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H. E. ZOLLER, JR.
PETROLEUM GEOLOGIST
CALIFORNIA BUILDING
DENVER, COLORADO

Final Report

March 22, 1956

Chandler-Musgrove Inc.
#2 Durland-Phillips
Commenced: 3/12/56
Completed: 5½" run 3/21/56
Elevation: 4862.5 G.L.
4869' K.B.

Logan County, Colorado
S½ NW SW, Sec. 20-12N-55W
Casing: 8-5/8" @ 385'
5-1/2" @ 6158'
Total Depth: 6209 Rotary
6194 Schlumberger

Samples were examined on the above well from 5180 feet to total depth. A Schlumberger E.S. log was run from the base of the surface pipe to total depth. Schlumberger measurement appeared to be consistently 5 feet higher than rotary measurements. Schlumberger failed to go within 12 feet of the actual total depth due to bridging conditions at the base of the hole. All cores, drill stem tests, etc. described or referred to in this report have been corrected to Schlumberger measurements. The following are electric log formation tops. (Note: All measurements are taken from Kelly bushings.)

Niobrara	5218	(- 349)
Fort Hays	5528	(- 609)
Carlile	5594	(- 725)
Greenhorn	5778	(- 909)
Bentonite	5945	(-1076)
"D" Sand	6051	(-1182)
"J" Sand	6159	(-1290)

"D" SAND

Two cores were taken in the "D" Sand as follows:

Core #1 6052-72 (recover 19½ feet)

6052-54 Sandstone white fine-medium grain silty poorly sorted hard with 50% black carbonaceous partings and inclusions interbedded, no odor stain or fluorescence, no porosity or permeability.

6054-57 Siltstone dark grey very hard with 10% white fine grain sand inclusions.

6057-61 Sandstone white grey very fine grain very hard with 50% black carbonaceous and grey silty shale partings and inclusions, no show, no porosity or permeability.

6061-65½ Sandstone grey fine grain clean very friable vertical fractures even stain and flourescence, stain dark, odor weak, good porosity and permeability; this zone either water bearing or flushed with drilling fluid.

6065½-68 Sand white fine grain well sorted, some Kaolin cementing material, hard with 10% dark grey shale partings interbedded, no-very light visible stain, spotted fluorescence bleeding oil and gas, very low porosity and permeability.

6068-71½ Sandstone grey fine grain clean very friable good odor stain and fluorescence, vertical fractures, good porosity and permeability does not appear water bearing.

CORING TIME

6052-53	25	6059-60	16	6066-67	29
53-54	16	60-61	10	67-68	25
54-55	21	61-62	16	68-69	30
55-56	22	62-63	29	69-70	33
56-57	16	63-64	28	70-71	39
57-58	12	64-65	31	71-72	55
58-59	10	65-66	38		

CORE ANALYSIS

Depth	Horiz. Perm.	Vert. Perm.	Por.	Oil	Water
6061-62	0.1	0.0	14.0	0.0	70.0
62-63	76	69	17.1	4.7	45.6
63-64	89	63	20.4	6.4	65.1
64-65	461	493	22.3	5.7	76.1
65-66	164	154	21.2	7.1	78.7
66-67	53	81	19.1	3.1	68.1
67-68	72	51	15.1	4.8	60.2
68-69	53	12	15.4	3.9	53.1
69-70	102	41	16.5	5.6	53.9
70-71	116	66	17.7	9.0	40.1
71-72	316	144	17.5	8.6	41.7
72-72½	333	124	17.1	12.9	36.8

Core #2 6072-87 (full recovery)

6072-74½ Sandstone grey fine grain very friable clean well sorted good odor stain and flouresscence, good porosity and permeability does not appear water bearing.

6074½-87 Shale dark grey lignitic in part.

CORING TIME

6072-73	19	6077-78	24	6082-83	27
73-74	17	78-79	22	83-84	27
74-75	15	79-80	22	84-85	25
75-76	20	80-81	21	85-86	24
76-77	31	81-82	30	86-87	29

CORE ANALYSIS

Depth	Horiz. Perm.	Vert. Perm.	Por.	Oil	Water
6072-73	451	272	17.9	14.0	51.9
73-74	282	247	16.3	9.8	49.1
74-74½	91	51	14.1	13.5	41.8

One Drill stem test was taken in the "D" Sand as follows:

Drill Stem Test #1 6066½-87

Tool open 30 minutes, shut-in 30 minutes; gas to surface in 2 minutes, flowed continuous spray of oil in 30 minutes, gas estimated 2½ mcfgpd, recover 300 feet oil 10 feet water, IHP 3125#, IFP 310#, FFP 705, SIP 1330#, FHP 3125#.

