



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

Earl Ray Tomblin , Governor
Randy C. Huffman , Cabinet Secretary
www.dep.wv.gov

Thursday, September 08, 2016
WELL WORK PERMIT
Vertical / Plugging - 2

CHESAPEAKE APPALACHIA, L.L.C.
POST OFFICE BOX 6070

CHARLESTON, WV 253620070

Re: Permit approval for 6960
47-099-00844-00-00

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: 6960
Farm Name: STARK, H. J.
U.S. WELL NUMBER: 47-099-00844-00-00
Vertical / Plugging - 2
Date Issued: 9/8/2016

Promoting a healthy environment.

09/09/2016

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.
4. This well is under a consent order and must be plugged within two years of the date of issuance of this permit.

CK# 6003138
100⁰⁰

WW-4B
Rev. 2/01

1) Date: 7/13/2016
2) Operator's Well No. 806960
3) API Well No. 47-099-00844 P

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

APPLICATION FOR A PERMIT TO PLUG AND ABANDON

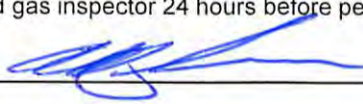
- 4) Well Type: Oil _____ Gas X Liquid injection _____ Waste disposal _____
(Is Gas, Production X or Underground storage _____) Deep _____ Shallow X
- 5) Location: Elevation 893' Watershed East Fork of Twelvepole Creek
District Stonewall County Wayne Quadrangle Kiahsville, WV 7.5'
- 6) Well Operator Chesapeake Appalachia, L.L.C. 7) Designated Agent Jessica Greathouse
Address P.O. Box 18496 Address P.O. Box 6070
Oklahoma City, OK 73154-0496 Charleston, WV 25362
- 8) Oil and Gas Inspector to be notified 9) Plugging Contractor
Name Allen Flowers Name Chesapeake Appalachia, L.L.C.
Address 165 Grassy Lick Lane Address P.O. Box 18496
Liberty, WV 25124 Oklahoma City, OK 73154-0496

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

See Attached Sheet

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

Work Order approved by Inspector



Date

7-27-2016

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PLUGGING PROCEDURE

- 1) Prepare road and location, MIRU Service Rig
- 2) Run in hole to check TD at approximately 3125', pull 1" if present
- 3) Back-off or cut 3" below 2". Tie string back together with full open 3"
- 4) Attempt to pull 3" and packer
 - A) If successful
 - a) TIH with W.S. to 3125', spot gel
 - b) Spot 125' cement plug 3125'-3000', pull W.S. to 2260'
 - c) Spot 160' cement plug 2260'-2100
 - d) Proceed to step 5

- B) If unsuccessful
 - a) Shoot or rip holes in 3" at approximately 3100', 3090', 2260', 2220' and 1800'
 - b) Run W.S. to 3125', spot gel
 - c) Spot 125' cement plug 3125'-3000', pull W.S. to 2260'
 - d) Spot 160' cement plug 2260'-2100', pull W.S.
 - e) Cut 3" at free-point (approximately 1740') and pull
 - f) Proceed to step 5

- 5) Run or pull W.S. to 1740', spot gel
- 6) Spot 200' cement plug 1740'-1540', pull W.S.
- 7) Run in hole with tools or W.S. to check top of plug. If TOC is below 1580' then add cement to top of plug.
- 8) Rip or shoot holes in 7" at approximately 1470' and 1450'
- 9) Run W.S. to 1470', spot gel
- 10) Spot 150' cement plug 1470'-1320', pull W.S. →
- 11) Cut 7" at free-point (approximately 925') and pull
- 12) Run W.S. to casing cut at approximately 925', spot gel → 50' below csg cut
- 13) Spot 200' cement plug 925'-725', pull W.S. →
- 14) Attempt to pull 8 5/8"

