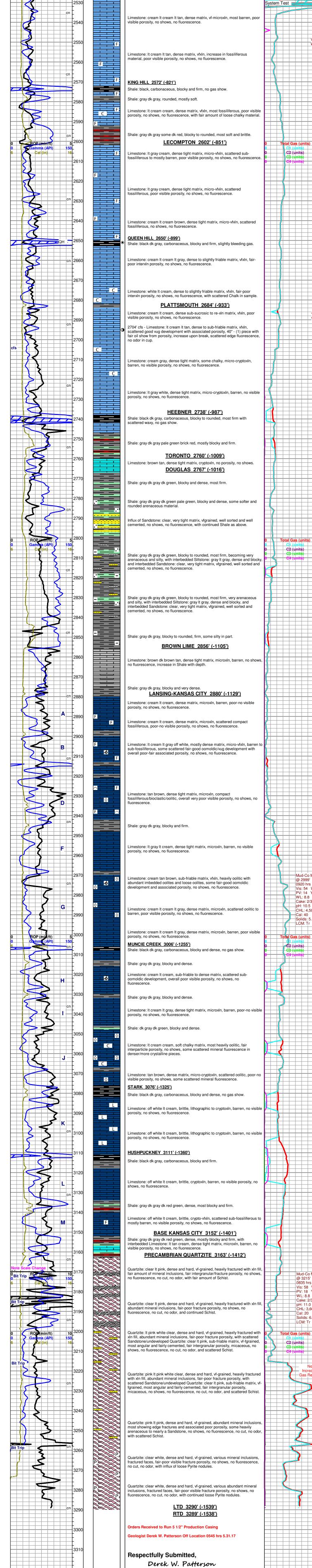
		N OPERATIN	G COMPANY	LLC		
	So	cale 1:240 Impe	rial			
Well Name	e: Dohrman #1-	-26				
Bottom Location						
AP License Numbe	API: 15-159-22840-0000 umber: 34434					
Spud Date Regior	e: 5/25/2017		Tir	ne: 8:30 F	M	
Drilling Completed	d: 5/30/2017		Tir	ne: 9:25 F	M	
Surface Coordinates Bottom Hole Coordinates	s:					
Ground Elevation K.B. Elevation						
Logged Interva Total Deptl				To: 3289.0	DOft	
Formation	n: Precambrian	Quartzite esh Water Gel				
Drilling Fluid Type		esn water Ger				
Company	v: Edison Opera	OPERATOR ating Company				
Address	s: 8100 E. 22nd	St. North				
	Building 1900 Wichita, KS	67226				
Contact Geologis Contact Phone Nb						
Well Name Location						
AP	l: 15-159-2284		F.			
Poo State			Coun	eld: Orth try: USA		
		LOGGED BY				
		ISON OPERATING C	OMPANY _{LLC}			
Company Address		ating Company	LLC			
Address	Building 1900	C				
Phone Nb	Wichita, KS r: 316.655.3550					
Logged By	y: Geologist		Nar	ne: Derek	W. Patterson	
Respectfully Submitted, Derek W. Patterson						
	GENE	ERAL INFORM	ATION			
Derek W. Patterson	S	ERAL INFORM				
Derek W. Patterson Drilling Contractor: Southwing Tool Pusher: Jay Krier	S d Drilling - Rig #3				: Mud-Co/Servi : Rick Hughes	ce Mud Inc.
Derek W. Patterson Drilling Contractor: Southwing Tool Pusher: Jay Krier Daylight Driller: Darrel Yo	S d Drilling - Rig #3					ce Mud Inc.
Derek W. Patterson Drilling Contractor: Southwing Tool Pusher: Jay Krier	S d Drilling - Rig #3 tt		es	Engineer ing Company	: Rick Hughes : Eli Wireline	
Derek W. Patterson Drilling Contractor: Southwine Tool Pusher: Jay Krier Daylight Driller: Darrel Yo Evening Driller: Jim Pfaff Morning Driller: Ken Thon Gas Detector: Bluestem	S d Drilling - Rig #3 tt npson Environmental		es	Engineer ing Company Engineer	: Rick Hughes	
Derek W. Patterson Drilling Contractor: Southwine Tool Pusher: Jay Krier Daylight Driller: Darrel Yo Evening Driller: Jim Pfaff Morning Driller: Ken Thon Gas Detector: Bluestem Engineer: Keith Rea Unit: 5258	S d Drilling - Rig #3 tt npson Environmental		es Logg	Engineer ing Company Engineer	: Rick Hughes : Eli Wireline : Jeff Luebbers : DI, CDNL, Mic	
Derek W. Patterson Drilling Contractor: Southwine Tool Pusher: Jay Krier Daylight Driller: Darrel Yo Evening Driller: Jim Pfaff Morning Driller: Ken Thon Gas Detector: Bluestem Engineer: Keith Rea	S d Drilling - Rig #3 tt npson Environmental		es Logg	Engineer ing Company Engineer Logs Ran	: Rick Hughes : Eli Wireline : Jeff Luebbers : DI, CDNL, Mic : No DSTs	
Derek W. Patterson Drilling Contractor: Southwing Tool Pusher: Jay Krier Daylight Driller: Darrel Yo Evening Driller: Jim Pfaff Morning Driller: Ken Thon Gas Detector: Bluestem Engineer: Keith Rea Unit: 5258 Operational By: 1400'	S d Drilling - Rig #3 tt npson Environmental wis		es Logg Test	Engineer ing Company Engineer Logs Ran ing Company Tester Pipe	: Rick Hughes : Eli Wireline : Jeff Luebbers : DI, CDNL, Mic : No DSTs : n/a e Strap	cro, Sonic
Derek W. Patterson Drilling Contractor: Southwing Tool Pusher: Jay Krier Daylight Driller: Darrel Yo Evening Driller: Jim Pfaff Morning Driller: Ken Thon Gas Detector: Bluestem Engineer: Keith Rea Unit: 5258 Operational By: 1400'	S d Drilling - Rig #3 tt npson Environmental		es Logg	Engineer ing Company Engineer Logs Ran ing Company Tester Pipe	: Rick Hughes : Eli Wireline : Jeff Luebbers : DI, CDNL, Mic : No DSTs : n/a e Strap	
Derek W. Patterson Drilling Contractor: Southwine Tool Pusher: Jay Krier Daylight Driller: Darrel Yo Evening Driller: Jim Pfaff Morning Driller: Ken Thon Gas Detector: Bluestem Engineer: Keith Rea Unit: 5258 Operational By: 1400' Deviation Survey Depth 3289' - RTD	Survey	Bit Record	es Logg Test	Engineer ing Company Engineer Logs Ran ing Company Tester Pipe oth	: Rick Hughes : Eli Wireline : Jeff Luebbers : DI, CDNL, Mid : No DSTs : n/a e Strap 	cro, Sonic Strap
Derek W. Patterson Drilling Contractor: Southwing Tool Pusher: Jay Krier Daylight Driller: Darrel Yo Evening Driller: Jim Pfaff Morning Driller: Ken Thon Gas Detector: Bluestem Engineer: Keith Rea Unit: 5258 Operational By: 1400' Deviation Survey Depth 3289' - RTD Bit # Size Make 1 12 1/4"	Survey 1° Survey 1°	Bit Record Serial Number Surface	Es Logg Test De Depth In 0'	Engineer ing Company Engineer Logs Ran ing Company Tester Pipe oth Depth Out 388'	: Rick Hughes : Eli Wireline : Jeff Luebbers : DI, CDNL, Mid : No DSTs : n/a e Strap Pipe	cro, Sonic Strap Hours 6.25
