

Line Item Explanation

- 1) Date of Application
- 2) Your well name and number
- 3) To be filled out by office of oil & gas
- 4A) "Oil" means natural crude oil or petroleum and other hydrocarbons, regardless of gravity, which are produced at the well in liquid form by ordinary production methods and which are not the result of condensation of gas after it leaves underground reservoirs: "Gas" means all natural gas and all other fluid hydrocarbons not defined as oil.
- 4B) "Shallow well" means any well drilled and completed in a formation above the top of the uppermost member of the "Onondaga Group" or a depth less than six thousand feet, whichever is shallower.
"Deep well" means any well drilled and completed in a formation at or below the top of the uppermost member of the "Onondaga Group" or at a depth less than six thousand feet, whatever is shallower.
- 5) Where well is located
- 6) Before a permit can be issued in a corporation, company partnership, or fictitious name, the name must be registered with the Secretary of State Office
- 7) Use separate sheet if necessary
- 8) Present surface owner at time application is filed.
- 9) Optional
- 11) See Reg. 7.01 relating to code §22-4-1k
- 12) "Coal Operator" means any persons, firm, partnership, partnership association or corporation that proposes to or does operate a coal mine. See Note 24
- 13 & 14) As per §22-4-20; See Note 24
- 15) Work that will be attempted—A separate Form IV-2 shall not be required for fracturing or stimulating a well where fracturing or stimulating is to be part of the work for which a permit is sought and is noted as such on the Form IV-2 filed in connection therewith.
- 16) Anticipated formation for which well will be completed
- 17) Self explanatory
- 18) Depth to deepest freshwater, and shallowest salt water, taken from nearby wells corrected for differences in elevation
- 19) All coal seam depths
- 20) Proposed casing program and cementing refer to Code 22-4-5, 22-4-6, 22-4-7, 22-4-8, 22-4-8a Reg 9.01, 15.01, 15.02, 15.03, 15.04, 25.01, 25.02, 25.03, 25.04
- 21) Code 22-4-11(c) - In lieu of filing the lease or leases or other continuing contract or contracts, the applicant for a permit described herein may file the following:
 - (1) A brief description of the tract of land including the district and county wherein the tract is located;
 - (2) The identification of all parties to all leases or other continuing contractual agreements by which the right to extract, produce or market the oil or gas is claimed;
 - (3) The book and page number wherein each such lease or contract by which the right to extract, produce or market the oil or gas is recorded;
 - (4) A brief description of the royalty provisions of each such lease or contract.
- 22) Code 22-4-11(d) and 22-4-11(e).
- 23) Regulation 7.02 of the Department of Mines provides that the original and four copies of Form IV-2 must be filed with the Department, accompanied by (i) a plat in the form prescribed by Regulation 11, (ii) a bond in one of the forms prescribed by Regulation 12, or in lieu thereof the other security allowed by Code §22-4-2, (iii) Form IV-9, "Reclamation Plan", applicable to the reclamation required by Code §22-4-12b and Regulation 23, (iv) unless previously paid on the same well, the fee required by Code §22-4-12a, and (v) if applicable, the consent required by Code §22-4-8a from the owner of any water well or dwelling within 200 feet of the proposed well.
- 24) **The above named coal operator, coal owner(s), and coal lessee are hereby notified that any objection they wish to make or are required to make by Code §22-4-3 must be filed with the Department of Mines within fifteen (15) days after the receipt of this Application by the Department.**

The following waiver must be completed by the coal operator and by any coal owner or coal lessee who has recorded a declaration under Code 22-4-20, if the permit is to be issued within fifteen (15) days of receipt thereof.

WAIVER

The undersigned coal operator _____ / owner _____ / lessee _____ / of the coal under this well location has examined this proposed well location. If a mine map exists which covers the area of the well location, the well location has been added to the mine map. The undersigned has no objection to the work proposed to be done at this location, provided, the well operator has complied with all applicable requirements of the West Virginia Code and the governing regulations.

Date: _____, 19____

By _____

Its _____



IV-9
(Rev 8-81)

DATE November 23, 1982
WELL NO. Keiffer #1
API NO. 47-079-1102

State of West Virginia
Department of Mines
Oil and Gas Division

CONSTRUCTION AND RECLAMATION PLAN

COMPANY NAME Buffalo Resources Corp. DESIGNATED AGENT John Foster
Address 818 Oakwood Road, Charleston, WV Address 818 Oakwood Road, Charleston, WV
Telephone (304) 345-9232 Telephone (304) 345-9232
LANDOWNER Keiffer Realty Co. SOIL CONS. DISTRICT _____
Revegetation to be carried out by John Foster (Agent)

This plan has been reviewed by Clay Edwards SCD. All corrections and additions become a part of this plan: 11-23-82 (Date)
Clay Edwards (SCD Agent)

ACCESS ROAD

LOCATION

Structure <u>Road Construction</u> (A)	Structure <u>Straw Bale Dike</u> (1)
Spacing <u>As shown on attached plans</u>	Material <u>Hay or Straw Bales</u>
Page Ref. Manual <u>2-7 & 2-8</u>	Page Ref. Manual <u>2-16</u>
Structure <u>Straw Bale Dike</u> (B)	Structure _____ (2)
Spacing <u>As shown on attached plans.</u>	Material _____
Page Ref. Manual <u>2-16</u>	Page Ref. Manual _____
Structure _____ (C)	Structure _____ (3)
Spacing _____	Material _____
Page Ref. Manual _____	Page Ref. Manual _____

