

Confidentiality Requested:

Yes No

KANSAS CORPORATION COMMISSION
OIL & GAS CONSERVATION DIVISION

Form ACO-1

January 2018

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

Gas DH EOR

OG GSW

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 EOR Conv. to SWD
 Plug Back Liner Conv. to GSW Conv. to Producer

Commingled Permit #: _____

Dual Completion Permit #: _____

SWD Permit #: _____

EOR Permit #: _____

GSW Permit #: _____

Spud Date or Date Reached TD Completion Date or
Recompletion Date Recompletion Date

API No.: _____

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 Drill Stem Tests Received

Geologist Report / Mud Logs Received

UIC Distribution

ALT I II III Approved by: _____ Date: _____

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

1. Did you perform a hydraulic fracturing treatment on this well? Yes No *(If No, skip questions 2 and 3)*
2. Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons? Yes No *(If No, skip question 3)*
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)*

Date of first Production/Injection or Resumed Production/Injection:	Producing Method: <input type="checkbox"/> Flowing <input type="checkbox"/> Pumping <input type="checkbox"/> Gas Lift <input type="checkbox"/> Other <i>(Explain)</i> _____			
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> <i>(Submit ACO-4)</i>	PRODUCTION INTERVAL: Top Bottom
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Shots Per Foot	Perforation Top	Perforation Bottom	Bridge Plug Type	Bridge Plug Set At	Acid, Fracture, Shot, Cementing Squeeze Record <i>(Amount and Kind of Material Used)</i>

TUBING RECORD:	Size:	Set At:	Packer At:	
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Form	ACO1 - Well Completion
Operator	Griffin, Charles N.
Well Name	HOPE #1
Doc ID	1695510

Tops

Name	Top	Datum
Heebner	3850	-1912
Brown Lime	4026	-2088
Lansing	4050	-2112
Stark	4354	-2416
B/KC	4441	-2503
Pawnee	4505	-2567
Cherokee	4545	-2607
Simpson Shale	4714	-2776

QUALITY WELL SERVICE, INC.

8151

Federal Tax I.D. # 481187368

Home Office 30060 N. Hwy 281, Pratt, KS 67124

Mailing Address P.O. Box 468

Office 620-786-6992

Fax 620-672-3663

Todd's Cell 620-388-4967

Brady's Cell 620-727-6964

Date	11-9-22	Sec.	16	Twp.	30S	Range	15W	County	BARBER	State	KI	On Location	Finish
Lease	HOPE		Well No.		1		Location						
Contractor	M/W F/W D216 2.6" #104						Owner						
Type Job	SURFACE						To Quality Well Service, Inc. You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.						
Hole Size	12 1/4		T.D.		260'		Charge To						
Csg.	35/3 23"		Depth		260'		Griffin						
Tbg. Size			Depth		Street								
Tool			Depth		City State								
Cement Left in Csg.			Shoe Joint		20'		The above was done to satisfaction and supervision of owner agent or contractor.						
Meas Line			Displace		15.36 2 1/2		Cement Amount Ordered 375 5/8 Common						
EQUIPMENT							2 1/2" FEL 3 1/2" CL 1/2" PS TOTAL 435 5/8						
Pumptrk	3	No.					Common 435						
Bulktrk	12	No.					Poz. Mix						
Bulktrk		No.					Gel. 705 ⁺						
Pickup		No.					Calcium 1227 ⁺						
JOB SERVICES & REMARKS							Hulls						
Rat Hole							Salt						
Mouse Hole							Flowseal 137.5 ⁺						
Centralizers							Kol-Seal						
Baskets							Mud CLR 48						
D/V or Port Collar							CFL-117 or CD110 CAF 38						
Run 6 1/2" 35/3 23" (SG SET) 260'							Sand						
START CSG CSG on Bottom							Handling 471						
Hook up to CSG & Break Circ W/ 2" K							Mileage 25/11,775						
START Pumping @ 1120							FLOAT EQUIPMENT						
START Mix Pump 325 5/8 Common							Guide Shoe						
2 1/2" FEL 3 1/2" CL 1/2" PS @ 14.9' / CAL							Centralizer						
START DISC							Baskets						
Pls. down							AFU Inserts						
CMT FELL LET SET 45 MIN TRAP 25'							Float Shoe						
Pump 50% PAIRED ABOUT 5'							Latch Down						
WOC							SERVICE SPN 1 EA						
MIX' Pump 60 5/8 Common 3 1/2" CL							LMV 25						
CMT in Cell AC Slating Oil							Pumptrk Charge SURFACE						
							Mileage 50						
THANK YOU							Tax						
PLEASE CALL AGAIN 1000							Discount						
BRYAN							Total Charge						
Signature													

