



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

Harold D. Ward, Cabinet Secretary
www.dep.wv.gov

Wednesday, February 16, 2022
WELL WORK PERMIT
Vertical / Fracture

HG ENERGY, LLC
5260 DUPONT ROAD
PARKERSBURG, WV 26101

Re: Permit approval for CB FERRELL 110
47-087-04754-00-00

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 blue ink signature of James A. Martin.

James A. Martin
Chief

Operator's Well Number: CB FERRELL 110
Farm Name: MAY, TIMOTHY D.
U.S. WELL NUMBER: 47-087-04754-00-00
Vertical Fracture
Date Issued: 2/16/2022

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, drilling ceased, completion of any other permitted well work and completion of the well. Such notice shall be provided by sending an email to DEPOOGNotify@wv.gov within 30 days of commencement of drilling.

02/18/2022



1) Date: 01/10/2022
 2) Operator's Well No. C. B. Ferrall 110
 3) API Well No.: 47 - Roane - 04754
 State County Permit
 4) UIC Permit No. 2R00700005AP

**STATE OF WEST VIRGINIA
 NOTICE OF LIQUID INJECTION OR WASTE DISPOSAL WELL WORK PERMIT APPLICATION
 FOR THE DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS**

5) WELL TYPE: Liquid Injection / Gas Injection (not storage) / Waste Disposal
 6) LOCATION: Elevation: 1110' Watershed: Rush Run
 District: Smithfield County Roane Quadrangle Looneyville 7.5'
 7) WELL OPERATOR: HG Energy, LLC 8) DESIGNATED AGENT Diane White
 Address 5260 Dupont Road Address 5260 Dupont Road
Parkersburg, WV 26101 Parkersburg, WV 26101

9) OIL & GAS INSPECTOR TO BE NOTIFIED 10) DRILLING CONTRACTOR
 Name Joe Taylor Name _____
 Address 1478 Claylick Road Address _____
Ripley, WV 25271

11) PROPOSED WELL WORK Drill / Drill deeper / Redrill / Stimulate
 Plug off old formation / Perforate new formation / Convert
 Other physical change in well (specify) _____

12) GEOLOGIC TARGET FORMATION Big Injun Depth 2382' Feet (top) to 2422' Feet (bottom)
 13) Estimated Depth of Completed Well, (or actual depth of existing well): 2860' TMD Feet
 14) Approximate water strata depths: Fresh NA Feet Salt 1700' Feet
 15) Approximate coal seam depths: NA
 16) Is coal being mined in the area? Yes _____ No _____
 17) Virgin reservoir pressure in target formation 1250 psig Source Estimated
 18) Estimated reservoir fracture pressure 2650 psig (BHFP)
 19) MAXIMUM PROPOSED INJECTION OPERATIONS: Volume per hour 25 BBL Bottom hole pressure 2400 psi
 20) DETAILED IDENTIFICATION OF MATERIALS TO BE INJECTED, INCLUDING ADDITIVES Fresh water, Produced water,
bactericides, and other chemicals as needed to maintain water quality and improve oil recovery.

21) FILTERS (IF ANY) Cartridge filters
 22) SPECIFICATIONS FOR CATHODIC PROTECTION AND OTHER CORROSION CONTROL _____

23) CASING AND TUBING PROGRAM

CASING OR TUBING TYPE	SPECIFICATIONS					FOOTAGE INTERVALS		CEMENT FILL -UP OR SACKS (CU. FT.)	Kinds
	Size	Grade	Weight per ft.	New	Used	For Drilling	Left In Well		
Conductor	11 5/8"	LS	NA		x	30'	30'		Tension
Fresh Water	7"	LS	17	x		506'	506'	CTS	Sizes
Coal									2 3/8" x 4"
Intermediate									Depths set
Production	4 1/2"	J-55	10.5	x		2631.35'	2631.35'	200 sks	2300'
Tubing	2 3/8"	J-55	4.6	x		2400'	2400'		Perforations
Liners									Top Bottom
									2405' 2416'

24) APPLICANT'S OPERATING RIGHTS were acquired from C B Ferrall et al
 by deed _____ / lease x / other contract _____ / dated 11/06/2014 of record in the
Roane County Clerk's office in Roane County 16 Book 440 Page

RECEIVED
Office of Oil and Gas
JAN 28 2022

From: Dustin A. Hendershot dhendershot@hgenergyllc.com
Subject: [External] CB Ferrell 110 4/29/21
Date: May 5, 2021 at 10:42:19 AM
To: Taylor, Joseph D Joseph.D.Taylor@wy.gov

CAUTION: External email. Do not click links or open attachments unless you verify sender.

CB Ferrell
Clover Frac report
BDP - 1875 psig
Avg rate - 4.5 Bpm
Min TP - 1339 psig
Max TP - 1803 psig
Avg TP - 1464 psig
250 gals 15% HCl acid
Fluid bbls- 97 bbls cross link gel
20/40 sand- 5,000#
ISIP - 809 psig
5 min SIP - 479 psig
10 min SIP - 360 Psig
15 min SIP - 260 Psig
Frac report format
Treated Big Injun Perfs w/ 250 gals 15% HCL, 97 bbls cross linked gel, &
5,000# 20/40 sand- BDP- 1875 psig, Max TP- 1803 psig, Min TP- 1339 psig,
Avg TP- 1464 psig, Avg TR- 4.5 BPM- ISIP- 809 Psig , 5 min SIP- 479 psig, 10
min SIP- 360 psig, 15 min SIP- 260 psig

Dustin A. Hendershot
Drilling Engineer
HG Energy
Cell 1 - 304.491.7342

02/18/2022

WR-37
(REV. 9/94)

Date: May 29, 20 15
 Operator's
 Well No. C. B. Ferrell #110
 API No. 47 - 087 - 04754

**STATE OF WEST VIRGINIA
 BUREAU OF ENVIRONMENT, OFFICE OF OIL AND GAS
 PRE-OPERATION CERTIFICATE
 FOR LIQUID INJECTION OR WASTE DISPOSAL WELL**

