

STATE CORPORATION COMMISSION OF KANSAS  
OIL & GAS CONSERVATION DIVISION  
WELL COMPLETION FORM  
ACO-1 WELL HISTORY  
DESCRIPTION OF WELL AND LEASE

Operator: License # 32214

Name: J.W. Gibson

Address P.O. Box 220

City/State/Zip Henderson, CO 80640

Purchaser: \_\_\_\_\_

Operator Contact Person: J.W. Gibson

Phone (303) 289-2966

Contractor: Name: Murfin Drilling Company, Inc.

License: 30606

Wellsite Geologist: John C. Lamb, 11736 E. Bear Cr. Dr., Franktown, Colorado 80116

Designate Type of completion  
 New Well  Re-Entry  Workover

Oil  SWD  SIOW  Temp. Abd.  
 Gas  ENHR  SIGW  
 Dry  Other (Core, WSW, Expl., Cathodic, etc)

If Workover/Re-Entry: old well info as follows:

Operator: --

Well Name: --

Comp. Date -- Old Total Depth --

Deepening  Re-perf.  Conv. to Inj/SWD  
 Plug Back  PBDT  
 Commingled  Docket No. \_\_\_\_\_  
 Dual Completion  Docket No. \_\_\_\_\_  
 Other (SWD or Inj?)  Docket No. \_\_\_\_\_

01-10-98 01-19-98 02-04-98  
Spud Date Date Reached TD Completion Date

API NO. 15- 199-202590000

County Wallace STATE CORPORATION COMMISSION

SE - NE - NE - Sec. 34 Twp. 15S Rng. 4E W

990 Feet from S/N (circle one) Line of Section

330 Feet from E/W (circle one) Line of Section

Footages Calculated from Nearest Outside Section Corner:  
NE, SE, NW or SW (circle one)

Lease Name John M. Akers Trust Well # 1

Field Name Wildcat

Producing Formation None

Elevation: Ground 3727' KB 3736'

Total Depth 5300' PBDT --

Amount of Surface Pipe Set and Cemented at 360 Feet

Multiple Stage Cementing Collar Used?  Yes  No

If yes, show depth set -- Feet

If Alternate II completion, cement circulated from --

feet depth to -- w/ -- sx cmt.

Drilling Fluid Management Plan DFA 7-13-98 U.C.  
(Data must be collected from the Reserve Pit)

Chloride content 39,000 ppm Fluid volume 1,290 bbls

Dewatering method used evaporation

Location of fluid disposal if hauled offsite: \_\_\_\_\_

Operator Name --

Lease Name \_\_\_\_\_ License No. \_\_\_\_\_

\_\_\_\_ Quarter Sec. \_\_\_\_ Twp. \_\_\_\_ S Rng. \_\_\_\_ E/W

County \_\_\_\_\_ Docket No. \_\_\_\_\_

INSTRUCTIONS: An original and two copies of this form shall be filed with the Kansas Corporation Commission, 200 Colorado Derby Building, Wichita, Kansas 67202, within 120 days of the spud date, recompletion, workover or conversion of a well. Rule 82-3-130, 82-3-106 and 82-3-107 apply. Information on side two of this form will be held confidential for a period of 12 months if requested in writing and submitted with the form (see rule 82-3-107 for confidentiality in excess of 12 months). One copy of all wireline logs and geologist well report shall be attached with this form. ALL CEMENTING TICKETS MUST BE ATTACHED. Submit CP-4 form with all plugged wells. Submit CP-111 form with all temporarily abandoned wells.

All requirements of the statutes, rules and regulations promulgated to regulate the oil and gas industry have been fully complied with and the statements herein are complete and correct to the best of my knowledge.

Signature [Signature]  
Title Operator Date 6/22/98

Subscribed and sworn to before me this 22 day of June 1998

Notary Public [Signature]  
Date Commission Expires December 4, 2000

K.C.C. OFFICE USE ONLY  
F  Letter of Confidentiality Attached  
C  Wireline Log Received  
C  Geologist Report Received  
Distribution  
 KCC  SWD/Rep  NGPA  
 KGS  Plug  Other  
(Specify)

ORIGINAL

SIDE TWO

Operator name J.W. Gibson

Lease Name John M. Akers Trust Well # 1

County Wallace

Sec. 34 Twp. 15S Rge. 41

East

West

INSTRUCTIONS: Show important tops and base of formations penetrated. Detail all cores. Report all drill stem tests giving interval tested, time tool open and closed, flowing and shut-in pressures, whether shut-in pressure reached static level, hydrostatic pressures, bottom hole temperature, fluid recovery, and flow rates if gas to surface during test. Attach extra sheet if more space is needed. Attach copy of log. \*

Drill Stem Tests Taken (Attach Additional Sheets.)	<input type="checkbox"/> Yes	<input type="checkbox"/> No None	<input type="checkbox"/> Log Formation (Top), Depth and Datums	<input type="checkbox"/> Sample
Samples Sent to Geological Survey	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Name	Top Datum
Cores Taken	<input type="checkbox"/> Yes	<input type="checkbox"/> No None	See attached Geological Report.	
Electric Log Run (Submit Copy.)	<input type="checkbox"/> Yes	<input type="checkbox"/> No None		

List All E.Logs Run:

\* Gamma Ray log run thru drill pipe by Murfin Drilling Co. in connection with fishing operations to recover stuck drill pipe. Log is unavailable.