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DEPT. OF MINES

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

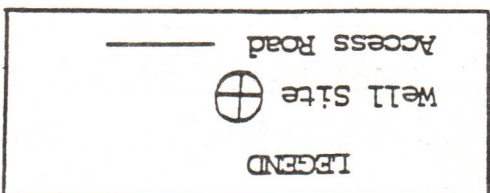
Treatment Area I		Treatment Area II	
Lime	<u>4</u> Tons/acre	Lime	<u>4</u> Tons/acre
or correct to pH	<u>5.5</u>	or correct to pH	<u>5.5</u>
Fertilizer	<u>500</u> lbs/acre	Fertilizer	<u>500</u> lbs/acre
	(10-20-20 or equivalent)		(10-20-20 or equivalent)
Mulch	<u>2</u> Tons/acre	Mulch	<u>2</u> Tons/acre
Seed*	<u>Kentucky 31 40</u> lbs/acre	Seed*	<u>Kentucky 31 40</u> lbs/acre
	<u>Redtop 5</u> lbs/acre		<u>Redtop 5</u> lbs/acre
	lbs/acre		lbs/acre

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

PLAN PREPARED BY Stagg Engineering Services, Inc.
ADDRESS P. O. Box 5217
Charleston, WV 25311
PHONE NO. (304) 343-4519

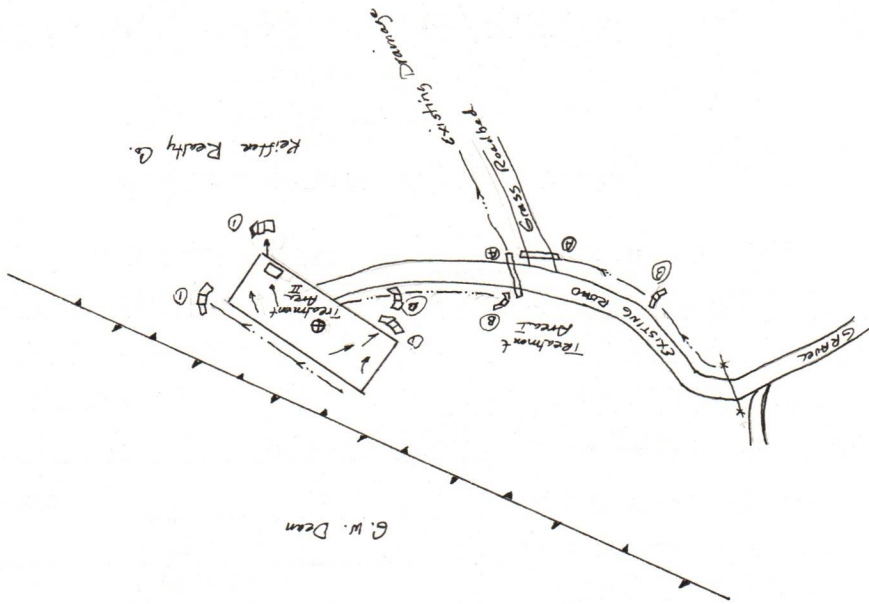
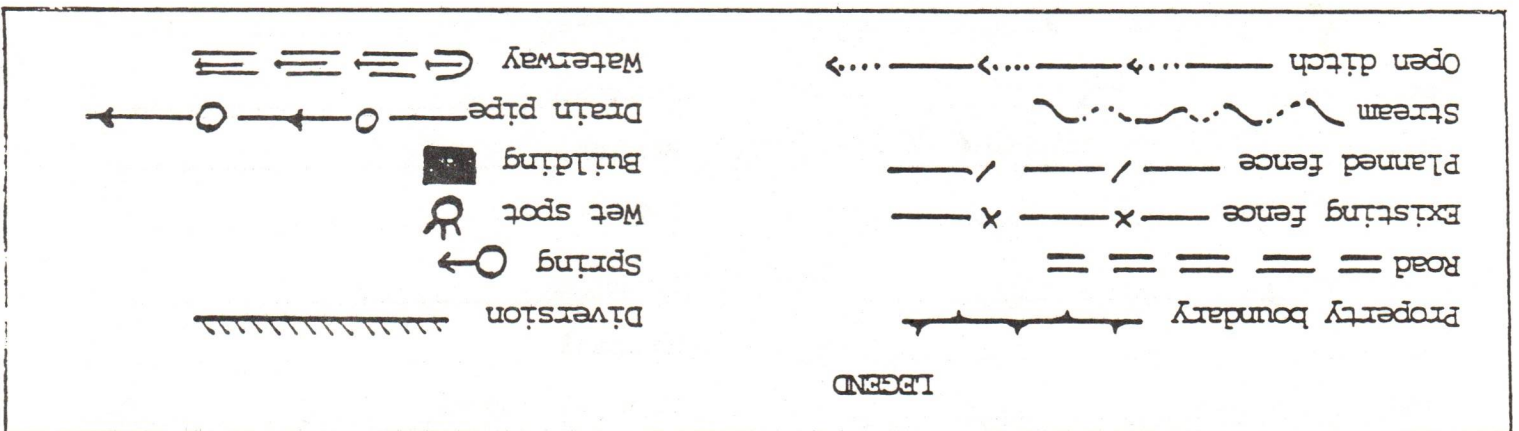
NOTES: Please request landowner's cooperation to protect new seedling for one growing season. Attach separate sheets as necessary for comments.

ATTACH OR PHOTOGRAPHY SECTION OF INVOLVED TOPOGRAPHIC MAP. QUADRANGLE



WELL SITE PLAN

Ketch to include well location, existing access road, roads to be constructed, well site, drilling pits and necessary structures numbered or lettered to correspond with the first part of this plan. Include all natural drainage.



