

FLORY & ASSOCIATES
CONSULTING GEOLOGISTS

RECEIVED
DEC 12 1980

COLO. OIL & GAS CONS. COMM.

SAVAGETON ROUTE
GILLETTE, WYOMING 82716

Phone: (307) 682-6295



049-06019

BURTON AND HAWKS
23-1 Linke
SW NW Sec. 23-1N-77W
Grand County, Colorado

DVR	
FJR	
HHM	✓
JAM	✓
JJD	✓
RLS	
CGM	

David J. Zeider
David J. Zeider
Consulting Geologist



WELL DATA

OPERATOR: Burton and Hawks

WELL NAME: 23-1 Linke

LOCATION: SW NW Sec. 23 - 1N - 77W

COUNTY: Grand

STATE: Colorado

ELEVATION: 8339' GL

CONTRACTOR: Elenburg Exploration Inc.

TOOL PUSHER: Ed Henn

EQUIPMENT: DRILLING RIG: Walker-Neer Con-Cor
MOTORS: GMC
PUMPS: EMSCO D175 12"
DRILL PIPE: 4½" X H
DRILL COLLARS: 5"

CASING: 7-7/8" set at 200'

DRILLING FLUID: Water to 200' Air Mist to TD

ELECTRIC LOGGING: Schlumberger

SURVEY RUN: DIPMETER, IES-GR

LOGGING ENGINEER: A. Silva, Frank Hurtt

SPUD DATE: 10/27/80

DATE TD: 11/ 3/80

✓ WELL STATUS: ✓ Plugged and Abandoned

GEOLOGIST: David J. Zieder, Flory & Associates

TOTAL DEPTH: Driller - 3033' Logger - 3031'

WELL HISTORY

DATE	DEPTH	PENETRATION	OPERATION	REMARKS
10/27	0-200	200	Spud, Drill Surface Hole, run casing	
10/28	200	419	WOC, Dry Hole, Drilling	
10/29	619	921	Drilling/Trip	NB #2
10/30	1540		Drilling	
10/31	2093		Drilling/Trip	NB #3
11/1	2575		Drilling/Trip	NB #4
11/2	2851		Mud up Drilling	
11/3	2962		Drilling/Trip TD Log	

MUD INFORMATION

DEPTH	WT	VIS	WL	FC	pH
2851	41	8.6	--	--	--
2890	40	8.6	8.0	2	9
2960	38	8.7	7.4	2	9
3024	45	8.7	5.0	2	9

BIT RECORD

NO.	MFG	SIZE	TYPE	DEPTH OUT	FT. DRILLED	HOURS
1A						
1	STC	6-3/4"	DTJ	1469	1260	18-3/4
2	STC	6-3/4"	DTJ	2093	624	14
3	STC	6-3/4"	DTJ	2667	574	14
4	STC	6-3/4"	DTJ	3033	366	30-3/4

PLUGGING INFORMATION

10 Sacks at the top of the Surface Casing

20 Sacks in and out of the Base of Surface Casing

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- 10-28-80 Plug down at 2:30 AM, Drilled out plug, drying up hole, and preparing to drill out at 3 PM.
- 10-29-80 from 7to 9:30 Am wait on cement, 9:30 to 12:30 PM nipple up for air, 12:30 to 2:30 PM trip in unload hole, test BOP retighten & retest 250# ok, drilled cement, 2:30 to 5:30 PM tried to dry hole, drilled from 209' to 215', 5:30 to 5:45PM hook up mist, 5:45 to 12:15 AM drilled 6 3/4" w/mist, 12:15 to 1:00 AM thawed mist pump, 1:00 to 5:15 AM drilled 6 3/4" w/mist, 5:15 to 6:15 AM thaw mist pump, 6:15 to 7:00 AM drilled 6 3/4" w/mist to 1015', Slower drill break @ 520' may be Niobrara top.
- 10-30-80 7-7.15Am drlg 6 3/4" w/mist to 1062', 7:15 -8 AM blowing hole, 8-11AM drlg 6 3/4" w/mist to 1268', 11:15-12:30 PM rig repairs, install power steering pump & cyl., 12:30-4:45 PM drlg 6 3/4" w/mist, 4:45-7PM bit trip, 7-8:30 PM repair Hydraulics, check on boom cyl., 8:30-10:30 PM finish TIH, blow 50' to bottom, 10:30-7AM drlg 6 3/4" @ 1860' w/mist in black shale, no formation tops.
- 10-31-80 7Am - 2:30PM drilled to 2093'. 2:30-6PM trip out for new bit. Need more air to unload hole, compressor was due to arrive late afternoon. Extra drill pipe ordered to take well to 3000' - 3100' if necessary. 6PM-7AM waiting on compressor-long overdue; arrived Granby at 8AM. Will attempt to resume air drilling, but may have to mud up.
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- 11-2-80 7AM-12Pm continue trip in hole clean same, 20' fill, 12PM 7AM drlg 6 3/4" w/mud from 2851' to 3015',figure to reach TD between 9-10, logger called for noon.
- 11-3-80 7-9AM drled 6 3/4" to 3033' TD, 9-10:45Am mix mud build volume & circulate for logs, 10:45AM-12:45PM trip out for logs, 12:45 -8:15PM logging, logs TD 3032', bottom hole deviation 20°, log tops not definitive, still in Pierre shale at T.D. 8:15-10:15 PM nipple down, plugging, 10:15 2:15 AM rigging down, Rig Released @ 2:15AM on 11-4-80. Plug #1 - 20 sx cmt 250-140', PPlug #2- 10 sx cmt @ top.