Hope #1
Griffin Management, LLC

11/14/22

Murfin rig 104

LTD: 4,771'

Start laying down drill pipe @ 12:30 pm. Start running casing @ 6:00 pm. Ran 113 joints 5 ½" 15.5 # casing totaling 4,768.2'. **PBTD: 4,759.65'**.

RU to break circulation for one hour

RU Quality well service and cemented with 145 sks Pro C cement with 10% salt, 2% gel and 6# Koseal Plug down and held at 11:15 pm.

Plug rathole with 30 sks cement

11/21/22

RU CCWS Rig 2 (Allen's Rig)

Unload 148 jts of 2 7/8" used tested & drifted tubing (from GM yard inventory)

148 JTS = 4,678.55' (31.61' JT Avg)

RU Log-Tech to run GR/CBL

LTD: 4756'

Bond: looks good

Perforated: 4630-4640' 3 SPF

RD Log-Tech

RO to PU and Tally tubing in the hole. PU 145 jts of 2 7/8" tubing and Model R packer. Set packer @ 4594' (145 jts)

RU to swab, IFL 300'

Made 8 runs and Rec 36 bbl on swab down.

2nd run off seating nipple, rec 250' of 100 % KCL water.

Wait 30 min to make last swab run.

1st 30 min, Tagged NO Fluid and Recovered 0' fluid.

Dry run.

Pro-Stim will acidize first thing in the morning.

Shut well in. SDFN.

11/22/22

SITP 50 #.

RU to swab, no fluid in the hole, dry run. RD swab and RU Pro-Stim to spot acid with 146 JTS and 16' of subs @ 4,642' (26.9 bbl + .5 bbl = 27.4 bbl) circulating spot.

Pull subs and 2 JTS, **set packer to treat 144 JTS in @ 4,561'**. (28.3 bbl to clear perfs). Used 1,500 gallons of 15 % Griffin blend.

Breakdown: 1,000#.

Treated: 2.5 BPM @ 520 # TP. Good ball action @ end of the job. 440 # - 570 # TP.

ISIP: 370 #. 200 # after 15 minutes. Flowed back 6.25 bbl to truck. Total load: 74 bbl.

RU to swab: IFL Surface, Rec 1,100' KCL water

2nd run: FL @ 700', pulled from 1,700', Rec 1,000' acid water.

3rd run: FL @ 1,200', pulled from 2,300', Rec 1,000' acid water

4th run: FL @ 1,500', pulled from 2,600'. Rec 1,000' acid water. Acid blow after run

5th run: FL @ 1,500', pulled from 2,600'. Rec 1,000' acid water.

6th run: FL @ 1,700', pulled from 2,700'. Rec 1,000' acid water. Strong blow after run.

7th run: FL @ 2,100', pulled from 3,200'. Rec 1,000' @ TOB OC. Strong blow after run.

8th run: FL @ 2,500', pulled from 3,500'. Rec 1,000' @ 3 % OC. Light gas blow after run.

9th run: FL @ 2,800', pulled from 3,800'. Rec 1,000' @ 7 % OC. Light gas blow after run.

10th run: FL @ 3,300', pulled from SN. Rec 1,200' @ 10 % OC.

11th run: FL @ 3,600', pulled from SN. Rec 950' @ 14 % OC.

12th run: FL @ 4,000', pulled from SN. Rec 550' @ 11 % OC. Vacuum after run.

Swab down rec 62.5 bbls

Start 1st Hour swab test:

1ST run FL @ 4,000', pulled from SN, Rec 550' @ 19 % OC. Vacuum after run

2nd run FL @ 4,200', Pulled from SN, Rec 350' @ 16 % OC.

3rd run FL @ 4,200', Pulled from SN, Rec 350' @ 15 % OC. Vacuum after run

4th run FL @ 4,200', Pulled from SN, Rec 350' @ 16 % OC.

Swabbed back 11.75 bbls in 1 hour swab test. 74.25 bbl total recovered after acid job.

