

Kansas Corporation Commission
Oil & Gas Conservation Division

1068144

Form ACO-1 June 2009 Form Must Be Typed Form must be Signed All blanks must be Filled

# WELL COMPLETION FORM WELL HISTORY - DESCRIPTION OF WELL & LEASE

| OPERATOR: License # 5263  | API No. 1515-189-22772-00-00   |
|---|--|
| Name: Midwestern Exploration Company  | Spot Description:  |
| Address 1: _ 3500 S BOULEVARD STE 2B  | N2 SW NW NW Sec. 7 Twp. 35 S. R. 35 ☐ East  West   |
| Address 2:  | 830 Feet from ▼ North / South Line of Section  |
| City: EDMOND State: OK Zip: 73013   | <del></del>  |
| Contact Person: Dale J. Lollar, President   | Footages Calculated from Nearest Outside Section Corner:   |
| Phone: ( 405 ) 340-4300   | NE ZNW SE SW   |
| CONTRACTOR: License #   | County: Stevens  |
| Name: Duke Drilling Co., Inc.   |  |
| Wellsite Geologist: Tom Williams  | Field Name: Gooch  |
| Purchaser: OneOK  | Producing Formation: Upper Chester   |
| Designate Type of Completion:   | Elevation: Ground: 3011 Kelly Bushing: 3021  |
| ✓ New Well Re-Entry Workov  | 6552   |
|   | 1711   |
| ☐ Oil ☐ WSW ☐ SWD | SIGW Amount of Surface Pipe Set and Cemented at: Feet  SIGW Multiple Stage Cementing Collar Used?  Yes  No |
|   | Temp. Abd. If yes, show depth set: Feet  |
| CM (Coal Bed Methane)   |  |
| Cathodic Other (Core, Expl., etc.):   | If Alternate II completion, cement circulated from:  |
| If Workover/Re-entry: Old Well Info as follows:   | feet depth to:w/sx cmt   |
| Operator:   |  |
| Well Name:  | Drilling Fluid Management Plan   |
| Original Comp. Date: Original Total Depth: _  | ( <del> </del>   |
| Deepening Re-perf. Conv. to ENHR  | Chloride content:ppm Fiuld volume:bbis   |
| · Conv. to GSW  | Dewatering method used: Evaporated   |
| Plug Back: Plug Back Tota   | A Depth Location of fluid disposal if hauled offsite:  |
| Commingled Permit #:  |  |
| Dual Completion Permit #:   | opolition realistic  |
| SWD Permit #:   | Lease Name: License #:   |
| ENHR Permit #:  |  |
| GSW Permit #:   | County: Permit #:  |
| 08/02/2011 08/11/2011 10/27/2   | <b>011</b>   |
| Spud Date or Date Reached TD Completic  | on Date or   |

#### **AFFIDAVIT**

I am the affiant and I hereby certify that 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.

**Submitted Electronically** 

| KCC Office Use ONLY  |
|--|
| Letter of Confidentiality Received                         |
| Date:  |
| Confidential Release Date:                                 |
| ☑ Wireline Log Received                                    |
| ✓ Geologist Report Received                                |
| UIC Distribution   |
| ALT I II III Approved by: Deanna Garrisor Date: 11/21/2011 |

Side Two



| Operator Name: Midwestern Exploration Company   |   |                            |   |               | Name: _                               | James            |                           | Well #: _2-                           | -7                |                          |
|---|---|----------------------------|---|---------------|---------------------------------------|------------------|---------------------------|---------------------------------------|-------------------|--------------------------|
| Sec. 7 Twp. 35  | s. <sub>R.</sub> 35                             | East                       | ✓ West  | County:       | Steve                                 | ens              |                           |                                       |                   |                          |
| INSTRUCTIONS: Shi<br>time tool open and clo<br>recovery, and flow rate<br>line Logs surveyed. A | sed, flowing and shu<br>es if gas to surface te | t-in pressi<br>st, along v | ures, whether st<br>vith final chart(s            | nut-in press  | sure read                             | ched static leve | I, hydrostatic p          | ressures, bottom                      | hole temp         | perature, fluid          |
| Drill Stem Tests Taken (Attach Additional S   |   | Y                          | es 📝 No   |               | VL                                    | og Formati       | on (Top), Dept            | h and Datum                           |                   | Sample                   |
| Samples Sent to Geological Survey ☐ Yes ✓ No  |   |                            |   | Nam<br>Attach |                                       |                  | Top<br>Attached           |                                       | Datum<br>.ttached |                          |
| Cores Taken   |   |                            |   |               |                                       |                  |                           |                                       |                   |                          |
| List All E. Logs Run: Microlog/GR Dual Induction/GR/SP Compensated Neutron/Density/G            | er.   |                            |   |               |                                       |                  |                           |                                       |                   |                          |
|   |   | D                          |   | RECORD        | ✓ Ne                                  |                  | ,                         |                                       |                   |                          |
| Purpose of String   | Size Hole<br>Drilled                            | Siz                        | ort all strings set-o<br>re Casing<br>t (In O.D.) | Weig          | ght                                   | Setting Depth    | Type of<br>Cement         |                                       |                   | and Percent<br>Additives |
| Attached  | Attached  | Attache                    | d   | Attached      |                                       | Attached         | Attached                  | Attached                              | Attach            | ied                      |
|   |   |                            |   |               |                                       |                  |                           |                                       |                   | <del></del>              |
|   |   | <u> </u>                   |   |               |                                       |                  |                           |                                       |                   |                          |
| Purpose:  | Depth   |                            |   |               |                                       | JEEZE RECORI     | <del></del>               |                                       |                   | <del> </del>             |
| Perforate Protect Casing  | Top Bottom                                      |                            | of Cement   |               | Sacks Used Type and Percent Additives |                  |                           |                                       |                   |                          |
| Plug Back TD Plug Off Zone  | 6295-6300                                       | Premiu                     | m<br>   | 150           | Cement 94 sx in perfs                 |                  |                           |                                       |                   |                          |
| <u> </u>  | -   |                            |   |               |                                       |                  |                           |                                       |                   |                          |
| Shots Per Foot  |   |                            | RD - Bridge Plug<br>Each Interval Per             |               |                                       | 1                |                           | ment Squeeze Rec<br>of Material Used) | ord               | Depth                    |
| Attached  | Attached  |                            |   |               |                                       | Attached         |                           | . '                                   | <del>.</del>      | Attached                 |
|   |   |                            |   |               |                                       |                  |                           |                                       |                   | ļ                        |
|   |   |                            |   |               |                                       |                  |                           |                                       |                   | -                        |
| •   |   |                            |   |               |                                       |                  |                           |                                       |                   | <u> </u>                 |
| TUBING RECORD:  | Size:   | Set At                     |   | Packer A      | t:                                    | Liner Run:       |                           | 7                                     |                   | <u></u>                  |
| Date of First, Resumed  | 2 3/8 Production SWD or EN                      | 6330                       | Producing Meth                                    | N/A           |                                       |                  | Yes ✓                     | No                                    |                   |                          |
| 10/27/2011  | Production, SWD or EN                           | irin.                      | ✓ Flowing   | Pumpin        | g 🗌                                   | Gas Lift         | Other (Explain) .         |                                       | ····              |                          |
| Estimated Production<br>Per 24 Hours  | Oil<br>O  | Bbls.                      | Gas<br>150  | Mcf           | Wat                                   |                  | Bbls.                     | Gas-Oil Ratio                         |                   | Gravity                  |
| DISPOSITI   | ON OF GAS:                                      |                            |   | METHOD OF     | COMPLI                                | ETION:           |                           | PRODUC                                | TION INTER        | RVAL:                    |
| Vented ✓ Sold Used on Lease Open Hole ✓ Po  |   |                            |   |               | Dually (Submit                        |                  | ommingled<br>ibmit ACO-4) | 6348-6354'                            | ·                 |                          |

| Form      | ACO1 - Well Completion         |
|-----------|--------------------------------|
| Operator  | Midwestern Exploration Company |
| Well Name | James 2-7                      |
| Doc ID    | 1068144                        |

## Tops

| Marine                | ිලා   | Dellem   |
|-----------------------|-------|----------|
| Base/Heebner Shale    | 4336' | (-1315') |
| Toronto Lime          | 4345' | (-1324') |
| Marmaton              | 5219' | (-2198') |
| Cherokee Shale        | 5592' | (-2571') |
| Morrow Shale          | 5940' | (-2919') |
| Mississippian Chester | 6353' | (-3332') |
| Ste. Genevieve        | 6640' | (-3619') |
| St. Louis             | 6720' | (-3699') |

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|-----------|--------------------------------|--|
| Operator  | Midwestern Exploration Company |  |
| Well Name | James 2-7                      |  |
| Doc ID    | 1068144                        |  |

### Perforations

| Sings Par Foot | Parlogiton Record | Meterial Record                            | Depti |
|----------------|-------------------|--|-------|
| 6              | 6348-6354'        | 1200 gal 15% FENE<br>acid                  |       |
| 4              | 6295-6300'        | 2000 gal 7 1/2 NEFE<br>Acid                |       |
| 6              | 6348-6354'        | 4000 gal 15% NEFE<br>Acid                  |       |
|                | 6348-6354'        | Acid Frac with 17500<br>gal 40 Q N2 Foam   |       |
|                |                   | Acid & 20,000 gal 40<br>Q N2 Foam gel, 477 |       |
|                |                   | total bbls fluid with 378,000 scf N2       |       |

| Form      | ACO1 - Well Completion         |
|-----------|--------------------------------|
| Operator  | Midwestern Exploration Company |
| Well Name | James 2-7                      |
| Doc ID    | 1068144                        |

## Casing

| Purpose<br>Of String | Size Hole<br>Drilled | Size<br>Casing<br>Set | Weight | Setting<br>Depth | Type Of<br>Cement | Number of<br>Sacks<br>Used | Tyep and<br>Percent<br>Additives |
|----------------------|----------------------|-----------------------|--------|------------------|-------------------|----------------------------|----------------------------------|
| Conductor            | 30                   | 20                    | 65     | 40               | Grout             | 50                         |                                  |
| Surface              | 12.25                | 8.625                 | 24     | 1711             | Class A<br>Con    | 400                        | 2% CC                            |
| Surface              | 12.25                | 8.625                 | 24     | 1711             | Premium           | 250                        |                                  |
| Production           | 7.875                | 4.5                   | 10.5   | 6600             | Class AA          | 150                        |                                  |

