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KCC
AUG 18 2004
CONFIDENTIAL

GEOLOGICAL REPORT

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KCC WICHITA

Operator: **EVERGREEN OPERATING CORPORATION**
Project: South Fork Well Name: Roberts 44-1
Location: NW SW SE SE - 560' FSL & 1065' FEL
Sec. 1-20S-20E County: Anderson State: Kansas
All measurements GL: 937' API: 15-033-24244-00-00
Drilling Superintendent: Fred O'Doan
Patterson Logging: Engineer: Roger Taylor
Encore Drilling Company: Drilling Contractor
TerraTek Technicians: Chip Devaney/ Ron
Geosearch Logging: Mudloggers: George Bledsoe/Nathan Barnes
Commenced: 04/28/04 Completed: 05/01/04

This Geological Report is prepared for **EVERGREEN OPERATING CORPORATION**. Wellsite geological supervision was conducted from surface to Total Depth. The Roberts 44-1 was water drilled to the core point, continuous cored from below the Altamount to the Mississippian unconformity and then deepened by rotary to TD. ROP, gas curves and sample descriptions from water rotary chips are recorded on the mud log and geophysical survey formation tops, visual core recovery descriptions, coal intersections, desorption canisters and conventional hydrocarbon shows are all described and listed below, respectively.

Roberts 44-1

Formation E-Log Tops

Stark Shale:	217'	V Shale:	709'
B/Kansas City:	262'	Tebo Shale:	779'
Altamount:	451'	Mississippi:	1019'
Summit:	594'	RTD:	1140'
Excello:	613'	LTD:	1143'

Geophysical Density Survey Coal and Coal Shale Intersections

Net Coals(ft) < 1.75 g.cc		Net Coals(ft) >1.75g.cc < 2.00 g.cc		Net Carbonaceous Shale (ft)	
Name/Canister	Depth	Name/Canister	Depth	Name/Canister	Depth
Mulberry/2&3	506.8-508.3	Bevier	696.5-697	Stark	217-219
Fleming/5	736.7-738.4	Mineral/6	751-752.3	Hushpuckney	242-245
		Tebo/8	780.1-781	Dawson	428-430
		Bluejacket F/9	896.9-898	Mulberry 2/1	487.4-488.3
		Drywood/10	912.1-913.2	Summit	594-596
		Rowe/11	935.3-936.1	Excello	613-615
		Riverton B/12	981-982.2	Bevier 1	681-689
		Riverton C	988-988.7	V Shale	709.6-711
		Riverton E	998-999.3	Croweburg/4	730.1-732
				Riverton A	976-977.2
				Riverton D	994.6-995.8

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Cumulative Net Thickness Geophysical Density Survey

Net Coals (ft) < 1.75 g.cc	Net Coals (ft) >1.75g.cc < 2.00 g.cc	Net Carbonaceous Shale (ft)
2.2	8.9	24.3

Visual Core Sample Descriptions

- 458-459 SHALE: v dk gy, cs tx, med hard, blk.
- 459-461 MUDSTONE: gy-gr, cs tx, soft in part.
- 461-464 SILTSTONE: gy-gr w/ bkn ls pcs, gritty w v fn gn sd gns.
- 464-468 SILTSTONE: sdy thin beds that bleeds oil and gas in bands.
- 468-475 SHALE: lt gy, semi-hard, sli silty.
- 475-480 SILTSTONE: lt gy, v shly, hard, v p sho oil and gas.
- 480-487 SHALE: lt gy w/ 1/2-1" dk gy sh bands.
- 487.4-488.1 COAL: br, master cleat, f degassing, low density.
- 489-506 SHALE: gy, smooth tx, hard, sli silty in part w/ rare trc oil.
- 506.9-508.4 COAL: low-med density, low ash, pyr, sli calc, f cleating, thin shly partings, gd degassing.
- 509-513 UNDERCLAY: gy, fn tx, soft, p degassing out of carb mat, slickensides.
- 513-519 LIMESTONE: argil, sh filling in frac and bedding planes.
- 519-530 SHALE: gr, layered, bkn ls pcs at top bec/ dk gr sh at base w/ lmy, v foss interbedding and bands.
- 530-537 SHALE: blk, hard, fissile, v low carb at top grading to low carb at base.
- 537-539 LIMESTONE: fnxln, gy-tan, foss w/ vp foss por that bleeds oil w/ trc gas, evid of fracs.
- 539-540 LIMESTONE: fnxln, chky in part, sli foss w/ sm bkn pcs blk sh.
- 540-542 SHALE: blk, hard, frac, woody tex, med car content.
- 542-543 LIMESTONE: dk sh interbeds and v foss at top.
- 543-558 SHALE: v dk gy, v foss in part, ls thin beds.

