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ORIGINAL

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

Form ACO-1
September 1999
Form Must Be Typed

Handwritten initials and date: WJ 7/16/08

Handwritten date: 7/16/10

Operator: License # 3221 32211
Name: O'Brien Energy Resources Corp.
Address: 18 Congress Street, Suite 207
City/State/Zip: Portsmouth, NH 03801
Purchaser: DCP Midstream, NCRA REFINERY
Operator Contact Person: Joseph Forma
Phone: (803) 427-2099
Contractor: Name: Duke Drilling Co. Inc.
License: 5929
Wellsite Geologist: Peter Debenham
Designate Type of Completion:
[] New Well [] Re-Entry [] Workover
[] Oil [] SWD [] SIOW [] Temp. Abd.
[] Gas [] ENHR [] SIGW
[] Dry [] Other (Core, WSW, Expl., Cathodic, etc)
If Workover/Re-entry: Old Well Info as follows:
Operator:
Well Name:
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.
4/30/08 5/6/08 7/2/08
Spud Date or Recompletion Date Date Reached TD Completion Date or Recompletion Date

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API No. 15 - 119-21195-0000
County: Meade
Sec. 4 Twp. 34 S. R. 29 [] East [x] West
330' feet from S / (N) (circle one) Line of Section
1320' feet from (E) / W (circle one) Line of Section
Footages Calculated from Nearest Outside Section Corner:
(circle one) (NE) SE NW SW
Lease Name: LARRABEE Well #: 1-4
Field Name: UNNAMED
Producing Formation: CHESTER
Elevation: Ground: 2538' Kelly Bushing: 2550'
Total Depth: 6275' Plug Back Total Depth:
Amount of Surface Pipe Set and Cemented at 1602' Feet
Multiple Stage Cementing Collar Used? [] Yes [x] No
If yes, show depth set Feet
If Alternate II completion, cement circulated from
feet depth to w/ sx cmt.

Drilling Fluid Management Plan AIT INH 9-3-08
(Data must be collected from the Reserve Pit)
Chloride content 1800 ppm Fluid volume 3 bbls
Dewatering method used Haul free water, natural evap.,
cover with 36 inch min.
Location of fluid disposal if hauled offsite:
Operator Name: Drill Co. Fluid Service
Lease Name: Feldmen License No.: 9491
Quarter Sec. 18 Twp. 34 S. R. 28 [] East [x] West
County: Meade Docket No.: C-23094

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: John Forma
Title: PRESIDENT Date: 7/16/08
Subscribed and sworn to before me this 16 day of July
Notary Public: Patricia A. O'Brien
Date Commission Expires:

PATRICIA A. O'BRIEN
Notary Public - New Hampshire
My Commission Expires May 18, 2010

KCC Office Use ONLY
Letter of Confidentiality Received
If Denied, Yes [] Date:
Wireline Log Received
Geologist Report Received
UIC Distribution
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Operator Name: O'Brien Energy Resources Corp. Lease Name: LARRABEE Well #: 1-4
 Sec. 4 Twp. 34 S. R. 29 East West County: Meade

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 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>(Attach Additional Sheets)</i>	Samples Sent to Geological Survey <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Cores Taken <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Electric Log Run <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <i>(Submit Copy)</i>	List All E. Logs Run:	<input checked="" type="checkbox"/> Log Formation (Top), Depth and Datum <input type="checkbox"/> Sample
				Name Top Datum Heebner 4432' -1882' Toronto 4458' -1908' Lansing 4600' -2050' Marmaton 5232' -2682' Cherokee 5442' -2892' Morrow 5770' -3220' Mississippi Chester 5842' -3292' Ste. Genevieve 6219' -3669'	

List All E. Logs Run: **CONFIDENTIAL**
 Dual Induction, Compensated Neutron Litho.
 Density, Microlog **KCC**
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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, J55	24/ft	1602'	AAZ	650	450 A-CON, 200 Class A
Production	7 7/8	4 1/2, J55	10.5#	6263'	AZZ	120	

