



Confidentiality Requested:

Yes No

KANSAS CORPORATION COMMISSION 1091890
OIL & GAS CONSERVATION DIVISION

Form ACO-1
August 2013

Form must be Typed
Form must be Signed
All blanks must be Filled

WELL COMPLETION FORM
WELL HISTORY - DESCRIPTION OF WELL & LEASE

OPERATOR: License # _____

Name: _____

Address 1: _____

Address 2: _____

City: _____ State: _____ Zip: _____ + _____

Contact Person: _____

Phone: (_____) _____

CONTRACTOR: License # _____

Name: _____

Wellsite Geologist: _____

Purchaser: _____

Designate Type of Completion:

- New Well Re-Entry Workover
- Oil WSW SWD SIOW
- Gas D&A ENHR SIGW
- OG GSW Temp. Abd.
- CM (Coal Bed Methane)
- Cathodic Other (Core, Expl., 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 Conv. to SWD
- Plug Back Conv. to GSW Conv. to Producer
- Commingled Permit #: _____
- Dual Completion Permit #: _____
- SWD Permit #: _____
- ENHR Permit #: _____
- GSW Permit #: _____

Spud Date or Recompletion Date	Date Reached TD	Completion Date or Recompletion Date
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API No. 15 - _____

Spot Description: _____

_____ - _____ - _____ Sec. _____ Twp. _____ S. R. _____ East West

_____ Feet from North / South Line of Section

_____ Feet from East / West Line of Section

Footages Calculated from Nearest Outside Section Corner:

- NE NW SE SW

GPS Location: Lat: _____, Long: _____
(e.g. xx.xxxxx) (e.g. -xxx.xxxxx)

Datum: NAD27 NAD83 WGS84

County: _____

Lease Name: _____ Well #: _____

Field Name: _____

Producing Formation: _____

Elevation: Ground: _____ Kelly Bushing: _____

Total Vertical Depth: _____ Plug Back Total Depth: _____

Amount of Surface Pipe Set and Cemented at: _____ Feet

Multiple Stage Cementing Collar Used? Yes No

If yes, show depth set: _____ Feet

If Alternate II completion, cement circulated from: _____

feet depth to: _____ w/ _____ sx cmt.

Drilling Fluid Management Plan

(Data must be collected from the Reserve Pit)

Chloride content: _____ ppm Fluid volume: _____ bbls

Dewatering method used: _____

Location of fluid disposal if hauled offsite:

Operator Name: _____

Lease Name: _____ License #: _____

Quarter _____ Sec. _____ Twp. _____ S. R. _____ East West

County: _____ Permit #: _____

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

- Confidentiality Requested
Date: _____
- Confidential Release Date: _____
- Wireline Log Received
- Geologist Report Received
- UIC Distribution
- ALT I II III Approved by: _____ Date: _____

1091890

Operator Name: _____ Lease Name: _____ Well #: _____

Sec. _____ Twp. _____ S. R. _____ East West County: _____

INSTRUCTIONS: Show important tops 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.

Final Radioactivity Log, Final Logs run to obtain Geophysical Data and Final Electric Logs must be emailed to kcc-well-logs@kcc.ks.gov. Digital electronic log files must be submitted in LAS version 2.0 or newer AND an image file (TIFF or PDF).

Drill Stem Tests Taken <i>(Attach Additional Sheets)</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Log	Formation (Top), Depth and Datum	<input type="checkbox"/> Sample
Samples Sent to Geological Survey	<input type="checkbox"/> Yes <input type="checkbox"/> No	Name	Top	Datum
Cores Taken	<input type="checkbox"/> Yes <input type="checkbox"/> No			
Electric Log Run	<input type="checkbox"/> Yes <input type="checkbox"/> No			
List All E. Logs Run:				

CASING RECORD <input 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

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				

Did you perform a hydraulic fracturing treatment on this well? Yes No *(If No, skip questions 2 and 3)*

Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons? Yes No *(If No, skip question 3)*

Was the hydraulic fracturing treatment information submitted to the chemical disclosure registry? Yes No *(If No, fill out Page Three of the ACO-1)*