WELL OPERATOR HG Energy, LLC **DESIGNATED AGENT** Diane White
 Address 5260 Dupont Road Address 5260 Dupont Road
Parkersburg, WV 26101 Parkersburg, WV 26101

GEOLOGICAL TARGET FORMATION Big Injun Depth 2122 feet (top) to 2150 feet (bottom)
 Virgin reservoir pressure in target formation 80 psig (TVD) 2383 (MD) 2422 (MD)
 Source of information on virgin reservoir pressure: Estimated
 Perforation intervals 2408'-2416' Open-hole intervals _____

MAXIMUM PERMITTED INJECTION OPERATIONS
 Well head injection pressure: 724 psig Bottom hole pressure: 1,649 psig
 Volume per hour: 150 Barrels

DETAILED IDENTIFICATION OF MATERIALS TO BE INJECTED
 Liquids to be injected for oil recovery: Fresh water and/or produced water from waterflood operations.
 Wastes to be disposed of: None

Additives (Slurry mediums, inhibitors, solvents, oxidizers, deoxidizers, etc.)
Bactericides and other chemicals necessary to maintain water quality or improve oil recovery.

SPECIFICATIONS FOR CATHODIC PROTECTION AND OTHER CORROSION CONTROL _____

ADDITIONAL DRILLING AS PART OF THE CONVERSION (Complete form WR-35) _____

DETAILS ON NEW CASING AND TUBING PROGRAM AS PART OF THE CONVERSION (to be completed below unless the new casing and tubing program is described on form WR-35, submitted in connection with the permit to which this form WR-37 relates.)

CASING OR TUBING TYPE	SIZE	GRADE	WEIGHT PER FT.	NEW	USED	FOOTAGE USED IN DRILLING	FOOTAGE LEFT IN WELL	CEMENT USED	PACKERS (KIND, SIZE & DEPTH SET)
CONDUCTOR									
FRESH WATER	<u>7</u>	<u>LS</u>	<u>17</u>	<u>X</u>		<u>506</u>	<u>506</u>	<u>130 Sks</u>	<u>Parmaco</u>
COAL									<u>Sheer</u>
INTERMEDIATE									<u>@</u>
PRODUCTION	<u>4-1/2</u>	<u>J-55</u>	<u>10.5</u>	<u>X</u>		<u>2631.35</u>	<u>2631.35</u>	<u>245 Sks</u>	<u>2306.9</u>
TUBING	<u>2-3/8</u>	<u>J-55</u>	<u>4.7</u>	<u>X</u>		<u>2306.9</u>	<u>2306.9</u>		
LINERS									

Received
Office of Oil & Gas
MAY 28 2015

From: Dustin A. Hendershot dhendershot@hgenergyllc.com

Subject: [External] CB Ferrell 110 4/29/21

Date: May 5, 2021 at 10:42:19 AM

To: Taylor, Joseph D Joseph.D.Taylor@weqin.com

CAUTION: External email. Do not click links or open attachments unless you verify sender.

CB Ferrell

Clover Frac report

BDP - 1875 psig

Avg rate - 4.5 Bpm

Min TP - 1339 psig

Max TP - 1803 psig

Avg TP - 1464 psig

250 gals 15% HCl acid

Fluid bbls- 97 bbls cross link gel

20/40 sand- 5,000#

ISIP - 809 psig

5 min SIP - 479 psig

10 min SIP - 360 Psig

15 min SIP - 260 Psig

Frac report format

Treated Big Injun Perfs w/ 250 gals 15% HCL, 97 bbls cross linked gel, & 5,000# 20/40 sand- BDP- 1875 psig, Max TP- 1803 psig, Min TP- 1339 psig, Avg TP- 1464 psig, Avg TR- 4.5 BPM- ISIP- 809 Psig , 5 min SIP- 479 psig, 10 min SIP- 360 psig, 15 min SIP- 260 psig

Dustin A. Hendershot

Drilling Engineer

HG Energy

Cell 1 - 304.481.7343

WR-35
Rev. 8/23/13

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

API 47-087-04754 County ROANE District SMITHFIELD
 Quad LOONEYVILLE 7.5' Pad Name FERRELL, C.B. Field/Pool Name CLOVER
 Farm name MAY, TIMOTHY D. Well Number 110.
 Operator (as registered with the OOG) H.G. ENERGY LLC
 Address 5260 DuPONT ROAD City PARKERSBURG State WV Zip 26101

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
 Top hole Northing 4,285,443 M Easting 475,638 M
 Landing Point of Curve Northing _____ Easting _____
 Bottom Hole Northing 4,285,234 M Easting 475,776 M

Elevation (ft) 1,110' 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 Injection
 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)
N/A

Date permit issued 7/10/18 Date drilling commenced NA Date drilling ceased NA
 Date completion activities began 7/23/18 Date completion activities ceased 7/27/18
 Verbal plugging (Y/N) N Date permission granted _____ Granted by _____
 RECEIVED
 Office of Oil and Gas

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug **JAN 28 2022**

Freshwater depth(s) ft None Open mine(s) (Y/N) depths None WV Department of Environmental Protection
 Salt water depth(s) ft 1700' Void(s) encountered (Y/N) depths None
 Coal depth(s) ft None Cavern(s) encountered (Y/N) depths None
 Is coal being mined in area (Y/N) N

Reviewed by:



02/18/2022

WR-35
Rev. 8/23/13

API 47-087 - 04754 Farm name MAY, TIMOTHY D. Well number 110

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	12 1/4"	11 5/8"	30'	Used	LS		Sand In
Surface	8 3/4"	7"	506'	New	LS	64'	Y
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production	6 1/4"	4 1/2"	2631.35'	New	J-55		Y
Tubing							
Packer type and depth set							

Comment Details Circulated Est. 25 sks to surface on 7" surface cement job. Circulated Est. 20 sks to surface on 4 1/2" cement job.

