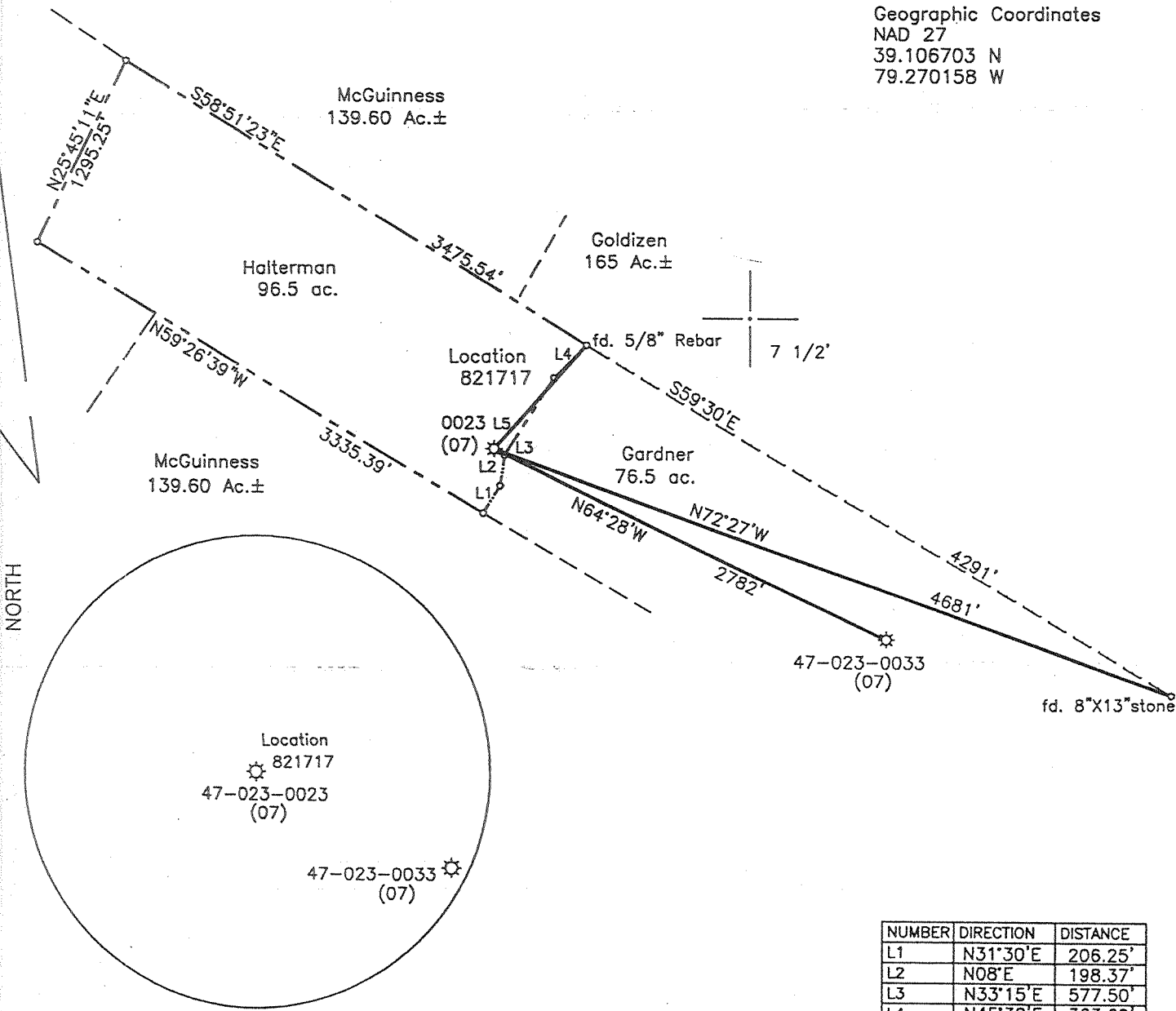


5,750'
LATITUDE 39-07-30 N

WGS 84 Coordinates
39.106811 N
79.269921 W

Geographic Coordinates
NAD 27
39.106703 N
79.270158 W

LONGITUDE 79-15-00 W
6,290'

