

SOUTHWESTERN RESOURCES, INCORPORATED

GEOLOGICAL AND WELLSITE REPORT

SPESS OIL COMPANY LL JONES # 3; SE/4 NE/4 SE/4 SECTION 30-25S-33W, FINNWEY COUNTY, KANSAS

GROUND ELEVATION: 2946'

DRILLING FLOOR: N/A

KELLY BUSHING: 2959'

The above captioned well was drilled to a total depth 5500' (DTD) and 5504' (LTD). The Spess Oil Company LL Jones No. 3 was drilled as an offset to the Mobil Oil Corporation Jones 1-J #2 well in the SE/4 SE/4 SE/4 of the same section. This well is located just south of the LL Jones No. 3. The location is part of the Plymell Field which produces oil and gas from various zones of production.

SAMPLE DESCRIPTION OF LL JONES NO. 3

The following is a sample description of the stratigraphic sequences from approximately just above the Toronto Limestone down through the Spergen Member of the Mississippi Limestone. Any shows with the possibility of producing hydrocarbons were highlighted in yellow for easy identification.

SAMPLE DEPTH

SAMPLE DESCRIPTION

NOTE: 30' SAMPLES WERE TAKEN FROM 3800' TO 4000'

- 3800-23: limestone, buff-gray, slightly dolomitic in part; some chalky residue when cleaning sample.
- 3823-55: sa, with trace of dolomite, gray limestone, xlyn., slight flor. In gray-buff limestone; dense, hard, probably mineral flor.
- 3855-82: gray to buff limestone; some chalky limestone; trace of off-white limestone, some mineral flor on buff limestone only; trace of carbonaceous shale; had trace of gray, fossiliferous limestone; tight, dolomitic in part with no show.

82-3919: some coal floating in sample dish; mostly limestone, buff-slight oil stain, appears to be tight with no detectable flor.; trace of gilsinite stain in samples; limestone, gray with slight dolomitic inclusions.

3919-50: limestone, dense, buff-gray xlyn., some buff limestone oolitic in nature(in part); some black carbonaceous shale.

3950-82: limestone, buff-gray to off-white; dense, xlyn. In part; no show detected; some white with slight oil stain; with greenish gold flor., <10% of sample; probably mineral flor.

82-4000: limestone, buff-gray, xlyn., tight, trace of gray xlyn. Limestone; ns

4000-10: limestone, black, xlyn., tight with oolitic trace; some white marl stone with trace of oolitic; ns

20: limestone, off white to light brown to gray; hard, tight, also, trace of gray dolomitic limestone; also, trace of reddish brown mudstone.

30: limestone, dolomitic, off white; slight dull greenish gold flor., probable mineral flor.

40: limestone; off white to gray; dense

50: limestone, off white to white; 1 piece of bluish white; also, oolitic gray xlyn., limestone. Trace of reddish brown mudstone.

60: increase in white to bluish white limestone with trace of reddish sand and reddish limestone; hard with trace of black shale.

70: limestone, off white to buff; trace of mineral flor.

80: sa

90: limestone, sa

90-4100: limestone, brown, very oolitic with flor., yellowish-gold flor., matrix appears to be sandy; appears to be tight; attempted to cut pieces with gold flor., no natural or crush cut detected; oolites not connected; no permeability. No ring left in dimple dish on dry.

4100-10: limestone, buff to off white; dense, some friable with no show.

20: limestone, off white, some gray, dense with trace of oolites; sa

30: limestone and sandy limestone; trace of dolomite

40: limestone, off white to buff; some brown, hard, dense; with some limestone gray, xlyn.

50: limestone, buff to off white; some cream in color; mottled; trace of brown; some xlyn., with oolites.

60: sa with some gray to black shale.

70: sa

80: limestone, buff with white inclusions; some cream color limestone.

90: limestone, sa; buff to white; some with black inclusions.