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

TUBING RECORD: Size: _____ Set At: _____ Packer At: _____ Liner Run: Yes No

Date of First, Resumed Production, SWD or ENHR: _____ 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: <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	METHOD OF COMPLETION: <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <input type="checkbox"/> Other <i>(Specify)</i> _____ <input type="checkbox"/> Other <i>(Specify)</i> _____	PRODUCTION INTERVAL: _____ _____
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Form	ACO1 - Well Completion
Operator	O'Brien Energy Resources Corp.
Well Name	Ardrey 1-2
Doc ID	1091890

Tops

Name	Top	Datum
Heebner	4487'	-1946'
Toronto	4507'	-1966'
Lansing	4660'	-2119'
KC	4872'	-2331'
Stark	5040'	-2499'
Cherokee	5332'	-2791'
Morrow	5414'	-2873'
Mississippi Chester	5457'	-2916'

Conservation Division
Finney State Office Building
130 S. Market, Rm. 2078
Wichita, KS 67202-3802



Phone: 316-337-6200
Fax: 316-337-6211
<http://kcc.ks.gov/>

Mark Sievers, Chairman
Thomas E. Wright, Commissioner

Sam Brownback, Governor

August 29, 2012

Joseph Forma
O'Brien Energy Resources Corp.
18 CONGRESS ST, STE 207
PORTSMOUTH, NH 03801-4091

Re: ACO1
API 15-025-21541-00-00
Ardrey 1-2
NW/4 Sec.02-31S-24W
Clark County, Kansas

Dear Production Department:

We are herewith requesting that the Well Completion Form ACO-1 and attached information for the subject well be held confidential for a period of two years.

Should you have any questions or need additional information regarding subject well, please contact our office.

Respectfully,

Joseph Forma
Vice President
O'Brien Energy Resources Corp

Cement Report

Customer <i>Obrien Energy</i>		Lease No.		Date <i>6-3-12</i>	
Lease <i>Adrey</i>		Well # <i>1-2</i>		Service Receipt	
Casing <i>8 5/8</i>	Depth <i>730</i>	County <i>Clark</i>		State <i>KS</i>	
Job Type <i>8 5/8 Surface</i>		Formation <i>1112</i>		Legal Description <i>2-31-24</i>	
Pipe Data			Perforating Data		Cement Data
Casing size <i>8 5/8" 24"</i>	Tubing Size <i>3 1/2"</i>		Shots/Ft		Lead <i>150 sk</i> <i>ACon - 3% CC,</i> <i>1/4 # Poly, 2% WCA-1</i>
Depth <i>730</i>	Depth	From	To		
Volume <i>44</i>	Volume	From	To		Tail in <i>150 sk</i> <i>Prem Plus - 2% CC</i> <i>1/4 # Poly</i>
Max Press	Max Press	From	To		
Well Connection	Annulus Vol.	From	To		
Plug Depth <i>490</i>	Packer Depth	From	To		
Time	Casing Pressure	Tubing Pressure	Bbls. Pumped	Rate	Service Log
<i>0530</i>					<i>On Location - Spot & Rig up</i>
<i>11037</i>					<i>Casing on Bottom - Break Circ.</i>
<i>1050</i>					<i>Pressure test</i>
<i>1052</i>	<i>200</i>		<i>78</i>	<i>5</i>	<i>mix 150 sk Acon @ 11.4 PPG</i>
<i>1103</i>	<i>200</i>		<i>36</i>	<i>5</i>	<i>mix 150 sk Prem Plus @ 14.8 PPG</i>
<i>1111</i>					<i>Shut down - Drop top plug</i>
<i>1116</i>	<i>150</i>		<i>0</i>	<i>5</i>	<i>Start discharging with fresh water</i>
<i>1122</i>	<i>200</i>		<i>24</i>	<i>2</i>	<i>Slow Rate</i>
<i>1137</i>	<i>300-800</i>		<i>44</i>		<i>Bump Plug</i>
<i>1138</i>	<i>800-0</i>				<i>Release Pressure - Float Held</i>
					<i>Circulate Cement to the pit</i>
Service Units		<i>21755</i>	<i>38111/19919</i>	<i>30164/27547</i>	
Driver Names		<i>Kirby</i>	<i>Ruben</i>	<i>Scott</i>	

