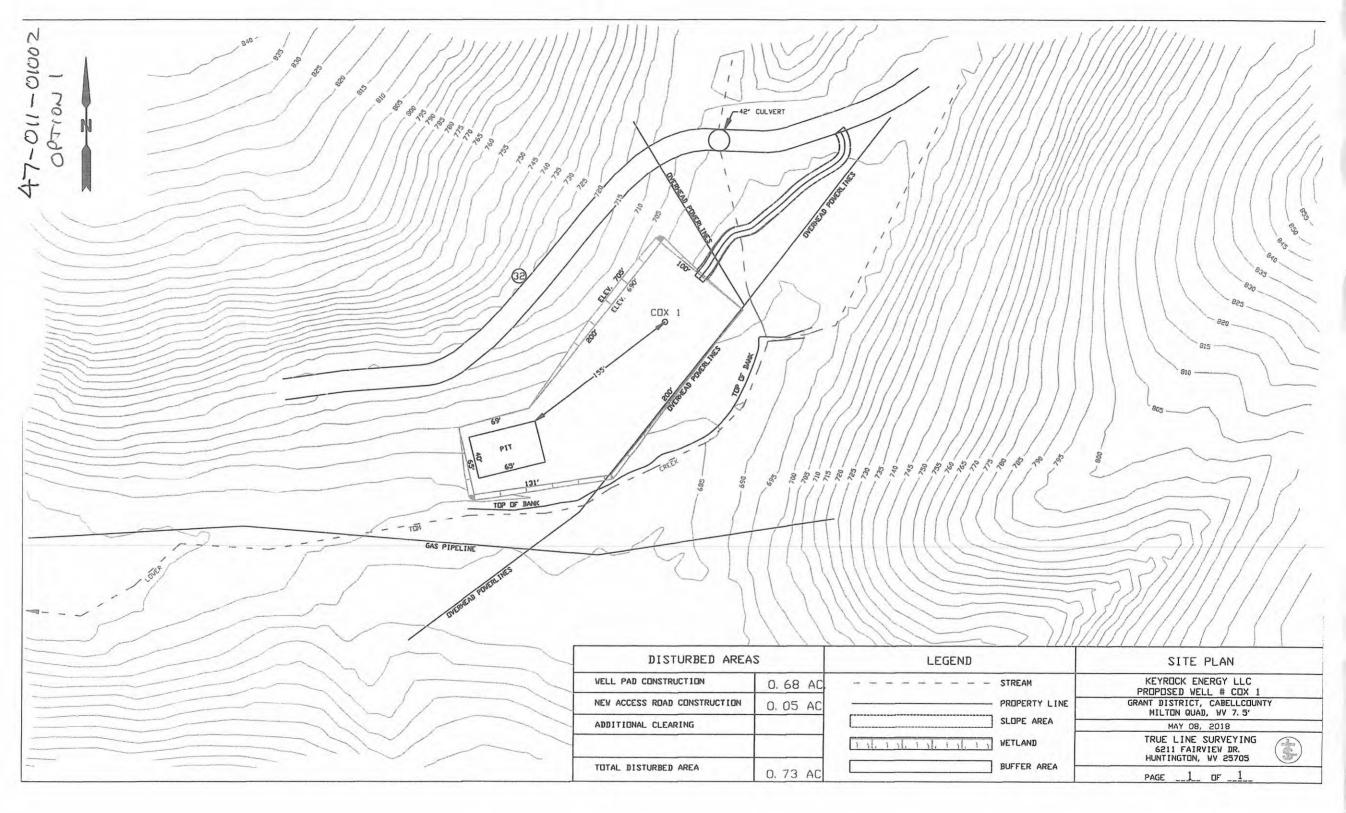
	Operator's Well No. Cox No. 1
No known groundwater quality data. Samples within 1,000' of the proposed well.	have been offered for non-public water sources
Provide a statement that no waste material will be used for	deicing or fill material on the property.
No waste material will be used for deicing of fil	Il material on the property.
Describe the groundwater protection instruction and train provide direction on how to prevent groundwater contamin	ning to be provided to the employees. Job procedures shall nation.
implement it. Work practices will support the p company HSE Policy.	protection of groundwater from contamination per
Provide provisions and frequency for inspections of all GP	P elements and equipment.
All GPP elements and equipment present will be a problem. Work will not commence until any p	be inspected daily prior to use and in the event of problems are remediated and documented.
	RECEIVED
Signature: Me	Office of Oil and Gas
Date: 5/30/18	JUN 0 6 2018
Date: 5/30/18	
	WV Department of Environmental Protec
	Environmental Flotes