CASING RECORD <u>  </u> New <u>  </u> Used							
Report all strings set-conductor, surface, intermediate, production, etc.							
Purpose of String	Size Hole Drilled	Size Casing Set (In O.D.)	Weight Lbs./Ft.	Setting Depth	Type of Cement	# Sacks Used	Type and Percent Additives
Surface	12 1/4"	8 5/8"		360'	60/40 Poz, 4% CC, 2& gel	270	

ADDITIONAL CEMENTING/SQUEEZE RECORD				
Purpose:	Depth Top/Btm	Type of Cement	# Sacks Used	Type and Percent Additives
<input type="checkbox"/> Perforate				
<input type="checkbox"/> Protect Csg				
<input type="checkbox"/> Plug Back TD				
<input type="checkbox"/> Plug Off Zone				

Shots Per Foot	PERFORATION RECORD - Bridge Plugs Set/Type Specify Footage of Each Interval Perforated	Acid, Fracture, Shot, Cement Squeeze Record (Amount and Kind of Material Used)	Depth

TUBING RECORD	Size	Set At	Packer At	Liner Run <u>  </u> Yes <u>  </u> No
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Date of First, Resumed Production, SWD or Inj. <u>  D+A  </u>	Producing Method <u>  </u> Flowing <u>  </u> Pumping <u>  </u> Gas Lift <u>  </u> Other
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Estimated Production Per 24 Hours	Oil Bbls <u>  N-A  </u>	Gas Mcf	Water Bbls	Gas-Oil Ratio	Gravity
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Disposition of Gas:  Vented  Sold  Used on Lease (If vented, submit ACO-18.)

METHOD OF COMPLETION:  Open Hole  Perf.  Dually Comp.  Commingled

Production Interval: \_\_\_\_\_

# ALLIED CEMENTING CO., INC.

RECEIVED 4617

## ORIGINAL

STATE CORPORATION COMMISSION

SERVICE POINT:

JUN 28 1998

REMIT TO P.O. BOX 31  
RUSSELL, KANSAS 67665

Date: 3/19/98

DATE: 2-4-98	SEC. 34	TWP. 15	RANGE 41	CALLED OUT 8:30am	ON LOCATION 12:15pm	START TIME 2:00pm	JOB FINISH 5:30pm
LEASE: <u>Trust</u>	WELL # 1	LOCATION: <u>Tulame 15N 4 1/4 E 2N 1W 1 1/4 S</u>	COUNTY: <u>Wichita</u>	STATE: <u>KS</u>			

OLD OR NEW (Circle one)

CONTRACTOR Murfin Drilling #21 OWNER J.W. Gibson

TYPE OF JOB Rotary Plug CEMENT

HOLE SIZE 7 7/8 T.D. 4094

CASING SIZE 8 5/8 DEPTH 3100

TUBING SIZE \_\_\_\_\_ DEPTH \_\_\_\_\_

DRILL PIPE \_\_\_\_\_ DEPTH \_\_\_\_\_

TOOL \_\_\_\_\_ DEPTH \_\_\_\_\_

PRES. MAX \_\_\_\_\_ MINIMUM \_\_\_\_\_

MEAS. LINE \_\_\_\_\_ SHOE JOINT \_\_\_\_\_

CEMENT LEFT IN CSG. \_\_\_\_\_

PERFS. \_\_\_\_\_

AMOUNT ORDERED

200 6 3/4 6 3/4			
1/4" 7 1/2 Seal pipe			
COMMON	120	@ 7.55	906.00
POZMLX	80	@ 3.25	260.00
GEL	10	@ 9.50	95.00
CHLORIDE		@	
7 1/2 Seal	50	@ 1.15	57.50
		@	
		@	
		@	
		@	
		@	
HANDLING	200	@ 1.20	240.00
MILEAGE	59		472.00
			TOTAL \$ 2030.50

### EQUIPMENT

PUMP TRUCK # <u>224</u>	CEMENTER <u>J. Weighman</u>
BULK TRUCK # <u>222</u>	HELPER <u>B. White</u>
BULK TRUCK # _____	DRIVER <u>B. Norton</u>
BULK TRUCK # _____	DRIVER _____

### REMARKS:

25 x e 2725

100 x e 1680

40 x e 410

15 x RH

10 x MH

10 x 40

Thanks

### SERVICE

DEPTH OF JOB	2725		
PUMP TRUCK CHARGE			685.00
EXTRA FOOTAGE		@	
MILEAGE	59	@ 2.85	168.15
PLUG		@	
		@	
		@	
			TOTAL \$ 853.15

CHARGE TO: Murfin Drilling Co Inc.

