

APR 22 2002

STATE OF KANSAS
KANSAS CORPORATION COMMISSION
CONSERVATION DIVISION
130 South Market - Room 2078
Wichita, Kansas 67202

CONSERVATION DIVISION
WICHITA, KS

FORM CP-1 (3/92)

WELL PLUGGING APPLICATION FORM
(PLEASE TYPE FORM and File ONE Copy)

API # 15-203-20084 0000 (Identifier number of this well). This must be listed for wells drilled since 1967; if no API# was issued, indicate spud or completion date.

WELL OPERATOR Great Plains Resources, Inc. KCC LICENSE # 5449
(owner/company name) (operator's)

ADDRESS P. O. Box 369 CITY Littleton

STATE Colorado ZIP CODE 80160 CONTACT PHONE # (303) 979-4029

LEASE McMichael WELL# 4 SEC. 33 T. 20S R. 35 (East West)

C - SE - SW SPOT LOCATION/0000 COUNTY Wichita

660' FEET (in exact footage) FROM (S)/N (circle one) LINE OF SECTION (NOT Lease Line)

3300' FEET (in exact footage) FROM (E)/W (circle one) LINE OF SECTION (NOT Lease Line)

Check One: OIL WELL GAS WELL ^{T A ' d} D&A SWD/ENHR WELL DOCKET# _____

CONDUCTOR CASING SIZE _____ SET AT _____ CEMENTED WITH _____ SACKS

SURFACE CASING SIZE 8 5/8 SET AT 401' KB CEMENTED WITH 250 SACKS

PRODUCTION CASING SIZE 5 1/2 SET AT 4600' CEMENTED WITH 200 SACKS

LIST (ALL) PERFORATIONS and BRIDGEPLUG SETS: 4534-38' and 4515-18'

ELEVATION 3188/3198 T.D. 4630 PBTD _____ ANHYDRITE DEPTH 2183
(G.L./K.B.) (Stone Corral Formation)

CONDITION OF WELL: GOOD POOR _____ CASING LEAK _____ JUNK IN HOLE _____

PROPOSED METHOD OF PLUGGING Plug per KCC required procedures

(If additional space is needed attach separate page)

IS WELL LOG ATTACHED TO THIS APPLICATION AS REQUIRED? _____ IS ACO-1 FILED? _____

If not explain why? CP-111 previously filed

PLUGGING OF THIS WELL WILL BE DONE IN ACCORDANCE WITH K.S.A. 55-101 et. seq. AND THE RULES AND REGULATIONS OF THE STATE CORPORATION COMMISSION.

LIST NAME OF COMPANY REPRESENTATIVE AUTHORIZED TO BE IN CHARGE OF PLUGGING OPERATIONS:

Robert Tuck or Mike Scribner PHONE# ³⁰³ () 979-4029

ADDRESS P.O. Box 369 City/State Littleton, CO 80160

PLUGGING CONTRACTOR Post & Mastin Well Service, Inc. KCC LICENSE # 8438

ADDRESS PO Box 297, Garden City, KS 67846 PHONE # ⁶²⁰ () 276-3442
(company name) (contractor's)

PROPOSED DATE AND HOUR OF PLUGGING (If Known?) on or before 5/15/02

PAYMENT OF THE PLUGGING FEE (K.A.R. 82-3-118) WILL BE GUARANTEED BY OPERATOR OR AGENT

DATE: 4/19/02 AUTHORIZED OPERATOR/AGENT: E.L. Tuck

E.L. Tuck (signature) Secretary



Kansas Corporation Commission

Bill Graves, Governor John Wine, Chair Cynthia L. Claus, Commissioner Brian J. Moline, Commissioner

NOTICE OF RECEIPT OF WELL PLUGGING APPLICATION (CP-1)

Great Plains Resources, Inc.
PO Box 369
Littleton, CO 80160

April 24, 2002

Re: MCMICHAEL #4
API 15-203-20084-00-00
CSESW 33-20S-35W, 660 FSL 3300 FEL
WICHITA COUNTY, KANSAS

Dear Operator:

This letter is to notify you that the Conservation Division is in receipt of your plugging proposal, form CP-1, for the above-captioned well.

Your CP-1 has been reviewed by the Conservation Division central office for completeness and to verify license numbers. The plugging proposal will now be forwarded to the district office listed below for review of your proposed method of plugging.

Please contact the district office for approval of your proposed plugging method at least five (5) days before plugging the well, pursuant to K.A.R. 82-3-113 (b). If a workover pit will be used during the plugging of the well it must be permitted. A CDP-1 form must be filed and approved prior to the use of the pit.

The Conservation Division's review of form CP-1, either in the central or district office, does not include an inquiry into well ownership or the filing operator's legal right to plug the well.

This notice in no way constitutes authorization to plug the above-captioned well by persons not having legal rights of ownership or interest in the well. This notice is void after ninety (90) days from the above date.

District: #1
210 E Frontview, Suite A
Dodge City, KS 67801
(316) 225-8888

Sincerely
A handwritten signature in black ink, appearing to read "David P. Williams".

David P. Williams
Production Supervisor

great plains resources, inc. RECEIVED KANSAS CORPORATION COMMISSION

POST OFFICE BOX 369
LITTLETON, COLORADO 80160

APR 22 2002

REGISTRATION DIVISION
KANSAS CORPORATION COMMISSION

WELL: McMichael #4
SESW Sec 33, T20S-R35W
Wichita County, Kansas

COMPLETION REPORT

Page 1

November 6, 1985 - Wednesday

Post & Mastin rig moved on location. Unloaded tubing.
Swabbed hole down to 3000'.

