KOLAR Document ID: 1683218

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 # 33936
Name: Griffin, Charles N.
Address 1: 126 S MAIN ST
Address 2:
City: PRATT State: KS Zip: 67124 + 2711
Contact Person: Charles N. Griffin
Phone: (620) 672-9700
CONTRACTOR: License # 30606
Name: Murfin Drilling Co., Inc.
Wellsite Geologist: Eli J. Felts
Purchaser: Plains Marketing, LP

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 #:

9/27/2022 Spud Date or Recompletion Date
10/02/2022 Date Reached TD
10/06/2022 Completion Date or Recompletion Date

API No.: 15-007-24444-00-00
Spot Description:
_ - W2 - W2 - NW Sec. 4 Twp. 30 S. R. 15 ☐ East ☑ West
1320 Feet from ☑ North / ☐ South Line of Section
330 Feet from ☐ East / ☑ West Line of Section
Footages Calculated from Nearest Outside Section Corner:
☐ NE ☑ NW ☐ SE ☐ SW
GPS Location: Lat: *(e.g. xx.xxxxx)* , Long: *(e.g. -xxx.xxxxx)*
Datum: ☐ NAD27 ☐ NAD83 ☐ WGS84
County: Barber
Lease Name: CROMER Well #: B2
Field Name:
Producing Formation: Ordovician
Elevation: Ground: 2002 Kelly Bushing: 2007
Total Vertical Depth: 4850 Plug Back Total Depth:
Amount of Surface Pipe Set and Cemented at: 261 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: 39000 ppm Fluid volume: 4500 bbls
Dewatering method used: Evaporated
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: 01/25/2023
☐ **Confidential Release Date:** 01/24/2025
☑ **Wireline Log Received** ☐ **Drill Stem Tests Received**
☑ **Geologist Report / Mud Logs Received**
☐ **UIC Distribution**
ALT ☑ **I** ☐ **II** ☐ **III** **Approved by:** David Befort **Date:** 01/26/2023

Page Two

Operator Name: Griffin, Charles N. Lease Name: CROMER Well #: B2

Sec. 4 Twp. 30 S. R. 15 ☐ East ☑ West County: Barber

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 ☐ Yes ☑ No
(Attach Additional Sheets)

Samples Sent to Geological Survey ☑ Yes ☐ No

Cores Taken ☑ Yes ☐ No

Electric Log Run ☑ Yes ☐ No

Geologist Report / Mud Logs ☑ Yes ☐ No

List All E. Logs Run:

CNL/CDL
Dual Induction
Micro

☑ Log Formation (Top), Depth and Datum ☐ Sample

Name	Top	Datum
Heebner	3911	-1904
Lansing	4103	-2096
B/KC	4485	-2478
Cherokee	4586	-2579
Viola	4626	-2619
Simpson	4778	-2771

CASING RECORD ☑ New ☐ 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	12.25	8.625	23	261	common	270	3%cc 2%gel
Production	7.875	5.5	15.5	4844	Pro C	145	10%salt 2%gel 6# Koseal

ADDITIONAL CEMENTING / SQUEEZE RECORD

Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
☐ Perforate ☐ Protect Casing ☐ Plug Back TD ☐ 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: 10/24/2022

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: ☐ Open Hole ☑ Perf. ☐ Dually Comp. *(Submit ACO-5)* ☐ Commingled *(Submit ACO-4)*

PRODUCTION INTERVAL:

Top	Bottom
4688	4704

Shots Per Foot	Perforation Top	Perforation Bottom	Bridge Plug Type	Bridge Plug Set At	Acid, Fracture, Shot, Cementing Squeeze Record *(Amount and Kind of Material Used)*
3	4688	4704			see attached

TUBING RECORD: Size: 2.875 Set At: 4747 Packer At:

Mail to: KCC - Conservation Division, 266 N. Main, Suite 220, Wichita, Kansas 67202

Form	ACO1 - Well Completion
Operator	Griffin, Charles N.
Well Name	CROMER B2
Doc ID	1683218

Casing

Purpose Of String	Size Hole Drilled	Size Casing Set	Weight	Setting Depth	Type Of Cement	Number of Sacks Used	Type and Percent Additives
Surface	12.25	8.625	23	261	common	270	3%cc 2%gel
Production	7.875	5.5	15.5	4844	Pro C	145	10%salt 2%gel 6# Koseal

QUALITY WELL SERVICE, INC.

