

**WILLIAM M. STOUT  
101 SOUTH STAR STREET  
EL DORADO, KANSAS 66042  
316 321-1270**

**Geologist Report**

**Hattrup #2**

**150' S of NE SE NW Sec. 1-T33E-R12E  
Chautauqua County, Kansas  
API# 15-019-26536**

**Operator: United States Exploration, Inc.**

**Contractor: Thorton Drilling Co. (Air Rig)**

**Commenced: 07-17-00**

**Completed: 07-18-00**

**Surface Casing: 8 5/8"**

**Production Casing: 4 1/2"**

**Ground Level Elevation: 1017'**

**Formation Log Tops  
(Cased Hole)**

Iola	410 +607
Layton	642 +375
Drum	874 +143
Lenapah	1046 -29
Altamont	1109 -92
Pawnee	1240 -223
Lexington Shale	1261 -244
Oswego	1324 -307
Summit Shale	1352 -335
Mulky Shale	1376 -359
Mississippi	1712 -695
R.T.D.	1817 -800

07/17/00

Depths

Sample Descriptions

500 - 524 Shale - dark gray, gray, light gray, some sandy.  
524 - 550 Sandstone - light gray, fine grained, hard, mica, argillaceous, tight.  
550 - 642 Shale - gray to dark gray, some sandy, micaceous.

Layton 642 (+375)

642 - 672 Sandstone - light gray, very fine grain, some micaceous, some argillaceous, friable  
in part, fair to good show gas bubbles when broken, tight.  
672 - 675 Shale - gray.

Test @ 688' 30 lbs. on 1/4" choke. 61, 900 cfg.

675 - 715 Sandstone - light gray, fine grain, mica, some argillaceous, trace coal sizzling gas,  
good show gas, fair porosity.

Test @ 725' 30 lbs. on 1/4" choke 61,900 cfg. No increase.

715 - 741 Shale - gray, black, sandy, slight show gas.  
741 - 756 Sandstone - light gray to light green, fine grain, micaceous, slightly glauconitic,  
slight show gas, good porosity.  
756 - 762 Shale - gray to black.  
762 - 771 Sandstone - light gray, fine grain, micaceous, argillaceous in part, slight show gas,  
slight show dark brown oil, no odor, fair porosity.  
771 - 774 Shale - gray, medium gray, sandy.  
774 - 820 Sandstone - white to light gray, fine to medium grain, micaceous, friable in part,  
good show gas, slight show free oil, some dead oil, fair to good porosity.

Test @ 814' 6 lbs. on 3/4" choke 194,000 cfg (132,000 cfg increase)  
Started making water @ 780'.

820 - 833 Shale - gray, medium gray, black, slightly sandy, popping gas.  
833 - 845 Sandstone - light gray, fine grain, micaceous, with carbonaceous material, fair  
show gas, fair to good porosity.  
845 - 860 Sandstone - a.a., shale, gray to medium gray, trace limestone, dark brown, fine  
crystalline, very dense, very fossiliferous, argillaceous, no show, no visible  
porosity  
860 - 874 Shale - dark gray to black, some carbonaceous, popping gas, with abundant shells.  
Sample was bagged and showed no expansion.

Drum 874 (+143)

874 - 888 Limestone - brown, light brown, light gray, fine crystalline, fossiliferous,  
dense, chalky, slightly cherty, argillaceous in part, no odor, slight show  
free oil, trace bleeding oil and gas, poor intercrystalline porosity, scattered  
vugs.

- 888 - 893 Shale - black, carbonaceous, sizzling gas. Sample was bagged and showed no expansion.
- 893 - 926 Sandstone - gray to light gray, very fine to fine grain, argillaceous, some micaceous, few gas bubbles when broken, poor porosity.
- 926 - 999 Shale - gray, dark gray, some sandy, slightly popping gas.
- 999 - 1003 Shale - black, carbonaceous, popping to sizzling gas, faint odor. Sample was bagged and showed slight expansion.
- 1003 - 1026 Shale - dark gray, some black a.a., shells. very slightly popping gas.
- 1026 - 1046 Limestone - dark brown, fine crystalline, dense, fossiliferous, argillaceous, no show, no visible porosity, with shale - light gray, green, waxy.

#### Lenapah 1046 (-25)

- 1046 - 1057 Limestone - light brown to light gray, fine crystalline, fossiliferous, dense, chalky in part, no show, no visible porosity.
- 1057 - 1084 Sandstone - light gray, light green, fine grain, some argillaceous, micaceous, slightly glauconitic, faint odor, fair show free oil - dark brown, few gas bubbles, poor porosity, some with heavy black oil.
- 1084 - 1109 Shale - gray, dark gray, sandy in part, slightly popping gas.