# ALLIED CEMENTING CO., LLC. 036528

| REMIT TO P.O. BOX 31<br>RUSSELL, KANSAS 67665  | SERVICE POINT:  |
|--|---|
| DATE -12-11 SECT DATE RANGE CO   | ALLED OUT ON LOCATION JOB START JOB FINISH  |
| OLD OR NEW (Circle one)  LEASE JAMES WELL# 2-7 LOCATION (, BS.N.A.)  |   |
| CONTRACTOR DUKE &  | OWNER SAME  |
| HOLE SIZE 7/4 T.D. GOZ   | CEMENT AMOUNT ORDERED A   |
| TUBING SIZE DEPTH  | ISOSK ASC. 5# OOK SEAK .  |
| DRILL PIPE DEPTH   | 15 % F3/60  |
| TOOL DEPTH PRES. MAX MINIMUM   | COMMON A 1005K @ 1625 162500  |
| MEAS, LINE SHOE JOINT 42, 18   | POZMIX@   |
| CEMENT LEFT IN CSG. $\sqrt{2./F}$  | OEL@  |
| PERFS.   | CHLORIDE@   |
| DISPLACEMENT / 64.3 BBC  | ASC_/555/C_@2/33 3/8/33   |
| EQUIPMENT  | GISSUE 750LB @ .89 66780  |
| PUMPTRUCK CEMENTER 13013 # 37.2 HELPER CEASAR  | Mul Flust Sound @ 1,27 63500  |
| BULK TRUCK<br>#451-25   DRIVER RUBIN   | FL-160 711BS @ 172 /22/20   |
| BULK TRUCK DRIVER  | @   |
| # DRIVER   | HANDLING 2C7 QJ. LS (Q) S   |
| REMARKS:   | MILEAGE SKIM; X.II MIN 349 STOTAL \$28693   |
|  |   |
|  | SERVICE .   |
|  |   |
| Thank You  | DEPTH OF JOB 6603'  |
| Thank You  | DEPTH OF JOB 6603' PUMP TRUCK CHARGE 3/75 5   |
| Thank You  | DEPTH OF JOB GGO 3' PUMP TRUCK CHARGE 3/75 © EXTRA FOOTAGE @ 7°S 140°C MILEAGE 20 @ 7°S 140°C   |
| Thank You  | DEPTH OF JOB GGO 3' PUMP TRUCK CHARGE 3/75 © EXTRA FOOTAGE @ MILEAGE 20 @ 7° 140 © MANIFOLD + HEAD @ 200 ©  |
| Thank You  | DEPTH OF JOB GGO 3' PUMP TRUCK CHARGE 3/75 E EXTRA FOOTAGE @ 7° 140° MILEAGE 20 @ 7° 140° MANIFOLD + HEAD @ 90° 40° 40° 40° 40° 40° 40° 40° 40° 40° 4   |
|  | DEPTH OF JOB GOOD GOOD GOOD GOOD GOOD GOOD GOOD GO  |
| CHARGE TO: MIDWESTERN EXP  | DEPTH OF JOB GGO 3' PUMP TRUCK CHARGE 3/75 E EXTRA FOOTAGE @ 7° 140° MILEAGE 20 @ 7° 140° MANIFOLD + HEAD @ 90° 40° 40° 40° 40° 40° 40° 40° 40° 40° 4   |
|  | DEPTH OF JOB GGO 3' PUMP TRUCK CHARGE 3/75 E  EXTRA FOOTAGE @ MILEAGE 20 @ 7 5 170 E  MANIFOLD + HEAD @  LT UEL 21 @  TOTAL 3595 E  PLUG & FLOAT EQUIPMENT  |
| CHARGE TO: MIDWESTERN EXP<br>STREET 3500 S Blod Ste. 2 B   | DEPTH OF JOB GOOD GOOD GOOD GOOD GOOD GOOD GOOD GO  |
| CHARGE TO: MIDWESTERN EXP<br>STREET 3500 S Blod Ste. 2 B   | DEPTH OF JOB GGO 3' PUMP TRUCK CHARGE 3/75 E  EXTRA FOOTAGE @ MILEAGE 20 @ 7 5 170 E  MANIFOLD + HEAD @  LT UEL 21 @  TOTAL 3595 E  PLUG & FLOAT EQUIPMENT  |
| CHARGE TO: MIDWESTERN EXP<br>STREET 3500 5 Blod 5te 2 B<br>CITY Edmond STATE OKLAT ZIP 13013   | DEPTH OF JOB  |
| CHARGE TO: MIDWESTERN EXP<br>STREET 3500 5 Blod 5 te 2 B<br>CITY Edmond STATE OKLAT ZIP 130/3  | DEPTH OF JOB  |
| CHARGE TO: MIDWESTERN EXP STREET 3500 5 Blod 5 te 2 B CITY Edmond STATE OKLAT ZIP 1303  To Allied Cementing Co., LLC. You are hereby requested to rent cementing equipment   | DEPTH OF JOB  |
| CHARGE TO: MIDWESTERN EXP STREET 3500 5 Blod 5 te 2 B CITY Edmond STATE OKLIT ZIP 130/3  To Allied Cementing Co., LLC. You are hereby requested to rent cementing equipment and furnish cementer and helper(s) to assist owner or contractor to do work as is listed. The above work was   | DEPTH OF JOB  |
| CHARGE TO: MINUTESTERN EXP<br>STREET 3500 5 Blod 5 te 2 B<br>CITY Edmond STATE OKLAT ZIP 130/3  To Allied Cementing Co., LLC. You are hereby requested to rent cementing equipment and furnish cementer and helper(s) 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 and understand the "GENERAL | DEPTH OF JOB 6603' PUMP TRUCK CHARGE 3/75 © EXTRA FOOTAGE @ 700 1/1000 MANIFOLD + HERD @ 900 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  |
| CHARGE TO: MINICESTERN EXP<br>STREET 3500 5 Blod 5 te 2 B<br>CITY Edmond STATE OKLAT ZIP 130/3  To Allied Cementing Co., LLC. You are hereby requested to rent cementing equipment and furnish cementer and helper(s) to assist owner or contractor to do work as is listed. The above work was done to satisfaction and supervision of owner agent or   | DEPTH OF JOB GOOS' PUMP TRUCK CHARGE 3/75 © EXTRA FOOTAGE @ MILEAGE LO @ 7 © 1/70 © MANIFOLD + HEAD @ LT UEL 2m; @ 200 ©  TOTAL 35/50 ©  PLUG & FLOAT EQUIPMENT  (1/2  AFU 5AAE @ 327 © LASKET @ 233 © TOTAL 3/0 ©  SALES TAX (If Any) 7 10 TOTAL 3/0 ©  SALES TAX (If Any) 7 10 TOTAL 3/0 ©  SALES TAX (If Any) 7 10 TOTAL 3/0 © |
| CHARGE TO: MINUTESTERN EXP<br>STREET 3500 5 Blod 5 te 2 B<br>CITY Edmond STATE OKLAT ZIP 130/3  To Allied Cementing Co., LLC. You are hereby requested to rent cementing equipment and furnish cementer and helper(s) 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 and understand the "GENERAL | DEPTH OF JOB 6603' PUMP TRUCK CHARGE 3/75 © EXTRA FOOTAGE @ 700 1/1000 MANIFOLD + HERD @ 900 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  |



**Cement Report** 

|                                 |                    | , Kansas           |              | <del>,</del>              |                 |  |                     |  | ement Report      |
|---------------------------------|--------------------|--------------------|--------------|---------------------------|-----------------|--|---------------------|--|-------------------|
| Customer                        | Uidweste           | in Ext             | Veration     | Lease No. Date            |                 |  |                     |  | 3-//              |
| Lease Ja                        | mes                |                    | ٠.           | Well #2-9 Service Receipt |                 |  | e Receipt           | 431                                    |                   |
| Casing 8                        | 5/8                | Depth 170          | 231          | County 5                  | tevens State 15 |  |                     | 15                                     |                   |
|                                 | 42 Sur             |                    | Formation    | Legal Description 7-35-35 |                 |  |                     |  | 5                 |
|                                 |                    | Pipe [             | Data         | Perforatin                |                 |  |                     |  |                   |
| Casing size 818 24# Tubing Size |                    |                    |              | Shots                     |                 |  | Ft                  | Lead 400516 A Con<br>2.95 F43-5K       |                   |
| Depth 1714 Depth 1714           |                    |                    | ***          | From To 2.9               |                 |  |                     | 2.95 F43-5K                            |                   |
| Volume 106615 Volume            |                    |                    | From         |                           | To              |  | 18.1 Gal-512 11.4st |  |                   |
| Max Press /500 Max Press        |                    |                    |              | From                      |                 | To   |                     | Tail in 1505K from<br>1.34A3-SK Plus   |                   |
| Well Conne                      | ction 8 5/4        |                    | Annulus Vol. |                           | From            | ,  | То                  |  | 1.3477-SK Plus    |
| Plug Depth                      | 1671               |                    | Packer Depth |                           | From            |  | То                  |  | 6.36d-5K 14.8#    |
| Time                            | Casing<br>Pressure | Tubing<br>Pressure | Bbls. Pumbed | Rate                      |                 |  |                     | Service Log                            | Yord 300AM        |
| 430                             |                    |                    |              |                           | <u> </u>        |  | rrio                | e On                                   | hocatocon         |
| 445                             |                    |                    |              |                           | <u> </u>        | Safe   | ty -1               | Meeting.                               | - Ris Up          |
| 455                             |                    |                    |              |                           | <b></b>         |  |                     |  | Casing            |
| 900                             |                    | ,                  |              |                           | <u> </u>        |  |                     | ate 4/1                                |                   |
| 925                             |                    |                    |              |                           | ļ               |  | _                   | PTO B                                  | 25                |
| 935                             | 2000               |                    | 1.0          | 1.0                       | ļ               | Pro  | 5501                | e Tes                                  |                   |
| 945                             | 350                |                    | 710          | 60                        |                 | Pomp   | Lea                 | of cont                                |                   |
| 1025                            | 200                |                    | 360          | 5.0                       | <u> </u>        | Pump   | Tail                | cont                                   | @ 14.8# 5         |
| 1030                            |                    |                    |              |                           | <u> </u>        | <u>'Z</u>  | rog                 | Plus-0                                 | Wash Up.          |
| 1035                            | 200                | *                  | 96           | 5.0                       | <u> </u>        |  |                     | isplace                                |                   |
| 1055                            | 600                |                    | 10           | 7.0                       | <u> </u>        | والمراجع والم والمراجع والمراجع والمراجع والمراجع والمراجع والمراجع والمراج |                     |  | n-Pisplace        |
| 1100                            | 1100               |                    | 1.0          | 2.0                       | ļ               |  |                     |  | Flowt Held        |
| 1200                            |                    |                    |              | ļ                         | <u> </u>        | <i>G</i>   |                     | Fell I                                 | _                 |
| 1300                            | 200                |                    | 23           | 3.0                       | <u> </u>        | · · · · · · · · · · · · · · · · · · ·  |                     |  | Coment To Sorface |
| 1430                            |                    |                    |              |                           | <b> </b>        |  | 30                  | b Cample                               | etc               |
|                                 |                    |                    | ļ            | <b> </b>                  | ļ               |  |                     | <del>.</del>                           |                   |
|                                 |                    |                    | <b></b>      |                           | -               |  | ٠                   |  |                   |
|                                 |                    |                    |              | <b></b>                   | hund            | s for Using  | 150                 | ic Energy                              | , Services        |
|                                 |                    |                    |              |                           | ļ               |  |                     |  |                   |
| 4e, .,,                         |                    |                    |              | 1                         | <u> </u>        | <del> </del>   | <u></u>             |  |                   |
|                                 |                    |                    |              | <b></b>                   | ļ               |  | •                   |  |                   |
|                                 |                    |                    |              |                           |                 |  | *                   |  |                   |
| Service Un                      | its 19921          | )<br>)             | 38111-19919  | 30464-1                   | 9808            | 14355-14   | 284                 |  |                   |
| Driver Nam                      |                    | HKV.               | 15           | Victor                    |                 | Augustin   |                     |  | ,                 |
|                                 |                    |                    | <u></u>      | <u> </u>                  |                 | 4.5.55.4.5.5.5.5.5.5.5.5.5.5.5.5.5.5.5.  |                     | ······································ |                   |

