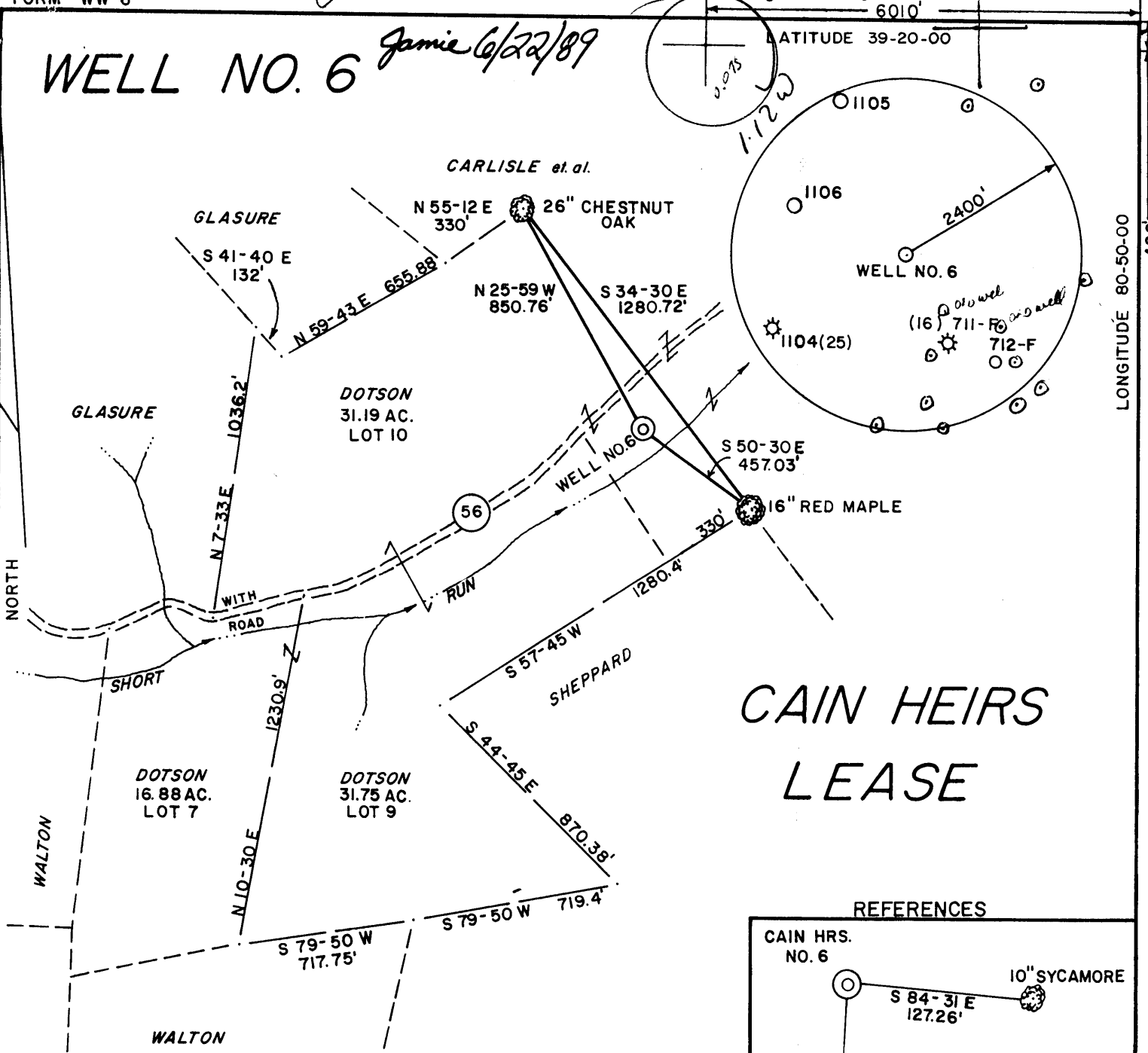


WELL NO. 6

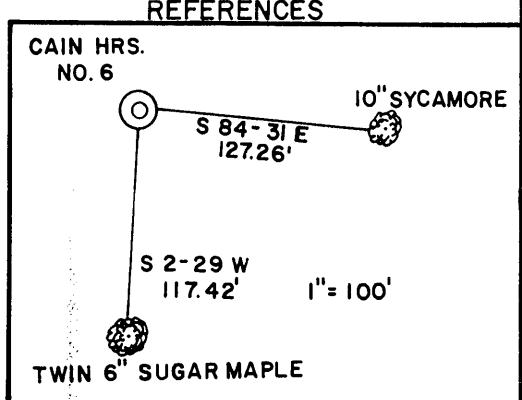
Jamie 6/22/89

LATITUDE 39-20-00
LONGITUDE 80-50-00

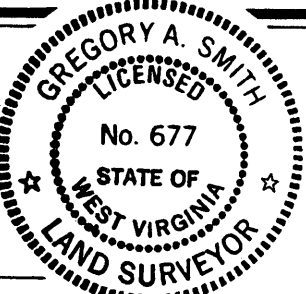


CAIN HEIRS LEASE

278 ACRES ± TOTAL



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.



