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rv-35 GCT - 4 1983	A CONTRACTOR OF THE PARTY OF TH	Date De	ecember 2	1982
Rev 8-81)	N9	Operator	S	
in any Sinte of Mest	Hirgini	LIETT VO		
DEPT. OF MINE Department of	Alines			
aed dni lid	noieion	WI W.	06:11(6)	<u>- 1003</u>
OCT 23 1983 WELL OPERATOR'S	REPORT		ee vised	•
OF DRILLING, FRACTURING AND/OR STIMU	LATING, OI	R PHYSICAL	CHANGE	,
DRIBING, Tractorers				•
WELL TYPE: Oil / Gas X / Liquid Injection (If "Gas," Production X / Underground  LOCATION: Flevation: (879.53) Watershed In	no Storage	s/ Dest	/ / Shal	.lo <u>nx</u> /)
TOTALION. TITCACTOO.		Quadrangle	Flizabe	th 7.5'
District: Elizabeth County Wirt		Amorandre		***************************************
Towns Inc				
COMPANY Bow Valley Petroleum, Inc.  ADDRESS 600 Commerce Sq.Chalreston, WV.		di booti	Left	Cerent
	Caşing	Used in		fill up Cu. ft.
DESIGNATED AGENT Robert Long ADDRESS Culloden, West Virginia	Tubing	Drilling	m werr	Cu. IL.
	Size 20-16			
SURFACE OWNER Maggie Goodwin	Cond.			
ADDRESS Elizabeth, WV. 26143	13-10"	34.60	1	10sks
MINERAL RIGHTS OWNER Same	9 5/8	263.88	263.88	115sks
ADDRESS -	8 5/8			3.50-1
OIL AND GAS INSPECTOR FOR THIS WORK Deo Mace	7	2150.48	2150.48	150sks
ADDRESS Sandridge, WV.	5 1/2			
PERMIT ISSUED 10-1-82	4 1/2		5456.85	275sks
DRILLING COMMENCED 10-15-82	3		·	:
DRILLING COMPLETED 11-4-82	2			
IF APPLICABLE: PLUGGING OF DRY HOLE ON CONTINUOUS PROGRESSION FROM DRILLING OR REWORKING. VERBAL PERMISSION OBTAINED	Liners used		•	·
ON	<u></u>		2/80	-5490 'foot
GEOLOGICAL TARGET FORMATION Devonian Shale		Dej		
Depth of completed well 5500 feet	Rotary	· / Cab	re acorz	
Water strata depth: Fresh 75 feet;	Salt_	Iee		3 NO
Coal seam depths: N/A	്ട യൂ	L being mu	ned in th	e area:
OPEN FLOW DATA				
OPEN FLOW DATA  Producing formation Devonian Shale	P	ay zone de	pth 2480'	-5490 '£ee
Gas: Initial open flow Ncf/d	Oil: L	nitial ope	n flow	Bbl/d
Final open flow 200 Mcf/d	F	inal open	flow	Bb1/
Time of open flow between ini	tial and	final test	:s}	ours
Static rock pressurepsig(surfa	ce measur	ement) aft	er <u>h</u>	ours shut i
(If applicable due to multiple completion				
Second producing formation.	P	ay zone de	ep <b>th</b>	fee
Gas: Initial open flow Mcf/d	Oil: I	- initial op	en flow	Bbl/
	Oil: F	inal open	flow	Bbl/
Final open flow between in				hours
				ours shut i
Static rock pressurepsig(surface	ue measure	المال المال		

DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL GIVING, ETC. only have 5456 of 42 CASING ?

