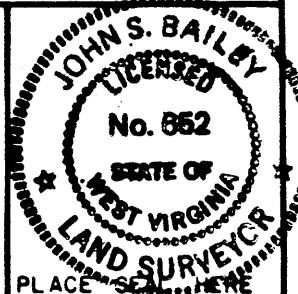


MAGNETIC REFERENCE TIES
 CAIN HEIRS #5 TO 26" W.O. at RD. BANK
 N22°49'W 93.1'
 CAIN HEIRS #5 TO TELE. POLE S87°31'W 121.2'

FILE NO. MSES 85-626
 DRAWN BY SARC
 SCALE 1" = 500'
 MINIMUM DEGREE OF ACCURACY 1 PART IN 200
 PROVEN SOURCE OF ELEVATION INT. TYLER CO. RT. 56 & PRIV. DR.; 400' NW LOC.; EL. 832.'

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) John S. Bailey
 (R.P.E. _____ L.L.S. 652)



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS
 FORM IV-6
 (8-78)



DATE APRIL 1, 1985
 OPERATOR'S WELL NO. CAIN HEIRS #5
 API WELL NO. 47-095-1104
 STATE COUNTY PERMIT

Department of Mines
 Oil & Gas Division

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
 (IF "GAS", PRODUCTION STORAGE DEEP SHALLOW
 LOCATION: ELEVATION 824.3' WATER SHED SHORT RUN
 DISTRICT CENTERVILLE COUNTY TYLER
 QUADRANGLE WEST UNION, WV 7.5' 671 133 SC 8
 SURFACE OWNER MARY CAROLYN TISINGER ACREAGE 99.76
 OIL & GAS ROYALTY OWNER LORENZO D. CAIN HEIRS LEASE ACREAGE 278
 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 5150'
 WELL OPERATOR Quaker State Oil Refining Corp. DESIGNATED AGENT Carl J. Carlson Samuel J. Barber
 ADDRESS P.O. BOX 1327 721 PARKERSBURG, WV 26101 ADDRESS P.O. BOX 1327 PARKERSBURG, WV 26101

IV-35
(Rev 8-81)

JAN 30 1986



Date August 14, 1985
Operator's
Well No. #5
Farm CAIN HEIRS
API No. 47 - 095 - 1104

State of West Virginia

Department of Mines
Oil and Gas Division

WELL OPERATOR'S REPORT
OF

DRILLING, FRACTURING AND/OR STIMULATING, OR PHYSICAL CHANGE

WELL TYPE: Oil___/ Gasxx/ Liquid Injection___/ Waste Disposal___/
(If "Gas," Productionxx/ Underground Storage___/ Deep___/ Shallow___/)

LOCATION: Elevation: 824' Watershed Short Run
District: Centerville County Tyler Quadrangle West Union 7.5'

COMPANY QUAKER STATE OIL REFINING CORPORATION

ADDRESS P.O. Box 1327; Parkersburg, WV 26101

DESIGNATED AGENT Samuel F. Barber

ADDRESS P.O. Box 1327; Parkersburg, WV 26101

SURFACE OWNER Mary C. Tisinger

ADDRESS 6206 Mori St.; McLean, VA 22101

MINERAL RIGHTS OWNER Nathan Cain, et al

ADDRESS Tyler County, WV

OIL AND GAS INSPECTOR FOR THIS WORK _____

Robert Lowther ADDRESS Middlebourne, WV

PERMIT ISSUED May 31, 1985

DRILLING COMMENCED June 21, 1985

DRILLING COMPLETED July 02, 1985

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"			
9 5/8			
8 5/8	1013'	1013'	350 sx
7			
5 1/2			
4 1/2	5167'	5167'	300 sx
3			
2			
Liners used			

GEOLOGICAL TARGET FORMATION Alexander Depth 4958 feet

Depth of completed well 5185 feet Rotary xx / Cable Tools _____

Water strata depth: Fresh N/A feet; Salt 1190 feet

Coal seam depths: Unknown Is coal being mined in the area? No

OPEN FLOW DATA

Producing formation Alexander; Benson; Riley and Balltown Pay zone depth Co-mingled feet

Gas: Initial open flow _____ Mcf/d Oil: Initial open flow -- Bbl/d

Final open flow 140 Mcf/d Final open flow show -- Bbl/d

Time of open flow between initial and final tests _____ hours

Static rock pressure 1600 psig (surface measurement) after _____ hours shut in
(If applicable due to multiple completion--)

Second producing formation _____ Pay zone depth _____ feet

Gas: Initial open flow _____ Mcf/d Oil: Initial open flow _____ 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.