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				

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
2	6109-6118		
2	6086-6094		

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TUBING RECORD		Size <u>2 3/8</u>	Set At <u>6019</u>	Packer At <u>6023</u>	Liner Run <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Date of First, Resumend Production, SWD or Enhr. <u>7/02/2008</u>		Producing Method <input checked="" type="checkbox"/> Flowing <input type="checkbox"/> Pumping <input type="checkbox"/> Gas Lift <input type="checkbox"/> Other (Explain)			
Estimated Production Per 24 Hours	Oil <u>3</u> Bbls.	Gas <u>2,100</u> Mcf	Water <u>0</u> Bbls.	Gas-Oil Ratio <u>700-1</u>	Gravity <u>50</u>

Disposition of Gas: Vented Sold Used on Lease *(If vented, Submit ACC-18.)*

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

Production Interval: Other (Specify) _____

Customer <i>O'Brien Energy</i>	Lease No.	Date <i>4-30-8</i>
Lease <i>Larrabee</i>	Well # <i>1-4</i>	
Field Order # <i>20385</i>	Station <i>Liberal</i>	Casing <i>8 7/8</i>
		Depth <i>11002</i>
Type Job <i>Surface CNW</i>	Formation	County <i>Meade</i>
		State <i>KS</i>
		Legal Description <i>4-34-29</i>

PIPE DATA		PERFORATING DATA		FLUID USED		TREATMENT RESUME	
Casing Size <i>8 7/8</i>	Tubing Size	Shots/Ft		Acid <i>450 SK A Con Blend</i>	RATE <i>2.43 FT³/FT</i>	PRESS <i>14.41 Gal SK</i>	ISIP
Depth <i>11002</i>	Depth	From	To	Pre-Pad <i>200 SK Pinnac</i>	Max		5 Min.
Volume <i>79</i>	Volume	From	To	Pad	Min		10 Min.
Max Press	Max Press	From	To	Frac	Avg		15 Min.
Well Connection	Annulus Vol.	From	To		HHP Used		Annulus Pressure
Plug Depth	Packer Depth	From	To	Flush	Gas Volume		Total Load

Customer Representative <i>Roger Pearson</i>	Station Manager <i>Jerry Bennett</i>	Treater <i>Ernie Chavez</i>
Service Units <i>19891 19828 19919 19804 19809 19819 19806</i>		
Driver Names <i>Chavez Santos C. Marty P. Donald M.</i>		

Time	Casing Pressure	Tubing Pressure	Bbls Pumped	Rate	Service Log
<i>1600</i>					<i>Arrive on location</i>
<i>1615</i>					<i>Safety Meeting - Rig Up</i>
<i>1840</i>	<i>1500</i>				<i>Pressure Test</i>
<i>1845</i>	<i>600</i>		<i>194</i>	<i>5.5</i>	<i>Pump lead out @ 12.2 #/s</i>
<i>1920</i>	<i>600</i>		<i>47</i>	<i>4.0</i>	<i>Pump Tail out @ 15.0 #/s</i>
<i>1935</i>					<i>Drop Plug - Wash Up</i>
<i>1940</i>	<i>600</i>		<i>99</i>	<i>5.8</i>	<i>Displace</i>
<i>2000</i>	<i>1100</i>		<i>99</i>	<i>5.0</i>	<i>Land Plug - Flints Held</i>
					<i>Work Complete</i>
					<i>Cement To Surface</i>

Customer OBRIEN ENERGY	Lease No.	Date 5/7/08
Lease LARRABEE	Well # 14	
Field Order # 20524	Station Liberal	Casing 4 1/2
	Depth 6275	County Meade
Type/Job 4 1/2 Longstring C/W	Formation	State KS
		Legal Description 24-34-29

