



1) Date: November 18, 19 83  
 2) Operator's Well No. 864  
 3) API Well No. 47 - 013 - 3683  
 State County Permit

STATE OF WEST VIRGINIA  
 DEPARTMENT OF MINES, OIL AND GAS DIVISION  
 APPLICATION FOR A WELL WORK PERMIT

- 4) WELL TYPE: A Oil      / Gas X /  
 B (If "Gas", Production X / Underground storage      / Deep      / Shallow X /)
- 5) LOCATION: Elevation: 848.0' Watershed: Little Kanawha River  
 District: Sheridan County: Calhoun Quadrangle: 7.5' Annamoriah
- 6) WELL OPERATOR Sterling Drilling & Prod. Co., Inc DESIGNATED AGENT Harry L. Berger, Jr.  
 Address 360 Madison Ave. Fifth Floor Address 710 Virginia St., E.  
New York, New York 10017 Charleston, W.V. 25301
- 8) OIL & GAS INSPECTOR TO BE NOTIFIED Name Deo Mace  
 Address Rt. 1 Box 5  
Sandridge, W.V. 25274
- 9) DRILLING CONTRACTOR: Name UNKNOWN AT THIS TIME  
 Address
- 10) PROPOSED WELL WORK: Drill X / Drill deeper      / Redrill      / Stimulate       
 Plug off old formation      / Perforate new formation       
 Other physical change in well (specify)
- 11) GEOLOGICAL TARGET FORMATION, BROWN SHALE  
 12) Estimated depth of completed well, 5100 feet  
 13) Approximate tratra depths: Fresh,      feet; salt,      feet.  
 14) Approximate coal seam depths: 0 Is coal being mined in the area? Yes      No X
- 15) CASING AND TUBING PROGRAM

**RECEIVED**  
 DEC 2 - 1983  
 OIL & GAS DIVISION  
 DEPT. OF MINES

CASING OR TUBING TYPE	SPECIFICATIONS					FOOTAGE INTERVALS		CEMENT FILL-UP OR SACKS (Cubic feet)	PACKERS
	Size	Grade	Weight per ft.	New	Used	For drilling	Left in well		
Conductor									Kinds
Fresh water	9 5/8	LS	33#	X		400'	400'	To Surface	by rule 15.05
Coal									Sizes
Intermediate	7"	J-55	20#	X		1980'	1980'	100 sks	
Production	4 1/2	ERW	10.5#	X			5100'	250 sks	Depth set or as req. by rule 15.01
Tubing									Perforations:
Liners									Top Bottom

OFFICE USE ONLY  
 DRILLING PERMIT

Permit number 47-013-3683 Date December 19, 1983

This permit covering the well operator and well location shown below is evidence of permission granted to drill in accordance with the pertinent legal requirements subject to the conditions contained herein and on the reverse hereof. **Notification must be given to the District Oil and Gas Inspector, (Refer to No. 8) Prior to the construction of roads, locations and pits for any permitted work.** In addition, the well operator or his contractor shall notify the proper district oil and gas inspector 24 hours before actual permitted work has commenced.)

The permitted work is as described in the Notice and Application, plat, and reclamation plan, subject to any modifications and conditions specified on the reverse hereof.

Permit expires December 19, 1985 unless well work is commenced prior to that date and prosecuted with due diligence.

Bond:	Agent: <u>LP</u>	Plat: <u>MM</u>	Casing: <u>MM</u>	Fee: <u>5951</u>
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BLANKET BOND

*[Signature]*  
 Administrator, Office of Oil and Gas

NOTE: Keep one copy of this permit posted at the drilling location.



