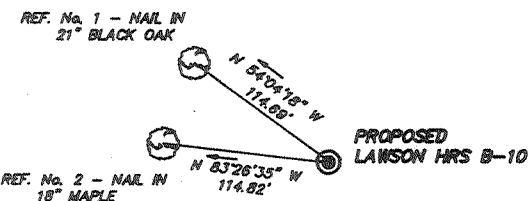


REFERENCES N.T.S.



NOTE: NO WATER SOURCES IDENTIFIED WITHIN 1000' OF PROPOSED LAWSON HEIRS B-10

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS

FILE No. 8723-297
 DRAWING No. LAWSON HRS. B-10
 SCALE 1" = 500'
 MINIMUM DEGREE OF ACCURACY 1 : 2500
 PROVEN SOURCE OF ELEVATION HUB AT STA. 753+50
110' RT. EL. 871.58

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) William J. Whitman
 R.P.E. _____ R.P.S. 646



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



DATE SEPTEMBER 9 19 93
 OPERATOR'S WELL No. LAWSON HRS
 API WELL No. B-10

WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___ STATE 47 COUNTY 045 PERMIT 1202
 (IF "GAS") PRODUCTION X STORAGE ___ DEEP ___ SHALLOW ___

LOCATION: ELEVATION 1049.03 WATER SHED ROCKY BRANCH OF GUYANDOTTE RIVER
 DISTRICT GUYAN COUNTY LOGAN
 QUADRANGLE CHAPMANVILLE, W. VA. Holden NE

SURFACE OWNER LAWSON HEIRS ACREAGE 672.3
 OIL & GAS ROYALTY OWNER LAWSON HEIRS LEASE ACREAGE _____

LEASE No. _____

PROPOSED WORK: DRILL X 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 Dev. Six ESTIMATED DEPTH 5500'

WELL OPERATOR CABOT OIL & GAS CORP. DESIGNATED AGENT DON LAUGHLIN
 ADDRESS P.O. BOX 1473 ADDRESS P.O. BOX 1473
CHARLESTON, W. VA. CHARLESTON, W. VA.

NOV 5 1993

6-6 245

FORM IV-6 (8-78)

DEEP WELL

STATE OF WEST VIRGINIA

Permitting DEPARTMENT OF ENERGY, DIVISION OF OIL AND GAS
Office of Oil & Gas

WELL WORK PERMIT APPLICATION

- 1) Well Operator: Cabot Oil & Gas Corporation 8145 (4) 288
- 2) Operator's Well Number: Lawson Heirs B-10 3) Elevation: 1049.03
- 4) Well type: (a) Oil ___ / or Gas x /
(b) If Gas: Production x / Underground Storage ___ /
Deep x / Shallow ___ /
- 5) Proposed Target Formation(s): 553 Big Six
- 6) Proposed Total Depth: 5500 feet
- 7) Approximate fresh water strata depths: 342', 550', 668'
- 8) Approximate salt water depths: 1190'
- 9) Approximate coal seam depths: 205', 476'
- 10) Does land contain coal seams tributary to active mine? Yes x / No ___ /
- 11) Proposed Well Work: Drill & complete gas well
- 12) Based on Logan 9, 16, 44A, 848, 991

18156

CASING AND TUBING PROGRAM

| TYPE | SPECIFICATIONS | | FOOTAGE INTERVALS | | CEMENT | |
|--------------|----------------|-------|-------------------|--------------|--------------|-------------------|
| | Size | Grade | Weight per ft. | For drilling | Left in well | Fill-up (cu. ft.) |
| Conductor | 20" | L.S. | 94# | 30' | 30' | 30 sks (GFS) |
| Fresh Water | 13-3/8" | L.S. | 54.5# | 700' | 700' | 500 sks (CTS) |
| Coal | 9-5/8" | L.S. | 36# | 1350' | 1350' | 475 sks (CTS) |
| Intermediate | 7" | J-55 | 23# | 4140' | 4140' | 50 sks |
| Production | 4-1/2" | J-55 | 11.6# | 5450' | 5450' | 130 sks |
| Tubing | | | | | | |
| Liners | | | | | | |

