







## DEPARTMENT OF MINES

Quadrangle Gilbert 3 MI

ine

WELL RECORD

Permit No. Lor-LE Oil or Gas Well Company Columbian Corbon Company Used in Drilling Left in Well Casing and Tubing Packers Address Box 873, Charleston 23, W. Va. FarmCole & Grane R/E Trust Acres 12,096.64 Size Middle Fork Location (waters)\_\_\_ Kind of Packer Midget 2 - 01-1213 133/8" btm. hole packer 631611 631611 Logan County 103/4" Size of 10-3/4" 583111" 5831111 The surface of tract is owned in fee by Cole & Grane R/E Tr 81/4 11211-28 1747'10" pulled 815 Transportation Eldadress Cincinnati, Ohio 6% 11 26# 21571511 21,571511 Depth set\_5821 Mineral rights are owned by\_\_\_ 5 3/16\_ Perf. top\_ Drilling commenced. 5-16-55 Perf. bottom\_ Drilling completed\_ Perf. top\_\_\_ Liners Used Date Shot\_\_\_ With not shot Perf. bottom\_ Open Flow /10ths Water in Olew mercury out of 200/10 M. 6-5/8" /10ths Merc. in Inch No. Ft. Date SIZE CASING CEMENTED\_ Inch ostimated 22,000,000 sec reverse side .Cu. Ft. Rock Pressure 575 <u>l hour</u> COAL WAS ENCOUNTERED AT 38 60 FEET. INCHES \_bbls., 1st 24 hrs. 118 FEET 72 <u> INCHES 360</u> FEET 18 Fresh water 3601 INCHES feet. feet Salt water 1320 1348 INCHES INCHES. गण्यक्र feet

Formation	Color	Hard or Soft	Top	Bottom	Oil, Gas or Water	Depth Found	Remarks
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Formation	Color	Hard or Soft	Top Z	Bottom	Oil, Gas or Water	Depth Found	Remarks
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-14-55 -19-55 -1-55	8-5/8" ca	asing ran at of Aquagel - eing ran at ilation. eing ran at	good return	h shoe. Ran	21 bags of <i>E</i>	quagel	
	good circ	alation.					

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Date May 19 , 19 TT

Page 3 of 3

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

	169 9000 5 456
L )	Well Operator: Cities Service Oil & Gas Corporation 7900, 5, 456  Well Operator: Cities Service Oil & Gas Corporation 7900, 5, 456
2)	Operator's Well Number: Cole Crane Trust A #2 (GW-1213) 3) Elevation: 1239.07
4.)	Well type: (a) Oil _/ or $Gas x$ /
	(b) If Gas: Production X / Underground Storage/ Shallow X /
	Proposed Target Formation(s): Devonian Shale(44)
6)	Proposed Total Depth: 5200 feet
	Approximate fresh water strata depths: 360'
	Approximate salt water depths: 1320' & 1348'
9)	Approximate coal seam depths: 38', 118' & 360'
10)	Does land contain coal seams tributary to active mine? Yesx / No/
11)	Proposed Well Work: Deepen existing well through Devonian Shale.

\* New tubulars 12) No tubing to be pulled. CASING AND TUBING PROGRAM

the c is the grad	SP	ECIFICAT	TIONS	FOOTAGE II	NTERVALS	CEMENT
TYPE		Grade	Weight per ft.	For drilling	Left in well	Fill-up (cu. ft.)
	Size	Grade		63'	63'	
Conductor	13-3/8"		40-45#	582'	582'	10sx Aquagel
Fresh Water	10-3/4"				Pulled	21sx Aquagel
Coal	8-5/8"		24-28#	1728'		268X
Intermediate	6-5/8"		26#	2437	2437'	Aquagel
	4-1/2"	K-55	11.6#	52001	5200'	260 cu. ft.
Production *	2-3/8"	J-55	4.7#		5150'	THE PROPERTY OF THE PARTY OF TH
Tubing					DEC	ELVEIL
Liners					FEE	1 6 1988

PACKERS : Kind DIVISION OF OIL & GAS Sizes DEPARTMENT OF ENERGY Depths set

For Divison of Oil and Gas Use Only
Well Work Permit Reclamat 17/1 Bond 505

Reclamation Fund

Page 1 of 3 Form WW2-A (09/87) File Copy

# FEB 16 1988 1

DIVISION OF OIL & GAS DEPARTMENT OF ENERGY)

