

#### west virginia department of environmental protection

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

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

Tuesday, November 20, 2018 WELL WORK PERMIT Vertical / New Drill

KEYROCK ENERGY LLC PO BOX 2223

JOHNSON CITY, TN 37605

Re: Permit approval for KENNER NO. 8 47-011-01005-00-00

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: KENNER NO. 8

Farm Name: KENNER Y. MARKINS

U.S. WELL NUMBER: 47-011-01005-00-00

Vertical New Drill Date Issued: 11/20/2018

### 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 on this 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 Operat	or: Keyro	ck Energ	y LLC	494507629	Cabell	Grant	Milton 7.5'
				Operator ID	County	District	Quadrangle
2) Operator's \	Vell Numb	er: Kenne	er No. 8		3) Elevation: _	983'	-
4) Well Type: (	(a) Oil <u>X</u>	or Ga	ns				
(	b) If Gas:	Produ	ction/ Unde	erground Stor	age		
		-	o/ Sh				
<ul><li>6) Proposed T</li><li>7) Approximate</li></ul>	otal Depth e fresh wa	: <sup>3,500</sup> ' ter strata	Berea and/or Lower Feet For depths: 351', 360', 4 1: 1,501', 1,535', 1,582', (	ormation at F	Proposed Tota wells 828, 802, 848)	I Depth: Low	er Huron
9) Approximate	e coal sea	m depth	S: 726' (from ref. we	ell 802)			
10) Approxima	ite void de	pths,(coa	al, Karst, other): <u>'</u>	None			
			s tributary to activ		0		
•			-				
•	•		nd fracturing metho a new well (estimate	•			eded)
Will not produce f			· · · · · · · · · · · · · · · · · · ·	a doming tok noo		RECEI	VED
					(	Office of Oil	and Gas
13)			SING AND TUB			NOV 1 5	
TYPE	SPECIFIC	ATIONS	T	FOOTAGE	INTERVALS		
	<u>Size</u>	<u>Grade</u>	Weight per ft	For Drilling	<u>Left in We</u> ∏n	virid a copercio a	<u>  Protection</u>
Conductor	9 5/8"			30'	30'	8.4 Cu. Ft	, CTS
Fresh Water	7 1/2"			980'	980'	159 Cu. F	t., CTS
Coal							:
Intermediate							
Production	4 1/2"			3,400'	3,400'	200 Cu. Ft.,	to 1400'
Tubing	2 3/8"			3,350'	3,350'	Per WV De	∍p Rule
Liners							
Packers: Kin	d:						
Siz						di	<del></del>
De	pths Set _		·• ·· · · · · · · · · · · · · · · · · ·		AJ	11-15-2	48

