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19-6s-16E

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GEOLOGICAL REPORT

Operator: **EVERGREEN OPERATING CORPORATION**
Project: Straight Creek Well Name: Brock 34-19
Location: Ap 135'W of SWSE 655'FSL & 2115'FEL
Sec. 19-6S-16E County: Jackson State: Kansas
All measurements GL: 1126 API: 15-085-20064-00-00
Company: Sr. Operations Engineer: Mr. Tom Erwin
Company: Geologist: Mr. Paul Clarke
Professional Energy Services: Geologist: Rich Robba
Crown: Drilling Superintendent: Fred O'Doan
Patterson Logging: Engineer: Roger Taylor
Drilling Contractor: Layne Christensen Company
CBM Solutions: Desorption: Dan Tutt/Ken Glover/Kelly Franz
Geosearch Logging: Mudloggers: Kevin Clark/ Pat / Nathan Barnes
Commenced: 12/15-18/03 Completed: 01/5-10/04

This geological report is prepared for **EVERGREEN OPERATING CORPORATION**. Wellsite geological supervision was conducted from surface to Total Depth. The Brock 34-19 well was drilled to 1250', then 2week holiday shut down. Resuming water drilling operations to core point, continuous cored from the below the Tebo Shale to the Werner Coal and then deepened by rotary to TD. ROP, gas curves and sample descriptions from air and mud rotary chips are recorded on the mud log and geophysical survey formation tops, visual core recovery descriptions and desorption canisters are listed below.

Brock 34-19

Formation E-Log Tops

Heebner Shale:	790'	Excello:	1514'
Lansing:	981'	VShale:	1624'
Stark Shale:	1255'	Tebo Shale:	1719'
B/Kansas City:	1307'	Mississippi:	2208'
Altamount:	1409'	RTD:	2290'
Summit:	1496'	LTD:	2150'

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Coal and Coal Shale Intersections Core or E-Log

Net Coals(ft) < 1.75 g.cc		Net Coals(ft) < 2.00 g.cc		Net Carbonaceous Shale (ft)	
Name	Depth	Name	Depth	Name	Depth
WeirB Can357	1775-1776.8	BluejacketB	1872.2-1873.5	RoweD Can426	1986.2-1989.8
WeirC	1794.1-1795.9	BluejacketC Can363	1889.9-1891.6	NeutralB	2065.3-2066.6
BluejacketD	1897.6-1899.3	RoweA	1963.6-1965.4		
Drywood	1949.9-1951.8	NeutralA Can458	2052.8-2053.9		
RoweC CanT-1	1976.6-1978.7	Werner	2128.7-2129.9		
RoweE Can438	1999-2000.7				
NeutralC	2074-2075.8				
NeutralD	2082.4-2084.1				

Cumulative Net Thickness Core and Density E-Log

Net Coals(ft) < 1.75 g.cc	Net Coals(ft) < 2.00 g.cc	Net Carbonaceous Shale (ft)
14.5'	7.1'	4.9'

