

Janice
11/5/93

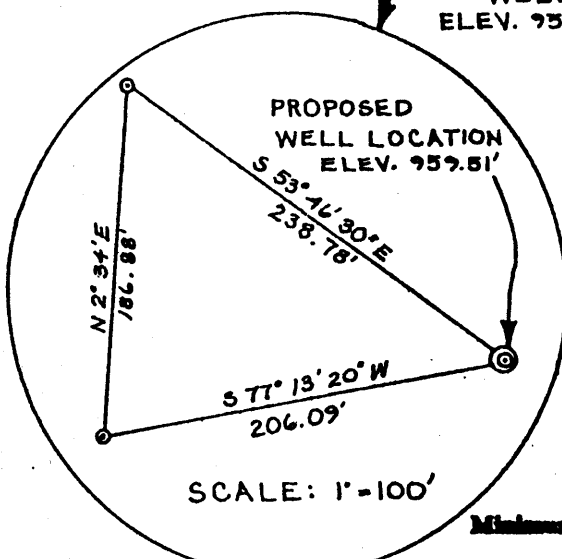
4500'

LATITUDE 39° 42' 30"

LONGITUDE 79° 57' 30"

14600'

Property line Survey prepared by:
 Monongahela Valley Engineering Company, Inc
 Morgantown, W.VA.
 By Wilbur G. Strickler, Chief Draftsman
 W.VA. R.P.E. 1508
 Approved by Marion F. Dunbar, Chief Engineer
 W.VA. R.P.E. 1669



SCALE: 1" = 100'

Topo. Loc. \nearrow 2.75 S
 0.83 W
 2.80
 0.84

1 in 77,000

Minimum Error of Closure
 Source of Elevation USBM BM-K, Elev. = 967.96 (shown on plat)

Referenced to Mgmt. city BM at SE corner of Collins Ferry Rd. & Meridian St.

I, the undersigned, hereby certify that this map is correct to the best of my knowledge and belief and shows all the information required by paragraph 5 of the rules and regulations of the oil and gas section of the mining laws of West Virginia.

Fracture..... 5.68
 New Location..... 3.06
 Drill Deeper.....
 Abandonment.....

