St2 suly 503 80

Jula 360A

Computer Inventoried

4-35-1W

GEOLOGICAL REPORT X

Cities Service Company Cottle A-1 SE SE SW Sec. 4-35S-1W Summer County, Kansas

Slawson Drlg.

December 13, 1982 December 23, 1982

8 5/8" @ 395"

Contractor:

Drilling Commenced: Drilling Completed:

Surface Casing:

Elevations:

1131 G.L. 1138 K.B.

Electric Logging Program: / Schlumberger

/ Dual Induction-SFL Compensated Neutron-

Litho Density

Borehole Compensated Sonic Log

Computer Processed Log

Samples:

Collected from 1620' to 4574'

Quality: fair to good

Ctate Geograficas Survey

HECTIVE STATE CORPORATION COMMISSION

CONSERVATION IN MEION Willia Kansas

Page 2

Formations	Log Tops	Sample Tops
Neva Tarkio Topeka Heebner Iatan Layton Kansas City Base Kansas City Marmaton Cherokee Mississippian Kinderhook Simpson Arbuckle		1204 (-66) 1717 (-579) 2082 (-944) 2492 (-1354) 2821 (-1683) 3293 (-2155) 3480 (-2342) 3576 (-2438) 3644 (-2506) 3788 (-2630) 4013 (-2675) 4296 (-3158) -4368 (-3230) -4504 (-3366)
RID LID	4574 ⁽¹ 297), 4565	457 4 4565

Crute Ocological Cineral

RECONTACTOR STATE CORPORATION COMMISSION

FIIII 2

CONSERVATION LOVERN Wheats Assess

Page 3

Sample Descriptions

All samples, tops and tests are correlated to electric lcg tops.

Circulated for samples at: 3122,2766,2876,2916,3293,3336,3784, 3994,4011,4021,4041,4102,4292,4356,4365,4505,4565.

1600-1714 Shale, varicolored (red, green, gray), calcareous, pyritic. Interbedded thin sandstones, light gray, medium grained, very micaceous, fair porosity, no show.

Tarkio 1714 (-576)

1714-1744 Limestone, brown coarsely crystalline, slightly dolomitic, poor porosity grading to limestone, pinkish tan colitic, fossiliferous, slightly chalky, fair porosity, no show.

Shale, gray, micaceous, slightly silty. Interbedded sandstones, light gray, fine grained, poorly sorted, micaceous, argillaceous, poor to fair porosity, no show

Gtate wiching Branch 1783-1826 1783-1826 Alternating limestones and shales; Limestone, gray, fine crystalline, slightly sucrosic, very argillaceous in part, micaceous, fossiliferous, poor to fair porosity, no show Shale, varicolored (red, gray, green) mottled in part, fossiliferous, shale clast bearing.

> 1826-1830 Limestone, light tan to cream, medium to coarsely crystalline, pissolitic, very fossilferous, poor porosity, no show.

> > STATE CORPORATION COMMISSION

CONSERVACION DE SEON

Page 4

1830-1901 Shale, varicolored (red, green, gray-green) calcareous, micaceous, fossiliferous in part.

1901-1912 Limestone, cream, fine crystalline, slightly fossilifeous, dolomitic in part, poor to fair porosity, no show.

1912-2027 Alternating limestone and shale; Limestone, cream, fine crystalline, slightly fossiliferous, arenaceous, poor to fair porosity, no show. Shale, varicolored (red. gray), micaceous, silty.

2027-2060 Sandstone, white to light gray, fine grained, micaceous, poor to fair porosity, no show.

2060-2080 Shale, varicolored (red, gray-green, gray) mottled in part, calcareous, micaceous.

Topeka 2080 (-942)

Glate wicht A BRANCH 2080-2104 Limestone, light gray, very fine crystalline, very fossiliferous, slightly arenaceous, dense, poor porosity, slight mineral fluoresence, no show.

2104-2128 Limestone, light gray, fine to medium crystalline, oolitic in part, slightly dolomitic, chalky in part, slightly vuggy, fair to good porosity: ocnoldic in part, mineral fluoresence. no show.

