H. W. ADDINGTON & ASSOC.

NICHELSON-AUTRY 3252-26-6

SW/NW Sec. 26-32S-52W

Las Animas County, Colo.

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BIT RECORD

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NICHELSON-AUTRY 3252-26-6

SE/NW Sec. 26-32S-52W
Las Animas County, Colo.
Elevation: 5423' K.B.

Run No.	Size	Make	Type	Jet Size 1	2	3	Serial	Depth out	Feet	Hours
1	14 3/4	HTC	OCC		open		Retip	347	347	8 3/4
2	14 3/4	HTC	OCC		open		Retip	404	57	3 1/4
3	14 3/4	HTC	V1J		open		Retip	702	298	15 1/4
4	14 3/4	HTC	OSC		open		Retip	1073	371	15 1/4
5	14 3/4	HTC	OSC		open		Retip	1128	55	3
6	9 7/8	Sec.	M4N		open		572835	1735	607	17 3/4
7	9 7/8	HTC	OWV		open		AZ552	2322	587	19 1/4
8	7 7/8	Sec.	S88		open		Rerun	2604	282	22 1/2
9	7 7/8	HTC	J44	3/8	3/8	2/16	CK765	2812	208	33

2700-2720	10-11-8-8-7-8-8-7-7-8	8-9-9-10-10-11-6-11-17-8
2720-2740	11-8-9-8-8-8-10-8-9-8	5-6-10-9-13-13-15-10-14-12
2740-2760	12-16-12-11-10-10-10-8-9-13	9-11-10-10-12-15-9-6-8-8
2760-2780	11-9-10-10-12-11-11-11-10-9	8-9-9-12-10-10-10-10-14-15
2780-2800	11-15-12-11-10-12-15-12-17-12	10-9-10-14-15-15-10-8-10-9
2800-2812	8-10-10-10-11-11-10-11-9-10	17-13
2812	Total depth - Driller	

DRILLING TIME LOG

H. W. ADDINGTON & ASSOC.
NICHELSON-AUTRY 3252-26-6

SE/NW Sec. 26-32S-52W
Las Animas County, Colo.
Elevation: 5423' K.B.

Five foot drilling time.

60- 100		x-x-8-7-7-5-9-12-9-4	Drlg. w/air & mist from 60' below conductor. 14 3/4" hole. Trip @ 347', Bit #3. Trip @ 404'. Bit #4. Lay down air hammer. Trip @ 701', Bit #4.
100- 200	3-6-6-9-9-7-7-9-8-7	6-5-6-5-6-14-12-8-5-9	
200- 300	7-9-11-6-10-18-7-6-8-9	11-6-10-7-7-4-3-5-4-7	
300- 400	20-17-11-14-12-22-15-22-16-5	5-6-8-10-8-10-15-10-15-30	
400- 500	24-8-11-10-9-10-8-9-8-8	8-7-9-13-14-17-18-10-11-7	
500- 600	11-9-7-6-3-5-17-13-6-9	18-17-11-17-8-24-13-18-14-31	
600- 700	15-22-14-19-16-10-17-17-18-38	34-27-24-23-29-26-22-17-24-20	
700- 800	19-9-17-17-8-8-7-13-20-11	7-8-15-7-14-10-18-11-10-18	
800- 900	16-8-6-7-10-6-5-4-3-8	5-6-8-7-7-7-6-4-4-8	
900-1000	5-5-7-18-15-14-12-14-7-11	5-6-5-6-9-6-8-8-9-8	
1000-1100	5-9-7-10-8-7-10-7-6-10	16-13-22-25-32-17-17-9-10-15	Trip @ 1073', Bit #5. Trip @ 1128', Bit #6. Ran 10 3/ surf. csg. 9 7/8" hole.
1100-1200	11-19-20-18-24-24-7-12-6-7	6-7-7-7-7-10-13-5-6-6	
1200-1300	9-5-5-5-4-5-6-6-6-7	6-11-10-9-6-9-2-2-6-6	
1300-1400	6-8-5-7-7-7-7-5-5-8	8-6-12-9-8-11-4-10-11-11	
1400-1500	12-13-4-4-5-5-4-4-5-4	6-6-8-9-7-8-9-7-9-8	
1500-1600	6-7-5-5-4-3-12-12-11-12	9-10-12-8-12-10-11-12-10-9	
1600-1700	8-9-8-10-9-8-8-12-5-8	12-11-10-12-10-10-11-9-12-10	
1700-1800	10-10-10-10-11-12-11-7-7-7	3-6-5-6-6-9-10-11-13-14	Trip @ 1735', Bit #7.
1800-1900	12-7-8-10-14-6-6-4-7-5	5-10-9-5-5-6-10-8-3-3	
1900-2000	12-13-14-13-10-5-13-16-13-11	10-20-12-10-9-13-11-10-11-15	
2000-2100	10-11-14-8-12-13-10-7-12-11	11-13-15-12-9-11-11-10-8-11	
2100-2200	6-10-10-12-13-12-13-10-6-4	6-5-3-4-5-4-2-3-3-5	
2200-2300	2-3-4-5-2-5-3-3-5-3	4-4-5-6-3-3-8-4-6-6	
2300-2400	5-6-8-7-5-2-4-3-7-5	5-7-6-5-3-7-5-6-7-5	Trip @ 2322', Bit #8.
2400-2465	5-5-8-12-7-5-9-7-4-5	4-5-8	

