

OIL AND GAS WELL
SUMMARY REPORT

AP 2-11

API No. 45-195-20905-00-03

VDMR Well

Rep. No.

DMQ File No. WS-199

Operator ANR PRODUCTION COMPANY

Farm PENN VA. RESOURCES

Co. Well No. 10301

County WISE

Quadrangle APPALACHIA 7 1/2'

Location (UTM) N4,093,810; E336,990

UTM Zone 17

(Lat. and Long.)

Field

Province APPALACHIA N PLATEAUS

Elev. (specify) 2895.42'GR

TD

6200

Form. at TD

CORNIFEROUS

INITIAL FLOW - NONE

Age DEVONIAN

Date compl. or abandoned JUNE 15, 1986

Result GAS WELL

Gas Shows

Gas Pays

Main Production

Prod. Form. DEVONIAN, SUNBURY; BEREA, WEIR

FINAL FLOW - 270,000 CU. FT.

Age DEVONIAN; MISSISSIPPIAN

Treatment: LOWER DEVONIAN-75 QUALITY FOAM FRAC, 42,500 POUNDS OF 20/40 SAND, 7500 POUNDS OF 10/20 SAND, 651,000 SCF OF N2. UPPER DEVONIAN, BEREA, SUNBURY-75 QUALITY FOAM FRAC, 40,900 POUNDS OF 20/40 SAND, 682,000 SCF OF N2; WEIR-75 QUALITY FOAM FRAC, 40,100 POUND OF 10/20 SAND, 522,000 SCF OF N2.

Initial Production

Oil shows

Water FW YES at 80' at at

SW at at at

Coal 671-675.33; 901-905.5; 1315-1320.5

Plat Plotted Completion Report X

Drillers Log X Geologic Log

Samples Interval Sheet

Sample Interval

Remarks

Geophysical Logs S.P. Res Gamma Neutron

Density Sonic Other

<u>Formation</u>	<u>Top</u>	<u>Datum (Subsea)</u>	<u>Thickness</u>
WISE AND NORTON	0	+ 2895.42	2451
LEE	2451	+ 444.42	1404
BLUESTONE	3855	- 959.58	97
RAVENCLIFF	3952	- 1056.58	74
HINTON	4026	- 1130.58	413
MAXTON	4274	- 1378.58	165
BLUEFIELD	4439	- 1543.58	196
GREENBRIER	4635	- 1739.58	443
INJUN	5078	- 2182.58	46
WEIR	5124	- 2228.58	186
SUNBURY	5310	- 2414.58	124
BEREA	5434	- 2538.58	68
Remarks DEVONIAN SHALE	5502	- 2606.58	566
DECOLLEMENT	5918		0
CORNIFEROUS	6068	- 3172.58	132

References

Released to Open File: Completion SEPTEMBER 18, 1986
 Samples NO

(Note: UTM measurements in meters, all others in feet)

ANR PROD. CO.
(PENN VA. RESOURCES
10301
APPALACHIA-7 1/2'
EL. - 2895.42'
WS-199

Date: June 16, 1986

Operator's Well No. 10301

WS-199

VIRGINIA OIL AND GAS INSPECTOR
DEPARTMENT OF LABOR AND INDUSTRY
OIL AND GAS SECTION
205 W. Main Street
Abingdon, Virginia 24210
Phone 703 628-8115

REPORT OF COMPLETION OF WELL WORK

Pursuant to Regulation 4.06 of the Regulations under the Virginia Oil Gas Act, the undersigned well operator reports completion of the type(s) of well work specified below on the referenced well in Richmond District
Wise County, Virginia on 15 day, June Month, 1986.

WELL TYPE: Oil / Gas X / Enhanced recovery / Waste disposal /
If "Gas", Production / Underground storage /

Exempt by Code § 45.1-300.B.1 from general oil and gas conservation law: Yes X / No /

WELL WORK: Drill X / Deepen / Redrill / Stimulate X /
Plug off old formation / Perforate new formation X /
Plug / Replug /
Other physical change in well (specify)

The well work was done as shown in the Appendix(es) applicable to the type(s) of well work involved.

CONFIDENTIALITY STATUS UNDER CODE OF VIRGINIA § 45.1-332:

X Ninety days from the filing of this report.

or

 Two years from , 19 , the date on which the referenced well was completed, the well being an exploratory well as defined in Code of Virginia § 45.1-288.21.



