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AUG 14 1970

COLO. OIL & GAS CONS. COMM.

WELL REPORT

WEBB RESOURCES, INC.

No. 20-1 Bernal Wallace

NE/4 NE/4 of Section 20

Township 15 South, Range 42 West

Cheyenne Sounty, Colorado

Prepared by:

Allan R. Hallock  
Consulting Geologist  
Denver, Colorado  
August 4, 1970

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STATISTICAL INFORMATION

OPERATOR: Webb Resources, Inc.  
WELL NO: No. 20-1 Bernal Wallace  
LOCATION: NE/4 NE/4 of Section 20,  
Township 15 South, Range 42 West  
Cheyenne County, Colorado  
ELEVATION: 4033 G.L. 4044 K.B.  
TOTAL DEPTH: 5755 Schlumberger 5760 Driller  
LOG PROGRAM: Schlumberger Dual Induction-Laterolog,  
Amplitude Log, Borehole Compensated  
Sonic Log - Gamma Ray  
CASING: 8-5/8" @ 293' with 222 sacks  
SPUD DATE: July 14, 1970  
COMPLETION DATE: July 30, 1970  
CONTRACTOR: L & F Drilling Company  
TOOL PUSHER: Stan Lindgreen  
CORES: None  
TESTS: 4984 - 5016 Atoka (Straddle Test)  
WELLSITE GEOLOGIST: Allan R. Hallock  
MUD LOGGING: None  
PLUGGING DATA: 20 sacks at base of surface casing  
10 sacks at top of surface casing  
In accordance with Frank Piro, Oil  
and Gas Conservation Commission

FORMATION TOPS

<u>Formation</u>	<u>Depth</u>	<u>Datum</u>
Stone Corral	2868	+1176
Pennsylvania	3880	+ 164
Topeka	3928	+ 116
Lansing	4218	- 174
Marmaton	4631	- 587
Cherokee	4800	- 756
Atoka	4960	- 916
Morrow	5106	-1062
Keys	5192	-1148
St. Genevieve	5173	-1229
St. Louis (?)	5332	-1288
Spergen	5406	-1362
Osage (P.A.) - Warsaw	5539	-1495
Osage (Webb)	5582	-1538
Arbuckle	5692	-1648
Total Depth	5760 Driller	5755 Schlumberger

CHRONOLOGICAL HISTORY

7-14-70 Spudded, set 8-5/8" at 293' with 222 sacks.  
7-15-70 Drilling 700'  
7-16-70 Drilling 2010'  
7-17-70 Drilling 2925'  
7-20-70 Drilling 4130'  
7-21-70 Drilling 4389', Top of Lansing 4290'  
7-22-70 Drilling 4623'  
7-23-70 Drilling 4872', Sample Top - Cherokee 4796'  
7-24-70 Drilling 5060', Sample Top Atoka 4960'  
7-25-70 DST #1 4984-5016  
7-26-70 Drilling 5320', Sample Top St. Genevieve 5272  
7-27-70 TD 5474', Lost circulation, Sample Top Spergen 5400. No shows, no porosity.  
7-28-70 Drilling 5650', Sample Top Osage 5578, Sample description 5578-5630, fractured chert, good porosity, no shows. Expected to reach Arbuckle 5704 by tonite.  
7-29-70 TD 5760, top of Arbuckle 5708, running logs.  
7-30-70 Plugged and abandoned.  
Plugs: 20 sacks - bottom surface casing  
10 sacks - top surface casing

BIT RECORD AND DEVIATION SURVEYS

<u>Bit No.</u>	<u>Make</u>	<u>Size</u>	<u>Type</u>	<u>Depth Out</u>	<u>Footage</u>	<u>Hours</u>	<u>Deviation</u>
1A	Retip	12-1/4	----	300	300	2	
1	STC	7-7/8	DTJ	1551	1251	11-1/4	1°
2	STC	7-7/8	DTJ	2335	784	19-1/2	1/2°
3	STC	7-7/8	DGTJ	3270	935	21-3/4	1/2°
4	STC	7-7/8	DGTJ	3601	331	12-1/2	
5	STC	7-7/8	DGTJ	3832	231	11-1/2	
6	STC	7-7/8	DGTJ	4074	242	17	
7	STC	7-7/8	DGTJ	4320	246	16-1/4	1/2°
8	STC	7-7/8	SS3	5007	687	67-1/4	0
9	STC	7-7/8	V1	5082	75	11	
10	STC	7-7/8	V1	5260	178	16-1/2	
11	STC	7-7/8	SS4	5760	500	48-1/4	