Billy

Customer Representative

Jany Bout

Station Manager

Cementer

Taylor Printing, Inc.

# MIDWESTERN EXPLORATION COMPANY

### **James #2-7**

Scale 1:240 (5"=100') Imperial Measured Depth Log

Well Name: James #2-7

Location: Section 7-T35S-R35W

License Number: API 15-189-22772

Spud Date: 8/2/2011

8/2/2011

Surface Coordinates: 830' FNL & 330' FWL

Bottom Hole 830' FNL & 330' FWL

Coordinates:

Ground Elevation (ft): 3,009'

Logged Interval (ft): 4,175'

ft): 4,175' To: 6,800'

Formation: Mississippian St. Louis

Type of Drilling Fluid: Chemical

Printed by WellSight Log Viewer from WellSight Systems 1-800-447-1534 www.WellSight.com

K.B. Elevation (ft): 3,021'

Total Depth (ft): 6,800'

Region: Stevens Co, KS

Drilling Completed: 8/11/2011

### **OPERATOR**

Company: Midwestern Exploration Company

Address: 3500 S. Boulevard, Suite #2B

Edmond, OK 73013

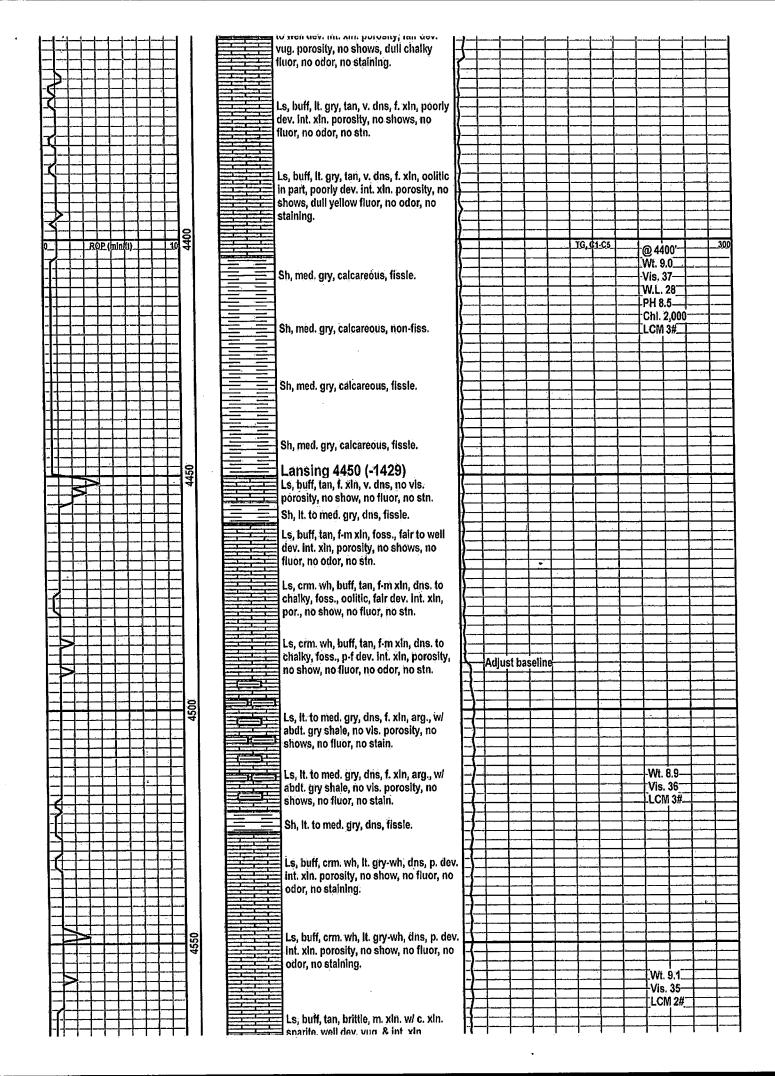
### **GEOLOGIST**

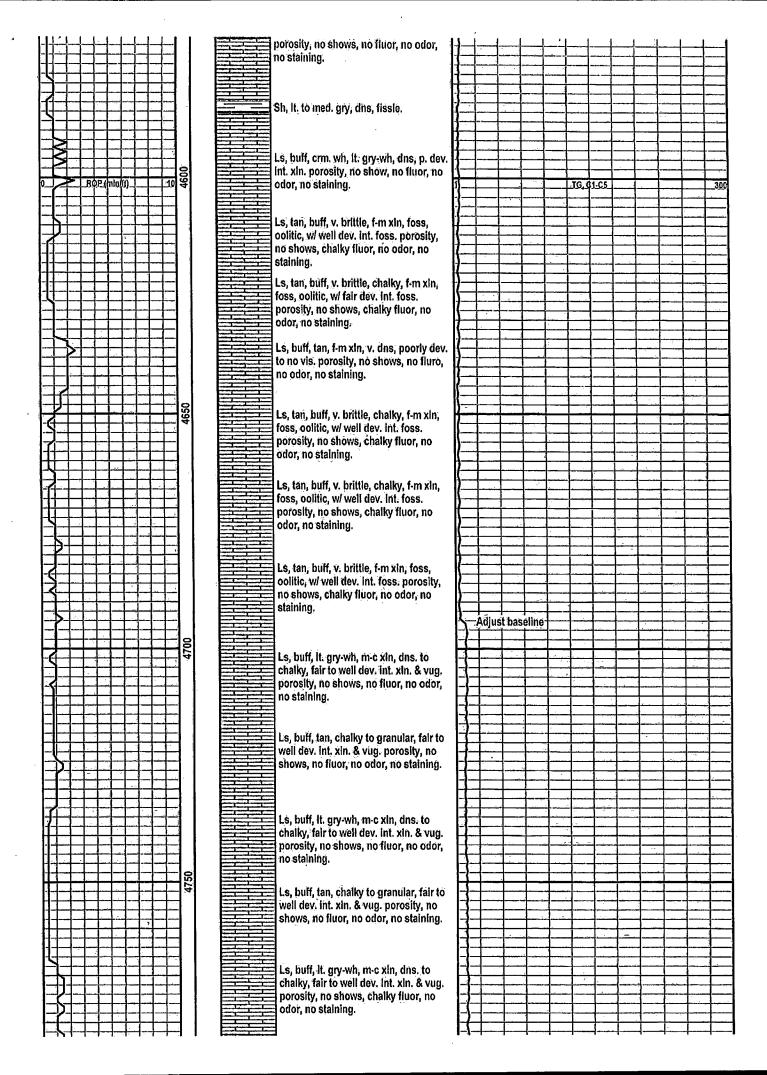
Name: Thomas M. Williams Company: Petroleum Geologist

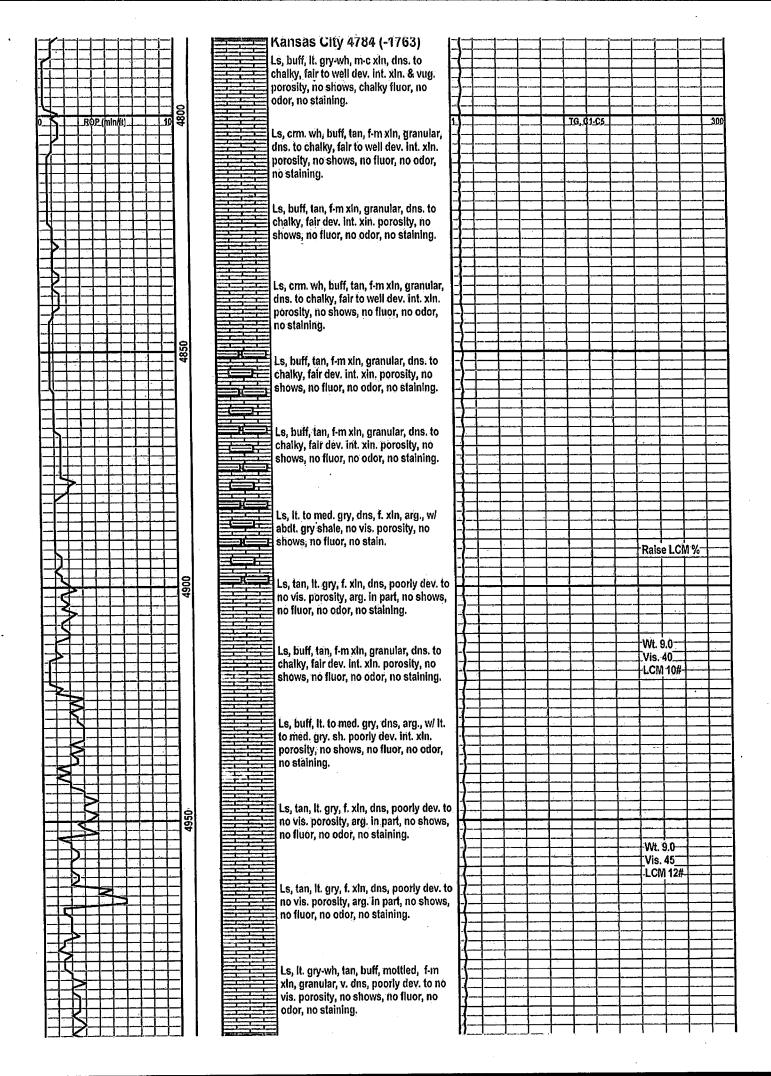
Address: Wichita, KS

CORE Contractor: Core #: Formation: Core Interval: From: Cut: To: Recovered: Bit type: Size: **Coring Time: Formation Tops** Sample Top E-Log Top **Oread Lime** 4261 (-1240) **Heebner Shale** 4327 (-1306) Base/Heebner Sh 4336 (-1315) **Toronto Lime** 4345 (-1324) 4450 (-1429) Lansing **Kansas City** 4784 (-1763) Marmaton 5219 (-2198) Cherokee Sh 5592 (-2571) 5774 (-2753) Atoka Lm L. Atoka Lm 5903 (-2882) Morrow Sh 5940 (-2919) L. Morrow Lm 6284 (-3263) Chester 'C' Lm 6353 (-3332) Chester 'B' Lm 6413 (-3392) Chester 'A' Lm 6507 (-3486) Ste. Genevieve 6640 (-3619) St. Louis 6720 (-3699) **DSTs** None Comments **ROCK TYPES** 7777 Anhy Carb.sh Lmst **Shcol** TANKETHATING T Bent Congl Meta Shgy 00000 Brec Dol Mrlst Sitst Cht Gyp Salt Ss Clyst Igne Shale TIII