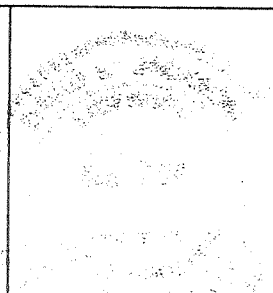


NUMBER	DIRECTION	DISTANCE
L1	N31°30'E	206.25'
L2	N08°E	198.37'
L3	N33°15'E	577.50'
L4	N45°30'E	363.69'
L5	S44°58'W	1084'

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS

FILE NO. _____
DRAWING NO. 1
SCALE 1" = 1000'
MINIMUM DEGREE OF ACCURACY 1 in 200
PROVEN SOURCE OF ELEVATION GPS
submeter unit

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 ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENERGY.
(SIGNED) David L. Jackson
R.P.E. _____ L.L.S. 708



STATE OF WEST VIRGINIA
Division of Environmental Protection
OFFICE OF OIL AND GAS

DATE September 6, 2007
OPERATOR'S WELL NO. 821717
API WELL NO. _____

WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___
(IF "GAS") PRODUCTION X STORAGE ___ DEEP ___ SHALLOW X
STATE 47 COUNTY 023 PERMIT 00023F

LOCATION: ELEVATION 2,720' WATER SHED South Fork Lunice Creek
DISTRICT Union COUNTY Grant
QUADRANGLE Blackbird Knob

SURFACE OWNER Charles Halterman ACREAGE 96.5 ac.
OIL & GAS ROYALTY OWNER Charles Halterman LEASE ACREAGE 96.5 ac.
LEASE NO. 1204201

PROPOSED WORK: DRILL ___ CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE ___ PLUG OFF OLD FORMATION X PERFORATE NEW FORMATION X OTHER PHYSICAL CHANGE IN WELL (SPECIFY) _____

PLUG AND ABANDON ___ CLEAN OUT AND REPLUG ___
TARGET FORMATION Marcellus ESTIMATED DEPTH 8,450'
WELL OPERATOR Chesapeake Appalachia, L.L.C. DESIGNATED AGENT Michael John
ADDRESS P.O. Box 6070 Charleston, WV 25362 ADDRESS P.O. Box 6070 Charleston, WV 25362

