

Confidentiality Requested:

KANSAS CORPORATION COMMISSION OIL & GAS CONSERVATION DIVISION 1220882

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 #		API No. 15
Name:		Spot Description:
Address 1:		
Address 2:		Feet from North / South Line of Section
City: State: Zi):+	Feet from East / West Line of Section
Contact Person:		Footages Calculated from Nearest Outside Section Corner:
Phone: ()		
CONTRACTOR: License #		GPS Location: Lat:, Long:, (e.gxxx.xxxxx)
Name:		Datum: NAD27 NAD83 WGS84
Wellsite Geologist:		
Purchaser:		County:
Designate Type of Completion:		Lease Name: Well #:
New Well Re-Entry	Workover	Field Name:
		Producing Formation:
☐ Oil ☐ WSW ☐ SWD ☐ Gas ☐ D&A ☐ ENHR	SIOW	Elevation: Ground: Kelly Bushing:
	Temp. Abd.	Total Vertical Depth: Plug Back Total Depth:
CM (Coal Bed Methane)		Amount of Surface Pipe Set and Cemented at: Feet
Cathodic Other (Core, Expl., etc.):		Multiple Stage Cementing Collar Used? Yes No
If Workover/Re-entry: Old Well Info as follows:		If yes, show depth set: Feet
Operator:		If Alternate II completion, cement circulated from:
Well Name:		feet depth to:w/sx cmt.
Original Comp. Date: Original To		
Deepening Re-perf. Conv. to El	IHR Conv. to SWD	Drilling Fluid Management Plan
	SW Conv. to Producer	(Data must be collected from the Reserve Pit)
Commingled Permit #:		Chloride content: ppm Fluid volume: bbls
		Dewatering method used:
		Location of fluid disposal if hauled offsite:
		Location of huld disposal in hadred offsite.
		Operator Name:
		Lease Name: License #:
Spud Date or Date Reached TD	Completion Date or	Quarter Sec TwpS. R East West
Recompletion Date	Recompletion Date	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:

	Page Two	1220882
Operator Name:	Lease Name:	Well #:
Sec TwpS. R □ East □ West	County:	
INCTRUCTIONS. Chow important tang of formations panatrated	Datail all aaraa Bapart all t	final appias of drill stome tests giving interval tested, time test

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 (Attach Additional She	eets)	Yes No		og Formatic	on (Top), Depth ar	nd Datum	Sample
Samples Sent to Geolog	jical Survey	Yes No	Nam	e		Тор	Datum
Cores Taken Electric Log Run		☐ Yes ☐ No ☐ Yes ☐ No					
List All E. Logs Run:							
			RECORD Ne				
		Report all strings set-	conductor, surface, inte	rmediate, producti	on, 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 / SQL	EEZE RECORD			
Purpose: Perforate	Depth Top Bottom	Type of Cement	# Sacks Used		Type and F	Percent Additives	

Perforate	Top Bottom	Type of Cernent	# Sacks Used	Type and Fercent Additives
Protect Casing				
Plug Back TD				
Plug Off Zone				

No

No No

No

Did you perform a hydraulic fracturing treatment on this well?	Yes
Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons?	Yes
Was the hydraulic fracturing treatment information submitted to the chemical disclosure registry?	Yes

(If No, skip questions 2 and 3) (If No, skip question 3)

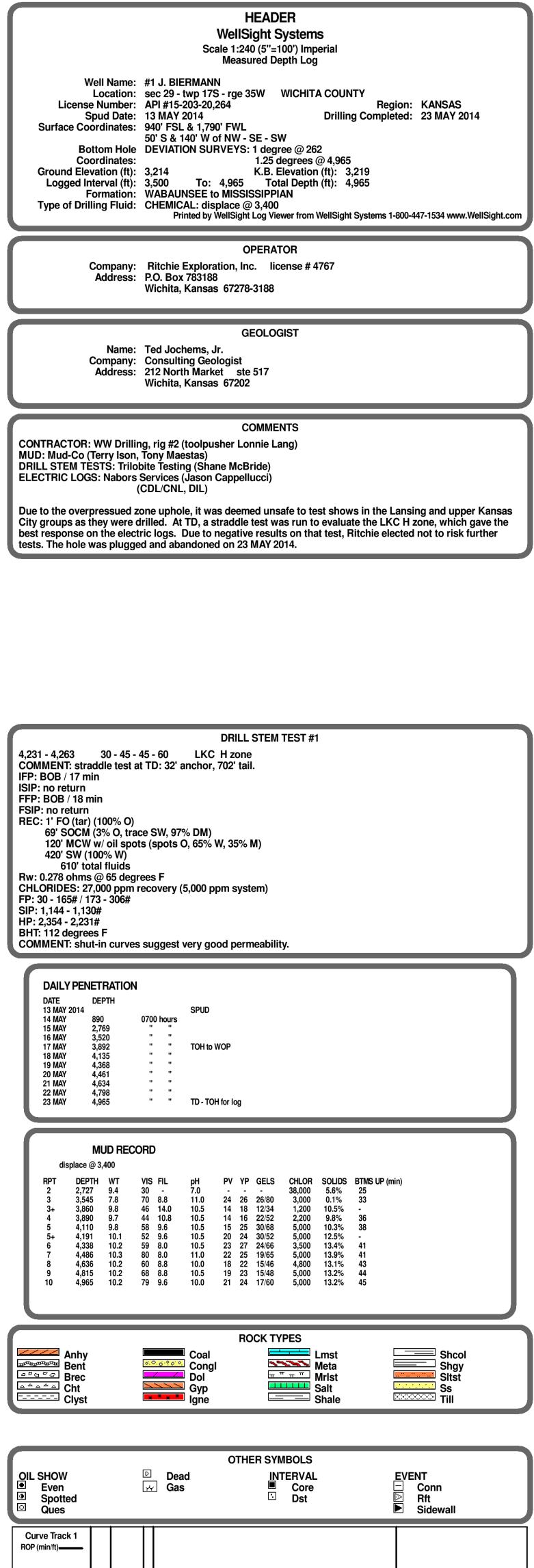
(If No, fill out Page Three of the ACO-1)

Shots Per Foot		PERFORATION Specify Fo	NRECOF otage of	RD - Bridge P Each Interval I	Plugs Set/Typ Perforated)e			ement Squeeze Record d of Material Used)	Depth
TUBING RECORD:	Si	ze:	Set At:		Packe	r At:	Liner F		No	
Date of First, Resumed	d Product	ion, SWD or ENHI	٦.	Producing N	/lethod:	ping	Gas Lift	Other (Explain)		
Estimated Production Per 24 Hours		Oil Bb	ls.	Gas	Mcf	Wat	er	Bbls.	Gas-Oil Ratio	Gravity
DISPOSIT	ION OF (GAS:			_				PRODUCTION INTE	RVAL:
Vented Sol	d	Used on Lease		Open Hole	Perf.	Uually (Submit)		Commingled (Submit ACO-4)		
(If vented, Su	ubmit ACC	D-18.)		Other (Specify)		(2001111)		(000/1/100/1)		

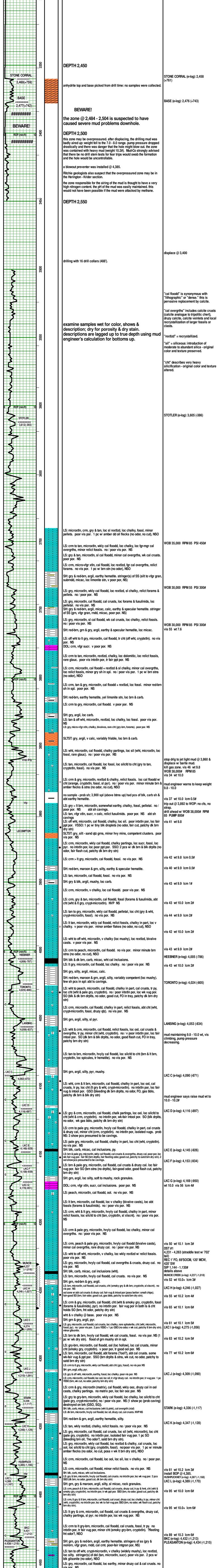
Form	ACO1 - Well Completion
Operator	Ritchie Exploration, Inc.
Well Name	J. Biermann 1
Doc ID	1220882

Casing

Purpose Of String	Size Hole Drilled	Size Casing Set	Weight	Setting Depth	Type Of Cement	Type and Percent Additives
Surface	12.25	8.625	23	261	common	3% cc, 2% gel



ROP (min/ft)	Depth	Lithology	Oil Shows	Geological Descriptions	REMARKS
0 ROP (min/ft) 10 - - - - - -<	3250			DEPTH 2,350	
	3300			DEPTH 2,400	



