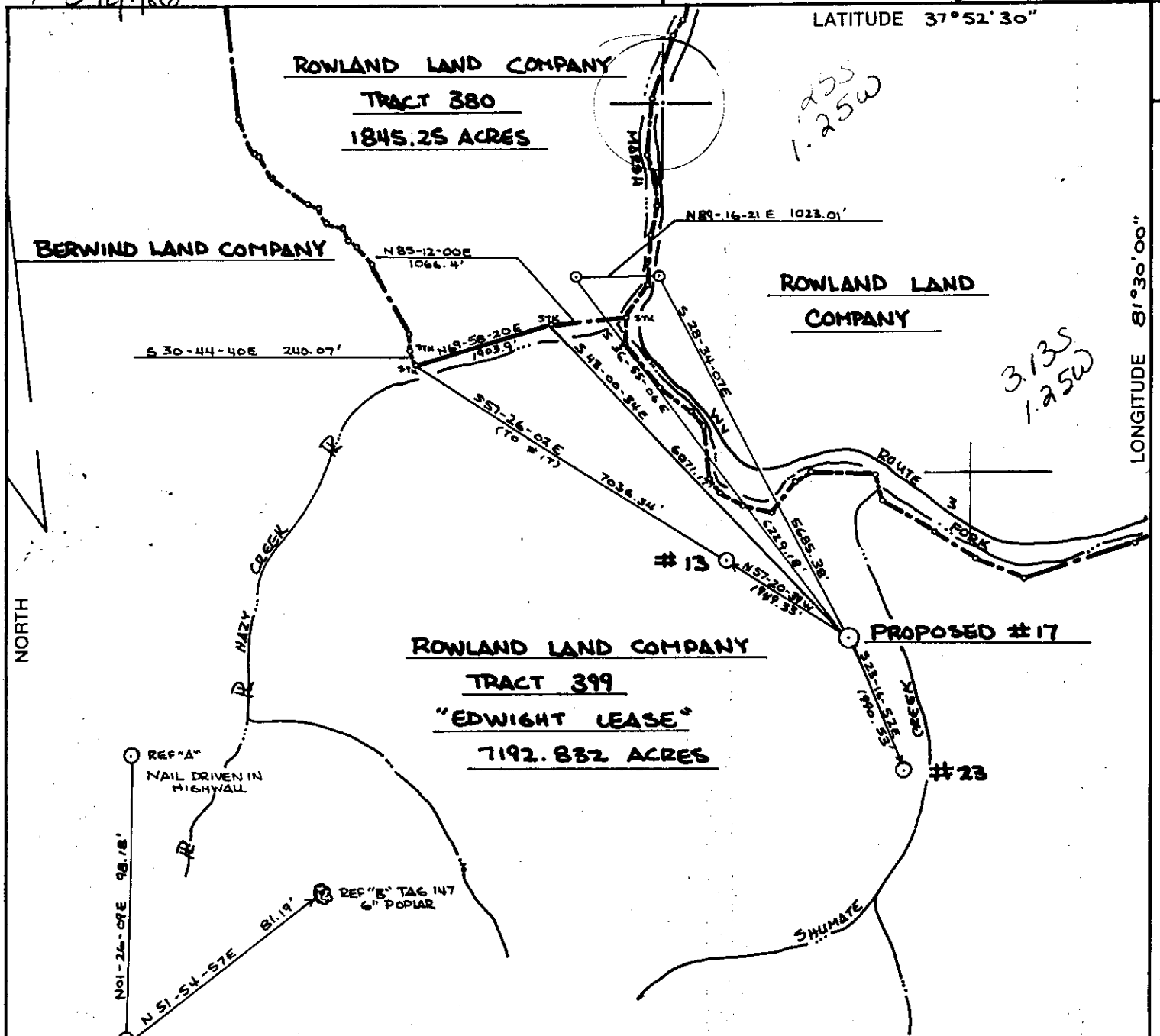


AS 12/1/86

✓

6680' 37 55
LATITUDE 37°52'30"

1320'
LONGITUDE 81°30'00"



1.255
1.250

3.135
1.250

NORTH

REFERENCES 1"=50'

PEABODY COAL COORDINATES:

N: 587253.77
E: 3219757.78

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

FILE NO. 86-081-017
 DRAWING NO. 86052
 SCALE 1" = 2000'
 MINIMUM DEGREE OF ACCURACY 1 IN 5000
 PROVEN SOURCE OF ELEVATION BM 40-K ON BRIDGE ART. IN EDWIGHT
 ELEVATION = 984.657'

CO: 081 PMT: 749
 Loc Digitized from OGIS 7.5' Mylar
 QUAD: 547 DATE: 12-JUN-90
 LAT: 37 52.5 Miles South: 0.22
 LONG: 81 30.0 Miles West : 1.32
 MENT OF ENERGY.
 (SIGNED) ROY JAMES COPPER
 R.P.E. 9456 L.L.S.

