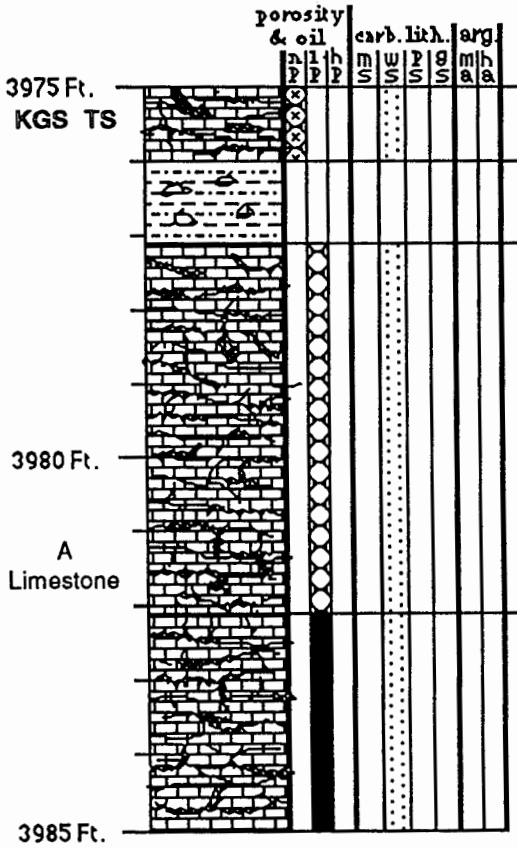
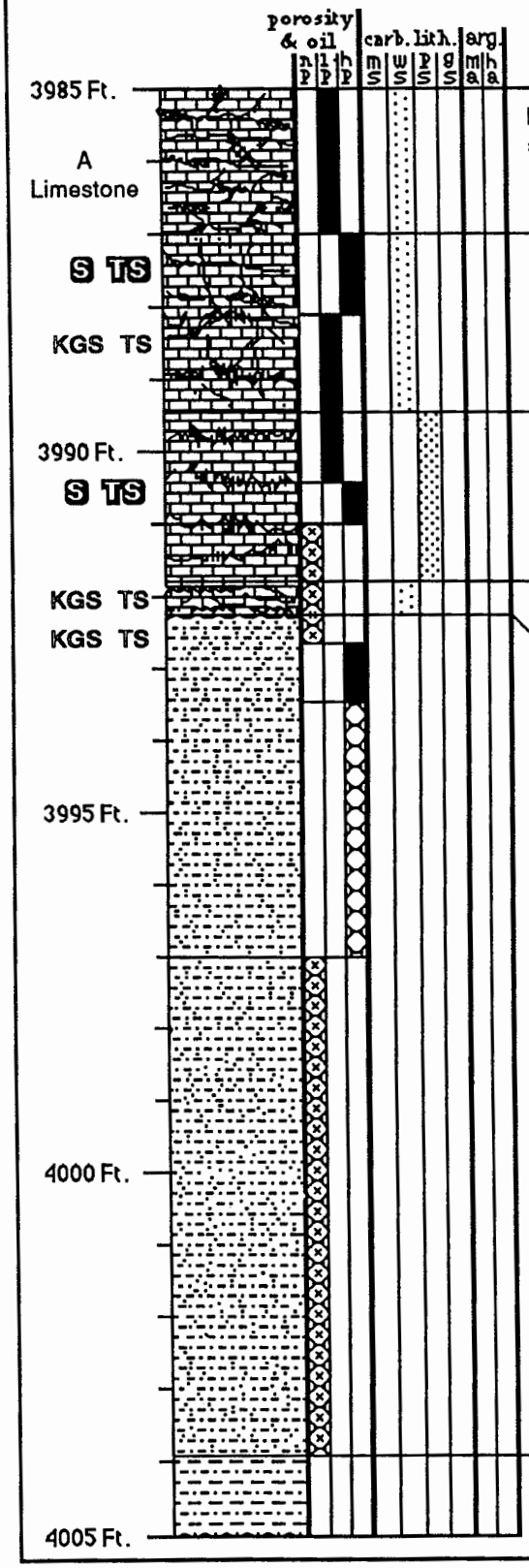
SKELLY OIL CO. #1 BARTOSOVSKY

SE SW SW, Sec. 9-T1S-R34W
Cahoj Field, Rawlins County, Kansas
IPP 3702 BOPD, Drilled1959.



Lithologic Description and Comments
Fossiliferous wackestone with autoclastic brecciation and infilling by green shale (WS-F-B-RSH)
Red-brown silty shale with microcrystalline-calcite nodules (SH-Z-RB-MC)
Fossiliferous wackestone with autoclastic brecciation and infilling by green shale (WS-F-B-RSH) The autoclastic brecciation and shale infilling in these intervals is major. The infilling green shale has undergone pressure solution to form microstylolite seams. Post-microstylolite fractures may also be present. Oil staining is present in the fractures from brecciation.
Fossiliferous wackestone with autoclastic brecciation and infilling by green shale (WS-F-B-RSH) Fusulinids common, some may be moldic. Oil staining is more apparent in this interval than the above stratum.

SKELLY OIL CO. #1 BARTOSOVSKY



Lithologic Description and Comments

Fossiliferous wackestone with autoclastic brecciation and infilling by green shale (WS-F-B-RSH)

Fossiliferous wackestone with autoclastic brecciation (WS-F-B). Some shale infilling is present, but it is minor.

Fossiliferous packstone (PS-F)

Fossiliferous wackestone with autoclastic brecciation and infilling by red and green shale (WS-F-B-RSH & OSH)

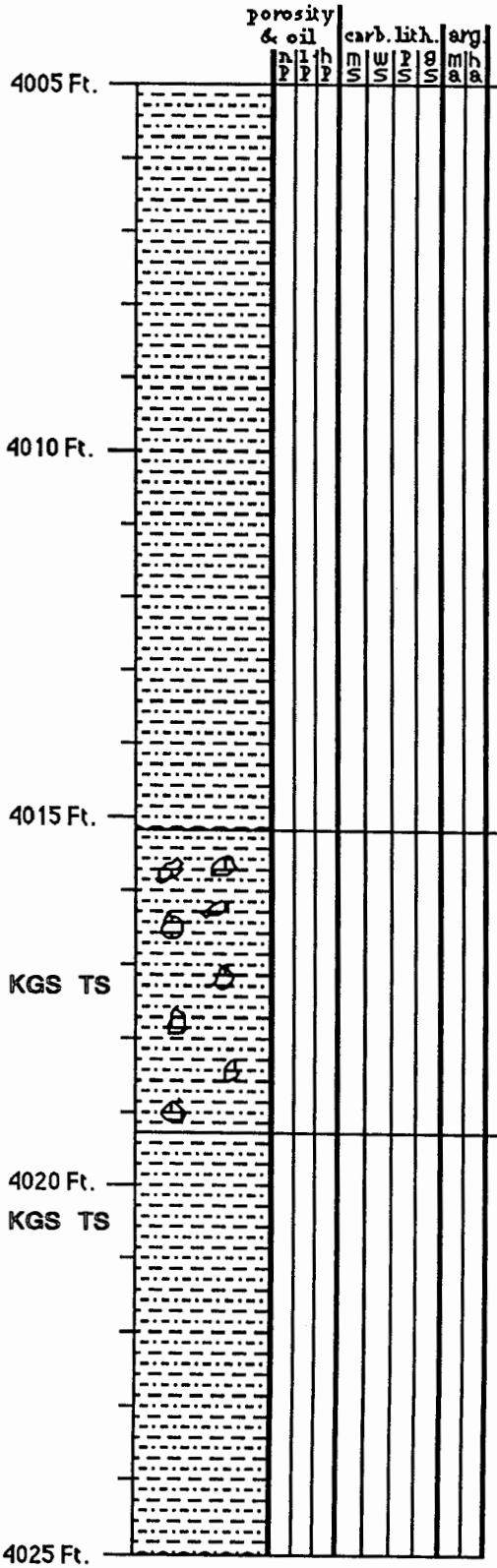
Siltstone with very-fine sandstone (ZS1-SS1)

No sedimentary structures present, massively bedded.

Ripple crossbedding noted in the lower two feet.

