



 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

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

Wednesday, January 9, 2019
 WELL WORK PERMIT
 Horizontal / Drilling Deeper

CUNNINGHAM ENERGY LLC
 3230 PENNSYLVANIA AVENUE
 CHARLESTON, WV 25302

Re: Permit approval for SAMPLES 6H
 47-039-06379-00-00

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.

A handwritten signature in blue ink, appearing to read 'James A. Martin', is positioned above the printed name and title.

James A. Martin
 Chief

Operator's Well Number: SAMPLES 6H
 Farm Name: HUFFMAN, ROBERT
 U.S. WELL NUMBER: 47-039-06379-00-00
 Horizontal Drilling Deeper
 Date Issued: 1/9/2019

PERMIT CONDITIONS



West Virginia Code §22-6-11 allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

CONDITIONS

1. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code §22-6-20, which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than fifty (50) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.
2. Pursuant to 35 CSR 4-19.1.a, at the request of the surface owner all water wells or springs within 1000 feet of the proposed well that are actually utilized for human consumption, domestic animals or other general use shall be sampled and analyzed.
3. Pursuant to 35 CSR 4-19.1.c, if the operator is unable to sample and analyze any water well or spring with one thousand (1,000) feet of the permitted well location, the Office of Oil and Gas requires the operator to sample, at a minimum, one water well or spring located between one thousand (1,000) feet and two thousand (2,000) feet of the permitted well location.
4. All pits must be lined with a minimum of 20 mil thickness synthetic liner.
5. In the event of an accident or explosion causing loss of life or serious personal injury in or about the well or while working on the well, the well operator or its contractor shall give notice, stating the particulars of the accident or explosion, to the oil and gas inspector and the Chief within twenty-four (24) hours.
6. During the surface casing and cementing process, in the event cement does not return to the surface, or any other casing string that is permitted to circulate cement to the surface and does not return to the surface, the oil and gas inspector shall be notified within twenty-four (24) hours.
7. Well work activities shall not constitute a hazard to the safety of persons.
8. Operator shall provide the Office of Oil & Gas notification of the date that drilling commenced on this well. Such notice shall be provided by sending an email to DEPOOGNotify@wv.gov within 30 days of commencement of drilling.

WW - 2B
(Rev. 8/10)

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
WELL WORK PERMIT APPLICATION

1) Well Operator: CUNNINGHAM ENERGY, LLC

	494508594	KANAWHA	BIG SANDY	CLIO 7.5'
Operator ID	County	District	Quadrangle	

2) Operator's Well Number: SAMPLES 6H 3) Elevation: 945'

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

5) Proposed Target Formation(s): WEIR Proposed Target Depth: 2,150'
 6) Proposed Total Depth: 2,000 TVD/6,380' M Feet Formation at Proposed Total Depth: WEIR
 7) Approximate fresh water strata depths: 200'
 8) Approximate salt water depths: 1475' - 1525'

9) Approximate coal seam depths: NO COAL LISTED ON TITLE

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

11) Does land contain coal seams tributary to active mine? NONE

12) Describe proposed well work and fracturing methods in detail (attach additional sheets if needed)
DRILL AND STIMULATE A SHALLOW HORIZONTAL WELL. WE PLAN TO RUN THE WEATHERFORD WET S
SYSTEM AND PERFORATE. *work permit - drill deeper gas*

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"	LS	43.6 LBS	30'	30'	CTS <i>Existing</i>
Fresh Water	10 3/4"	J-55	40.5 LBS	400'	400'	CTS
Coal						RECEIVED
Intermediate	8 5/8"	J-55	24 LBS	1900'	1900'	Office of Oil and Gas CTS
Production	5 1/2"	P-110	20 LBS	6,380'	6380'	OCT 2018 CTS
Tubing						WV Department of
Liners						Environmental Protection

Packers: Kind: _____
 Sizes: _____
 Depths Set _____

State of West Virginia
Department of Environmental Protection - Office of Oil and Gas
Well Operator's Report of Well Work

