

GEOLOGICAL REPORT

SAMPLE LOG

OPERATOR: **Mull Drilling Company**
 LEASE: **HADDON** WELL NO: **4-2-35**
 FIELD: **1145' FSL & 1380' FEL**
 LOCATION: **35** TWP: **20S** R: **13W**
 COUNTY: **BARFON** STATE: **KANSAS**

CONTRACTOR: **Duke Drilling Co. Rig # 8**
 COMM: **23 Sept 2013** COMP: **30 Sept 2013**
 ROTARY TOTAL DEPTH: **3601'**
 LOG TOTAL DEPTH: **3601'**
 SAMPLES SAVED FROM: **3000'** TO **RTD**
 DRILLING TIME FROM: **3000'** TO **RTD**
 SUPERVISOR FROM: **3000'** TO **RTD**
 MUD TYPE: **CHEMICAL**
 WELL SITE GEOLOGIST: **CHARLES R. SCHWALITZ**

EQUIPMENT	SIZE	ENTR	E. LOG	ENTR	A	B	C	D
AMVORITE - TOP	715							
AMVORITE - BASE	757							
HEEBNER SH	3117 - 1241	3114	-1241		+1			
DOUGLAS	3136 - 1260	3133	-1260		-4			
BRONZE LIME	3235 - 1574	3230	-1574		+1			
ARBUCKLE	3465 - 1592	3462	-1592		+1			
LTD	3600 - 1724	3601	-1724		+2			

DATE	DEPTH	NO	SIZE	WIRE	TYPE	DEPTH CUT	FEET	RECORD
9/23/13	MRT	1	1 1/4"	WABBL		288	288	
9/24/13	MRT	1	1 1/4"	WABBL		288	288	
9/25/13	288'	1	7/8"	WABBL		3600	3312	
9/26/13	288'							
9/27/13	3235'							
9/28/13	3412'							
9/29/13	3600'							

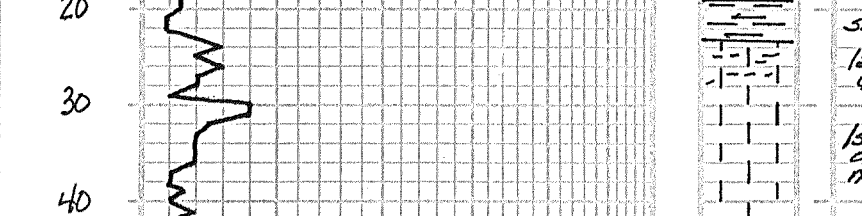
NO.	Interval	IFP/TSS	SIP/TSS	FFP/TSS	TSI/TSS	GTS / TSTM
1	3235-3327	25" 35"	72"	48" 77"	713"	100' OCM 60' SWCMO
2	3327-3423	5"	30"	45"	90"	100' GIP 20' SW & OCM
3	3423-3472	10" 13"	108"	16" 35"	1041"	250' GIP 65' GC Oil & Mud
4	3472-3543	11" 13"	85"	14" 17"	609"	5' OCM 10' SOCm

Based on evaluation of samples, DST's and logs, this well was plugged and abandoned on 30 September 2013.

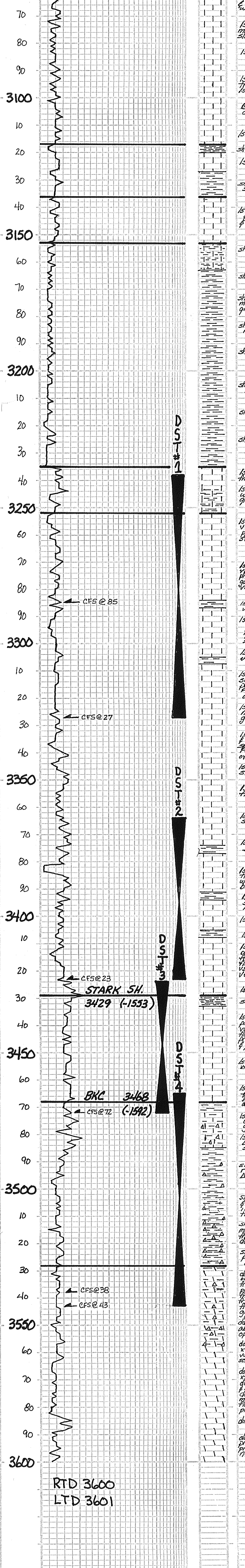
REFERENCE RELS FOR STRATIGRAPHIC POSITION

1	2	3	4	5	6	7	8	9
Mull Drilling Co.	HADDON #1-35	1380' FSL & 1470' FEL	3600' T-2205-R13W					

LEGEND



SCALE = 100'



DEPTH	DRILLING TIME Minutes/Foot	LITHOLOGY	SAMPLE DESCRIPTIONS	REMARKS
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HEEBNER SHALE
 3117 (-1241)

TORONTO
 3136 (-1260)

DOUGLAS
 3153 (-1277)

BROWN LIME
 3235 (-1359)

LANSING
 3252 (-1376)

DST #1
 5" 30" - 45" - 90"
 3238-3327
 IFP: Strong blow: BOB in 2"
 FFP: Strong blow immediately
 GTS in 41 MIN: TSTM
 Recovery:
 100' OCM (20% oil, 80% mud)
 60' SWCMO
 (10% oil, 40% mud, 50% oil)
 HP: 1577-1574"
 FP: 23-35/48-77"
 SIP: 721" - 713"
 BHT: 101° F

DST #2
 3364-3423
 5" - 30" - 45" - 90"
 IFP: SURFACE BLOW -> 1"
 FFP: 2 1/2" BLOW ING TO 6"
 Recovery:
 100' GIP
 20' SW & OCM
 (5% oil, 5% water, 90% mud)
 HP: 1609 - 1607"
 FP: 11" 13" / 16" 35"
 SIP: 127" - 79"
 BHT: 98° F

DST #3
 3424-3472
 5" 30" - 60" - 120"
 IFP: WK BLOW ME TO 2"
 FFP: WK BLOW ME TO 20"
 Recovery:
 250' GIP
 65' BCOM
 (15% oil, 35% oil, 50% mud)
 HP: 1664" - 1663"
 FP: 10" 13" / 16" 35"
 SIP: 1087" - 1041"
 BHT: 100° F

DST #4
 3465-3543
 5" - 30" - 30" - 60"
 IFP: WK SURF BLOW TO 1"
 FFP: WK SURF BLOW TO 1"
 Recovery:
 5' Clean Oil
 10' SOCm
 (8% oil, 42% mud)
 HP: 1654" - 1653"
 FP: 11" 13" / 14" 17"
 SIP: 855" - 609"
 BHT: 99° F

ARBUCKLE
 3528 (-1652)