| Curve Track 1 ROP (min/ft) | Depth | Shows       | Lithology | Geological Descriptions   | TG, C1-C5  TG (Units)  C1 (units)  C2 (units)  C3 (units)  C4 (units)  C5 (units) |
|----------------------------|-------|-------------|-----------|---|---|
| ROP (min/n) 10             |       |             |           | Ls, It. to med. gry, dns, f. xin, arg. & shaley, no vis. porosity, no shows, no fluor, no odor, no stn.  Sh, mrd. gry, fissle, laminated.           | 1   |
| 0 RQP (min#i) 10           | 4200  |             |           | Ls, It. to med. gry, dns, f. xin, arg. &<br>shaley, no vis. porosity, no shows, no  | 1   |
|                            |       |             |           | fluor, no odor, no stn.   | Wt. 9.1 Vis. 36   |
|                            |       |             |           | Ls, it. to med. gry, dns, f. xin, arg. & shaley, no vis. porosity, no shows, no fluor, no odor, no stn.   | LCM 4#  |
|                            |       |             |           | Ls, It. to med. gry, dns, f. xln, arg. &<br>shaley, no vis. porosity, no shows, no<br>fluor, no odor, no stn.                                       | Survey @ 4230' 1 — degree TG inc. 14 units  |
|                            | 4250  | ø           |           | Sh, black, carb. bleeding gas.<br>Sh, med. to drk. gry, brittle, fissle.  | TG inc. 87 units  |
|                            |       | - Committee |           | Oread Lm 4261(-1240) Ls, it. to med. gry, f. xin, v. dns, no vis. porosity, no show, no fluor.  | Recycle 30 units  |
|                            |       |             |           | Ls, It. to med. gry, f. xln, v. dns, no vis.<br>porosity, no show, no fluor.<br>Sh, It. to med. gry, soft, fissle.                                  |   |
|                            |       |             |           | Ls, it. bry, buff, dns, f. xln. w/ c. xln.<br>sparite, fair dev. porosity, no shows, no<br>fluor, no odor, no stn.                                  |   |
|                            | 4300  | \$          |           | Ls, it. bry, buff, dns, f. xin. w/ c. xin. sparite, fair dev. porosity, no shows, no fluor, no odor, no stn.  Sh, black, carb., bleeding abdt. gas. | TG Inc. 55 units  |
|                            |       | *           |           | Ls, it. gry, tan, mottled, f-m xin, v. dns, no vis. perosity, no shows, no fluor, no odor, sub-chalky.  | TO III. SO UIII.G   |
|                            |       | p           |           | Heebner Sh 4327 (-1306) Sh, black, carb., bleeding abdt. gas. B/Heeb. Sh. 4336 (-1315) Ls, tan, brn, f. xln, dns, no shows.                         | TG inc. 56 units  |
|                            | 4350  | 000         |           | Sh, It. to med. gry, dns, fissle.  Toronto Lm 4345 (-1324)  Ls, crm. wh, buff, dns. to brittle, foss., f-c xln, w/ sparite, chalky in part, w/ fair |   |

