

DEC 17 2008

CONSERVATION DIVISION  
WICHITA, KS

**GEOLOGICAL REPORT**

**Mullendore # MP-6**  
1980' FSL, 3135' FWL  
Section 3, T30S-R9E  
Elk County, Kansas  
E2 W2 NW SE

15-049-22496-00-00

**Operator:** Perkins Oil Enterprises Inc., Box 707, 204 S. Cedar, Howard, Kansas 67349

**Drilling Contractor:** Thornton Air Rotary, Sean O'Rourke, driller  
Schramm air rotary drill rig with auxiliary air compressor and booster

**Wellsite Geologist:** Julie Shaffer - On location from 880' to T.D.

**Dates Drilled:** Set surface on 10/1/08  
Drilled from S.C. to 825' on 10/2/08.  
Drilled from 825' to T.D. on 10/3-4/08.

**Size Hole:** 7 7/8" **Total Depth:** 1757' (driller)

**Elevation:** 1194' (est.) 1201'

**Drilling Fluid:** Compressed air with injected water

**Surface Casing:** 42' of 8 5/8" surface casing cemented to the surface with 12 sacks cement.

**Electric Logs Run:** Gamma ray and neutron logs

**Formation Tops:** Formation tops were picked from the gamma ray and neutron logs

**Rock Color Descr:** GSA Rock Color Chart (dry cuttings)

**Status:** Oil Well/Water Injection Well

**Gas Shows:** Did not conduct any gas orifice tests due to well making significant water.

<b>Oil Shows:</b>	<b>Douglas Sandstone</b>	<b>1073-1082'</b>	<b>Excellent oil show</b>
	<b>Lansing Limestone</b>	<b>1199-1205'</b>	<b>Trace oil show</b>
	<b>Hertha Limestone</b>	<b>1699-1728'</b>	<b>Trace oil show</b>

**Water Encountered:** Picked up significant water within 500-800', water surging. Picked up additional water throughout well.

**Canister Tests:** See separate report for the results of the canister desorption test.

**Notes:** Well cuttings were examined at the drill rig and discarded. Select samples of zones of interest were saved and examined in the laboratory with a binocular microscope and blacklight

3-30-98

**FIELD and LABORATORY SAMPLE EXAMINATION**

0-880' Samples not examined

880-894' Shale, dark gray, lime streaks

894-899' Sandstone, light gray, silty, poor porosity, no petroliferous odor/show

899-935' Shale, dark gray, silty

**Top of the Stalnaker Sandstone at 935' (+259')**

935-978' Sandstone, white/very light gray, very fine grained, well sorted, tightly packed, hard, 10-12% porosity, no petroliferous odor or show

978-984' Shale, dark gray with light gray sandy laminations

984-1004' Sandstone, very light gray, very fine grained, tight, no petroliferous odor or show

1004-1042' Shale, dark gray

**Top of the Iatan Limestone at 1042' (+152')**

1042-1046' Limestone, medium brownish-gray and olive gray, fine grained, locally medium crystalline, no visible porosity, no petroliferous odor or show

1046-1059' Shale, dark gray

1059-1073' Shale, medium-light gray, silty/sandy, no petroliferous odor/show (a strong petroliferous odor was detected just before we started seeing the sandstone cuttings)

**Top of the Douglas Sandstone at 1073' (+121')**

1073-1082' Douglas Sandstone, solid dark yellowish-brown oil stained, oil bleeding from cuttings, 18-20% porosity, brittle, very fine to fine grained, strong oil odor, 100% solid bright neon yellow oil fluorescence, oil sheen on pit during drilling, then at the joint change at 1080' an excellent show of light brown oil covered pit

1082-1093' Douglas Sandstone, light gray, 50-60% of cuttings have light brown oil staining, 12-14% porosity, medium-fine grained, tightly packed, sub-angular and hard, faint petroliferous odor, sheen when washed, 80% solid bright neon yellow oil fluorescence

1093-1101' Shale, pale greenish-gray, silty towards bottom few feet, lime streaks

1101-1120' Limestone, light olive gray, fine grained, locally medium crystalline, no visible porosity, no petroliferous odor, sheen when washed around bottom couple of feet