STREET 250 N. Water Suite 300

CITY Wichita STATE Ko ZIP 67202

### FLOAT EQUIPMENT

_____	@	_____
_____	@	_____
_____	@	_____
_____	@	_____
_____	@	_____
_____	@	_____
TOTAL _____		

Post-it* Fax Note 7671	Date 3-19-98	# of pages 1
To _____	From <u>Glvia</u>	
Co./Dupl. _____	Co. <u>Allied</u>	
Phone # _____	Phone # <u>785 483-3887</u>	
Fax # _____	Fax # <u>785 483-5566</u>	

Per wait @ Oakley

To Allied Cementing Co., Inc.

TAX \_\_\_\_\_

TOTAL CHARGE \$ 2883.65

and furnish cementer and helper to assist owner or contractor to do work as is listed. The above work was done to satisfaction and supervision of owner agent or contractor. I have read & understand the "TERMS AND CONDITIONS" listed on the reverse side.

DISCOUNT \$ 432.55 IF PAID IN 30 DAYS

Net \$ 2451.10

15-199-20259-00-00

SIGNATURE Kelly Wilson

ORIGINAL

RECEIVED  
STATE CORPORATION COMMISSION

JUN 29 1998

CONSERVATION DIVISION  
Wichita, Kansas

# ALLIED CEMENTING CO., INC. 9460

Federal Tax I.D.#

15-199-20259-00-00  
SERVICE POINT:

Oakley

REMIT TO P.O. BOX 31  
RUSSELL, KANSAS 67665

DATE <u>7-10-98</u>	SEC <u>34</u>	TWP. <u>15</u>	RANGE <u>41</u>	CALLED OUT	ON LOCATION <u>1:00 PM</u>	JOB START	JOB FINISH <u>3:45 PM</u>
LEASE <u>John M. Baker's Trust</u>				WELL # <u>1</u>	LOCATION <u>Sharon Springs Stockwell</u>	COUNTY <u>Wallace</u>	STATE <u>Kan</u>
OLD OR NEW (Circle one) <u>NEW</u>				2N-14S			

CONTRACTOR Mac Fin Dlg Co #21

TYPE OF JOB Surf Face

HOLE SIZE 12 1/2 T.D. 360'

CASING SIZE 8 3/4 DEPTH 360'

TUBING SIZE DEPTH

DRILL PIPE DEPTH

TOOL DEPTH

PRES. MAX MINIMUM

MEAS. LINE SHOE JOINT

CEMENT LEFT IN CSG. 15'

PERFS.

DISPLACEMENT

OWNER Same

CEMENT AMOUNT ORDERED 270 SKs @ 4.40 per  
4% cc - 2% cc 4 1/2 Flt-Sa

COMMON	<u>162 SKs</u>	@	<u>7.55</u>	<u>1,223.10</u>
POZMIX	<u>108 SKs</u>	@	<u>3.25</u>	<u>351.00</u>
GEL	<u>5 SKs</u>	@	<u>9.50</u>	<u>47.50</u>
CHLORIDE	<u>12 SKs</u>	@	<u>28.00</u>	<u>336.00</u>
Flt-Sa	<u>68 #</u>	@	<u>1.15</u>	<u>78.20</u>

### EQUIPMENT

PUMP TRUCK CEMENTER Walt

# 102 HELPER Lenore

BULK TRUCK

# 218 DRIVER R.G.

BULK TRUCK

# DRIVER

HANDLING 270 SKs @ 1.00 270.00

MILEAGE 4.4 per sk/100 870.00

TOTAL 3,140.10

### REMARKS:

Cement Sud Circ

Mac Fin

### SERVICE

DEPTH OF JOB 360'

PUMP TRUCK CHARGE 470.00

EXTRA FOOTAGE 60' @ 4.25 25.50

MILEAGE 76 miles @ 2.80 216.00

PLUG 8 5/8 Surface @ 4.50 45.00

TOTAL 757.40

CHARGE TO: J.W. Gibson Expl. & Prod.

STREET Bar 1st

CITY Cheyenne STATE Wyo ZIP 80010

### FLOAT EQUIPMENT

	@	
	@	
	@	
	@	
	@	

TOTAL \_\_\_\_\_

To Allied Cementing Co., Inc.  
You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as is listed. The above work was done to satisfaction and supervision of owner agent or contractor. I have read & understand the "TERMS AND CONDITIONS" listed on the reverse side.