Date	; Fe	ebruar	y 10,	1988		
Oper	ator'	s we	ll nu	ımber	212	`
Cole	e & Cr	ane Tr	ust <i>I</i> 47 ·	<del>-2, GW-</del> 1	<u> </u>	_00457 -DD
AFI	METT	Sta	te -	County	-	Permit

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

## NOTICE AND APPLICATION FOR A WELL WORK PERMIT

4)	Surface Owner(s) to be served:	5) (a) Coal Operator:
• /	(a) Name Cole & Crane RET	Name W. P. Coal Col, Attn: John Clark, Chie
	Address 215 Frederick Bldg.	Address P. O. Box 570 Engr
	Huntington, WV 25701	Omar, WV 25638 (b) Coal Owner(s) with Declaration
	(b) Name	
	Address	Name
		Address
	(c) Name	
	Address	Name
		Address
		with Doglaration
6)	Inspector Arthur St. Clair	(c) Coal Lessee with Declaration
- ,	Address P. O. Box 468	Name
	Brenton, WV 24818	Address
	Brenton, WV 24818 Telephone (304)- 732-6227	
		TOTAL MORE OF MILAMA
	TO THE PERSON(S) NAMED A	BOVE TAKE NOTICE THAT:
٩		antiming contract or
	Included is the lease or leases o	r other continuing contract of
		AVERACI NIL AND GAS ON
	the information redul	red by Chapter 22b, Arcross -/
Coct		
		Than by //h or the webs variable
41		id anniicaliuu. a fucacton pras, sii
I ha	ive served copies of this notice and	on the above named parties, by:
acco	ompanying documents pages I through	attached)
	X Personal Service (Affidavit	attached)
	aLifiad Mail (Dostmarked D	OSTAL Leceipt accached)
	Publication (Notice of Publi	.cation attached)
		or 22B and 38 CSR 11-18, and I agree
		TOT I NAVE DELOUIGELLY CAGMILION WILL
	I certify under penalty of law th	ed on this application form and all
fam.	iliar with the information submitted	these individuals immediately
resi	ponsible for obtaining the informa-	tion, I believe that the information
is		
		icant penalties for submitting false
inf	armation including the possibilit	y of fine and imprisonment.
1 11 L	Well Operator	r Cities Service Oil and Gas Corporation
	By: Paul D.	Phillips ( Day for
	Its: Operati	
	Address p	
		rleston, WV 25323
	Telephone (3	244 9292
- •	scribed and sworn before me this	24 day of this way 1955
Sub	i	
	Oyum, S. Sterneling	Commusiance Notary Public
Му	commission expires	/ 7 8 7
-	/V	•

State of West Virginia DEPARTMENT OF ENERGY

Division of Oil and Gas

Well Operator's Report of Well Work

Farm name: COLE & CRANE REAL ESTATE Operator Well No.: A-2, GW-1213

LOCATION: Elevation: 1239.07 Quadrangle: MAN

District: LOGAN County: LOGAN

Latitude: 7550 Feet South of 37 Deg. 45Min. 0 Sec. Longitude 1725 Feet West of 81 Deg. 57 Min. 30 Sec.

Company: OXY USA, INC.

P. O. BOX 873

CHARLESTON, WV 25323-0873

Agent: DELBERT G. OLIVER Same.

Inspector: TIM BENNETT

Permit Issued: 01/29/90
Well work Commenced: 02-09-90
Well work Completed: 02-20-90

Verbal Plugging

Permission granted on:\_\_\_\_

Rotary X Cable Rig
Total Depth (feet)

Fresh water depths (ft)

Salt water depths (ft)

Is coal being mined in area (Y/N)? Y

Coal Depths (ft):

| Casing | Used in | Left | Cement | & | Fill Up | Tubing | Drilling | in Well | Cu. Ft. | Size 6.625" 2457' 50' 130 cu ft 4.5" 5288

> DIVISION OF OIL & GAS DEPARTMENT OF ENERGY

OPEN FLOW DATA

Producing formation Big Lime Pay zone depth (ft) 2649' Gas: Initial open flow MCF/d Oil: Initial open flow Bbl/d Final open flow 117 MCF/d Final open flow Bbl/d Time of open flow between initial and final tests 48 Hours Static rock Pressure 30 psig (surface pressure) after 14

Second producing formation Dev Shale/Berea Pay zone depth (ft) 3298' Gas: Initial open flow 321 MCF/d Oil: Initial open flow Bbl/d Final open flow UTime of open flow between initial and final tests 24 Hours Static rock Pressure 1000 psig (surface pressure) after 168 Hours

NOTE: ON BACK OF THIS FORM PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE.

