

FILE NO. 14-24

DRAWING NO. _____

SCALE 1" = 500'

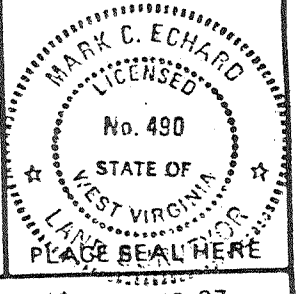
MINIMUM DEGREE OF ACCURACY 1/200

PROVEN SOURCE OF ELEVATION Top of Knob on Lease, ELEV. = 1209'

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.

Mark C. Echard
 (SIGNED) MARK C. ECHARD

R.P.E. _____ L.L.S. 490



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

FORM IV-6 (8-78)

DATE NOVEMBER 13, 1987

OPERATOR'S WELL NO. WACO NO. 516

API WELL NO. STINESPRING NO. 3-A

47 - 017 - 3617

STATE COUNTY PERMIT

STATE OF WEST VIRGINIA
 DEPARTMENT OF MINES
 OIL AND GAS DIVISION

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL

(IF "GAS,") PRODUCTION STORAGE DEEP SHALLOW

LOCATION: ELEVATION 1164' WATER SHED SOUTH FORK HUGHES RIVER

DISTRICT SOUTHWEST COUNTY DODDRIDGE

QUADRANGLE OXFORD 75 526 058 NC2 Holbrook

SURFACE OWNER AARON S. SCHWARTZMAN ACREAGE 90.9 of 131

OIL & GAS ROYALTY OWNER W.L. STINESPRING, et ux LEASE ACREAGE 131

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 MARCELLUS ESTIMATED DEPTH 6200'

WELL OPERATOR WACO OIL & GAS CO. DESIGNATED AGENT STEPHEN HOLLOWAY

ADDRESS P.O. BOX 397 ADDRESS P.O. BOX 397

GLENVILLE, WV. 26351 935 GLENVILLE, WV. 26351



Date Dec. 28, 1987
 Operator's Well No. WACO #516
 Farm Steinspring #3A
 API No. 47 - 017 - 3617

State of West Virginia
 DEPARTMENT OF ENERGY
 Oil and Gas Division

WELL OPERATOR'S REPORT
 OF
 DRILLING, FRACTURING AND/OR STIMULATING, OR PHYSICAL CHANGE

WELL TYPE: Oil ___ / Gas XX / Liquid Injection ___ / Waste Disposal ___ /
 (If "Gas," Production XX / Underground Storage ___ / Deep ___ / Shallow XX /)

LOCATION: Elevation: 1164' Watershed South Fork of Hughes River
 District: Southwest County Doddridge Quadrangle Oxford 7.5'

COMPANY Waco Oil & Gas Co. Inc.
 ADDRESS P.O. Box 397 Glenville, WV 26351
 DESIGNATED AGENT Stephen E. Holloway
 ADDRESS P.O. Box 397 Glenville, WV 26351
 SURFACE OWNER Aaron S. Schwartzman
 ADDRESS Washington D.C.
 MINERAL RIGHTS OWNER W.L. Steinspring
 ADDRESS West Union, WV
 OIL AND GAS INSPECTOR FOR THIS WORK Mike Underwood ADDRESS Salem, WV
 PERMIT ISSUED December 4, 1987
 DRILLING COMMENCED December 12, 1987
 DRILLING COMPLETED December 19, 1987
 IF APPLICABLE: PLUGGING OF DRY HOLE ON CONTINUOUS PROGRESSION FROM DRILLING OR REWORKING. VERBAL PERMISSION OBTAINED ON

Casing Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft.
Size 20-16 Cond.			
13-10"	213	213	surf.
9 5/8			
8 5/8	1526	1526	surf.
7			
5 1/2			
4 1/2		6599	650 sk.
3			
2			
Liners used			

GEOLOGICAL TARGET FORMATION Marcellus Depth 6200 feet
 Depth of completed well 6640 feet Rotary XX / Cable Tools ___
 Water strata depth: Fresh 115' feet; Salt 844' feet
 Coal seam depths: none Is coal being mined in the area? no

OPEN FLOW DATA

Producing formation Shale, Alexander, Benson Pay zone depth See Treatment feet
 Gas: Initial open flow ___ Mcf/d Oil: Initial open flow ___ Bbl/d
 Final open flow 1113 Mcf/d Final open flow ___ Bbl/d

Time of open flow between initial and final tests 4 hours

Static rock pressure 1565 psig (surface measurement) after 48 hours shut in
 (If applicable due to multiple completion--)

