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COLO. OIL & GAS CONS. COMM.

CONTINENTAL GAS TRANSMISSION COMPANY

WILKINSON #11-03

C NW NW SECTION 3, T8N, R66W

WELD COUNTY, COLORADO

W E L L S I T E G E O L O G I S T ' S R E P O R T

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SUMMARY OF SHOWS AND LITHOLOGY

COMPOSITE SAMPLE LOG

DRILL RATE/GAS LOG

DVR	
FJP	
HHM	✓
JAM	✓
JJD	
RLS	
CGM	

*McCoy-Swanson, Inc.**Consulting Geologists**4885 Riverbend Road, Suite 200**Boulder, Colorado 80301*

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WELL DATA

OPERATOR: Continental Gas Transmission Company

WELL NAME: Wilkinson #11-03

LOCATION: C NW NW Section 3, T8N, R66W
660' FNL, 660' FWL
Weld County, Colorado

ELEVATIONS: 5156' GL, 5165' KB

FIELD: Wildcat

ROAD DIRECTIONS: From Nunn, Colorado South on U.S. Hwy 85 one mile to
Weld County Road 89. East 1/4 mile on Road 98 then
South on lease road to location.

SURFACE CASING: 13 jts. 8 5/8", 24 lb/ft. surface casing total 522 ft.
set at 534' (KB) with 350 sks. of regular cement with
3% Calcium Chloride.

SPUD DATE: 7:00 p.m. 11 August 1981

DRILLING COMPLETED: 5:30 p.m. 23 August 1981

TOTAL DEPTH: 8420' Driller, 8425' Welex

LAT FM. PENETRATED: Skull Creek Shale

WELL STATUS: Ran 4 1/2" production casing. WOCT.

OPERATOR REPRESENTATIVE: Martin P. Heerschap
John Broughton

SERVICES

CONTRACTOR: Orbit Drilling
Kimbal, Nebraska
Rig #1
Toolpusher: Bob Conour

MUD: Magcobar
P.O. Box 807
Sterling, Colorado 80751
Mark Chryson, Engineer
Phone: (303) 522-9353

MUD LOGGING: Tooke Engineering
2 man unit #T-21
Rick Wamble and Jerry Davis, mud loggers

WELLSITE GEOLOGY: McCoy-Swanson, Inc.
Thomas H. Swanson, Geologist

CORES: None

DST'S: None

LOGS: Wellex

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DAILY REPORTS

This summary of drilling operations was prepared from the rig tour sheets. Depths are at start of morning tour. Hours are in parentheses.

DAY	DATE	DEPTH	
1	8-11	0'	Move in. Rig up. Drill rat hole and mouse hole (1 3/4). Drill 12 1/4" surface hole (8).
2	8-12	255'	Drill 12 1/4 surface hole (2). Circulate to run casing (1/4). Run 8 5/8" surface casing and cement (2 1/4). Wait on cement (8). Nipple up (1 3/4). Drill. Service rig (1/4). Drill.
3	8-13	1650'	Service rig (1/4). Drill. Trip for bit #2 (1 3/4). Drill. Service rig (1/4). Drill. Service rig (1/4). Drill. Trip for bit #3 (1 1/2).
4	8-14	3651'	Service rig (1/4). Trip in (1 1/4). Repair rig (engine #1) (1/2). Drill. Repair rig (geolograph) (1). Drill. Service rig (1/4). Drill. Repair rig (pump rubbers) (1/4). Drill. Service rig (1/4). Drill. Trip for bit #4 (2 3/4). Drill. Repair rig (pump valves) (1/4).
5	8-15	4530'	Service rig (1/4). Drill. Repair rig (mud pit valves) (3/4). Drill. Service rig (1/4). Drill. Trip for bit #5 (2 3/4). Drill. Service rig (1/4). Drill.
6	8-16	5076'	Service rig (1/4). Drill. Trip for bit #6 (3 1/2). Drill. Service rig (1/4). Drill. Service rig (1/4). Drill.
7	8-17	5670'	Service rig (1/4). Drill. Service rig (1/4). Drill. Repair rig (pump) (3/4). Drill. Trip for bit #7, hole in pipe, change bottom hole assembly (3 1/2). Drill.
8	8-18	6190'	Drill. Service rig (1/4). Drill. Service rig (1/4). Drill. Service rig (1/4). Drill.
9	8-19	6950'	Drill. Service rig (1/4). Drill. Service rig (1/4). Drill. Service rig (1/4). Drill. Trip for bit #8 and strap pipe (3).
10	8-20	7328'	Trip in hole (2 1/2). Drill. Service rig (1/4). Drill. Service rig (1/4). Drill. Circulate samples (2). Drill. Repair rig (pump liners) (1 3/4). Drill.
11	8-21	7757'	Drill. Service rig (1/4). Drill. Circulate samples (1/2). Drill. Service rig (1/4). Drill. Service rig (1/4). Drill.
12	8-22	8078'	Service rig (1/4). Drill. Trip for bit #9 (5 3/4). Drill. Service rig (1/4). Drill. Service rig (1/4). Drill. Circulate for logs (2 3/4). Trip out for logs (2 1/2). Log (1 1/2).

