

Directional Drilling Systems, LLC

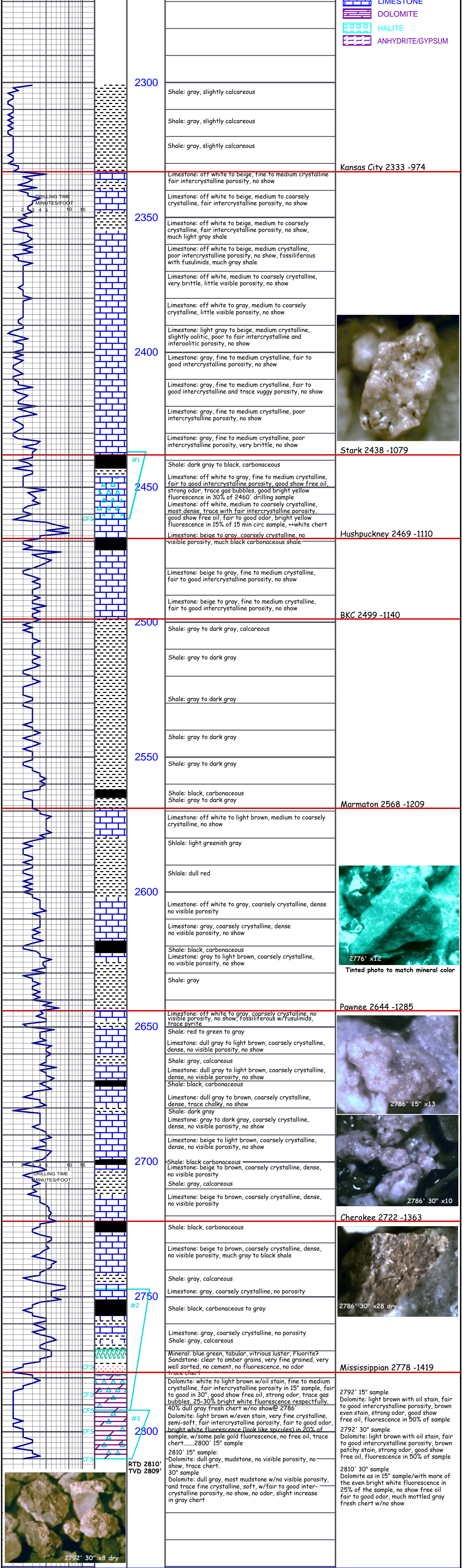
GEOLOGICAL REPORT
DRILLING TIME & SAMPLE LOG
API# 15-015-24,078
REPORT PREPARED BY FRANK S. WITZ/GEOLOGIST

COMPANY Directional Drilling Systems, LLC LEASE Benfer #7 FIELD Benfer LOCATION 1620 FSL & 1010 FWL SEC 9 TWPSP 26S RGE 3E COUNTY Butler STATE Kansas CONTRACTOR Summit Drilling SPUD 12-10-16 OOMP 12-18-16 SAMPLES SAVED FROM 2300' TO RTD	ELEVATION K.B. 1359 D.F. G.L. 1349 DEPTH MEASURED FROM Log Drilling CEASING 8 1/2" @ 217' w/120px Production 5 1/2" @ 2809' w/75px Fluid Induction Dual Induction Bottom Hole Gamma Ray
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FORMATION	SAMPLE	ELOG	DATE	A. Log	B. DT	C. DT
KC	2333	2333	-974	-976	-973	
Stark	2438	2441	-1082	-1081	-1081	
Hushpuckney	2469	2472	-1113	-1108	-1110	
BKC	2499	2499	-1140	-1141	-1143	
Marmaton	2565	2570	-1211	-1209	-1214	
Pawnee	2644	2645	-1285	-1285	-1293	
Cherokee	2722	2724	-1365	-1362	-1371	
Mississippian	NDE	NDE	-1421	-1416	-1438	
Osage	NDE	NDE	-1471	-1471	NDE	
RTD	2810	2811	-1482	-1477	-1512	

REFERENCE WELLS

A. NE SW SW 9-26S-3E Oil Prop. Mkt. Benfer #3
 E. 100' N of E 23-26S-3E Oil Prop. Mkt. Benfer #1
 E. NW SW SW 9-26S-3E Oil Prop. Mkt. Benfer #4



Directional Drilling Systems, LLC 1359 KB
Benfer #7
1620' FSL & 1010' FWL 9-26S-3E
Butler County, Kansas

Comments:

12/08/16 Moving in Summit Drilling Rig 1. Rigged up. Plan to spud on 12/10/16.