DELBERT G. OLIVER, APPLACHIAN PROJECT MANAGER

For: OXY USA, INC.

By: February 26, 1990 Date:

MAR 1 2 1990

#### DETAILS OF PERFORATED INTERVAL, FRACTURING OR STIMULATION, PHYSICAL CHANGE, ETC

BIG LIME

PERFORATED 2649-70' (43 perfs) acidized with 3,500 gallon 15% foamed acid.



DIVISION OF OIL & GAS DEPARTMENT OF ENERGY

API # 47- 45-00457 I

#### State of West Virginia DEPARTMENT OF ENERGY Division of Oil and Gas

#### Well Operator's Report of Well Work

	WCLL OF CTOOL DIE	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			
Farm name: C	OLE & CRANE	Operator	Well No.: A	1-2, GW-1	213
LOCATION: E	levation: 1239.07 Quadr	ansle: MA	N		
<u></u> .	istrict: ISLAND CREEK atitude: 7550 Feet Sout onsitude 1725 Feet West	h of 37	Des. 45Min.	O Sec.	
Company:CITIE	S SERVICE OIL & GAS CORP.				
- P. O.	CBOX 873 I	Casins (	Used in	Left	Cement
CHARL	ESTON, WV I	& 1			IFill Upl
		Tubins	Drilling	in Well	ICu. Ft.I
Asent: PAUL	D4 PHILLIPS				
A State of the Sta		Size I			
Inspector: AR Permit Issued	THUR ST. CLAIR   02/23/88	6.625"	1	2457	50'
Well work Com	menced: 3-10-88				
	rleted: <u>2-18-89</u>			 	1 120 (5)541
	ng granted on:	4.5	! 	5288	1 130 Curu
	anted on:   Cable Ris	, <del></del>	1	ł	
	feet) <u></u>	1 1			· ·
	lepths (ft)				
			۱ , ۲	A THE SERIES	का जा वा वा वा
Salt water de	epths (ft)	 	 	1 EUS	7 \ [5]
Is coal being	mined in area (Y/N)? Y   ft):		<u> </u>	MAR 2	4 1989
Coal Derths (	ft):			•	
OPEN FLOW DAT	1			DIVISION OF PEPARTMENT	
	Phinastreet				\5044 <sup>1</sup>
Froducin	s formation Rhinestreet		ray zone (	eptn (it	Ph1/4
	isl open flow125/178 MCF/				
Tim	e of open flow between in	nitial and	d final test	ts17.5_	Hours
Static r	ock Pressure1000psis	s (surface	e pressure)	after _J	68Hours
Lower Huron &					
Second r	roducins formationUpper	r_Devonian	_ Pay zone (	derth (ft	)3426'
	tial open flow_1 <u>60</u> MCF/				
	nal open flow53MCF/				
Tim	e of open flow between in	11131 3NG	o Tinal tesi	.524 12	nours
Static r	rock Pressure275psis	s (surtace	e pressure)	arter	zznours
					•
NOTE: ON BACK	OF THIS FORM PUT THE	FOLLOWING	G: 1). DET	AILS OF P	ERFORATED

NOTE: ON BACK OF THIS FORM PUT THE FULLWING: 1). DETAILS OF PERFORMTED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WEYLBORE,

For: CITIES SERVICE OIL & GAS CORP.

MAR 3 1 1981

Bu: Delbert G. Oliver
Date: 2-28-89

#### Cole Crane Trust A-2 (DEEPENING):

Details of perforated intervals, fracturing or stimulating, physical change, etc.:

Rhinestreet: Perforated 5130-5243" (113 holes). Frac'd w/ 97,000# sand,

258 BLW, 1289 MCF of N2.

Lower Huron: Perforated 4331-4692' (62 holes). Frac'd w/ 50,000# sand,

149 BW, 477 MCF of N2.

Upper Devonian: Perforated 3426-3802' (64 holes). Frac'd w/ 50,000# sand,

149 BW, 405 MCF of N2.

Berea: Perforated 3298-3306' (33 holes). Frac'd w/ 20,000# sand,

73 BW, 382 MCF of N2.



#### DIVISION OF OIL & GAS DEPARTMENT OF ENERGY

#### WELL LOG:

Formation	Top (Ft)	Bottom (Ft)
Big Injun	2678	2759
Siltstone	2759	2819
Weir	2819	2954
Shale	2954	3265
Sunbury	3265	3294
Berea	3294	3308
Devonian Shale	3308	4325
Lower Huron	4325	4696
Java	4696	5045
Rhinestreet	5045	5243
Marcellus	5243	5265
Onondaga	5265	5284 = Total Depth

S per ft

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FORM WW-2B

	חם ג מחת	меит ОР Е		ISION OF OI		29192	
			72	APPLICATION 360205	2	145%	
		OXY USA IN			1010	1,000	
2) Operator	's Well	Number: <u>C</u>	ole & Crane	Trust A-2, GW	1213 3) E1	evation:1239.07	
4) Well typ	e: (a)	0il_/	or Gas	<u>X</u> /		•	
	(b) If Gas: Production $X$ / Underground Storage/ Deep/ Shallow $X$ /						
5) Proposed	Proposed Target Formation(s): Big Lime (2649-2670)						
6) Proposed	I Total D	epth: 52	84	feet			
7) Approxir	mate fres	h water s	trata dept	hs: 360			
8) Approxir	mate salt	water de	pths:	1320 & 1348			
				38, 118 & 360			
						es <u>X</u> /No/	
11) Proposed	The Devonian Shale & Berea have been completed.						
TYPE	<u>, S</u>	PECIFICAT	CIONS	FOOTAGE IN	TERVALS /	HIM ACHTENED	
	Size	Grade	Weight per ft.	For drilling	Left in well	Fill-up (cu. ft.)	
Conductor	13-3/8"			63	63 /-1		
Fresh Water	10-3/4"		40-45	582	582	10 sxs Aquagel	
Coal	8-5/8"		24-28	1728	Pulled	21 sxs Aquagel	
Intermediate	6-5/8"		26	2437	2437	26 sxs Aquagel	
Production	4-1/2"	K-55	11.6	5288	5288	TOC at 2160	
Tubing	2-3/8"	J-55	4.7	5162	5162		
Liners						ट हारायाचा	
PACKERS: Kind							
Sizes							
1 4/6 BIVISION OF OIL & GAS							
For Divison of Oil and Gas Use Only DEPARTMENT NERGY    Fee(s) paid:   Well Work Permit   Reclamation Fund   WPCP							
A Black A							
( Plat y	<u>7-</u> /  WW-9	AZI WW.	-28 <u>y</u>		(Type)	_ GENT AGENT	

Page 1 of 3 Form WW2-A (09/87) File Copy



# DIVISION OF OIL & GAS DEPARTMENT OF ENERGY

Date: January 5, 1990	
Opérator's well number	
Cole & Crane Trust A-2, GW 1213	
AFI Well No. 47 - 045 -	00457 -Frac
State - County -	Permit

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

#### NOTICE AND APPLICATION FOR A WELL WORK PERMIT

**************************************
5) (a) Coal Operator:
t Name W. P. Coal Company
Address P. O. Box 570
Omar, W 25638, Attn: John Clark
(b) Coal Owner(s) with Declaration
Name SAME AS (4) (A)
Address
Namo
Name
Address
(a) Carl Lagger with Deslayation
(c) Coal Lessee with Declaration
Name Chafin Coal Company
Address P. O. Box 2195
Huntington, W 25722
ALTE TARE MARKET THE TARE
OVE TAKE NOTICE THAT:
other continuing contract or
extract oil and gas <u>OR</u>
ed by Chapter 22B, Article 1,
ia (see page 2)
hapter 22B of the West Virginia Code
application, a location plat, and
_3 on the above named parties, by:
ttached)
stal receipt attached)
ation attached)
22B and 38 CSR 11-18, and I agree
ait issued under this application.
t I have personally examined and am
on this application form and all
ry of those individuals immediately
on, I believe that the information
on, I believe that the information
ant penalties for submitting false
of fine and imprisonment.
OXY USA INC.
Oliver William S. Church
n Project Manager
30x 873
ston, WV 25323
4) 344-8383
day of SANYHAY, 1990
Commissione
Notary Public
7