GR 0023 F

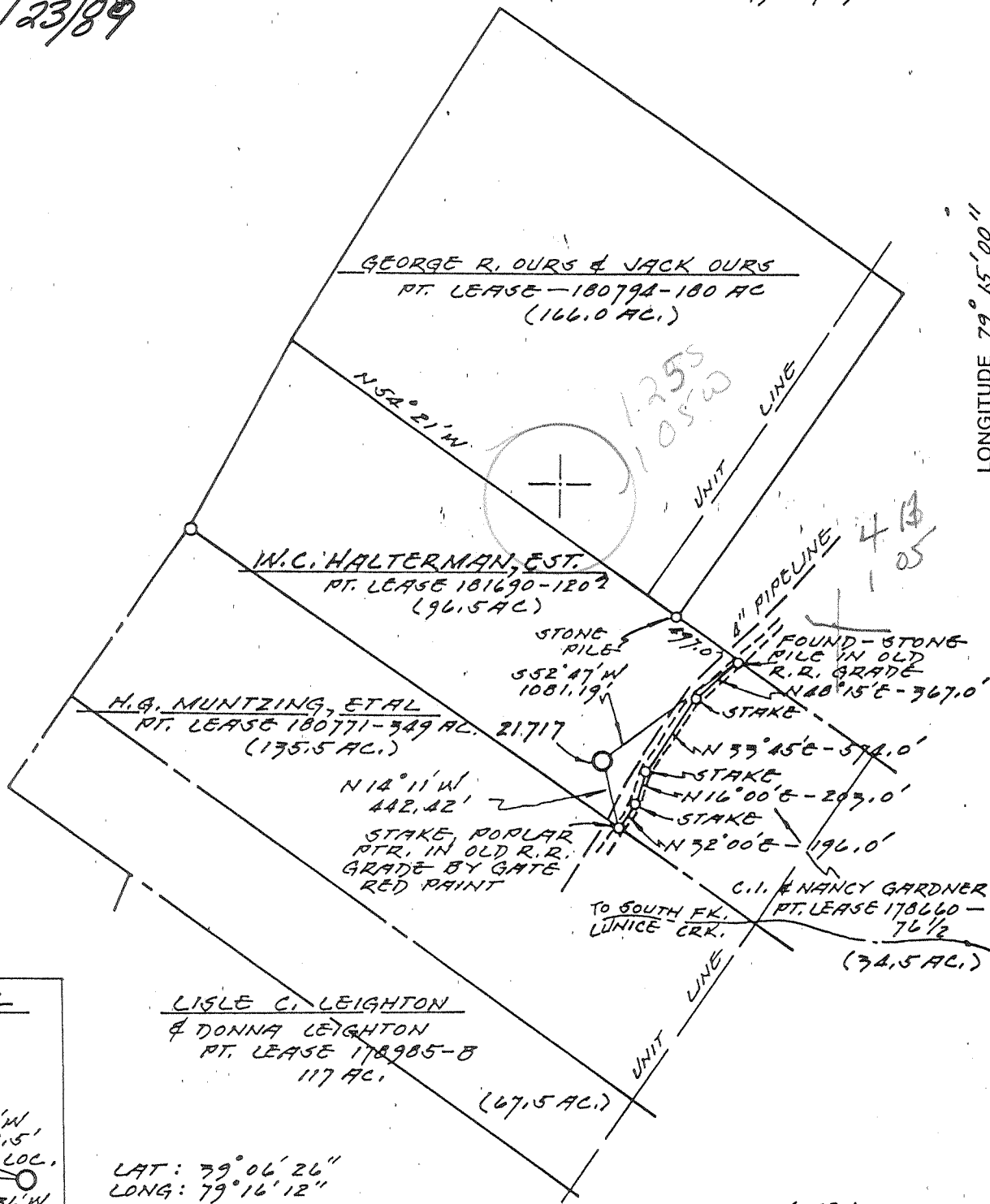
Jordan Rev 6-6

OCT 19 2007

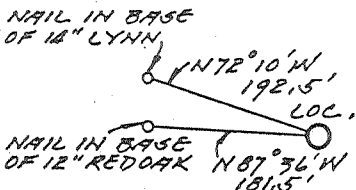
Jamie 6/23/89

NORTH

LONGITUDE 79° 15' 00"



REF DETAIL



LAT: 79° 06' 26"
LONG: 79° 16' 12"
BK. 438-A PG. 43 L.T.D.R.

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS

NOTE: COAL NOT OPERATED

FILE NO. _____
DRAWING NO. 21717-R.1.
SCALE 1" = 1000'
MINIMUM DEGREE OF ACCURACY 1 FT. IN 2500
PROVEN SOURCE OF ELEVATION U.S. GOV'T. BM
ELEV. 1746'

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 ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENERGY.