TAX \_\_\_\_\_

TOTAL CHARGE \_\_\_\_\_

DISCOUNT \_\_\_\_\_ IF PAID IN 30 DAYS

SIGNATURE Kelly Wilson

PRINTED NAME



**JOHN C. LAMB & COMPANY, INC.**  
PETROLEUM CONSULTANTS

**ORIGINAL**

15-199-20259-00-00

RECEIVED  
STATE CORPORATION COMMISSION

JUN 29 1908

CORPORATION DIVISION  
Wichita, Kansas

**J. W. GIBSON, OIL PRODUCER  
JOHN M. AKERS TRUST #1  
Section 34, T-15S, R-41W  
330' FEL, 990' FNL  
Wallace County, Kansas  
KB 3726'**

<b>RESUME</b> .....	<b>1</b>
<b>FORMATION TOPS AND CORRELATION</b> .....	<b>2</b>
<b>BIT RECORD</b> .....	<b>3</b>
<b>SURVEYS</b> .....	<b>3</b>
<b>DAILY CHRONOLOGY</b> .....	<b>3</b>
<b>LOST CIRCULATION INTERVALS</b> .....	<b>4</b>
<b>MUD REPORTS</b> .....	<b>4</b>
<b>DRILL STEM TESTS</b> .....	<b>4</b>
<b>SUMMARY</b> .....	<b>4</b>
<b>SAMPLE DESCRIPTIONS</b> .....	<b>5</b>

RESUME

Operator: J. W. Gibson

Well Name and Number: J. M. Akers Trust #1

Prospect: East Southeast Mount Sunflower

Location: NE NE Section 34 ( 330' FEL & 990' FNL ) T-15S, R-41W

County and State: Wallace County, Kansas

Elevation: GL: 3727' KB: 3736'

Spud Date: January 10, 1998

TD Date: January 20, 1998

Hole Sizes: 12 1/4": 0-360' 7 7/8": 360-5300'

Casing Data: 8 5/8" set at 360'

Logging Data: Pending

Exploration Geologist: Bob Kozarek

Drilling Foreman: Swede Young

Wellsite Geologist: John C. Lamb

Contractor: Murfin, Rig 21

Tool Pusher: Kelly Wilson

Mud Type: Fresh Water-Gel

Mud Company: Service Mud, Tony Maestas

Drilling Days: 10

Rotating Hours:

Bottom Formation: Spergen

Status: Pending



FORMATION TOPS AND CORRELATION

15-199-20259-0000

	J. W. Gibson J.M. Akers Trust #1 34 15S 41W Wallace Co., Ks.  KB 3736'	Red Oak Energy OFL #1 31 15S 41W Wallace Co., Ks.  KB 3788'
	NOTE: SAMPLE TOPS	NOTE: LOG TOPS
DAKOTA		1383(2395)
CHEYENNE		1728(2050)
BLAINE SALT		2179(1599)
STONE CORRAL		2710(1068)
NEVA		3432(346)
FORAKER		3500(278)
TOPEKA	3869(-133)	3852(-74)
HEEBNER	4108(-372)	4077(-299)
TORONTO	4128(-392)	4099(-321)
LANSING	4161(-425)	4138(-360)
MARMATON	4556(-820)	4587(-809)
Pawnee Member	4654(-918)	4627(-839)
Fort Scott Member	4704(-968)	4678(-890)
CHEROKEE	4715(-979)	4691(-903)
ATOKA	4820(-1084)	4798(-1020)
MORROW	4962(-1226)	4927(-1143)
V5?V7 Sandstone	Not Deposited	5019(-1231)
LOWER MORROW LIMESTONE	5040(-1304)	5053(-1275)
Keyes Sandstone	5136(-1400)	Not Deposited
Undifferentiated MISSISSIPPIAN	5152(-1416)	5159(-1381)
SPERGEN	5234(1498)	Not Deep Enough
TOTAL DEPTH	5300	5250

BIT RECORD

15-199-20259-00-00

BIT #	SIZE	MAKE	TYPE	IN	OUT	FOOTAGE	HOURS	JETS
1	12 1/4"	Smith	DSJ	0'	360'	360'	4	13-12-13
2	7 7/8"	Hughes	GT9C	360'	4752'	4392'	118 1/4	14-13-14
3	7 7/8"	Varel	ETD14	4752'	5300'	548'		14-14-14

