

STATE OF OHIO
DEPARTMENT OF NATURAL
RESOURCES

Division of Oil and Gas
Resources Management
WELL PERMIT

API WELL NUMBER
34-005-2-4199-01-00

OWNER NAME, ADDRESS CABOT OIL & GAS CORPORATION 2000 PARK LANE SUITE 300 PITTSBURGH PA 15275 1121	DATE ISSUED 4/4/2018	PERMIT EXPIRES 4/3/2020
	TELEPHONE NUMBER	(412) 249-3850

IS HEREBY GRANTED PERMISSION TO: Plug back to horizontally drill AND ABANDON WELL IF UNPRODUCTIVE
PURPOSE OF WELL: Oil & Gas
COMPLETION DATE IF PERMIT TO PLUG:

DESIGNATION AND LOCATION:

LEASE NAME KAMENIK T
WELL NUMBER 001
COUNTY ASHLAND
CIVIL TOWNSHIP GREEN

SURFACE NAD27 TARGET NAD27
X: 2046959 2044570
Y: 384302 388330
LAT: 40.7213976682499 40.7324665707569
LONG: -82.3305878752548 -82.3391797602665

TRACT OR ALLOTMENT
SURFACE FOOTAGE LOCATION 657'SL & 2446'WL OF NW QTR SEC 6 (GREEN TWP)
TARGET FOOTAGE LOCATION 522'NL & 38'WL OF SW QTR SEC 31 (VERMILLION TWP)

TYPE OF TOOLS: Air Rotary/Fluid Rotary

PROPOSED TOTAL DEPTH 9972 FEET
GROUND LEVEL ELEVATION 1343 FEET

GEOLOGICAL FORMATION(S):

KNOX

SPECIAL PERMIT CONDITIONS: Permit is subject to the attached terms and/or conditions
Horizontal Drilling Well Permit Conditions
Permit Conditions for all wells drilled through the Knox Unconformity
Samples Requested, see attached letter

CASING PROGRAM (CASING MUST BE CENTRALIZED AND IS SUBJECT TO APPROVAL OF THE OIL AND GAS INSPECTOR):

20" CONDUCTOR APPROX. 100' CEMENTED TO SURFACE
13 3/8" SURFACE CASING 50' BELOW BEREA, APPROX. 830' CEMENTED TO SURFACE
9 5/8" INTERMEDIATE APPROX. 3382' AND CEMENTED TO AT LEAST 500 TRUE VERTICAL FEET ABOVE THE CASING SEAT (A
5 1/2" PRODUCTION CASING CEMENTED IF PRODUCTIVE
"BLOW OUT PREVENTOR REQUIRED" HAZARDOUS CONDITIONS MAY BE ENCOUNTERED
NOTE: DRIFT IN THIS AREA IS APPROXIMATELY 88'

This permit is NOT TRANSFERABLE. This permit, or an exact copy thereof, must be displayed in a conspicuous and easily accessible place at the well site before permitted activity commences and remain until the well is completed. Ample notification to inspector is necessary.

OIL AND GAS WELL INSPECTOR:

TOM ZACHARYASZ (740) 398-3689
TERRY WHITEHAIR - Superviso (330) 414-5701
DISTRICT #: (330) 896-1849

INSPECTOR NOTIFICATION

The oil and gas inspector must be notified at least 24 hours prior to:

1. Commencement of site construction
2. Pit excavation and closure
3. Commencement of drilling, reopening, converting or plugback operations
4. Installation and cementing of all casing strings
5. BOP testing
6. Well stimulation
7. Plugging operations
8. Well pad construction

The oil and gas inspector must be notified immediately upon:

1. Discovery of defective well construction
2. Detection of any natural gas or H2S gas during drilling in urban areas
3. Discovery of defective well construction during well stimulation
4. Determination that a well is a lost hole
5. Determination that a well is a dry hole

FLARING NOTIFICATION

The oil and gas inspector and county EMA must be notified prior to flaring.

FIRE AND EMERGENCY NUMBERS

FIRE: (419) 368-7335
MEDICAL SERVICE (419) 289-0491

Richard J. Simmers

CHIEF, Division of Oil and Gas Resources
Management

STATE OF OHIO
DEPARTMENT OF NATURAL
RESOURCES

Division of Oil and Gas
Resources Management
WELL PERMIT

API WELL NUMBER
34-005-2-4199-01-00

CABOT OIL & GAS CORPORATION
2000 PARK LANE SUITE 300
PITTSBURGH, PA 15275-1121

PERMIT CONDITIONS FOR ALL WELLS DRILLED THROUGH THE KNOX UNCONFORMITY

These conditions must be displayed with the permit in a conspicuous place at the well site in accordance with Section 1509.05 of the Ohio Revised Code.

ALERT: Owners should prepare to encounter large volumes of high-pressure natural gas when drilling through reservoirs below the Knox Unconformity. In accordance with Section 1501:9-9-02 of the Ohio Administrative Code, the owner, contractor and all persons in control of wells being drilled, shall use all reasonable means to safeguard against hazards to life, limb and property.

1. Surface casing shall be set to a depth which is at least 50 feet through the deepest underground source of drinking water (USDW) with sufficient excess cement circulated to surface.
2. When drilling to a permitted formation deeper than the "Clinton" sand, an intermediate string of casing shall be set and cemented through the Berea Sandstone or to a depth of 1000 feet, whichever is greater.
3. A blow-out preventer (BOP), equipped with a choke manifold of sufficient size and pressure rating to control normal hydrostatic pressures for the deepest pool to be penetrated, must be installed on the surface casing. The BOP shall be chained to the rig substructure in a manner which minimizes any potential jarring or damage to the surface casing and/or collar threads.
4. A BOP test shall be conducted before drilling resumes below the surface casing. The test shall require a minimum pressure of 250 PSI for at least fifteen minutes. It is recommended that the BOP be tested at 500 PSI or the maximum anticipated surface pressure for the deepest pool to be penetrated. The owner shall provide a minimum of 8 hours advance notice to the appropriate Division inspector, so that the inspector may be present to witness the BOP test. The inspector may authorize the test to proceed in his/her absence. If the inspector is not present at the scheduled time, the owner can conduct the BOP test.
5. For air rotary operations, a rotating air-head in good working condition must be installed on the surface casing. Stripper rubbers should be inspected and replaced, if necessary, prior to drilling into formations where natural gas is anticipated.
6. For air rotary operations, a staked and chained steel blow (discharge) line must be vented not less than 80 feet from the well into a pit. For fluid rotary operations, a staked and chained blow line, at least 40 feet long, should be directed into a pit. Whether, drilling on air or fluid, the blow line shall be directed away from all inhabited structures and traveled roads that could be affected if high-pressure natural gas is encountered. All line fittings must be of high-pressure grade. The owner shall also install a kill line(s) for control of gas and/or oil shows.