DRILL STEM TEST

DST No. 1 4984-5016, Atoka (Straddle test)  
Open 10", very weak blow (1/4"); Shut in 60", Open 30", no blow; Shut in 60". Recovered 6' mud, no show.

IHP 2614  
First Flow Period 24-24  
ISIP 871

Second Flow Period 24-24  
FSIP 484  
FHP 2601  
BHT 132°

### SAMPLE DESCRIPTION

Sample Description begins @ 3200' - 30' unlagged samples

- 3200-3470 Shale and siltstone, red-orange; some sandstone, red-orange, very fine grained, occasionally anhydritic
- 3470-3530 As above, some white anhydritic sandstone, very fine grained.
- 3530-3640 Shale and siltstone, as above, with some red-brown sub-waxy shale; interbedded white anhydritic sandstone, as above.
- 3640-3670 Predominantly as above, trace light gray, gray-white, limestone, earthy, no visible porosity.
- 3670-3700 Limestone, white, cream, tan, gray-white, chalky, no visible porosity.
- 10' unlagged samples begin @ 3700;
- 3700-3740 Limestone, light gray, tan, cream, microcrystalline, argillaceous, no visible porosity; chalky in part; interbedded shale and siltstone as above
- 3740-3780 Limestone, light gray, tan, cream, very fine microcrystalline, chalky in part.
- 3780-3800 Shale, red-orange, soft;
- 3800-3840 Limestone, white, cream, very fine crystalline, no visible porosity; cleaner and harder than above.
- 3840-3860 Predominantly shale and siltstone, red-orange
- 3860-3900 Limestone, predominantly light gray, dirty, some cream, chalky, no visible porosity.
- 10' lagged samples begin at 3900'
- 3900-3940 Limestone, tan, light gray, very fine microcrystalline, no visible porosity; some white, cream, slightly chalky; occasionally fragmental, sandy; trace pyrite
- 3940-3950 Limestone, as above with some black pellets interbedded; interbedded gray argillaceous limestone, shaley.
- 3950-3980 Limestone, light gray, cream, white, chalky in part; some medium gray argillaceous limestone; some of white limestone is sandy, micro-oolitic
- 3980-3990 Shale, red-orange, sandy, silty; interbedded limestone as above
- 3990-4020 Limestone, white, sandy in part; microcrystalline, chalky; no visible porosity; one piece with trace pale yellow, spotty fluorescence, no cut or stain; interbedded red-orange shale, silty, sandy
- 4020-4060 Limestone, white, chalky, becoming cream, light tan, microcrystalline, no visible porosity, trace white opaque chert
- 4060-4070 Limestone, as above, some soft chalky limestone.