Derek W. Patterson Drilling Contractor: Southwing Tool Pusher: Jay Krier Daylight Driller: Darrel Yo Evening Driller: Jim Pfaff Morning Driller: Ken Thon Gas Detector: Bluestem Engineer: Keith Rea Unit: 5258 Operational By: 1400' Deviation Survey Depth 3289' - RTD Bit # Size Make	Survey 1° Survey 1°	Bit Record	es Logg Test De	Engineer ing Company Engineer Logs Ran ing Company Tester Pipe oth	: Rick Hughes : Eli Wireline : Jeff Luebbers : DI, CDNL, Mid : No DSTs : n/a e Strap Strap Pipe n/a Feet	cro, Sonic Strap Hours
Derek W. Patterson Drilling Contractor: Southwing Tool Pusher: Jay Krier Daylight Driller: Darrel Yo Evening Driller: Jim Pfaff Morning Driller: Ken Thon Gas Detector: Bluestem Engineer: Keith Rea Unit: 5258 Operational By: 1400' Deviation Survey Depth 3289' - RTD Bit # Size Make 1 12 1/4" Reed 2 7 7/8" Reed 3 7 7/8" Reed 3 7 7/8" JZ 4 7 7/8" Reed	d Drilling - Rig #3 tt npson Environmental wis Survey 1° Survey 1° RT R-24 HA20Q R-24	Bit Record Serial Number Surface D236948 RR D213166	es Logg Test Depth In 0' 388' 3172' 3185'	Engineer ing Company Engineer Logs Ran ing Company Tester Pipe oth Depth Out 388' 3172' 3185' 3215'	: Rick Hughes : Eli Wireline : Jeff Luebbers : DI, CDNL, Mid : No DSTs : n/a • Strap Pipe n/a Feet 388' 2784' 13' 30'	Strap Hours 6.25 68.75 2 3.25
Derek W. Patterson Drilling Contractor: Southwing Tool Pusher: Jay Krier Daylight Driller: Darrel Yo Evening Driller: Jim Pfaff Morning Driller: Ken Thon Gas Detector: Bluestem Engineer: Keith Rea Unit: 5258 Operational By: 1400' Deviation Survey Depth 3289' - RTD Bit # Size Make 1 12 1/4" Reed 2 7 7/8" Reed 3 7 7/8" JZ	d Drilling - Rig #3 tt npson Environmental ivis Survey 1° Survey 1° RT R-24 HA20Q R-24 RR	Bit Record Serial Number Surface D236948 RR	es Logg Test Depth In 0' 388' 3172'	Engineer ing Company Engineer Logs Ran ing Company Tester Pipe oth Depth Out 388' 3172' 3185'	: Rick Hughes : Eli Wireline : Jeff Luebbers : DI, CDNL, Mid : No DSTs : n/a • Strap Pipe n/a Feet 388' 2784' 13'	Strap Hours 6.25 68.75 2
Derek W. Patterson Drilling Contractor: Southwing Tool Pusher: Jay Krier Daylight Driller: Darrel Yo Evening Driller: Jim Pfaff Morning Driller: Ken Thon Gas Detector: Bluestem Engineer: Keith Rea Unit: 5258 Operational By: 1400' Deviation Survey Depth 3289' - RTD Bit # Size Make 1 12 1/4" Reed 2 7 7/8" Reed 3 7 7/8" JZ 4 7 7/8" Reed 5 7 7/8" JZ 6 7 7/8" Reed	Survey 1° Survey 1° Survey 1° Survey 1° RT R-24 HA20Q R-24 RR RR R-24	Bit Record Serial Number Surface D236948 RR D213166 RR D213165 Surface Casing	Es Logg Test Depth In 0' 388' 3172' 3185' 3215' 3258'	Engineer ing Company Engineer Logs Ran ing Company Tester Pipe oth Depth Out 388' 3172' 3185' 3215' 3258' 3289'	: Rick Hughes : Eli Wireline : Jeff Luebbers : DI, CDNL, Mid : No DSTs : n/a • Strap Pipe n/a • Feet 388' 2784' 13' 30' 43' 31'	Cro, Sonic Strap Hours 6.25 68.75 2 3.25 4.25 3
Derek W. Patterson Drilling Contractor: Southwing Tool Pusher: Jay Krier Daylight Driller: Darrel Yo Evening Driller: Jim Pfaff Morning Driller: Ken Thon Gas Detector: Bluestem Engineer: Keith Rea Unit: 5258 Operational By: 1400' Deviation Survey Depth 3289' - RTD Bit # Size Make 1 12 1/4" Reed 2 7 7/8" Reed 3 7 7/8" Reed 3 7 7/8" Reed 5 7 7/8" Reed	d Drilling - Rig #3 tt npson Environmental ivis Survey 1° Survey 1° RT R-24 HA20Q R-24 RR	Bit Record Serial Number Surface D213166 RR D213165 Surface Casing	Es Logg Test Depth In 0' 388' 3172' 3185' 3215' 3258'	Engineer ing Company Engineer Logs Ran ing Company Tester Pipe oth Depth Out 388' 3172' 3185' 3215' 3258' 3289'	: Rick Hughes : Eli Wireline : Jeff Luebbers : DI, CDNL, Mid : No DSTs : n/a • Strap Pipe n/a • Feet 388' 2784' 13' 30' 43' 31'	Cro, Sonic Strap Hours 6.25 68.75 2 3.25 4.25 3
Derek W. Patterson Drilling Contractor: Southwing Tool Pusher: Jay Krier Daylight Driller: Darrel Yo Evening Driller: Jim Pfaff Morning Driller: Ken Thon Gas Detector: Bluestem Engineer: Keith Rea Unit: 5258 Operational By: 1400' Deviation Survey Depth 3289' - RTD Bit # Size Make 1 12 1/4" Reed 2 7 7/8" Reed 3 7 7/8" JZ 4 7 7/8" Reed 5 7 7/8" JZ 6 7 7/8" Reed 5 7	Survey 1° Survey 1° Survey 1° RT R-24 HA20Q R-24 RR R-24 RR R-24 RR R-24	Bit Record Serial Number Surface D236948 RR D213166 RR D213165 Surface Casing e casing, set @	Es Logg Test Depth In 0' 388' 3172' 3185' 3215' 3215' 3258' 3258'	Engineer ing Company Engineer Logs Ran ing Company Tester Pipe oth Depth Out 388' 3172' 3185' 3215' 3258' 3289' ented with 25	: Rick Hughes : Eli Wireline : Jeff Luebbers : DI, CDNL, Mid : No DSTs : n/a • Strap Pipe n/a • Feet 388' 2784' 13' 30' 43' 31'	Cro, Sonic Strap Hours 6.25 68.75 2 3.25 4.25 3