7. To control high-pressured gas and/or oil that may be encountered below the Knox Unconformity, the operator may drill on a fluid system or maintain a smudge from a depth of 400 feet above the expected top of the producing formation to total depth. When a smudge is maintained, the local fire department should be notified of the potential controlled flare prior to drilling into the producing formation. When a fluid system is used the density of the fluid shall be sufficient to control all gas and/or oil shows encountered.
8. The owner shall maintain a sufficient supply of brine and/or mud at the well site for possible well control emergencies.
9. **THE DIVISION OF OIL AND GAS RESOURCES MANAGEMENT MUST GRANT PRIOR APPROVAL BEFORE ANY MODIFICATION OF THESE CONDITIONS.**

The Ohio Department of Natural Resources
The Division of Oil and Gas Resources Management
2045 Morse Road, Building F-2
Columbus, Ohio 43229-6693

HORIZONTAL DRILLING PERMIT CONDITIONS

Within sixty (60) days after the completion of drilling operations, the following items **must** be submitted to the Division of Oil and Gas Resources Management:

- A copy of the bore hole deviation survey.
- A post drilling map (revised surveyor's plat) showing all of the following:
 1. Surface location of the well;
 2. Actual track of wellbore;
 3. Actual location of the first perforation;
 4. Actual location of the last perforation;
 5. Actual ending point of the bore hole in the target formation;
 6. X, Y coordinates of items 1, 3, 4 & 5 above.
- A fifty-dollar (\$ 50.00) fee for the post drilling map (revised surveyor's plat) required by the conditions of the permit.



Ohio Department of Natural Resources

JOHN R. KASICH, GOVERNOR

JAMES ZEHRINGER, DIRECTOR

REQUEST FOR DRILL CUTTINGS SAMPLES

3/6/2018

In accordance with Ohio Revised Code, Section 1509.10 (C), the Ohio Department of Natural Resources, Division of Geological Survey requires a set of drill cuttings from the following well:

Operator: CABOT OIL & GAS CORPORATION
 Phone: (412) 249-3850
 API #: 34005241990100
 Application #: aPATT032236
 Lease Name: KAMENIK T #001
 Located: Surface: 657'SL & 2446'WL OF NW QTR SEC 6 (GREEN TWP)
 Target: 522'NL & 38'WL OF SW QTR SEC 31 (VERMILLION TWP)
 County: ASHLAND
 Township: GREEN
 Interval(s): Curve to lateral TD

The following *minimum* sample sizes are required:

Vertical hole, fluid	Every 30 ft., 25 grams dried OR 100 grams unwashed
Vertical hole, air	Every 50 ft., 25 grams dried
Horizontal	Every 90 ft., (30ft. through curve), 25 grams dried

Sample hole and intervals must be clearly labeled.

Samples collection and delivery are the responsibility of the operator. Please send the samples to:

ODNR Division of Geological Survey
 3307 S. Old State Rd.
 Delaware, OH 43015-9454

Your point of contact for sample shipment and delivery is:

Jeffrey Deisher
 Phone: (740) 548-7348 Ext. 130
 E-mail: jeffrey.deisher@dnr.state.oh.us

If requested, we will hold the samples confidential for a period of one (1) year from the date that the well reached total depth (TD). A request for confidentiality must be made in writing to the Division Chief.



Thomas J. Serenko
 Division Chief

DAILY ROUTE SLIP

APPLICATION NO: aPATT032236 TYPE: Plug back to horizontally drill

API: _____ OWNER: CABOT OIL & GAS CORPORATION

WELL NAME/NO: _____ KAMENIK T / 001

COUNTY/ TOWNSHIP: _____ ASHLAND / GREEN

PERMIT FEE, CHECK NO, REF NO.	\$500.00	1900001720	_____
RUSH AMOUNT, CHECK NO, REF NO.	\$0.00	0	_____
MANDATORY POOL FEE, CHECK NO, REF NO.	\$0.00	0	_____

	<u>INITIALS</u>	<u>DATE</u>
DATE APPLICATION REC'D:	<u>pn</u>	<u>3-6-18</u>
APPLICATION ENTERED:	<u>pn</u>	<u>3-6-18</u>
STATE LAND: YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	<u>pn</u>	<u>3-6-18</u>
COAL BEARING TOWNSHIP: YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	<u>pn</u>	<u>3-6-18</u>
APPLICATION & PLAT SENT FOR MINE APPROVAL:	_____	_____
MINE APPROVAL REC'D:	_____	_____
FEE SIMPLE AFFIDAVIT REC'D:	_____	_____
URBANIZED AREA: YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	<u>pn</u>	<u>3-6-18</u>
URBANIZED AREA NOTIFICATION SENT:	_____	_____
URBANIZED AREA MAP REVIEW:	_____	_____
PRE-SITE REVIEW SENT TO INSPECTOR:	_____	_____
PRE-SITE REVIEW REC'D BACK:	<u>pn</u>	<u>3-7-18</u>
SAMPLES REQUIRED: <input checked="" type="checkbox"/> YES	_____	_____
COMMUNICATION WITH APPLICANT:	_____	_____

Date	Person Contacted	Method of Contact	Reason for Contact
4/2	Ken Marcum	phone	new plats-missing section line measurement -rec'd 4/3

GIS VERIFICATION:	<u>TE</u>	<u>4/3/18</u>
GEOLOGIST APPROVAL:	<u>TE</u>	<u>4/3/18</u>
SECOND APPROVAL:	<u>ACE</u>	<u>4/3/18</u>
FINAL APPROVAL:	<u>SO</u>	<u>4/4</u>
DATE ENTRY/ISSUED:	<u>pn</u>	<u>4-4-18</u>
EMERGENCY MGMT H2S EMAIL SENT:	_____	_____
PERMIT TAKEN: _____ MAILED: <input checked="" type="checkbox"/>	<u>pn</u>	<u>4-5-18</u>
FAXED: _____ EMAILED: _____	_____	_____