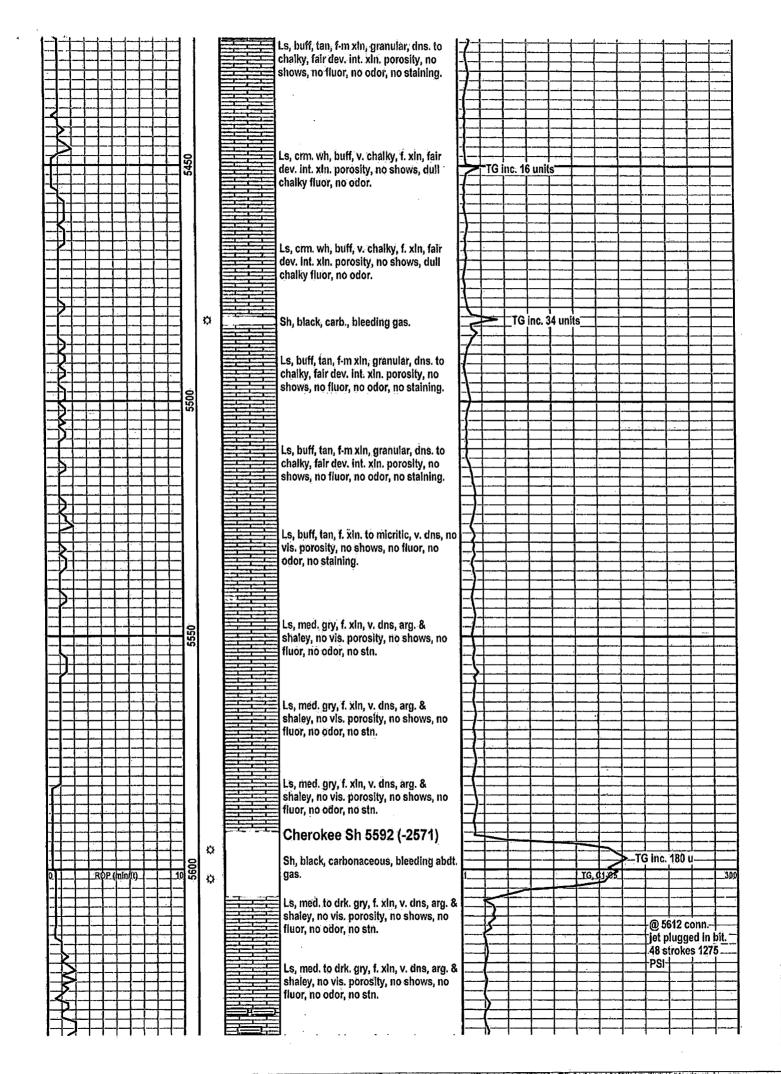


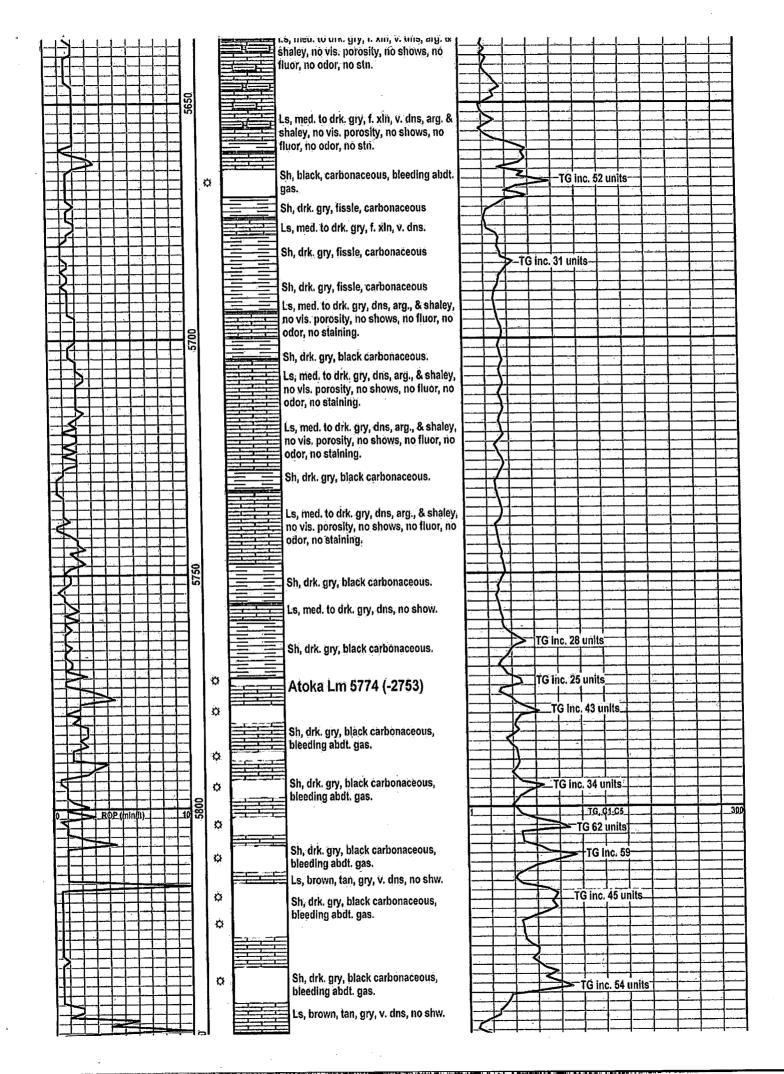


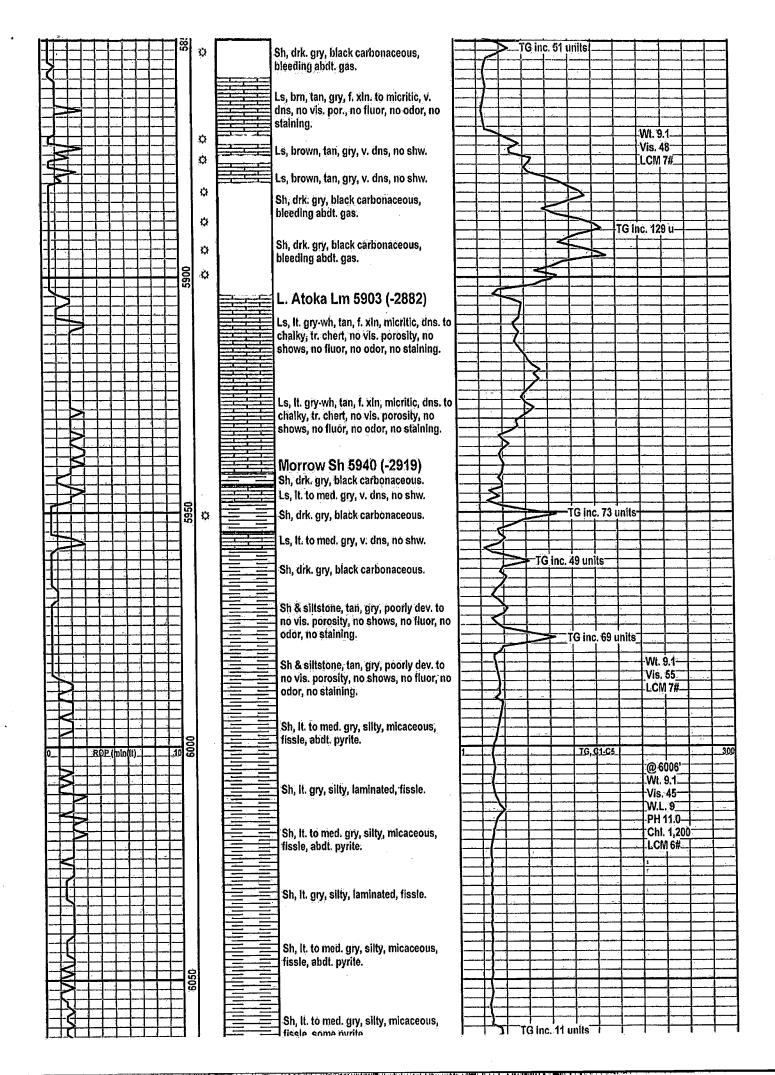


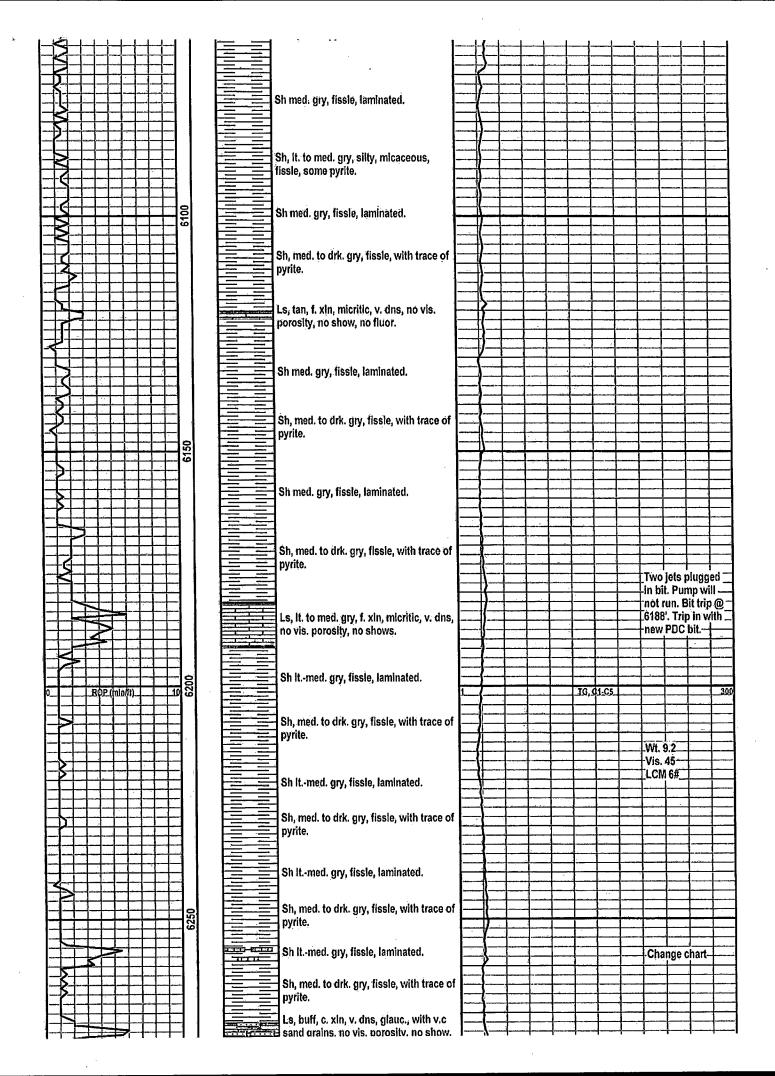
| ۲,       | 1                            |           |                   | Ţ               | Ţ         | -              | T     | 1000     | 1   | Ē | ==       | ==             | I'm the married dam herbere                                 | AMIN'S STATE                          |  |  |              |  |  |              |              |  |              |  |  |           |
|----------|------------------------------|-----------|-------------------|-----------------|-----------|----------------|-------|----------|-----|---|----------|----------------|---|---------------------------------------|--|--|--------------|--|--|--------------|--------------|--|--------------|--|--|-----------|
| IJ       | -                            | _RC       | P_(n              | iln#i           | -         |                | 11    | 150      | l   | Ī |          |                | Ls, it. gry-wh, tan, buff, m<br>xin, granular, v. dns, poor | ottled, 1-m                           | }  |  |              |  |  | IG, C        | 1.C5_        |  | -Wi. 9       | n l  |  | ئــا      |
| $\leq$   | 1_                           |           | _                 | 7               | 1         |                |       | 1        | ı   | ŀ | ===      |                | vis. porosity, no shows, n                                  | ly dev. to no                         |  |  |              |  |  |              |              |  | Vis.         |  |  |           |
| /        | <del> </del>                 | -         |                   | +               |           | ╅              | ╁     | 1        | 1   | ı | ==       | ==             | odor, no staining.  | io iluoi, ilo                         | <del>}</del>                                     |  |              |  |  |              |              |  | LCM          |  |  |           |
| 1        | =                            |           | $\Box$            | 1               | 1         | 1              | 1_    | 1        | l   |   |          | ==             | odor, no stanning.  |                                       |  |  |              |  |  |              |              |  |              |  |  |           |
| ⋞        | ميه                          | Н         | $\dashv$          | +               | +         | +              | ╁     | 1        | 1   |   |          |                |   |                                       | <b>}</b>   |  | <del> </del> |  |  |              |              |  | 5016         | CES  | 30"  | l<br>Tr   |
|          | 1                            |           | $\exists$         | ユ               | 1         |                |       | 1        | ı   | ŀ | =        | 崋              |   |                                       | 1_   |  |              |  |  |              |              |  | to 25        |  | 30   | Ľ         |
| -        | +                            |           | $\dashv$          | +               | +         | +              | ┼     | 1        | 1   | ı | δ        | (8)            | Ls, tan, f-m xln, v. brittle,                               | oolitic, w/ well                      | 7  | TG In  | ι<br>c. 8 ι  | nits   | _  |              |              |  | 10 2         | 00   |  | ┞         |
| 辷        |                              |           |                   | 士               | 士         |                |       |          | 1   | Ī |          | <u> </u>       | dev. comoldic porosity, n                                   | o shows, dull                         |  |  |              |  |  |              |              |  |              |  |  |           |
| $\cap$   | +                            | $\square$ | -                 | +               | +         | +              | ╀     | -        |     |   | <u> </u> | 15             | yellow fluor, no odor, no                                   | staining.                             | 4—   |  |              |  |  |              |              |  |              |  |  | L         |
| $\perp$  |                              |           | ゴ                 | $\perp$         | 土         | 1              | 1     | 1        | i   |   | 하는       | δ              |   | , ,                                   | 1  |  |              |  |  |              |              |  |              |  |  | t         |
| 4        | -                            | $\square$ | 4                 | -               | $\dashv$  | 4              | 4.    | -]       |     |   | 示        |                |   |                                       | <del>_</del>                                     |  |              |  |  |              |              |  |              |  |  | Į         |
|          | 1                            |           |                   | 士               | 士         | 1              | 1     | 1        | ı   |   |          | 1 17           |   |                                       | <del>                                     </del> | -  |              |  |  |              |              |  | -            |  |  | ╁         |
| 17       | ļ                            | $\Box$    | $\neg$            | _               | 7         |                | Ţ     | 4        | ı   |   | ٥E       | ŊΕ             | Ls, tan, f-m xln, v. brittle,                               | oolitic w/ woll                       | 3_   |  |              |  |  |              |              |  |              |  |  | 1         |
| ╫╴       | ╁                            | $\vdash$  | -1                | +               | +         | +              | +     | 1        | l   |   | =10      | ≓ø.            | dev. comoldic porosity, r                                   | o shows dull                          | +  | <del></del>                                      | _            | -  |  | $\vdash$     |              |  | <del> </del> | <del>                                     </del> |  | t         |
| 厂        | $\bot$                       | $\square$ | $\Box$            | 7               | 7         | 7              | Ţ     |          | 1   |   | X1-      | 777            | yellow fluor, no odor, no                                   | staining.                             | ]  |  |              |  |  |              |              |  |              |  |  | Ţ         |
| ╫╴       | +-                           | Н         | $\dashv$          | +               | 十         | +              | ╁     | 1        | 1   |   | XII      | IXI            | ,   | · · · · · · · · · · · · · · · · · · · | <del>-}</del>                                    | ļ  | <del> </del> |  |  |              |              | <del></del>                                      |              | <del> </del>                                     | _  | 1         |
| I        | 1                            |           |                   |                 | 1         | 1              | T     | 5050     |     |   | <u> </u> | ĦŞ             |   |                                       | 1  |  |              |  |  |              |              |  |              |  |  | 1         |
| -        | +                            | ┨         |                   | -               | +         |                | +     | 16       | 1   |   | δΕ       | हिं।           |   |                                       | -}   |  | <del> </del> | ļ  | لتسا   |              |              |  |              |  |  | +         |
| 1        | 1                            | $\Box$    |                   | _               | 二         |                | 1     | 1        |     |   |          |                |   |                                       | 7_   |  |              |  |  |              |              |  |              |  |  | 1         |
| -        | 1                            | H         | -                 |                 | +         | +              | +     | +        |     |   | 8        | <u>1- ₹</u> \$ | المنام والمناب المنابع المنابع                              | salitic subsecti                      | <b>—</b>   |  | -            | <u> </u>   | ļ  |              | ļ            |  |              |  | ļ  | Ŧ         |
| 士        | 土                            |           |                   | 士               | 士         | 士              | 土     | Ţ        |     | Ì | 矿        | Įδ             | Ls, tan, f-m xln, v. brittle,<br>dev. comoldic porosity, r  | contic, W/ Well                       | 1  |  |              |  |  |              |              |  |              |  |  | †         |
| -        | +                            | $\vdash$  | -"                | -               | 4         |                | +     | -        |     |   |          | <u>نظر</u>     | g dev. comoldic porosity, r<br>yellow fluor, no odor, no    | io silows, QUII<br>etalbina           | -1-  | <u> </u>   | -            |  |  |              | <u> </u>     |  | ļ            |  |  | Ŧ         |
| $\pm$    | 1                            |           | ╛                 | 士               | 1         |                | 土     |          | 1   |   | Y        | 47             | a venom innor, no opor, no                                  | oraninnA.                             | 1  |  |              |  |  |              |              |  |              |  | <u></u>  | t         |
| Щ.       | $oldsymbol{oldsymbol{\Box}}$ | П         | $\neg$            | 7               | Ţ         | 1              | 1     | -        |     | l | ٥Ė       | ķΕ             |   |                                       | $\mathbf{I}^{-}$                                 | <u> </u>   |              | -  |  | <u> </u>     |              |  |              |  |  | 7         |
| _        | ₽                            | 1         | Ⅎ                 | 1               | +         | $\pm$          | 十     | 1        |     |   |          |                | 1   |                                       | -{   | 1  | <del> </del> |  |  | <u> </u>     |              | -  | 1.           | -  | -  | †         |
| 1        | 厂                            | 口         | $\Box$            | $\Box$          | 7         | 7              | Ŧ     | 1        |     |   | ፰        | 王              | Ls, tan, buff, f xln, v. dns                                | , foss, poorly                        | 7  |  |              | <u> </u>   |  |              |              |  | 1            |  |  | 1         |
| <u> </u> | +                            | H         | _                 | _               | +         | _              | +     | _        |     |   |          | 73             | dev. to no vis. porosity, r                                 | o shows, no                           | <u>I</u> -                                       | 1  | <del> </del> |  |  | -            |              | <del>                                     </del> | 1-           | <del>                                     </del> |  | +         |
| I        | 72                           |           |                   | $\neg$          |           |                | 1     | 7        | 1   |   | Ш        | ===            | fluro, no odor, no stn.                                     |                                       | 7_   |  |              |  |  |              |              |  | 1            |  |  | 1         |
| +        | k                            |           |                   | ᆉ               | +         | ╁              | ╁     | -        | İ   |   |          | $\pm$          |   |                                       | <b> </b> }                                       | <del> </del>                                     | ╁┷           | ├  |  | <del> </del> |              | <del> </del>                                     | <del> </del> | <del> </del>                                     | <u> </u>   | ┨         |
|          | $\prec$                      | 1         |                   |                 |           | 1              | 1     |          | ı   |   | Ш        | -              |   |                                       | 1  |  | 1            |  |  |              |              |  |              |  |  | 1         |
| ×        | 5                            | 1         |                   | ┥               | -         | +              | +     | -        | ı   |   |          | 븤              | · ·   |                                       | <del>}</del> -                                   | ├  | +            | ┼  |  | <del> </del> | -            | <del> </del>                                     | ╀            | ┼  | -  | +         |
|          |                              |           |                   |                 |           |                | Ī     |          | 1   |   | Ш        |                | Sh, med. gry, fissle, lami                                  | nated.                                | 2  | TG   | inc.         | Runit  | ·  |              |              |  |              |  |  | 1         |
| r        | -                            | -         |                   | -               | -         | +              | - -   | -1       | 1   |   |          | $\equiv$       |   |                                       | -  |  |              | 1  | <del>.</del>                                     | <del> </del> |              | <del> </del>                                     | ╀            | <del> </del>                                     |  | 4         |
| 上        | 1                            |           |                   | 寸               | #         | #              | #     | 18       |     |   | 7.1      | 771            | Ls, tan, f-m xln, v. brittle,                               | nolitic w/ well                       | 1  |  | <u> </u>     |  |  |              |              |  |              |  | Ė  | t         |