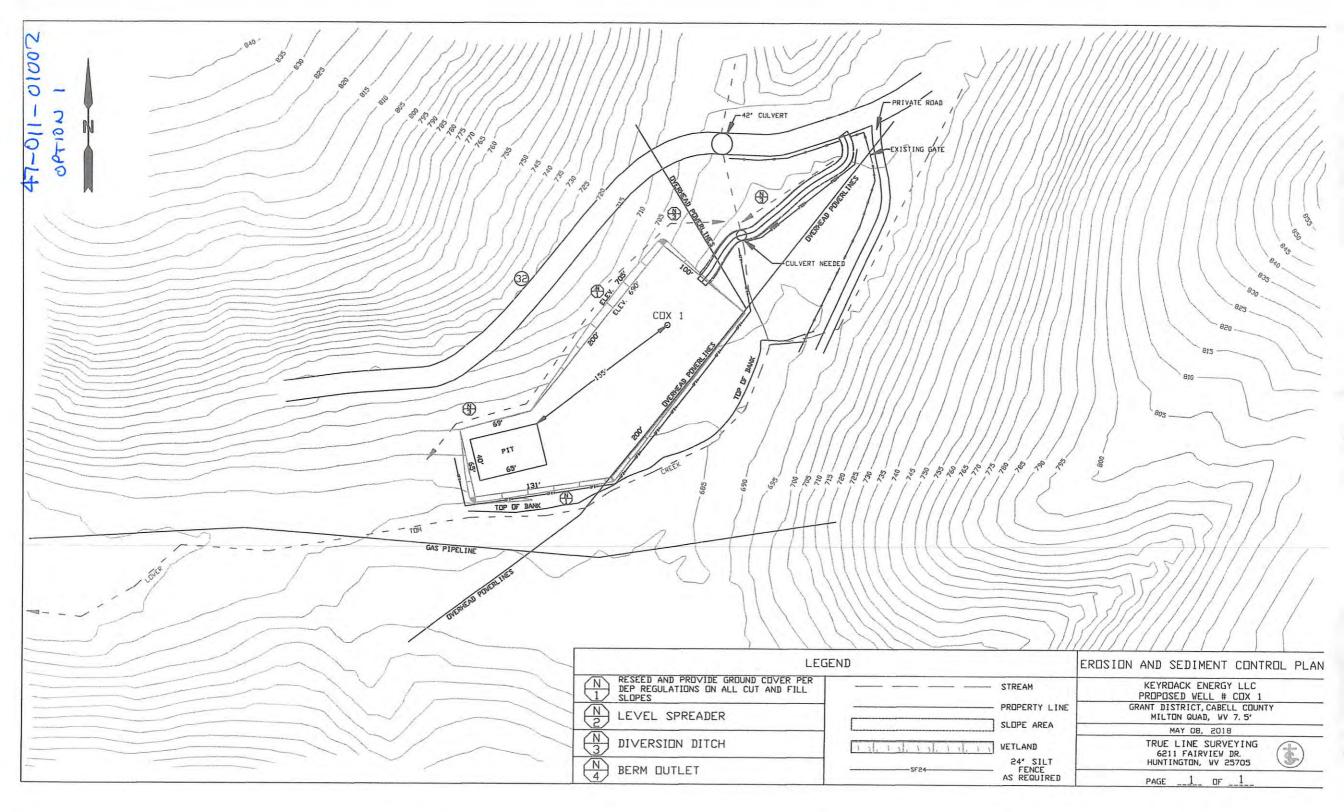
FOR KEYROCK ENERGY, LLC WELL COX 1

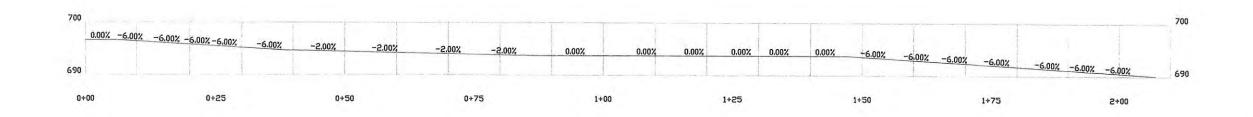
SURFACE OWNERS OF ACCESS ROAD FOR PROPOSED WELL SITE:

Rocky & Diana S. Cox 2851 Little Fudges Creek Rd. Barboursville, WV 25504

