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COMPANY H+C Oil Operating Inc.

WELL Dolbert Unit #18-3

FIELD Goetz

LOCATION 1980 FNL + 2310 FWL

SEC. 13 TWP. 10S RGE. 22W

COUNTY Sheridan STATE Kansas

ELEVATION GL 2582 KB 2587

PRODUCTION LKC

GEOLOGIC REPORT LOG

Scale 1" = 50'

Elevations: KB 2587 DF GL 2582 KB 5' Ref. Ground 2582

Drilling Contractor: American Eagle Drlg. Rig #2 Spud Date: 8-12-13 Comp. Date: 8-21-13

Electric Log Tops: Plains Marketing

Geological Supervision: Marc Downing

Samples Saved From: 3350 To: RTD

Drilling Time and Samples: 3350 To: RTD

Samples Examined and Described From: 3350 To: RTD

Type Drilling Mud: Chemical

Mud Up: 3350 Type Mud: Chemical

Rotary Total Depth: Driller 4116 Logger 4114

Surface Casing: Size 8 5/8" Set At 215 Cemented With 150 sx Type Cement Common 3% CC 2% Gel

Production Casing: Size 5 1/2" Set At 4115 Cemented With 175 sx Type Cement 60/40 Poz 6% Gel

Status: Oil Well

Cmt. Co. Plains Marketing

Operator: H+C Oil Operating Inc.

Contractor: American Eagle Drlg. Rig #2

Comp. Date: 8-21-13

Elevation: 2582 GL 2587 KB

Formation Tops and Structural Position

Formation	Sample Tops	Log Tops	Datum	Structural Position
Topeka	3506	3506	-919	-4
Heebner	3526	3526	-939	-24
Toronto	3546	3546	-959	-44
LKC	3564	3564	-977	-62
BKC	3794	3794	-1207	-292
Total Depth	4116	4114	-1527	-612

Reference Wells for Structure: H+C Oil Operating Inc. Dolbert Unit #18-2 1980 FNL + 1650 FEL Sec. 13-10s-22w

DRILL STEM TESTS

No.	Interval	Formation	Day	Time	Blow	Rec.
1	3800-3840					
2	3855-3900					
3	3899-3923					
4	3955-4008					
5	4029-4053					
6	4053-4116					

Due to structural position DST recovery, & log correlation, it was decided to set 5½" production casing for completion.

Drillers:

LKC "J": 4021-35

LEGEND

Anhydrite | Salt | Sandstone | Shale | Carb sh | Limestone | Oal./Lime | Chert | Dolomite

DRILLING TIME IN MINUTES PER FOOT
Rate of Penetration Decreases
5" 10" 15"

DEPTH | LITHOLOGY | SAMPLE DESCRIPTIONS | OIL SHOWS | REMARKS

3450
3500
50
Topeka 3506 (-1601)
3600
50
3700
50
Heebner 3802 (-1213)
Toronto 3824 (-1237)
LKC 3844 (-1255)
50
CFS
3900
DST #1
CFS
DST #2
CFS
DST #3
50
4000
DST #4
CFS
DST #5
CFS
DST #6
50
BKC 4074 (-1485)
4100
RTD: 4115 (-1524)
LTD: 4114 (-1524)

