

(-|-) DENOTES LOCATION OF WELL ON U.S.G.S. TOPOGRAPHIC MAP

*Jamie 12/3/90*

RAYMOND & SANDRA OLTHAUS

LATITUDE 39°10'00"

LONGITUDE 80°45'00"

2013

PROP. WELL LOWTHER NO. 1

N 24° 44' E 1250.30'

N 31° 13' E 1224.05'

S 63° 36' 15" W 607.20'

S 36° 23' 45" E 148.50'

S 01° 51' 15" W 178.20'

S 13° 53' 45" E 132.00'

S 31° 23' 45" E 363.00'

S 40° 53' 45" E 231.00'

S 46° 53' 45" E 132.00'

N 76° 36' 15" E 16.50'

S 51° 23' 45" E 138.38'

S 51° 23' 45" E 142.12'

N 12° 16' W 2013

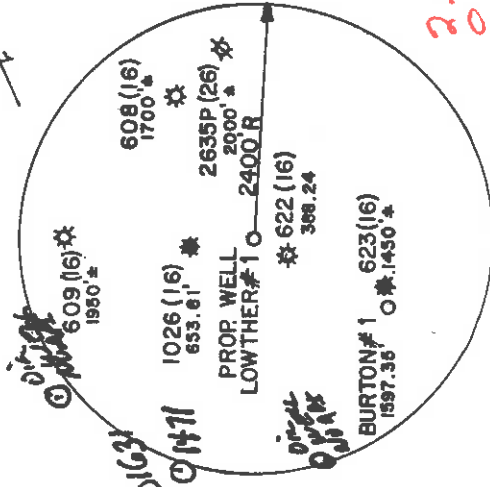
N 79° 50' 51" E 1164.47'

HENRY KREYENBUHL

ALMA JEANNE BURTON

RUSH RUN

± 7.5'



*15 loc* MAGNETIC REFERENC TIES  
*2.445* N 41° 20' 00" W 157.6' TO A ELECT. POLE  
*0.41 W* N 77° 41' 00" W 125.1' TO A ELECT. POLE  
*Hobbrook EC*

MSES consultants, inc.

FILE NO. MSES 90-958

DRAWN BY JSB/VSH

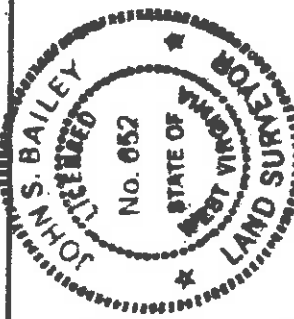
SCALE 1" = 500

MIN. DEGREE OF ACCURACY 1 IN 2500

PROVEN SOURCE OF ELEVATION:

INT. CO. RT. 64 & PRIVATE DRIVE;

ELEV. 959' 1225' S.W. OF LOCATION



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) *[Signature]*  
 R.P.E. L.I.S. 652

STATE OF WEST VIRGINIA  
 DEPARTMENT OF MINES  
 OIL AND GAS DIVISION

DATE NOVEMBER 5, 1990

OPERATOR'S WELL NO. LOWTHER # 1

API WELL NO. 47 - 017 - 3867.

STATE COUNTY PERMIT

WELL TYPE: OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL

IF "GAS", PRODUCTION  STORAGE  DEEP  SHALLOW

LOCATION: ELEVATION 1042.3' WATERSHED RUSH RUN OF LEADING CREEK

DISTRICT COVE COUNTY DODDRIDGE

QUADRANGLE OXFORD, WV 7.5' NEAREST TOWN GROVE

SURFACE OWNER ROBERT L. TATE, SR. & MARY J. TATE ACREAGE 71.75'

OIL & GAS ROYALTY OWNER GEORGE W. LOWTHER HEIRS LEASE ACREAGE 72

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

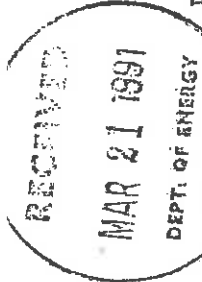
TARGET FORMATION ALEXANDER ESTIMATED DEPTH 5500'

WELL OPERATOR INTERSTATE DRILLING, INC. DESIGNATED AGENT KENNETH L. POTE

ADDRESS ROUTE 3 BOX 89 - V WESTON, WV 26452

*44* DEC 10 1990

*6-6 Conigs (142)*



State of West Virginia  
DEPARTMENT OF ENERGY  
Division of Oil and Gas

Well Operator's Report of Well Work

Farm name: **TATE, ROBERT L SR & MRS** Operator Well No.: **LOWTHER 1**

LOCATION: Elevation: 1042.30 Quadrangle: OXFORD

District: COVE County: DODDRIDGE  
Latitude: 12750 Feet South of 39 Deg. 10Min. 0 Sec.  
Longitude 2175 Feet West of 80 Deg. 45 Min. 0 Sec.

