



west virginia department of environmental protection

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

Jim Justice , Governor
Austin Caperton , Cabinet Secretary
www.dep.wv.gov

Monday, December 04, 2017
WELL WORK PERMIT
Vertical / Plugging

NYTIS EXPLORATION COMPANY, LLC
2480 FORTUNE DRIVE, SUITE 300

LEXINGTON, KY 40509

Re: Permit approval for KEM 527
47-035-02048-00-00

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: KEM 527
Farm Name: CRANE, JAMES C.
U.S. WELL NUMBER: 47-035-02048-00-00
Vertical / Plugging
Date Issued: 12/4/2017

Promoting a healthy environment.

12/08/2017

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. All pits must be lined with a minimum of 20 mil thickness synthetic liner.
2. 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.
3. Well work activities shall not constitute a hazard to the safety of persons.

1) Date 11/28, 2017
2) Operator's
Well No. KEM #527
3) API Well No. 47-035-02048 **P**

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

APPLICATION FOR A PERMIT TO PLUG AND ABANDON

4) Well Type: Oil x / Gas / Liquid injection / Waste disposal /
(If "Gas, Production x or Underground storage) Deep / Shallow x

5) Location: Elevation 908 Watershed Grass Lick Run
District Ripley County Jackson Quad Ravenswood 7.5

Kenna J.

6) Well Operator NYTIS Exploration
Company, LLC., 2480 Fortune
Drive, Suite 300, Lexington Ky

7) Designate Agent Sharon Barth
Address 707 Virginia St. East
Charleston, WV 25301

Oil and Gas Inspector to be notified:

8) Jamie Stevens
105 Kentuck Rd.
Kenna WV 25248

Phone 304 290 7775

9) Plugging Contractor
Name R&R Well Service

Address 42 Lynch Ridge, Walton WV
25286

10) Work Order: The work order for
manner of plugging this well is as
follows:

Remove all Equipment used in production

See Attached Sheet: **★**

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DEC 4 2017
WV Department of
Environmental Protection

Notification must be given to the district oil and gas inspector 24 hours before permitted work can commence.

Work order approved by inspector

Jamie Stevens

Date

11/29/2017

Surface Owner: James Crane *TRANS CANADA*

KEM 527

Permit 47-035-02048

TD 4442"

Set 10 3/4 "Casing Surface 470' Cement ^{225sk} 255sk to Surface ✓

Set 7" Casing 2354' Cement 600sk to Surface ✓

Set 4 1/2 "Casing 4419' Cement 250 SKS 50/50 poz ✓

Procedure:

Run tubing to TD +/- 4442'

Cement 9 58' +/- 4442' to 3484' over shale + Bottom 4 1/2 ✓

Freepoint and pull 4 1/2 casing at +/- 2900' *on above. at Freepoint*

Gel 3484' to 2950' ✓

Cement +/- 2950' to 2850' ✓ *ACROSS CASING CUT. 2mm*

Gel 2850' to 2632' ✓

Cement +/- 2632 to 2532' over seat of 7" casing ✓ *2579' to 2479' to cover BEER PERFS. 2mm*

Gel 2532' to 2050' to bottom of Salt Sand ✓ *2479' 2400' to just below 7" casing. 2mm*

Cement 393' 2050' to 1657' over Salt Sand ✓ *100' 2400' to 2300' to cover 7" casing seat. 2mm*

Gel 1657' to 908' elevation ✓ *2300' El. 908'*

Cement 905' to 808' over elevation ✓

Gel 808' to 520' ✓

Cement 520' to 420' over water well depth ✓

Gel 420' to 100'

Cement 100' to surface

Set Monument *or apply for offset. due to construction after*

Reclaim road and well site

*Plugging Jimmie Stevens
11/29/2017*

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IV-35
(Rev 8-81)

State of West Virginia
Department of Mines
Oil and Gas Division

Date 10/21/86
Operator's
Well No. KEM #527
Farm Crane
API No. 47 - 035 - 2048

WELL OPERATOR'S REPORT
OF
DRILLING, FRACTURING AND/OR STIMULATING, OR PHYSICAL CHANGE

WELL TYPE: Oil ___ / Gas X / Liquid Injection ___ / Waste Disposal ___ /
(If "Gas," Production X / Underground Storage ___ / Deep ___ / Shallow ___)

LOCATION: Elevation: 908 Watershed Grasslick Run
District: Ripley County Jackson Quadrangle Kenna

