

ORIGINAL

KANSAS CORPORATION COMMISSION
OIL & GAS CONSERVATION DIVISION

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Form ACO-1
September 1999

Form Must Be Typed

JUN 01 2004

WELL COMPLETION FORM
WELL HISTORY - DESCRIPTION OF WELL & LEASE

CONSERVATION DIVISION
WICHITA, KS

Operator: License # 33240
 Name: Wolverine Environmental Production LLC
 Address: 1 Riverfront Plaza, 55 Campau NW
 City/State/Zip: Grand Rapids, MI. 49503
 Purchaser: None
 Operator Contact Person: Richard Moritz
 Phone: (616) 458-1150 ext.119
 Contractor: Name: Mc Gowen Drilling Inc.
 License: 5786
 Wellsite Geologist: Chris Ryan
 Designate Type of Completion:
 New Well Re-Entry Workover
 Oil SWD SLOW Temp. Abd.
 Gas ENHR SIGW
 Dry Other (Core, WSW, Expl., Cathodic, etc)
 If Workover/Re-entry: Old Well Info as follows:
 Operator: _____
 Well Name: _____
 Original Comp. Date: _____ Original Total Depth: _____
 Deepening Re-perf. Conv. to Enhr./SWD
 Plug Back _____ Plug Back Total Depth _____
 Commingled _____ Docket No. _____
 Dual Completion _____ Docket No. _____
 Other (SWD or Enhr.?) _____ Docket No. _____

<u>10/16/03</u>	<u>10/25/03</u>	<u>None- Dry Hole</u>
Spud Date or Recompletion Date	Date Reached TD	Completion Date or Recompletion Date

API No. 15 - 111204310000
 County: Lyon
~~NW~~ ^{SE} ~~SW~~ SE SW Sec. 26 Twp. 16 S. R. 11 East West
360 ft. fr. S line feet from S / N (circle one) Line of Section
3240 ft. fr. E line feet from E / W (circle one) Line of Section
 Footages Calculated from Nearest Outside Section Corner:
 (circle one) NE SE NW SW
 Lease Name: WHEAT Well #: 26-DW
 Field Name: Wildcat
 Producing Formation: None - Dry Hole
 Elevation: Ground: 1328' Kelly Bushing: _____
 Total Depth: 2196 Plug Back Total Depth: 2316
 Amount of Surface Pipe Set and Cemented at 212' Feet
 Multiple Stage Cementing Collar Used? Yes No
 If yes, show depth set _____ Feet
 If Alternate If completion, cement circulated from _____
 feet depth to _____ w/ _____ sx cmt.

Drilling Fluid Management Plan *P&A KGR 6/07/07*
 (Data must be collected from the Reserve Pit)
 Chloride content 800 ppm Fluid volume 1300 bbls
 Dewatering method used Evaporation
 Location of fluid disposal if hauled offsite: _____
 Operator Name: N/A
 Lease Name: _____ License No.: _____
 Quarter _____ Sec. _____ Twp. _____ S. R. _____ East West
 County: _____ Docket No.: _____

INSTRUCTIONS: An original and two copies of this form shall be filed with the Kansas Corporation Commission, 130 S. Market - Room 2078, 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 of 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: Joel Friedman
 Title: Petroleum Eng Date: 5-28-04
 Subscribed and sworn to before me this 28 day of May,
2004.
 Notary Public: Janice R. Weisard
 Date Commission Expires: 5-1-2005
#01006609

KCC Office Use ONLY

ND Letter of Confidentiality Received
 If Denied, Yes Date: _____
 Wireline Log Received
 Geologist Report Received
 UIC Distribution

✓

X

Operator Name: Wolverine Environmental Production LLC Lease Name: WHEAT Well #: 26-DW
 Sec. 26 Twp. 16 S. R. 11 East West County: Lyon

INSTRUCTIONS: Show important tops and base of formations penetrated. Detail all cores. Report all final copies of drill stems 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 test, along with final chart(s). Attach extra sheet if more space is needed. Attach copy of all Electric Wireline Logs surveyed. Attach final geological well site report.

Drill Stem Tests Taken Yes No
 (Attach Additional Sheets)

Samples Sent to Geological Survey Yes No

Cores Taken Yes No

Electric Log Run Yes No
 (Submit Copy)

List All E. Logs Run:

Log Formation (Top), Depth and Datum Sample

Name Top Datum

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CONSERVATION DIVISION
 WICHITA, KS

CASING RECORD <input checked="" type="checkbox"/> New <input type="checkbox"/> 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"	23 ppf	212'	Ptd. A	95	3%cc;2%gel; 1/4pps floseal

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

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
	N/A		

TUBING RECORD	Size	Set At	Packer At	Liner Run
	N/A			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Date of First, Resumerd Production, SWD or Enhr. Dry Hole Producing Method Flowing Pumping Gas Lift Other (Explain)

Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity

Disposition of Gas Vented Sold Used on Lease (If vented, Submit ACO-18.) METHOD OF COMPLETION Production Interval
 Open Hole Perf. Dually Comp. Commingled _____
 Other (Specify) _____



CONSOLIDATED
OIL WELL
SERVICES
AN INFINITY COMPANY

211 W. 14TH STREET, CHANUTE, KS 66720
620-431-9210 OR 800-467-8676

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WICHITA, KS

TICKET NUMBER **22007**

LOCATION: Ottawa

FIELD TICKET

DATE <u>10-17-03</u>	CUSTOMER ACCT #	WELL NAME <u>Wheat 26-DW</u>	QTR/QTR	SECTION <u>26</u>	TWP <u>18</u>	RGE <u>11</u>	COUNTY <u>LY</u>	FORMATION
CHARGE TO <u>Wolven Environmental</u>				OWNER				
MAILING ADDRESS <u>One Environmental Plaza</u>				OPERATOR				
CITY & STATE <u>Concord, MA 04903</u>				CONTRACTOR				

ACCOUNT CODE	QUANTITY or UNITS	DESCRIPTION OF SERVICES OR PRODUCT	UNIT PRICE	TOTAL AMOUNT
<u>5401</u>	<u>1</u>	PUMP CHARGE		<u>525.-</u>
<u>5407</u>	<u>212'</u>	<u>Casing Footage</u>	<u>1.41</u>	<u>-NC-</u>
<u>1102</u>	<u>6</u> <u>5x 90lbs</u>	<u>Calcium Chloride</u>	<u>50.60</u>	<u>326.40</u>
<u>1118</u>	<u>2</u> <u>5x</u>	<u>Premium Gel</u>		<u>23.50</u>
<u>1107</u>	<u>1</u> <u>50</u>	<u>Plo Seal</u>		<u>37.25</u>
		BLENDING & HANDLING		
<u>5407</u>	<u>58 miles</u>	TON-MILES		<u>220.44</u>
		STAND BY TIME		
		MILEAGE		
		WATER TRANSPORTS		
		VACUUM TRUCKS		
		FRAC SAND		
<u>1104</u>	<u>92</u>	CEMENT <u>Portland Class A</u>	<u>8.20</u>	<u>754.40</u>
		<u>Lyco Co</u>	SALES TAX	<u>66.34</u>
			SUB TOTAL	<u>1887.55</u>
			ESTIMATED TOTAL	<u>1953.79</u>