STATE OF WEST VIRGINIA

DEPARTMENT OF MINES, OIL AND GAS DIVISION

OFFICE USE ONLY

PERMIT MODIFICATIONS AND CONDITIONS (IF ANY) TO THE PROPOSED WELL WORK

4) WELL LOCATION: B (If "Gas", Production) / Underground storage / Deep / Shallow / Shallow

5) LOCATION: Elevation: 282.0 / Watershed: Little Kanawha River / District: Stonewall / County: Calhoun / Quadrangle: V.S. 2800000

6) WELL OPERATOR: Stonewall Drilling & Prod. Co., INC. DESIGNATED AGENT / Address: 300 Harrison Ave., Fifth Floor / 400 Madison Ave., New York, New York 10017

8) OIL & GAS INSPECTOR TO BE NOTIFIED: Name: Tom MacG / Address: 47 J. Box 2 / Stonewall, W.V. 25775

10) PROPOSED WELL WORK: Drill X / Redrill / Plug off old formation / Perform new formation / Other physical change in well (specify): None

11) GEOLOGICAL TARGET FORMATION: BELOW SHALE

12) Estimated depth of completed well: 510 feet

13) Approximate strata depths: Fresh: 510 feet; Salt: 510 feet

14) Approximate coal seam depths: 0 feet

15) CASING AND TUBING PROGRAM

RECEIVED  
DEC 2 - 1983  
OIL & GAS DIVISION  
DEPT. OF MINES

CASING OR TUBING TYPE	Size	Grade	SPECIFICATIONS		FOOTAGE INTERVALS		CEMENT FILL-UP OR PACKERS (Cubic feet)	PACKERS
			Weight per ft.	New / Lead	For drilling	Left in well		
Conductor								
Fresh water	8 1/2	LS	33		510'			
Coal								
Intermediate	7	LS	33		1980'			
Production	4 1/2	LS	33					
Tubing								
Lines								

OFFICE USE ONLY

This part of Form IV-2(b) is to record the dates of certain occurrences and any follow-up inspections.

Date	Date(s)
Application received	Follow-up inspection(s)
Well work started	"
Completion of the drilling process	"
Well Record received	"
Reclamation completed	"

OTHER INSPECTIONS

Reason:	Agent	Plan	Casing	Fee

NOTE: Keep one copy of this permit posted at the drilling location. See the reverse side of the APPLICANT'S COPY for instructions to the well operator.

12/01/2023



IV-9  
(Rev 8-81)

DATE 11.28.83

WELL NO. Collins # 864

State of West Virginia

API NO. 47-013-3683

Department of Mines  
Oil and Gas Division

CONSTRUCTION AND RECLAMATION PLAN

COMPANY NAME Sterling Drilling & Prod. Co WELL OPERATOR Sterling Drilling & Prod  
Address 360 Madison Ave.- NY, NY 10017 Address c/o H.L.Berger - Chars., WV  
Telephone (212) 949-9100 Telephone (304) 342-0121

LANDOWNER John C. Coffman

SOIL CONS. DISTRICT Little Kanawha SCD

Revegetation to be carried out by Sterling Drilling & Prod. Co.-H.L.Berger (Agent)

This plan has been reviewed by Little Kanawha SCD. All corrections and additions become a part of this plan: 11-30-83  
(Date)

Jarrett Newton  
(SCD Agent)

ACCESS ROAD

LOCATION

ACCESS ROAD	LOCATION
Structure _____ (A)	Structure <u>Diversion Ditch</u> (1)
Spacing _____	Material _____
Page Ref. Manual _____	Page Ref. Manual <u>2-12</u>
Structure <u>Drainage Ditches</u> (B)	Structure <u>Rip-Rap</u> (2)
Spacing <u>Roadside</u>	Material <u>Rock</u>
Page Ref. Manual <u>2-12</u>	Page Ref. Manual <u>2-9</u>
Structure <u>Cross Ditches</u> (C)	Structure _____ (3)
Spacing <u>100' for 8-10% grade 150' for 2-4%</u>	Material _____
Page Ref. Manual <u>2-4</u>	Page Ref. Manual _____

All structures should be inspected regularly and repaired if necessary. All commercial timber is to be cut and stacked and all brush and small timber to be cut and removed from the site before dirt work begins.