COMMENTS: API # 34-065-2-4199-07-60
Send SR + KNXI, + HD

Proof Sheet

APP NUMBER	aPATT032236	URBANIZED AREA ?	<input type="checkbox"/>
OWNER NUMBER	9975	NAME	
OWNER NAME	CABOT OIL & GAS CORPORATION		
EXISTING WELL	No	STATE LAND	<input type="checkbox"/>
API PERMIT NO			
APP TYPE	PBHX		
TYPE OF WELL	OG		
COMPLETION DT		PROPOSED FORMATIONS	
WELL NAME	KAMENIK T	KNOX	
WELL NUMBER	001		
PREV/PROPOSED TD	9972		
DRILL UNIT ACRES	139.951		
TYPE OF TOOL	RTAF	UTICA / POINT PLEASANT	<input type="checkbox"/>
WELL CLASS	EDPW	MARCELLUS	<input type="checkbox"/>
FIRE PHONE	(419) 368-7335	TAKE POINT (NAD27) ORIG X	2,046,940 ¹
MEDICAL PHONE	(419) 289-0491	TAKE POINT (NAD27) ORIG Y	384,337 ⁸
COUNTY CODE	5	TARG COUNTY CODE	5
COUNTY NAME	ASHLAND	TARG COUNTY NAME	ASHLAND
COAL	NO	TARG CIVIL TWP	GREEN Vermillion
CIVIL TOWNSHIP	GREEN	TARG QUAD	PERRYSVILLE
SURF QUAD	PERRYSVILLE	TARG (NAD 27) ORIG X	2,044,570
SURF (NAD 27) ORIG X	2,046,958 ⁹	TARG (NAD 27) ORIG Y	388,330
SURF (NAD 27) ORIG Y	384,307 ²	TARG ELEV	1164 ⁰
GROUND ELEVATION	1343	TARG SECTION	31
SURF SEC	6	TARG LOT	
SURF LOT		TARG QTR TWP	
SURF QTR TWP		TARG ALLOT	
SURF ALLOT		TARG TRACT	
SURF TRACT		TARG FRACTION	
SURF FRACTION			

SOURCES OF WATER BLACK FORK OF MOHICAN RIVER/LOUDONVILLE PWS

WATERSHED	LAKE ERIE <input type="checkbox"/>	OHIO RIVER <input checked="" type="checkbox"/>	RUMA ATTACHED	<input type="checkbox"/>
EST WITHDRAWAL RATE (GAL/DAY)	1,500,000 1500000000		NON AGREEMENT AFFIDAVIT ATTACHED	<input checked="" type="checkbox"/>
EST TOTAL VOLUME (GALLONS)	4500000		STATE ROUTE ONLY	<input type="checkbox"/>
RECYCLED WATER EST TOTAL VOLUME (GALLONS)			WATER WELL SAMPLING RESULTS	<input type="checkbox"/>
VARIANCE REQUEST			DATE SUBMITTED	
MINES APPROVAL				
AFFIDAVIT APPROV				

Proof Sheet

SURFACE FOOTAGE

657' SL + 2446' WL of NW QTR Sec. 6 (Green TWP)

TAKE POINT FOOTAGE

691' SL + 2430' WL of NW QTR Sec. 6 (Green TWP)

TARGET FOOTAGE

522' NL + 38' WL of SW QTR Sec. 31 (Vermillion TWP)

SPECIAL CONDITIONS/COMMENTS

- PER
SR
KINK
HD

CASING PROGRAM

18	20	100
31	1336	830
13	958	3382
19	5 1/2	
26		
53	88	

Y N

GIS REVIEW

- AOR INJECTION / SOLUTION MINE WELL
- DRIFT THICKNESS 88
- EARTHQUAKE (Post 1999)
- GAS STORAGE RESERVOIR AREA
- H2S TOWNSHIP
- KNOWN PRE-CAMBRIAN FAULT
- LAKE PLAIN REGION
- MECCA POOL
- SHALLOW SURFACE CASING TOWNSHIP
- STATE LANDS
- THIN TILL
- UNDERGROUND MINE (ABANDONED)
- UNDERGROUND MINE (ACTIVE)
- URBANIZED AREA
- WATER (100 YR FLOODPLAIN AREA, A.E. 1%)
- WATER (5 YR SOURCE PROTECTION AREA)
- WATER (PERENNIAL STREAMS)
- WATER (WELLS)

WATER WELL REVIEW

WATER WELL DEPTH: _____
 WATER WELL ELEV: _____
 CASING DEPTH: _____

UNDERGROUND MINE REVIEW

MINE ID: _____
 FORMATION: _____
 MINE ELEV SUBSEA: _____
 CASING DEPTH: _____

USDW REVIEW

KNOWN USDW: 76-5 Be@560
1343
783
+50
833

Permit Application Check-List for Substantial Omissions

(Ohio Administrative Code: 1501:9-1-Oil Well Drilling (B) (1) (d): If an application does not contain required information, the division shall notify the applicant of the omitted data by mail or telephone. If the omissions are substantial, the division may return the application by mail with the omitted items indicated.)

1. Fee for permit correct? Yes No
2. Is the Applicant the owner of record for the well listed on the application? Yes No
3. Permit Application signed and notarized by the owner or authorized agent? Yes No
4. Is the surveyor's plat signed and/or is the surveyor's seal stamped on plat? Yes No N/A
5. Is the restoration plan (Form 4) included with a signature and date on page 2? Yes No N/A
6. If the proposed location is in an urban area, did the applicant include the required aerial photos? Yes No N/A
7. For a Horizontal Shale well, is the RUMA or Non-Agreement Affidavit included?
Only state routes used as ingress and egress? Yes No
Yes No
8. Is the ingress and egress information provided on the application? Yes No
9. If the proposed well location is in a designated coal-bearing area and the **application has been expedited**, is the landowner fee simple affidavit included? Yes No N/A
10. Did the applicant file using a current Form 1? (2014 or newer) Yes No
11. Are the applicant's insurance and bond current with the Division? Yes No
12. Is the applicant on hold for material and substantial violations?
Chief's Order Number _____ Yes No
13. Is the landowner royalty list included? Yes No N/A
14. Is this well/unit part of a unitization?
Chief's Order Number _____ Yes No
15. List any missing documents or information that may be needed to complete the permit process:
Cannot have multiple locations for horizontal well.
Request new application 3/12. Rec'd 3/14