- 4070-4080 TRIP SAMPLE
- 4080-4100 Limestone, white, cream, less chalky, microcrystalline, sandy in part, few thin very fine grained sandstone lenses, calcareous, well cemented; limestone, occasionally slightly fragmental; few thin beds of gray-brown limestone, hard, dense, trace pyrite
- 4100-4110 Predominantly red-orange shale
- 4110-4130 Limestone, as above with increasing amount of interbedded brown-gray limestone, microcrystalline, hard, no visible porosity, occasionally slightly cherty
- 4130-4160 Limestone, cream, tan, microcrystalline, hard, slightly cherty, slightly fossiliferous, trace oolitic development, infilled, no porosity
- 4160-4180 Limestone, predominantly white, cream, becoming somewhat chalky
- 4180-4210 Limestone, as above, appears to be some dark gray-black shale interbedded; limestone, sandy in part
- 4210-4220 Increased black shale, carbonaceous, somewhat fissile
- 4220-4240 Limestone, white, very chalky, no visible porosity;
- 4240-4280 Limestone, as above with interbedded limestone, cream, gray-white, microcrystalline, hard, dense, sandy in part; some thin sandstone, light gray, very fine grained, well cemented calcareous, slight trace glauconite, very finely divided; no visible porosity.
- 4280-4310 Limestone, white, cream, microcrystalline, slightly chalky in part, no visible porosity, sandy in part
- 4310-4320 Limestone, as above with trace tan, buff limestone, microcrystalline, hard, dense
- 4320-4330 Limestone, tan, buff, hard, dense
- 4330-4360 Limestone, tan, light brown fragments, fossiliferous, no visible porosity, some calcite infilling, few indistinct oolites; interbedded cream limestone, hard, dense.
- 4360-4370 As above with some sandstone, gray, well cemented, highly calcareous, very fine grained silt, no visible porosity; trace oocastic limestone, tan.
- 4370-4380 Limestone, tan, light brown, oocastic, good porosity, questionable permeability, no stain, spotty mineral fluorescence, no cut
- 4380-4400 Limestone, cream, tan, fossiliferous in part, fragmental in part, hard, dense, no visible porosity.
- 4400-4420 Limestone, gray, gray-brown, dark gray mottling, slightly sandy, hard, dense, some dark gray chert;
- 4420-4470 Limestone, as above, with interbedded limestone, tan, brown microcrystalline, hard, dense, fossiliferous; limestone, cream, tan, buff, microcrystalline, hard, dense, no visible porosity;
- 4470-4490 Limestone, tan, brown, slightly mottled, slightly chalky, fossiliferous, fragmental in part, fine crystalline, no visible porosity; some thin beds highly fossiliferous

- 4490-4510 Limestone, as above, with interbedded limestone, cream, tan, hard, dense; trace oocastic limestone, tan, poor to fair porosity, mostly infilled; no shows
- 4510-4560 Limestone, cream, tan, very fine crystalline, slightly fossiliferous, no visible porosity; thin interbeds of black carbonaceous shale
- 4560-4580 Limestone, as above, slightly more fossiliferous, trace oolitic limestone, infilled, tan; some interbedded gray brown limestone, trashy appearance.
- 4580-4610 Limestone, gray-brown, fragmental, hard, dense; interbedded limestone, as above; interbedded sandy shale, dark gray, limey.
- 4610-4630 As above, with sandstone, white, light gray, very fine grained, well sorted, calcareous, well cemented, no visible porosity.
- 4630-4700 Limestone, cream to tan, very fine microcrystalline, fossiliferous in part, chalky in part, occasionally fragmental, slightly oolitic in part; some interbedded argillaceous limestone, limey shale, gray, brown
- 4700-4720 Increasingly fragmental, fossiliferous limestone, tan, brown, trashy appearance, argillaceous, slightly chalky to very chalky.
- 4720-4750 Limestone, gray, gray-brown, very fine crystalline, argillaceous, silty appearance, no visible porosity; graduates to limey siltstone, silty shale, medium gray
- 4750-4790 Limestone, tan, light brown, lithographic, hard, dense, (Ft. Scott)
- 4790-4810 Siltstone, shale, dark gray, brown-gray, highly calcareous, interbedded limestone, dark brown, brown-gray, hard, dense.
- 4810-4840 Limestone, tan, microcrystalline, hard, dense; interbedded shale; and siltstone as above; few thin black carbonaceous shale beds.
- 4840-4860 Interbedded shale, siltstone and argillaceous limestone, gray, brown-gray; thin black carbonaceous shale beds common
- 4860-4900 Limestone, tan, fragmental, very fine microcrystalline, fossiliferous in part, some oolites, hard, dense, trace chert, translucent, mottled brown, gray, white (looks like agate), trace pyrite; interbedded black carbonaceous shale.
- 4900-4940 Limestone, interbedded light gray-brown, tan, brown buff, very fine microcrystalline, hard, dense, trace chert and pyrite, occasionally fossiliferous; interbedded black carbonaceous shale
- 4940-4960 Limestone, gray, microcrystalline, hard, dense; interbedded black carbonaceous shale
- 4960-4980 Limestone, gray, tan, brown gray, microcrystalline, hard dense, cherty in part (agate); interbedded shale, black carbonaceous, silty in part, thin siltstone lenses
- 4980-5000 Limestone, gray, gray white, very fine microcrystalline, hard, dense, slightly cherty; interbedded shale, as above.
- 5000-5020 Limestone and shale, as above; few pieces of dolitic limestone, brown, earthy, very poor porosity and permeability, spotty fluorescence, fair to good cut, brown stain;