COMPANY KAISER EXPLORATION AND MINING COMPANY

ADDRESS P.O. Box 8, Ravenswood, WV 26164

DESIGNATED AGENT R. A. Pryce

ADDRESS Same

SURFACE OWNER James Crane

ADDRESS Rt. 3 Box 244, Ripley, WV 25271

MINERAL RIGHTS OWNER same

ADDRESS _____

OIL AND GAS INSPECTOR FOR THIS WORK Jerry

Tephabock ADDRESS Rt. 1, Ripley, WV 25271

PERMIT ISSUED _____

DRILLING COMMENCED 09/17/86

DRILLING COMPLETED 09/22/86

IF APPLICABLE: PLUGGING OF DRY HOLE ON
CONTINUOUS PROGRESSION FROM DRILLING OR
REWORKING. VERBAL PERMISSION OBTAINED
ON _____

Casing & Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft.
Size 20-16 Cord.			
13-10"	470 KB	470 KB	225 sk's Class SA
9 5/8			
8 5/8			
7	2354 KB	2354 KB	600 sk's Class A6%
5 1/2			
4 1/2	4419 KB	4419 KB	250 sk's 50/50 pozr
3			
2			
Liners used			

GEOLOGICAL TARGET FORMATION Devonian Brown Shale Depth 3534 - 4382 feet

Depth of completed well 4442 feet Rotary X / Cable Tools _____

Water strata depth: Fresh _____ feet; Salt _____ feet

Coal seam depths: _____ Is coal being mined in the area? No

OPEN FLOW DATA

Producing formation Devonian Brown Shale Pay zone depth 3534 - 4382 feet

Gas: Initial open flow _____ Mcf/d Oil: Initial open flow _____ Bbl/d

Final open flow *660 Mcf/d Final open flow _____ Bbl/d

Time of open flow between initial and final tests 4 hours

Static rock pressure 950 psig (surface measurement) after 72 hours shut in

(If applicable due to multiple completion--)

Second producing formation Berea Sandstone Pay zone depth 2575 - 2579 feet

Gas: Initial open flow _____ Mcf/d Oil: Initial open flow _____ Bbl/d

Final open flow *660 Mcf/d Oil: Final open flow _____ Bbl/d

Time of open flow between initial and final tests 4 hours

Static rock pressure 950 psig (surface measurement) after 72 hours shut in

* Open flows are commingled.

DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC.

- 09/25/86 Young's perf lower Brown Shale from 4190 to 4382 with 20 holes.
- 09/26/86 Halliburton 75 Quality foam frac lower Shale with 60,000 # 20/40 sand.
649 MSCF of N₂; 267 bbls of total fluid; ISIP: 1850 psig.
Young's perf Upper Brown Shale from 3534-4060 with 20 holes.
Halliburton 75 Quality foam frac upper shale with 60,000# 20/40 sand.
- 10/10/86 Young's perf Berea from 2575 - 2579 with 16 holes.
Halliburton Cross-link Berea with 45,000# 20/40 sand; 185 MSCF of N₂;
484 bbls of fluid; ISIP: 1600 psig.

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Office of Oil and Gas

DEC 4 2017

WELL LOG

WV Department of
Environmental Protection

FORMATION	COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all f: and salt water, coal, oil and
Siltstone & Shale			0	250	
Sand			250	270	
Shale			270	312	
Sand			312	357	
Siltstone & Shale			357	698	
Sand			698	752	
Siltstone & Shale			752	1205	
Dunkard Sands			1205	1608	
Shale			1608	1757	
Salt Sands			1757	2000	
Big Lime (Greenbrier)			2000	2080	
Big Injun Sand			2080	2195	
Shale			2195	2550	
Coffee Shale (Sunbury)			2550	2572	
Berea Sand			2572	2582	S/g
Shale			2582	3816	S/g @ 4195', 4250', 4316'
Shale			4390	4452	
Total Depth			4452		

(Attach separate sheets as necessary)