Review Date: 3/6/18 Reviewed by PN

Manager Approval SO 3/12

11/9/2016 Expedited application

Application Number APRHO32236

190000 1720

\$ 500⁰⁰



OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL AND GAS RESOURCES MANAGEMENT

2045 MORSE RD., BLDG. F-2, COLUMBUS, OH 43229-6693
Phone: (614) 265-6922 • Fax: (614) 265-6910



APPLICATION FOR A PERMIT (Form 1)

(REVISED 0915)

APATHO 32236

SEE INSTRUCTIONS ON BACK

1. We (applicant) Cabot Oil & Gas Corporation 2. OWNER NUMBER: 9975
 Address: 2000 Park Lane, Suite 300, Pittsburgh, PA 15275 Phone Number: (412) 249 - 3850
 hereby apply this date 3/7, 2018 for a permit to:

Drill Vertical Well Revised Location Convert
 Drill Horizontally Plug Back Deepen
 Drill Directionally Plug and Abandon Reopen
 Reissue Temporary Inactive: 1st year 2nd year 3rd year _____th year

3. TYPE OF WELL: Oil & Gas Annular Disposal Saltwater Injection
 Stratigraphic Test Gas Storage Other (explain):
 Solution Mining* Enhanced Recovery* (*if checked, select appropriate box below)
 Input/Injection Water Supply Observation Production/Extraction

4. Is the well location or production facility(s) within an urbanized area as defined by ORC 1509.01 (Y)? Yes No
 20. TYPE OF TOOLS: Cable Rotary (Air Fluid)
 Cable/Rotary Service Rig

5. MAIL PERMIT TO: Cabot Oil & Gas Corporation
 2000 Park Lane Ste.300, Attn: Connie Carden
 Pittsburgh PA 15275
 6. COUNTY: ASHLAND
 7. CIVIL TOWNSHIP: Green Township
 8. SECTION: 6 9. LOT: N/A
 10. FRACTION: N/A 11. QTR TWP: N/A
 12. TRACT/ALLOT: N/A
 13. WELL NUMBER: 001
 14. LEASE NAME: KAMENIK T
 15. PROPOSED TOTAL DEPTH: 9,972

21. SOURCE(S) OF GROUND AND/OR SURFACE WATER USED IN PRODUCTION OPERATION:
Black Fork of Mohican River / Loudonville PWS
 Watershed: Lake Erie Ohio River
 Estimated Withdrawal Rate (gal/day): up to 1.5 MGD
 Estimated Total Volume (gal): 4,500,000 gal.
 If Recycled Water – Estimated Total Volume (gal): 0

22. EMERGENCY TELEPHONE NUMBERS (closest to well site):
 Fire: (419) 368-7335
 Medical: (419) 289-0491

23. MEANS OF INGRESS AND EGRESS:
 Road: I-71, S.R. 39, S.R. 511, T.R. 2375

16. PROPOSED GEOLOGICAL FORMATION(S):
Knox
 24. ROAD USE FOR HORIZONTAL WELL:
 Maintenance Agreement Attached
 Non-agreement Affidavit Attached
 State Route (Not Required)

17. DRILLING UNIT ACRES: 139.951
 18. ATTACH LANDOWNER ROYALTY LISTING:
 25. ARE THE SURFACE RIGHTS OWNED BY THE STATE OF OHIO?
 Agency Name: No

19. IF PERMITTED PREVIOUSLY:
 API Number:
 26. FOR PLUGGING APPLICATIONS: Date of Last Production:
 Amount of Oil: _____ (bbl) Gas: _____ (mcf)

27. PROPOSED CASING AND CEMENTING PROGRAM

Type Casing	Borehole Diameter (in)	Borehole Depth (ft)	Casing Diameter (in)	Casing Depth (ft)	Cement Volume (sacks)	Formation	Zone Tested or Produced (✓ if Yes)	Hydraulic Fracturing (✓ if Yes)
Drive Pipe								
Conductor	26	102	20	100	150	Soil, sand, gravel		
Mine String								
Surface	17.5	660	13.375	650	420	Shale		
1 st Intermediate	12.25	3392	9.825	3382	480	Reedsville Shale		
2 nd Intermediate								
Production	8.75	9990	5.5	9970	2300	Dolomite	✓	✓
Liner								

I, the undersigned, being first duly sworn, depose and state under penalties of law, that I am authorized to make this application, that this application was prepared by me or under my supervision and direction, and that the facts stated herein are true, correct, and complete, to the best of my knowledge.
 I, the undersigned, further depose and state that I am the person who has the right to drill on the tract or drilling unit and to drill into and produce from a pool and to appropriate the oil or gas that I produce therefrom either for myself or others as described in this application. And furthermore, I the undersigned, being duly sworn, depose and state at this time that I am not liable for any final nonappealable order of a court for damage to streets, roads, highways, bridges, culverts, or drainage ways pursuant to Section 5577.12 of the Ohio Revised Code (ORC). I, the undersigned, further depose and state that all notices required by 1509.06 (A) (9) ORC for this application have been duly provided by me. If applying for a permit to plug and abandon a well, I hereby certify that the written notices, as required in Section 1509.13, ORC, have been given.
 That I hereby agree to conform with all provisions of Chapter 1509., ORC, and Chapter 1501., OAC, and all orders and conditions issued by the Chief, Division of Oil and Gas Resources Management.

Signature of Owner/Authorized Agent: Kenneth L. Marcum
 Name (Type or Print): Kenneth L. Marcum Title: Regulatory Supervisor

_____ if signed by Authorized Agent, a certificate of appointment of agent must be on file.

Sworn to and subscribed before me this 7th day of March, 2018.