REVEGETATION

Treatment Area I

Lime 2 Tons/acre  
or correct to pH 6.5

Fertilizer 600 lbs/acre  
(10-20-20 or equivalent)

Mulch Hay 2 Tons/acre

Seed\* Ky-31 40 lbs/acre  
Ladino Clover 4 lbs/acre  
\_\_\_\_\_ lbs/acre

Treatment Area II

Lime \_\_\_\_\_ Tons/acre  
or correct to pH 6.5

Fertilizer 600 lbs/acre  
(10-20-20 or equivalent)

Mulch Hay 2 Tons/acre

Seed\* Ky-31 40 lbs/acre  
Ladino Clover 4 lbs/acre  
\_\_\_\_\_ lbs/acre

\*Inoculate all legumes such as vetch, trefoil and clovers with the proper bacterium. Inoculate with 3X recommended amount.

12/01/2023

Moore's Well Services, Inc.

PLAN PREPARED BY Richard A. Campbell

ADDRESS Route 1 Box 30

Duck, WV 25063

PHONE NO. (304) 364-5780

NOTES: Please request landowners' cooperation to protect new seedling for one growing season. Attach separate sheets as necessary for comments.





RECEIVED

IV-35 (Rev 8-81)

SEP 10 1984

OIL & GAS DIVISION DEPT. OF MINES

State of West Virginia Department of Mines Oil and Gas Division

Date August 31, 1984 Operator's Well No. 864 Farm Harley Collins, et. al. API No. 47 - 013 - 3683

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

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

LOCATION: Elevation: 848' Watershed Little Kanawha River District: Sheridan County Calhoun Quadrangle 7.5' Annamoriah

COMPANY Sterling Drilling & Production Co., Inc.

ADDRESS 710 Virginia St., E, Charleston, WV 25301 DESIGNATED AGENT Harry L. Berger, Jr.

ADDRESS 710 Va. St., E. Charleston, WV 25301

SURFACE OWNER John C. Hoffman

ADDRESS

MINERAL RIGHTS OWNER Harley Collins, et. al.

ADDRESS

OIL AND GAS INSPECTOR FOR THIS WORK Deo Mace

ADDRESS Rt. 1, box 5, Sandridge, WV 25274

PERMIT ISSUED December 19, 1983

DRILLING COMMENCED June 27, 1984

DRILLING COMPLETED July 3, 1984

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

Table with 4 columns: Casing & Tubing, Used in Drilling, Left in Well, Cement fill up Cu. ft. Rows include sizes 20-16 Cond., 13-10", 9 5/8, 8 5/8, 7, 5 1/2, 4 1/2, 3, 2, and Liners used.

GEOLOGICAL TARGET FORMATION Devonian Shale Depth 5100 feet

Depth of completed well 5178' KB feet Rotary x / Cable Tools

Water strata depth: Fresh 212 feet; Salt 1540 feet

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

OPEN FLOW DATA

Producing formation Devonian Shale Pay zone depth 3156' - 5079' feet

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

Final open flow 237 Mcf/d Final open flow Bbl/d

Time of open flow between initial and final tests 6 hours

Static rock pressure 980 psig (surface measurement) after 96 hours shut in

(If applicable due to multiple completion--)

Second producing formation Pay zone depth feet

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

Final open flow Mcf/d Oil: Final open flow Bbl/d

Time of open flow between initial and final tests hours

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

12/01/2023

3683

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

Perforations: Stage One: 24 holes 4600' - 5079'  
 Stage Two: 26 holes 3954' - 4488'  
 Stage Three: 25 holes 3156' - 3835'

Treatment: Stage One: 23 bbls 15% HCL; 1,047 MSCF N<sub>2</sub>; BD 3850#  
 Stage Two: 23 bbls 15% HCL; 1,188 MSCF N<sub>2</sub>; BD 2825#  
 Stage Three: 23 bbls 15% HCL; 1,219 MSCF N<sub>2</sub>; BD 2750#

