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 west virginia department of environmental protection
 

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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](http://www.dep.wv.gov)

Thursday, September 20, 2018  
 WELL WORK PERMIT  
 Vertical / New Drill

KEYROCK ENERGY LLC  
 PO BOX 2223

JOHNSON CITY, TN 37605

Re: Permit approval for LEWIS 1  
 47-011-01003-00-00

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: LEWIS 1  
 Farm Name: JAMES E. & SHIRLEY J. LEWIS  
 U.S. WELL NUMBER: 47-011-01003-00-00  
 Vertical New Drill  
 Date Issued: 9/20/2018

I

47-011-01003

09/21/2018

## 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

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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.

09/21/2018

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: Keyrock Energy LLC      494507629      Cabell      Grant      Milton 7.5'  
Operator ID      County      District      Quadrangle

2) Operator's Well Number: Lewis #1      3) Elevation: 826'

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

5) Proposed Target Formation(s): Berea and Lower Huron Proposed Target Depth: 2,500' & 3,700'

6) Proposed Total Depth: 3,800' Feet Formation at Proposed Total Depth: L. Huron

7) Approximate fresh water strata depths: 184', 824'

8) Approximate salt water depths: 1,114'

9) Approximate coal seam depths: None

10) Approximate void depths, (coal, Karst, other): None

11) Does land contain coal seams tributary to active mine? No

12) Describe proposed well work and fracturing methods in detail (attach additional sheets if needed)

Drill and stimulate using a foam frac for a new well (estimated using 40k lbs. foam frac).

Will not produce from the Marcellus Formation

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"			30'	30'	20 Cu. Ft., CTS
Fresh Water	7"			854'	854'	128 Cu. Ft., CTS
Coal						
Intermediate						
Production	4 1/2"			3,700'	3,700'	380 Cu. Ft., CTS
Tubing	2 3/8"			3,650'	3,650'	Per WV DEP Rule
Liners						

Packers: Kind: \_\_\_\_\_ **RECEIVED** OK by A.F.  
Sizes: \_\_\_\_\_ **Office of Oil and Gas** on 9-6-2018  
Depths Set \_\_\_\_\_

**SEP 19 2018**

by JMM

WW-2A  
(Rev. 6-14)

1). Date: 5/29/2018  
2.) Operator's Well Number Lewis #1  
State County Permit  
3.) API Well No.: 47- Cabell -

**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:  
(a) Name James E. & Shirley J. Lewis  
Address 894 Little Fudge Creek Rd.  
Barboursville, WV 25504  
(b) Name \_\_\_\_\_  
Address \_\_\_\_\_  
(c) Name \_\_\_\_\_  
Address \_\_\_\_\_  
5) (a) Coal Operator  
Name n/a  
Address \_\_\_\_\_  
(b) Coal Owner(s) with Declaration  
Name n/a  
Address \_\_\_\_\_  
(c) Coal Lessee with Declaration  
Name none  
Address \_\_\_\_\_  
6) Inspector Allen Flowers  
Address 165 Grassy Lick Ln.  
Liberty, WV 25124  
Telephone 304-552-8308

**TO THE PERSONS NAMED ABOVE TAKE NOTICE THAT:**

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

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 Keyrock Energy LLC  
By: Morgan Pate  
Its: Geologist  
Address: P. O. Box 2223, 207 E. Main St., Suite 201  
Johnson City, TN 37605  
Telephone: 423-726-2070  
Email: mpate@keyrockenergy.com

**RECEIVED**  
**Office of Oil and Gas**

Subscribed and sworn before me this 29<sup>th</sup> day of May, 2018  
[Signature] Notary Public  
My Commission Expires March 30, 2019  
WV Department of Environmental Protection

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](mailto:depprivacyofficer@wv.gov)

WW-2A Surface Waiver  
(4/16)

SURFACE OWNER WAIVER

County Cabell Operator Keyrock Energy LLC  
Operator well number Lewis #1

**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 57<sup>th</sup> 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.

James E Lewis  
Signature

Date 5-31-18

Company Name n/a

James E Lewis

By \_\_\_\_\_ Date \_\_\_\_\_

Print Name

\_\_\_\_\_  
Signature Date

RECEIVED  
Office of Oil and Gas

Signature Date

JUN 1 2018

WV Department of  
Environmental Protection

47-011-01003  
09/21/2018

**ACCESS ROAD OWNERS  
FOR  
KEYROCK ENERGY, LLC  
WELL LEWIS 1**

**SURFACE OWNERS OF ACCESS ROAD FOR PROPOSED WELL SITE:**

**James & Shirley Lewis  
894 Little Fudges Creek Rd.  
Barboursville, WV 25504**

**5/22/2018  
TRUE LINE SURVEYING, INC.**

**RECEIVED  
Office of Oil and Gas  
JUN 04 2018  
WV Department of  
Environmental Protection**

WW-2A1  
(Rev. 1/11)

Operator's Well Number Lewis #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
James E. Lewis and Shirley J. Lewis	Keyrock Energy LLC	1/8	391/242

**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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Environmental Protection

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:

Morgan Pate 

Keyrock Energy LLC

Geologist

WW-2B1  
(5-12)

Well No. Lewis #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 contractor 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.

