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CHANDLER & ASSOCIATES, INC.
SOUTHWEST RANGELY FEDERAL 13-30-1N-2
SW SW SEC. 30-T1N-R102W
RIO BLANCO COUNTY, COLORADO

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ELEVATIONS: KB 5709', GL 5697'

SURVEY: 758' FWL, 554' FSL

SPUD DATE: September 4, 1991

SURFACE CASING: Set 8-5/8" at 355' KB with 225 sacks of cement followed with 55 sacks from the top.

DRILLING FLUID: Air/mist with 3% KCL water.

CORES: None

FLARE TESTS: Top of the Castlegate ss.

LOG SURVEYS: Atlas Dual Induction Focused Log, Compensated Z-Densilog and BHC Acoustilog; and dipmeter.

TOTAL DEPTH: 3939' Driller, 3869' Logger.

STATUS: Plugged and abandoned September 11, 1991.

CONTRACTOR: Chandler Drilling Corp., Rig 7;
TP Darrel Fladeland and relief
TP Leon Schultz.

GEOLOGIST: Pleas Stringer

LOG TOPS:

	DEPTH
Rimrock ss	2139'
Mancos sh	2212'
Castlegate ss	2488' (+3221')
Mancos "B"	
Transition zone	3542'
Upper Sand zone	3684'
Main Porosity zone	3710'
Base of Mancos "B"	3750'

SAMPLES: Bulk samples of the Castlegate and Main Porosity sands were delivered to the Chandler office in Denver, Colorado.



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SAMPLE LITHOLOGIC DESCRIPTION

Depths below 1870' are adjusted to the electric logs.

MESAVERDE FM

430- 460'	Sandstone: light gray, very fine grained, well sorted, angular, clay filled, scattered black minerals, firm - friable, fair - good porosity, no shows. Lignite: brown, soft; Shale: dark gray, firm, fissile.
460- 490'	Sandstone: light gray, very fine grained, well sorted, angular, clay filled, fragments and laminations of coal, pyritic in part, friable, good porosity, no shows.
490- 520'	Siltstone: medium gray, sandy, firm; Siltstone: dark gray, shaly, firm.
520- 580'	Sandstone: light gray, very fine - fine grained, poorly sorted, angular - subangular, scattered coal fragments, unconsolidated, good porosity, no shows.
580- 640'	Shale: black, hard, silty in part; Siltstone: dark gray, firm, shaly.
640- 670'	Siltstone: brown, lignitic?, soft; Shale: dark gray brown, lignitic?, firm.
670- 700'	Limestone: brown, cryptocrystalline, hard, tight, no shows; Siltstone: dark gray, shaly, firm.
700- 730'	Sandstone: light gray, very fine grained, well sorted, angular, clay filled, scattered black minerals, friable, good porosity, no shows; Siltstone: dark gray brown, firm.
730- 760'	Shale: dark gray, soft - firm.
760- 790'	Siltstone: dark gray, hard.
790- 820'	Siltstone: light gray, soft, poor porosity; Shale: medium gray, soft.

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- 820- 850' Sandstone: light gray, very fine grained, fairly well sorted, angular, clay filled, scattered black minerals and some coal fragments, friable - firm, fair porosity, no shows.
- 850- 880' Shale: dark gray, soft, carbonaceous, partly fissile;
Limestone: brown, cryptocrystalline, hard, tight, no shows.
- 880-910' Sandstone: light gray, very fine grained, fairly well sorted, angular, clay filled, scattered black minerals and coal fragments, friable - unconsolidated, good porosity, no shows;
Limestone: brown, dense, hard, tight, no shows.
- 910- 940' Sandstone: light gray, very fine grained, fairly well sorted, angular, scattered black minerals and coal fragments, unconsolidated, good porosity, no shows;
Limestone: brown, dense, hard, tight, no shows.
- 940- 970' Limestone: buff, dense, hard, tight, no shows;
Shale: dark gray, firm, fissile.
- 970-1000' Sandstone: light gray, very fine grained, poorly sorted, angular - subangular, scattered coal and limestone fragments, unconsolidated, good porosity, no shows.
- 1000-1030' Sandstone: light gray, very fine grained, well sorted, angular, some clay filling, scattered black minerals, friable - firm, good porosity, no shows.
- 1030-1060' Shale: dark gray, firm, fissile.
- 1060-1090' Limestone: medium gray, microcrystalline, hard, tight, no shows.
- 1090-1120' Coal: black.
- 1120-1150' Sandstone: light gray, very fine grained, well sorted, angular, some clay filling, hard, poor porosity, no shows;
Shale: dark gray, firm, fissile.
- 1150-1210' Coal: black;
Limestone: gray brown, microcrystalline, firm, tight no shows.

