

FILE NO. \_\_\_\_\_  
 DRAWING NO. \_\_\_\_\_  
 SCALE 1" = 400'  
 MINIMUM DEGREE OF ACCURACY 1/200  
 PROVEN SOURCE OF ELEVATION BM 779 on RR

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 MINES

(SIGNED) Jerome Apt. Jr.  
 R.P.E. 7723 L.L.S. \_\_\_\_\_

PLACE SEAL HERE

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS  
 FORM IV-6 (8-78)



DATE Nov 22, 19 82  
 OPERATOR'S WELL NO. EPI 2  
 API WELL NO. 47 - 085 - 5979 DD  
 STATE COUNTY PERMIT

STATE OF WEST VIRGINIA  
 DEPARTMENT OF MINES  
 OIL AND GAS DIVISION

Revised Depth

WELL TYPE: OIL  GAS  LIQUID INJECTION \_\_\_ WASTE DISPOSAL \_\_\_  
 (IF "GAS,") PRODUCTION  STORAGE \_\_\_ DEEP  SHALLOW \_\_\_  
 LOCATION: ELEVATION 852.2' WATER SHED Hushers Run  
 DISTRICT Clay COUNTY Ritchie  
 QUADRANGLE Ellenboro 3317.5' St Mary's 15' - SE 9  
 SURFACE OWNER George Murphy ACREAGE 79.6  
 OIL & GAS ROYALTY OWNER Same LEASE ACREAGE \_\_\_\_\_  
 LEASE NO. \_\_\_\_\_  
 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 ORISKANY ESTIMATED DEPTH 6200'  
 WELL OPERATOR HIGHLAND RESOURCES DESIGNATED AGENT STEVEN LANDVOIGHT  
 ADDRESS BOX 56 382 ADDRESS SAME  
 ELLENBORO WV. DEEP WELL