November 7, 1985 - Thursday

Schlumberger ran Cement Evaluation Log. Found insert collar @ 4566'; found top of cement @ 3650'. Cement in proposed perforation zones looked good. Perforated 4534-38' 4 shots/ft. Swabbed hole down. Started hourly tests. First & second hours, no fluid. Moved swab tank and 48 bbls salt water to location.

November 8, 1985 - Friday

No overnight fill. Ran tubing & packer. Packer set @ 4501'. Acidized w/300 gals 15% MCA. Formation took acid on vacuum .15 bbls/min. Swabbed hole down.

1st hour	7 bbls	Acid water, trace oil
2nd hour	4.5 bbls	Slight acid water, trace oil
3rd hour	3 bbls	Water, trace oil
Last 30 min	.87bbls	Trace oil

November 11, 1985 - Monday

Tubing swab 4534-38'. Swab down 3.64 bbls, 10% oil.
Tests: 4.64 bbls, 10% oil
4.41 bbls, 5% oil
3.16 bbls, 5% oil
2.90 bbls, 5% oil
2.32 bbls, 5% oil
2.04 bbls, 5% oil

great plains resources, inc.

POST OFFICE BOX 369
LITTLETON, COLORADO 80160

WELL: McMichael #4
SESW Sec 33, T20S-R35W
Wichita County, Kansas

COMPLETION REPORT

Page 2

November 12, 1985 - Tuesday

Swabbing 4534-38'. Pulled tubing, casing swab.

Tests: 6 bbls, 35% oil
5 bbls, 50% oil
4 bbls, 55% oil
3 bbls, 55% oil

November 13, 1985 - Wednesday

Perforated 4515-18'. Schlumberger also set RBP wire line set retrievable plug. Top of plug @ 4524'; bottom @ 4528'. Casing swab, no fluid or gas. Ran tubing & packer, set @ 4501'. Tubing swab, no fluid.

November 14, 1985 - Thursday

No overnight fill. Acidized w/250 gals MSR. Top PSI 900#, broke @ 800, treated 3 bbls acid, 1/3 bbl/min @ 600#. Last 3 bbl acid treated on vacuum. Swabbed treatment and flushed back. Total fluid was 26 bbl water.

November 15, 1985 - Friday

Pulled tubing & packer for casing swab. 11.02 bbls swab down.

Hourly tests: 4.64 bbls, 1-2% oil
2.90 bbls, 3-4% oil
2.32 bbls, 5% oil
2.61 bbls, 5% oil
2.61 bbls, 5% oil

November 18, 1985 - Monday

Swab down 9.28 bbls, 3% oil.

Hourly tests: 2.90 bbls, 3% oil
5.22 bbls, 3% oil
3.48 bbls, 3% oil
2.91 bbls, 3-5% oil

TELEPHONE: (303) 979-4029

great plains resources, inc.

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Wichita County, Kansas

COMPLETION REPORT

Page 3

November 18, 1985 (cont)

Hourly tests: 2.61 bbls, 3-5% oil
2.03 bbls, 3-5% oil
1.45 bbls, 3-5% oil
1.16 bbls, 5% oil
1.16 bbls, 5% oil

November 19, 1985 - Tuesday

No work.

November 20, 1985 - Wednesday

Prepared for squeeze @ 4515-18'. Dumped sand on RBP.
Ran tubing & packer. Loaded back side. Squeezed w/50
sks cement, 3 bbl/min, PSI 1000#. Pulled 10 jts tubing.
PSI 500# and shut in.

November 21, 1985 - Thursday

Thawed out tubing and bled pressure off well. Pulled
tubing and packer. Put on bit and ran tubing back in
well.

November 22, 1985 - Friday

Cheyenne Well Service swivel/pump drilled out 46'
cement. Tested squeeze to 500 PSI for 5 min. Circulated
sand off plug. Swabbed well down.

November 25, 1985 - Monday

Checked squeeze for fluid. Released and pulled plug.
Ran casing swab but could not get to TD. Cement squeeze
went down pipe & back in. Perfs @ 4534-38'

great plains resources, inc.

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SESW Sec 33, T20S-R35W
Wichita County, Kansas

COMPLETION REPORT

Page 4

November 26, 1985 - Tuesday

Ran bit back in well & drilled out cement. Just past perfs @ 4534-38' bit & tubing went on to TD. Cleaned up hole and swabbed down.

November 27, 1985 - Wednesday

Checked for fluid. Put in 150' fluid for perforating. Schlumberger perforated 4534-38' 4 shots/ft. Swab tested, no fluid.

November 28, 1985 - Thursday

Holiday, no work.

November 29, 1985 - Friday

Dowell on location to treat. Truck froze up and no treatment was possible.

November 30, 1985 - Saturday

1/2 day swabbed well down & checked for fluid; no fill up or fluid.

December 2, 1985 - Monday

Drained water off tank. Layed tubing down, doped & placed thread protectors on. Rigged down.

Well has been temporarily abandoned.

RECEIVED
KANSAS CORPORATION COMMISSION

APR 22 2002

CONSERVATION DIVISION
WICHITA, KS

GREAT PLAINS RESOURCES

NO. 4 McMICHAEL

C SE SW Section 33, Township 20 South, Range 35 West

Wichita County, Kansas

Lafayette E. Poole
Petroleum Geologist
3220 Poly Drive
Billings, Montana 59102

GREAT PLAINS RESOURCES
NO. 4 McMICHAEL
33
C SE SW Section 32, Township 20 South, Range 35 West
Wichita County, Kansas

RESUME"

SPUDDED: October 13, 1985.