Derek W. Patterson	Survey 1° Survey 1° Survey 1° Survey 1° Survey 1° Survey 1° Survey 1° Survey 1° Survey 1° Survey 1° Survey 1° Survey 1° Survey 1° Survey 1° Survey 1° Survey Survey 1° Survey Survey 1° Survey Survey Survey 1° Survey	Bit Record Serial Number Surface D236948 RR D213166 RR D213165 Surface Casing e casing, set @ .17. By Basic El Production Casin	Logg Test Depth In 0' 388' 3172' 3185' 3215' 3215' 3215' 3258' 388' KB. Cem nergy Services g	Engineer ing Company Engineer Logs Ran ing Company Tester Pipe oth Depth Out 388' 3172' 3185' 3215' 3258' 3289' ented with 25	: Rick Hughes : Eli Wireline : Jeff Luebbers : DI, CDNL, Mid : No DSTs : n/a e Strap Pipe n/a Feet 388' 2784' 13' 30' 43' 31' 0 sacks 60/40 F	Strap Hours 6.25 68.75 2 3.25 4.25 3 Poz.
Derek W. Patterson Drilling Contractor: Southwing Tool Pusher: Jay Krier Daylight Driller: Darrel Yo Evening Driller: Jim Pfaff Morning Driller: Ken Thon Gas Detector: Bluestem Engineer: Keith Rea Unit: 5258 Operational By: 1400' Deviation Survey Depth 3289' - RTD Bit # Size Make 1 12 1/4" Reed 2 77/8" Reed 3 77/8" JZ 4 77/8" Reed 3 77/8" JZ 4 77/8" Reed 5 77/8" Reed	Survey 1° Survey Survey 1° Survey 1° Survey Survey 1° Survey 1° Survey Survey 1° Survey Survey 1° Survey Su	Bit Record Serial Number Surface D236948 RR D213166 RR D213166 RR D213165 Surface Casing e casing, set @ .17. By Basic El Production Casin ested 5 1/2" prod A-2 10% salt, 59	Logg Logg Test Depth In 0' 388' 3172' 3185' 3215' 3258' 388' KB. Cem nergy Services g uction casing,	Engineer ing Company Engineer Logs Ran ing Company Tester Pipe oth Depth Out 388' 3172' 3185' 3215' 3258' 3289' ented with 25 tallying 3292.	: Rick Hughes : Eli Wireline : Jeff Luebbers : DI, CDNL, Mid : No DSTs : n/a e Strap Pipe n/a Feet 388' 2784' 13' 30' 43' 31' 0 sacks 60/40 F 10', set @ 3289	Strap Hours 6.25 68.75 2 3.25 4.25 3 Poz.
Derek W. Patterson Drilling Contractor: Southwing Tool Pusher: Jay Krier Daylight Driller: Darrel Yo Evening Driller: Jim Pfaff Morning Driller: Ken Thon Gas Detector: Bluestem Engineer: Keith Rea Unit: 5258 Operational By: 1400' Deviation Survey Depth 3289' - RTD Bit # Size Make 1 12 1/4" Reed 2 7 7/8" Reed 3 7 7/8" JZ 4 7 7/8" Reed 3 7 7/8" JZ 4 7 7/8" Reed 5 7 7/8" JZ 6 7 7/8" Reed 5 7 7/	Survey 1° Survey 1° Survey 1° Survey 1° RT R-24 HA20Q R-24 RR RC R-24 RC RC RC RC RC RC RC RC RC RC	Bit Record Serial Number Surface D236948 RR D213166 RR D213166 RR D213165 Surface Casing e casing, set @ .17. By Basic El Production Casin sted 5 1/2" prod A-2 10% salt, 5%	Logg Logg Test Depth In 0' 388' 3172' 3185' 3215' 3215' 3258' 388' KB. Cem nergy Services g uction casing, 6 calset, .3% F	Engineer ing Company Engineer Logs Ran ing Company Tester Pipe oth Depth Out 388' 3172' 3185' 3215' 3258' 3258' 3289' ented with 25 tallying 3292. R, .3% FLR-	: Rick Hughes : Eli Wireline : Jeff Luebbers : DI, CDNL, Mid : No DSTs : n/a e Strap Pipe n/a Feet 388' 2784' 13' 30' 43' 31' 0 sacks 60/40 F 10', set @ 3289	Strap Hours 6.25 68.75 2 3.25 4.25 3 Poz.
Derek W. Patterson Drilling Contractor: Southwing Tool Pusher: Jay Krier Daylight Driller: Darrel Yo Evening Driller: Jim Pfaff Morning Driller: Ken Thon Gas Detector: Bluestem Engineer: Keith Rea Unit: 5258 Operational By: 1400' Deviation Survey Depth 3289' - RTD Bit # Size Make 1 12 1/4" Reed 2 7 7/8" Reed 3 7 7/8" JZ 4 7 7/8" Reed 3 7 7/8" JZ 4 7 7/8" Reed 5 7 7/8" JZ 6 7 7/8" Reed 5 7 7/	Survey 1° Survey Survey 1° Survey 1° Survey Survey 1° Survey 1° Survey Survey 1° Survey Survey 1° Survey Su	Bit Record Serial Number Surface D236948 RR D213166 RR D213166 RR D213165 Surface Casing e casing, set @ .17. By Basic El Production Casin sted 5 1/2" prod A-2 10% salt, 5%	Logg Logg Test Depth In 0' 388' 3172' 3185' 3215' 3215' 3258' 388' KB. Cem nergy Services g uction casing, 6 calset, .3% F	Engineer ing Company Engineer Logs Ran ing Company Tester Pipe oth Depth Out 388' 3172' 3185' 3215' 3258' 3258' 3289' ented with 25 tallying 3292. R, .3% FLR-	: Rick Hughes : Eli Wireline : Jeff Luebbers : DI, CDNL, Mid : No DSTs : n/a e Strap Pipe n/a Feet 388' 2784' 13' 30' 43' 31' 0 sacks 60/40 F 10', set @ 3289	Strap Hours 6.25 68.75 2 3.25 4.25 3 Poz.
