

API NO. 45 - 051 - 21077
 WELL NAME: J. P. Vanover, P441
 DATE 9-25-90 DI-395

Virginia Oil and Gas Inspector
 P. O. Box 1416
 Abingdon, VA 24210
 703 628-8115



REPORT OF COMPLETION OF WELL WORK

Pursuant to Regulation 4.06 of the Regulations under the Virginia Oil and Gas Act, the undersigned well operator reports completion of the type(s) of well work specified below on the referenced well in Clintwood District Dickenson County, Virginia on 10 day, June month, 19 90.

WELL TYPE: Oil / Gas X / Enhanced Recovery / Waste Disposal
 If Gas-Production X / Underground Storage / Exempt by Code Section 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 SECTION 45.1-332

X Ninety days from the filing of this report

OR

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

APPLICANT Equitable Resources Exploration
 BY Bob Dahlin
 ITS Geologist
 ADDRESS 1989 East Stone Drive, Kingsport, TN 37660
 TELEPHONE 615-378-5101

COMPLETION REPORT

WELL TYPE: Oil () Gas Production (x) Gas-Underground Storage ()
 Enhanced Recovery () Waste Disposal ()

LOCATION

COUNTY Dickenson DISTRICT Clintwood

SURFACE ELEVATION 1801.53' QUADRANGLE Clintwood

LATITUDE 3,641 'S 37° 12 ' 30 " LONGITUDE 10,265 'W 82° 27 ' 30 "

DRILLING DATA

DATE DRILLING COMMENCED 4-12-90 DRILLING CONTRACTOR Union Drilling
 DATE DRILLING COMPLETED 4-21-90 ADDRESS P. O. Drawer 40, Buckhannon, WV 26201
 DATE WELL COMPLETED 6-10-90 TELEPHONE NUMBER 304-472-4610
 TOTAL DEPTH OF COMPLETED WELL 5406' RIG TYPE X ROTARY CABLE TOOL

GEOLOGICAL DATA

FRESH WATER AT (1) 650 FEET 1/2" GPM: (2) FEET GPM
 SALT WATER AT (1) 1500 FEET 1/2" GPM: (2) FEET GPM

COAL SEAMS:

NAME	TOP	BOTTOM	THICKNESS	MINING IN AREA	
				YES	NO MINED OUT

OIL AND GAS SHOWS:

FORMATION	TOP	BOTTOM	THICKNESS	IPF(MCFD/BOPD)	PRESSURE	HOURS TESTED
NONE RECORDED						

STIMULATION RECORD

ZONE (1) Lower Huron FORMATION STIMULATED WITH Nitrogen Frac
 using 1,070,000 SCF N₂
 PERFORATED 5181 TO 5347 NO. OF PERFORATIONS 16 PERFORATION SIZE .39
 FORMATION BROKE DOWN AT 5050 PSIG AVERAGE INJECTED RATE 7800 SCFM BPM
 INITIAL SHUT IN PRESSURE 3661 PSIG 5 MINUTE SHUT IN PRESSURE 3463 PSIG

STIMULATION RECORD

ZONE (2) Marcellus Shale FORMATION STIMULATED WITH 750 Foam Frac
 Frac using 424 bbls. fluid, 605,000 SCF N₂ and 60,200 # 20/40 sand.
 PERFORATED 3599 TO 3761 NO. OF PERFORATIONS, 20 PERFORATION SIZE .36
 FORMATION BROKE DOWN AT 2566 PSIG AVERAGE INJECTED RATE BPM
 INITIAL SHUT IN PRESSURE 906 PSIG MINUTE SHUT IN PRESSURE PSIG
 FINAL PRODUCTION: () NATURAL (x) AFTER STIMULATION
 BOD MCFD HOURS TESTED ROCK PRESSURE HOURS TESTED

ZONE (1)
 ZONE (2)
 FINAL PRODUCTION IF GAS ZONES ARE COMINGLED 257 MCFD 48 HOURS TESTED
1200 PSIG 48 HOURS TESTED

CASING AND TUBING

	SIZE	TOP	BOTTOM	LENGTH	PACKERS OR	
					PERFORATIONS FEET TO FEET	BRIDGE PLUGS KIND SIZE SET AT
CONDUCTOR	16"		20'			

