

ENVIRONMENT OF DEPOSITION OF
THE PENNSYLVANIAN BARTLESVILLE
SANDSTONE, LABETTE COUNTY, KANSAS

A Thesis

by

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Submitted to the Graduate College of
Texas A&M University in
partial fulfillment of the requirement for the degree of
MASTER OF SCIENCE

December 1973

Major Subject: Geology

** most of the information within
this folder is
from this thesis*

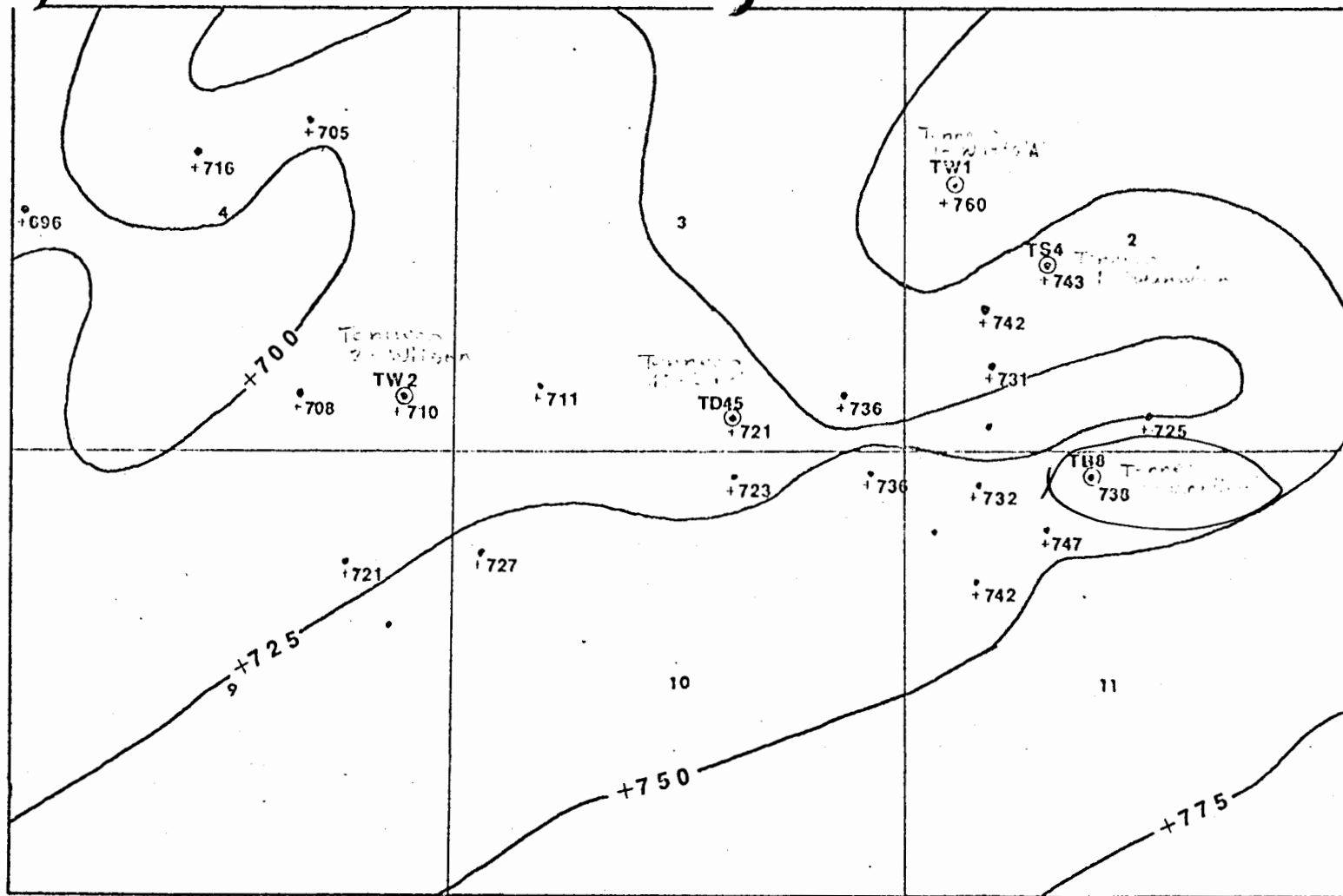


Figure 6. Local structure on top of Bartlesville Sandstone showing location of cored intervals (circled wells) and other wells (solid dots) used in this study.