Signed: *L. Zane Shuck, P.E. 4596*
 Squares: N S E W

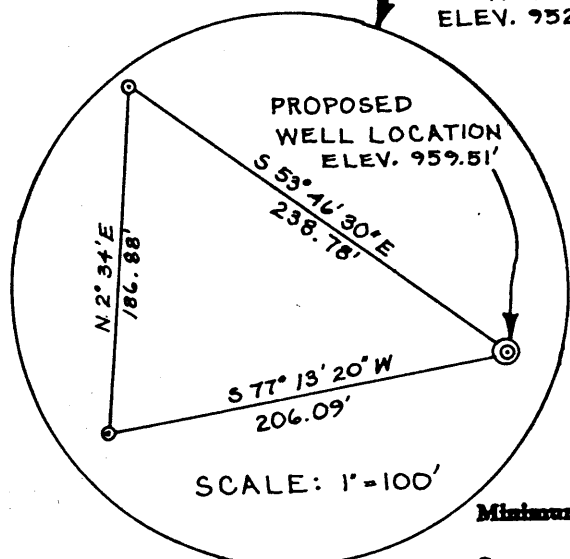
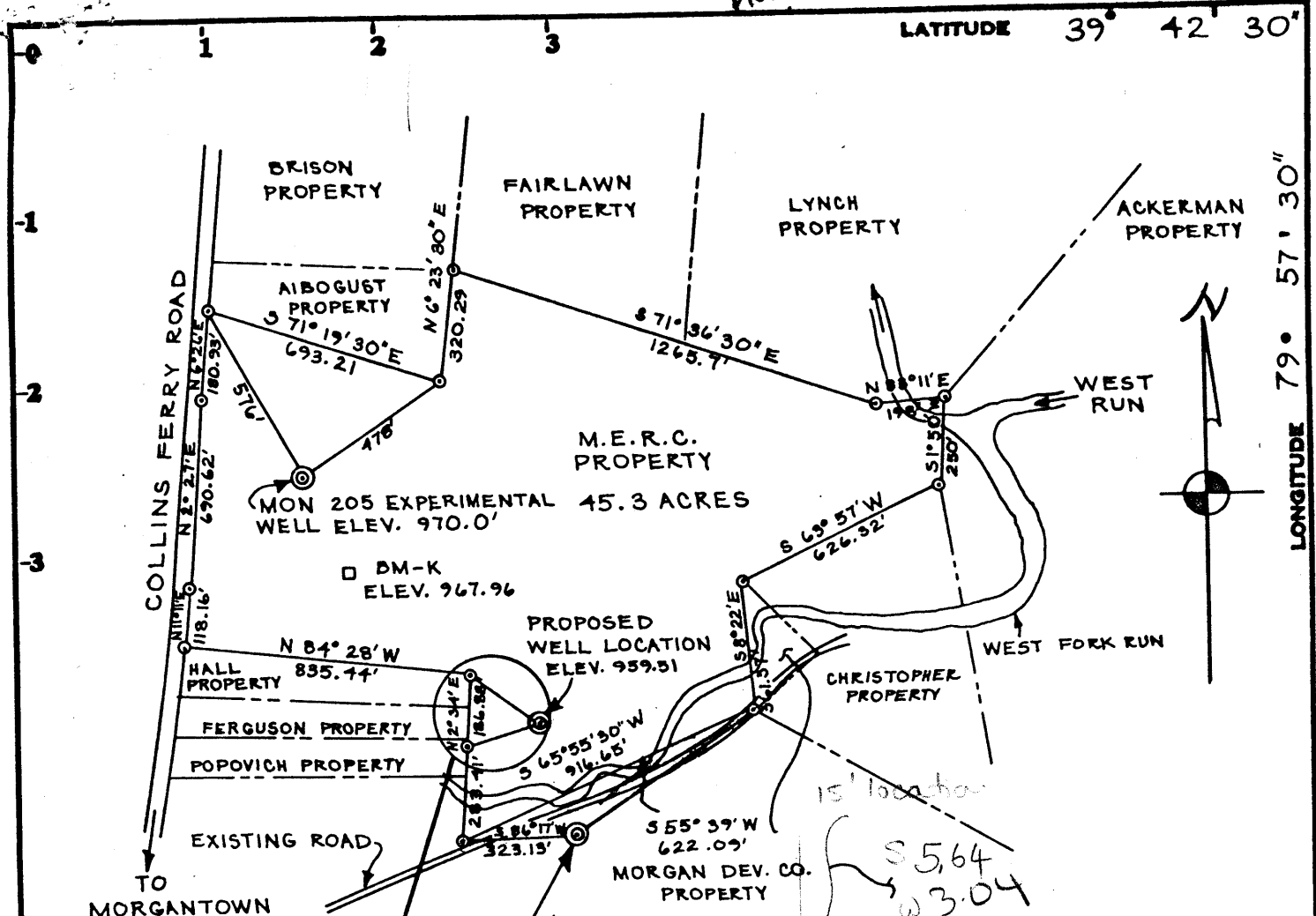
Company U. S. ERDA - MERC 891
 Address P. O. Box 880, Morgantown, WV 26505
 Farm Morgantown Energy Research Center (MERC)
 Tract N.A. Acres 45.275 Lease No. N.A.
 Well (Farm) No. 1 Serial No. N.A.
 Elevation (Spirit Level) 959.51 ft.
 Quadrangle Morgantown North NW
 County Monongalia District Morgan
 Surveyor L. Zane Shuck
 Surveyor's Registration No. WV R.P.E. No. 4596
 File No. N.A. Drawing No. N.A.
 Date 6/22/77 Scale 1" = 500'

STATE OF WEST VIRGINIA
 Division of Environmental Protection
 Office of Oil & Gas
 Nitro
WELL LOCATION MAP
AP Well No. 47-061-00370-7
Permanent Partial Plug Back
 + Denotes location of well on United States Topographic Maps, scale 1 to 24,000, latitude and longitude lines being represented by border lines as shown.
 - Denotes one inch spaces on border line of original tracing.

Plot V

LATITUDE 39° 42' 30"

LONGITUDE 79° 57' 30"



Property line Survey prepared by:
 Monongaheta Valley Engineering Company, Inc
 Morgantown, W.VA.
 By Wilbur G. Strickler, Chief Draftsman
 W.VA. R.P.E. 1508
 Approved by Marion F. Dunbar, Chief Engineer
 W.VA. R.P.E. 1669

Topo. Loc.  2755
 7 1/2' Series 08310

1 in 77,000

Minimum Error of Closure _____

Source of Elevation USBM BM-K, Elev. = 967.96 (shown on plat)

Referenced to Mgtn. city BM at SE corner of Collins Ferry Rd. & Meridian St.