Start 2nd hour swab test:

1st run FL @ 4,200', Rec 350' @ 16 % OC

2nd run FL @ 4,200', Rec 350' @ 15 % OC

3rd run FL @ 4,300', Rec 250' @ 15 % OC

4th run FL @ 4,300', Rec 250' @ 16 % OC

5th run FL @ 4,300', Rec 250' @ 16 % OC

Swabbed back 9.4 bbls in 2nd hour swab test.

Total Recovered: 83.6 bbls

Start 3rd hour swab test:

1st run FL @ 4,200', Rec 350' @ 18 % OC

2nd run FL @ 4,300', Rec 250' @ 16 % OC

Swabbed back 4.7 bbls in 3rd hour swab test.

Total Recovered: 88.35 bbls

Release packer and let fluid equalize. Re set packer and RU to swab: IFL 1,700'. Swabbed back 23.5 bbl in 1st hour after releasing packer.

Start 4th hour swab test:

1st run FL @ 3,800, Rec 750' @ 11 % OC

2nd run FL @ 4,000', Rec 550' @ 6 % OC

3rd run FL @ 4,200', Rec 350' @ 8 % OC

4th run FL @ 4,200', Rec 350' @ 11 % OC

Swabbed back 11.75 bbls in 4th hour swab test.
Total recovered for the day: 126.35 bbls.
Shut in well.

11/23/22

SITP: 80 #

RU to swab: IFL @ 2,200'. Pulled from 3,200'. Rec
150' free oil

2nd run: FL @ 2,800'. Rec 1,000' @ 9 % OC.

3rd run: FL @ 3,400'. Rec 1,100' @ 5 % OC.

4th run: FL @ 3,800'. Rec 750' @ 5 % OC.

Swabbed back 16.45 bbls 1st hour.

5th run: FL @ 3,800'. Rec 750' @ 11 % OC.

6th run: FL @ 4,000'. Rec 550' @ 12 % OC.

7th run: FL @ 4,100'. Rec 450' @ 11 % OC.

8th run: FL @ 4,100'. Rec 450' @ 12 % OC.

Swabbed back 14.1 bbls 2nd hour.

9th run: FL @ 4,100'. Rec 450' @ 15 % OC.

10th run: FL @ 4,200'. Rec 350' @ 10 % OC.

11th run: FL @ 4,200'. Rec 350' @ 11 % OC.

12th run: FL @ 4,200'. Rec 350' @ 12 % OC.

Swabbed back 9.4 bbls 3rd hour

13th run: FL @ 4,200'. Rec 350' @ 12 % OC.
14th run: FL @ 4,200'. Rec 350' @ 14 % OC.
15th run: FL @ 4,300'. Rec 250' @ 11 % OC.
16th run: FL @ 4,300'. Rec 250' @ 12 % OC.
Swabbed back 7.05 bbls 4th hour

17th run: FL @ 4,200'. Rec 350' @ 15 % OC.
18th run: FL @ 4,200'. Rec 350' @ 11 % OC.
19th run: FL @ 4,300'. Rec 250' @ 8 % OC.
20th run: FL @ 4,300'. Rec 250' @ 10 % OC.
Swabbed back 7.05 bbls 5th hour

Total recovered after acid job: 180.4 bbl

Shut in well and rig down. Will frac with 3 tanks on Monday.

11/28/22

RU Gore Nitrogen to frack
ISIP: 4051#
5 min: 3061#
10 min: 2636#

15 min: 2300#

20 min: 2164#

Average Rate: 17.5 BPM - Max rate: 20.7 BPM

Average PSI: 3436# - Max PSI: 4517#

Used 1,137 bbl Slick Water = 1,137 bbl Total Load
Pumped 50,045 LBS of 20/40 Sand + 3,278 LBS of
20/40 Resin coated sand and 1,212,000 SCF of N₂.
Shut well in and will flow back tomorrow.

11/29/22

Started flowing back on a 16/64" choke @ 7:00 pm.

7:00 pm – 1105# TP. Rec 15 bbl. Foamy gassy frack
water. Bunch of nat gas. 77.5 bbl total rec.

7:45 pm – 1050# TP. Rec 25 bbl. Foamy gassy frack
water with sli color. No sand in choke.

9:00 pm – 875# TP. Rec 30 bbl. Foamy gassy frack
water with ¼ TOB OC. 132.5 bbl total rec.