Ravin 2790

CUSTOMER or AGENTS SIGNATURE

Steve Wash

CIS FOREMAN

Bill Zabel

CUSTOMER or AGENT (PLEASE PRINT)

Steve Wash - EXACT

DATE

10-17-03

(918) 542-7801

1993

40

ATOKA

COAL LABS

Englewood, Colorado
1-800-853-5113
FAX 303-617-8956

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FORMATION EVALUATION LOG

SCALE: 1" = 20'

CONSERVATION DIVISION

WICHITA, KS

COMPANY: Wolverine Environmental Production LLC
WELL: Wheat 26-DW
FIELD: Wildcat
COUNTY: Lyon **STATE:** Kansas

API #: 15-111-20431-00-00

LOCATION: 360 fsl 2140 fwl
se se sw

Sec 26 Twp 16S Rge 11E







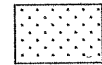








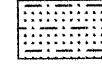


ELEV GL: 1328 ft

ELEV KB: 1336 ft

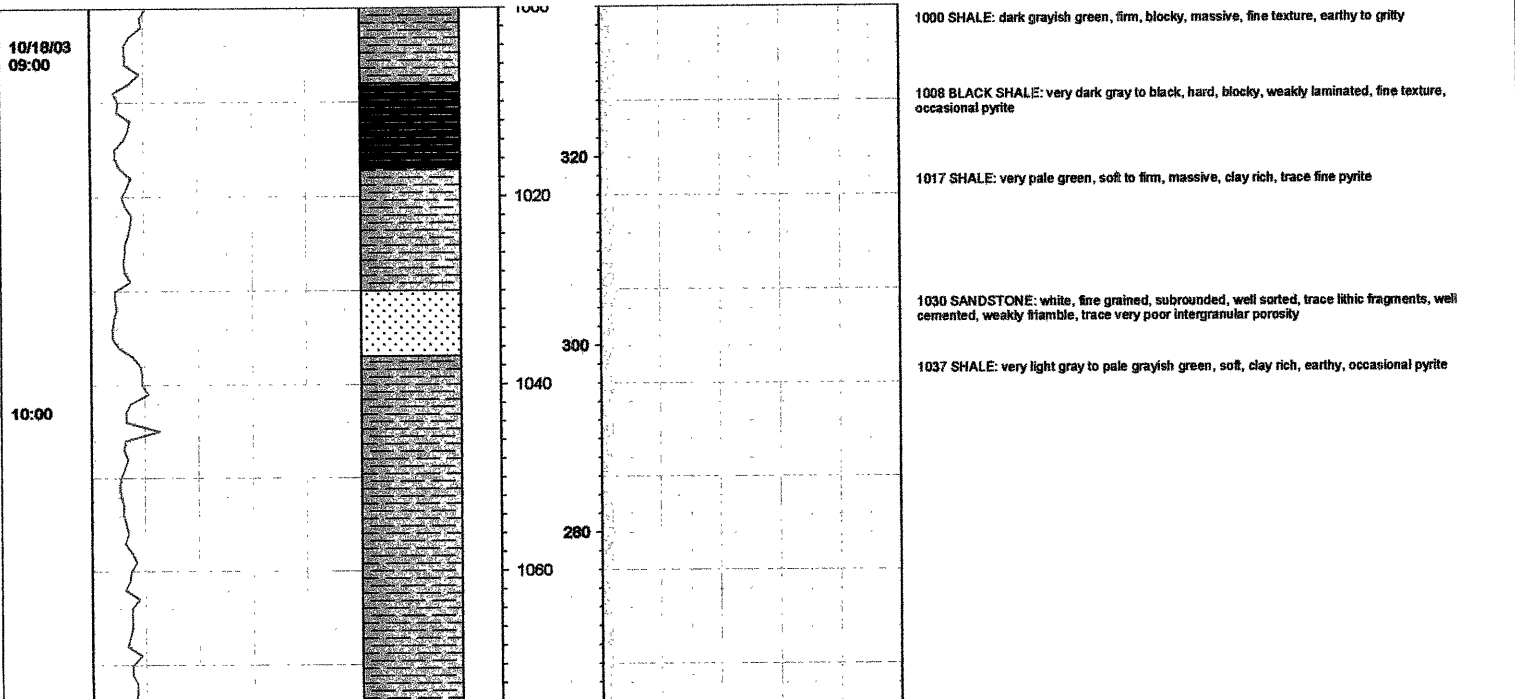
Log Measured from: KB

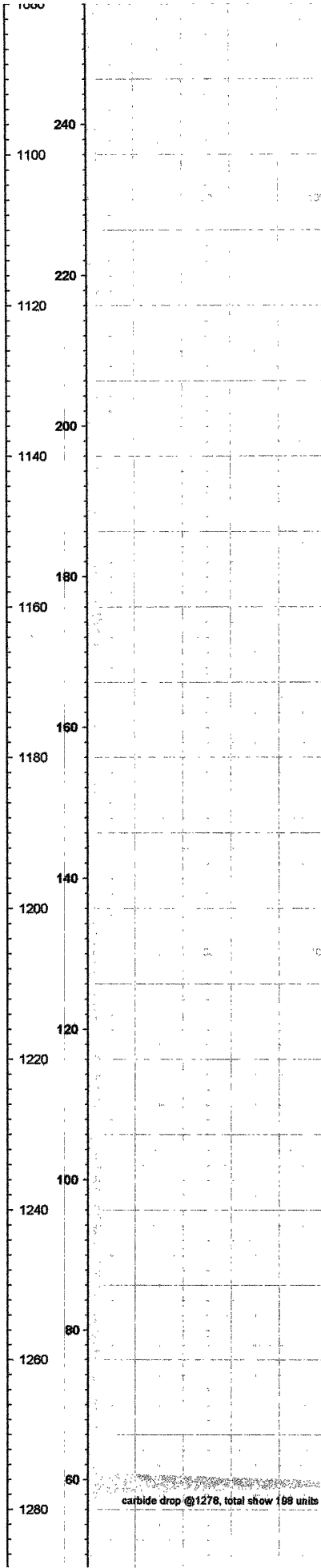
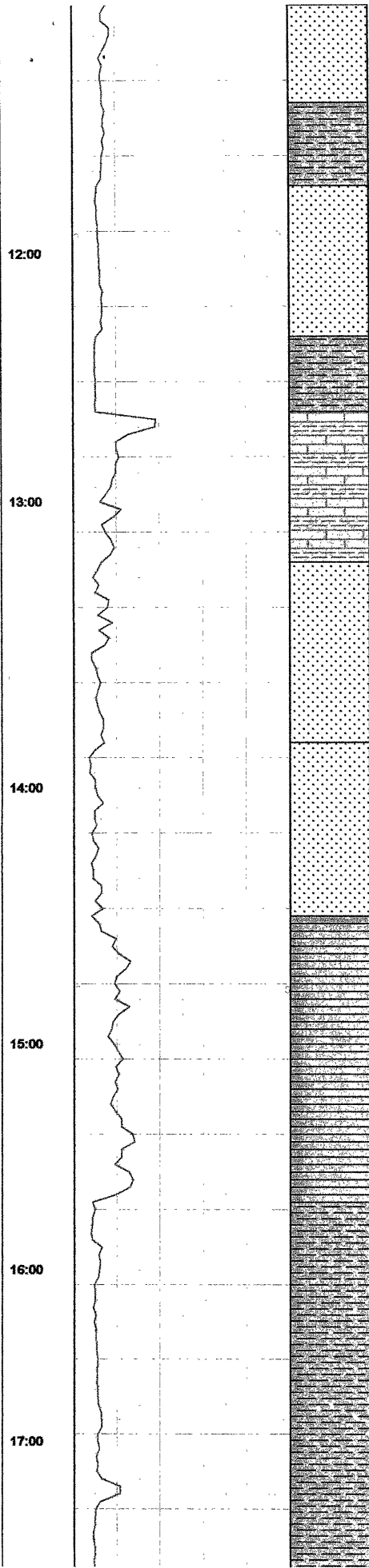
Spud Date	October 16, 2003
Surface Casing	0 - 202 ft
Hole Size	7.875
Total Depth	2316 ft
Logging Dates	October 18 - 24, 2003
Interval Logged	1000 - 2317 ft
Drilling Fluid	bentonite gel
Mud Pumps	Gardner Denver 6 x 10
Drilling Contractor	Gulick Drilling Inc.
Rig Pusher	Ron Gulick
Company Geologist	John Vrona
Company Engineer	Steve Hash, EXACT Engineering
Logging Geologist	Chris Ryan

LEGEND

	LIMESTONE		BRECCIA		FOSSILS
	SHALE		SILTACEOUS SHALE		GLAUCONITE
	SAND		BLACK SHALE		COAL
	DOLOMITE		CHERT		PYRITE
	OOOLITIC LIMESTONE		LIMEY SHALE		SILTSTONE
	SANDY SILT		CLAY		BENTONITE

DATE/TIME	PEN. RATE (MIN/FT) 0 — 10 second scale = x10 0 — 100 GAMMA RAY (API UNITS) 0 — 300	LITHOLOGY	CORE	DEPTH (FT)	ELEVATION (FT)	TOTAL GAS (UNITS) 0 — 500	LITHOLOGIC DESCRIPTION