| Ų.       | +                            | -         | Н                 | +               | 4         | +              | +     | Շ        | 7   |   | 왘        | 路局             | dev. comoldic porosity,                                     | no shows dull                         | }_   | <del> </del>                                     | <del> </del> | ₩  | ļ  | <del> </del> | 1            | <del>                                     </del> | 1            |  | <del>                                     </del> | Ŧ         |
|          | 士                            |           |                   |                 | 1         |                | 士     |          | 1   |   | Ħ        | T Y            | yellow fluor, no odor, no                                   | staining.                             | 1  |  |              |  |  |              |              |  | 1            |  |  | t         |
| -Ę       | 1                            | -         | Н                 | $\dashv$        | 4         |                | +     | -[       | 1   |   |          | 3==            | ]   |                                       | 4  | 1  | 1            | <del>                                     </del> | -  |              |              |  | 4            | $\vdash$   | F  | 1         |
| _        | 1                            |           |                   | 1               |           | $\pm$          | 士     | 1        |     | 1 |          | ΞΞ             |   |                                       |  |  | 1_           |  |  |              |              |  | 1            |  |  | t         |
|          | <b>&gt;</b> -                | F         | П                 | 4               |           | 4              | +     | -        | 1   |   |          | ##             | 1.  |                                       | - -  |  | <del> </del> | 1  |  | 1            | 1            |  | -            |  |  | 7         |
| 1        |                              | 1         | Н                 | _               | 士         | 士              | 1     |          | 1   |   |          | 44             | Ls, tan, brn, f-m xln, arg.                                 | In part, dns,                         | - -  |  | $\pm$        |  |  |              |              | $L^{-}$  |              |  |  | $\dagger$ |
| -\$      | +                            | 1         | П                 | $\neg$          | 4         | 7              | Ţ     | 4        |     |   | Ħ        | 荁              | poorly dev. to no vis. po                                   | rosity, no show,                      | 又  |  |              |  |  |              |              |  |              |  | F  | 1         |
| _        | +                            | 1         |                   | _               | _+        | _              | 士     | 1.       |     |   | E        | -              | no fluor, no staining.                                      |                                       | -}-  | <del> </del>                                     | 1            |  |  | <del></del>  | 1            | 1-   | 1-           | 1  | <del>                                     </del> | +         |
| K        | Ţ                            |           |                   | $\Box$          |           | $\blacksquare$ | 1     | 4        |     |   |          |                |   |                                       |  |  |              |  |  |              |              |  |              |  |  | 1         |
| +        | 7                            | +         |                   | -               |           | +              | +     | 1        | 1   | i |          | +              |   |                                       | -}-  | ┼  | +            | <del> </del>                                     | ├─   | ╁            | -            | 1  | -            | -  | -  | 1         |
|          |                              |           |                   | _               | $\Box$    | $\Box$         | 1     | 7        | Т   |   |          | ,              |   |                                       |  |  |              |  |  |              |              |  |              |  |  | 1         |
| - -      | 十                            | +         | Н                 | $\dashv$        | +         |                | +     | $\dashv$ |     |   |          |                | Ls, tan, buff, f-m xin, arg                                 | . in part, dns,                       | - -  | +  | <del> </del> | -  | -  | 1-           | 1            | 1  | 1            | 1  | -  | 4         |
|          | 土                            |           |                   |                 |           | 二              | 1     |          |     |   | F        | ==             | poorly dev. to no vis. po                                   | rosity, no show,                      |  |  |              |  |  |              |              |  | 1_           | 1_   |  | 1         |
| +        | +                            | +         | $\vdash$          | $\dashv$        | -+        | +              | +     | -        |     |   |          | Œ              | no fluor, no staining.                                      |                                       | H  | +  | +-           | +  |  | -            | -            | ╁  | +            | -  | <del> </del>                                     | 4         |
| 1        | 土                            |           |                   |                 |           | 士              | 1     | 1        |     | : |          |                | 3   |                                       | 1  | 1  | 1            |  |  |              |              | 1  | 1            | 二  |  | 1         |
| -        | +                            | +         |                   | -               |           | - -            |       | -        | 1   |   |          |                | 3   |                                       | -{-  | <del>                                     </del> | +-           | ļ  | 1  | 1-           | <del> </del> | 1  | 4            | +  |  | -         |
| 上        | 1                            | 1         |                   |                 | 1         | 1              | 1     | 18       | 200 |   |          | 45             |   |                                       | 上  |  | 1_           |  |  |              |              |  |              |  |  |           |
| 4-       | 丰                            | +         | -                 | Ц               | _         | -              | Ţ     | -12      | 0   | , |          |                | Ls, gry, tan, brn, f-m xln,                                 | arg., dns,                            | 1-1-   | <del>                                     </del> | +-           |  | <del>                                     </del> | <del> </del> | ļ            | -  | -            | <del> </del>                                     | <del>                                     </del> | 4         |
|          | 士                            | 1         |                   |                 |           |                | 士     | 1        |     |   | 778090   |                | 🗐 poorly dev. to no vis. po                                 | rosity, no show,                      | 口  |  | 1            | 1_   |  |              |              |  |              |  |  |           |
| 1        | Ŧ                            | $\perp$   |                   | $\dashv$        | -7        | 丰              | Ŧ     | -        | 1   |   |          |                | no fluor, no staining.                                      | •                                     | - -  | -  | -            |  | -  | 1            |              | 1  | 1            |  | _  | _         |
| 1        | 士                            |           |                   | Ⅎ               |           | 士              | $\pm$ | 1        | 1   |   | 崖        |                | 3   |                                       | <del>山</del>                                     |  | 1            |  |  | 1            |              |  |              |  | 士  | J         |
| _ _      | 1                            | F         |                   | $\Box$          | _         | 4              | T     | -[       |     |   |          | н              | <b>a</b>  |                                       | - -  |  | -            | -  | _  | 1            | Ι            | _  | -            | -  | _  | _         |
| - -      | +                            | 1         |                   |                 |           | _              | $\pm$ | -1       |     |   |          |                | 1   |                                       | 1-1-   | _  | 1            | <del></del>                                      | 1  | 1            | 1            | 1  | 1            | 1  | 士  | -         |
| 7        | 7                            | F         |                   | 口               | _         | 7              | 7     | 4        |     |   | Ħ        |                | Ls, gry, tan, brn, f·m xln,                                 | arg., dns,                            | ->   | -TG  | inc.         | i2 uni   | ls-  | <b>_</b>     | $\Box$       | -  | 1            | <u> </u>   | _  | 7         |
| - -      | +                            | +         | -                 | $\vdash$        | _         | _1             | +     | -        |     |   |          | Н              | E poorly dev. to no vis. po                                 | rosity, no show,                      | -(-  | +  | <u> </u>     | 1  | <u>t                                    </u>     | <del></del>  | 1            | 1-   | 1@           | 173'   | surve  | y         |
| _ _      | 1                            | 1         |                   |                 |           | $\dashv$       | 1     | _        |     |   |          | <b>=</b> ==    | no fluor, no staining.                                      | ·                                     |  | 1  | Ţ            |  | $\vdash$   | ļ            | 1            | 1  |              | ree_   | <del>                                     </del> | _         |
| - -      | +                            | +-        | -                 | $\vdash$        | -1        |                | +     | -        |     |   |          | ===            |   |                                       | -}-  | -  | +            | 1-   | +  | 1            | +            | +-   | +            | +  | +-   | _         |
| _ _      | 二                            | I         |                   | 口               | $\exists$ | _              | ļ     | 7        |     |   |          | 4              | <b>5</b>  |                                       | 13.  | ļ  | 1            | 1  | ļ  | <u> </u>     | _            |  |              | 1  | ļ  |           |
| 4        | +                            | +         | -                 | $\dashv$        | -+        | -+             | +     | -        |     |   | 国        | h              | 3   |                                       | 1-1-   | -  | +-           | +  |  | +            | +            | +-   | +-           | +  | +  | -         |
|          | 1                            | 1         |                   | 口               |           | 1              | 1     | 1        | 1   |   |          | H              | Ls, gry, tan, brn, f-m xln,                                 | arg., dns.                            | 口二   | 1  | 1            | 1  |  |              | 1            |  |              | 1  | $\Box$   |           |
| 4        | +                            | +-        | <del> -</del>     | $\vdash \vdash$ | -{        | +              | +     | 4        |     |   |          | <b>==</b>      | poorly dev. to no vis. po                                   | rosity, no show                       | H  | +  | +-           | 1  | <del> </del>                                     | 1.           | <del> </del> | 1-   |              | +  | $\vdash$   | 4         |
|          | 士                            | 1         | 匚                 |                 |           | 土              | 1     | 1        |     |   | 圕        | ===            | no fluor, no staining.                                      |                                       | 止  | 1  | 1            | 1  |  |              |              | 1  | 1            | 1  |  |           |
| ـَالِ    | -1-                          | -         | -                 | -               |           |                | +     | -        |     |   |          | H              | <b>=</b>  |                                       | 1-1-   | -  | 4            | +  | +  | +            | +            | -  |              | 1-   | +  | -         |
| 4        | 士                            | 士         | 匚                 |                 |           | 土              | 土     | 10 5     | 3   |   | E        | #              | 3   |                                       | 止  |  |              | 1  |  |              | 匸            |  |              | 士  |  | _         |
| ΙŢ       | 7                            | _R        | <b>ρ<u>Ε</u>(</b> | nin             | (t)       | 工              | Ţ     | 10 8     | ŏ   |   | E        |                | ∃ .   |                                       | 甲  | 1  | <del> </del> | 1_   | +  | IG.          | Q1.C5        | 1  | 1-           | 1  | -  |           |
| 士        | 士                            | 士         |                   |                 |           | 士              | 士     |          |     |   |          |                | Sh, med. to drk. gry, silt                                  | y to calc., fissle,                   | 17   |  | 1            | 1  |  | 1            |              |  |              |  |  | _         |
| 17       |                              | 7         | 1-                | ıTi             | 7         | 7              | Т     | 1        | 1   |   | _        |                | laminated.  | -                                     | 1 7  | 1  | 1            | 1  | 1  | 1            | 1            | 1  | 1            | 1  | 1  | 7         |