	445(LS: gry, microxtln, cal floodd, loc earthy, minor druzy cal & cal crusts. no vis por. NS	
\$			LS: gry & crm, microxtln, cal floodd, cal crusts, druzy cal, loc silcfd to cht (wht & gry, cryptxtln). no / poor vis por. NS	MARMATON (e-log): 4,460 (-1,241)
ARMATON 4,465(-1,246)			SLTST: grn, gry & maroon, silt-vfgr, argil, v friable (mushy), calc, loc micac, tr hvy minerals. v poor vis por. NS	
c			LS: brn, microxtin, cal floodd, cal crusts, fossl, loc cht (smoky gry & clr, cryptxtin). no vis por. tr brn stns (no odor, no cut), NSO	vis 89 wt 10.4 lcm 6#
ALTAMONT 4.498(-1,279)			SH: gry, grn & red-brn, argil, silty, earthy hematite. stringer of ss (gry, vfgr-fgr, subang to rndd, tr hvy mins, cal cmt. poor por, NS)	
	4500		LS: brn, microxtin, cal floodd, clr cgr druzy cal, abt cal crusts. no vis por. NS	ALTAMONT (e-log): 4,497 (-1,278)
<u></u>	_		LS: gry & brn, microxtln. cal floodd, druzy cal & cal crusts, 1 pc ?sphalerite?. no vis por. 1 pc w/ questionable dry stn (?caving?: no	vis 74 wt 10.3 lcm 5#
c 2			odor), NSO LS: v chalky with yel limonite stn. poor vis por. NS LS: brn, microxtln, hvyly cal floodd. no vis por. NS	
			SH: grn & gry, argil (often mushy), silty, calc, sl micac, minor earthy hematite. LS: It brn, tan & gry, microxtln, cal floodd, cal crusts, druzy cal, chalky	vis 66 wt 10.3 lcm 5#
- ALTAMONT B			partings (bivalve casts), tr dk brn hematite, relict fossis. no vis por. tr minute brn stns (no odor, no cut), NSO	vis 59 wt 10.2 lcm 5#
c S	_		SH: gry & grn, argil (mushy), silty, calc, sI pyr, splintery, plant fragments, rock granules.	vis 55 wt 10.2 lcm 5#
ALTAMONT C	0		LS: It gry, microxtln, wkly cal floodd, loc chalky, loc ool, tr py. no / poor vis por. VSSG on brk (no odor), NSO LS: peach, microxtln, ool w/ rextlzd or chalky matrix, loc wkly cal floodd,	vis 56 wt 10.1 lcm 5#
c 5	4550	¢	tr brn hematite coatings. v poor vis por. NSO	
		¢	LS: tan, microxtln, rextlzd, sl chalky, fossl, loc ool, druzy cal. poor por. NS	vis 59 wt 10.2 lcm 5#
PAWNEE	_		SH: dk gry, argil, pyr, rock granules. loc blk, carb, micac. LS: dk gry, microxtln, earthy, fossl. no vis por. NS	PAWNEE (e-log): 4,570 (-1,351)
4,570(-1,351)		• • • •	flood of dk shales & limes LS: dk gry, microxtln, earthy + tan, microxtln, chalky, ool, sl cal floodd.	
\mathbf{z}			poor por. NS LS: dk gry, microxtln, earthy, fossl, tr hematite stn + tan to lt brn, microxtln, ool, vnlts of hematite or carb sh. loc v chalky (gry), loc silcfd to	
		\$ 	cht (brn, gry-brn & crm, cryptxtln, fossl). no / v poor vis por. NS	
0 ROP (5 m/ft) 10	4600		LS: brn, microxtln, hvyly cal floodd, cal crusts, loc chalky, abt cht (smoky brn, cryptxtln, xlscnt). no vis por. NS	
-c-MYRICK			SH: blk, carb, micac, wht cal inclusions. SH: grn & gry, argil, silty.	MYRICK STATION (e-log): 4,609 (-1,390)
4,612 (-1,393)			LS: crm, microxtln, rextlzd & sl chalky, abt fossls, loc silcfd to cht (tan & gry, microxtln, fusulinids, py). no / poor vis por. NS	
FT SCOTT			SH: blk, carb, micac, wht cal inclusions. LS: dk brn, microxtin, hvyly cal floodd, cal crusts, cht (dk brn, cryptxtin, fossi (incl fusulinids)). no vis por. NS	FORT SCOTT (e-log): 4,623 (-1,404)
4,624	 _	¢ –	LS: off wht to tan, microxtln, somewhat chalky, v fossl, loc ool, cal crusts, rare py. poor vis por. tr brn stns (no odor, no cut), NSO LS: brn & tan, microxtln, cal floodd, abt fossls, loc ool, cht (brn & gry, cryptxtln, v fossl). no	
		φ.	vis por. NS LS: brn, microxtln, cal floodd, loc sil, minor cal crusts, loc silcfd to cht	
	0		(brn, cryptxtln). no vis por. NS LS: brn & brn-gry, microxtln, cal floodd, cal crusts, loc fossIs (incl	vis 58 wt 10.1 lcm 5#
CHER 4,652	4650		crinoids). no vis por. NS SH: blk, carb, micac, cal inclusions (wht & pink). LS: gry, crm, brn & red-brn, microxtln, cal floodd, loc rextIzd & chalky (often mushy), loc	CHEROKEE SH (e-log): 4,651 (-1,432)
4,052 (-1,433)			 secondary cal, loc earthy hematite in rock fabric, minor cht (wht, cryptxtln, v fossl). no / poor overall por, loc fair vug por. 1 pc SSO (dk brn drpits, no odor, wk-fair cut, patchy dk brn dry stn). LS: off wht & brn, microxtln, rextizd, loc chalky, loc cal floodd, abt forams & pellets, loc col. 	
2			LS: off wht & brn, microxtln, rextizd, loc chalky, loc cal floodd, abt forams & pellets, loc ool, minor druzy cal, rare py, loc silcfd to cht (wht, cryptxtln, abt forams). no / poor vis por. 1 pc w/ blk gils (no odor, no cut), NSO SH: dk grn & maroon, argil.	vis 59 wt 10.1 lcm 5#
S			LS: off wht, brn & gry, microxtln, cal floodd, loc chalky, cal crusts, tr py. no vis por. NS	
Ę			SH: blk, carb, micac, pyr, cal inclusions + grn & gry, argil, silty. LS: blk, microxtln, cal floodd, blk cht, cal crusts. NVP NS	
· · · · · · · · · · · · · · · · · · ·			LS: brn, tan & pale maroon, microxtln, cal floodd, cal crusts & vnlts, loc chalky, minor cht (clr, cryptxtln & lt maroon, microxtln). no vis por. NS	
5	4700		SH: grn & gry, argil, pyr, loc carb.	
<u> </u>			LS: $brn > gry$, microxtln, cal floodd, minor cal crusts, druzy cal, loc chalky. no vis por. NS	vis 51 wt 10.0 lcm 5#
			SH: grn & gry, argil, pyr, minor carb. LS: brn & off wht, microxtln, cal floodd, loc rextlzd & sl chalky, loc sil, abt	vis 54 wt 10.0 lcm 5#
3			druzy cal, cal crusts, loc silcfd to cht (brn & off wht, cryptxtln, xlscnt, vfgr hematite). no vis por. NS LS: brn > gry, microxtln, cal floodd, loc rextlzd & sl chalky, minor cal	
<u> </u>			crusts & druzy cal, loc siliceous to silicified (brn, crypt-micro xtln, loc xlscnt). no vis por. NS	vis 56 wt 10.1 lcm 5#
			SH: grn & gry, wkly argil, loc micac, sl pyr.	
			1	IOHNSON 7N (a-log): 4 740 (-1 521)
- JOHNSON -4,738(-1,519)	_		LS: It brn, It gry & It gry-maroon, microxtln, cal floodd, loc chalky, cal crusts & druzy cal, blk & brn coatings of hmt, minor fossis, loc silcfd to cht (It brn, cryptxtin, xiscnt), no vis por, NS	JOHNSON ZN (e-log): 4,740 (-1,521)
4,738(-1,519)	4750		crusts & druzy cal, blk & brn coatings of hmt, minor fossis, loc silcfd to cht (it brn, cryptxtin, xiscnt). no vis por. NS LS: brn, cal floodd a/a. large incr in Is: off wht, rextizd (loc w/ vfgr	JOHNSON ZN (e-log): 4,740 (-1,521) vis 59 wt 10.0+
-4,738(-1,519)	4750		crusts & druzy cal, blk & brn coatings of hmt, minor fossis, loc silcfd to cht (lt brn, cryptxtin, xlscnt). no vis por. NS LS: brn, cal floodd a/a. large incr in ls: off wht, rextlzd (loc w/ vfgr secondary cal xtals), chalky (loc mushy). no / poor VISIBLE por. tr brn or blk stns (no odor, no cut), VSSG on brk, NSO LS: pale maroon, micro-vfgr xtin, cal floodd, minor cal crusts, loc abt	vis 59 wt 10.0+
-4,738(-1,519)	4750		crusts & druzy cal, blk & brn coatings of hmt, minor fossis, loc silcfd to cht (It brn, cryptxtin, xiscnt). no vis por. NS LS: brn, cal floodd a/a. large incr in Is: off wht, rextizd (loc w/ vfgr secondary cal xtals), chalky (loc mushy). no / poor VISIBLE por. tr brn or blk stns (no odor, no cut), VSSG on brk, NSO LS: pale maroon, micro-vfgr xtln, cal floodd, minor cal crusts, loc abt relict forams (?ool?). no vis por. NS LS: off wht, micro-vfgr xtln, rextizd, chalky. v poor vis por. tr amber	
-4,738(-1,519)	4750		crusts & druzy cal, blk & brn coatings of hmt, minor fossls, loc silcfd to cht (It brn, cryptxtin, xlscnt). no vis por. NS LS: brn, cal floodd a/a. large incr in Is: off wht, rextlzd (loc w/ vfgr secondary cal xtals), chalky (loc mushy). no / poor VISIBLE por. tr brn or blk stns (no odor, no cut), VSSG on brk, NSO LS: pale maroon, micro-vfgr xtln, cal floodd, minor cal crusts, loc abt relict forams (?ool?). no vis por. NS LS: off wht, micro-vfgr xtln, rextlzd, chalky. v poor vis por. tr amber residue (no odor, no cut), NSO stringer of ss: off wht, vfgr-fgr gran, subrndd, 5% amber min, calc, friable, poor por, NS	vis 59 wt 10.0+ vis 75 wt 10.0 lcm 5# during cfs
-4,738(-1,519)	4750		crusts & druzy cal, blk & brn coatings of hmt, minor fossls, loc silcfd to cht (It brn, cryptxtln, xlscnt). no vis por. NS LS: brn, cal floodd a/a. large incr in Is: off wht, rextlzd (loc w/ vfgr secondary cal xtals), chalky (loc mushy). no / poor VISIBLE por. tr brn or blk stns (no odor, no cut), VSSG on brk, NSO LS: pale maroon, micro-vfgr xtln, cal floodd, minor cal crusts, loc abt relict forams (?ool?). no vis por. NS LS: off wht, micro-vfgr xtln, rextlzd, chalky. v poor vis por. tr amber residue (no odor, no cut), NSO stringer of ss: off wht, vfgr-fgr gran, subrndd, 5% amber min, calc, friable, poor por, NS LS: blk, microxtln, cal floodd, somewhat earthy, cal crusts, chalk partings (gry), loc silcfd to cht (blk to dk brn, cryptxtln, pyr). no vis por. NS LS: blk, microxtln, cal floodd, earthy, cal crusts, microxtln secondary	vis 59 wt 10.0+
	4750		crusts & druzy cal, blk & brn coatings of hmt, minor fossls, loc silcfd to cht (It brn, cryptxtln, xlscnt). no vis por. NS LS: brn, cal floodd a/a. large incr in ls: off wht, rextlzd (loc w/ vfgr secondary cal xtals), chalky (loc mushy). no / poor VISIBLE por. tr brn or blk stns (no odor, no cut), VSSG on brk, NSO LS: pale maroon, micro-vfgr xtln, cal floodd, minor cal crusts, loc abt relict forams (?ool?). no vis por. NS LS: off wht, micro-vfgr xtln, rextlzd, chalky. v poor vis por. tr amber residue (no odor, no cut), NSO stringer of ss: off wht, vfgr-fgr gran, subrndd, 5% amber min, calc, friable, poor por, NS LS: blk, microxtln, cal floodd, somewhat earthy, cal crusts, chalk partings (gry), loc silcfd to cht (blk to dk bm, cryptxtln, pyr). no vis por. NS LS: blk, microxtln, cal floodd, earthy, cal crusts, microxtln secondary ?cal?, relict fossls, carb coatings. no vis por. NS	vis 59 wt 10.0+ vis 75 wt 10.0 lcm 5# during cfs incr sh in 4,790 spl.
-c			crusts & druzy cal, blk & brn coatings of hmt, minor fossls, loc silcfd to cht (It brn, cryptxtln, xlscnt). no vis por. NS LS: brn, cal floodd a/a. large incr in ls: off wht, rextlzd (loc w/ vfgr secondary cal xtals), chalky (loc mushy). no / poor VISIBLE por. tr brn or blk stns (no odor, no cut), VSSG on brk, NSO LS: pale maroon, micro-vfgr xtln, cal floodd, minor cal crusts, loc abt relict forams (?ool?). no vis por. NS LS: off wht, micro-vfgr xtln, rextlzd, chalky. v poor vis por. tr amber residue (no odor, no cut), NSO stringer of ss: off wht, vfgr-fgr gran, subrndd, 5% amber min, calc, friable, poor por, NS LS: blk, microxtln, cal floodd, somewhat earthy, cal crusts, chalk partings (gry), loc silcfd to cht (blk to dk brn, cryptxtln, pyr). no vis por. NS LS: blk, microxtln, cal floodd, earthy, cal crusts, microxtln secondary ?cal?, relict fossls, carb coatings. no vis por. NS	vis 59 wt 10.0+ vis 75 wt 10.0 lcm 5# during cfs incr sh in 4,790 spl.