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SEE ATTACHED WATER NOTICE

WV Department of  
Environmental Protection



**WATER NOTICE  
FOR  
KEYROCK ENERGY, LLC  
WELL LEWIS 1**

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

**James & Shirley Lewis  
894 Little Fudges Creek Rd.  
Barboursville, WV 25504  
304 743-4266**

**The above water source(s) was tested on 6/18/18, prior to drilling.**

**9/14/2018  
TRUE LINE SURVEYING, INC.**

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Office of Oil and Gas**

**SEP 14 2018**

**WV Department of  
Environmental Protection**

WW-9  
(5/16)

47-011-01009 09/21/2018

API Number 47 - \_\_\_\_\_ - \_\_\_\_\_  
Operator's Well No. Lewis #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) Little Fudges Creek Quadrangle Milton 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: Drill 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 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 \_\_\_\_\_ )

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Will closed loop system be used? If so, describe: No

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

-If oil based, what type? Synthetic, petroleum, etc. n/a

Additives to be used in drilling medium? n/a

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. Leave in Pit

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

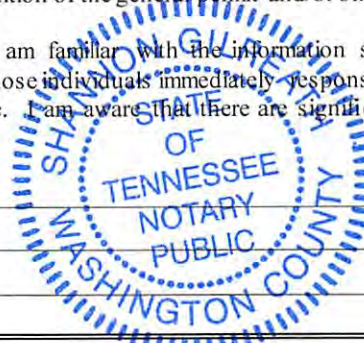
I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on April 1, 2016, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations 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 [Signature]

Company Official (Typed Name) Morgan Pate

Company Official Title Geologist



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Subscribed and sworn before me this 29<sup>th</sup> day of May, 2018

[Signature] Notary Public

My commission expires MARCH 30, 2019

Operator's Well No. Lewis #1

Proposed Revegetation Treatment: Acres Disturbed \_\_\_\_\_ Prevegetation pH 6.2

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	Orchard 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: Allen Flowers

Comments: \_\_\_\_\_

Mulch & seed site per 2016  
regulation. 24 H. notice to INSPECTOR  
before site construction

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Title: State Inspector Date: 5-28-2018

Field Reviewed?  Yes  No

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

Operator Name: Keyrock Energy LLC

Watershed (HUC 10): Little Fudges Creek Quad: Milton 7.5'

Farm Name: James & Shirley Lewis

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

Pit water will be tested, then aerated with lime being added to bring the ph to 7.0 plus. In the event of excessive chlorides, the pit fluids will be evaluated to either dilute with fresh water or hauled to an approved disposal facility. Pit water will sit a minimum of ten days to let the solids drop out.

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

Once the drilling pit fluids are at acceptable levels for discharge then the pumps intake line will be floated approximately 12" below the water level and the discharge line will be set up to disperse the water over the designated discharge area. The water will be sprayed in a back and forth pattern so as not to oversaturate any given area.

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

Little Fudges Creek- 701'  
No known Well Head Protection Area's in the vicinity

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

n/a

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

No known groundwater quality data. Samples have been offered for non-public water sources within 1000' of the proposed well.

6. 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 or fill material on 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.

All employees will be familiar with the contents of the groundwater protection plan and how to implement it. Work practices will support the protection of groundwater from contamination per company HSE Policy.

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

All GPP elements and equipment present will be inspected daily prior to use and in the event of a problem. Work will not commence until any problems are remediated and documented.

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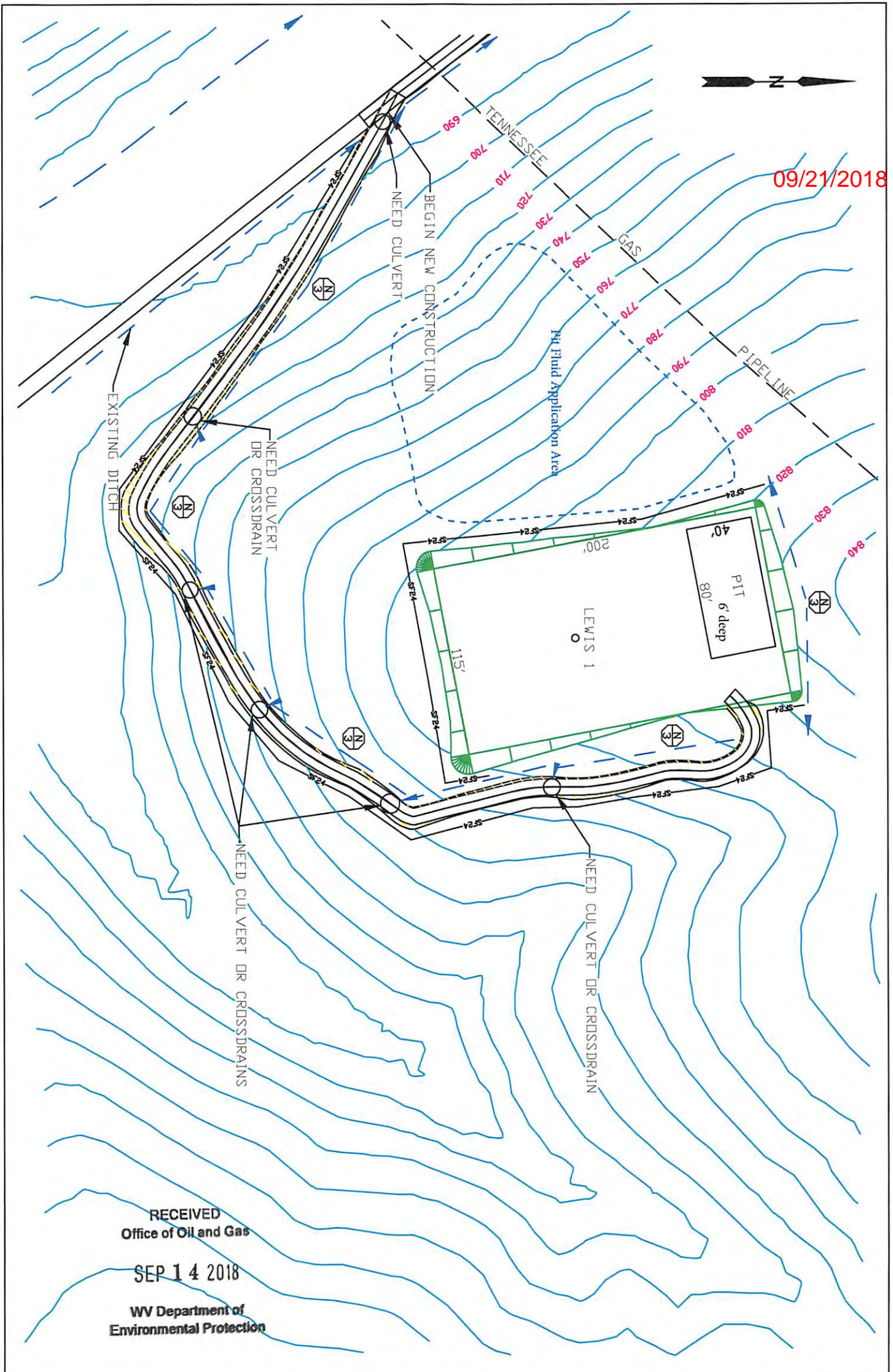
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Signature: [Signature]