DAILY REPORTS (Cont'd)

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DAY DATE DEPTH

13 8-23 8228'

Log (3/4). Trip in hole (2 1/4). Drill. Service rig (1/4). Drill. Service rig (1/4). Drill. Circulate for logs (2 1/2). Trip for logs (3).

14 8-24 8420' T.D.

Log.

2 8-12 255'

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MUD RECORD

Drilled with fresh water/native mud to 3700'; then ran fresh gel mud to 5300'.
Drilled with fresh water/native mud to 7350'; then ran fresh gel mud.

DAY	DATE	DEPTH	WEIGHT	VISCOSITY	pH	FILTRATE
4	8-14	4136'	9.1	36	10	16.4
5	8-15	DRILLING WITH WATER				14 8-24 8420' T.D.
6	8-16	DRILLING WITH WATER				
7	8-17	DRILLING WITH WATER				
8	8-18	DRILLING WITH WATER				
9	8-19	DRILLING WITH WATER				
10	8-20	7703'	9.4	43	9.0	5.0
11	8-21	7971'	9.4	46	9.0	5.2
12	8-22	8213'	9.4	38	9.0	5.2
13	8-23	8403'	9.4	60	9.0	5.4

Logged with viscosity of 72 sec/qt.

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BIT RECORD

Bit No.	Size	Make	Type	Depth Out	Footage	Hours	Weight	RPM	Pump Pressure	Remarks (T-B-G*)
1A	12 1/4	HTC	OSC3	255'	255'	10				
1	7 7/8	HTC	OSC-3J	1903'	1363'	12	20/25K	96	1000	8-8-I
2	7 7/8	STC	DTJ	3651'	1748'	17 1/2	25K	96	1000	8-6-I
3	7 7/8	STC	DT	4376'	725'	13 1/4	25K	96	1250	6-8-I
4	7 7/8	Sec.	S3J	4765'	389'	12	25K	96	1250	6-6-I
5	7 7/8	STC	DTJ	5102'	337'	12	30K	96	1300	6-6-I
6	7 7/8	STC	FDT	6029'	927'	33 3/4	30K	96	1300	6-2-I
7	7 7/8	STC	FDT	7328'	1299'	48	30K	96	1200	6-2-I
8	7 7/8	HTC	J-2	8093'	765'	40 3/4	30K	96	1350	8-2-I
9	7 7/8	STC	F-3	8228'	135'	9 3/4	30K	96	1300	0-0-I
10	7 7/8	STC	F-3	8420'	192'	15	30K	60	1350	8-1-1/8

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DEVIATIONS

DEPTH	DEGREE
540'	1/2°
1903'	1 1/4°
3760'	3/4°
4376'	1 °
4765'	1 °
5102'	3/4°
7328'	1 °
8093'	3/4°
8228'	3/4°

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COLD OIL & GAS CONSULTANTS

DRILLING CURVE

Depth
0'

1000'

2000'

3000'

4000'

5000'

6000'

7000'

8000'

9000'

L. L. RIDGWAY COMPANY, INC.
PRINTED IN U.S.A.



41-0801

10 DIVISIONS PER HALF INCH BOTH WAYS

Days

1

2

3

4

5

6

7

8

9

10

11

12

13

14

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FORMATION	TOPS		
Formation	Log Top	Datum	Sample Top
Fort Hays Limestone	7778'	-2613	7740'
Codell Sandstone	7799'	-2634	7780'
Carlile Shale	7818'	-2653	7780'
Greenhorn Formation	7843'	-2678	7860'
"X" Bentonite	8106'	-2941	-----
(Graneros Shale)			
"J" Silt	8266'	-3101	8310'
"J" Sandstone	8312'	-3147	8310'
Skull Creek Shale	8395'	-3230	-----
T.D.	8426'	-3261	8420'

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SUMMARY OF SHOWS AND LITHOLOGY

FORT HAYS LIMESTONE

TOP: 7777' DATUM: -2613

Lithology: Limestone, white to very light pink; microcrystalline; firm; abundant spheroidal micro-fossils; leaves a trace of insoluble light brown residue when dissolved in HCl. Micro-fracturing is apparent throughout.

