

JOHN O FARMER INC.
BOX 352
RUSSELL, KS 67665
913-483-3144

GEOLOGIC REPORT
RUGAN "C" #1
65' EAST OF S/2 S/2 NE
STAFFORD CO. KANSAS
(Sec. 4-21S-11W)

AL 15-185-22833

CONTRACTOR:

EMPHASIS RIG #5
RUSSELL, KS. 67665
TOOLPUSHER: BILL OWNENS
DRILLERS: M- DUANE JOHNSON
D- SHELBY STONE
E- MIKE FLYNN

K C C

MAY 21 1992

SERVICE COMPANIES:

DRILLING MUD: UNIBAR
ELEVATION: AMERICAN ELEVATIONS
DRILL STEM TESTS: WESTERN (NORM HICKEL)
ELECTRIC LOGS: LOG-TECH (BUTCH DRYLIE)
CEMENT: ALLIED

DAILY PROGRESS:

- 4-14: SPUD AT 5:15am. SET 211.04' OF 8 5/8" 20# CASING AT 211' K.B. AND CEMENTED WITH 160 SACKS OF 60/40 POZMIX WITH 3% CALCIUM CHLORIDE AND 2% GEL. PLUG DOWN AT 8:30 pm., DRILLED PLUG OUT AT 4:30 am.
- 4-15: 321' DRILLING
- 4-16: 1949' DRILLING, (MUD UP AT 2600')
- 4-17: 2842' DRILLING, (GEO ON LOC AT 3110')
- 4-18: 3382' DRILL STEM TEST #1, REACHED TOTAL DEPTH AT 8:46 pm.
- 4-19: 3382' PLUGGING TEST, PLUGGING ORDERS AS FOLLOWS:

40	SACKS	CEMENT	AT	3370'
50	"	"	"	570'
40	"	"	"	330'
10	"	"	"	40'
15	"	"		IN RATHOLE
10	"	"		IN MOUSEHOLE

FORMATION TOPS

ELEVATION: 1774'GL, 1779'KB (ALL MEASUREMENTS FROM KB.)
 MAPCO HOLE, LOCATION: NW NE SE OF SEC. 4 T21S, R11W

FORMATION	SAMPLE(CORRECTED)	E-LOG	STRUCTURAL REL TO MAPCO HOLE
ANHYDRITE	510(+1269)	513 (+1266)	
TOPEKA	NO SMPL, DRL TIME	2680 (-901)	-10
HEEBNER	2949(-1170)	2950(-1171)	-08
BROWN LIME	3080(-1301)	3080(-1301)	-10
LANSING	3101(-1321)	3100(-1320)	-09
BASE/K.C.	3336(-1557)	3333(-1554)	-06
ARBUCKLE	3368(-1589)	3370(-1591)	-21
TOTAL DEPTH	3407(-1628)	3399(-1620)	

**Note: sample tops are adjusted up 8 feet due to the board being 8.34' short of strap. The error appears to be between the Anhydrite and Heebner.

SAMPLE SHOWS AND DRILL STEM TESTS:

TORONTO 2970-76	LIMESTONE WHITE TO TAN, FINE GRAINED GRAINSTONE, DENSE WITH A TRACE OF DARK BLACK DEAD OIL STAIN. NO FREE OIL, AND NO ODOR.
L/KC "B" 3128-36	LIMESTONE TAN TO WHITE, MEDIUM GRAINED ROUNDED FOSSIL GRAIN PACKSTONE, DENSE WITH NO POROSITY TRACE OF DARK BLACK DEAD OIL STAIN, NO FREE OIL.
L/KC "C" 3142-52	LIMESTONE, WHITE, VERY FINE CRYSTALLINE MUDSTONE DENSE WITH NO POROSITY, TRACE OF DEAD OIL STAIN, NO FREE OIL.
L/KC "D" 3154-62	LIMESTONE WHITE TO LIGHT GRAY, VERY FINE TO FINE GRAINED GRAINSTONE WITH POOR PINPOINT AND INTER- GRANULAR POROSITY, TRACE OF DEAD OIL STAIN, NO FREE OIL IN WET SAMPLES.
L/KC "H" 3238-44	LIMESTONE MOSTLY WHITE TO LIGHT TAN VERY FINE CRYSTALLINE MUDSTONE, DENSE WITH NO POROSITY A TRACE (5-6 PCS IN SAMPLE TRAY) OF COURSE GRAINED OOLITE PACKSTONE WITH FAIR TO GOOD MOLDIC POROSITY AND DARK BLACK OIL STAIN, NO FREE OIL IN WET SAMPLE, POOR CUT AND FLOURSENCE, FAINT ODOR. E-LOG CALCULATIONS 9% POROSITY AND 23% SALTWATER SATURATION.

L/KC "I"
3258-72 LIMESTONE TAN TO WHITE, COURSE GRAINED OOLITE
PACKSTONE, NO VISIBLE POROSITY, TRACE OF DARK
BLACK OIL STAIN IN POOR MOLDIC AND INTERGRANULAR
POROSITY, NO FREE OIL (OIL FLAKES WHEN BROKEN
OPEN), NO ODOR. 10% POROSITY, 29% SALTWATER SAT.