WELL LOG

FORMATION	COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fresh and salt water, coal, oil and gas
					All measurements 10'KB
Sandstone and Shale			0	1515	
Salt Sand			1515	1557	
Shale			1557	1568	
Maxon Sand			1568	1682	
Slate and Lime			1682	1695	
Pencil Cave			1695	1705	
Big Lime			1705	1829	
Siltstone and Shale			1856	2220	
Sunbury Shale			2220	2234	
Berea Sandstone			2234	2238	
Grey Sandy Siltstone and Shale			2238	2588	
Gordon			2588	2596	
Grey Silty Shale			2596	4166	
Dark Shale			4166	4206	
Grey Sandy Siltstone			4206	4212	
Grey Shale			4212	4680	
Grey Siltstone			4680	4703	Gas Shows @ 3185', 3450', 3740'
Grey Shale			4703	5178	4200', 4850'
					TD - 5178'KB

(Attach separate sheets as necessary)

Sterling Drilling and Production Co., Inc. 12/01/2023  
 Well Operator

By: Harry J. Bergu Jr  
 Date: 9-4-84

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

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

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JUL 10 1984

OIL & GAS DIVISION  
DEPT. OF MINES

INSPECTOR'S WELL REPORT

Permit No. 13-3683

Oil or Gas Well \_\_\_\_\_  
(KIND)

Company Sterling  
 Address \_\_\_\_\_  
 Farm Collins  
 Well No. 864  
 District Sheridan County Cal.  
 Drilling commenced 6-27-84  
 Drilling completed \_\_\_\_\_ Total depth \_\_\_\_\_  
 Date shot \_\_\_\_\_ Depth of shot \_\_\_\_\_  
 Initial open flow \_\_\_\_\_ /10ths Water in \_\_\_\_\_ Inch  
 Open flow after tubing \_\_\_\_\_ /10ths Merc. in \_\_\_\_\_ Inch  
 Volume \_\_\_\_\_ Cu. Ft.  
 Rock pressure \_\_\_\_\_ lbs. \_\_\_\_\_ hrs.  
 Oil \_\_\_\_\_ bbls., 1st 24 hrs.  
 Fresh water \_\_\_\_\_ feet \_\_\_\_\_ feet  
 Salt water \_\_\_\_\_ feet \_\_\_\_\_ feet

CASING AND TUBING	USED IN DRILLING	LEFT IN WELL	PACKERS
Size			
16			Kind of Packer _____
13			
10			Size of _____
8 1/4			
6 3/8			Depth set _____
5 3/16			
3			Perf. top _____
2			Perf. bottom _____
Liners Used			Perf. top _____
			Perf. bottom _____

CASING CEMENTED \_\_\_\_\_ SIZE \_\_\_\_\_ No. FT. \_\_\_\_\_ Date \_\_\_\_\_  
 NAME OF SERVICE COMPANY \_\_\_\_\_  
 COAL WAS ENCOUNTERED AT \_\_\_\_\_ FEET \_\_\_\_\_ INCHES  
 \_\_\_\_\_ FEET \_\_\_\_\_ INCHES FEET \_\_\_\_\_ INCHES  
 \_\_\_\_\_ FEET \_\_\_\_\_ INCHES FEET \_\_\_\_\_ INCHES

Drillers' Names Hurst &

Remarks:  
415' of 9 5/8" casing, 160 SKS cement, Dowell, 6-28-84  
2016' 7" casing, Dowell, 6-30-84.  
4000' Today.  
7-2-84  
 DATE

W. Mace 12/01/2023  
 DISTRICT WELL INSPECTOR





IV-20  
Obverse  
1-84



DEPARTMENT OF MINES AND ENERGY  
OIL AND GAS

APR 23 1986

State of West Virginia

Department of Mines

Oil and Gas Division

Charleston 25305

FINAL INSPECTION REPORT  
INSPECTORS COMPLIANCE REPORT  
September 24, 1984

(112-19-83)

COMPANY Sterling Drilling & Prod. Co.