(SIGNED) James S. Browning
R.P.E. _____ L.L.S. 390

STATE OF WEST VIRGINIA
DEPARTMENT OF ENERGY
OIL AND GAS DIVISION
PLACE SEAL HERE

STATE OF WEST VIRGINIA
DEPARTMENT OF ENERGY
OIL AND GAS DIVISION



DATE Nov. 3, 1987
OPERATOR'S WELL NO. 21717-R.1.
API WELL NO. _____

47-023-00023
STATE COUNTY PERMIT

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
(IF "GAS,") PRODUCTION STORAGE DEEP SHALLOW
LOCATION: ELEVATION 2721 WATER SHED LUNICE CREEK
DISTRICT UNION COUNTY GRANT
QUADRANGLE BLACKOARD KNOB 255 0346 DAVIS EC
SURFACE OWNER W.C. HALTERMAN, EST. ACREAGE 96.5
OIL & GAS ROYALTY OWNER W.C. HALTERMAN, EST. LEASE ACREAGE 96.5 (500 ACRE UNIT)
LEASE NO. 181690

PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) _____

PLUG AND ABANDON CLEAN OUT AND REPLUG
TARGEI FURIAHWH UNJ34NY ESTIMATEI DEPIH 8882'
WELL OPERATOR COLUMBIA NATURAL RES., INC. ESTIMATEI DEPIH J.C. CAMPBELL
ADDRESS P.O. BOX 1273 ADDRESS STATE
CHARLESTON, W.V. 25305 DEEP WELL 6-6 Jordan Run (370)

JUN 30 1989

COUNTY NAME PERMIT

WR -35

Date 08/11/2009
API # 47-023-00023 - F

1366
7

State of West Virginia
Division of Environmental Protection
Section of Oil and Gas
Well Operator's Report of Well Work

Farm Name: W C Halterman Estate

Operator Well No.: 821717

LOCATION Elevation: 2,720 ft
District: Union

Quadrangle: Blackbird Knob
County: Grant

Top Hole Latitude: 6,290 ft South of 39° 07' 30"
Top Hole Longitude: 5,750 ft West of 79° 15' 00"

Company: Chesapeake Appalachia, LLC
P.O. box 18496
Oklahoma City, OK 73154-0496

Casing & Tubing	Used in Drilling	Left in Well	Cement Fill-Up Cu.Ft.
20"	GL 30'	GL 30'	Driven
13 3/8"	GL 88 ft	GL 88 ft	CTS
9 5/8"	GL 2,383 ft	GL 2,383 ft	125 sks
5 1/2"	GL 8,700 ft	GL 8,700 ft	343 sks

Agent: James E. Grey
Inspector: Craig Duckworth
Date Permit Issued: 10/17/2007
Date Well work commenced: 04/21/2008
Date Well Work completed: 06/22/2008
Verbal Plugging Permission
Granted on / /
Rotary Cable Rig
Total Depth (ft): DTD: 8,760' (TVD): 8,760'
Fresh Water Depth (ft): NA
Salt Water Depth (ft): NA
Is coal being mined in area (Yes No
Coal Depths (ft):

Open Flow Data

1 st Producing Formation	Marcellus	Pay Zone Depth	8,206 ft to 8,252 ft
Gas:	Initial Open Flow	Mcf/day	Oil: Initial Open Flow
	Final Open Flow	100 Mcf/day	Final Open Flow
	Time of Open Flow between Initial and Final Tests	4 hours	bb/day
	Static Rock Pressure	650 psig after 72 hours	bb/day
	Static Rock Pressure	psig after	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.

Signed: _____
CHESAPEAKE APPALACHIA, LLC
By: _____
Date: _____

RECEIVED
Office of Oil & Gas
NOV 16 2009
WV Department of
Environmental Protection

Chesapeake Appalachia
Well No.: 821717

Perforated Intervals

1 st Stage	Marcellus	184	holes from	8,206 ft to 8,252 ft
-----------------------	-----------	-----	------------	----------------------

Fracturing / Stimulation

1 st Stage	Marcellus	Type of Treatment	Slickwater
	Total Acid 2600 Gal of 15% HCl		Breakdown Pressure 5,045 psi
	Average Rate 56 scf/min <input type="checkbox"/> or bpm <input checked="" type="checkbox"/>		ATP 5,335psi
	Total Fluid 11,581 bbl	Total Nitrogen scf	Total Sand 227,260 lb of 100 M Total Sand 250,280 lb of 30/50
	ISIP 4,779 psi	5 min 4,595 psi	