Date: 5/29/18

09/21/2018



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LEGEND

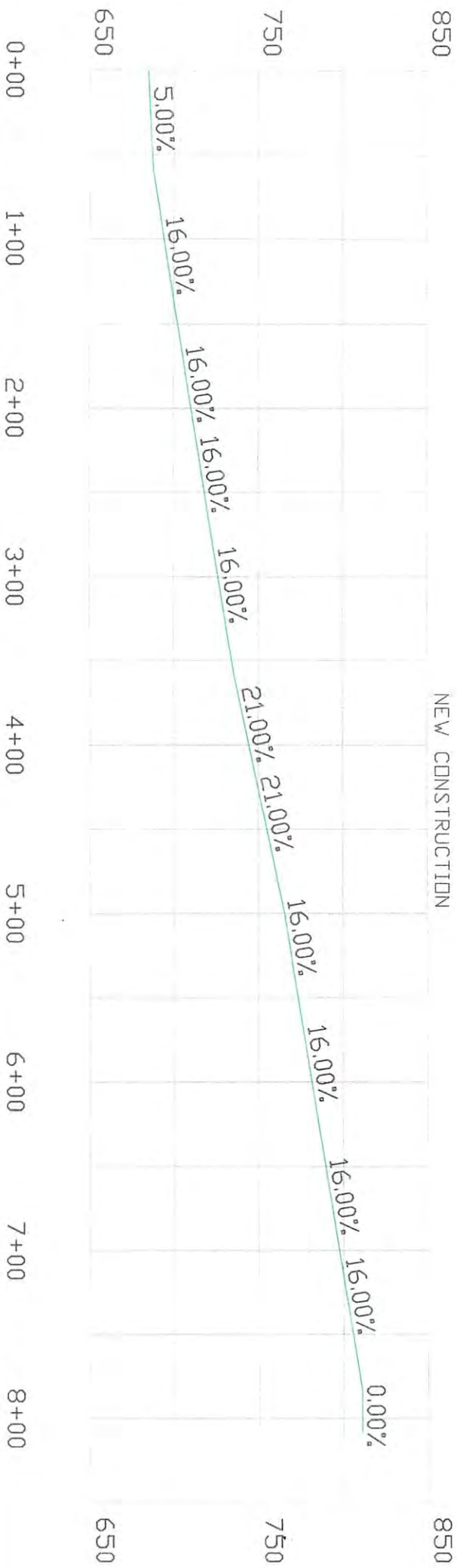
	RESEED ALL CUT AND FILL SLOPES PER DEP REGULATIONS
	LEVEL SPREADER
	DIVERSION DITCH
	BERM OUTLET

	STREAM
	PROPERTY LINE
	SLOPE AREA
	WETLAND
	24' SILT FENCE AS REQUIRED


EROSION AND SEDIMENT CONTROL PLAN

KEYROCK ENERGY PROPOSED WELL # LEWIS 1 GRANT DISTRICT, CABELL COUNTY MILTON QUAD, WV 7.5'	
MAY 22, 2018	
TRUE LINE SURVEYING 6211 FAIRVIEW DR. HUNTINGTON, WV 25705	
PAGE 1 OF 1	