OIL AND GAS LEASE

AGREEMENT, made and entered into this 25th day of November A. D. 1981
by and between Keiffer Realty Company, by J. R. Keiffer, President

of 324 6th Avenue, St. Albans, WV party of the first part, hereinafter called Lessor (whether one or more),
and Buffalo Resources Corporation party of the second part, hereinafter called Lessee;

1. WITNESSETH: That the Lessor, in consideration of the sum of One Dollar, the receipt of which is hereby acknowledged, and the covenants and agreements hereinafter contained, does hereby grant unto the Lessee all of the oil and gas and all of the constituents of either in and under the land hereinafter described, together with the exclusive right to drill for, produce and market oil and gas and their constituents and of storing gas of any kind in any formation underlying the land, and also the right to enter thereon at all times for the purpose of drilling and operating for oil, gas and water, laying pipe lines, erecting tanks, machinery, powers and structures, and to possess, use, and occupy so much of said premises as is necessary and convenient for said purposes and to convey

the above named products therefrom or thereto by pipe lines or otherwise; said land being situate in Teays Valley District,
County of Putnam, State of West Virginia, and described as follows, to-wit: Bounded on the

NORTH by lands of G. H. Dean

EAST by lands of Othir Gibson

SOUTH by lands of Board of Education

WEST by lands of Appalachian Power

Containing 49 acres, more or less and being the same land conveyed to lessor by

FRANCIS E. CARPENTER by deed dated Oct 27, 1976 and

recorded in said county records in DEED Book No. 220 Page 87

2. It is agreed that this lease shall remain in force for a primary term of 2 years from this date and as long thereafter as operations for oil or gas are being conducted on the premises, or oil or gas is found in paying quantities thereon, or any formation underlying the herein leased land is used for storage of gas as provided under paragraph 7 hereof.

3. The Lessee shall deliver to the credit of the Lessor free of cost, in the pipe line to which he may connect his wells, the equal one-eighth ($\frac{1}{8}$) part of all oil produced and saved from the leased premises, and shall pay Lessor

one-eighth (1/8) part

for all gas and casing head gas produced and sold from the premises, payable monthly; provided, Lessee shall pay Lessor a royalty at the rate of Fifty Dollars per year on each gas well while, through lack of market, gas therefrom is not sold or used off the premises, and while said royalty is so paid said well shall be held to be a paying well under paragraph 2 hereof.

4. The Lessee shall commence operations for a well on the premises on or before November, 1982, unless Lessee

pays thereafter a rental of \$245 for each 12 months that operations are delayed from the time above mentioned. The consideration first recited herein, the down payment, shall cover not only the privilege granted to the date when first said rental is payable as aforesaid, but also the Lessee's option of extending that period as aforesaid, and any and all other rights conferred. The drilling of a non-productive well shall be accepted by the Lessor in lieu of delay rental for a period of one year after its completion, and following the exhaustion or abandonment of all wells the Lessee shall have the right for a period of one year to resume the payment of delay rental or commence operations for another well. Upon the resumption of payment of rentals the provisions hereof governing such payment and the effect thereof shall continue in force as though they had not been interrupted.

5. All moneys coming due hereunder shall be paid or tendered to Keiffer Realty Co.

direct, or by check payable to his (or her) order mailed to 324 6th Avenue, St. Albans, WV and no default shall be declared against the Lessee by the Lessor for failure of the Lessee to make any payment or perform any conditions provided for herein unless the Lessee shall refuse or neglect to pay or perform the same for ten days after having received written notice by registered mail from the Lessor of his intention to declare such default.

6. Lessor reserves 200,000 cubic feet of gas per annum for domestic use, to be taken through his own appliances at any producing gas well, and agrees to pay Lessee a fair domestic rate for any gas used in excess thereof. Lessor further covenants and agrees that his taking and use of gas shall be wholly at his own risk, the Lessee not to be held liable for any accident or damage caused thereby, nor shall Lessee be liable for any shortage or failure in the supply of gas for said domestic use.

7. Lessee shall have the right to use any formation underlying the leased premises for the storage of gas and shall have all rights and rights-of-way necessary to store and produce such stored gas. As full payment for such storage rights, the Lessee shall pay to the Lessor a rental at the rate of \$5.00 per acre per year, while the premises are so used, and so long as the storage payment is made, all provisions of this lease shall remain in full effect.

8. Lessor further grants to the Lessee, his heirs and assigns, the right to unitize this lease with other leases to form a drilling unit or units according to the rules and regulations which may be adopted for the proper development and conservation of the field. In the event this lease is so unitized, the Lessor agrees to accept, in lieu of the royalty hereinbefore recited, such proportion of the royalty above provided, as the acreage covered by this lease bears to the total acreage comprising the unit.

9. If said Lessor owns a less interest in the above described land than the undivided fee simple estate therein, then the royalties and rentals herein provided shall be paid the Lessor only in the proportion which his interest bears to the whole and undivided fee.

10. No well may be drilled nearer than 200 feet to the house or barn now on said premises without the written consent of Lessor. Lessee shall have and enjoy all rights and privileges necessary and convenient for the proper use and development of this lease, and shall have the right to use, free of cost, gas, oil and water produced on said land for its operations thereon, except water from wells of Lessor. Lessee shall also have the right at any time to remove all or any part of the machinery, fixtures or structures placed on said premises, including the right to draw and remove casing. Lessee shall pay for damages caused by its operations to growing crops on said lands, and when requested by Lessor, shall bury its pipe lines below plow depth.