Company: INTERSTATE DRILLING, INC.  
ROUTE 3, BOX 89-V  
WESTON, WV 26452-9620

Agent: KENNETH L. POTE

Inspector: MIKE UNDERWOOD  
Permit Issued: 12/05/90  
Well work Commenced: 01/28/91  
Well work Completed: 02/04/91  
Verbal Plugging  
Permission granted on: \_\_\_\_\_  
Rotary x Cable \_\_\_\_\_ Rig  
Total Depth (feet) 5509'  
Fresh water depths (ft) 31'

Salt water depths (ft) \_\_\_\_\_

Is coal being mined in area (Y/N)? N  
Coal Depths (ft): 90'-92'

OPEN FLOW DATA

Casing & Tubing Size	Used in Drilling	Left in Well	Cement Fill Up Cu. Ft.
11-3/4"	22'		
8-5/8"	1009'	1009'	250 Sacks
4-1/2"		5395.45'	490 Sacks

Producing formation Alexander & Elk pay zone depth (ft) 5054'-5268'  
 Gas: Initial open flow \_\_\_\_\_ MCF/d Oil: Initial open flow \_\_\_\_\_ Bbl/d  
 Final open flow 389 MCF/d Final open flow \_\_\_\_\_ Bbl/d  
 Time of open flow between initial and final tests \_\_\_\_\_ Hours  
 Static rock Pressure 1060 psig (surface pressure) after 4 Hours  
Firth, Warren & Speechley  
Balltown & Bradford  
 Second producing formation Riley & Blenson pay zone depth (ft) 3967'-4568'  
 Gas: Initial open flow \_\_\_\_\_ 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 pressure) after \_\_\_\_\_ Hours

\*Co-mingled with First Stage

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: INTERSTATE DRILLING, INC.

By:   
Date: March 18, 1991

MAR 21 1991

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

1ST STAGE: Perfs: 5054'-5268' w/18 Holes; 6000# 80/100 and 30000# 20/40 Sand; 153 Bbls./SL Fluid; ± 450,000 SCF Nitrogen

2ND STAGE: Perfs: 4704'-4994' w/16 Holes; 6000# 80/100 and 34000# 20/40 Sand; 163 Bbls./SL Fluid; ±550,000 SCF Nitrogen

3RD STAGE: Perfs: 3967'-4568' w/20 Holes; 8400# 80/100 and 35000# 20/40 Sand; 208 Bbls./SL Fluid; ±620,000 SCF Nitrogen

4TH STAGE: Perfs: 3011'-3581' w/17 Holes; 6000# 80/100 and 35000# 20/40 Sand; 204 Bbls./SL Fluid; 400,000 SCF Nitrogen

GEOLOGICAL RECORD OF ALL FORMATIONS

Fill	Brown	Med.	0'	20'	Hit 1/4" Stream H2O @ 31'
Sand&Shale	Gray	Med.	20'	90'	
Coal&Shale	Black	Soft	90'	92'	
Sand&Shale	Gray	Med.	92'	96'	
Sand	Gray	Hard	96'	145'	
RR&Shale	Red/Gray	Med.	145'	163'	
Sand&Shale	Gray	Hard	163'	181'	
RR&Shale	Red/Gray	Med.	181'	234'	
Sand&Shale	Gray	Hard	234'	300'	
Sand	White	Hard	300'	360'	
Sand&Shale	Gray	Med.	360'	453'	
Sand	Gray	Hard	453'	490'	
Sand&Shale	Gray	Med.	490'	576'	
Shale&RR	Gray/Red	Med.	576'	618'	
Sand	Gray	Hard	618'	634'	
RedRock	Red	Soft	634'	647'	
Sand&Shale	Gray	Med.	647'	724'	
Sand,Shale&RR	Gray/Red	Soft	724'	862'	
RR&Shale	Gray	Med.	862'	990'	
Sandy Shale	Red/Gray	Soft	990'	1025'	
RR&Shale	Gray	Med.	1025'	1445'	
Sandy Shale	White	Hard	1445'	1520'	
Sand	Gray	Med.	1520'	1818'	
Sand&Shale	Gray	Hard	1818'	1847'	
Sand	Gray	Med.	1847'	1975'	
Sand&Shale	L. Gray	Hard	1975'	2005'	
Little Lime	Gray	Med.	2005'	2016'	
Shale					
Big Lime & Big Injun	Gray	Hard	2016'	2190'	Gas Ck. @ 2093' - No Show
Sand&Shale	Gray	Med.	2190'	3316'	Gas Ck. @ 2136' - Oil Odor
					Gas Ck. @ 2276' - Oil Odor
					Gas Ck. @ 2462' - No Show
					Gas Ck. @ 3074' - No Show
					Gas Ck. @ 3228' - No Show
					Gas Ck. @ 3352' - No Show
Sand	Gray	Hard	3316'	3352'	Gas Ck. @ 3724' - No Show
Sand&Shale	Gray	Med.	3352'	3504'	Gas Ck. @ 4498' - No Show
Sand	Gray	Med.	3504'	3581'	Gas Ck. @ 4807' - No Show
Sand&Shale	Gray	Med.	3581'	5509'	Gas Ck. @ 5079' - No Show
Total Depth			5509'		Gas Ck. @ 5509' - No Show
					Gas Ck. @ Collars - No Show