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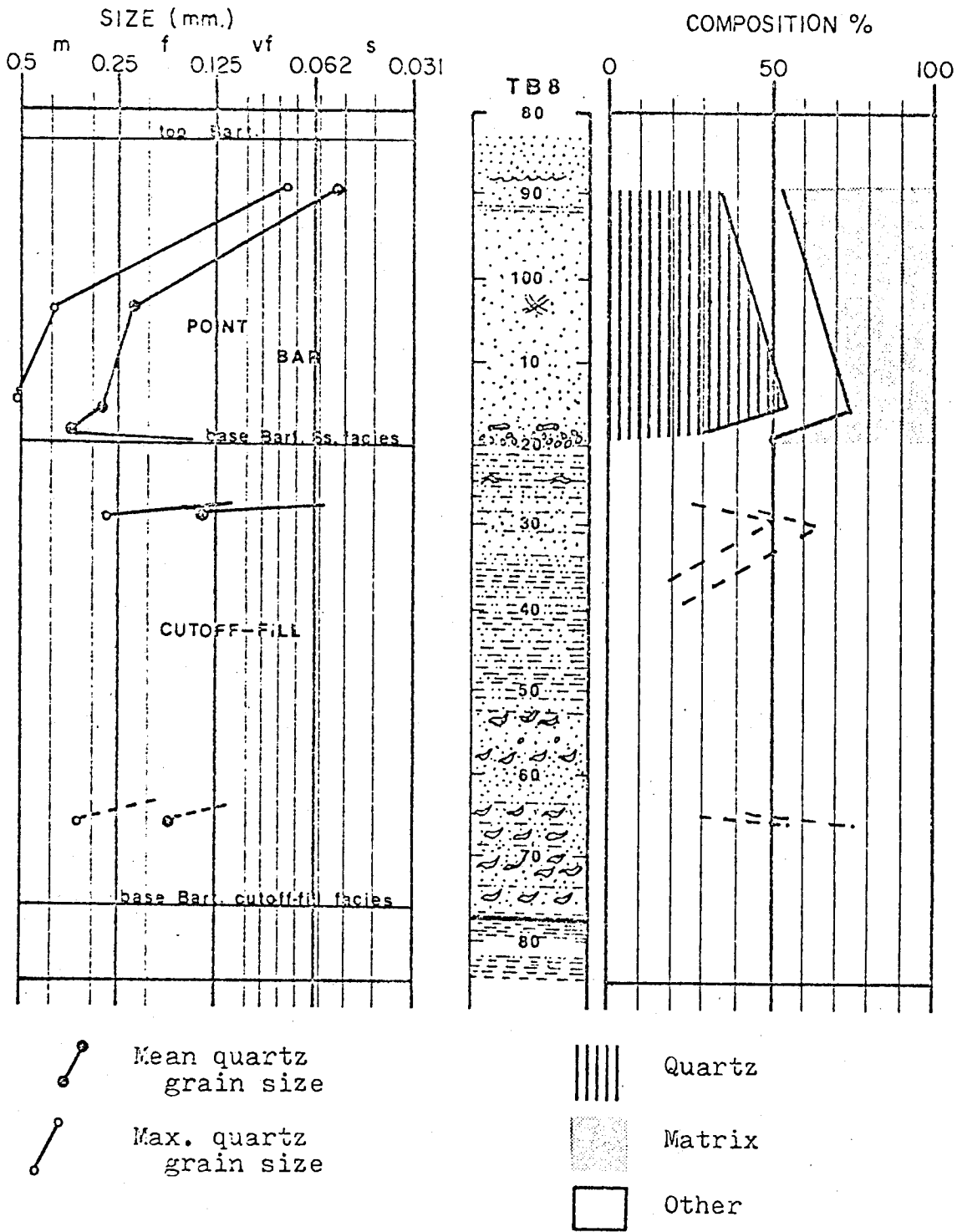


Figure 11. Grain size and composition of Bartlesville Sandstone in cored interval TB8.

