



#### COLUMBIA WELL NO. 7392 & 7393 - LEASE NO. 1090332

077-6021 Joseph T. Cassidy -----1/3 Int. Fee 239 Singer Ave. McKees Rocks, Pa. 15136 Bernadette Cole -----4/100 Int. Fee % Robert J. Kraus 3001 Barcelona PLSW Albuquerque, NM. 87121 Robert J. Kraus -----15/100 Int. Fee 3001 Barcelona PLSW Albuquerque, NM 87121 Winifred Maupin -----1/12 Int. Fee 7 - M Research Road Greenbelt, Md. 20770 Gwendolyn Combs Hrs. -----1/12 Int. Fee % Younger Honey Combs 3602 Pilcher Ave. Nashville, Tenn. 37209 Lucille E. Combs -----1/12 Int. Fee 3941 S.W. 6th Place Gainesville, Fl. 32607 Teresa E. Cox -----7/100 Int. Fee P.O. Box 31156 Dayton, Ohio 45431 Robert B. Cox -----7/100 Int. Fee P.O. Box 31156 Dayton, Ohio 45431 Wayne L. Combs -----1/12 Int. in coal, oil, gas & other minerals 578 Ridgewood Dr. Daphine, Al. 36526 Robert D. Dewitt -----1/12 Int. in Fee less coal, oil gas and other minerals 115 Seemont Dr.

Kingwood, W.Va. 26537

## WEST VIRGINIA DEPARTMENT OF MINES OIL & GAS DIVISION WELLRECORD

see plat for

Permit No. Pres. 21 Company Address Farm Location Well No. District Surface Mineral Commenced Completed Not shot Volume	Hope Natural Ga 445 West Main S Margaret C. Kra 9637 Elev. 2 Portland Pres April 7,1951 July 27,1951 6,472,000 (tool	t., Clarksburg, us A 219 247 ton County	13 34 34 10 595 595 8½ 1492 1492 6 5/8 4976 4976  CASING CEMENTED: 8 " set in 60 bags cement 7 " set in 60 bags cement
Rock Pressure No water recorded	2150#		
Surface Sand Lime Slate Shell Lime Slate Shell Lime Slate Gritty Lime Sand Slate Shell Sand Slate Shell Lime Hard Lime Dark Lime Shale Lime Br. Shale Lime Shale Cray Lime Slate Shell Bl. Lime Brown Break Lime Chert Sand Hard Shale Grey Sand Oriskany Dark Shale Grey Sandy Lime T.D.	0 9 9 150 150 820 820 880 880 900 900 1235 1235 1335 1335 1337 1337 1372 1372 1386 1386 1439 1439 1463 1463 1360 1860 2600 2600 3125 3125 3750 3750 3924 3924 4144 4144 4445 4445 4470 4470 4765 4765 4790 4790 4901 4901 4944 4944 4959 4959 4970 4970 5128 5128 5146 5146 5248 5248 5253 5253 5348		5347 4947 2247 3695
SAMPLE STUDY Benson Tully Brown Break Onondga Chert Oriskany Helderber	1328 1394 4543 4553 4944 4970 4970 5146 5146 5342 5342	4970	5146 4944 2247 2247 -2899 -2697

converted to; Atlantic Seaboard Storage (7393) Located 0.52 mi. S. of 39° 25' and 4.11 mi. W. of 79° 30' - EC - Kingwood Quadrangle. Elevation, 2247' L.

Pertland District, Preston County, W. Va. By Hope Natural Gas Co., Clarksburg, W. Va.