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SAMPLE DESCRIPTION

The samples were caught at the flow line by the rig crews and are described here unlagged. They are lagged and interpreted on the lithologic log.

200-350	Shale, gray, blocky, firm-hard, calcareous occasionally carbonaceous
350-400	Shale, gray, blocky, firm-hard, calcareous occasionally carbonaceous
400-550	Shale, gray, blocky, firm-hard, calcareous occasionally carbonaceous
550-700	Shale, gray, blocky, firm-hard, calcareous occasionally carbonaceous
700-850	Shale, gray, blocky, firm-hard, calcareous occasionally carbonaceous
850-1000	Shale, gray, blocky, firm-hard, calcareous occasionally carbonaceous
1150-1300	Shale, gray, blocky, firm-hard, calcareous occasionally carbonaceous
1300-1450	Shale, gray, blocky, firm-hard, calcareous occasionally carbonaceous
1450-1600	Shale, gray, blocky, firm-hard, calcareous occasionally carbonaceous
1600-1750	Shale, gray, blocky, firm-hard, calcareous occasionally carbonaceous
1750-1900	Shale, gray, blocky, firm-hard, calcareous occasionally carbonaceous
1900-2050	Shale, gray, blocky, firm-hard, calcareous occasionally carbonaceous
2050-2200	Shale, gray, blocky, firm-hard, calcareous occasionally carbonaceous
2200-2390	Shale, gray, firm, calcareous, occasionally carbonaceous blocky
2390-2380	Shale, gray, firm, calcareous, occasionally carbonaceous, blocky
2380-2650	Shale, gray, firm, very calcareous, carbonaceous, occasional Calcite fracture fill with yellow mineral Fluorescence

2650-2720 Shale, light gray-gray, Pyritic, Calcareous, firm, Carbonaceous spots with abundant Calcite fracture fill, yellow mineral fluorescence, occasional light yellow hydrocarbon fluorescence, light yellow milky cut

2720-2920 Shale, light gray-gray, occasional Pyritic, very calcareous, firm, carbonaceous spots with Calcite fracture fill, occasional yellow mineral fluorescence, occasional light yellow fluorescence, light yellow milky cut

2920-2940 Shale, as above, with abundant Calcite fracture fill, yellow-white, blocky-occasional Crystalline, yellow mineral fluorescence, occasional Chert, white

2940-3000 Shale, gray, Pyritic, calcareous, firm, carbonaceous spots, occasional Calcite fracture fill, yellow mineral fluorescence, occasional light yellow hydrocarbon fluorescence, light yellow milky cut

3000-3033 Shale, gray, blocky, firm, calcareous, carbonaceous spots with occasional calcareous fracture fill

TOTAL DEPTH: Driller - 3033'
 Logger - 3031'

SUMMARY

The #23-1 Linke was spudded on 10/27/80, by Burton and Hawks, Incorporated. The objective horizon of this wildcat well being the Dakota Formation.

The drilling operation progressed, using an air mist to clean the hole, with no lithologic changes observed until 2380'. From this depth on a highly calcareous shale with abundant fracture filling and very minor hydrocarbon shows was observed until T.D.

The electric logs indicated a lithologic change, possibly due to abundant fracturing, beginning at 2450'. The Dipmeter survey indicates that the hole diviation increased with depth to a maximum of 23° at TD. This information combined with the steep dip of surface outcrops leads to the conclusion that an extended section of Pierre Shale was drilled.

The decision to plug and abandon the well was made on 11/2/80.