10:00 pm – 710# TP. Rec 27.5 bbl. Foamy gassy
frack water with sli oil show. 160 bbl total rec.

1:45 am – 480# TP. Rec 55 bbl. 2% gassy OC. 215 bbl
total rec.

5:15 am – 190# TP. Rec 70 bbl. 8% OC. 285 bbl total
rec.

7:00 am – 105# TP. Rec 30 bbl. 12.5% OC. 315 bbl total rec.

11:45 am – 40-55# TP. Rec 55 bbl. 19.5% OC. 370 bbl total rec.

2:45 pm – 20-30# TP. Rec 27.5 bbl. 27% OC. 397.5 bbl total rec.

Rods and pump will be delivered tomorrow afternoon. PU and motor will be put together on location tomorrow morning.

11/30/22

TP 70#. Choke full open. Flowing to tank. 30% OC.

12/7/22

TIH w/ 147 jts 2-7/8" tubing and bailer

Tagged sand @ 4678'

Bailed hard but made hole every run

Bailed to PBTD. Pulled bailer up above perms for 25 min. Ran back in and tagged same spot. TOO H w/ bailer.

Recovered 11 jts full of sand. Will wash jts out with water truck.

12/8/22

RU to swab

1st run FL @ 1050'. Pulled from 1300'. Rec 250' oil.
No sand.

2nd run FL @ 1100'. Pulled from 1400'. Rec 300' oil.
No sand.

3rd run FL @ 1300'. Pulled from 1600'. Rec 300' oil.
No sand.

4th run FL @ 1300'. Pulled from 1600'. Rec 300' oil.
No sand.

5th run FL @ 1500'. Pulled from 1800'. Rec 300' dirty
water. No sand.

Rec 8.5 bbl for the hour.

Wait 15 min

1st run FL @ 1400'. Pulled from 1700'. Rec 300' dirty
water. No sand.

2nd run FL @ 1300'. Pulled from 2300'. Rec 1000'
TOB OC. No sand.

3rd run FL @ 1300'. Pulled from 2300'. Rec 1000' @
10% OC. No sand.

Rec 13 bbl for the hour. 21.5 total rec.

1st run FL @ 1400'. Pulled from 2400'. Rec 1000' @
18% OC. No sand.

2nd run FL @ 1500'. Pulled from 2500'. Rec 1000' @ 17% OC. No sand.

3rd run FL @ 1600'. Pulled from 2600'. Rec 1000' @ 18% OC. No sand.

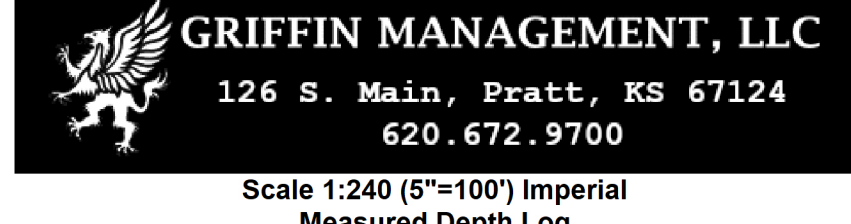
4th run FL @ 1500'. Pulled from 2500'. Rec 1000' @ 15% OC.

Swabbed back 14 bbl for the hour. Total 35.5 bbl.

TIH with production tubing/pump/rods as follows:

- 145) jts 2-7/8" tubing
- 1) 2-7/8" x 1'.5" SN
- 1) 2-7/8" x 4' Perf sub
- 2) 2-7/8" Tailpipe
- Collar & Bull Plug
- 1) 2-1/2" x 2" x 18' Pump
- 9) 1-1/2" x 25' Sinker Bars
- 97) 3/4" Rods
- 76) 7/8" Rods
- 1) 2' x 7/8" Pony Sub
- 1) 4' x 7/8" Pony Sub
- 2) 6' x 7/8" Pony Sub
- 1) 1-1/4" x 26' Polished Rod

Loaded tubing. Well hung on and pumping.