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13037 0 4					
WW-2A (Rev. 6-14)		1). Date	e: 7/24	/2018	
(Rev. 0-14)		2.) One	rator's Wel	Number K	enner No. 8
		2.) Opc	ador 5 vvoi	State Cou	
		2 \ \ \ D	Well No.:	4 7	
		3.) API	vveii no	4/- Cabe	<u></u>
	STATE C	F WEST VIR	GINIA		
DEP	ARTMENT OF ENVIRONMENT			ICE OF OIL	ND GAS
	NOTICE AND APPLICAT				
			100		
4) Surface Ow	ner(s) to be served:	5) (a) Coal Op	erator		
(a) Name	Kenner Y. Markins	Name	n/a		
Address	4156 Cavill Creek Road	Address			
	Barboursville, WV 25504				
(b) Name		_ (b) Coal C	wner(s) wit	h Declaration	
Address		Name	n/a		
		Address			
5-1-3		46.000			
(c) Name	V	_ Name			
Address		_ Address			
0) 14-4-4-4	AB E	- (a) Caall		Dealeration	RECEIVED
6) Inspector	Allen Flowers			Declaration	Office of Oil and Ga
Address	165 Grassy Creek Ln.	_ Name	n/a		.1111 2 7 2018
+ alastic acces	Liberty, WV 25124	Address			JUL 2 1 2010
Telephone	304-552-8308		ALCE MOTI	OF TILAT	vvv Department o
V. Included in th	TO THE PERSONS NAME lease or leases or other continuing				Environmental Protect
Normal No	ne lease of leases of other continuing	Contract or Contr	acts by write	n i noid the right	to extract on and gas
	he information required by Chapter 22	Article 6 Section	n 8(d) of the	Code of West V	irginia (see page 2)
	that as required under Chapter 22-6				
	ation plat, and accompanying docume	ents pages 1 thro			
_	Personal Service (Affidavit attac				
_	X Certified Mail (Postmarked post		ed)		
	Publication (Notice of Publicatio		To account the con-	OCCUPANT AND	enditit e ha a de anno a canadaro
issued under this	ead and understand Chapter 22-6 and	35 CSR 4, and	agree to	the terms and co	inditions of any permit
	under penalty of law that I have perso	onally examined	and am fam	niliar with the info	ormation submitted on
	orm and all attachments, and that ba				
	ormation, I believe that the information				
	are that there are significant penalties	for submitting fa	lse informati	ion, including the	possibility of fine and
imprisonment.	Mall O	(2			
		Keyrock Ene		10	
		Morgan Pate	Miller	W12-	
		Geologist	3 207 F I	Main St., Suite	2-D
	Addless.	Johnson City			2-0
	Telephone:	423-276-111	6	WALLEY MAN	
		mpate@keyr			<b>5</b>
Subscribed and	sworn before me this 24th day of			STKerrock	Energy

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

My Commission Expires

WW.	-2A1	
(Rev.	1/11)	)

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### 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
Kenner Y. Markins	Keyrock Energy LLC	1/8	391/267

# 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 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

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 activity is initiated.

Well Operator: By:Its: Morgan Pate ///
Keyrock Energy LLC

RECEIVED Office of Oil and Gas

Geologist

WW-2B	1
(5-12)	

Well	No.	Kenner No.	8	

# 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 Sampling Contractor		Pace Analytical
		True Line Surveying
Well Operator	Keyrock Energy	,
Address	PO BOX 2223	
	Johnson City, T	N 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.

RECEIVED
Office of Oil and Gas

# WATER NOTICE FOR KEYROCK ENERGY, LLC WELL KENNER 8

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

Kenner Y. Markins \*
P. O. Box 13
Barboursville, WV 25504

\* DENOTES WATER SOURCES TESTED 7/18/2018
TRUE LINE SURVEYING, INC.

RECEIVED Office of Oil and Gas

WW-9 (5/16)

API Number	47 -	Cabell	9		
Operator's W	ell No	. Kenner I	No.	8	

#### 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)	Quadrangle Milton WV 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 V No	
If so, please describe anticipated pit waste: Dr	ill water and cement cuttings
Will a synthetic liner be used in the pit? Yes	No If so, what ml.? 20 mil
Proposed Disposal Method For Treated Pit Was	tes:
Land Application (if selected)	provide a completed form WW-9-GPP)
Underground Injection ( UIC	Permit Number)
Reuse (at API Number	m WW-9 for disposal location)
Other (Explain_	ii www>ioi disposatiocation)
Will closed loop systembe used? If so, describe: No	
	prizontal)? Air, freshwater, oil based, etc. Vertical, Air and Mud
-If oil based, what type? Synthetic, petroleum,	
Additives to be used in drilling medium? Soap if needed.	
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?	
West Virginia solid waste facility. The notice shall be prowhere it was properly disposed.  I certify that I understand and agree to the terms on April 1, 2016, by the Office of Oil and Gas of the Weprovisions of the permit are enforceable by law. Violation or regulation can lead to enforcement action.  I certify under penalty of law that I have persapplication form and all attachments thereto and that, bas	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 as and conditions of the GENERAL WATER POLLUTION PERMIT issued est Virginia Department of Environmental Protection. I understand that the ms of any term or condition of the general permit and/or other applicable law sonally examined and am familiar with the information submitted on this seed on my inquiry of those individuals immediately responsible for obtaining accurate, and complete. I am aware that there are significant penalties for tine or imprisonment.
Company Official Signature	
Company Official (Typed Name) Morgan Pate	
Company Official Title Geologist	
Subscribed and sworn before me this 344 day	y of Office of Oil and Gas
Cychia	Ulian Notary Public JUL 2 7 2018
My commission expires 03 24 2	TVP () (Simmer)