R.I. - 5979 DD

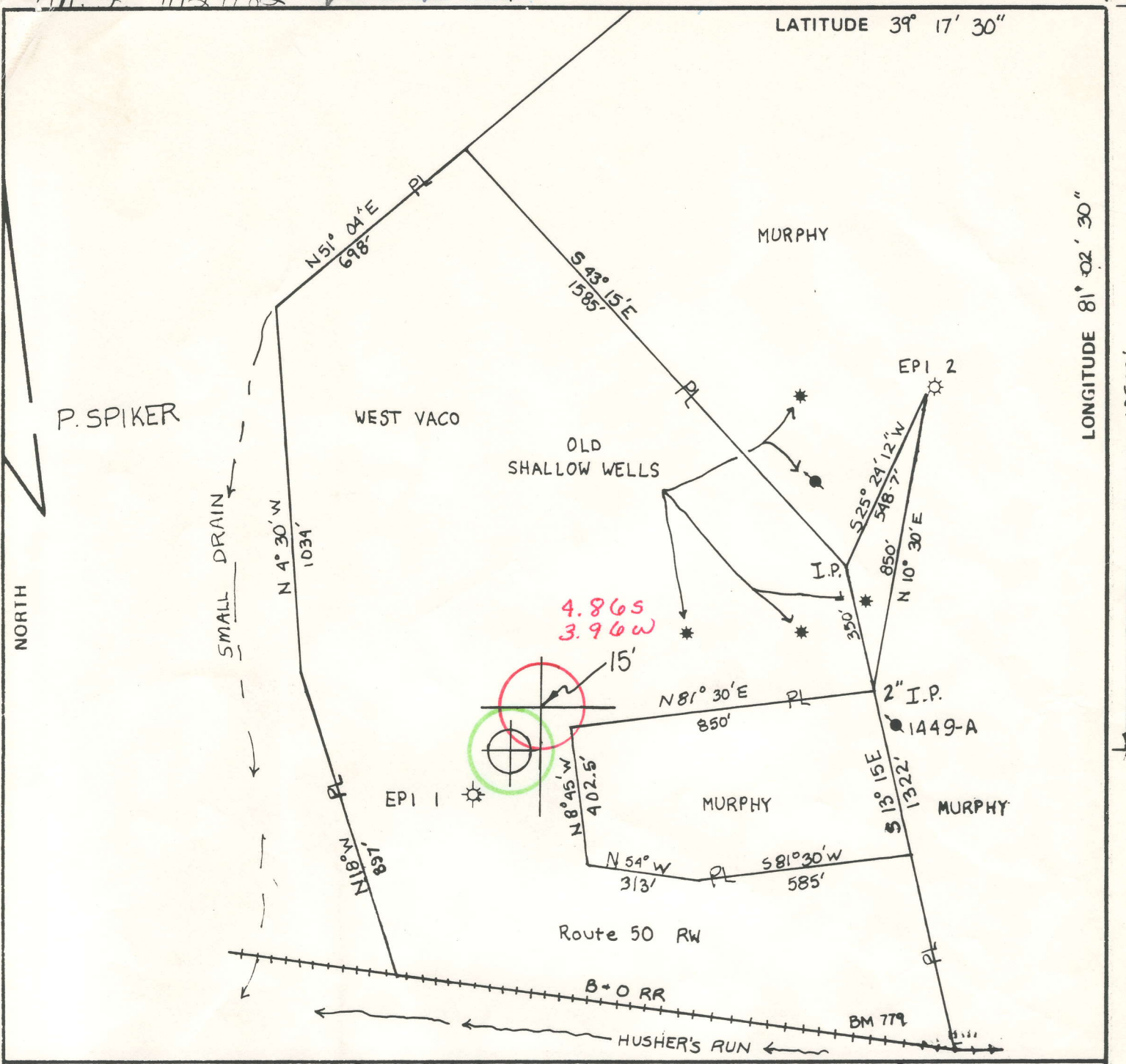
M. F. 1129/82

Plot  Card  CSD

8375'

LATITUDE 39° 17' 30"

LONGITUDE 81° 02' 30"



FILE NO. \_\_\_\_\_  
 DRAWING NO. \_\_\_\_\_  
 SCALE 1" = 400'  
 MINIMUM DEGREE OF ACCURACY 1/200  
 PROVEN SOURCE OF ELEVATION BM 779 on RR

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 MINES.

(SIGNED) Jerome Apt. Jr.  
 R.P.E. 7723 L.L.S. \_\_\_\_\_

7723

PLACE SEAL HERE

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS  
 FORM IV-6 (8-78)



DATE Nov 22, 19 82  
 OPERATOR'S WELL NO. EPI 2  
 API WELL NO. 47 - 085 - 5979 DD  
 STATE COUNTY PERMIT

STATE OF WEST VIRGINIA  
 DEPARTMENT OF MINES  
 OIL AND GAS DIVISION

Revised Depth

WELL TYPE: OIL  GAS  LIQUID INJECTION \_\_\_\_\_ WASTE DISPOSAL \_\_\_\_\_  
 (IF "GAS,") PRODUCTION  STORAGE \_\_\_\_\_ DEEP  SHALLOW \_\_\_\_\_  
 LOCATION: ELEVATION 852.2' WATER SHED Hushers Run  
 DISTRICT Clay COUNTY Ritchie  
 QUADRANGLE Ellenboro 7.5' St. Mary's 15' SE  
 SURFACE OWNER George Murphy ACREAGE 79.6  
 OIL & GAS ROYALTY OWNER Same LEASE ACREAGE \_\_\_\_\_  
 LEASE NO. \_\_\_\_\_  
 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 ORISKANY ESTIMATED DEPTH 6200'  
 WELL OPERATOR HIGHLAND RESOURCES DESIGNATED AGENT STEVEN LANDVOIGHT  
 ADDRESS BOX 56 ADDRESS SAME  
 ELLENBORO WV.