RIG RELEASED: October 23, 1985.

STATUS: Oil well.

ELEVATION: 3188' G.L., 3198' K.B.

TOTAL DEPTH: 5630' Driller, 4627' Logger.

CONTRACTOR: Cheyenne Drilling Company.

DRILLING RIG: Cheyenne No. 4, National 370 with Cummings engines.

TOOL PUSHER: Phil Lloyd.

DRILLERS: Raymond Eves, Bill Cather, Jack Pepper and Joe Turpin.

SURFACE CASING: 401' 8-5/8" 24# casing set at 411' K.B., cemented with 100 sx Lite-3, 65/35 POZ mix, 6% gel, 2% CaCl, 1/8# LCM and 150 sx Prem/H, 3% CaCl, plug down 2:00 A.M., 10-14-85. Good returns.

HOLE SIZE: 7-7/8".

DRILL COLLARS: 16 joints (497') 6½x2¼", 4½" X.H.

DRILL PIPE: 4½" X.H.

MUD PUMP: EMSCO D-375 5¼x14".

MUD PROGRAM: Salt mud changed to starch mud at 3900'. Davis Mud Company; Jerry Dreiling, Engineer.

SAMPLES: 10' samples 2400-3000', 30' samples 3000-3700', 10' samples 2700' - T.D. Quality fair to good. Delivered to Kansas Geological Survey Sample Library.

DRILL STEM TESTING: D.S.T. No. 1, 2962-3000', Council Grove Formation. Cheney Testers; Walt Brown, Tester.

LOGGING: Schlumberger DIL-SFL with GR 414-4621', CNL-LDT with GR 2275-2624', EPT with GR 4000-4609', ML with GR 4000-4613', FIL 4400-4626' and Cyberlook 2700-4600'. Mr. Ingrahm, Engineer.

WELL SITE GEOLOGIST: L. E. Poole, Billings, Montana.

DAILY ACTIVITY SUMMARY

October 13, 1985 Rig up, drill rat hole, spud 12-1/4" surface hole
9:00 P.M., 10-13-85.

October 14, 1985 TD 414' W.O.C., ran 401' 8-5/8" 24# casing set at
411' K.B., cemented with 100 sx Lite-3, 65/35 POZ
mix, 6% gel, 2% CaCl, 1/8# LCM and 150 sx Prem/H,
3% CaCl, plug down at 2:00 A.M., good returns.
Vertical deviation 1° at 414'. Bit A made 414'
in 2-1/2 hrs.

October 15, 1985 TD 1904' drilling, DOP at 10:00 A.M., 10-14-85.

October 16, 1985 TD 2880' drilling, bit no. 2 in at 2700', bit no. 1
made 2286' in 29-1/2 hrs. Vertical deviation 3/4°
at 2700'.

October 17, 1985 TD 3000' washing to bottom. DST No. 1 2962-3000'.
Recovered 250' muddy salty water. Mud wt 9.4,
vis 26, WL 2.8, pH 8.0. Vertical deviation 2° at
3000'.

October 18, 1985 TD 3510' drilling, mud wt 9.4, vis 32, WL 7.8, pH 8.0.

October 19, 1985 TD 3885' drilling, mud wt 9.5, vis 47, WL 8.0, pH 9.5.
Bit No. 3 in at 3518', bit no. 2 made 818' in 31 1/4 hrs.
Vertical deviation 1° at 3518'.

October 20, 1985 TD 4275' drilling, mud wt 9.5, vis 40, WL 9.6, pH 8.5.
Bit No. 4 in at 4006', bit no. 3 made 488' in 21-3/4
hrs. Vertical deviation 1° at 4006'.

October 21, 1985 TD 4590' drilling, mud wt 9.5, vis 43, WL 10.8, pH 8.0.

October 22, 1985 TD 4630' W.O.O., mud wt 9.5, vis 43, WL 10.8, pH 8.0.
Ran Schlumberger logs, Logger's TD 4627'. Bit No. 4
made 622' in 41-3/4 hrs. Vertical deviation 2-1/4°
at 4630'.

October 23, 1985 TD 4630'. Ran 5-1/2" production casing. Released
rig.

FORMATION TOPS FROM LOGS

<u>Formation</u>	<u>Depth</u>	<u>Datum</u>	<u>Formation</u>	<u>Depth</u>	<u>Datum</u>
Greenhorn	492	(2706)	Wood Springs	3434	(- 236)
Dakota	1071	(2127)	Heebner	3965	(- 767)
Glorietta	1460	(1738)	Lansing	4008	(- 810)
Stone Corral	2183	(1015)	Base Kansas City	4483	(-1285)
Base Anhydrite	2278	(920)	Marmaton	4510	(-1312)
Krider	2732	(466)	Beymer	4608	(-1410)
Winfield	2782	(416)	Beymer Porosity	4620	(-1422)
Fort Riley	2873	(325)	Log T.D.	4627	
Council Grove	2974	(224)	Driller T.D.	4630	

DRILLING MUD MATERIAL USED (Does not include breakage.)

Soda Ash	36 sx	Preserv	2 sx	Mica	1 sx
Caustic	16 sx	Hulls	35 sx	Liq	7 sx
Starch	84 sx	Lime	2 sx	Gel	316 sx

DRILL STEM TESTING

D.S.T. No. 1, 2962-3000', Council Grove Formation, Cheney Bottom Hole Test with Jars, Safety Joint and Bottom Hole Sampler; Walter Brown, Tester.