One foot drilling time.

2465-2480	2-3-3-3-2	2-5-3-4-4-2-2-2-1-2	
2480-2500	3-3-3-3-3-3-3-2-1-1	4-4-6-6-7-7-7-7-5-3	Twist off 249 Drlg. ahead w/mud.
2500-2520	6-5-6-7-11-9-8-8-8-8	8-8-8-10-10-7-7-7-9-10	
2520-2540	9-10-9-9-10-10-10-10-9-9	8-9-9-9-9-9-9-10-9-10	
2540-2560	10-9-10-10-8-9-9-9-9-10	10-8-11-12-12-8-13-10-12-9	
2560-2580	10-11-11-11-11-12-9-9-10-10	9-10-12-11-10-9-9-8-7-7	
2580-2600	9-8-8-10-10-11-7-9-9-12	9-11-9-14-12-15-12-15-14-16	
2600-2620	16-15-16-15-2-7-10-10-11-12	13-13-10-7-7-9-7-7-7-9	Trip @ 2604', Bit #9.
2620-2640	8-8-8-9-8-8-6-7-7-9	10-10-10-10-10-7-7-7-11-11	
2640-2660	8-7-6-6-5-4-5-3-4-5	4-4-4-3-3-3-3-2-2-3	
2660-2680	3-5-5-7-8-7-7-9-9-9	6-6-7-8-4-3-4-3-4-5	
2680-2700	7-10-9-8-9-11-7-9-9-8	8-8-8-9-8-10-9-10-10-8	

2657-2682 Dolomite, pale purple, pink-red, pink-buff, red, buff, tan, brown, pink, very finely crystalline to crystalline, dense to little microvug porosity, some glauconitic; considerable with imbedded, fine to coarse, subangular to subrounded quartz grains; some coarse to very coarse, loose, subrounded grains; some argillaceous inclusions; Chert, white, gray, buff, traces of varicolored, opaque, semiopaque, rough to smooth, highly weathered to fresh, trace fossiliferous, little glauconitic; Chert is more abundant toward base (1% to 10%); little interbedded Sandstone, gray-white, fine to coarse and very coarse, subangular to subrounded, very conglomeratic looking, with considerable loose grains but mostly tight 2676-82.

2682-2699 Dolomite, as above; becoming more buff, tan, gray; abundant Chert (10% to 15%), considerable with black and reddish-black, metallic looking inclusions, weathered to fresh, slightly glauconitic, with slightly more buff and varicolored Cherts; more interbedded conglomeratic looking Sandstone, as above.

2699 Top - ARBUCKLE (+2724) ?

2699-2725 Dolomite, yellow-tan, tan, light brown, brown, finely crystalline to crystalline, very tight; some scattered imbedded, fine to medium, subrounded to rounded, sand grains; trace Chert, gray-white-red, opaque, algal.

2725-2750 Dolomite, tan, buff, brown, trace gray, very finely crystalline to quite crystalline, very tight; with scattered imbedded, fine to medium, rounded sand grains; trace Chert, white, opaque, and tan, semitranslucent, oolitic; traces of gray-tan, gray, semiopaque Chert may be in place.
Note: Weathered Cherts and varicolored Dolomites are from up-hole.