09/21/2018

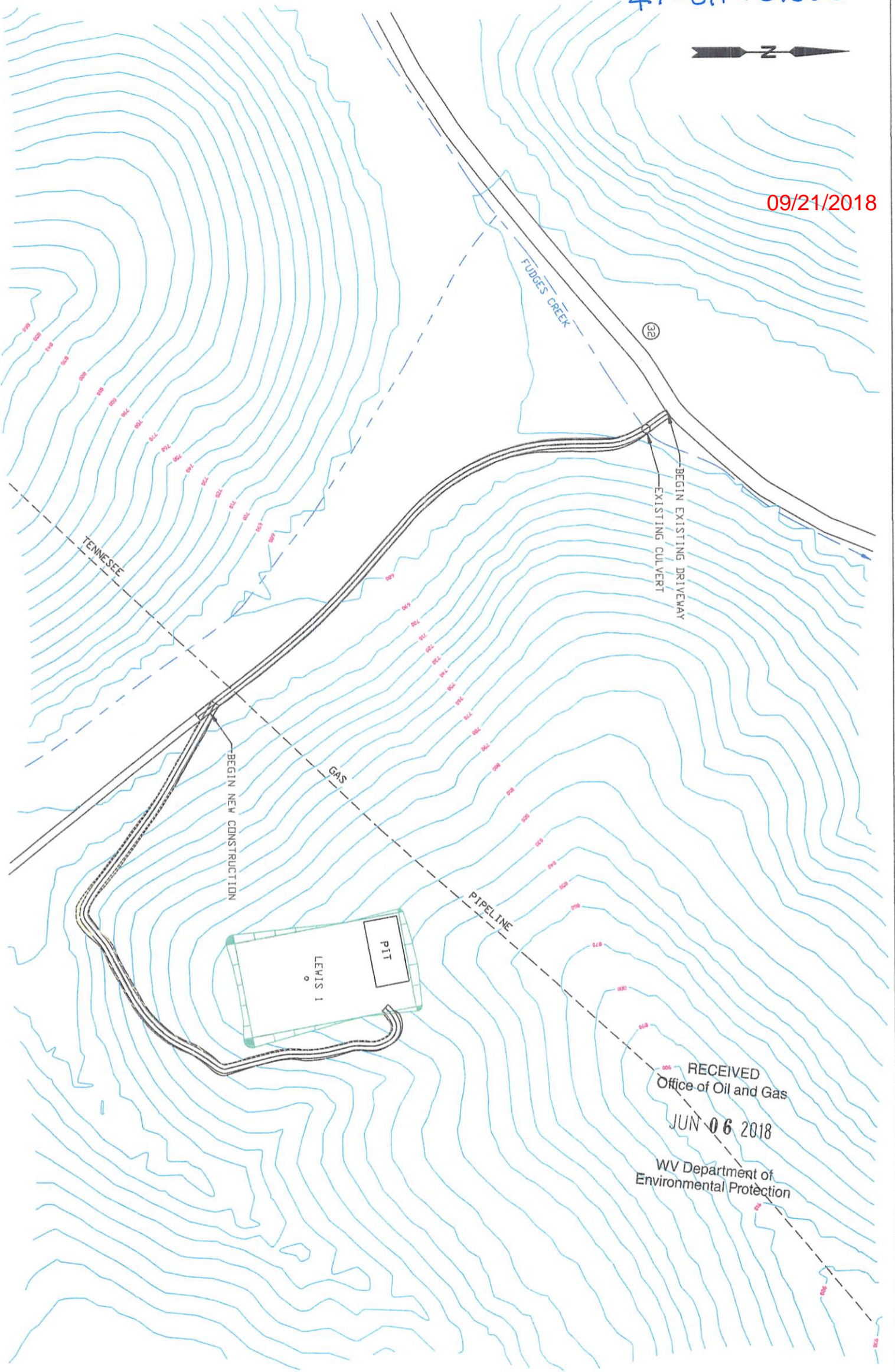


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JUN 06 2018  
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ROAD PROFILE	
KEYROCK ENERGY PROPOSED WELL # LEWIS 1 GRANT DISTRICT, CABELL COUNTY MILTON QUAD, WV 7.5'	
MAY 22, 2018	
TRUE LINE SURVEYING 6211 FAIRVIEW DR. HUNTINGTON, WV 25705	
PAGE 1	OF 1



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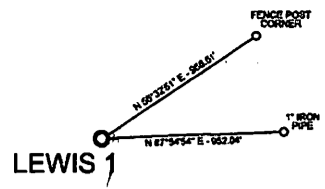
DISTURBED AREAS		LEGEND		SITE PLAN	
WELL PAD CONSTRUCTION	0.62 AC.		STREAM	KEYROCK ENERGY PROPOSED WELL # LEWIS 1 GRANT DISTRICT, CABELL COUNTY MILTON QUAD, WV 7.5'	
NEW ACCESS ROAD CONSTRUCTION	0.24 AC.		PROPERTY LINE	MAY 22, 2014	
ADDITIONAL CLEARING			SLOPE AREA	TRUE LINE SURVEYING 6211 FAIRVIEW DR. HUNTINGTON, WV 25705	
			WETLAND		
TOTAL DISTURBED AREA	0.86 AC		BUFFER AREA		



1,662'

NOTE: ALL WELLS IDENTIFIED WITHIN 2400' ARE SHOWN

LATITUDE 38°25'00"