## 1st Stage (No Frac)

Perforation Interval = 4332'=5464' (34 holes)

1,080,000 S Ft. $^3$  of N2, 1050 gallons ACL (Partial Ballout) N2 Injection Rate 56,000 s Ft. $^3$  /min. Breakdown = 2425#

### 2nd Stage (N Frac)

Perforation Interval = 2422'-3911' (32 holes) 925,000 S Ft. 3 of N2 1000 gallons HCL (Partial ballout) N2 Injection Rate 49,000 S Ft. 3/min. Breakdown = 2620#

### WELL LOG

TORMATION COLOR HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all free
Drillers Log  Alternating Sands & Shales Big Lime Injun Sand Squaw Sand Shale	0 1800 2024 2060 2116	1800 2024 2060 2116 5500 TD	and salt water, coal, oil and ga
Electric Log Tops  Elev. 879.53 K.B 889.53  Salt Sand Maxon Sand Big Lime Injun Sand Weir (Pocono) Sunbury Shale Upper Devonian Shale Huron Shale Rhinestreet Shale Marcellus Shale	1086 1685 1820 1895 1937 2430 2481 3592 4552 5417	1150 1790 1895 1937 2430 2481 3592 4552 5417 5516	
Onon -5492 (Arom 889	(3)		

(Attach separate sheets as necessary)

er e	BOW	VALLEY	PETROLEUM,	INC.	
We	ll Ope	rator	. 0		
Rv.	5	Javo	in Con	ubal	
Data.		ember 2			

Regulation 2.02(i) provides as follows: "The term 'log' or 'well log' shall mean a systematic detailed geological record of all formations, including enal, encountered in the drilling of a well.

IV-35 (Rev 8-81) DEC 29 1982



Date December	28, 1982
Operator's	
Well No. 987	
Farm Goodwin	
API No.47 - 1	05 -1003

OIL & GAS D.
DEPT. OF MIN

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Gil und Cas Aivision

WELL OPERATOR'S REPORT

OF
DRILLING, FRACTURING AND/OR STIMULATING, OR PHYSICAL CHANGE

WEIL TYPE: Oil / Gas / Liquid Injection (If "Gas," Production / Undergroup / Underg	n/Wast und Storac	ce Disposa re / Dec	il/	aller V /
LOCATION: Elevation: 611.82 Watershed To	Ickor Cross	,	·P/ Sile	H10M_Y_/)
District: Elizabeth County Wirt	icker Cree	Quadrangl	e Elizabe	th 7.5'
				•
COMPANY Bow Valley Petroleum Inc.				
ADDRESS 600 Commerce Sq., Charleston, W 25301	Caşing	Ilead in	1	Cerrent
DESIGNATED AGENT W. E. Stover	Tubing	Used in	1	fill up
ADDRESS Culloden, WV	Size	priring	in Well	Cu. ft.
SURFACE OWNER Maggie Goodwin	20-16		Andreas de la constant de la constan	
ADDRESS Elizabeth, WV 26143	Cond.			
MINERAL RIGHTS OWNER Same	13-10"	8	34.60	10 sks.
ADDRESS	9 5/8	263.88	263.88	115 sks.
OIL AND GAS INSPECTOR FOR THIS WORK Deo	8 5/8			
Mace ADDRESS Sandridge, W	7	2150.48	2150.48	150 sks.
PERMIT ISSUED 10-1-82	5 1/2			
DRILLING COMMENCED 10-15-82	4 1/2		5456.85	275 sks.
DRILLING COMPLETED 11-4-82	3			
IF APPLICABLE: PLUGGING OF DRY HOLE ON	2			
CONTINUOUS PROGRESSION FROM DRILLING OR REWORKING. VERBAL PERMISSION OBTAINED	Liners used			
ON				
GEOLOGICAL TARGET FORMATION Devonian Shale		Dept	h 2480'-5	490' feet
Depth of completed well 5500 feet R	otary X	/ Cable	Tools	100 ICEE
Water strata depth: Fresh 75 feet;	Salt	feet		
Coal seam depths: N/A	Is coal h	eing mine	d in the	area? No
OPEN FLOW DATA		<b>J</b>		arca: 140
Producing formation Devonian Shale	Date	zono donk	L 24901 E	4001 -
od. Intial Open flow Mcf/A	7:1. T-:			
Final open flow 200 Mcf/d	Fina	il open fi	LTOM	Bb1/d
Time of open flow between initia	al and fin	a open ii		BDT\q
Static rock pressurepsig(surface	measureme	nt) after	nou	rs
(If applicable due to multiple completion-	_ 1	ic, arer	nour	s shut in
Second producing formation		zone dont	<b>L</b>	<b>.</b>
Gas: Initial open flow Mcf/d (	ruj Dil: Init	ial open	<u>.</u> €1~.	ieet
Final open flow Mcf/d (	Dil: Fina	lopen fl	-10W	
Time of open flow between initia	al and fin	al tests	hors	<b>~</b> ~
Static rock pressurepsig(surface r	measuremen	t) after_	hour	s shut in

DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. Well fraced in two stages; each stage consisting of 750,000 sft $^3$  of N $_2$  with 500 gallons of acid for initial breakdown

#### WELL LOG

FORMATION COLOR HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fresh and salt water, coal, oil and gas							
Alternating Sands & Shales Big Lime Injun Sand Squaw Sand Shale	0 1800 2024 2060 2116	1800 2024 2060 2116 5500 T.D.	مراجع المراجع							
			Electric log tops:  Sunbury Shale-2422 to 2480							
			5 5 5 0 2480 3 0 20							
			Up. Dew. undiv. ≈ 2480- 3600							
			Huron & 3606, -4500  Jave  Phinestred 4500 - 4700  angola = 4700 = 5025  Rhihestred - ~5025 - 5350  Sonyea - 5356-5500							

(Attach separate sheets as necessary)

Bow Valley Petroleum Inc.	
Well Operator	
By: / prin Comb	
Date: December 28, 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 end, encountered in the drilling of a wall."



Well No. 907 Farm Goodwin API = 47 - 105 - 1002
Date 9-27-82

# STATE OF WEST VIHGINIA

## OFFICE OF OIL AND GAS - DEPARTMENT OF MINES

UILAND GAS WELL	PERMIT APPLICATION
FELL TYPE: Dil / Gas x /	
(If "Gas", Production x / t	Inderground storage / Deep / Shallow X /
LOCATION: Elevation: 611.82 Water District: Elizabeth Count	shed: Tucker Creek
Address 600 Commerce Square	DESIGNATED AGENT W.E. Stover
merce square	Address Box 235
OIL AND GAS	Culloden, WV 25510
ROYALTY OWNER Maggie Goodwin	COAL OPERATOR N/A
Address Elizabeth,	Address
Acreage 207	
act rage 70/	COAL GUERALOS LUMBIA
SURFACE OWNER Maggie Goodwin	COAL OWNER(S) WITH DECLARATION ON RECORD:
Address Elizabeth.	Address
West Virginia 26143	
Acreage 85	NAME
FIELD SALE (IF MADE) TO:	Address
IAME SC	Control of the contro
Address	COAL LESSEE WITH DECLARATION ON RECORD:
	NAME_N/A
AND CAS INSPECTOR TO BE NOTICE.	Address
OIL AND GAS INSPECTOR TO BE NOTIFIED:	THIS PERMIT MUST BE POSTED AT THE WELL SITE.
ATTE_ Mr. Deo Mace	ALL PROVISIONS BEING IN ACCORDANCE WITH CHAPTER 22,
Address Rt. 1, Box 5	ARTICLE 4 OF THE W. VA. CODE, THE LOCATION IS HEREBY
_Sand Ridge, WV 25274	- APPROVED FOR drilling . THIS PERMIT SHALL EXPANS
Telephone (304) 655-7398	APPROVED FOR 11111111111111111111111111111111111
	IF OPERATIONS HAVE NOT COMMENCED BY 6-5-83
	The second secon
The undersigned well operator is ent	itled to operate for oil or gas purposes at the
o the undersigned well operator from Ma	V / Other compress / July 17 77
Ma	aggie Goodwin
If said deed, lease, or other contract h	as been recorded:)
hospredad on 2-25 , 1982, in the	office of the Clerk of County Commission of
Wirt County, West Virginia, i	n 163 Book at page 920. A permit is
PROPOSED WORK: Drill x / Drill Deep	er / Redrill / Fracture or stimulate /
rivy or old formation	/ Perforate new formation /
Other physical change	in well (specify)
planned as shown on	the work order on the reverse side hereof.
" " " " Coal Operator, coal owner	(s) and coal laceas and
	80 TO M300 BU 104, 377 6 7
and the second s	Year of I have be tried with the
	avs after receipt of this A-1.
	ays after receipt of this Application by the Dept
The state of the s	enclosed plat and reclamation plan have been