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Permit(Pres-21.
Commenced April 1951; completed Aug. 4, 1951.
Gas well; volume, 6,000,000 cu. ft.
Gas at 5146, 5342, and 53461.
Ran casing at 4976!.
Section based on samples from 4464 to 5346 feet; examined by Russell R. Flowers.
Record to RCT from Flowers Feb. 27, 1952.
Top. Bottom. Thickness.
                        Shale, grayish-black to black, carbonaceous, calcareous Shale, grayish-black to black (carbonaceous), some dark-gray
4464 - 4505
                  ,51
                  40
4505 - 4545
                           to grayish-black, small amount is calcareous
                                 TULLY LIMESTONE? 20 FEET
4545 - 4565
                   20
                        Limestone, brownish-gray to olive-gray and dark-gray; a very
                           large amount of dark-gray to black shale, highly calcareous
                           in part
                             . HAMILTON AND MARCELLUS SHALES, 387 FEET
4565 - 4665
                 100
                        Shale, dark-gray to grayish-black, a moderate to large amount
                           of grayish-black to black, calcareous in part
4665 - 4804
                 139
                        Shale, grayish-black, some grayish-black to black (carbonaceous)
                            trace of dolomite
4804 - 4926
                 122
                        Shale, grayish-black to black, carbonaceous; calcareous in part
4926 - 4935
                   9
                        Shale, dark-gray, somewhat calcareous and somewhat dolomitic;
                           some grayish-black to black, carbonaceous shale
4935 - 4952
                  17
                        Shale, black (highly carbonaceous) and grayish-black to black
                            (carbonaceous), highly calcareous, pyritic in part; some
                           brownish-gray to dark yellowish brown metabentonite at the
                           bottom; pyritic in part
                                   HUNTERSVILLE CHERT, 194 FEET
4952 - 4971
                   19
                        Shale (very highly calcareous to limestone, very sahly), grayish
                           black to black, somewhat carbonaceous
4971 - 4979
                    8
                        Chert, light- to medium-gray (mostly translucent), some medium-
                           to dark-gray, highly calcareous, moderately delemitie;
                           spicular in part
4979 - 4988
                   9
                        Chert, medium to dark-gray (somewhat argillaceous), calcareous,
                           somewhat delomitie
                        Chert, mottled very light to medium-gray (transparent to trans-
lucent) and dark-gray to grayish-black (highly argillaceous),
4988 - 5007
                  19
                           somewhat calcareous, somewhat to moderately delemitie; spicu-
                           lar in part
5007 - 5042
                        Chert, very light to light-gray (transparent to translucent), highly spicular), a moderate to large amount of mottled light
                   35
                           gray and dark-gray to grayish-black (highly argillaceous);
                           delemitic in part, small amount is very silty and glauconitic
                        Chert, mottled medium-gray (spicular) and dark-gray to grayish-
5042 - 5050
                   8
                           black (highly argillaceous), very silty in part, slightly
                           dolomitic
5050 - 5076
                   26...
                        Chert, medium dark to dark-gray to a greyish-black, very silty,
                           silicified shale, slightly dolomitic; some vein dolomite in
                           the lower part
5076 - 5082
                   6
                        Chert, light- to dark-gray, argillaceous, with some grayish-
                           black (silicified), somewhat dolomitic
                                                                         (OVER)
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				Thicknes	