PERMIT NO 013-3683

710 Virginia Street, East

FARM & WELL NO John C. Hoffman

Charleston, West Virginia 25301

DIST. & COUNTY Sheridan/Calhoun

RULE	DESCRIPTION	IN COMPLIANCE	
		YES	NO
23.06	Notification Prior to Starting Work	_____	_____
25.04	Prepared before Drilling to Prevent Waste	_____	_____
25.03	High-Pressure Drilling	_____	_____
16.01	Required Permits at Wellsite	_____	_____
15.03	Adequate Fresh Water Casing	_____	_____
15.02	Adequate Coal Casing	_____	_____
15.01	Adequate Production Casing	_____	_____
15.04	Adequate Cement Strenght	_____	_____
15.05	Cement Type	_____	_____
23.02	Maintained Access Roads	_____	_____
25.01	Necessary Equipment to Prevent Waste	_____	_____
23.04	Reclaimed Drilling Pits	_____	_____
23.05	No Surface or Underground Pollution	_____	_____
23.07	Requirements for Production & Gathering Pipelines	_____	_____
16.01	Well Records on Site	_____	_____
16.02	Well Records Filed	_____	_____
7.05	Identification Markings	_____	_____

I HAVE INSPECTED THE ABOVE CAPTIONED WELL AND RECOMMEND THAT IT BE RELEASED:

SIGNED Des Mace

DATE 4-19-86

Your well record was received and reclamation requirements approved. In accordance with Chapter 22, Article 4, Section 2, the above well will remain under bond coverage for the life of the well.

*[Handwritten Signature]*

Administrator-Oil & Gas Division

April 29, 1986

DATE

APPLICATION FOR DETERMINATION OF THE MAXIMUM LAWFUL PRICE UNDER THE NATURAL GAS POLICY ACT (NGPA)

12/01/2023

47 - 013 - 3683

1.0 API well number: (If not assigned, leave blank, 14 digit.)

2.0 Type of determination being sought: (Use the codes found on the front of this form.)

Section of NGPA 107  
Category Code

3.0 Depth of the deepest completion location: (Only needed if sections 103 or 107 in 2.0 above.)

5178 feet

4.0 Name, address and code number of applicant: (35 letters per line maximum. If code number not available, leave blank.)

Name Sterling Drilling and Production Co. Inc.  
710 Virginia St. East, Arcade Building  
Street Charleston, WV 25301  
City

5.0 Location of this well: (Complete (a) or (b).)

Field Name Sheridan District  
County Calhoun  
State WV

(b) For OCS wells:

Area Name  
Block Number

(c) Name and identification number of this well: (35 letters and digits maximum.)

Collins 864

(d) If code 4 or 5 in 2.0 above, name of the reservoir: (35 letters maximum.)

6.0 (a) Name and code number of the purchaser: (35 letters and digits maximum. If code number not available, leave blank.)

Undesignated

(b) Date of the contract:

Mo. Day Yr.

(c) Estimated total annual production from the well:

7 Million Cubic Feet

(a) Base Price	(b) Tax	(c) All Other Prices (Indicate (+) or (-).)	(d) Total of (a), (b) and (c)
----------------	---------	---	-------------------------------

7.0 Contract price: (As of filing date. Complete to 3 decimal places.)

5 8 3 4

8.0 Maximum lawful rate: (As of filing date. Complete to 3 decimal places.)

9.0 Person responsible for this application:

Name Harry L. Berger, Jr.  
Title Designated Agent

Agency Use Only  
Date Received by Juris. Agency  
SEP 10 1984  
Date Received by FEBC

Date Application is Completed

Signature

9-4-84

304-342-0121

Phone Number

APPLICATION FOR DETERMINATION OF THE MAXIMUM LAWFUL  
 PRICE UNDER THE NATURAL GAS POLICY ACT (NGPA)  
 (Sections 102, 103, 107 and 108)

GENERAL INSTRUCTIONS

Complete this form if you are applying for price classification under sections 102, 103, 107 or 108 of the NGPA.