C BASE	4800 1 4750		crusts & druzy cal, blk & brn coatings of hmt, minor fossls, loc silcfd to cht (It brn, cryptxtln, xlscnt). no vis por. NS LS: brn, cal floodd a/a. large incr in ls: off wht, rextlzd (loc w/ vfgr secondary cal xtals), chalky (loc mushy). no / poor VISIBLE por. tr brn or blk stns (no odor, no cut), VSSG on brk, NSO LS: pale maroon, micro-vfgr xtln, cal floodd, minor cal crusts, loc abt relict forams (?ool?). no vis por. NS LS: off wht, micro-vfgr xtln, rextlzd, chalky. v poor vis por. tr amber residue (no odor, no cut), NSO stringer of ss: off wht, vfgr-fgr gran, subrndd, 5% amber min, calc, friable, poor por, NS LS: blk, microxtln, cal floodd, somewhat earthy, cal crusts, chalk partings (gry), loc silcfd to cht (bk to dk bm, cryptxtln, pyr). no vis por. NS LS: blk, microxtln, cal floodd, earthy, cal crusts, microxtln secondary ?cal?, relict fossls, carb coatings. no vis por. NS gry chalk, bivalve casts, intbdd carb material. poor vis por. NS SH: gry & grn, argil, loc carb, py. SH: blk, gry & grn, argil, loc micac, loc carb. SH: grn, gry & blk, v argil, carb, pyr, loc silty, rock granules	vis 59 wt 10.0+ vis 75 wt 10.0 lcm 5# during cfs incr sh in 4,790 spl. reduced rock - ?restricted basin?
-c			crusts & druzy cal, blk & brn coatings of hmt, minor fossls, loc silcfd to cht (It brn, cryptxtln, xlscnt). no vis por. NS LS: brn, cal floodd a/a. large incr in ls: off wht, rextlzd (loc w/ vfgr secondary cal xtals), chalky (loc mushy). no / poor VISIBLE por. tr brn or blk stns (no odor, no cut), VSSG on brk, NSO LS: pale maroon, micro-vfgr xtln, cal floodd, minor cal crusts, loc abt relict forams (?ool?). no vis por. NS LS: off wht, micro-vfgr xtln, rextlzd, chalky. v poor vis por. tr amber residue (no odor, no cut), NSO stringer of ss: off wht, vfgr-fgr gran, subrndd, 5% amber min, calc, friable, poor por, NS LS: blk, microxtln, cal floodd, somewhat earthy, cal crusts, chalk partings (gry), loc silcfd to cht (blk to dk brn, cryptxtln, pyr). no vis por. NS LS: blk, microxtln, cal floodd, earthy, cal crusts, microxtln secondary ?cal?, relict fossls, carb coatings. no vis por. NS SH: gry & grn, argil, loc carb, py. SH: blk, gry & grn, argil, loc micac, loc carb. SH: grn, gry & blk, v argil, carb, pyr, loc silty, rock granules SH: grn & gry, argil, microxtln py. SS: wht, vfgr gran, graded (vfgr-mgr-vcgr), subang-subrndd, friable (few	vis 59 wt 10.0+ vis 75 wt 10.0 lcm 5# during cfs incr sh in 4,790 spl. reduced rock - ?restricted basin? BASE (e-log): 4,800 (1,581) vis 68 wt 10.2 lcm 5#
-C -C -C -C -C -C -C -C -C -C -C -C -C -			crusts & druzy cal, blk & brn coatings of hmt, minor fossis, loc silcfd to cht (It brn, cryptxtin, xiscnt). no vis por. NS LS: brn, cal floodd a/a. large incr in Is: off wht, rextizd (loc w/ vfgr secondary cal xtals), chalky (loc mushy). no / poor VISIBLE por. tr brn or blk stns (no odor, no cut), VSSG on brk, NSO LS: pale maroon, micro-vfgr xtln, cal floodd, minor cal crusts, loc abt relict forams (?ool?). no vis por. NS LS: off wht, micro-vfgr xtln, rextizd, chalky. v poor vis por. tr amber residue (no odor, no cut), NSO stringer of ss: off wht, vfgr-fgr gran, subrndd, 5% amber min, calc, friable, poor por, NS LS: blk, microxtln, cal floodd, somewhat earthy, cal crusts, chalk partings (gry), loc silcfd to cht (blk to dk brn, cryptxtin, pyr). no vis por. NS LS: blk, microxtln, cal floodd, earthy, cal crusts, microxtln secondary ?cal?, relict fossis, carb coatings. no vis por. NS gry chalk, bivalve casts, intbdd carb material. poor vis por. NS SH: gry & grn, argil, loc carb, py. SH: blk, gry & grn, argil, loc micac, loc carb. SH: grn, gry & blk, v argil, carb, pyr, loc silty, rock granules SH: grn & gry, argil, microxtln py. SS: wht, vfgr gran, graded (vfgr-mgr-vcgr), subang-subrndd, friable (few clusters found), calc, py & hmt, glauc. poor vis por in clusters. NS	vis 59 wt 10.0+ vis 75 wt 10.0 lcm 5# during cfs incr sh in 4,790 spl. reduced rock - ?restricted basin? BASE (e-log): 4,800 (1,581)
-C -C -C -C -C -C -C -C -C -C -C -C -C -			crusts & druzy cal, blk & brn coatings of hmt, minor fossis, loc silcfd to cht (It brn, cryptxtin, xlscnt). no vis por. NS LS: brn, cal floodd a/a. large incr in Is: off wht, rextizd (loc w/ vfgr secondary cal xtals), chalky (loc mushy). no / poor VISIBLE por. tr brn or blk stns (no odor, no cut), VSSG on brk, NSO LS: pale maroon, micro-vfgr xtln, cal floodd, minor cal crusts, loc abt relict forams (?ool?). no vis por. NS LS: off wht, micro-vfgr xtln, cal floodd, winor cal crusts, loc abt residue (no odor, no cut), NSO stringer of ss: off wht, vfgr-fgr gran, subrndd, 5% amber min, calc, friable, poor por, NS LS: blk, microxtln, cal floodd, earthy, cal crusts, chalk partings (gry), loc silcfd to cht (blk to dk bm, cryptxtln, pyr). no vis por. NS LS: blk, microxtln, cal floodd, earthy, cal crusts, microxtln secondary ?cal?, relict fossls, carb coatings. no vis por. NS SH: gry & grn, argil, loc carb, py. SH: blk, gry & grn, argil, loc micac, loc carb. SH: grn, gry & blk, v argil, carb, pyr, loc silty, rock granules SH: grn & gry, argil, microxtln py. SS: wht, vfgr gran, graded (vfgr-mgr-vcgr), subang-subrndd, friable (few clusters found), calc, py & hmt, glauc. poor vis por in clusters. NS	vis 59 wt 10.0+ vis 75 wt 10.0 lcm 5# during cfs incr sh in 4,790 spl. reduced rock - ?restricted basin? BASE (e-log): 4,800 (1,581) vis 68 wt 10.2 lcm 5#
-C -C -C -C -C -C -C -C -C -C -C -C -C -			crusts & druzy cal, blk & brn coatings of hmt, minor fossis, loc silcfd to cht (It brn, cryptxtin, xiscnt). no vis por. NS LS: brn, cal floodd a/a. large incr in Is: off wht, rextizd (loc w/ vfgr secondary cal xtals), chalky (loc mushy). no / poor VISIBLE por. tr brn or blk stns (no odor, no cut), VSSG on brk, NSO LS: pale maroon, micro-vfgr xtln, cal floodd, minor cal crusts, loc abt relict forams (?ool?). no vis por. NS LS: off wht, micro-vfgr xtln, rextizd, chalky. v poor vis por. tr amber residue (no odor, no cut), NSO stringer of ss: off wht, vfgr-fgr gran, subrndd, 5% amber min, calc, friable, poor por, NS LS: blk, microxtln, cal floodd, somewhat earthy, cal crusts, chalk partings (gry), loc silcfd to cht (blk to dk brn, cryptxtin, pyr). no vis por. NS LS: blk, microxtln, cal floodd, earthy, cal crusts, microxtln secondary ?cal?, relict fossis, carb coatings. no vis por. NS gry chalk, bivalve casts, intbdd carb material. poor vis por. NS SH: gry & grn, argil, loc carb, py. SH: blk, gry & grn, argil, loc micac, loc carb. SH: grn, gry & blk, v argil, carb, pyr, loc silty, rock granules SH: grn & gry, argil, microxtln py. SS: wht, vfgr gran, graded (vfgr-mgr-vcgr), subang-subrndd, friable (few clusters found), calc, py & hmt, glauc. poor vis por in clusters. NS	vis 59 wt 10.0+ vis 75 wt 10.0 lcm 5# during cfs incr sh in 4,790 spl. reduced rock - ?restricted basin? BASE (e-log): 4,800 (1,581) vis 68 wt 10.2 lcm 5#
-C -C -C -C -C -C -C -C -C -C -C -C -C -	1 4800		crusts & druzy cal, blk & brn coatings of hint, minor fossis, loc silefd to cht (It brn, cryptxtin, xlscnt). no vis por. NS LS: brn, cal floodd a/a. large incr in Is: off wht, rextizd (loc w/ vfgr secondary cal xtals), chalky (loc mushy). no / poor VISIBLE por. tr brn or blk stns (no odor, no cut), VSSG on brk, NSO LS: pale maroon, micro-vfgr xtln, cal floodd, minor cal crusts, loc abt relict forams (?ool?). no vis por. NS LS: off wht, micro-vfgr xtln, rextizd, chalky. v poor vis por. tr amber residue (no odor, no cut), NSO stringer of ss: off wht, vfgr-fgr gran, subrndd, 5% amber min, calc, friable, poor por, NS LS: blk, microxtin, cal floodd, somewhat earthy, cal crusts, chalk partings (gry), loc silcfd to cht (blk to dk brn, cryptxtin, pyr). no vis por. NS LS: blk, microxtin, cal floodd, earthy, cal crusts, microxtin secondary ?cal?, relict fossis, carb coatings. no vis por. NS gry chalk, bivalve casts, intbdd carb material. poor vis por. NS SH: gry & grn, argil, loc carb, py. SH: blk, gry & grn, argil, loc micac, loc carb. SH: grn, gry & blk, v argil, carb, pyr, loc silty, rock granules SH: grn & gry, argil, microxtin py. SS: wht, vfgr gran, graded (vfgr-mgr-vcgr), subang-subrndd, friable (few clusters found), calc, py & hmt, glauc. poor vis por in clusters. NS SH: gry, dove gry & grn, argil, loc silty, loc pyr. SH: gry & grn, argil, loc pyr. SH: gry & grn, argil, loc pyr. SH: gry & grn, argil, loc pyr.	vis 59 wt 10.0+ vis 75 wt 10.0 lcm 5# during cfs incr sh in 4,790 spl. reduced rock - ?restricted basin? BASE (e-log): 4,800 (1,581) vis 68 wt 10.2 lcm 5# MORROW SD (e-log): 4,818 (-1,599)
-C BASE -(-1,573) 0 ROPTINI(ft) 0 ROPTINI(ft) 10 			crusts & druzy cal, blk & brn coatings of hmt, minor fossis, loc silcfd to cht (It brn, cryptxtin, xlscnt). no vis por. NS LS: brn, cal floodd a/a. large incr in Is: off wht, rextizd (loc w/ vfgr secondary cal xtals), chalky (loc mushy). no / poor VISIBLE por. tr brn or blk stns (no odor, no cut), VSSG on brk, NSO LS: pale maroon, micro-vfgr xtln, cal floodd, minor cal crusts, loc abt relict forams (?ool?). no vis por. NS LS: off wht, micro-vfgr xtln, rextizd, chalky. v poor vis por. tr amber residue (no odor, no cut), NSO stringer of ss: off wht, vfgr-fgr gran, subrndd, 5% amber min, calc, friable, poor por, NS LS: blk, microxtln, cal floodd, somewhat earthy, cal crusts, chalk partings (gry), loc silcfd to cht (blk to dk bm, cryptxtln, pyr). no vis por. NS LS: blk, microxtln, cal floodd, earthy, cal crusts, microxtln secondary ?cal?, relict fossis, carb coatings. no vis por. NS gry chalk, bivalve casts, intbdd carb material. poor vis por. NS SH: gry & grn, argil, loc carb, py. SH: blk, gry & grn, argil, loc micac, loc carb. SH: grn & gry, argil, microxtln py. SS: wht, vfgr gran, graded (vfgr-mgr-vcgr), subang-subrndd, friable (few clusters found), calc, py & hmt, glauc. poor vis por in clusters. NS SH: gry, dove gry & grn, argil, loc silty, loc pyr. SH: gry & grn, argil, loc pyr.	vis 59 wt 10.0+ vis 75 wt 10.0 lcm 5# during cfs incr sh in 4,790 spl. reduced rock - ?restricted basin? BASE (e-log): 4,800 (1,581) vis 68 wt 10.2 lcm 5# MORROW SD (e-log): 4,818 (-1,599) vis 72 wt 10.2 lcm 5#
-C BASE -(-1,573) 0 ROPTINI(ft) 0 ROPTINI(ft) 10 	1 4800		 crusts & druzy cal, blk & brn coatings of hmt, minor fossls, loc silefd to cht (It brn, cryptxtln, xlscnt). no vis por. NS LS: brn, cal floodd a/a. large incr in ls: off wht, rextIzd (loc w/ vfgr secondary cal xtals), chalky (loc mushy). no / poor VISIBLE por. tr brn or blk stns (no odor, no cut), VSSG on brk, NSO LS: pale maroon, micro-vfgr xtln, cal floodd, minor cal crusts, loc abt relict forams (?ool?). no vis por. NS LS: off wht, micro-vfgr xtln, rextIzd, chalky. v poor vis por. tr amber residue (no odor, no cut), NSO stringer of ss: off wht, vfgr-fgr gran, subrndd, 5% amber min, calc, friable, poor por, NS LS: blk, microxtln, cal floodd, somewhat earthy, cal crusts, chalk partings (gry), loc silefd to cht (blk to dk bm, cryptxtln, pyr). no vis por. NS LS: blk, microxtln, cal floodd, earthy, cal crusts, microxtln secondary ?cal?, relict fossls, carb coatings. no vis por. NS gry chalk, bivalve casts, intbdd carb material. poor vis por. NS SH: gry & grn, argil, loc carb, py. SH: blk, gry & grn, argil, loc micac, loc carb. SH: grn & gry, argil, microxtln py. SS: wht, vfgr gran, graded (vfgr-mgr-vcgr), subang-subrndd, friable (few clusters found), calc, py & hmt, glauc. poor vis por in clusters. NS SH: gry, dove gry & grn, argil, loc silty, loc pyr. SH: gry, gry, argil, loc pyr. SH: gry, gry, argil, loc pyr. SH: gry, gry, argil, loc pyr. SH: gry, blk, argil (loc mushy), loc pyr, rock granules & pebbles. SH: gry, blk, argil (loc mushy), loc pyr, rock granules & pebbles. 	vis 59 wt 10.0+ vis 75 wt 10.0 lcm 5# during cfs incr sh in 4,790 spl. reduced rock - ?restricted basin? BASE (e-log): 4,800 (1,581) vis 68 wt 10.2 lcm 5# MORROW SD (e-log): 4,818 (-1,599)