KAISER EXPLORATION AND MINING COMPANY

Well Operator

12/08/2017

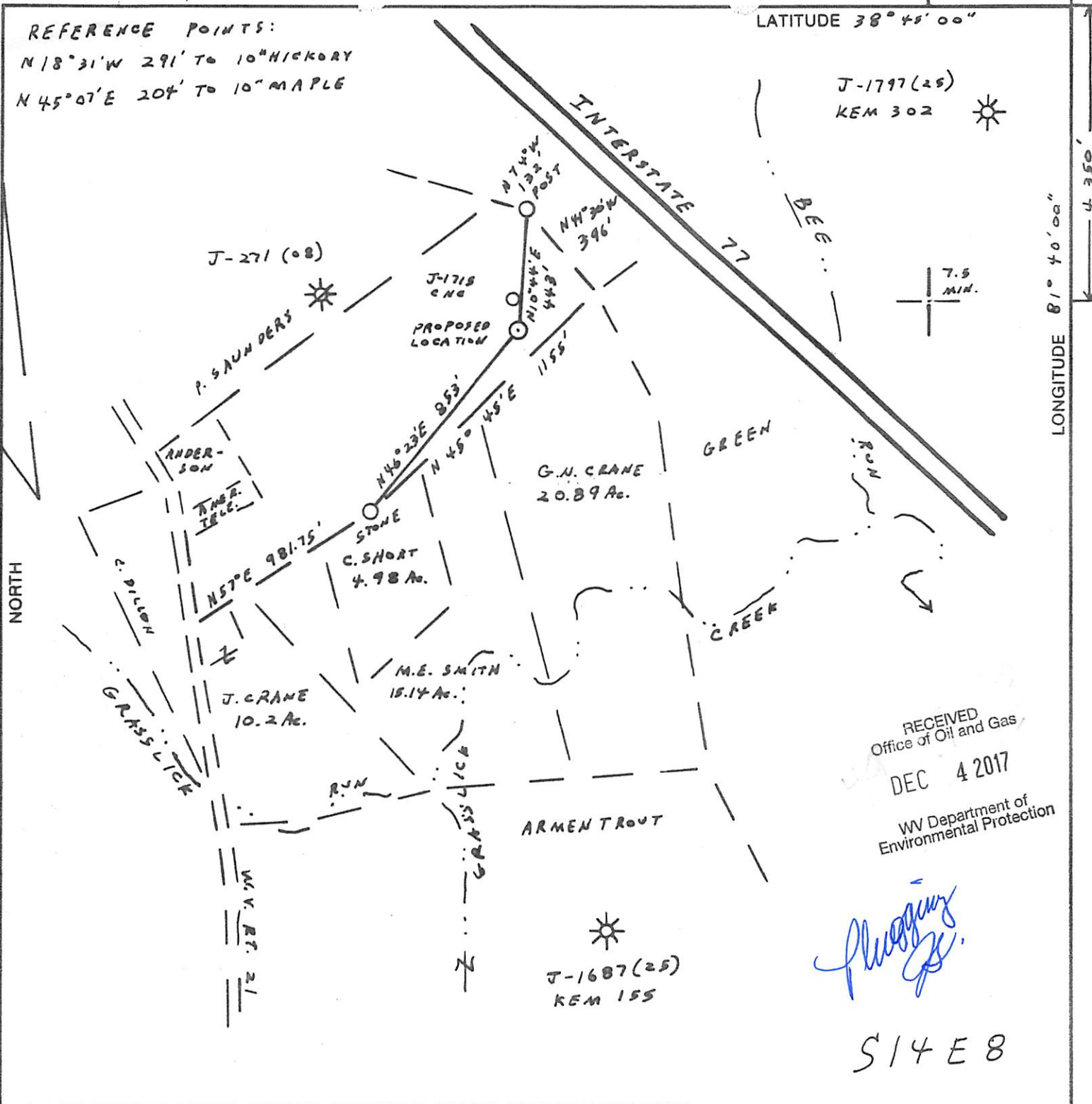
By: K. A. P.

Date: October 21, 1986

Note: Regulation 2.02(i) provides as follows:
"The term 'log' or 'well log' shall mean a systematic
detailed geological record of all formations, including
minerals, encountered in the drilling of a well."

A7-035-02048P

MUNICIPAL



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

FILE NO. 8-28
 DRAWING NO. _____
 SCALE 1" = 500'
 MINIMUM DEGREE OF ACCURACY 1:200
 PROVEN SOURCE OF ELEVATION HIGH POINT ELEV. 911, 80' S.E. OF LOCATION

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 MINES.
 (SIGNED) Vincent W. Wood
 R.P.E. _____ L.L.S. 664

