

Geological Report

API#15-015-23350

OXY USA, INC.  
Chesney "A" No. 228  
2520' FSL, 1660' FEL  
Sec. 21-T25S-R5E  
Butler Co., Kansas  
El Dorado Field

Computer Inventoried

Contractor: Allen Drilling Co., Rig # 2.  
Commenced: 2 AM September 2, 1993. Reached R.T.D. 2379' at 3:25 AM September 9, 1993.  
Completed:  
Casing: Surface-8 5/8" casing at 233' with 200 sacks cement.  
Production- 5 1/2" at 2378' with 375 sacks cement.  
Elevations: K.B. 1378'. Gr. 1373'.  
Total Depth: 2379' -1001, L.T.D. 2381' -1003.  
Logging Program: Atlas Wireline Services- Dual Induction, Compensated Neutron-Density, Minilog.  
Samples: 10' wet from 600' to 1400'; 10' wet and dry from 1400' to 2335'; 5' wet and dry from 2335' to 2379'.  
Drilling Time: One foot from 500' to 2379'.  
Geologist: Herbert R. Johnson

Log Tops

Admire	596 + 782
Burlingame	758 + 620
White Cloud	836 + 542
Topeka	897 + 481
Oread	1320 + 58
Heebner	1358 + 20
Douglas Shale	1389 - 11
Douglas Sand	1432 - 54
Haskell	1536 - 158
Iatan	1569 - 191
Lansing	1629 - 251
Base Lansing	1760 - 382
Kansas City	1910 - 532
Base Kansas City	2071 - 693
Checkerboard	2140 - 762
Hepler Sand	2169 - 791
Altamont	2196 - 818
Pawnee	2229 - 851
Cherokee	2268 - 890
Conglomerate	2352 - 974
Arbuckle	2360 - 982
L.T.D.	2381 -1003
R.T.D.	2379 -1001

KCC

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Sample Description

Admire 599 +779  
599-625 Sandstone, gray, brown, fine grained, friable, good porosity, well stained, yellow fluorescence, good show free oil.

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625-637 Interbedded gray shale and siltstone.  
637-650 Sandstone, gray, tan, very fine to fine grained, friable,  
fair to good porosity, well stained, fluorescence, good  
show free oil.  
650-758 Interbedded limestone and shale, NS.

Burlingame 758 +620

758-793 Limestone, white, tan, fine crystalline, poor to fair  
porosity with stain and fluorescence.  
803-835 Interbedded limestone and shale.

White Cloud 835 +543

835-846 Sandstone, gray, very fine grained, micaceous, poor  
porosity, spotted light stain, yellow fluorescence.  
846-850 Limestone, grayish brown, fine crystalline, dense.  
850-868 Sandstone, gray, tan, very fine grained, micaceous, poor  
to fair porosity, light stain, yellow fluorescence, fair  
show free oil.  
868-895 Shale, gray, silty.

Topeka 895 +483

907-912 Limestone, tan, gray, fine crystalline, dense, NS.  
912-937 Shale, gray with thin interbeds of dense limestone.  
937-950 Limestone, grayish brown, fine crystalline, dense.  
950-966 Shale, gray.  
966-972 Sandstone, gray, very fine grained, micaceous, poor  
porosity, light stain, dull fluorescence.  
972-1316 Interbedded limestone and shale.

Oread 1316 +62

1316-1356 Limestone, tan, fine crystalline, slightly fossilif-  
erous, poor to fair porosity, NS.

Heebner 1356 +22

1356-1359 Shale, black, carbonaceous.  
1359-1361 Limestone, grayish brown, dense.  
1361-1371 Shale, gray-green.

Toronto 1371 +7

1371-1387 Limestone, white, tan, fine crystalline, chalky,  
fossiliferous, poor porosity, spotted fluorescence,  
no show oil.

Douglas 1387 -9

1387-1406 Shale, gray, silty.  
1406-1412 Limestone, tan, fine crystalline, dense.  
1412-1434 Shale, gray.

Douglas Sand 1434 -56

1434-1474 Sandstone, gray, very fine grained, micaceous, friable,  
poor to fair porosity with light stain, fluorescence,  
fair show free oil. Some interbedded gray shale and  
siltstone.  
1474-1535 Shale, gray with interbedded gray siltstone.

Haskell 1535 -157

1535-1539 Limestone, brown, fine crystalline, dense.

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1539-1560 Shale, green.

Iatan 1564 -186

1564-1574 Limestone, tan, fine crystalline, oolitic and oolitic, poor to fair porosity, well stained, bright fluorescence, fair show free oil.

1574-1626 Shale, gray.

Lansing 1626 -248

1626-1668 Limestone, white, gray, tan, fine crystalline, trace poor porosity with scattered stain and fluorescence.

1668-1680 Limestone, tan, fine crystalline, good leached porosity, well stained, bright fluorescence, good odor.

1680-1692 Limestone, off white, buff, fine crystalline, chalky, 15% poor to fair porosity, 5% good porosity, light stain, fluorescence; 5% Chert, white.

1692-1700 Limestone, white, tan, fine crystalline, dense.