- 5020-5080 Limestone, gray-brown, dark brown, microcrystalline, hard, dense, occasionally pyritic; interbedded black shale, carbonaceous, trace chert.
- 5080-5120 Limestone, cream, tan, very fine crystalline, hard, dense, no visible porosity, fossiliferous in part, interbedded limestone, and shale, as above
- 5120-5180 Shale, light to medium gray, green-gray, green, gray-green, soft; light gray and green shale, often glauconitic; very poor samples, mostly cavings
- 5180-5200 Limestone, tan, cream, very fine crystalline, no visible porosity; thin zones of oolitic beds, infilled; occasionally fragmental, fossiliferous, slightly chalky; interbedded shale, as above
- 5200-5220 Limestone, cream, tan, chalky, fossiliferous in part, no visible porosity; sandstone, brown, very limey, glauconitic, hard, no visible porosity, fine grained; interbedded shale as above.
- 5220-5260 Limestone, cream, tan; fossiliferous, oolitic in part, chalky in part, no visible porosity.
- Ran DST No. 1 4984-5016, straddle test. PTD 5260
- 5260-5270 Trip sample after DST - cavings; trace sandstone, white, fine grained, sub-angular, highly glauconitic, calcareous, well cemented.
- 5270-5280 Limestone, cream, chalky as above, becoming very sandy, detrital, chalky; some cream-tan, very sandy limestone, detrital, with trace oolites, no visible porosity.
- 5280-5310 Predominantly sandy limestone, cream, tan, oolic, slightly pritic, slightly cherty, cream, tan, brown, no visible porosity; few thin grains glauconitic shale beds; some interbedded tan, fragmental, oolic limestone, no visible porosity.
- 5310-5330 Limestone, tan, fossiliferous, oolic, sandy; some interbedded sandstone, tan, very limey, well cemented, poor porosity and permeability, very fine grained, well sorted; interbedded limestone, tan, brown, lithographic.
- 5330-5350 Dolomite, brown, tan, microcrystalline, occasionally micro-sucrosic, hard, dense, limey, no visible porosity; interbedded limestone, tan, as above
- 5350-5360 Interbedded dolomite and limestone as above, some interbedded brown-gray dolomite, very fine crystalline, micro-sucrosic, argillaceous
- 5360-5390 Predominantly limestone, tan, cream, brown, fossiliferous, sandy in part, oolic in part, with chert, white, translucent, brown, gray; trace very fine pyrite; some thin limey sandstone, cream, fine grained, tight.
- 5390-5410 As above, much white, semi-opaque chert, sharp, some brown speckled.
- 5410-5430 Dolomite, dark brown, gray-brown, brown-gray, very fine crystalline, sucrosic, argillaceous, limey, tan calcite inclusions, slightly mottled effect, no visible porosity, no shows; trace brown dolitic shale