5/9/2018
TRUE LINE SURVEYING, INC.







ROAD PROFILE

KEYROCK ENERGY LLC PROPOSED WELL # COX 1

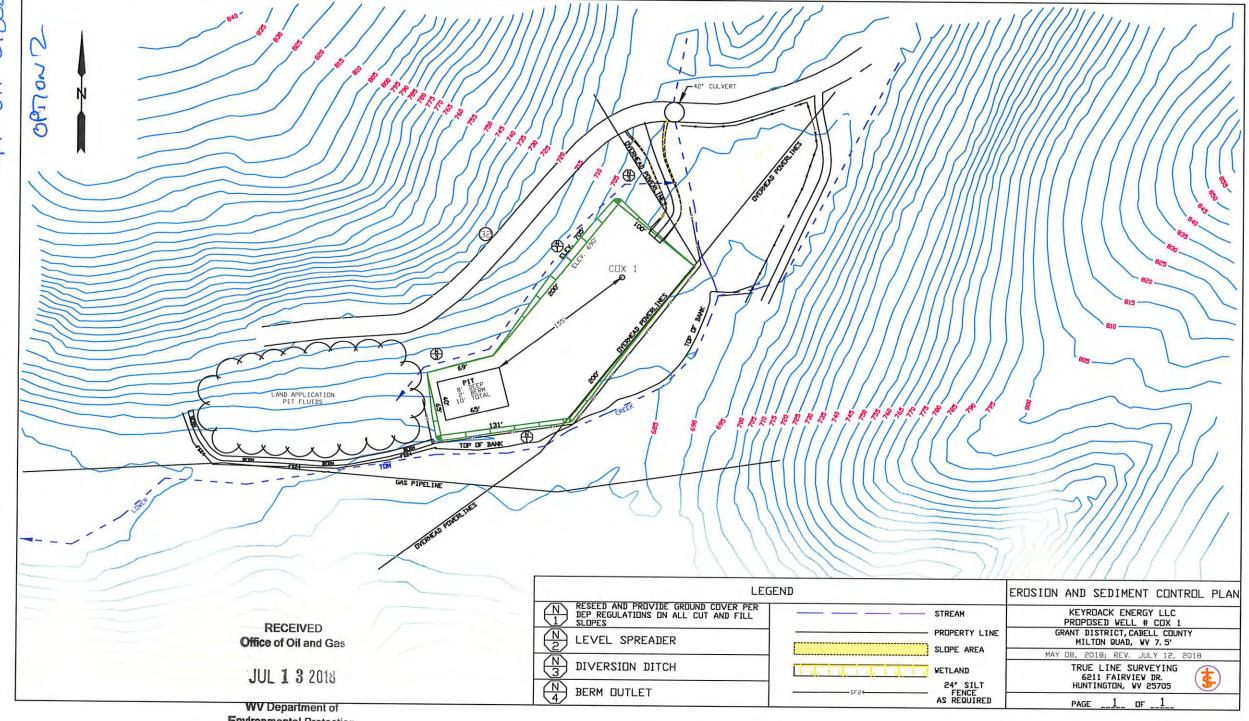
GRANT DISTRICT, CABELL COUNTY MILTON QUAD, WV 7.5'