Well Log

See previous WR-35
form for Well Log
information

Cast Iron Bridge Plug set
at 8,440 ft

*Check 1515
(Check File)*

RECEIVED
Division of Energy

NOV 28 90

Permitting
Oil and Gas Section

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

Well Operator's Report of Well Work

Farm Name: HALTERMAN, CHARLES ETUX. Operator Well No.: 21717-PI

LOCATION: Elevation: 2721.00 Quadrangle: BLACKBIRD KNOB

District: UNION County: GRANT
Latitude: 6450 Feet South of 39 Deg. 7 Min. 30 Sec.
Longitude 5625 Feet West of 79 Deg. 15 Min. 0 Sec.

Company: COLUMBIA NATURAL RESOURCE
P. O. BOX 1273
CHARLESTON, WV 25325-0000

Agent: JOSEPH E. CAMPBELL

Inspector: PHILLIP TRACY
Permit Issued: 06/27/89
Well work Commenced: 9/5/89
Well work Completed: 12-12-89
Verbal Plugging
Permission granted on:
Rotary Cable _____ Rig
Total Depth (feet) 8760
Fresh water depths (ft) --

Salt water depths (ft) --

Is coal being mined in area (Y/N)? N
Coal Depths (ft): _____

Casing & Tubing Size	Used in Drilling	Left in Well	Cement Fill Up Cu. Ft.
13-3/8"	88	88	61
9-5/8"	2383	2383	786
5-1/2"	8700	8700	395

OPEN FLOW DATA

Producing formation Oriskany Pay zone depth (ft) 8501-8700
Gas: Initial open flow 110 cfm MCF/d Oil: Initial open flow _____ Bbl/d
Final open flow 993 MCF/d Final open flow _____ Bbl/d
Time of open flow between initial and final tests 72 Hours
Static rock Pressure 2110 psig (surface pressure) after 72 Hours

Second producing formation _____ Pay zone depth (ft) _____
Gas: Initial open flow _____ MCF/d Oil: Initial open flow _____ Bbl/d
Final open flow _____ MCF/d Final open flow _____ Bbl/d
Time of open flow between initial and final tests _____ Hours
Static rock Pressure _____ psig (surface pressure) after _____ 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 WELDBORE.

For: Joseph E. Campbell
COLUMBIA NATURAL RESOURCES, INC.

By: Vice President, Drilling & Production Operations
Date: 11-26-90

DEC 3 1990

21717

Perforations: .41" holes/31 holes from 8501 to 8560

Fractured w/1850 Bbl. Cross Link gel, 150,000# 20/40 sand, 15,000# 80/100 sand, 25% pad ahead of frac, 1-1/2 Bbl. CO₂ per min., ATP 3400# at 20 BPM.

Formations:

0	-	2534	Substructure
2534	-	4298	Foreknobs FM
4298	-	6565	Shefr FM
6565	-	7557	Braclier Sh
7557	-	7710	Harrell Sh
7710	-	7712	Tully LS
7712	-	8070	Mohantango FM
8070	-	8139	Upper Marcellus Sh
8139	-	8205	Purcell LS
8205	-	8274	Lower Marcellus Sh
8274	-	8390	Needmore Sh
8390	-	8598	Oriskany
8598	-	8760	Helderberg
DTD	-	8760	