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1210-1270' Coal: black;
Limestone: brown, dense, hard, tight, no shows.

1270-1300' Shale: dark gray, firm, fissile;
Limestone: brown, dense, hard, tight, no shows.

1300-1330' Sandstone: light gray, very fine grained, well sorted,
angular, clay filled, shale laminations, hard - firm,
tight, no shows;
Shale: dark gray, firm, fissile.

1330-1360' Sandstone: light gray, very fine grained, well sorted,
angular, clay filled, scattered carbonaceous material,
firm, tight, no shows;
Shale: dark gray, firm, fissile.

1360-1390' Sandstone: light gray, very fine - fine grained, poorly
sorted, angular - subangular, unconsolidated, good porosity,
no shows.

1390-1420' Shale: medium gray, firm, fissile;
Coal: black.

1420-1450' Shale: brown, lignitic?, firm.

1450-1480' Limestone: brown, cryptocrystalline, hard, tight, no shows;
Shale: dark gray - gray brown, firm, fissile.

1480-1510' Sandstone: light gray, very fine grained, well sorted,
angular, clay filled, scattered carbonaceous material,
firm, poor porosity, no shows;
Shale: dark gray, firm, fissile.

1510-1540' Limestone: light gray, microcrystalline, hard, tight, no
shows;
Shale: dark gray, firm, fissile.

1540-1600' Sandstone: light gray, very fine grained, well sorted,
angular, clay filled, scattered dark minerals, firm,
poor porosity, no shows;
Shale: dark gray, firm, fissile.

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- 1600-1660' Sandstone: medium gray and buff, very fine grained, well sorted, angular, clay filled, scattered black minerals, hard, tight, even bright yellow mineral fluorescence, no cut;
Shale: dark gray, firm, fissile.
- 1660-1690' Sandstone: light gray, very fine grained, fairly well sorted, angular, some clay filling, scattered black minerals, friable, good porosity, no shows.
- 1690-1720' Sandstone: light gray, very fine grained, well sorted, angular, unconsolidated, good porosity, no shows.
- 1720-1750' Sandstone: light gray, very fine - fine grained, poorly sorted, angular - subangular, unconsolidated, good porosity, no shows.
- 1750-1780' Siltstone: dark gray, firm;
Shale: dark gray, firm, partly fissile.
- 1780-1840' Sandstone: light gray, very fine grained, well sorted, angular, clay filled, hard, tight, no shows;
Shale: dark gray, firm, fissile.
- 1840-1870' Coal: black;
Shale: dark gray, firm, fissile.
- 1870-1910' Siltstone: dark gray, firm - hard;
Shale: dark gray, firm, fissile.
- 1910-1960' Sandstone: light gray, very fine grained, well sorted, angular, clay filled, scattered black minerals and some carbonaceous material, firm, poor porosity, no shows.
- 1960-1990' Sandstone: white, very fine - fine grained, poorly sorted, angular - subangular, some clay filling, scattered carbonaceous material, friable, good porosity, no shows.
- 1990-2035' Sandstone: white, very fine - fine grained, poorly sorted, angular - subangular, some clay filling, scattered carbonaceous material, friable, good porosity, no shows;
Coal: black

- 2035-2048' Sandstone: buff, very fine grained, well sorted, angular, some clay filling, scattered carbonaceous material, hard, tight, even bright gold mineral fluorescence, no cut.
- 2048-2098' Sandstone: light gray, very fine grained, well sorted, angular, clay filled, dirty, scattered carbonaceous material, hard - friable, poor porosity, no shows;
Siltstone: dark gray, hard.
- 2098-2118' Sandstone: light gray, very fine grained, well sorted, angular, some clay filling, scattered carbonaceous material, firm, fair porosity, no shows.
- 2130-2139' Shale: medium gray, waxy, firm, fissile.

RIMROCK SS

- 2139-2144' Sandstone: light gray, very fine grained, well sorted, angular, clay filled, scattered black minerals, firm - hard, poor porosity, 60% had no shows, 40% had no stain, even bright blue white fluorescence, good cut.
- 2146-2200' Sandstone: light gray, very fine - fine grained, poorly sorted, angular - subangular, some clay filling, scattered carbonaceous material, friable, good porosity, no shows.

MANCOS SH

- 2212-2367' Shale: dark gray, firm, fissile.
- 2367-2383' Siltstone: dark gray, hard.
- 2383-2488' Shale: dark gray, firm fissile.

CASTLEGATE SS

- 2488-2490' Sandstone (tr): buff, very fine - fine grained, poorly sorted, angular - subangular, some clay filling, friable, good porosity, even light stain, even bright blue white fluorescence, good cut.