I, the undersigned, hereby certify that this map is correct to the best of my knowledge and belief and shows all the information required by paragraph 6 of the rules and regulations of the oil and gas section of the mining laws of West Virginia.

- Fracture.....
- New Location
- Drill Deeper.....
- Abandonment.....

Signed: L. Zane Shuck, P.E. 4596
 Squares: N S E W

Map No. _____

Company	U. S. ERDA - MERC
Address	P. O. Box 880, Morgantown, WV 26505
Farm	Morgantown Energy Research Center (MERC)
Tract	N.A. Acres 45.275 Lease No. N.A.
Well (Farm) No.	1 Serial No. N.A.
Elevation (Spirit Level)	959.51 ft.
Quadrangle	Morgantown North Morgantown NW
County	Monongalia District Morgan
Surveyor	L. Zane Shuck
Surveyor's Registration No.	WV R.P.E. No. 4596
File No.	N.A. Drawing No. N.A.
Date	6/22/77 Scale 1" = 500'

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

WELL LOCATION MAP

FILE NO. MON-370

+ Denotes location of well on United States Topographic Maps, scale 1 to 24,000, latitude and longitude lines being represented by border lines as shown.

-- Denotes one inch spaces on border line of original tracing. 47-061

3-0 WESTOVER (4-5-82) no lines 11/2/81 69



FEB - 7 1980

top of cement
5250'
cut at 5200'
fill to 5200'
gels. 500'

STATE OF WEST VIRGINIA
OIL & GAS DIVISION
DEPARTMENT OF MINES
OIL AND GAS WELLS DIVISION

- Rotary
- Spudder
- Cable Tools
- Storage

Quadrangle MORGANTOWN NORTH

Permit No. API(061-0370)

WELL RECORD

Oil or Gas Well GAS TEST
(KIND)

Company US DEPT. OF ENERGY
Address BOX 880 MORGANTOWN WV
Farm MORGANTOWN EN. TEC. CTR Acres 45.275
Location (waters) MONONGAHELA RIVER - WEST RUN
Well No. 1 Elev. 959.51
District MORGAN County MONONGALIA
The surface of tract is owned in fee by US DOE
Address BOX 880 MORGANTOWN WV
Mineral rights are owned by US DOE
Address SAME

Drilling commenced 3/16/78
Drilling completed 4/22/78
Date Shot From To
With

Open Flow 0 /10ths Water in InCh
/10ths Merc. in InCh
Volume 0 Cu. Ft.
Rock Pressure lbs. hrs.
Oil bbls., 1st 24 hrs.
WELL ACIDIZED (DETAILS)

WELL FRACTURED (DETAILS) MARCELLUS TEST (115,000 GAL. CO₂/GEL FRAC) 7320-7490 FT
BURKETT TEST (51,800 GAL. CO₂/GEL FRAC) 7108-7157 FT, HARREL (ACID BREAK - NO TEST)
RESULT AFTER TREATMENT (Initial open Flow or bbls.) MARCELLUS (DRY), BURKETT (13MCFD) ↑
ROCK PRESSURE AFTER TREATMENT NOT MEASURABLE HOURS NA 6910-6990 F
Fresh Water SALT SANDS Feet 724-922 Salt Water NA Feet
Producing Sand NA Depth NA

Casing and Tubing	Used in Drilling	Left in Well	Packers
Size			Kind of Packer
16			
13 <u>3/8</u>	CONDUCTOR	112	
10			Size of
<u>8 9/8</u>	SURFACE PIPE	1203	
6 5/8			Depth set
5 3/16			<u>MARREL (6910)</u>
4 1/2	PRODUCTION PIPE	7520	<u>SHALE (6990)</u>
3			Perf. top <u>7108</u>
2 <u>3/8</u>	TUBING	7100	Perf. bottom <u>7157</u>
Liners Used			Perf. top <u>7320</u>
			Perf. bottom <u>7490</u>

Attach copy of cementing record.
CASING CEMENTED 4 1/2 SIZE 7520 No. Ft. 4/23/78 Date
Amount of cement used (bags) 379 SX
Name of Service Co. DOWELL

