

LONG. 81°16'46.1"

8,300'

LATITUDE 39°15'00"

W.B. RICHARDSON LEASE 1521.25 ACRES ± WELL NO. 2 47-085-5947

LONGITUDE 81°15'00"

12,420'

LAT. 39°12'55.9"

NORTH

HOLE IN ROCK (B.M. GONE)

N 25°20' E
218.36'

WELL NO. 2
47-085-5947

S 28°26' E
2047.84'

W.B. RICHARDSON
HEIRS ET AL
1348.5 AC. ±
(SURFACE)

W.B. RICHARDSON
HEIRS ET AL
1348.5 AC. ±
(SURFACE)

N/F
MARY ALICE DEVAUGHN

N 49° E
363.00'

E.J. BAXTER ET AL

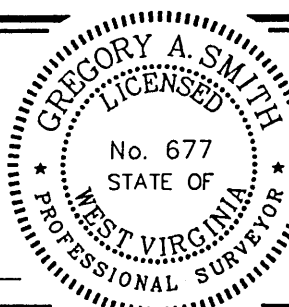
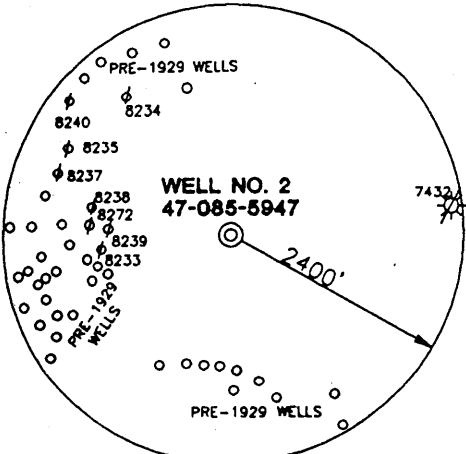
ROBERT
WYATT

S 41° E
138.50'

MICHAEL SMITH

NOTES ON SURVEY

1. TIES TO WELLS AND CORNERS ARE BASED ON STATE PLANE GRID NORTH WV NORTH ZONE NAD '27.
2. LEASE BOUNDARY SHOWN HEREON TAKEN FROM A PLAT DATED 5/07/82 AS PREPARED BY DAVID KINNEY FOR A.P.I. NO. 47-085-5947.
3. SURFACE OWNERS AND ADJOINER INFORMATION TAKEN FROM THE ASSESSOR AND COUNTY CLERK RECORDS OF RITCHIE COUNTY IN NOVEMBER, 1998.
4. WELL LAT./LONG. ESTABLISHED BY DGPS (SUBMETER MAPPING GRADE).



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.

P.S. 677 Gregory A. Smith

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

DATE DECEMBER 1, 19 98

OPERATORS WELL NO. RICHARDSON #2

API WELL NO. 47-085-5947
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 200 FILE NO. 4040P2 (72-25)
SCALE 1" = 500'

PROVEN SOURCE OF ELEVATION BENCH MARK ELEVATION 818'

STATE OF WEST VIRGINIA
DIVISION OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS



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

LOCATION : ELEVATION 830' WATERSHED OIL SPRING RUN OF GOOSE CREEK
DISTRICT GRANT COUNTY RITCHIE QUADRANGLE PETROLEUM 7.5'