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Visual Core Sample Descriptions

- 558-559 MUDSTONE: gr, med tx, lmy.
559-590 LIMESTONE: argil in part w/ gr sh, medxn, f por, slumping of sh and bkn ls pcs, carb content at base.
590-599 SHALE: dk gy w/ shell beds and blk low carb bands.
599-603 MUDSTONE: gr brn, calc w/ rare foss, med tx.
603-605 LIMESTONE: microxn, dk gy, foss w/ vertical frags, sh filled.
605-608 SHALE: army gr w/ v low carb content, blk, rare sm foss.
608-611 LIMESTONE: wh-gy, v foss, sli shly
611-613 SHALE: blk w/ sm brn nodules, med carb.
613-616 SILTSTONE: gr, gritty bec/ v silty at base.
616-618 SANDSTONE: fn gn, sub rnd w/ gr sh bedding, f-gd inter gn por, bleeds oil w/ sho gas.
618-630 SHALE: gr, hard w/ lt gr layer and occ sdy parts, x-bedding.
630-643 SHALE: gy, fissile, hard, smooth.
643-649 SHALE: gy w/ ls bkn pcs and v foss in part, varving.
649-667 SHALE: gy w/ dk sh v low carb bands and calc in part.
667-668 SANDSTONE: v fn gn, gy shly, p vis por w/ p sho oil.
668-670 LIMESTONE: v fnxn w/ slumping and x bedding sh.
670-674 SILTSTONE: dk gy w/ lt gy bands med gn ss.
674-676 SHALE: v dk gy w/ siltstone thin beds and some calc shells.
676-680 SHALE: dk gy, smooth, hard, fissile, sli foss w/ shells.
680-688 SHALE: blk w/ 2 dozen v thin 1/4" coal seams throughout, br well cleated w/ calcite fill.
688-694 SHALE: lt gy, smooth, sli calc, hard.
694-698 MUDSTONE: gr, med-cs tx w/ bkn pcs carb mat.
698-704 SHALE: gr w/ ls foss bands w/ ls bkn pcs.
704-706 LIMESTONE: crm w/ olive gr sh bec blk carb sh at base.
706-709 SHALE: blk, w/ sm brn nodules, med carb.
709-709.3 COAL: med density, shly top, vert cleats w, calcite fill.
704-706 UNDERCLAY: gr, soft, f-med tx.
706-707 LIMESTONE: v fnxn, gy-blk w/ many shells and low carb
707-709 SHALE: blk, med-organic rich w/ brn nodules and thin coaly sections.
709-722 MUDSTONE: gy, soft, wash out w/ lg wh nodules non-calc, roots w/ ls fill that bleeds oil in patches.
722-726 SHALE: dk gr w/ gr sh thin beds, v low carb content.
726-729 SHALE: blk, fissile.
729.6-730.3 COAL: blk w/ brn area's, med density, trc gas, vitrin in part.
731-736 SHALE: blk w/ occ shells, med carb w/ pyr coal.
736.3-738 COAL: blk, vitr, low density at top, shly towards base, f cleated.
738-740 UNDERCLAY: fn-med tx w/ bkn pcs carb mat.
740-746 SHALE: lt gy-gr w/ occ lam, hard.
746-750 SHALE: gy bec/ dk gr w/ organic rich sm pcs interbedded, blk sh at base.
750.8-752 COAL: blk, woody tx, pyr clusters, f cleating w/ calcite fill, shly partings, low-med density, f degassing.
752-754 UNDERCLAY: gy w/ wh nodules, v sli calc in part.
754-762 SHALE: gy-gr-brn w/ wh nodules, slumping and x-bedding, sli silty.
762-779 SHALE: blk w/ lt gy and brn bands, low carb, brn nodules w/ plant mat.
779.3-780.1 COAL: low density, blk w/ occ thin brn bands, low ash, vertical cleats w/ pyr, f cleating, bright on breaks.
781-784 UNDERCLAY: gr, med tx, carb pcs and plant mat, hard.
784-786 SHALE: blk w/ gr/gr-brn bands.