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

Well Name: 1938-4636
 API: 15-007-24453
 Location: T30S R15W Sec 16, SE SE NE
 License Number: 33936
 Spud Date: 11/9/2022
 Surface Coordinates: Lat: 37.435303 Long: -98.958382
 Bottom Hole Coordinates: Vertical Wellbore
 Ground Elevation (ft): 1933' K.B. Elevation (ft): 1938'
 Logged Interval (ft): 3800' To: 4771' Total Depth (ft): 4771'
 Formation: Ordovician (Simpson Shale) @ RTD
 Type of Drilling Fluid: Mud-Co. Chemical Drispac - Displaced 2801-65'
 Region: Barber County
 Drilling Completed: 11/6/2022
 Printed by MudLog from WellSight Systems 1-800-447-1534 www.WellSight.com

OPERATOR

Company: Griffin Management, LLC
 Address: 126 S. Main
 Pratt, KS 67124-0347

GEOLOGIST

Name: Eli J. Felts
 Company: Griffin Management, LLC
 Address: efelts@griffinmgmt.com
 316.765.4070

Drilling Report

Murfin Rig #104
 Tool Pusher: James Mayfield
 11/9/2022
 Spud @ 4:00 PM
 11/10/2022
 WOC @ 260'
 11/11/2022
 Drilling @ 2,165'
 11/12/2022
 Drilling @ 3533'
 11/13/2022
 CFS @ 4620'
 RTD @ 2:45 PM
 Short Trip
 11/14/2022
 Logging
 Run Casing; plug down @ 11 PM
 11/15/2022
 Done - Release Rig @ 3 AM

Problems

Lost 160' bbls @ 125'
 Displace 2769-2798 with 700 bbl in 3/4 Hour
 Short trip at 4773-67 stands in 5 hours