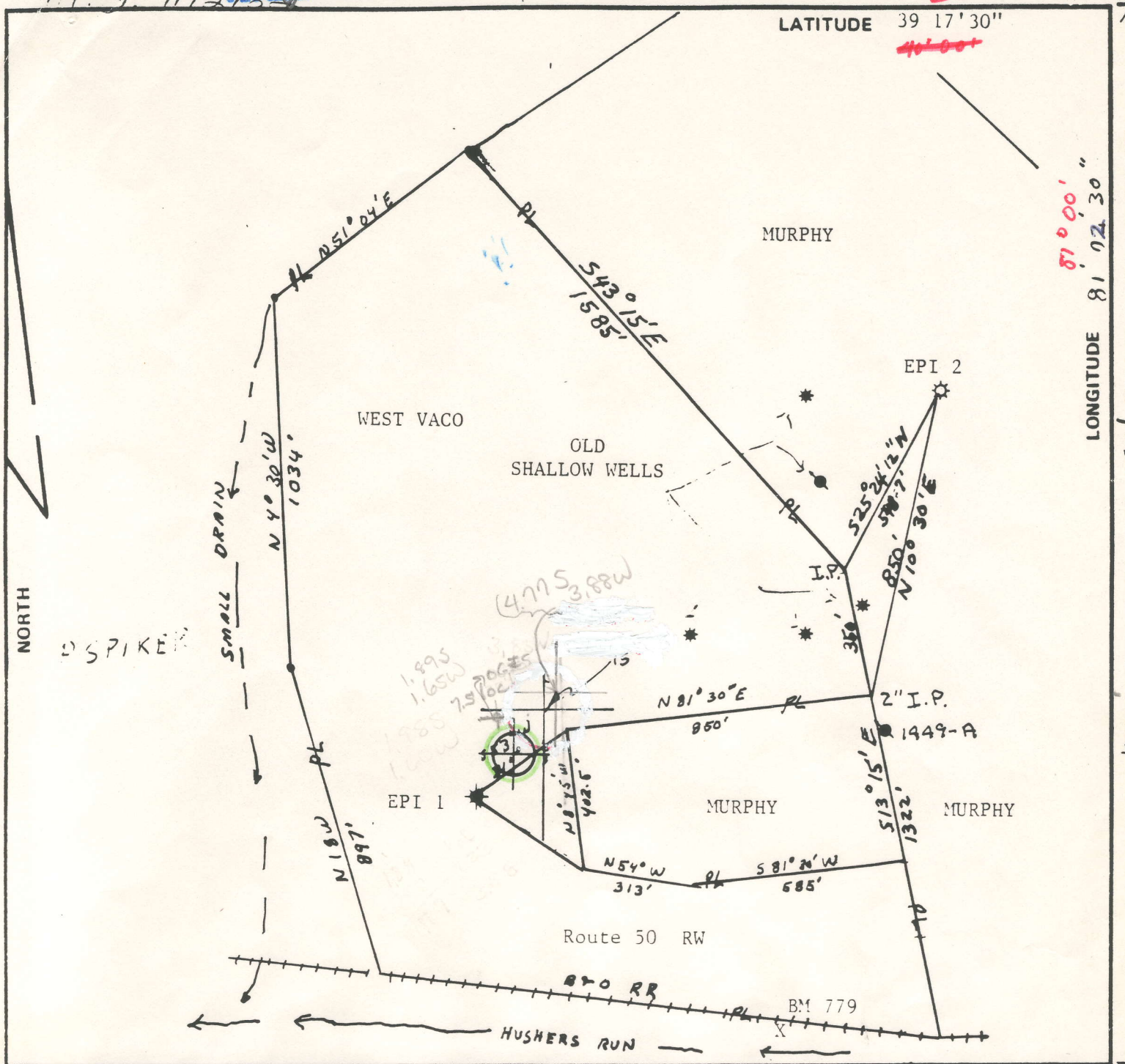
DEC 6 1982

deep well

11/2/82 Plat Card CSD

LATITUDE 39 17' 30"

LONGITUDE 81 02' 30"



FILE NO. \_\_\_\_\_  
 DRAWING NO. \_\_\_\_\_  
 SCALE 1" = 400'  
 MINIMUM DEGREE OF ACCURACY 1/200  
 PROVEN SOURCE OF ELEVATION BM 779 on RR

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 MINES.  
 (SIGNED) \_\_\_\_\_  
 R.P.E. 7223 L.L.S. \_\_\_\_\_

PLACE SEAL HERE

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS  
 FORM IV-6 (8-78)



DATE OCTOBER 26, 1982  
 OPERATOR'S WELL NO. EPI 2  
 API WELL NO. \_\_\_\_\_  
 47 - 085 - 5979  
 STATE COUNTY PERMIT

STATE OF WEST VIRGINIA  
 DEPARTMENT OF MINES  
 OIL AND GAS DIVISION

WELL TYPE: OIL  GAS \_\_\_\_\_ LIQUID INJECTION \_\_\_\_\_ WASTE DISPOSAL \_\_\_\_\_  
 (IF "GAS,") PRODUCTION \_\_\_\_\_ STORAGE \_\_\_\_\_ DEEP \_\_\_\_\_ SHALLOW \_\_\_\_\_  
 LOCATION: ELEVATION 852.2 WATER SHED HUSHERS RUN  
 DISTRICT CLAY COUNTY RITCHIE  
 QUADRANGLE ELLENBORO 7.5 ST. MARY'S 15' SE  
 SURFACE OWNER GEORGE MURPHY ACREAGE 79.6  
 OIL & GAS ROYALTY OWNER GEORGE MURPHY LEASE ACREAGE 79.6  
 LEASE NO. \_\_\_\_\_  
 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 5990'  
 WELL OPERATOR HIGHLAND RESOURCES DESIGNATED AGENT STEVEN LANDVOICHT  
 ADDRESS BOX 56 ELLENBORO WV ADDRESS SAME  
 6-6 Bonds Creek (83)  
 NOV 8 1982