PIPE DATA		PERFORATING DATA		FLUID USED		TREATMENT RESUME	
Casing Size 4 1/2	Tubing Size	Shots/Ft		Acid 145.5ks AA-2 @ 15#	RATE 1.94 cwt/ks	PRESS 6.2 gal/ks	ASIP 5 Min
Depth 6275	Depth	From	To	Pre Pad 1000 salt, 1/4# spacer	Max		
Volume 91.5	Volume	From	To	Pad 5# Gilsolite	Min		10 Min.
Max Press 1500	Max Press	From	To	Frac	Avg		15 Min.
Well Connection P.C.	Annulus Vol.	From	To		HHP Used		Annulus Pressure
Plug Depth	Packer Depth	From	To	Fluif 1 + H2O	Gas Volume		Total Load

Customer Representative Roger Pearson	Station Manager Sunny Bennett	Treater Chad Hine
Service Units 19468 19467 19463 19419	RESIDENTIAL	
Driver Names CHINEZ J. Arrington T. Mariotti	1:2008	

Time	Casing Pressure	Tubing Pressure	Bbls. Pumped	Rate	Service Log
00:00					KFC on loc spot trucks safety
00:00 03:30					Break circ
04:06	200		5	3	Hookup pump H2O spacer
04:06	200		12	3	Pump Superflush
04:12	200		5	3	Pump H2O spacer
04:14	200		0	5	Start mix AA-2 @ 15#
04:24	0		30	5	Finish mix
04:30	0				washup to pit tub was
04:30					balled off
04:56	0		0	5	start disp
05:13	200		49	3	slow Rate
05:17	400-1500		99		Plus down
05:18	1500-0				Release Psi float hebl
05:24					Plug R+M washup to pit
06:08					Job Complete

** Considered a Geo Rpt,
per Steve's of
7/24/08
KLL
M*

O'Brien Energy Resources, Inc.

Larrabee No. 1-14

Section 4, T34S, R29W

Meade County, Kansas

May, 2008

Well Summary

The O'Brien Energy Resources, Corporation, Larrabee No. 1-4 was drilled to a total depth of 6275' in the Mississippi Chester Formation. The closest offset was the Shamrock Oil and Gas, Vogt No. 1-B, less than 1000' to the East. Formation tops ran 4' to 7' high from the Heebner to the Morrow, relative to this offset. The Mississippi bumped up 38' high. Relative to the Raydon Exploration, 1-4 Irish Flats (an excellent show well in the Mississippi and approximately 2000' to the SW) formation tops from the Cherokee to the Heebner ran 20 to 29' low. The Morrow came in 34' low, thinning occurred as structure was gained and the Mississippi came in 18' low.

Excellent hydrocarbon shows were documented in the Chester Fm. during the drilling of this test. The Upper Chester(5908'-5924') consists of a Limestone, Mottled brown, gray, biomicrite, microcrystalline, microsucrosic, brittle, clean, subchalky in part, very fossiliferous and oolitic, interparticle and moldic porosity, trace intercrystalline porosity, abundant speckled pale blue hydrocarbon fluorescence(30% of sample), good streaming cut, oil stain, occasional trace live oil. An 80 Units gas increase occurred.

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A 120 Units gas kick occurred from 5981' to 5996'. Sandstone - Dark mottled brown, black, graygreen, hard, blocky, very fine, well sorted, subround grains, calcareous and clay cement, trace intergranular porosity, dull mottled pale blue hydrocarbon fluorescence(30% sample) excellent cut, dark brown oil stain and very black live oil, with Limestone - Mottled brown, gray firm, subchalky, fossiliferous, sandy brown oil stain, pale blue fluorescence and slow streaming cut. This interval appears as a Dolomite or dolomitic Limestone on logs and exhibits excellent porosity.