Visual Core Sample Descriptions

- 1729-1735 SHALE; gy-gr w/ lt gy sh bands.
- 1735-1745 MUDSTONE; cs tx, maroon, purple-red, mottled.
- 1745-1755 SHALE: gy w/ lg bkn maroon sh incl.
- 1755-1767 SHALE: gr-gy w/ blk sh bands towards base, fissile.
- 1767-1768 LIMESTONE: fnxln, gy-tan, sub chky, floss, vp vis por.
- 1768-1770 SHALE: dkgy w/ blk sh layers.
- 1770.3-1771.3 COAL: med density, shly, p vis cleats, pyr, trc gas.
- 1772-1789 SHALE: dk gy-sli blk, crumbly, w/ lt gy sh 2" bands, low carb content in part, lg pyr clusters.
- 1789-1805 SHALE: gr w/ slumping at top, lg bkn pcs ls and sh blk in lower.
- 1805-1826 SHALE: blk w/ dk gy sh bands, rare flora casts and molds, v low to low carb content, 3" at base coaly sh w/ trc out gassing, vp vis cleats.
- 1826-1842 SANDSTONE: fngn, sub ang, shly in part, f sorted, semi friable.
- 1842-1853 SILTSTONE: vfngn, shly, lt and dk gy siltstone varving.
- 1853-1864 SHALE: dk gy w/ lt gy sh 2-3" layers.
- 1864-1864.4 COAL: rubble, low density, trc gas, gd cleating, bright, blk, pyr.
- 1865-1879 SILTSTONE: lt gy w/ thin blk sh laminations.
- 1879-1885 SHALE: v dk gy w/ blk sh bands, v low organic level.
- 1885.4-1886.5 COAL: dull to sli vitrin, shly, high ash content, pshogas, p-f cleating.
- 1887-1889 SILTSTONE: v lt gy gritty.
- 1889-1919 SHALE: blk w/ dk gy bands, soft, low carb content.
- 1919-1923 MUDSTONE: army gr-gy, v cs tx, bkn pcs sh and siltstone.
- 1923-1941 SILTSTONE: gy, v fngn well sorted, sdy thin layers.
- 1941-1941.4 COAL SHALE: v dense, trc gas, rare vp cleats.
- 1942-1945 SANDSTONE: lt gy, gritty.
- 1945-1945.3 COAL: rubble, lost 1.5' recovery, low density, bright at cleat faces, shly, trc gas.
- 1946-1951 UNDERCLAY: wh clay-pasty- w/ blk bands, slumping, med-cs tx.

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Visual Core Sample Descriptions

1951-1959 SHALE: gy-gr, v soft, washes out.
1959-1959.3 COAL: rubble, lost .8' recovery, vitrin, low density, f-gd vis cleating.
1960-1962 UNDERCLAY: gy-gr, slumping w/ bkn pcs sh and siltstone.
1962-1972 SILTSTONE: v sdy, lt gy sh bec/ v dk gy sh towards base.
1972.1-1974 COAL: blk, bright, trc outgassing, shly near top, f cleating.
1974-1981 UNDERCLAY: blk-gr w/ lg bkn foss and sh, med-cs tx.
1981.6-1982.2 COAL: pyr layers, blk-brn, sli trc gas, p cleating.
1983-1984 SHALE: blk, med carb content, occ gas bubble, fissile.
1984.2-1984.8 COAL: blk, f cleating, trc gas, sli shly, dull to bright.
1985-1994 UNDERCLAY: tan-brn bec/ blk towards base, cs tx, hard.
1994.1-1995.7 COAL: blk, shly at top and low density at base, f gas, gd cleatsing.
1996-1997 SHALE: organic rich w/ thin coal layers, trc gas.
1997-2021 UNDERCLAY: brn-gr w/ thin blk sh impressions, cs tx.
2021-2030 SHALE: v dk gy-blk, v low organic content w/ siltstone thin beds.
2030-2032 LIMESTONE: v fn-fnxln, lt gy w/ thin coal incl and v sdy at top.
2032-2047 SHALE: dk gy, micaceous, fissile, lower part v pyr.
2047.8-2048.8 COAL: gd cleats w/ wh mineraliz, low-med density, p sho outgassing, vitrin to partially dull, pyr.
2049-2051 UNDERCLAY: wh-gy, v pasty w/ bkn coaly sh pcs.
2051-2061 SHALE: blk, fissile, low carb.
2061-2061.3 COAL: rubble, lost 1.0' recovery, dull, med. density, shly, pyr.
2062-2069 SANDSTONE: vfn gn w/ blk shly coal incl, lt gy, f intergn por, bec/ v shly gy-gr towards base.
2069-2070 COAL: 2", lost 3.0' recovery, v low density.
2070-2076 SHALE, blk, med carb content.
2076.2-2077 COAL SHALE: blk, trc gas, v shly.
2077-2092 SHALE: dk gy w/ v low carb content blk sh bands, fissile.
2092-2096 SANDSTONE: med gn, f vis por, f sorted, sub rnd, sli shly.
2096-2110 SHALE: blk, fissile, low to med organic content.
2110-2123 SANDSTONE: lt tan, med gn w/ thin blk sh layers.
2123-2123.4 COAL: rubble, lost 0.5' med density.
2124-2140 SHALE: blk w/ wh clay thin layers.

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Conventional Oil and Gas Shows

No shows recorded.

Respectfully submitted,

Richard A. Robba, PG
Director of Operations
Professional Energy Services