IV-35  
(Rev 8-81)

**RECEIVED**  
OCT 27 1987

State of West Virginia  
Department of Mines  
Oil and Gas Division

Date July 6, 1987  
Operator's  
Well No. #2 - EPI  
Farm G. MORPHY  
API No. 47 - 085 - 5979

DIVISION OF OIL & GAS  
DEPARTMENT OF ENERGY

WELL OPERATOR'S REPORT  
OF

DRILLING, FRACTURING AND/OR STIMULATING, OR PHYSICAL CHANGE

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

LOCATION: Elevation: 852.5 Watershed CLAY'S RUN  
District: CLAY County RITCHIE Quadrangle ELLENBORO 7.5

COMPANY HIGHLAND RESOURCES, INC.

ADDRESS P.O. Box 56 ELLENBORO, WV

DESIGNATED AGENT T. STEPHEN LANDWEIGT

ADDRESS SAME

SURFACE OWNER GEORGE P. MORPHY

ADDRESS ELLENBORO, WV

MINERAL RIGHTS OWNER SAME

ADDRESS   

OIL AND GAS INSPECTOR FOR THIS WORK   

ADDRESS   

PERMIT ISSUED 11-87

DRILLING COMMENCED 12-87

DRILLING COMPLETED 1-12-83

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

Casing & Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft.
Size 20-16 Cond.			
13-10"	350	350	TO SURF
9 5/8			
8 5/8	2100	2100	450 SKS
7			
5 1/2			
4 1/2	6050	6050	2 SPACE TO 2200'
3			
2	4850	4850	
Liners used			

GEOLOGICAL TARGET FORMATION OLETANCKY LIMESTONE Depth 6095 feet

Depth of completed well 6095 feet Rotary XX / Cable Tools   

Water strata depth: Fresh 250 feet; Salt    feet

Coal seam depths:    Is coal being mined in the area? No

OPEN FLOW DATA

Producing formation SHANDLER, BALTOON Pay zone depth 4994 - 2694 feet

Gas: Initial open flow 71 Mcf/d Oil: Initial open flow 26 Bbl/d

Final open flow 67 Mcf/d Final open flow 22 Bbl/d

Time of open flow between initial and final tests 60 hours DAYS

Static rock pressure 1500 psig (surface measurement) after 72 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

NOV 2 1987

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

4994 TO 4230' 395,000 SCF NITROGEN, 13.25 TON CO<sub>2</sub>  
 4230 TO 3610' 425,000 SCF NITROGEN, 20 TON CO<sub>2</sub>  
 UPD. 3610 TO 2694' 455,000 SCF NITROGEN, 27 TON CO<sub>2</sub>  
 87 HOLES .39 ENTRY

WELL LOG

FORMATION	COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fresh and salt water, coal, oil and gas
SAND			200	230	FRESH WATER
SHALE SILTSTONE			230	1350	
SALT SAND			1350	1380	
SHALE			1380	1600	
2ND SALT SAND			1600	1620	
3RD SALT SAND			1710	1770	
JACKSON SAND			1870	1960	SHOW OIL/GAS
WELL			2010	2060	
5TH SAND			2040	2660	
UPPER SPEECHLEY			3300	3350	SHOW OIL/GAS
LOWER SPEECHLEY			3420	3490	
1ST BULLOCK			3970	3990	SHOW O/G
2ND BULLOCK			4100	4150	
BENSON			4600	4620	
ELK			5250	5375	
MARCELLUS			5820	5990	SHOW O/G
T.O. ON ON @ TO (in database)			6095		
Elog sheet from 867' KB					
404	2437				
822	4690				
825	4916				
830	5202				
834	5701				
837	5842				
843	5878				
844	5946				
854	5972				
455	5978				
461	6010				

RECEIVED  
OCT 27 1987

DIVISION OF OIL & GAS  
DEPARTMENT OF ENERGY

(Attach separate sheets as necessary)