1500-1450

- A) If successful
 - a) Run W.S. to 435', spot gel
 - b) Spot 110' cement plug 435'-325', pull W.S. to 255'
 - c) Spot 255' cement plug 255'-surface
 - d) Proceed to step 15

- B) If unsuccessful
 - a) Run W.S. to 425', spot gel
 - b) Spot 110' cement plug 435'-325', pull W.S.
 - c) Cut 8 5/8" at free-point (approximately 260') and pull. (If at least 250' of 8 5/8" cannot be pulled, then rip or shoot holes at approximately 270' and 250' and spot cement plug from 270' to just below free-point, then pull 8 5/8" from where free.)
 - d) TIH with W.S. to 8 5/8" casing cut
 - e) Spot cement from casing cut to surface
 - f) Proceed to step 15

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MAKE SURE COAL IS COVERED W/ CEMENT FROM 250' - TO SURFACE
9/09/2016
gwm

- 15) Pull W.S. and top off with cement
- 16) Set monument and reclaim as prescribed by law

AE 7-27-16



STATE OF WEST VIRGINIA
DEPARTMENT OF MINES
OIL AND GAS DIVISION 10

Well 806960
API 47-099-00844P
Page 1 of 2

Wayne

WELL RECORD

Permit No. WAY-844

Oil or Gas Well Gas (KIND)

Company UNITED FUEL GAS COMPANY
Address P.O. Box 1273, Charleston 25, W. Va.
Farm H. J. Stark Acres 57
Location (waters) East Fork of 12 Pole
Well No. 6960 Elev. 888.11
District Grant County Wayne
The surface of tract is owned in fee by _____
Address _____
Mineral rights are owned by H. J. Stark
Address Ceredo, W. Va.
Drilling commenced May 8, 1952
Drilling completed August 29, 1952
Date Shot 9-30-52 From 2225 To 3233
With 6,466-2/3# Gelatin
Open Flow 16 /10ths Water in _____ 2" _____ Inch
/10ths Merc. in _____ Inch
Volume 288,000 _____ Cu. Ft.
Rock Pressure 490 Gasing _____ lbs. 48 _____ hrs.
420 Tubing _____ lbs. 48 _____ hrs.
Oil _____ h'rs., 1st 24 hrs.
Fresh water _____ feet _____ feet
Salt water 855' _____ feet 1055' _____ feet

Casing and Tubing	Used in Drilling	Left in Well	Packers
Size			Kind of Packer
16			Hook Wall
18			Size of
10		31'	3"x5-1/2"x16"
8 5/8		386'	Depth set
8 7/8		1619'	1760'
5 7/8	1749'		Perf. top
8		3131'	Perf. bottom
2			Perf. top
Liners Used			Perf. bottom

CASING CEMENTED _____ SIZE _____ No. Ft. _____ Date _____

COAL WAS ENCOUNTERED AT 95 FEET 24 INCHES
210 FEET 36 INCHES 380 FEET 60 INCHES
_____ FEET _____ INCHES _____ FEET _____ INCHES

Formation	Color	Hard or Soft	Top	Bottom	Oil, Gas or Water	Depth Found	Remarks
Soil			0	13			
Sand			13	55			
Slate			55	75			
Sand			75	95			
Coal			95	97			
Slate			97	115			
Sand			115	140			
Slate			140	160			Show Salt Water 855' 3 bailers in 24
Sand			160	210			Hole full water 1055'
Coal			210	213			
Brown Slate			213	221			Gas 1662' 3/10 W 2" 73 M
Sand			221	234			
Slate			234	254			Gas 2227' 2/10 W 1" 15 M
Sand			254	290			
Slate			290	301			Show gas 3070'
Sand			301	370			
Broken Sand			370	380			Gas 3148' 4/10 W 2" 84 M
Coal			380	385			
Slate			385	405			
Sand			405	419			Test before shot 40/10 W 1" 67 M
Slate			419	480			Shot 8-16-52 with 400# Detonite from 1646-1678'
Slate & Shale			480	560			Test after shot 8/10 W 2" 119 M
Brown Slate			560	590			
Sand			590	610			
Slate			610	628			
Lime			628	640			Test before shot 26/10 W 1" 54 M
Sand			640	668			Shot 9-30-52 with 6,466-2/3# Gelatin from 2225-3233'
Slate			668	760			Test 1 hr. after shot 56/10 W 2" 315 M
Sand			760	803			Test 16 Hrs. after shot 16/10 W 2" 169M
Slate			803	819			
Sand			819	838			
Slate			838	855			
Sand			855	868			
Slate & Shells			868	907			
Salt Sand			907	1273			FINAL OPEN FLOW-288 M-Br. Shale-169 M
Slate & Shells			1273	1325			48 Hr. R.P. 490# Casinb
Sand			1325	1395			48 Hr. R.P. 420# Tubing
Little Lime			1395	1420			
Pencil Cave			1420	1422			