1120-1132' Shale, medium-dark gray, sandy

1132-1150' Shale, dark gray

1150-1162' Limestone, tan, medium-fine grained, scattered pinpoint vugs, strong petroliferous odor at joint change at 1155', no visible oil show on cuttings or pit

1162-1179' Shale, dark gray

Top of the Lansing Group at 1179' (+15')

1179-1199' Limestone, light olive gray, medium-fine grained, medium-large crystalline, fossiliferous, no visible porosity, no petroliferous odor/show; then a change at 1190', <2% scattered pinpoint vugs, faint petroliferous odor, no visible oil

1199-1205' Limestone, white/off-white, medium-fine grained, locally medium-large crystalline, silty, mudstone cementation, scattered fossils, very few visible scattered pinpoint vugs, pale brown oil staining, oil sheen on cuttings, strong gassy odor, 40% mottled bright yellowish-white oil fluorescence

1205-1345' Limestone, olive gray, fine grained, massive, no visible porosity, numerous fossils, no petroliferous odor/show

Base of the Lansing Group at 1345' (-151')

1345-1456' Shale, dark gray

1456-1473' Limestone, off-white/olive gray, fine grained

1473-1490' Shale, medium gray, silty

1490-1506' Layton Sandstone, light gray, poor porosity, laminated with shale

1506-1509' Shale, medium-light gray, silty

Top of the Kansas City Group at 1509' (-315')

1509-1530' Limestone, tan/off-white, fine grained, no visible porosity

1530-1540' Shale, dark gray

1540-1634' Limestone, light olive gray, fine grained, scattered vugs, <2% porosity, @ 1547' started to get a faint petroliferous odor in cuttings, strong gassy odor from blooey, no visible oil observed in cuttings or on pit

1634-1638' Stark Shale, black, very carbonaceous, abundant coal micro-laminae, even after a week when cuttings were broken open there would be a strong methane gas odor

*Not enough cuttings to canister.*

Top of the Swope Limestone at 1638' (-444')

1638-1655' Limestone, light olive-gray, very fine grained, 4-5% pinpoint vuggy and intergranular porosity, some granular pieces, medium-light brown oil staining, slight petroliferous odor, no oil show on pit, 30-40% bright yellow oil fluorescence

1655-1671' Shale, medium dark gray

1671-1687' Limestone, light olive gray/olive gray, fine grained, silty cementation, no visible porosity, strong petroliferous odor at top to a slight petroliferous odor around the bottom, no oil show, no fluorescence

1687-1696' Shale, medium-dark gray

1696-1699' Hushpuckney Shale, 80% grayish black and 20% dark gray, 1 to 2% pyrite, 1 to 2% of chips show a flat joint face, locally white calcite on fractures

***Canister #04 - Hushpuckney Shale @ 1696-1699'***

**Top of the Hertha Limestone @ 1699' (-505')**

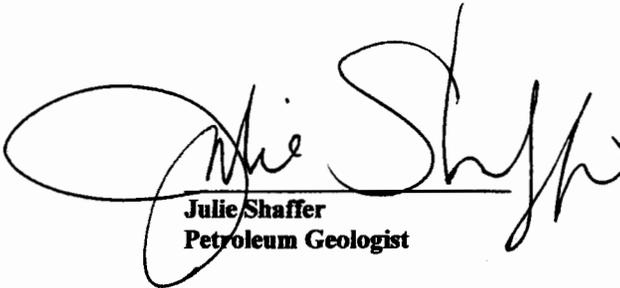
1699-1720' Limestone, light olive gray, fine grained, 10% of chips cuttings are very fine grained, silty, granular with solid pale yellowish-brown oil staining, no visible porosity, slight odor, it was dark out and could not see if there was an oil show, 15-20% mottled medium-bright yellowish-green oil fluorescence

1720-1728' Limestone, light olive gray, fine grained, pale brown oil staining over 20% of cuttings, 10% pinpoint and pinhead vuggy porosity, strong petroliferous odor, 25-30% solid medium-bright yellowish-green oil fluorescence

**Base of the Kansas City Group at 1728' (-534')**

1728-1757' Shale, dark gray

**T.D. @ 1757'**



**Julie Shaffer**  
**Petroleum Geologist**