Well Operator  
 By: Walter J. [Signature], President  
 Date: 12/9/87

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."  
 3430



1) Date: Nov 22, 1982, 19\_\_  
 2) Operator's Well No. EPI-10022 2  
 3) API Well No. 47 -085-5979 DD  
 State \_\_\_\_\_ County \_\_\_\_\_ Permit \_\_\_\_\_

DRILLING CONTRACTOR: \_\_\_\_\_

STATE OF WEST VIRGINIA  
DEPARTMENT OF MINES, OIL AND GAS DIVISION

OIL AND GAS WELL PERMIT APPLICATION

- 4) WELL TYPE: A Oil X / Gas X /  
 B (If "Gas", Production X / Underground storage \_\_\_\_\_ / Deep X / Shallow \_\_\_\_\_)
- 5) LOCATION: Elevation: \_\_\_\_\_ Watershed: Bushers Run  
 District: CLAY County: Ritchie Quadrangle: Ellensboro 75
- 6) WELL OPERATOR Highland Resources 11) DESIGNATED AGENT Stovan Landvoigt  
 Address Box 36 Address SAME  
Ellensboro, WV.
- 7) OIL & GAS ROYALTY OWNER George Murphey 12) COAL OPERATOR N/A  
 Address Ellensboro, WV. Address \_\_\_\_\_
- 8) SURFACE OWNER Same 13) COAL OWNER(S) WITH DECLARATION ON RECORD:  
 Name \_\_\_\_\_ Address \_\_\_\_\_  
 Name \_\_\_\_\_ Address \_\_\_\_\_
- 9) FIELD SALE (IF MADE) TO:  
 Address \_\_\_\_\_
- 10) OIL & GAS INSPECTOR TO BE NOTIFIED  
 Name Samual N. Hershman Address \_\_\_\_\_  
Box 66 13043 477-3597  
Smithville, WV., 26178
- 15) PROPOSED WORK: Drill \_\_\_\_\_ / Drill deeper X / Redrill \_\_\_\_\_ / Fracture or stimulate \_\_\_\_\_  
 Plug off old formation \_\_\_\_\_ / Perforate new formation \_\_\_\_\_  
 Other physical change in well (specify) \_\_\_\_\_
- 16) GEOLOGICAL TARGET FORMATION, Oriskany
- 17) Estimated depth of completed well, 6200' feet
- 18) Approximate water strata depths: Fresh, 200' feet; salt, 1800' feet.
- 19) Approximate coal seam depths: N/A Is coal being mined in the area? Yes \_\_\_\_\_ / No X

RECEIVED  
NOV 29 1982  
OIL & GAS DIVISION  
DEPT. OF MINES

20) 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	10"					200'	200'		Kinds	
Fresh water										
Coal									Sizes	
Intermediate	8"		24#	X		1900'	1900'			
Production	4 1/2"		10.5#	X		6200'	6200'		Depths set	
Tubing									Perforations:	
Liners									Top	Bottom

21) EXTRACTION RIGHTS

Check and provide one of the following:  
 Included is the lease or leases or other continuing contract or contracts by which I hold the right to extract oil or gas.  
 The requirement of Code 22-4-1-(c) (1) through (4). (See reverse side for specifics.)

22) ROYALTY PROVISIONS

Is the right to extract, produce or market the oil or gas based upon a lease or other continuing contract or contracts providing for flat well royalty or any similar provision for compensation to the owner of the oil or gas in place which is not inherently related to the volume of oil or gas so extracted, produced or marketed? Yes  No

If the answer above is No, nothing additional is needed. If the answer is Yes, you may use Affidavit Form IV-60.

23) Required Copies (See reverse side.)

24) Copies of this Permit Application and the enclosed plat and reclamation plan have been mailed by registered mail or delivered by hand to the above named coal operator, coal owner(s), and coal lessee on or before the day of the mailing or delivery of this Permit Application to the Department of Mines at Charleston, West Virginia.

Notary: Larry C. Baumgardner  
 My Commission Expires Oct. 13, 1992

Signed: \_\_\_\_\_  
 Its: \_\_\_\_\_

OFFICE USE ONLY  
DRILLING PERMIT

Permit number \_\_\_\_\_

19

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. 10) 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.)

Permit expires August 3, 1983 unless drilling is commenced prior to that date and prosecuted with due diligence.