11589

017-5001  
Issued 12/05/90  
017-3867 Expires 12/05/92  
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STATE OF WEST VIRGINIA  
DEPARTMENT OF ENERGY, DIVISION OF OIL AND GAS  
WELL WORK PERMIT APPLICATION

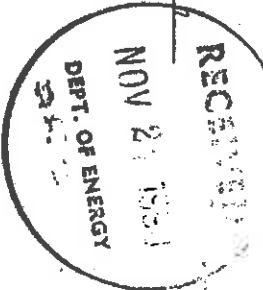
- 1) Well Operator: Interstate Drilling, Inc. 13950(2) 525
- 2) Operator's Well Number: 411 Lowther #1 3) Elevation: 1042.3'
- 4) Well type: (a) Oil  / or Gas  /  
(b) If Gas: Production  / Underground Storage   
Deep  / Shallow
- 5) Proposed Target Formation(s): Alexander 439
- 6) Proposed Total Depth: 5500 feet
- 7) Approximate fresh water strata depths: 40' NOV 19 90
- 8) Approximate salt water depths: 650'
- 9) Approximate coal seam depths: No Coal
- 10) Does land contain coal seams tributary to active mine? Yes  No
- 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	
Conductor	11-3/4"	H-40	42#	20'	0'	
Fresh Water						
Coal						
Intermediate	8-5/8"	K-55	20#	1000'	1000'	Cement to Surface
Production	4-1/2"	J-55	10.5#		5400'	± 450 Skts.
Tubing						
Liners						

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

4673  
34  
Fee(s) paid: [Signature] For Division of Oil and Gas Use Only  
Plat [Signature] | WW-9 | WW-2B | Bond [Signature] | Reclamation Fund [Signature] | WPCP [Signature]



1) Date: November 16, 1990  
2) Operator's well number  
Lowther #1  
3) API Well No: 47 - 017 - 3867  
State - County - Permit

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

NOTICE AND APPLICATION FOR A WELL WORK PERMIT

4) Surface Owner(s) to be served:  
(a) Name Mr. and Mrs. Robert L. Tate, Sr.  
Address R89XXI, Rt. 1, Box 117  
New Milton, WV 26411  
(b) Name \_\_\_\_\_  
Address \_\_\_\_\_  
(c) Name \_\_\_\_\_  
Address \_\_\_\_\_  
6) Inspector Mike Underwood  
Address Rt. 2, Box 135  
Salem, WV 26426  
Telephone (304) - 782-1043 (465-1911)

5) (a) Coal Operator:  
Name \_\_\_\_\_  
Address \_\_\_\_\_  
(b) Coal Owner(s) with Declaration  
Name George W. Lowther Heirs % Roy Lowther  
Address Route 1  
West Union, WV 26456  
Name \_\_\_\_\_  
Address \_\_\_\_\_  
(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)  
\_\_\_\_\_ Certified Mail (Postmarked postal receipt attached)  
\_\_\_\_\_ x 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 Interstate Drilling, Inc.  
BY: *[Signature]*  
Its: Manager of Operations  
Address Rt. 3, Box 89-V  
Weston, WV 26452  
Telephone 304-269-6441

Subscribed and sworn before me this 25th day of December, 1990  
*[Signature]* Notary Public  
My commission expires October 31, 1994.