Derek W. Patterson Drilling Contractor: Southwing Tool Pusher: Jay Krier Daylight Driller: Darrel Yo Evening Driller: Jim Pfaff Morning Driller: Ken Thon Gas Detector: Bluestem Engineer: Keith Rea Unit: 5258 Operational By: 1400' Deviation Survey Depth 3289' - RTD Bit # Size Make 1 12 1/4" Reed 2 7 7/8" Reed 3 7 7/8" JZ 4 7 7/8" Reed 3 7 7/8" JZ 4 7 7/8" Reed 5 7 7/8" JZ 6 7 7/8" Reed 5 7 7/	Survey 1° Survey 1° Survey 1° Survey 1° Survey 1° RT R-24 HA20Q R-24 RR R-26 RC R-26 RC RC RC RC RC RC RC RC RC RC	Bit Record Serial Number Surface D236948 RR D213166 RR D213166 RR D213165 Surface Casing e casing, set @ .17. By Basic El Production Casin sted 5 1/2" prod A-2 10% salt, 5%	Logg Depth In O' 388' 3172' 3185' 3215' 3258' 388' KB. Cem nergy Services g uction casing, 6 calset, .3% F nergy Services	Engineer ing Company Engineer Logs Ran ing Company Tester Pipe oth Depth Out 388' 3172' 3185' 3215' 3258' 3258' 3289' ented with 25 tallying 3292. R, .3% FLR-	: Rick Hughes : Eli Wireline : Jeff Luebbers : DI, CDNL, Mid : No DSTs : n/a e Strap Pipe n/a Feet 388' 2784' 13' 30' 43' 31' 0 sacks 60/40 F 10', set @ 3289	Strap Hours 6.25 68.75 2 3.25 4.25 3 Poz.
Derek W. Patterson Drilling Contractor: Southwing Tool Pusher: Jay Krier Daylight Driller: Darrel Yo Evening Driller: Jim Pfaff Morning Driller: Ken Thon Gas Detector: Bluestem Engineer: Keith Rea Unit: 5258 Operational By: 1400' Deviation Survey Depth 3289' - RTD Bit # Size Make 1 12 1/4" Reed 2 7 7/8" Reed 3 7 7/8" JZ 4 7 7/8" Reed 3 7 7/8" JZ 4 7 7/8" Reed 5 7 7/8" JZ 6 7 7/8" Reed 5 7 7/	Survey 1° Survey 1° Survey 1° Survey 1° Survey 1° RT R-24 HA20Q R-24 RR R-26 RC R-26 RC RC RC RC RC RC RC RC RC RC	Bit Record Serial Number Surface D236948 RR D213166 RR D213166 RR D213165 Surface Casing e casing, set @ .17. By Basic Ei Production Casin sted 5 1/2" prod A-2 10% salt, 5% ate. .17. By Basic Ei Orduction Casin	Logg Depth In O' 388' 3172' 3185' 3215' 3258' 388' KB. Cem nergy Services g uction casing, 6 calset, .3% F nergy Services	Engineer ing Company Engineer Logs Ran ing Company Tester Pipe oth Depth Out 388' 3172' 3185' 3215' 3258' 3289' ented with 25 tallying 3292. R, .3% FLR-	: Rick Hughes : Eli Wireline : Jeff Luebbers : DI, CDNL, Mid : No DSTs : n/a e Strap Pipe n/a Feet 388' 2784' 13' 30' 43' 31' 0 sacks 60/40 F 10', set @ 3289	Strap Hours 6.25 68.75 2 3.25 4.25 3 Poz.
Derek W. Patterson Derek W. Patterson Drilling Contractor: Southwing Tool Pusher: Jay Krier Daylight Driller: Darrel Yo Evening Driller: Jim Pfaff Morning Driller: Ken Thon Gas Detector: Bluestem Engineer: Keith Rea Unit: 5258 Operational By: 1400' Deviation Survey Depth 3289' - RTD Bit # Size Make 1 12 1/4" Reed 2 7 7/8" Reed 3 7 7/8" JZ 4 7 7/8" Reed 3 7 7/8" JZ 4 7 7/8" Reed 5 7 7/8" AZ 6 7 7/8" Reed 5 7 7/8" Reed 6 7 7	Survey 1° Survey Survey 1° Survey 1° Survey 1° Survey 1° Survey 1° Survey 1° Survey Survey 1° Survey Survey 1° Survey Survey Survey 1° Survey Su	Bit Record Serial Number Surface D236948 RR D213166 RR D213166 RR D213165 Surface Casing e casing, set @ .17. By Basic Effect Production Casin ested 5 1/2" prod A-2 10% salt, 5% ate. .17. By Basic Effect Production Casin (DRILLING RE Previous pper Pennsylvar	Logg Depth In 0' 388' 3172' 3185' 3215' 3258' 388' KB. Cem nergy Services g uction casing, 6 calset, .3% F nergy Services g uction casing, 6 calset, .3% F	Engineer ing Company Engineer Logs Ran ing Company Tester Pipe oth Depth Out 388' 3172' 3185' 3215' 3258' 3289' ented with 25 tallying 3292. R, .3% FLR-	: Rick Hughes : Eli Wireline : Jeff Luebbers : DI, CDNL, Mid : No DSTs : n/a e Strap Pipe n/a Feet 388' 2784' 13' 30' 43' 31' 0 sacks 60/40 F 10', set @ 3289 322, 1% GB & 5 W. Patterson of	Poz.