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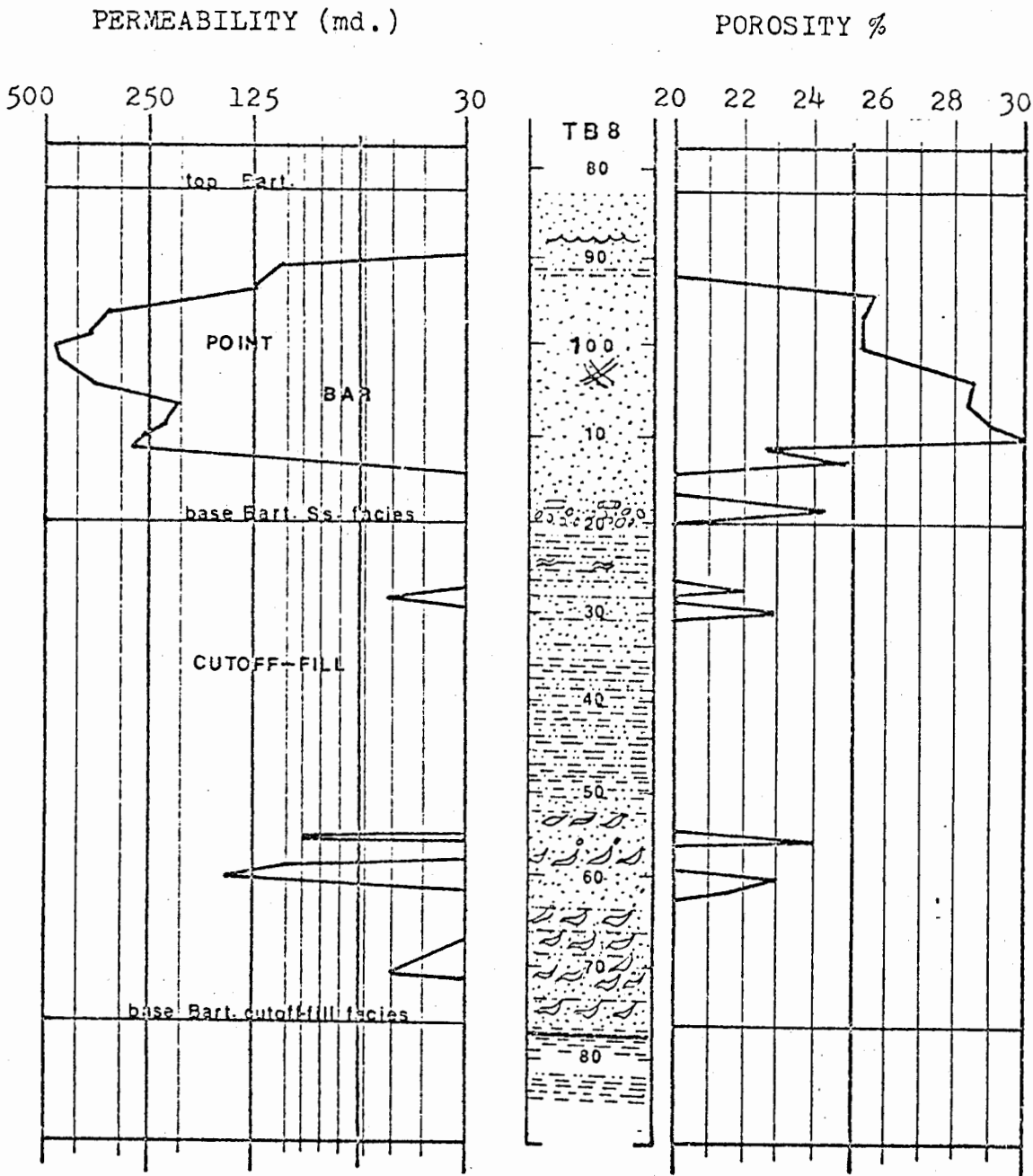


Figure 12. Permeability and porosity of Bartlesville Sandstone in cored interval TB8.