- 5430-5440 Dolomite, as above, with limestone, light gray, gray-white, very chalky
- 5440-5450 Limestone, cream, white, gray-white, chalky, shaley.
- 5450-5460 Limestone, mottled gray, tan, white, fossiliferous, shaley, fragmental.
- Lost circulation @ 5473 - rough drilling @ 5468-72. Added 3800 gallons diesel to mud (20% oil in mud)
- 5460-5470 Very poor samples due to lost circulation
- 5470-5480 Samples still poor - appears to be limestone, tan, brown, fragmental in part, very fine crystalline in part; trace white translucent-opaque chert; no visible porosity; rough drilling apparently due to fracturing.
- 5480-5500 Limestone, tan, gray-brown, cream, fragmental, slightly mottled, chalky in part, fossiliferous in part; trace pin-point porosity, no show; trace chert, white translucent, opaque.
- 5500-5520 Limestone, gray, mottled, speckled, fragmental, chalky in part, cherty, with white and brown-gray, gray speckled chert; no visible porosity
- 5520-5530 As above with some white chert
- 5530-5540 As above, great increase in chert, white, translucent-opaque; interbedded limestone, cream, microcrystalline, hard, dense, cherty (white)
- 5540-5550 Limestone, cream, microcrystalline, hard, dense, slightly cherty (white, gray-white)
- 5550-5560 Limestone, as above, increased chert, white to light gray, translucent-opaque
- 5560-5570 Limestone, as above, cherty, with interbedded dolomite, cream, white, tan, very fine crystalline, micro-sucrosic
- 5570-5630 Interbedded chert and dolomite, chert, white, light gray, opaque, semi-translucent; dolomite, tan, cream, very fine to fine sucrosic; poor to fair porosity in streaks and poor permeability, no shows;
- 5630-5650 Chert, as above, interbedded dolomite, as above, occasional thin bed of limestone, white, cream, fossiliferous, no visible porosity, chalky
- 5650-5700 Predominantly limestone, white, cream, light gray-brown, fossiliferous, few oolic zones, no visible porosity, no shows; cherty, white, gray, some interbedded dolomite as above, decreasing toward base.
- 5700-5730 Dolomite, tan, light brown, very fine sucrosic, poor porosity and permeability.
- 5730-5750 Dolomite, as above, becoming darker in color, finely sucrosic; poor to fair porosity and permeability.
- 5750-5760 Dolomite, brown, finely sucrosic with interbedded coarse well rounded quartz grains, poorly sorted; poor porosity and permeability

DRILLER'S LOG

RECEIVED

AUG 14 1970

Bernal Wallace #20-1

COLO. OIL & GAS CONS. COMM.

Location: NE/4 NE/4  
Section 20-15S-42W  
Cheyenne County  
Operator: Webb Resources, Inc.  
Contractor: L & F Drilling, Inc.

Commenced: July 14, 1970  
Completed: July 29, 1970  
T. R. D.: 5,760' D & A

0'	300'	Shale & sand	Set 7 Jts. 282.15' 8-5/8"
300'	699'	Shale	Csg. @ 293' w/220 sx.
699'	1,551'	Shale & sand	Common w/3% Cal. Chl.
1,551'	2,010'	Shale	
2,010'	2,240'	Shale & shells	
2,240'	2,400'	Red Bed, shale & anhydrite	
2,400'	2,910'	Salt	
2,910'	3,110'	Shale & shells	
3,110'	3,270'	Shale, red bed & anhydrite	
3,270'	3,479'	Shale	
3,479'	3,601'	Shale & chalk	
3,601'	3,755'	Red bed and shale	
3,755'	3,837'	Lime	
3,837'	3,950'	Lime & shale	
3,950'	4,063'	Shale & lime	
4,063'	4,130'	Lime	
4,130'	4,240'	Shale & lime	
4,240'	4,320'	Lime & shale	
4,320'	4,389'	Lime	
4,389'	4,435'	Shale & lime	
4,435'	4,527'	Lime & shale	
4,527'	5,051'	Lime	
5,051'	5,080'	Lime & chert	
5,080'	5,114'	Lime & shale	
5,114'	5,150'	Shale	
5,150'	5,231'	Lime & shale	
5,231'	5,260'	Shale & sand	
5,260'	5,474'	Lime	
5,474'	5,532'	Lime, dolo. & chert	
5,532'	5,760' T.D.	Lime	

D & A

I certify that this is the true and correct copy of the above log to the best of my knowledge.

*Kenneth G. Fischer*  
Kenneth G. Fischer  
Vice President



Subscribed and sworn to before me this third day of August,

*Sherry Sprout*  
Sherry Sprout  
Notary Public

Commission ending June 30, 1971.