<u>Period</u>	<u>Pressure</u>	<u>Time</u>	<u>Remarks</u>
IHP	1699#		
IFP	53-95#	60 min.	Opened with 1/4" blow, slow increase to 5" at end of period.
ISIP	653#	60 min.	No blow.
FFP	106-138#	60 min.	No blow for 10 min, then weak blow increasing slowly to 3" at end of period.
FSIP	632#	60 min.	No blow.
FHP	1605#		

Bottom Hole Temperature 116°F.

Pipe recovery: 250' muddy salty water.

Sampler: Did not function. Recovered 2000 ml muddy water with no pressure.

Chloride content of recovery water 78,000 P.P.M.

Chloride content of drilling mud 54,000 P.P.M.

LITHOLOGY

Samples examined by L. E. Poole

2700-2730 50% shale, red, blocky, silty in part; 30% shale, light to medium gray; 20% anhydrite, white to light gray; tr siltstone, light gray.

Log Top Krider 2732'

2730-2745 As above with increase in red shale, occasional limestone, cream, microxln, no porosity, no oil stain, mineral fluor, no cut.

2745 - 15 min. circ. 15% sandstone, light gray, tr tan, tr pink, very fine grain, angular, silty in part, scattered glauconite, argillaceous, tr sli friable, no apparent porosity, no oil stain, no fluor, no cut; 15% siltstone, light gray and light tannish gray, tr very sli glauconitic, tr nodular; 40% shale, red, blocky as above; 15% shale, medium gray; 15% anhydrite.

2745 - 30 min. circ. 30% sandstone, light gray, pink and tan, very fine grain as above, poor apparent porosity, no oil show; 15% siltstone, gray and tan, tr nodular as above; 35% shale, red; 20% shale, medium gray; tr anhydrite; tr pyrite.

2745 - 45 min. circ. 40% sandstone, light gray, tan and pink, very fine grain, scattered galuconite as above, sli friable, poor apparent porosity, no oil stain, no fluor, no cut; 15% siltstone, light gray and light tan; 30% shale, red; 15% shale, medium gray; tr anhydrite.

2745-2760 25% sandstone, light gray, tannish gray and pink, very fine grain, angular, argillaceous, sli calcareous, occasional mica, no apparent porosity, no oil stain, no fluor, no cut; 50% siltstone, light gray and tannish gray, argillaceous, sli calcareous, tr nodular; 20% shale, red, blocky as above; 5% shale, light to medium gray; tr shale, pale green, blocky; tr chert, milky white and yellow.

Log Top Winfield 2782'

2760-2790 60% sandstone, light gray, tan and pink, very fine grain, argillaceous in part, tr sli glauconitic, occasional mica, tr with poor apparent porosity, no oil show; 10% siltstone, light gray; 20% shale, red as above; 10% shale, medium gray as above; tr chert; tr anhydrite.

2790-2820 As above, most sandstone has no porosity, tr with poor porosity, occasional sandstone with fair apparent porosity, no oil stain, no fluor, no cut.

2820-2850 70% siltstone, light gray, tr sandy, occasional mica; 10% sandstone, light gray, tan and pink, very fine grain, tr with poor porosity, no oil show; 20% shale, red; trace shale, medium gray; tr chert; occasional anhydrite.

Log Top Fort Riley 2873'

2850-2880 As above with increase in sandstone, light gray and light greenish gray, no porosity, no oil show.

2880-2910 As above with tr limestone, light tan, microgranular, dolomitic, scattered pinpoint vuggs, no oil stain, dim to medium mineral fluor.

2910-2920 15% limestone, light tan, microgranular as above, occasional pinpoint vuggs, no oil stain, mineral fluor, no cut; 70% siltstone, light to medium gray, argillaceous; 15% shale, red; tr anhydrite.

2920-2930 As above with increase in siltstone, with scattered dark gray shale fragments, tr sandy.

2930-2940 10% limestone, light tan, microgranular as above, occasional pinpoint vuggs, no oil stain, mineral fluor, no cut; 60% siltstone, spotty, argillaceous as above; 20% shale, red as before; 10% shale, medium gray, silty in part, tr sandstone, light gray, very fine grain, no porosity, no oil show; tr anhydrite.

2940-2950 As above with increase in red shale.

2950-2960 35% shale, red, blocky, tr silty as above; 45% siltstone, light to medium gray, spotty, argillaceous as above; 10% shale, medium gray; 10% limestone, light tan as above, occasional vuggy porosity, no oil or gas show; tr anhydrite.

2960-2970 As above with increase in limestone, light tan and cream, tr with poor porosity, no oil or gas show.

Log Top Council Grove 2974'

2970-2980 As above with increase in limestone, light tan and cream; tr sandstone, light gray, very fine grain, no apparent porosity, no oil stain, no fluor, no cut; tr pyrite.

2980-2984 20% limestone, tan and cream, microgranular, tr microxln, occasional poor apparent porosity, no oil stain, dim mineral fluor, no cut; 30% shale, red as above; 5% shale, medium to dark gray; 50% siltstone, light to medium gray; tr sandstone, light gray very fine grain, no porosity, no oil show; tr anhydrite.

2984 - 15 min. circ. As above with tr sandstone, light gray, very fine grain, angular, sli argillaceous, sli friable, may have poor porosity, no oil stain, no fluor, no cut.