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							
Surface	Reg Neat	130	15.6	1.18	153	Surface	8
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production	50:50 Pozmix	120/125	13.2/14.2	1.64/1.27	197/186	50'	8
Tubing							

Drillers TD (ft) 2680' Loggers TD (ft) 2653'
 Deepest formation penetrated Big Injun Plug back to (ft) N/A
 Plug back procedure N/A

Kick off depth (ft) 600'

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
20 Centralizers every 88 from bottom on 4 1/2", Centralizer placed mid string on 7"

WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS RECEIVED Office of Oil and Gas

JAN 28 2022

WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS WV Department of Environmental Protection

WERE TRACERS USED Yes No TYPE OF TRACER(S) USED

[Signature] 02/18/2022

WR-35
Rev. 8/23/13

API 47- 087 - 04754

Farm name MAY, TIMOTHY D.

Well number 110

PRODUCING FORMATION(S)

DEPTHS

Big Injun 2122'- 2150' TVD 2382'- 2422' MD

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface _____ psi Bottom Hole _____ psi DURATION OF TEST _____ hrs

OPEN FLOW Gas _____ Oil _____ NGL _____ Water _____ GAS MEASURED BY
 mcfpd bpd bpd bpd Estimated Orifice Pilot

LITHOLOGY/ FORMATION	TOP	BOTTOM	TOP	BOTTOM	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC)
	DEPTH IN FT NAME TVD	DEPTH IN FT TVD	DEPTH IN FT MD	DEPTH IN FT MD	
Sand/Shale	0	1402	0	1432	
Sand	1402	1618	1432	1692	
Shale	1618	1656	1692	1738	
Sand	1656	1824	1738	1738	
Shale	1824	1842	1954	1954	
Sand	1842	1976	1977	2168	
Little Lime	1976	2036	2168	2236	
Pencil Cave	2032	2036	2236	2240	
Big Lime	2036	2104	2240	2356	
Keener	2104	2122	2356	2382	
Big Injun	2122	2150	2382	2422	Drilled directional S 39° E a distance of 797'
Shale	2150	2333	2422	2660	
TD	2333		2660		

Please insert additional pages as applicable.

Drilling Contractor Decker Drilling
 Address 11565 State Route 676 City Vincent State OH Zip 45784

Logging Company Weatherford International
 Address 777 North River Avenue City Weston State WV Zip 26452

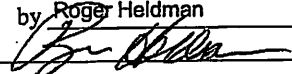
Cementing Company Universal Services
 Address Hall Rd City Buckhannon State WV Zip 26201

Stimulating Company Producers Service Corp.
 Address 109 South Graham Street City Zanesville State OH Zip 43701

RECEIVED
Office of Oil and Gas

Please insert additional pages as applicable.

JAN 28 2022

Completed by Roger Heldman Telephone 304-420-1107
 Signature  Title Operations Manager Date 8/1/18 WV Department of Environmental Protection

Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry



02/18/2022

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

API 47-087-04754 County ROANE District SMITHFIELD
 Quad LOONEYVILLE 7.5' Pad Name FERRELL, C.B. Field/Pool Name CLOVER
 Farm name MAY, TIMOTHY D. Well Number 110
 Operator (as registered with the OOG) H.G. ENERGY LLC
 Address 5260 DuPONT ROAD City PARKERSBURG State WV Zip 26101

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
 Top hole Northing 4,285,443 M Easting 475,638 M
 Landing Point of Curve Northing _____ Easting _____
 Bottom Hole Northing 4,285,234 M Easting 475,776 M

Elevation (ft) 1,110' 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 Injection
 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)
N/A

Date permit issued 3/15/21 Date drilling commenced NA Date drilling ceased NA
 Date completion activities began 4/29/21 Date completion activities ceased 4/29/21
 Verbal plugging (Y/N) N Date permission granted _____ Granted by _____

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

Freshwater depth(s) ft None Open mine(s) (Y/N) depths None
 Salt water depth(s) ft 1700' Void(s) encountered (Y/N) depths None
 Coal depth(s) ft None Cavern(s) encountered (Y/N) depths None
 Is coal being mined in area (Y/N) N

Reviewed by:

 4-29-21

WR-35
Rev. 8/23/13

API 47-087 - 04754 Farm name MAY, TIMOTHY D. Well number 110

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	12 1/4"	11 5/8"	30'	Used	LS/NA		Existing
Surface	8 3/4"	7"	506'	New	LS/17	64'	Existing
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production	6 1/4"	4 1/2"	2631.35'	New	J-55/10.5		Existing
Tubing		2 3/8"	2308.9'	New	J-55/4.7		
Packer type and depth set:							

Comment Details Circulated Est. 25 sks to surface on 7" surface cement job. Circulated Est. 20 sks to surface on 4 1/2" cement job

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							
Surface	Reg Neat	130	15.6	1.18	153	Surface	Existing
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production	50:50 Pozmix	120/125	13.2/14.2	1.64/1.27	197/186	50'	Existing
Tubing							

Drillers TD (ft) 2660' Loggers TD (ft) 2653'
 Deepest formation penetrated Big Injun Plug back to (ft) N/A
 Plug back procedure N/A

Kick off depth (ft) 600'

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 Existing

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 _____

JR

WR-35
Rev. 8/23/13

API 47-087-04754 Farm name MAY, TIMOTHY D. Well number 110

PRODUCING FORMATION(S)	DEPTHS	
Big Injun	2122'- 2150'	TVD 2382'- 2422' MD

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump
 SHUT-IN PRESSURE Surface _____ psi Bottom Hole _____ psi DURATION OF TEST _____ hrs
 OPEN FLOW Gas _____ mcfpd Oil _____ bpd NGL _____ bpd Water _____ bpd GAS MEASURED BY
 Estimated Orifice Pilot

LITHOLOGY/ FORMATION	TOP DEPTH IN FT NAME TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC)
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Sand	1402	1618	1432	1692	
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Shale	1824	1842	1954	1954	
Sand	1842	1976	1977	2168	
Little Lime	1976	2036	2168	2236	
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Big Injun	2122	2150	2382	2422	Drilled directional S 38° E a distance of 797'
Shale	2150	2333	2422	2660	
TD	2333		2660		

Please insert additional pages as applicable.