-C BASE -(-1,573) 0 ROPTINI(ft) 0 ROPTINI(ft) 10 	1 4800		crusts & druzy cal, bik & brn coatings of hmt, minor fossis, loc silefd to cht (It brn, cryptxtin, xlscnt). no vis por. NS LS: brn, cal floodd a/a. large incr in Is: off wht, rextizd (loc w/ vfgr secondary cal xtals), chalky (loc mushy). no / poor VISIBLE por. tr brn or blk stns (no odor, no cut), VSSG on brk, NSO LS: pale maroon, micro-vfgr xtin, cal floodd, minor cal crusts, loc abt relict forams (?ool?). no vis por. NS LS: off wht, micro-vfgr xtin, rextizd, chalky. v poor vis por. tr amber residue (no odor, no cut), NSO stringer of ss: off wht, vfgr-fgr gran, subrndd, 5% amber min, calc, friable, poor por, NS LS: blk, microxtin, cal floodd, somewhat earthy, cal crusts, chalk partings (gry), loc silefd to cht (blk to dk bm, cryptxtin, pyr). no vis por. NS LS: blk, microxtin, cal floodd, earthy, cal crusts, microxtin secondary ?cal?, relict fossis, carb coatings. no vis por. NS gry chalk, bivalve casts, intbdd carb material. poor vis por. NS SH: gry & grn, argil, loc carb, py. SH: blk, gry & grn, argil, loc micac, loc carb. SH: grn & gry, argil, microxtin py. SS: wht, vfgr gran, graded (vfgr-mgr-vcgr), subang-subrndd, friable (few clusters found), calc, py & hmt, glauc. poor vis por in clusters. NS SH: gry & grn, argil, loc pyr. SH: gry & blk, argil (loc mushy), loc pyr, rock granules & pebbles. SH: grn & dk gry, blk & grn, argil, micac, py & hematite, loc carb, plant fragments (?fish scales?), tr rock granules. SH: grn & dk gry, argil, micac, plant fragments (?fish scales?), rock granules / pebbles. SH: grn & dk gry, tr aqua, argil, loc micac, rare shell fragments,	vis 59 wt 10.0+ vis 75 wt 10.0 lcm 5# during cfs incr sh in 4,790 spl. reduced rock - ?restricted basin? BASE (e-log): 4,800 (1,581) vis 68 wt 10.2 lcm 5# MORROW SD (e-log): 4,818 (-1,599) vis 72 wt 10.2 lcm 5#
-C BASE -(-1,573) 0 ROPTINI(ft) 0 ROPTINI(ft) 10 	1 4800		crusts & druzy cal, bik & brn coatings of hmt, minor fossis, loc silcfd to cht (It brn, cryptxtin, xiscni). no vis por. NS LS: brn, cal floodd a/a. large incr in Is: off wht, rextizd (loc w/ vfgr secondary cal xtals), chalky (loc mushy). no / poor VISIBLE por. tr brn or bik stns (no odor, no cut), VSSG on brk, NSO LS: pale maroon, micro-vfgr xtln, cal floodd, minor cal crusts, loc abt relict forams (?ool?). no vis por. NS LS: off wht, micro-vfgr xtln, rextizd, chalky. v poor vis por. tr amber residue (no odor, no cut), NSO stringer of ss: off wht, vfgr-fgr gran, subrndd, 5% amber min, calc, friable, poor por, NS LS: bik, microxtln, cal floodd, somewhat earthy, cal crusts, chalk partings (gry), loc silcfd to cht (bik to dk bm, cryptxtin, pyr). no vis por. NS LS: bik, microxtln, cal floodd, earthy, cal crusts, microxtln secondary ?cal?, relict fossis, carb coatings. no vis por. NS gry chalk, bivalve casts, intbdd carb material. poor vis por. NS SH: gry & grn, argil, loc carb, py. SH: blk, gry & grn, argil, loc micac, loc carb. SH: grn & gry, argil, microxtln py. SS: wht, vfgr gran, graded (vfgr-mgr-vcgr), subang-subrndd, friable (few clusters found), calc, py & hmt, glauc. poor vis por in clusters. NS SH: gry & grn, argil, loc silty, loc pyr. SH: gry, dove gry & grn, argil, loc silty, loc pyr. SH: gry & grn, argil, loc pyr. SH: gry & grn, argil, loc pyr. SH: gry & grn, argil, loc pyr. SH: gry & blk, argil (loc mushy), loc pyr, rock granules & pebbles. SH: gry & blk, argil, micac, py & hematite, loc carb, plant fragments (?fish scales?), tr rock granules. SH: grn & dk gry, argil, micac, plant fragments (?fish scales?), rock granules / pebbles. SH: grn & dk gry, tr aqua, argil, loc micac, rare shell fragments, lepidodendron stems, rock granules & pebbles.	vis 59 wt 10.0+ vis 75 wt 10.0 lcm 5# during cfs incr sh in 4,790 spl. reduced rock - ?restricted basin? BASE (e-log): 4,800 (1,581) vis 68 wt 10.2 lcm 5# MORROW SD (e-log): 4,818 (-1,599) vis 72 wt 10.2 lcm 5#
-C -C -C -C -C -C -C -C -C -C -C -C -C -	1 4800		crusts & druzy cal, bik & brn coatings of hmt, minor fossis, loc silefd to cht (It brn, cryptxtin, xlscnt). no vis por. NS LS: brn, cal floodd a/a. large incr in Is: off wht, rextizd (loc w/ vfgr secondary cal xtals), chalky (loc mushy). no / poor VISIBLE por. tr brn or blk stns (no odor, no cut), VSSG on brk, NSO LS: pale maroon, micro-vfgr xtin, cal floodd, minor cal crusts, loc abt relict forams (?ool?). no vis por. NS LS: off wht, micro-vfgr xtin, rextizd, chalky. v poor vis por. tr amber residue (no odor, no cut), NSO stringer of ss: off wht, vfgr-fgr gran, subrndd, 5% amber min, calc, friable, poor por, NS LS: blk, microxtin, cal floodd, somewhat earthy, cal crusts, chalk partings (gry), loc silefd to cht (blk to dk bm, cryptxtin, pyr). no vis por. NS LS: blk, microxtin, cal floodd, earthy, cal crusts, microxtin secondary ?cal?, relict fossis, carb coatings. no vis por. NS gry chalk, bivalve casts, intbdd carb material. poor vis por. NS SH: gry & grn, argil, loc carb, py. SH: blk, gry & grn, argil, loc micac, loc carb. SH: grn & gry, argil, microxtin py. SS: wht, vfgr gran, graded (vfgr-mgr-vcgr), subang-subrndd, friable (few clusters found), calc, py & hmt, glauc. poor vis por in clusters. NS SH: gry & grn, argil, loc pyr. SH: gry & blk, argil (loc mushy), loc pyr, rock granules & pebbles. SH: grn & dk gry, blk & grn, argil, micac, py & hematite, loc carb, plant fragments (?fish scales?), tr rock granules. SH: grn & dk gry, argil, micac, plant fragments (?fish scales?), rock granules / pebbles. SH: grn & dk gry, tr aqua, argil, loc micac, rare shell fragments,	vis 59 wt 10.0+ vis 75 wt 10.0 lcm 5# during cfs incr sh in 4,790 spl. reduced rock - ?restricted basin? BASE (e-log): 4,800 (1,581) vis 68 wt 10.2 lcm 5# MORROW SD (e-log): 4,818 (-1,599) vis 72 wt 10.2 lcm 5# vis 57 wt 10.1 lcm 5# vis 59 wt 10.1 lcm 5# vis 60 wt 10.1 lcm 5#
-C	1 4800		crusts & družy cal, blk & brn coatings of hmt, minor fossls, loc siltcfd to cht (It brn, cryptxtin, xlscnt). no vis por. NS LS: brn, cal floodd a/a. large incr in Is: off wht, rextlzd (loc w/ vfgr secondary cal xtals), chalky (loc mushy). no / poor VISIBLE por. tr brn or blk stns (no odor, no cut), VSSG on brk, NSO LS: pale maroon, micro-vfgr xtin, cal floodd, minor cal crusts, loc abt relict forams (?ool?). no vis por. NS LS: off wht, micro-vfgr xtin, rextlzd, chalky. v poor vis por. tr amber residue (no odor, no cut), NSO stringer of ss: off wht, vfgr-fgr gran, subrndd, 5% amber min, calc, friable, poor por, NS LS: blk, microxtin, cal floodd, somewhat earthy, cal crusts, chalk partings (gry), loc silcfd to cht (blk to dk bm, cryptxtin, pyr).no vis por. NS LS: blk, microxtin, cal floodd, earthy, cal crusts, microxtin secondary ?cal?, relict fossls, carb coatings. no vis por. NS gry chalk, bivalve casts, intbdd carb material. poor vis por. NS SH: gry & grn, argil, loc carb, py. SH: blk, gry & grn, argil, loc micac, loc carb. SH: grn, gry & blk, v argil, carb, pyr, loc silty, rock granules SH: grn & gry, argil, microxtin py. SS: wht, vfgr gran, graded (vfgr-mgr-vcgr), subang-subrndd, friable (few clusters found), calc, py & hmt, glauc. poor vis por in clusters. NS SH: gry & grn, argil, loc pyr. SH: gry & grn, argil, loc pyr. SH: gry & blk, argil (loc mushy), loc pyr, rock granules & pebbles. SH: gry & blk, argil (loc mushy), loc pyr, rock granules & pebbles. SH: grn & dk gry, argil, micac, py & hematite, loc carb, plant fragments (?fish scales?), tr rock granules. SH: grn & dk gry, argil, micac, plant fragments (?fish scales?), rock granules / pebbles. SH: grn & dk gry, tr aqua, argil, loc micac, rare shell fragments, lepidodendron stems, rock granules & pebbles. CONG: poorly sorted grn ss: silt to mgr qtz grns + granule to pebble sized Is grns. sand is subrndd, calc, glauc & loc pyr. intbdd lime grn sh & sd @ top of unit. LS: crm & peach, mgr ool set in microxtln matrix, sanded (fgr), chalky, loc si cal floodd.	vis 59 wt 10.0+ vis 75 wt 10.0 lcm 5# during cfs incr sh in 4,790 spl. reduced rock - ?restricted basin? BASE (e-log): 4,800 (1,581) vis 68 wt 10.2 lcm 5# MORROW SD (e-log): 4,818 (-1,599) vis 72 wt 10.2 lcm 5# vis 57 wt 10.1 lcm 5# vis 59 wt 10.1 lcm 5#
-C -C -C -C -C -C -C -C -C -C -C -C -C -	1 4800		crusts & druzy cal, blk & brn coatings of hmt, minor fossis, loc silcid to cht (It brn, cryptithn, xiscnt). no vis por. NS LS: brn, cal floodd a/a. large incr in Is: off wht, rextizd (loc w/ vfgr secondary cal xtals), chalky (loc mushy). no / poor VISIBLE por. tr brn or blk stns (no odor, no cut), VSSG on brk, NSO LS: pale maroon, micro-vfgr xtln, cal floodd, minor cal crusts, loc abt relict forams (?ool?). no vis por. NS LS: blk, microving rxtln, restizd, chalky, v poor vis por. tr amber residue (no odor, no cut), NSO stringer of ss: off wht, vfgr-fgr gran, subrndd, 5% amber min, calc, friable, poor por, NS LS: blk, microxtln, cal floodd, somewhat earthy, cal crusts, chalk partings (gry), loc silcid to cht (blk to dk bn, cryptixtin, py), no vis por. NS LS: blk, microxtln, cal floodd, somewhat earthy, cal crusts, microxtln secondary ?cal?, relict fossis, carb coatings. no vis por. NS gry chalk, bivalve casts, intbdd carb material. poor vis por. NS SH: gry & grn, argil, loc carb, py. SH: blk, gry & grn, argil, loc carb, py. SH: blk, gry & grn, argil, loc micac, loc carb. SH: grn & gry, argil, microxtln py. SS: wht, vfgr gran, graded (vfgr-mgr-vcgr), subang-subrndd, friable (few clusters found), calc, py & hnt, glauc. poor vis por in clusters. NS SH: gry & grn, argil, loc pyr. SH: grn gry & blk, argil (loc mushy), loc pyr, rock granules & pebbles. SH: grn & dk gry, argil, micac, plant fragments (?fish scales?), rock granules / pebbles. SH: grn & dk gry, tr aqua, argil, loc micac, rare shell fragments, lepidodendron stems, rock granules & loc pyr. intbdd lime grn sh & sd @ top of unit. LS: crm & peach, mgr ool set in microxtln matrix, sanded (fgr), chalky, loc si cal floodd, calc, glauc & loc pyr. intbdd lime grn sh & sd @ top of unit. LS: crm, microxtln, cal floodd, chalk partings, loc sanded, mostly -5% sd (loc 100%), tr py, minor cal vnlts & overgrits, loc silcid to cht (tan & off	vis 59 wt 10.0+ vis 75 wt 10.0 lcm 5# during cfs incr sh in 4,790 spl. reduced rock - ?restricted basin? BASE (e-log): 4,800 (1,581) vis 68 wt 10.2 lcm 5# MORROW SD (e-log): 4,818 (-1,599) vis 72 wt 10.2 lcm 5# vis 57 wt 10.1 lcm 5# vis 59 wt 10.1 lcm 5# vis 60 wt 10.1 lcm 5#