1700-1705 Limestone, tan, white, fine crystalline, fair porosity, stain and fluorescence, trace free oil.

1705-1730 Limestone, white, gray, buff, fine crystalline, dense.

1730-1738 Limestone, white, fine crystalline, chalky, dense.

1738-1756 Limestone, white, gray, fine crystalline, dense.

Base Lansing 1756 -378

1756-1765 Shale, gray.

1765-1768 Limestone, gray, fine crystalline, dense.

1768-1908 Shale, gray, trace pyrite.

Kansas City 1908 -530

1908-1914 Limestone, gray, brown, fine crystalline, dense, NS.

1920-1925 Limestone, gray, white, tan, fine crystalline, 5% poor to fair porosity, light stain, fluorescence, fair show free oil.

1928-1936 Limestone, off white to buff, fine crystalline, dense.

1936-1955 Limestone, light tan, fine crystalline, partly sucrosic, 10% poor to fair porosity, light stain, fluorescence, fair odor, good show free oil. Trace white chert.

1955-1964 Limestone, cream, light tan, fine crystalline, dense.

1964-1967 Limestone, tan, fine crystalline, oolitic, poor porosity, trace free oil.

1970-1982 Limestone, gray, tan, fine crystalline, fossiliferous, slightly vugular, poor to fair porosity, fluorescence.

1982-1996 Limestone, off white, light gray, fine crystalline, 5% vugular, fair porosity with stain and fluorescence.

1996-2000 Limestone, tan, fine crystalline, poor to fair porosity, light stain and fluorescence.

2000-2011 Limestone, white, light buff, fine crystalline, fossiliferous, dense.

2011-2013 Shale, black, carbonaceous.

2013-2031 Limestone, white, fine crystalline, partly chalky, trace poor porosity, spotted stain and fluorescence; trace white chert.

2031-2033 Shale, black, carbonaceous.

2033-2036 Limestone, tan, brown, fine crystalline, partly sucrosic

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poor porosity, light to well stained, fluorescence,  
trace free oil.  
2042-2052 Limestone, tan, gray, fine crystalline, partly oolitic  
and oolitic, 5% poor to fair porosity, well stained,  
fluorescence, fair show free oil.  
2052-2062 Siltstone, gray.  
2062-2069 Limestone, tan, brown, fine crystalline, oolitic, dense.

Base Kansas City 2069 -691  
2069-2139 Shale, dark gray, pyritic.

Checkerboard 2139 -761 2139-2147 Limestone, white, buff, fine  
crystalline, dense.  
2147-2165 Shale, light green to gray, pyritic.

Hepler 2165 -787  
2165-2191 Sandstone, gray, very fine grained, micaceous, friable,  
fair porosity, light stain, yellow fluorescence, trace  
free oil.

Altamont 2191 -813  
2191-2201 Limestone, tan, buff, fine crystalline, dense.  
2201-2228 Shale, gray, dark gray, green, pyritic.

Pawnee 2228 -850  
2228-2251 Limestone, tan, gray, fine crystalline, dense, 10%  
fluorescence.  
2251-2253 Shale, black, carbonaceous.  
2253-2267 Limestone, tan, buff, fine crystalline, dense.

Cherokee 2267 -889  
2267-2269 Shale, black, carbonaceous.  
2269-2272 Limestone, off white, buff, dense.  
2272-2273 Shale, black, carbonaceous.  
2273-2300 Shale, light grayish green, pyritic.  
2300-2308 Shale, light gray, gray.  
2308-2310 Siltstone, gray.  
2310-2331 Shale, gray, dark gray, black, pyritic.  
2331-2339 Limestone, tan, brown, fine crystalline, dense, very  
pyritic.  
2339-2342 Shale, black, carbonaceous.  
2342-2348 Limestone, grayish brown, fine crystalline, dense,  
pyritic.  
2348-2351 Siltstone, gray, pyritic.

Conglomerate 2351 -973  
2351-2354 Chert, gray, white, pyritic.

Circulated for samples 30 minutes at 2354'.  
2354-2359 Chert, AA with trace green and gray shale.

Arbuckle 2359 -981  
2359-2369 Dolomite, tan, fine crystalline, sucrosic, dense,  
trace poor porosity, well stained, good odor, bright  
fluorescence, trace free oil; 5% Chert, white, gray, tan.  
2369-2373 Dolomite, buff, tan, fine crystalline, dense; 15%  
spotty fluorescence; 2% Chert, white to gray.

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- 2373-2374 Dolomite, off white, gray, fine to medium crystalline, trace sandy, trace poor to fair to good porosity, light spotted stain, 60% fluorescence, trace free oil. 2% Chert, white.
- 2376-2379 Dolomite, gray, buff, fine to medium crystalline, dense; trace poor to fair porosity with stain, 30% fluorescence, trace free oil; 10% Chert, white.

Circulated for samples 1 hour at 2379'.  
 Vertical Hole Deviation Survey at 2379' indicated 3/4 degrees.

Pipe Strap at 2379':

Board	2386.80'
Strap	<u>2384.01</u>
Strap short to board	2.79'