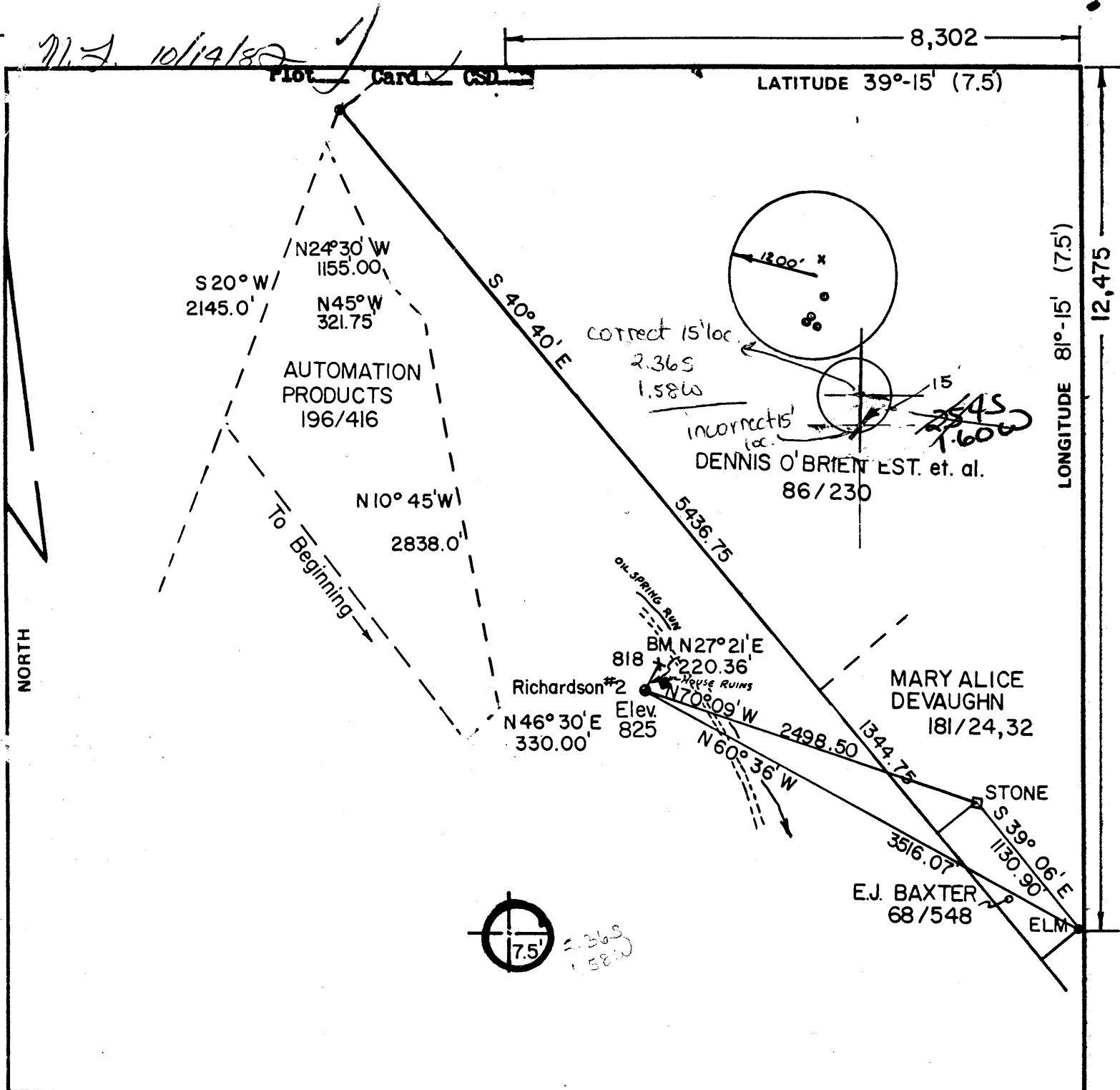
SURFACE OWNER W.B. RICHARDSON HEIRS ET AL ACREAGE 1,348.5 ±
ROYALTY OWNER W.B. RICHARDSON HEIRS ET AL LEASE ACREAGE 1,521.25 ±

PROPOSED WORK : LEASE NO. _____
DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION PERFORATE NEW FORMATION PLUG AND ABANDON CLEAN OUT AND REPLUG OTHER _____

PHYSICAL CHANGE IN WELL (SPECIFY) _____ TARGET FORMATION LIMEY SHALE
ESTIMATED DEPTH 3904'

WELL OPERATOR CHAO OIL COMPANY DESIGNATED AGENT ROBERT S. KISS
ADDRESS 3030 MAXROY ST., HOUSTON, TX 77008 ADDRESS 343 PRINCE ST., BECKLEY, WV 25802

COUNTY NAME RIT
PERMIT 5947 P



FILE NO. 82-0322-016
 DRAWING NO. 82-0322-016A
 SCALE 1" = 1000'
 MINIMUM DEGREE OF ACCURACY 1:200
 PROVEN SOURCE OF ELEVATION US Geodetic BM Monument. Elev. 818

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) *Dan L. Kinney*
 R.P.E. 2149 L.S.