Office of Oil and Gas

09/09/2016
Injun -119 M
Department of Environmental Protection

Well 806960

Formation	Color	Hard or Soft	Top 10	Bottom	Oil, Gas or Water	Depth Found	Remarks
Big Lime			1422	1627			
Red Rock			1627	1641			
Injun Sand			1641	1687			
Broken Sand & Shells			1687	1731			
Lime Shells			1731	1783			
Slate & Shells			1783	2192			
Coffee Shale			2192	2221			
Berea			2221	2230			
Slate & Shells			2230	2305			
Brown Shale			2305	2358			
White Shale			2358	2857			
Slate			2857	2947			
Brown Shale			2947	3219			
Slate			3219	3233			
Total depth			3233'				

API 47-099-00844 P
Page 2 of 2

Shut in 10-6-52 in 3" tubing

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09/09/2016
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WV Department of
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Date May 7, 19 53

APPROVED UNITED FUEL GAS COMPANY, Owner

By [Signature]
(Title)

9900844P

WW4-A
Revised 6-07

1) Date: 7/13/2016
2) Operator's Well No. 806960
3) API Well No. 47-099-00844

STATE OF WEST VIRGINIA - BUREAU OF ENVIRONMENT
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:
(a) Name U.S. Army Corps of Engineers
Address Ms. Anita Bradburn, Realty Specialist
402 8th Street
Huntington, WV 25701

5) (a) Coal Operator
Name None

(b) Name _____
Address _____

(b) Coal Owner(s) with Declaration
Name Bureau of Land Management-Eastern States
Address 626 East Wisconsin Avenue, Suite 200
Milwaukee, WI 53202-4617
Attention: Case No Argus WWES-50556

(c) Name _____
Address _____

Name _____
Address _____

3) Inspector Allen Flowers
Address 165 Grassy Lick Lane
Liberty, WV 25124

Telephone 304-552-8308

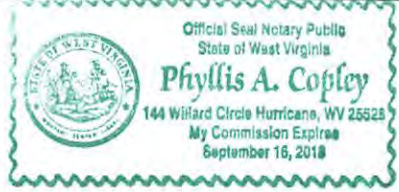
(c) Coal Lessee with Declaration
Name Argus Energy
Address 9104 Twelvepole Creek Road
Dunlow, WV 25511
Attention: Clarence Sloan

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
- (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 the 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 the 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: Chesapeake Appalachia, L.L.C.
By: [Signature]
Its: Manager - Operations, Appalachia South
Address: P.O. Box 18496
Oklahoma City, OK 73154-0496
Telephone: 405-935-4073

Subscribed and sworn before me this 18th day of July the year of 2016
Phyllis A. Copley Notary Public
My Commission Expires September 16, 2018
Form WW-9

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Environmental Protection
09/09/2016

(4/16)

API Number 47-099-00844
Operator's Well No. 806960

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
FLUIDS/CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Chesapeake Appalachia, L.L.C. OP Code 494477557

Watershed (HUC 10) East Fork of Twelvepole Creek Quadrangle Kiahsville, WV 7.5'

Do you anticipate using more than 5,000 bbls of water to complete the proposed well work No

Description of anticipated Pit Waste: Plugging Returns/Cement

Will a synthetic liner be used in the pit? Yes If so, what ml.? 20 ml.