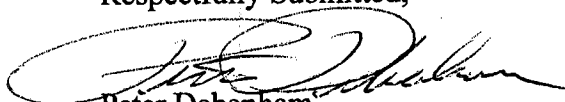
An very excellent show occurred from 6084' to 6094', Sandstone - Medium to light brown, friable, fine well sorted subround grains, siliceous cement, clean, good intergranular porosity, trace fine vuggy porosity, mottled yellow to orange hydrocarbon fluorescence in all the sandstone, excellent streaming cut, abundant live oil when crushed and brown matrix oil staining. A 140 Unit gas increase occurred on the hotwire.

A 1200+ Unit gas kick occurred from 6110' to 6120' and consists of a Sandstone - Dark mottled brown, mottled to even brown, friable in part, very fine well sorted grains, calcareous, clean, fair intergranular porosity, fine vuggy porosity, pale blue hydrocarbon fluorescence in most the sand, excellent streaming cut, brown matrix oil stain and live oil and gas bubbles, occasional very black live oil and with black gilsonite stain, occasionally laminated with black carbonaceous shale stringers.

More additional minor shows occurred in the Lower and Upper Chester Limestones and in the Marmaton.

4 ½ production casing was run on the Larrabee No. 1-4 on 4/7/08 to further evaluate the above mention shows. Once again, appreciation to Duke Drilling Rig 6 hands for their efficient manor of operation.

Respectfully Submitted,


Peter Debenham

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WELL DATA

Operator: O'Brien Energy Resources, Inc., John Forma – Portsmouth, NH
Geologist: Paul Wiemann – Denver, CO

Prospect Geologist: Ed Schuett, Denver, Land: Gordon Beamguard

Well: Larrabee No. 1-4

Location: 330' FNL & 1320' FEL, Section 4, T34S, R29W, Meade County, Kansas –
South of Meade.

Elevation: Ground Level 2538', Kelly Bushing 2550'

Contractor: Duke Drilling Rig No. 6, Type: Double jackknife, triple stand, Toolpusher Rick
Schollenbarger, Drillers: Jessie Howell, Danny White, Mike Brewer

Company Man: Roger Pearson Liberal, Kansas
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Spud Date: 4/29/08 L 16 2008

Total Depth: 5/5/08, **KCC** Driller 6275', Logger 6264', Chester Fm.

Casing Program: 39 joints of 8 5/8", J55, 24Lbs/ft, set at 1602'. 4 1/2" production casing to TD.

Mud Program: Mud Co./Service Mud Inc., Engineer Tony Maestas, mud up 4000'.

Wellsite Consultant: Peter Debenham with mudlogging trailer, Call depth 3000', Box 350, Drake,
CO 80515, 720/220-4860.

Samples: 30' to 4600', 20' to 5200', 10' to TD. Zones of interest saved.

Electric Logs: Log-Tech, Engineer Justin Loffredi, 1) Dual Induction 2) Compensated Neutron
Litho Density 3) Microlog

Status: 4 1/2 " production casing to TD on 5/6/08.

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WELL CHRONOLOGY

6 AM			
<u>DATE</u>	<u>DEPTH</u>	<u>FOOTAGE</u>	<u>RIG ACTIVITY</u>
4/29	490'	490'	Move to location and rig up rotary tools. Mix spud mud. Drill rat and mousehole. Spud in 12 14" surface and drill to 490'. Run survey(1/2 deg.).
4/30	1602'	1112'	Drill Glorietta and redbeds. Drill to 1602' and circulate. Run survey(1 deg.). Trip out and lay down 8" drill collars. Rig up casing crew and run and cement 39 joints of 8 5/8", 24 lbs/ft surface casing set at 1602'. Wait on cement.
5/1	2375'	773'	Wait on cement. Nipple up and pressure test BOP. Drill cement and plug and drill 7 7/8" hole to 2375'.
5/2	3545'	1170'	Clean suction and displace hole. Drilling ahead at 3545'.
5/3	4640'	1095'	To 4640'. Service rig and drilling ahead.
5/4	5500' 5850'.	8603'	Survey(1 deg.). Drilling ahead at 5500'. Circulate for samples at 5850'.
5/5	6275'	775'	Drill to 6275'TD and circulate. Short trip 42 stands and circulate. Intense rain and lightning.
5/6	TD		Short rip and trip out for logs. Run elogs. Trip to bottom and circulate. Trip out laying down. Run and cement 4 1/2" production casing to TD. Rig down.