9051

023-00023

Issued 6/27/89 Expires 6/27/91

FORM WW-2B

Page 3 of 5

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

- 1) Well Operator: Columbia Natural Resources, Inc. 10460, 3, 255
- 2) Operator's Well Number: 21717-PI 3) Elevation: 2721'
- 4) Well type: (a) Oil or Gas
(b) If Gas: Production Underground Storage
Deep Shallow
- 5) Proposed Target Formation(s): Oriskany
- 6) Proposed Total Depth: 8860 feet
- 7) Approximate fresh water strata depths: 100? -
- 8) Approximate salt water depths: ? -
- 9) Approximate coal seam depths: ? None
- 10) Does land contain coal seams tributary to active mine? Yes No
- 11) Proposed Well Work: Drill Well *New Well*
- 12)

CASING AND TUBING PROGRAM

TYPE	SPECIFICATIONS			FOOTAGE INTERVALS		CEMENT Fill-up (cu. ft.)
	Size	Grade	Weight per ft.	For drilling	Left in well	
Conductor	13-3/8"	H	48#	40	40	28
Fresh Water						} 30CSQA-11.3 38CSQA-11.2.2 752
Coal						
Intermediate	9-5/8"	J	36#	2400	2400	
Production	5-1/2"	N	17#	8860	8860	← 38CSQA-11.1 175
Tubing						
Liners						

9051

PACKERS : Kind _____
Sizes _____
Depths set _____

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JUN 15 1989

For Division of Oil and Gas Use Only

DIVISION OF OIL & GAS
DEPARTMENT OF ENERGY

Fee(s) paid: Well Work Permit Reclamation Fund WPCP
 Plat WW-9 WW-2B Bond Blanket Closure Agent
(Type)

5015634

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JUN 15 1989

DIVISION OF OIL & GAS 3)
DEPARTMENT OF ENERGY

Date: May 16, 1989
Operator's well number 21717
API Well No: 47 - 023 - 00023
State - 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 <u>Charles L. & Virginia Halterman</u> | Name _____ |
| Address <u>306 Highland Avenue</u> | Address _____ |
| <u>Petersburg, WV 26847</u> | |
| (b) Name <u>George W. & Barbara Halterman</u> | (b) Coal Owner(s) with Declaration |
| Address <u>Box 475</u> | Name _____ |
| <u>Petersburg, WV 26847</u> | Address _____ |
| (c) Name <u>Charles W. & Susan Halterman</u> | Name _____ |
| Address <u>P. O. Box 844</u> | Address _____ |
| <u>Petersburg, WV 26847</u> | |
| 6) Inspector <u>Phillip Tracy</u> | (c) Coal Lessee with Declaration |
| Address <u>Route 2, Box 37-A</u> | Name _____ |
| <u>Montrose, WV 26283</u> | Address _____ |
| Telephone (304)- <u>636-8798</u> | |

TO THE PERSON(S) NAMED ABOVE TAKE NOTICE THAT:

___ Included is the lease or leases or other continuing contract or contracts by which I hold the right to extract oil and gas OR
X Included is the information required by Chapter 22B, Article 1, Section 8(d) of the Code of West Virginia (see page 2)

I certify that as required under Chapter 22B of the West Virginia Code I have served copies of this notice and application, a location plat, and accompanying documents pages 1 through ___ on the above named parties, by:

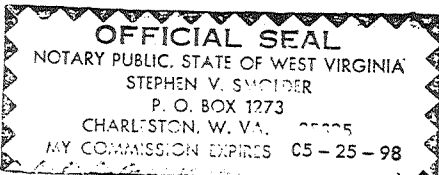
- ___ Personal Service (Affidavit attached)
- X Certified Mail (Postmarked postal receipt attached)
- ___ Publication (Notice of Publication attached)

I have read and understand Chapter 22B and 38 CSR 11-18, and I agree to the terms and conditions of any permit issued under this application.

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete.

I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Well Operator Columbia Natural Resources, Inc.
By: [Signature]
Its: Vice President, Drilling and Production Operations
Address P. O. Box 1273
Charleston, WV 25325
Telephone 304/357-2000



Subscribed and sworn before me this 17 day of May, 1989

Stephen V. Smolder Notary Public
My commission expires May 25, 1998