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection (UIC Permit Number _____)
- Reuse (at API Number _____)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain: Any fluid recovered will be hauled to one of Chesapeake's tank batteries)

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

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

-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? _____

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 August 1, 2015, 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 *David Gocke*

Company Official (Typed Name) David Gocke

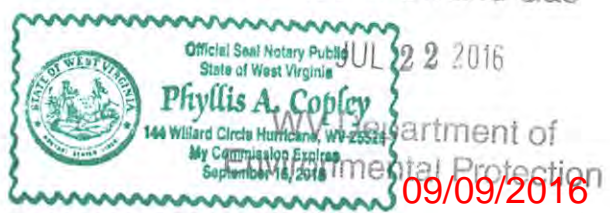
Company Official Title Manager - Operations, Appalachia South

Subscribed and sworn before me this 18th day of July, 2016.

Phyllis A. Copley

Notary Public,
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Office of Oil and Gas

My Commission Expires September 16, 2018



API Number 47-099-00844
Operator's Well No. 806960

- Timothy - 7 lbs/acre
- Kentucky Bluegrass - 7 lbs/acre
- Winter Wheat (June 15-Nov 15) or Spring Wheat (Feb 15-June 15) - 12 lbs./acre
- Annual Rye (June 15-Nov 15) or Oats (Feb 15-June 15) - 14 lbs/acre
- Alfalfa (pre inoculated) - 10 lbs/acre
- Durana Clover (pre inoculated) - 3 lbs/acre
- Mammoth Red Clover (pre inoculated) - 5 lbs/acre
- Chicory - 2 lbs/acre

Total Seeding will be 60 lbs/acre

Mulch - Weed free straw at 1500 lbs/acre

Fertilizer - 1-20-20 at 500 lbs/acre

Lime - Agricultural lime or lime |

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, include dimensions (L x W x D) of the pit, and dimensions (L x W), and area in acreage, of the land application area.

Photocopied section of involved 7.5' topographic sheet

Plan Approved by: [Signature]

Comments: [Signature]

Title: COG Inspector

Date: 7-27-2016

Field Reviewed? (X) Yes () No

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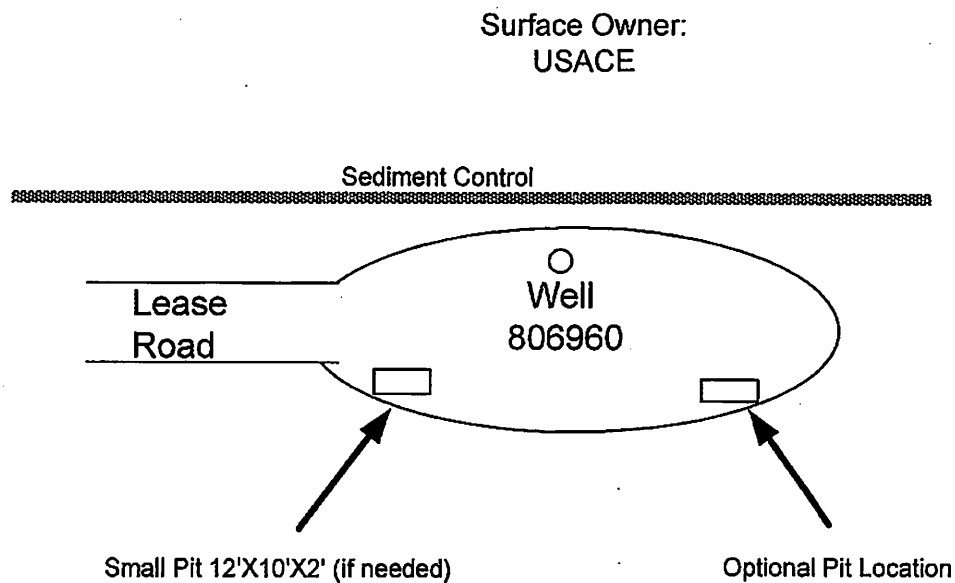
CHESAPEAKE APPALACHIA, L.L.C.