	5082	- 510	00	18 (	Chert, dark-gray, argillaceous to a grayish-black, silicific
	AMERICAN STREET, AND AND AND ADDRESS OF THE PARTY OF THE				shale, more silicified shale and less chert in the lower
					part; a very small amount of white dolomite
	5100	- 513	13	13 ;	Shale, grayish-black, highly silicified; some dark-gray chert:
					a very small amount of white dolomite
	5113	- 51	30	17 :	Shale to highly silicified shale, grayish-black
	51.30	- 51/	<b>+1</b>		Shale, grayish-black
	5141				Siltstone, grayish-black to black, highly argillaceous, very
*				_	cherty, calcareous, slightly delemitic, pyritic in part; some
					dark-gray to grayish-black shale in the upper part
					ORISKANY SANDSTONE, 238 REET.
	5146	- 51	51	5	Sandstone, light-gray, some medium-gray (somewhat argillaceous),
					fine-grained, some medium grains, some very fine sand, fine
	en en en promoteur op enemalische e		**************************************		to medium at the bottom, rounded, some well-rounded, highly
					calcaregus -
	5 <b>1.51</b>	- 51	54	3 .	Ligestone, medium light to dark-gray, very sandy, very fine to
					very coarse grained, subrounded to well-rounded, somewhat
					argillaceous in part
	5154	- 515	58	4 ]	Limestone (very sandy) to sandstone (highly calcareous), very
				-	fine to medium-grained, some coarse grains, subrounded to
				ŧ	well-rounded, light- to medium-gray
	<i>5</i> 1 <i>5</i> 8	- 510	54	6 9	Sandstone, very light to medium-gray, highly calcareous, with
		***************************************			some very sandy limestone, very fine to coarse-grained,
					subrounded to well-rounded
Committee of the second section of the second	5164	- 516	59	5 8	Sandstone, light- to medium-gray, some dark-gray (argillaceous),
			-		very highly calcareous, very fine to fine-grained, (sub-
					rounded), some medium to coarse (rounded) grains
	5169	- 517	74	5 8	Sandstone (very highly calcareous), and some limestone (very
					sandy), lighte-to dark-gray (with grayish-black, very silty,
:				ŧ	highly argillaceous streaks), very fine grained with fine
British and the state of the second					to medium, rounded grains; a large amount of fine to coarse
				Williams of the section of the secti	sand (rounded) at the bottom
				at .	HELDERBERG GROUP, 172+ FEET
· · · · · · · · · · · · · · · · · · ·	5174	- 517	77	3 \$	Sandstone, light to medium-gray, some dark-gray to grayish-
	erroman a management management			·	black (argillaceous), very fine to medium-grained, very
_	1				silty, very highly calcareous; trace of chert
	5177	- 518	34	7 9	Siltstone (sandy, very fine) to silty shale, dark-gray to
					gravish-black medium to domination in the land
	t .				grayish-black, medium- to dark-gray in the lower part, very highly calcareous, slightly dolomitic, a little fine to
					medium (rounded) send of the ton to line to
				· · · · · · · · · · · · · · · · · · ·	medium (rounded) sand at the top to a large amount at the bottom; trace of chert
	5184	- 519	92	8 9	Siltstone to very fine sandstone, light- to medium-gray, some
	mer same in an and an annex.				dark-gray to grayish-black (argillaceous), very highly calca-
	ne ne ne were en e residence e were		<del></del>		reons, slightly delemitic some first to the state of the
τ				•	reous, slightly dolomitic, some fine to medium and a little coarse (rounded) sand grains
-	5 <b>19</b> 2 ·	- 519	95	.3 _ S	Sandstone, medium-gray with dark-gray to grayish-black (shaly)
·				And the second s	streaks, very fine grained, very silty, a large amount of
					fine to medium (well-rounded) sand, very highly celcareous,
					Slightly dolomitie
**************************************	5195 .	- 520	6	11 -8	ciltstone to sandstone (very fine), medium- to dark-gray, a large
			response		amount of dark-gray to grayish-black (argillaceous) in
	,				the middle part, very highly calcareous; trace of chert
	5206 .	- 521	.3	7 s	andstone, light-gray, very fine grained, calcareous, highly
er i dere in de er meddere in were remodered en en	nganadosen 11. monto de administrato dos secucios	W		or that is the second second of a control of the co	calcareous at the bottom