- 2984 - 30 min. circ. 45% sandstone, light to medium gray, tr tan, very fine grain, angular, tr sil friable to friable, sli argillaceous, poor apparent porosity, no oil stain, no fluor, two pieces with very slow weak cut (?); 20% siltstone, light to medium gray; 30% shale, red; 5% shale, medium gray; tr limestone, tan.
- 2984-2990 As above with sli increase in gray shale and siltstone; sandstone has poor apparent porosity, no oil stain, no fluor, one piece with questionable very weak cut.
- 2990-3000 20% sandstone, light to medium gray and tan, very fine grain, tr sli friable, sli argillaceous, poor apparent porosity, no oil stain, no fluor, no cut; 35% shale, red; 10% shale, medium gray, tr silty; 35% siltstone, argillaceous; 10% limestone, tan.
- 3000 - 15 min. circ. 40% sandstone, light to medium gray, tan and pink, very fine grain to fine grain, angular, argillaceous in part, poor apparent porosity, tr may have fair porosity, no oil stain, no fluor, two pieces with very slow dim cut; 30% shale, red; 20% shale, medium to dark gray; 10% siltstone, light to medium gray; tr limestone, tan.
- 3000 - 30 min. circ. As above with sli increase in sandstone, light to medium gray, poor to occasional fair porosity, no oil stain, no fluor, no cut.
- 3000 - 45 min. circ. As above, tr sandstone with poor to sometimes fair porosity, no oil or gas show.
- 3000-3030 25% sandstone, light gray and tan, very fine grain, angular, no apparent porosity, no oil stain, no fluor, no cut; 30% shale, red, silty and sandy as above; 10% shale, medium gray; 35% siltstone, gray and tan, abundant iron nodules; tr anhydrite; tr pyrite.
- 3030-3060 As above with increase in sandstone, tr fine grain, siliceous in part, very hard, no porosity, no oil show.
- 3060-3090 35% sandstone, medium gray, tan and red, very fine to fine grain, very hard in part, no porosity, no oil show; 35% shale, red; 15% limestone, light gray and tan, microxln, tr microgranular, no porosity, no oil stain, medium mineral fluor, no cut; 10% siltstone; 5% shale, dark to medium gray; tr anhydrite.
- 3090-3120 15% sandstone, medium gray as above; 25% limestone, white and light gray, chalky; anhydrite; 35% shale, red; trace shale, medium gray; tr siltstone.
- 3120-3150 As above with decrease in sandstone; increase in anhydrite.
- 3150-3180 60% limestone, white, light gray and cream, microxln, chalky in part; 25% shale, red; 5% sandstone; 10% siltstone; trace shale, dark to medium gray.

- 3180-3210 80% limestone, as above; 20% shale, red; tr siltstone, medium gray and tan; tr sandstone, medium gray; tr anhydrite; tr pyrite; tr shale, gray.
- 3210-3240 As above with increase in limestone.
- 3240-3270 30% limestone, white and cream as above; 35% shale, red; 15% shale, medium to dark gray; 10% siltstone; 10% anhydrite; tr sandstone, medium gray; tr pyrite.
- 3270-3300 60% limestone, white, light gray and cream, microxln, anhydritic, no porosity, no oil show, medium to bright mineral fluor, no cut; 30% shale, red; 10% siltstone; tr shale, medium to dark gray; tr sandstone, medium gray; tr anhydrite; tr pyrite.
- 3300-3330 25% limestone as above, tr microgranular and very fine granular, tr poor apparent porosity, no oil stain, mineral fluor, one piece with very slow weak cut; 40% shale, red;
- 3330-3360 65% limestone, tan, light gray and white, microxln, microgranular and very fine granular, chalky in part, tr oolitic, poor porosity, tr with fair porosity, no oil stain, dim to medium fluor, no cut; 25% shale, red; 10% shale, dark gray, silty in part; tr anhydrite; tr chert, white.
- 3360-3390 As above with increase in limestone, increase in oolitic limestone, poor to fair apparent porosity, no oil show; tr sandstone, medium gray, fine grain, angular, fair apparent porosity, no oil show.
- 3390-3420 As above with decrease in limestone, increase in red and gray shale.
- Log Top Wood Springs 3434'
- 3420-3450 70% limestone, light to medium gray, microxln, argillaceous, mottled in part, no apparent porosity, no oil stain, dim spotty fluor, no cut; 10% shale, red; 10% shale, medium to dark gray; 10% siltstone, medium gray, argillaceous; tr chert, milky to dark gray; tr anhydrite.
- 3450-3480 As above, most of limestone is light gray to tan, trace light brown, micro granular, microxln to xln, tr fossiliferous, tr poor porosity, no oil stain, spotty dim fluor, no cut.
- 3480-3510 Missing.
- 3510-3540 30% limestone, gray, tan and light brown as above; 50% shale, red, blocky, silty; 20% shale, dark gray and green, silty in part; tr anhydrite; tr siltstone, medium gray.
- 3540-3570 As above with increase in limestone; sli increase in siltstone, medium gray, tr tan with iron nodules.