Drilling Contractor Decker Drilling
 Address 11566 State Route 676 City Vincent State OH Zip 45784

Logging Company Weatherford International
 Address 777 North River Avenue City Weston State WV Zip 26452

Cementing Company Universal Services
 Address Hall Rd City Buckhannon State WV Zip 26201

Stimulating Company Producers Service Corp.
 Address 109 South Graham Street City Zanesville State OH Zip 43701

Please insert additional pages as applicable.

Completed by Roger Heldman Telephone 304-420-1107
 Signature *Roger Heldman* Title Operations Manager Date 6/2/21

Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry *[Signature]*

WW-2A / 3A Surface Waiver

SURFACE OWNER WAIVER

County Roane Operator HG Energy, LLC
Operator well number CB Ferrell 110

INSTRUCTIONS TO SURFACE OWNERS NAMED ON PAGE WW2-A / 3A

The well operator named on page WW-2A / 3A is applying for a permit from the State to do oil or gas well work. (Note: If the surface tract is owned by more than three persons, then these materials were served on you because your name appeared on the Sheriff's tax ticket on the land or because you actually occupy the surface tract. In either case, you may be the only owner who will actually receive these materials.) See Chapter 22 of the West Virginia Code. Well work permits are valid for 24 months. If you do not own any interest in the surface tract, please forward these materials to the true owner immediately if you know who it is. Also, please notify the well operator and the Office of Oil and Gas.

NOTE: YOU ARE NOT REQUIRED TO FILE ANY COMMENT.

WHERE TO FILE COMMENTS AND OBTAIN ADDITIONAL INFORMATION:

Chief, Office of Oil and Gas
Department of Environmental Protection
601 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 **FIFTEEN (15) DAYS** after the filing date to file your comments. Comments must be filed in person or received in the mail by the Chief's office by the time stated above. You may call the Chief's office to be sure of the date. Check with your postmaster to ensure adequate delivery time or to arrange special expedited handling. If you have been contacted by the well operator and you have signed a "voluntary statement of no objection" to the planned work described in these materials, then the permit may be issued at any time.

Comments must be in writing. Your comments must include your name, address and telephone number, the well operator's name and well number and the approximate location of the proposed well site including district and county from the application. You may add other documents, such as sketches, maps or photographs to support your comments.

The Chief has the power to deny or condition a well work permit based on comments on the following grounds:

- 1) The proposed well work will constitute a hazard to the safety of persons.
- 2) The soil erosion and sediment control plan is not adequate or effective;
- 3) Damage would occur to publicly owned lands or resources;
- 4) The proposed well work fails to protect fresh water sources or supplies;
- 5) The applicant has committed a substantial violation of a previous permit or a substantial violation of one or more of the rules promulgated under Chapter 22, and has failed to abate or seek review of the violation..."

If you want a copy of the permit as it is issued or a copy of the order denying the permit, you should request a copy from the Chief.

List of Water Testing Laboratories. The Office maintains a list of water testing laboratories which you can hire to test your water to establish water quality prior to and after drilling. Contact the Chief to obtain a copy.

VOLUNTARY STATEMENT OF NO OBJECTION

I hereby state that I have read the instructions to surface owners and that I have received copies of a Notice and Application for a Well Work Permit on Form WW2-A / 3A, and attachments consisting of pages 1 through ___ including a work order on Form WW-2B / 3A, a survey plat, and a soil and erosion plan, all for proposed well work on my surface land as described therein.

I further state that I have no objection to the planned work described in these materials, and I have no objection to a permit being issued on those materials.

FOR EXECUTION BY A NATURAL PERSON

FOR EXECUTION BY A CORPORATION, ETC.

Signature

Date

04754

Print Name

Company Name _____
By _____
Its _____

Signature

Date

RECEIVED
Office of Oil and Gas

IAN 28 2022

Date

WV Department of
Environmental Protection

Date

02/18/2022



HG Energy, LLC
5260 Dupont Road
Parkersburg, WV 26101
(304) 420-1100 - Office
(304) 863-3172 - Fax

4708704754F

January 10, 2022

Timothy D. May
242 Edgell Fork
Spencer, WV 25276

RE: C. B. Ferrell No. 110
Smithfield District, Roane County
West Virginia

Dear Landowner:

Enclosed are copies of various application papers that we have filed with the West Virginia Department of Environmental Protection (WVDEP), Office of Oil and Gas. A well work permit is being requested for the above-referenced well.

Pursuant to WV Code Chapter 22B, Article 6, you are receiving copies of this correspondence because the well or other anticipated disturbance is located on your surface property. Your rights as a landowner are detailed in the enclosed permit application papers.

No action on your part is required. If you have any questions or comments regarding this application, you may call this office at (304) 420-1119.

Very truly yours,

Diane White

Diane C. White

Enclosures

RECEIVED
Office of Oil and Gas

JAN 28 2022

WV Department of
Environmental Protection

02/18/2022

4708704754

7019 1640 0000 3830 3421

U.S. Postal Service™
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Domestic Mail Only

For delivery information, visit our website at www.usps.com

OFFICIAL USE

Certified Mail Fee

Extra Services & Fees (if not boxed, add fee as appropriate)

Return Receipt (hardcopy) \$

Return Receipt (electronic) \$

Certified Mail Restricted Delivery \$

Adult Signature Required

Adult Signature Restricted Delivery

Postage

Total Postage and Fees

\$

Sent To

Street and Apt. No., or PO Box No.