Pipe Setting

8.625" 23# Set @ 260' w/ 435 sxs.
 5.5" 15.5# Set @ 4770' w/ 145 sxs

MD	Rate of Penetration ROP (min/ft) Gas (units)	Geological Descriptions	DSTs/Mud/Surveys, etc.
3760	ROP (min/ft) 5 Gas (units) 250	LS - Cm-Wht, Chalky, MD Break, Few Pcs w/ Stained Fractures, No Fluor; SH - Black, Silty Breaks, ~3% of sample	
3800	ROP (min/ft) 5 Gas (units) 250	LS - Cm-Wht, Chalky, MD Break, Few Pcs w/ Stained Fractures, No Fluor; CH - Caramel-Opaque, FN-Large XLN, Firm Breaks w/ Fair Friab; SH - Black, Silty Breaks, ~3% of sample	3800
3850		LS - Cm-Wht, Chalky, MD Break, Mushy, Lt Gry - Cherty, Firm Breaks, Fair Friab; SH - Black, Flood of Lt Gry, Chalky, Silty Breaks, MD Firm	
3850		SH - Black-Brown, Silty on Breaks, MD-Firm, Few Lt Gry Pos, Rainy; LS - Cm-Wht-Lt Tan, Some Dark Staining Throughout, No Fluor, Cherty in Most, Chalky in Cm-Wht, MD Breaks, Foss Throughout LS	3850
3850		Heebner Shale 3853' (-1915')	
3900		SH - Black-Brown-Lt Gry, Rainy in Most, MD Breaks, Silty on Breaks, Few Lt Gry Pos have Dark Spotting, Black Pos More Dense; LS - Wht-Caramel, FNMD XLN in Most, Chalky in Rest, Fair Friab, Some Darker Brown Staining, No Fluor	
3900		as above w/ SI decrease in amount of SH, Few Lt Gm SH Pos, Soft & Chalky Breaks	
3900		LS - Cm-Tan w/ Caramel, Cherty in most, FNMD XLN, Few Foss Pos Throughout; SH - Black-Lt Gry-Brown, Rainy in Most, Silty Breaks, Few Pcs LS Interbedded/Transition, Few Lt Gry Pos Sandy/Granular, Tan Color Green/Black, Grays/Gm	3900
3900		SH - Lt Gry, Rainy, Black/Brown Spotting, VSS Like, Sandy Breaks, MD Firm, Black/Brown - Smooth, Chalky, Silty Breaks, V Faint Vis Gas Bubbles; LS - Few Cm-Wht, Chalky, Soft, Cherty in Some, FN XLN	
3950		SH - Lt Gry, Granular(Black,Brown,Red/Orange) V SS Like, Vis Pors, Gas Bubbles on Breaks,	
3950		SH - Lt Gry, Granular(Black,Brown,Red/Orange) V SS Like, Vis Pors, Gas Bubbles on Breaks, LT Gry SH seems to be Smoothing out; LS - Cm-Caramel, Cherty, MD XLN, Fluor in Few Pos LS With Slight Staining,	3950
4000	ROP (min/ft) 5 Gas (units) 250	SH - Lt-Dark Gry/Chalky, Silty Breaks, appears sucrosic in few, MD/Firm Breaks, sandy in few pcs w/ Black/Brown Staining	4000
4000		SH - As Above	
4050		Brown Lime 4028' (-2090')	
4050		Lansing 4042' (-2104')	
4050		LS - Cm-Wht, Cherty in most, MD Breaks, Few Brown Pos, Firm, Dense, FN XLN, Good Friab,	4050
4050		LS - Cm-Brown, Mostly Cherty, FNMD XLN, Firm Breaks, Abndt ool Foss Pos; SH - Lt/Dark Gray, Chalky, Silty Breaks, Few Lt Gm Pcs	
4050		As above, Decrease in Brown LS, Decrease in Lt Gry SH	
4100		LS - Cm-Caramel, FNMD XLN, Firm Breaks, Fair Friab, Ool Foss Throughout	4100
4100		LS - Cm-Wht-Caramel, Dark Staining Throughout, FNMD XLN, Firm Breaks, Good Friab	
4150		LS - Cm-Wht-Caramel, Cherty in Most, FN XLN, Dark Staining and Foss Throughout, Few Foss Pos Vis, MD/S Breaks	4150
4150		LS - Cm-Wht-Tan, FN XLN, FirmMD Breaks, Cherty in Most, Dark Staining of Fractures; CH - Opaque-Tan-Brown, Dense, M XLN, V Firm Breaks	
4200	ROP (min/ft) 5 Gas (units) 250	LS - Cm-Wht-Tan, FN XLN, FirmMD Breaks, Cherty in Most, Dark Staining of Fractures; CH - Opaque-Tan-Brown, Dense, M XLN, V Firm Breaks	4200
4200		LS - Cm-Wht-Tan, FN XLN, FirmMD Breaks, Cherty in Most, Dark Staining of Fractures; CH - Opaque-Tan-Brown, Dense, M XLN, V Firm Breaks	
4250		LS - Cm-Wht-Tan, FN XLN, FirmMD Breaks, Cherty in Most, Few Vis Foss Pos	4250
4250		LS - Cm-Caramel, Mostly Chalky, MD Breaks, Few Vis Foss Pos, V Few Dark Stainings Throughout, FN XLN Tan Pos, Firm Breaks, SI Opaque in some Tan	
4300		LS - Cm-Brown, Cherty in Most, Vis oolite Pos in some, FNMD XLN, Glass Breaks on Few	4300
4300		LS - Cm-Wht-Caramel, Chalky, MD Breaks, Cherty in Some, FN-MD XLN, Firm Breaks, Good Friab, Few Foss, Dark Staining Throughout; Few Pos LS w/ Pinpoint Fluor,	
4350		Stark Shale 4387' (-2419')	4350
4350		LS - Cm-Wht-Caramel, Cherty, FN XLN, Firm Breaks, Fair Friab, Few Pos Lt Tan, Dark Staining Throughout, Few Vis Gas Bubbles; Few Pos SH - Brown-Black, MD Break, Silty Breaks	
4350		LS - Cm-Wht-Caramel, Cherty, FN XLN, Firm Breaks, Fair Friab, Few Pos Lt Tan Dark Staining; Few Pos SH - Dark Brown-Black, Chalky, Silty Breaks, MD Firm,	
4400	ROP (min/ft) 5 Gas (units) 250	SH - Black/Brown-LtGry, Smooth, Chalky, MD Breaks, Silty, SI Sucrosic Appearance; LS - Cm-Brown, Cherty, FNMD XLN, Firm Breaks	4400