Roger Pearson
Customer Representative

Terry Bennett
Station Manager

Kirby Harper
Cementer



BASIC
ENERGY SERVICES
Liberal, Kansas

Cement Report

Customer <i>Obrien Energy</i>		Lease No.		Date <i>6-12-12</i>		
Lease <i>Arday</i>		Well # <i>1-2</i>		Service Receipt		
Casing <i>4 1/2</i>		Depth		County <i>Clark</i>		
Job Type <i>Production</i>		Formation		Legal Description <i>Sec 2-31-24</i>		
Pipe Data			Perforating Data		Cement Data	
Casing size <i>4 1/2</i>		Tubing Size		Shots/Ft		
Depth <i>5698</i>		Depth				
Volume		Volume		From		
Max Press <i>1200</i>		Max Press		To		
Well Connection <i>4 1/2</i>		Annulus Vol.		From		
Plug Depth <i>51656</i>		Packer Depth		To		
Tail in <i>CL 105</i>						
				<i>AA-2 590 W 60</i>		
				<i>1090 SAH-670 C-15</i>		
				<i>1/4" 2000 PSI GIL</i>		
Time	Casing Pressure	Tubing Pressure	Bbls. Pumped	Rate	Service Log	
<i>1955</i>					<i>On loc / Spout - Rig up</i>	
<i>2204</i>					<i>Cse on bottom - Break Circulation</i>	
<i>2208</i>					<i>Safety Meeting</i>	
<i>2257</i>	<i>2000</i>				<i>Pressure Test</i>	
<i>2259</i>	<i>300</i>		<i>62</i>	<i>5</i>	<i>Mixing Tail Cement 230 sk AA2 148</i>	
<i>2318</i>					<i>Shut Down - Drop Plug</i>	
<i>2321</i>	<i>300</i>		<i>0</i>	<i>5</i>	<i>Start Displacement <i>-29-161</i></i>	
<i>2340</i>	<i>500</i>		<i>80</i>	<i>2</i>	<i>Slow Rate</i>	
<i>2344</i>	<i>1200</i>		<i>90</i>		<i>Bump Plug</i>	
<i>2347</i>					<i>Release Pressure</i>	
<i>2341</i>					<i>Cement Mousse & Ret Hole</i>	
Service Units		<i>21755</i>	<i>3811/19919</i>	<i>14354/19578</i>		
Driver Names		<i>Kirby</i>	<i>Ruben</i>	<i>Celib-Scott</i>		

Customer Representative

Station Manager

Cementer

Taylor Printing, Inc.

Terry Bennett

Kirby Harger

O'Brien Energy Resources, Inc.
Ardrey No. 1-2, Ardrey Field
Section 2, T31S, R24W
Clark County, Kansas
June, 2012

Well Summary

The O'Brien Energy Resources, Corporation, Ardrey No. 1-2 was drilled to a total depth of 5700' in the Mississippian Chester Formation. It offset the Pickrell Drilling Co., Ardrey "B" No. 1 by 1406' to the East. Formation tops from the Heebner to the Kansas City ran 7' to 4' low relative to this offset. Thinning occurred in the Kansas City and the Stark Shale and the Base of the Kansas City came in 5' high. Further thinning occurred and the Cherokee, Morrow and Morrow ran 11' high.

Excellent hydrocarbon shows occurred in the Morrow. A 216 Unit gas kick occurred from 5430' to 5436' and consist of a Sandstone in 10% of the samples: Medium brown, hard to friable in part, fine lower, well sorted, subround grains, siliceous cement, clean, glauconitic, slightly arkosic, good intergranular porosity, brown matrix oil stain and live oil, very dull orange brown hydrocarbon fluorescence, excellent streaming cut, slight oil odor.

An additional show with an associated 325 Unit gas kick occurred from 5440' to 5444' and with a similar looking Sandstone with good visible porosity and brown to occasionally very black oil stain, very dull faint hydrocarbon fluorescence and slow faint bleeding to streaming cut, traces live oil. This interval has low resistivities and calculates wet.

Additional minor shows occurred in the Base of the Kansas City and Chester.
4 1/2" production casing was run on the Ardrey No. 1-2 on 6/12/12.
Appreciation to Duke Rig 1 hands.

Respectfully Submitted,

Peter Debenham

WELL DATA

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

Prospect Geologist: David Ward, Ed Schuett, Denver

Well: Ardrey No. 1-2, Ardrey Field

Location: 660' FNL & 2066' FWL, Section 2, T31S, R24W, Meade County, Kansas
– Southeast of Plains.