8119

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	Sec.	Twp.	Range	County	State	On Location	Finish
9-27-22	4	30	15W	Barber	KS		8:45

Lease Cramer | Well No. B2 | Location

Contractor Murfin Drilling

Type Job Surface

Hole Size 12¼ | T.D. 261

Csg. 8⅝ | Depth 254

Tbg. Size | Depth

Tool | Depth

Cement Left in Csg. | Shoe Joint 41

Meas Line | Displace

Owner

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.

Charge To Griffin

Street

City State

The above was done to satisfaction and supervision of owner agent or contractor.

Cement Amount Ordered 290sx Common 2% Gel 3% CC ½ #/s.

EQUIPMENT

Pumptrk 8	No.		
Bulktrk 10	No.		
Bulktrk	No.		
Pickup	No.		

JOB SERVICES & REMARKS

Ran 6 jts 8⅝ csg. broke circulation with Rig. Pumped 10 bbls H2o. Mixed and pumped 270sx Common 2% Gel 3% CC ½ #/s. Displaced with 15 bbls H2o. Shut in circulated cement to surface.

Davis Mike Richard Nathan.

Common	270
Poz. Mix	
Gel.	5 08
Calcium	7 61
Hulls	
Salt	
Flowseal	135
Kol-Seal	
Mud CLR 48	
CFL-117 or CD110 CAF 38	
Sand	
Handling	293
Mileage	25 / 7325

FLOAT EQUIPMENT

Guide Shoe	
Centralizer	
Baskets	
AFU Inserts	
Float Shoe	
Latch Down	
Service Supervisor	
LMV 25	
Pumptrk Charge	Surface.
Mileage	50
Tax	
Discount	
Total Charge	

X Signature

Taylor Printing, Inc.

QUALITY WELL SERVICE, INC.

8112

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	Sec.	Twp.	Range	County	State	On Location	Finish
10-3-22	4	30S	15W	Barber	Ks		

Lease CROMER Well No. B-2 Location

Contractor Murfin Drlg Rig 104 Owner

Type Job 5½ L.S 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 7 7/8 T.D. 4945

Csg. 5½ 15.5# Depth 4347.46 Charge To Griffin

Tbg. Size Depth Street

Tool Depth City State

Cement Left in Csg. Shoe Joint 10.23 The above was done to satisfaction and supervision of owner agent or contractor.

Meas Line Displace 115.13 Cement Amount Ordered 175sx Prem 2% Gel 10% Salt 5#/sx Kolseal .6%. C16A .25%, C41P 25#/sx PS

EQUIPMENT

Pumptrk 3	No.		
Bulktrk 10	No.		
Bulktrk	No.		
Pickup	No.		