APPLICANT: ANR PRODUCTION COMPANY

By [Signature]
Its Manager, Drilling & Engineering

Address: 111 E. Capitol St., Suite 400
Jackson, MS 39201-2185

Telephone: (601) 961-6315

FORM 16
APPENDIX A,
SHEET 1, (OBVERSE)

API WELL NO. 45 - 195 - 20905
State County Permit
Date: June 16, 1986
Operator's Well
Name #10301

REPORT OF COMPLETION OF WELL WORK
IF DRILLING, REDRILLING, OR DEEPENING IS INVOLVED

DRILLING CONTRACTOR Clint Hurt & Associates
ADDRESS P.O. Box 1973, Midland TX 79702
TELEPHONE _____

GEOLOGICAL TARGET FORMATION Devonian Shale, Weir
DEPTH OF COMPLETED WELL 6,200' FEET
DATE DRILLING COMMENCED 5/22/86
DATE DRILLING COMPLETED 6/2/86
DRILLING RIG: ROTARY X / CABLE TOOL _____ /

GEOLOGICAL DATA Depth Thickness
 Top Bottom

Fresh Water ±80

Salt water Not Known

Name MINING IN AREA
 Yes No Mined Out

Coal Seams

Top	Bottom	Thickness	Name	Mined
671'	675.33'	4.33'	Low Splint C/DBench	X
901'	905.50'	4.50'	Taggart	X
1315'	1320.50'	5.5'	Imboden	X

Oil and Gas Name
 Not Measurable

The data on depth of strata is based on the source(s) checked below:

- Applicant's own drilling experience in the area
- Information supplied by the coal operator in the area
- Information already in possession of the Inspector
- As follows _____

OTHER GENERAL INFORMATION

An electric log survey was X / was not ___ / conducted pursuant to Code of Virginia § 45.1-333.B.2, at the coal owner's or operator's request.

An electric log survey was X / was not ___ / run for other purposes. This survey did ___ / did not ___ / disclose the vertical location of a coal seam.

Note: If a coal seam was located, the part of the survey from the surface through the coal is attached in accordance with Code of Virginia § 45.1-333.B.3.

Deviation surveys were X / were not ___ / required under Code of Virginia § 45.1-333.C "to the bottom of the lowest published coal seam depth".

Note: If deviation surveys were required, the survey results are attached.

A continuous survey was ___ / was not X / required under Code of Virginia § 45.1-333.C.

Note: If a continuous directional survey was required, the survey results are attached.

CHANGES IN THE PERMITTED WELL WORK

The well operator did ___ / did not X / make any change(s) in the permitted well work, verbally approved by the Inspector or Assistant Inspector under Regulation 4.03 of the Regulations under the Virginia Oil and Gas Act, for the purpose of insuring successful completion of the well work.

Note: The nature and purpose of each such change, if any, is set out below or on additional sheets if such are required.

CASING AND TUBING PROGRAM

PRELIMINARY INFORMATION

Is the subject well underlaid by the red shales? Yes X / No ___ /
If "Yes", was a coal protection string set to the red shales? Yes X / No ___ /

PROGRAM DETAILS

Size	Top	Bottom	Length	Perforated	
				From	To
<u>Conductor</u>					
<u>Casing circulated and cemented in to the surface:</u>					
13-3/8"	Surface	42'	42'		
10-3/4"	Surface	1392'	1392'		
7"	Surface	3997'	3997'		
<u>Coal protection casing set under the special rule of Code of Virginia § 45.1-334.1</u>					
7"	Surface	3997'	3997'		
<u>Other casing and tubing left in the well:</u>					
4-1/2"	Surface	6171'	6171'		

Liners left in well, under Code of Virginia § 45.1-336 or otherwise:

None.

Other casing used in drilling but not left in the well:

None

<u>Packers or bridge plugs:</u>	<u>Kind</u>	<u>Size</u>	<u>Set At</u>
None			

REMARKS (SHUT DOWN DEPTHS, DATES; FISHING JOB DEPTHS, DATES; CAVING; ETC.)

SAMPLES AND CUTTINGS

will X / will not ___ / be available for examination by a member of the
Virginia Geological Survey;
will X / will not ___ / be furnished the Virginia Geological Survey upon
request;
will ___ / will not ___ / require sacks to be furnished by the Survey.

DRILLER'S LOG

Compiled by Roswell K. Barranco

<u>Geologic Age</u>	<u>Formation</u>	<u>General Lithology</u>	<u>Color</u>	<u>Depth (feet)</u>		<u>Thickness</u>	<u>Remarks</u>
				<u>Top</u>	<u>Bottom</u>		
Pennsylvania	Wise & Norton	Sandstone		0	2451	2451	
	Lee	Sandstone & Shale		2451	3855	1404	
<hr/>							
Mississippian	Bluestone	Sandstone & Shale		3855	3952	97	
	Ravencliff	Sandstone		3952	4026	74	
	Hinton	Sandstone & Shale		4026	4439	413	
	Maxton	Sandstone		4274	4439	165	
	Bluefield	Sandstone, Shale & Limestone		4439	4635	196	
	Greenbrier (Big Lime)	Limestone		4635	5078	443	
	Injun	Sandstone & Shale		5078	5124	46	
	Weir	Siltstone		5124	5310	186	
	Sunbury	Shale		5310	5434	124	
	Berea	Siltstone		5434	5502	68	
<hr/>							
Devonian	Devonian Shale	Shale		5502	6068	566	
	Decollement			5918	5918	0	
<hr/>							
Silurian	Corniferous	Limestone		6068	6200	132	