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1090 SANDSTONE: white to clear, medium grained, subrounded, moderately sorted, abundant carbonaceous fragments, hard, weakly friable, well cemented, clean, trace very poor porosity

1093 SHALE: pale green to light greenish gray, soft to firm, blocky, clay rich in places, fine texture, earthy, trace pyrite

1104 SANDSTONE: white to light gray, fine grained, hard, blocky, subrounded to subangular, moderately sorted, black carbonaceous fragments, silty, well cemented, tight

1124 SHALE: medium gray to gray brown, firm, blocky, weakly laminated, fine texture, earthy, trace black carbonaceous fragments

1134 SHALE AND LIMESTONE INTERBEDS: light cream, hard, platy, cryptocrystalline to microcrystalline, tight, interbedded earthy gray shale

1154 SANDSTONE: white to very light gray, coarse grained, well rounded, well sorted, clean, trace very fine black carbonaceous fragments, abundant coarse pyrite, well cemented, weakly friable, trace very poor porosity, interbedded gray shale

1178 SANDSTONE: white to very light gray, coarse grained, well rounded, well sorted, clean, trace very fine black carbonaceous fragments, abundant coarse pyrite, well cemented, weakly friable, trace very poor porosity

1201 LIMESTONE: light honey brown to pinkish brown, very hard, blocky, cryptocrystalline, light, trace very fine pyrite, clean

1239 SHALE: pale green to light greenish gray, soft to firm, sub-blocky, earthy, massive, clay rich in places, trace very fine black carbonaceous fragments

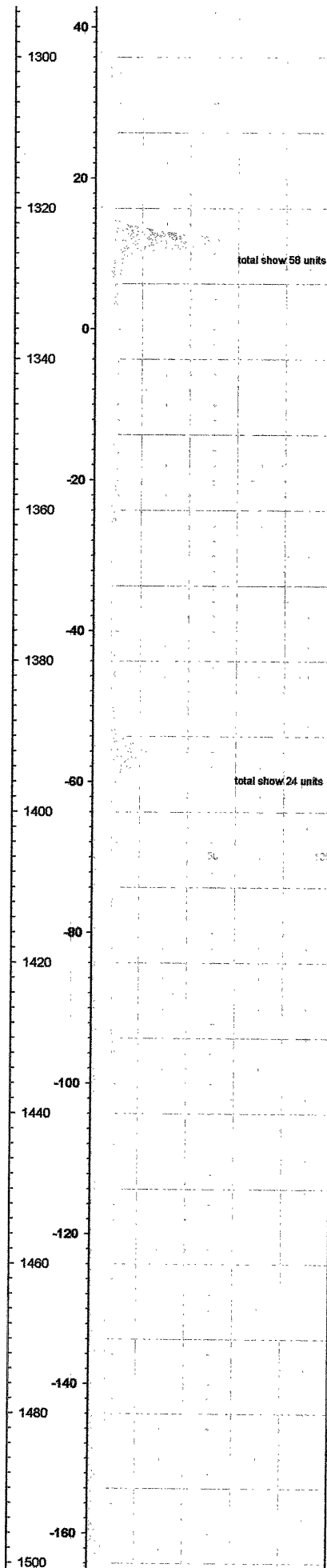
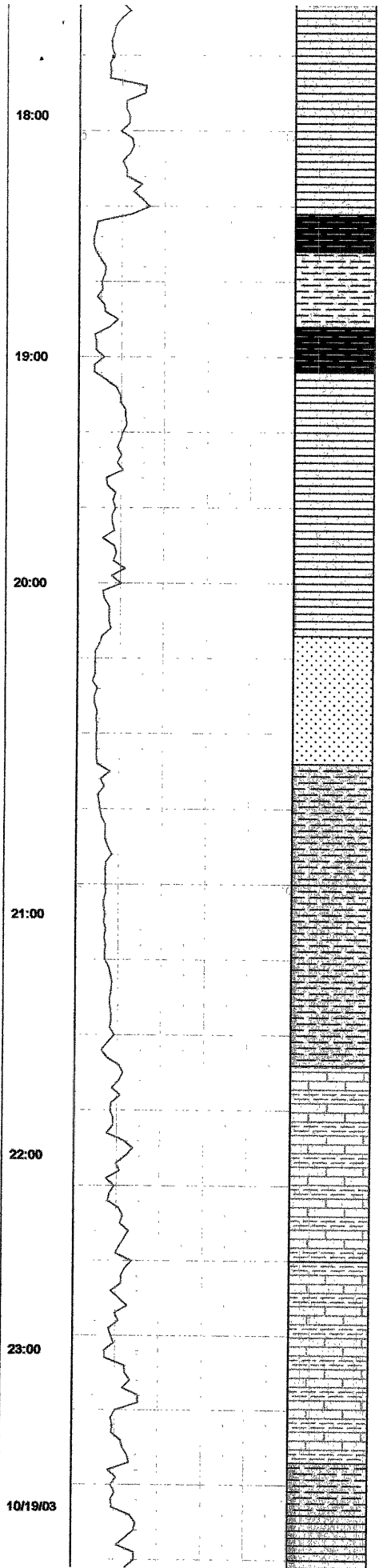
carbide drop @ 1278, total show 169 units