Common 175sx

Poz. Mix

Gel. 329#

Calcium

Hulls

Salt 964#

Flowseal 44#

Kol-Seal 975#

Mud CLR 48 500 Gal

CFL-117 or CD110 CAF 38 C16A 99#

Sand CC-1 9 Gal C41P 41#

Handling 217

Mileage 25 5425

JOB SERVICES & REMARKS

Rat Hole 30sx

Mouse Hole

Centralizers 1-2-3-4-5-6-7

Baskets

D/V or Port Collar

Run 115 jts 5½ 15.5 CSG, SET 4849'
START CSG CSG on Bottom & TAG
Hook up to CSG DROP BALL & BREAK CIRC
W/RIG
START Pumping 10 Bbls H2O 12 Bbls MF 10 Bbls H2O
PUMP R. Hole 30sx
MIC Pump 145sx Prem @ 14.8#/Gal
SHUT Down WASH up TRK: RELEASE 5½ LD PLUG
START Disp W/2% KCL
LIFT PSI 99 Bbls Out 550#
PLUG Down 116 Bbls 1100#
PSI up CSG 1700#
RELEASE! HELD ½ Bbl BACK
Good Circ thru JOB
THANK YOU
PLEASE CALL AGAIN TODD MIKE BRADY

5½ FLOAT EQUIPMENT

Guide Shoe H.M 1 EA

Centralizer 7 EA

Baskets

AFU Inserts

Float Shoe

Latch Down 1 EA

SERVICE SUPV 1 EA

LMV 25

Pumptrk Charge LS

Mileage 50

Tax

Discount

Total Charge

X Signature

Taylor Printing, Inc.

Cromer B2
Griffin Management, LLC

10/2/22

Started laying down drill pipe @ 6:30 pm. Start running casing @ 11:30 pm. Ran 115 joints 5 ½" 15.5 # casing totaling 4,847.46'. Set @ 4844'.
PBTD: 4,833.77'.
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 3:15 AM.
Plug rathole with 30 sks cement.

10/5/22
RU CCWS rig 1.
Unload 150 jts of tubing from Addie yard (sunrise l80 blue band 2 7/8) (4,859.85' total tubing on location) (32.40 jt. Avg.)

RU log-tech to CBL.
Top of cement: 2,900’
LTD: 4,831’
Bond looks ok. Rd log-tech and will perforate in morning.

10/6/22

RU log-tech and perforate 4,688’-4,704’ 3 spf.
RD log-tech and pick up packer and 145 jts of 2 7/8” tubing to spot acid @ 4709’.
Ru Pro-stem to spot acid
27.3 + .5 = 27.8 bbl circulate spot.
Pull 2 jts and treat @ 4643’ (143 jts)

Breakdown @ 850 #. Treated 3.05 bpm @ 650 #. ISIP 380# 310 # after 5 min. 280 # after 10 min. 270 # after 15 min.
Total load 75.4 bbl
Flowed back 11 bbl to truck.
64 bbl total left to get back.
RU to swab: IFL surface. Rec 1300’ KCL water .

Swab down rec 60 bbl. TOB OC.
1st hour after swab down
1st run Rec 500’ @ 10 % oc
2nd run Rec 400’ @ 11 % oc
3rd run Rec 400’ @ 10 % oc
4th run Rec 150’ @ 10 % oc
5th run Rec 100’ @ 9 % oc
6th run Rec 100’ @ 9 % oc
Rec 7 bbl on swab tests, 67 bbl total rec.
RD swab, pop bypass on packer and let fluid equalize. Rig back up to swab.
IFL: 1,300’. Rec 24 bbl on swab down after opening bypass. Last run 400’ TOB OC.

Shut well in.

10/7/22

SITP: 35 #. Blew down to tank, RU to swab.
IFL: 1,300’. Pulled from 2,400’ rec 1,100’ of dirty water with TOB OC.
Swabbed down rec 47 bbl. Start 15 min tests.

1rst hour rec 5 bbls. 1-2 % OC
2nd hour rec 4 bbls. 2 % OC
3rd hour rec 2 bbls. 3 % OC.
Unset packer and swab down.
Rec 49 bbl on swab down, lay tubing down and secure well for frac.

10/20/22

Spot in CCWS Rig #1. RU Gore Nitrogen to frack with 8 tanks. Treated 50 Bpm @ 1,550 #.
ISIP: 1,326 #. 15 min: 1,122 #.
Average Rate: 47.6 BPM- Max rate: 52.3 BPM
Average PSI: 1,589 #. Max PSI: 1,990 #
Used 3,431 bbl Slick Water + 24 bbl Acid = 3,455 bbl Total Load.
Pumped 61,630 LBS of 20/40 Sand + 8,066 LBS of 20/40 Resin coated sand and 1,320,000 SCF of N2.
Shut Well in and will flow back Saturday morning.