City, State, ZIP+4®

PS Form 3800, April 2012 (S PSN 7530-02-000-9047) See Reverse for Instructions

Postmark Here

JAN 11 2022

2511 CBF 110

Timothy D. May

242 Edgell Fork

9 Penver WV 25276

RECEIVED
Office of Oil and Gas

JAN 28 2022

WV Department of
Environmental Protection

02/18/2022

WW-9
(2/15)

API Number 47 - 087 - 04754

Operator's Well No. CR Ferrall 110

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name HG Energy, LLC OP Code 494497948

Watershed (HUC 10) Rush Run Quadrangle Looneyville 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: NA

Will a synthetic liner be used in the pit? Yes No If so, what 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 No waste anticipated, should there be any fluids they'll be hauled for off site disposal)

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

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

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

Additives to be used in drilling medium? NA

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

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

-Landfill or offsite name/permit number? NA

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, 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 Diane White

Company Official (Typed Name) Diane White

Company Official Title Agent



RECEIVED
Office of Oil and Gas

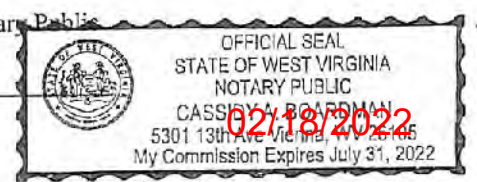
JAN 28 2022

WV Department of
Environmental Protection

Subscribed and sworn before me this 10th day of January, 20 22

Cassidy A. Boardman Notary Public

My commission expires 7/31/2022



HG Energy, LLC

Proposed Revegetation Treatment: Acres Disturbed 0.1 Prevegetation pH _____

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer type 10-20-20

Fertilizer amount 500 lbs/acre

Mulch Straw 2 Tons/acre

Seed Mixtures

Temporary		Permanent	
Seed Type	lbs/acre	Seed Type	lbs/acre
Tall Fescue	40	Tall Fescue	40
Ladino Clover	5	Ladino Clover	5

**** Sediment Control Plan will be in effect at all times ****

Attach:

Drawing(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided)

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: Joe Taylor

Comments: [Signature]

Title: OGG Inspector

Date: 1-24-22

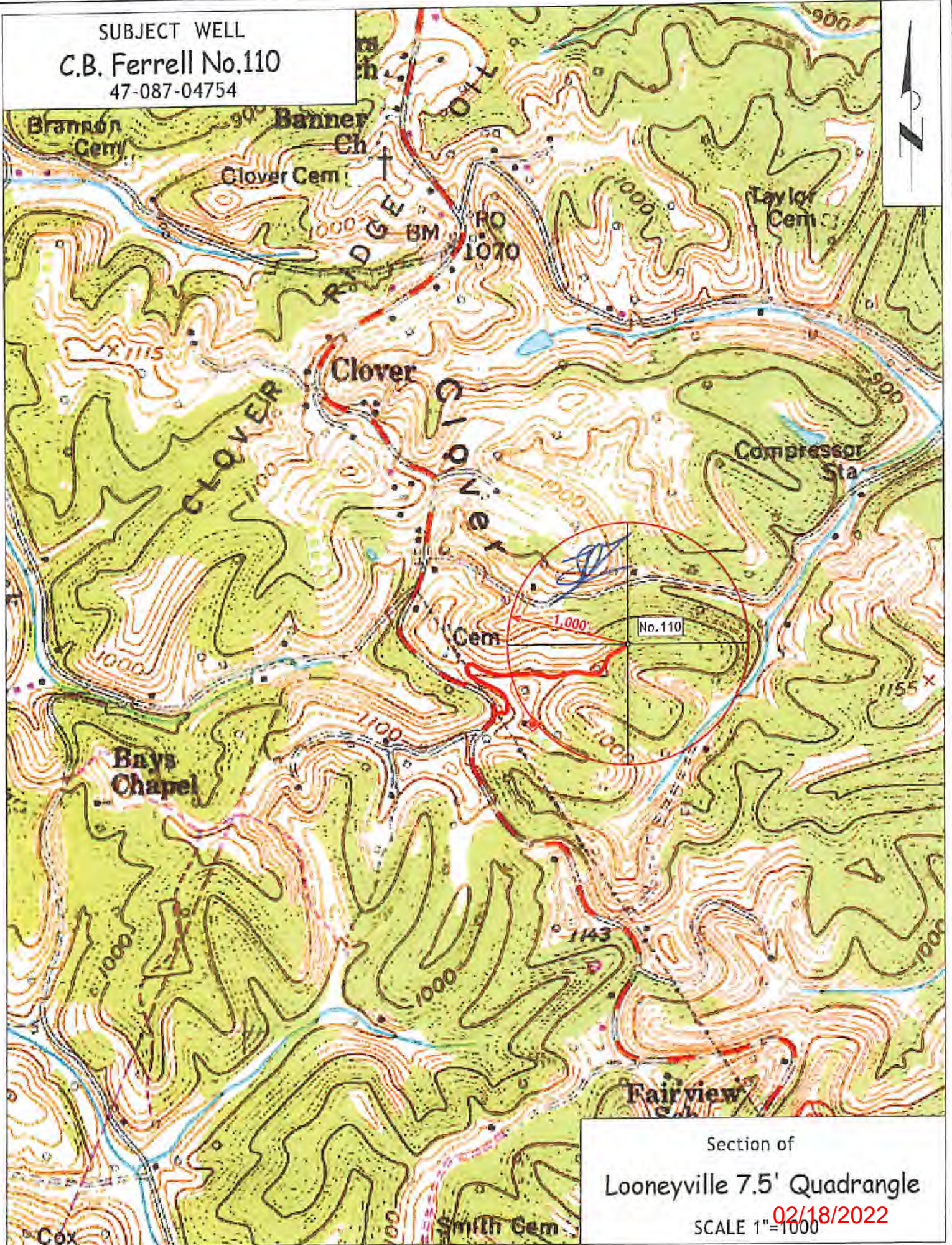
Field Reviewed? Yes No

RECEIVED
Office of Oil and Gas

JAN 28 2022

WV Department of
Environmental Protection

SUBJECT WELL
C.B. Ferrell No.110
47-087-04754



Section of
Looneyville 7.5' Quadrangle
SCALE 1"=1000
02/18/2022

Reclamation Plan For: C.B. Ferrell No. 110

47-087-04754

Note
Access roads and Drill Site were constructed
in 2015 for the drilling of the subject well.
All structures are in place and will be maintained