Elevation: Ground Level 2529', Kelly Bushing 2541'

Contractor: Duke Drilling Rig No. 1, Type: Double jackknife, double stand, Toolpusher
Mike Godfrey, Drillers: Cary Thorp, David Anderson, Todd Elsen

Company Man: Roger Pearson – Liberal, Kansas

Spud Date: 6/2/12

Total Depth: 6/11/12, Driller 6700', Logger 6700', St. Louis Formation

Casing Program: 17 joints of 8 5/8", J55, 24Lbs/ft, set at 730' with 150 sacks A-Com and
150 Class C(2%cc, 4%floseal).

Mud Program: Service Mud/Mud-Co, Engineer Justin Whiting, Chemical/gel, displaced
3700'.

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

Samples: 10' 4400' to TD. One dry cut sent to the KS Sample Log Library, Wichita.

Electric Logs: Weatherford, engineer Justin , Array Induction, Compensated
Neutron/Density, Microlog, Hi Res.

Status: 4 1/2" production casing run 6/12/12.

WELL CHRONOLOGY

6 AM			
<u>DATE</u>	<u>DEPTH</u>	<u>FOOTAGE</u>	<u>RIG ACTIVITY</u>
6/2	300'	300'	Move to location and rig up rotary tools. Pump water and mix spud mud. Drill rathole and mousehole and spud in 12 ¼" surface hole to 300'. Tighten swivel.
6/3	920'	620'	Service rig and survey(1 deg.). To 733' and trip for casing and run and cement 17 joints of 8 5/8" surface casing set at 730', did circulate. Plug down 11:30 am. Wait on cement and nipple up BOP. Drill plug and cement and 7 7/8" hole to 920'.
6/4	2410'	1490'	Service rig and surveys(1 deg.). Jet pits.
6/5	3093'	683'	Survey(1 deg.). Jet suction and run 30 bbl flush at 2966'.
6/6	3803'	710'	Jet suction and mix premix at 3125'. Displace hole at 3600. Clean screen and mis mud.
6/7	4413'	610'	Survey(3/4 deg.).
6/8	4926'	513'	Clean suction and screen and add premix.
6/9	5238'	312'	Service pump and check BOP. Circulate for samples at 5236'.
6/10	5486'	248'	To 5327' and trip for Bit No. 3. Survey(1/2 deg.).
6/11	5700'TD	214'	To TD and circulate. Add premix and clean suction. Wiper trip and circulate. Trip out for logs and run elogs.
6/12	TD		Run elogs. Trip to bottom and circulate. Trip out laying down and run and cement 4 ½" production casing. Rig down.

BIT RECORD

<u>NO.</u>	<u>SIZE</u> <u>HOURS</u>	<u>MAKE</u>	<u>TYPE</u>	<u>OUT</u>	<u>FOOTAGE</u>	
1	12 ¼"	Varel	RR	733'	733'	14 ½
2	7 7/8"	Varel	He-21	5327'	4594'	121 ¾
3	7 7/8"	Varel	He-29	5700'	373'	29 ½
Total Rotating Hours:						165
3/4						
Average:						34.4
Ft/hr						

DEVIATION RECORD - degree

733' 1, 1240' 1, 1840' 1, 2432' 1, 2998' 1, 4041' ¾, 5327' ½

MUD PROPERTIES

<u>DATE</u> <u>LBS/BBL</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-</u>	
6/2	surface	make up water							340	
6/4	1650'	10.1	28	--	--	7.0	n/c	147K	--	
6/5	2770'	10.2	28	1	2	7.0	n/c	130K	--	
6/7	4021'	9.0	47	12	16	11.0	11.2	12K	½	
6/8	4583'	9.4	49	13	16	10.0	11.2	12K	4	
6/9	5084'	9.4	49	16	17	11.0	10.8	10.7K	2 ½	
6/10	5341'	9.3	49	15	16	10.5	11.6	9.7K	2	
6/11	5602'	9.3	48	14	15	11.0	11.6	9.5K	2 ½	

ELECTRIC LOG FORMATION TOPS- KB Elev. 2541'