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1321 BLACK SHALE: very dark gray to black, firm, platy, weakly laminated, gritty, occasional coarse pyrite

1326 SHALE: dark grayish green, firm, blocky, massive, earthy to gritty, trace pyrite

1336 BLACK SHALE: very dark gray to black, firm, platy, weakly laminated, gritty, occasional coarse pyrite

1342 LIMESTONE: light creamy tan to white, hard, platy, cryptocrystalline to microcrystalline, microscurosic, clean light, disseminated fine pyrite

1377 SANDSTONE: white to light gray, very fine to fine grained, silty in places, fine black carbonaceous fragments, well cemented, light, fine pyrite

1394 SHALE: pale green to light grayish green, soft to firm, platy, waxy, clay rich in places, fine disseminated pyrite

1410 SHALE: pale green to light grayish green, soft to firm, platy, waxy, clay rich in places, fine disseminated pyrite

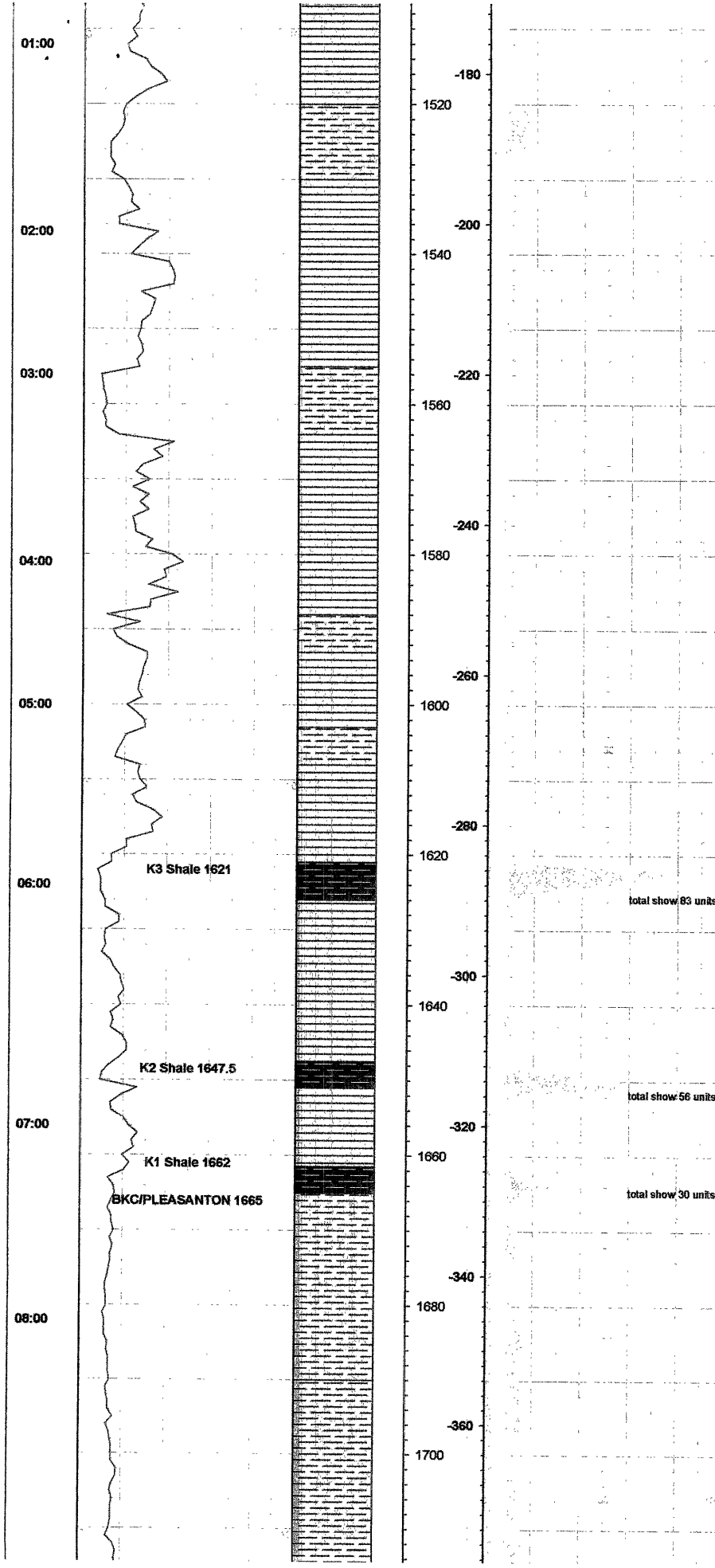
1434 SHALE AND LIMESTONE INTERBEDS: light creamy tan to light brown, hard, platy, cryptocrystalline, clean, light, trace fine pyrite, interbedded grayish green earthy shale

1460 SHALE AND LIMESTONE INTERBEDS: light creamy tan to light brown, hard, platy, cryptocrystalline, clean, light, trace fine pyrite, interbedded grayish green earthy shale

1487 SHALE: pale green, light grayish green, firm, blocky, very weakly laminated, waxy, fine texture

1494 LIMESTONE: white, hard, blocky, cryptocrystalline, occasionally microcrystalline, sparry, very clean, light, occasional fine pyrite

10/19/03



1520 SHALE: greenish gray to light grayish green, firm, sub-blocky, earthy, trace black carbonaceous fragments, trace pyrite

1530 LIMESTONE: light gray to white, hard, sub-blocky, medium to coarse crystalline, fragmental, sparry, skeletal fragments, crinoids

1555 SHALE: grayish green to pale green to dark red brown, firm, subplaty, earthy to waxy, clay rich in places

1564 LIMESTONE: white to light creamy gray, hard, blocky, medium to coarse crystalline, fragmental, clean, coarse skeletal fragments, bryozoans, well cemented

