

FILE NO. \_\_\_\_\_  
 DRAWING NO. \_\_\_\_\_  
 SCALE 1" = 2000'  
 MINIMUM DEGREE OF ACCURACY 1:25,537  
 PROVEN SOURCE OF ELEVATION U.S.C. & G.S. B.M. "L-162"  
 Elev. = 749.018

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 ENERGY.  
 (SIGNED) Ronald L. East  
 R.P.E. \_\_\_\_\_ L.L.S. 150

PLACE SEAL HERE

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

DATE September 25, 19 91  
 OPERATOR'S WELL NO. McDonald Land Co. A-22  
 API WELL NO. S.N. 136A21

**47 - 045 - 01177**  
 STATE COUNTY PERMIT

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

LOCATION: ELEVATION 1,388.25 WATERSHED Guyandotte River  
 DISTRICT Triadelphia 3 COUNTY Logan  
 QUADRANGLE Mallory Gilbert NC

SURFACE OWNER W.W. McDonald Land Company ACREAGE 2176  
 OIL & GAS ROYALTY OWNER W.W. McDonald Land Company LEASE ACREAGE 8866.505  
 LEASE NO. 80608

PROPOSED WORK: DRILL X CONVERT \_\_\_ DRILL DEEPER \_\_\_ REDRILL \_\_\_ FRACTURE OR STIMULATE X 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 5,688' KB

WELL OPERATOR Ashland Exploration, Inc. DESIGNATED AGENT Forrest Burkett  
 ADDRESS P.O. Box 391 ADDRESS P.O. Box 379  
Ashland, Ky. 41114 43 Brenton, W.V. 24818

FORM WW-6

COUNTY NAME PERMIT

DRSP WELL - 6-6 Man-Oceana (266)

RECEIVED

WV Division of Environmental Protection

APR 02 92

Permitting Office of Oil & Gas

20-Nov-91 API # 47-45-01177

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

Reviewed TMG Recorded

Well Operator's Report of Well Work

Farm name: MCDONALD, W. W. LAND CO.

Operator Well No.: A-22 S-136821

LOCATION: Elevation: 1388.25

Quadrangle: MALLORY

District: TRIADELPHIA Latitude: 150 Feet South of 37 Longitude: 7500 Feet West of 81

County: LOGAN Deg. 42 Min. 30 Sec. Deg. 50 Min. 0 Sec.

Company: ASHLAND EXPLORATION, INC. P. O. BOX 391, A1-6 ASHLAND, KY 41114-0391

Agent: B. E. WIDENER

Inspector: OFIE HELMICK

Permit Issued: 11/25/91 Well work Commenced: 01/28/92 Well work Completed: 03/10/92 Verbal Plugging: Permission granted on: Rotary X Cable Rig Total Depth (feet) 5655' Fresh water depths (ft) None Noted Salt water depths (ft) Damp 1010' Is coal being mined in area (Y/N)? N Coal Depths (ft): 80-84, 310-315

Table with 4 columns: Casing & Tubing, Used in Drilling, Left in Well, Cement Fill Up Cu. Ft. Rows include sizes 16", 11 3/4", 8 5/8", 5 1/2", and 1.9" @ 5023' KB w/ R-4 pkr @ 3570'.

OPEN FLOW DATA

Berea

? 3524-3543

Producing formation Big Lime Pay zone depth (ft) 2480-2923

Gas: Initial open flow 59 MCF/d Oil: Initial open flow -0- Bbl/d

Final open flow 168 MCF/d Final open flow -0- Bbl/d

Time of open flow between initial and final tests 3 Hours

Static rock pressure 165# psig (surface pressure) after 72 Hours

Second producing formation Devonian Shale Pay zone depth (ft) 3855-5019

Gas: Initial open flow 0 MCF/d Oil: Initial open flow -0- Bbl/d

Final open flow 587 MCF/d Final open flow -0- Bbl/d

Time of open flow between initial and final tests 3 Hours

Static rock Pressure 670# psig (surface pressure) after 72 Hours

NOTE: ON BACK OF THIS FORM PUT THE FOLLOWING: 1. DETAILS OF PERFORATED INTERVALS, FRACTURING OF STIMULATING, PHYSICAL CHANGE, ETC. 2.) THE WELL LOG WHICH IS A SYSTEMATIC DETIALED GEOLOGICAL RECORD OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE.

For: ASHLAND EXPLORATION, INC.

APR 10 1992

By: James L. Stephens James L. Stephens, Eng. Tech. Date: 3-25-92

<u>Formation on Rock Type</u>	<u>TOP</u>	<u>BASE</u>
Breathitt formation	0	848
Lee formation	848	1826
Pennington formation	1826	2600
Ravenscliff 2120-2232		
U. Maxton 2327-2406		
L. Maxton 2450-2474		
Little Lime	2600	2668
Big Lime	2668	2932
Borden formation	2932	3492
Sunbury Shale	3492	3518
Berea	3518	3547
Devonian Shale	3547	5636
Onondaga Ls	5636	TD
DTD 5655		
LTD 5658		

11 3/4 and 8 5/8" cmt'd to surface on primary job.

#### Well Treatment

Perf L. Dev. Shale 22H/4603-5019. <sup>180 812</sup> N<sub>2</sub> frac using 500 gal 8% inh fe acid, 1,007,000 scf N<sub>2</sub> @ 97000 scf/min. BD @ 2740#, ATP 3800#, MTP 3850# and ISIP 2040#.