HELDINGS COMMISSION

CONSERVATION DIVISION William Renda

Page 5

- 2128-2201 Limestone as above, poor to fair porosity, no show, circulated for samples at 2132 for 30 minutes.
- 2201-2264 Limestone as above, thin shales, varicolored (red, green, black)
- 2264-2340 Limestone, white to cream, fine to medium crystalline, slightly fossiliferous, pinpoint vugs, slightly cherty: opaque, slightly fossilifeours; poor to fair porosity, no show; with shale as above, fossiliferous in part, mottled.
- 2340-2462 Shale, med gray, blocky, slightly micaceous, slightly calcareous with limestone as above. Grading to varicolored shale (red, green, gray) slightly fossiliferous, calcareous.
- 2462-2489 Limestone, brown, very fine crystalline, fossiliferous, dense, poor porosity, no show.
- 2464-2476 Shale, med gray, calcareous, blocky.
- 2476-2482 Limestone, medium gray to light brown, medium crystalline, very fossiliferous (fusulinids), poor porosity, no show.

State Michily Branch

STATE CORPORATION COMMISSION

FILL CO.

OUNSERVATION DIVISION
WITHIN RESIDEN

Page 6

Heebner 2482 (-1344)

- 2432-2489 Shale, dark gray to black, micaceous, carbonaceous, blockly.
- 2489-2552 Alternating shale and limestone; shale, varicolored (gray, gray-green, red) slightly fossiliferous, silty. Limestone, cream to brown, fine to medium crystalline, fossiliferous, argillaceous, poor porosity, no show.
- 2552-2581 Shale, as above, with dolomite, white to cream, very fine crystalline, fossiliferous, chalky in part, poor porosity, no show.
- 2581-2604 Sandstone, white, fine grained, slightly fossiliferous, pyritic, fair to good porosity, no show.
- 2604-2618 Shale, medium gray, slightly sandy, laminated in part.
- 2618-34 Sandstone, as above, increasingly argillaceous, fair to good, porosity, no show.
- 2634-2658 Shale, as above.

 2658-2678 Limestone, cream, mediate to redarsly crystalline, very fossiliferous, arenaceous in part, poor porosity, no show.

STATE STREETS STREETS ON

Page 7

2678-2684 Shale, as above.

2684-2692 Limestone, brown, medium crystalline, poor porosity, no show.

2692-2704 Sandstone, as above, good porosity, no show.

2704-2720 Shale, medium to dark gray, micaceous, silty, with sandstone, as above.

2720-2725 Limestone, brown, medium to coarsely crystalline, fossiliferous, poor porosity, no show.

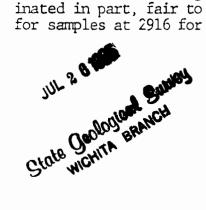
2725-2816 Shale, medium gray, silty, micaceous, arenaceous in part, circulated for samples at 2766 for 30 minutes.

Iatan 2816 (-1678)

2816-2819 Limestone, brown, medium crystalline, fossiliferous, poor porosity, no show.

2819-2901 Siltstone and shale, siltstone, white, micaceous, poor porosity. Shale, medium gray to greenish gray, blocky, circulated for samples at 2876 for 30 minutes.

2901-2932 Sandstone, white to light gray, fine grained, micaceous, laminated in part, fair to good porosity, no show, circulated for samples at 2916 for 30 minutes.



STATE CORPORATION COMMISSION

FILL 2

CONSERVACION EL MATERIA

WALLE COMMISSION

Page 8

2932-2938 Shale, as above.

2928-2976 Sandstone, as above, fair to good porosity, no show.

2976-3006 Limestone, tan fine to medium crystalline, slightly dolomitic, poor porosity, no show.

3006-3029 Dolomite, brown, medium crystalline, very argillaceous, poor porosity, no show.

3029-3262 Shale, medium to dark gray, micaceous, with thin sandstone. lenses, light gray, very fine grained micaceous, poor porosity, no show.