COAL WAS ENCOUNTERED AT 443 FEET 60 INCHES
460 FEET ≈ 12 INCHES 598 FEET ≈ 12 INCHES
619 FEET ≈ 24 INCHES 694 FEET ≈ 24 INCHES

Formation	Color	Hard or Soft	Top G.L.	Bottom	Oil, Gas or Water	Depth	Remarks
U. FREEPORT	(AIR DRILLED, MARKER BEDS NOTED)		443	448	COAL		
SALT SAND			724	922	FRESH WTR		V. LOW FLOW
BIG LIME			1136	1238			
BIG INJUN			1238	1328			GAS SHOW
SQAW			1418	1458			GAS SHOW
BEREA			1723	1734			
BANTZ			1788	1728			
GORDON			1988	2028			
H TH SAND			2288	2298			
5TH SAND			2308	2328			GAS SHOW
BAYARD		SHALED	OUT				
WARREN			2688	2798			
SPEECHLEY			3038	3043			
RILEY			4333	4341			GAS SHOW
BENSON			4633	4645			

4-5-82

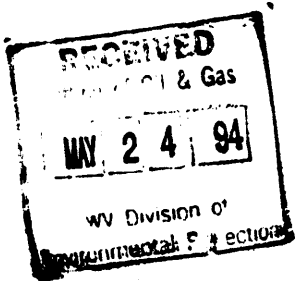
Formation	Color	Hard or Soft	Top Feet	Bottom Feet	Oil, Gas or Water	* Remarks
TULLY LIME			7110	—		
ONONDAGA LIME			7502	—		
<p>7502 1318 <hr/>6174 EXPL FT.</p>						TD-7520'?

Date _____, 19____

APPROVED *Chet* _____, Owner

By _____
(Title)

WR-35



State of West Virginia DEPARTMENT OF ENERGY Oil and Gas Division

Date January 14, 1994 Operator's Well No. MERC #1 Farm Morgantown Energy Tec. Ctr. API No. 47 - 061 - 0370

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: 959.51 Watershed Monongahela River - West Run District: Morgan County Monongalia Quadrangle Morgantown North

COMPANY US DEPT OF ENERGY ADDRESS Box 880 Morgantown WV DESIGNATED AGENT ADDRESS SURFACE OWNER US DOE ADDRESS Box 880 Morgantown WV MINERAL RIGHTS OWNER same ADDRESS same OIL AND GAS INSPECTOR FOR THIS WORK 111 Blackshere Dr Randal Mick ADDRESS Mannington WV 26582

Table with 4 columns: Casing Tubing, Used in Drilling, Left in Well, Cement fill up Cu. ft. Rows include tubing sizes 20-16, 13-10, 9 5/8, 8 5/8, 7, 5 1/2, 4 1/2, 3, 2 and Liners used.

PERMIT ISSUED 10/29/93 WORK COMMENCED 11/29/94 WORK COMPLETED 12/14/94 IF APPLICABLE: PLUGGING OF DRY HOLE ON CONTINUOUS PROGRESSION FROM DRILLING OR REWORKING. VERBAL PERMISSION OBTAINED ON

GEOLOGICAL TARGET FORMATION Bayard Depth 2330 feet Depth of completed well 2416 feet Rotary X / Cable Tools Water strata depth: Fresh 724 feet; Salt --- feet Coal seam depths: 443 - 448 Is coal being mined in the area? no

OPEN FLOW DATA 2330, Producing formation Bayard & Fourth Sand Pay zone depth 2226, 2240 feet Gas: Initial open flow 30 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 measurement) after hours shut in (If applicable due to multiple completion--) 1959, 1801, Second producing formation Gordon Stray, Gantzay zone depth 1831, 1849 feet Gas: Initial open flow 30 Mcf/d Oil: Initial open flow Bbl/d Final open flow 267 Mcf/d Oil: Final open flow Bbl/d Time of open flow between initial and final tests hours Static rock pressure 810 psig (surface measurement) after 72 hours shut in

(Continue on reverse side)

MAY 27 1994

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

Bayard	2341 - 2351	40 shots	308 bbls 75% Quality Foam	21,000# sand
Fourth	2222 - 2228	24 shots		
	2237 - 2243	24 shots	382 bbls 75% Quality Foam	30,000# sand
Gordon Stray				
	1956 - 1962	24 shots	382 bbls 75% Quality Foam	32,500# sand
Gantz	1794 - 1808	56 shots		
	1826 - 1836	40 shots		
	1847 - 1852	24 shots	30,000 scf foamed acid	