11. The interest or estate of either party hereto may be assigned, the privilege of assigning in whole or in part being expressly allowed. In event this lease shall be assigned as to any part or parts of the above described land and the assignee or assignees of such part or parts shall fail or make default in the payment of the proportionate part of the rents due from him or them, such default shall not operate to defeat or affect this lease insofar as it covers a part or parts of said land upon which the said Lessee or any assignee thereof shall make due payment of said rental. No change of ownership in the land or in the rentals or royalties shall be binding on the Lessee until after notice to the Lessee and it has been furnished with a written transfer or assignment or a certified copy thereof.

12. At any time, Lessee, its successors or assigns, shall have the right to surrender this lease or any part thereof for cancellation, after which all payments and liabilities hereunder thereafter shall cease and determine, and if the whole is surrendered, then this lease shall become absolutely null and void. This surrender may be made to the Lessor, or if more than one Lessor, then to any one of them, or to the heirs or assigns of any one of them by delivery of a duly executed surrender thereof in person or by mail addressed to the post office address of such person, or by recording a duly executed surrender thereof in the Recorder's office of the County in which the land is located.

13. Lessor hereby warrants and agrees to defend the title to the land herein described and agrees that the Lessee at its option may pay, discharge or redeem any taxes, mortgages, or other liens existing, levied, or assessed on or against the above described lands, and in event it exercises such option, it shall be subrogated to the rights of any holder or holders thereof and may reimburse itself by applying any royalty or rentals accruing hereunder to the discharge of any such taxes, mortgages or other liens.

14. It is expressly agreed that if the Lessee shall commence drilling operations at any time while this lease is in force, it shall remain in force and its terms continue so long as such operations are prosecuted, and if production results therefrom, then as long as production continues. If after the expiration of the term of this lease production from the leased premises shall cease from any cause, this lease shall not terminate provided Lessee resumes operations within sixty days from such cessation, and this lease shall remain in force during the prosecution of such operations, and, if production results therefrom, then as long as oil or gas is produced in paying quantities.

a. Lessee will receive written approval for pipeline, and drill site locations prior to commencement of operations.

No. 61589

Date: November 2, 1982

I Jack R. Keiffer, President of Keiffer Realty Company, do hereby grant unto Buffalo Resources Corporation my written permission to drill a well on my property in Putnam Co. West Virginia, Teays Valley District and bounded as follows:

North by the lands of G. H. Dean

East by the lands of Othir Gibson

South by the lands of the Board of Education

West by the lands of Appalachian Power Company

The well site shall be located as shown on the attached plat. Said plat is hereby made part of this agreement.

I further state that I am the owner of the coal underlying said property.

Signed Keiffer Realty Co.
by J R Keiffer President

Date: _____
Date: 12/2/82

STATE OF WEST VIRGINIA

To-wit:

COUNTY OF PUTNAM

I, William Edward Brown III, a Notary Public of said State, do hereby certify that Keiffer Realty Company by Jack R. Keiffer whose name was signed to the within writing bearing date the 2nd day of November, 1982, has this day acknowledged the same before me in said county. Given under my hand this 2nd day of November, 1982.

William Edward Brown III

William Edward Brown III

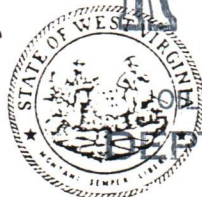
My commission expires May 14, 1991

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OIL AND GAS DIVISION
WV DEPARTMENT OF MINES

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OIL & GAS DIVISION

DEPT. OF MINES

IV-35
(Rev 8-81)

Date Feb. 3, 1983
Operator's
Well No. #1
Farm Keiffer
API No. 47 - 079 - 1102

State of West Virginia
Department of Mines
Oil and Gas Division

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 / Underground Storage / Deep / Shallow x /)

LOCATION: Elevation: 639.30 Watershed Hurricane Creek
District: Teays Valley County Putnam Quadrangle Hurricane

COMPANY Buffalo Resources Corp.
ADDRESS 818 Oakwood Rd., Charleston, WV
DESIGNATED AGENT John M. Foster
ADDRESS SAME
SURFACE OWNER Keiffer Realty Co.
ADDRESS 324 6th Ave., St. Albans, WV
MINERAL RIGHTS OWNER SAME
ADDRESS
OIL AND GAS INSPECTOR FOR THIS WORK Kenneth
Butcher ADDRESS 736-4885
PERMIT ISSUED 12-3-82
DRILLING COMMENCED 12-7-82
DRILLING COMPLETED 12-13-82
IF APPLICABLE: PLUGGING OF DRY HOLE ON
CONTINUOUS PROGRESSION FROM DRILLING OR
REWORKING. VERBAL PERMISSION OBTAINED
ON

Casing & Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft.
Size 20-16 Cond.			
13-10"			
9 5/8	325	325	To Surface
8 5/8			
7	1774	1774	Back to 9 5/8 casing
5 1/2			
4 1/2	4157	4157	To 7" casing
3			
2			
Liners used			

GEOLOGICAL TARGET FORMATION Devonian Shale, Berea Sand- Depth 4182 feet
Depth of completed well 4182 feet Rotary X ^{stone} Cable Tools
Water strata depth: Fresh 300 feet; Salt 1750 feet
Coal seam depths: None Mineable Is coal being mined in the area? No

OPEN FLOW DATA

Producing formation Devonian Shale Pay zone depth 3317-4071 feet
Gas: Initial open flow Show Mcf/d Oil: Initial open flow Bbl/d
Final open flow 103 Mcf/d Final open flow Bbl/d
Time of open flow between initial and final tests 6 hours
Static rock pressure 640 psig (surface measurement) after 24 hours shut in
(If applicable due to multiple completion--)
Second producing formation Berea Pay zone depth 2190-2220 feet
Gas: Initial open flow Show Mcf/d Oil: Initial open flow trace Bbl/d
Final open flow Show Mcf/d Oil: Final open flow 5 Bbl/d
Time of open flow between initial and final tests 24 hours
Static rock pressure 600 psig (surface measurement) after 24 hours shut in