Derek W. Patterson Deviation Survey Depth Size Make 1 1 2 7 7/8" Reed 3 7 7/8" 3289' - RTD Bit # Size Make 1 1 2 7 7/8" Reed 3 7 7/8" Reed 5 7 7/8 Reed 5 7 7 8	Survey 1° Survey Survey 1° Survey Survey 1° Survey 1° Survey Survey 1° Survey Survey 1° Survey Survey Survey 1° Survey Su	Bit Record Serial Number Surface D236948 RR D213166 RR D213166 RR D213166 In Surface Casing e casing, set @ .17. By Basic E Production Casin ested 5 1/2" prod A-2 10% salt, 5% ate. .17. By Basic E Production Casin ested 5 1/2" prod A-2 10% salt, 5% ate. .17. By Basic E	Logg Depth In 0' 388' 3172' 3185' 3215' 3258' 388' KB. Cem nergy Services g uction casing, 6 calset, .3% F nergy Services g uction casing, 6 calset, .3% F nergy Services	Engineer ing Company Engineer Logs Ran ing Company Tester Pipe oth Depth Out 388' 3172' 3185' 3215' 3258' 3258' 3289' ented with 25 tallying 3292. R, .3% FLR- Deprations ologist Derek Drilling and co	 Rick Hughes Eli Wireline Jeff Luebbers DI, CDNL, Mid No DSTs n/a Strap Pipe n/a Feet 388' 2784' 13' 30' 43' 31' 0 sacks 60/40 F 10', set @ 3289 322, 1% GB & 5 322, 1% GB & 5 	bro, Sonic Strap Hours 6.25 68.75 2 3.25 4.25 3 Poz. PKB. WKB. S#/ sx
Derek W. Patterson Drilling Contractor: Southwing Tool Pusher: Jay Krier Daylight Driller: Darrel Yo Evening Driller: Jim Pfaff Morning Driller: Ken Thon Gas Detector: Bluestem Engineer: Keith Rea Unit: 5258 Operational By: 1400' Deviation Survey Depth 3289' - RTD Deviation Deviati	Survey a Drilling - Rig #3 tt npson Environmental wis Survey 1° Type RT R-24 HA20Q R-24 RR R-24 HA20Q R-24 RR R-24 HA20Q R-24 RR R-24 BR R-24 RR R-24 RR R-24 BR R-24 Cement did circulate. n @ 0730 hrs 5.26 Fints of used and te d with 175 sacks A Cement did circulate. n @ 1530 hrs 5.31 DAILY and connections u s 5.28.17. Reset B	Bit Record Serial Number Surface D236948 RR D213166 RR D213165 Surface Casing e casing, set @ .17. By Basic El Production Casin sted 5 1/2" prod A-2 10% salt, 5% ate. .17. By Basic El Production Casin sted 5 1/2" prod A-2 10% salt, 5% ate. .17. By Basic El Provious pper Pennsylvar Bloodhound and uth). Resume dr I-Kansas City. D	Logg Depth In 0' 388' 3172' 3185' 3215' 3258' 388' KB. Cem nergy Services g uction casing, 6 calset, .3% F nergy Services g uction casing, 6 calset, .3% F nergy Services g uction casing, 6 calset, .3% F	Engineer ing Company Engineer Logs Ran ing Company Tester Pipe oth Depth Out 388' 3172' 3185' 3215' 3258' 3289' ented with 25 tallying 3292. R, .3% FLR- Deprations plogist Derek priling and co ections Topel	 Rick Hughes Eli Wireline Jeff Luebbers DI, CDNL, Mid No DSTs n/a Strap Pipe n/a Feet 388' 2784' 13' 30' 43' 31' 0 sacks 60/40 F 10', set @ 3289 322, 1% GB & 5 322, 1% GB & 5 	Strap Strap Hours 6.25 68.75 2 3.25 4.25 3 Poz. VKB. WKB. WKB. WKB. S#/ sx
Derek W. Patterson Drilling Contractor: Southwing Tool Pusher: Jay Krier Daylight Driller: Darrel Yo Evening Driller: Jim Pfaff Morning Driller: Ken Thon Gas Detector: Bluestem Engineer: Keith Rea Unit: 5258 Operational By: 1400' Deviation Survey Depth 3289' - RTD Bit # Size Make 1 12 1/4" Reed 3 7 7/8" Bit # Size Make 1 12 1/4" Reed 3 7 7/8" 3 7 7/8" 3 7 7/8" 5.26.2017 Ran 9 joir Cement de Plug down 5.31.2017 Ran 80 jo Cement de gilsonite. Plug down 5.31.2017 Ran 80 jo S.29.2017 2939' Date 0700 Hrs Depth 5.29.2017 2939'	Survey 1° Survey 1° Survey 1° Survey 1° Survey 1° Survey 1° Survey 1° RT R-24 HA20Q R-24 RR R-24 RR R-24 RR R-24 RR R-24 RR R-24 RR R-24 RR R-24 Cement did circulate. n @ 0730 hrs 5.26 Fints of 8 5/8" surface id circulate. n @ 0730 hrs 5.26 Fints of used and te d with 175 sacks A Cement did circulate n @ 1530 hrs 5.31 DAILY and connections u s 5.28.17. Reset F Topeka - Plattsmou	Bit Record Serial Number Surface D236948 RR D213166 RR D213166 RR D213165 Surface Casing e casing, set @ .17. By Basic Ei Production Casin ested 5 1/2" prod A-2 10% salt, 5% ate. .17. By Basic Ei Production Casin sted 5 1/2" prod A-2 10% salt, 5% ate. .17. By Basic Ei Provious pper Pennsylvar Bloodhound and uth). Resume dr	Logg Depth In 0' 388' 3172' 3185' 3215' 3258' 388' KB. Cem nergy Services g uction casing, 6 calset, .3% F nergy Services g uction casing, 6 calset, .3% F nergy Services g uction casing, 6 calset, .3% F	Engineer ing Company Engineer Logs Ran ing Company Tester Pipe oth Depth Out 388' 3172' 3185' 3215' 3258' 3289' ented with 25 tallying 3292. R, .3% FLR- Deprations plogist Derek priling and co ections Topel	 Rick Hughes Eli Wireline Jeff Luebbers DI, CDNL, Mid No DSTs n/a Strap Pipe n/a Feet 388' 2784' 13' 30' 43' 31' 0 sacks 60/40 F 10', set @ 3289 322, 1% GB & 5 322, 1% GB & 5 	Strap Strap Hours 6.25 68.75 2 3.25 4.25 3 Poz. VKB. WKB. WKB. WKB. S#/ sx