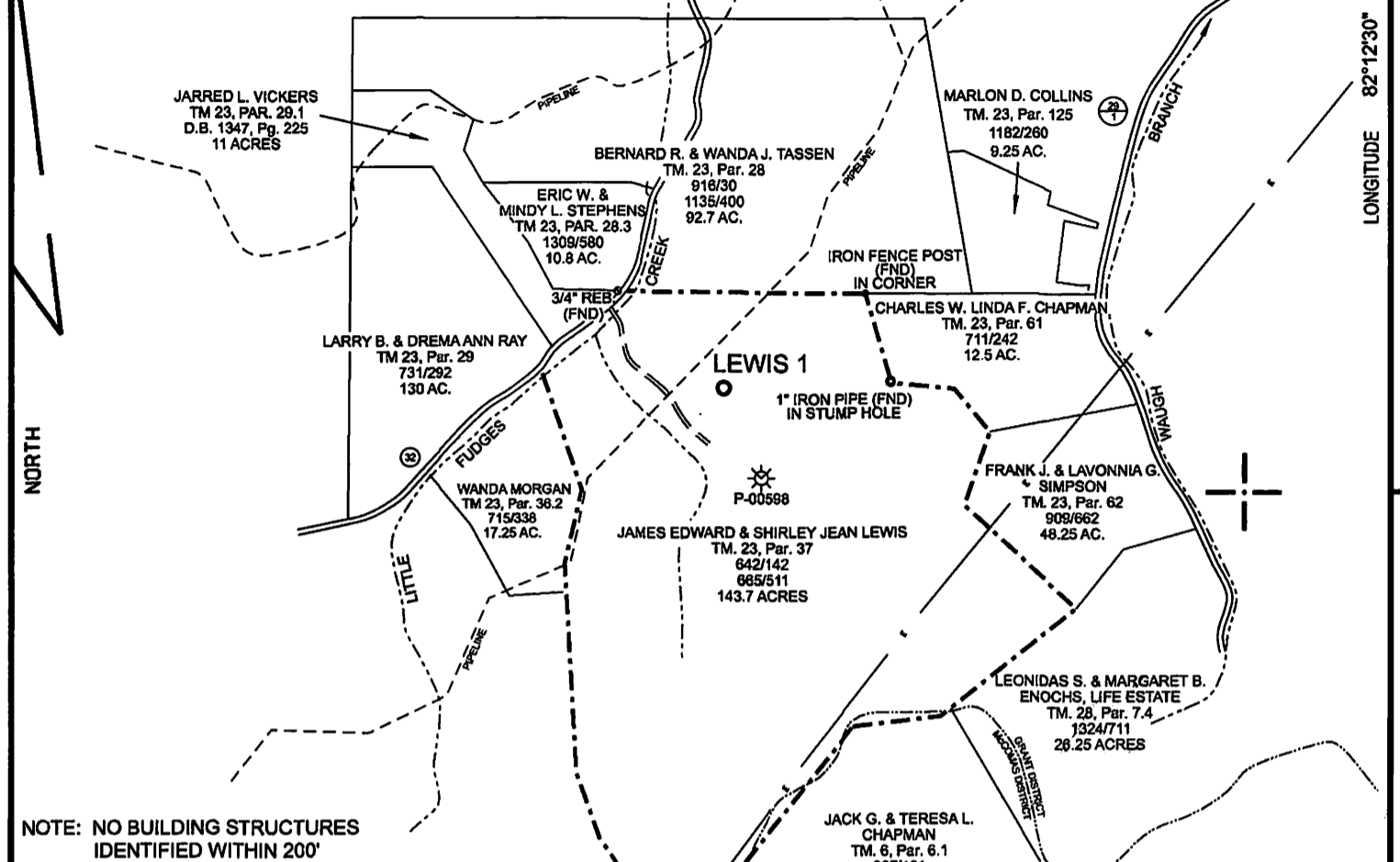


09/21/2018

LONGITUDE 82°12'30"

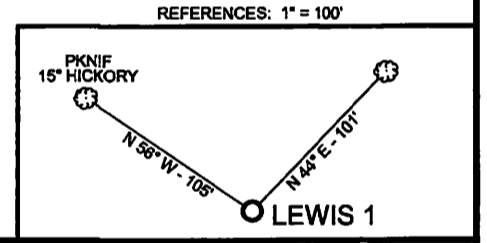
9,032'

NORTH



NOTE: NO BUILDING STRUCTURES IDENTIFIED WITHIN 200'

WELL SITE	
STATE PLANE WV SOUTH ZONE NAD 1927	
N - 509,088.325 : E - 1,652,022.921	
LATITUDE: (N) 38°23'31"	
LONGITUDE: (W) 82°12'50"	
UTM NAD83	
17 - 84W TO 78W, METERS	
N - 4,249,999.096 : E - 393,981.198	

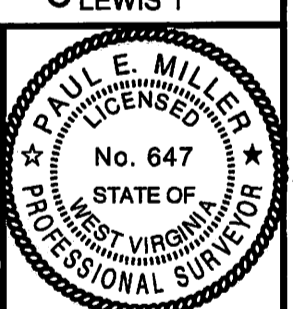


FILE NO.	LEWIS 1.DGN
DRAWING NO.	LEWIS 1
SCALE	1" = 1000'
MINIMUM DEGREE OF ACCURACY	1 : 200
PROVEN SOURCE OF ELEVATION	MAPPING GRADE GPS

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

(SIGNED) *Paul E. Miller*

R.P.E. \_\_\_\_\_ L.L.S. 647



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

DATE MAY 22, 20 18

OPERATOR'S WELL NO. LEWIS 1

API WELL NO. \_\_\_\_\_

47 011 01003  
STATE COUNTY PERMIT

WELL TYPE: OIL  GAS  LIQUID INJECTION \_\_\_\_\_ WASTE DISPOSAL \_\_\_\_\_  
(IF "GAS,") PRODUCTION  STORAGE \_\_\_\_\_ DEEP \_\_\_\_\_ SHALLOW

LOCATION: ELEVATION 826' WATER SHED LITTLE FUDGES CREEK OF FUDGES CREEK  
DISTRICT GRANT COUNTY CABELL  
QUADRANGLE MILTON, WV 7.5'

SURFACE OWNER JAMES E. & SHIRLEY J. LEWIS ACREAGE 143.70  
OIL & GAS ROYALTY OWNER JAMES E. & SHIRLEY J. LEWIS LEASE ACREAGE 143.70  
LEASE NO. \_\_\_\_\_

PROPOSED WORK: DRILL  CONVERT \_\_\_\_\_ DRILL DEEPER \_\_\_\_\_ REDRILL \_\_\_\_\_ FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION \_\_\_\_\_ PERFORATE NEW FORMATION \_\_\_\_\_ OTHER PHYSICAL CHANGE IN WELL (SPECIFY) \_\_\_\_\_