(Continue on reverse side)

PWT. 1102

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

WELL LOG Keiffer #1 47-079-1102

FORMATION	COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS
					Including indication of all fresh and salt water, coal, oil and gas
Soil & Rock			0	20	None
Sandy Shale			20	90	"
Silty Shale			90	300	"
Shale			300	380	"
Sandy Shale			380	490	Water flow observed
Shale and Silt			490	550	None
Sandy Shale			550	670	"
Shale			670	710	"
Silty Shale			710	1080	"
Lime			1080	1170	"
Shale w/Lime			1170	1225	"
Limestone			1225	1645	Big Lime Formation
Shale			1645	1695	None
Sandstone			1695	1770	Big Injun Formation
Shale			1770	2175	None
Shale			2175	2190	Coffee Shale
Sandstone			2190	2220	Berea Sandstone - show of oil
Shale			2220	3310	None
Shale			3310	3690	Upper Huron

(Attach separate sheets as necessary)

Well Operator _____

By: _____

Date: _____

Prt. 1102

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 coal, encountered in the drilling of a well."

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

WELL LOG Keiffer #1 47-079-1102

FORMATION	COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS
					Including indication of all fresh and salt water, coal, oil and gas
Shale			3690	4000	None
Shale			4000	4182	Lower Huron
				4182	Total Depth

(Attach separate sheets as necessary)

Well Operator

By: _____

Date: _____

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 coal, encountered in the drilling of a well."



IV-35
(Rev 8-81)

Date _____
Operator's _____
Well No. _____
Farm _____
API No. _____

State of West Virginia
Department of Mines
Oil and Gas Division

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

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

LOCATION: Elevation: _____ Watershed _____
District: _____ County _____ Quadrangle _____

COMPANY _____

ADDRESS _____

DESIGNATED AGENT _____

ADDRESS _____

SURFACE OWNER _____

ADDRESS _____

MINERAL RIGHTS OWNER _____

ADDRESS _____

OIL AND GAS INSPECTOR FOR THIS WORK _____

ADDRESS _____

PERMIT ISSUED _____

DRILLING COMMENCED _____

DRILLING COMPLETED _____

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

Casing & Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft.
Size 20-16 Cond.			
13-10"			
9 5/8			
8 5/8			
7			
5 1/2			
4 1/2			
3			
2			
Liners used			

GEOLOGICAL TARGET FORMATION _____ Depth _____ feet

Depth of completed well _____ feet Rotary ___ / Cable Tools _____

Water strata depth: Fresh _____ feet; Salt _____ feet

Coal seam depths: _____ Is coal being mined in the area? _____

OPEN FLOW DATA

Producing formation _____ Pay zone depth _____ feet

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

Final open flow _____ Mcf/d 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

(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

(Continue on reverse side)

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

Perforated Shale with 27 holes (.41" diameter) as follows: 3317, 3322, 3352, 3354, 3382, 3384, 3408, 3410, 3416, 3418, 3520, 3529, 3536, 3543, 3552, 3569, 3664, 3681, 3810, 3812, 3852, 3854, 4035, 4041, 4048, 4069, 4071. Fractured with 1000 barrels 80% quality foam using 15,000 lbs. 80-100 mesh sand and 25,000 bls. 20-40 mesh sand.

Perforated Berea with 20 holes (.38" diameter) between 2198-2212. Fractured with 600 barrels 80% quality foam with 10,000 lb. 80-100 mesh sand and 20,000 lbs. 20-40 mesh sand.

WELL LOG

FORMATION	COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fresh and salt water, coal, oil and gas
SEE ATTACHED GEOLOGIC LOG					

(Attach separate sheets as necessary)

BUFFALO RESOURCES CORPORATION

Well Operator

By:  John M. Foster

Date: December 29, 1982

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 coal, encountered in the drilling of a well."

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

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OIL AND GAS DIVISION
WV DEPARTMENT OF MINES

INSPECTOR'S WELL REPORT

Permit No. 47-079-1102

Oil or Gas Well _____
(KIND)

Company	CASING AND TUBING	USED IN DRILLING	LEFT IN WELL	PACKERS
<u>Buffalo Res. Inc.</u>	Size			
<u>Charleston, W.Va.</u>	16			Kind of Packer
<u>Neiffer</u>	13			
<u>Well No.</u>	10	<u>358</u>		
<u>District</u>	8 1/4			Size of
<u>Temp Valley County, Putnam</u>	6%			Depth set
<u>Drilling commenced</u>	5 3/16			
<u>12-6-82</u>	3			Perf. top
<u>Per 9 5/8 pipe at 358'</u>	2			Perf. bottom
<u>Drilling completed</u>				Perf. top
<u>Total depth</u>				Perf. bottom
<u>Date shot</u>				
<u>Depth of shot</u>				
<u>Initial open flow</u>				
<u>/10ths Water in</u>				
<u>Inch</u>				
<u>Open flow after tubing</u>				
<u>/10ths Merc. in</u>				
<u>Inch</u>				
<u>Volume</u>				
<u>Cu. Ft.</u>				
<u>Rock pressure</u>				
<u>lbs.</u>				
<u>hrs.</u>				
<u>Oil</u>				
<u>bbls., 1st 24 hrs.</u>				
<u>Fresh water</u>				
<u>feet</u>				
<u>feet</u>				
<u>Salt water</u>				
<u>feet</u>				
<u>feet</u>				

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 Rodney Paxton

Conts. Clint Hurt & Assoc.