3262-3266 Lignite.

3266-3272 Shale, as above

Layton 3272 (-2134)

3272-3300 Sandstone, white to light gray, slightly glauconitic, slightly micaceous, gilsonite bearing, dolomitic, poor to good porosity, faint fluoresence, no stain, no cut, no odor, circulated for samples at 3293 for 45 minutes.

3300-3315 Shale, varicolored (red, green-gray, and medium gray), gummy, shale intraclast bearing.

STATE CORPORATION COMMISSION

CONSERVATION DESCRIPTION OF THE PROPERTY OF TH

Page 9

- 3315-3351 Sandstone, light gray, fine to medium grained, glauconitic, gilsonite bearing, micaceous, poor to good porosity. Show of free oil, fair fluoresence, poor cut, possible light stain, no odor, circulated for samples at 3336 for 60 minutes.
 - 3351-3370 Shale, green to medium gray slightly micaceous, pyritic in part.
 - 3370-3410 Dolomite, tan to cream, fine to coarsely crystalline, fossiliferous, very argillaceous, slightly cherty, slightly oolitic, poor porosity, no show.
 - 3410-3451 Shale, medium gray, micaceous, thin limestone streaks; gray, fine crystalline, argillaceous.

Kansas City 3451 (-2313)

- Limestone, tan to light brown, colitic, slightly chalky in part, slightly fossiliferous, slightly dolomitic, fair to good compldic porosity, poor to fair intercrystalline porosity, good mineral fluoresence, no cut, no stain, possible light odor.
- 3469-3490 Limestone, tan to light gray, fine crystalline, chalky, slightly fossiliferous, poor to fair porosity, no show.
- 3490-3527 Shale, light to medium gray, micaceous, slightly carbonaceous, silty.





Page 10

3527-3561 Alternating limestones and shales. Limestones, tan, fine crystalline, dark gray to white chert, fossiliferous, poor porosity, no show, with shale, as above.

Base Kansas City 3561' (-2423')

3561-3567 Shale, as above.

3567-3592 Sandstone, light green, fine grained, glauconitic, very fossiliferous (crinoids), argillaceous, fair porosity, weak fluoresence, poor cut, no odor, no free oil.

3592-3634 Shale, light gray, silty, micaceous, slightly arenaceous in part.

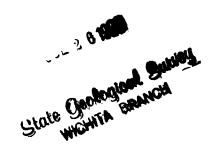
Marmaton 3634 (-2496)

3634-3644 Limestone, white to tan, fine to medium crystalline, chalky in part, oolitic in part, poor porosity, mineral fluoresence no cut.

3644-3649 Shale, dark gray, slightly carbonaceous, silty.

3694-3673 Limestone, tan to cream, fine crystalline, fossiliferous in part, poor porosity, no show. Some shale stringers.

3673-84 Shale, gray, slightly carbonaceous, slightly calcareous.





Page 11

3696-3705 Limestone, as above, chalky, fair porosity, no show.

3705-3711 Shale, as above.

3711-3720 Limestone, cream, fine to medium crystalline, slightly fossiliferous, poor porosity, no show.

3720-3730 Shale, medium gray to black, carbonaceous, silty, slightly calcareous.

3730-3744 Limestone, as above, poor porosity, no show.

3744-3750 Limestone, cream, fine to medium crystalline, slightly fossiliferous, poor porosity, possible fractures, good fluoresence along fractures, very weak cut, possible light odor no free oil.

3750-3756 Limestone, cream to light brown, fine crystalline, very argillaceous, fossiliferous in part, interbedded with shale, as above.

3764-3778 Limestone, light brown to medium gray, fine crystalline, slightly fossiliferous, argillaceous, poor porosity, no show, interbedded with gray shale, as above.

STATE OF RODANTION COMMISSION

Quere!

4-35-1W

Page 12

Cherokee 3778 (-2640)

3778-3782 Shale, black, carbonaceous, silty, hard.