L/KC "J"
3278-92 LIMESTONE WHITE TO LIGHT TAN FINE GRAINED MUD-
STONE, DENSE, NO POROSITY, TRACE OF DARK BLACK
FLAKEY DEAD OIL STAIN IN POOR TO FAIR MOLDIC
POROSITY, NO FREE OIL OR ODOR.

L/KC "K"
3300-16 LIMESTONE WHITE TO LIGHT TAN, FINE CRYSTALLINE
DENSE, NO POROSITY, TRACE OF COURSE GRAINED OOL.
GRAINSTONE WITH POOR SHOW DEAD OIL IN POOR MOLDIC
POROSITY, NO FREE OIL (OIL FLAKES), VERY FAINT
ODOR.

SIMPSON
3368-70 CLEAR MEDIUM GRAINED ROUNDED SAND GRAINS,
CLUSTERS FIRM TO FRIABLE, SOME LOOSE SAND GRAINS
IN WET SAMPLE. CLUSTERS WITH LIGHT BROWN STAIN
TO DARK BLACK TARRY OIL STAIN. TRACE OF FREE OIL
IN LIGHT BROWN STAIN, ALSO SOME GAS SHOWS. DST #1

ARBUCKLE
3370-76 DOLOMITE WHITE TO LIGHT TAN VARIED SIZE SUCROSIC
CRYSTAL GRAINS (40% FINE-CRYSTALLINE, 30% MEDIUM
CRYSTALLIN, AND 30% COURSE CRYSTALLINE). MOSTLY
TIGHT DOLOMITE WITH NO TO POOR POROSITY, 10% OF
SAMPLE WITH FAIR INTERCRYSTALLINE POROSITY, 2-3%
WITH GOOD VUGGY POROSITY, AND A TRACE OF GOOD
MOLDIC POROSITY. 20% OF THE SAMPLE WITH LIGHT
BROWN OIL STAIN AND FAIR SHOW GOLDEN LIGHT BROWN
FREE OIL. GOOD SHOW OF GAS BUBBLES IN SAMPLE
WITH POROSITY. DOLOMITE MOSTLY HARD, 15% OF
SAMPLE SOFT. FAIR TO GOOD ODOR, SLIGHTLY
SULFURIC. OVERALL, VERY VARIABLE DOLOMITE,
POROSITY AND SHOWS. LOG AVERAGES 10% POROSITY
WITH 70% SALTWATER SATURATION. DST #1

DRILL STEM TEST #1

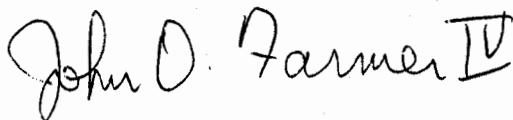
INTERVAL: 3351-3374' (LOG)
OPEN AND SHUT-IN TIMES: 30-30-45-60
1ST OPEN- BLOW TO BOTTOM OF BUCKET IN 15 MINUTES
2ND OPEN- BLOW TO BOTTOM OF BUCKET IN 1 MINUTE
RECOVERY: 900' GAS IN PIPE
55' SLIGHTLY OIL CUT MUD (60% MUD,
39% GAS, 1% OIL)
FLOW PRESSURE: #71-71, #71-71
HYDROSTATIC PRESSURE: #1733-1703
SHUT-IN PRESSURE: #112-357
TEMPERATURE: 116 DEGREES FARENHEIT

ARBUCKLE
3382-86

DOLOMITE WHITE TO LIGHT TAN, COURSE TO MEDIUM CRYSTALLINE, 30% OF SAMPLE WITH GOOD INTERCRYSTALLINE POROSITY, REST FAIRLY TIGHT. POROUS DOLOMITE WITH GOOD SHOW OF GAS, NO VISIBLE OIL SHOWS, FAIR CUT WHEN SAMPLE BROKEN IN LIGHTER FLUID, FAIR ODOR. ELECTRIC LOG AVERAGE 11% POROSITY WITH ABOUT 70% SALTWATER SATURATION OVER THIS INTERVAL.

REMARKS AND RECOMMENDATIONS:

A DECISION WAS MADE TO PLUG AND ABONDON THE RUGAN "C" #1 TEST HOLE AFTER CUTTING 31 FEET OF ARBUCKLE. THE TEST WAS STRUCTURALLY LOWER THAN NON-PRODUCING HOLES AROUND IT, LACKED OR HAD POOR SHOWS IN SAMPLES, AND ALL ZONES WERE DEEMED NON-COMMERCIAL BY ELECTRIC LOG CALCULATIONS. ALL LANSING ZONES EITHER LACKED SHOWS, CONTAINED SHOWS WITH DEAD OIL, OR HAD NO POROSITY. THE ARBUCKLE HAD POOR TO FAIR SHOWS OF OIL AND GAS IN THE UPPER BREAK, BUT SAMPLES APPEARED TIGHT AND WERE DEEMED NON-COMMERCIAL BY LOG CALCULATIONS AND DRILL STEM RESULTS. FURTHER INTO THE ARBUCKLE, POROSITY WAS PRESENT, BUT THE OIL WAS NOT. THERE WERE NO SHOWS OF OIL IN WET SAMPLES, AND ELECTRIC LOG CALCULATIONS CONDEMNED THESE ZONES AS WELL.



JOHN O FARMER IV
PETROLEUM GEOLOGIST