1588 SHALE: pale green to light grayish green, hard to firm, platy to sub-blocky, fine texture, earthy, fine black carbonaceous fragments

1593 LIMESTONE: light creamy tan to light gray, hard, blocky, microcrystalline, clean, tight, trace pyrite

1603 SHALE: pale green, light gray, hard to firm, blocky, fine texture, massive, calcareous

1608 LIMESTONE: light creamy tan to light gray, hard, subplaty to blocky, crypto-crystalline to microcrystalline, clean, tight, trace fine pyrite

1621 BLACK SHALE: black, hard to firm, platy, massive, fine texture, weakly laminated, earthy
total show 83 units

1626 LIMESTONE: white to light creamy gray, hard, blocky, microcrystalline, microsugrosic, clean, trace fine pyrite

1648 BLACK SHALE: black, hard, subplaty, weakly laminated, earthy, fine texture, trace fine clacite, trace pyrite
total show 56 units

1651 LIMESTONE: white, hard, blocky, fine to medium crystalline, fragmental to microsugrosic, clean, tight, coarse skeletal fragments, bryozoans, well cemented

1662 BLACK SHALE: black, hard, platy, weakly laminated, fine texture, earthy, trace calcite, trace pyrite
total show 30 units

1665 SHALE: light gray to light grayish green, firm, platy, massive, fine texture, earthy to waxy, calcareous, trace pyrite

1690 SHALE: light gray to graybrown to grayish green, firm, platy, earthy, fine texture, fine black carbonaceous fragments, calcareous

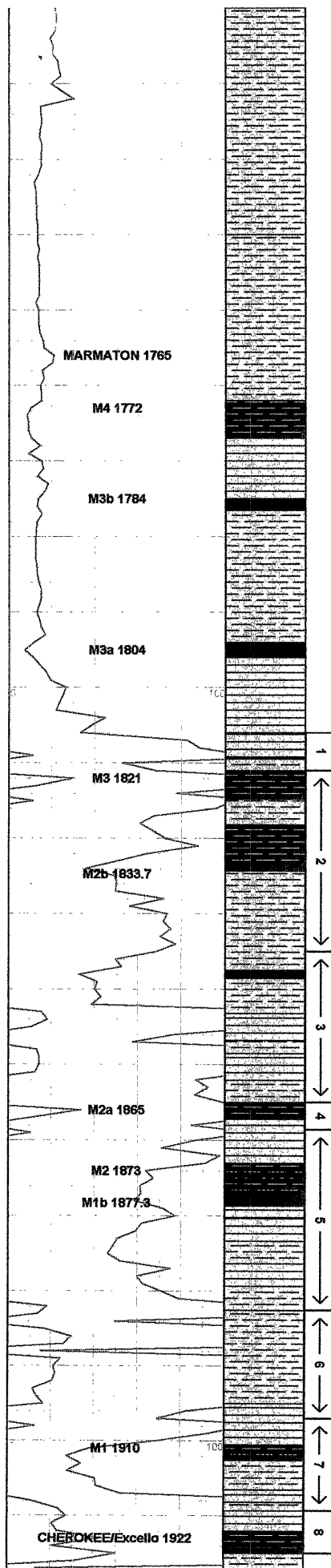
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10:00

11:00

12:00

12:10



1720
-400
1740
-420
1760
-440
1780
-460
1800
-480
1820
-500
1840
-520
1860
-540
1880
-560
1900
-580
1920

1720 SHALE: gray to gray brown, hard to firm, platy, massive, earthy, fine texture

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1750 SHALE: light gray brown, soft to firm, blocky, coarse texture, gritty, abundant coarse black carbonaceous fragments

1772 BLACK SHALE: black, hard, blocky to subplaty, weakly laminated, earthy, trace calcite, trace pyrite

1777 LIMESTONE: light creamy gray, hard, blocky, coarse grained fragmental, coarse skeletal fragments, crinoids, bryozoans, well cemented, sparry

1785 COAL: black, hard to firm, blocky, well laminated, velvety, shaly, abundant pyrite, fine calcite

1787 SHALE: light brown to light purple to pale green, firm, subblocky, earthy to waxy, clay rich in places, trace pyrite