Diagram of Well 806960

API 47-099-00844

Field Office – Kermit

County -Wayne



Note: No land application.
Pit will have minimum 20
mil liner

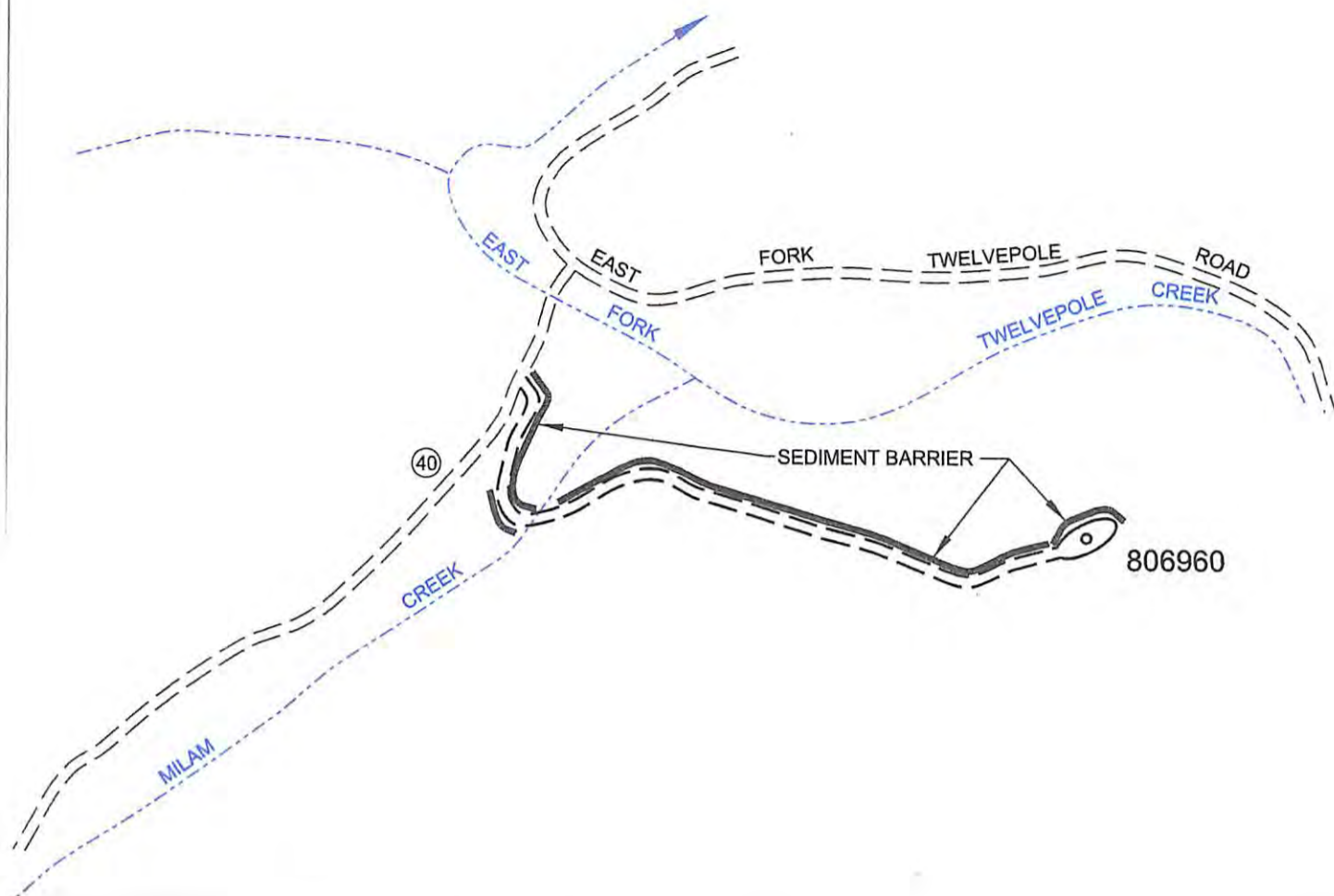
Site Plan

CHESAPEAKE APPALACHIA, L.L.C.