PLUG AND ABANDON \_\_\_\_\_ CLEAN OUT AND REPLUG \_\_\_\_\_

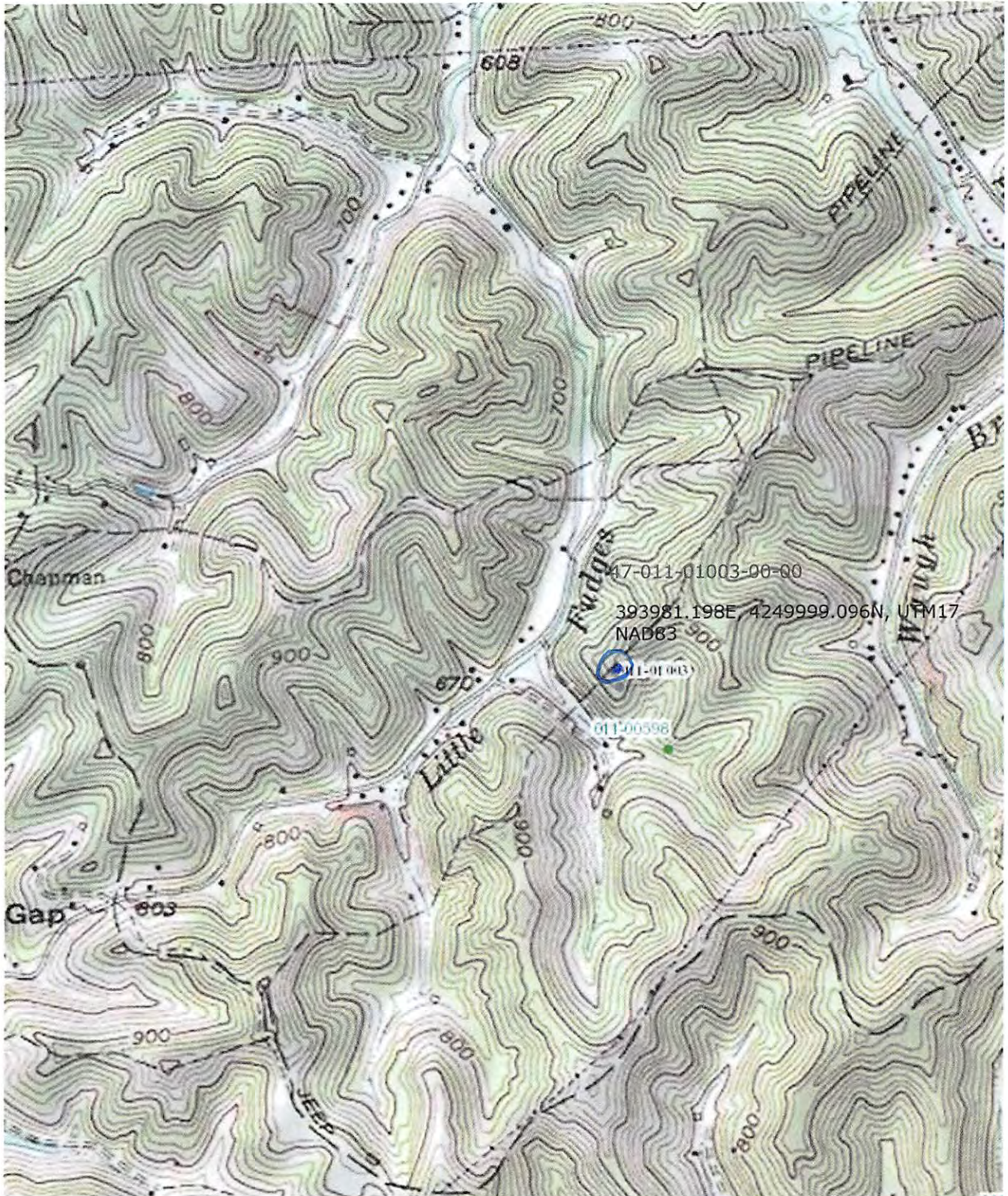
TARGET FORMATION LOWER HURON ESTIMATED DEPTH 3700'

WELL OPERATOR KEY ROCK ENERGY, LLC DESIGNATED AGENT LINDA SADLER  
ADDRESS P.O. BOX 2223 207 E. MAIN ST. SUITE 2-D JOHNSON CITY, TN 37805 ADDRESS 209 CAPITOL STREET, CHARLESTON, WV 25301

FORM WW-6

COUNTY NAME

PERMIT





47-011-01003

11-01003 RECEIVED

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STATE OF WEST VIRGINIA  
DEPARTMENT OF MINES  
Oil and Gas Division

OIL & GAS DIVISION  
DEPT. OF MINES

WELL RECORD 4

09/21/2018

Quadrangle Milton 7 1/2

Permit No. Cab - 598

Rotary \_\_\_\_\_ Oil \_\_\_\_\_  
Cable X Gas \_\_\_\_\_  
Recycling \_\_\_\_\_ Comb. \_\_\_\_\_  
Water Flood \_\_\_\_\_ Storage \_\_\_\_\_  
Disposal \_\_\_\_\_ DRY \_\_\_\_\_  
(Kind)

Company SPARTAN GAS COMPANY  
Address P. O. Box 766, Charleston, WV  
Farm James E. Lewis Acres 144  
Location (waters) Little Fudges Creek  
Well No. 1 - S - 197 Elev. 712.19  
District Grant County Cabell  
The surface of tract is owned in fee by \_\_\_\_\_  
James E. Lewis  
Address Barboursville, WV  
Mineral rights are owned by Same  
\_\_\_\_\_ Address \_\_\_\_\_  
Drilling Commenced 7-7-78  
Drilling Completed 8-31-78  
Initial open flow Show cu. ft. \_\_\_\_\_ bbls.  
Final production Dry cu. ft. per day \_\_\_\_\_ bbls.  
Well open \_\_\_\_\_ hrs. before test NA RP.