Red-brown silty shale (SH-Z-RB)

SKELLY OIL CO. #1 BARTOSOVSKY



Lithologic Description and Comments

Red-brown silty shale (SH-Z-RB)

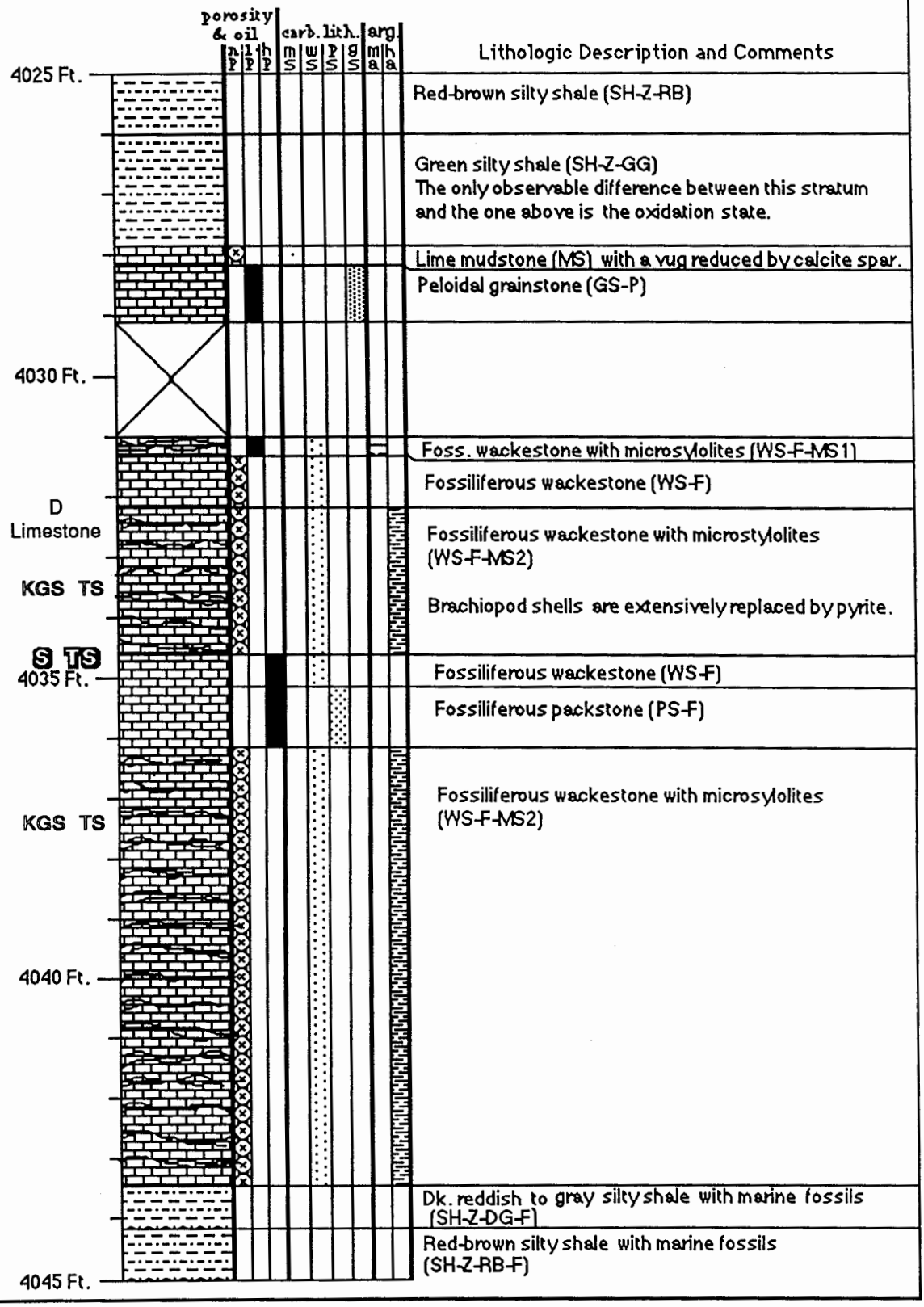
Slickenslides are present in these silty shales.

These red-brown silty shales are mudstones that do not have apparent sedimentary structures.

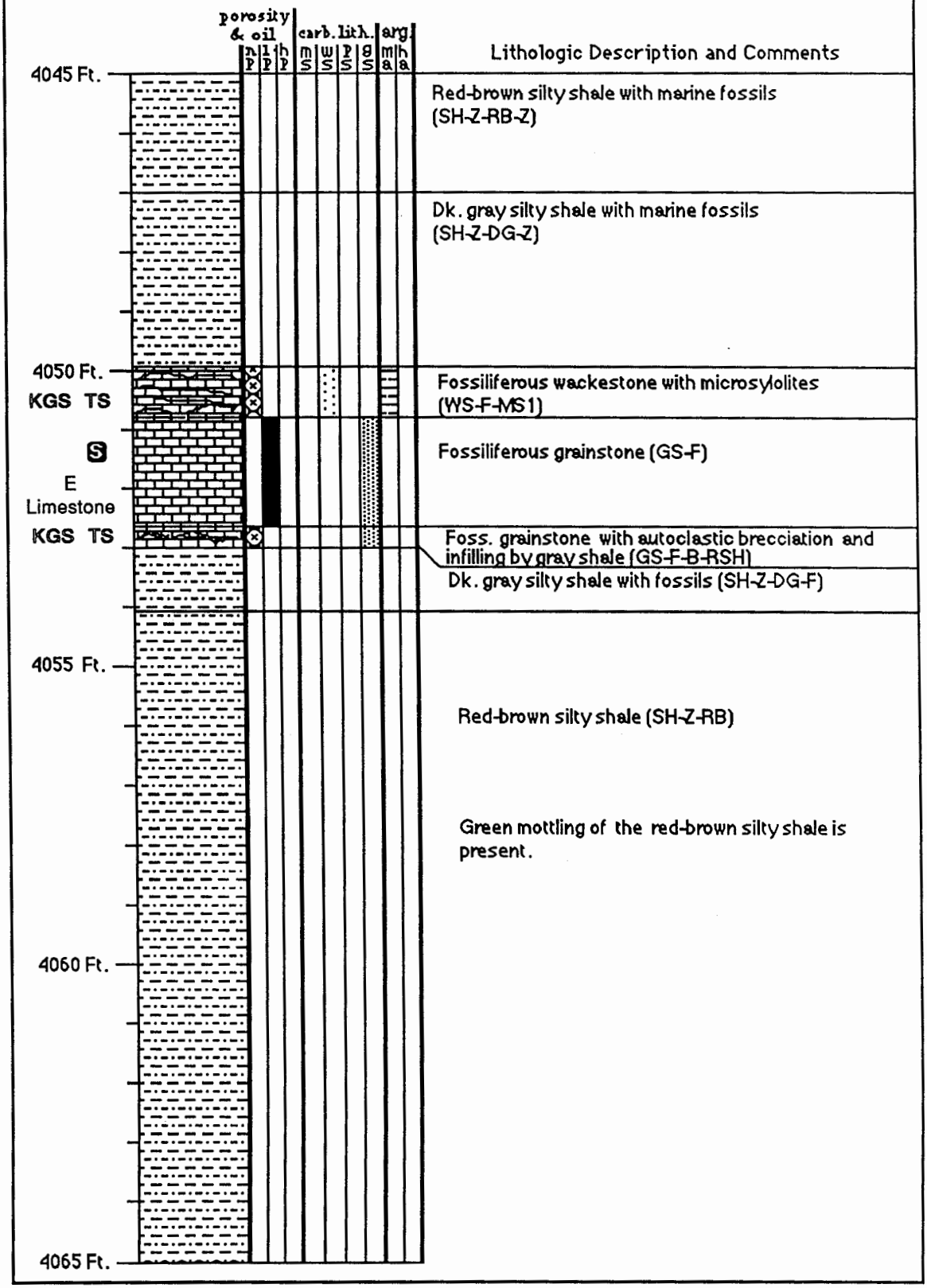
Red-brown silty shale with microcrystalline-calcite nodules (SH-Z-RB-MC)

Red-brown silty shale (SH-Z-RB)

