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MICHAEL L. EBERS

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AAPG SEG

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DEPOSIT MISSISS. PP1

January 21, 1982

J.K. Corp.-Cook #1
Section 20, T25S, R22E
Bourbon County, Kansas

SAMPLE EXAMINATION

Operator: Drill Energy, Inc.

Drill Contractor: Drill Energy, Inc.

Surface Casing:

Elevation:

Date Started:

Date Finished: 1-8-82

Samples Examined By: Michael L. Ebers

Depth	Description	Fluorescence
100-140	Shale, gray	
✓ 140-160	Shale, light greenish gray	
✓ 160-185	Shale, gray	
✓ 185-195	Limestone, tan & brown fine crystalline	
✓ 195-200	Shale, light greenish gray	
✓ 200-210	Shale, maroon	
✓ 210-220	Shale, greenish gray & maroon	
✓ 220-230	Sandstone, light gray, very fine grained, very silty, tight	---
✓ 230-260	Shale, gray & siltstone, light gray, sandy	
✓ 260-275	Shale, gray	

TOP OF THE PAWNEE LIME AT 275'

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SAMPLE EXAMINATION

Depth	Description	Fluorescence
✓275-300	Limestone, tan, medium crystalline, fossiliferous	---
✓300-345	Shale, dark gray	
<u>TOP OF THE FT. SCOTT LIME AT 345'</u>		
✓345-360	Limestone, tan, fine crystalline, dense	
✓360-370	Shale, dark gray, some limestone	
✓370-380	Shale, light to dark gray	
<u>TOP OF THE SQUIRREL SAND AT 380'</u>		
✓380-390	Sandstone, gray & light brown, fine grained, poor sorting, very silty, poor to locally fair porosity, trace oil show	75% Even Medium Fluorescence
✓390-400	Sandstone, light gray, very silty & shaley, very poor porosity, no show	Trace
✓400-440	Siltstone, gray, very shaley	
✓440-460	Shale, gray	
✓460-490	Shale, gray to dark gray, fissile	
✓490-500	Shale, black & coal, pyrite	
✓500-520	Shale, gray	
✓520-530	Shale, gray & dark gray & siltstone, light gray	
<u>TOP OF THE CATTLEMAN SAND AT 528'</u>		
✓530-540	Shale, gray & 50% sandstone, light gray, fine grained, very silty & micaceous, very tight	---
✓540-550	Shale, gray, calcareous	
✓550-560	Shale & siltstone, gray, thinly laminated	
✓560-570	Shale, black, hard, & trace coal	
✓570-600	Shale, light gray to gray	
✓600-610	Siltstone & shale, thinly laminated & some coal	

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SAMPLE EXAMINATION

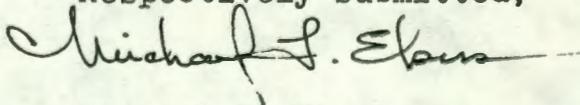
Depth	Description	Fluorescence
✓610-640	Shale & siltstone, gray	
✓640-670	Shale, light gray	
✓670-690	Siltstone, light gray & shale, gray	
✓690-750	Shale, dark gray & gray	
<u>TOP OF THE MISSISSIPPIAN AT 750'</u>		
✓750-760	No sample	
✓760-770	Dolomite, tan to dark brown oil stained, very fine crystalline, scattered pinpoint vuggy porosity (4 to 6%) & 30% chert, semiflinty, white to grayish blue, no show free oil when washed	60% Medium Fluorescence
✓770-780	Dolomite, tan, earthy, fine crystalline, trace to 1% pinpoint vuggy porosity, & 20% chert, white to light grayish blue	
✓780-800	Limestone, tan, medium crystalline, 4 to 6% intercrystalline porosity with black, bituminous dead oil, 20% chert, white & light bluish gray, spicular	15% Medium Bright Fluorescence
✓800-810	No sample	
810-820	Limestone, light brown, fine crystalline, trace very fine pinpoint vuggy porosity with black dead oil	25% Medium Bright Fluorescence

T.D. AT 820'

COMMENTS

The only possible pay zone observed in the samples examined was the top of the Mississippian from 760 to 770'. This type of oil show in the upper Mississippian is common in the lease area and considered uneconomic. Numerous attempts to produce this zone in the lease area have been uneconomic.

Respectively submitted,



Michael L. Ebers
Consultant Geologist