L.L.S. 677 *Gregory A. Smith*

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.
 DATE MAY 11, 19 89
 OPERATORS WELL NO. CAIN HRS. NO. 6
 API WELL NO. 47 - 095 - 1303
 STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 200 FILE NO. 2057(27-64)
 PROVEN SOURCE OF ELEVATION SPOT ELEVATION ON ROAD 807' SCALE 1" = 500'

STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY OIL AND GAS DIVISION

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

LOCATION: ELEVATION 798' WATERSHED SHORT RUN DISTRICT CENTERVILLE COUNTY TYLER QUADRANGLE WEST UNION 7.5' 671 COUNTY NAME TYLER

SURFACE OWNER OPAL DOTSON ACREAGE 31.19 OF 278 ROYALTY OWNER WILLIAM M. CAIN et. al. LEASE ACREAGE 278 PERMIT 8

PROPOSED WORK: 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 BENSON ESTIMATED DEPTH 4760'

WELL OPERATOR QUAKER STATE CORP. DESIGNATED AGENT FRANK ROTUNDA ADDRESS 1226 PUTNAM-HOWE DR. BELPRE, OHIO 45714 ADDRESS PO BOX 823 PARKERSBURG, WV 26102

JUN 30 1989

RECEIVED
SEP 28 1989
DIVISION OF OIL & GAS
DEPARTMENT OF ENERGY

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

Well Operator's Report of Well Work

Farm name: DOTSON, OPAL Operator Well No.: CAIN HEIRS #6

LOCATION: Elevation: 798.00 Quadrangle: WEST UNION

District: CENTERVILLE County: TYLER
Latitude: 420 Feet South of 39 Deg. 20Min. 0 Sec.
Longitude 6010 Feet West of 80 Deg. 50 Min. 0 Sec.

Company: QUAKER STATE CORPORATION

1226 PUTNAM HOWE DR. P O B 189 | Casing | Used in | Left | Cement

BELPRE, OH 45714-0000

Agent: FRANK R. ROTUNDA

Inspector: GLEN P. ROBINSON

Permit Issued: 06/30/89

Well work Commenced: 08/16/89

Well work Completed: 08/22/89

Verbal Plugging

Permission granted on:

Rotary Cable Rig

Total Depth (feet) 4749'

Fresh water depths (ft) N/A

Salt water depths (ft) N/A

Is coal being mined in area (Y/N)? N

Coal Depths (ft):

& Tubing Size	Drilling	in Well	Fill Up Cu. Ft.
11 3/4"	184'	184'	C.T.S.
8 5/8"	1374'	1374'	300 sx.
4 1/2"	4718'	4718'	360 sx.

OPEN FLOW DATA

Producing formation Benson Pay zone depth (ft) 4674-4680
Gas: Initial open flow --- MCF/d Oil: Initial open flow --- Bbl/d
Final open flow 150 MCF/d Final open flow --- Bbl/d
Time of open flow between initial and final tests 24 Hours
Static rock Pressure 1850 psig (surface pressure) after 24 Hours

Second producing formation Riley Pay zone depth (ft) 4271-4301
Gas: Initial open flow comingle 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

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.

Duane Clark

For: QUAKER STATE CORPORATION

By: Duane Clark

Date: September 26, 1989

SEP 29 1989

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

Perforated 1st stage in Benson from 4678' - 4680' with 17 shots, .39 hole.

Perforated 2nd stage in Riley from 4270' - 4301' with 20 shots, .39 hole.

Perforated 3rd stage from 3619' - 3625' with 13 shots, .39 hole.

1st stage fractured with 75 sx, 80/100 sand, 400 sx. 20/40 sand, 850 bbl. water with 155,000 SCF N₂, Average pressure: 2130 PSI, average rate: 20 BPM, ISIP: 1600 PSI, at 5 minutes: 1355 PSI.

2nd stage fractured with 190 sx, 20/40 sand, 75% Q/foam, 220,000 SCF N₂, 163 bbl. total fluid. Average pressure: 2970 PSI, average rate: 20 BPM foam (5 BPM fluid), ISIP: 2550 PSI.

3rd stage fractured with 185 sx, 20/40 sand, 75% Q/foam, 323,500 SCF N₂, 220 bbl. total fluid. Average pressure: 2960 PSI, average rate: 20 BPM foam (5 BPM fluid), ISIP: 2000 PSI, at 5 minutes: 1560 PSI.

FORMATION:	TOP FEET	BOTTOM FEET
Surface	0	184
Shale	184	292
Sandstone	293	336
Shale	336	427
Sandstone	427	453
Shale	453	916
Sandstone	916	960
Shale	960	1032
Shale/Siltstone	1032	1179
Sandstone	1179	1199
Shale	1199	1235
Salt Sands	1235	1489
Shale/Siltstone	1489	1628
Little Lime	1628	1648
Pencil Cave	1648	1652
Big Lime	1652	1760
Big Injun	1760	1844
Shale	1844	2004
Weir	2004	2113
Shale	2113	2197
Berea	2197	2201
Shale/Siltstone	2201	3617
Siltstone	3617	3626
Shale	3626	4262
Riley	4262	4302
Shale	4302	4676
Benson	4676	4680
Shale	4680	4749 TD

2806