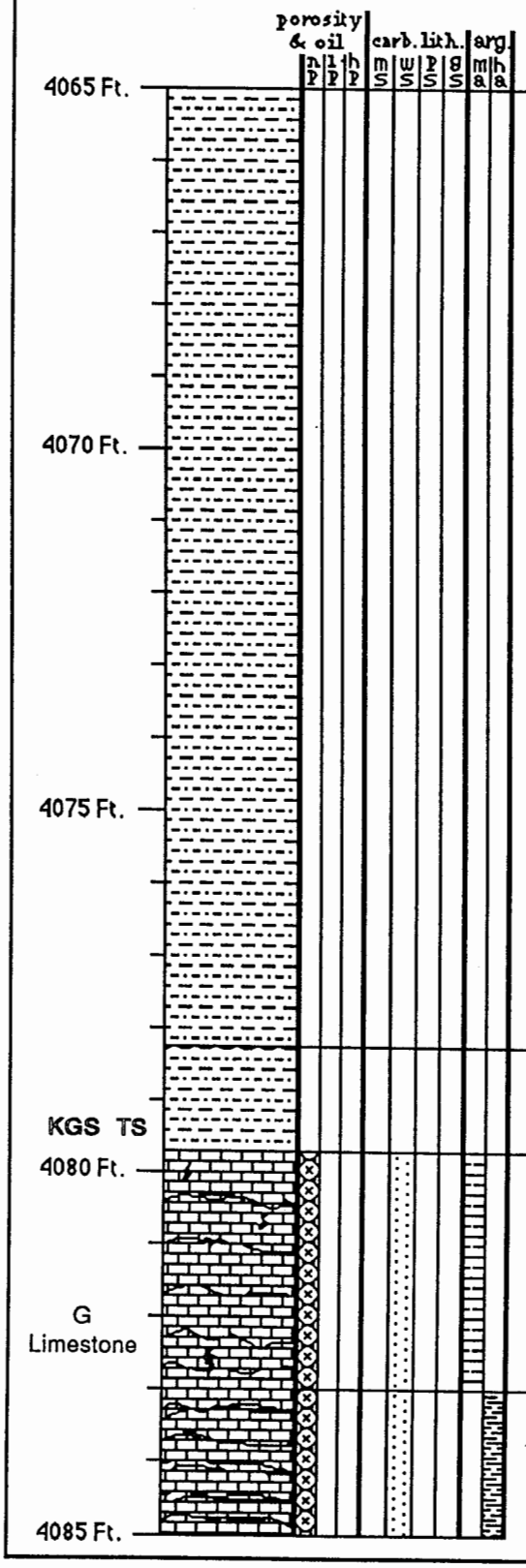
SKELLY OIL CO. #1 BARTOSOVSKY



SKELLY OIL CO. #1 BARTOSOVSKY



SKELLY OIL CO. #1 BARTOSOYSKY



Lithologic Description and Comments

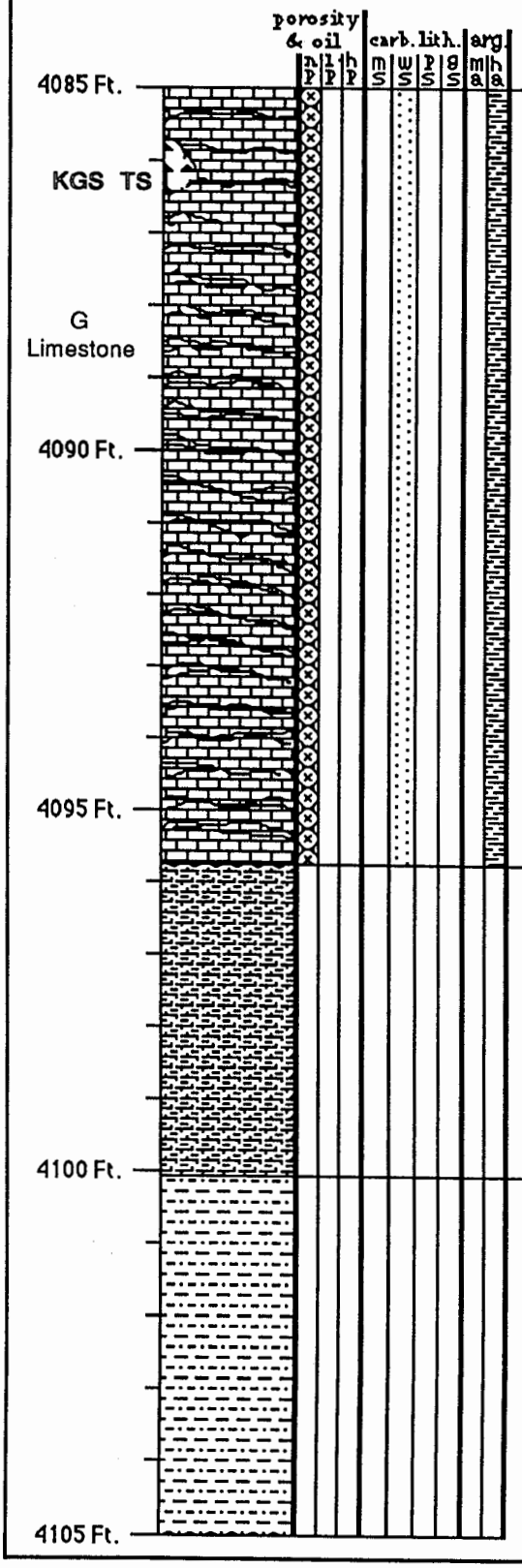
Red-brown silty shale (SH-Z-RB)

Gray-green silty and limy shale (SH-Z-GG)

Fossiliferous wackestone with microstylolites (WS-F-MS1). There is some autoclastic brecciation with infilling by gray shale in this interrval. No porosity or permeability noted.

Fossiliferous wackestone with microstylolites (WS-F-MS2)

SKELLY OIL CO. #1 BARTOSOVSKY



Lithologic Description and Comments

Zone of chert replacement. The chert replaces structures similar to microstylolites and, therefore, cross-cuts microstylolites.

Fossiliferous wackestone with microstylolites (WS-F-MS2)

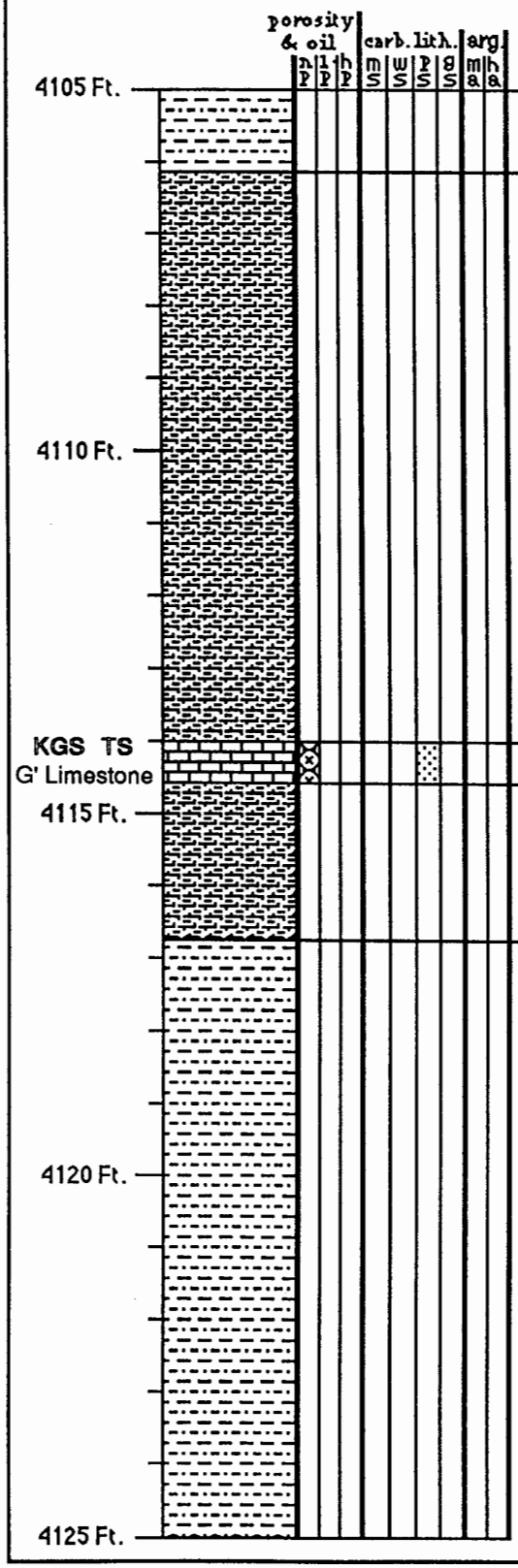
Brownish gray limy shale with fossils (SH-F-LM-GG)

This interval could easily be described as a highly argillaceous micrstylolitized mudstone or wackestone.

Red-brown silty shale with fossils (SH-Z-RB-F)

Gray mottling due to burrows.

SKELLY OIL CO. #1 BARTOSOVSKY



4105 Ft. — Red-brown silty shale with fossils (SH-Z-RB-F)

Gray-green limy shale with fossils (SH-F-LM-GG)

This interval is very calcareous and is similar to the interval from 4096 to 4100 ft.

4110 Ft.

KGS TS
G' Limestone — Oncolitic packstone (PS-ONC)

4115 Ft. — Dk. gray limy shale (SH-F-LM-DG)

Silt is present.