<u>FORMATION</u>	<u>DEPTH</u>	<u>DATUM</u>	<u>*Ardrey "B" No. 1</u>	
			<u>DATUM</u>	<u>POSITION</u>
Casing	730'			
Heebner	4487'	-1946'	-1940'	-6'
Toronto	4507'	-1966'	-1962'	-4'
Brown LS	4644'	-2103'	-2097'	-6
Lansing	4660'	-2119'	-2112'	-7'
KC	4872'	-2331'	-2324'	-7'
Stark SH	5040'	-2499'	-2504'	+5'

BKC	5154'	-2613'	-2617'	+4'
Cherokee	5332'	-2791'	-2802'	+11'
Morrow	5414'	-2873'	-2885'	+12'
Morrow SS	5430'	-2889'	-2900'	+11'
Mississippi Chester	5457'	-2916'	-2946'	+30'
TD	5700'			

*Pickrell Drilling Co., Ardrey "B" No. 1, C NW NW, Se. 2 – 1406' to the West, K.B. Elevation 2542'.

LITHOLOGY DESCRIPTION

Samples are Lagged

*Hydrocarbon Show

Corrected elog formation tops

4400-4428 LIMESTONE: Lt to medium brown to gray buff occasional dark gray micr micro/crpxln dense to trace intxln porosity occasional fossils with occasional moldic porosity clean no fluorescence no stain or cut

4428-4438 SHALE: Med to dark mottled gray hard dense blocky calcareous fossils in part

4438-4466 LIMESTONE: Lt brown buff micxln micsuc to sucrosic in part brittle clean fossils trace intxln porosity no fluorescence no stain or cut

Heebner 4487'

4466-4492 SHALE: Dk to medium gray gygn firm to hard blocky calcareous with SHALE: Blk firm fissile carbonaceous interbed with LIMESTONE: Mot brown to gray micr crpxln hard dense argillaceous to marly pyrite fossils carbonaceous in part tight no show

4492-4496 SHALE: Blk firm fissile carbonaceous

4496-4512 LIMESTONE: Mot brown to gray micr crpxln hard dense argillaceous to marly pyrite fossils carbonaceous in part tight no show with SHALE: Dk to medium gray gygn firm to hard blocky calcareous with SHALE: Blk firm fissile carbonaceous

Toronto 4507'

4512-4524 LIMESTONE: Med to light mottled brown to gray buff biomicr fine crystalline micsuc in part brittle clean to argillaceous fossils carbonaceous stylic pyrite occasional fair intxln porosity no fluorescence no stain or cut

4524-4564 SHALE: Dk gray gygn black firm blocky silty to sndy in part mica occasional interbed with LIMESTONE: Lt to medium brown gray oomicr fine crystalline clean to argillaceous fossils oolites with occasional moldic porosity no fluorescence no stain or cut

Brown LS 4644'

4564-4574 LIMESTONE: Lt brown buff micxln micsuc to sucrosic in part brittle clean dolc fair intxln porosity no show

4574-4630 SHALE: Dk gray gygn black firm to hard blocky calcareous silty mica occasional interbed with LIMESTONE: Brn to gray gygn hard fine crystalline dense argillaceous to marly fossils pyrite tight no show with trace DOLOMITE: Lt brown white buff crystalline sucrosic brittle clean fair intxln porosity no fluorescence no stain or cut

4630-4646 trace DOLOMITE: Lt brown white buff crystalline sucrosic brittle clean fair intxln porosity no fluorescence no stain or cut with interbed SHALE: Dk gray gygn black firm to hard blocky calcareous silty mica occasional interbed with LIMESTONE: Brn to gray gygn hard fine crystalline dense argillaceous to marly fossils pyrite tight no show

4646-4660 LIMESTONE: M brown crpxl hard dense silica fossils tight no show interbed with SHALE: Med gray firm blocky waxy

Lansing 4660'

4660-4692 LIMESTONE: Med to light brown crpxln hard dense silica tight no show interbed with SHALE: as above trace CHRT: Milky gray hard crystalline

4692-4718 LIMESTONE: Med to light brown micxln micsuc brittle clean chlky and amorphous in part occasional intxln and moldic porosity no show

4718-4728 SHALE: Dk gray black firm sbfis to blocky waxy carbonaceous interbed with LIMESTONE: Mot brown to gray fine crystalline hard dense silica tight no show

4728-4740 LIMESTONE: Lt brown buff micxln micsuc brittle clean sbchky in part fossils oolites with oomoldic porosity intxln porosity no fluorescence no stain or cut