API 47-039-06379 County KANAWHA District BIG SANDY
Quad CLIO 7.5' Pad Name _____ Field/Pool Name _____
Farm name ROBERT HUFFMAN Well Number SAMPLES 6H
Operator (as registered with the OOG) CUNNINGHAM ENERGY, LLC
Address 3230 PENNSYLVANIA AVE City CHARLESTON State WV Zip 25302

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing _____ Easting _____
Landing Point of Curve Northing _____ Easting _____
Bottom Hole Northing _____ Easting _____

Elevation (ft) 945' GL Type of Well New Existing Type of Report Interim Final
Permit Type Deviated Horizontal Horizontal 6A Vertical Depth Type Deep Shallow
Type of Operation Convert Deepen Drill Plug Back Redrilling Rework Stimulate
Well Type Brine Disposal CBM Gas Oil Secondary Recovery Solution Mining Storage Other _____
Type of Completion Single Multiple Fluids Produced Brine Gas NGL Oil Other _____
Drilled with Cable Rotary

Drilling Media Surface hole Air Mud Fresh Water Intermediate hole Air Mud Fresh Water Brine
Production hole Air Mud Fresh Water Brine
Mud Type(s) and Additive(s)
NONE

Date permit issued 10/12/2016 Date drilling commenced 03/31/2017 Date drilling ceased 03/31/2017
Date completion activities began N/A Date completion activities ceased N/A
Verbal plugging (Y/N) N/A Date permission granted N/A Granted by N/A

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft N/A Open mine(s) (Y/N) depths N/A
Salt water depth(s) ft N/A Void(s) encountered (Y/N) depths N/A
Coal depth(s) ft N/A Cavern(s) encountered (Y/N) depths N/A
Is coal being mined in area (Y/N) N

Reviewed by:

WR-35
Rev. 8/23/13

API 47-039 - 06379

Farm name ROBERT HUFFMAN

Well number SAMPLES 6H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/N) * Provide details below*
Conductor	14 1/4"	13 3/8"	30'	NEW	LS-43.6	NONE	YES - CEMENTED BY RIG
Surface							
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production							
Tubing							
Packer type and depth set							

Comment Details _____

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ³ /sks)	Volume (ft ³)	Cement Top (MD)	WOC (hrs)
Conductor	CLASS I	10 - CEMENTED BY RIG				GROUND LEVEL	12
Surface							
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production							
Tubing							

Drillers TD (ft) 30'

Loggers TD (ft) NONE

Deepest formation penetrated SAND STONE/SILT STONE

Plug back to (ft) _____

Plug back procedure _____

Kick off depth (ft) N/A

Check all wireline logs run

- caliper density deviated/directional induction
 neutron resistivity gamma ray temperature sonic

Well cored Yes No

Conventional Sidewall

Were cuttings collected Yes No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING _____

WAS WELL COMPLETED AS SHOT HOLE

Yes No

DETAILS _____

WAS WELL COMPLETED OPEN HOLE?

Yes No

DETAILS _____

WERE TRACERS USED

Yes No

TYPE OF TRACER(S) USED _____

WW-2A
(Rev. 6-14)

1.) Date: OCTOBER 18, 2018
2.) Operator's Well Number SAMPLES 6H
State 47- County KANAWHA Permit 06379

**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 ROBERT HUFFMAN
Address P.O. BOX 796
CLENDENIN, WV 25045
(b) Name L. DALE ASHLEY
Address 43 DOCTORS CREEK ROAD
CLENDENIN, WV 25045
(c) Name _____
Address _____
6) Inspector TERRY URBAN
Address P.O. BOX 1207
CLENDENIN, WV 25045
Telephone 304-549-5915

5) (a) Coal Operator
Name _____
Address _____
(b) Coal Owner(s) with Declaration
Name _____
Address _____
(c) Coal Lessee with Declaration
Name _____
Address _____