2750-2774 Dolomite, tan, brown, buff, finely crystalline to most crystalline and little quite crystalline, very tight to little microvug porosity; trace dense oolitic; few scattered imbedded sand grains; trace Chert, tan-white, semiopaque, oolitic.

2774-2800 Dolomite, buff, tan, brown, finely crystalline to quite crystalline, very tight to traces of intercrystalline porosity; traces of very finely oolitic and oolicastic Dolomite; more scattered imbedded, fine, subrounded to rounded, sand grains; trace Chert, gray-white and brown, opaque and semiopaque, and gray-white, semiopaque, oolitic.

2800-2812 Dolomite, buff to brown and tan, very finely crystalline, slightly granular to quite crystalline, in part rhombic; few scattered imbedded sand grains; very tight to some intercrystalline porosity; trace white and brown, opaque, dolomitic Chert and brown-white, opaque, oolitic Chert; trace finely oolitic and very slightly oolicastic Dolomite.

2812 Total depth - Driller.
2790 Total depth - Schlumberger.

Samples described:

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(on well)

2463 Top - MISSISSIPPIAN (ST. LOUIS) (+2960) ?

2463-2476 Dolomite, tan, red-tan, pink-red, red, finely crystalline to slightly crystalline, dense to scattered microvug porosity.

2476-2515 Dolomite, pink-red, pink, pale purple, buff, trace red-gray, finely crystalline to slightly crystalline, dense.

Note: Samples are extremely poor through this interval due to fishing job at 2490' and the switch from drilling with air to mud.

2515-2541 Dolomite, pink, pink-buff, buff, red-buff, finely crystalline to slightly crystalline to some crystalline, dense to scattered, fair, microvug porosity; some with argillaceous inclusions.

2541-2542 Shale ? Only trace of dark gray, hard Shale which might belong to this interval found in samples.

2542 Top - SPERGEN-WARSAW (+2881) ?

2542-2567 Dolomite, gray, buff, much varicolored, very finely crystalline to finely crystalline, dense; trace Chert, white and varicolored, opaque and semi-opaque, trace oolitic; trace with fine to medium, imbedded sand grains; some argillaceous inclusions (mostly red).

2567-2592 Dolomite, purple-red, red, red-buff, pale purple, buff, gray, very finely crystalline to some crystalline, dense to some scattered microvug porosity; abundant argillaceous inclusions (most red); trace Chert, white, opaque, slightly weathered and one piece of white, weathered, opaque, oolitic Chert.

2592-2596 Shale ? Electric logs indicate Shale, but no Shale which belongs in this interval could be found in the samples. However, there was an abrupt increase in amount of Shale in 2590-2600 sample, all of which looked like Shales from up the hole.

2596 Top - OSAGE (+2827) ?

2596-2628 Dolomite, pale purple-red, pink-red, buff, pale purple, tan, brown, gray-white, very finely crystalline to some quite crystalline, dense to scattered microvug porosity; trace glauconite; Chert, white, buff-white, gray-white, opaque and semiopaque, tripolitic to fairly fresh, some microfossiliferous, trace glauconitic, rough and smooth (1% to 10% Chert); considerable argillaceous inclusions, some of which have metallic sheen; most very finely crystalline 2620-28.

2628-2630 Shale ? None found in samples. No lithology (very shaly Dolomite to dolomitic Shale) generally attributed to this interval is present. Electric logs, however, indicate Shale.

2630-2657 Dolomite, pale purple, buff, tan, gray, pink-buff, very finely crystalline to little finely crystalline, dense, slightly glauconitic; Chert, white, gray-white, buff, opaque and semiopaque, trace glauconitic, slightly weathered to fresh, rough to smooth, some with dark inclusions; trace Sandstone, gray-white, with varicolored grains, very fine to medium, angular to subrounded, very tight, dolomitic with abundant intergranular cement, probably as lentil in interval 2651-57.

2295-2324 Quartz Wash, trace Arkose, gray-white, orange-red, coarse to very coarse, angular to subangular and slightly subrounded; all loose; little weathered.

2324-2334 Shale, purple, purple-red, little pale green, talcy to slightly waxy, hard; trace glauconite.

2334-2367 Quartz Wash and Arkose, with trace Granite Wash, gray-white, pink-red, orange-red, coarse to very very coarse, angular to subangular, most loose; considerable loose feldspar grains, some weathered.