STANDARD INTERNATIONAL LOGGING

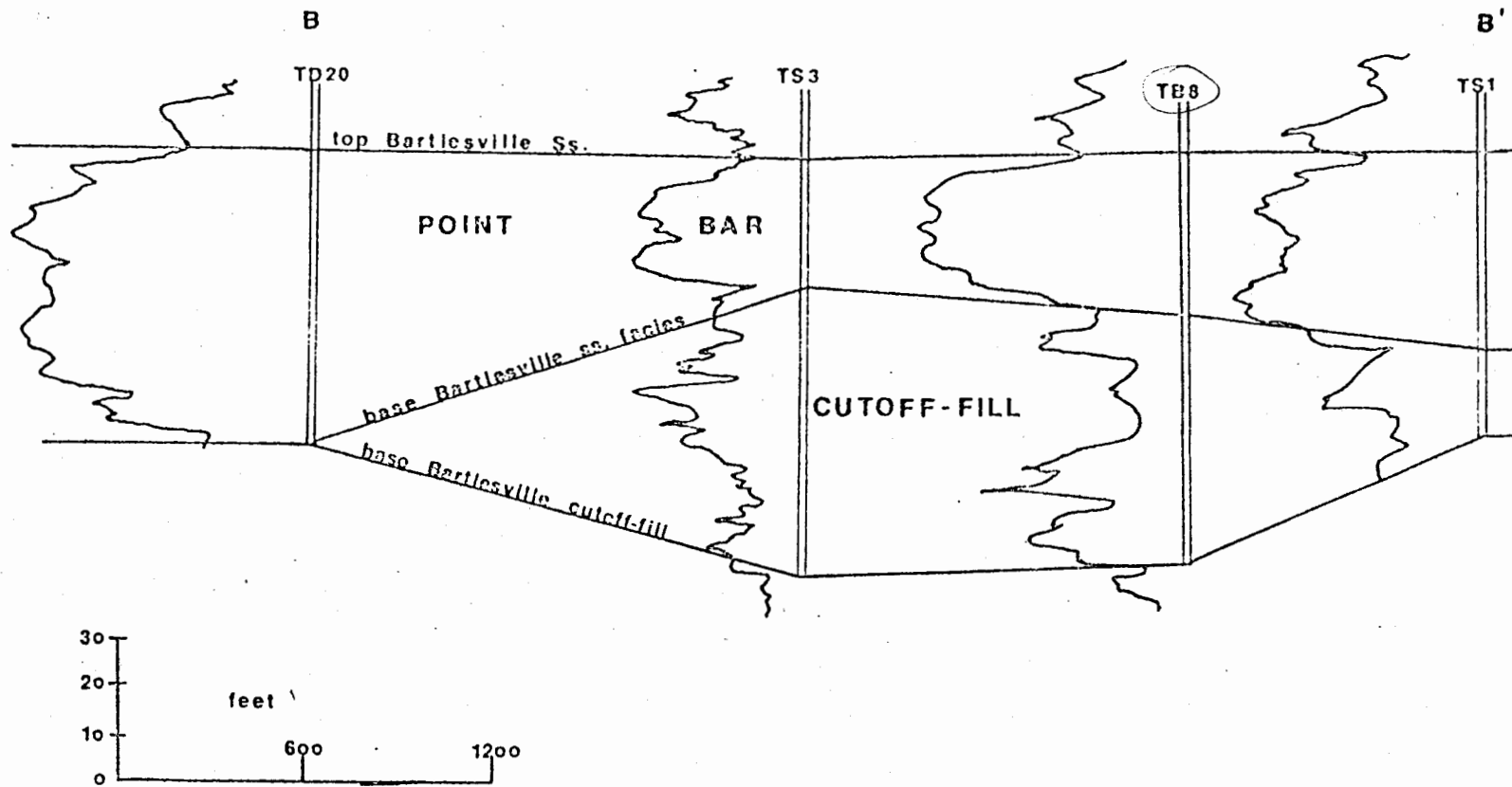


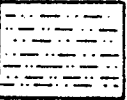
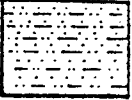







Figure 21. Interpretive cross section B-B', from gamma ray logs of indicated wells, through point bar and cutoff-fill facies.