1804 COAL: black, hard, blocky, firm, weakly laminated, shaly, abundant pyrite, trace calcite, trace pyrite

1806 LIMESTONE: light creamy tan, hard, platy, cryptocrystalline, clean, tight, trace fine pyrite

1816 LIMESTONE: litemyln-ltgy, mixctln, micsuc, hd, blk, wlmntd, abdt stylts, occ cg skel frgs, osteds, brchpds

1819 BLACK SHALE: fltblk, hd, blk, wldymntd, abdt fg py

1820 SHALE: dkgrgy-dkgrmgy, hd, blk, mssv, fn txt, occ fg diss py

1821 BLACK SHALE: fltblk, hd, btl, mssv, tr fg py, smthplnfrcts, 0 to ca, 90 to ca, 2-5ft

1825 SHALE: dlolvbm, wldymntd, wxy, vryhd, vrycalc, abdt orb frgs, lrg plnt frgs

1828 BLACK SHALE: vrydkbrn-gm, thnlmntd, hmky, hd, fnbt, occ smthplnfrcts

1834 COAL: blk, vit-vivty, wlmntd, wldvdp ortcls

1834 SHALE: ltbl, thnlmntd, hmky, fnbt, silty calc, occ crbrfcs, 2-5 mm clstrgs 1/2-3ft, tr fg py

1848 COAL: blk-vrydkbrn, wlmntd, bny, wldvdp ortcls, vis gas

1849 SHALE: plgm, sft, wxy, smthvryfrcts 5-10 to ca 1-3ft, vry calc

1853 LIMESTONE: ltgybrn-plgm, hd, fgxtln-mixctln, cin, tt, occ cg skel frgs

1857 SHALE: gmrgy-vrydkgrgy, wlmntd, hmky, ety-wxy

1859 LIMESTONE: ltgybrn-ltgmbrn, mixctln, hd, cin, tt, abdt cg skel frgs, bvivs, osteds, sh intbds

1862 SHALE: dkgrmgy-vrydkgrgy, hd, pily, fssl, fnbt, calc

1865 BLACK SHALE: fltblk, hd, pily, fssl, wlmntd, fnbt, ety, tr py

1867 LIMESTONE: ltbl-ltgy, cgxtln, sprry, abdt cg skel frgs, brchs, bvivs, pcpds, stylts, cin, wlmntd

1873 BLACK SHALE: fltblk, hd-fm, pily, fssly, wlmntd, calc, abdt skel frgs, occ cg py

1877 COAL: fltblk, hdbilky, wldvdp clts, bny, wlmntd, vis gas

1878 BLACK SHALE: as above

1879 LIMESTONE: plgm-litemyln, hd, fgxtln-mixctln, 2-5 mm blk-dkgrgy sh intbds 10-15%, occ cg skel frgs, tr py

1880 LIMESTONE: dkolvgrn, vryhd, mixctln, tt, occ 2-5mm ltbl intbds 2-5ft, wlmntd, bvivs, osteds, brchs

1883 SHALE: dkolvgrn, frm, mssv, wxy, abdt smth wxy-plnfrcts 0-20 to ca 2-5ft

1886 LIMESTONE: litemyln-plgm, hd, mixctln, plgm calc sh intbds, lrg irr rtd lst clsts, bvivs

1889 SHALE: plgm-lt, vrycalc, hd, mssv, fnbt, ety-wxy, 10-15% lrg ltbl lst clsts

1893 SHALE: dkolvgrn-dkbrn, thnlmntd, vryhd, fnbt, ety-grtty, occ fg skel frgs

1905 LIMESTONE: ltbl-ltgmbrn, fg-mg xtln, sprry, wlmntd, frmntd, thnbdd, abdt cg skel frgs, bvivs, cmds

1911 BLACK SHALE: fltblk, hd, pily, fssl, wlmntd, ety, fnbt, silty calc, abdt cg py lns accs

1913 SHALE: ltgybrn, sft-fm, mssv, wxy, occ fg py accs, tr skel frgs, vry calc

1917 LIMESTONE: litemyln-plgmrgy, hd, mixctln, cin, tt, hd

1918 SHALE: dlolvbm, hd-fm, thnlmntd, hmky, fnbt, wxy, vry calc, occ skel frgs, bvivs, cmds

1919 LIMESTONE: ltbl, ltbl, hd, mixctln, 5-10% thn intbdd gm sh, abdt fg skel frgs, bvivs, cmds, wlmntd, hd

total show 20 units

total show 25 units

total show 28 units

total show 20 units

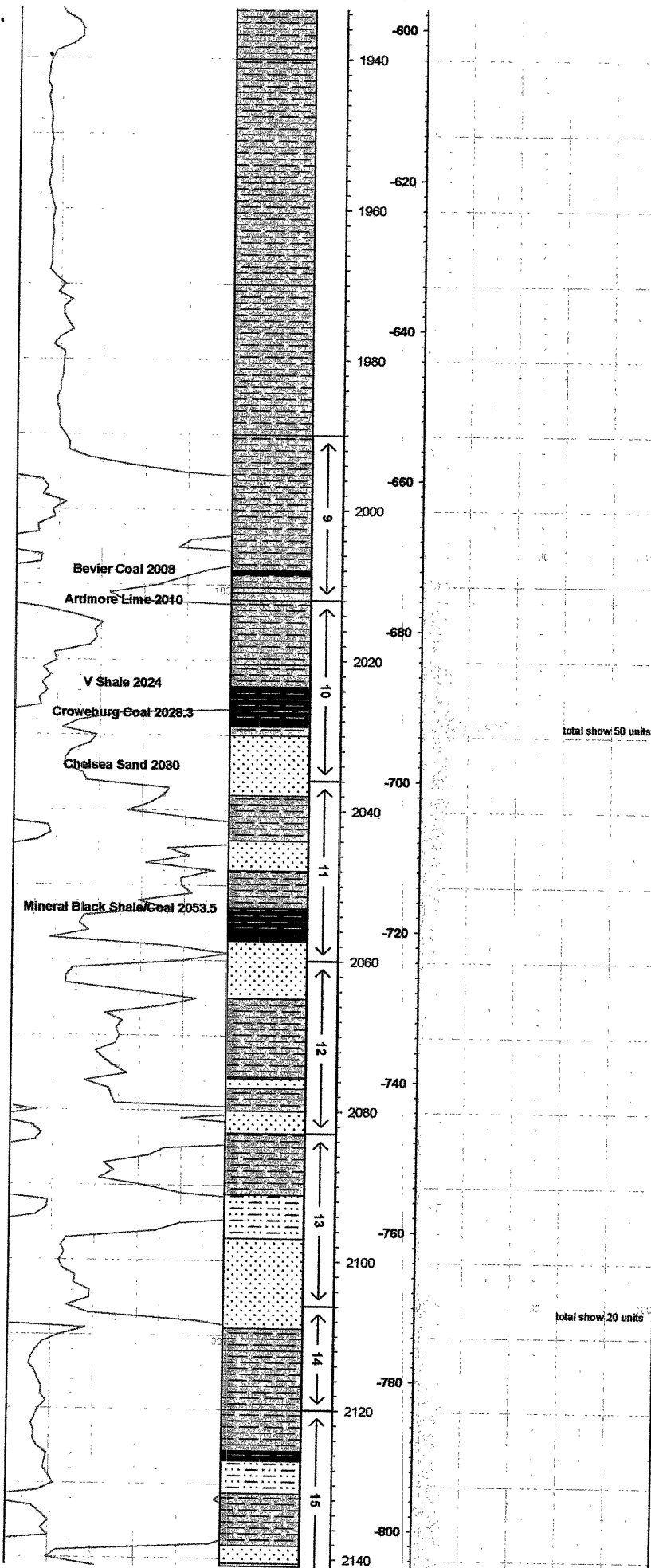
total show 28 units

CHEROKEE/Excelsior 1922

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WICHITA, KS



1825 SHALE: plgm-dkgrnry, frm, ety, wkylmntd, slty calc

1840 SHALE: plgm-dkgrnry, frm, ety, wkylmntd, slty calc

1870 SHALE: plgm-dkgrnry, frm, ety, wkylmntd, slty calc

1890 SHALE: vrydkgry-ftbik, hd, pty, fssl, wlmntd, vryfntx, tr fg py in frcts, ety, occ cg brchs, abdt 1-2" snd bds: lbrn, wsrtd, cln, hd, wlmntd