Remarks: _____

12-7-82
DATE

K. E. Bletcher
DISTRICT WELL INSPECTOR

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MAR 2 1984



**OIL & GAS DIVISION
DEPT. OF MINES**

**State of West Virginia
Department of Mines
Oil and Gas Division
Charleston 25305**

**FINAL INSPECTION REPORT
INSPECTORS COMPLIANCE REPORT
February 3, 1984**

COMPANY Buffalo Resources Corporation PERMIT NO 079-1102
818 Oakwood Road, Suite 102 FARM & WELL NO Keiffer #1
Charleston, West Virginia 25314 DIST. & COUNTY Teays Valley/Putnam

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 Strength		
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 Jerry Holcomb
DATE 3-23-84

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.

T. H. ...
Administrator-Oil & Gas Division

March 30, 1984

DATE

OIL & GAS DIVISION
DEPT. OF MINES

FEB 4 1983

3
Category Code

47-079-1102

107
Section of NGPA

4250 feet

Buffalo Resources Corp.
Name
818 Oakwood Rd., Suite 102
Street
Charleston WV 25314
City State Zip Code

Teays Valley
Field Name
Putnam WV
County State

Keiffer #1

N/A

Columbia Gas Transmission Corp. 004030
Name Buyer Code

1, 1, 24, 8, 2
Mo. Day Yr.

	(a) Base Price (\$/MMBTU)	(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.)	5.444	---	---	---
8.0 Maximum lawful rate: (As of filing date. Complete to 3 decimal places.)	DEREGULATED	---	---	---

John M. Foster
Name
Manager, Eastern Region
Title
Signature
Feb. 3, 1983
Date Application is Completed
(304) 345-9232
Phone Number

Agency Use Only

Date Received by Juris. Agency
FEB 4 1983

Date Received by FERC

PARTICIPANTS:

DATE: MAY 26 1983

BUYER-SELLER CODE

WELL OPERATOR: Buffalo Resources Corp

FIRST PURCHASER: Columbia Gas Transmission

004030

OTHER: _____

W. Va. Department of Mines, Oil & Gas Division
 WELL DETERMINATION FILE NUMBER
83-02-04-107-079-1102
 Use Above File Number on all Communications
 Relating to Determination of this Well

~~DEFERRED~~
 BHP
 Well Record - Incomplete and Log.

QUALIFIED

CHECK EACH ITEM AS COMPLETE OR NOTE WHAT IS MISSING

- ITEM NO.
1. FERC -121 Items not completed - Line No. 7.0 bcd 8.0 de reg
 2. IV-1 Agent John M. Foster
 3. IV-2 Well Permit _____
 4. IV-6 Well Plat
 5. IV-35 Well Record Drilling Deepening
 6. IV-36 Gas-Oil Test: Gas Only _____ Was Oil Produced? _____ Ratio _____
 7. IV-39 Annual Production _____ years
 8. IV-40 90 day Production _____ Days off line: _____
 9. IV-48 Application for certification. Complete?
 - 0-17. IV Form 51 - 52 - 53 - 54 - (55) - 56 - 57 - 58 Complete? Affidavit Signed
 - 18-28. Other: Survey _____ Logs _____ Geological Charts _____
 Structure Map _____ 1: 4000 Map _____ Well Tabulations _____
 Gas Analyses _____
 - (5) Date commenced: 12-7-82 Date completed 12-13-82 Deepened _____
 - (5) Production Depth: 3317-4071 2190-2220
 - (5) Production Formation: Devonian Berea
 - (5) Final Open Flow: 103 mcf
 - (5) After Frac. R. P. 640 # 24 hrs
 - (6) Other Gas Test: _____
 - (7) Avg. Daily Gas from Annual Production: _____
 - (8) Avg. Daily Gas from 90-day ending w/1-120 days _____
 - (8) Line Pressure: _____ PSIG from Daily Report _____
 - (5) Oil Production: _____ From Completion Report _____
 - 10-17. Does lease inventory indicate enhanced recovery being done No
 - 10-17. Is affidavit signed? Notarized?
 - Does official well record with the Department confirm the submitted information? yes
 - Additional information _____ Does computer program confirm? _____
 - Was Determination Objected to _____ By Whom? _____

STATE APPLICATION FOR WELL CLASSIFICATION

WELL OPERATOR Buffalo Resources Corp.
ADDRESS 818 Oakwood Road
Charleston, WV 25314

DESIGNATED AGENT John M. Foster
ADDRESS Same

Gas Purchase Contract No. AP-28049-WV and Date 11-24-82
Meter Chart Code _____
(Month, day and year)

Name of First Purchaser Columbia Gas Transmission Corp.
P. O. Box 1273
Charleston WV 25325
(City) (State) (Zip Code)

FERC Seller Code _____ FERC Buyer Code 004030

TYPE OF DETERMINATION BEING SOUGHT:

- (1) Initial determination (See FERC Form 121.)
- (2) Determination that increased production is the result of enhanced recovery technology.
- (3) Determination of a seasonally affected well.

107 Section of NGPA
3 Category Code

John M. Foster Area Manager - Eastern Region
Name (Print) Title
[Signature] Signature
818 Oakwood Rd. Street or P. O. Box
Charleston, WV 25314 City State (Zip Code)
(304) 345-9232 Phone Number
Area Code

(Certificate of Proof of Service to Purchaser)

SENT VIA REGULAR MAIL FEBRUARY 2, 1983

(All of the above to be completed by the Operator/Applicant)

(To be completed by Jurisdictional Agency. Executed copy to be returned to Operator/Applicant and purchaser, if known).