STATE OF WEST VIRGINIA
 DEPARTMENT OF ENERGY
 OIL AND GAS DIVISION
 No. 9456
 STATE OF
 PLACE SEAL HERE

STATE OF WEST VIRGINIA
 DEPARTMENT OF ENERGY
 OIL AND GAS DIVISION



DATE 30 OCTOBER 19 86
 OPERATOR'S WELL NO. ROWLAND # 17
 API WELL NO.

47 - 081 - 0749
 STATE COUNTY PERMIT

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
 (IF "GAS,") PRODUCTION STORAGE DEEP SHALLOW
 LOCATION: ELEVATION 1461.3' WATER SHED SHUMATE CREEK OF MARSH FORK
 DISTRICT MARSH FORK 2 COUNTY RALEIGH
 QUADRANGLE PILOT KNOB 7.5' 547 006 E Co Beld Knob
 SURFACE OWNER ROWLAND LAND COMPANY ACREAGE 7192.832
 OIL & GAS ROYALTY OWNER SAME LEASE ACREAGE 15000

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
 TARGET FORMATION MARCELLUS SHALE ESTIMATED DEPTH 5300'
 WELL OPERATOR ALLEGHENY + WESTERN DESIGNATED AGENT DENNIS L. MANN
 ADDRESS P.O. BOX 2587 004 ADDRESS P.O. BOX 2587
CHARLESTON, WEST VIRGINIA 25329 CHARLESTON, WEST VIRGINIA 25329

DEC 8 1986

6-6 Hopkins fork-Innards Valley (247)

FORM WW-6
H.T. HALL 43673

COUNTY NAME
PERMIT





IV-35
(Rev 8-81)

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AUG 11 1987

DIVISION OF OIL & GAS
DEPARTMENT OF ENERGY

State of West Virginia
Department of Mines
Oil and Gas Division

Date April 6, 1987
Operator's Well No. Rowland 17
Farm Rowland Land Co
API No. 47 - 081 - 0749

WELL OPERATOR'S REPORT
OF
DRILLING, FRACTURING AND/OR STIMULATING, OR PHYSICAL CHANGE

WELL TYPE: Oil ___ / Gas X / Liquid Injection ___ / Waste Disposal ___ /
(If "Gas," Production ___ / Underground Storage ___ / Deep ___ / Shallow X /)

LOCATION: Elevation: 1461 Watershed Shumate Creek
District: Marsh Fork County Raleigh Quadrangle Pilot Knob 7.5

COMPANY Allegheny & Western Energy Corp
ADDRESS P.O.Box 2587, Charleston, W.Va., 25329
DESIGNATED AGENT Dennis L. Marm
ADDRESS P.O.Box 2587, Charleston, W.Va., 25329
SURFACE OWNER Rowland Land Co
ADDRESS 1033 Quarrier St, Charleston, W.Va
MINERAL RIGHTS OWNER Same
ADDRESS _____
OIL AND GAS INSPECTOR FOR THIS WORK Rodney
Dillon ADDRESS P.O.Box 1526
Sophia, W.Va
PERMIT ISSUED 12/1/86
DRILLING COMMENCED 12/7/86
DRILLING COMPLETED 12/18/86

Casing Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft.
Size 20-16 Cond.			
13-10"	25	0	0
9 5/8	931	931	350 sks
8 5/8			
7	2366	2366	175 sks
5 1/2			
4 1/2	5587	5587	260 sks
3			
2			
Liners used			

IF APPLICABLE: PLUGGING OF DRY HOLE ON CONTINUOUS PROGRESSION FROM DRILLING OR REWORKING. VERBAL PERMISSION OBTAINED ON _____

GEOLOGICAL TARGET FORMATION Devonian Shale Depth 5300 feet
Depth of completed well 5602 feet Rotary X / Cable Tools _____
Water strata depth: Fresh 50 feet; Salt 500 feet
Coal seam depths: N/A Is coal being mined in the area? no