-C -C -C -C -C -C -C -C -C -C -C -C -C -			crusts & druzy cal, blk & brn coatings of hint, minor fossis, loc silcid to cht (It brn, cryptithn, xiscnt). no vis por. NS LS: brn, cal floodd a/a. large incr in is: off wht, rextizd (loc w/ vfgr secondary cal xtals), chalky (loc mushy). no / poor VISIBLE por. tr brn or blk stns (no odor, no cut), VSSG on brk, NSO LS: pale marcon, micro-vfgr xtln, cal floodd, minor cal crusts, loc abt relict forams (?ool?). no vis por. NS LS: off wht, micro-vfgr xtln, rextizd, chalky. v poor vis por. tr amber residue (no odor, no cut), NSO stringer of ss: off wht, vfgr-fgr gran, submdd, 5% amber min, calc, friable, poor por, NS LS: blk, microxtln, cal floodd, semewhat earthy, cal crusts, chalk partings (gry), loc silcid to cit (blk to the, cryptkin, py?). no vis por. NS LS: blk, microxtln, cal floodd, earthy, cal crusts, microxtln secondary ?cal?, relict fossis, carb coatings. no vis por. NS gry chalk, bivalve casts, intbdd carb material. poor vis por. NS SH: gry & grn, argil, loc carb, py. SH: blk, gry & grn, argil, loc micac, loc carb. SH: grn & gry, argil, microxtln py. SS: wht, vfgr gran, graded (vfgr-mgr-vcgr), subang-submdd, friable (few clusters found), calc, py & hmt, glauc. poor vis por in clusters. NS SH: gry & grn, argil, loc pyr. SH: gry & grn, argil, loc pyr. SH: gry, dove gry & grn, argil, loc silty, loc pyr. SH: grn, gry & blk, argil (loc mushy), loc pyr, rock granules & pebbles. SH: grn & dk gry, argil, micac, py & hematite, loc carb, plant fragments (?fish scales?), tr rock granules. SH: grn & dk gry, argil, micac, plant fragments (?fish scales?), rock granules / pebbles. SH: grn & dk gry, tr aqua, argil, loc micac, rare shell fragments, lepidodendron stems, rock granules & pebbles. SH: grn & dk gry, tr aqua, argil, loc micac, rare shell fragments, lepidodendron stems, rock granules & loc pyr. intbdd lime grn sh & st @ top of unit. LS: crm & peach, mgr ool set in microxtln matrix, sanded (fgr), chalky, loc si cal floodd, por vis por. NS LS: brn & pale maroon, microxtln, cal floodd, loc silcid to cht (an & off	vis 59 wt 10.0+ vis 75 wt 10.0 lcm 5# during cfs incr sh in 4,790 spl. reduced rock - ?restricted basin? BASE (e-log): 4,800 (1,581) vis 68 wt 10.2 lcm 5# MORROW SD (e-log): 4,818 (-1,599) vis 72 wt 10.2 lcm 5# vis 57 wt 10.1 lcm 5# vis 59 wt 10.1 lcm 5# vis 60 wt 10.1 lcm 5#
-C -C -C -C -C -C -C -C -C -C -C -C -C -			crusts & druzy cal, blk & brn coatings of hint, minor fossis, loc silcid to cht (It brn, cryptithn, xiscnt). no vis por. NS LS: brn, cal floodd a/a. large incr in is: off wht, rextizd (loc w/ vfgr secondary cal xtals), chalky (loc mushy). no / poor VISIBLE por. tr brn or blk stns (no odor, no cut), VSSG on brk, NSO LS: pale marcon, micro-vfgr xtln, cal floodd, minor cal crusts, loc abt relict forams (?ool?). no vis por. NS LS: off wht, micro-vfgr xtln, rextizd, chalky. v poor vis por. tr amber residue (no odor, no cut), NSO stringer of ss: off wht, vfgr-fgr gran, submdd, 5% amber min, calc, friable, poor por, NS LS: blk, microxtln, cal floodd, earthy, cal crusts, chalk partings (gry), loc silcid to cht (blk to dk brn, cryptxtln, py?). no vis por. NS LS: blk, microxtln, cal floodd, earthy, cal crusts, microxtln secondary ?cal?, relict fossis, carb coatings. no vis por. NS Gry chalk, bivalve casts, intbdd carb material. poor vis por. NS SH: gry & grn, argil, loc carb, py. SH: blk, gry & grn, argil, loc micac, loc carb. SH: grn & gry, argil, microxtln py. SS: wht, vfgr gran, graded (vfgr-mgr-vcgr), subang-subrndd, friable (few clusters found), calc, py & hmt, glauc. poor vis por in clusters. NS SH: gry & grn, argil, loc pyr. SH: grn & dk gry, argil, micac, plant fragments (?fish scales?), rock granules / pebbles. SH: grn & dk gry, tr aqua, argil, loc micac, rare shell fragments, lepidodendron stems, rock granules & pebbles. SH: grn & dk gry, tr aqua, argil, loc micac, rare shell fragments, lepidodendron stems, rock granules & pebbles. SH: grn & dk gry, tr aqua, argil, loc micac, rare shell fragments, lepidodendron stems, rock granules & pebbles. SH: grn & dk gry, tr aqua, argil, loc micac, rare shell fragments, lepidodendron stems, rock granules & pebbles. SH: grn & peach, mgr ool set in microxtln matrix, sanded (fgr), chalky, loc sl cal floodd, poor vis por. NS LS: brn & pale maroon, microxtln, cal floodd, loc silcid to c	vis 59 wt 10.0+ vis 75 wt 10.0 lcm 5# during cfs incr sh in 4,790 spl. reduced rock - ?restricted basin? BASE (e-log): 4,800 (1,581) vis 68 wt 10.2 lcm 5# MORROW SD (e-log): 4,818 (-1,599) vis 72 wt 10.2 lcm 5# vis 57 wt 10.1 lcm 5# vis 59 wt 10.1 lcm 5# vis 60 wt 10.1 lcm 5# vis 60 wt 10.1 lcm 5#
-C -C -C -C -C -C -C -C -C -C -C -C -C -			crusts & družy cal, blik & brn coatings of hmt, minor fossis, loc śilctd to cht (It brn, cryptxtin, xiscnt). no vis por. NS LS: brn, cal floodd a/a. large incr in Is: off wht, rextizd (loc w/ vfgr secondary cal xtals), chalkly (loc mushy). no / poor VISIBLE por. tr brn or blk stns (no odor, no cut), VSSG on brk, NSO LS: pale maroon, micro-vfgr xtin, cal floodd, minor cal crusts, loc abt relict forams (?ool?). no vis por. NS LS: off wht, micro-vfgr xtin, rextizd, chalky. v poor vis por. tr amber residue (no odor, no cut), NSO stringer of ss: off wht, vfgr-fgr gran, subrndd, 5% amber min, calc, friable, poor por, NS LS: blk, microxtin, cal floodd, somewhat earthy, cal crusts, neiravings (gy), loc silctd to cht (bik to dk brn, cryptxtin, py/). no vis por. NS LS: blk, microxtin, cal floodd, earthy, cal crusts, microxtin secondary ?cal?, relict fossis, carb coatings. no vis por. NS gry chalk, bivalve casts, intbdd carb material. poor vis por. NS SH: gry & grn, argil, loc arb, py. SH: blk, gry & grn, argil, loc carb, py. SH: blk, gry & grn, argil, loc arb, py, loc silty, rock granules SH: grn & gry, argil, microxtin py. SS: wht, vfgr gran, graded (vfgr-mgr-vcgr), subang-subrndd, friable (few clusters found), calc, py & hmt, glauc. poor vis por in clusters. NS SH: gry, dove gry & grn, argil, loc silty, loc pyr. SH: gry, dove gry & grn, argil, loc silty, loc pyr. SH: gry, gry, argil, loc pyr. SH: grn, gry & blk, argil (loc mushy), loc pyr, rock granules & pebbles. SH: dk gry, blk & grn, argil, nicac, py & hematite, loc carb, plant fragments (?fish scales?), tr rock granules. SH: grn & dk gry, argil, micac, plant fragments (?fish scales?), rock granules / pebbles. SH: grn & dk gry, tr aqua, argil, loc micac, rare shell fragments, lepidodendron stems, rock granules & pebbles. SH: grn & dk gry, tr aqua, argil, loc micac, rare shell fragments, lepidodendron stems, rock granules & pebbles. CONG: poorly sorted grn ss: silt to mgr qtz grns + granule to pebble sized is grns.sand is subrndd, calc, glauc & loc pyr. intbdd lime g	vis 59 wt 10.0+ vis 75 wt 10.0 lcm 5# during cfs incr sh in 4,790 spl. reduced rock - ?restricted basin? BASE (e-log): 4,800 (1,581) vis 68 wt 10.2 lcm 5# MORROW SD (e-log): 4,818 (-1,599) vis 72 wt 10.2 lcm 5# vis 57 wt 10.1 lcm 5# vis 59 wt 10.1 lcm 5# vis 60 wt 10.1 lcm 5# vis 60 wt 10.1 lcm 5# vis 53 wt 10.0 lcm 5# MISSISSIPPIAN (e-log): 4,890 (-1,671)
-C -C -C -C -C -C -C -C -C -C -C -C -C -			crusts & družy cal, blik & brn coatings of hmt, minor fossis, loc silctd to cht (lt brn, cryptxtin, xiscnt). no vis por. NS LS: brn, cal floodd a/a. large incr in Is: off wht, rextizd (loc w/ vigr secondary cal xtais), chaiky (loc mushy). no / poor VISIBLE por. tr brn or blk stns (no odor, no cut), VSSG on brk, NSO LS: pale maroon, micro-vigr xtln, cal floodd, minor cal crusts, loc abt relict forams (?ool?). no vis por. NS LS: off wht, micro-vigr xtln, rextizd, chalky. v poor vis por. tr amber residue (no odor, no cut), NSO stringer of ss: off wht, vigr-igr gran, subtridd, 5% amber min, calc, friable, poor por, NS LS: blk, microxtln, cal floodd, somewhat earthy, cal crusts, microxtln secondary ?cal?, relict fossis, carb coatings. no vis por. NS LS: blk, microxtln, cal floodd, earthy, cal crusts, microxtln secondary ?cal?, relict fossis, carb coatings. no vis por. NS Gry chalk, bivalve casts, intbdd carb material, poor vis por. NS SH: gry & grn, argil, loc carb, py. SH: blk, gry & grn, argil, loc micac, loc carb. SH: grn, gry & blk, v argil, carb, pyr, loc silty, rock granules SH: grn & gry, argil, microxtln py. SS: wht, vigr gran, graded (vigr-mgr-vcgr), subang-subrndd, friable (few clusters found), calc, py & hmt, glauc. poor vis por in clusters. NS SH: gry, dove gry & grn, argil, loc silty, loc pyr. SH: gry & grn, argil, loc pyr. SH: gry & grn, argil, loc pyr. SH: gry & blk, argil (loc mushy), loc pyr, rock granules & pebbles. SH: dk gry, blk & grn, argil, micac, py & hematite, loc carb, plant fragments (?fish scales?), tr rock granules. SH: grn & dk gry, tr aqua, argil, loc micac, rare shell fragments, lepidodendron stems, rock granules & pebbles. SH: grn & dk gry, tr aqua, argil, loc micac, rare shell fragments, lepidodendron stems, rock granules & loc pyr. intbdd lime grn sh & sd @ top of unit. LS: crm & peach, mgr ool set in microxtln matrix, sanded (fgr), chalky, loc si cal floodd, poor vis por. NS LS: crm a peae maroon, microxtln, cal floodd, loc silcf to cht (tan & off wht, mottled). no / poor vis por.	vis 59 wt 10.0+ vis 75 wt 10.0 lcm 5# during cfs incr sh in 4,790 spl. reduced rock - ?restricted basin? BASE (e-log): 4,800 (1,581) vis 68 wt 10.2 lcm 5# MORROW SD (e-log): 4,818 (-1,599) vis 72 wt 10.2 lcm 5# vis 57 wt 10.1 lcm 5# vis 59 wt 10.1 lcm 5# vis 60 wt 10.1 lcm 5# vis 60 wt 10.1 lcm 5# vis 53 wt 10.0 lcm 5# MISSISSIPPIAN (e-log): 4,890 (-1,671)
-C -C -C -C -C -C -C -C -C -C -C -C -C -			crusts & družy cal, blik & brn coatings of hmt, minor fossis, loc śilctd to cht (It brn, cryptxtin, xiscnt). no vis por. NS LS: brn, cal floodd a/a. large incr in Is: off wht, rextizd (loc w/ vfgr secondary cal xtals), chalkly (loc mushy). no / poor VISIBLE por. tr brn or blk stns (no odor, no cut), VSSG on brk, NSO LS: pale maroon, micro-vfgr xtin, cal floodd, minor cal crusts, loc abt relict forams (?ool?). no vis por. NS LS: off wht, micro-vfgr xtin, rextizd, chalky. v poor vis por. tr amber residue (no odor, no cut), NSO stringer of ss: off wht, vfgr-fgr gran, subrndd, 5% amber min, calc, friable, poor por, NS LS: blk, microxtin, cal floodd, somewhat earthy, cal crusts, neiravings (gy), loc silctd to cht (bik to dk brn, cryptxtin, py/). no vis por. NS LS: blk, microxtin, cal floodd, earthy, cal crusts, microxtin secondary ?cal?, relict fossis, carb coatings. no vis por. NS gry chalk, bivalve casts, intbdd carb material. poor vis por. NS SH: gry & grn, argil, loc arb, py. SH: blk, gry & grn, argil, loc carb, py. SH: blk, gry & grn, argil, loc arb, py, loc silty, rock granules SH: grn & gry, argil, microxtin py. SS: wht, vfgr gran, graded (vfgr-mgr-vcgr), subang-subrndd, friable (few clusters found), calc, py & hmt, glauc. poor vis por in clusters. NS SH: gry, dove gry & grn, argil, loc silty, loc pyr. SH: gry, dove gry & grn, argil, loc silty, loc pyr. SH: gry, gry, argil, loc pyr. SH: grn, gry & blk, argil (loc mushy), loc pyr, rock granules & pebbles. SH: dk gry, blk & grn, argil, nicac, py & hematite, loc carb, plant fragments (?fish scales?), tr rock granules. SH: grn & dk gry, argil, micac, plant fragments (?fish scales?), rock granules / pebbles. SH: grn & dk gry, tr aqua, argil, loc micac, rare shell fragments, lepidodendron stems, rock granules & pebbles. SH: grn & dk gry, tr aqua, argil, loc micac, rare shell fragments, lepidodendron stems, rock granules & pebbles. CONG: poorly sorted grn ss: silt to mgr qtz grns + granule to pebble sized is grns.sand is subrndd, calc, glauc & loc pyr. intbdd lime g	vis 59 wt 10.0+ vis 75 wt 10.0 lcm 5# during cfs incr sh in 4,790 spl. reduced rock - ?restricted basin? BASE (e-log): 4,800 (1,581) vis 68 wt 10.2 lcm 5# MORROW SD (e-log): 4,818 (-1,599) vis 72 wt 10.2 lcm 5# vis 57 wt 10.1 lcm 5# vis 59 wt 10.1 lcm 5# vis 60 wt 10.1 lcm 5# vis 60 wt 10.1 lcm 5# vis 53 wt 10.0 lcm 5# MISSISSIPPIAN (e-log): 4,890 (-1,671)