- 3782-3851 Interbedded shale and limestone. Shale, medium to dark gray and green, micaceous, silty, calcareous; Limestone, cream to light brown, fine crystalline, fossiliferous, argillaceous, poor to fair porosity, slight mineral fluoresence in part, no show. Circulated for samples at 3784 for 45 minutes.
- 3851-3889 Interbedded shale, sandstone and limestone. Shale, medium to dark gray, fossiliferous in part, calcareous; Sandstone medium gray, fine grained, micaceous, argillaceous, heavy mineral bearing, poor to fair porosity, no show; Limestone, as above.
- 3889-3958 Interbedded shale, siltstone, sandstone and limestone. Shale, as above; siltstone, green, micaceous, argillaceous, no show; sandstone, as above; limestone, medium gray to tan, fine to medium crystalline, poor porosity, no show.
- 3958-4003 Interbedded shale, limestone and sandstone. Shale, varicolored, green, red and gray, slightly calcareous, micaceous, silty; limestone, tan, fine crystalline, cherty: White to green; argillaceous, poor porosity, no show; Sandstone, medium grained, loose sand, no show, circulated for samples at 3994 for 45 minutes.





Page 13

7 000

63³⁷ 0636

Mississippian 4003 (-2865)

4003-4010

Chert, white to tan, fossiliferous, tripolitic in part, weathered, poor to good porosity, show of free oil, spotted stain and saturation, good fluoresence, weak cut, faint odor, circulated for samples at 4011 fo 60 minutes.

DST #1 4006-4011 30-60-30-60 Rec. 3' oil specked mud FP 1-4/2-2 SIP 1310/114 HH 1999/1894

4010-4020

Chert, white to cream, tripolitic in part, non weathered in part, poor to good porosity, show of free oil, spotted stain and saturation, good fluoresence, weak to good streaming cut, good odor, circulated for samples at 4021 for 60 minutes.

5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00% 5 00%

DST #2 4007-4021 30-60-60-120 Rec__65'_,0&SGC4 FP_2-3/4-4 SIP_863/1133 HH 2020/1915

4020-4042 C

Chert, white to cream, mottled, fossiliferous, with thin limestone streaks, white, fine crystalline, colitic, slightly fossiliferous, poor to fair porosity, slight fluoresence, no cut, no odor. Circulated for samples at 4041 for 45 minutes.

JUL 2 6 1850

State Geological Suivey

BRANCH

BRANCH

STATE CORPORATION COMMISSION

STATE CORPORATION COMMISSION

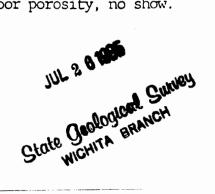
CONSERVATION COMMISSION

CONSERVATION COMMISSION

Wichita Karasa

Page 14

- 4042-4092 Limestone, cream, fine crystalline, slightly cherty; non weathered, slightly dolomitic, poor porosity, no show, with some shale, light gray, light brown, reddish brown, mottled, silty, glauconitic in part.
- 4092-4126 Chert, white to cream, mottled, tripolitic in part, wheathered chert, poor to good porosity, slight fluoresence, no cut, no odor, no stain, circulated for samples at 4102 for 45 minutes.
- 4126-4138 Chert, white to cream and light brown. Translucent, fresh, poor porosity, no show.
- 4138-4163 Limestone, light to medium brown, sucrosic, slightly glauconitic, slightly silicious, slightly cherty, pin point vugs; slightly dolomitic, poor porosity, no show.
- 4163-4168 Chert, white to tan, weathered, vuggy, fair porosity, fair fluoresence, weak cut, slight show free oil, slight odor.
- 4168-4191 Dolamite, brown, sucrosic, silicious, cherty, dense, poor porosity, no show.
- 4191-4201 Limestone, tam to light brown, sucrosic, dolomitic, slightly chalky, silicious, cherty, pin point vugs, fair porosity, no show.
- 4201-4212 Dolomite, tan to cream, sucrosic, slightly glauconitic, very cherty: Translucent in part, fossilifeous (sponge spicules), poor porosity, no show.