SURVEYS

360 1	1912 1
645 3/4	2784 1/2
1013 3/4	
1510 1	

DAILY CHRONOLOGY

DAYS OVER HOLE	DATE	07.00 CDT DEPTH	24 HOUR FOOTAGE	DAILY ACTIVITY
1	1-9	0'	0'	MIRU, mix mud, thaw rig out
2	1-10	0'	0'	Thaw rig out, drill rat hole, spud at 09.00, TD surface hole at 14.00, prep for, run and cem 8 5/8" casing, WOC, NU BOP and flowline, drlg
3	1-11	525'	525'	Drlg
4	1-12	2005'	1480'	Drlg
5	1-13	3120'	1115'	Drlg, BOP flange broke, chain off BOP, TOH, weld BOP, TIH, drlg
6	1-14	3580'	460'	Drlg, displace mud system at 3693', drlg
7	1-15	4060'	480'	Drlg
8	1-16	4520'	460'	Drlg, LC, drlg, LC, drlg, twisted off in DC, TOH, PU overshot, TIH, circ & work overshot over fish, TOH
9	1-17	4752'	232'	TOH, LD 2 DC, TIH, drlg
10	1-18	4980'	228'	Drlg, TD at 02.00, lost returns when TD was reached, stuck pipe while building volume
11	1-19	5300'	320'	Work stuck pipe, alternate pumping mud down drill pipe and annulus, freepoint pipe at 2560', continue pumping away mud
12	1-20	5300'	0'	Attempt to unload hole with nitrogen, released geologist

## LOST CIRCULATION INTERVALS

15-199-20259-00-00

Depth Of Occurrence	Barrels Lost	Prior LCM lb/gal	After LCM lb/gal
4650-4664	300	0	5
5300	Unknown	2	NA

## MUD REPORTS

Date	1-14	1-15	1-16	1-17	1-18	1-19
Depth	3693	4116	4556	4752	4982	5300
Weight	8.6	9.1	9.3	9.3	9.3	9.4
Funnel Viscosity	46	46	47	49	46	49
Plastic Viscosity	13	13	13	13	13	13
Yield Point	18	19	19	20	18	20
Gel Strengths	11/20	12/24	12/23	12/24	12/21	12/23
pH	11.0	9.0	9.0	10.0	9.5	9.0
Water Loss	11.2	13.6	13.6	8.8	8.8	9.6
Filter Cake	1/32	2/32	1/32	1/32	1/32	1/32
Alkalinity Mf	.9	.1	.2	.2	.2	.1
Chlorides	5400	5500	5500	6000	5500	5000
Calcium	40	160	120	80	40	60
Sand	tr	tr	tr	tr	tr	tr
Solids	2.0	5.3	6.9	6.7	6.8	7.5
LCM	2	.5	tr	2	3	3

## DRILL STEM TESTS

No tests were conducted.

## SUMMARY

The J. M. Akers Trust was drilled as a wildcat test, located approximately 3 miles east of the SE Mt. Sunflower Field. The location was selected upon the basis interpretation of seismic data. The primary objective was the fluvial Morrow V7 Sandstone, which is oil productive within the limits of the SE Mt. Sunflower Field. Secondary objectives included other Morrow Sandstones as well as the Topeka, Lansing-Kansas City, Marmaton, and Spergen Formations. Wellsite geological consulting services were provided over the interval encompassing the above named primary and secondary objectives.

No shows were encountered within the interval studied. No Morrow Sandstones were encountered. However, three non-marine intervals, comprised of shale, had been deposited at this location. The uppermost, a V1 (4964-4970') was described as: light green to light brown, sub blocky, waxy. The second, a V3 (4994-5014') was described as: light brown, tan, buff, green, splinty, waxy to silty with varying amounts of fine carbonaceous debris. The lowermost, a V5 (5030-5040') was described as: light grey to buff, sub blocky, waxy, silty, generally with carbonaceous debris.

The Keyes Sandstone, which was oil productive at the Mt Sunflower Field (approximately 3 1/2 miles west of the drill location), was encountered, being some ten feet in thickness. The sandstone, which was represented in the samples as a trace only of clusters and loose grains was described as: trace only of larger clusters, occurring in samples lagging to the interval 5138' to 5152'; grain size increasing with depth; semi translucent white, lower fine to medium grain, sub to well rounded, well sorted, very friable, poorly consolidated with siliceous and dolomitic cement, small amount glauconite grains, generally tight with some poor to fair visible porosity. Also described were a trace amount of loose coarse grains, sub round, slight trace broken across the grain with siliceous cementing on grain face. No hydrocarbon shows were noted.

Poor control of cuttings sampling technique resulted in generally dirty samples as well as many missing samples throughout the interval studied. Upon the reaching of total depth, all mud returns were lost. No samples were obtained from the lowermost fourteen feet of hole that was drilled. Subsequent to losing returns, the drill string became stuck. At the time of this report, washover operations were being conducted to recover the stuck drill pipe.