PLACE SEAL HERE

STATE OF WEST VIRGINIA
 DEPARTMENT OF MINES
 OIL AND GAS DIVISION

DATE MARCH 26, 19 85
 OPERATOR'S WELL NO. KEM 527
 API WELL NO. 47-35-2048P

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

LOCATION: ELEVATION 908 WATERSHED GRASSLICK RUN
 DISTRICT RIPLEY COUNTY JACKSON
 QUADRANGLE KENNA

SURFACE OWNER JAMES CAMDEN CRANE ACREAGE 2.12708/2017
 OIL & GAS ROYALTY OWNER J.C. CRANE, ET AL. LEASE ACREAGE 68.955 Ac.
 LEASE NO. 86-03-3377

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 DEVONIAN BROWN SHALE ESTIMATED DEPTH 4443
 WELL OPERATOR KAISER EXPLORATION & MINING CO. DESIGNATED AGENT R.A. PRYCE
 ADDRESS P.O. BOX 8, RAVENS WOOD, W.V. 26164 ADDRESS P.O. BOX 8, RAVENS WOOD, W.V. 26164

FORM IV-6 (8-78) H.T. HALL

COUNTY NAME JACKSON

PERMIT _____

WW-4A
Revised 6-07

1) Date: 11/28/17
2) Operator's Well Number
KEM #527
3) API Well No.: 47 - 035 2048

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF APPLICATION TO PLUG AND ABANDON A WELL

4) Surface Owner(s) to be served: 5) (a) Coal Operator

(a) Name Trans-Cavada Name None
 Address 1700 Marlborough Ave, Southeast Ches, WV 25214

(b) Name _____ (b) Coal Owner(s) with Declaration
 Address _____ Name _____
 Address _____

(c) Name _____ Address _____
 Address _____

6) Inspector JAMIE STEVENS (c) Coal Lessee with Declaration
 Address 105 Kentuck Rd. Name _____
Kenna WV 25248 Address _____
 Telephone 304 206 7775

TO THE PERSONS NAMED ABOVE: You should have received this Form and the following documents:

- (1) The application to Plug and Abandon a Well on Form WW-4B, which sets out the parties involved in the work and describes the well its and the plugging work order; and im.μ
- (2) The plat (surveyor's map) showing the well location on Form WW-6.

The reason you received these documents is that you have rights regarding the application which are summarized in the instructions on the reverses side. However, you are not required to take any action at all.

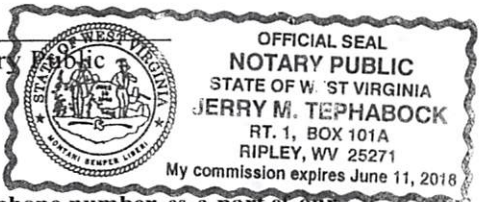
Take notice that under Chapter 22-6 of the West Virginia Code, the undersigned well operator proposes to file or has filed this Notice and Application and accompanying documents for a permit to plug and abandon a well with the Chief of the Office of Oil and Gas, West Virginia Department of Environmental Protection, with respect to the well at the location described on the attached Application and depicted on the attached Form WW-6. Copies of this Notice, the Application, and the plat have been mailed by registered or certified mail or delivered by hand to the person(s) named above (or by publication in certain circumstances) on or before the day of mailing or delivery to the Chief.

Well Operator NYTIS Exploration Company, LLC
 By: Randall Sheets
 Its: Supervisor
 Address POBox 8, Ravenswood WV 26164
 Telephone 304 273 5371

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Office of Oil and Gas
DEC 4 2017
WV Department of Environmental Protection

Subscribed and sworn before me this 4th day of Dec, 2017 Notary _____

My Commission Expires 6/11/18 Jerry M. Tephabock



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 depprivacyoffier@wv.gov.

SURFACE OWNER WAIVER

Operator's Well
Number

47-035-02048 P

INSTRUCTIONS TO SURFACE OWNERS NAMED ON PAGE WW4-A

The well operator named on page WW-4A is applying for a permit from the State to plug and abandon a well. (Note: If the surface tract is owned by more than three persons, then these materials were served on you because your name appeared on the Sheriff's tax ticket on the land or because you actually occupy the surface tract. In either case, you may be the only owner who will actually receive these materials.) See Chapter 22 of the West Virginia Code. Well work permits are valid for 24 months. If you do not own any interest in the surface tract, please forward these materials to the true owner immediately if you know who it is. Also, please notify the well operator and the Office of Oil and Gas.

**NOTE: YOU ARE NOT REQUIRED TO FILE ANY COMMENT.
WHERE TO FILE COMMENTS AND OBTAIN ADDITIONAL INFORMATION:**

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

Time Limits and methods for filing comments. The law requires these materials to be served on or before the date the operator files his Application. You have **FIVE (5) 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.

