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BEREN CORPORATION
BAUGHER B-3
FINAL GEOLOGICAL WELL REPORT

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1.0 GENERAL INFORMATION

1.1 SUMMARY SHEET

1.2 WELL HISTORY

1.1 SUMMARY SHEET

Well Name: Baugher B-3

Classification: Field Development (Cotton East)

Operator: Beren Corporation

State: Kansas

County: Trego

Acreage: SW/4 SEC. 14-T12S-R21W

Location: SE, SW, SE/4 SEC. 14-T12S-R21W Trego Co.

Coordinates: X: 3,630' FWL
Y: 330' FSL

Elevations: KB: 2,329 feet
GL: 2,320 feet

Spud Date: September 26, 1990

T.D. Date: October 04, 1990

Rig Release: October 06, 1990

Total Depth: Driller: 4,100' RKB (7 7/8" hole)
Logger: 4,103' RKB

Casing Shoes: 8 5/8" at 272 feet RKB (12 1/4" hole)
4 1/2" (used 10.5 #) at 4,099.5 feet RKB
cmt. with 130 sxs surfill. DV tool at
1720 feet cmt. with 400 sxs 60-40 poz and
50 sxs of class "A", circulated to surface.

Hole Size: 12 1/4" from surface to 273' RKB
(driller) 7 7/8" from 273' to 4,100' RKB

Status: Waiting on completion tools.

1.2 - WELL HISTORY

Drilling commenced on September 26, 1990 with a fresh-water native mud system to a depth of 273' RKB then surface casing was run. No problems were encountered while drilling the surface hole.

24# 8 5/8" surface casing was run with casing shoe set at a depth of 272' RKB and cemented with approximately 160 sacks of 60-40 Poz with 3% Calcium Chloride. Cement was circulated to surface during cementing operations.

Out from under surface casing a 7 7/8" hole was drilled to a total depth of 4,100 RTD. A fresh-water native mud was used to a depth of 3,300'. At 3,300' a chemical gel mud system replaced the native mud to improve sample quality and insure good hole conditions during drillstem testing and anticipated wireline logging below 3,300'.

Six conventional drillstem tests were run, all during drilling operations (see DST summary, section 4.6 for details).

Great Guns Logging Services rigged up for Logging Job #1 and commenced on October 05, 1990, the following logs were run: DUAL IND.-GR-SP, DUAL POROSITY-CAL-GR and MICRO-RESISTIVITY LOG no major problems were encountered during run NO. 1. which included the DIL, Run two (with the DUAL POROSITY LOG) was commenced shortly after run one, followed by the last run with the; MICRO RESISTIVITY LOG, GR-MICROCAL.

The intervals covered by each tool is as follows:

DUAL IND.:	2:100 from 4,093' to 272'.
(SP-GR)	5:100 from 4,093' to 3,250'.

DUAL POROSITY:	5:100 from 4,097' to 3,254'.
(CAL-GR)	

MICRO	
RESISTIVITY LOG:	5:100 from 4, 098' to 3,252'.

2.0 GEOLOGIC INFORMATION

2.1 GEOLOGIC RESULTS

2.2 LITHOSTRATIGRAPHIC TABLE

2.1 GEOLOGIC RESULTS

The Baugher B-3 was drilled to a total depth of 4,100' RKB, terminating in Arbuckle sediments. Scattered live oil shows were recorded in the following Formations: Topeka Limestone resulting in DST #1, Lansing "C" resulting in DST #2, Pennsylvanian Marmaton resulting in a DST #3 and shows were observed in the upper 30 to 40' of Arbuckle resulting in DST's 4, 5 and 6. Scattered oil shows were also observed during drilling operations in other parts of the Lansing/Kansas City, and Oread but were not drillstem tests, evaluation with the E-logs however found these zones to be non productive. Prospective reservoirs were also encountered in the Topeka and Kansas City shows were not observed while drilling and petrophysical analysis indicate these zones to be wet. For details of the open-hole drillstem tests see section (4.6 DST summary).

2.2 LITHOSTRATIGRAPHIC TABLE (taken from E-log tops)

LITHOSTRATIGRAPHY RKB RMSL	TOP (FT)	TOP RELATIVE TO SEC. 17 SW SE SE Baugher #1 (+ = HI; - = LO)	
Topeka	3364	-1035	-05
Lansing "A"	3620	-1291	-05
Lansing "C"	3656	-1327	-05
Lansing "F"	3708	-1379	-07
Lansing "K"	3820	-1491	-05
BKC	3870	-1541	-06
Marmaton	3930	-1601	-07
Arbuckle	4010	-1681	-37

OBJECTIVES: Topeka, Lansing "C", Kansas City "K", Marmaton and Arbuckle.