Commonwealth of Pennsylvania - Notary Seal
 Constance C. Carden, Notary Public
 Washington County
 My commission expires November 16, 2021
 Commission number 1252953
 MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

Constance C. Carden
 (Notary Public)
November 16, 2021
 (Date Commission Expires)

RECEIVED

MAR 5 - 2018

DIVISION OF OIL & GAS

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL AND GAS RESOURCES MANAGEMENT

2045 MORSE RD., BLDG. F-2, COLUMBUS, OH 43229-6693
Phone: (614) 265-6922 • Fax: (614) 265-6910



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(REVISED 0915)

a Path 32236

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 Drill Horizontally Plug Back Deepen
 Drill Directionally Plug and Abandon Reopen
 Reissue Temporary Inactive: 1st year 2nd year 3rd year _____th year

3. TYPE OF WELL: Oil & Gas Annular Disposal Saltwater Injection
 Stratigraphic Test Gas Storage Other (explain):
 Solution Mining* Enhanced Recovery* (*if checked, select appropriate box below)
 Input/Injection Water Supply Observation Production/Extraction

4. Is the well location or production facility(s) within an urbanized area as defined by ORC 1509.01 (Y)? Yes No

5. MAIL PERMIT TO:
Cabot Oil & Gas Corporation
2000 Park Lane Ste.300, Attn: Connie Carden
Pittsburgh PA 15275

6. COUNTY: ASHLAND

7. CIVIL TOWNSHIP: Green Township

8. SECTION: 6 9. LOT: N/A

10. FRACTION: N/A 11. QTR TWP: N/A

12. TRACT/ALLOT: N/A

13. WELL NUMBER: 001

14. LEASE NAME: KAMENIK T

15. PROPOSED TOTAL DEPTH: 9,972 TMD, 4733 TTD

16. PROPOSED GEOLOGICAL FORMATION(S):
Berea, Onondaga, Clinton, Queenston,
Trenton, Knox

17. DRILLING UNIT ACRES: 139.951

18. ATTACH LANDOWNER ROYALTY LISTING:

19. IF PERMITTED PREVIOUSLY:
 API Number: _____

20. TYPE OF TOOLS:
 Cable Rotary (Air Fluid)
 Cable/Rotary Service Rig

21. SOURCE(S) OF GROUND AND/OR SURFACE WATER USED IN PRODUCTION OPERATION:
Black Fork of Mohican River / Loudonville PWS
 Watershed: Lake Erie Ohio River
 Estimated Withdrawal Rate (gal/day): up to 1.5 MGD
 Estimated Total Volume (gal): 4,500,000 gal.
 If Recycled Water - Estimated Total Volume (gal): 0

22. EMERGENCY TELEPHONE NUMBERS (closest to well site):
 Fire: (419) 368-7335
 Medical: (419) 289-0491

23. MEANS OF INGRESS AND EGRESS:
 Road: I-71, S.R. 39, S.R. 511, T.R. 2375

24. ROAD USE FOR HORIZONTAL WELL:
 Maintenance Agreement Attached
 Non-agreement Affidavit Attached
 State Route (Not Required)

25. ARE THE SURFACE RIGHTS OWNED BY THE STATE OF OHIO?
 Agency Name: No

26. FOR PLUGGING APPLICATIONS: Date of Last Production:
 Amount of Oil: _____ (bbl) Gas: _____ (mcf)

27. PROPOSED CASING AND CEMENTING PROGRAM

Type Casing	Borehole Diameter (in)	Borehole Depth (ft)	Casing Diameter (in)	Casing Depth (ft)	Cement Volume (sacks)	Formation	Zone Tested or Produced (✓ if Yes)	Hydraulic Fracturing (✓ if Yes)
Drive Pipe								
Conductor	26	102	20	100	150	Soil, sand, gravel		
Mine String								
Surface	17.5	660	13.375	650	420	Shale		
1 st Intermediate	12.25	3392	9.825	3382	480	Reedsville Shale		
2 nd Intermediate								
Production	8.75	9990	5.5	9970	2300	Dolomite	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Liner								

I, the undersigned, being first duly sworn, depose and state under penalties of law, that I am authorized to make this application, that this application was prepared by me or under my supervision and direction, and that the facts stated herein are true, correct, and complete, to the best of my knowledge.

I, the undersigned, further depose and state that I am the person who has the right to drill on the tract or drilling unit and to drill into and produce from a pool and to appropriate the oil or gas that I produce therefrom either for myself or others as described in this application. And furthermore, I the undersigned, being duly sworn, depose and state at this time that I am not liable for any final nonappealable order of a court for damage to streets, roads, highways, bridges, culverts, or drainage ways pursuant to Section 5577.12 of the Ohio Revised Code (ORC). I, the undersigned, further depose and state that all notices required by 1509.06 (A) (9) ORC for this application have been duly provided by me. If applying for a permit to plug and abandon a well, I hereby certify that the written notices, as required in Section 1509.13, ORC, have been given.

That I hereby agree to conform with all provisions of Chapter 1509., ORC, and Chapter 1501., OAC, and all orders and conditions issued by the Chief, Division of Oil and Gas Resources Management.

Signature of Owner/Authorized Agent: Kenneth L. Marcum
 Name (Type or Print): Kenneth L. Marcum Title: Regulatory Supervisor

_____ if signed by Authorized Agent, a certificate of appointment of agent must be on file.
 Sworn to and subscribed before me this the 1st day of March, 2018.

Commonwealth of Pennsylvania - Notary Seal
 Constance C. Carden, Notary Public
 Washington County
 My commission expires November 16, 2021
 Commission number 1252953
 MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

Constance C. Carden
 (Notary Public)
November 16, 2021
 (Date Commission Expires)

RECEIVED
 MAR 5 - 2018
 DIVISION OF OIL & GAS

**CABOT OIL & GAS CORPORATION
 LANDOWNER ROYALTY LISTING
 KAMENIK T 001V AND KAMENIK T 001
 Green Township, Ashland County, Ohio**