"J" SAND

One Core was taken in the "J" Sand as follows:

Core #3 6155-6181 (recover 24½ feet)

6155-57½	Siltstone, dark grey very hard with trace thin light grey hard sand stringers interbedded.
6157½-58	Shale dark grey fissle bentonitic.
6158-60½	Sandstone grey fine grain very silty fossiliferous argillaceous in part very hard, no show, no porosity or permeability.
6160½-62	Shale dark grey silty.
6162-69	Sandstone white-grey fine grain silty very hard with 50% black carbonaceous shale partings and inclusions reworked, no odor stain or fluorescence, no porosity or permeability.
6169-72	Sandstone white-grey fine grain clean very hard with 50% dark grey silty shale partings interbedded, no odor stain or fluorescence, very low porosity and permeability, possibly water bearing.
6172-76	Sandstone grey fine grain clean very hard with 30% dark grey silty shale partings interbedded bleeding oil & gas, weak odor, spotted stain and saturation, (due to low permeability), very low porosity and permeability, possibly water bearing, vertical fractures.
6176-79½	Siltstone dark grey very hard, shaley in part, trace thin grey hard sand stringers interbedded.

DRILLING TIME

6155-56	60	6162-63	32	6169-70	8	6176-77	14
56-57	17	63-64	26	70-71	21	77-78	19
57-58	19	64-65	23	71-72	15	78-79	23
58-59	40	65-66	13	72-73	18	79-80	28
59-60	19	66-67	15	73-74	19	80-81	20
60-61	18	67-68	8	74-75	15		
61-62	20	68-69	9	75-76	16		

CORE ANALYSIS

Depth	Horiz. Perm.	Vert. Perm.	Por.	Oil	Water
6172-73	0.0	0.0	10.0	7.0	51.0
6173-74	0.0	0.0	10.0	0.0	59.0
6174-75	0.3	0.2	9.7	12.4	40.3
6175-76	0.0	0.0	7.2	0.0	48.6
6176-77	0.0	0.0	3.6	0.0	61.1

No drill stem tests were taken in the "J" Sand.

SUMMARY

Structurally, measuring from the "D" Sand sub-sea datum the #2 Durland-Phillips is four feet higher than the #1 Durland-Phillips located 990 feet South and is five feet higher than the Delfern Oil #1 Peavy a "D" Sand producer located 990 feet South and 660 feet West. The "D" Sand "thinned" up 9 feet in total sand section as compared to the #1 Peavy. The 1st bench of the "J" Sand was poorly developed and very tight and judged non-productive.

The drilling samples taken on this well have been placed on file at the American Stratigraphic Company, Denver, Colorado.

Respectfully submitted,

H. E. Ballard

H. E. BALLARD, JR.

BIT RECORD

Chandler & Musgrove
#2 Burland-Phillips

March 22, 1956

Run No.	Size	Make	Type	Serial	Depth From	Depth To	Feet	Hours
1	7-7/8	HTC	OSC3-J	27892	385	3550	3165	21
2	7-7/8	HTC	OSC3-J	27951	3550	5017	1467	19-3/4
3	7-7/8	HTC	OSC3-J	87293	5017	5893	876	21
4	7-7/8	HTC	OSC3-J	27888	5893	6057	164	6-1/2
5	7-7/8	HTC	W7-R	91297	6057	6160	103	8
6	7-7/8	HTC	W7-R	81356	6160	6209	49	6

CONTRACTOR'S WELL LOG

COMPANY: Chandler-Musgrove, Inc.
CONTRACTOR: Chandler-Musg4ove, Inc.
FARM: Durland-Phillips No. 2
LOCATION: S½ NW¼ SW¼ Sec. 20-12N-55W
Logan County, Colorado
COMMENCED: March 12, 1956
COMPLETED: March 21, 1956
ELEVATION: 4869' k.b., 4862.5 g.l.

SCHLUMBERGER TOPS:

Niobrara	5218'
Fort Hays	5528'
Carlile	5594'
Greenhorn	5778'
Bentonite	5945'
"D"	6051'
"J"	6159'
TD	6194'

CASING:

Set 385 feet of 8-5/8-inch casing with 225 sacks of cement.

Set 5-1/2-inch casing at 6158 feet with 125 sacks of cement.

STATE OF COLORADO)
) ss.
COUNTY OF DENVER)

I, WAYNE R. DAVY, do hereby certify that the above and foregoing is a true and correct copy of the log of the No. 2 Durland-Phillips, S½ NW¼ SW¼ Section 20, Township 12 North, Range 55 West, Logan County, Colorado, as reflected by the files of the Chandler-Musgrove, Inc.

CHANDLER-MUSGROVE, INC.

By Wayne R Davy
Wayne R. Davy
Secretary-Treasurer

The foregoing was acknowledged before me this 3rd day of April, 1956, by Wayne R. Davy.

WITNESS, my hand and official seal.

Jane Leydon
Notary Public

MY COMMISSION EXPIRES:

My Commission expires May 17, 1959