90-4200; sa

4200-10: limestone; buff to off white; becoming somewhat sucrosic; sandy,

highly friable limestone; ns

- 20: limestone; off white to white to buff; dense, hard
- 30: limestone; off white to tan; xlyn. In part; with trace of gilsinite staining.
- 40: limestone, white, to light oil stain; trace of gilsinite in fractures in lime; some oolitic.
- 50: limestone, off white to dark gray; some sandy with monoclonal quartz; fractured in part; fracture planes have some dolomite with mineral flor.
- 60: limestone; off white; xlyn, in part, dense with trace of pyrite with xlyn. limestone; also, trace of gilsinite with trace of mineral flor.
- 70: limestone, buff to gray; trace off white limestone; dense, hard
- 80: limestone, buff to off white with some mottled cream color.
- 90: limestone, gray to buff; dense; xlyn., in part.
- 90-4300: limestone, buff to off white; dense, ns

4300-10: limestone, white with some gray inclusions; dark gray to black shale; increase in gray limestone.

20: limestone, buff to light brown; some marly gray; trace of free oolites.

30: limestone, off white to buff; some sucrosic with spotty flor., with light brown oil stain; xlyn. limestone; fair gold flor., some off white with some flor., oolitic. Good crush cut on 1 piece; excellent immediate crush cut; second piece excellent crush cut. No odor in sample bag detected. Excellent ring left in dimple dish on dry.

40: sa; with 1 piece with flor; sandy; off white; friable; good immediate crush cut; no odor detected in sample bag.

50: no flor. observed in sample. Limestone, gray to off white.

60: limestone; highly friable; sucrosic; gray to off white. Loose material in sample dish; no show.

70: limestone, gray to off white; trace of free pyrite; some gilsinte staining.

80: limestone; off white to brown, dense, xlyn. in part.

90: limestone; off white to buff; no show

90-4400: limestone, off white to buff; trace of flor in one piece.

4400-10: limestone, gray to buff, xlyn. in part

20: possible odor in sample bag; limestone, off white to buff; highly friable; trace of flor., some dense; xlyn. gray limestone.

30: limestone; off white to buff; sucrosic; highly friable; free oolites in sample with some limestone; gray, xlyn.

40: spotty flor. In light brown limestone; appears dense, tight.

50: limestone, off white to buff; highly friable with some gray to light brown xlyn. limestone

60: white to buff; some gray limestone; xlyn. in part; ns

70: limestone; off white to buff; xlyn. in part; ns

80: limestone; gray, xlyn.

90: sa
90-4500: sa

4500-10: limestone; gray to dark gray; some brown; dense; ns
20: limestone; gray to dark gray; some sucrosic, buff to light brown
30: limestone; increase in gray; xlyn.
40: limestone, gray to light gray to buff; trace of brown; all tight, dense
50: limestone; highly friable; off white to buff; sucrosic.
60: limestone; off white to buff; oolitic traces

70: limestone; off white to buff; trace of air greenish gold flor., highly friable; trace of light flor on some pieces with sandy matrix; ; faint odor in sample bag.
80: limestone; buff to off white; dense, with scattered mineral flor., some 1-2 pieces with oil flor., bright greenish gold flor. Good ring left in dimple dish on dry.
90: sandy looking limestone; greenish gold flor., possible odor in sample bag;
90-4600: trace of light brown dolomitic limestone with fair bright greenish gold flor., no odor detected in sample bag; no cut observed.

4600-10: limestone; xlyn., with fair oil stain; no odor detected in sample bag; some possible gilsinite staining; possibly porous; scattered dull mineral flor. In sample.

20: increase in black shale; some limestone; white, dense; xlyn. in part; some scattered dull to fair flor., highly shaley
30: increae in shale; black; with some limestone; light brown to gray; xlyn.

40: oolitic limestone; light brown oil stain; immediate slow streaming cut; greenish gold flor., slight odor in sample bag; remaining sample black shale with some white to off white to tan limestone.

50: limestone; black, with Echinodermata Crinoidea; some xlyn. limestone; off white.

60: limestone, black with some buff to white; no visible flor.

70: limestone; dolomitic brown to cream; possible oil stain; no visible flor.

80: limestone; white to buff to gray; dense, tight

90: limestone; black with some gray and some light brown

90-4700: limestone; black with some gray to light brown oil stain; xlyn. in part

10: limestone, gray to buff; xlyn. in part; black shale

20: shale; black with a trace of limestone, sa

30: limestone; buff to light brown oil stain; black shale.