Tract #	Royalty Owner	Tax Parcel	Address
1	Columbia Energy Ventures, LLC	B06-006-0-0013-00	P.O. Box 1273, Charleston WV 25325
2	Columbia Energy Ventures, LLC	O40-031-0-0009-00	P.O. Box 1273, Charleston WV 25325
3	Columbia Energy Ventures, LLC	O41-031-0-0020-00	P.O. Box 1273, Charleston WV 25325
4	Columbia Energy Ventures, LLC	O41-031-0-0020-01	P.O. Box 1273, Charleston WV 25325
5	Columbia Energy Ventures, LLC	O40-031-0-0011-00	P.O. Box 1273, Charleston WV 25325
6	Columbia Energy Ventures, LLC	O40-031-0-0011-03	P.O. Box 1273, Charleston WV 25325
7	Columbia Energy Ventures, LLC	O40-031-0-0011-02	P.O. Box 1273, Charleston WV 25325
8	Columbia Energy Ventures, LLC	O40-031-0-0013-00	P.O. Box 1273, Charleston WV 25325
9	Columbia Energy Ventures, LLC	O40-031-0-0012-00	P.O. Box 1273, Charleston WV 25325
10	Columbia Energy Ventures, LLC	F19-036-0-0009-00	P.O. Box 1273, Charleston WV 25325
11	Columbia Energy Ventures, LLC	B05-006-0-0010-00	P.O. Box 1273, Charleston WV 25325
12	Columbia Energy Ventures, LLC	B05-006-0-0002-02	P.O. Box 1273, Charleston WV 25325
13	Columbia Energy Ventures, LLC	O40-031-0-0008-00	P.O. Box 1273, Charleston WV 25325
14	Columbia Energy Ventures, LLC	O40-031-0-0011-01	P.O. Box 1273, Charleston WV 25325
15	Columbia Energy Ventures, LLC	O40-031-0-0010-00	P.O. Box 1273, Charleston WV 25325
16	Columbia Energy Ventures, LLC	O40-031-0-0015-00	P.O. Box 1273, Charleston WV 25325
17	Columbia Energy Ventures, LLC	O40-031-0-0014-00	P.O. Box 1273, Charleston WV 25325
18	Columbia Energy Ventures, LLC	F19-036-0-0002-00	P.O. Box 1273, Charleston WV 25325
19	Columbia Energy Ventures, LLC	O18-14-114-16-000	P.O. Box 1273, Charleston WV 25325
20	Columbia Energy Ventures, LLC	O18-14-107-02-000	P.O. Box 1273, Charleston WV 25325
21	Columbia Energy Ventures, LLC	B06-006-0-0014-04	P.O. Box 1273, Charleston WV 25325
22	Columbia Energy Ventures, LLC	B06-006-0-0014-03	P.O. Box 1273, Charleston WV 25325
23	Columbia Energy Ventures, LLC	B06-006-0-0014-02	P.O. Box 1273, Charleston WV 25325
24	Columbia Energy Ventures, LLC	B06-006-0-0014-05	P.O. Box 1273, Charleston WV 25325
25	Columbia Energy Ventures, LLC	B06-006-0-0014-07	P.O. Box 1273, Charleston WV 25325
26	Columbia Energy Ventures, LLC	B06-006-0-0014-06	P.O. Box 1273, Charleston WV 25325
27	Columbia Energy Ventures, LLC	B06-006-0-0014-00	P.O. Box 1273, Charleston WV 25325
28	Columbia Energy Ventures, LLC	B06-006-0-0014-01	P.O. Box 1273, Charleston WV 25325
29	Columbia Energy Ventures, LLC	B06-006-0-0015-04	P.O. Box 1273, Charleston WV 25325
30	Columbia Energy Ventures, LLC	B06-006-0-0015-02	P.O. Box 1273, Charleston WV 25325
31	Columbia Energy Ventures, LLC	B06-006-0-0015-06	P.O. Box 1273, Charleston WV 25325
32	Columbia Energy Ventures, LLC	B06-006-0-0015-05	P.O. Box 1273, Charleston WV 25325
33	Columbia Energy Ventures, LLC	B06-006-0-0015-01	P.O. Box 1273, Charleston WV 25325
34	Columbia Energy Ventures, LLC	B06-006-0-0018-00	P.O. Box 1273, Charleston WV 25325
35	Columbia Energy Ventures, LLC	B06-006-0-0015-01	P.O. Box 1273, Charleston WV 25325
36	Columbia Energy Ventures, LLC	B06-006-0-0015-03	P.O. Box 1273, Charleston WV 25325
37	Columbia Energy Ventures, LLC	B06-006-0-0016-00	P.O. Box 1273, Charleston WV 25325
38	Columbia Energy Ventures, LLC	B05-006-0-0011-00	P.O. Box 1273, Charleston WV 25325

March 1, 2018

Ohio Department of Natural Resources
Division of Oil and Gas Resources Management
2045 Morse Road, Building F-2
Columbus, Ohio, 43229-6693

**RE: Proposed KAMENIK T 001V and KAMENIK T 001 Gas Well
Green Township, Ashland County, Ohio**

Gentlemen:

Enclosed are the following forms for the subject well:

- Form 1- Application for a Permit (original and 2 copies) (Vertical)
- Form 1- Application for a Permit (original and 2 copies)
(Horizontal/Plug Back)
- Ohio Registered Surveyor's Plat(s) (Original and 4 copies)
- Form 4 – Restoration Plan (Original and 1 copy)
- Road Use Maintenance Affidavit

Copies of the permit applications, restoration plan and registered surveyor's plats have been mailed to the landowner.

We have enclosed a check in the amount of \$1,000.00 to cover the permit fee for both applications.

Sincerely,



Kenneth L. Marcum
Regulatory Supervisor

Enclosures

March 7, 2018

Ohio Department of Natural Resources
Division of Oil and Gas Resources Management
Attn: Mr. Steve Opritza
2045 Morse Road, Building F-2
Columbus, Ohio, 43229-6693

**RE: Proposed KAMENIK T 001V and KAMENIK T 001 Gas Wells
Green Township, Ashland County, Ohio**

Dear Mr. Opritza:

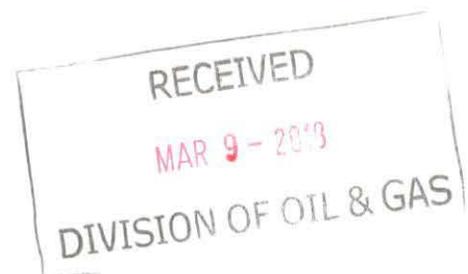
Please find enclosed a corrected original and two copies of Form 1, Application for a Permit, for each of the referenced proposed wells in Ashland County, Green Township, Ohio.