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BIT RECORD

<u>NO.</u>	<u>MAKE</u>	<u>TYPE</u>	<u>SIZE</u>	<u>OUT</u>	<u>FOOTAGE</u>	<u>HOURS</u>
1	HTC	MXC1	12 1/4"	1602'	1602'	21 1/2
2	HTC	DP 5062'	7 7/8"	6275'	4673'	104
Total Rotating Hours:						121 1/2
Average:						51.65 Ft/hr

DEVIATION RECORD - degree

490' 1/2, 1602' 1, 2615' 1, 4963' 1

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MUD PROPERTIES

<u>DATE</u>	<u>DEPTH</u>	<u>WT</u>	<u>VIS</u>	<u>PV</u>	<u>YP</u>	<u>pH</u>	<u>WL</u>	<u>CL</u>	<u>LCM-LBS/BBL</u>	
4/28	0'	well water							100	
4/30	1436'	9.6	31	4	8	7.0	n/c	26K	4	
5/2	2908'	8.6	40	9	12	7.0	N/C	8k	1	
5/3	3960'	9.1	45	14	16	10.0	9.6	3,600	4	
5/4	4989'	9.0	45	13	14	10.0	6.4	2,300	3	
5/5	6008'	9.1	56	16	22	9.0	7.2	1,800	3	

ELECTRIC LOG FORMATION TOPS- KB Elev. 2550'

<u>FORMATION</u>	<u>DEPTH</u>	<u>DATUM</u>	<u>*No. 1 Vogt "B"</u>	
			<u>DATUM</u>	<u>POSITION</u>
Heebner	4432'	-1882'		
Toronto	4458'	-1908'		
Lansing	4600'	-2050'	-2057'	
Marmaton	5232'	-2682'	-2687'	
Cherokee	5442'	-2892'	-2897'	
Atoka	5635'	-3085'		
Morrow	5770'	-3220'	-3224'	+4'
Mississippi Chester	5842'	-3292'	-3330'	+38
Ste. Genevieve	6219'	-3669'		
TD	6275'	-3725'		

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 +5'
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 +5'
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*Shamrock Oil & Gas, No. 1 Vogt B, less than 1000' to the East, KB Elev. 2535'

LITHOLOGY DESCRIPTION

SAMPLES ARE LAGGED
 CORRECTED E-LOG FORMATION TOPS
 *INDICATES HYDROCARBON SHOW

3984-4095 SHALE: Blk dark gray to brown firm sbfis to blocky waxy carbonaceous silty mica

4095-4155 Tr LIMESTONE: Dk gray brown mottled micr crpxln hard dense argillaceous to marly tight no show with SHALE: Dk brown to gray black firm sbfis to blocky carbonaceous calcareous silty

4155-4175 LIMESTONE: Dk gray brown mottled micr crpxln hard dense argillaceous to marly tight no show

4175-4205 SHALE: Dk brown black firm blocky carbonaceous calcareous silty

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4205-4255 LIMESTONE: Dk gray brown mottled micr crpxln hard dense argillaceous to marly tight no show with SHALE: Dk brown to gray black firm sbfis to blocky carbonaceous calcareous silty

4255-4320 LIMESTONE: Dk mottled brown crpxln hard dense argillaceous to marly tight no show interbed with SHALE: Dk brown black firm blocky sbfis carbonaceous calcareous silty

4320-4400 SHALE: Blk dark brown firm sbfis to blocky very carbonaceous in part calcareous silty

Heebner 4432'

4400-4460 SHALE: Blk dark brown firm fissile waxy very carbonaceous silty interbed with LIMESTONE: Brn mottled white to buff biomicr fine crystalline sbchky in part clean to argillaceous fossils no fluorescence no stain or cut