2008 COAL: blk, subvit, cln, wkydvlpd ortcls, vis gas

2009 SHALE: olvgrn, frm, wlmntd, hmky, wxy, nrw irr cl strgrs

2010 LIMESTONE: plgm-fl, hd, micxtn, micc, wlmntd

2012 SHALE: plgm-dkgrnry, wlmntd, thnbdd, hd, ety-wxy, mod-vry calc, occ cg brchs, nrw irr cc strgrs

2021 SHALE: intbdd dkgrn-blk, hd, fssl, wlmntd, vryfntx, abdt cg skel frgs, ppds, brchs, intbdd 2-4" dkbrn vfg snd bds

2024 BLACK SHALE: flbik, hd, wlmntd, fssl, vryfntx, crb, occ fg skel frgs, tr py, thn intbdd snd bds

2028 COAL: blk, subvit, wkylmntd, tr py, wkydvlpd ort cls

2029 SHALE: ltrngry, frm, mssv, grty, abdt blk crb frgs, lvs

2030 SANDSTONE: ltrngry, mg-cg, wlmntd, wsrtd, wkyfribl, cln, hd, abdt dkgrn-blk crb strgrs

2038 SHALE: plgm-fl, vryhd, vryfntx, ety-wxy, thnimntd, slty, hmky, irr snd strgrs, brws

2044 SANDSTONE: plgrngry-ltrmytn, mg, wlmntd, wsrtd, hd, wkyfribl, wkyemntd, occ nrw blk crb strgrs

2048 SHALE: ltrngry-medgry, frm, pty, fssl, wlmntd, thnbdd, ety-wxy, occ nrw 2-5 mm snd strgrs

2053 BLACK SHALE: flbik, hd-frm, vry pty, fssl, vrywlmntd, vryfntx, ety, cln, occ cg py accs, tr vis gas

2056 COAL: blk, hd-frm, subvit, cln, shly ip, wky dvlpd ortcls, tr cc in frcts, tr py, abdt vis gas

2057 SANDSTONE: ltrngry-ltrngry, vfg, wlmntd, wsrtd, hd, wky flb, wlmntd, thnbdd, 30-40% 2-5mm sh bds, occ cg 1-2 cm crb frgs

2065 SHALE: dkgrn, frm, vryply, vrywlmntd, fssl, splntry, fntx

2076 SANDSTONE: ltrn, fg-mg, wlmntd, wsrtd, hd, wlmntd, wkyfribl, 40% intbdd 2-4" dkgrn sh intbds, hmky

2077 SHALE: dkgrnry, frm, pty, wkylmntd, wxy, calc

2080 SANDSTONE: plgm-gmbrn, mg, sbmnd, wsrtd, wlmntd, hd, wkyfribl, occ 2-5mm dkgrn sh intbds, irr calc flgs

2083 SHALE: vrydkgry-blk, hd, fssl, 1-2" vfg slstn intbds, 1-2" ltr intbds, cg skel frgs

2091 SILTSTONE: ltrmytn-ltrgy, vfg, thn sh intbds, abdt skel frgs, abdt py strgrs nods

2097 SANDSTONE: ltrgy-bm, vfg-mg, crsng upwd, wlmntd, wsrtd, ltrbtd at base

2109 SHALE: blk, hd-frm, grty-wxy, wkylmntd, plnt frgs

2112 SHALE: ltrgy-blk, hd-frm, pty, wlmntd, 0.2-2 cm fg ltrn slstn intbds, occ chrt nods, py nods, bds

2120 SHALE: plgm-dkgrn, frm, pty, fntx, thlmntd

2126 BLACK SHALE: flbik, hd, vryfntx, plnr, ety-wxy, wlmntd, abdt cg irr py accs, noncalc, no vis gas

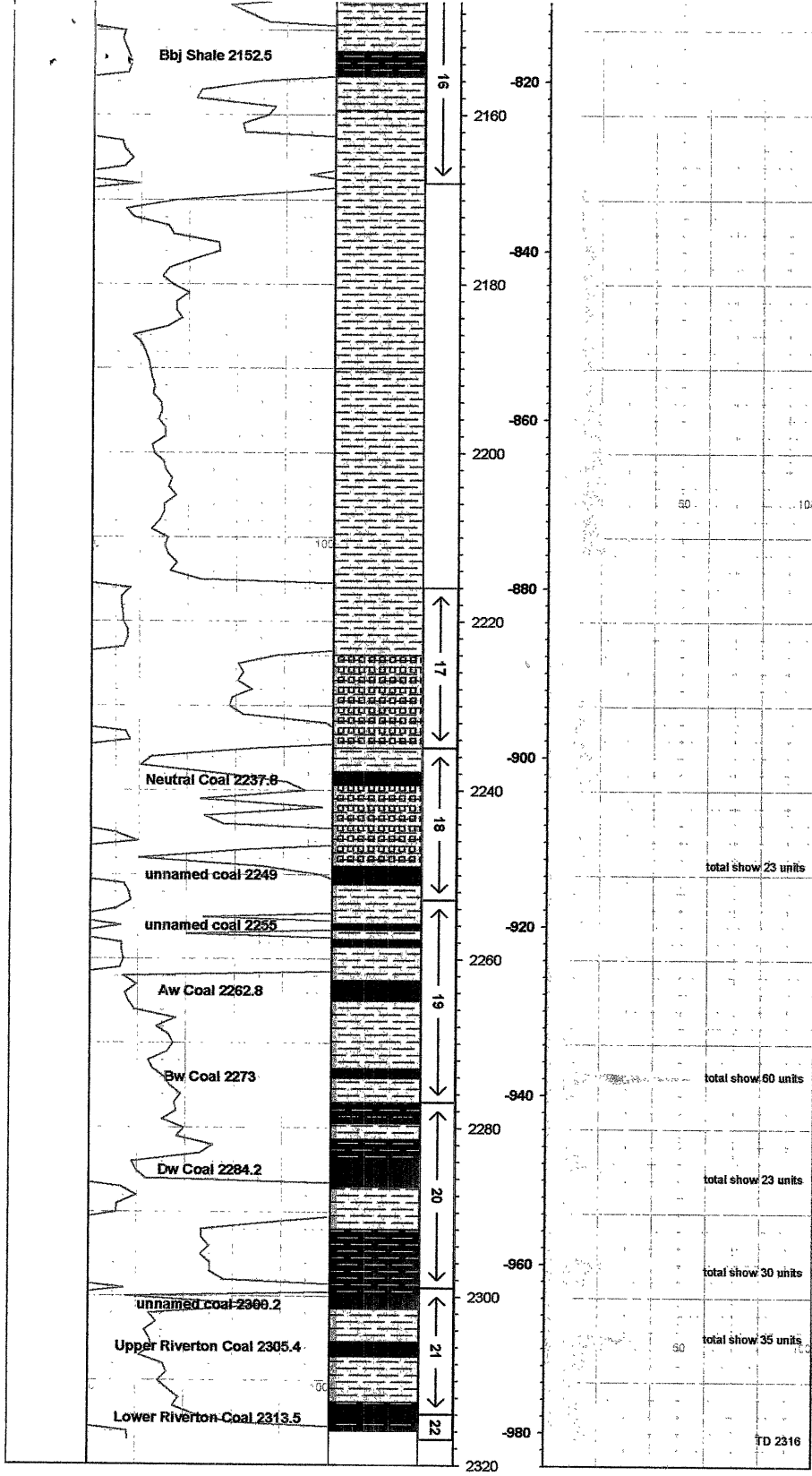
2127 SILTSTONE: ltrngry-rdbm, crs txt, grty, vrywkylmntd, sft, pty, splntry, oly roh ip, vry brkn, pr revry