Complete each appropriate item on the reverse side of this page. The code numbers used in items 4 and 6 can be obtained from the Buyer/Seller Code Book. If there is more than one purchaser or contract, identify the additional information in the space below. Also enter any additional remarks in the space below. The data reported on this form are not considered to be confidential and will not be treated as such.

Submit the completed application to the appropriate Jurisdictional Agency as listed in title 18 of the CFR, part 274.501. If there are any questions, call (202) 357-8585.

SPECIFIC INSTRUCTIONS

Use the codes in the table below for type of determination in item 2.

Section of NGPA (a)	Category Code (b)	Description (c)
102	1	New OCS lease
102	2	New onshore well (2.5 mile test)
102	3	New onshore well (1000 feet deeper test)
102	4	New onshore reservoir
102	5	New reservoir on old OCS lease
103	-	New onshore production well
107	0	Deep (more than 15,000 feet) high-cost gas
107	1	Gas produced from geopressured brine
107	2	Gas produced from coal seams
107	3	Gas produced from Devonian shale
107	5	Production enhancement gas
107	6	New tight formation gas
107	7	Recompletion tight formation gas
108	0	Stripper well
108	1	Stripper well - seasonally affected
108	2	Stripper well - enhanced recovery
108	3	Stripper well - temporary pressure buildup
108	4	Stripper well - protest procedure

Enter the appropriate information regarding other Purchasers/Contracts.

Contract Date (Mo, Da, Yr) (a)	Purchaser (b)	Buyer Code (c)

Remarks:

SEP 27 1984

COVER SHEET, STATE APPLICATION FOR WELL CLASSIFICATION

Date: August 31, 19 84

AGENCY USE ONLY

Applicant's Name: Sterling Drilling & Production Co., Inc.

WELL DETERMINATION FILE NUMBER

Address: 710 Virginia Street, E. Arcade Bldg  
Charleston, WV 25301

840910 - <sup>107</sup>~~013~~ - <sup>013</sup>~~3003~~ - 3683

Gas Purchaser Contract No. \_\_\_\_\_

Use Above File Number on all  
Communications Relating to This Well

Date of Contract \_\_\_\_\_  
(Month, day and year)

First Purchaser: \_\_\_\_\_

Designated Agent: Harry L. Berger, Jr.

Address: \_\_\_\_\_  
(Street or P.O. Box)

Address: Sterling Drilling & Prod. Co., Inc  
710 Virginia St., E. Arcade Bldg.  
Charleston, WV 25301

(City) (State) (Zip Code)

FERC Seller Code 018084

FERC Buyer Code \_\_\_\_\_

NAME AND TITLE OF PERSON TO WHOM QUESTIONS CONCERNING THIS APPLICATION SHALL  
BE ADDRESSED:

Name: Harry L. Berger, Jr. Agent  
(Print) \_\_\_\_\_ (Title)

Signature: Harry L. Berger, Jr.

Address: Sterling Drilling & Prod. Co., Inc.  
710 Virginia St., E., Arcade Bldg.  
(Street or P.O. Box)

Charleston, WV 25301  
(City) (State) (Zip Code)

Telephone: 304 342-0121  
(Area Code) (Phone Number)

(Certificate of Proof of Service to Purchaser)

NGPA Category Applied For

NGPA SECTION/SUBSECTION

- 102 New Natural Gas
- 102-2 2.5 Mile Test
- 102-3 1000 Foot Deeper Test
- 102-4 New Onshore Reservoir

- 108 Stripper Well Natural Gas
- 108- Stripper Well
- 108-1 Seasonally Affected
- 108-2 Enhanced Recovery
- 108-3 Temporary Pressure Buildup

- 103 New Onshore Production Well
- 103 New Onshore Production Well

- 107 High Cost Natural Gas
- 107-0 Deep (more than 15,000 feet)
- 107-1 Geopressured Brine
- 107-2 Coal Seams
- 107-3 Devonian Shale
- 107-5 Production enhancement
- 107-6 New Tight Formation
- 107-7 Recompletion Tight Formation