### SAMPLE DESCRIPTIONS

#### Unlagged Sample Depths

- 3720 Sh gy & orng Ls sm amt wh fxl brit cln  
 3730 Sh & Ls AA  
 3740 Sh orng plty-sb blkly fn txt sli slty i.p.  
 3750 No Sample  
 3760 Ls pos incr off wh-buf fxl vbrit vsli arg Anhy & Gyp sm amt  
 3770 Ls incr: off wh-lt gy fxl-vfxl incrly dns app  
 3780-3800 No Sample  
 3810 Ls lt gy-off wh vfxl-fxl frm freq /sli rthy txt  
 3820-3870 No Sample TOPEKA 3868'  
 3880 Ls lt gy-off wh fxl-sb chlky frm vbrit cln  
 3890 Sh incr gy & orng flky fn txt  
 3900-3920 No Sample  
 3930 Ls wh fxl vbrit vcln sme doloc-vdolic pr-fr intxl /tr fr vug poro NSOC  
 3940 Ls wh-off wh fxl-vfxl brit cln gen /rthy txt /decr poro NSOC  
 3950 Sh incr gy & orng  
 3960 Sh cont'd  
 3970 Sh decr Ls off wh fxl-vfxl dns brit tr /g intxl poro NSOC Dol off wh-vlt tn fxl-mxl vbrit gen calc-vcalc  
 3980 Sh incr orng & gy  
 3990 Sh def decr Ls off wh fxl-vfxl brit dns-rthy gen cln loc doloc NSOC Dol off wh vfn gran-mxl dns vfrm freq /pr poro NSOC  
 4000 Ls off wh-gysh wh vfxl dns rthy-sperry gen cln

- 4010 Sh incr orng & gy
- 4020 Sh & Ls AA
- 4030 Sh decr Ls wh-buf fxl-vfxl gen dns vbrit i.p. sme vsdy
- 4040 Sh incr orng & lt gn /occ dk gy flky
- 4050 Sh lrg incr dk-vdk gy & blk flky-plty fn txt gen carb-vcarb
- 4060 Sh decr Ls off wh-lt gy vfxl vdns sli arg i.p.
- 4070 No Sample
- 4080 No Sample
- 4090 Sh decr blk /cont'd orng & lt-m gy
- 4100 Ls cont'd vdns AA
- 4110 Sh incr orng & gy

## HEEBNER 4108'

- 4120 Sh def incr blk & vdk gy flky fn txt vcarb
- 4130 Sh decr blk Ls tn-off wh micxl-vfxl gen dns-vdns
- 4140 Sh lrg incr gy & orng

## TORONTO 4126'

- 4150 Ls chng: off wh vfxl-fxl bec decrly dns & brit /vsm amt dk tn-off wh fxl-mxl fri
- 4160 Ls off wh vfxl-micxl incrly dns /decr rthy-chlky
- 4170 Sh def incr orng & gy

## LANSING 4160'

- 4180 Sh cont'd lrg amt AA
- 4190 Sh vhy amt orng Ls decr
- 4200 Sh cont'd orng Ls sli incr off wh vfxl dns cln
- 4210 Sh cont'd vhy amt orng & gy Ls sm incr off wh vfxl-fxl dns-rthy gen vcln
- 4220 Sh sli decr orng & gy Ls sm incr off wh vfxl-fxl dns-rthy gen vcln
- 4230 No Sample
- 4240 Ls off wh-lt tn vfxl sli chlky rr fxl-mxl brit-vfri NSOC Sh orng & lt gn & dk gy-blk
- 4250 Sh decr Ls chng: lt gysh wh micxl incrly dns
- 4260 Sh freq orng plty fn-slty txt /sme blk plty vcarb sli amt dism pyr
- 4270 Ls off wh-vlt gysh vfxl-micxl incrly dns Sh orng /decr blk
- 4280 Ls vlt gy-dk tn vfxl-micxl cont'd dns-vdns
- 4290 Ls vlt-lt gy vfxl-micxl bec sli arg
- 4300 Ls AA Sh sm incr dk-vdk gy mod carb
- 4310 Ls & Sh AA
- 4320 Sh def incr vdk gy & blk mod-vcarb Ls off wh-tn vfxl-fxl gen /rthy txt & cln
- 4330 Ls off wh-lt gysh wh vfxl-micxl vdns loc dolic
- 4340 Ls off wh-lt gy fxl-micxl rthy-dns & sparry
- 4350 Ls lt gy micxl vnds Sh pos incr blk vcarb
- 4360 Sh cont'd sm amt blk /dk-vdk gy Ls dk tn-off wh micxl vdns
- 4370 Sh lrg incr vdk gy & blk
- 4380 Ls vlt-lt gy vfxl-micxl vdns
- 4390 No Sample
- 4400 Sh incr rd & blk
- 4410 Ls lt gy-off wh vfxl-micxl gen dns & sparyy freq less dns /rthy app Sh AA
- 4420 Ls tn-vlt gy vfxl dns sli rthy txt Sh decr
- 4430 Ls lt gy-dk tn vfxl gen /rthy txt
- 4440 Ls AA Sh sm amt dk gy