HECELVEL STATE CORPORATION COMMISSION

CONSESSATION DESIGN

Page 15

- 4212-4238 Chert, medium brown, slightly dolomitic, poor porosity with shale, light to medium gray, silty, hard, blocky.
- 4238-4274 Dolomite, tan to light gray, sucrosic, silicious, very glauconitic, cherty: translucent, very fossiliferous (sponge spicules); pin point vugs, poor to fair porosity, no show.
- 4274-4282 Shale, varicolored, red, green-gray and medium gray to dark gray, discontinuously laminated, slightly dolomitic, pyritic.
- 4282-4288 Dolomite, tan, fine crystalline, slightly sucrosic, silicious, fossiliferous (silicious spongue spicules), very dense, poor porosity, no show.

Kinderhook 4288 (-3150)

- 4288-4326 Shale, Med. to dark gray, silty, blocky, circulated for samples at 4292 for 45 minutes.
- 4326-4358 Shale, dark gray to black, cartonaceous, pyritic, spore bearing, blocky. Circulated for samples at 4356 for 60 minutes.



Page 16

Simpson 4385 (-3220)

4358-4362 Sandstone, white to light gray, fine grained, well rounded, moderately well sorted, silica cemented, slightly dolomitic, poor porosity, slight fluoresence, no cut.

4362-4365 Sandstone, as above, fair to good porosity, slight show free oil, good fluoresence in part, weak cut, faint odor, slight stain, circulated for samples at 4365 for 60 minutes.

DST #3 4285-4365 30-60-30-60 Red. 20'mud + 62'muddy SW + 186' GCSW FP 41-266/277-359 SIP 1669/1669 HH 2145/2145

4365-4375 Sandstone, as above, poor porosity, slight stain in part, weak fluoresence in part, poor cut, no free oil, slight odor.

4375-4404 Sandstone, as above, fair porosity, slight stain in part, slight / fluoresence in part, slight odor.

4404-4423 Shale, green, gray green and light gray, silty, sandy in part, blocky.

4423-4435 Dolomite, cream, fine to medium crystalline, argillaceous, very cherty: white to yellow; poor porosity, no show.





Page 17

- 4435-4446 Shale, as above, with Limestone, tan, fine crystalline, slightly cherty, slightly dolomitic, poor porosity, no show.
- 4446-4482 Interbedded sandstone and shale, Sandstone, white to cream, fine grained, well rounded moderately well sorted, slightly glauconitic, slightly phosphatic, argillaceous in part, poor to good porosity, no show; shale, as above.
- 4482-4492 Sandstone, medium grained, loose sand grains, well rounded, no show, with some shale as above, with dolomite pebbles.

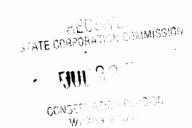
Arbuckle 4492 (-3354)

- 4492-4512 Dolomite, cream, oolitic, sucrosic in part, cherty, white to translucent in part, poor to fair porosity, slight mineral fluorescance, no cut, circulated for samples at 4505 for 60 minutes.
- 4512-4532 Dolomite, tan to cream, fine crystalline, cherty; as above, sucrosic in part, dolomite filling vugs, poor porosity, no show, interbedded with shale, med. gray, blocky, and sandstone, white to cream, fine grained, well rounded, dolomitic, poor porosity, no show.
- 4532-4560 Dolomite, cream, fine to medium crystalline, sucrosic, cherty as above, sandy in part, slight vuggy porosity in part, poor to fair porosity, no show.

JUL 2 0 1990

Gtate Geologies Survey

BRANCH



4-35.1W

Page 18

4560-4565 Dolomite, cream, oolitic, oomoldic porosity in part, fair to good porosity no show, circulated for samples at 4565 for 60 minutes.

Report Submitted By,

Richard Robinson Anne Kremer Geologist Geologist

SB

JUL 2 8 TO HECES VELL HECES VELL HECES VELL GOMMISSION STATE CORPORATION COMMISSION STATE CORPORATION COMMISSION WICHITA BRANCH COMSERVATION DIVISION WIGHTLE REGIONS