C.B. Ferrell Lease

Timothy D. May
- Surface Owner

Existing
Location on
Ridgetop

Existing Vegetative
Filter Strip

4754
No. 110

202 109 105

Existing Vegetative
Filter Strip

Gate

[Signature]
1-24-22

Ed Asbury
- Surface Owner

Into Vegetation

Into Vegetation

Born

SBK 2578
No. 3

Existing
Access
Road

Ed Asbury
- Surface Owner

Existing Pad Site
104 108 201 205

To Existing Wells
No. 200, 101 & 102

EXISTING WATERFLOOD ACCESS TO SR 36

36

NOTE
REFER TO THE WVDEP
EROSION AND SEDIMENT CONTROL
FIELD MANUAL VER. MAY 2012 FOR
BMPs CONTROLLING EROSION AND
SEDIMENT FROM SOIL-DISTURBING
OPERATIONS.

Notes:

- REQUESTED PERMIT IS FOR RECOMPLETION OF AN EXISTING WELL.
- ACCESS ROADS ARE EXISTING AND WILL BE MAINTAINED TO WVDEP STANDARDS.
- NO EARTHWORK IS ANTICIPATED FOR REQUESTED WELL WORK
- NO PIT WILL BE REQUIRED FOR REQUESTED WELL WORK.
- ANY DISTURBED AREAS WILL BE RE-VEGETATED AS OUTLINED ON FORM WW-9.
- MAINTAIN SEDIMENT BARRIERS AND DRAINAGE STRUCTURES.
- DRAWING NOT TO SCALE.

4708704754F

4708704754F

Reclamation Plan For: C.B. Ferrell No. 110

47-087-04754

Note
Access roads and Drill Site were constructed
in 2015 for the drilling of the subject well.
All structures are in place and will be maintained

C.B. Ferrell Lease

Timothy D. May
- Surface Owner

Existing
Location on
Ridgetop



Gate



To Existing Wells
No. 200, 101 & 102

Ed Asbury
- Surface Owner

S.B. Kinkead Lease
C.B. Ferrell Lease

Ed Asbury
- Surface Owner

Into Vegetation

Into Vegetation

Barr

SBK^{25/8}
No. 3

Existing
Access
Road

EXISTING WATERFLOOD ACCESS TO SR 36

36

NOTE
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1 - Well ties and Latitude and Longitude were measured by DGPS (Sub-meter Mapping Grade). Bearings are referenced to UTM Grid North (Zone 17 North - NAD 1927).

2 - Surface owners and adjacent information obtained from the Roane County Assessor's tax records.

3 - No Title Opinion was provided to the Surveyor during this survey. This survey is subject to a complete title Opinion.

SURVEY NOTES

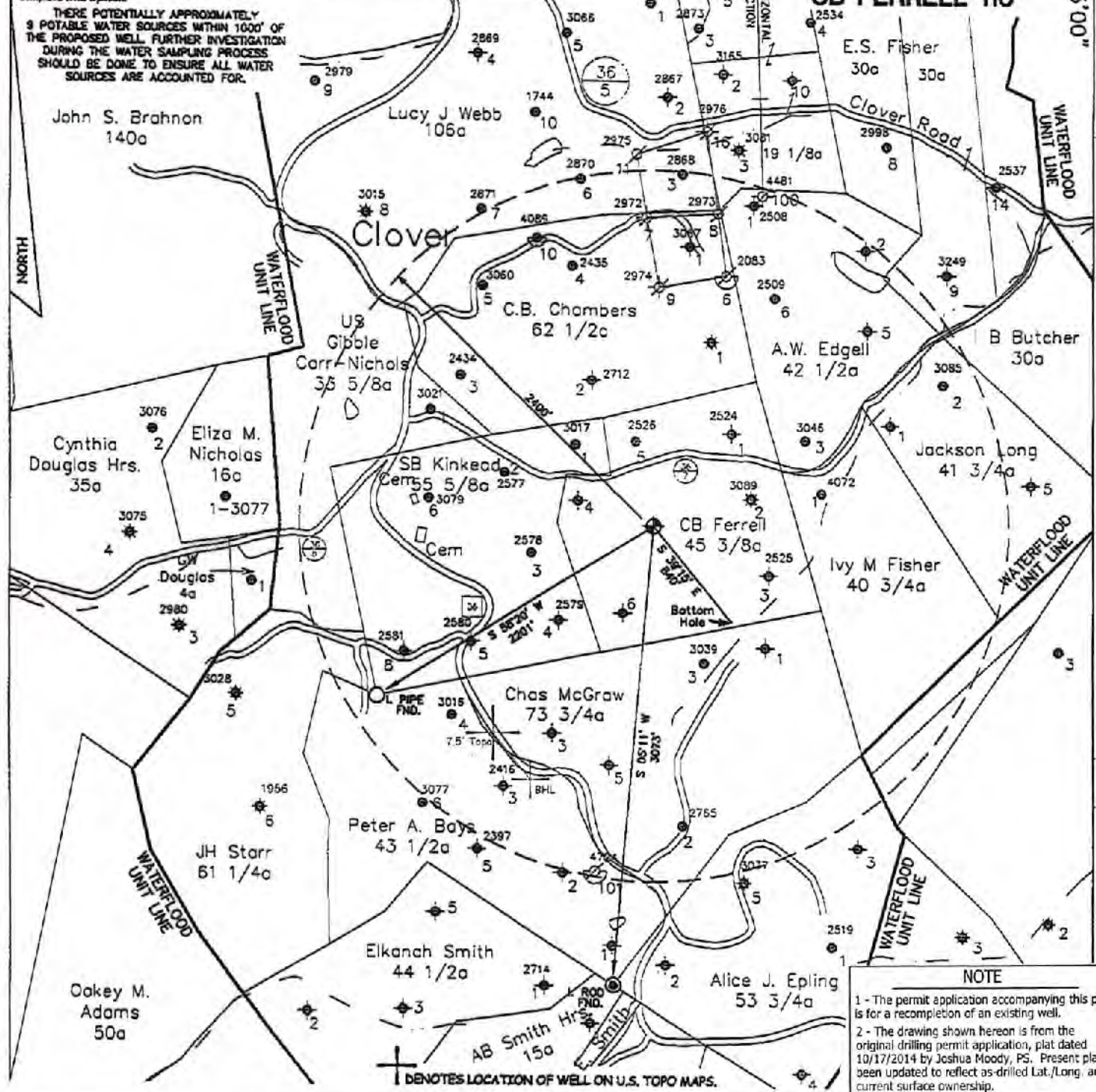
Well Coordinates	
UTM NAD 83 (mtr)	
Surface	N - 4,285,441 m. E - 475,636 m.
Bottom Hole	N - 4,285,253 m. E - 475,789 m.