- 3570-3600 70% limestone, light gray, tannish gray and tan, microxln, tr microgranular, tr fossiliferous, no apparent porosity, no oil stain, scattered dim mineral fluor, no cut; 15% shale, red; 15% shale, medium to dark gray; tr shale, black, carbonaceous; tr pyrite; tr anhydrite.
- 3600-3630 As above with sli increase in microgranular limestone, poor to no apparent porosity, no oil stain, very dim spotty mineral fluor, no cut.
- 3630-3660 As above tr limestone has poor apparent porosity, no oil stain, bright to medium mineral fluor, no cut.
- 3660-3690 As above with increase in red shale; decrease in limestone, occasional poor porosity, no oil show.
- 3690-3700 50% limestone, light to medium gray, tan and white, as above, no porosity, no oil show; 30% shale, red; 10% shale, medium to dark gray; 20% siltstone; tr sandstone, tan and light gray, subangular, sli argillaceous, no porosity, no oil show.
- 3700-3710 As above with sli increase in limestone, tr is oolitic with fair apparent porosity, no oil stain, mineral fluor, no cut.
- 3710-3720 65% limestone, light gray, white and cream, tr oolitic, poor to fair porosity, no oil stain, mineral fluor, no cut.
- 3720-3730 As above, increase in red shale and anhydrite.
- 3730-3740 As above with increase in limestone, 1/4 is light gray to white, microgranular, poor apparent porosity, no oil stain, good mineral fluor, no cut.
- 3740-3750 As above.
- 3750-3760 As above with decrease in limestone and red shale, influx siltstone, medium gray, sli argillaceous.
- 3760-3770 As above, sli increase in limestone, light gray, microgranular, decrease in siltstone.
- 3770-3780 As above, tr pyrite.
- 3780-3790 75% limestone, white, light gray, microxln to microgranular, chalky in part, no apparent porosity, no oil show; 15% shale, red; 10% shale, gray and green, tr silty; tr anhydrite; tr siltstone.
- 3790-3800 As above with increase in gray and green shale; tr pyrite.
- 3800-3810 As above with increase in limestone, 1/2 is microgranular, chalky in part, poor apparent porosity, no oil stain, dim to medium mineral fluor, no cut.

- 3810-3820 As above with increase in gray shale and anhydrite; trace limestone, tan, microxln, pinpoint vuggy porosity, no oil stain, mineral fluor, no cut.
- 3820-3830 As above, increase in anhydrite.
- 3830-3840 50% limestone, white, tan and light gray as above, no porosity, no oil show; 30% shale, dark gray and greenish gray, silty in part; 20% shale, red; tr anhydrite; tr siltstone.
- 3840-3850 As above with increase in red shale (poor sample).
- 3850-3860 60% shale, red (may be cavings); 20% siltstone, medium gray (cavings?); 10% limestone, tan and gray; one piece with vuggy porosity, no oil show; 10% shale, medium to dark gray; tr anhydrite.
- 3860-3870 As above with increase in red shale (cavings).
- 3870-3880 Poor sample, appears to be cavings.
- 3880-3890 Poor sample.
- 3890-3900 Missing.
- 3900-3910 80% limestone, tan, white and gray, microxln, microgranular, tr with pinpoint vuggular porosity, no oil stain, mineral fluor, no cut; 10% shale, red; 10% shale, medium to dark gray; tr siltstone, medium gray.
- 3910-3920 As above with increase in dark gray shale; tr shale, black.
- 3920-3930 90% limestone, tan, tannish gray and white, chalky, microgranular to microxln, no apparent porosity, no oil stain, mineral fluor, no cut; 5% shale, red; 5% shale, dark gray; tr pyrite.
- 3930-3940 As above, limestone is more chalky, tr is microgranular to very fine granular, poor apparent porosity, no oil stain, mineral fluor, no cut.
- 3940-3950 As above, no porosity, no oil show.
- 3950-3960 As above.
- Log Top Heebner 3965'
- 3960-3970 As above, decrease in chalky limestone, no porosity, no oil show.
- 3970-3980 As above with decrease in limestone, no porosity, no oil show; sli increase in shale, dark gray; tr shale, greenish gray; tr pyrite.
- 3980-3990 80% limestone, tannish gray and white, microgranular, chalky in part, anhydritic, no apparent porosity, no oil stain,

- 3980-3990 mineral fluor, no cut; 10% shale, dark gray and greenish
(Cont'd.) gray; 10% shale, red; tr siltstone, medium gray; trace
pyrite; tr chert.
- 3990-4000 As above with tr limestone, light to medium brown, micro-
xln, no porosity, no oil show.

Log Top Lansing 4008'

- 4000-4010 As above, with increase in dark gray and greenish gray;
tr limestone, white and light gray, microgranular to very
fine granular, occasional poor porosity, no oil show.
- 4010-4020 90% limestone, light gray, white and light tan, microxln,
tr microgranular, tr fossiliferous, stylolites, occasional
pinpoint vuggy porosity, no oil stain, no fluor, no cut;
10% shale, red; tr shale, dark gray and greenish gray;
tr anhydrite.
- 4020-4030 As above with sli increase in red shale, tr pyrite.
- 4030-4040 As above, increase in anhydrite.
- 4040-4050 80% limestone, light gray, white and tan as above, no ap-
parent porosity, no oil stain, bright mineral fluor, no
cut; 15% shale, red; 5% shale, dark gray, tr silty;
tr pyrite; increase in anhydrite; tr chert.
- 4050-4060 As above with increase in limestone, medium brown, micro-
granular to very fine granular, no apparent porosity, no
oil stain, mineral fluor, no cut.
- 4060-4070 90% limestone, light gray, white and light tan, microxln,
occasional oolitic, poor to fair apparent porosity, no
oil stain, mineral fluor, no cut; 5% shale, red; 5% shale,
dark gray.
- 4070-4080 As above, tr limestone is oolitic, tr fossiliferous, no
porosity, no oil show.
- 4080-4090 As above with increase in shale, dark gray; tr limestone
is oolitic, poor to fair porosity, no oil show.
- 4090-4100 95% limestone as above, tr stylolites, no porosity, no oil
stain, bright mineral fluor, no cut; 5% shale, dark gray;
tr shale, red.
- 4100-4110 As above, tr chert, milky white.
- 4110-4120 100% limestone, white, light tan and light gray as above,
no porosity, no oil show, occasional limestone, light brown,
very fine granular, poor porosity, no oil stain, mineral
fluor, no cut; tr chert; tr shale, dark gray, occasional
shale, red.