4740-4766 LIMESTONE: Med mottled brown to gray fine crystalline hard dense clean carbonaceous stylic tight no show

4766-4776 SHALE: Gygn medium to dark gray blocky waxy calcareous fossils in part carbonaceous

4776-4798 LIMESTONE: Lt brown mottled brown occasional dark brown to gray micr crp/micxln micsuc in part clean fossils with intpart and occasional gd oomoldic porosity no show

4798-4802 SHALE: Dk gygn to gray brown firm sbfis to blocky waxy mica

4802-4836 LIMESTONE: Med to dark mottled brown micxln micsuc to sucrosic brittle clean to argillaceous fossils fair intxln and moldic porosity no fluorescence no stain or cut

4836-4848 LIMESTONE: Med to dark brown fine crystalline hard dense silica fossils carbonaceous stylic tight no show

4848-4874 SHALE: Blk dark gray hard blocky interbed with LIMESTONE: Med mottled brown crp/micxln micsuc in part dense to trace intxln and fine vug porosity fossils with trace moldic porosity no fluorescence no stain or cut with SHALE: Gy black hard blocky CHRT: Milky gray black hard crystalline fossils oolites

KC 4872'

4874-4878 LIMESTONE: Med brown oomicr micxln clean brittle very oolites with exc oomoldic porosity no fluorescence no stain or cut

4894-4906 SHALE: Gy gygn blocky calcareous with LIMESTONE: Med gray gygn brown hard dense fine crystalline argillaceous to marly tight no show

4906-4932 LIMESTONE: Med gray gygn brown hard dense fine crystalline argillaceous to marly in part tight no show

4932-4950 LIMESTONE: Brn oomicr fine crystalline brittle clean oolites with gd oomoldic porosity intxln porosity no show CHRT: Milky gray dark brown hard crystalline fossils in part with LIMESTONE: Med brown hard dense silica rexld in part oolites tight no show

4950-4954 SHALE: Dk gray to gygn dark brown hard blocky calcareous

4954-4992 LIMESTONE: Lt to medium brown buff micxln sbchky in part clean fossils oolites rexld with intxln porosity gd moldic and vug porosity no fluorescence no stain or cut with CHRT: as above

4992-5042 LIMESTONE: Brn to gray micr crpxln hard dense silica fossils tight no fluorescence no stain or cut with CHRT: Milky brown to gray occasional black hard crystalline fossils in part pyrite

Stark SH 5040'

5042-5048 SHALE: Blk dark gray firm fissile carbonaceous

5048-5090 SHALE: Dk gray gygn brown to black firm to hard blocky waxy carbonaceous calcareous interbed with LIMESTONE: Wh buff light to medium brown fine crystalline sbchky in part clean fossils poor vis porosity no fluorescence no stain or cut occasional trace moldic porosity

5090-5150 LIMESTONE: Lt to dark mottled brown buff micr crp/micxln micsuc in part brittle clean to argillaceous fossils poor vis porosity no show with CHRT: Milky gray to white hard crystalline

BKC 5154'

5150-5170 SHALE: Dk gray medium to dark brown gygn hard blocky calcareous occasional grdng to marly LIMESTONE: Dk brown to gray dense silica tight no show with trace CHRT: Milky white to gray white tripol in part

5170-5192 LIMESTONE: Dk to medium brown to gray crpxln hard dense silica argillaceous to mlry tight no show

5192-5198 SHALE: Dk gray gygn brown hard blocky calcareous

5198-5222 LIMESTONE: Med to dark brown oomicr fine crystalline dense silica clean to argillaceous oolites and fossils marly in part poor vis porosity no fluorescence no stain or cut

5222-5226 *50 Units, LIMESTONE: Lt brown mottled micxln micsuc brittle clean fossils and oolites with occasional moldic porosity trace intxln porosity predominant hard and tight light mottled brown oil stain with trace live oil gd bright light yellow hydrocarbon fluorescence(2% sample) exc strmg cut slightly odor

5226-5248 LIMESTONE: Lt brown crpxln hard dense silica tight no show

5248-5252 SHALE: Blk dark gray firm sbfis carbonaceous

5252-5270 LIMESTONE: Lt brown white buff micxln micsuc brittle clean sbchky oolites fair intxln and fine vug porosity no fluorescence no stain or cut