rich and coal lesses on or before the	ays after receipt of this Application by the Dept enclosed plat and reclamation plan have been hand to the above named coal operator, coal own-
rich. and cond lessees on or before the other Department of Mines at Charleston.	ays after receipt of this Application by the Dept enclosed plat and reclamation plan have been hand to the above named coal operator, coal own-
the Department of Mines at Charleston,	ays after receipt of this Application by the Dept enclosed plat and reclamation plan have been hand to the above named coal operator, coal own- day of the mailing or delivery of this Application West Virginia.
The Department of Mines at Charleston, IFASE SUBMIT COPIES OF ALL STATES	ays after receipt of this Application by the Dept enclosed plat and reclamation plan have been hand to the above named coal operator, coal ownday of the mailing or delivery of this Application West Virginia.  Bow Valley Petroleum Inc.
TEASE SUBMIT COPIES OF ALL CALLS OF THE EST VIRGINIA OIL AND GAS -00T 04 198	ays after receipt of this Application by the Dept enclosed plat and reclamation plan have been hand to the above named coal operator, coal ownday of the mailing or delivery of this Application West Virginia.  Bow Valley Petroleum Inc.
TICLE SUBMIT COPIES OF ALL TO THE EST VIRGINIA OIL AND GAS -00704 198	ays after receipt of this Application by the Dept enclosed plat and reclamation plan have been hand to the above named coal operator, coal ownday of the mailing or delivery of this Application West Virginia.  Bow Valley Petroleum Inc.
TICLE SUBMIT COPIES OF ALL TO THE PEPARTMENT OF MINES AT CHARLESTON TOPHYSICAL LOGS DIRECTLY TO THE STATE SUBMIT COMMISSION  113 AND INSTON ST., E.	ays after receipt of this Application by the Dept enclosed plat and reclamation plan have been hand to the above named coal operator, coal ownday of the mailing or delivery of this Application West Virginia.  Bow Valley Petroleum Inc.  Well Operator  By: Charley & Kalendon
TICL. and goal lessees on or before the other Department of Mines at Charleston.  TEASE SUBMIT COPIES OF ALL TO THE FORHYSICAL LOGS DIRECTLY TO THE FORHYSICAL LOGS DIRECTLY TO THE FORMY COMMISSION STATE OF THE FORMY STATE	ays after receipt of this Application by the Dept enclosed plat and reclamation plan have been hand to the above named coal operator, coal ownday of the mailing or delivery of this Application West Virginia.  Bow Valley Petroleum Inc.  Well Operator  By: Charlton for Manual Coal operator  By: Charlton for Manual Coal operator  By: Charlton for Manual Coal operator
TICLE SUBMIT COPIES OF ALL TO THE DEPARTMENT OF MINES AT CHARLESTON.  EST VIRGINIA OIL AND GAS  TOTAL COMMISSION  TO A COMMIS	ays after receipt of this Application by the Dept enclosed plat and reclamation plan have been hand to the above named coal operator, coal ownday of the mailing or delivery of this Application West Virginia.  Bow Valley Petroleum Inc.  Well Operator  By: Charlton for Manual Coal operator  By: Charlton for Manual Coal operator  By: Charlton for Manual Coal operator