- 4120-4130 As above with sli increase in light brown granular limestone, poor porosity, no oil show; sli increase in dark gray shale.
- 4130-4140 As above, decrease in shale.
- 4140-4150 As above.
- 4150-4160 As above with increase in chert; tr limestone, tan, oolitic, poor apparent porosity, no oil stain, no fluor, no cut.
- 4160-4170 100% limestone as above, more chalky than before, occasional oolitic, poor porosity, no oil show.
- 4170-4180 As above, tr limestone is anhydritic, tr microgranular, tr oolitic, no apparent porosity, no oil show.
- 4180-4190 As above, increase in microgranular limestone, scattered oolitic limestone, no apparent porosity, no oil show.
- 4190-4200 As above, increase in oolites, tr with poor apparent porosity, no oil stain, mineral fluor, no cut.
- 4200-4210 100% limestone, light gray and light tan, microxln, trace microgranular, chalky in part, tr fossiliferous, 1/3 is pseudo oolitic to oolitic, fair to good apparent porosity, tr with oomoldic porosity, brittle, no oil stain, bright mineral fluor, no cut; tr shale, dark gray; occasional shale, red; tr chert, milky white.
- 4210-4220 As above, over 1/2 of limestone is oolitic to pseudo oolitic, increase in oomoldic porosity, no oil stain, mineral fluor, no cut.
- 4220-4230 100% limestone as above, increase in pseudo oolitic and oolitic limestone, sli increase in oomoldic porosity, no oil stain, mineral fluor, no cut; tr shale, dark gray; tr shale, red.
- 4230-4240 As above, fair to good apparent porosity, no oil stain, mineral fluor, no cut.
- 4240-4250 As above with increase in light gray microgranular limestone, decrease in oolitic limestone, decrease in porosity, no oil show.
- 4250-4260 As above with influx limestone, light brown, microxln, tr microgranular, no apparent porosity, no oil show.
- 4260-4270 As above, occasional oomoldic porosity, no oil stain, mineral fluor, no cut.
- 4270-4280 100% limestone, light tan, light gray and white, microxln, anhydritic, 1/3 is chalky, tr sli fossiliferous, trace pseudo oolitic occasional, good oomoldic porosity, no oil stain, tr with mineral fluor, no cut; tr shale, dark gray; tr shale, red.

- 4270-4280 100% limestone, light tan, light gray and white, microxln, anhydritic, 1/3 is chalky, tr sli fossiliferous, tr pseudo oolitic, occasional good oomoldic porosity, no oil stain, tr with mineral fluor, no cut; tr shale, dark gray; trace shale, red.
- 4280-4290 As above.
- 4290-4300 As above with tr limestone, light brown, microgranular to microxln, tr fossiliferous, no apparent porosity, no oil show.
- 4300-4310 90% limestone, as above, increase in light brown microgranular limestone, tr oolitic with occasional poor porosity, no oil stain, mineral fluor, no cut; 5% shale, dark gray and green, tr silty; 5% shale, red.
- 4310-4320 As above with increase in gray and green shale.
- 4320-4330 As above, no porosity, no oil show.
- 4330-4340 85% limestone, light gray, light brown and tan, microxln, chalky in part, tr microgranular, tr oolitic, no porosity, no oil stain, mineral fluor, no cut; 10% shale, dark gray and green; 5% shale, red.
- 4340-4350 95% limestone, light gray and light tan, oolitic, tr fossiliferous, 2/3 has very good oomoldic porosity, question- above permeability, no oil stain, mineral fluor, no cut; 5% shale, dark gray; tr shale, red.
- 4350-4360 As above with increase in dark gray shale, over 3/4 of limestone is oolitic with good oomoldic porosity, tr is microgranular with good apparent porosity, no oil stain, mineral fluor, no cut.
- 4360-4370 As above, limestone has good oomoldic porosity, with little or no apparent permeability, no oil stain, mineral fluor, two pieces with questionable, very slow weak cut.
- 4370-4380 100% limestone, light tan and light gray, 2/3 is oolitic with good oomoldic porosity as above, no oil stain, mineral fluor, no cut.
- 4380-4390 As above with decrease in oolitic limestone, 1/2 has good oomoldic porosity, no oil stain, mineral fluor, no cut.
- 4390-4400 100% limestone, microxln, chalky in part, anhydritic; 20% is oolitic, 1/2 of that has oomoldic porosity, no oil stain, mineral fluor, one piece with very slow weak cut; tr shale, dark gray and greenish gray, silty; tr shale, red; silty in part.
- 4400-4410 As above with increase in oolitic limestone, decrease in oomoldic porosity, no oil or gas show.

- 4410-4420 100% limestone, light gray, tan and white, microxln, more chalky than before, approximately 15% is oolitic, tr with oomoldic porosity, no oil stain, mineral fluor, no cut; tr shale, dark gray; tr shale, red.
- 4420-4430 As above, tr has good oomoldic porosity, no oil or gas show.
- 4430-4440 As above, decrease in oolitic limestone, tr has good oomoldic porosity, no oil show.
- 4440-4450 As above, tr chert.
- 4450-4460 As above, tr oolitic limestone, occasional oomoldic porosity, no oil show.
- 4460-4470 As above, tr chert, milky white.
- 4470-4480 100% limestone, light tan, light gray and white, microxln, tr chalky, 1/3 is pseudo oolitic and oolitic, tr oomoldic porosity, no oil stain, mineral fluor, no cut; tr shale, dark gray and black; tr shale, red; tr chert.