The Department of Mines has received a request for certification of the above described well as meeting the requirements of Section _____ under the Natural Gas Policy Act of 1976. (NGPA); or for determination that increased production is the result of enhanced recovery technology under Section 108 of (NGPA); or for determination of a seasonally affected well under Section 108 of (NGPA).

All interested parties are hereby notified that on the _____ day of _____, 19____, at the office of the Oil and Gas Division in Charleston, West Virginia, or as soon thereafter as it may be heard, there will be a public hearing, if requested, or if objection is filed.

This Application is assigned File No. _____

Initial review of information submitted indicates the well is. is not entitled to certification as claimed under the Natural Gas Policy Act (NGPA). A review of this evidence and any additional evidence will be made at the time appointed for a public hearing or as soon thereafter as the matter may be heard.

Unless objections are timely filed or a request for a hearing is made within fifteen (15) days, a hearing will not be held except on ex parte motion of the department and the matter will go to determination.

WEST VIRGINIA DEPARTMENT OF MINES

FEB 4 1983

Date received by Jurisdictional Agency _____

By [Signature] Director
Title _____

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

Date February 2 1983

Operator's Well No. #1

API Well No. 079-1102
State WV

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

DESIGNATED AGENT John M. Foster
ADDRESS 818 Oakwood Rd., Ste. 102

Charleston, WV 25314

WELL OPERATOR Buffalo Resources

LOCATION Elevation 639.30

ADDRESS 818 Oakwood Rd., Ste. 102

Watershed Hurricane Creek

Charleston, WV 25314

Dist Teays County Putnam Road Hurricane

GAS PURCHASER Columbia Gas

Gas Purchase Contract No. AP-28049-WV

ADDRESS P. O. Box 1273

Meter Chart Code

Charleston, WV 25314

Date of Contract 11-24-82

* * * * *

Date surface drilling began: 12-7-82

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

AFFIDAVIT

I, John M. Foster, 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 subparagraph (3)(i) 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.

STATE OF WEST VIRGINIA.

COUNTY OF Kanawha TO WIT.

I, Karen A. Carr, a Notary Public in and for the state and county aforesaid do certify that John M. Foster, whose name is signed to the writing above, bearing date the 2 day of February, 1983, has acknowledged the same before me, in my county aforesaid.

Given under my hand and official seal this 2nd day of February, 1983

My term of office expires on the 6th day of October, 1991.

Karen A. Carr
Notary Public

[NOTARIAL SEAL]



Buffalo
Resources
Corporation

818 Oakwood Road / Suite 102

Charleston, West Virginia 25314

(304) 345-9232

February 3, 1983

RECEIVED

FEB 4 1983

OIL & GAS DIVISION
DEPT. OF MINES

Theodore M. Streit, Administrator
Office of Oil & Gas
Dept. of Mines
1615 Washington St., E.
Charleston, WV 25311

Dear Mr. Streit:

Please find attached NGPA filing for Section 107, Devonian Shale, for Well #47-079-1102, Keiffer #1, situate in Putnam County, West Virginia.

The Keiffer #1 Well has been dually completed in the Berea Sandstone and the Devonian Shale. The attached schematic drawing indicates the respective depths of the producing formations and the manner of completion. Upon completion of the Devonian Shale via hydraulic fracturing, a stabilized open flow was conducted by Buffalo Resources. An open flow of 103 Mcf/day was recorded.

Upon completion of the Berea Sandstone, isolated from the Devonian Shale via a retrievable bridge plug, a flow of five barrels of oil per day was measured by Buffalo. Testing of this formation was accomplished over a two week period.

It is therefore requested that the filing for Section 107 for Devonian Shale gas be processed in order to allow Buffalo Resources to commence sale of said gas to Columbia Gas Transmission Corporation.