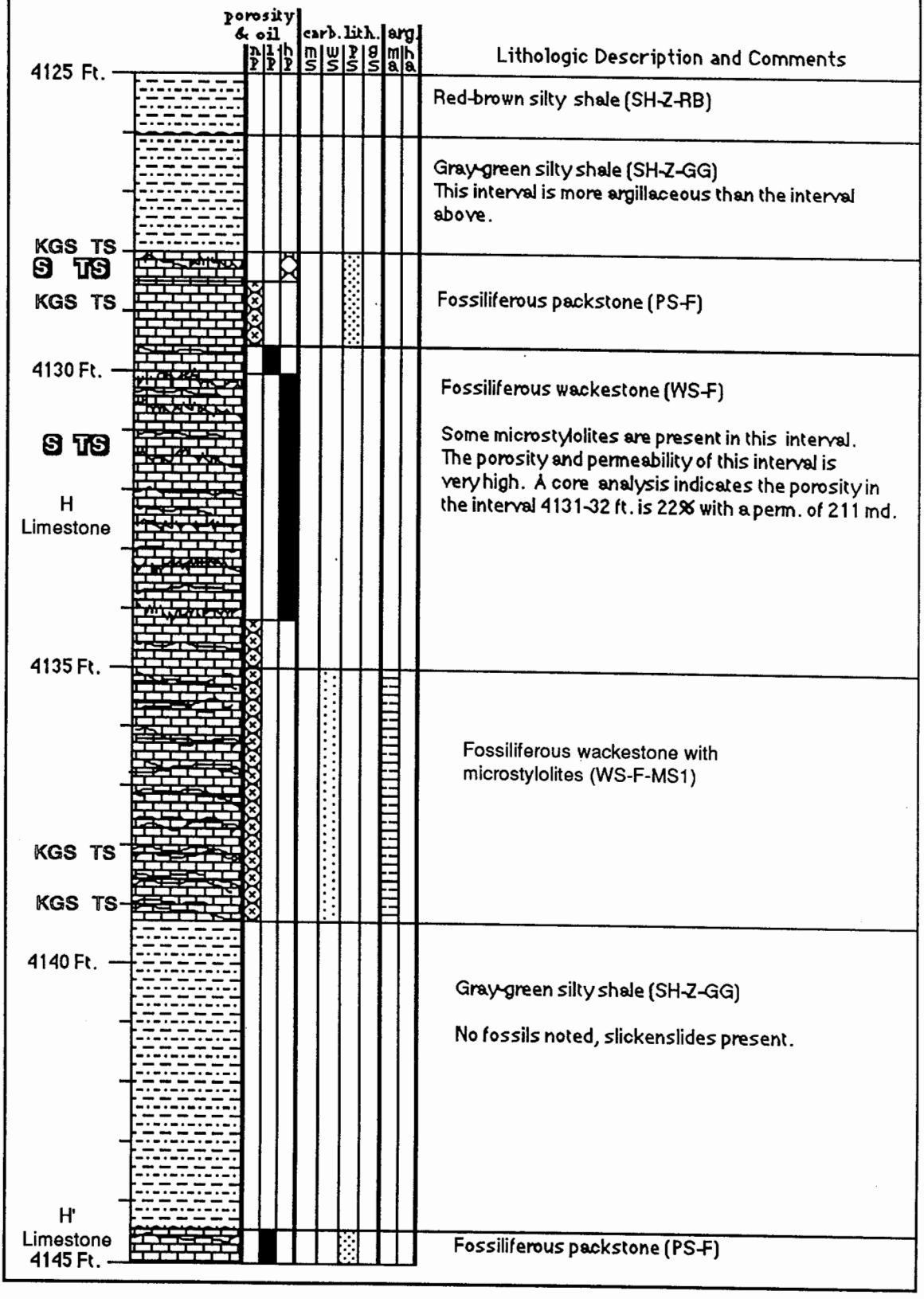
Some red coloring present.

4120 Ft. — Red-brown silty shale (SH-Z-RB)

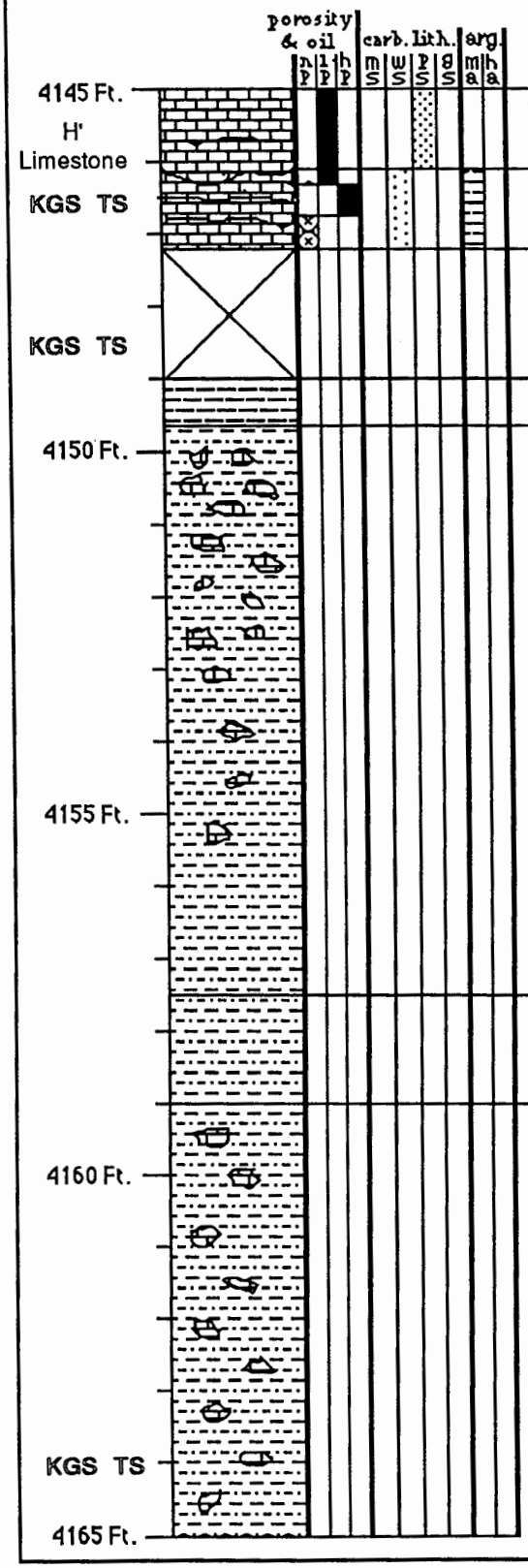
Slickenslides present.