Log Top Base Kansas City 4483'

- 4480-4490 As above.
- 4490-4500 100% limestone, light tan, gray, white and light brown, microxln, tr very chalky, tr oolitic, occasional good oomoldic porosity, no oil stain, mineral fluor, no cut; slight increase in shale, black.
- 4500-4510 As above, slight increase in light brown limestone, increase in shale, black.
- 4500-4510 As above, slight increase in light brown limestone, increase in dark gray and black shale.

Log Top Marmaton 4510'

- 4510-4520 95% limestone, light brown, light gray, tr medium brown, microxln, trace microgranular, chalky in part, tr oolitic, occasional oomoldic porosity, no oil stain, mineral fluor, no cut; 5% shale, dark gray and black, tr silty; tr shale, red.
- 4520-4530 As above, approximately 2% of limestone has dark brown live oil stain on smooth, vuggy and drussy surfaces (fractures), occasional oil stain in oolitic porosity, medium fluor, good cut.
- 4530-4535 100% limestone, tan, gray and light brown, microxln to microgranular, approximately 10% is pseudo oolitic to oolitic, tr has oomoldic porosity, occasional spotty brown oil stain in oolitic limestone, one piece with oil stain on stylolite, approximately 5% of sample has oil stain on smooth to sometimes vuggy surfaces, medium fluor, good cut; tr shale, dark gray; tr chert; tr pyrite.

- 4535-4540 As above with sli increase in pieces with oil stain.
- 4540-4545 As above with decrease in oil show.
- 4545-4550 As above, tr limestone with poor intergranular porosity, spotty brown oil stain.
- 4550-4555 100% limestone as above with sli increase in oolitic limestone, poor apparent porosity, 3-5% has spotty brown oil stain in oolites, in scattered pinpoint vuggs and on fracture face, medium fluor, good cut.
- 4555-4560 As above with decrease in pieces with oil stain.
- 4560-4565 As above with sli increase in dark gray shale; tr siltstone; tr oil stain in occasional pinpoint vuggs, oolitic limestone and on fracture surface.
- 4565-4570 As above. occasional spotty oil stain.
- 4570-4575 As above.
- 4575-4580 100% limestone, light gray, tan and light brown, microxln, microgranular, occasional pinpoint vuggs, tr poor apparent oolitic porosity, one piece with good oomoldic porosity, 1-2% with spotty brown oil stain on vuggs, oolitic porosity, one piece on apparent fracture, medium fluor, good cut. oomoldic porosity has no oil stain, fair cut; tr shale, dark gray; tr shale, red.
- 4580-4585 As above with decrease in oil stain, tr fossiliferous; tr siltstone; tr sandstone, light gray, glauconitic, no porosity, no oil show.
- 4585-4590 As above with decrease in pieces with oil show, trace crinoid fossils.
- 4590-4595 As above.
- 4595-4600 As above, one piece limestone with spotty brown oil stain on apparent fracture, tr oolitic limestone, occasional spotty oil stain.
- 4600-4605 85% limestone as above with increase in light to medium brown, microxln, tr limestone, cream, tannish gray and light tan, microgranular to very fine granular, most is light gray and white, chalky, tr oolitic, occasional spotty oil stain on fractures, two pieces oolitic, no apparent porosity, no oil stain, weak to medium fluor, fair cut; 15% shale, dark gray and greenish gray, silty, tr fossiliferous, calcareous; tr shale, red.
- Log Top Beymer 4608'
- 4605-4610 As above with increase in silty shale; tr chert, smoky gray; occasional spotty oil stain as above.

- 4610-4615 As above, one piece limestone with spotty oil stain on fracture face.
- 4615-4620 As above, no apparent porosity, no oil show.
- 4620-4625 As above, no porosity, no oil show.
- 4625 - 15 min. circ. 85% limestone, cream, light tan and tannish gray, microgranular to microxln, chalky in part, fossiliferous, tr oolitic, occasional oomoldic porosity, no oil stain, tr oil stain on fracture face; 15% shale, dark gray, calcareous, over 1/2 silty, tr shale, red.
- 4625 - 30 min. circ. As above with increase in silty shale, trace limestone has oomoldic porosity, spotty brown oil stain, two pieces with spotty oil stain on fracture face, dim to fair fluor, fair cut.
- 4625 45 min. circ. As above, tr spotty brown oil stain in oolitic, limestone and on fracture face.
- 4625 - 60 min. circ. As above, tr fossiliferous limestone with poor apparent porosity, spotty oil stain, dim to medium fluor, fair go good cut.
- 4625-4630 90% limestone, cream, light tan, gray and light brown, microxln, and microgranular, tr fossiliferous, tr chalky, occasional oolitic, poor apparent porosity, occasional spotty oil stain, one piece with spotty oil stain on fracture face, dim to medium fluor, fair cut; 10% shale, dark gray, silty; tr siltstone, tr shale, red; tr chert, smoky.
- 4630 - 15 min. circ. As above, two pieces with spotty oil stain, one oolitic and one on fracture face, dim fluor, fair cut.
- 4630 - 30 min. circ. As above with increase in siltstone and silty shale; decrease in limestone, no oil show; tr limestone is silty.
- 4630 - 45 min. circ. 80% limestone, light brown, light tan, gray and cream, fine to microgranular, tr microxln, tr silty, occasional poor intergranular porosity, occasional spotty oil stain; 20% shale, dark gray, greenish gray and black.
- 4630 - 60 min. circ. As above, limestone is chalky, no apparent porosity, no oil show.