Second producing formation Riley, Balltown Pay zone depth See Treatment feet
 Gas: Initial open flow ___ Mcf/d Oil: Initial open flow MAY 0 1988 Bbl/d
 Final open flow ___ Mcf/d Oil: 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

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

- 1st Stage: Shale (6496-5842) 1000 gal. 15% HCl, 40 ton CO₂, 739 mcf N₂
- 2nd Stage: Alexander (5251-5116) 500 gal. 15% HCl, 40 ton CO₂, 846 mcf N₂
- 3rd Stage: Benson, Riley (4936-4784) 500 gal. 15% HCl, 40 ton CO₂, 839 mcf N₂
- 4th Stage: Riley, Balltown (4542-3766) 500 gal. 15% HCl, 40 ton CO₂, 936 mcf N₂

WELL LOG

FORMATION	COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS
					Including indication of all fresh and salt water, coal, oil and gas
sand, shale, redrock			0	22	
sand, shale			22	235	1½" WATER @ 115'
sand, shale, redrock			235	687	
sand, shale			687	1994	1" WATER @ 844'
BIG LIME			1994	2050	
BIG INJUN			2050	2128	
sand, shale			2128	3368	
SPEECHLY SECTION			3368	3702	
shale			3702	3764	
BALLTOWN SECTION			3764	4430	
RILEY SECTION			4430	4881	
shale			4881	4932	
Benson			4932	4938	
shale			4938	5196	
ALEXANDER			5196	5258	
shale			5258	6640	T.D.
				Balltown @	T.D.

(Attach separate sheets as necessary)

WACO OIL & GAS CO., INC.

Well Operator

By: Daniel R. Chapman, Geologist

Date: December 28, 1987

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."

4437

RECEIVED
NOV 18 1987

12/4/87
12/4/89



1) Date: November 13, 19 87
2) Operator's Well No. Waco 516-Steinspring 3A
3) API Well No. 47 - 017 - 3617
State County Permit

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

- 4) WELL TYPE: A Oil _____ / Gas X /
B (If "Gas", Production X / Underground storage _____ / Deep _____ / Shallow X /)
- 5) LOCATION: Elevation: ~~XXXXXX~~ 1164' Watershed: South Fork of Hughes River
District: Southwest County: Doddridge 017 Quadrangle: Oxford 7.5' 525
- 6) WELL OPERATOR Waco Oil & Gas Co., Inc. CODE: 51800 7) DESIGNATED AGENT Stephen E. Holloway
Address P. O. Box 397 Address P. O. Box 397
Glenville, WV 26351 Glenville, WV 26351
- 8) OIL & GAS INSPECTOR TO BE NOTIFIED Name Mike Underwood
Address Rt. 2, Box 135
Salem, WV 26426
- 9) DRILLING CONTRACTOR: Name I. L. Morris Well Service, Inc.
Address P. O. Box 397
Glenville, WV 26351
- 10) PROPOSED WELL WORK: Drill X / Drill deeper _____ / Redrill _____ / Stimulate X /
Plug off old formation _____ / Perforate new formation _____
Other physical change in well (specify) _____
- 11) GEOLOGICAL TARGET FORMATION, Marcellus 437
- 12) Estimated depth of completed well, 6200 feet
13) Approximate trata depths: Fresh, 180 feet; salt, None 1490 feet.
14) Approximate coal seam depths: 215-216 None 510-511 @ Is coal being mined in the area? Yes _____ / No X /
From Doddridge 626, 2297, 2298, 2953, 3515
- 15) CASING AND TUBING PROGRAM 1270-1276 @ Coal

CASING OR TUBING TYPE	SPECIFICATIONS					FOOTAGE INTERVALS		CEMENT FILLUP OR SACKS (Cubic feet)	PACKERS
	Size	Grade	Weight per ft.	New	Used	For drilling	Left in well		
Conductor									Kinds
Fresh water	11 3/4	API	40#	X		200'	200'	C.T.S.	<u>38CSR18-11.3</u>
Coal									Sizes
Intermediate	8 5/8	ERW	20.#	X		1400'	1400'	C.T.S.	<u>38CSR18-11.2.2</u>
Production	4 1/2	J-55	10.5#	X			6150	625 sks	Depths set <u>38CSR18-11.1</u>
Tubing									Perforations:
Liners									Top Bottom

OFFICE USE ONLY
DRILLING PERMIT

Permit number 47-017-3617 Date December 4 19 87

This permit covering the well operator and well location shown below is evidence of permission granted to drill in accordance with the pertinent legal requirements subject to the conditions contained herein and on the reverse hereof. Notification must be given to the District Oil and Gas Inspector. (Refer to No. 8) Prior to the construction of roads, locations and pits for any permitted work. In addition, the well operator or his contractor shall notify the proper district oil and gas inspector 24 hours before actual permitted work has commenced.)