Show: None

Hot-wire Gas: No significant increase over a background of 10 gas units was recorded.

CODELL SANDSTONE

TOP: 7799' DATUM: -2634

Lithology: Sandstone, lower very fine grained; subangular; well sorted; quartz white; very tight due to abundant clay fill; grades into very silty shale; glauconitic; friable with sand grains falling out of a more stable matrix; non-calcareous.

Show: No fluorescence was noted in samples however mudloggers reported dull yellow fluorescence with no cut.

Hot-wire Gas: An increase to 74 gas units from a background of 6 to 10 gas units was recorded after penetration of the Codell sandstone. Chromatograph recorded 53% C₁, 25% C₂, 18% C₃, and 4% C₄.

CARLILE SHALE

TOP: 7818' DATUM: -2653

Lithology: Shale, very silty and sandy grading to moderately silty shale; medium gray; blocky with prominent micaceous laminae.

Show: None

Hot-wire Gas: No significant increase over a background of 15 units was noted. During penetration of the Carlile Shale several slight increases (to approximately 30 gas units) were noted. These corresponded to recycled gas from the Codell gas kick.

GREENHORN FORMATION

TOP: 7843' DATUM: -2678

From 7843 to 7904'

Lithology: Shale, medium dark gray; hard; slightly calcareous; platy; with traces of white and pink limestone.

Show: None

Hot-wire Gas: A slight increase to 50 gas units from a background of 15 units was noted in the interval from 7895 to 7905'.

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SUMMARY OF SHOWS AND LITHOLOGY (Cont'd)

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GREENHORN FORMATION (Cont'd)

From 7904 to 8106'

Lithology: Shale, medium brownish gray; moderately calcareous with a dark brown residue; platey.

Show: None.

Hot-wire Gas: Generally high background gas was recorded in the interval from 8000 to 8190'. This gas is presumed to be produced gas from the lower Greenhorn Formation.

GRANEROS SHALE

TOP: 8106'

DATUM: -2941

Lithology: Shale, medium brownish gray; non-calcareous; hard; bentonitic with light brown bentonite.

Show: None.

Hot-wire Gas: No significant gas increase was noted while drilling the Graneros shale. As noted above, generally high background gas was recorded. The background gas decreased to 15 units during penetration of the Graneros Shale.

"J" SILTSTONE

TOP: 8266'

DATUM: -3101

Lithology: Siltstone and lower very fine grained sandstone; medium brown; non-calcareous; very tight.

Show: None.

Hot-wire Gas: A very slight increase in background gas from 8 to 14 units was noted in the "J" silt.

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SUMMARY OF SHOWS AND LITHOLOGY (Cont'd)

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"J" SANDSTONE

TOP: 8312'

DATUM: -3147

From 8312 to 8349'

Lithology: Sandstone, lower fine grained; sub-rounded; well sorted; tight (approximately 8-12%); quartz very light brown and white, quartz overgrowth cementation; dispersed interstitial clay fill light brown and white.

Show:

None

Show: Good fluorescence, light yellow and light bluish yellow; good rapid-streaming cut with strong light blue residual ring; light oil staining on 50% of the sandstone.

Hot-wire Gas: From a background of 10 gas units an increase of 60 units was recorded. Of the 70 total gas units recorded, 57% was C₁, 25% was C₂, 15% was C₃, and 3% was C₄.

From 8349 to 8395'

Lithology: Sandstone, lower fine grained; sub-rounded; well sorted; abundant dispersed clay fill mostly white, quartz white and very light gray; very tight (less than 8%); non-calcareous.

Show: No fluorescence or cut. No stain.

Hot-wire Gas: From a background of 20 units three peaks of 50, 40, and 35 units were recorded. These appeared to be recycled gas in the mud system due to the regular interval (2 hrs. 15 min.).

SKULL CREEK SHALE

TOP: 8395'

DATUM: -3230

Lithology: Shale, medium gray; very silty and sandy; blocky; non-calcareous.

Show: None.

Hot-wire Gas: Generally high background of 25 units decreasing to 18 units.