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- 2490-2495' Sandstone: buff - white, very fine - fine grained, poorly sorted, angular - subangular, some clay filling, scattered black minerals, friable, good porosity, no stain - even very light - even brown stain, even weak - bright blue white fluorescence, weak - strong cut.
- 2495-2517' Sandstone: light gray, very fine grained, fairly well sorted, angular - subangular, some clay filling, scattered black minerals and some carbonaceous material, rare glauconite, friable, good porosity, no shows.
- 2517-2537' Sandstone: light gray, very fine - medium grained, poorly sorted, angular, some carbonaceous material and black minerals, friable - unconsolidated, good porosity, no shows.
- 2537-2580' Siltstone: light gray, firm.
- 2580-2603' Siltstone: dark gray, hard.
- 2603-2702' Shale: dark gray, firm, fissile.
- 2702-2730' Siltstone: dark gray, firm - hard.

MANCOS SH

- 3400-3542' Shale: dark gray, firm, fissile;
Siltstone: dark - medium gray, hard.

MANCOS "B" TRANSITION ZONE

- 3542-3630' Sandstone: light gray, very fine grained, well sorted, angular, clay filled, scattered black minerals and carbonaceous material, some shale laminations, hard, tight, no shows.
- 3630-3670' No samples.

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UPPER SAND ZONE

3684-3706' Sandstone: light gray, very fine grained, well sorted, angular, clay filled, scattered black minerals and carbonaceous material, some shale laminations, rare glauconite, hard - firm, tight, no shows.

MAIN POROSITY ZONE

3710-3732' Sandstone: light gray, very fine grained, well sorted, angular, partly clay filled, scattered black minerals and carbonaceous material, some shale laminations, hard, tight, 95% had no shows, 5% had no stain, even blue white fluorescence, very weak - no cut;
Siltstone: light gray, some shale laminations, hard, fluorescence as above.

3732-3750' Sandstone: light gray, very fine grained, well sorted, angular, partly clay filled, scattered black minerals and carbonaceous material, some shale laminations, hard, tight, no shows.

3750-3939' Shale: dark gray, firm, fissile.

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SUMMARY OF FLARE AND FLUID DATA

<u>DEPTH</u>	<u>OPERATION</u>	<u>FLARE AND WATER FLOWS (6" Flow Line)</u>
1300'	Drilling	First water flow at est. 15 BPH.
1339'	Survey (30 min.)	Two foot flare for 8 sec. following survey
1437'	Connection	Increase in water flow following connection.
1890'	Survey (30 min.)	Six foot flare for 1-1/2 min. following survey.
2347'	Survey (30 min.)	One foot flare for 8 sec. following survey.
2501'	Blew the hole (2 hrs.)	No flare while blowing the hole or afterwards.
2590'	Drilling	Water flow increased an additional est. 40-50 BPH.
2653'	Shut down 1-1/2 hrs. for repairs.	10 foot flare for 2 min. while unloading the hole.
3538'	Connection	Three momentary flare pops following connection.
3568'	Connection	Water flow est. 150 BPH.
3846'	Connection	One and one-half foot flare for three sec. following connection.

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DRILLING PROGRESS SUMMARY

9- 4-91			Spudded 9:30 P.M.
9- 5-91	Ø 240'		Ran surface casing.
9- 6-91	Ø cement		
9- 7-91	Ø 1318'		
9- 8-91	Blowing the hole at 2501'		
	to test the top of the		
	Castlegate ss.		
9- 9-91	Ø 3477'		
9-10-91	TD 3939'.	Running logs.	Set three plugs.
9-11-91	TD 3939'.	Setting plugs.	Plugged and abandoned.

BIT RECORD

<u>BIT NO.</u>	<u>SIZE</u>	<u>MAKE</u>	<u>TYPE</u>	<u>DEPTH OUT</u>	<u>FEET</u>	<u>HOURS</u>
1	12 $\frac{1}{4}$ "	Reed	Y12J	370'	358'	10-1/2
2	7-7/8"	Reed	HP12	340'	328'	8
3	7-7/8"	Hughes	A-77	3939'	3569'	69

SURVEY RECORD

<u>DEPTH</u>	<u>DEVIATION</u>
122'	1/2°
212'	1/2°
330'	3/4°
823'	3/4°
1339'	3/4°
1850'	1-1/4°
2337'	1-1/4°

PLUGGING RECORD

3750-3660' with 80 sacks of cement
2600-2550' with 60 sacks of cement (tagged at 2490')
2150-2050' with 60 sacks of cement
2050-2011' with 19 sacks of cement
430- 330' with 60 sacks of cement
At the surface with 12-14 sacks of cement

Respectfully submitted,

Pleas Stringer

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