Sh: Black Carb
LS: tan, mud stn, ptk
Sh: lt gry
LS: varied, mod stn, fair fr int xtal vug, sl dull wsp, sl dull wsp fr gd Sfo, Fri - No Oil, Scat Gd gry
LS: varied, mud stn, many frag Pass fr vugs w/ Fr Sat Sfo, Fr amt free oil in vugs, Fr gd Sat, Fr gd Oil, Free oil on Pass chalk, Fair Oil
Sh: dk gry - blk
Sh: gry
LS: tan - varied, fair - mod stn, many Dolomitic inclus, Scat Pass Fr Sat Sfo, Fri - No Oil, Scat Gd gry
LS: varied, mod stn, many frag Pass, Fr vugs w/ Fr Sat Sfo, Fr amt free oil in vugs, Fr gd Sat, Fr gd Oil, Free oil on Pass
LS: tan - varied, v fri - stn, dolomitic, Fr gd vugs w/ Fr - gd Sat Sfo, Fr gd Oil, gd Cut
Sh: dk gry
Sh: gry
LS: tan - varied, fair - mod stn, many Dolomitic inclus, Scat Pass Fr Sat Sfo, Fri - No Oil, Scat Gd gry
LS: Tr - Fr gry, v dense, Scat Pass Sat tan - varied chalky, NS
Sh: Black Carb
Sh: gry
LS: tan - varied, mod stn, many Pass Fr - gd vugs w/ Fr - gd Sat Sfo, Fr gd Oil, Free oil on Pass, Many chalky zones, Fr gd Oil
LS: Tr gry Fri stn, Pp/P, NS
Sh: lt gry
LS: tan - varied, mod stn, many Pass Fr - gd vugs w/ Fr - gd Sat Sfo, Fr gd Oil, Free oil on Pass, Many chalky zones, Fr gd Oil
LS: Tr gry Fri stn, Pp/P, NS
Sh: lt gry
Sh: dk gry
LS: varied, fair - mod stn, many Pass Fr - gd vugs w/ Fr - gd Sat Sfo, Fr gd Oil, Free oil on Pass, Many chalky zones, Fr gd Oil
Sh: gry
LS: tan, mod stn, ptk & blk, sl dead brn stn, NS, scattered Oil.
Sh: gry
LS: varied, mod stn, Pass Fr - gd vugs w/ Fr - gd Sat Sfo, Fr gd Oil, Free oil on Pass, Many chalky zones, Fr gd Oil
LS: Tr gry Fri stn, Pp/P, NS
Sh: dk gry
LS: varied, fair - mod stn, many Pass Fr - gd vugs w/ Fr - gd Sat Sfo, Fr gd Oil, Free oil on Pass, Many chalky zones, Fr gd Oil
Sh: gry
LS: tan, mod stn, ptk & blk, sl dead brn stn, NS, scattered Oil.
Sh: gry
Sh: gry w/ minute brn
LS: tan, mod stn, ptk & dns, NS

Vis: 58 Wt: 9.0

DST #1
3800-3840
30-30-30-30
I.F.- 1" blow
F.F.- Dead
IFP: 36-37
FFP: 37-39
SIP: 592-539
HP: 1916-1941
Rec:
46' mud
BHT: 105°

DST #2
3855-3900
30-30-30-30
I.F.- Dead
F.F.- Dead
IFP: 16-22
FFP: 23-29
SIP: 94-197
HP: 1902-1920
Rec:
7' mud
BHT: 105°

DST #3
3899-3923
30-30-30-30
I.F.- BOB 6 min
F.F.- BOB 7 min
IFP: 45-235
FFP: 243-398
SIP: 995-985
HP: 1938-1990
Rec:
30ft' MCO w/ oil specks 70% oil
60ft' MCO - 30% oil
BHT: 122° Chlor: 60K

DST #4
3955-4008
45-45-45-45
I.F.- BOB 2 min
F.F.- BOB 31 min
IFP: 21-95
FFP: 99-114
SIP: 995-963
HP: 1946-1979
Rec:
90' GIP
1' CO
34' OWCM 30% oil, 30% wtr
62' OWCM 10% oil, 90% wtr
124' OWCM 50% oil, 50% wtr
BHT: 121° Chlor: 55K

DST #5
4029-4053
30-45-30-45
I.F.- BOB 9 min - 1/2" in bucket
F.F.- BOB 9 min - 1/4" in bucket
IFP: 24-30
FFP: 40-137
SIP: 1032-1022
HP: 2042-2003
Rec:
450' GSO
30' MCO 90% oil
124' GIP 20%, 40%, 40%
124' GIP 15%, 35%, 50%
BHT: 118° G-36

DST #6
4029-4053
30-30-30-30
I.F.- ¼" blow
F.F.- Surf
IFP: 17-20
FFP: 22-23
SIP: 972-922
HP: 2059-1883
Rec:
7' mud w/ oil specks
BHT: 104°