Toronto 4458'

4460-4500 LIMESTONE: Lt to medium brown buff white micxln to crpxln hard dense silica in part micsuc in part clean fossils trace intxln porosity no show

4500-4530 SHALE: Blk dark gray firm sbfis waxy silty carbonaceous

4530-4600 LIMESTONE: Mot brown to gray micr fine crystalline hard dense argillaceous to marly in part sndy fossils silica and tight occasional sbchky no show interbed with SHALE: Blk dark gray hard fissile to blocky carbonaceous calcareous silty mica

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Lansing 4600'

4600-4695 LIMESTONE: Med mottled brown biomicr fine crystalline dense clean to argillaceous fossils tight no show with LIMESTONE: Med brown light brown to tan biomicr micxln micsuc to sucrosic in part brittle clean fossils oolites gd intxln and moldic porosity orange mineral fluorescence no stain or cut no show interbed with SHALE: Dk brown gray black firm sbfis carbonaceous

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4695-4725 LIMESTONE: Med to dark mottled brown crpxln hard dense silica argillaceous to marly in part sndy fossils mineral fluorescence no show interbed with SHALE: as above

4725-4745 LIMESTONE: Brn micxln micsuc brittle clean fair intxln and occasional oomoldic porosity no fluorescence no stain or cut

4745-4775 LIMESTONE: Dk mottled brown crpxln hard dense silica tight no show occasional interbed with SHALE: Blk dark brown firm fissile carbonaceous

4775-4825 LIMESTONE: Mot brown biomicr micxln micsuc brittle clean to argillaceous fossils oolites sndy occasional gd oomoldic porosity trace intxln porosity mineral fluorescence no stain ro cut no show

4825-4895 SHALE: Dk brown black gray firm to hard blocky carbonaceous calcareous interbed with LIMESTONE: Gy brown crpxln hard dense silica argillaceous to marly occasional moldic porosity no fluorescence no stain or cut

4895-4950 LIMESTONE: Lt brown buff micxln sbchky in part clean fossils oolites occasional moldic porosity trace intxln porosity no show occasional very silica and tight with trace CHRT

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4950-4980 SHALE: Gy black brown hard blocky silica interbed with LIMESTONE: Brn crpxln hard dense silica tight

4980-5040 LIMESTONE: Dk to medium brown mottled crpxln hard dense silica argillaceous to marly tight no show

5040-5065 SHALE: Dk brown black firm sbfis to blocky very carbonaceous calcareous silty

5065-5110 LIMESTONE: Mot brown oomicr micxln brittle clean very oolites with exc oomoldic porosity mineral fluorescence no hydrocarbon fluorescence no stain or cut

5110-5130 SHALE: Dk gray black firm blocky waxy carbonaceous with LIMESTONE: as above silica and tight no show

5130-5170 LIMESTONE: Lt brown buff oomicr very chalky in part clean very oolites well/ moldic porosity no fluorescence no stain or cut

5170-5205 LIMESTONE: Dk mottled brown gray biomicr crpxln hard dense silica fossils tight no show trace CHRT

5205-5240 SHALE: Blk firm fissile waxy carbonaceous silty interbed with LIMESTONE: Brn sbchky clean fossils no show

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Marmaton 5232'

5240-5310 LIMESTONE: Lt to medium brown buff micxln micsuc in part predominant hard silica and tight oolites clean to argillaceous trace oomoldic porosity and intxln porosity no fluorescence no stain or cut with LIMESTONE: Dk brown crpxln silica hard tight no show interbed with SHALE: as above

5310-5330 LIMESTONE: Lt/medium brown buff micxln micsuc sbchky clean fossils trace intxln and very fine vug porosity trace speck blue hydrocarbon fluorescence(1% sample) faint weak cut no stain weak show