10/21/22– SATURDAY

SICP: 1,605 #. Opened up on a 14/64” Choke and started flowing back at 7:30 AM.
Fluid to surface 1 hour; 470 # CP.

1st hour: 500 # CP, Rec 14 bbl, ———14/64”
2nd hour: 500 # CP, Rec 16 bbl,———14/64”
3rd hour: 470 # CP, Rec 12 bbl,——— 14/64”
—NO OIL or SAND YET—
4th hour: 400 # CP, Rec 10 bbl,——— 14/64”
5th hour: 350 # CP, Rec 12 bbl,——— 14/64”
—Opened Choke to a 16/64”—
6th hour: 350 # CP, Rec 20 bbl,——— 16/64”
7th hour: 300 # CP, Rec 15 bbl,——— 18/64”
8th hour: 250 # CP, Rec 20 bbl, ———18/64”
—120 BBL TOTAL RECOVERED—
9th hour: 250 # CP, Rec 15 bbl,———-20/64”
—2 % OC, 135 bbl total REC —
10th hour: 200 # CP, Rec 20 bbl,———20/64”
—4 % OC , 155 bbl total REC —
11th hour: 175 # CP, Rec 20 bbl,———22/64”

— 8 % OC , 175 bbl total REC —

12.5th hour: 70 # CP, Rec 20 bbl (1.5)—26/64”

— 10 % OC, 195 bbl total REC —

15.5th hour: 0 # CP, Rec 18.5 bbl (3)—-48/64”

— SLI blow on casing, 213.5 bbl total REC —

10/24/22

RD frac valve and RO to run production tubing as follows:

1)	2 7/8” Mud-Anchor.	15.01’
1)	2 7/8” Seating nipple.	1.10’
146)	Joints of 2 7/8” tubing.	4,730.40’

Bottom of MA landed @ 4,746.90’

Pack off well head and RO to run pump as follows:

1) 2 ½” x 2” x 18’ RWBC Pump
1) 2’ x 7/8” Pony sub
9) 1 ½” x 25’ K-BARS

100) ¾” Rods

78) 7/8” Rods

1) 8’ x 7/8” Pony sub

1) 4’ x 7/8” Pony sub

1) 26’ Polished rod.

Loaded tubing with 12 bbls. Set 320 sentry pumping unit with c-106 engine.

GRIFFIN MANAGEMENT, LLC
126 S. Main, Pratt, KS 67124
620.672.9700

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

Well Name: Cromer B2
API: 15-007-24444
Location: T30S R15W Sec 4, W2 W2 NW
License Number: 33936
Region: Barber County, KS
Spud Date: 09/27/2022
Drilling Completed: 10/02/2022
Surface Coordinates: Latitude: 37.466676
Longitude: -98.974046
Bottom Hole Coordinates: Vertical Wellbore
Ground Elevation (ft): 2002
K.B. Elevation (ft): 2007
Logged Interval (ft): 3800 To: 4850
Total Depth (ft): 4850
Formation: Ordovician (Simpson) @ RTD
Type of Drilling Fluid: Mud-Co. Chemical Drispac - Displaced @ 2833-65' w/ 700 bbls

OPERATOR

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

GEOLOGIST

Name: Eli J. Felts
Company: Griffin Management, LLC
Address: 126 S. Main
Pratt, KS 67124

Lithology	MD	Circulating Stops	Rate of Penetration	Oil Shows	Geological Descriptions	DSTs/Mud/Surveys, etc.