3.0 GEOLOGIC PERSONNEL AND SERVICES

3.1 GEOLOGIC PERSONNEL

3.2 ENGINEERING PERSONNEL

3.3 MUDLOGGING SERVICES

3.4 OPEN-HOLE WIRELINE LOGGING SERVICES

3.5 DRILLSTEM TESTING SERVICES

3.1 GEOLOGIC PERSONNEL

Wellsite Geologists

Jim Hall, Consulting Geologist, was responsible for all geological operations on the well and worked in close coordination with the drilling crew and Mr. Harry McMahon of Beren Corp. during drilling operations.

3.2 ENGINEERING PERSONNEL

All engineering decisions were made by Mr. McMahon during all drilling and testing operations.

3.3 MUDLOGGING SERVICES

No mud logging unit was used by the wellsite geologist during drilling.

3.4 OPEN-HOLE WIRELINE LOGGING SERVICES

Great Guns Logging Services performed all the wireline logging services on the well, using Service Unit 75 (Hays). Mr. D. Gottschalk was the logging engineer and operated the unit during the logging.

3.5 DRILLSTEM TESTING SERVICES

The open-hole drillstem tests were performed by Trilobite Testers Company out of Hays Kansas. The test engineer (Mr. Roger Sells) was at the wellsite to monitor the tests and assist in the evaluation of the results.

4.0 DATA COLLECTION AND DISTRIBUTION

4.1 CUTTINGS SAMPLES

4.2 CONVENTIONAL CORING SUMMARY

4.3 SIDEWALL CORING SUMMARY

4.4 OPEN-HOLE WIRELINE LOGGING SUMMARY

4.5 LITHOLOGY LOG

4.6 OPEN-HOLE DRILLSTEM TEST SUMMARY

4.1 CUTTINGS SAMPLES

Cutting samples were collected at 10' intervals from 3,160' to 4,100', 5' wet samples were collected and examined just prior to and through our anticipated zones of interest and zones with drilling breaks. Circulated bottoms up samples were also taken at selected intervals to better evaluate potential zones of interest.

Washed Wet Cuttings

A complete set of cuttings were washed, and placed in plastic cups, to be used by the wellsite geologist for examination while drilling. This set was essential for the description of sample color and to detect the presents of any live oil and gas prior to artificial drying of the samples.

Washed and Dried Cuttings

A set of washed and dried samples were collected for the purpose of future use if necessary and the examination of sample structure, porosity and staining that can not be seen in the wet set of cuttings. This set was placed in cloth bags and delivered to the Kansas Sample Library.

4.2 CONVENTIONAL CORING SUMMARY

No conventional cores were taken.

4.3 SIDEWALL CORING SUMMARY

No sidewall cores were taken.

4.4 OPEN-HOLE WIRELINE LOGGING SUMMARY

Great Guns Logging Services ran open-hole wireline logs in the 7 7/8" hole. Logs were recorded at 2:100 and 5:100 scales on film and magnetic tape.

LOG JOB #1

After drilling a 7 7/8" hole to a depth of 4,103', the logging unit was rigged up and the DUAL IND.-SP-GR, along with the Dual Porosity logging tools were run on two trips from 4,103 to 3,252 with the GR-SP-DIL continuing to surface casing.

The last trip in the hole was the Micro Resistivity Log with GR-CAL curves included, the intervals covered were from 4,103' to 3,252'.

Field prints of the wireline logs and geologic strip were taken to the Beren company office for distribution to partners.

Petrophysical calculations were done at the wellsite by Jim Hall and the results given to Mr. McMahon prior to making the decision to run casing on the Baugher B-3.

4.5 LITHOLOGY LOG

The wellsite geologist strip log was constructed on a the same scale as the large scale E-log from 3,300' to 4,100' RKB. The Lithology Log was constructed on right reading milar and field prints were made by the wellsite geologist and sent to Beren Corporation in Wichita.

4.6 OPEN-HOLE DRILLSTEM TEST SUMMARY

Six open-hole DSTs' were taken to estimate the productivity of Topeka, Lansing "C", Marmaton and Arbuckle. Noncommercial conditions were established for the Topeka and Lansing "C" but oil was recovered in the Marmaton and Arbuckle.