4125 Ft.

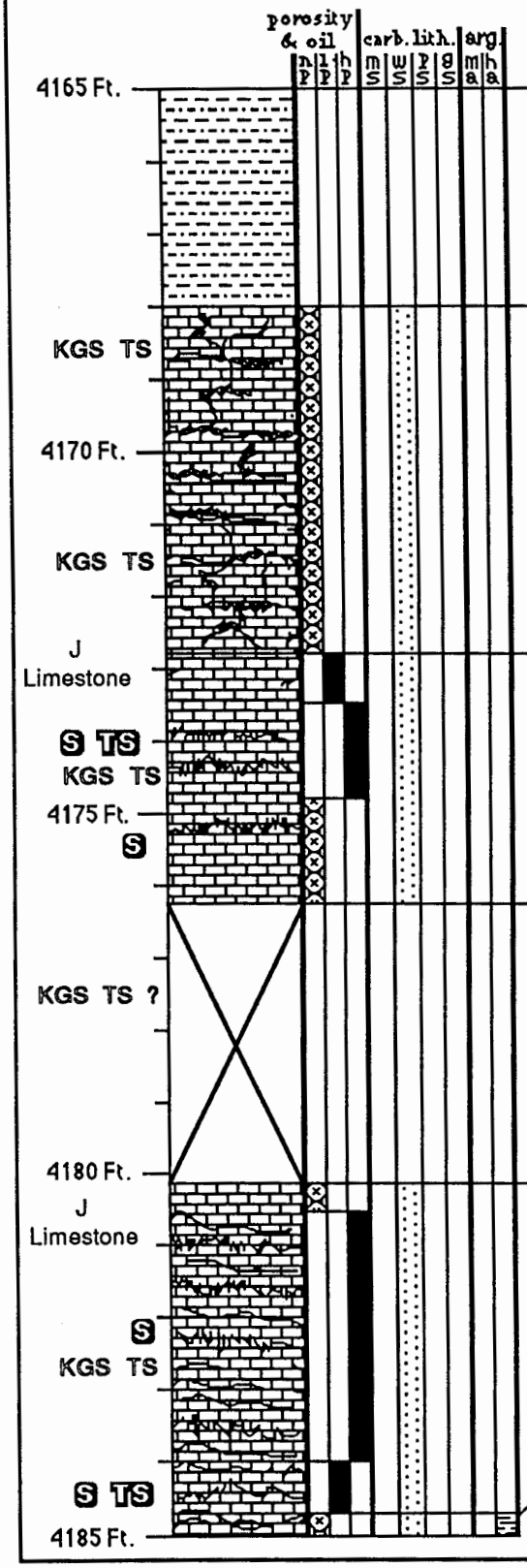
SKELLY OIL CO. #1 BARTOSOVSKY



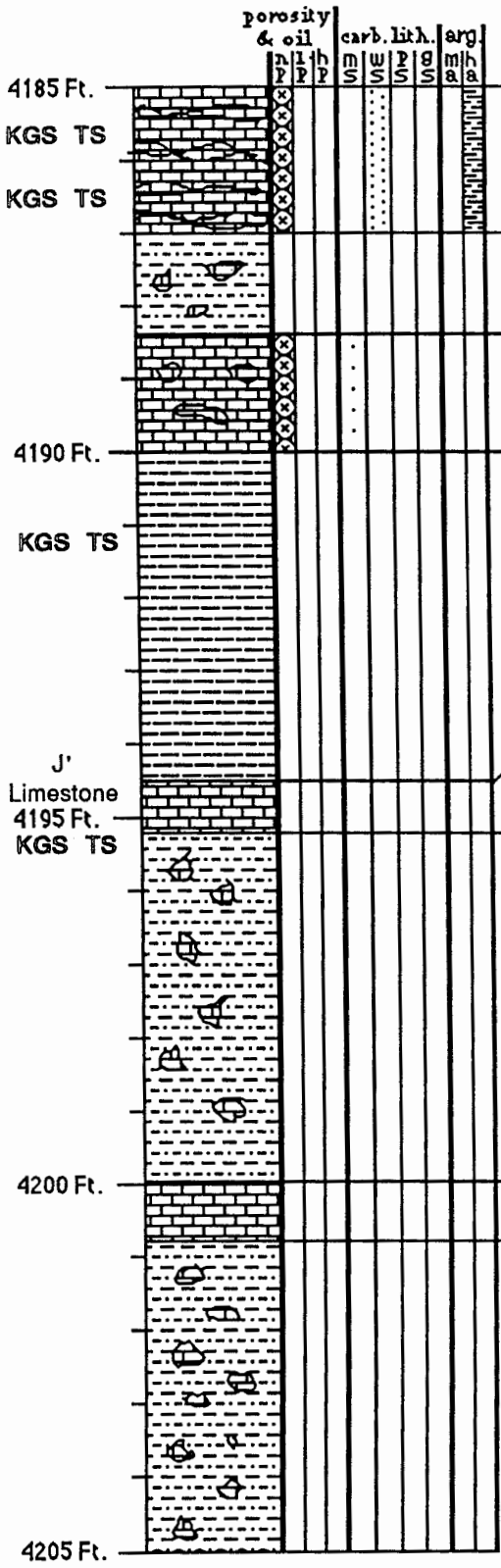
SKELLY OIL CO. #1 BARTOSOVSKY



SKELLY OIL CO. #1 BARTOSOYSKY

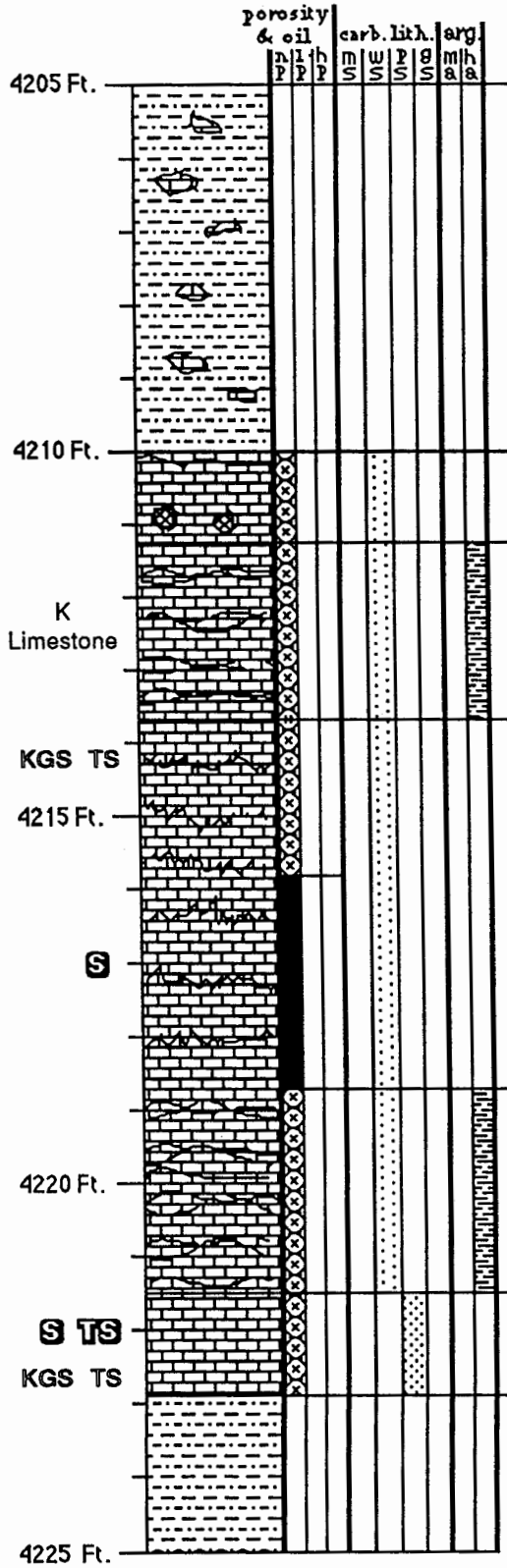


SKELLY OIL CO. #1 BARTOSOVSKY



Lithologic Description and Comments
Fossiliferous wackestone with microstylolites (WS-F-MS2)
Red silty shale with microcrystalline-calcite nodules (SH-Z-RB-MC)
Lime mudstone with microcrystalline-calcite nodules
Gray shale with fossils (SH-DG-F)
Oncolitic packstone that includes worm tubes (PS-ONC & F)
Red-brown silty shale with microcrystalline-calcite nodules (SH-Z-RB-MC)
Unknown
Red-brown silty shale with microcrystalline-calcite nodules (SH-Z-RB-MC)

SKELLY OIL CO. #1 BARTOSOVSKY



Lithologic Description and Comments

Red-brown silty shale with microcrystalline-calcite nodules (SH-Z-RB-MC)

Fossiliferous wackestone (WS-F).
Possible laminate crust at top; interval is chalky; anhydrite-filled vugs.

Fossiliferous wackestone with microstylolites (WS-F-MS2)

Fossiliferous wackestone (WS-F)

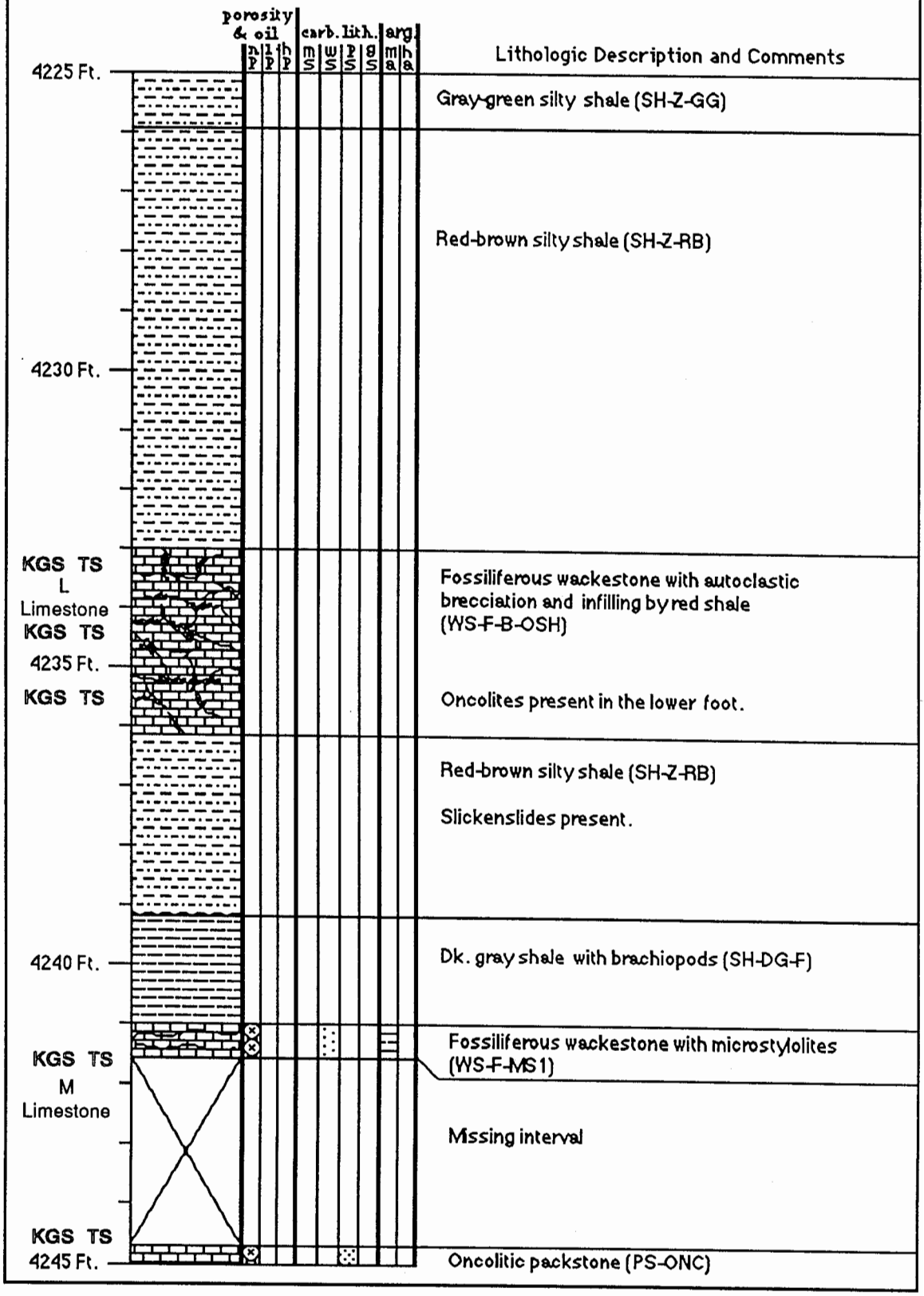
Oil stained with little effective porosity.