SH - flood dark brown, earthy & organic, soft to partly fissile - visible laminations w/ slight show gas; carbonaceous; LS - cream, med xln w/ sl dolomitic xln; foss w/ poor to fair foss/xln pors; chalky barren

SH - deep grey to black, carbonaceous, increasingly fissile; vis laminations w/ heavy show bleeding gas, LS - crm to grey, v. fine to microxln in some w/ abdt white chalky soft

SH - dark brown to black, earthy organic & carbonaceous; fissile w/ vis laminations in some; show gas; Heebner Shale; flood soft white chalk

SH - abdt dark; transition to grey to brown, silty, med firm w/ smooth txture; some LS - cream to grey, sm green hue; argillaceous in most/interbedded shale stringers; some LS cream, fn & med-lg xln; 2dary re-xln in few; barren, good vis pors & friab

LS - cream to buff, white & chalky in most; transition SH - light grey in most w/ scattered dark stringers carb shale fragment inclusions; silty in most w/ sl v. fn grained sandy txture in few; non-friable, soft

SH - flood shale, grey & palegreen, light to medium grey w/ abdt v. fn grn sand content & dark speckled & streaked mineral & shale inclustion; appears dark, micaceous flecks & carb shales intbd; no odor, ns

SH - pale grey to green w/ abdt shaley SS - lt grey, fn grained qtz, clear to mstly frosted; sb rounded & well sorted; fair to good friab; barren; no odor; no fluor, ns; abdt black carb & micaceous fragmented incls

SH - flood med grey, silty; firm w/ sl slippery txture on break; decreasing trace SS - appears wht to lt cream, fine grained, well rnd & sorted; tightly cemented; some dark speckled inclusions; barren w/ dense crush; no odor, ns

SH - pale grey, some dark speckled mineral incls; mostly med soft to sl firm & silty; trailing sandy stringers w/ traces pyrite; some LS - tan to brown w/ pale green hue, fn to micro-xln w/ interbedded shale & fewl glauconitic; foss in many (no vis pors)

SH - flood silty grey, mst smooth txture, traces speckled black w/ micaceous to carb incls ip; oa smooth lithographic, med-sl firm; LS - tan to brown, v. fine to microxln; foss in many; v. well compacted w/ no vis pors; dense

(~90% Douglas SH) some LS - crean & tan to brown, v. fine to microxln, abdundantly foss w/ smooth/glossy sheen; no vis xln or intrafoss pors, v. dense & blocky; difficult to break; some LS - cream to white, fn-med xln w/ sl xln & intrafoss txture; softer w/ sl chalky break; no odor, no shows

LS - crm to lt grey w/ darker spotted incls/foss, sm tan, fn to med xln; highly foss w/ abdt argl to shaley stringers; poorly dev vis pors; abdt Chalk; sl firm; no odor, no shows

LS - cream to white, pale grey, fn to med xln; sm foss, highly chalky; fair vis pors w/ re-xln med pors; good friab, some xln w/ slight scattered staining & trace fluor, fair odor, poss show condensate

LS - cream to wht & pale grey, mst fn-med xln, smooth to partly foss, highly chalky w /some fair vis xln pors & friab; trace odor w/ decreasing stain; shales;ns

SH - pale grey & green, silty to partly foss; soft to med firm; heavily chalky in sample cup; no odor, ns

LS - crm to lt grey & abdt chalky white, fn to med xln; & some v.fn to micritic; some vis re-xln w/ mostly dense to partly foss, chalky in majority pcs; no odor, no shows

LS - mostly crm to wht (chalky) w/ sm tan & brown, fn-med xln, smooth to partly cherty appearance; sm interbedded shales ip; appears fractured w/ vis 2ndary xln dev along fracs; brown & grey mineral staining; poor to fair friab; no show

LS - crm to tan & brown, fn to med xln; argillaceous to chalky; foss in some w/some fair to good dev intra foss pors; abdt chalky to shaley break; some loose grey shale