AGENCY USE ONLY

**APPROVED**

12/01/2023  
OCT -3 1984

**RECEIVED**

SEP 10 1984

OIL & GAS DIV.  
DEPT. OF MINES

DEVONIAN SHALE GAMMA RAY LOG ANALYSIS  
APPLICATION FOR DETERMINATION OF THE MAXIMUM LAWFUL  
PRICE UNDER THE NATURAL GAS POLICY ACT

Operator: Sterling Drilling & Production Co., Inc. Agent: H.L. Burger

Type Determination being sought - 107 (Devonian Shale)

API Well No.: 47-013-3683 Well Name: Collins # 264

West Virginia Office of Oil and Gas County: Calhoun  
References: SJA File No.

Vol. \_\_\_\_\_ Page \_\_\_\_\_ Line \_\_\_\_\_

I. NOTE: A Gamma Ray Log has been marked with the (a) Shale Base Line, (b) a line representing 0.7 x (Shale Base Line), (c) intervals with Gamma Ray units less than 0.7 x (Shale Base Line) and that log is included with this analysis.

II. Gamma Ray elevation indices:

A. Shale Base Line (API Units)

1. GR Value at Base Line = 160 \* API Units
2. Remarks:

*Gamma Ray Scale = 0 → 200 units*

B. Gamma Ray Log Value at 0.7 x Value at Base Line

1. GR Value = 160 \* API Units
2. Calculation:  $\frac{0.7 \text{ (GR Value at Base Line)}}{0.7 \text{ (} \underline{160} \text{ *)} = \underline{112} API Units$

III. Intervals with GR index less than 0.7 x (Value at Base Line):

Interval		Thickness of Interval Feet	Feet of less than* 0.7 (Shale Base Line) Feet
From**	To***		
2240'	5178'		

Total Devonian Interval 2938'

Total Less Than 0.7 (Shale Base) 17'

% Less Than 0.7 (Shale Base Line) =  $\frac{0.0058}{2938} \times 100 = \underline{0.58} %$

12/01/2023

\*Marked on log included with analysis.  
\*\*Top of Devonian Section Recorded on First Interval in this Column.  
\*\*\*Lesser of TD or Bottom of Devonian Section Recorded as last Interval in this Column.

WELL CLASSIFICATION FORM  
HIGH COST GAS WELL - DEVONIAN SHALE  
NGPA Section 107

DESIGNATED AGENT Harry L. Berger, Jr.

ADDRESS Arcade Building; 710 Virginia St., E  
Charleston, WV 25301

LOCATION Elevation 848'

WELL OPERATOR Sterling Drilling and Production Watershed Little Kanawha River  
Co., Inc.

ADDRESS 710 Virginia St., East Dist. Sheridan County Calhoun Quad. 7.5' Anrih  
Charleston, WV 25301

Gas Purchase  
Contract No. \_\_\_\_\_

GAS PURCHASER \_\_\_\_\_  
ADDRESS \_\_\_\_\_

Meter Chart Code \_\_\_\_\_

Date of Contract \_\_\_\_\_

\* \* \* \* \*

Date surface drilling began: June 27, 1984

Indicate the bottom hole pressure of the well and explain how this was calculated.

Bottom Hole Pressure. PSIA -- Pf = Pwe XLGS

$$t = 60 + (0.0075 \times 5178) + 459.67 = 559 \quad X = \frac{1}{53.34} \times 559 = .0000335$$

$$Pf = 980 \times 2.7183 \times .0000335 \times 4118 \times 1690 \times 1.08 = 1086 \text{ PSIA}$$

AFFIDAVIT

I, Harry L. Berger, Jr., having been first sworn according to law, state that I have calculated the percentage of footage of the producing interval which is not Devonian Shale as indicated by a Gamma Ray index of less than 0.7 if a Gamma Ray log described in subparagraph (3)(1) or (3)(ii)(A) has been filed, or as indicated by the report described in subparagraph (3)(ii)(B); I have demonstrated that the percentage of potentially disqualifying non-shale footage is equal to or less than five (5) percent of the gross Devonian age interval; and I have no knowledge of any information not described in the application which is inconsistent with a conclusion that the well qualifies as a high-cost natural gas well.