5330-5365 LIMESTONE: Dk brown crpxln hard dense silica argillaceous to marly in part tight with LIMESTONE: Lt brown buff soft chalky clean fossils occasional oomoldic porosity no show interbed with SHALE: Dk gray to black firm sbfis carbonaceous

5365-5390 SHALE: Blk firm fissile very carbonaceous with LIMESTONE: Crpxln hard dense tight no show

5390-5450 LIMESTONE: Mot gray brown fine crystalline hard dense argillaceous to marly fossils carbonaceous tight interbed with SHALE: Blk fissile carbonaceous

Cherokee 5442'

5450-5500 LIMESTONE: Med to dark mottled gray brown micr fine crystalline hard dense marly fossils carbonaceous tight no show interbed with SHALE: Gy black fissile to blocky carbonaceous calcareous silty

5500-5620 SHALE: Blk very dark brown hard sbfis carbonaceous calcareous silty interbed with LIMESTONE: Med to dark brown to gray occasional black micr crpxln hard dense silica marly tight no show trace CHRT

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WICHITA, KANSAS

Atoka 5635'

5620-5660 LIMESTONE: Mot brown fine crystalline hard dense silica sbchky in part argillaceous pyrite tight no show interbed with SHALE: as above

5660-5725 LIMESTONE: Dk mottled brown gray black crpxln dense silica marly in part tight no fluorescence no stain or cut interbed with SHALE: Blk sbfis to blocky carbonaceous calcareous silty

5725-5750 LIMESTONE: Dk mottled brown gray black crpxln dense silica marly in part tight no fluorescence no stain or cut interbed with SHALE: Blk sbfis to blocky carbonaceous calcite

5750-5760 SHALE: Blk dark brown to gray firm fissile to blocky carbonaceous calcareous

5760-5770 LIMESTONE: Dk mottled brown gray black crpxln dense silica marly in part tight no fluorescence no stain or cut

Morrow 5770'

5770-5808 SHALE: Blk fic carbonaceous trace COAL

5808-5816 LIMESTONE: Lt brown buff micxln sbchky in part sndy glauconitic clean fossils tight no show

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5816-5826 SANDSTONE: Mot brown gray to buff translucent hard dense very fine well sorted grains silica cement slightly calcareous glauconitic in part clean to argillaceous tight no fluorescence no stain or cut with SHALE: Dk gray black firm fissile waxy carbonaceous

Mississippi Chester 5842'

5844-5852 LIMESTONE: Brn buff mottled fine crystalline sbchky clean fossils sndy in part no fluorescence no stain or cut

5852-5874 LIMESTONE: Lt to medium mottled brown gray buff micr micxln sbchky to chalky firm to soft waxy fossils sndy carbonaceous tight no show interbed with SHALE: Dk brown gray firm fissile carbonaceous

5874-5892 LIMESTONE: Med to dark mottled brown occasional buff biomicr fine crystalline sbchky in part silica and hard in part carbonaceous fossils sndy clean to argillaceous tight no show

5892-5898 SHALE: Blk brown firm sbfis carbonaceous silty

5898-5910 LIMESTONE: Med to dark mottled brown occasional buff biomicr fine crystalline sbchky in part silica and hard in part carbonaceous fossils sndy clean to argillaceous tight no show

5910-5930 *80 Units, LIMESTONE: Mot brown gray biomicr micxln micsuc brittle clean sbchky very fossils and oolitic with intpart porosity trace moldic and fine vug porosity trace intxln porosity sbt speck gold to pale bl hydrocarbon fluorescence(30% sample) gd strmg cut brown oil stain occasional trace live oil interbed with LIMESTONE: Dk brown crpxln hard dense tight no show

5930-5944 LIMESTONE: Dk brown biomicr crpxln hard dense fossils tight no show with SHALE: Blk dark brown firm soft fissile with

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5944-5952 SHALE: Blk dark brown firm soft fissile with LIMESTONE: Dk brown biomier crpxln hard dense fossils tight no show