		Bottom.		
The second secon	5213	- 5217	4	Limestone (silty) and some siltstone (highly calcareous), medium
				to dark-gray, some grayish-black (very shaly), very sandy
				(very fine to fine); small amount of chert
	5217	- 5220	3	Sandstone, light- to medium-gray, some dark-gray (argillaceous),
				very fine grained, very highly calcareous, with some sandy
	<b>7000</b>			limestone; trace of chert
	5220	- 5230	10	Sandstone, very light to medium light gray with some grayish-
				black (argillaceous) streaks, fine to medium-grained, sub-
				rounded, calcareous at the top to highly calcareous at the bottom
	5230	- 5234	4	Sandstone, medium light gray, very fine to fine-grained, highly
	<i>اردر</i>	J~J~	- ₹	to very highly calcareous
	5234	- 5236	2	Limestone, (very sandy) to sandstone (highly calcareous), medium
				to dark-gray, some grayish-black (very shaly), very fine
				grained; trace of chert
	5236	- 5245	9	Siltstone to sandstone (very fine), light- to medium-gray, a
				little grayish-black (shaly), very highly calcareous
	5245	<b>-</b> ±5248	3	Limestone (silty) to siltstone and very fine sandstone (highly
				calcareous), medium- to dark-gray, some grayish-black (shaly)
	raha	2020	، مر	cher ty
	5248	- 5253	5	Siltstone (highly calcareous) to limestone (very silty), dark-
	5252	£ 293	20	gray to grayish-black, highly argillaceous, slightly cherty
	בבישב	- 5281	28 -	Siltstone (highly calcareous) to limestone (very silty), medium-
				to dark-gray, some grayish-black (shaly), somewhat cherty at
	5281	- 5286	<b>5</b>	5265 to 5269, a large amount of grayish-black at the bottom
	J	J 2000	J	Siltstone (highly calcareous) to limestone (very silty), medium- gray, some dark-gray to grayish-black, cherty
THE SECOND CONTRACTOR OF THE SECOND CONTRACTOR	5286	- 5292	6	Sandstone (highly calcareous) with some very sandy limestone,
				medium-gray, very fine grained, silty
	5292	- 5302	10	Limestone, dark-gray, medium- to dark-gray in the lower part,
				very sandy (fine- to medium-grained), rounded); small amount
				of argillaceous material
	5302	- 5308	6	Limestone, medium- to dark-gray, very sandy (very fine to fine):
	<b></b> -		ن د	a large amount of grayish-black shale (cayings?)
	5308	- 5315	7	Limestone, light- to dark-gray, very sandy (very fine to medium-
	C07 =	r		grained) rounded), mostly very fine to fine at the bottom
	ンジュン	- 5320	5	Limestone, light- to medium-gray, very sandy (medium-grained.
	£220	£200	6	some fery fine to fine grains, subrounded to rounded)
	2520	- 5328	8	Limestone, mettled white to light-gray and medium to dark-gray,
				very sandy, with some highly calcareous sandstone, fine to
				medium-grained, rounded to well-rounded, fine- to coarse-
				grained at the top, much dark-gray to grayish-black (shaly) in the middle part
	5328	<b>- 5</b> 332	4	
		٠٠٠٠	: *	Limestone (very sandy) to sandstone (highly calcareous, very fine), light- to medium-gray
	5332	- 5335	3	Sandstone, medium light gray, very silty at the top, very fine
				grained, some fine to medium grains at the bottom, very
		<b>7000</b>	4.	highly calcareous
	2335	- <i>5</i> 339	4	Limestone (very sandy) to sandstone (highly calcareous), light-
See Second Control of				to medium-gray with very light gray spots, very silty, very
	5339	- 5343	4	Ilne grained, some fine to medium grains at the ton
		<b>₩</b>		Limestone, (very sandy) to sandstone (highly calcareous), very
	5343	- 5346	3	fine), very light to medium-gray, somewhat cherty
		2.	· · · · · · · · · · · · · · · · · · ·	Lime stone, light- to dark-gray, very silty to a silty, highly
		5346		calcareous, very fine sandstone, verty cherty
		<del>ن،</del> درر		Total depth