TO THE PERSONS NAMED ABOVE TAKE NOTICE THAT:

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

X 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:

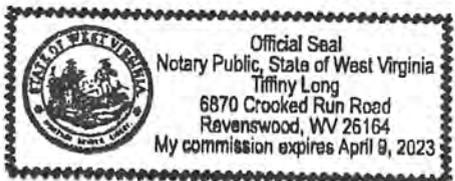
- Personal Service (Affidavit attached)
- X Certified Mail (Postmarked postal receipt attached)
- Publication (Notice of Publication attached)

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 CUNNINGHAM ENERGY, LLC
By: RYAN E. M. CUNNINGHAM
Its: MEMBER
Address: 3230 PENNSYLVANIA AVENUE
CHARLESTON, WV 25302
Telephone: 304-344-9291
Email: RYAN.CUNNINGHAM@CUNNINGHAMENERGY.COM



Subscribed and sworn before me this 17th day of OCTOBER, 2018

Tiffany Long Notary Public
My Commission Expires April 9, 2023

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

WW-2A1
(Rev. 1/11)

Operator's Well Number SAMPLES 6H

**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:

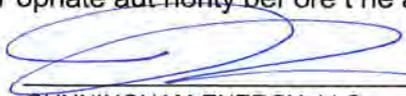
Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
SOPHIA SAMPLES, ET. AL.	CUNNINGHAM ENERGY, LLC	1/8	259 - 420

**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

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: CUNNINGHAM ENERGY, LLC
PRESIDENT

WW-9
(5/16)

API Number 47 - 039 - 06379
Operator's Well No. SAMPLES 6H

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS
FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name CUNNINGHAM ENERGY, LLC OP Code 494508594
Watershed (HUC 10) DOCTORS CREEK Quadrangle CLIO 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 CUTTINGS, FLUIDS FROM DRILLING AND FRACTURING

Will a synthetic liner be used in the pit? Yes No If so, what ml.? 30 MIL

Proposed Disposal Method For Treated Pit Wastes:

- Land Application (if selected provide a completed form WW-9-GPP)
- Underground Injection (UIC Permit Number 39-2210UIC)
- Reuse (at API Number _____)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain _____)



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

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

-If oil based, what type? Synthetic, petroleum, etc. _____

Additives to be used in drilling medium? SOAP, KCL AND/OR CLAY STABILIZER

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. LEAVE IN PIT/HAUL IF NEEDED

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

-Landfill or offsite name/permit number? CITY OF CHARLESTON LANDFILL

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.

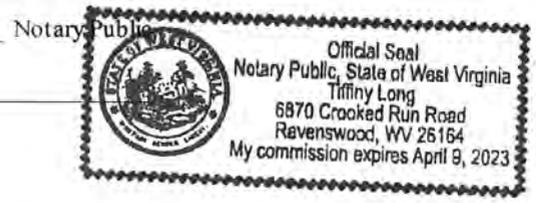
Company Official Signature [Signature]

Company Official (Typed Name) RYAN E. M. CUNNINGHAM

Company Official Title PRESIDENT

Subscribed and sworn before me this 17th day of OCTOBER, 2018

Tiffany Long
My commission expires April 9, 2023



01/11/2019

McLaughlin, Jeffrey W

From: Ryan <ryan.cunningham@cunninghamenergy.com>
Sent: Wednesday, January 09, 2019 4:07 PM
To: McLaughlin, Jeffrey W
Cc: dani.bays@cunninghamenergy.com; Steve Rhodes
Subject: Permits

Jeff-

Cunningham Energy, LLC will not land apply pit fluids from the Samples Horizontal pad. All pit fluids will be hauled to a UIC disposal well for disposal.