-C -C -C -C -C -C -C -C -C -C -C -C -C -			crusts & družy cal, bik & brn coatings of hmt, minor fossis, loc šilctd to cht (It brn, crypbtln, xiscnt). no vis por. NS LS: brn, cal floodd a/a. large incr in Is: off wht, rextizd (loc w/ vfgr secondary cal xtals), chalky (Icc mushy). no / poor VISIBLE por. tr brn or bik stns (no odor, no cut), VSSG on brk, NSO LS: pale maroon, micro-vfgr xtln, cal floodd, minor cal crusts, loc abt relict forams (?ool?). no vis por. NS LS: off wht, micro-vfgr xtln, rextizd, chalky.v poor vis por. tr amber residue (no dor, no cut), NSO stringer of as: cif wht, vfgr-fgr gran, subrndd, 5% amber min, calc, friable, poor por, NS LS: bik, microxtln, cal floodd, earthy, cal crusts, lock partings (gry), loc silcld to wh (Nk to dk hn, cryptxln, my), no vis por. NS LS: bik, microxtln, cal floodd, earthy, cal crusts, nicroxtln secondary ?cal?, relict fossis, carb coatings, no vis por. NS SH: gry & grn, argil, loc carb, py. SH: bik, gry & grn, argil, loc carb, py. SH: bik, gry & grn, argil, loc carb, py. SH: gry, grn, argil, loc carb, py. SS: wht, vfgr gran, graded (vfgr-mgr-vcgr), subang-subrndd, friable (few clusters found), calc, py & hmt, glauc. poor vis por in clusters. NS SH: gry, dove gry & grn, argil, loc silty, loc pyr. SH: gry & grn, argil, loc pyr. SH: gry & grn, argil, loc pyr. SH: gry & grn, argil, loc pyr. SH: gry & dk, argil, loc pyr. SH: grm & dk gry, argil, micac, plant fragments (?fish scales?), rock granules / pebbles. SH: dr & dk gry, tr aqua, argil, loc micac, rare shell fragments, lepidoendron stems, rock granules. SH: grn & dk gry, tr aqua, argil, loc micac, rare shell fragments, lepidoendron stems, rock granules & pebbles. CONG: poorly sorted grn ss: silt to mgr qtz grns + granule to pebble sized is grns. sand is subrndd, calc, glauc & loc pyr. inbdd lime grn sh & sd @ top of unit. LS: crm & pale maroon, microxtln matrix, sanded (fgr), chalky, loc si cal floodd, grainstin ext, relict fosals, no vis por. NS LS: crm, alt brn, microxtln, cal floodd, loc chalk +/- fgr rnd sand (grain contact), relict grainst texture.	vis 59 wt 10.0+ vis 75 wt 10.0 lcm 5# during cfs incr sh in 4,790 spl. reduced rock - ?restricted basin? BASE (e-log): 4,800 (1,581) vis 68 wt 10.2 lcm 5# MORROW SD (e-log): 4,818 (-1,599) vis 72 wt 10.2 lcm 5# vis 57 wt 10.1 lcm 5# vis 59 wt 10.1 lcm 5# vis 60 wt 10.1 lcm 5# vis 60 wt 10.1 lcm 5# vis 53 wt 10.0 lcm 5# MISSISSIPPIAN (e-log): 4,890 (-1,671)
-C -C -C -C -C -C -C -C -C -C -C -C -C -			crusts & družy cal, bik & brm coatings of hmt, minor fossis, loc silctd to cht (It brn, crypbtin, xiscnt). no vis por. NS LS: brn, cal floodd a/a. large incr in Is: off wht, rexitzd (loc w/ vfgr secondary cal xials), chalky (Icc musity). no / poor VISIBLE por. tr brn or bik stns (no cdor, no cut), VSSG on brk, NSO LS: pale maroon, micro-vfgr xtln, cal floodd, minor cal crusts, loc abt relicit forams (?col?). no vis por. NS LS: off wht, micro-vfgr xtln, rexitzd, chalky. v poor vis por. tr amber residue (no cdor, no cut), NSO stringer of ss: off wht, vfgr-fgr gran, subridd, 5% amber min; calc, friable, poor por, NS LS: bik, microxtln, cal floodd, earthy, cal crusts, chalk partings (gry), loc silcid to eth (bk to tk wn, crypktin, pry), no vis por. NS LS: bik, microxtln, cal floodd, earthy, cal crusts, microxtln secondary ?cal?, relict fossis, carb coatings. no vis por. NS gry chalk, bivalve casts, intbd carb material. poor vis por. NS SH: gry & grn, argil, loc arb, py. SH: bik, gry & grn, argil, loc micac, loc carb. SH: grn gry, argil, microxtln py. SS: wht, vfgr gran, graded (vfgr-mgr-vcgr), subang-subrndd, friable (few clusters found), calc, py & hmt, glauc. poor vis por in clusters. NS SH: gry, dove gry & grn, argil, loc silty, loc pyr. SH: gry, dove gry & grn, argil, loc silty, loc pyr. SH: gry & grn, argil, loc pyr. SH: grn gr, gry & bik, argil, micac, py & hematite, loc carb, plant fragments (?fish scales?), tr rock granules. SH: grn & dk gry, tr aqua, argil, loc micac, rare shell fragments, lepidodendron stems, rock granules. SH: grn & dk gry, tr aqua, argil, loc micac, rare shell fragments, lepidodendron stems, rock granules & pebbles. SH: grn & adk gry, tr aqua, argil, loc micac, rare shell fragments, lepidodendron stems, rock granules & loc pyr. intbd lime grn sh & sid @ top of unit. LS: crm & th grn, gro let in microxtin matrix, sanded (tgr), chalky, loc si cal floodd, poor vis por. NS LS: trm & ade maroon, microxtin, cal floodd, loc silcd to cht (ora, for & brn, cryptxtin, vfgr hematite) + crm, fgr san	vis 59 wt 10.0+ vis 75 wt 10.0 lcm 5# during cfs incr sh in 4,790 spl. reduced rock - ?restricted basin? BASE (e-log): 4,800 (1,581) vis 68 wt 10.2 lcm 5# MORROW SD (e-log): 4,818 (-1,599) vis 72 wt 10.2 lcm 5# vis 57 wt 10.1 lcm 5# vis 59 wt 10.1 lcm 5# vis 60 wt 10.1 lcm 5# vis 60 wt 10.1 lcm 5# vis 53 wt 10.0 lcm 5# MISSISSIPPIAN (e-log): 4,890 (-1,671)
C BASE 4,792 (-1,573) 0 ROMIN(ft) 10 4,815(-1,596) 4,915(-1,596) 4,915(-			crusts & družy cal, bik & brn coatings of hmt, minor fossis, loc šilctd to cht (It brn, crypbtln, xiscnt). no vis por. NS LS: brn, cal floodd a/a. large incr in Is: off wht, rextizd (loc w/ vfgr secondary cal xtals), chalky (Icc mushy). no / poor VISIBLE por. tr brn or bik stns (no odor, no cut), VSSG on brk, NSO LS: pale maroon, micro-vfgr xtln, cal floodd, minor cal crusts, loc abt relict forams (?ool?). no vis por. NS LS: off wht, micro-vfgr xtln, rextizd, chalky.v poor vis por. tr amber residue (no dor, no cut), NSO stringer of as: cif wht, vfgr-fgr gran, subrndd, 5% amber min, calc, friable, poor por, NS LS: bik, microxtln, cal floodd, earthy, cal crusts, lock partings (gry), loc silcld to wh (Nk to dk hn, cryptxln, my), no vis por. NS LS: bik, microxtln, cal floodd, earthy, cal crusts, nicroxtln secondary ?cal?, relict fossis, carb coatings, no vis por. NS SH: gry & grn, argil, loc carb, py. SH: bik, gry & grn, argil, loc carb, py. SH: bik, gry & grn, argil, loc carb, py. SH: gry, grn, argil, loc carb, py. SS: wht, vfgr gran, graded (vfgr-mgr-vcgr), subang-subrndd, friable (few clusters found), calc, py & hmt, glauc. poor vis por in clusters. NS SH: gry, dove gry & grn, argil, loc silty, loc pyr. SH: gry & grn, argil, loc pyr. SH: gry & grn, argil, loc pyr. SH: gry & grn, argil, loc pyr. SH: gry & dk, argil, loc pyr. SH: grm & dk gry, argil, micac, plant fragments (?fish scales?), rock granules / pebbles. SH: dr & dk gry, tr aqua, argil, loc micac, rare shell fragments, lepidoendron stems, rock granules. SH: grn & dk gry, tr aqua, argil, loc micac, rare shell fragments, lepidoendron stems, rock granules & pebbles. CONG: poorly sorted grn ss: silt to mgr qtz grns + granule to pebble sized is grns. sand is subrndd, calc, glauc & loc pyr. inbdd lime grn sh & sd @ top of unit. LS: crm & pale maroon, microxtln matrix, sanded (fgr), chalky, loc si cal floodd, grainstin ext, relict fosals, no vis por. NS LS: crm, alt brn, microxtln, cal floodd, loc chalk +/- fgr rnd sand (grain contact), relict grainst texture.	vis 59 wt 10.0+ vis 75 wt 10.0 lcm 5# during cfs incr sh in 4,790 spl. reduced rock - ?restricted basin? BASE (e-log): 4,800 (1,581) vis 68 wt 10.2 lcm 5# MORROW SD (e-log): 4,818 (-1,599) vis 72 wt 10.2 lcm 5# vis 57 wt 10.1 lcm 5# vis 59 wt 10.1 lcm 5# vis 60 wt 10.1 lcm 5# vis 60 wt 10.1 lcm 5# vis 53 wt 10.0 lcm 5# MISSISSIPPIAN (e-log): 4,890 (-1,671) vis 58 wt 10.1 lcm 5# vis 52 wt 10.0 lcm 5#
-C -C -C -C -C -C -C -C -C -C -C -C -C -			crusts & družy cal, bik & bm coatings of hmt, minor fossis, loc šilcfd to cht (It bm, crypbtlin, xiscnt). no vis por. NS LS: bm, cal floodd a:a large incr in is: of whth, rextizd (loc w/ vfgr secondary cal xtals), chalky (loc mushy). no / poor VISIBLE por. tr bm or bik stms (no odor, no cut), VSSG on brk, NSO LS: pale maroon, micro-Vigr xtin, cal floodd, minor cal crusts, loc abt residue (no odor, no cut), NSO stringer of ss: off why, vfgr-fgr gran, submdd, 5% amber min, calc, friable, poor por, NS LS: bik, micro-vfgr xtin, cal floodd, early, cal crusts, microxtin secondary ?cal?, relicit fossis, carb coatings. no vis por. NS LS: bik, micro-vfin, cal floodd, early, cal crusts, microxtin secondary ?cal?, relicit fossis, carb coatings. no vis por. NS gry chalk, bivalve casts, intbdd carb material. poor vis por. NS SH: gry & grn, argil, loc carb, py. SH: bik, gry & grn, argil, loc micac, loc carb. SH: gry, dove gry & grn, argil, loc silty, rock granules SH: gry, dove gry & grn, argil, loc silty, loc pyr. SS: wht, vfgr gran, graded (vfgr-mgr-vcgr), subang-submdd, friable (few clusters found), calc, py & hmt, glauc. poor vis por in clusters. NS SH: gry, dove gry & grn, argil, loc silty, loc pyr. SH: gry, dove gry & grn, argil, loc silty, loc pyr. SH: gry, dove gry & grn, argil, loc silty, loc pyr. SH: gry & grn, argil, loc pyr. SH: grm & dk gry, argil, micac, plant fragments (?fish scales?), rock granules / pebbles. SH: gm & dk gry, tr aqua, argil, loc micac, rare shell fragments, lepidodendron stems, rock granules. SH: gm & dk gry, tr aqua, argil, loc micac, rare shell fragments, lepidodendron stems, rock granules & pebbles. CONG: poorly sort MG granules & pebbles. SCM: gran ale submdd, calc, glauc & loc pyr. intbdd lime grn sh & sd @ top of unit. LS: crm & paech, mgr ool set in microxtin matrix, sanded (fgr), chalky, loc si cal floodd, por vis por. NS LS: crm ale maroon, microxtin, cal floodd, loc silcfd to cht (ora, for wht, mottle), no / poor vis por. NS LS: crm, ale maroon, microxtin, cal floodd, loc silcfd to	vis 59 wt 10.0+ vis 75 wt 10.0 lcm 5# during cfs incr sh in 4,790 spl. reduced rock - ?restricted basin? BASE (e-log): 4,800 (1,581) vis 68 wt 10.2 lcm 5# MORROW SD (e-log): 4,818 (-1,599) vis 72 wt 10.2 lcm 5# vis 57 wt 10.1 lcm 5# vis 59 wt 10.1 lcm 5# vis 60 wt 10.1 lcm 5# vis 60 wt 10.1 lcm 5# vis 53 wt 10.0 lcm 5# MISSISSIPPIAN (e-log): 4,890 (-1,671) vis 58 wt 10.1 lcm 5# vis 52 wt 10.0 lcm 5#