# PROPOSED WORK ORDER

ACTUAL I	NFORMAT	ION HUS	THIS I	SUBMIT	ESTIMATE TED ON F	ONLY:	UPON COMPLET	204
DRILLING CONTRACT				lesourc		· · · · · · · · · · · · · · · · · · ·	OF ON COMPLET	
	A	ddress_	2101	Washir	aton Str	eet, East	a	•
					•	rginia 253	211	•
GEOLOGICAL TARGET Estimated depti Approximate wa Approximate collisional being i	ter str al seam	mpreted ata depr depths: n this a	arcel well ths:	Lus Sha 5,200 Fresh	fee , 60,110	et. Rota feet;		le tools_/_feet.
CASING AND TUBING	SPE	CIFICATI	IONS .		IFOOTAGE	INTERVALS	CEMENT FILL	- DACKEDO
TUBING TYPE	Crada	-Weight	. 93		For Dril	- Left in	UP OR SACKS	PACKERS
Lonductor 13 5/8		per ft	New	Used	ling 30'	Well	Cubic ft.	
Fresh water 9 5/8	1		1 x	+	250	30' 250	20 sks.	Kinds
Coal					1 20	1 230	To surface	iSizes
Production 45"			X ·		1750	1750	To surface	
Tubing		1		ļ	5150	5150	265 sks	Depths set
Liners			1	1	1			1
				<del>                                     </del>			1	Perforations:
								Top Bottom
		l						
822-4-8a fro posed well. A separate F	om the d Form IV- uring of	owner of -2 shall r stimul	any in any in a sang in a	water be req	well or uired for	duelling u	consent requirements of the consent requirements of the constitution of the consent requirements of the consent re	ed by Code me well, the fee wired by Code met of the pro- lating a well me a permit is merewith.
				•				
			*					-
•						٠ .	v ·	
	4.							
The end and the end of the same and the same	- 100 to 100 to 100 to 100 to			FRE 4004 WITH ANG 25M1	-			
The following or coal less is to be issued the undersigned coal ocation has examinated of the well looking igned has no objected the governing regular	ued with	ator_s propos, the we the world with a	teen  / own  ed we  ll lo	d dec (15) d W A I er ll loc cation	ays of $r$ $V = R$ / lessee ation.  has bee	under Codeceipt the	the coal under the map exists to the mine mine mine mine mine mine mine min	which covers the open The under-
ate:	, 19	•						
			•	Ву	/:			

·Its:\_\_\_

DRILLING CONTRACTOR:



1)	Date:	OCTOBER 14	_, 19

2) Operator's Well No.

