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RESEARCH LAB

KIMBALL, NEBRASKA 69145

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Phone 235-3278

00 South Locust

COLO. OIL & GAS CONS. COMM.

Company DUNWICK COMPANY Location ONE-NE Sec 3 TWP 5N Rge. 58W File N-1225
 Well LISKE NO. 1 Elevation 4655-KB Remarks 2- FEET OIL BEARING SD. IN THE "D" SAND
 Field UNNAMED Engineers R.P.
 County MORGAN State COLORADO Type Core Barrel CHRISTENSEN 7 7/8 DIAMOND

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYs		POROSITY %	RESIDUAL SATUR. % PORE SPACE		PROBABLE PRODUCTION	REMARKS
		HORIZONTAL	VERTICAL		OIL	WATER		
1	6063-64	48.	46.	15.0	5.3	41.0	Oil	Fine grain sand, lt. brown, clean, spotty stain and odor.
2	6064-64.5	15.	14.	12.1	8.3	38.9	"	Fine grain sand, lt. brown, shale stringers stain and odor.
3	6068.5-69	0.3	0.1	10.7	0.0	60.1	None	Fine grain sand, gray, sli. carb., no show, high water, vertical fracture, low perm.
4	6069-70	0.1	0.0	10.6	0.0	45.8	"	Fine grain sand, gray, clean, no show, low permeability.

AVERAGES FROM 6063.0 FEET TO 6064.5 FEET "D" SAND

PERMEABILITY		POROSITY	OIL	WATER
HORIZONTAL	VERTICAL			
32.	30.	13.6	6.8	40.0

"J" SAND BELOW

1	6133-34	0.3	0.1	6.1	9.8	37.9	None	Fine grain sand, lt. Brown, carb. stringers, spotty stain and odor vertical fracture, low permeability.
2	6134-35	4.0	3.7	11.5	7.0	62.2	"	Fine grain sand, lt. brown, carb. stringers, spotty stain and odor high water, low perm.
3	6135-36	96.	88.	19.2	3.6	68.3	Water	Fine grain sand, gray, shaly, reworked, weak stain and odor, high water.
4	6136-37	35.	29.	17.6	0.0	79.3	"	Fine grain sand, gray, shaly, reworked, no show, high water.

Drillstem Test - "D" Sandstone formation



Drillstem Test No.1 Test interval 6058' to 6068' - double packer -straddle packer test.

Tool open 90 minutes - no initial shut-in pressures attempted - Final Shut-in: 60 min

Blow: -Good blow, increasing to a strong blow

-Gas to surface in 11 minutes

Maximum blow - 8 lbs on 3/4" orifice = 227,000 feet per day

Remarks: Corrected pressures in 6 minute increment reading calculated

Recovery: No fluid recovered

<u>Pressures</u>	<u>Field</u>	<u>Corrected</u>	<u>Initial Shut-in Pressure</u>			
IH	3279	3263	none taken			
FH	3188	3251	<u>Final Shut-in Pressures</u>			
Flow	64	84	6 min	1625#	36 min	1660#
FF	1003	976	12 "	1636	42 "	1663
BHT	200 degrees		18 "	1646	48 "	1666
Mud: -Wt: 10.3	Vis: 85		24 "	1652	54 "	1668
Formation Tested: "D" Sandstone			30 "	1657	60 "	1669
Type of Test: Straddle						

Electrical Log Formation Tops:

Elevation: 4655' K.B.

Niobrara Shale	Upper Cretaceous	5296' -641'
Top Ft. Hays Limestone Member	" "	5582'
Top Greenhorn Limestone	" "	5866'
-Base Mowry Bentonite Marker	Lower Cretaceous	5953' -1298'
Top "D" Sandstone (pay)	" "	6058' -1403'
Top "J" Muddy Sandstone	" "	6123' -1468'

Total Depth: 6150' - electrical log measurements - in "J" Muddy Sandstone

Conclusions:

6020-25 Shale, dk gry to blk hd sl mica splintery and mica blk massive shs w/few pcs
gry thin sub xln lms and gry argil sds w/ weath cherts and few pcs dk
brn-blk speckeled shs w/trs pyrites.

6025-30 Shale, aa

"

"

"

6030-35 Shale, aa

"

"

"

6035-40 Shale, aa

"

w/few pcs soft blk shales and pyrites

6040-45 Shale, aa

"

"

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Sample Description: (continued)

6045-50 Shale, gry-blk sl mica splintery shs w/abnd blk hd massive shs w/trs wh-gry sub
xln lms w/tr fn hd argill sds w/trs soft blk shs and trs pyrite

6050-60 Shale, aa " "

6063'-cir Sand, fn gr ang clean small clusters w/good fluor, sl. odor and sl stain

Top "D" Sandstone - 6060' - electrical log

Core No. 1 6063' to 6100' - 37' Recovered: 37'

6063' - 63½' Sand, fn gr ang clean w/spotty fluor, fair stain, slight odor
6063½' - 64' Sand, aa w/ vy thin horizontal carb shale laminations w/fluor, fair stain
6064' - 64½' Sand, fn gr ang clean w/fair dull yellow fluor, light solid stain, sl odor
6064½' - 68½' Shale, blk hd vy carbonaceous w/few vy thin sand stringers w/sl show
6068½' - 69' Sand, fn gr ang vy hd clean w/fe vert frac w/fair fluor, stain, sl odor
6069' - 6100 Shale, blk hd vy carbonaceous w/interbedded bentonite laminations

<u>Core No. 1 6063' to 6100' - 37'</u>		<u>Core Analysis - Averages</u>		<u>Laboratory</u>
<u>Permeability</u>		<u>Porosity</u>	<u>Oil</u>	<u>Water</u>
<u>Horizontal-Vertical</u>				
32.	30.	13.6	6.8	40.0

Averages from 6063.0 to 6064.5 feet "D" Sandstone formation

Note: A complete laboratory core analysis run by Research Laboratories, Kimball Nebraska accompanies this report in the appendix of this report.