#### Altamont 1109 (-92)

- 1109 - 1115 Limestone - light brown, fine crystalline, fossiliferous, dense, no odor, few spots free oil, few gas bubbles, poor intercrystalline porosity.

Test @ 1115' 3/4" choke no gauge.

Shutdown overnight @ 1115'.

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- 1115 - 1121 Limestone - light brown to light gray, fine crystalline, fossiliferous, dense, chalky in part, fair odor, fair show free oil - brown, poor stain, poor intercrystalline porosity, scattered vugs, fair show gas bubbles.
- 1121 - 1124 Shale - black, carbonaceous, popping gas.
- 1124 - 1145 Limestone - brown to gray, fine crystalline, fossiliferous, dense, some argillaceous, no show, no visible porosity, with shale, gray, green.
- 1145 - 1159 Sandstone - light gray to gray, fine grain, micaceous, argillaceous in part, few gas bubbles, poor porosity.
- 1159 - 1240 Shale - medium gray, sandy in part. no show.

#### Pawnee 1240 (-223)

- 1240 - 1251 Limestone - light brown to brown, fine crystalline, few fossils, chalky, good odor, good brown stain, some saturated, good show free oil, dull fluorescence, good show gas bubbles, fair intercrystalline porosity.
- 1251 - 1256 Shale - black, carbonaceous, popping gas. Sample was bagged and showed no expansion.

- 1256 - 1301 Sandstone - light gray, fine grain, argillaceous, few gas bubbles, tight, with shale light gray to light green.
- 1301 - 1324 Shale - medium gray, some sandy, trace gas bubbles.

#### Oswego 1324 (-307)

- 1324 - 1352 Limestone - light brown to dark brown, fine crystalline, few fossiliferous, dense, good odor, scattered brown stain, good show free oil - light brown, fair intercrystalline porosity. Less show lower in zone.

#### Summit Shale 1352 (-335)

- 1352 - 1358 Shale - black, carbonaceous, pyrite, trace coal, popping to sizzling gas,. Sample was bagged and showed slight expansion.
- 1358 - 1376 Limestone - light gray to light brown to buff, fine crystalline, chalky, dense, fossiliferous, some with fair odor, slight show oil, few gas bubbles, dull fluorescence, scattered poor intercrystalline porosity.

#### Mulky Shale 1376 (-359)

- 1376 - 1382 Shale - black, carbonaceous, popping gas. Sample was bagged and showed fair expansion.
- 1382 - 1394 Limestone - brown, dark brown, gray, fine crystalline, dense, fossiliferous, argillaceous, slightly cherty, slight odor, trace free oil, few gas bubbles, trace poor intercrystalline porosity.
- 1394 - 1423 Shale - dark gray, gray, green, some sandy.
- 1423 - 1426 Shale - black, carbonaceous, popping gas.
- 1426 - 1448 Sandstone - gray, fine grain, argillaceous, few gas bubbles when broken, tight.
- 1448 - 1504 Shale - gray, dark gray, green black, some sandy.
- 1504 - 1606 Shale - a.a., sandy, with some black carbonaceous, popping gas.
- 1606 - 1655 Shale - gray, dark gray, green, red, waxy in part, some sandy, no shows.
- 1655 - 1712 Shale - gray to dark gray, with interbedded coal, sizzling gas.

#### Mississippi 1712 (-695)

- 1712 - 1718 Chert - white to brown, opaque, weathered, mostly sandy, no odor, fair show gas good show gas bubbles when broken, scattered vugular porosity.
- 1718 - 1733 Sandstone - white to light gray, fine grain, friable, fair to good show gas bubbles, fair porosity.
- 1733 - 1744 Sandstone - dark brown, fine grain, argillaceous, hard, trace gas bubbles, very poor porosity, with trace chert, white opaque, tripolitic, no visible porosity.
- 1744 - 1794 Chert - white, opaque, mostly weathered, fresh streaks, fair odor, scattered brown stain, fair show free oil, good show gas, fair vugular porosity, with some fracture porosity, some flaky black dead oil near bottom.
- 1794 - 1800 Chert - a.a., with limestone, light brown, fine crystalline, dense, fossiliferous, no show, no visible porosity.
- 1800 - 1817 Chert - white, some brown, very chalky, weathered, trace gas bubbles, vugular porosity.

Test @ 1817' 7 lbs. on 3/4" choke 211,000 cfg (17,000 cfg increase). Took sample of gas.

R.T.D. 1817' @ 7:20 pm 07/18/00

Because of the sample gas shows in the Layton, Mulky and Mississippi, and oil shows through the Marmaton section the decision was made to run 4 1/2" casing to TD.

Respectfully Submitted,

A handwritten signature in black ink, appearing to read "Bill Stout". The signature is fluid and cursive, with a large initial "B" and a long, sweeping tail.

William M. Stout  
Geologist

Bartlesville, OK 74006

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**Residence**  
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NICHITA

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