APPENDIX TO REPORT OF COMPLETION OF WELL WORK
ON A WELL DRILLED IN SEARCH OF OIL OR GAS

DISCOVERY OF OIL OR INDICATIONS THEREOF

Indicated potential flow before stimulation N/A MC
Gravity and grade: N/A

DISCOVERY OF GAS OR INDICATIONS THEREOF

Indicated potential flow before stimulation N/A MC
Rock pressure: Not psig N/A hour test
Measurable

RECORD OF STIMULATION

Full description of stimulation:

Zone 1: Lower Devonian Formation
75 Quality Foam Frac, 42,500#s 20/40, 7,500#s 10/20
651,000 SCF of N₂
Perforated 5838' - 6060' # Perfs. 60 Perf. Size .375
Breakdown 3093 psig. Avg. Injection 4109 psig.
Avg. I.R. .78 BPM Init. S.I.P. 2527 psig 15 Min. S.I.P. 1760 psig

Zone 2: Upper Devonian, Berea, Sunbury Formation
75 Quality Foam Frac, 40,900#s 20/40
682,000 SCF of N₂
Perforated 5366' - 5664' # Perfs. 66 Perf. Size .375
Breakdown 2992 psig. Avg. Injection 3843 psig.
Avg. I.R. .75 BPM Init. S.I.P. 2143 psig 15 Min. S.I.P. 1581 psig

Zone 3: Weir Formation
75 Quality Foam Frac, 40,100#s 10/20
522,000 SCF of N₂
Perforated 5158' - 5288' # Perfs. 66 Perf. Size .375
Breakdown 2963 psig. Avg. Injection 3836 psig.
Avg. I.R. .90.6 BPM Init. S.I.P. 1829 psig 15 Min. S.I.P. 1038 psig

Final production () natural (X) after stimulation

	BOD	MCFD	Hours Tested	Rock Pressure	Hours Tested
Zone 1: <u>Lower Devonian</u>					
<u>Upper Devonian</u>					
Zone 2: <u>Berea, Sunbury</u>					
Zone 3: <u>Weir</u>					

Final production if gas zones are comingled: 270 MC

3 hours tested: _____ psig. _____ hours tes

DEVIATION SURVEY

NO. 10001

Results

Depth From	Depth To	Survey
0'	150'	1/4 ^o
0'	250'	1/4 ^o
0'	500'	1/2 ^o
0'	750'	1/2 ^o
0'	1000'	3/4 ^o
0'	1255'	1/2 ^o
0'	1530'	3/4 ^o
0'	2000'	3/4 ^o
0'	2530'	1 ^o
0'	3024'	1-1/4
0'	3550'	1 ^o
0'	4150'	1 ^o
0'	4500'	1-1/4 ^o
0'	5000'	1-1/2 ^o
8'	5500'	2 ^o
0'	6200'	2-1/4 ^o

WS 199

(FOR OFFICE USE ONLY: API Well No., 45 - - - State County Permit

Date: 3-28- , 1986

Operator's Well No. 10301

WS 199

VIRGINIA OIL AND GAS INSPECTOR DEPARTMENT OF LABOR AND INDUSTRY DIVISION OF MINES 219 Wood Avenue Big Stone Gap, Virginia 24219-1799 Phone 703-523-0335



WELL PLAT

+ Denotes location of well on United States Topographic Maps, scale 1 to 24,000. Latitude and longitude lines are represented by border lines as shown.

This plat is new X / updated /

This plat is X / is not / based on a mine coordinate system established for the areas of the well location.

Well operator ANR PRODUCTION COMPANY

Address JACKSON, MISSISSIPPI Farm PENN VIRGINIA RESOURCES CORPORATION Tract 128 Acres 5135.06 Lease No. Elevation 2895.42' Quadrangle APPALACHIA County WISE District RICHMOND Registered Engineer X Registration No. 11439 Certified Land Surveyor Cert. No. File No. Drawing No. Date 3-28-86 Scale 1" = 400'

Certification of Well Plat

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 of the Virginia Well Review Board.

Handwritten signature of Paul J. Gembach, Registered Engineer or Certified Land Surveyor in Charge

11,600'

Latitude 37° 00' 00"

Longitude 82° 47' 30"

7,950'

**PRESCOTT No1 MINE
IMBODEN SEAM
ABANDONED**

T-128
OLINGER
5135.06 AC.
P.V.R.C. FEE

Stonega 10
N 54,368.61
E 40,057.58

N 89-17-57 W
1142.26'

W.C.CO.
23971
N 54,803.76
E 42,163.45

GAS WELL
10034
N 54,941.21
E 44,150.45

N 65-00-46E
1063.22

N 78-45-24 E
3008.44

GAS WELL
10301
N 54,354.64
E 41,199.75
EL. 2895.42'
P.V.R.C. 8178

PARSONS
HIGHWALL

**RODA No3 MINE
TAGGART SEAM
MINED OUT ABANDONED**

CREEK

MUDLICK



WS 199