SYMBOLS FOR DESCRIBED CORES

ROCK TYPE	STRUCTURES
	conglomerate
	sandstone
	siltstone
	siltstone with sand laminae
	claystone or shale
	no core available
	ACCESSORIES
	 carbonaceous matter
	 petrified wood fragments
	 contorted shale clasts

CORE DESCRIPTIONS

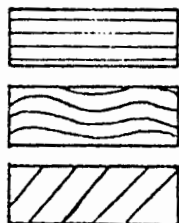
Format Used for Core Descriptions

Field
 Well Name
 Location
 Formation Name - Age
 Cored Interval (in feet)

<u>Depth</u>	<u>Thickness</u>	<u>Description</u>	<u>Environment</u>
Feet	Feet	Rock type, color, grain size, sorting dominant mineral, accessory minerals	(Example) Upper point bar
		Primary sedimentary structures*	

*Sedimentary structure description:
 Laminae less than 4 inches thick
 Thin beds greater than 4 inches thick

Parallel Continuous

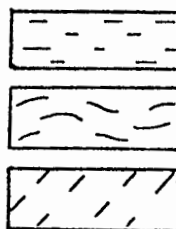


Even

Wavy

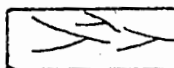
Inclined

Parallel Discontinuous

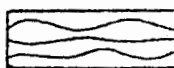


Nonparallel

Even



Wavy



Curved



Chetopa Field
 TB8: Tenneco Harry Bradley No. 8
 Sec. 11-31S-21E Labette Co. Kansas
 Bartlesville Sandstone Pennsylvanian
 Core 83-185 feet

Depth	Thickness	Description	Environment
83- 85	2	Sandstone, brown, very fine grained, well sorted, quartzose Laminae parallel continuous wavey at top to parallel discontinuous wavey with few clay balls at base.	Natural levee or over bank
85- 87	2	Sandstone, gray, very fine grained, poorly sorted, quartzose, silty, becomes less silty at base Laminae parallel discontinuous even to nonparallel wavey to parallel inclined 10-15° at base.	Natural levee or over bank
87- 93	6	Sandstone, light gray to brown, very fine grained, well sorted, quartzose, with some silt stringers Laminae nonparallel wavey at top, alternating siltstone and sandstone laminae parallel continuous even at base.	Upper point bar

<u>Depth</u>	<u>Thickness</u>	<u>Description</u>	<u>Environment</u>
93- 117	24	Sandstone, black (hydrocarbon stained), very fine to medium grained (downward), moderately sorted, quartzose, some silt Laminae indistinct to parallel continuous even to parallel continuous inclined 15° at 103' to parallel continuous even at base.	Point bar
117- 120	3	Sandstone, light brown, medium grained, poorly sorted, quartzose, with clay pebbles, silicified wood fragments, and carbonaceous material Laminae parallel continuous even to parallel continuous inclined 10°.	Base point bar
120- 127	7	Siltstone, brown to gray, with laminae of very fine sand Sandstone laminae parallel discontinuous even to convolute laminae at 124'; sandstone laminae becomes continuous and thicker at base.	Cutoff fill
127- 133	6	Sandstone, brown, fine grained, moderately sorted, quartzose, with siltstone laminae	Cutoff fill

<u>Depth</u>	<u>Thickness</u>	<u>Description</u>	<u>Environment</u>
		Sandstone laminae non-parallel wavey; siltstone laminae 1/2"-3" thick throughout sandstone.	
133- 151	18	Siltstone, dark gray, with alternating sandstone laminae and claystone laminae	Cutoff fill
		Siltstone laminae parallel continuous even; sandstone laminae non-parallel wavey from 1/16" - 1/2" thick; sandstone laminae decrease and siltstone and claystone laminae increase below 143 feet.	
151- 154	3	Sandstone, gray-white, fine grained, well sorted, quartzose, with abundant siltstone and claystone clasts	Cutoff fill
		Clasts of siltstone and claystone are from 1/16" - 1 1/2" thick, lense shaped to pod shaped and contorted; laminae of claystone parallel continuous even up to 2" thick.	
154- 156	2	Sandstone, brown, very fine grained, moderately sorted, quartzose, with few siltstone and claystone pebbles.	Cutoff fill