40: shale; black; with sa

50: shale, black

60: limestone, dark gray to off white; with large amount of black shale

- 70: shale, black with limestone, sa
- 80: sa
- 90: increase in black shale
- 90-4800: limestone, gray to off white; xlyn. in part with black shale
 - 10: limestone, gray, xlyn., hard
 - 20: limestone, sa with black shale with traces of Echinodermata Crinoidea.
 - 30: sa with black shale
 - 40: shale, black to dark gray; with gray limestone; xlyn. no porosity seen
 - 50: limestone, gray and xlyn.; with some cream to buff limestone; shale Black
 - 60: limestone; off white to buff; xlyn., hard with black shale
 - 70: sa
 - 80: limestone, off white to gray, dense with black shale
 - 90: limestone, xlyn., some pieces with porosity; scattered brown to gray to off white; black shale
- 90-4900: shale, black, limestone sa
 - 10: limestone, gray to off white; black shale
 - 20: poor odor in sample bag; some sand with light brown oil stain; slight flor., mostly limestone; off white to buff, gray xlyn., with some black shale
 - 30: limestone, off white to buff; shale black
 - 40: limestone, dark gray to black; some cream; oolitic in part
 - 50: limestone, gray to buff and xlyn. in part; some sand, appears to be extremely tight; fine grain, poorly sorted tight mineral flor., with some shale; black fissile
 - 60: shale, black; with limestone, xlyn., white to buff; some gray
 - 70: shale, black with iron pyrite inclusions; limestone, gray, xlyn., some buff
 - 80: shale, black to gray; fissile; trace of sandstone; off white to light brown oil stain; fine grain
 - 90: shale, black to gray; with limestone, buff to off white and gray
- 90-5000: sa
 - 10: possible slight odor in sample bag; limestone, mottled; dolomitic in part; scattered oolitic pieces; brown some pinpoint staining; no flor; with limestone; gray to dark gray to buff to off white; no visible porosity
 - 20: limestone; oolitic; brown to gray with some off white to cream color
 - 30: sa with gray shale
 - 40: shale, gray with some gray limestone, dense
 - 50: sandy limestone; very fine grain; oolitic in part; with slight oil stain; no flor., observed shale, gray
 - 60: shale; gray, limey; some xlyn., gray to white with oolitic inclusions
 - 70: gray to dark gray limestone; some buff to brown; oolitic
 - 80: shale, gray; with gray limestone; some free iron pyrite

90: shale; gray with gray limestone; dense; trace of white oolitic limestone
90-5100: limestone; off white to buff; brown stain in scattered pieces

10: limestone, dolomitic in part; oolitic; gray to off white; oolitic; tightly cemented

20: sandstone or oolitic limestone (?); well cemented; white to buff

30: limestone, oolitic; off white; with some fine grain limestone aa; probably oolitic limestone; no sand

40: shale, black; with limestone, oolitic; fine to medium grain oolites; tight

50: no sample taken

60: same as 40 foot sample; shaley

70: limestone; oolitic; coarse grain size oolitic; with some limestone, white increasing

80: sa; becoming chalky

90: shale, black; with buff oolitic limestone

90-5200: limestone, buff, oolitic; dense, hard

10: limestone, gray to light brown; oolitic in part; mostly, tight; some black Shale

20: limestone; gray to off white; with trace of light brown, xlyn., with some shale, black, oolitic in part

30: limestone, buff, trace of mineral flor.

40: limestone; off white to gray; dense; tight, xlyn; oolitic in part

50: limestone; buff to white; trace of pyrite inclusions; shale black

60: limestone; gray to light gray to buff; xlyn., dense, hard

70: limestone; dolomitic; possible slight brown oil stain; mostly xlyn, gray with some white with black slickensides with iron pyrite imbedded

80: limestone, buff; xlyn., to off white

90: limestone; buff to cream; dense; tight

90-5300: limestone; black with sa

10: limestone, hard, dense, xlyn., in part; gray to buff

20: limestone, black, mostly buff; some salt and pepper look; dense; no Porosity

30: sa with some greenish limestone; very scattered mineral flor.