Regards,

Ryan

Ryan E. M. Cunningham
Cunningham Energy
President
Corporate Office
3230 Pennsylvania Ave
Charleston, WV 25302
Direct 304.344.9291
Fax 304.205.4195
Mobile 843.424.0501
eFax 866.502.1805
www.cunninghamenergy.com

**NOTICE OF CONFIDENTIALITY**

This e-mail message and its attachments (if any) are intended solely for the use of the addressees hereof. In addition, this message and the attachments (if any) may contain information that is confidential, privileged and exempt from disclosure under applicable law. If you are not the intended recipient of this message, you are prohibited from reading, disclosing, reproducing, distributing, disseminating or otherwise using this transmission. Delivery of this message to any other person than the intended recipient is not intended to waive any right or privilege. If you have received this message in error, please promptly notify the sender by reply e-mail and immediately delete this message from your system.

***Disclaimer:** Sender is not a United States Securities Dealer or Broker or United States Investment Adviser. This email letter and any and all attachments and related documents are never considered to be a solicitation for any purpose in any form or content. Upon receipt of these documents you, as the Recipient, hereby acknowledge this Warning and Disclaimer. These Confidential communications are protected under Gramm-Leach-Bliley Act 15 USC, Subchapter 1, sections 6801-6809 and other laws addressing the disclosure of Non-Public Personal Information. All information is subject to change without notice.*

Proposed Revegetation Treatment: Acres Disturbed 2.75 Prevegetation pH _____

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer type 10-10-10

Fertilizer amount 1/3 TON lbs/acre

Mulch HAY - 2 Tons/acre

Seed Mixtures

Temporary

Permanent

Seed Type	lbs/acre
KY - 31	40
ALSIKE CLOVER	5
ANNUAL RYE	15

Seed Type	lbs/acre
ORCHID GRASS	15
ALSIKE CLOVER	5

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: [Signature]

Comments: _____

LOCATION & Pit Existing All SEE IN PLACE
All additional from previous permit still
are in affect

Title: Inspector (ul & GA)

