



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

FILE NO. \_\_\_\_\_  
 DRAWING NO. 1  
 SCALE 1" = 2000'  
 MINIMUM DEGREE OF ACCURACY 1 in 10,000  
 PROVEN SOURCE OF ELEVATION Hilltop 2300' South of Location: elev. 2791

CO: 081 PMT: 801  
 Loc Digitized from OGIS 7.5' Mylar  
 QUAD: 547 DATE: 12-JUN-90  
 LAT: 37 52.5 Miles South: 1.66  
 LONG: 81 32.5 Miles West : 1.11  
 (SIGNED) David K. Jackson  
 R.P.E. \_\_\_\_\_ L.L.S. 708



**STATE OF WEST VIRGINIA**  
 DEPARTMENT OF ENERGY  
**OIL AND GAS DIVISION**

DATE August 24, 19 87  
 OPERATOR'S WELL NO. 22  
 API WELL NO. 47-081-0801

WELL TYPE: OIL \_\_\_ GAS X LIQUID INJECTION \_\_\_ WASTE DISPOSAL \_\_\_  
 (IF "GAS,") PRODUCTION \_\_\_ STORAGE X DEEP \_\_\_ SHALLOW X

LOCATION: ELEVATION 2495 WATERSHED Hazy Creek of Marsh Fork  
 DISTRICT Marsh Fork COUNTY Raleigh  
 QUADRANGLE Pilot Knob 7 1/2' 547 000 EC6 Bald Knob

SURFACE OWNER Western Pocahontas Corp. ACREAGE 2396  
 OIL & GAS ROYALTY OWNER Western Pocahontas Corp. LEASE ACREAGE 2396  
 LEASE NO. 8087

PROPOSED WORK: DRILL X 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 Weir ESTIMATED DEPTH 4110  
 WELL OPERATOR Natural Resource Management Corp. DESIGNATED AGENT Dave Cash, Natural Resource Management Corp.  
 ADDRESS 681 Andersen Drive, Foster Plaza VI ADDRESS 312 Sixth Ave., Charleston WV 25303  
Pittsburgh, PA 15220 1049

OCT 5 1987

FORM WW-6 H.T. HALL 48673

COUNTY NAME PERMIT

6-6 unnamed (a) (247)





Date November 13, 1987  
 Operator's \_\_\_\_\_  
 Well No. #22  
 Farm Western Pocahontas  
 API No. 47 - 081 - 0801

WR-35

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State of West Virginia  
 DEPARTMENT OF ENERGY  
 Oil and Gas Division

DIVISION OF OIL & GAS  
 DEPARTMENT OF ENERGY

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 X / Underground Storage \_\_\_ / Deep \_\_\_ / Shallow x /)

LOCATION: Elevation: 2,495' GL Watershed Hazy Creek of Marsh Fork  
 District: Marsh Fork County Raleigh Quadrangle Pilot Knob 7.5

COMPANY Natural Resource Management Corporation  
 ADDRESS 681 Andersen Drive, Foster Plaza VI  
Pittsburgh, PA 15220  
 DESIGNATED AGENT Dave Cash, NRM  
 ADDRESS 312 Sixth Avenue  
Charleston, WV 25303  
 SURFACE OWNER Western Pocahontas Corporation  
 ADDRESS c/o CSX Oil and Gas, P.O. Box 4326  
Houston, TX 77210  
 MINERAL RIGHTS OWNER same as surface owner  
 ADDRESS \_\_\_\_\_

OIL AND GAS INSPECTOR FOR THIS WORK Rodney G. Dillon  
 ADDRESS P. O. Box 1526  
Sophia, WV 25921  
 PERMIT ISSUED September 30, 1987  
 DRILLING COMMENCED October 21, 1987  
 DRILLING COMPLETED October 26, 1987

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

Casing & Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft.
Size 20-16 Cord.			
13 3/8"	38'	38'	conductor
9 5/8	1341'	1341'	550 sks
8 5/8			
7			
5 1/2			
4 1/2	4184'	4184'	75 sks
3			
2			
Liners used			

GEOLOGICAL TARGET FORMATION Weir Sandstone Depth 4,110 feet  
 Depth of completed well 4,338 feet Rotary X / Cable Tools \_\_\_\_\_  
 Water strata depth: Fresh 165 feet; Salt n/a feet  
 Coal seam depths: 190-194, 280-284, 320-325, Is coal being mined in the area? Yes  
501-505, 810-815, 901-906, 971-975, 1091-1096

OPEN FLOW DATA

Producing formation Weir Sandstone Pay zone depth 3964-4092 feet  
 Gas: Initial open flow 73 Mcf/d Oil: Initial open flow - Bbl/d  
 Final open flow (1370) Mcf/d Final open flow - Bbl/d  
 Time of open flow between initial and final tests 24 hours  
 Static rock pressure 730 psig (surface measurement) after 72 hours shut in  
 (If applicable due to multiple completion--)

