

(REVERSE)

DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC.

N/A

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FEB 01 1988

DIVISION OF OIL & GAS
DEPARTMENT OF ENERGY

WELL LOG

FORMATION	COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fresh and salt water, coal, oil and gas
Top Soil			0	10	
Shale			10	25	
Sand			25	70	
Coal			70	75	
Sand			75	163	
Shale			163	170	
Sand			170	280	Water
Shale			280	290	
Sand			290	340	
Sand & Shale			340	525	
Sand			525	631	
Coal			631	634	
Sand & Shale			634	960	
Sand			960	1048	
Salt Sand			1048	1413	Salt Water
Sand & Shale			1413	1440	
Sand			1440	1452	
Sand & Shale			1452	1720	
Big Lime			1720	1838	
Injun			1838	1868	
Sand & Shale			1868	1950	
Weir			1950	1975	
Sand & Shale			1975	2248	
Berea			2248	2253	Trace Oil
Shale			2253	5166	
Ononadaga Lime			5166	5270	
Oriskany Sand			5270	5295	
Lime			5295	6046	
Newburg			6046	6078	
McKenzie			6078	6283	
Keefer			6283	6322	
Rose Hill			6222	6718	
Cacapon			6718	6735	
Shale			6735	6745	
Tuscarora			6745	6843	
Driller T.D.				6843	
Logger T.D.				6745	

(Attach separate sheets as necessary)

COLUMBIA NATURAL RESOURCES, INC.
 Well Operator
 By: *Joseph C. Campbell*
 Date: 1-27-88

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 coal, encountered in the drilling of a well."

(Obverse)

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1) Date: August 7, 19 87
 2) Operator's Well No. 21126
 3) API Well No. 47 State 039 County 4548 Permit

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

**DIVISION OF OIL & GAS
 DEPARTMENT OF ENERGY**

- 4) WELL TYPE: A Oil _____ / Gas X /
 B (If "Gas", Production X / Underground storage _____ / Deep X / Shallow _____ /)
- 5) LOCATION: Elevation: 1199.9 Watershed: Campbells Creek
 District: Malden 7 County: Kanawha 039 Quadrangle: Quick 562
- 6) WELL OPERATOR Columbia Natural Resources, Inc. 7) DESIGNATED AGENT Joseph E. Campbell
 Address P. O. Box 1273 1013 10460 Address P. O. Box 1273
Charleston, WV 25325 Charleston, WV 25325
- 8) OIL & GAS INSPECTOR TO BE NOTIFIED Name Carlos Hively
 Address 223 Pinch Ridge Road
Elkview, WV 25071
- 9) DRILLING CONTRACTOR:
 Name _____
 Address _____
- 10) PROPOSED WELL WORK: Drill X / Drill deeper _____ / Redrill _____ / Stimulate X /
 Plug off old formation _____ / Perforate new formation _____ /
 Other physical change in well (specify) _____
- 11) GEOLOGICAL TARGET FORMATION, Tuscarora 575
 12) Estimated depth of completed well, 6950 feet
 13) Approximate strata depths: Fresh, 523 feet; salt, _____ feet.
 14) Approximate coal seam depths: 531, 658 Is coal being mined in the area? Yes _____ / No X /
- 15) CASING AND TUBING PROGRAM

CASING OR TUBING TYPE	SPECIFICATIONS					FOOTAGE INTERVALS		CEMENT FILL-UP OR SACKS (Cubic feet)	PACKERS
	Size	Grade	Weight per ft.	New	Used	For drilling	Left in well		
Conductor	13-3/8			X		770	770	To surface	by 38 CSR 18-11.2 & 11.
Fresh water									
Coal	9-5/8			X		2055	2055	To surface	by 38 CSR 18-11.2
Intermediate	7			X		5420	5420		by 38 CSR 18-11.1
Production	4-1/2			X		6920	6920		by 38 CSR 18-11.1
Tubing									
Liners									

**OFFICE USE ONLY
 DRILLING PERMIT**

Permit number 47-039-4548 Date October 8, 19 87

This permit covering the well operator and well location shown below is evidence of permission granted to drill in accordance with the pertinent legal requirements subject to the conditions contained herein and on the reverse hereof. Notification must be given to the District Oil and Gas Inspector. (Refer to No. 8) Prior to the construction of roads, locations and pits for any permitted work. In addition, the well operator or his contractor shall notify the proper district oil and gas inspector 24 hours before actual permitted work has commenced.)

The permitted work is as described in the Notice and Application, plat, and reclamation plan, subject to any modifications and conditions specified on the reverse hereof.

Permit expires October 8, 1989 unless well work is commenced prior to that date and prosecuted with due diligence.

Bond: <input checked="" type="checkbox"/>	Agent: <input checked="" type="checkbox"/>	Print: <input checked="" type="checkbox"/>	Casing: <input checked="" type="checkbox"/>	Fee: <u>233</u>	WVCP: <input checked="" type="checkbox"/>	S&E: <input checked="" type="checkbox"/>	Other: <input type="checkbox"/>
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John H. Johnston by Margaret J. Hess
 Director, Division of Oil and Gas File

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

See the reverse side of the APPLICANT'S COPY for instructions to the well operator.