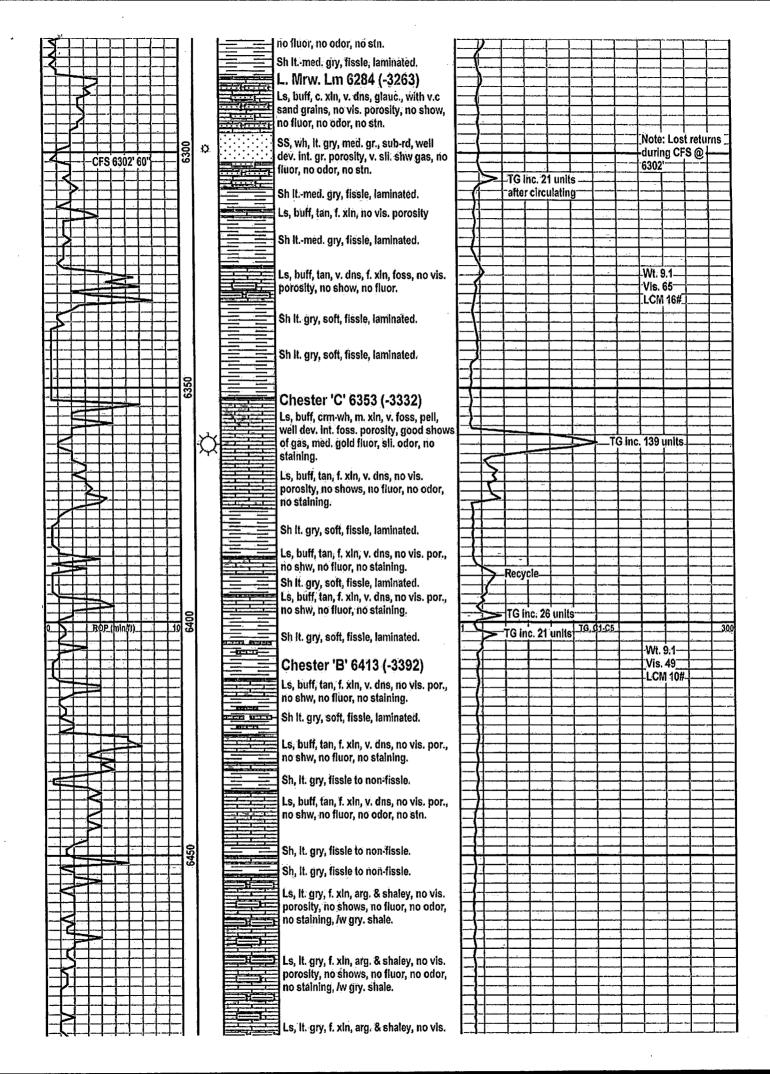
|                    | Marmaton 5219 (-2198)  | F          | }_   |          |              |  |              |  |                |              |          | _                           | $\dashv$   |  |
|--------------------|--|------------|--|----------|--------------|--|--------------|--|----------------|--------------|----------|-----------------------------|--|--|
|                    |  | -          |  |          |              |  |              |  |                |              |          |                             |  |  |
|                    | Ls, tan, gry, f-m xin, dns, p. dev. int. xi  | Ĺ          |  |          |              |  |              |  |                |              |          |                             |  | $\equiv$   |
|                    | porosity, no shows, no fluro, no odor,   | <u> </u>   | H  |          |              |  |              |  |                | -            |          |                             |  |  |
|                    | no staining.   | Ē          | <b>&gt;</b>                                  |          |              |  |              |  |                |              |          |                             |  |  |
|                    | Ls, buff, tan, f-m xln, dns, p-f dev. int.   | [1         |  |          |              |  |              |  |                |              |          |                             |  |  |
|                    | xin. porosity, no shows, no fluro, no  | 1          |  |          |              |  |              |  |                |              |          |                             |  |  |
|                    | odor, no staining.   | R          |  |          |              |  |              |  |                |              |          |                             |  |  |
|                    | <u>0 = 0 = </u>  | Į,         |  |          |              |  |              |  |                |              |          |                             | 二  |  |
|                    | Ls, buff, crm. wh, v. brittle, colitic, w/   |            |  |          |              |  |              |  |                |              |          |                             |  |  |
|                    | well dev. comoldic porosity, no shows  | .          | <b>/</b>                                     |          |              |  |              | <del> </del>                                     | <del> </del> - | <del> </del> |          |                             |  |  |
| 255                | dull chalky fluor, no odor. no staining.   | H          | _  |          |              |  |              |  |                | 1            | -        |                             |  |  |
|                    | 0  | Í          |  |          |              |  |              | 1  | 1              |              |          |                             |  |  |
|                    |  | j          | _  |          |              |  |              | <u> </u>   |                |              |          |                             |  |  |
|                    | Ls, buff, tan, f-m xin, dns, p-f dev. int.   | H          |  |          |              |  | -            | <del>                                     </del> | -              | -            |          |                             |  | -  |
|                    | xin. porosity, no shows, no fluro, no  | l          |  |          |              |  | _            | <u> </u>   |                |              |          |                             |  |  |
|                    | odor, no staining.   | Į.         |  |          |              |  |              |  |                |              | @ 5      | 267'-                       |  |  |
|                    |  | F          | <u> </u>                                     |          | -            |  |              | -  | _              | 1            | Wt.      |                             |  | $\vdash$   |
|                    | Sh, med. to drk. gry, silty to calc., fissl  | e, []      | {_   |          | $\vdash$     |  | F            | _  | lacksquare     |              | Vis.     | 44 <u></u><br>. 11 <u>-</u> |  | $\Box$   |
|                    | laminated.   | ļ          | <u> </u>                                     |          | _            |  |              |  |                | 1            |          | 11.0                        |  |  |
|                    |  | 1          | 1  |          |              |  |              |  |                |              | Chi.     | 1,400                       |  |  |
|                    | Ls, med. to drk. gry, arg. & shaley, f. x  | n.F        | -  |          | <del> </del> | -  | H            | +-   | ┼              |              | LLCN     | 6#                          | <del>                                     </del> | <del> </del>                                     |
|                    | granular, no vis. porosity, no shows, r  | ٥          | <b> </b>                                     |          | <del> </del> |  | <u> </u>     | }  | -              |              |          |                             | -  | 口  |
|                    | fluor, no odor, no stn.  | į.         | 1  |          |              |  |              |  | 1_             | 1_           |          | _                           |  | 口  |
|                    |  | ŀ          | 1  |          |              |  | 上            | 1  |                | 1            |          |                             |  |  |
|                    | Ls, med. to drk. gry, arg. & shaley, f. x  | <u>, l</u> | }_   |          |              | <del>                                     </del> | ļ            | <b> </b>   | ┼              | ╂            |          |                             | ├  |  |
| 83300              | granular, no vis. porosity, no shows, r  | ő          | 1  |          |              |  | _            | 1  | <b>—</b>       |              | _        |                             |  |  |
|                    | fluor, no odor, no stn.  | ľ          | 7  |          |              |  |              |  |                |              |          |                             |  |  |
|                    |  | ŀ          | $\leftarrow$                                 |          |              |  |              | <u> </u>   |                | +-           |          | ļ                           | <u> </u>   |  |
|                    |  | I          | )  |          | -            | -  | -            | -  | -              | -            | -        |                             |  |  |
|                    | Ls, crm. wh, buff, v. chalky, f. xln, fair   |            | =  |          |              |  |              |  | 1              |              |          | 1                           | 1  |  |
|                    | dev. int. xin. porosity, no shows, dull chalky fluor, no odor.   | ŀ          | <u>}                                    </u> |          |              |  | 1            |  | 1              |              |          |                             | 二  |  |
|                    | Charky huor, no odor.  | ŀ          | t =  |          | +            |  | 1-           | ╂─   | 1              | 1_           | -        |                             | -  | -  |
|                    |  |            | 1-   | -        |              |  |              | -  | -              | -            |          | -                           |  |  |
|                    | Ls, crm. wh, buff, v. chalky, f. xin, fair<br>dev. int. xin. porosity, no shows, dull  | 1          | 厂  |          | -            | -  |              | -  |                | 1            |          |                             | 1  | $\Box$   |
|                    | chalky fluor, no odor.   | ı          | 1_   |          |              |  |              |  | 上              | 1_           |          |                             | 二  |  |
|                    |  | 1          | }_   | _        |              |  |              |  |                |              |          |                             | <del></del>                                      |  |
|                    | Ls, crm. wh, buff, v. chalky, f. xin, fair   | 1          | -  | -        | -            | -  | -            | $\vdash$   | 1              | -            |          | 1                           | -  | -  |
|                    | dev. int. xin. porosity, no shows, dull  | ļ          | }_   | 1_       |              |  | <b> </b>     | -  | -              |              | 1        |                             | =  |  |
|                    | chalky fluor, no odor.   | 1          | :  | 1        |              |  |              |  |                | 1            |          |                             | 1  |  |
| 2350               |  | ł          | 1  |          |              |  |              |  |                | 1            |          |                             | +  |  |
|                    | Ls, buff, tan, brn, f xln, v. dns, poorly  | - 1        | }  | <u> </u> | _            | $oxed{\bot}$                                     | <del> </del> | 1  | 1              | 1            | $\vdash$ | 1                           | +  | 1  |
|                    | dev. to no vis. porosity, no show, no  | -          | -{-  | F        | F            |  | -            | -  | -              | -            | F        | <u> </u>                    | 1  | <del>                                     </del> |
|                    | fluor, no staining.  | ı          | 1  | F        | 1            | 1  | 1            | 1  | 1              | 1            | 1        |                             | 二  | 1_   |
|                    |  |            | 1  | 1        | 1            |  | 1.           |  | 1              | #            |          | _                           | 二  | 1  |
|                    | Ls, buff, tan, brn, f xln, v. dns, poorly  | ŀ          |  |          | 上            | $\perp$  |              | 士  | _              | 上            | L        | $\pm$                       | <u> </u>   | 1  |
|                    | dev. to no vis. porosity, no show, no  | ſ          | 1-   | 1-       | +            | +  | F            | +  | -              | -            |          | $\vdash$                    | +  | 4-   |
|                    | flüor, no stalning.  | - 1        | 1  | -        | -            | 1-   | 1            | 1  | 1              | 1            | -        | $\vdash$                    | 1-   | 1  |
|                    |  | - [        | 4  | 1        | 士            | 1  | 1            | 1  | +              | 1            | 1        |                             | 1  | #  |
|                    | and the second of the second o |            | 1  |          | 士            |  | 1            | 士  | $\pm$          |              |          |                             | 1  |  |
|                    | Ls, buff, tan, brn, f xln, v. dns, poorly dev. to no vis. porosity, no show, no  | - 1        | 1  | 1        | 1            | $\pm$  | 1            | -  | +              | +            | +        | 1                           | +-   | +-   |
|                    | fluor, no staining.  |            | +  | F        | 1-           | F  | F            |  | -              | 1            | -        | 1                           | 1  | +  |
|                    |  |            | 7  | 1        | #            | #  | 1            | #  | 1              | 1            | ļ:-      | <del> </del>                | 1  | 1=   |
|                    |  | - 3        | 力  | #        | #            | 1  | 1            | 1  | 1              | 1            | 1        | 1                           | 1_   | 1  |
| 0 ROP (min/n) 10 % |  |            | 1  | 1        | 士            | _  | 士            | JG   | \$1.C          |              | 1        | 士                           | 士  | 300  |
|                    | Ls, buff, tan, mottled gry, collitic, f-m  |            | 1  | 1        | -            | 1  | -            | 1  | -              | +            | $\vdash$ | $\vdash$                    | $\vdash$   | 1  |
|                    | xin, fair dev. int. foss. & int. xin.  |            | 1  | 1        | 1            | 1  | 1            | 1  | 1              | 1            | 1        | 1                           | 1  | 1  |
|                    | no staining.   | į          | 1  | 1        | #            | 1  | 1            | +  | 1              | $\pm$        | 1        |                             | ‡  | 士  |
|                    | The state of the s |            | 1-   | +-       | $\pm$        | <del></del>                                      | 1-           | 1  | _              |              | 上        | 士                           | _  | <del></del>                                      |
|                    |  |            | 1  | +-       | -            | +  | F            | 1  | +-             | -            | +        | $\vdash$                    | 4  | +  |
|                    |  |            | 1  | 1        | 1            | 1_   | 1_           | #  | 1_             | 1_           | 1        | 1_                          | 丰  | 1_   |
|                    |  |            |  |          |              |  |              |  |                |              |          |                             |  |  |