LOCATION REFERENCES

Existing Well

MAP OF H.G. ENERGY, LLC - WATERFLOOD UNIT - CB FERRELL 110

LAT: 38°45'00" LONG: 81°15'00"



NOTE

1 - The permit application accompanying this plat is for a recompletion of an existing well.

2 - The drawing shown hereon is from the original drilling permit application, plat dated 10/17/2014 by Joshua Moody, PS. Present plat has been updated to reflect as-drilled Lat./Long. and current surface ownership.

⊕ DENOTES LOCATION OF WELL ON U.S. TOPO MAPS.

FILE NO. _____

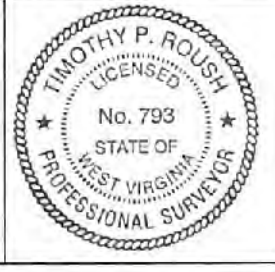
SCALE 1" = 1000'

MINIMUM DEGREE OF ACCURACY _____

PROVEN SOURCE OF ELEVATION DGPS Survey
(Sub-Meter Mapping Grade)

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) *[Signature]*
TIMOTHY P. ROUSH PS 793



WEST VIRGINIA
Division of Environmental Protection
Office of Oil and Gas
601 57th Street
Charleston, West Virginia 25301



DATE December 2, 2021
FARM C.B. Ferrell No.110
API WELL NO. 47 - 087 - 04754F

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

LOCATION: ELEVATION 1,110' WATERSHED Rush Run
DISTRICT Smithfield COUNTY Roane
QUADRANGLE Looneyville 7.5'

SURFACE OWNER Timothy D. May ACREAGE 25.51 Ac.
OIL & GAS ROYALTY OWNER Beverly Eberfeld et al. LEASE ACREAGE 45 Ac.
LEASE NO. _____

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

PLUG AND ABANDON ___ CLEAN OUT AND REPLUG ___
TARGET FORMATION Big Injun ESTIMATED DEPTH 2,660' MD

WELL OPERATOR HG Energy LLC. DESIGNATED AGENT Diane White
ADDRESS 5260 DuPont Road ADDRESS 5260 DuPont Road
Parkersburg, WV 26101 Parkersburg, WV 26101

02/18/2022

FORM IV-6

LONGITUDE 81° 15' 00" As Drilled Latitude = 38° 43' 01.9"

SURVEY NOTES

1 - Well ties and Latitude and Longitude were measured by DGPS (Sub-meter Mapping Grade). Bearings are referenced to UTM Grid North (Zone 17 North - NAD 1927).

2 - Surface owners and adjacent information obtained from the Roane County Assessor's tax records.

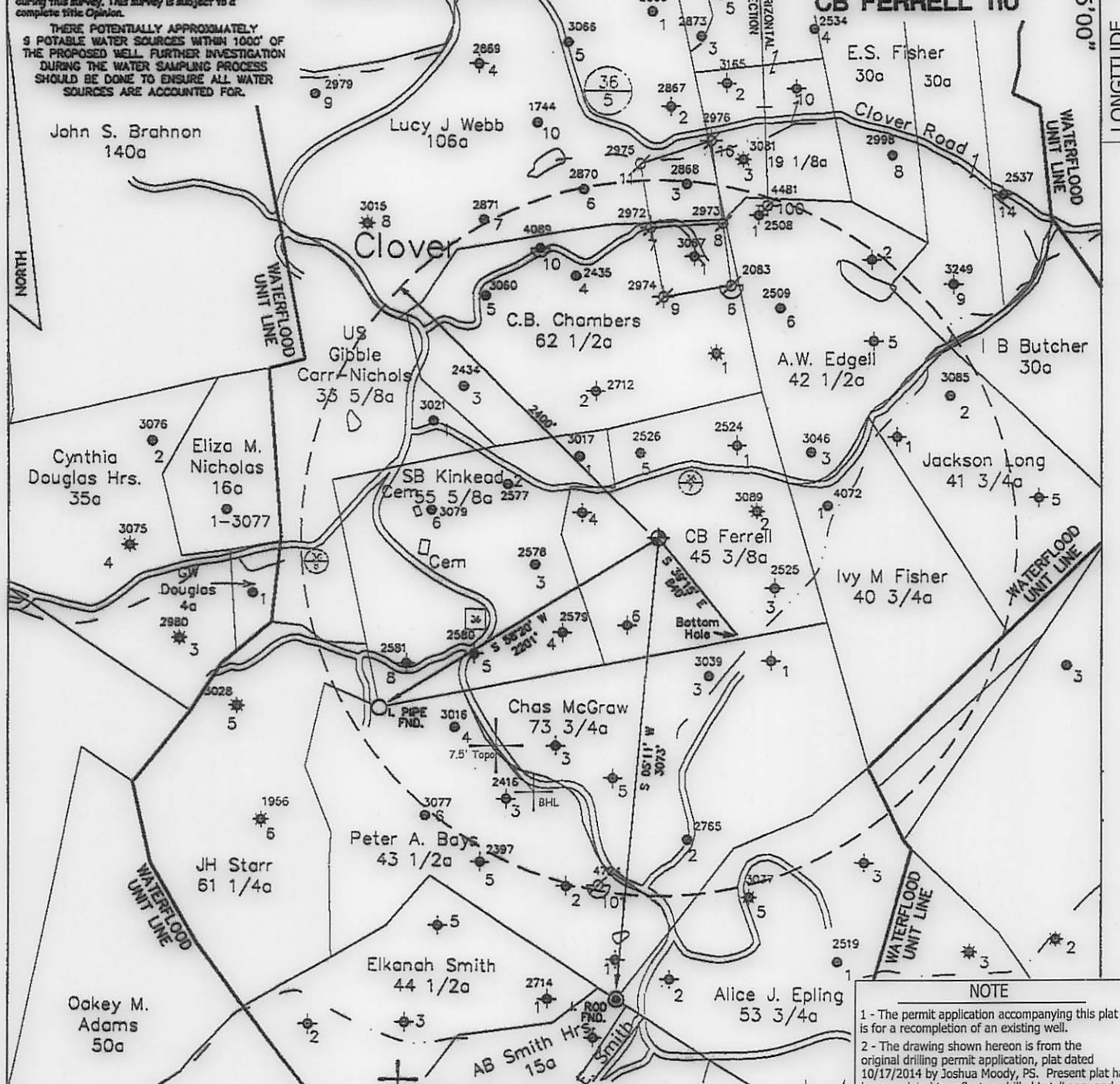
3 - No Title Opinion was provided to the Surveyor during this survey. This survey is subject to a complete title Opinion.