LS - cream to lt grey, heavily chalky throughout; fn-md xln; trans v. fn to microxln; sub cherty ip w/ sharp edges, white to grey foss clusters abdt; some interbedded & brown shale stringers no odor, ns

LS - mst cream, sm lt grey, fn xln to cherty; lithographic in most; trans white to lt tan; micro xln, mst smooth w/ sm foss txture; no shows; traces lt brown shales & vis shale contacts

LS - cream to pale grey, md xln to fn & v. fine xln w/ interbedded & abdt loose CH, vitreous, mst clean CH noticible flood SH - pale grey, gummy soft w/ rare SH - black carb

LS - crm to buff & lt grey, sm whit; fn-med xln w/fair to good foss, ool-ooc txture; fair vis pors & friab; questionable stain; trans cherty in part; trans chalky increasing; abdt scattered SH - pale green-grey & brown, silty

LS - cream to tan w/ some marbled white, fine xln w/ chalky txtural appearance in many; overall increasing density & decrease vis porosity; few shale stringers throughout

LS - cream to lt grey, sm white varitxtured w/ mst fine xln, foss ip; partly friab w/ poor to fair vis pors; abdt chalk, some gummy soft white & grey, few pale grey shales, silty to soft; no odor, ns

LS - mst cream to beige, fn to med xln, well compacted in most w/ oa smooth txture, firm to dense breaks w/ non friab txt; sl chalky matrix; rare interbedded shale, brown; few interbedded dark shale stringers

LS - flood cream to white, mst fine xln w/ chalky txture, some vis re-xln; poorly dev; few foss w/ marbled transitonal compaction (marbled), chalky & soft break, barren; stringers SH - grey silty

LS - cream to tan fn xln w/ some f. fine xln; oa smooth w/ poorly vis pors, interbedded Chty ip, moderate friability w/ barren, chalky break; fairly lithographic

SH - ~15% dark brown to black, earthy & carbonceous w/ blocky to rounded foss incls; fissile, slight show gas bubbles on edges; LS - cream to tn, fn xln, few foss, no odor, no show oil

LS - mostly cream w/ some lt grey, fn to med xln w/ overall limited vis xln pors; most lithographic, limited vis xln pors; sparrite dev in v. small webs; edge shale contacts w/ traces carb shales (decreasing) & some lter grey/pale green silty shales

SH - flood deep grey & few black - carbonaceous in some w/ vis laminations/layer transition, earthy & organic, soft crush; some LS - crm grey, micritic to cherty; blocky w/ shaley edges

LS - mst cream, med to fn xln, marbled txture,sm fn to microxln-sb cherty; smooth to chalky txture in most w/ lmtd vis pors; no shows; abdt pcs w/ dark stained edges (shale contacts) & light grey & blue green shale stringers, partly limey; intbd streaks

LS - Crm-Wht, Cherty, FN XLN, Chalky in most, some foss, firm break; SH Lt Gry-Black, w/ few Lt Grn, Chalky, soft breaks, few pcs interbedded SH - Lt Gry - Black

LS - Crm - Wht, Cherty, FN XLN, Firm breaks, Re-XLN fracures w/ dark fracture coloration (marble like appearance); SH - Lt Gry w/ some black spotting, Silty, MD Breaks

LS - Crm-Wht w/ few Tan, Cherty, FN XLN, firm breaks; SH - Lt Gray, Silty, MD/S Breaks

LS - Crm - Wht, Cherty, FN XLN, firm Break, Fair Friab; SH - Lt Gray - Black, Chalky, Silty breaks w/ MD Breaks

LS - Crm -Wht w/ Tan, FN XLN, Firm breaks; Sh - Lt Gray, Chalky, Silty break, MD Firm

LS - Crm - Tan, FN/V. FN XLN, Micritic, V. Dense, few Stained Fractures; SH - Lt Gray - Green, few Pcs, Firm, Silty