5.30.2017 3215' Drilling and connections Lansing-Kansas City, Base Kansas City, and into Precambrian Quartzite. Stop for bit trip @ 3172' (Quartzite). CTCH, TOH for bit trip #1 1945 hrs 5.29.17. TIH with new bit. CTCH, resume drilling following bit trip 2330 hrs 5.29.17. Drilling and connections Precambrian Quartzite. Stop for bit trip @ 3185' (Quartzite). CTCH, TOH for bit trip #2 0100 hrs 5.30.17. TIH with new bit. CTCH, resume drilling following bit trip 0415 hrs 5.30.17. Drilling and connections Precambrian Quartzite. Made 276' over past 24 hrs of operations. WOB: 30k RPM: 80 PP: 900 SPM: 60

DMC: \$82.00 CMC: \$5,278.63 5.31.2017 RTD - 3289' Drilling and connections Precambrian Quartzite. Stop for bit trip @ 3215' (Quartzite). CTCH, TOH LTD - 3290' for bit trip #3 0730 hrs 5.30.17. TIH with new bit. CTCH, resume drilling following bit trip 1035 hrs 5.30.17. Drilling and connections Precambrian Quartzite. Stop for bit trip @ 3258' (Quartzite). CTCH, TOH for bit trip #4 1455 hrs 5.30.17. TIH with new bit. CTCH, resume drilling following bit trip 1815 hrs 5.30.17. Drilling Precambrian Quartzite ahead to RTD of 3289'. RTD reached 2125 hrs 5.30.17. CTCH, drop survey, TOH for logging operations. Rig up Eli Wireline. Commence open hole logging operations 1220 hrs 5.31.17, conclude open hole logging operations 0445 hrs 5.31.17. Orders received to run 5 1/2" production casing to further test the Precambrian Quartzite. Geologist off location 0545 hrs 5.31.17. Made 74' over past 24 hrs of operations. WOB: 30k RPM: 80 PP: 900 SPM: 60 DMC: \$789.59 CMC: \$6,068.22