Date: 10-18-18

Field Reviewed? Yes No

47-039-06379H

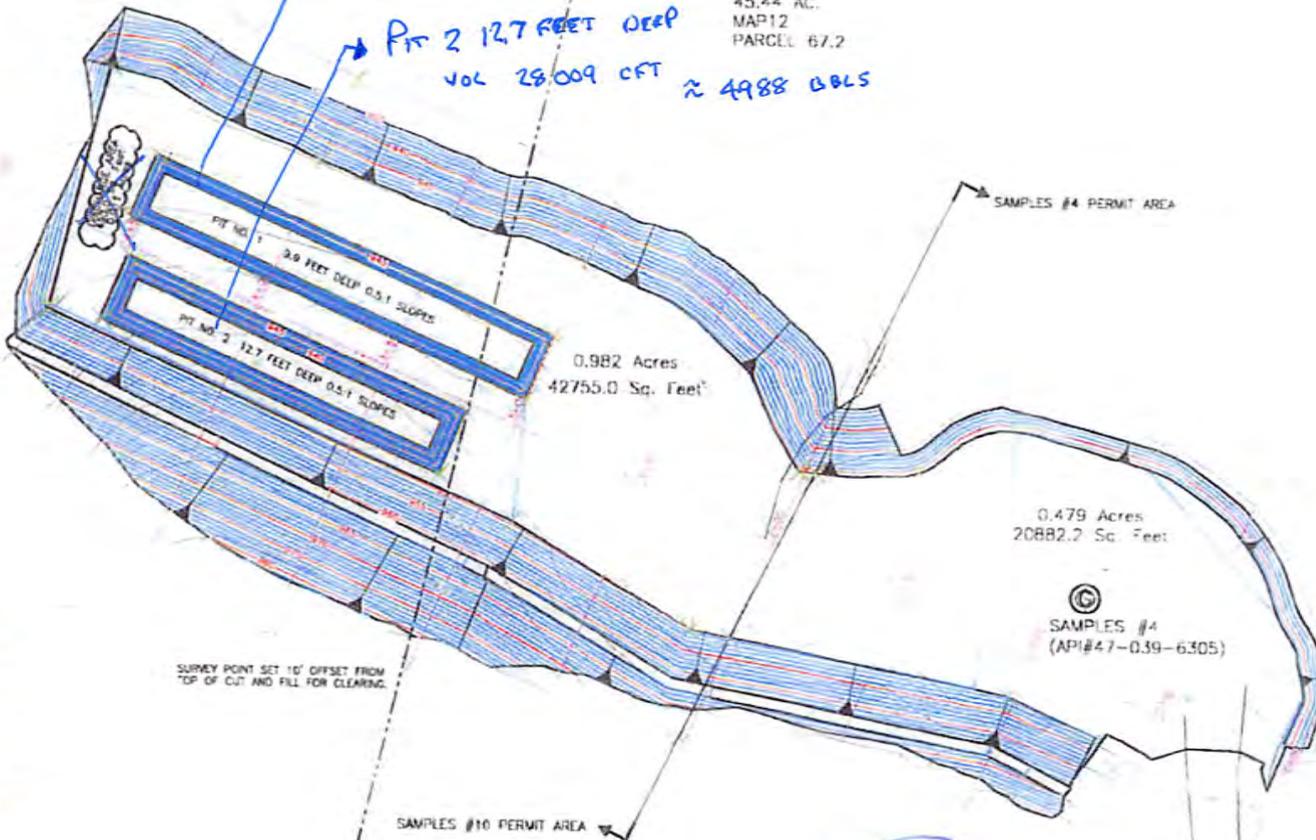
ASHLEY 48.5 AC
MAP12
PARCEL 64

NO LIANO APPLICATION
OF PIT FLUID

PIT 1 Vol 27,980 CFT \approx 4983 BLS
9.9 FEET DEEP

PIT 2 12.7 FEET DEEP
Vol 28,009 CFT \approx 4988 BLS

HUFFMAN
45.44 AC
MAP12
PARCEL 67.2



0.982 Acres
42755.0 Sq. Feet

0.479 Acres
20882.7 Sq. Feet

©
SAMPLES #4
(API#47-039-6305)

SURVEY POINT SET 10' OFFSET FROM
TOP OF CUT AND FILL FOR CLEARING.

SAMPLES #10 PERMIT AREA

"THE UNDERSIGNED, HEREIN CERTIFY" that this map is
CORRECT AND TRUE TO THE BEST OF MY KNOWLEDGE AND BELIEF
ALL THE INFORMATION FURNISHED BY THE SURVEYING ENGINEER OF
THIS STATE.

STATE OF

WHEREFORE I REQUEST THAT YOU SIGN AND RETURN TO ME A RETURN RECEIPT.
THIS MAP OF

"THE STATE TERRITORY" AS USED HEREIN IS DEPICTED BY PLANET,
THE ENGINEER'S REPRESENTATION OF SURVEYING IS A REPRESENTATION
OF PROFESSIONAL JUDGMENT. IF ANY NOT EXISTING A
SURVEYOR OR ENGINEER, OTHER CONTRACTOR, SURVEYOR, AND SET
OF RECORD AND OTHER PARTY OF THEIR RESPONSIBILITY TO ADHERE TO
CONTRACT REQUIREMENTS, APPLICABLE CODES, STANDARDS, REGULATIONS,
AND ORDINANCES.

LEGEND:

- PROPOSED CONTOURS
- EXISTING GROUND
- SURVEY POINT FOR
CLEARING AND REVIEW



REFERENCES:
1) EXISTING CONDITIONS TOPOGRAPHY GENERATED FROM
LIDAR PERFORMED BY ALLIANCE CONSULTING, INC
ON 7/25/14.
2) ORIGINAL GROUND TOPOGRAPHY OBTAINED FROM
UNITED STATES ELEVATION DATA (NED) 10 METER
RESOLUTION.