WELL LOG

FORMATION	COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS
FROM ORIGINAL WELL RECORD 02/07/80					Including indication of all fresh and salt water, coal, oil and gas

Formation	Color	Hard or Soft	Top	G. L.	Bottom	Oil, Gas or Water	Depth	Remarks
U. FREEPORT	(AIR DRILLED, MARKER BEDS NOTED)		443		448	COAL		
SALT SAND			724		922	FRESH WTR		V. LOW FLOW
BIG LIKE			1136		1238			
BIG INJUN			1238		1328			GAS SHOW
SQAW			1418		1458			GAS SHOW
BEREA			1723		1734			
GANTZ			1788		1728			
GORDON			1988		2028			
4 TH SAND			2288		2298			
5TH SAND			2308		2328			GAS SHOW
BAYARD			SHALED		OUT			
WARREN			2688		2798			
SPEECHLEY	3038		3043					
RILEY	4333		4341			GAS SHOW		
BENSON	4633		4645					

(Attach separate sheets as necessary)

U.S. Department of Energy

Well Operator

By:

Date:

M. J. [Signature]
4/4/84

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."

-56181

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

18195

- 1) Well Operator: U.S. Department of Energy 13400 (6) 484
- 2) Operator's Well Number: MERC-1 3) Elevation: 959.51
- 4) Well type: (a) Oil / or Gas X /
(b) If Gas: Production / Underground Storage /
Deep / Shallow X /
- 5) Proposed Target Formation(s): Alexander, Elk, Benson, Fifth, Fourth, Gordon Stray
Gantz, Weir, Squaw ⁴³⁹
- 6) Proposed Total Depth: 4800' feet
- 7) Approximate fresh water strata depths: 210'
- 8) Approximate salt water depths: 710'
- 9) Approximate coal seam depths: 443', 460', 598', 619', 694'
- 10) Does land contain coal seams tributary to active mine? Yes / No X /
- 11) Proposed Well Work: Partially plug well; cut and pull 4½" csq. from about 5500'.
Log and evaluate proposed target formations;
- 12) Return 4½" csq. to about 4800' and cement to surface. Perforate/stimulate selected formations.

CASING AND TUBING PROGRAM

TYPE	SPECIFICATIONS			FOOTAGE INTERVALS		CEMENT
	Size	Grade	Weight per ft.	For drilling	Left in well	Fill-up (cu. ft.)
Conductor	13 3/8"	H-40	48#		112'	
Fresh Water						
Coal				<i>Existing from wellhead</i>		
Intermediate	9 5/8"	K-55	36#			
Production	4 1/2"	K-55	11.6#		4800'	3905918-11.1
Tubing				<i>Pipe to be pulled & reset & cemented.</i>		
Liners						

(Presently)
PACKERS : Kind Bridge Plug
Sizes 4 1/2"
Depths set 7050'

For Division of Oil and Gas Use Only

Fee(s) paid: Well Work Permit Reclamation Fund WPCP
 Plat WW-9 WW-2B Bond No Bond Required Agent
(Type)

1) Date: 8/19
2) Operator's well number _____
MERC-1
3) API Well No: 47 - 061 - 370 - PP-FRA
State - County - Permit

STATE OF WEST VIRGINIA
DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS

NOTICE AND APPLICATION FOR A WELL WORK PERMIT

4) Surface Owner(s) to be served:
(a) Name U.S. Department of Energy
Address P.O. Box 880
Morgantown, WV 26507-0880
(b) Name _____
Address _____
(c) Name _____
Address _____

5) (a) Coal Operator:
Name _____
Address _____
(b) Coal Owner(s) with Declaration
Name _____
Address _____
Name _____
Address _____

6) Inspector Randal Mick
Address 111 Blackshere Drive
Mannington, WV 26582
Telephone (304)-986-3324

(c) Coal Lessee with Declaration
Name _____
Address _____

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 U.S. Department of Energy
By: [Signature]
Its: Associate Director, Office of Program Support & Evaluation
Address PO Box 880
Morgantown, WV 26507-0880
Telephone (304) 291-4051



OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
SUSAN E. RHODES
c/o U.S. DEPARTMENT OF ENERGY/M.E.T.C.
P. O. BOX 880, MORGANTOWN, WV 26507-0880
My Commission Expires September 5, 2000

Subscribed and sworn before me this 20th day of August, 1993

[Signature] Notary Public
My commission expires 9/5/2000

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

RECEIVED
Office of Oil & Gas
MAY 24 94

AFFIDAVIT OF PLUGGING AND FILLING WELL

AFFIDAVIT SHOULD BE IN TRIPLICATE, one copy mailed to the Division, one copy retained by the Well Operator and the third copy (and extra copies if required) should be mailed to each coal operator at their respective addresses.

Farm name: Morgantown En. Tec. Ctr. Operator Well No.: MERC-1

LOCATION: Elevation: 959.51' Quadrangle: Morgantown
District: County:
Latitude: 14,600 Feet South of 79 Deg. 57Min. 30 Sec.
Longitude 4,500 Feet West of 39 Deg. 42Min. 30 Sec.
Well type: OIL _____ GAS _____ x

Company: U.S. Dept of Energy Coal Operator
Box 880 or Owner
Morgantown WV
Agent: Coal Operator
Inspector: Randall Mick or Owner
Permit Issued:

AFFIDAVIT

STATE OF WEST VIRGINIA,
County of Upshur ss:

Phillip Pulliam and Alvin Sorcan being first duly sworn according to law depose and say that they are experienced in the work of plugging and filling oil and gas wells and were employed by U S Dept. of Energy, well operator, and participated in the work of plugging and filling the above well, that said work was commenced on the 7 day of December, 1993, and that the well was plugged and filled in the following manner:

TYPE	FROM	TO	PIPE REMOVED	LEFT
Bridge plug	6801	6800		
Cement	6800	6700		
6% gel	6700	5480		
Cement	5480	5280	5480	2040

Description of monument: _____

and that the work of plugging and filling said well was completed on the 8 day of December, 19 93.

And furthur deponents saith not.

Phillip Pulliam
Alvin Sorcan
Joyce K. Harlow
Notary Public

Sworn and subscribe before me this 8 day of December, 19 93
My commission expires: 8/4/03

OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
JOYCE K. HARLOW
RT. 5 BOX 65D
BUCKHANNON, WV 26201
My Commission Expires AUG. 4, 2003

Randall Mick
MAY 27 1994



Department of Energy
Morgantown Energy Research Center
P. O. Box 880
Collins Ferry Road
Morgantown, West Virginia 26505

MO9.370

March 10, 1978

Mr. Thomas E. Huzzey, Commissioner,
Oil and Gas Conservation Commission
Charleston, W. Va. 25305

Dear Mr. Huzzey:

Reference is made to your letter of March 9, 1978, in which you stated that you consider various West Virginia statutes and regulations applicable to Morgantown Energy Research Center's well drilling operation. While we wish to cooperate with the state and provide your Commission with relative data, we do not agree with your conclusion regarding the legal applicability of West Virginia statutes and regulations. The Department of Energy is a department of the U. S. Government, and the Morgantown Energy Research Center, located in Morgantown, West Virginia, is an organizational unit of that department. The well drilling operation at Morgantown Energy Research Center represents a governmental activity carried on by the U. S. Government. As such, the activity is not subject to state laws or regulations; we will, however, on the basis of comity, cooperate with you by providing you with such information as you may request concerning the drilling operation. Moreover, we will be happy to arrange for a visit to the site by you or members of your staff.

Please be advised of our intention to drill a deep well on the premises of the Morgantown Energy Research Center commencing on or about Wednesday, March 15, 1978.

Both surface and mineral rights to the property are owned by the United States Government. The Morgantown Energy Research Center (U.S. DOE-MERC) is acting as the well operator. Ray Resources, 630 Commerce Square, Charleston, West Virginia (Tel: 344-8393) is our drilling contractor. The well location is shown on the enclosed map. It is situated on the waters of West Run, a tributary of the Monongahela River.

The well will be completed in the top of the Huntersville Chert at a predicted depth of 8,000 feet. It is an experimental test and technical demonstration well, the primary purpose of which is to obtain stratigraphic information about the Devonian shale and to test its gas producing potential.

Violated 3-16-78.

Drilling w/o Permit

Inadequate Pit.