Casing and Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft. (Sks.)
Size 20-16			To surface
Cond. 8-10"	20'	20'	
9 5/8			
8 5/8	456'	456'	
7	1,950'	--	
5 1/2			
4 1/2			
3			
2			
Liners Used			

Well treatment details:

Attach copy of cementing record.

Shot from 3,140 to 3,520 feet with 4,000 Gelatin

Coal was encountered at \_\_\_\_\_ Feet \_\_\_\_\_ Inches  
Fresh water 70' Feet \_\_\_\_\_ Salt Water \_\_\_\_\_ Feet \_\_\_\_\_  
Producing Sand \_\_\_\_\_ Depth \_\_\_\_\_

Formation	Color	Hard or Soft	Top Feet	Bottom Feet	Oil, Gas or Water	* Remarks
Surface			0	12		
Slate			12	50		
Red Rock			50	85		Water at 70'
Slate			85	130		" 710' 4 BPH
Sand			130	205		" 900' HFW
						Oil 2,363' Show
Red Rock			205	212		
Slate			212	250		
Red Rock			250	270		
Slate			270	400		
Red Rock			400	415		
Slate			415	700		
Sand			700	790		
Slate			790	1100		
Sand			1100	1140		
Slate			1140	1218		
Sand			1218	1358		
Slate			1358	1372		
Sand			1372	1420		
Slate			1420	1454		
Lime			1454	1510		

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Environmental Protection

\* Indicates Electric Log tops in the remarks section.

(over)

Formation	Color	Hard or Soft	Top Feet	Bottom Feet	Oil, Gas or Water	* Remarks
Slate			1510	1528		
Red Rock			1528	1532		
Lime			1532	1542		
Slate			1542	1565		
Little Lime			1565	1585		09/21/2018
Big Lime			1585	1755		
Injun Sand			1755	1785		
Slate			1785	1818		
Slate-Shell			1818	1826		
Sand			1826	1910		
Slate-Shells			1910	2345		
Brown Shale			2345	2355		
Berea Grit			2355	2378		
Slate Lime			2378	2770		
Brown Shale			2770	2875		
Slate			2875	3160		
Brown Shale			3160	3205		
Slate-Shells			3205	3250		
Brown Shale			3250	3500		
Slate			3500	3523		
TOTAL DEPTH			3523			

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WV Department of  
Environmental Protection

Date September 13, 19 78

APPROVED SPARTAN GAS COMPANY

By William Reynolds Owner  
(1/06)

47-011-01003

OG-1  
Rev. - 71



STATE OF WEST VIRGINIA  
DEPARTMENT OF MINES

Oil and Gas Division

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OIL AND GAS DIVISION  
09/21/2018

OIL AND GAS WELL PERMIT APPLICATION

TO THE DEPARTMENT OF MINES,  
Charleston, W. Va.

DATE June 29, 1978

Surface Owner James E. Lewis

Company SPARTAN GAS COMPANY

Address Barboursville, WV

Address P. O. Box 766, Charleston, WV

Mineral Owner Same

Farm James E. Lewis Acres 145

Address \_\_\_\_\_

Location (waters) Little Fudges Creek

Coal Owner Same

Well No. 1-S-107 Elevation 712.13

Address \_\_\_\_\_

District Grant County Cabell

Coal Operator None

Quadrangle Milton 7 1/2'

Address \_\_\_\_\_

THIS PERMIT MUST BE POSTED AT THE WELL SITE

All provisions being in accordance with Chapter 22, of the W. Va. Code, the location is hereby approved for drilling. This permit shall expire if operations have not commenced by 10-30-78.

INSPECTOR TO BE NOTIFIED Kenneth Butcher

ADDRESS Barboursville, W. Va.

*Robert T. [Signature]*

PHONE 736-4885

Deputy Director - Oil & Gas Division

GENTLEMEN:

The undersigned well operator is entitled to drill upon the above named farm or tract of land for oil and gas, having fee title thereto, (or as the case may be) under grant or lease dated May 10 1978 by James E. Lewis made to Spartan Gas Company and recorded on the 19 day of May 1978, in Cabell County, Book 231 Page 144

NEW WELL  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE  
OIL AND GAS WELL ORIGINALLY DRILLED BEFORE JUNE 5, 1969.

The enclosed plat was prepared by a registered engineer or licensed land surveyor and all coal owners and/or operators have been notified as of the above date.

The above named coal owners and/or operator are hereby notified that any objection they wish to make, or are required to make by Section 3 of the Code, must be received by, or filed with the Department of Mines within ten (10) days.

Copies of this notice and the enclosed plat were mailed by registered mail, or delivered to the above named coal operators or coal owners at their above shown respective address \_\_\_\_\_ day \_\_\_\_\_ before, or on the same day with the mailing or delivery of this copy to the Department of Mines at Charleston, West Virginia.

PLEASE SUBMIT COPIES OF ALL GEOPHYSICAL LOGS DIRECTLY TO:

Very truly yours, SPARTAN GAS COMPANY  
(Sign Name) By: \_\_\_\_\_  
Well Operator

WEST VIRGINIA GEOLOGICAL AND ECONOMIC SURVEY  
P. O. BOX 879  
MORGANTOWN, WEST VIRGINIA 26505  
AC-304 - 292-6331

Address of Well Operator

P. O. Box 766  
Street

Charleston  
City or Town

West Virginia  
State

JUN 04 2018

BLANKET BOND

\*SECTION 3 . . . . If no objections are filed or found by the Department of mines, within said period of ten days from the receipt of notice and plat by the department of mines, to said proposed location, the department shall forthwith issue to the well operator a permit reciting the filing of such plat, that no objections have been made by the coal operators or found thereto by the department of mines, and the well operator authorized to proceed.

