4 ½" Production Casing Set

Contractor: Duke Drilling Company (Rig #2)

Commenced: May 21, 2002

Completed: May 27, 2002

Elevation: 1694' K.B.; 1692' D.F.; 1686' G. L.

Casing Program: Surface; 8 5/8" @ 214'
Production; 4 1/2" @ 3216'

Samples: Samples saved and examined 2300' to the Rotary Total Depth.

Drilling Time: One (1) foot drilling time recorded and kept 2300' to the Rotary Total Depth.

Measurements: All depths measured from the Kelly Bushing.

Formation Testing: There were three (3) Drill Stem Tests ran by Trilobite Testers.

Electric Log: By Eli Wireline Services; Dual Induction Log and Compensated Density/Neutron Log.

Formation	Log Depth	Sub-Sea Datum
Heebner	2569	-875
Toronto	2589	-895
Douglas	2609	-915
Brown Lime	2687	-993
Lansing	2725	-1031
Odessa 'M' Zone	3059	-1365
Base Kansas City	3086	-1392
Marmaton	3091	-1397
Cherokee	3145	-1451
Conglomerate Sand (6')	3162	-1468
Conglomerate Chert (11')	3176	-1482
Kinderhook Shale	3184	-1490
Misener Sand	3213	-1519
Rotary Total Depth	3220	-1526
Log Total Depth	3220	-1526

(All tops and zones are corrected to Electric Log measurements.)

SAMPLE ANALYSIS, SHOWS OF OIL, TESTING DATA, ETC.

TOPEKA SECTION

2502-2530' Limestone; gray to tan, oocastic, fair to good oocastic porosity, chalky in part, questionable gas bubbles, no stain, no show of free oil or odor in fresh samples.

2554-2563' Limestone; tan to gray, slightly cherty to gray to white chert, no

TORONTO SECTION

2596-2606'	Limestone; gray, highly dolomitic, plus dolomite, gray, sucrosic, poorly developed porosity, no shows.

DOUGLAS SECTION

2611-2620'	Sand; gray to light gray, very fine grained, some medium grained, sub rounded to sub angular, fair sorting, friable, fair intergranular porosity, no shows.
2623-2650'	Sand; as above, fair to good porosity, no shows.

LANSING SECTION

2725-2731'	Limestone; cream to gray to brown, finely crystalline, fossiliferous, poorly developed porosity, no shows.
2736-2755'	Limestone; tan to gray, oocastic, fair to good oocastic porosity, (barren).
2780-2787'	Limestone; brown to tan, few fossiliferous, sub oocastic, poor visible porosity, no shows.
2793-2800'	Limestone; gray to white, fossiliferous, oolitic, fair fossil cast to oocastic type porosity, no shows.
2806-2813'	Limestone; gray to white, fossiliferous, oolitic, fair fossil cast to vuggy type porosity, no shows.
2821-2890'	Limestone; gray to tan, few oolitic, oocastic, good oocastic porosity, (barren).
2923-2929'	Limestone; tan to gray, few fossiliferous, chalky, poorly developed porosity, no shows.
2934-2946'	Limestone; gray to tan, fossiliferous, increasingly cherty, poor visible porosity, no shows.
2956-2976'	Limestone; white to cream, slightly fossiliferous, chalky, plus trace white chalk, no shows.
2999-3010'	Limestone; gray to tan, slightly oolitic, chalky increasingly cherty with depth, no shows.
3036-3042'	Limestone; gray to tan, finely crystalline, chalky, poor visible porosity, no shows.

ODESSA 'M' SECTION

3059-3069'	Limestone; tan to white and brown, finely crystalline in part, fossiliferous, scattered fair pinpoint to fossil cast (rare) porosity, dark brown stain and saturation, show of free oil and fair odor in fresh samples. Sparry calcite infill in some porosity, good streaming cut, fair bright yellow fluorescence.

Drill Stem Test #1 **3053-3072'**

Times: **30-45-60-60**

Blow: **Weak**

Recovery: **85' gas in pipe**
35' heavy oil cu mud
(25% oil, 75% mud)

Pressures:

ISIP	**193**	**psi**
FSIP	**197**	**psi**
IFP	**14-44**	**psi**
FFP	**18-26**	**psi**
HSH	**1481-1471**	**psi**

MARMATON SECTION

3091-3096' Limestone; gray to white, chalky, few cherty, poor trace black stain, no show of free oil or odor in fresh samples.

CHEROKEE/CONGLOMERATE SECTION

3162-3172' Sand; very fine grained, quartzitic, sub rounded, sub angular, friable, trace spotty stain, trace of free faint yellow fluorescence, poor cut, questionable odor in fresh samples, plus trace white and red boney to opaque chert.

3176-3181' Chert; red and orange, boney, fresh, plus trace sand, very fine grained, friable, scattered porosity, trace poor stain and abundant loose unconsolidated quartz grains, questionable edge staining.

Drill Stem Test #2 **3146-3191'**

Times: **30-45-45-45**

Blow: **Weak to good**

Recovery: **190' gas in pipe**
50' slightly oil cut mud
(10% gas, 5% oil, 85% mud)

Pressures:

ISIP	**247**	**psi**
FSIP	**192**	**psi**
IFP	**16-23**	**psi**
FFP	**24-33**	**psi**
HSH	**1593-1545**	**psi**

MISENER SAND

3213-3220' Sand; clear to glassy, very fine to medium grained, sub rounded few sub angular, quartzitic, friable, good intergranular porosity, fair to good stain, good show of free oil and faint odor in fresh samples. Good bright yellow fluorescence and good streaming cut.

Drill Stem Test #3 **3213-3220'**

Times: **30-30-45-45**

Blow: **Weak**

Recovery: **100' gas in pipe**
20' oil specked mud (good show of free oil on top of tool).

Pressures:

ISIP	**504**	**psi**
FSIP	**643**	**psi**
IFP	**14-15**	**psi**
FFP	**14-20**	**psi**
HSH	**1604-1591**	**psi**

Rotary Total Depth 3220 (-1526)

Recommendations:
On the basis of the favorable structural position and Drill Stem Tests, it was recommended by all parties involved to set and cement 4 ½" production casing at 3216' (four foot off bottom) and the following zones be tested in the Janssen 'A' #8.

1.	Misener Sand	"open hole"	completion methods
2.	Conglomerate	3174-3178'	perforate
3.	Conglomerate	3170-3172	perforate
4.	Conglomerate	3162-3168	perforate
5.	Odessa 'M' Zone	3062-3067'	perforate

Respectfully submitted;

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