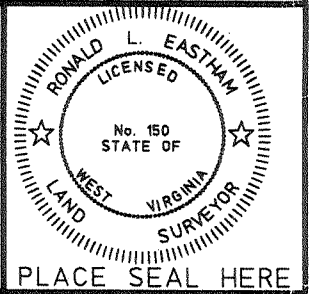


FILE NO. _____
 DRAWING NO. _____
 SCALE 1" = 2000'
 MINIMUM DEGREE OF ACCURACY 1: 346,689
 PROVEN SOURCE OF ELEVATION Buffalo Mining Co. Sta.
1697, Elev. 1210.00

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 THE LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENERGY.
 (SIGNED) Ronald L. Eastham
 R.P.E. _____ L.L.S. 150



STATE OF WEST VIRGINIA
DEPARTMENT OF ENERGY
OIL AND GAS DIVISION

DATE October 22, 19 93
 OPERATOR'S WELL NO. No. 87
 API WELL NO. SN 145601

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

LOCATION: ELEVATION 1780.03 WATER SHED Meredith Branch of Toney Fork of Buffalo Creek of the Guyandotte River
 DISTRICT Triadelphia COUNTY Logan
 QUADRANGLE Lo Prado Bald Knob SW

SURFACE OWNER Pardee Land Company ACREAGE 18,000
 OIL & GAS ROYALTY OWNER Pardee Land Company LEASE ACREAGE 18,000
 LEASE NO. 4107

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 Devonian Shale ESTIMATED DEPTH 6,225' KB

WELL OPERATOR Ashland Exploration, Inc. DESIGNATED AGENT Bobby E. Widener
 ADDRESS P.O. Box 391 ADDRESS P.O. Box 379
Ashland, Ky. 41114 DEEPWELL Brenton, W.V. 24818

FORM WW-6

COUNTY NAME
 PERMIT

State of West Virginia
Division of Environmental Protection
Section of Oil and Gas

Well Operator's Report of Well Work

Farm Name: PARDEE LAND COMPANY Operator Well No.: 87-S-145601

Location: Elevation: 1,780.09 Quadrangle: LORADO

District: TRIADELPHIA County: LOGAN
Latitude: 6150 Feet South of 37 Deg. 50 Min. 0 Sec.
Longitude: 9375 Feet West of 81 Deg. 40 Min. 0 Sec.

Company: ASHLAND EXPLORATION, INC.
P.O. BOX 391, AT-9
ASHLAND, KY 41114-0391

Agent: B. E. Widener

Inspector: OFIE HELMICK
Permit Issued: 02-17-94
Well Work Commenced: 08-27-94
Well Work Completed: 03-22-95
Verbal Plugging _____
Permission granted on: _____
Rotary Cable _____ Rig _____
Total Depth (feet) 6185
Fresh water depths (ft) 45'
Salt water depths (ft) 1176'

Is coal being mined in area (Y/N)? N
Coal Depths (ft): None Reported

Casing & Tubing	Used in Drilling	Left in Well	Cement Fill Up Cu. Ft.
Size 16"	35'	35'	11.8
11 3/4"	538'	538'	317.4
8 5/8"	2226'	2226'	702.8
5 1/2"	6180'	6180'	506.15
1.9"		6001'	
1.9"		3767'	

OPEN FLOW DATA

Producing formation Berea Pay zone depth (ft) 3740-3754
Gas: Initial open flow 479 MCF/d Oil: Initial open flow -- Bbl/d
Final open flow 747 MCF/d Final open flow -- Bbl/d
Time of open flow between initial and final tests 3 Hours
Static Rock Pressure 595 psig (surface pressure) after 72 Hours
4871-5390
Second producing formation L. Dev. Shale/U. Dev. Shale Pay zone depth (ft) 4246-4494
Gas: Initial open flow 803 MCF/d Oil: Initial open flow -- Bbl/d
Final open flow 1255 MCF/d Final open flow -- Bbl/d
Time of open flow between initial and final tests 3 Hours
Static Rock Pressure 865 psig (surface pressure) after 72 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.

For: Ashland Exploration, Inc.

By: Daniel L. VanHoose
Date: _____

JUN 23 1995
Daniel L. VanHoose
06-14-95

<u>Formation on Rock Type</u>	<u>Top</u>	<u>Bottom</u>
Sand and Shale	0	1247
Lee Formation	1247	2124
Pennington Fm.	2124	2832
Avis Lime	2289	2321
Upper Maxton	2374	2416
Middle Maxton	2494	2612
Lower Maxton	2768	2807
Little Lime	2832	2917
Big Lime	2917	3241
Borden	3241	3710
Upper Weir	3344	3379
Lower Weir	3524	3548
Sunbury Shale	3710	3725
Berea	3725	3756
Devonian	3756	6178
U. Shale/Chagrin	3756	4849
Lower Huron	4849	5403
Java	5403	5840
Rhinestreet	5840	6138
Marcellus	6138	6178
Onondaga	6178	6194
TD	6194	

DTD 6185

LTD 6194

Well Treatment

Perf L. Dev. Shale w/3 1/8" jets in SF HCG 1 spf as follows: 5390, 5362, 5346, 5337, 5314, 5299, 5296, 5263, 5229, 5223, 5185, 5124, 5110, 5066, 5046, 5016, 4963, 4926, 4914, 4892, 4881 & 4871, 22H total. Set Arrow RBP @ 5435'. N₂ frac L. Dev. Shale using 853,000 scf N₂ @ 69,600 scf/min. BD 4161, ATP 2850, MTP 4161 & ISIP 2250. Retrieve RBP @ 5435'.

Perf U. Dev. Shale using 3 1/8" jets in SF HCG 1 spf @ 4494, 4489, 4466, 4462, 4434, 4430, 4427, 4415, 4358, 4228, 4188, 4146, 4141, 4124, 4113, 4109, 4095, 4066 & 4064, 19H total. Perf U. Dev. Shale 1 hole @ 4246' for a total of 20 holes. N₂ frac U. Dev. Shale w/853,000 scf N₂ @ 86,500 scf/min, 400 gal 7 1/2% HCl-Fe acid. BD 2600, ATP 2490, MTP 2866 & ISIP 1900.

Perf Berea w/4" HCG .41 jets 9H/3740-3744, 11H/3749-3754, total 20 holes. Dowell pump 500 gals 15% HCl-Fe acid. 65Q Foam Frac Berea using 79,300# 20/40 sand & 198,000 scf N₂ @ 6963 scf/m. BD @ 1217, ATP 1077 @ 20 BPM foam, MTP 1458, ISIP 1336, 15 min 1079, TF 167 Bbl.