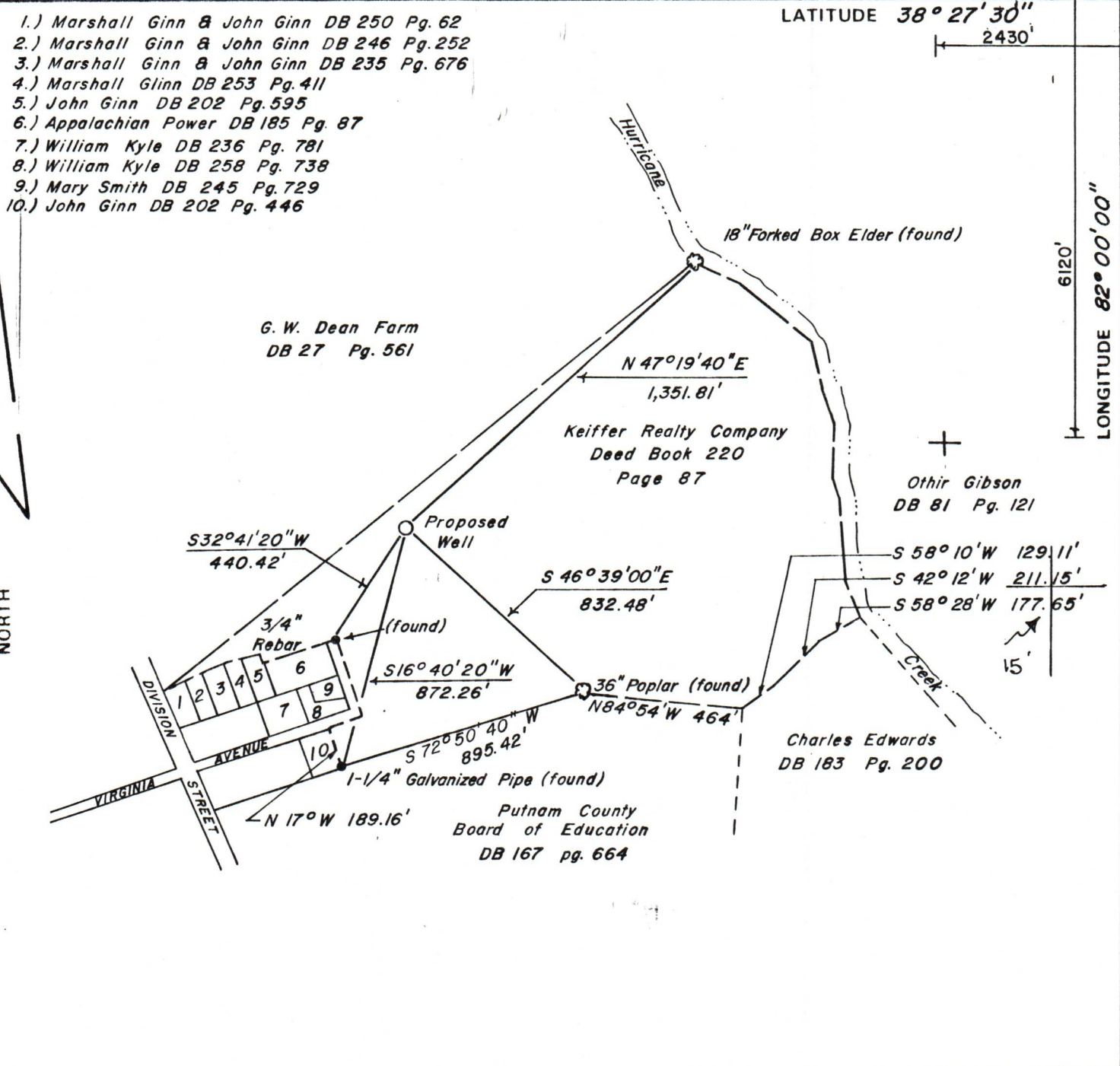
Very truly yours,

John M. Foster
Eastern Regional Manager,
Designated Agent

kac

cc: Columbia Gas

M.J. 12/3/82



FILE NO _____
 DRAWING NO. E 170-148-122
 SCALE 1" = 500'
 MINIMUM DEGREE OF ACCURACY 1: 2500
 PROVEN SOURCE OF ELEVATION BM Y-35
Scott Depot

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) [Signature]
 R.P.E. _____ L.L.S. 753

PLACE SEAL HERE

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS
 FORM IV-6 (8-78)



STATE OF WEST VIRGINIA
 DEPARTMENT OF MINES
 OIL AND GAS DIVISION

DATE November 19 82
 OPERATOR'S WELL NO Keiffer No. 1
 API WELL NO _____
47 - 079 - 1102^v
 STATE COUNTY PERMIT

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

LOCATION ELEVATION 639.30' WATER SHED Hurricane Creek
 DISTRICT Teays Valley COUNTY Putnam
 QUADRANGLE Hurricane 7.5' Series

SURFACE OWNER Keiffer Realty Company ACREAGE 49.5±
 OIL & GAS ROYALTY OWNER Keiffer Realty Company LEASE ACREAGE 49.5 ±
 LEASE NO. Put-3

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

PLUG AND ABANDON ___ CLEAN OUT AND REPLUG ___

TARGET FORMATION Devonian Shale ESTIMATED DEPTH 4250
 WELL OPERATOR Buffalo Resources DESIGNATED AGENT John Foster
 ADDRESS 818 Oakwood Road ADDRESS 818 Oakwood Road
Charleston, WV 25314 Charleston, WV 25314

P.T. 1102

BOTTOM HOLE PRESSURE CALCULATIONS

KEIFFER #1
(47-079-1102)

DEVONIAN SHALE:

Wellhead Pressure = 640 psia

Well Depth = 3624

Specific gravity = .7025

Compressibility Factor (Z) = .87

Temperature = 74.5°F = 534.5° R

$$\begin{aligned} \text{BOTTOM HOLE PRESSURE} &= 640e^{\frac{.01875 \times .7025 \times 3624}{.87 \times 534.5}} \\ &= 640e^{.1026} \\ &= 709 \text{ psia} \end{aligned}$$

BEREA:

Wellhead Pressure = 600 psia

Well Depth = 2205

Specific gravity = .70

Compressibility Factor (Z) = .868

Temperature = 66°F = 522° R

$$\begin{aligned} \text{BOTTOM HOLE PRESSURE} &= 600e^{\frac{.01875 \times .7 \times 2205}{.868 \times 522}} \\ &= 600e^{.0639} \\ &= 640 \text{ psia} \end{aligned}$$

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

Operator: Buffalo Resources Corp. Agent: John M. Foster
 Type Determination being sought - 107 (Devonian Shale)
 API Well No.: 47-079-1102 Well Name: Keiffer #1
 West Virginia Office of Oil and Gas County: Putnam
 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 = 166 * API Units
2. Remarks:

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

1. GR Value = 166 * API Units
2. Calculation: $\frac{0.7}{0.7} \text{ (GR Value at Base Line)}$
 $0.7 \text{ (} \underline{166} \text{ *)} = \underline{116}$ 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***		
None	None		

Total Devonian Interval 1950

Total Less Than 0.7 (Shale Base)

% Less Than 0.7 (Shale Base Line) = x 100 = 0 %

*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.