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 Permit To Plug And Abandon on Forms WW-4A and WW-4B, and a survey plat.

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
ETC.

FOR EXECUTION BY A CORPORATION,



Signature

Date

Name
By Anthony Capp
Its Land Project Manager, TransCanada

Signature
Date 12/1/17
12/08/2017
Date

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

RECEIVED
Office of Oil and Gas
DEC - 4 2017

Operator Name NYTIS Exploration, Co, LLC OP Code 494473563

Watershed Grass Lick Run Quadrangle Kenna
Elevation 908 County Jackson District Ripley

WV Department of
Environmental Protection

Do you anticipate using more than 5,000 bbls of water to complete the proposed well work? Yes - NO
no

Will a pit be used for drill cuttings? Yes No ✓ Will USE STEEL TANKS. JWM

If so, please describe anticipated pit waste: Water, Gel

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

Proposed Disposal Method For Treated Pit Wastes: Possibly Steel tank
JS.

- Land Application
- X Underground Injection (UIC Permit Number)
- Reuse (at API Number)
- Off Site Disposal (Supply form WW-9 for disposal location) OHFO Disposal
- Other (Explain)

Will closed loop system be used?

Drilling medium anticipated for this well? Air, freshwater, oil based, etc. no Return expected
-If oil based, what type? Synthetic, petroleum, etc.

Additives to be used in drilling medium?

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc.
-If left in pit and plan to solidify what medium will be used? (cement, lime, sawdust)
-Landfill or offsite name/permit number?

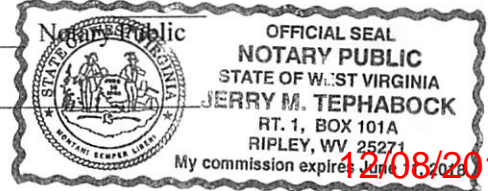
I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations 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 Randall Sheets
Company Official (Typed Name) Randall Sheets
Company Official Title Supervisor

Subscribed and sworn before me this 4th day of Dec, 2017, 20

Jerry M. Tephabock
My commission expires 6/11/18



4/20/17

Form WW-9

Operator's Well #kem 527

Jack2048

Proposed Revegetation Treatment: Acres Disturbed 1.0 Prevegetation pH 6.0

Lime 2Ton Acre or to correct to pH 6,5

Fertilizer (10-20-20 or equivalent) 500lbs lbs/acre (500 lbs minimum)

Mulch 2.0 Tons/acre

Seed Mixtures

Seed Type	Area I lbs/acre	Seed Type	Area II lbs/acre
Fescue 40			
Alsike 5			
Annual Rye 16		Same	

Attach: Drawing(s) of road, location, pit and proposed area for land application.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: *Jamie Stevens*

Comments: *There will be construction all over location with a new road for pipeline construction.*

Title: *Inspector* Date: *11/29/2017*

Field Reviewed? () Yes () No

RECEIVED Office of Oil and Gas DEC 4 2017 WV Department of Environmental Protection 12/08/2017

WW-7
8-30-06



West Virginia Department of Environmental Protection
Office of Oil and Gas
WELL LOCATION FORM: GPS

API: 47 035 02048 WELL NO.: Ken #527

FARM NAME: Cone

RESPONSIBLE PARTY NAME: NyTis Exploration Co, LLC

COUNTY: Jackson DISTRICT: Ripley

QUADRANGLE: Kennel

SURFACE OWNER: TRANS CANADA

ROYALTY OWNER: TRANS CANADA

UTM GPS NORTHING: 4287938

UTM GPS EASTING: 441429 GPS ELEVATION: 908

The Responsible Party named above has chosen to submit GPS coordinates in lieu of preparing a new well location plat for a plugging permit or assigned API number on the above well. The Office of Oil and Gas will not accept GPS coordinates that do not meet the following requirements:

1. Datum: NAD 1983, Zone: 17 North, Coordinate Units: meters, Altitude: height above mean sea level (MSL) – meters.
2. Accuracy to Datum – 3.05 meters
3. Data Collection Method:

Survey grade GPS : Post Processed Differential

Real-Time Differential

Mapping Grade GPS : Post Processed Differential

Real-Time Differential

4. Letter size copy of the topography map showing the well location.

I the undersigned, hereby certify this data 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 Office of Oil and Gas.

Randall D. Stute
Signature

Supervisor
Title

12/4/17
Date

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