Harry L. Berger, Jr.

STATE OF WEST VIRGINIA

COUNTY OF Kanawha, TO-WIT:

I, Jolene K Brooks, a Notary Public in and for the state and county aforesaid, do certify that Harry L. Berger, Jr., whose name is signed to the writing above, bearing date the 31<sup>st</sup> day of August, 1984, has acknowledged the same before me, in my county aforesaid.

12/01/2023

Given under my hand and official seal this 31<sup>st</sup> day of August, 1984.  
My term of office expires on the 27<sup>th</sup> day of October, 1991.

(NOTARIAL SEAL)

Jolene K Brooks  
Notary Public

15' LATITUDE 39°00'

1820'

7 1/2' LATITUDE 39°00'

TOP OF KNOB EL. 1012'

C-3428 669

A. DAVIS

771 W-1045

W-958 661

C-368

N22°30'W-726' DEED

FELLURE BROS.

C-3409 660

LITTLE KANAWHA RIVER

77.33°

WESTVACO CORP.

A. DAVIS

15' TOPO LOCATION

S3°47'E-792.18'

PROPOSED LOCATION

HARLEY M. COLLINS, ET. AL.

7 1/2' LONGITUDE 81° 12' 30"

15' LONGITUDE 81° 10'

7 1/2' TOPO LOCATION

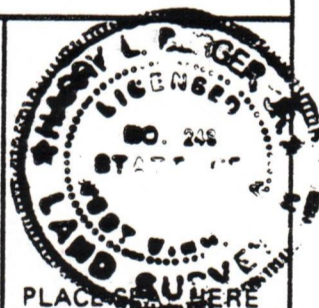
MAGNETIC NORTH

N.B. H-28, PG. 1

FILE NO. 043-015  
 MAP NO. 58-A  
 SCALE 1" = 1000'  
 MINIMUM DEGREE OF ACCURACY 1:200  
 PROVEN SOURCE OF ELEVATION U.S.G.S. DATA TOP KNOB SHOWN EL. 1012'

I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF MINES.

(SIGNED) Harry L. Berger, Jr.  
 HARRY L. BERGER, JR. L.L.S. 248



PLACE SEAL HERE

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

FORM IV-6 (8-78)



DATE NOV. 12, 19 83  
 OPERATOR'S WELL NO. 864  
 API WELL NO. 47-013-3683  
 STATE COUNTY PERMIT

STATE OF WEST VIRGINIA  
 DEPARTMENT OF MINES  
 OIL AND GAS DIVISION

WELL TYPE: OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL   
 (IF "GAS,") PRODUCTION  STORAGE  DEEP  SHALLOW   
 LOCATION: ELEVATION 848.0' WATER SHED LITTLE KANAWHA RIVER  
 DISTRICT SHERIDAN COUNTY CALHOUN  
 QUADRANGLE 7 1/2' ANNAMORIAH (ARNOLDSBURG N.W.)  
 SURFACE OWNER JOHN G. HOFFMAN ACREAGE 77.33  
 OIL & GAS ROYALTY OWNER HARLEY M. COLLINS, ET. AL. LEASE ACREAGE 77.33  
 LEASE NO 043-015

12/01/2023

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 BROWN SHALE ESTIMATED DEPTH 5100'  
 OPERATOR STERLING DRILLING & PRODUCTION CO. INC. AGENT HARRY L. BERGER  
 ADDRESS 360 MADISON AVE. - 5TH FLOOR ADDRESS 710 VIRGINIA ST. E.  
NEW YORK, N.Y. 10017 CHARLESTON, WV 25301