SH - LT Gray/LT Grn/Red, MD Soft, Silty, Mottled SH consisting of mostly Red with Gray mottling; LS - Crm-Wht, Cherty, stained Fractures, Fewer LS Pcs overall

SH - Lt Gray/LT Grn/Red/Yellow, MD Soft, Silty, Mottled pcs consisting of Red/LT Gry, & few Red/Yellow; LS - Crm-Wht, Cherty, FN XLN; CH - Wht w. Grn hue, opaque, M XLN

SH - Lt Gray/Lt Grn/Red, MD Soft, Silty, MD Soft, Mottle Pcs consisting of Red/Lt Gr; LS - Crm - Wht, Cherty, Firm,

LS - Crm-Wht, Cherty, FN/MD XLN, Chalky, Soft break on most; SH - Varicolored, Lt Gray/Black/Red/Lt Green, increase in Green SH, MD Firmness, Silty Breaks

LS - Crm-Wht, Cherty, FN/MD XLN, Fair Friab, few Vis Pors; SH - Lt Gray-Black w/ few Red Mottled w/ Lt Green, Chalky, MD Firm break, Silty

LS - Crm-Wht w/ Grn hue in some Pcs, Cherty, FN XLN, no pors; CH - Wht-Crm w/ Green hue, opaque; SH - Lt Gray-Black, Red Mottled w/ Grn, Chalky, Compact, Slightly Grainy

DOL - Wht-Tan, Grainy, Fair Friab, Firm Breaks, Fair Vis Pors; CH - Translucent, MD XLN< Firm Breaks, Fair Friab; SH - Lt Gray-Black, Chalky, Firm Breaks, Silty Breaks, Black Spotting on few Pcs

Dol - wht to lt grey, fine xln sucrosic w/ poorly compacted & chalky makeup; soft break w/ powdery, chalky residual on break w/ rare (~5-10% scattered fluor & traces visible stain) faint odor in cup; oa fair visible porosity w/ v. weak shows; appear wet/non-commercial

Dol - crm to grey, fine xln sucrosic w/ fair vis xln pors; barren on break w/ sl chalky, soft crush; some firm to dense - transition to CH, pale grey to bone; vitreous sharp fresh, barren - no odor, no show; no fluor

Dol - lt grey, fine xln sucrosic w/ chalky to limey makeup in some, scattered bone white vitreous CH, few pcs cream to tan w/ fn xln sucrosic, w/ good friab oa; save CH; no primary & trace 2ndary porosity; no odor, no shows

LS - cream to lt grey, sl dolomitic in some, fn xln sucrosic, fair vis xln pors, LS becoming more compact & v. fine xln w/ sm trans CH - crm to lt grey, bone; opaque to semi-translucent; dense & blocky, glassy break; ~20% SH - brown/green mottled stringers

SH - flood turquoise green; smooth silty w/ slippery to waxy appearance in some; non-brittle; stringers SS - appear wht-lt grey, fn-med grain, well rnd & srtd qtz; poorly friable; shalebound w/ abdt pyrite dev

SH - turqoise green, smooth & waxy to slippery txture; well compacted, w/ loose to firm, fissile break; sl increase sand stringers w/ some med-lg grains, sb rounded well sorted; poorly friable; dark incls (mineral/clays) & abdt pyrite; no odor, ns

SS - wht to lt grey clusters; med to lg grain sb rnded qtz; abdt "clean clusters" w/ clr to sl frosted qtz, well rnd & sorted med grains; some dark inclusions & abdt pyrite thruout; no odor, ns; flood grey shale, soft in most w/ some swelling; sticky globs

SS -lt to dark grey clusters w/ some greenish hue (fr shales); clr to frosted qtz; decreasing intragranular porosity w/ influx shales in matrix; sample dark w/ dark brown to grey shales; some reamaining SS has much poorer friability; dirtly clusters claybound w/ abdt pryite & glauconite; no odor no shows