- 4450 Ls lt gy vfxl-micxl vdns sli arg loc sli carb Sh pos sm incr vdk gy & blk  
 4460 Sh cont'd vdk gy & blk Ls tn-lt gy vfxl-micxl gen dns freq rthy  
 4470 Ls off wh-lt gy vfxl incrly arg i.p. Sh cont'd  
 4480 Ls gen AA  
 4490 Sh incr dk gy & blk mod carb Ls off wh vfxl dns hvy tr pr-g moldic poro NSOC  
 4500 Sh def incr orng dk gy & blk Ls lt gy-off wh micxl-vfxl vdns rly /rthy txt  
 4510 Ls dk tn-vlt gy vfxl dns cln-sli arg  
 4520 Ls AA /sm amt dk tn fxl vbrit dolic pr intxl poro NSFOC  
 4530 No Sample  
 4540 No Sample  
 4550 Ls wh-vlt gy vfxl dns gen /sli rthy app  
 4560 Sh lrg amt gy & orng poor sample??  
 4570 Sh incr gy & orng

## MARMATON 4556'

- 4580 Ss tr lt gy vfg-slt calc cem Ls tn-lt gy vfxl-micxl vdns sli sparry Sh decr  
 4590 Ls incr bnsh tn vfxl sparry fos sli arg i.p.  
 4600 Ls chng: wh-off wh vfxl bec decrly dns & bec vcln occ chlky  
 4610 Sh def incr blk vcarb Ls wh-lt gy AA  
 4620 Ls bnsh-gysh vfxl vfos gen varg  
 4630 Sh def incr dk gy & blk mod-vcarb Ls gen incr amt crm-off wh vfxl-fxl gen /rthy app  
 & vcln  
 4640 Sh incr orng & m gy  
 4650 Ls lt bnsh crm-tn vfxl-micxl gen incrly dns  
 4660 Sh lrg amt orng & dk gy & blk

## Pawnee Member 4654'

- 4670 Sh cont'd  
 4680 Ls incr wh-off wh vfxl dns sli sparry vcln Sh decr orng /incr dk-vdk gy & blk  
 4690 Ls incr dk tn-off wh vfxl fos  
 4700 Sh incr vdk gy plty-flky mod carb  
 4710 Sh gy & blk Ls tn-lt gy vfxl gen fos & arg loc less arg

## Fort Scott Member 405'

- 4720 Ls chng: off wh-lt gysh wh vfxl-micxl vdns cln

## CHEROKEE 4715'

- 4730 Sh incr blk Ls wh-off wh vfxl-micxl dns cln-vcln app  
 4740 Ls chng: lt gysh wh vfxl-Mdst dns-sft gen sli fos Sh sli decr amt blk /sm incr lt-m gy  
 plty fn txt  
 4750 No Sample  
 4760 Ls dk bnsh tn-lt gysh wh vfxl dns fos Sh vfreq amt gy & orng cvngs  
 4770 Ls AA Sh cont'd cvngs  
 4780 Ls m-dk gy vfxl vdns sli carb Sh decr cvngs /incr blk & dk bnsh blk  
 4790 Ls tn-off wh vfxl rthy-sparry sli fos  
 4800 Ls lt gy-bnsh vfxl-micxl vdns  
 4810 Sh incr blk flky fn txt dism pyr vcarb  
 4820 Sh & Ls AA  
 4830 Sh chng: lt gn & lt-m gy flky vfn txt Ls chng: vlt gy-tn vfxl  
 4840 No Sample

## ATOKA 4820'

- 4850 Ls chng: off wh-wh fxl-vfxl brit vcln app  
 4860 Sh incr gy gn & blk Ls mot gysh wh vfxl fos-vfos bec arg  
 4870 Ls off wh-buf-bnsh wh vfxl dns sli sparry fos gen cln app Sh lt gn flky-plty fn txt  
 4880 Sh lt-dk gy plty carb i.p. Ls lt tn-buf vfxl-fxl brit cln  
 4890 Sh incr dk-vdk gy & blk vcarb  
 4900 Ls chng: mot lt-m gy vfxl sli carb loc vdolic grds to Dol  
 4910 Ls mot tn-gysh vfxl dolie Sh decr  
 4920 Ls tn-mot lt gysh vfxl dns sparry fos  
 4930 Cht lrg incr mot gy-wh opq Ls lt tn micxl-vfxl fos vsparry vcln sli carb i.p.  
 4940 Ls bec incrly carb Cht cont'd  
 4950 Ls chng: tn vfxl vcln  
 4960 Sh sm amt AA Ls bec incrly mot & carb  
 4970 Ls mot tn-gy vfxl dns carb i.p. sme vdolic grdg to Dol  
 NOTE: Lagged sample depths

## MORROW SHALE 4962'

Possible V1 Interval 4966'