Core No. 1 6063' to 6100' - 37' Coring Well Operation Statistics

Core Barrel Size: 5 3/4" x 3 1/2" Length: 60'
Bit # F-1419 Bit Size: 7 7/8" x 3 1/2" Type: 112983
Hole Size: 7 7/8" Formation: "D" Sandstone Recovery: 100%
Mud: -Wt: 9.6 Visc: 62 Pump Pressure: 900# Linner Size: 3 3/4" x 15 Strokes: 37

Operation Conditions: - while coring

6063' - Wt: 8,000#	Rotating (RPM): 58	Fluid (GPM): 210
6064' - Wt: 10,000#	Rotating (RPM): 54	Fluid (GPM): 210
6073' - Wt: 12,000#	Rotating (RPM): 80	Fluid (GPM): 210
6076' - Wt: 15,000#	Rotating (RPM): 80	Fluid (GPM): 210

Coring Time:

6063-64 = 15"	6072-73 = 16"	6081-82 = 16"	6090-91 = 18"
6064-65 = 19"	6073-74 = 18"	6082-83 = 13"	6091-92 = 17"
6065-66 = 18"	6074-75 = 16"	6083-84 = 16"	6092-93 = 22"
6066-67 = 20"	6075-76 = 10"	6084-85 = 15"	6093-94 = 18"
6067-68 = 22"	6076-77 = 13"	6085-86 = 17"	6094-95 = 20"
6068-69 = 18"	6077-78 = 17"	6086-87 = 17"	6095-96 = 21"
6069-70 = 18"	6078-79 = 13"	6087-88 = 15"	6096-97 = 25"
6070-71 = 18"	6079-80 = 12"	6088-89 = 18"	6097-98 = 18"
6071-72 = 17"	6080-81 = 16"	6089-90 = 17"	6098-99 = 20"
- - -	- - -	- - -	6099-00 = 27"

After Core No. 1 - resumed drilling at 6100'

Sample Description: (continued)

6100-05 Shale, - samples poor - not representative of section
 6105-10 Shale, - " " " " "
 6110-15 Shale, blk hd sl mica splintery shs w/abnd of hd blk massive shs trs pyrite

Core No.2 - 6115' to 6155' - 40' Recovered: 40'

6115'-33' Shale, blk hd w/thin bentonitic laminations
 6133'-35' Sand, fn gr ang clean w/thin horizontal carb laminations w/sl spotty fluor
 w/sl stain and vy sl odor w/
Top "J" Muddy Sandstone - 6133' -by core meas few thn vert fractures
 6135'-36' Sand, fn gr ang clean reworked at bottom 3" w/sl tr st and poss weak odor
 6136'-38' Sand, fn gr shaley and reworked - N.S.
 6138'-41' Sand, fn gr ang w/thin blk carb shs laminations w/few thin vert fracs -N.S.
 6141'-45' Sand, fn gr ang shaley reworked w/no fracs - N.S.
 6145'-46' Shale, blk hd w/thin sand stringers -N.S.
 6146'-47' Sand, fn gr ang tight sl carb and sl shaley at top -N.S.
 6147'-48' Sand, aa " w/vertical fractures -N.S.
 6148'-51' Sand, aa " w/no vert fracs- N.S.
 6151'-55' Sand, fn gr ang tight clayfilled - N.S.

Total Depth: 6155' by driller's measurements = 6150' by electrical log measurements

Note: A complete laboratory core analysis run by Research Laboratories, Kimball, Nebraska accompanies this report in the appendix of this report.

Core No.2 6115' to 6155' - 40'

Coring Well Operations Statistics

Core Barrel Size: 5 3/4" x 3 1/2" Length: 60'
 Bit # Fi419 Bit Size: 7 7/8" x 3 1/2" Type: 112983
 Hole Size: 7 7/8" Formation: "J" Muddy Sandstone Recovery: 100%
 Mud: -Wt: 9.8 Visc: 88 Pump Pressure: 850# Linner Size: 5 3/4" x 15 Strokes: 40

Operation Conditions: - while coring

6115' - Wt: 15,000#	Rotating (RPM): 62	Fluid (GPM): 200
6118' - Wt: 18,000#	Rotating (RPM): 80	Fluid (GPM): 200
6137' - Wt: 15,000#	Rotating (RPM): 60	Fluid (GPM): 210

Coring Time:

6115-16 = 19"	6125-26 = 22"	6135-36 = 4"	6145-46 = 13"
6116-17 = 18"	6126-27 = 20"	6136-37 = 5"	6146-47 = 17"
6117-18 = 28"	6127-28 = 23"	6137-38 = 12"	6147-48 = 21"
6118-19 = 28"	6128-29 = 22"	6138-39 = 12"	6148-49 = 23"
6119-20 = 20"	6129-30 = 19"	6139-40 = 12"	6149-50 = 20"
6120-21 = 17"	6130-31 = 22"	6140-41 = 10"	6150-51 = 15"
6121-22 = 15"	6131-32 = 19"	6141-42 = 6"	6151-52 = 14"
6122-23 = 20"	6132-33 = 21"	6142-43 = 6"	6152-53 = 22"
6123-24 = 25"	6133-34 = 6"	6143-44 = 15"	6153-54 = 21"
6124-25 = 22"	6134-35 = 4"	6144-45 = 19"	6154-55 = 23"

Total Depth: 6155' - electrical log runs