THESE POTENTIALLY APPROXIMATELY 9 POTABLE WATER SOURCES WITHIN 1000' OF THE PROPOSED WELL FURTHER INVESTIGATION DURING THE WATER SAMPLING PROCESS SHOULD BE DONE TO ENSURE ALL WATER SOURCES ARE ACCOUNTED FOR.

Well Coordinates
 UTM NAD 83 (mtr)
 Surface N - 4,285,441 m.
 E - 475,636 m.
 Bottom Hole N - 4,285,253 m.
 E - 475,789 m.

LOCATION REFERENCES
 Existing Well

LAT: 38° 45' 00"
**MAP OF
 H.G. ENERGY, LLC
 -WATERFLOOD UNIT-
 CB FERRELL 110**



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FILE NO. _____
 SCALE 1" = 1000'
 MINIMUM DEGREE OF ACCURACY _____
 PROVEN SOURCE OF ELEVATION DGPS Survey
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(SIGNED) *[Signature]*
 TIMOTHY P. ROUSH PS 793



WEST VIRGINIA
 Division of Environmental Protection
 Office of Oil and Gas
 601 57th Street
 Charleston, West Virginia 25301



DATE December 2, 2021
 FARM C.B. Ferrell No.110
 API WELL NO. 47 - 087 - 04754 F

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

LOCATION: ELEVATION 1,110' WATERSHED Rush Run
 DISTRICT Smithfield COUNTY Roane
 QUADRANGLE Looneyville 7.5'

SURFACE OWNER Timothy D. May ACREAGE 25.51 Ac.
 OIL & GAS ROYALTY OWNER Beverly Eberfeld et al. LEASE ACREAGE 45 Ac.
 LEASE NO. _____

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

PLUG AND ABANDON ___ CLEAN OUT AND REPLUG ___
 TARGET FORMATION Big Injun ESTIMATED DEPTH 2,660' MD

WELL OPERATOR HG Energy LLC. DESIGNATED AGENT Diane White
 ADDRESS 5260 DuPont Road ADDRESS 5260 DuPont Road
Parkersburg, WV 26101 Parkersburg, WV 26101

02/18/2022



HG Energy, LLC
5260 Dupont Road
Parkersburg, WV 26101
(304) 420-1100 - Office
(304) 863-3172 - Fax

4708704754F

January 10, 2022

Mr. Jeff McLaughlin
WVDEP
Division of Oil & Gas
601 57th Street
Charleston, West Virginia 25304

RE: C. B. Ferrell No. 110 (API 47-087-04754)
Smithfield District, Roane County
West Virginia

RECEIVED
Office of Oil and Gas

JAN 28 2022

WV Department of
Environmental Protection

Dear Mr. McLaughlin:

Enclosed are Forms WW-3A, WW-3B, WW-9, mylar of plat, reclamation plan, topo map and copies of the certified mailing receipts for a permit to stimulate an injection well. Also enclosed is our check in the amount of \$550.00 to cover the associated permit fees.

Should you have any questions or need further information please call me at 304-420-1119.

Very truly yours,

Diane White

Diane C. White

Enclosures

cc: Timothy D. May - Certified
Joe Taylor - Inspector

Ch 5193
Amt \$550
Date 1/19/22

02/18/2022



Stansberry, Wade A <wade.a.stansberry@wv.gov>

Re-Work Fracture Vertical Well Work Permit API: 47-087-04754)

1 message

Stansberry, Wade A <wade.a.stansberry@wv.gov>

Wed, Feb 16, 2022 at 2:21 PM

To: Diane White <dwhite@hgenergyllc.com>, Emily Westfall <ewestfall@wvassessor.com>, "Taylor, Joseph D" <joseph.d.taylor@wv.gov>

I have attached a copy of the newly issued well [permit](#) number. This will serve as your copy.

47-087-04754 - CB FERRELL 110


If you have any questions, then [please](#) contact us here at the Office of Oil and Gas.

Thank you,

Wade A. Stansberry
Environmental Resource Specialist 3
West Virginia Department of Environmental Protection
Office of Oil & Gas
601 57th St. SE
Charleston, WV 25304
(304) 926-0499 ext. 41115
(304) 926-0452 fax
Wade.A.Stansberry@wv.gov

2 attachments

 **IR-8 Blank.pdf**
216K

 **47-087-04754 - Copy.pdf**
3109K

02/18/2022