Should you need any additional information, please contact me at 412-249-3903 or at connie.carden@cabotog.com

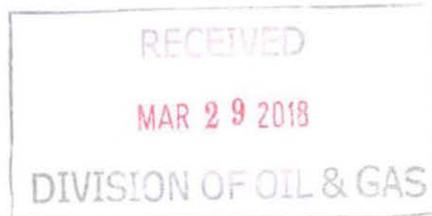
Sincerely,



Connie Carden
Regulatory Analyst



Patricia Nichols
ODNR
Div of Oil & Gas



3-25-18
MARK GILLIG
2316 ST RT 603
LUCAS OH 44843

Dear Patricia Nichols

It has come to my attention CABOT OIL is planning to use I 71 to St Rt 39 to St Rt 511 to access Kamenik Well in Green Twp, Ashland Co. All of the traffic will come through Village of Lucas with a population of 615

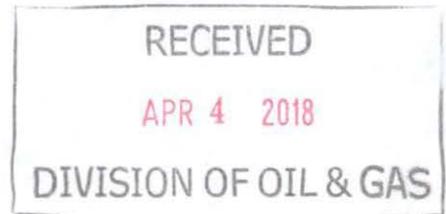
US 30 and St Rt 511 then South to Co Rd 2375 is all rural AND the roads are more friendly along with less long hills to climb and the distance is only 5.2 miles

However the distance from I 71 + St Rt 39 through Lucas to St Rt 511 then North to Co Rd 2375 is more than double, 11.5 miles. Along with going through the Village of Lucas

It would be considerate of CABOT OIL to keep our town of Lucas off their route and away from our children there

Yours Truly
Mark Gillig

Patricia Nichols
Ohio Department of Natural Resources
Division of Oil and Gas
2045 Morse Road
Columbus, Ohio 43229-6693



Dear Patricia Nichols,

I have reviewed the Cabot application for the Kamenik Well, Green Township, Ashland County. The ingress and egress for the well states: Interstate 71 to State Route 39 to State Route 511 to County road 2375. This would put all of the heavy truck traffic for construction and support of the well traveling right through the town of Lucas. It is also, a much longer route (12.2) miles on State Highways than taking the following route: Interstate 30 to State Route 511 to Township 2375. This latter route is only 6.2 miles on State Highways. In addition the State Route 39 route is quite a bit busier and more homes are along the route. We would also be exposing heavy truck traffic to our school children as many of them walk to school along State Route 39. The route from State Route 30 is much more rural and exposes less people to truck traffic.

I thank you for you time and attention to this matter. I am sure the least amount of impact that can be generated in the construction of this well the better. Please consider this proposal when evaluating the application.

Sincerely Yours,

David M. Graham
Richland County
Ohio

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MAR 5 - 2018

RESTORATION PLAN (Form 4)

Ohio Department of Natural Resources

Division of Oil and Gas Resources Management, 2045 Morse Road, Bldg. F-2, Columbus OH 43229-6693

DIVISION OF OIL & GAS

1. DATE OF APPLICATION:		3. API #:	
2. OWNER NAME, ADDRESS, & TELEPHONE NO.: Cabot Oil & Gas Corporation 2000 Park Lane Suite 300 Pittsburgh, PA 15275		4. WELL #: KAMENIK T 001V	
		5. LEASE NAME: KAMENIK T	
		6. PROPERTY OWNER: THOMAS J. KAMENIK, III	
		7. COUNTY: Ashland	
		8. CIVIL TOWNSHIP: Green	
		9. SECTION: 6	
		10. LOT: B-06-006-0013-00	
11. CURRENT LAND USE: <input checked="" type="checkbox"/> Cropland <input type="checkbox"/> Pasture <input type="checkbox"/> Wetlands <input type="checkbox"/> Residential <input type="checkbox"/> Unreclaimed strip mine <input checked="" type="checkbox"/> Woodland: <input checked="" type="checkbox"/> Broadleaf <input type="checkbox"/> Needlelike <input type="checkbox"/> Commercial <input type="checkbox"/> Idle Land <input type="checkbox"/> Recreational <input type="checkbox"/> Industrial		17. TYPE OF WELL: <input checked="" type="checkbox"/> Oil <input checked="" type="checkbox"/> Gas <input type="checkbox"/> Other	
12. SLOPE GRADIENT & LENGTH DETERMINED FROM: <input checked="" type="checkbox"/> Ground Measurement <input type="checkbox"/> U.S. Geological Survey Topographical Maps <input type="checkbox"/> Other: (explain) _____		18. STEEPEST SLOPE GRADIENT CROSSING SITE: <input type="checkbox"/> 0 to 2% <input type="checkbox"/> 2.1 to 8% <input type="checkbox"/> 8.1 to 10% <input type="checkbox"/> greater than 24% <input checked="" type="checkbox"/> 10.1 to 24%	
13. TYPE OF FALL VEGETAL COVER: <input checked="" type="checkbox"/> Little or no vegetal cover <input type="checkbox"/> Short grasses <input type="checkbox"/> Tall weeds or short brush (1 to 2 ft.) <input type="checkbox"/> Brush or bushes (2 to 6 ft.) <input type="checkbox"/> Agricultural crops <input type="checkbox"/> Trees with sparse low brush <input type="checkbox"/> Trees with dense low brush		19. LENGTH OF STEEPEST SLOPE CROSSING SITE: <input type="checkbox"/> 1 to 100 ft. <input type="checkbox"/> 101 to 200 ft. <input checked="" type="checkbox"/> 201 to 400 ft. <input type="checkbox"/> greater than 400 ft.	
14. SOIL & RESOILING MATERIAL AT WELLSITE: <input type="checkbox"/> Stockpile and protect topsoil to be used when preparing seedbed <input type="checkbox"/> Use of soil additives (e.g., lime, fertilizer) <input checked="" type="checkbox"/> No resoiling planned <input type="checkbox"/> Proposed alternative _____		20. RESTORATION OF DRILLING PITS: ** <input type="checkbox"/> Haul drilling fluids and fill pits <input checked="" type="checkbox"/> Use steel circulating tanks <input type="checkbox"/> Proposed alternative _____	
15. DISPOSAL PLAN FOR TREES AND TREE STUMPS: <input type="checkbox"/> No trees disturbed <input type="checkbox"/> Haul to landfill <input type="checkbox"/> Cut into firewood <input type="checkbox"/> Sell to lumber company <input type="checkbox"/> Bury with landowner's approval <input checked="" type="checkbox"/> Mulch small trees and branches, erosion control <input type="checkbox"/> Use for wildlife habitat with landowner approval <input type="checkbox"/> Proposed alternative _____		21. BACKFILLING AND GRADING AT SITE: <input type="checkbox"/> Construct diversions channeled to naturally established drainage systems <input type="checkbox"/> Construct terraces across slopes <input type="checkbox"/> Grade to approximate original contour <input checked="" type="checkbox"/> Grade to minimize erosion & control offsite runoff <input type="checkbox"/> Proposed alternative _____	
16. SURFACE AND SUBSURFACE DRAINAGE FACILITIES: <input type="checkbox"/> No existing drainage facilities for removal of surface and/ or subsurface water <input checked="" type="checkbox"/> Tile drainage system underlying land to be disturbed <input type="checkbox"/> Drain pipe(s) underlying land to be disturbed <input type="checkbox"/> Surface drainage facilities on land to be disturbed		22. VEGETATIVE COVER TO BE ESTABLISHED AT SITE: <input checked="" type="checkbox"/> Seeding plan <input type="checkbox"/> Sod <input type="checkbox"/> Agricultural crops <input type="checkbox"/> Trees and/or Bushes <input type="checkbox"/> Proposed alternative _____	
17. SURFACE AND SUBSURFACE DRAINAGE FACILITIES: <input type="checkbox"/> No existing drainage facilities for removal of surface and/ or subsurface water <input checked="" type="checkbox"/> Tile drainage system underlying land to be disturbed <input type="checkbox"/> Drain pipe(s) underlying land to be disturbed <input type="checkbox"/> Surface drainage facilities on land to be disturbed		23. ADDITIONAL HOLES: <input type="checkbox"/> Rat/Mouse, if used, will be plugged	
18. SURFACE AND SUBSURFACE DRAINAGE FACILITIES: <input type="checkbox"/> No existing drainage facilities for removal of surface and/ or subsurface water <input checked="" type="checkbox"/> Tile drainage system underlying land to be disturbed <input type="checkbox"/> Drain pipe(s) underlying land to be disturbed <input type="checkbox"/> Surface drainage facilities on land to be disturbed		24. PROPOSED OR CURRENT LENGTH OF ACCESS ROAD: <input type="checkbox"/> 100 ft. or less <input type="checkbox"/> 101 to 500 ft. <input checked="" type="checkbox"/> 501 to 1500 ft. <input type="checkbox"/> greater than 1500 ft.	
19. SURFACE AND SUBSURFACE DRAINAGE FACILITIES: <input type="checkbox"/> No existing drainage facilities for removal of surface and/ or subsurface water <input checked="" type="checkbox"/> Tile drainage system underlying land to be disturbed <input type="checkbox"/> Drain pipe(s) underlying land to be disturbed <input type="checkbox"/> Surface drainage facilities on land to be disturbed		25. CURRENT LAND USE OF PATH OF ACCESS ROAD: <input checked="" type="checkbox"/> Cropland <input type="checkbox"/> Pasture <input type="checkbox"/> Commercial <input type="checkbox"/> Idle land <input type="checkbox"/> Wetlands <input type="checkbox"/> Recreational <input type="checkbox"/> Industrial <input type="checkbox"/> Residential <input type="checkbox"/> Unreclaimed strip mine <input type="checkbox"/> Woodland: <input type="checkbox"/> Broadleaf <input type="checkbox"/> Needlelike	