4400		SH - Black/Brown, Smooth, Chalky, MD Breaks, Silty; LS - Cm-Brown, Cherty, FNMD XLN, Firm Breaks, Few Dark Stained	
4450		BKC 4430' (-2492')	
4450		LS - Cm-Brown, Sucrosic in Some, Cherty in most, Firm Breaks, FNMD XLN; SH - Black-Brown, Sucrosic, Soft Break, Silty on Break	4450
4450		LS - Cm-Wht, Tan, Cherty in most, FNMD XLN, Dark Staining in few, Firm Breaks, Glasslike Breaks, Fair Friab; SH - Lt Gry-Brown & some green; Fossil Incls abndt Silty Breaks, MD Firm,	
4500		LS - Cm-Lt Tan w/ Caramel, Cherty in most, Few Pos Dark Staining, FNMD XLN, Sharp Breaks, Fair Friab; SH - Lt Gry/Gm w/ Red Hue, Soft Break, Chalky, Silty on Break	4500
4500		LS - cream to tan, caramel; brown; fn xln in most w some v fine to micro-xln; sb cherty w/ vis foss in many; some vis fract'd & sl dissolution porosity; oa well compacted & dense; few sptd webbed stains; sm chalky	
4550		SH - Influx deep grey to black; sl metallic sheen in some w/ smooth glassy edges; brittle to friab; sm vis laminations w/ few gas bubbles w/ break	
4550		Cherokee Shale 4648' (-2610')	4550
4550		SH - flood varicolored shales; mottled w/ stringers LS & marbled vari-color & textured shales; maroon to green, grey, blue - yellow; rework-conglomerate	
4550		SH - varicolored w/ mostly red/brick to purples & greens; abdt LS - cream w/ mineral staining throughout; some interbedded; sm argillaceous; traces CH - vitreous, varicolored; appear non-weathered; fresh w/ dense & sharp edges	
4550		SH - varicolored greens to maroons; sl grey-blue; mottled w/ traces sandy txture (shalebound) increasing chert throughout; cream to light colored w/ pale pink-green surface staining; vitreous w/ smooth glassy txture w/ no vis primary porosity; sl surface staining in few w/ 2-3 pos spotted brt yellow fluor w/ live movement in tray; quest odor	
4600	ROP (min/ft) 5 Gas (units) 250	LS - cream to white w/ dark webbed fractured staining; dolomite xln % in most pcs w/ fair friability; dark staining w/ vssfo on break; floating shows v. light, translucent w/ green-yellow fluor in ~10%; rox CH - peach to org, opaque to semi translucent; mst vitreous w/ weathered edges & dark staining; surface stained edges w/ traces fluor; fair odor in cup	4600
4614		LS - dolomite w/ interbedded CH; LS white w/ peach to cream mineral & dark weathered staining; sl granular to chky txture; dark webbed in ~30%; slight odor; ~3-5% spotted fluor; flood chert; cream to peach; semi-translucent; vitreous w/ sharp conchoidal wavy fractures; poorly weathered w/ limited vis porosity; black flakes on edges; poor show	4614
4646	ROP (min/ft) 5 Gas (units) 250	Dolomite - cream to buff, fn xln sucrosic in most w/ sm med xln; good vis xln pors & sm sl dissolution(xln devel); scattered partial staining w/ surface show in few; fair-gd friab break w/ show lt bm-gld free oil (pp-scattered) good yellow fluor w/ fair-gd cup odor	4646
4650		CH-white w/ lt brown to golden stained vugs; re-xln dolomite & flood clean dolomite. Fine xln sucrosic w/ some sl med xln; good saturated stain w/ shows lt golden free oil on break; cup odor & bright yellow fluor	4650
4650		Dol - cream to buff w/ partial saturated stain; fn-med xln sucrosic w/ good consistent xln txture & porosity; surface shows lt goldenhoney color oil w/ increase on break; nicely friab w/ some pos lt grey appearing in 40" w/ barren pors; oa fair to good shows decreasing to fair shows (10-15%) fluor in 60" sample	
4678		Dolomite - cream to buff w/ some lt grey; fine xln sucrosic w/ sm med xln; fair to good vis xln pors w/ good friab; decreasing sat stn & shows w/ sm pieces lt grey dolomite w/ barren, chalky break; some loose sticky white clays wash cloudy; fair % clean dolomite w/ ~15% w/ commercial shows; questionable cavings	4678
4700		LS - flood green shale w/ moderate to high % sand content; dark green w/ some visible dark swirling loked up in shale; break releases streaks tary residual specks w/ sticky/clingy feel; no fluor; SS inclusions are qtz; fine grain well md & std w/ poorly friable clusters (trapped in shales) fair amount pyrite xln dev within shales among sand grains	4700
4750		SH - dark green silty to partly sandy; smooth waxy texture in some w/ soft to slt brittle break; few w/ dark tary spots; decreasing & btture overall % visible SS; mostly dark blue-green, Simpson Type shale	4750
4750		SH - flood turquoise green; smooth txture w/ blocky visible laminations; appears brittle w/ sl dense break	