RECLAMATION DIAGRAM
WELL LOCATION 806960

API 47-099-00844

9900844P



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GENERAL NOTES

This drawing is a schematic representation of the well site and access road. Proposed structures such as well site, drilling pit, roadways, culverts, sediment barriers, etc. are shown in approximate pre-planning configurations.

All culvert pipes will be a minimum of 15 inches in diameter. All culvert pipes installed will be accompanied by an entrance sump with dimensions no less than 3 feet (width) x 3 feet (length) x 4 feet (deep). Culverts will be installed at an angle to ensure proper flow. The outfall of culverts will be protected from erosion and sedimentation using large rocks or other sediment controls deemed necessary in the prevention of erosion and sedimentation. Storm water from the ditches to the culverts will be directed to stable natural vegetative areas. Where culverts are not practical, operator will have other sediment control in place to minimize erosion sedimentation.

Cross drains, broad based dips, water bars, and diversion ditches, will be employed during the construction phase. These erosion and sediment control structures will be used to control erosion and sedimentation during the construction phase, where applicable, and in areas that will allow. These structures will be considered permanent and used as such.

Permanent seeding: See Attachment #1.

09/09/2016

CHESAPEAKE ENERGY CORPORATION - EASTERN DIVISION
P.O. BOX 579 - 8165 COURT AVENUE - HAMLIN, WV 25523
304 824-5141 - FAX 304 824-2247

AF. 9-20-16

CHESAPEAKE APPALACHIA, L.L.C.