PIT NO. 1
Pit Capacity Volume : 27,980.4 C.F.,
1,036.31 C.Y., 0.64 Acres-FI
Area: 3,871.7 S.F., 0.088 Acres
Elevation Range: 930.10 to 943.00

PIT NO. 2
Pit Capacity Volume : 28,009.1 C.F.,
1,037.37 C.Y., 0.64 Acres-FI
Area: 3,130.0 S.F., 0.072 Acres
Elevation Range: 936.30 to 949.00

TOTAL SITE EXCAVATION
Cut volume: 329199.4 C.F., 12,192.46 C.Y.
Fill volume: 81,634.5 C.F., 3,023.50 C.Y.

NOTE:
FOR CROSS SECTIONS, REFER TO DRAWING
NOS. B16-301-E2 AND B16-301-E3

REV	DATE	CHANGED PIT SIZE AND ADDED WELL SIZES	DESCRIPTION	BY
A	05/22/14	CHANGED PIT SIZE AND ADDED WELL SIZES		

Alliance Consulting, Inc.
CONSULTING • CONSTRUCTION • SURVEYING

SITE PLAN MAP
SAMPLE NO. 4 WELL PAD
PROPOSED PAD AND EXTENSION AND PITS
KAWARINA COUNTY, WEST VIRGINIA
Prepared For:
CUNNINGHAM ENERGY LLC
3230 FONDRECAVIA AVENUE, CHARLESTON, WEST VIRGINIA 25302

CAD BY: JAG 01/14/14 PROJECT NO: B16-301-E144
CHECKED BY: DATE: FIGURE NO. 1
APPROVED BY: DRAWING NO. B16-301-E1

TU

No Land Application
per letter of 1/09/2019
from Ryan Cunningham

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



Operator Name: CUNNINGHAM ENERGY, LLC

Watershed (HUC 10): DOCTORS CREEK

Quad: CLIO 7.5

Farm Name: ROBERT TAYLOR

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

Prior to discharge of fluid from a drilling pit, the fluid will be circulated by placing a pump with suction in one end of the pit and the fluid discharged into the other end of the pit, lime will be added as necessary to the discharge end of the pit, and the fluid circulated for turnover of two pit volumes. Field samples will be taken of the pit fluid to determine pre-discharge parameters respective to WVDEP - OOG regulations; and, any visible free floating oil other than trace amounts that may be present will be removed from the suction/discharge area of the pit. Samples will be taken at various points of the discharge for testing.

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

Drilling pits will be lined with a minimum of 30 mil thickness synthetic liner. Drill cuttings disposal will be in conformance with the Fluids/Cuttings Disposal & Reclamation Plan (Form WW-9) as submitted within the application for this well. Land application of treated drilling pit wastewaters will conform with the applicable procedures specified within the WVDEP OOG's General Water Pollution Control Permit No. GP-WV-1-88.

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

Doctor's Creek is the closest water body this well will be approximately 1/2 mile from this water body. The closest WV Groundwater Public Water Supply Intake is Carbide Rec. Club, Blue Creek Well, Well #1 and the closest WV Surface Water Downstream Public Water Supply Intake is WVAWC Kan. Valley Dist, WVAWC Kan. Valley Primary Elk River.

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

Well drilling, associated casing installation and cementing, well stimulation, and other typical activities as may be encountered during the exploratory, developmental, maintenance/reworking, treatment operations and closure phases of this well are already regulated in the well work permit and provide groundwater protection measures.

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

TD
We will

No existing groundwater quality data is known to currently be available for this site. Cunningham Energy, LLC has provided a written request to the respective surface owner/occupant seeking permission to perform water well/spring analytical testing. We will perform all requested testing by these surface owner/occupants.

6. Provide a statement that no waste material will be used for deicing or fill material on the property.

No waste material originating from this well site will be used for either deicing purposes or as fill material upon the property. Land application of drilling pit fluid may, however, be conducted in conformance with the applicable procedures specified within the WVDEP, OOG's General Water Pollution Control Permit No. GP-WV-1-88. Additionally, drill cuttings may remain in place in conformance with the Fluids/Cuttings Disposal and Reclamation Plan as submitted within the approved application for this well.