<u>Depth</u>	<u>Thickness</u>	<u>Description</u>	<u>Environment</u>
156- 159	3	Sandstone, gray-white, fine grained, well sorted, quartzose, with abundant siltstone and claystone clasts Clasts of siltstone and claystone are from 1/16" - 2" thick, lense shaped to pod shaped and contorted.	Cutoff fill
159- 161	2	Sandstone, brown, very fine grained, moderately sorted, quartzose, with some silt Laminae parallel discontinuous even.	Cutoff fill
161- 173	12	Sandstone, gray-white, fine grained, well sorted, quartzose, with abundant siltstone and claystone clasts Clasts of siltstone and claystone are 1" - 4" thick, lense shaped to pod shaped and contorted; Siltstone laminae to thin beds at 163', 166', and 168'; laminae in some clasts contorted.	Cutoff fill
173- 175.5	2.5	Siltstone, dark gray, with abundant claystone laminae, become sandy at base with silt pebbles and large siltstone clasts.	Base cutoff fill

<u>Depth</u>	<u>Thickness</u>	<u>Description</u>	<u>Environment</u>
175.5- 176	.5	Coal, black Thin laminae even parallel.	
176- 179	3	Sandstone, brown, very fine grained, poorly sorted, clayey and carbonaceous Laminae clayey non- parallel wavey.	
179- 182	3	No sample	
182- 185	3	Shale, dark gray, sandy Laminae nonparallel wavey to parallel discontinuous wavey.	

CORE ANALYSIS RESULTS

Company TENNECO OIL COMPANY Formation BARTLESVILLE File CP-10-156
Well HARRY BRADLEY NO. 8 Core Type DIAMOND Date Report 12-20-66
Field CHETOPA Drilling Fluid WATER BASE MUD Analysts HUNT
County LABETTE State KANSAS Elev. 818'GL Location 330'FNL 2310'FWL NW/4 SEC 11-35S-21E

Lithological Abbreviations

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS		POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE		SAMPLE DESCRIPTION AND REMARKS
		HORZ	VERT		OIL	TOTAL WATER	
1	83-84	34	20	20.2	24.7	48.5	Sd, thin sh lams
2	84-85	1.3		18.4	6.0	83.0	Sd, sh lams
	85-86						Sh, silty
3	86-87	6.0		18.9	21.6	62.0	Sd, thin sh lams
4	87-88	4.4		19.1	32.4	44.5	Sd, thin sh lams
	88-92						Sh, silty
5	92-93	<0.1		13.9	1.4	86.4	Sd, v/shy
6	93-94	207	78	24.6	48.9	28.0	Sd
7	94-95	163		27.6	58.0	22.1	Sd
8	95-96	95	6.2	23.8	44.2	31.6	Sd
9	96-97	163		25.3	49.4	28.8	Sd
10	97-98	473	390	24.9	49.8	27.2	Sd
11	98-99	398		23.4	38.4	37.6	Sd
12	99-00	380	395	21.2	28.2	71.0	Sd
13	100-01	442		26.1	34.8	34.8	Sd
14	101-02	491	488	24.6	31.7	38.6	Sd
15	102-03	555		28.4	28.5	52.1	Sd
16	103-04	368	169	25.4	25.2	58.6	Sd
17	104-05	427		27.6	23.2	56.8	Sd
18	105-06	295	272	27.5	21.5	58.0	Sd
19	106-07	180		28.6	21.3	58.9	Sd
20	107-08	216		26.1	14.5	65.0	Sd
21	108-09	322		28.1	14.2	60.0	Sd
22	109-10	131		30.2	14.6	62.5	Sd
23	110-11	128		30.7	16.6	64.5	Sd, shy
24	111-12	362		30.0	10.3	77.6	Sd, shy
25	112-13	491		27.0	11.1	70.3	Sd, shy
26	113-14	82		18.9	19.6	67.1	Sd
27	114-15	10		24.3	12.3	63.0	Sd
28	115-16	5.5		25.6	9.0	75.0	Sd, shy
29	116-17	0.4		23.5	15.7	73.5	Sd, shy
30	117-18	2.0		7.0	10.0	52.9	Sd, v/shy
31	118-19	31		21.6	27.3	48.3	Sd, shy
32	119-20	3.2		26.7	13.1	65.6	Sd, shy