ALEXANDER: Perforated from 4988-5002'; 5008-5012' w/ 20 holes.
Treated w/ 400 sx 20/40 sand, 660 bbls 75% N₂. Breakdown @ 2500 PSI; Avg. rate 20 BPM; I.S.I.P. @ 3085 PSI

BENSON: Perforated from 4695-4701' w/ 13 holes.
Treated w/ 250 sx 20/40 sand, 465 bbls 75% N₂. Breakdown @ 3000 PSI; Avg. rate @ 16 BPM; I.S.I.P. @ 3040 PSI.

RILEY: Perforated from 4290-4298'; 4307-4313'; 4317-4321' w/ 20 holes.
Treated w/ 250 sx 20/40 sand; 499 bbls 75% N₂. Breakdown @ 2990 PSI; Avg. rate @ 20 BPM; I.S.I.P. @ 3100 PSI.

BALLTOWN: Perforated from 3645-3653' w/ 17 holes. Treated w/ 300 sx 20/40 sand; 350 bbls 75% N₂. Breakdown @ 2900 PSI; Avg. rate @ 16 BPM; I.S.I.P. 3360 PSI.

FORMATION	COLOR	HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS
					Including indication of all fresh and salt water, coal, oil and gas
Silt & shale			0	302	
Sand			320	374	
Silt & shale			374	1190	
Salt sands			1190	1539	Salt water
Shale			1539	1645	
Little Lime			1645	1664	
Shale			1664	1686	
Big Lime			1686	1768	
Big Injun <i>CR 2 & 3</i>			1768	1862	Oil & gas
Shale			1862	2024	
Weir			2024	2137	Gas
Shale			2137	2214	
Berea			2214	2219	
Shale			2219	2429	
Gordon			2429	2464	Gas
Shale			2464	3115	
Warren			3115	3177	
Shale			3177	3642	
Balltown			3642	3651	Gas
Shale			3651	4270	
Riley			4270	4333	Gas
Shale			4333	4690	
Benson			4690	4696	Gas
Shale			4696	4958	
Alexander			4958	5007	Gas
Shale			5007	5185	Total Depth

(Attach separate sheets as necessary)

QUAKER STATE OIL REFINING CORPORATION
Well Operator

By: Jeffrey Hill, Geologist *Jeffrey S. Hill*
Date: August 14, 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: APRIL 15, 1985
 2) Operator's Well No. CAIN HEIRS #5
 3) API Well No. 47 -095- 1104
 State County Permit

RECEIVED

MAY 20 1985

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

OIL & GAS DIVISION

DEPT. OF MINES

- 4) WELL TYPE: Oil Gas XX /
 B (If "Gas", Production XX / Underground storage _____ / Deep _____ / Shallow XX /)
- 5) LOCATION: Elevation: 824' Watershed: SHORT RUN
 District: CENTERVILLE County: TYLER Quadrangle: WEST UNION 7.5'
- 6) WELL OPERATOR QUAKER STATE OIL REFINING CORP. 7) DESIGNATED AGENT Stanley J. Carlson
 Address P.O. BOX 1327 40400 Address P.O. BOX 1327
PARKERSBURG, WV 26101 PARKERSBURG, WV 26101
- 8) OIL & GAS INSPECTOR TO BE NOTIFIED Name ROBERT LOWTHER
 Address GENERAL DELIVERY
MIDDLEBOURNE, WV 26149 (304) 758-4764
- 9) DRILLING CONTRACTOR: Name UNKNOWN AT THIS TIME
 Address _____
- 10) PROPOSED WELL WORK: Drill XX / Drill deeper _____ / Redrill _____ / Stimulate y /
 Plug off old formation _____ / Perforate new formation _____
 Other physical change in well (specify) _____
- 11) GEOLOGICAL TARGET FORMATION, ALEXANDER
- 12) Estimated depth of completed well, 5182' feet
- 13) Approximate strata depths: Fresh, 75' feet; salt, 175' feet.
- 14) Approximate coal seam depths: 337' Is coal being mined in the area? Yes _____ / No XX /
- 15) 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		
Conductor									Kinds
Fresh water	8 5/8"	H-40	24	XX		390'	390'	C.T.S. NEAT	Sizes
Coal									
Intermediate									
Production	4 1/2"	J-55	9.5	XX		5182'	5182'	EST. 250 SX	Depths
Tubing	2"	J	4.5	XX			5182'	RULE 15.01	PERFORATIONS REQUIRED BY
Liners									Perforations:
									Top Bottom

OFFICE USE ONLY
DRILLING PERMIT

Permit number 47-095-1104 Date May 31 1985

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 May 31, 1987 unless well work is commenced prior to that date and prosecuted with due diligence.

Bond:	Agent:	Plat:	Casing	Fee
<u>123</u>	<u>MH</u>	<u>MH</u>	<u>MH</u>	<u>13035-</u>

Margaret J. Hesse
 Administrator, Office of Oil and Gas

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

See the reverse side of the APPLICANT'S COPY for instructions to the well operator.

File