MAY 08, 2018

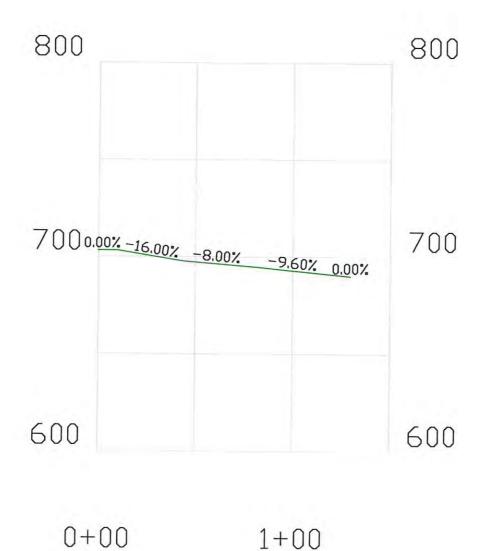
TRUE LINE SURVEYING 6211 FAIRVIEW DR. HUNTINGTON, WV 25705



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JUL 1 3 2018

WV Department of

Environmental Protection

ROAD PROFILE

KEYROCK ENERGY, LLC PROPOSED WELL # CDX 1

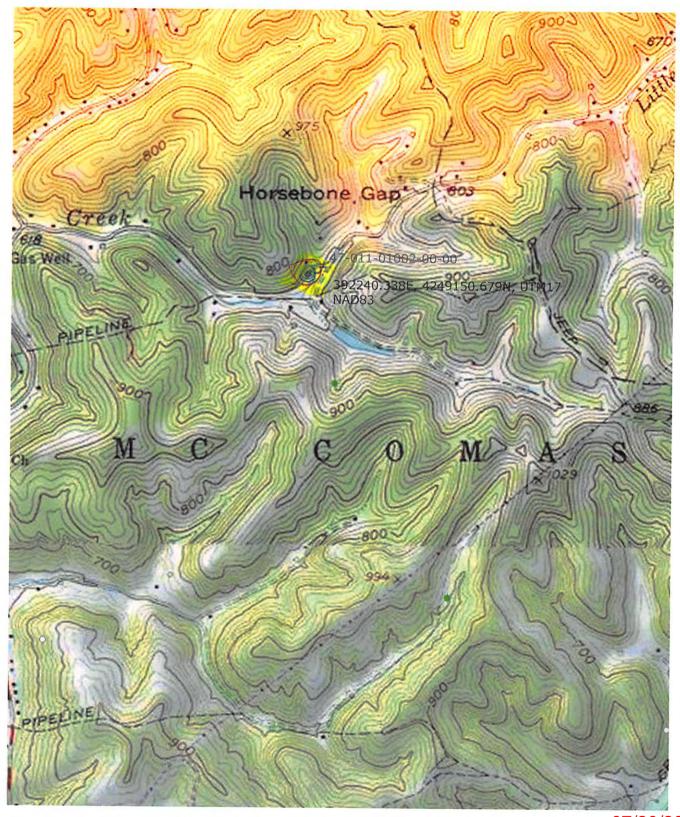
GRANT DISTRICT, CABELL COUNTY MILTON QUAD, WV7.5'

MAY 08, 2018; REV. JULY 12, 2018

TRUE LINE SURVEYING
6211 FAIRVIEW DR.
HUNTINGTON, WV 25705



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07/20/2018