38CSR18-11.3
38CSR18-11.2
38CSR18-11.1

PACKERS : Kind _____
Sizes _____
Depths set _____

11/21/93

For Division of Oil and Gas Use Only

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

8

RECEIVED
OCT 21 1993

1) Date: 9/17/93
2) Operator's well number Lawson Heirs B-10
3) API Well No: 47 - 045 - 1202
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 Lawson Heirs, Inc.
 - Address P.O. Box 8505
Roanoke, VA 24014
 - (b) Name _____
 - Address _____
 - (c) Name _____
 - Address _____
- 5) (a) Coal Operator:
 - Name Heartland Coal Co.
 - Address attn: Doug Dempsey
P.O. Box 220, Harts, WV 25524
 - (b) Coal Owner(s) with Declaration
 - Name Lawson Heirs, Inc.
 - Address P.O. Box 8505
Roanoke, VA 24014
 - Name Morgan Mining & Consultants
 - Address attn: John Praskwicz
940 4th Ave., Suite 536, Huntington, WV 25701
 - (c) Coal Lessee with Declaration
 - Name _____
 - Address _____
- 6) Inspector Ofie Helmick
 - Address P.O. Box 218
Ranrock, WV 24834
 - Telephone (304) - 732-9135

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 ___ 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 Cabot Oil & Gas Corporation
By: David R. [Signature]
Its: Drilling Manager
Address Three Gateway Center, Suite 2000
Pittsburgh, PA 15222
Telephone (412) 594-7000

Subscribed and sworn before me this 21 day of October, 1993

My commission expires _____, Notary Public
March 25, 1996

Notarial Seal
Theresa Redding, Notary Public
Pittsburgh, Allegheny County
My Commission Expires March 25, 1996
Member, Pennsylvania Association of Notaries

WR-35 **RECEIVED**
 WV Division of
 Environmental Protection

02-Nov-93
 API #47-045-01202

JAN 23 1995

State of West Virginia
 DEPARTMENT OF ENERGY
 Division of Oil and Gas
 Well Operator's Report of Well Work

Permitting
 Office of Oil & Gas

Farm name: LAWSON, HEIRS, INC.

Operator Well No.: LAWSON B-10

Location: Elevation: 1,049.03

Quadrangle: CHAPMANVILLE

District: GUYAN County: LOGAN
 Latitude: 11500 Feet South of 37 Deg. 57 Min. 30 Sec.
 Longitude: 9200 Feet West of 82 Deg. Min. Sec.

Company: CABOT OIL & GAS CORPORATION
 400 FAIRWAY DRIVE, SUITE 400
 CORAOPOLIS, PA 15108

Agent: DAVID G. MCCLUSKEY

Inspector: OFIE HELMICK
 Permit Issued: 11/05/93
 Well Work Commenced: 11/13/93
 Well Work Completed: 12/01/93
 Verbal Plugging
 Permission granted on:
 Rotary X Cable _____ Rig _____
 Total Depth (feet) 5008'
 Fresh water depths (ft) 270, 803
 Salt water depths (ft) N/A
 Is coal being mined in area (Y/N)? Y
 Coal Depths (ft): N/A

| Casing & Tubing | Used in Drilling | Left in Well | Cement Fill Up Cu. Ft. |
|-----------------|------------------|--------------|------------------------|
| 20" | 17' | 17' | N/A |
| 13-3/8" | 719' | 719' | 600 SKS CLASS A |
| 9-5/8" | 1334' | 1334' | 500 SKS NEAT |
| 7" | 4090' | 4090' | 105 SKS THIX |
| 4-1/2" | 4907' | 1287' | 115 SKS LATEX |

OPEN FLOW DATA

Producing formation BIG SIX Pay zone depth (ft) 4803-4818
 Gas: Initial open flow 119 comming. MCF/d Oil: Initial open flow n/a Bbl/d
 Final open flow 15 MCF/d Final open flow n/a Bbl/d
 Time of open flow between initial and final tests _____ Hours
 Static rock Pressure n/a psig (surface pressure) after _____ Hours
 *PLUG SET ACROSS BIG SIX
 Second Producing formation HELDERBERG Pay zone depth (ft) 4158-4186
 Gas: Initial open flow 119 comming. MCF/d Oil: Initial open flow n/a Bbl/d
 Final open flow 84 MCF/d Final open flow n/a Bbl/d
 Time of open flow between initial and final tests 4 Hours
 Static rock Pressure 1300 psig (surface pressure) after 16 Hours
 *PLUG SET ACROSS HELDERBERG