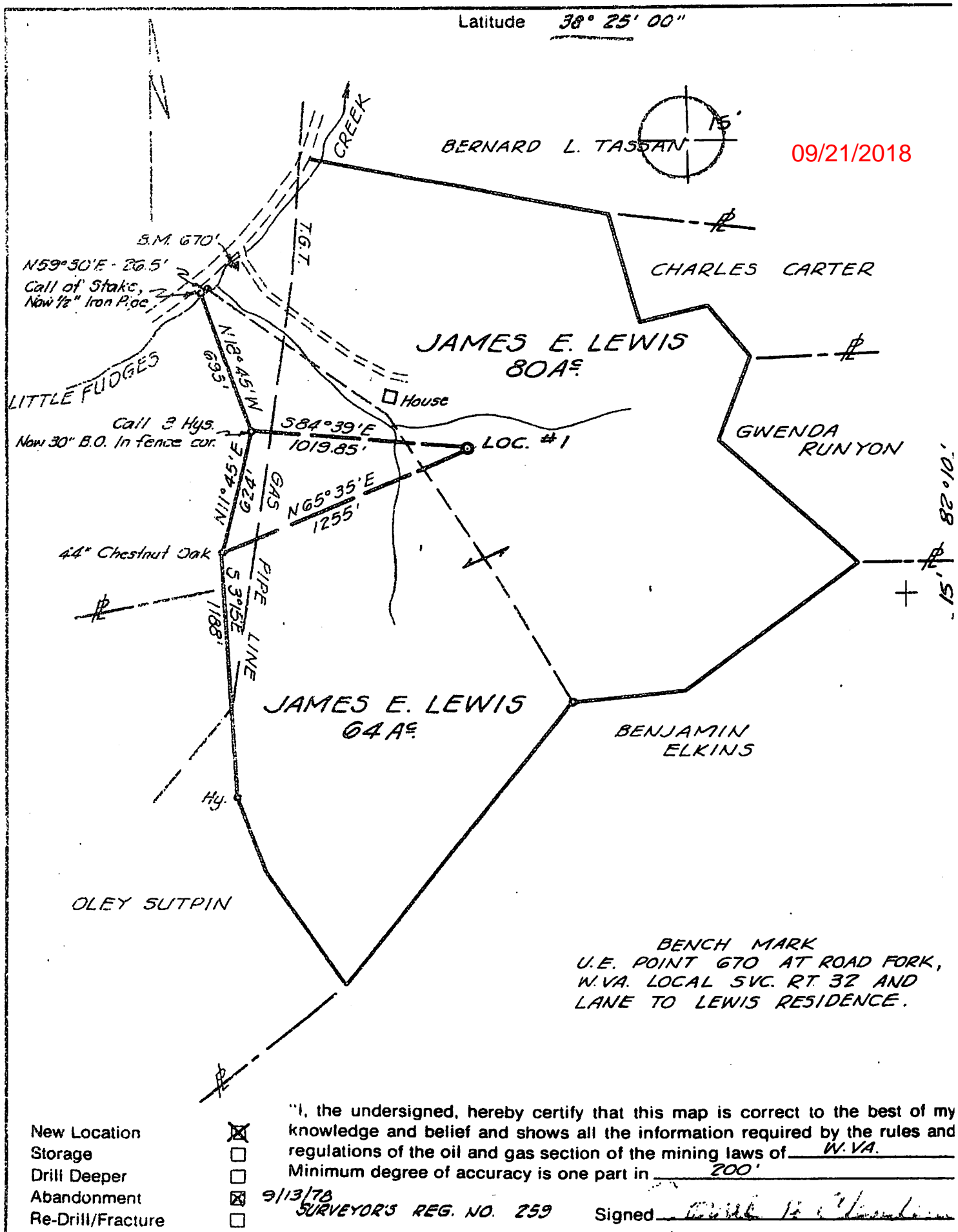
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WV Department of Environmental Protection

CAB-598 PERMIT NUMBER

47-011

"I have read and understand the reclamation requirements as set forth in Chapter 22, Article 4, Section 12-b and will carry out the specified requirements."

Signed by \_\_\_\_\_



09/21/2018

BERNARD L. TASSAN

BENCH MARK  
 U.E. POINT 670 AT ROAD FORK,  
 W.VA. LOCAL SVC. RT. 32 AND  
 LANE TO LEWIS RESIDENCE.

- New Location
- Storage
- Drill Deeper
- Abandonment
- Re-Drill/Fracture

I, the undersigned, hereby certify that this map is correct to the best of my knowledge and belief and shows all the information required by the rules and regulations of the oil and gas section of the mining laws of W. VA.  
 Minimum degree of accuracy is one part in 200'

9/13/78  
 SURVEYOR'S REG. NO. 259

Signed *[Signature]*

Company SPARTAN GAS COMPANY  
 Address CHARLESTON, W.VA.  
 Farm JAMES E. LEWIS  
 Lease 80 of 144 Acres  
 Well Farm No. 1 Ser. No. 5-197  
 Elevation - Spirit Level 712.19'  
 Quadrangle MILTON 7 1/2 15' WC  
 Township or District GRANT  
 County CABELL  
 Sec., Lot, Qr. \_\_\_\_\_ T \_\_\_\_\_ R \_\_\_\_\_  
 Coordinates \_\_\_\_\_  
 File No. 1-43 Dwg. No. \_\_\_\_\_  
 Date JUNE 27, 1978 Scale 1" = 600'

**WELL LOCATION MAP**  
**STATE OF WEST VIRGINIA**  
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 States Topographic Maps  
 JUN 04 2018  
**CAB-598-P**  
 WV Department of  
 Environmental Protection