			WELL COMPA				
		rilling Well Iting - Dohrman #1-2	26	Comparison Well Bay Petroleum - Roelfs #	3 Birminc	Comparis ham-Bartlett I	Drilling - Godfrey #5
	Sec. 26	- T18S - R10W SL & 1980' FEL		Sec. 26 - T18S - R10W NW SW SE		Sec. 26 - T1 NE SE	8S - R10W
	1743 GL 1751 KB		Oil - Q 1747	Quartzite Stru	ictural Oil - A ionship 1756	rbuckle	Structural Relationship
Formation Topeka	Sample Sub-Set 2477 -726		Sub-Sea Sample -727 2476	Sub-Sea Sample	Log Log 2 2485	Sub-Sea -729	Sample Log 3 2
King Hill	2573 -822	2572	-821	-729 3	2572	-816	-6 -5
Queen Hill Plattsmouth	2650 -899 2685 -934	2684	-899 -933		2661 2697	-905 -941	6 6 7 8
Heebner Toronto	2739 -988 2760 -1009		-987 -1009	<u> </u>	2755 2777	-999 -1021	11 12 12 12
Douglas Brown Lime	2768 -1017 2856 -1105		-1016 -1105		2784 2879	-1028 -1123	11 12 18 18
Lansing-Kansas City LKC 'B'	2881 -1130 2900 -1149	2880	-1129 2879 -1149	-1132 2	3 2903 2925	-1147 -1169	17 18 20 20
LKC 'D'	2922 -1171	1 2921	-1170		2944	-1188	17 18
LKC 'F' LKC 'G'	2948 -1197 2970 -1219	9 2970	-1197 -1219		2970 2982	-1214 -1226	17 17 7 7
Muncie Creek LKC 'H'	3006 -1255 3017 -1266		-1255 -1265	<u>├── </u>	3037 3050	-1281 -1294	26 26 28 29
LKC 'I' LKC 'J'	3034 -1283 3048 -1297		-1281 -1297		3065 3084	-1309 -1328	26 28 31 31
Stark LKC 'K'	3078 -1327 3083 -1332	7 3076	-1325 -1331		3110 3119	-1354 -1363	27 29 31 32
Hushpuckney	3118 -1367	7 3111	-1360		3146	-1390	23 30
LKC 'L' Base Kansas City	3121 -1370 3152 -1401	1 3152	-1367 -1401		3155 3186	-1399 -1430	29 32 29 29
Arbuckle Precambrian Quartizte	3171 -1420		-1412 3240	Not Present -1493 73	81 3241	-1485 Not Pen	
Total Depth	3289 -1538	3 3290	-1539 3291	-1544 6	5 3272	-1516	-22 -23
LMST1		LMST4	ROCK		SHALE GRA		
LMST2		QRTZITE	SH		SHALE RED		
LMST3	3	Ss Ss		IALE GRN			
			ACCES	SORIES			
MINERAL	FOSSIL		STRINGER	TEXTUR	E		
P Pyrite		or Fragmental	Sandstone	C Chalk	у		
SandySilty	F Fossils < 2 ♦ Oolite		Siltstone	L Lithog	,r		
	o Oomoldic						
			OTHER S	YMBOLS			
DST							
DST1 DST2							
■ DST3 ■ Core							
tail pipe							
Currio Trools #1				Printed	I by GEOstrip VC Strip	log version	4.0.8.15 (www.grsi.c
Curve Track #1 ROP (min/ft)	_					Total Ga	TG, C1 - C5 is (units)
Gamma (API)	vals					C1 (units	s) —
Cal (in)	Inter	~ <				C2 (units	s) —
	Depth Intervals	Lithology Oil Show				C3 (units	s) —
		Oil Lith		Geological Description	ns	C4 (units	s)
	terval						
	Cored Interval DST Interval						
1:240 Imperial 0 ROP (min/tt)							1:240 Imperial
0 Gamma (AP) 6 Cal (in)	5 150 16		Displaced Mud System	ו @ 2377 '			Ctal Gas (units) 10 Ct (units) 10 C2 (units) 10
o Cal (in)	2360					0	C2 (units) 10 C3 (units) 10
	2360						
	2370						
	cn						
	2380						
	2390						
	2390						
0 (OD (min/#))	2400						
0 (OP (min/ft) 0 Camma (API) 6	5 5 150						Total Gas (units) 10 C1 (units) 10 C2 (units) 10
0 POP (min/ft) 0 Camma (API) 6 an (in)	5 5 150 16 cn						
0 Gamma (API)	5 5 150						C1 (units) 10 C2 (units) 10
0 Gamma (API)	5 2400 150 16 cn 2410						C1 (units) 10 C2 (units) 10
0 Gamma (API)	5 5 150 16 cn						C1 (units) 10 C2 (units) 10
0 Gamma (API)	2400 150 16 cn 2410 2420 2420						C1 (units) 10 C2 (units) 10
0 Gamma (API)	5 2400 150 16 cn 2410						Ct (units) 10 C2 (units) 10 C3 (units) 10 C4 (units)
0 Gamma (API)	2400 150 16 cn 2410 2420 2420						Ct (units) (C C2 (units) (C C3 (units) (C C4
0 Gamma (API)	2400 150 16 cn 2410 2420 2420			SEVERY 2443' (-A	92')		Ct (units) ft C2 (units) 10 C3 (units) 10 C4 (units) 10 C4 (units) 10 Mud-Co Mud Ck 0 @ 2428' 1040 hrs 5.28.17 Vis: 63 Wt: 8.7 PV: 16 YP: 21 WL: 8.8 Cake: 1/32nd
0 Gamma (API)	2400 150 16 cn 2410 2420 2420 2430		start 10' Wet & Dry Sar	<u>SEVERY 2443' (-6</u> mples	<u>92')</u>		Ct (units) ft C2 (units) 10 C3 (units) 10 C4 (units) 10 Mud-Co Mud Ck @ 2428' 1040 hrs 5.28.17 Vis: 63 Wt: 8.7 PV: 16 YP: 21 WL: 8.8 Cake: 1/32nd pH: 11.5 CHL: 1,700 ppm
0 Gamma (API)	2400 150 16 cn 2410 2420 2420 2430		Start 10' Wet & Dry Sar				Ct (units) ft C2 (units) ft C3 (units) ft C4 (units) ft Mud-Co Mud Ck @ Q 2428' 1040 hrs 5.28.17 Vis: 63 Wt: 8.7 PV: 16 YP: 21 WL: 8.8 Cake: 1/32nd PH: 11.5 CHL: 1,700 ppm Cal: 20 Solids: 2.7
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0 Gamma (API)	5 2400 150 16 cn 2410 2420 2420 2430 cn 2430	s	start 10' Wet & Dry Sar	mples nded, most soft with some	e waxy.		Ct (units) ft C2 (units) ft C3 (units) ft C4 (units) ft Mud-Co Mud Ck @ Q 2428' 1040 hrs 5.28.17 Vis: 63 Wt: 8.7 PV: 16 YP: 21 WL: 8.8 Cake: 1/32nd PH: 11.5 CHL: 1,700 ppm Cal: 20 Solids: 2.7
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		eyea					
	Limestone: cream It cream It tan, dense matrix, vf-microxIn, most barren, poor visible porosity, no shows, no fluorescence.		ſ				