3) API Well No. 47 State

County

Permit

5

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

ľ	AK	IME	AI	OF	MINES,	UIL	AND	GAS	DIA	15101

b	OIL AND GAS WELL PERMIT APPLICATION												
4)	WELL TYPE				×		ocusar sous a de cassar	esong yangoro eson enorme	i in Daudd form by ves underground re	at the well after it lea	×		
5)	LOCATION:		"Gas", Pration:	oduction _	73		Underground s Watershed:	THE THE SERVE SERVE	Deep	_/ Shallow _	/)		
6)	WELL OPER		rict:	The second secon	Per	120/01	County:	1) DESIGNATEI	Quadrangle:	STOUTE	121367611		
0)	Address	(C. 3)	\$10 again	ルナル元	Frankline was		W Fai popula	Address	230x 203	DIN 09961			
		Casa	Durley.	72% ALK 118	ar.	<i>2</i> 4 9	S Sprain a		CONTRACTOR	Fr sortierd	45.57		
7)	OIL & GAS ROYALTY O	WNER	1/1991	ie Goo	rola i	W		2) COAL OPERA	ATOR MA	par esperie			
	Address	58 40ti	auto-	70,6	06/4		Managara Jacob	Address		Barriana			
8)	Acreage SURFACE O	WNER	7 12/119	915 0			_ 1	3) COAL OWNE	ER(S) WITH DECLARA	ATION ON RE	CORD:		
-,	Address		12116	-th	all	a.		Address	Managara Managara	Line Street, St			
	Acreage	85		2614	)			Name		MINORAL SERVICE			
9)	FIELD SALE	(IF MA	DE) TO:					Address	- In		TOPPE		
	Address	nous:	00300 10	60334508	DA GIII	S ASITUTES	artagership, p	persons firm, p		15/5/5/	A B		
0)	OIL & GAS I	NSPECT	OR TO BI	E NOTIFIE	D		1	4) COAL LESSE Name	E WITH DECLARATI	ION ON RECO	RD:		
,	Name	TR L	Des /	TACE				Address		OCT 1 2	1982		
	Address			10000		x 2 7	Albert sitt to		elements to herry	AND REPORTS			
5)	PROPOSED '			100				/ Fra	cture or stimulate	OIL & GAS	DIVISION		
-,								new formation		PT. OF	MINE		
6	GEOLOGICA	ITADO		hysical char	A. M. A.			ale Des	10 mm	100			
0)	17) Estimated							remaileds bite .	returnities Leaguet	of digrid is	(81 37 3 7		
	18) Approxin			4 3 1 2				salt,	feet.				
							Is cos	al being mined in the	e area? Yes	/ No			
(0)	CASING ANI	D TUBIN	IG PROGI	RAM					de la region paixa	isagarii.			
	CASING OR TUBING TYPE	Size	Grade	Weight per ft.	New	Used	FOOTAGE For drilling	Left in well	CEMENT FILL-UP OR SACKS (Cubic feet)	PACKER	S		
	Conductor Fresh water	93%			X		250	250	TO SURJACE	Kinds			
	Coal									Sizes			
	Intermediate Production	44			X		2000	X000	73 SURFING				
	Tubing	8 sms						2323	765 545	Depths set			
	Liners					Aries d	san de virintel		Section Francisco	Perforations:			
									2 10 20 20 20 20 20 20 20 20 20 20 20 20 20	Тор	Bottom		
							mili sekore so	a million to account	1 7.02 of 10s (Ser E	Riverion (S. 4)			
1)	EXTRACTION Charles and and												
	Check and pro				continu	ing contr	act or contracts	by which I hold th	e right to extract oil or	gas.			
2)				2-4-1-(c) (1)	through	h (4). (S	ee reverse side f	or specifics.)					
2)	Is the right to e	extract, p	roduce or n						act or contracts providir				
	similar provisi				ner of	the oil or	gas in place wl	nich is not inherent	ly related to the volum	e of oil or gas	so extracted,		
	he answer above Required Copi				eeded. I	f the ans	wer is Yes, you	may use Affidavit	Form IV-60.				
4)	Copies of this	Permit A	pplication	and the end					y registered mail or del				
	named coal op Mines at Char				lessee c	on or befo	ore the day of th	ne mailing or delive	ry of this Permit Applie	cation to the De	epartment of		
	Notary:	erol lun		an Beija ya	15 70 1		gride Laber dat	Signed:	actorphe	FALSTE			
	My Commission	Expires_		Date is		Un 1903-9	27 4 20, 01 10	Its:	of egocot alia	OFF BUSINESS			
						OF	FICE USE (	ONLY					
		47.	103-10	33		DR	ILLING PE	RMIT	Se Occaber	12	19		
e	mit number								Date				
lui Re	rements subject	to the co	nditions co constructi spector 24	ontained her on of roads, hours befo	rein and, location	on the re	everse hereof. N ts for any permit	otification must be ted work. In addition	ted to drill in accordance given to the District Oi on, the well operator or	il and Gas Inspe	ector.		
e	mit expires	wane	12, 1				unless d	rilling is commenced	d prior to that date and p	prosecuted with	due diligence.		
	Bond:	Age	nt:	Plat:	13	Casing	Fee	-/-	the first	1	× .		
-	CIANKE	M	1	111-7	1 11	11.7	2.20	A	dministrator, Office of	Oil and Gas			

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