40: limestone, light gray to gray; some buff; 1 piece with flor., gold; could not get a hold of piece to cut; appeared to be porous

50: limestone; off white to light brown; xlyn., some dense; some white to buff

60: limestone, buff to off white; some oolitic; 1 piece bright bluish green flor.,

70: limestone; white to off white; some opaque, dense

80: limestone; off white to white; dense partly friable; some gray with oolitic

inclusions

90: limestone; highly friable; loose material in sample dish; gray to off white to buff; tight no show

90-5400: limestone off white to buff; some friable

10: limestone; highly friable; some loose material with oolitic pieces in dish; high porosity; loose grains of material; appears to be chalky

20: limestone, buff to off white; oolitic in part; dense, no porosity

30: limestone; gray to off white; dense, hard with traces of xlyn. in part

40: sa with some gray shale

50: gray to dark gray limestone; xlyn, dense; some gray dense; with black gilsinite stain along fracture lines

60: limestone; xlyn., gray to dark gray

70: limestone, off white to gray; highly beat up from PDC bit or high porosity

80: limestone; gray to salt and pepper look

90: limestone; oolitic in part; with unconsolidated high porosity broken limestone; chalky

90-5500: limestone; xlyn in part, mostly off white with some black and salt and pepper appearance.

Electric logs were run upon reaching total depth. Pioneer Energy Services were the wireline company on location. A Dual Induction Log, A Dual Compensated Porosity Log, a Micro-resistivity Log and a Borehole Compensated Sonic Log were run to evaluate the borehole. Porosity, resistivity, permeability and possible hydrocarbon production were marked below under "Electric Log Calculations".

The following values are electric log tops with corresponding subsea values calculated from the Kelly Bushing. To the right of some of the tops are subsea values calculated from the Kelly Bushing of the Mobil Oil Corporation Jones 1-J Well #2 located in the SE/4 SE/4 SE/4 just south of the LL Jones No. 3. This will allow a comparison of how the Spess Oil Company LL Jones No. 3 well ran structurally to the Mobil well.

<u>GEOLOGICAL TOP</u>	<u>SUBSEA VALUE</u>	<u>JONES 1-J #2</u>	<u>STRUCTURAL POSITION</u>
Toronto Lime	-956'KB	-952'KB	-5'
Lansing Group	-984'KB	-982'KB	-2'
Inola Lime	-1174'KB	-1186'KB	+12'
Dewey Lime	-1247'KB	-1250'KB	+3'
Base of Dewey lime	-1381'KB	-1380'KB	-1'
Mound City	-1484'KB	-1482'KB	-2'
Marmaton	-1539'KB	-1536'KB	-3'

Fort Scott	-1625'KB	-1620'KB	-5'
Little Osage	-1664'KB	-1662'KB	-2'
Cherokee	-1681'KB	-1680'KB	-1'
Atoka Shale	-1865'KB	-1864'KB	-1'
Morrow Formation	-1923'KB	-1920'KB	-3'
Morrow "A" Sand	-1039'KB	-1930'KB	-9'
Morrow "B" Sand	-1953'KB	-1958'KB	+5'
Morrow "C" Sand	-1979'KB	-1982'KB	+3'
Mississippi Chester	-2013'KB	-2029'KB	+16'
St. Lewis	-2101'KB	-2112'KB	+11'
Spergen Limestone	-2267'KB	-2268'KB	+1'

ELECTRIC LOG CALCULATIONS

<u>INTERVAL</u>	<u>POROSITY</u>	<u>RT</u>	<u>PERM</u>	<u>PRODUCTION</u>
3921-28'	10-12%	9	YES	POSS OIL/GAS
4024-36'	27%	25(avg)	YES	POSS OIL/GAS
4136-50'	27%	16(avg)	YES	POSS OIL/GAS
4274-82'	27.5%	+50	YES	POSS OIL/GAS
4302-19'	16-19%	12(avg)	YES	POSS OIL/GAS
4348-54'	20-24%	15(avg)	YES	POSS OIL/GAS
4498-4504'	14%(avg)	6(avg)	NO	NA
4590-96'	26%	28(avg)	YES	POSS OIL/GAS
4976-82'	9%	18-20	TRACE	POSS OIL/GAS
5258-61'	5.5%	100	YES	POSS OIL/GAS

RECOMMENDATIONS

It was recommended that production pipe be run to test the deepest interval possible with possible hydrocarbon production. Spess Oil Company went ahead and ran production pipe through to bottom of the hole or 5500' to reserve the bottom of the hole for possible saltwater disposal in the future.

The Spess Oil Company LL Jones # 3 ran generally low to the Mobil well, however, it should be noted that the Mississippi zones were running high including the Chester limestone which should be tested for hydrocarbon production.

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