						Vis	: 55
	Limestone: It cream It tan, dense matrix, vfxIn, increase in fossiliferous material, poor visible porosity, no shows, no fluorescence.					Wt	8.7
F	KING HILL 2572' (-821') Shale: black, carbonaceous, blocky and firm, no gas show.						
	Shale: gray dk gray, rounded, mostly soft. Limestone: It cream cream, dense matrix, vfxln, most fossiliferous, poor visible						
	porosity, no shows, no fluorescence, with fair amount of loose chalky material.						
	Shale: gray dk gray some dk red, blocky to rounded, most soft and brittle.	0	то	C1 (I		S)	100
F	Limestone: It gray cream, dense tight matrix, micro-vfxln, scattered sub- fossiliferous to mostly barren, poor visible porosity, no shows, no fluorescence.	0 0 0		C2 (ι C3 (ι C4 (ι			100 100 100
	Limestone: It gray cream, dense tight matrix, micro-vfxln, scattered						
F	fossiliferous, poor visible porosity, no shows, no fluorescence.						
	Limestone: cream It cream brown, dense tight matrix, micro-vfxln, scattered fossiliferous, no shows, no fluorescence.						
	QUEEN HILL 2650' (-899') Shale: black dk gray, carbonaceous, blocky and firm, slightly bleeding gas.						
	Limestone: cream It cream It gray, dense to slightly friable matrix, vfxln, fair- poor interxln porosity, no shows, no fluorescence.						
	Limestone: white It cream, dense to slightly friable matrix, vfxIn, fair-poor						
C	interxIn porosity, no shows, no fluorescence, with scattered Chalk in sample.		J				
	Limestone: cream It cream, dense sub-sucrosic to re-xln matrix, vfxln, poor visible porosity, no shows, no fluorescence. 2704' cfs - Limestone: It cream It tan, dense to sub-friable matrix, vfxln,						: 53 : 9.0
	scattered good vug development with associated porosity, 40" - (1) piece with fair oil show from porosity, increase upon break, scattered edge fluorescence, no odor in cup.						
	Limestone: cream gray, dense tight matrix, some chalky, micro-cryptoxln, barren, no visible porosity, no shows, no fluorescence.						
	Limestone: It gray white, dense tight matrix, micro-cryptoxln, barren, no visible porosity, no shows, no fluorescence.						
	HEEBNER 2738' (-987') Shale: black dk gray, carbonaceous, blocky to rounded, most firm with scattered waxy, no gas show.						
	Shale: gray dk gray pale green brick red, mostly blocky and firm.						
	TORONTO 2760' (-1009') Limestone: brown tan, dense tight matrix, cryptoxln, no porosity, no shows.						
	DOUGLAS 2767' (-1016') Shale: gray dk gray dk green, blocky and dense, most firm.						
	Shale: gray dk gray dk green pale green, blocky and dense, some softer and rounded arenaceous material.						
	Influx of Sandstone: clear, very tight matrix, vfgrained, well sorted and well cemented, no shows, no fluorescence, with continued Shale as above.						
		0	То	C1 (L		s)	100
	Shale: gray dk gray dk green, blocky to rounded, most firm, becoming very arenaceous and silty, with interbedded Siltstone: gray It gray, dense and blocky, and interbedded Sandstone: clear, very tight matrix, vfgrained, well sorted and cemented, no shows, no fluorescence.		}	C2 (t C3 (t C4 (t			100 100 100
	Shale: gray dk gray dk green, blocky to rounded, most firm, very arenaceous and silty, with interbedded Siltstone: gray It gray, dense and blocky, and interbedded Sandstone: clear, very tight matrix, vfgrained, well sorted and cemented, no shows, no fluorescence.						
	Shale: gray dk gray, blocky to rounded, firm, some silty in part. BROWN LIME 2856' (-1105')						
	Limestone: brown dk brown tan, dense tight matrix, microxln, barren, no shows, no fluorescence, increase in Shale with depth.						s: 53 t: 9.0
	Shale: gray dk gray, blocky and very dense.						
	LANSING-KANSAS CITY 2880' (-1129') Limestone: cream It cream, dense matrix, microxIn, barren, poor-no visible porosity, no shows, no fluorescence.						
	Limestone: cream It cream, dense matrix, microxIn, scattered compact fossiliferous, poor-no visible porosity, no shows, no fluorescence.						
	Limestone: It cream It gray off white, mostly dense matrix, micro-vfxln, barren to sub-fossiliferous, some scattered fair-good oomoldic/vug development with overall poor-fair associated porosity, no shows, no fluorescence.						
		\mathbb{P}^+	+	_	\vdash	+	+

Mud-Co Mud Ck

0920 hrs 5.29.17 Vis: 54 Wt: 9.1 PV: 14 YP: 17

. CHL: 4,500 ppm Cal: 40

100

100

Vis: 55 Wt: 9.4

Mud-Co Mud Ck @ 3215'

0835 hrs 5.30.17

Vis: 58 Wt: 9.3 PV: 18 YP: 23

-WL: 8.8 Cake: 2/32nd

pH: 11.0 CHL: 3,600 ppm Cal: 20

Solids: 6.9

100

100

Note

Increase in

Gas Readings

Vis: 55 -Wt: 9.3

LCM: Tr

WL: 8.8 Cake: 2/32nd

pH: 10.5

Solids: 5.4 LCM: Tr

@ 2999'