Perf U. Dev. Shale 16H/3855-4191. <sup>05 304</sup> N<sub>2</sub> frac using 500 gal 9% inh fe acid, 1,010,000 scf N<sub>2</sub> @ 96,000 scf/min. BD 4500#, ATP 3650#, ISIP 2500#, MTP 4500#, ISIP 1600#.

Perf Berea 25H/3524-3543. <sup>210</sup> 75 quality foam frac using 10#/1000 gal gel system, 92,600# 20/40 sand, 250 gal fe acid, 411,450 scf N<sub>2</sub> @ 7903 scf/min. BD @ 1569#, MTP 1593#, ATP 1288# @ 20 bpm foam rate, ISIP 1284#.

Perf Big Lime 19H/2480-2923. <sup>2780</sup> Foam acidize using 11,500 gal 28% fe acid, 316,000 scf N<sub>2</sub> @ 71,000 scf/min. BD @ 1405#, ATP 1200# @ 7.2 BPM acid rate, MTP 4300#, ISIP 4300#.

ESFS

NOV 08 1991

DEPT. OF ENERGY

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

045-1177  
Issued 11/25/91  
Expires 11/25/93  
Page 1 of 1

- 1) Well Operator: Ashland Exploration, Inc. 2754 (3) 454  
W.W. McDonald Land Co.
- 2) Operator's Well Number: A-22, Serial #136821 3) Elevation: 1388
- 4) Well type: (a) Oil\_\_\_/ or Gas X/  
(b) If Gas: Production X/ Underground Storage\_\_\_/  
Deep\_\_\_/ Shallow X/
- 5) Proposed Target Formation(s): Devonian Shale <sup>441</sup>
- 6) Proposed Total Depth: 5688 feet @594' @356' @409'
- 7) Approximate fresh water strata depths: 698' KB (Map WV-12)
- 8) Approximate salt water depths: 973' KB (Map WV-12) @1300' @1463' @2325'
- 9) Approximate coal seam depths: No. 2 Gas - Mined Out, Elev. 1348'  
No. 2 Gas - Mined Out, Elev. 1112'  
@655'-658' @1910'-1917'
- 10) Does land contain coal seams tributary to active mine? Yes\_\_\_/ No X/
- 11) Proposed Well Work: Drill and Stimulate New Well
- 12)

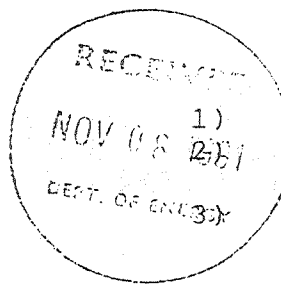
CASING AND TUBING PROGRAM

TYPE	SPECIFICATIONS			FOOTAGE INTERVALS		CEMENT
	Size	Grade	Weight per ft.	For drilling	Left in well	Fill-up (cu.ft.)
Conductor	16	LS	36.91	100	100	CTS
Fresh Water						<u>38 CSR 9-11.3</u> <u>38 CSR 9-11.3</u>
Coal	11 3/4	H40	42.0	346	346	CTS
Intermediate	8 3/8	J55	24.0	2670	2670	CTS
Production	5 1/2	J55	15.5	5688	5688	As Needed
Tubing	1.9	J55	2.76	-	5638	<u>38 CSR 9-11.7</u> Siphon
Liners						

PACKERS : Kind \_\_\_\_\_  
Sizes \_\_\_\_\_  
Depths set \_\_\_\_\_

For Division of Oil and Gas Use Only

Fee(s) paid:  Well Work Permit  Reclamation Fund  WPCP  
 Plat  WW-9  WW-2B  Bond Blanket  Agent  
(Type)



Date: November 7, 1991  
Operator's well number  
W.W. McDonald Land Co. #A-22, Serial #136821  
API Well No: 47 - 045 - 1177  
State - County - Permit

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

- |  |  |
|--|--|
| <p>4) Surface Owner(s) to be served:</p> <p>(a) Name <u>W.W. McDonald Land Co.</u><br/>Address <u>P.O. Box 1706</u><br/><u>Logan, WV 25601</u></p> <p>(b) Name _____<br/>Address _____</p> <p>(c) Name _____<br/>Address _____</p> | <p>5) (a) Coal Operator:</p> <p>Name <u>N/A</u><br/>Address _____</p> <p>(b) Coal Owner(s) with Declaration</p> <p>Name <u>Same as No. 4(a)</u><br/>Address _____</p> <p>Name _____<br/>Address _____</p> <p>(c) Coal Lessee with Declaration</p> <p>Name <u>N/A</u><br/>Address _____</p> |
| <p>6) Inspector <u>Ofie Helmick</u><br/>Address <u>P.O. Box 218</u><br/><u>Sanrock, WV 24834</u><br/>Telephone <u>(304)-732-9135</u></p>   |  |

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

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 2 on the above named parties, by:

\_\_\_\_\_ Personal Service (Affidavit attached)

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 Ashland Exploration, Inc.  
By: W. Mark Parks  
Its: Operations Manager  
Address P.O. Box 391  
Ashland, KY 41114  
Telephone 606-329-5989

Subscribed and sworn before me this 7th day of November, 1991

Debi W. Spota Notary Public  
My commission expires November 23, 1994