Lime 3	Tons/acre or to	o correct to pU	6.5				
			***				
	20-20 or equivale						
Fertilizer amount 1/3 ton			lbs/acre				
Mulch_ Hay		2 Tons/ac	re				
		Seed	Mixtures				
To	emporary		Perma	nent			
Seed Type	lbs/acre		Seed Type	lbs/acre			
KY-31	40		Orchard Grass	5			
Alsike Clover	5		Alsike Clover	5			
Annual Rye	15						
Land is used for grazing	<ul> <li>g. If surface owner</li> </ul>	er prefers diffe	rent seed mixture we will sub-	mit an updated WW-9.			
Maps(s) of road, location, p provided). If water from the (L, W), and area in acres, of	e pit will be land app f the land application	lied, provide wat area.	ion (unless engineered plans incluer volume, include dimensions (L,	ding this info have been W, D) of the pit, and dimens			
Maps(s) of road, location, p provided). If water from the L, W), and area in acres, of Photocopied section of invo	e pit will be land app f the land application	lied, provide wat area.	ion (unless engineered plans incluer volume, include dimensions (L,	ding this info have been W, D) of the pit, and dimens			
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Maps(s) of road, location, p provided). If water from the (L, W), and area in acres, of Photocopied section of invo Plan Approved by:	e pit will be land app f the land application	lied, provide wat area.	er volume, include dimensions (L,	W, D) of the pit, and dimens			
Attach: Maps(s) of road, location, p provided). If water from the (L, W), and area in acres, of Photocopied section of invo  Plan Approved by:  Comments:	e pit will be land app f the land application olved 7.5' topographi	lied, provide wat area.	er volume, include dimensions (L,	SEGEIVED Office of Oil and Ga NOV 1-5, 2013 WV Department of			

WW-9- GPP Rev. 5/16

	Page	of
API Number 4	7 - Cabell	<ul> <li>Keyrock Energy</li> </ul>
Operator's Well	No. Kenner	No. 8