# 24911

### STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY, DIVISION OF OIL AND GAS WELL WORK PERMIT APPLICATION

1)	Well Operator:	COLUN	MBIA GAS TE	RANSMISSION	CORPORATIO	N/U450 (	(5) (3)
2)	Operator's Well	Number : <u>Terra Al</u>	ta Stg # 7393 (A	PI 47-077-00021)			
4)	Well type: (a)	Oil/	or	Gas_X_/	J	Somed o Expuer oslo	3/05/1998
	(b)	If Gas: Producti	on/ Undergr Deep _X_/	ound Storage X Shallow	) 6	xpner oslo	05/2000
5)	Proposed Target Formation (s): Chert / Oriskany						
6)	Proposed Total Depth:feet						
7)	Approximate fresh water strata depths: 19'						
8)	Approximate salt water strata depths:None Recorded						
9)	Approximate coal seam depths: NONE						
10)	Does land conta	ain coal seams	tributary to	active mine?	Yes/ No _	<u>X_</u> /	
12)	<ul> <li>11) Proposed Well Work: Columbia proposes to clean out the wellbore to TD with coiled tubing, and log the well. The well may be reperforated and acidized across the Chert &amp; Oriskany section. The well will then be cleaned up, flow tested and placed back in service.</li> <li>12) CASING AND TUBING PROGRAM</li> </ul>						
work of the same o	TYPE	SPECIFICATI	ONS	FC	OTAGE INTE	ERVALS	CEMENT
Juel		Size	Grade	Weight per ft.	For drilling	Left in well	Fill - up (cu. ft.)
	conductor	13-3/8"	J-55 ?	54#	34'3"	34'3	Csg Ring
	Fresh Water	10-3/4"	H-40 ?	32.75#	600'	600'	no record
	Coal	8-5/8"	J-55 ?	24#	1,507'6"	1,507'6"	60 sks cmt
	Intermediate	7"	J-55 ?	20#	5,028'	5,028'	60 sks cmt 22 sks gel
	Production	4-1/2"	J-55 & N-80	12.6#	5,411'	5,411'	2 Stg Cmtd w/ 514 sks cmt
	Tubing						
	Liners						
PACKERS: Kind None Sizes Depths set							
25 4 55	For Division of Oil and Gas Use Only  Fee (s) paid: Well Work Permit Reclamation Fund WPCP Plat WW-9 WW-2B Bond Agent (Type)						

rage i oi \_\_\_\_ 1) Date. November 3, 1997

2) Operator's Well Number

7393

3) API Well No.: 47 - <u>077 - 00021 -</u> F

State County

Permit No.

#### STATE OF WEST VIRGINIA - BUREAU OF ENVIRONMENT DIVISION OF ENVIROMENTAL PROTECTION **OFFICE OF OIL & GAS** NOTICE OF APPLICATION FOR A WELL WORK PERMIT

4)	Surface Owner(s) to be served	: 5) (a) Coal Operator
,	(a) Name See Attached Page	Name
		Address
	(b) Name	(b) Coal Owner (s) with Declaration
	Address	Name See Attached Page Address
	(c) Name	
	Address	Name
		Address
6)	Inspector Philip Tracy	(c) Coal Lessee with Declaration
ŕ	Address Route 2 Box 37-A	Name
	Montrose, West Virginia 2628.	Address
	Telephone (304)	
	TO THE PERS	SONS NAMED ABOVE TAKE NOTICE THAT
	To 1 1 1 1 adv 1	and the might to extract oil and
<u></u>		es or other continuing contract by which I hold the right to extract oil and
	as <u>OR</u> Y Included is the information	n required by Chapter 22, Article 6, Section 8 (d) of the Code of West
	ginia (see Page 2)	required by Chapter 22, ratiolo 0, Section 0 (a) of the Code of West
VIIS		under Chapter 22 of the West Virginia Code I have served copies of this
notic	ce and application, a location plat	and accompanying documents pages 1 through on the above
	ed parties by:	
	Personal Service	(Affidavit attached)
	X Certified Mail (F	Postmarked postal receipt attached)
		ice of Publication attached)
	I have read and understand	d Chapter 22-6 and 38 CSR 11-18 and I agree to the terms and conditions
of ar	ny permit issued under this applica	
	I certify under penalty of l	law that I have peronally examined and am familiar with the information
subr		and all attachments, and that based on my inquiry of those indivduals
imm	nediatley responsible for obtaining	g the information is true, accurate and complete.
	I am aware that there	are significant penalties for submitting false information, including the
poss	sibility of fine and imprisonment.	
~~~	V	Well Operator Columbis Gas Thansmission Corporation
	OFFICIAL SEAL I	By: Tuchard L. Coly
JIAKI	JUDY M. HENLEY	Its: Manager · Well Service's
	0 MacCORKLE AVENUE, S. E.	Address P.Ö. Box 1273
	273. CHARLESTON, v/V 25325 - 1273	Charleston, WV 25325-1273
WI CO/	MMISSION EXPIRES 11 - 22 - 99	Telephone (304) 357-3034
Sub	sribed and sworn before me this	1/th day of November, 19 97
	Judy In . He	Notary Public
$\overline{My}$	commission expires nov. 2	77. 1999