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Visual Core Sample Descriptions

786-789 MUDSTONE: brn-tan, fn tx w/ slumping.
789-793 SILTSTONE: gr, gritty, hard.
793-805 SANDSTONE: v fn-fn gn, gy-gr, sli friable, shly in part.
805-811 MUDSTONE: cs tx, bkn pcs gr-gy sh, semi-hard.
811-832 SHALE: blk, low carb, blk w/ lt gy sh bands, shells and burrows, wh infill, non calc, fissile at base.
832-839 UNDERCLAY: reworked top, roots w/ carb infill, brn and blk bkn pcs, nodules towards base.
839-841 SHALE: blk w/ sdy thin varves.
841-851 SHALE: blk, med tx, blk, some slumping, sli woody tex, few brn bands, carb inc towards base.
851-854 UNDERCLAY, fn tx, carb mat at top, hard.
854-855 LIMESTONE: v fnxln, wh-gy, nvp.
855-888 SHALE: gr w/ wh and lt layers bec/ gy towards base w/ occ lt gy or blk bands.
888-895 SHALE: gy w/ blk sh incl and plant mat, brn bands, siderite nodules.
895.9-896.9 COAL: rubble, pyr in cleats, low ash, low density.
897-899 UNDERCLAY: wh-gy w/ burrows, silty in part, some carb mat.
899-901 SANDSTONE: med gn, well sorted, sub rnd, friable, x-bedding w/ carb mat.
901-907 SANDSTONE: fn gn w/ seasonal varving w/ lt or v dk gy sh.
907-911 SHALE: v dk gy or blk w/ seasonal ss varving bec ss varved w/ sh at base.
911.2-912.3 COAL: blk, med density, pyr, glassy, f cleats w/ master cleat, no reaction w/ acid.
913-918 UNDERCLAY: gy, med tx, rubble top w/ hard lwr part.
918-935 SHALE: blk, blk, gy sh, slumping at top bec blk sh w/ brn nodules, wh thin layers, few shells.
935-941 UNDERCLAY: smooth tx, carb mat.
941-974 SHALE: blk w/ sdy lenses and brn bands, low carb bec/ lt gy sh thin beds middle to base.
974-974.3 Coal: br, p degassing, f cleats, calcite fill, low density.
975-979 UNDERCLAY: gy w/ abund carb mat, firm.
979.5-980.3 COAL, br, med density, dull w/ br sh bands.
981-986 SAKLE: blk w/ thins layers bec/ v sdy middle and pred blk sh at base.
986.2-987.1 COAL: gd cleating, lower density, med ash, master cleat, trc gas, vert frac w/ calcite.
988-1005 SHALE: blk, mod carb.
1005-1013 CONGLOMERATE: gr w/ wh rnd pebbles and cobbles, slumping.
1013-1013.5 LIMESTONE: gd leached por, saturated w/ low gravity blk oil.
1014-1019 LIMESTONE: crm, tan, fn-medxln, sli foss and ool, vp vis por.

Conventional Oil and Gas Shows

534-536 Marmaton: LIMESTONE: fnxln, gy-tan, foss w/ vp foss por that bleeds oil w/ trc gas, evid of frac.
617-619 Squirrel: SANDSTONE: fn gn, sub rnd w/ gr sh bedding, f-gd inter gn por, bleeds oil w/ sho gas.
668-670 Squirrel: SANDSTONE: v fn gn, gy shly, p vis por w/ p sho oil.
712-721 Cherokee: MUDSTONE: gy, soft, washout w/ lg wh nodules non-calc, roots w/ ls fill that bleeds oil in patches.