- 4966 Sh sm incr blk & dk gy /def incr lt gn-lt bn sb blkly wxy  
 4976 Sh cont'd sm amt dk gy & lt gn  
 4985 Sh def incr amt AA  
 4990 Sh dk gy-lt gy & lt gn plty-flky fn-vfn txt

V3 Interval 4994'

- 4995 Sh chng: lt bn flky sb wxy fn carb debr /cont'd incr dk gy  
 5000 Sh lt-dk bn & buf splty wxy carb debr  
 5005 Sh tn-buf-gn wxy-slty rrlly /carb debr  
 5009 Sh cont'd incr lt'r col AA  
 5013 Sh buf-bn blkly wxy rrlly /carb debr  
 5016 Sh cont'd hvy amt lt'r col AA /pos chng: sme bn vcarb /sm amt vwthd app marine shale  
 5025 No Sample  
 5031 Sh def chng: lt gn plty fn txt  
 5036 Sh def chng: dk gy plty fn txt

V5 Interval 5030'

- 5040 Sh pos chng: decr dk gy /incr lt gy-buf sb blkly-wxy sme slty freq carb debr  
 Lower Morrow Limestone 5040  
 5045 Sh lt gy-buf wxy carb Ls pos incr tn-crm vfxl-micxl dns sparry fos  
 5051 Ls decr Sh lt-dk gn sb wxy flky sli sdy sme vglau  
 5057 Ls gen AA Sh lt gn-dk gy flky-plty  
 5062 Ls sli incr tn-off wh vfxl spary  
 5067 Sh incr lt gn-dk gy plty fn txt Ls gen AA bec sdy i.p.  
 5070 Sh gn & dk gy /incr orng Ls sm amt AA  
 5075 Ls incr tn fxl-vfxl vfos vcln  
 5081 Ls cont'd tn-gysh fxl-vfxl indist fos sli arg i.p. Sh vhvy amt gn & gy plty fn txt  
 5086 Sh incr dk gy flky fn txt sli dolie /sme orng  
 5096 Ls & Sh AA  
 5107 Ls wh-off wh vfxl-micxl vdns mod sparry indist fos sli sdy i.p.  
 5120 Ls cont'd wh micxl vsparry & vfos i.p.  
 5124 Ls wh-vlt bnsh wh vfxl-micxl vdns rrlly vsparry & vfos

- 5130 Ls vlt gy-off wh vfxl-fxl decrly dns i.p. Ss vsli tr amt trnsl cg w rnd
- 5138 Sh hvy amt gy & orng Ls wh-off wh vfxl-micxl gen dns sme vsparry  
Possible Keyes Sandstone 5136'
- 5150 Sh incr gy & orng Ls decr Ss tr clus: smi trnsl wh l.fg sb-w rnd w srted vfri pr-vpr cons  
/sil & dolc cem gen vcln sm amt glau grns gen tight /sme fr-pr vis poro NSFOC  
MISSISSIPPIAN 5152'
- 5166 Ss cont'd tr's clus AA /incr grn size to mg /tr lse cg sb rnd sli tr brkn across grn /sil cem  
on grn face Sh cont'd Ls pos incr bnsh tn vfxl dns
- 5179 Ss decr to sli tr clus gen AA /incr amt glau grns
- 5189 Ls lt bnsh vfxl sparry fos & off wh vfxl-fxl /rthy app Sh decr
- 5199 Ls gen incr amt wh fxl sli chlky brit-sft & bn-bnsh wh micxl-vfxl vdns & hd  
Cht def incr opq mot wh shardy Sh gy gn blk orng 30%
- 5209 Ls cont'd incr wh-bn-gysh wh bec pred micxl vnds sli pel i.p. Cht cont'd opq-smi trnsl  
Sh cont'd decr 20%
- 5216 Ls & Cht AA Sh decr 10%
- 5224 Sh (15%) incr lt gn flky-splty vfn-sb wxy glau & sli sdy i.p. /sme dk gy  
SPERGEN 5234'
- 5235 Cht lrg incr wh opq Sh (15%) decr gn /incr dk gy & orng cvngs
- 5247 Sh (30%) gen incr lt-dk gy orng & gn cvngs Dol sli tr lt gysh sli mot i.p. fxl-vfxl dns  
frm calc arg Cht cont'd
- 5259 Dol lt gysh fxl-vfxl dns frm vcalc i.p. gen arg sme sli carb Sh incr
- 5272 Sh (60%) cont'd incr gy & orng cvngs Dol decr & pos bec vcalc
- 5278 Cht pos incr wh opq Sh cont'd incr (70%) gy blk gn orng
- 5286 Sh incr (80%) Dol mot gysh wh fxl vbrit gen vfrag & vfos vvcalc & grds to Ls i.p.  
Lost returns at 5300, no further samples were circulated out.