C BASE 4,792 (-1,573) 0 ROMIN(ft) 10 4,815(-1,596) 4,915(-1,596) 4,915(-			crusts & družy cat, bit & bm coatings of himt, minor fossis, loc silctd to cht (It bm, cryptxtin, xiscnt), no vis por. NS LS: bm, cal floodd ai, arge incr in Is: of wht, rextt2d (loc w/ vfgr secondary cal xtals), chalky (loc mushy). no / poor VISIBLE por. tr bm or bik stns (no dor, no cut). VSSG on brk, NSO LS: pale marcon, micro-vfgr xtin, cal floodd, minor cal crusts, loc abt relicit forams (?ool?), no vis por. NS LS: off wht, micro-vfgr xtin, calt, chalky, v poor vis por. tr amber residue (no dor, no cut), NSO stringer of so: off wht, vfgr/gr gran, submid, 5% amber min, calc, triable, poor por, NS LS: bit, microxin, call foodd, earthy, cal crusts, halk partings (gry), loc silctd to cht (bk to dk bn, cryptkth, pyr), no vis por. NS real?, relict lossis, carb coatings, no vis por. NS gry chalk, bivalve casts, intbdd carb material. poor vis por. NS SH: gry & grn, argil, loc carb, py. SH: bik, gry & grn, argil, loc carb, py. SH: bik, gry & grn, argil, loc carb, py. SH: bik, gry & grn, argil, loc carb, py. SH: gry, gry, argil, microxtin py. SS: with, vfgr gran, graded (vfgr-mgr-vcgr), subang-submdd, friable (few clusters found), calc, py & hmt, glauc. poor vis por in clusters. NS SH: gry, dove gry & grn, argil, loc silty, loc pyr. SH: gry, dove gry & grn, argil, loc silty, loc pyr. SH: gry, gry, argil, loc pyr. SH: grn, gry & bik, argil (loc mushy), loc pyr, rock granules & pebbles. SH: grn & dk gry, argil, micac, plant fragments (?fish scales?), rock granules / pebbles. SH: grn & dk gry, tr aqua, argil, loc micac, rare shell fragments, lepidodendron stems, rock granules. & lepiboles. SH: grn & dk gry, tr aqua, argil, loc micac, rare shell fragments, lepidodendron stems, rock granules & loc byr. intbdd lime grn sh & sd @ top of unit. LS: crm & ther, microxtin, cal floodd, loc silctd to cht (tar & off wht, motited), rol por vis por. NS LS: crm, microxtin, cal floodd, calk loc cit (crank, +/- fgr rndd sand (grain contact), no / por vis por. NS LS: crm & thr, microxtin, cal floodd, loc chalk y, -40% fgr sd (no grain	vis 59 wt 10.0+ vis 75 wt 10.0 lcm 5# during cfs incr sh in 4,790 spl. reduced rock - ?restricted basin? BASE (e-log): 4,800 (1,581) vis 68 wt 10.2 lcm 5# MORROW SD (e-log): 4,818 (-1,599) vis 72 wt 10.2 lcm 5# vis 57 wt 10.1 lcm 5# vis 59 wt 10.1 lcm 5# vis 60 wt 10.1 lcm 5# vis 60 wt 10.1 lcm 5# vis 53 wt 10.0 lcm 5# MISSISSIPPIAN (e-log): 4,890 (-1,671) vis 58 wt 10.1 lcm 5# vis 52 wt 10.0 lcm 5#
C BASE 4,792 (-1,573) 0 ROMIN(ft) 10 4,815(-1,596) 4,915(-1,596) 4,915(-			crusts & družy cal, bit & bm coatings of hmt, minor fossis, loc silctid to cht (It bm, cryptxthn, xiscnt). no vis por. NS LS: bm, cal floodd ai, arge incr in Is: of wht, rexttzd (loc wi vfgr secondary cal xtals), chalky (loc mushy). no / poor VISIBLE por. tr bm or bik stns (no dor, no cut). VSSG on brk, NSO LS: pale marcon, micro-vfgr xtin, cal floodd, minor cal crusts, loc abt relict forams (?ool?). no vis por. NS LS: off wht, micro-vfgr xtin, rextzd, chalky. v poor vis por. tr amber residue (no dor, no cut), NSO Stringer of ss: off wht, vfgr-igr gran, submid, 5% amber min, calc, friable, poor por, NS LS: bik, microxitin, cal floodd, earthy, cal crusts, hak partings (gry), loc sictid to cht (lik to di kin , cryptxth, pyr). no vis por. NS gry chalk, bivalve casts, intbdd carb material. poor vis por. NS SH: gry & grn, argil, loc carb, py. SH: bik, gry & grn, argil, loc carb, py. SH: gry, dove gry & grn, argil, loc silty, loc pyr. SS: wht, vfgr gran, graded (vfgr-mgr-vcgr), subang-submdd, friable (few clusters found), calc, py & hmt, glauc. poor vis por in clusters. NS SH: gry, dove gry & grn, argil, loc silty, loc pyr. SH: gry & grn, argil, loc pyr. SH: gry & grn, argil, loc pyr. SH: gry & dk, argil, micac, plant fragments (?fish scales?), rock granules & pebbles. SH: grn & dk gry, argil, micac, plant fragments (?fish scales?), rock granules / pebbles. SH: grn & dk gry, tr aqua, argil, loc micac, rare shell fragments, lepidodendron stems, rock granules & loc byr. intbdd lime grn sh & sd @ to p of unit. LS: crm & peach, mgr ool set in microxtin matrix, sanded (fgr), chalky, loc si cal floodd, por vis por. NS LS: crm & nicroxtin, cal floodd, loc silefd to cht (ora, ref & brn, cryptxth, isor is or. NS LS: crm & microxtin, cal floodd, loc chalk y- fgr rnd sand (grain contact), no / poor vis por. NS LS: crm & nicroxtin, cal floodd, loc chalk y- cord, no gr	vis 59 wt 10.0+ vis 75 wt 10.0 lcm 5# during cfs incr sh in 4,790 spl. reduced rock - ?restricted basin? BASE (e-log): 4,800 (1,581) vis 68 wt 10.2 lcm 5# MORROW SD (e-log): 4,818 (-1,599) vis 72 wt 10.2 lcm 5# vis 57 wt 10.1 lcm 5# vis 59 wt 10.1 lcm 5# vis 60 wt 10.1 lcm 5# vis 60 wt 10.1 lcm 5# vis 53 wt 10.0 lcm 5# MISSISSIPPIAN (e-log): 4,890 (-1,671) vis 58 wt 10.1 lcm 5# vis 52 wt 10.0 lcm 5#
C BASE 4,792 (-1,573) 0 ROMIN(ft) 10 4,815(-1,596) 4,915(-1,596) 4,915(-			crusts & družy cat, bit & bm coatings of hmt, minor fossis, loc silctid to cht (It bm, cryptxthn, xisent), no vis por. NS LS: bm, cal Moodd al. arge incr in Is: of wht, rexttzd (loc w/ vfgr secondary cal xtals), chalky (Ioc mushy). no / poor VISIBLE por. tr bm or bits its (no dor, no cut), VSS on brk, NSO LS: pale marcon, micro-vfgr xth, cal floodd, minor cal crusts, loc abt relicit forams (?oot?), no vis por. NS LS: off with, incro-vfgr xth, cal floodd, poor yis por. tr amber residue (no dor, no cut), NSO stringer of ss: off wht, vfgr-fgr gran, submdd, %% amber min, calc, friable, poor por, NS LS: bit, microxth, cal floodd, earthy, cal crusts, microxth secondary ?eal?, relicit fossis, carb coatings, no vis por. NS gry chalk, bivalve casts, intbdd carb material, poor vis por. NS SH: gry & grn, argil, loc carb, py. SH: bit, gry & grn, argil, loc carb, py. SH: bit, gry & grn, argil, loc carb, py. SH: bit, gry & grn, argil, loc micac, loc carb. SH: gry, gry & bit, v argil, arcb, pyr, loc silty, rock granules SH: gry, dove gry & grn, argil, loc silty, loc pyr. SH: gry, dove gry & grn, argil, loc silty, loc pyr. SH: gry, dove gry & grn, argil, loc silty, loc pyr, rock granules & pebbles. SH: gry & grn, argil, micac, plant fragments (?fish scales?), rock granules / pebbles. SH: grn & dk gry, argil, micac, plant fragments (?fish scales?), rock granules / pebbles. SH: grn & dk gry, tr aqua, argil, loc micac, rare shell fragments, lepidodendron stems, rock granules & pebbles. CONG: poorly sorted grn ss: silt to mgr qtz grns + granule to pebble sized is grms. sand is submdd, calc, glauc & loc pyr. intbdd lime grn sh & sd @ to of unit. LS: crm & peach, mgr ool set in microxtlm matrix, sanded (fgr), chalky, loc sic all floodd, por vis por. NS LS: crm, microxtln, cal floodd, chalk partings, loc sided to cht (ora, red & brn, cryptxtin, xign+ with & orange, cryptxtin), + crm, microxtln, cal floodd, grainst text, relict fossis. no vis por. NS LS: crm, microxtln, cal floodd, loc ch (orange, cryptxtin), + crm, microxtln, cal flo	vis 59 wt 10.0+ vis 75 wt 10.0 lcm 5# during cfs incr sh in 4,790 spl. reduced rock - ?restricted basin? BASE (e-log): 4,800 (1,581) vis 68 wt 10.2 lcm 5# MORROW SD (e-log): 4,818 (-1,599) vis 72 wt 10.2 lcm 5# vis 57 wt 10.1 lcm 5# vis 59 wt 10.1 lcm 5# vis 60 wt 10.1 lcm 5# vis 60 wt 10.1 lcm 5# vis 53 wt 10.0 lcm 5# MISSISSIPPIAN (e-log): 4,890 (-1,671) vis 58 wt 10.1 lcm 5# vis 52 wt 10.0 lcm 5#
C BASE 4,792 (-1,573) 0 ROMIN(ft) 10 4,815(-1,596) 4,915(-1,596) 4,915(-			 crusts & družy cal, bit & bm coatings of hmt, minor fossis, loc siled to cht (It bm, crypthilin, xisch), no vis por. NS LS: bm, cal floodd a:a. targe incr in is: off wht, rexit2d (loc w/ vigr secondary cal xtals), chalk y (loc mushy), no / poor VISBLE por. Ir bm or bit stns (no dor, no cut), VSS Go brk, NSO LS: pale marcon, micro-vigr xtin, cal floodd, minor cal crusts, loc abt relict forams (?ou?), no vis por. NS LS: bit, wintigner-vigr xtin, calt floodd, y poor vis por. Ir amber residue (no cdor, no cut), NSO stringer of ss: off wht, vigr-gr gran, submrdd, 5% amber min, calc, frable, poor por, NS LS: bit, microxtin, calfloodd, sorewhat earthy, cal crusts, chalk partings (gy), loc siled to the (bit k0 dbm or cypthit, py); nov isp ox. NS LS: bit, microxtin, calfloodd, carthy, cal crusts, microxtin secondary ?cal?, relict fossis, carb coatings, no vis por. NS SH: gry & grn, argil, loc carb, py. SH: bitk, gry & grn, argil, loc carb, py. SH: gry & grn, argil, loc carb, py. SH: gry, dove gry & grn, argil, loc silty, rock granules SH: gry, dove gry & grn, argil, loc silty, loc pyr. SH: gry & grn, argil, loc pyr. SH: grn gry & bik, argil (loc mushy), loc pyr, rock granules & pebbles. SH: grn & dk gry, argil, micac, py & hematite, loc carb, plant fragments (?fish scales?), trock granules. SH: grn & dk gry, argil, micac, pi th granger shell fragments, lepidodendron stems, rock granules & pebble sized is grns. sand is submidd, calc, glaue & loc pyr. intibdd lime gr sh & sd @ to por unit. LS: crm, microxtin, cal floodd, chaik partings, loc salded (most), -5% sd [loc 100%), th yr, mor cal units & vergriths, loc salded (most), -5% sd [loc 100%), thy reprint and third & avergriths, loc salded (fig), chalky, loc is cal floodd, por vis por. NS LS: crm, micro	vis 59 wt 10.0+ vis 75 wt 10.0 lcm 5# during cfs incr sh in 4,790 spl. reduced rock - ?restricted basin? BASE (e-log): 4,800 (1,581) vis 68 wt 10.2 lcm 5# MORROW SD (e-log): 4,818 (-1,599) vis 72 wt 10.2 lcm 5# vis 57 wt 10.1 lcm 5# vis 59 wt 10.1 lcm 5# vis 60 wt 10.1 lcm 5# vis 60 wt 10.1 lcm 5# vis 53 wt 10.0 lcm 5# MISSISSIPPIAN (e-log): 4,890 (-1,671) vis 58 wt 10.1 lcm 5# vis 52 wt 10.0 lcm 5#
	4950 1 4900 1 4850 1 4800 1 4800 1 4800 1 4800 1 4800 1 4800 1 4800 1 4800 1 4800 1 4800 1 4800 1 4800 1 4800 1		crusts & druzy cal, bit & bm coatings of hmt, minor fossis, loc silctid to cht (It bm, cryptxtin, xisent), no vis por. NS LS: bm, cal lood aia, large incr in Is: of wht, rextt2d (loc w/ vtgr secondary cal xtals), chalky (loc mushy). no / poor VISIBLE por. tr bm or bits site (modor, no cut), VSG on brk, NSO LS: pale maroon, micro-vtgr xtin, cal floodd, minor cal crusts, loc abit relicit forams (?ool?), no vis por. NS LS: off with, micro-vtgr xtin, calf floodd, with vtgr-fgr gran, submdd, 5% amber min, calc, friable, poor por, NS LS: bit, microxtin, cal floodd, earthy, cal crusts, chalk partings (gy), loc silcit of th (bk rold bw neyptth, gy), no vis por. NS gry chalk, bivatve casts, intbdd carb material. poor vis por. NS SH: gry & grn, argil, loc carb, py. SH: bitk, gry & grn, argil, loc micac, loc carb. SH: gry & grn, argil, nor carb, py. SS: with, vfgr gran, graded (vfgr-mgr-vcgr), subang-submdd, friable (few clusters found), calc, py & hmt, glaue, poor vis por in clusters. NS SH: gry, dove gry & grn, argil, loc silty, loc pyr. SH: gry, gry, dove gry & grn, argil, loc silty, loc pyr, rock granules & pebbles. SH: grn, gry & bik, argil (loc mushy), loc pyr, rock granules & pebbles. SH: grn, gry & bik, argil (loc mushy), loc pyr, rock granules & pebbles. SH: grn, gry & bik, argil, micac, plant fragments (?fish scales?), rock granules / pebbles. SH: grn & dk gry, argil, micac, plant fragments (?fish scales?), rock granules / pebbles. SH: grn & dk gry, tr aqua, argil, loc micac, rare shell fragments, lepidodendron stems, rock granules & loc pyr. intbdd lime grn sh & d@ (bp of unit. LS: crm, microxtin, cal floodd, chalk partings, loc sided to cht (an & off wht, mottled). <i>no / poor vis por</i> . NS LS: crm, microxtin, cal floodd, chalk partings, loc sided to cht (an & off wht, mottled). <i>no / poor vis por</i> . NS LS: crm, microxtin, cal floodd, chalk partings, loc sided to cht (an & off wht, mottled). <i>no / poor vis por</i> . NS LS: crm, microxtin, sanded in variable proportions, wkly cal floodd,	vis 59 wt 10.0+ vis 75 wt 10.0 lcm 5# during cfs incr sh in 4,790 spl. reduced rock - ?restricted basin? BASE (e-log): 4,800 (1,581) vis 68 wt 10.2 lcm 5# MORROW SD (e-log): 4,818 (-1,599) vis 72 wt 10.2 lcm 5# vis 57 wt 10.1 lcm 5# vis 59 wt 10.1 lcm 5# vis 60 wt 10.1 lcm 5# vis 60 wt 10.1 lcm 5# vis 53 wt 10.0 lcm 5# MISSISSIPPIAN (e-log): 4,890 (-1,671) vis 58 wt 10.1 lcm 5# vis 52 wt 10.0 lcm 5#
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EXPLORATION, INC. Wichita, Kansas