**PITS MUST BE FILLED WITHIN TWO MONTHS AFTER COMMENCEMENT OF THE WELL AND WITHIN FOURTEEN DAYS AFTER COMMENCEMENT OF THE WELL IN AN URBANIZED AREA.

REQUIRED BY SECTION 1509.06 (A)(10), OHIO REVISED CODE -- FAILED TO SUBMIT MAY RESULT IN AN ASSESSMENT OF CRIMINAL FINES NOT LESS THAN \$100.00 NOR MORE THAN \$2,000.00 OR CIVIL PENALTIES NOT LESS THAN \$4,000.00.

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DATE: 5 - 2018

DIVISION OF OIL & GAS

<p>26. SURFACING MATERIAL FOR ACCESS ROAD:</p> <p><input checked="" type="checkbox"/> Gravel <input type="checkbox"/> Brick and/or tile waste <input type="checkbox"/> Slag <input type="checkbox"/> Crushed stone <input type="checkbox"/> No surfacing material to be used <input type="checkbox"/> Proposed alternative _____</p>	<p>29. STEEPEST SLOPE GRADIENT ON ACCESS ROAD:</p> <p><input type="checkbox"/> 0 to 5% <input checked="" type="checkbox"/> 6 to 10% <input type="checkbox"/> greater than 10%</p>
<p>27. PATH OF ACCESS ROAD TO BE DETERMINED BY:</p> <p><input type="checkbox"/> Landowner <input type="checkbox"/> Contractor <input type="checkbox"/> Existing access road <input checked="" type="checkbox"/> Operator</p>	<p>30. APPROXIMATE LENGTH OF STEEPEST SLOPE ON ROAD:</p> <p><input type="checkbox"/> 0 to 100 ft. <input type="checkbox"/> 101 to 200 ft. <input checked="" type="checkbox"/> 201 to 400 ft. <input type="checkbox"/> greater than 400 ft.</p>
<p>28. GRADING AND EROSION CONTROL PRACTICE ON ROAD:</p> <p><input checked="" type="checkbox"/> Diversions <input type="checkbox"/> Filter strips <input type="checkbox"/> Drains <input type="checkbox"/> Riprap <input type="checkbox"/> Open top culverts <input type="checkbox"/> Water breaks <input checked="" type="checkbox"/> Outsloping of road <input checked="" type="checkbox"/> Pipe culverts <input type="checkbox"/> Proposed alternative _____</p>	<p>31. HAS LANDOWNER RECEIVED A COPY OF THIS RESTORATION PLAN?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>

The undersigned hereby agrees to implement all restoration operations identified on this form, and conform to all provisions of Section 1509.072 of the Ohio Revised Code, and to all Orders and rules issued by the Chief, Division of Oil and Gas Resources Management.

Signature of Owner/Authorized Agent *Kenneth L. Marcum*

Name (Typed or Printed) KENNETH L. MARCUM Date 2/27/18

RESTORATION PLAN MUST BE SUBMITTED TO THE DIVISION IN DUPLICATE.