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

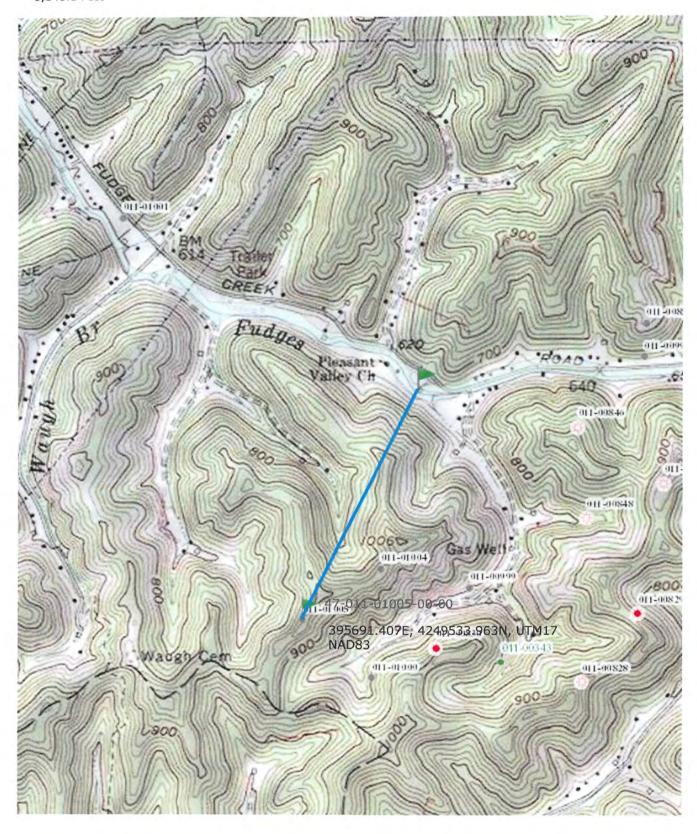
perator Name: Keyrock Energy LLC	
/atershed (HUC 10):	Quad; Milton 7.5'
arm Name: Kenner Y. Markins	
List the procedures used for the treatment and di groundwater.	ischarge of fluids. Include a list of all operations that could contaminate the
event of excessive chlorides, pit fluids v	ith lime being added to bring the ph to 7.0 plus. In the will be diluted with either fresh water or, where that is not approved disposal facility. Pit water will sit a minimum of
Describe procedures and equipment used to prote	ect groundwater quality from the list of potential contaminant sources above.
	able levels for discharge, then the pump intake line will water level and the discharge line will be set up.
List the closest water body, distance to closest discharge area.	water body, and distance from closest Well Head Protection Area to the
See letter from surveyors.	
FUNGES CREEK IS	3150 FT FROM WELL BORE,
Summarize all activities at your facility that are a	lready regulated for groundwater protection.
n/a	
	RECEIVED Office of Oil and
	Office of Office