#1 J. Biermann

940' FSL & 1790' FWL 50'S & 140'W of NW SE SW Section 29-17S-35W Wichita County, Kansas API# 15-203-20264-0000 Elevation: 3214' GL, 3219' KB

4965'

-1746

			Ref.
Sample Tops			Well
Anhydrite	2460'	+759	-8
-			
B/Anhydrite	2477'	+742	-6
Stotler	3612'	-393	+6
Heebner	4006'	-787	+13
Toronto	4025'	-806	+12
Lansing	4056'	-837	+9
Muncie Shale	4237'	-1018	+12
			+12
Stark Shale	4336'	-1117	
Hush	4385'	-1166	+15
BKC	4431'	-1212	+13
Pleasanton	4438'	-1219	+9
Marmaton	4465'	-1246	+10
Altamont	4498'	-1279	+11
Pawnee	4570'	-1351	+19
Myrick	4612'	-1393	+17
Fort Scott	4624'	-1405	+17
Cherokee Shale	4652'	-1433	+14
Johnson	4738'	-1519	+13
B/Penn Lime	4792'	-1573	+14
Mississippian	4890'	-1671	+19
DTD	10(6)	17710	-

RTD

					TICKET NUMB	_{EP} 46	957
Co	NSOLIDATED	11.8	3435			akley K.	<u> </u>
	Well Services, LLC	LOC			FOREMAN L		
						when	
D Box 884, Char		FIELD TICKE					Ko.
0-431-9210 or		WELL NAME & NUI	CEMEN	SECTION	TOWNSHIP	RANGE	COUNTY
		/			17	35	Wichita
	7 <u>173</u> JJ Bi	er <u>mann</u>	# /	29			
Ritchie			- Mariantha - Rot 20	TRUCK #	DRIVER	TRUCK #	DRIVER
AILING ADDRESS	ŝ		5N	399	Michael		
			EtNinto	529	Steven		
TY	STATE	ZIP CODE					
DB TYPE PT	A HOLE SIZ	E_778			_ CASING SIZE & V	VEIGHT	
ASING DEPTH	DRILL PIF	PE 41/2 24				OTHER	······
LURRY WEIGHT	13 To 13.8 SLURRY	VOL			CEMENT LEFT in	CASING	
			HIV DOL		RATE		
EMARKS: Sa	fty meeting	Rig up a	in WW.	<u>-2 Plu</u>	gas orde	ered	
SE 2490	- 50 sKs	<u> </u>					
12 1500	'- 80 sks			<u></u>			<u></u>
31 750'	' - 50 SKS					11/10	
11 290	- 505Ks	20	nsk. "	Yun Hazy	nix 4%G	<u>e [14 F]</u>	osea /
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St 60 Plug Mous				/ //			
Sti 60 Plug Mous	- 20 sKs schole - 20 sKs		At	anks	Danent	Cren	
St 60 Plug Mous Plug Rati	- 20 sKs schole - 20 sKs		DESCRIPTION of	anks	Danent	Cren UNIT PRICE	TOTAL
St 60 Plug Mous Plug Rati ACCOUNT CODE	- 203Ks schole - 203Ks hole - 303Ks		JA DESCRIPTION of	anks	Danent	Cren UNIT PRICE	TOTAL
St 60 Plug Mous Plug Rati ACCOUNT CODE S405 N	<u>v - 20 sKs</u> <u>schole - 20 sKs</u> <u>hole - 30 sKs</u> QUANITY or UNITS	PUMP CHA	JA DESCRIPTION of	anks	Danent	Cren UNIT PRICE 1395, ²² 5,25	TOTAL
St 60 Plug Mous Plug Rati Account CODE S405 N 5406	20 5Ks 1 - 20 5Ks 1 - 30 5Ks QUANITY OF UNITS 1 50	PUMP CHA MILEAGE	JAN DESCRIPTION of RGE	anks I SERVICES or F	Danent PRODUCT	Cren UNIT PRICE	TOTAL
St 60 Plug Mous Plug Rati Account CODE S405 N	<u>v - 20 sKs</u> <u>schole - 20 sKs</u> <u>hole - 30 sKs</u> QUANITY or UNITS	PUMP CHA MILEAGE	JA DESCRIPTION of	anks I SERVICES or F	Danent PRODUCT	Cren UNIT PRICE 1,395,00 5,35 1,75	TOTAL 7395,00 9262,50 1/29,00
5th 60 Plug Mous Plug Rati ACCOUNT CODE 5405 N 5406 5407 A	203Ks 12.9 203Ks 203	PUMP CHA MILEAGE Ton I	M DESCRIPTION of RGE <i>Milenge</i>	andes I SERVICES or F Deline	Danent PRODUCT	Crew UNIT PRICE 1,395,20 5,45 7,75 7,75	TOTAL 7395,00 9262,50 1/29,00
5t1 60 Plug Mous Plug Rati ACCOUNT CODE 5405 N 5406 5407 A 1131	20 5Ks 20 5Ks 20 5Ks 40/e - 30 5Ks QUANITY OF UNITS 1 50 12.9 300 5Ks	PUMP CHA MILEAGE Ton 1	M DESCRIPTION of RGE Mileage Por mix	andes I SERVICES or F Deline	Danent PRODUCT	Cren UNIT PRICE 1395, ²² 5,25	TOTAL 7395,99 1/29,99 1/29,99 4758,99
5t1 60 Plug Mous Plug Rati CODE 5405 N 5404 5407 A 1131 1118 B	20 5Ks 20 5Ks 20 5Ks 40/e - 30 5Ks QUANITY OF UNITS 1 50 12.9 300 5Ks 1032 #	PUMP CHA MILEAGE Ton 1 4940 Bent	JA DESCRIPTION of RGE Mileage Bzmix Conite	andes I SERVICES or F Deline	Danent PRODUCT	Cren UNIT PRICE 1395,22 5,35 7,75 7,75 7,75 7,75 7,75 7,75	TOTAL 7395,00 122,50 129,00 129,00 4758,00 \$278,64
5th 60 Plug Mous Plug Rati ACCOUNT CODE 5405 N 5406 5407 A 1131	20 5Ks 20 5Ks 20 5Ks 40/e - 30 5Ks QUANITY OF UNITS 1 50 12.9 300 5Ks	PUMP CHA MILEAGE Ton 1	JA DESCRIPTION of RGE Mileage Bzmix Conite	andes I SERVICES or F Deline	Danent PRODUCT	Cren UNIT PRICE 1,395,00 5,35 7,75 7,75 7,75	TOTAL 7395,99 1/29,99 1/29,99 4758,99
5th 60 Plug Mous Plug Rati CODE 5405 N 5404 5407 A 1131 1118 B	20 5Ks 20 5Ks 20 5Ks 40/e - 30 5Ks QUANITY OF UNITS 1 50 12.9 300 5Ks 1032 #	PUMP CHA MILEAGE Ton 1 4940 Bent	JA DESCRIPTION of RGE Mileage Bzmix Conite	andes I SERVICES or F Deline	Danent PRODUCT	Cren UNIT PRICE 1395,22 5,35 7,75 7,75 7,75 7,75 7,75 7,75	TOTAL 7395,00 122,50 129,00 129,00 4758,00 \$278,64
5t1 60 Plug Mous Plug Ration ACCOUNT CODE 5405 N 5404 5407 A 1131 118 B	20 5Ks 20 5Ks 20 5Ks 40/e - 30 5Ks QUANITY OF UNITS 1 50 12.9 300 5Ks 1032 #	PUMP CHA MILEAGE Ton 1 4940 Bent	JA DESCRIPTION of RGE Mileage Bzmix Conite	andes I SERVICES or F Deline	Danent PRODUCT	Cren UNIT PRICE 1395,22 5,35 7,75 7,75 7,75 7,75 7,75 7,75	TOTAL 7395,00 122,50 129,00 129,00 4758,00 \$278,64
5t1 60 Plug Mous Plug Ration ACCOUNT CODE 5405 N 5404 5407 A 1131 118 B	20 5Ks 20 5Ks 20 5Ks 40/e - 30 5Ks QUANITY OF UNITS 1 50 12.9 300 5Ks 1032 #	PUMP CHA MILEAGE Ton 1 4940 Bent	JA DESCRIPTION of RGE Mileage Bzmix Conite	andes I SERVICES or F Deline	Danent PRODUCT	Cren UNIT PRICE 1395,22 5,35 7,75 7,75 7,75 7,75 7,75 7,75	TOTAL 7395,00 122,50 129,00 129,00 4758,00 \$278,64
5t1 60 Plug Mous Plug Rati ACCOUNT CODE 5405 N 5404 5407 A 1131 118 B	20 5Ks 20 5Ks 20 5Ks 40/e - 30 5Ks QUANITY OF UNITS 1 50 12.9 300 5Ks 1032 #	PUMP CHA MILEAGE Ton 1 4940 Bent	JA DESCRIPTION of RGE Mileage Bzmix Conite	andes I SERVICES or F Deline	Danent PRODUCT	Cren UNIT PRICE 1395,22 5,35 7,75 7,75 7,75 7,75 7,75 7,75	TOTAL 7395,00 122,50 129,00 129,00 4758,00 \$278,64
5th 60 Plug Mous Plug Rati ACCOUNT CODE 5405 N 5404 5407 A 1131 1118 B	20 5Ks 20 5Ks 20 5Ks 40/e - 30 5Ks QUANITY OF UNITS 1 50 12.9 300 5Ks 1032 #	PUMP CHA MILEAGE Ton 1 4940 Bent	JA DESCRIPTION of RGE Mileage Bzmix Conite	andes I SERVICES or F Deline	Danent PRODUCT	Cren UNIT PRICE 1395,22 5,35 7,75 7,75 7,75 7,75 7,75 7,75	TOTAL 7395,00 122,50 129,00 129,00 4758,00 \$278,64
5th 60 Plug Mous Plug Rati ACCOUNT CODE 5405 N 5404 5407 A 1131 1118 B	20 5Ks 20 5Ks 20 5Ks 40/e - 30 5Ks QUANITY OF UNITS 1 50 12.9 300 5Ks 1032 #	PUMP CHA MILEAGE Ton 1 4940 Bent	JA DESCRIPTION of RGE Mileage Bzmix Conite	andes I SERVICES or F Deline	Danent PRODUCT	Cren UNIT PRICE 1395,22 5,35 7,75 7,75 7,75 7,75 7,75 7,75	TOTAL 7395,00 122,50 129,00 129,00 4758,00 \$278,64
5th 60 Plug Mous Plug Rati ACCOUNT CODE 5405 N 5404 5407 A 1131 1118 B	20 5Ks 20 5Ks 20 5Ks 40/e - 30 5Ks QUANITY OF UNITS 1 50 12.9 300 5Ks 1032 #	PUMP CHA MILEAGE Ton 1 4940 Bent	JA DESCRIPTION of RGE Mileage Bzmix Conite	andes I SERVICES or F Deline	Danent PRODUCT	Cren UNIT PRICE 1395,22 5,35 7,75 7,75 7,75 7,75 7,75 7,75 7,75	TOTAL 7395,00 129,00 129,00 4758,00 278,64 222,7 222,7 1
5th 60 Plug Mous Plug Rati ACCOUNT CODE 5405 N 5404 5407 A 1131 1118 B	20 5Ks 20 5Ks 20 5Ks 40/e - 30 5Ks QUANITY OF UNITS 1 50 12.9 300 5Ks 1032 #	PUMP CHA MILEAGE Ton 1 4940 Bent	JA DESCRIPTION of RGE Mileage Bzmix Conite	andes I SERVICES or F Deline	Danent PRODUCT	Cren UNIT PRICE 1/395,22 5,35 7/,75 7/,75 7/,75 7/,75 7/,75 7/,75 7/,75	TOTAL 7395,00 129,00 129,00 4758,00 278,00 222,75 8045,09
5th 60 Plug Mous Plug Rati CODE 5405 N 5404 5407 A 1131 1118 B	20 5Ks 20 5Ks 20 5Ks 40/e - 30 5Ks QUANITY OF UNITS 1 50 12.9 300 5Ks 1032 #	PUMP CHA MILEAGE Ton 1 4940 Bent	JA DESCRIPTION of RGE Mileage Bzmix Conite	andes I SERVICES or F Deline	Danent PRODUCT	Cren UNIT PRICE 1/395,22 5,35 7/,75 7/,75 7/,75 7/,75 7/,75 7/,75 7/,75	TOTAL 7395,00 129,00 129,00 4758,00 278,00 222,75 8045,09
5th 60 Plug Mous Plug Rati CODE 5405 N 5404 5407 A 1131 1118 B	20 5Ks 20 5Ks 20 5Ks 40/e - 30 5Ks QUANITY OF UNITS 1 50 12.9 300 5Ks 1032 #	PUMP CHA MILEAGE Ton 1 4940 Bent	JA DESCRIPTION of RGE Mileage Bzmix Conite	andes I SERVICES or F Deline	Danent PRODUCT	Cren UNIT PRICE 1/395,22 5,35 7/,75 7/,75 7/,75 7/,75 7/,75 7/,75 7/,75	TOTAL 7395,00 129,00 129,00 4758,00 278,64 222,7 222,7 1
5t1 60 Plug Mous Plug Rati CODE 5405 N 5404 5407 A 1131 1118 B	20 5Ks 20 5Ks 20 5Ks 40/e - 30 5Ks QUANITY OF UNITS 1 50 12.9 300 5Ks 1032 #	PUMP CHA MILEAGE Ton 1 4940 Bent	JA DESCRIPTION of RGE Mileage Bzmix Conite	andes I SERVICES or F Deline	Danent PRODUCT	Cren UNIT PRICE 1,395,22 5,35 7,75 7,75 7,75 7,75 7,75 7,75 7,27 7,27	TOTAL 7395,99 422,59 129,99 4758,99 222,75 222,75 8045,99 8045,99 17241,30
5t1 60 Plug Mous Plug Ration ACCOUNT CODE 5405 N 5406 5407 A 1131 118 B 1107	20 5Ks 20 5Ks 20 5Ks 40/e - 30 5Ks QUANITY OF UNITS 1 50 12.9 300 5Ks 1032 #	PUMP CHA MILEAGE Ton 1 4940 Bent	JA DESCRIPTION of RGE Mileage Bzmix Conite	andes I SERVICES or F Deline	Danent PRODUCT	Cren UNIT PRICE 1,395,22 5,35 7,75 7,75 7,75 7,75 7,75 7,75 7,75	TOTAL 7395,99 1/29,99 1/29,99 4758,99 2222,75 2222,75 8045,99 8045,99 17241,30 385,78
5t. 60 Plug Mous Plug Ration ACCOUNT CODE 5405 N 5404 5407 A 1131 118 B 1107 1107 107 107 107 107 107 1	20 5Ks 20 5Ks 20 5Ks 40/e - 30 5Ks QUANITY OF UNITS 1 50 12.9 300 5Ks 1032 #	PUMP CHA MILEAGE Ton 1 4940 Bent	JA DESCRIPTION of RGE Mileage Bzmix Conite	andes I SERVICES or F Deline	Danent PRODUCT	Cren UNIT PRICE 1,395,22 5,35 7,75 7,75 7,75 7,75 7,75 7,75 7,27 7,27	TOTAL 7395,99 422,59 129,99 4758,99 222,75 222,75 8045,99 8045,99 17241,30

I acknowledge that the payment terms, unless specifically amended in writing on the front of the form or in the customer's account records, at our office, and conditions of service on the back of this form are in effect for services identified on this form.

R

REMIT TO P.O. BOX 93999 SOUTHLAKE, TEXAS 76092	ERMANN () SERVICE POINT:
DATE 5/17/14 SEC. TWP. RANGE	CALLED OUT ON LOCATION JOB START JOB FINISH
LEASE BIELMANN WELL# / LOCATION Marie	who yn Rdc Eu gricheta
OLD OR NEW (Circle one)	2
CONTRACTOR 1/W 2	OWNER Some
TYPE OF JOB Jurfa J. HOLE SIZE 12/1/1 T.D.	CEMENT
CASING SIZE 8762 DEPTH 262/ TUBING SIZE DEPTH	AMOUNT ORDERED <u>180 Con 390 CC</u>
DRILL PIPE DEPTH	
TOOL DEPTH PRES. MAX MINIMUM	COMMON_180_@1>80 32228
MEAS. LINE SHOE JOINT	POZMIX@
<u>CEMENT LEFT IN CSG. 15 /</u> PERFS.	GEL <u>3</u> @23 40 70 000
DISPLACEMENT (5.73	CHLORIDE @ @ @
EQUIPMENT	
M-D	$\frac{11}{1000} \frac{1000}{1000} $
PUMPTRUCK CEMENTER <u>Ala Kyan</u> # 42-281 HELPER Kurr Ryan	- <u>[135,24] 2028]</u> @
BULKTRUCK	·@
# P91 DRIVER (100 (Twos) BULK TRUCK	- <u> </u>
# DRIVER	HANDLING BULLECE 02 P 1102 -3
	HANDLING 194,65 CF @ 2 - 482 - 23 MILEAGE2 Jon/mul 8-883 70- 1616 21
REMARKS:	TOTAL
Am Cay Circulate Mit Cenent Disp.	
One of Shul is	SERVICE
	DEPTH OF JOB
Comment Del Circulate	_ PUMP TRUCK CHARGE /S/2 <
	EXTRA FOOTAGE $@$ 7.70
	EXTRA FOOTAGE $@$ 7.70
	EXTRA FOOTAGE $@$ 7.70
	EXTRA FOOTAGE @ 7.70 539 @ 7.70 539 @ 7.70 539 @ 7.70 539 @ 7.70 539 @ 7.70 539 @ 7.70 539 @ 7.70 539 @ 7.70 539 @ 7.70 308.00
Charge to R: T chle Exploration STREET	EXTRA FOOTAGE $@$ 7.70
Thuck the Fin, Kevin, Grey CHARGE TO R: T chie Exploration	EXTRA FOOTAGE MILEAGE MANIFOLD
Thuck the pin, Revin, Guy charge to R: Tchle Explosation street	EXTRA FOOTAGE <u>© 7.70</u> 539 MILEAGE <u>20</u> © 7.70 539 MANIFOLD <u>© 7.70 539</u> MANIFOLD <u>© 7.70 539</u> <u>255</u> © 7.70 <u>539</u> <u>308.00</u> © <u>7.40</u> <u>308.00</u> © <u>7.40</u> <u>308.00</u> © <u>7.70</u> <u>539</u> <u>7.70</u> <u>7.70</u> <u>539</u> <u>7.70</u> <u>7.70</u> <u>7.</u>
Thuck the pin, Revin, Guy charge to R: Tchle Explosation street	EXTRA FOOTAGE MILEAGE MANIFOLD MANIFOLD MANIFOLD (946.73/20%) (946.73/20%) TOTAL <u>4733.65</u> PLUG & FLOAT EQUIPMENT
CHARGE TO R: T chle Exploration STREETSTATEZIP	EXTRA FOOTAGE
Thick the Plan, Kevin, Grey CHARGE TO R: <u>Tchle Exploration</u> STREET CITYSTATEZIP To: Allied Oil & Gas Services, LLC.	EXTRA FOOTAGE
Thick Program Plan, Revin, Greg CHARGE TO R: T chle Exploration STREET CITY STATE ZIP To: Allied Oil & Gas Services, LLC. You are hereby requested to rent cementing equipment	EXTRA FOOTAGE
Thick fraction CHARGE TO R: T chle Exploration STREET CITY STATE ZIP To: Allied Oil & Gas Services, LLC. You are hereby requested to rent cementing equipment and furnish cementer and helper(s) to assist owner or contractor to do work as is listed. The above work was	EXTRA FOOTAGE
Thuck K Dim, herin, Grig CHARGE TO R: Tchle Exploration STREET CITY STATE ZIP To: Allied Oil & Gas Services, LLC. You are hereby requested to rent cementing equipment and furnish cementer and helper(s) to assist owner or contractor to do work as is listed. The above work was done to satisfaction and supervision of owner agent or	EXTRA FOOTAGE
Thick fraction CHARGE TO R: T chle Exploration STREET CITY STATE ZIP To: Allied Oil & Gas Services, LLC. You are hereby requested to rent cementing equipment and furnish cementer and helper(s) to assist owner or contractor to do work as is listed. The above work was	EXTRA FOOTAGE
Thick h Main, Kerin, Greg CHARGE TO R: T chie Exploration STREET CITY STATE ZIP To: Allied Oil & Gas Services, LLC. You are hereby requested to rent cementing equipment and furnish cementer and helper(s) to assist owner or contractor to do work as is listed. The above work was done to satisfaction and supervision of owner agent or contractor. I have read and understand the "GENERAL TERMS AND CONDITIONS" listed on the reverse side.	EXTRA FOOTAGE
Thick h Main, Kerin, Greg CHARGE TO R: T chie Exploration STREET CITY STATE ZIP To: Allied Oil & Gas Services, LLC. You are hereby requested to rent cementing equipment and furnish cementer and helper(s) to assist owner or contractor to do work as is listed. The above work was done to satisfaction and supervision of owner agent or contractor. I have read and understand the "GENERAL TERMS AND CONDITIONS" listed on the reverse side.	EXTRA FOOTAGE
Thuck Yan, Kevin, Grey CHARGE TO R: T chle Exploration STREET	EXTRA FOOTAGE @ 7.20 53.9 MILEAGE 20 @ 25.50 MANIFOLD @ 25.50 J. I.C. /// Agge 20 @ 4.40 303.00 Q46.73 20% @ 303.00 PLUG & FLOAT EQUIPMENT @
Thurk h Min, Kerin, Greg CHARGE TO R: T chle Exploration STREET CITY STATE CIP To: Allied Oil & Gas Services, LLC. You are hereby requested to rent cementing equipment and furnish cementer and helper(s) to assist owner or contractor to do work as is listed. The above work was done to satisfaction and supervision of owner agent or contractor. I have read and understand the "GENERAL TERMS AND CONDITIONS" listed on the reverse side.	EXTRA FOOTAGE
Thick Kein, Gry CHARGE TO R: T chle Exploration STREET CITY STREET CITY STATE ZIP To: Allied Oil & Gas Services, LLC. You are hereby requested to rent cementing equipment and furnish cementer and helper(s) to assist owner or contractor to do work as is listed. The above work was done to satisfaction and supervision of owner agent or contractor. I have read and understand the "GENERAL TERMS AND CONDITIONS" listed on the reverse side. PRINTED NAME WMM. MMM.	EXTRA FOOTAGE MILEAGE MANIFOLD