5952-5964 SHALE: Blk dark brown firm soft fissile with LIMESTONE: Dk brown biomier crpxln hard dense fossils tight no show

5964-5980 SHALE: Gy soft waxy fissile with LIMESTONE: Med brown mottled gray fine crystalline micsuc clean to argillaceous fossils carbonaceous sndy sbchky in part tight mottled pale blue hydrocarbon fluorescence weak cut trace oil stain weak show

5980-5998 *120 Units, SANDSTONE: Dk mottled brown black gray gygn hard blocky very fine well sorted sbrnd grains ca and clay cement poor vis porosity dull mottled pale blue hydrocarbon fluorescence(30% sample) exc cut dark brown oil stain very black live oil trace gilsonite type stain lami with black carbonaceous shale incl with SANDSTONE: Gy hard dense silica tight no show interbed with LIMESTONE: Mot brown gray firm sbchky fossils sndy brown oil stain pale blue hydrocarbon fluorescence slow strmg cut

5998-6030 LIMESTONE: Dk brown gray fine crystalline dense argillaceous fossils tight no show with SHALE: Gy brown firm waxy fissile

6030-6048 *100 Units, LIMESTONE: Mot brown gray buff fine crystalline sbchky poor vis porosity pale blue hydrocarbon fluorescence slow strmg cut abt brown oil stain with LIMESTONE: Mot brown buff white micxln micsuc sbchky brittle clean to argillaceous fossils carbonaceous tight occasional pale blue hydrocarbon fluorescence with weak cut

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6048-6058 SHALE: Gy black firm fissile

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6058-6076 LIMESTONE: Mot brown gray micr fine crystalline firm dense sbchky in part sndy tight no show interbed with SHALE: as above

6076-6084 SHALE: Blk dark brown firm fissile carbonaceous trace LIMESTONE: as above

6084-6110 **140 Units gas, SANDSTONE: Med to light brown friable fine well sorted sbrnd grains silica cement slightly calcareous clean gd intgran porosity trace fine vug porosity mottled yellow to orange hydrocarbon fluorescence(all SANDSTONE) exc strmg cut abt live oil and matrix oil stain gd show with interbed SHALE: Dk brown black firm fissile carbonaceous

6110-6128 **1200+ Unit gas kick, SANDSTONE: Dk brown mottled to even brown friable very fine well sorted sbrnd grains ca cement clean fair intgran porosity fine vug porosity pale blue gold hydrocarbon fluorescence(most SANDSTONE) exc strmg cut abt brown matrix oil stain and live oil gas bubbles gd show trace very black heavy oil and black gilsonite type stain occasional lami with black shale incl

6128-6142 SHALE: Dk gray brown black occasional gygn to green soft waxy fissile

6142-6166 *LIMESTONE: Mot brown speck brown micsuc brittle very sndy with very fine well sorted grains trace intxln and vug porosity abt speck brown matrix oil stain with pale blgn hydrocarbon fluorescence gd strmg cut trace live oil fair show with LIMESTONE: Brn crpxln hard dense sndy no show interbed with SHALE: Dk gray brown black occasional gygn to green soft waxy fissile

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6166-6170 SHALE: Blk dark brown to gray gygn firm fissile waxy

6170-6190 LIMESTONE: Mot brown to gray buff tan micr fine crystalline dense sndy argillaceous to marly fossils tight no show with SHALE: as above

6190-6215 LIMESTONE: Mot brown to gray buff tan micr fine crystalline dense sndy argillaceous to marly fossils tight no show occasional interbed with SHALE: as above

Ste Genevieve 6219'

6215-6250 LIMESTONE: Med to light brown buff hard dense clean to argillaceous very sndy with fine well sorted grains fossils in part poor vis porosity no fluorescence no stain or cut

6250-6274 SANDSTONE: Bf tan light brown firm very sndy occasional very silica and tight no show with abt CHRT: Brn translucent mlky

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