Second producing formation n/a 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

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

Spotted 500 gal. 15% HCL and 500 gal. MeOH. Perforated <sup>upr well</sup> 4050-4092, 18 holes. Formation broke on hydrostatic. Pumped 600 bbls. 30# gel water 2% KCL, 60,000# 20/40 sand 225 SCF N<sub>2</sub>/bbl. Average treating rate 33 BPM. Average pressure 1600 PSI. Flushed 500 gal. 15% HCL and 500 gal. MeOH. Seated frac ball. Perforated 3964-3978, 15 holes. Formation broke on hydrostatic. Pumped 300 bbls. 30# gel water 2% KCL, 20,000# 20/40 sand, 225 SCF N<sub>2</sub>/bbl. Average treating rate 16BPM. Average Pressure 1800 PSI. ISIP A/F 790 PSI. Flowed well back on 1/2" choke.

upr well

WELL LOG

FORMATION	COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fresh and salt water, coal, oil and gas
<u>FROM DRILLER'S LOG:</u>					
Shale			0	750	FW @ 165'
Sand & Shale			750	1387	
Shale			1387	2040	SW - none reported
Salt Sand			2040	2350	
Sand & Shale			2350	2425	
Salt Sand & Shale			2425	2550	
Sand & Shale			2550	3034	
Shale			3034	3575	
Lime			3575	3890	
Sand & Shale			3890	4338	GC @ 3929' - TSTM
	DTD		4338'		GC @ TD - 73 mcf
	LTD		4323'		
<u>FROM CDL:</u>					
Princeton SS			2629	2711	
Ravencliff SS			2736	2805	
Avis LS			2859	2895	
Maxton Stray SS			2930	2995	
Upper Maxton			3068	3078	
Maxton SS			3128	3227	
Little Lime			3423	3490	
Big Lime			3498	3878	
Upper Weir SS			3964	4003	
Lower Weir SS			4032	4105	

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DIVISION OF OIL & GAS  
DEPARTMENT OF ENERGY

(Attach separate sheets as necessary)

NATURAL RESOURCE MANAGEMENT CORPORATION

Well Operator

By: Paul J. Shuleski  
Date: Paul J. Shuleski, Regional Geology Manager  
November 13, 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 coal, encountered in the drilling of a well."

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1) Date: August 24, 1987  
2) Operator's Well No. Western Pocahontas #22  
3) API Well No. 47 State 081 County 0801 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  B (If "Gas", Production  Underground storage  Deep  Shallow
- 5) LOCATION: Elevation: 2495' gr Watershed: Hazy Creek of Marsh Fork 546  
District: Marsh Fork 2 County: Raleigh 081 Quadrangle: Pilot Knob 7-1/2
- 6) WELL OPERATOR Natural Resource CODE: 34550 7) DESIGNATED AGENT Dave Cash  
Address: Management Corp., 681 Andersen Dr., Foster Plaza VI, Pittsburgh, PA 15220  
Address: Natural Resource Management Corp., 312 Sixth Avenue, Charleston WV
- 8) OIL & GAS INSPECTOR TO BE NOTIFIED 1049 9) DRILLING CONTRACTOR: 25303  
Name Rodney G. Dillon Name Unknown at this time  
Address P. O. Box 1526 Address  
Sophia, WV 25921
- 10) PROPOSED WELL WORK: Drill  / Drill deeper  / Redrill  / Stimulate   
Plug off old formation  / Perforate new formation   
Other physical change in well (specify) \_\_\_\_\_

- 11) GEOLOGICAL TARGET FORMATION, Weir 387
- 12) Estimated depth of completed well, 4110 feet
- 13) Approximate trata depths: Fresh, 1313, 100, 725 feet; salt, None feet.
- 14) Approximate coal seam depths: 210', 320', 355', Is coal being mined in the area? Yes  / No
- 15) CASING AND TUBING PROGRAM 520', 860', 900', 955', 1110' FROM RA 421, 447, 200-1320, 1324, 1326

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		48	X		30	30		Kinds
Fresh water						1350	1350		
Coal	9-5/8		32.3	X		<del>1200</del>	<del>1200</del>	CTS by	38 CSR 18-11.72 + 11
Intermediate	7		20	X		2600	2600	100 SKS	op by 38 CSR 18-11.1
Production	4-1/2		10.5	X		4110	4110	as required	Depth 38 CSR 18-11.1
Tubing									
Liners									Perforations: Top Bottom

OFFICE USE ONLY  
DRILLING PERMIT

Permit number 47-081-0801 Date September 30, 1987

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 September 30, 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"/>	Fee: 230 1362	Other: <input type="checkbox"/>
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NOTE: Keep one copy of this permit posted at the drilling location.

Director, Division of Oil and Gas File

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