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

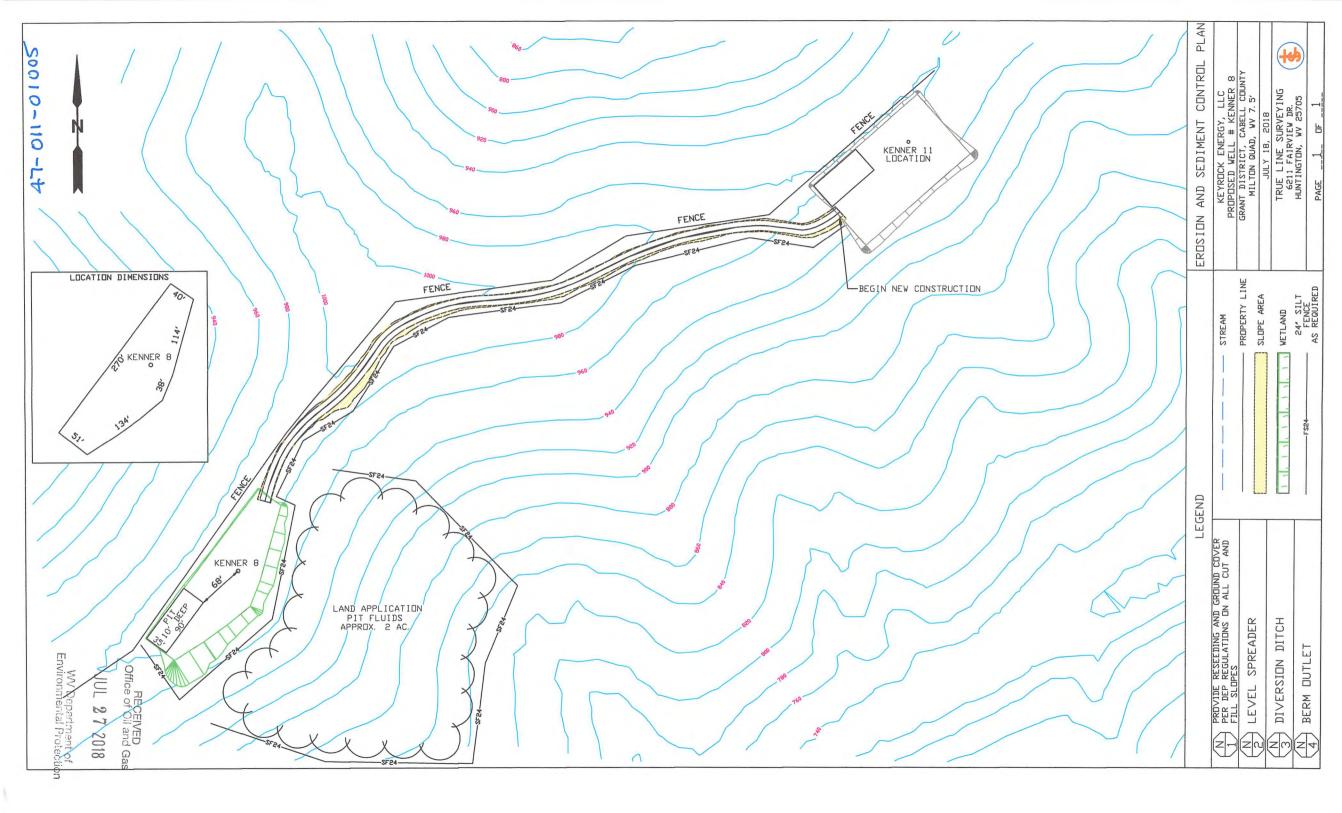
## Feet

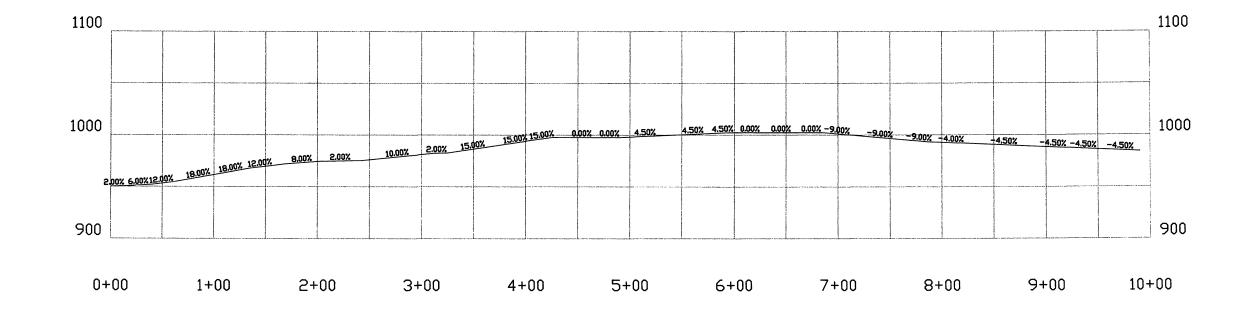
Measurement Result

3,148.1 Feet



VW-9- CPP	Pageof
ev. 5/16	API Number 47 Operator's Well No. Kenner No. 8
No known groundwater quality da within 1,000' of the proposed wel	ata. Samples have been offered for non-public water sources l.
b. Provide a statement that no waste materi	al will be used for deicing or fill material on the property.
No waste material will be used for	or deicing of fill material on the property.
Describe the groundwater protection in provide direction on how to prevent groundwater	struction and training to be provided to the employees. Job procedures shall undwater contamination.
	n the contents of the groundwater protection plan and how to support the protection of groundwater from contamination per
3. Provide provisions and frequency for ins	spections of all GPP elements and equipment.
·	t present will be inspected daily prior to use and in the event of nence until any problems are remediated and documented.
Signature: "Macana"	
Signature: 2/24/18	
Date: 7/24/18	Office





WW Department of Environmental Protection JUL 27 2018

ROAD PROFILE

KEYRUCK ENERGY, LLC
PRUPUSED WELL # KENNER 8
GRANT DISTRICT, CABELL COUNTY
MILTUN QUAD, WY 7.5'

JULY 18, 2018

TRUE LINE SURVEYING 6211 FAIRVIEW DR. HUNTINGTON, WY 25705

PAGE

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Office of Oil and Gas