The permitted work is as described in the Notice and Application, plat, and reclamation plan, subject to any modifications and conditions specified on the reverse hereof.
Permit expires December 4, 1989 unless well work is commenced prior to that date and prosecuted with due diligence.

Bond: <u>✓</u>	Agent: <u>✓</u>	Plat: <u>JS</u>	Casing: <u>JS</u>	Fee: <u>238</u> <u>1842</u>	WPCP: <u>JS</u>	S&S: <u>JS</u>	Other: _____
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NOTE: Keep one copy of this permit posted at the drilling location. Director, Division of Oil and Gas File
See the reverse side of the APPLICANT'S COPY for instructions to the well operator.

4437

Obverse

RECEIVED
NOV 18 1987

1) Date: November 13, 1987
Operator's
2) Well No. Waco 516-Steinspring 3A
3) API Well No. 47 - 017 - 3617
State County Permit

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

DIVISION OF OIL & GAS
DEPARTMENT OF ENERGY

- 4) SURFACE OWNER(S) OF RECORD TO BE SERVED
 - (i) Name Beatrice Schwartzman
Address 2520-30th St., N.W.
Washington, D.C. 20008
 - (ii) Name _____
Address _____
 - (iii) Name _____
Address _____
- 5 (i) COAL OPERATOR N/A
Address _____
- 5 (ii) COAL OWNER(S) WITH DECLARATION ON RECORD:
Name N/A
Address _____
Name _____
Address _____
- 5 (iii) COAL LESSEE WITH DECLARATION ON RECORD:
Name N/A
Address _____

TO THE PERSON(S) NAMED ABOVE: You should have received this Form and the following documents:

- (1) The Application for a Well Work Permit on Form WW-2(B) which sets out the parties involved in the drilling or other work, and describes the well and its location and, if applicable, the proposed casing and cementing program;
- (2) The plat (surveyor's map) showing the well location on Form WW-6; and
- (3) The Construction and Reclamation Plan on Form WW-9 (unless the well work is only to plug a well), which sets out the plan for erosion and sediment control and for reclamation for the site and access road.

THE REASON YOU RECEIVED THESE DOCUMENTS IS THAT YOU HAVE RIGHTS REGARDING THE APPLICATION WHICH ARE SUMMARIZED IN THE "INSTRUCTIONS" ON THE REVERSE SIDE OF THE COPY OF THE APPLICATION WW-2(B) DESIGNATED FOR YOU. HOWEVER, YOU ARE NOT REQUIRED TO TAKE ANY ACTION AT ALL.

Take notice that under Chapter 22B of the West Virginia Code, the undersigned well operator proposes to file or has filed this Notice and Application and accompanying documents for a Well Work Permit with the Director of the Division of Oil and Gas, with respect to a well at the location described on attached Application and depicted on attached Form WW-6. Copies of this Notice, the Application, the plat, and the Construction and Reclamation Plan have been mailed by registered or certified mail or delivered by hand to the person(s) named above (or by publication in certain circumstances) on or before the day of mailing or delivery to the Director of the Division of Oil and Gas.

6) EXTRACTION RIGHTS

Check and provide one of the following:
 included in the lease or leases or other continuing contract or contracts by which I hold the right to extract oil or gas.
 The requirement of Code 22B-1-8(c)(1) through (4). (see reverse side for specifics.)

7) ROYALTY PROVISIONS

Is the right to extract, produce or market the oil or gas based upon a lease or leases or other contract or contracts providing for flat well royalty or any similar provision for compensation to the owner of the oil or gas in place which is not inherently related to the volume of oil or gas so extracted, produced or marketed? Yes No

If the answer above is No, nothing additional is needed. If the answer is Yes, you may use Affidavit Form WW-60.

See the reverse side for line item instructions, and for instructions concerning the required copies of the Notice and Application, plat, and Construction and Reclamation Plan.

The truth of the information on the Notice and Application is verified and sworn to and the Notice is signed on behalf of the Well Operator in my County and State by
Stephen E. Holloway,
this 13th day of November, 1987,
My commission expires Sept 16, 1987.
Stephen E. Holloway
Notary Public, Gilmer County,
State of West Virginia

WELL OPERATOR Waco Oil and Gas Company, Inc.
By Stephen E. Holloway Stephen E. Holloway
Its Agent
Address P. O. Box 397
Glennville, WV 26351
Telephone (304) 462-5347