Fossiliferous wackestone with microstylolites (WS-F-MS2)

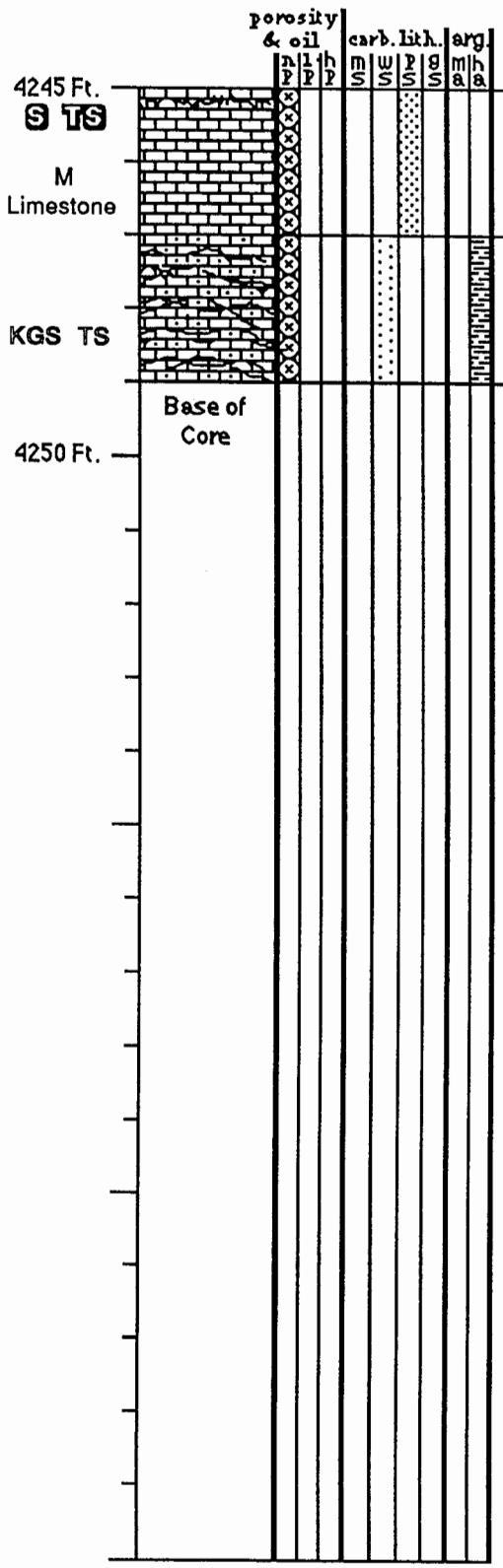
Oncolitic packstone (PS-ONC)

Gray-green silty shale (SH-Z-GG)

SKELLY OIL CO. #1 BARTOSOVSKY

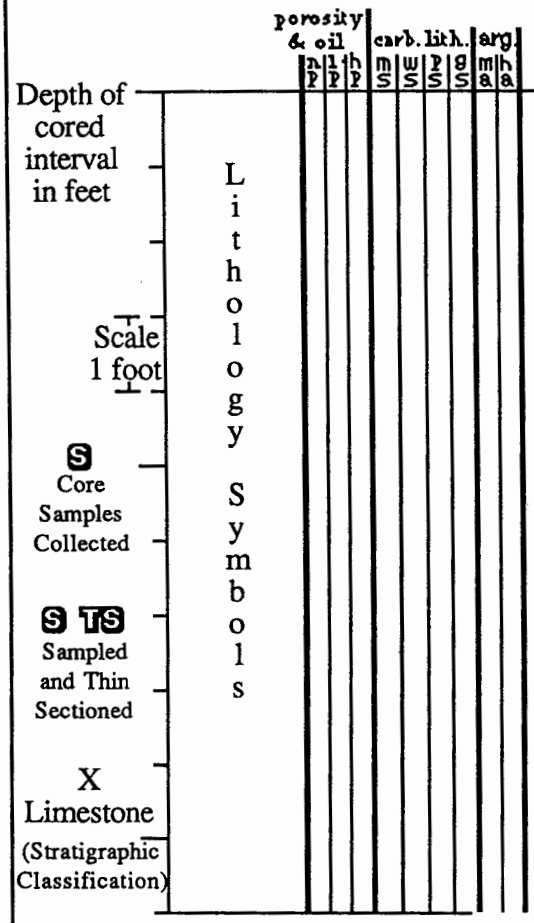


SKELLY OIL CO. #1 BARTOSOVSKY



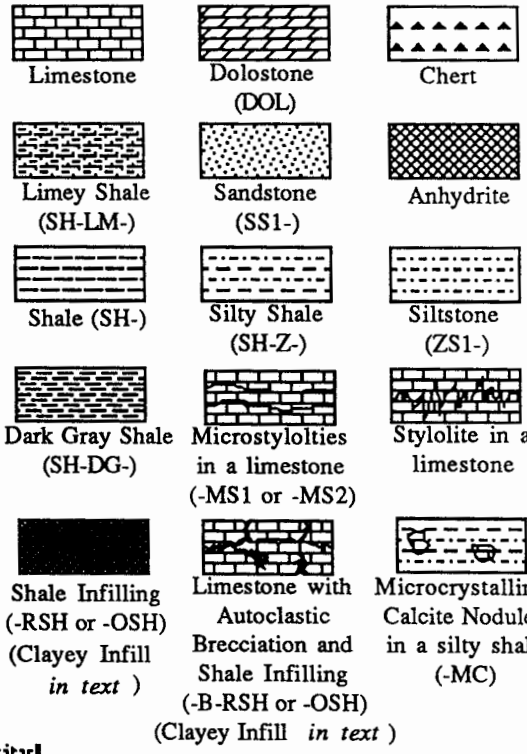
Operator, Well #, Lease Name of Core

Page # of core description

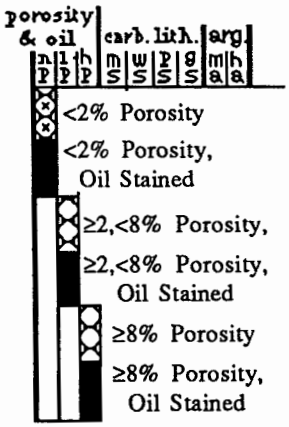


Lithologic Description and Comments

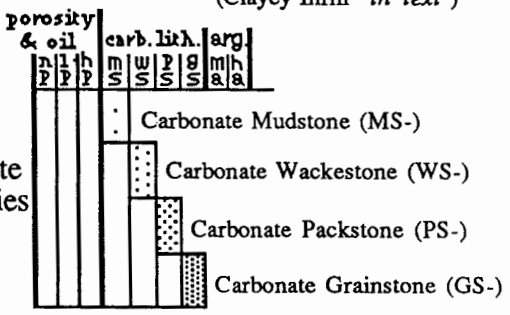
Lithology Symbols
(Abbreviated Classification)



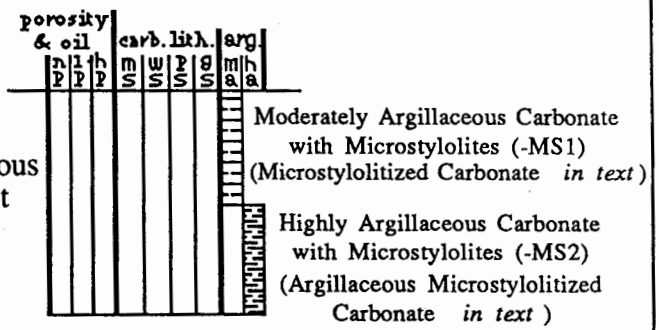
Porosity ranges based on visual estimates during core description