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: CABOT OIL & GAS CORPORATION

By: Donald R. Gayle

Date: 1/17/95

Third Producing formation ORISKANY Pay zone depth (ft) 4122-4132
 Gas: Initial open flow 119 comming. MCF/d Oil: Initial open flow n/a Bbl/d
 Final open flow 84 MCF/d Final open flow n/a Bbl/d
 Time of open flow between initial and final tests - Hours
 Static rock Pressure 0 psig (surface pressure) after 24 Hours
***PLUG SET ACROSS ORISKANY**

Fourth Producing formation SHALE Pay zone depth (ft) 3316-3524
 Gas: Initial open flow 119 comming. MCF/d Oil: Initial open flow n/a Bbl/d
 Final open flow 435 MCF/d Final open flow n/a Bbl/d
 Time of open flow between initial and final tests 4 Hours
 Static rock Pressure 575 psig (surface pressure) after 16 days

Fifth Producing formation INJUN Pay zone depth (ft) 1633-1661
 Gas: Initial open flow 119 comming. MCF/d Oil: Initial open flow n/a Bbl/d
 Final open flow 133 MCF/d Final open flow n/a Bbl/d
 Time of open flow between initial and final tests 4 Hours
 Static rock Pressure 100 psig (surface pressure) after 15

Sixth Producing formation BIG LIME Pay zone depth (ft) 1478-1574
 Gas: Initial open flow 119 comming. MCF/d Oil: Initial open flow n/a Bbl/d
 Final open flow 133 MCF/d Final open flow n/a Bbl/d
 Time of open flow between initial and final tests 4 Hours
 Static rock Pressure 100 psig (surface pressure) after 15
***COMMINGLED WITH INJUN**

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

Perf Big Six from 4,803'-4,813' no show; from 4,815'-4,818'. Brk dwn stg 1 w/1,500 gals of 15% hcl, displ w/50,000 SCF N₂. BDP - 4,070 psi. Surface ISIP 2,300 psi. Foam frac w/50,904# 20/40 mesh sand in 75Q foam & 9,079 scfm. ISIP - 4,600 psi. Perf Helderberg from 4,158'-4,168'; from 4,180'-4,186'. Brk dwn stg 2 w/500 gals of 15% hcl, displ w/50,000 SCF N₂. Brk dwn press 2,600 psi. Perf Oriskany from 4,122'-4,132', show of gas. Brk dwn stg 1 w/500 gals of 15% hcl, displ w/40,000 SCF N₂ @ 1,500 SCFM. Brk dwn press 1,200 psi. Perf Shale from 3,316'-3,336'; from 3,342'-3,352'; from 3,493'-3,503'. Brk dwn stg 4 w/500 gals of 15% hcl, displ w/114,000 SCF N₂ @ 13,000 SCFM. Brk dwn press 1,030 psi. ISIP - 1,200 psi. Perf Injun from 1,633'-1,639'; from 1,651'-1,661'. Brk dwn stg 5 w/500 gals of 15% hcl, displ w/34,200 SCF N₂. BDP=1,930 psi. Surface ISIP 1,750 psi. Foam frac w/49,800# 20/40 mesh sand in 75Q foam & 6,320 scfm. ISIP - 1,960. Perf Big Lime from 1478' to 1484', 1518'-1524' & 1568'-1574'. Brk dwn stg 6 w/500 gals of 15% hcl, displ w/45,500 SCF N₂. Brk dwn press 1,060 psi. Surface ISIP 1,060 psi.

| FORMATION | TOP | BOTTOM |
|--------------|------|--------|
| SAND & SHALE | 0 | 320 |
| SALT SAND | 320 | 950 |
| SHALE | 950 | 1140 |
| SAND & SHALE | 1140 | 1300 |
| LITTLE LIME | 1300 | 1350 |
| PENCIL CAVE | 1350 | 1380 |
| BIG LIME | 1380 | 1620 |
| BIG INJUN | 1620 | 1670 |
| SHALE | 1670 | 2100 |
| SUNBURY | 2100 | 2120 |
| BEREA | 2120 | 2150 |
| SHALE | 2150 | 4075 |
| CORNIFEROUS | 4075 | 4780 |
| BIG SIX | 4780 | 4835 |
| KEEFER | 4835 | 4860 |
| SHALE | 4860 | 5008 |
| TD | | 5008 |

JAN 27 1981