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.

The groundwater protection instruction and training for employees will include required reading of this Groundwater Protection Plan (GPP). The GPP will also be discussed in employee meetings. New employees will be required to review the GPP.

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

The well operator will perform quarterly self-inspections of respective equipment and all GPP elements.

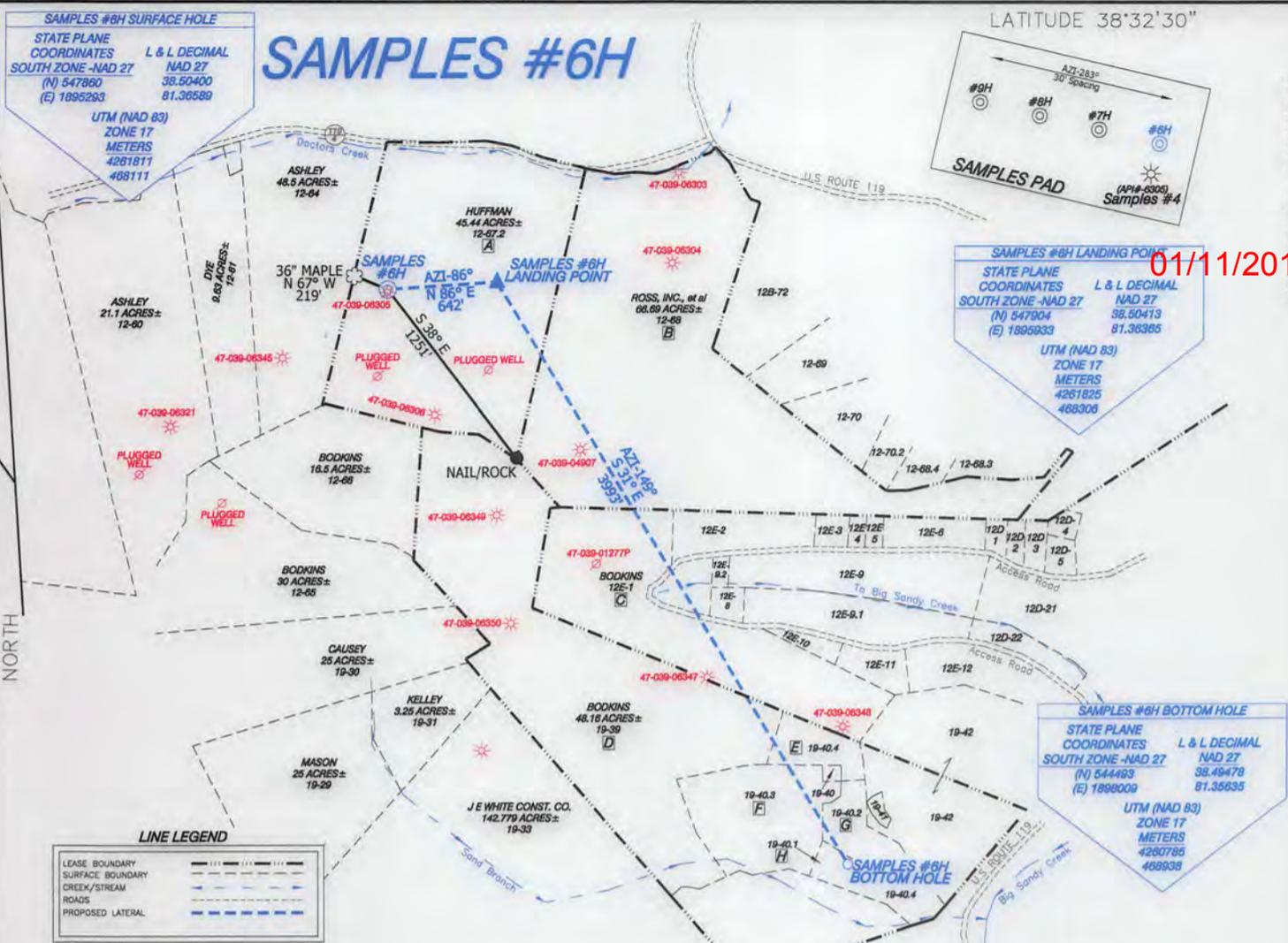
Signature:

[Handwritten Signature]

Date:

10/17/18

SAMPLES #6H



01/11/2019

REFERENCES

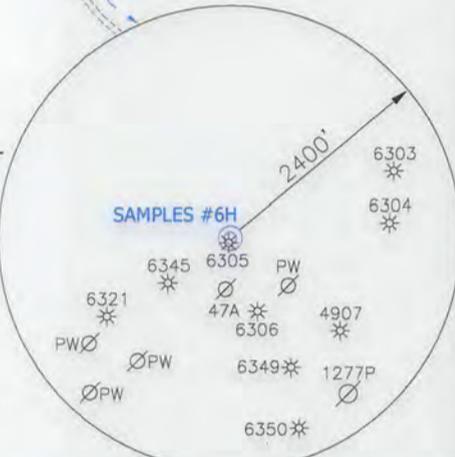
1" = 200'

Existing Pad



NOTES ON SURVEY

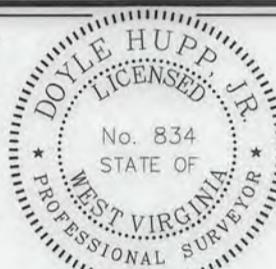
- NO DWELLINGS WITHIN 625' WERE FOUND.
- NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250' WERE FOUND.
- TIES TO WELLS AND CORNERS ARE BASED ON STATE PLANE GRID NORTH WV SOUTH ZONE NAD '27.
- WELL LAT./LONG. ESTABLISHED BY DGPS (SUB-METER GRADE).
- SURFACE OWNER AND ADJOINER INFORMATION TAKEN FROM THE ASSESSOR AND COUNTY CLERK RECORDS OF KANAWHA COUNTY IN FEBRUARY, 2015 AND INFORMATION PROVIDED BY CUNNINGHAM ENERGY, LLC.
- WELLS SHOWN ARE TAKEN FROM RECORDS OF WDEP.



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 RULES ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

P.S. 834

[Signature]
HUPP Surveying & Mapping
 P.O. Box 647 Grantsville, WV 26147
 (304) 354-7035 EMAIL: hupp@frontiernet.net



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

DATE NOVEMBER 12, 20 18

OPERATORS WELL NO. SAMPLES #6H

API WELL NO. 47-039-06379H
 STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1/2500 FILE NO. W2041 (BK74-38)
 PROVEN SOURCE OF ELEVATION DGPS (SUB-METER) SCALE 1" = 1000'

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



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

LOCATION : ELEVATION 945' WATERSHED DOCTORS CREEK

DISTRICT BIG SANDY COUNTY KANAWHA QUADRANGLE CLIO 7.5'

SURFACE OWNER ROBERT HUFFMAN ACREAGE 45.44±

ROYALTY OWNER SOPHIA SAMPLES, et al LEASE ACREAGE 418.74±

PROPOSED WORK : LEASE NO. _____

DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION PERFORATE NEW FORMATION PLUG AND ABANDON CLEAN OUT AND REPLUG OTHER

PHYSICAL CHANGE IN WELL (SPECIFY) _____ TARGET FORMATION WEIR

ESTIMATED DEPTH TVD- 2,000' MD-6,640'

WELL OPERATOR CUNNINGHAM ENERGY, LLC. DESIGNATED AGENT RYAN CUNNINGHAM

ADDRESS 3230 PENNSYLVANIA AVE. CHARLESTON, WV 25302 ADDRESS 3230 PENNSYLVANIA AVE. CHARLESTON, WV 25302

COUNTY NAME

PERMIT