2131 SHALE: ltrngry-rdbm, sft, pty, crstx, grty, wkylmntd, perv ptchy irr dkrd irr stng

2138 SANDSTONE: ltrngry, fg-mg, wlmntd, wsrtd, thnimntd, nrw 2-5mm plgm shl intbds, mod cmntd, mod flb

total show 50 units

total show 20 units



2144 SHALE: olvgn-dkgrygm, sft-fm, vry pty, splntry, ety-wxy, brkn ip, wshd out

2153 BLACK SHALE: flt blk, hd, wlmntd, vryfntxt, calc, fg cc fret flgs, ety-wxy, occ fg py accs, occ fg skel frgs, silks frcts

2156 SHALE: plgrn, sft-fm, grtty, cly rch, wkylmntd, ers bd, vry splntry, slty calc

2160 SHALE: dkgy-dkgmgy, fm, pty, ety-wxy, wlmntd

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KANSAS CORPORATION COMMISSION

JUN 01 2004

CONSERVATION DIVISION
WICHITA, KS

2190 SHALE: dkgy-dkgmgy, fm, pty, ety-wxy, wlmntd

2216 SHALE: dkgy-dkgrygm-fltblk, hrd, vryfntxt, wlmntd, ety

2224 SHALE: dkgy-plgm, thnbdd, vryfntxt, ety, abdt nrw 2-5 mm intbds sltstn vrg ltn snd, cg cont py bds

2235 SHALE: dkgy-fltblk, hd, vryfntxt, ety, wlmntd, fssl, abdt thn 2-5 mm intbds ltn lst bds, lns

2238 COAL: blk, hd, subvit, mod dvdpd ortcls, wlmntd, 1-2 cm sh intbds, abdt cg py bds, accs

2239 SHALE: dlolv-dkgrygm, gd-fm, wlmntd, pty ip, ety, vry calc, ptchy skel frgs, incrsng to base, abdtnt cg blvls

2249 COAL: blk, hd, subvit-shly, wdvdpd ortcls, abdt fg py, wkylmntd, cin, vis gas

2251 SHALE: plgrn, fm, pty-wxy, wlmntd, thnbdd, intbds ltn slty bds, abdt blk erb strgs, strgs, lvs

2256 COAL: bl, vivty, blk, wlmntd, tr cts, abdt lmlr py, brkn, splntry

2258 SHALE: dkgy-vrydkgy-dkgm, fm, fntxt, ety, fg sltstn intbds

2263 COAL: blk, hd-fm, blk, wlmntd, subvit, shly, pry dvdpd ortcls, abdt cg lmlr py, cg pyr accs

2265 SHALE: vrydkgy-dkgrygm, wlmntd, vryfntxt, slty-mdtly calc, tr fg diss py, lmlr py

2273 COAL: blk, hd, blk, wlmntd, shly-subvit, pry dvdpd ortcls, abdt fg-mg py, lmlr py

2274 SHALE: ltgrybm-ltgrn, fm, pty, splntry, wkylmntd, wxy-grtty, hmky, silks on frcts

2277 BLACK SHALE: fltblk, hd, pty, fssl, wlmntd, fg lmlr py, ptchy cg skel frgs, blvls, cly ip

2280 SHALE: gmbm, sft-fm, wxy, splntry, cly rch, fntxt, blk erb strgs, brkn

2281 BLACK SHALE: fltblk, fm, pty, fssl, wlmntd, vryfntxt, 2-5mm fg lmlr py bds, irr fg cc fret flgs

2284 COAL: blk, subvit, wkylmntd, prydvdpd ortcls, abdt fg lmlr py

2287 SHALE: ltn, fm, vryfntxt, mssv, ety-sily wxy, abdt cg blk erb frgs, lrg lvs, plnt frgs, tr fg diss py

2292 BLACK SHALE: fltblk, hd, pty, vryfntxt, ety, fssl, wlmntd, cin

2300 COAL: blk, hd, blk, subvit-vivty, wlmntd, wdvdpdortcls, abdt lmlr py, abdt fg wht cc fret flgs

2302 SHALE: ltn-ltgyrnm, fm, vryfntxt, mssv-wkylmntd, ety, cg blk erb frgs, lvs

2305 COAL: blk, hd, subvit-vit, wlmntd, abdt lmlr py, wdvdpd ortcls, abdt fg wht cc in vert frcts

2307 SHALE: ltn, fm, vryfntxt, ety, wkylmntd, occ cg erb frgs, lvs

2313 BLACK SHALE: fltblk, hd, pty, wlmntd, ety, vryfntxt, silks on frcts, fg diss py, lmlr py

2314 COAL: blk, hd, wlmntd, subvit-shly, vryprydvdpd ortcls, cg py accs, vis gas

2315 BLACK SHALE: vrydkgy-blk, hd, pty, wlmntd, fntxt, tr fg lmlr py

DESCRIPTION ABBREVIATIONS

abdt-abundantaccs-accretions, as abv - as above, bddg-bedding, blk-black, blk - blocky, bny - bony, brkn - broken, brchpds - brachiopods, brvws - burrows, blvls - bivalves, calc - calcareous, cc - calcite, cg - coarse grained, chrt - chert, cin - clean, ctsts - clasts, cly - clay cont - continuous, crb - carbonaceous, crsng - coarsening, diss - disseminated, dkgmgy - dark greenish gray, dkgy - dark gray, ety - earthy, fgxtln - fine grained crystalline, flgs - fillings, fltblk - flat black, fntxt - fine texture, fribl - friable, frgmntl - fragmental, frgs - fragments, fm - firm, fssl - fissile, grdg - grading, gmbm - greenish brown, grtty - gritty, hd - hard, hmky - hummocky, intbds - interbeds, ip - in places, im stng - iron staining, lns - lenses, lst - limestone, ltcrmytn - light creamy tan, ltgy - light creamy gray, ltgyrnm - light gray brown, ltblv - light olive, ltn - light tan, lvs - leaves, mdtly - moderately, micsuc - micritic, micxtn - microcrystalline, nods - nodules, nrw - narrow, occ - occasional, ortcls - orthogonal cleats, ostcds - ostracods, per - pervasive, plgrn - pale green, plnr - planar, plnt - plant, pty - platy, ptchy - patchy, py - pyrite, rnd - round, rcvry - recovery, sbrnd - subrounded, sft - soft, sh - shale, sh - shaly, skel - skeletal, silks - slickensides, sltstn - siltstone, slty - silty, smplnfrcts - smooth planar fractures, smooth wavy fractures, splntry - splintery, snd - sand, sndy - sandy, strgs - stringers, splntry, stylolites, subvit - subvitreous, thnbdd - thin bedded, tl - teal, tr - trace, trbdt - turbated, tt - tight, vert - vertical, vis gas - visible gas, vit - vitreous, vryfntxt - very fine texture, wdvdpd - well developed, wlsrtd - well sorted, 0 to CA - 0 degrees to core axis, 90 to CA - 90 degrees to core axis, wht - white, wlmntd - well cemented, wdvdpd - well developed, wlsrtd - well sorted, 0 to CA - 0 degrees to core axis, 90 to CA - 90 degrees to core axis