9900844P

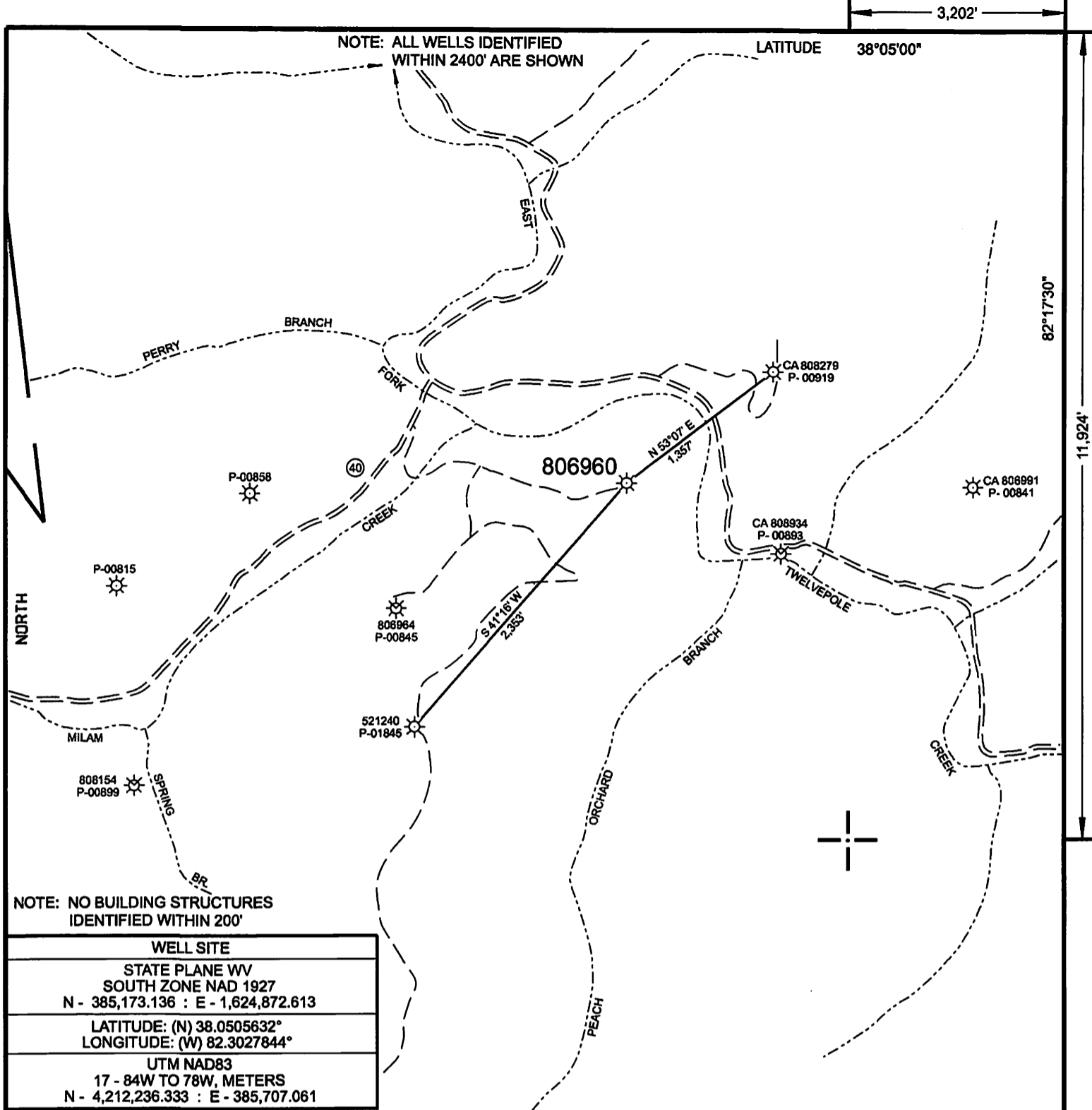
TOPOGRAPHICAL MAP OF ACCESS AND
WELL LOCATION 806960

API 47-099-00844



REC 09/09/2016
Office of Oil and Gas

JUL 22 2016



NOTE: NO BUILDING STRUCTURES IDENTIFIED WITHIN 200'

WELL SITE
STATE PLANE WV SOUTH ZONE NAD 1927 N - 385,173.136 : E - 1,824,872.613
LATITUDE: (N) 38.0505632° LONGITUDE: (W) 82.3027844°
UTM NAD83 17 - 84W TO 78W, METERS N - 4,212,236.333 : E - 385,707.061

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

FILE NO.	806960 P&A.DGN
DRAWING NO.	806960 P&A
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 19, 20 16
OPERATOR'S WELL NO. 806960
API WELL NO.

47 099 00844 P
STATE COUNTY PERMIT

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

LOCATION: ELEVATION 893' WATER SHED EAST FORK OF TWELVEPOLE CREEK
DISTRICT STONEWALL COUNTY WAYNE
QUADRANGLE KIAHSVILLE, WV 7.5'

SURFACE OWNER US ARMY CORPS OF ENGINEERS ACREAGE 57
OIL & GAS ROYALTY OWNER BUREAU OF LAND MANAGEMENT - EASTERN STATES LEASE ACREAGE 57
LEASE NO. 1-044400-000

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 _____ ESTIMATED DEPTH _____
WELL OPERATOR CHESAPEAKE APPALACHIA, L.L.C. DESIGNATED AGENT JESSICA GREATHOUSE
ADDRESS P.O. BOX 18496, OKLAHOMA CITY, OK 73154-0496 ADDRESS CHESAPEAKE APPALACHIA, L.L.C. PO BOX 6070, CHARLESTON, WV 25362

FORM WW-6

COUNTY NAME
PERMIT

09/09/2016