OPEN FLOW DATA
Producing formation Devonian Shale Pay zone depth 3697 feet
Gas: Initial open flow _____ Mcf/d Oil: Initial open flow _____ Bbl/d
Final open flow 207 Mcf/d Final open flow _____ Bbl/d
Time of open flow between initial and final tests 24 hours
Static rock pressure 800 psig (surface measurement) after 24 hours shut in
(If applicable due to multiple completion--)
Second producing formation _____ Pay zone depth _____ feet
Gas: Initial open flow _____ Mcf/d Oil: Initial open flow _____ Bbl/d
Final open flow _____ Mcf/d Oil: Final open flow _____ Bbl/d
Time of open flow between initial and final tests _____ hours
Static rock pressure _____ psig (surface measurement) after _____ hours shut in

(Continue on reverse side)
AUG 17 1987

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

3697-4561 perf w/ 50 holes frac w/ 60,000# 20/50 sd + 1,000 gal 15% acid + 1,000,000 scf n2
4613-5471 perf w/ 40 holes frac w/ 60,000# 20/50 sd + 1,000 gal 15% acid + 1,100,000 scf n2

WELL LOG

FORMATION	COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fresh and salt water, coal, oil and gas
sandstone & Shale			0	1830	<p style="text-align: center;">RECEIVED AUG 11 1987</p> <p style="text-align: center;">DIVISION OF OIL & GAS DEPARTMENT OF ENERGY</p> <p style="text-align: center;">TD 5602 KB</p>
salt sand			1830	1898	
sand & shale			1898	2359	
little lime			2359	2383	
slate & lime			2383	2427	
big lime			2427	2796	
shale			2796	2862	
weir			2862	3012	
shale			3012	3244	
sunbury shale			3244	3264	
silty shale			3264	3461	
gordon			3461	3477	
shale			3477	3538	
gordon			3538	3554	
grey & brown shale			3554	5602	
404	3264				
813	4464				
822	5214				
825	5414				

(Attach separate sheets as necessary)

Allegheny & Western Energy Corp
Well Operator

By: *Daniel J. Mc...*, Vice President
Date: April 6, 1987

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 ... encountered in the drilling of a well."

(Obverse)
7/8

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DEC 01 1986



1) Date: 20 November 19 86
2) Operator's Well No. Rowland Land #17
3) API Well No. 47 - 081 - 0749
State County Permit

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

- 4) WELL TYPE: A Oil / Gas XX
B (If "Gas", Production XX / Underground storage / Deep / Shallow XX)
5) LOCATION: Elevation: 1461.3 Watershed: Shumate Creek of Marsh Fork
District: Marsh Fork County: Raleigh Quadrangle: Pilot Knob 7.5
6) WELL OPERATOR A & W Energy Corp. CODE: 1100 7) DESIGNATED AGENT Dennis L. Mann
Address P.O. Box 2587 Charleston, WV 25329
8) OIL & GAS INSPECTOR TO BE NOTIFIED Name Rodney Dillon Address P.O. Box 1526 Sophia, WV 25921
9) DRILLING CONTRACTOR: Name Ray Resources
10) PROPOSED WELL WORK: Drill XX / Drill deeper / Redrill / Stimulate XX
Plug off old formation / Perforate new formation
Other physical change in well (specify)
11) GEOLOGICAL TARGET FORMATION, Weir, Devonian Shales
12) Estimated depth of completed well, 5300 feet
13) Approximate strata depths: Fresh, 50 feet; salt, 500 feet.
14) Approximate coal seam depths: Is coal being mined in the area? Yes / No XX

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									Kinds
Fresh water	9-5/8	smls	32	x		894	894	300sks CTS	by rule 15.05
Coal	7	smls	23	x		2909	2909	200 sks CTS	Sizes by rule 15.05
Intermediate									
Production	4-1/2	smls	10.5	x		5300	5300	200-400 sks	Depths set or as required
Tubing									by rule 15.01
Liners									Perforations:
									Top Bottom

OFFICE USE ONLY
DRILLING PERMIT

Permit number 47-081-0749

DECEMBER 1 1986
Date

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 DECEMBER 1, 1988 unless well work is commenced prior to that date and prosecuted with due diligence.

Bond: <input checked="" type="checkbox"/>	Agent: <input checked="" type="checkbox"/>	Plat: <input checked="" type="checkbox"/>	Casing: <input checked="" type="checkbox"/>	Fee: 4054	WPCP: <input checked="" type="checkbox"/>	S&E: <input checked="" type="checkbox"/>	Other: <input type="checkbox"/>
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NOTE: Keep one copy of this permit posted at the drilling location.

John H. Johnston
Director, Division of Oil and Gas
File

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