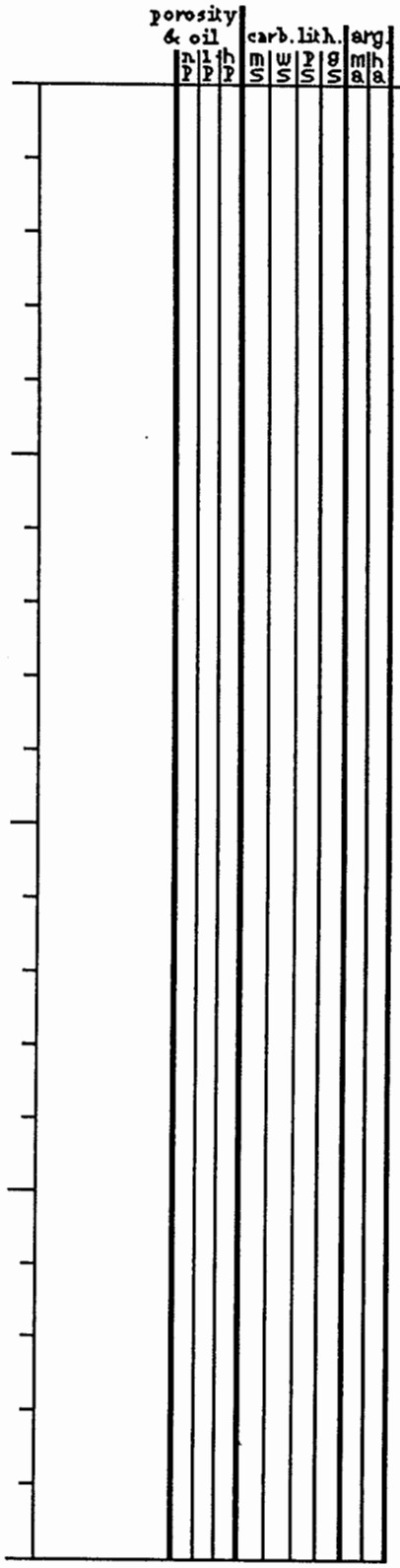


Carbonate Lithologies



Argillaceous Content





LITHOLOGY CLASSIFICATION

After the written description of each stratum, the lithology is classified by an abbreviated classification in parenthesis.

Carbonate Lithologies

(MS-) Carbonate Mudstone

(PS-) Carbonate Packstone

(WS-) Carbonate Wackestone

(GS-) Carbonate Grainstone

(DOL-) Dolostone

(LM-SH-) Limey Shale (Highly argillaceous microstylolitized carbonate *in text*)

Modifiers to Carbonate Lithologies

(-F) Fossiliferous

(-P) Peloidal

(-LM) Laminated

(-O) Oolitic

(-ONC) Oncolitic

(-FR) Fractured

(-MS1) Microstylolites (less argillaceous) (microstylolitized carbonate *in text*)

(-MS2) Microstylolites (more argillaceous) (argillaceous microstylolitized carbonate *in text*)

(-B) Autoclastic Brecciation

(-RSH) Infilling by Gray-Colored Shale } Clayey infill *in text*

(-OSH) Infilling by Red-Colored Shale

Shales

(SH-) Shale

Modifiers to Shales

(-Z) Silty

(-F) Fossiliferous

(-RB) Red-Brown

(-GG) Gray-Green

(-DG) Dark Gray

(-BL) Black

(-MC) Contains Microcrystalline-Calcite Nodules

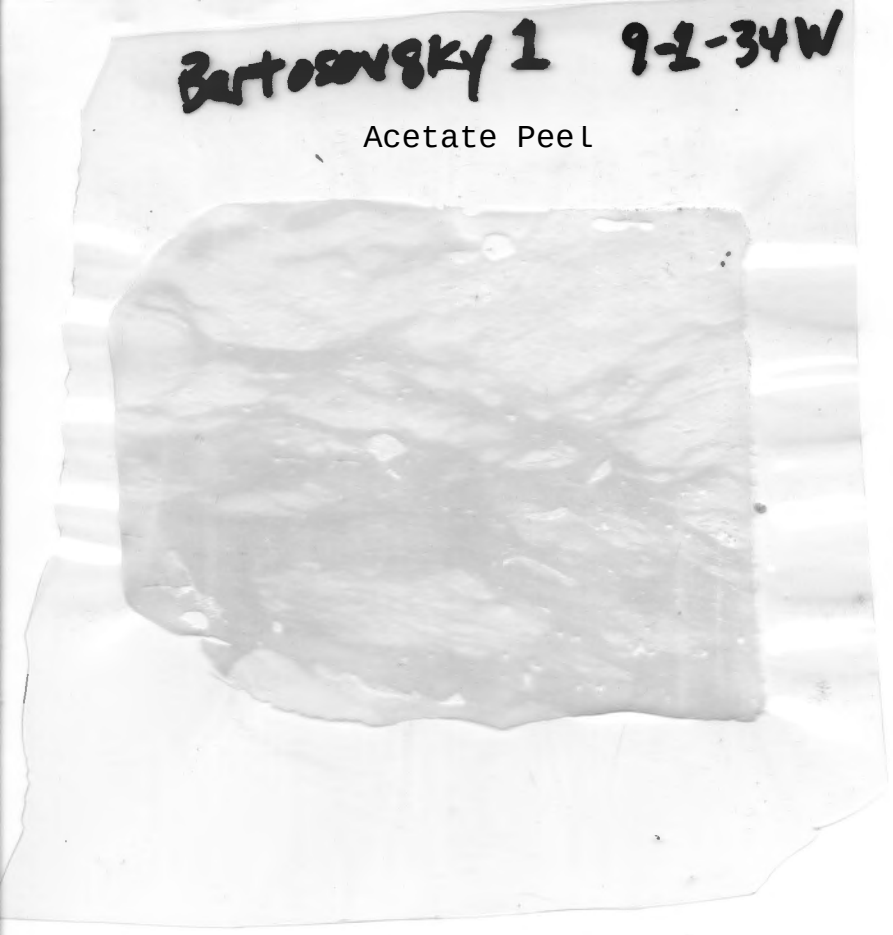
Other Lithologies

(SS1-) Very-fine grained Sandstone

(ZS-) Siltstone

Bartosinsky 1 9-1-34W

Acetate Peel



	Perm.	Por.	oil	H_2O	γ_{ray}	Sonic	micro-Later.
3976	0.1	3.9	28.2	53.8	3.1	64	1.46 29
3978	0.4	7.0	17.2	56.6	3.4	69	1.40 25
3980	0.1	6.1	24.6	54.2	3.4	65	1.58 38
3982	0.4	6.2	19.3	63.0	2.8	62	1.18 15
3984	0.1	5.9	15.3	73.0	2.5	56	1.77 59
3986	0.3	4.7	14.9	61.6	2.3	56	1.79 62
3988	0.2	6.2	29.0	37.1	2.3	54	2.11 130
3990	1.6	12.7	26.7	34.6	2.6	60	2.04 710
~~3992~~	~~0.0~~	~~3.0~~	~~0.0~~	~~96.6~~	~~6.0~~	~~97~~	~~0.70 5~~
~~3994~~	~~18.0~~	~~18.9~~	~~26.4~~	~~32.3~~	~~5.2~~	~~67~~	~~1.26 18~~
~~3996~~	~~6.5~~	~~18.4~~	~~19.0~~	~~48.3~~	~~3.9~~	~~82~~	~~1.43 27~~
~~3998~~	~~2.5~~	~~17.9~~	~~16.8~~	~~48.0~~	~~4.7~~	~~80~~	~~1.11 13~~
~~4000~~	~~0.1~~	~~12.3~~	~~11.7~~	~~72.0~~	~~5.1~~	~~77~~	~~1.08 12~~
~~4002~~	~~0.0~~	~~10.4~~	~~0.0~~	~~91.4~~	~~5.0~~	~~79~~	~~1.04 11~~
~~4004~~	~~0.0~~	~~5.2~~	~~0.0~~	~~97.8~~	~~8.1~~	~~81~~	~~0.85 7~~
					X	X	X
4030	~~0.1~~	~~7.4~~	52.3	~~20.3~~	~~2.7~~	~~55~~	~~64~~
4032	0.0	4.6	58.6	28.3	2.4	60	56

$$F = \frac{1}{\phi^{1/2}} \qquad F = \frac{R_o}{R_w}$$

$$I = \frac{R_t}{R_o} \qquad S_w = \sqrt[1/2]{\frac{1}{I}}$$

4036	0.0	9.2	79.2	11.0	3.2	65	35
4038	0.0	2.5	0.0	96.0	3.4	54	240
4080	11.0	16.4	36.0	16.5	2.2	62	235
4082	1.2	12.0	35.0	25.8	3.1	63	35
4084	0.1	12.5	33.6	25.6	2.9	63	48
4086	0.0	3.3	0.0	97.0	2.7	60	21
4128	0.0	12.9	0.0	98.4	2.2	~~59~~	54
4130	0.2	6.4	25.0	57.8	2.1	61	130
4132	211.0	22.0	29.5	25.5	3.4	68	120
4134	6.5	15.4	37.6	24.7	3.2	75	180
4170							
↓							
4182							