Bond:	Agent:	Plat:	Casing	Fee

Administrator, Office of Oil and Gas

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



1) Date: OCTOBER 26, 1982  
 2) Operator's Well No. EPI 2  
 3) API Well No. 47 085 5979  
 State County Permit

DRILLING CONTRACTOR:

STATE OF WEST VIRGINIA  
DEPARTMENT OF MINES, OIL AND GAS DIVISION

OIL AND GAS WELL PERMIT APPLICATION

- 4) WELL TYPE: A Oil X / Gas \_\_\_\_\_  
 B (If "Gas", Production \_\_\_\_\_ / Underground storage \_\_\_\_\_ / Deep \_\_\_\_\_ / Shallow \_\_\_\_\_)
- 5) LOCATION: Elevation: 852.2 Watershed: LITTLE KANAWHA  
 District: CLAY County: RITCHIE Quadrangle: ELLENBORO 7.5
- 6) WELL OPERATOR HIGHLAND RESOURCES 11) DESIGNATED AGENT STEVEN LANDVOIGHT  
 Address BOX 56 ELLENBORO WV 26346 Address (SAME)
- 7) OIL & GAS ROYALTY OWNER GEORGE MURPHY 12) COAL OPERATOR N/A  
 Address ELLENBORO WV (SAME) Address \_\_\_\_\_
- 8) SURFACE OWNER GEORGE MURPHY 13) COAL OWNER(S) WITH DECLARATION ON RECORD:  
 Address (SAME) Name \_\_\_\_\_  
 Acreage 80 Address \_\_\_\_\_  
 \* 80 Name \_\_\_\_\_
- 9) FIELD SALE (IF MADE) TO: Address \_\_\_\_\_
- 10) OIL & GAS INSPECTOR TO BE NOTIFIED 14) COAL LESSEE WITH DECLARATION ON RECORD:  
 Name SAMUAL N. HERSHMAN Name \_\_\_\_\_  
 Address PO BOX 46 Address \_\_\_\_\_  
SMITH FIELDS WV 26178
- 15) PROPOSED WORK: Drill X / Drill deeper \_\_\_\_\_ / Redrill \_\_\_\_\_ / Fracture or stimulate \_\_\_\_\_  
 Plug off old formation \_\_\_\_\_ / Perforate new formation \_\_\_\_\_  
 Other physical change in well (specify) \_\_\_\_\_
- 16) GEOLOGICAL TARGET FORMATION, MARCELLUS
- 17) Estimated depth of completed well, 5990 feet
- 18) Approximate water strata depths: Fresh, 1500 feet; salt, 1700 feet.
- 19) Approximate coal seam depths: NONE Is coal being mined in the area? Yes \_\_\_\_\_ / No \_\_\_\_\_

20) 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	<u>10</u>					<u>200</u>	<u>200</u>		Kinds
Fresh water									
Coal									Sizes
Intermediate	<u>8 5/8</u>		<u>24</u>	<u>x</u>		<u>1900</u>	<u>1900</u>	<u>200</u>	
Production	<u>4.5</u>		<u>10.5</u>	<u>x</u>		<u>5990</u>	<u>5990</u>	<u>200</u>	Depths set
Tubing									
Liners									Perforations: Top Bottom

21) EXTRACTION RIGHTS

Check and provide one of the following:

- Included is the lease or leases or other continuing contract or contracts by which I hold the right to extract oil or gas.  
 The requirement of Code 22-4-1-(c) (1) through (4). (See reverse side for specifics.)

22) ROYALTY PROVISIONS

Is the right to extract, produce or market the oil or gas based upon a lease or other continuing contract or contracts providing for flat well royalty or any similar provision for compensation to the owner of the oil or gas in place which is not inherently related to the volume of oil or gas so extracted, produced or marketed? Yes  No

If the answer above is No, nothing additional is needed. If the answer is Yes, you may use Affidavit Form IV-60.

23) Required Copies (See reverse side.)

24) Copies of this Permit Application and the enclosed plat and reclamation plan have been mailed by registered mail or delivered by hand to the above named coal operator, coal owner(s), and coal lessee on or before the day of the mailing or delivery of this Permit Application to the Department of Mines at Charleston, West Virginia.

Notary: JOHN G. HEMPEL  
 My Commission Expires OCTOBER 5 1992

Signed: \_\_\_\_\_  
 Its: \_\_\_\_\_

OFFICE USE ONLY

DRILLING PERMIT

Permit number 47-085-5979

November 3

19

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. 10) 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.)

Permit expires July 3, 1983 unless drilling is commenced prior to that date and prosecuted with due diligence.

Bond:	Agent:	Plat:	Casing	Fee

Reg. Bennett  
 Administrator, Office of Oil and Gas

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