PLACE SEAL HERE

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

FORM IV-6 (8-78)



DATE MAY 7, 1982
 OPERATOR'S WELL NO. Richardson # 2
 API WELL NO. 47-085-5947
 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 825 WATER SHED Oil Spring Run → North Fork Hughes River
 DISTRICT GRANT COUNTY RITCHIE
 QUADRANGLE PETROLEUM Eliz 15' NE
 SURFACE OWNER W.B. Richardson Heirs et. al. ACREAGE 1521.25 ±
 OIL & GAS ROYALTY OWNER SAME AS ABOVE LEASE ACREAGE 1521.25 ±

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) _____

OCT 18 1982

PLUG AND ABANDON CLEAN OUT AND REPLUG
 TARGET FORMATION ORISKANY ESTIMATED DEPTH 5986
 WELL OPERATOR CHAQ OIL CO. DESIGNATED AGENT GENE HANEY
 ADDRESS 3030 Max Roy St. ADDRESS P.O. BOX 3810
HOUSTON TEXAS 77008 CHARLESTON WV 25338

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JAN 28 1985



OIL & GAS DIVISION State of West Virginia
DEPT. OF MINES Department of Mines
Oil and Gas Division

Date 1/8/85
Operator's
Well No. 2
Farm W. B. Richardson Heirs
API No. 47 - 085 - 5947

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

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

LOCATION: Elevation: 825' Watershed Oil Spring
District: Grant County Ritchie Quadrangle Petroleum 7.5

COMPANY Chaq Oil Company
ADDRESS 3030 Maxroy St., Houston, TX 77008
DESIGNATED AGENT Robert W. Burk
ADDRESS Commercial Banking & Trust Bldg.
Parkersburg, WV 26101
SURFACE OWNER W. B. Richardson Heirs
ADDRESS Parkersburg, WV
MINERAL RIGHTS OWNER W. B. Richardson Heirs
ADDRESS Parkersburg, WV
OIL AND GAS INSPECTOR FOR THIS WORK Samuel
Hersman ADDRESS P.O. Box 66, Smithville, WV
PERMIT ISSUED 10-14-82
DRILLING COMMENCED 11-5-82
DRILLING COMPLETED 11-12-82
IF APPLICABLE: PLUGGING OF DRY HOLE ON
CONTINUOUS PROGRESSION FROM DRILLING OR
REWORKING. VERBAL PERMISSION OBTAINED
ON

Table with 4 columns: Casing & Tubing, Used in Drilling, Left in Well, Cement fill up Cu. ft. Rows include sizes 20-16 Cond., 13-10", 9 5/8, 8 5/8, 7, 5 1/2, 4 1/2, 3, 2, and Liners used.

GEOLOGICAL TARGET FORMATION Devonian Shale Depth 3874' feet
Depth of completed well 3874' feet Rotary X / Cable Tools
Water strata depth: Fresh 790' feet; Salt feet
Coal seam depths: NA Is coal being mined in the area? NO

OPEN FLOW DATA
Producing formation Harrell, Brallier-Chemung Pay zone depth 1910'-3777' feet
Gas: Initial open flow 850 Mcf/d Oil: Initial open flow NA Bbl/d
Final open flow 15 Mcf/d Final open flow NA Bbl/d
Time of open flow between initial and final tests 48 hours
Static rock pressure 950 psig (surface measurement) after 168 hours shut in
(If applicable due to multiple completion--)

FEB 11 1985

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

Perforations: 1st Stage - 28 holes - 3476' to 3777' - @ Day 1st - Rhinestreet.
 2nd Stage - 25 holes - 2543' to 3154' } Huron
 3rd Stage - 30 holes - 1910' to 2311' }

Foam Fracs: 1st Stage - Harrell
 2nd Stage - Chemung-Brallier
 3rd Stage - Chemung
 Frac Wi 15,000# 80/100; 150,000# 20/40 in 991,000 SCF N₂ and 705 bbls sand laden water.