Type Log

? pull down from T-Log to Terralog

need to find ? use Bartosovsky that was drafted earlier w/ Ø-K plot along side

Core description

✓ Jim's on MAC

✓ Redoing in ~~abbreviated format~~

) combine in new format; do at scale of type log; log depth and core depth

CROSS PLOTS reservoir analysis

cross plots for lithofacies analysis

(1)

Location plot

Tables ?? old maps seismic development data

production decline curve analysis of (single pay wells)

Getty #902 Cahoj Unit

NW-NE-NW 9-1S-34W G.L. 3113 KB 3118
(tops meas. from KB)

Formation	Top	
Oread	3900	-107
Heebner	3949	-58
A	4007	0
B	4027	20
C	4047	40
D	4061	54
E	4083	76
G	4114	107
H	4163	156
J	4204	197
K	4246	239
L	4267	260
M	4274	267

Getty #930 Cahoj Unit

NW-SW-NW 16 – 1S – 34W GL = 3160, KB = 3165

(mens from KB)

Formation	Top	
Oread	3936	−100
Heebner	3986	−50
A	4036	0
B	4057	21
C	4070	34
D	4091	55
E	4114	78
G	4142	106
H	4193	157
J	4232	196
K	4275	239
L	4296	260
M	4305	269

Getty #9-14 Cahoj Unit

2440' FSL 1520 FWL 9-1s-34w

GL = 3093 KB = 3098 (meas from KB)

Formation	Top	
Oread	3858	-106
Heebner	3912	-52
A	3964	0
B	3982	18
C	4005	41
D	4016	52
E	4039	75
G	4066	102
H	4116	152
J	4158	194
K	4201	237
L	4221	257
M	4228	264

Oreal	100
A	0
B	16 ?
C	34 ?
D	50
E	70
G	95
H	148
J	190
K	232
L/M	253
N	[illegible]

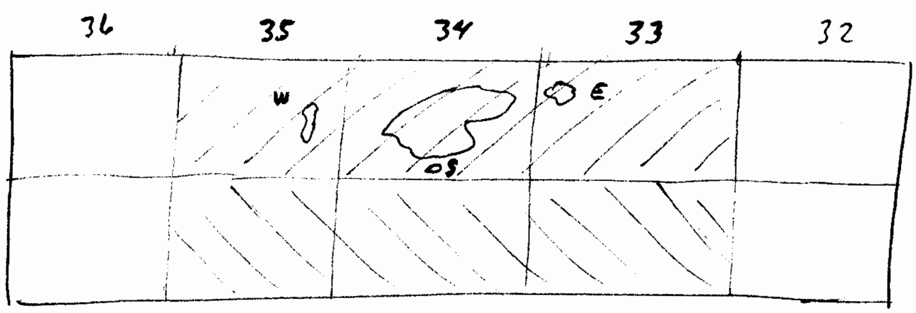
Cahoj field

- structure top Lansing
- posting of wells
- distribution of perforations (same approach as was done Regionally)

J. C.

Generate database for Cahoj field area

Township 1 south, Range 33, 34, 35 west



1. database:
   well location, surface elevation or reference elevation, date completion, I.P. (initial production), TD, perf. zone and elevation, Stone corral, Heebner, Lansing, base Kansas City, base of Pennsylvanian, Top of Miss, Top of Arbuckle, Precambrian
2. basemap preparation: scale: ______, for use in * contour map of top Lansing, * distribution of producing zones
   include a) well posting w/ symbols • oil + dry hole
   b) section, township-range tick marks, lines
   c) label Township - Range
3. structure contour map on top Lansing (subsea elevation)
4. frequency distribution of perforations from top Lansing - 10ft. increments

5. printout
(V) list wells and Top Lansing (A) (subsea), perforation (B) (subsea), difference between (A) and (B), [perf interval #1, perf int. #2, perf int. #3, perf int. #4]
(index number (ID)), initial potential,

6. monthly lease production for rehoj and lease decline curves
(Doug Beene)

- extract data in TORP format (Larry Schoeling), floppy disk to operate from program

-

OLD MAPS

- structure
- isopach
- Bartlesville
Miss - Arbuckle

Hatch - SOURCE RK.

New Data

* subsea elevations Stone Corral Top // Lansing

* Isopachs

(Arbuckle — Miss. (Penn))

Lans - Hatch.

Stone C Lansing

---

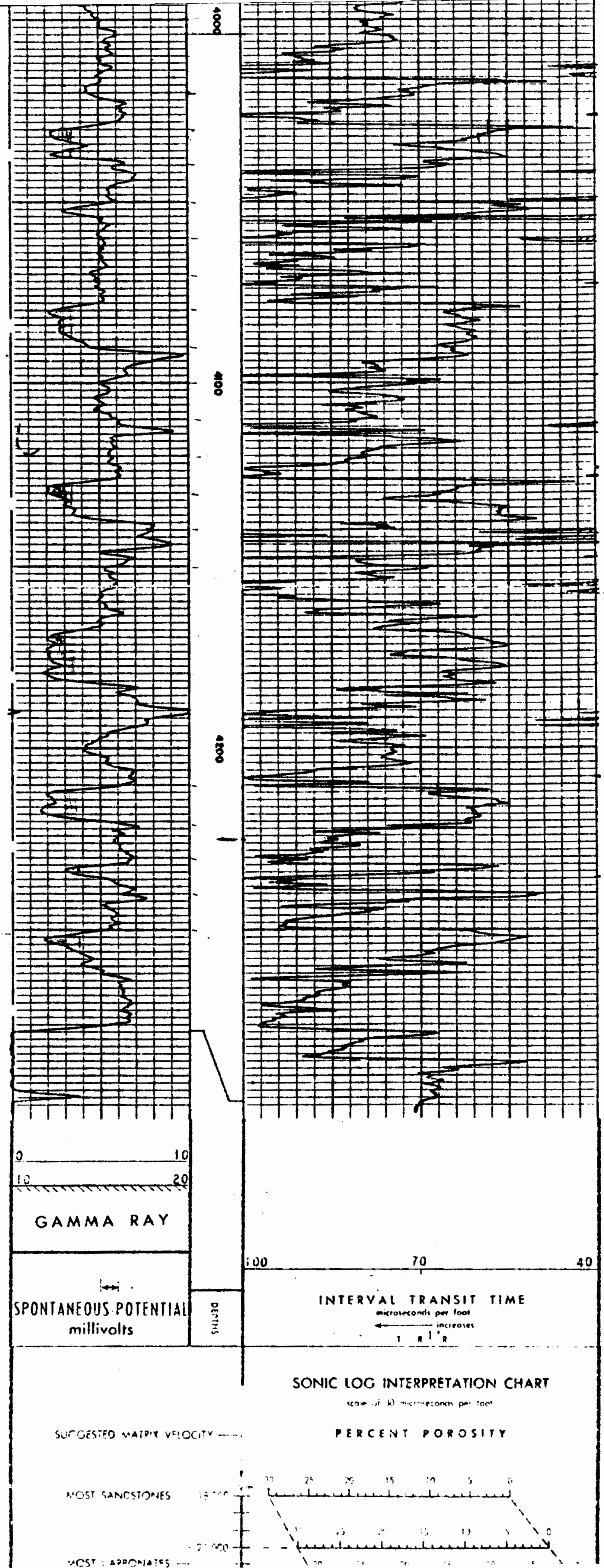
* Isopach Top Lansing — Top pf.

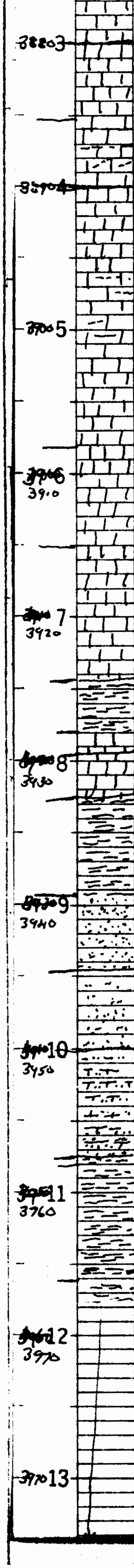
Dist of pay by zone

Computer generated best map Index map

Structure map Top Lansing

3011220 0S2 Ø ft. Focus on J-zone





buggy p.p. por. vug filled ē calc. dols. Vert. frac.

ls. lt. grey dense.

ls. lt. grey dense to finely xllyn thin sh. streaks

ls grey dense shaly

end of core #1
ls grey dense shaly

ls. dk gr. dense shaly

sh dk grey to blk + dark greenish gry partly cal partly carbonaceous & Pos,
ls brwn dense fract. filled ē sh
ls. brwn f. xllyn oolitic in part. vuggy por,
sh grayish green Cal. Silty

ss greenish grey silty f. grained friable F. por.

ss same as above

Cal. siltstone – silty ls. grayish gre

sh dk grey-green Cal,
sh dk red. Cal,

sh dk red Cal