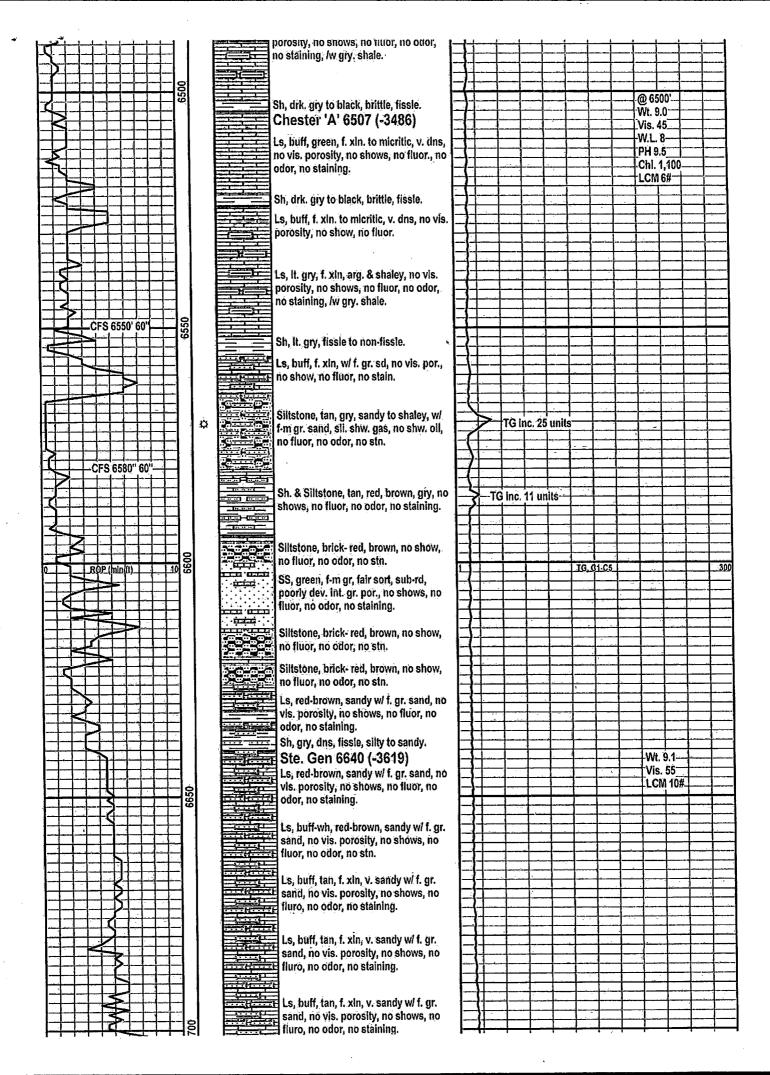












| 6750                | Ls, buff, tan, f. xln, micritic, w/ fresh chert, poorly dev. to no vis. porosity, no shows, no fluro, no odor, no staining.  St. Louis 6720 (-3699)  Ls, wh, buff, f. xln. to micritic, oolitic & pell., p. dev. to no vis. por., no shw, no fluor, no odor, no staining.  Ls, lt. gry, buff, f. xln. to micritic, v. dns, no vis. porosity, no shows, no fluor, no odor, no staining.  Ls, lt. gry, buff, f. xln. to micritic, v. dns, no vis. porosity, no shows, no fluor, no odor, no staining.  Ls, wh, buff, f. xln. foss., oolitic & pell., fair dev. int. xln. & vug. por., no shw, no fluor, no odor, no odor, no staining. |   |   |   |   |   |     |       |   | -Wt. 9 | 50 |          |     |
|---------------------|--|---|---|---|---|---|-----|-------|---|--------|----|----------|-----|
|                     | Ls, crm. wh, buff, f-m xln, foss., colitic &   | 目 |   |   | Ë |   |     |       | - |        |    |          |     |
|                     | dev. int. xln. & vug. porosity, no shows,  |   | 崖 |   |   |   |     |       |   |        |    |          |     |
|                     | Ls, crm. wh, buff, f-m xin, foss., colltic & pell., dns. to chalky, tr. fresh chert, fair  |   |   |   |   |   |     |       |   | Wt.    |    |          |     |
|                     | dev. int. xin. & vug. porosity, no shows,  |   | 佳 |   |   |   |     |       |   | Vis.   | 52 |          |     |
|                     | Ls, buff, f. xin, v. dns, no vis. por., no   |   |   |   |   | E |     |       |   |        |    |          |     |
| 0 ROP (min/t) 10 88 | shows, no fluor, no staining.  |   |   |   |   |   | TG, | G1-C5 |   |        |    |          | 300 |
| RTD 6800'           |  |   | # |   |   |   | =   |       |   |        |    |          |     |
|                     |  |   |   | = |   |   |     |       |   |        |    |          |     |
|                     |  | F | + | - | - | 1 | 1   | -     |   | 丰      |    | $\vdash$ | 1   |

•