5270-5282 CHRT: Brn white mlky crystalline tripol in part LIMESTONE: Lt to medium brown fine crystalline hard dense silica clean tight no show

5282-5306 SHALE: Blk firm sbfis to fissile carbonaceous interbed with LIMESTONE: Med to dark mottled brown to gray crpxln hard dense silica argillaceous to marly tight no show

5306-5330 LIMESTONE: Med to dark mottled brown to gray crpxln hard dense silica argillaceous to marly tight no show interbed with SHALE: Blk dark gray firm sbfis to blocky carbonaceous calcareous

Cherokee 5332'

5330-5354 LIMESTONE: Brn crpxln hard dense silica tight no show interbed with SHALE: Dk brown to black dark gray firm blocky trace CHRT: Brn light gray to white hard crystalline

5354-5380 SHALE: Blk very dark brown to gray hard blocky calcareous carbonaceous interbed with LIMESTONE: Med to dark brown gray crpxln hard dense argillaceous to marly tight no fluorescence no stain or cut

5380-5390 LIMESTONE: Dk to medium mottled brown biomicro fine crystalline hard dense clean to argillaceous in part fossils with trace moldic and in part porosity trace intxln porosity no fluorescence no stain or cut

5390-5404 SHALE: Dk gray gygn to green hard blocky waxy with SHALE: Blk firm fissile carbonaceous interbed with LIMESTONE: as above

5404-5414 LIMESTONE: Brn oomicr fine crystalline dense clean very oolites with trace intpart and moldic porosity no show

Morrow 5414'

5414-5434 SHALE: Dk gygn brown to black mottled waxy interbed with marly LIMESTONE: very oolites in part trace porosity as above no show

Morrow SS 5430'

5434-5443 *216 Units, SANDSTONE(10% sample): Med brown hard to friable in part fill well sorted sbrnd grains silica cement clean glauconitic tight/occasional gd intgran porosity brown matrix oil stain and live oil dull orngbrn hydrocarbon fluorescence exc strmg cut slightly oil odor interbed with SHALE: Blk fissile carbonaceous

5443-5448 *325 Units, SANDSTONE: Med to dark brown hard to friable fu well srttd sbrnd grains silica cement clean glauconitic dark brown to black matrix oil stain very dull orange/brown hydrocarbon fluorescence exc strmg cut occasional exc intgran and fine vug porosity exc show

5448-5460 SHALE: Dk mottled gygn dark gray brown occasional green firm blocky waxy

Chester 5457'

5482-5510 LIMESTONE: Brn crpxln hard dense silica fossils sndy in part poor vis porosity no fluorescence no stain or cut

5510-5550 LIMESTONE: Pred as above occasional light brown to buff white brittle clean very sndy in part poor vis porosity no show

5550-5556 *140 Units, ?sample qlty Tr LIMESTONE with show, few pieces, Lt mottled brown fine crystalline trace fracture faces with bright yellow hydrocarbon fluorescence brown oil stain and gd strmg cut poor vis porosity

5556-5610 LIMESTONE: Lt to medium brown occasional dark brown to gray firm brittle io clean to argillaceous very sndy in part occasional very silica and tight poor vis porosity no fluorescence no stain or cut with CHRT: Orng medium gray to gygn varic hard crystalline

5610-5625 LIMESTONE: Lt to dark brown mottled buff micr crp/micxln in part sbchky brittle clean very oolites and sndy poor vis porosity no show

5625-5640 LIMESTONE: Wh light to dark mottled brown buff micxln crp/micxln in part sbchky brittle clean very oolites and sndy arkic slightly glauconitic poor vis porosity no fluorescence no stain or cut

5640-5685 LIMESTONE: Wh light brown buff fine crystalline sbchky in part clean oolites sndy no fluorescence no stain or cut with LIMESTONE: Dk mottled brown crpxln hard dense silica tight no show with CHRT: Milky translucent varic hard crystalline SHALE: Gy to green mottled black firm blocky waxy

5685-5700 LIMESTONE: Brn gray buff micxln brittle clean sbchky in part fossils and oolites trace intxln and intpart porosity no fluorescence no stain or cut with SHALE: Blk firm fissile waxy carbonaceous SHALE: Dk gygn firm blocky waxy