CASINGCirculated
and Cemented
to Surface

11 3/4"	399'
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WATER PROTECTION(Casing Set
According to
Section
45.1-334)

8 5/8"	2020'
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COAL PROTECTION(Casing Set
According to
Section
45.1-334)OTHER CASING &Tubing Left
In Well

4 1/2"	5370'
2 3/8"	5339'

LINERSRemaining
In WellOTHER used and not
leftIs the well underlain by Red Shale Yes ___ No, If Yes, was coal
protection string set to Red Shales? Yes ___ No

REMARKS: Shut down, fishing jobs, depths and dates, caving, etc.

Samples and Cuttings

Will Will not be available for examination by a member of the Virginia Division of Mineral Resources

Will Will not be furnished to the Virginia Division of Mineral Resources upon request

Will Will not require sacks to be furnished by the Virginia Division of Mineral Resources

Electric Logs and Surveys:

Type of Electric Log(s) Ran: DIL/CDL/SNL/TEMP/AUDIO/GR

Did log disclose vertical location of a coal seam? Yes No

Was log made at request of a coal owner according to Section 45.1-333.B.1 of the Virginia Code? Yes No

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

Deviation Surveys

Deviation surveys were were not required under Section 45.1-333.C of the Virginia Code "to the bottom of the lowers published coal seam depth."

Note: If a deviation survey(s) was/were required, the survey results are as follows:

Depth of Survey	Feet/Degree Deviated From True Vertical	Depth of Survey	Feet/Degree Deviated From True Vertical
	See Attachment		

A continuous survey was was not required, under Section 45.1-333.C of the Virginia Code.

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

Changes in the Permitted Well Work:

The well operator did did not 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.

Confidentiality Status:

Confidentiality status under Section 45.1-332, of the Virginia Code: The operator requests that information herein and log(s) be kept confidential (after COMPLETION DATE of the well) for a period of

Ninety (90) days
 two (2) years, if the well is exploratory

DRILLER'S LOG

Compiled by Bob Dahlin

Geological Age	Formation	General Lithology	Color	Depth		Thickness	Remarks
				Top	Bottom		
	Sand & Shale			0	2170	2170	
	Ravencliff			2170	2254	84	
	Sand & Shale			2254	2300	46	
	Maxon			2300	2440	140	
	Sand & Shale			2440	2496	56	
	Little Lime			2496	2540	44	
	Sand & Shale			2540	2622	82	
	Big Lime			2622	3094	472	
	Borden			3094	3502	408	
	Coffee Shale			3502	3568	66	
	Berea			3568	3636	68	
	Brown Shale			3636	5406	1770	
	Loggers TD				5406		

Directional Survey

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<u>Depth</u>	<u>Degrees</u>
225'	1°
423'	1 1/2°
630'	1 1/2°
848'	1°
943'	1 1/4°
975'	1°
1099'	1 1/4°
1225'	1°
1445'	1 1/4°
1570'	1 1/4°
1789'	1°
2040'	1 1/4°

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

Date: 2-19, 19 87

Operator's Well No. P-441

VIRGINIA OIL AND GAS INSPECTOR
DEPARTMENT OF LABOR AND INDUSTRY
DIVISION OF MINES
OIL AND GAS SECTION
205 W. MAIN STREET
ABINGDON, VIRGINIA 24210
PHONE 703 628-8115

PA-395

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

Well operator Philadelphia Oil
Address 1989 E. Stone Drive, 2 Executive Park Place, Kingsport, Tenn. 37660
Farm J. P. Wnover
Tract T-780 Acres 247.00 Lease No. PO-148
Elevation 1801.53
Quadrangle Clintwood, Va.
County Dickenson District Clintwood
Registered Engineer Registration No.
Certified Land Surveyor X Cert. No. 986
File No. Drawing No. 1690
Date 2-19-87 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.

Donald B. Spoles VA# 986
~~Registered Engineer or~~ Certified Land Surveyor
in Charge

10,264.85'

Latitude 37°12'30"

Longitude 82°27'30"

3,640.85'