12/10/16 Moving mud to spud in early afternoon.

12/11/16 WOC @ 228' @ 7:00 AM. Spudded at @ 1:15 PM 12/10/16. Drilled 12.25' hole to 228'. Ran 205' of 8.625' 23# casing. Set @ 217' KB. Consolidated Oil Well Services cemented with 130 sacks class A + 3% CaCl₂, 2% gel, .25# Flo-Seal. Plug down @ 2:50 AM. 12/11/16. Consolidated ticket # 51942. Deviation 1/2" @ 228'.

12/12/16 Drilling @ 1012' @ 7:00 AM. Under surface @ 5:15 PM 12/11/16. Deviation 3/4" @ 731'. Not mudded up.

12/13/16 Drilling @ 2226' @ 7:00 AM. Mixing mud, no properties reported. Deviation 3/4" @ 1234', 1 3/4" @ 1735', 2" @ 1988'.

12/14/16 Present TD 2462'. Running in hole for DST #1 in Kansas City 2437'-2462'. Mud vis 50, wt 9.2 #/gal, LCM 2#. Deviation 2-1/2" @ 2301', 2-1/4" @ 2458'.

12/15/16 Drilling @ 2616' @ 7:00 AM. Vis 39 Wt. 9.2 LCM 2#. DST #1 2437'-2462' / 30-45-60. Weak blow building to 4" in 30 minutes. 30-45-60-60. Blow building to 6" in 30 minutes. Blow building to 9" in 60 minutes on final open. Recovered 125' GIP + 100' OCM, breakdown 13% oil, 87% mud. IHP 1311 PSIG, IFP 20-36 PSIG, ISIP 538 PSIG, FFP 40-61 PSIG, FSIP 570 PSIG, FHP 1300 PSIG.

12/16/16 Present TD 2792'. Running in hole for DST #2 in Mississippi 2747'-2792'. Mud vis 48, wt 9.1 #/gal, LCM 2#. Deviation 3" @ 2742'.

12/17/16 Present TD 2810'. Running DST #3 in Mississippi 2792'-2810'. Mud vis 51, wt 9.1 #/gal, LCM 2#. DST #2 2747' - 2792'. 30-45-60-60. Blow building to 6" in 30 minutes. Blow building to 9" in 60 minutes on final open. Recovered 125' GIP + 100' OCM, breakdown 13% oil, 87% mud. IHP 1311 PSIG, IFP 20-36 PSIG, ISIP 538 PSIG, FFP 40-61 PSIG, FSIP 570 PSIG, FHP 1300 PSIG.

12/18/16 WOC @ RTD 2810' @ 9:30 AM. Ran DST #3 in Mississippi 2792'-2810'. 30-45-60-60. Wk blow building to 4" in 30 minutes. Blow building to 10" in 60 minutes on final open. Recovered 125' GIP + 13' CO + 50' OWCM (16% O, 14% W, 70% M) + 30' OWCM (5% O, 41% W, 45% M). IHP 1334 PSIG, IFP 17-33 PSIG, IFP 17-33 PSIG, FFP 34-57 PSIG, FSIP 597 PSIG, FHP 1329 PSIG. Pioneer ran Compensated Neutron Density and Dual Induction Logs. LTD 2811'. Murray Casing Crews ran 65 joints 5.5" 15.5 # casing set @ 2809'. Consolidated Oilwell Services pumped 5 BW. 500 gal. Mud flush, 5 BW, 175 sx. Thickest cement + 5#/sx Kol-Seal. Displaced with 68.5 BW. Good circulation. Plug down @ 9:10 AM 12/18/16.