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Petroleum Reservoir Engineering
DALLAS, TEXAS

File CP-10-1563 Page No. 2
Well Harry Bradley No. 8

CORE ANALYSIS RESULTS

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYs	POROSITY PER CENT	RESIDUAL SATURATION PER CENT PORE		SAMPLE DESCRIPTION AND REMARKS
				OIL	TOTAL WATER	
33	120-21 121-27	4.0	22.8	9.6	68.7	Sd, shy Sh, few thin sd stks
34	127-28	0.4	22.1	5.0	85.0	Sd, shy
35	128-29	69	17.6	42.6	33.6	Sd, shy
36	129-30	39	20.4	17.2	62.3	Sd, shy
37	130-31	33	22.6	35.4	43.4	Sd, shy
38	131-32	15	22.9	33.1	44.6	Sd, shy
39	132-33 133-55	13	22.1	34.4	44.8	Sd, shy Shale
40	155-56	17	24.2	26.0	49.6	Sd, v/shy, sh nod
41	156-57	25	16.6	0.0	84.0	Sd, v/shy, sh nod
42	157-58 158-59	167	21.6	19.4	58.0	Sd, v/shy, sh nod Sh, silty
43	159-60	216	23.7	44.6	27.0	Sd
44	160-61	246	26.0	44.0	28.8	Sd
45	161-62 162-64	45	17.1	5.8	73.5	Sd, shy Shale
46	164-65	4.0	22.1	18.1	50.6	Sd, sh nod
47	165-66	4.4	16.0	3.7	72.5	Sd, sh nod
48	166-67	40	16.9	8.3	68.6	Sd, sh nod
49	167-68	0.3	19.3	25.9	54.4	Sd, sh nod
50	168-69	0.7	17.7	30.4	32.1	Sd, sh nod
51	169-70	0.2	17.1	14.0	49.0	Sd, sh nod
52	170-71	38	19.3	5.7	65.4	Sd, sh nod
53	171-72 172-76 176-85	72	19.9	18.5	51.2	Sd, sh nod Sh, sl/sdy Shale

THIS IS THE FINAL REPORT.

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2000 CLASSEN CENTER
OKLAHOMA CITY, OKLAHOMA

COMPANY TENNECO OIL COMPANY FIELD CHETOPA FILE CP-10-1563
 WELL HARRY BRADLEY NO. 8 COUNTY LABETTE DATE 12-20-66
 LOCATION 330'FNL 2310'FWL NW/4 STATE KANSAS ELEV. 818'GL
SEC 11-35S-21E

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VERTICAL SCALE: 5" = 100'

CORE-GAMMA SURFACE LOG (PATENT APPLIED FOR)