Refrac: 7/22/83 1MMCF Nitrogen and 3750 gallons Methanol

WELL LOG

FORMATION	COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fresh and salt water, coal, oil and gas
Not available			0	47	
Silt			47	60	
Shale			60	75	Oil @ 70'±
Salt sand			75	188	
Shale			188	212	
Sand			212	400	
Silty Shale			400	685	
Wells Stray			685	693	
Silt and Shale			693	771	
Coffee Shale			771	777	
Berea			777	783	Oil & Gas @ 780'
Silt and Silty Shale			783	891	Hole wet @ 790'
Gordon			891	909	
Shale And Silty Shale			909	991	
Fourth Sand			991	1076	
Silt and Shale			1076	1103	Gas chk. @ 1100' - No show
Fifth Sand			1103	1115	
Silt and Silty Shale			1115	1270	
Shale and Silty Shale			1270	2051	
Riley			2051	2214	
Shale and Silty Shale			2214	2484	
Benson			2484	2512	
Shale			2512	2696	
Alexander			2696	2794	Gas chk. @ 2728' - No show
Shale			2794	2940	
Brown Shale			2940	2967	
Shale			2967	3618	Gas chk. @ 3271' - No show
Brown Shale			3618	3784	Gas chk. @ 3519' - 1.5 MCF
Shale			3784	3815	
Limey Shale			3815	3904	TD Gas chk. @ TD - N.E.G.

Rhinestreet
@TD

3904
825
3079
22
3099

(Attach separate sheets as necessary)

Chaq Oil Company

Well Operator
 By: Jimmy R. Triley
 Date: Jan. 24, 1985

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."



1) Date: October 4, 1982
2) Operator's Well No. 2
3) API Well No. 47 025 5967
State County Permit

DRILLING CONTRACTOR:

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

OIL AND GAS WELL PERMIT APPLICATION

- 4) WELL TYPE: A Oil _____ / Gas _____
B (If "Gas", Production _____ / Underground storage _____ / Deep _____ / Shallow _____)
- 5) LOCATION: Elevation: _____ Watershed: _____
District: _____ County: _____ Quadrangle: _____
- 6) WELL OPERATOR _____ 11) DESIGNATED AGENT _____
Address _____ Address _____
- 7) OIL & GAS ROYALTY OWNER _____ 12) COAL OPERATOR _____
Address _____ Address _____
- 8) SURFACE OWNER _____ 13) COAL OWNER(S) WITH DECLARATION ON RECORD:
Address _____ Name _____
Address _____ Name _____
Address _____ Name _____
- 9) FIELD SALE (IF MADE) TO: _____ 14) COAL LESSEE WITH DECLARATION ON RECORD:
Address _____ Name _____
Address _____ Name _____
- 10) OIL & GAS INSPECTOR TO BE NOTIFIED _____
Name _____ Address _____
Name _____ Address _____
- 15) PROPOSED WORK: Drill _____ / Drill deeper _____ / Redrill _____ / Fracture or stimulate _____
Plug off old formation _____ / Perforate new formation _____
Other physical change in well (specify) _____
- 16) GEOLOGICAL TARGET FORMATION, _____
- 17) Estimated depth of completed well, _____ feet
- 18) Approximate water strata depths: Fresh, _____ feet; salt, _____ feet.
- 19) Approximate coal seam depths: _____ Is coal being mined in the area? Yes _____ / No _____

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OCT 05 1982

OIL & GAS DIVISION
DEPT. OF MINES

20) CASING AND TUBING PROGRAM

CASING OR TUBING TYPE	SPECIFICATIONS					FOOTAGE INTERVALS		CEMENT FILL-UP OR SACKS (Cubic feet)	PACKERS	
	Size	Grade	Weight per ft.	New	Used	For drilling	Left in well		Kinds	Sizes
Conductor										
Fresh water										
Coal										
Intermediate										
Production										
Tubing										
Liners										

- 21) EXTRACTION RIGHTS
Check and provide one of the following:
 Included is 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 22-4-1(c) (1) through (4). (See reverse side for specifics.)
- 22) ROYALTY PROVISIONS
Is the right to extract, produce or market the oil or gas based upon a lease or other continuing 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 IV-60.
- 23) Required Copies (See reverse side.)
- 24) Copies of this Permit Application and the enclosed plat and reclamation plan have been mailed by registered mail or delivered by hand to the above named coal operator, coal owner(s), and coal lessee on or before the day of the mailing or delivery of this Permit Application to the Department of Mines at Charleston, West Virginia.

Notary: _____ Signed: _____
My Commission Expires _____ Its: _____

OFFICE USE ONLY
DRILLING PERMIT

Permit number: 47-025-5967 Date: _____

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. 10) 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.)

Permit expires _____ unless drilling is commenced prior to that date and prosecuted with due diligence.

Bond:	Agent:	Plat:	Casing	Fee

Administrator, Office of Oil and Gas

NOTE: Keep one copy of this permit posted at the drilling location.