DST #1 Topeka: 3,370' - 3,400' (Conventional)

Results:

Flowed well for a total of 45 mins. with no gas or fluid to surface, but recovered 10 feet of mud in pipe. The well was shut-in for a total of 60 mins. The charts indicating tight bottom hole pressures and poor transmissibility. The pressure breakdown is as follows:

PRESSURE BREAKDOWN

INITIAL HYDROSTATIC MUD:	1575#
INITIAL FIRST FLOW PRESSURE:	10#
INITIAL FINAL FLOW PRESSURE:	10#
INITIAL SHUT-IN PRESSURE:	1090#
SECOND FIRST FLOW PRESSURE:	10#
SECOND FINAL FLOW PRESSURE:	10#
FINAL SHUT-IN PRESSURE:	1046#
FINAL HYDROSTATIC MUD:	1570#

DST #2 Lansing "C" 3,640' - 3,670' (Conventional)

Results:

Flowed well for a total of 75 mins. with no gas or fluid to surface, but recovered 515 feet of 515' of salt water (CL: 30,000 ppm.) in pipe. The well was shut-in for a total of 135 mins. The charts indicating good bottom hole pressures (pressure depletion is indicated) and good transmissibility. The pressure breakdown is as follows:

PRESSURE BREAKDOWN

INITIAL HYDROSTATIC MUD:	1774#
INITIAL FIRST FLOW PRESSURE:	11#
INITIAL FINAL FLOW PRESSURE:	77#
INITIAL SHUT-IN PRESSURE:	893#
SECOND FIRST FLOW PRESSURE:	111#
SECOND FINAL FLOW PRESSURE:	255#
FINAL SHUT-IN PRESSURE:	893#
FINAL HYDROSTATIC MUD:	1770#

DST #3 Marmaton: 3,932' - 3,952' (Conventional)

Results:

Flowed well for a total of 60 mins. with no gas or fluid to surface, but recovered 450 feet of clean oil (34 deg API), 150' slightly oil cut mud and 30' of muddy water (filtrate) in the pipe. The well was shut-in for a total of 90 mins. The charts indicating depleting bottom hole pressures and fair transmissibility. The pressure breakdown is as follows:

PRESSURE BREAKDOWN

INITIAL HYDROSTATIC MUD:	1962#
INITIAL FIRST FLOW PRESSURE:	44#
INITIAL FINAL FLOW PRESSURE:	111#
INITIAL SHUT-IN PRESSURE:	1002#
SECOND FIRST FLOW PRESSURE:	144#
SECOND FINAL FLOW PRESSURE:	255#
FINAL SHUT-IN PRESSURE:	860#
FINAL HYDROSTATIC MUD:	1962#

DST #4 Arbuckle; 3,952'- 4,014' (Conventional)

Results:

Flowed well for a total of 75 mins. with no gas or fluid to surface, but recovered 50 feet of clean oil (34 deg API), 80 feet of mud cut oil (50% oil) in pipe. The well was shut-in for a total of 135 mins. The charts indicating good bottom hole pressures and poor transmissibility. The pressure breakdown is as follows:

PRESSURE BREAKDOWN

INITIAL HYDROSTATIC MUD:	1984#
INITIAL FIRST FLOW PRESSURE:	44#
INITIAL FINAL FLOW PRESSURE:	55#
INITIAL SHUT-IN PRESSURE:	1013#
SECOND FIRST FLOW PRESSURE:	66#
SECOND FINAL FLOW PRESSURE:	88#
FINAL SHUT-IN PRESSURE:	991#
FINAL HYDROSTATIC MUD:	1924#

DST #5 Arbuckle; 4,013'- 4,039' (Conventional)

Results:

Flowed well for a total of 75 mins. with no gas or fluid to surface, but recovered 150 feet of clean oil (34 API.), 90 feet of mud cut oil (52% oil), 60 feet of oil cut mud (15% oil). The well was shut-in for a total of 135 mins. The charts indicating good bottom hole pressures and poor to fair transmissibility. The pressure breakdown is as follows:

PRESSURE BREAKDOWN

INITIAL HYDROSTATIC MUD:	1973#
INITIAL FIRST FLOW PRESSURE:	55#
INITIAL FINAL FLOW PRESSURE:	66#
INITIAL SHUT-IN PRESSURE:	1112#
SECOND FIRST FLOW PRESSURE:	100#
SECOND FINAL FLOW PRESSURE:	133#
FINAL SHUT-IN PRESSURE:	1068#
FINAL HYDROSTATIC MUD:	1940#

DST #6 Arbuckle: 4,039' - 4,080' (Conventional)

Results:

Flowed well for a total of 45 mins. with no gas or fluid to surface, but recovered 2,370 feet of salt water (RW 0.26 @ 97 deg. F). The well was shut-in for a total of 90 mins. The charts indicating good bottom hole pressures and very good transmissibility. The pressure breakdown is as follows:

PRESSURE BREAKDOWN

INITIAL HYDROSTATIC MUD:	1984#
INITIAL FIRST FLOW PRESSURE:	277#
INITIAL FINAL FLOW PRESSURE:	772#
INITIAL SHUT-IN PRESSURE:	1266#
SECOND FIRST FLOW PRESSURE:	838#
SECOND FINAL FLOW PRESSURE:	1156#
FINAL SHUT-IN PRESSURE:	1244#
FINAL HYDROSTATIC MUD:	1962#

APPENDIX "A"

PETROPHYSICAL ANALYSIS

The following SW analysis were made using a combination of parameters and steps to arrive at the below listed calculations for the zones of interest and intervals exhibiting potential based upon; drill off, sedimentary structure, oil shows and or E-log anomalies.

Petrophysical analysis was performed on the Pennsylvanian Marmaton and the Arbuckle (Lower Ordovician) using the Great Guns chart book, drilling samples and open hole DST information.

An R_w and M value were calculated using a standard Log Log Porosity - Resistivity cross plot. The R_w values arrived at using this method were very comparable to that of the measured R_w values during DST #6 (R_w 0.175 @ BHT 144 F) and the SP method.

Pennsylvanian Zones

A) R_w : 0.17 was used.

B) Porosity: cross plot using Bulk Density, Density and Neutron Porosity readings.

Ordovician Arbuckle Dolomite

A) R_w : 0.17 was used.

B) Porosity: cross plot using Bulk Density, Density, Neutron Porosity readings.

Water saturations tabulated below for the Marmaton and Arbuckle were taken directly from the Log Log x - plot!

ZONES OF INTEREST PETROPHYSICAL SUMMARY:

<u>DEPTH</u>	<u>SW</u>	<u>LITHOLOGY</u>
3936-54'	50-76%	Packstone and Grainstone: (Marmaton) becoming very Cherty at the base; dolomitic, even brown staining, occasional light free oil when broken, very good cut, scattered pin-point visible porosity, visible gas, no odor, Chert with scattered dark stain on faces.

4014-88'

50-98%

Rhombic Dolomite: (Arbuckle)
becoming glauconitic and kaolinitic
with depth; fine crystalline, hard
to friable, dark to light free oil
between rhombic crystals, visible
porosity, even to spotty stain, good
odor, dull fluorescence, good
streaming fluorescent cut and
residual fluorescent ring after cut.

APPENDIX "B"

FORMATION LITHOLOGY

Topeka - Oread 3364' to 3584':

This section of lithology was composed of primarily Packstones with scattered sections of Grainstones and Mudstones. This continuous Limestone interval was periodically interpreted by thin grey and black marine shales and occasional very colored Claystones and Shales.

The porosity zones appear to be regressive Grainstone sequences bounded by tight Limestones and Shales. The only significant live oil show encountered was within the top 20 feet of the Topeka resulting in DST #1; the zone gave up only 10' of fluid, exhibiting very low permeability.

Lansing - Kansas City 3620' to 3870':

This interval was made up of typical cyclic carbonate deposition found in the Lansing/Kansas City. Each cyclic sequence was composed of Mudstones at the base with Packstones and Grainstones representing the upper regressive carbonates at the end of each sequence. Each sequence is broken with Mudstones and Shales.

There were three main Formations that did exhibit good reservoir potential with a combination; of drilling break, oil shows and petrophysical porosity they include; the Wyandotte - "C" zone, Iola - "F" zone and the Swope - "K" zone. Only the "C" zone was tested during drilling and recovered 515' of salt water.

Marmaton 3930' to 3964':

The Marmaton was composed of a very Cherty Limestone at the base grading to a hard Dolomitic Limestone cap. The Cherty Limestone lithology had a good drilling break and live oil shows below the hard upper cap rock. The Marmaton was tested and recovered oil, mud and water (filtrate). Petrophysical analysis indicate good porosity but declining pressures (during the DST) may indicate limited or depleted reservoir conditions. The bulk of the Chert was fresh indicating local development with no transportation.

Arbuckle (Lower Ordovician) 4010' to 4100':

Approximately 90 feet of Arbuckle Dolomite was cut. The top twenty feet was primarily tan rhombic Dolomite with fair shows of oil. The Dolomite became increasingly glauconitic and kaolinitic with depth and visible shows diminished with depth. Two DST's were run in the top 28 feet recovering oil and muddy oil, the last test in the bottom 41 feet of Arbuckle recovered salt water.