GAMMA RAY
RADIATION INCREASE
→

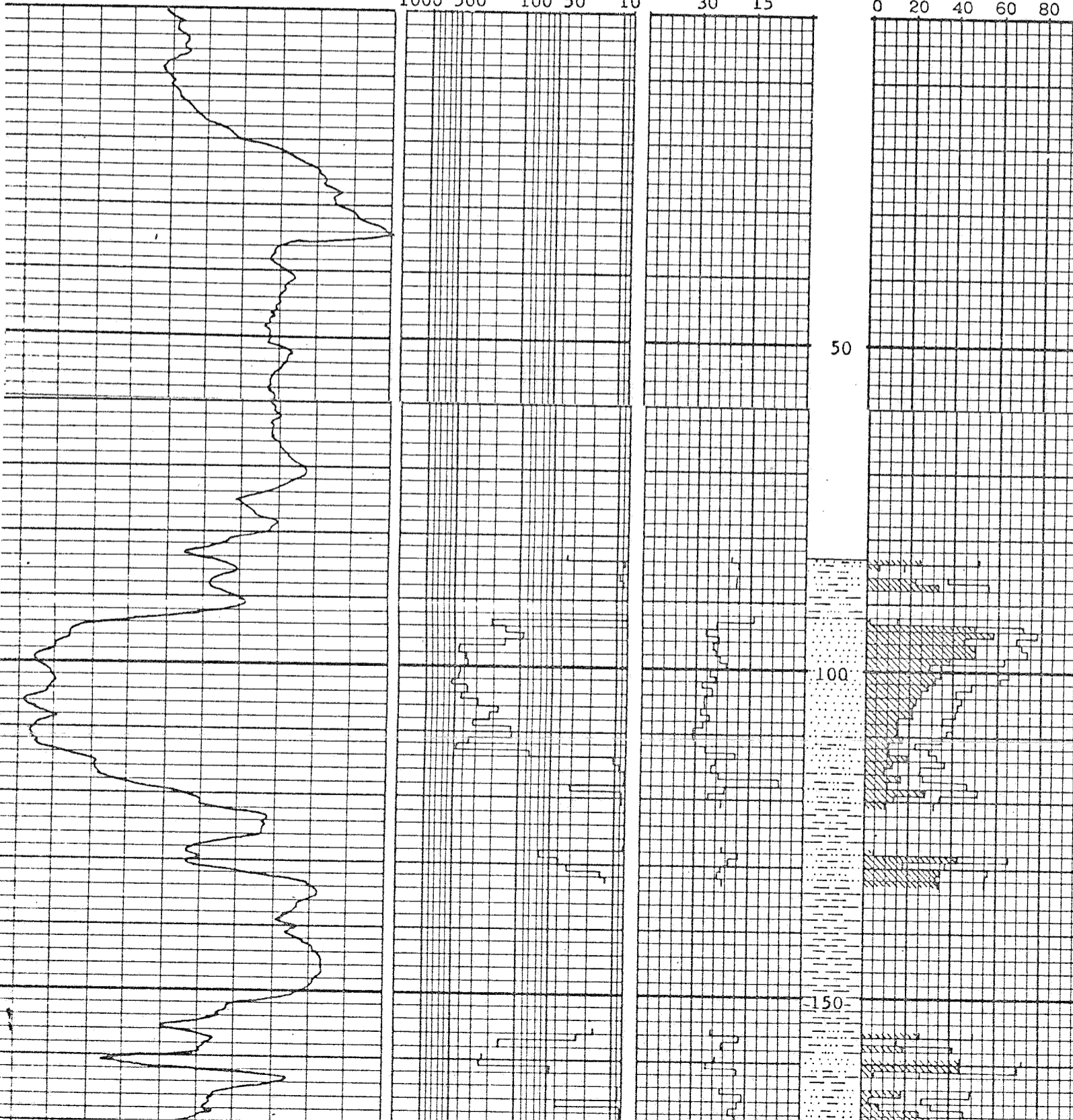
COREGRAPH

TOTAL WATER ———
PERCENT TOTAL WATER
80 60 40 20

PERMEABILITY ———
MILLIDARCYS
1000 500 100 50 10

POROSITY ———
PERCENT
30 15

OIL SATURATION - - - - -
PERCENT PORE SPACE
0 20 40 60 80



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VERTICAL SCALE: 5" = 100'

CORE-GAMMA SURFACE LOG (PATENT APPLIED FOR)

COREGRAPH

GAMMA RAY
RADIATION INCREASE
→

TOTAL WATER ———
PERCENT TOTAL WATER
80 60 40 20 0

PERMEABILITY ———
MILLIDARCYS
1000 500 100 50 10

POROSITY ———
PERCENT
30 15

OIL SATURATION - - - - -
PERCENT PORE SPACE
0 20 40 60 80