2367-2378 Shale, purple, purple-red, dark purple, traces of pale green, pale gray, red, talcy to slightly waxy.

2378-2390 Quartz Wash and trace Arkose, gray-white, orange-red, pink, coarse to very coarse, angular to subangular, all loose; trace feldspar grains, slightly weathered; trace Dolomite, tan, red, gray-white, finely crystalline, dense; with trace glauconite; trace Chert, white, opaque, glauconitic.

2390-2392 Shale, pale purple, purple-red, pale green, pale purple, gray, dark red, hard, talcy to slightly waxy; slightly glauconitic; trace with imbedded sand grains.

2392-2401 Sandstone, gray-white, gray, pale purple, pink, very fine to fine, angular; with some medium, subangular grains imbedded, very tight; with considerable intergranular siliceous Clay; few coarser aggregates.

2401-2408 Shale, pale purple, purple-red, purple-gray, purple-green, pale green, dark red, fairly hard, talcy to slightly waxy; some glauconitic; little with imbedded sand grains.

2408-2426 Dolomite, buff, gray, tan, pale purple, pink-red, red, finely crystalline to slightly crystalline, little finely granular, dense to trace slight vuggy porosity; little Chert, white, opaque, weathered, slightly tripolitic and tan, gray-tan, trace orange-red, semiopaque and trace opaque, most oolitic.

2426-2429 Shale, pale purple, purple-red, pale green, purple, gray, hard, talcy; trace with imbedded sand grains.

2429-2434 Dolomite, buff, little pale purple, finely crystalline to slightly crystalline, dense.

2434-2456 Sandstone, gray-white, pale purple, purple-gray, trace very fine, angular, very tightly cemented, fairly well sorted; with only few scattered fine grains; some Shale, as above, may be interbedded.

2456-2463 Dolomite, buff, tan, trace brown, very finely crystalline to very slightly crystalline, dense to slight micro-vug porosity; trace Chert, gray-tan, semiopaque, ? minutely algal.

(Note: The Dolomite in the sequence from 2408-2463 appears to be definitely Pennsylvanian in age. However, the type of Dolomite and Chert observed is most generally found in Arbuckle rocks, particularly the oolitic Cherts, and possibly were derived from the Arbuckle and redeposited.)

2104-2120	Sandstone, varicolored, very fine to medium, angular to subangular; most loose quartz grains; trace Arkose ?
2120-2122	Shale, as above.
2122-2126	Siltstone to Sandstone, as above; abundant loose quartz and feldspar grains.
2126-2136	Dolomite, pink-red, red, dark red, red-gray, very finely crystalline to finely crystalline, dense; some slightly argillaceous and some with imbedded quartz grains.
2136-2141	Shale, red to chocolate, fairly hard to hard.
2141	Top - LOWER MADERA ARKOSE (+3282)
2141-2153	Quartz Wash, Arkose, Granite Wash, varicolored, medium to very very coarse, angular to subangular, some weathered, tight to loose.
2153-2160	Shale, red, dark red, chocolate, purple, hard; with interbedded Arkose, Quartz Wash, Granite Wash, as above; considerable weathered.
2160-2169	Shale, dark purple, purple, chocolate, brown, hard.
2169-2191	Quartz Wash, Arkose, Granite Wash, gray-white, pink, red, orange-red, coarse to very very coarse, angular to subangular; all loose; some weathered.
2191-2198	Shale, as above.
2198-2208	Quartz Wash, Arkose, Granite Wash, as above.
2208	Top - MORROW (+3215)
2208-2210	Shale, purple, purple-red, pale purple, trace pale green, talcy to slightly waxy, most hard; some with imbedded sand grains.
2210-2219	Quartz Wash, little Arkose, gray-white, pink-red, coarse to very very coarse, angular to subangular; all loose; some weathered.
2219-2223	Shale, as above.
2223-2239	Quartz Wash and little Arkose, as above; with interbedded Shale, purple, purple-red, pale purple, traces of pale green, most hard, slightly waxy to talcy.
2239-2249	Quartz Wash, trace Arkose, gray-white, medium to very coarse, angular to subangular; all loose; little weathered.
2249-2255	Shale, as above; trace green, pale green, hard; very very finely sandy Shale.
2255-2274	Quartz Wash, Arkose, gray-white and varicolored, coarse to very coarse, angular to subangular; most loose; some weathered.
2274-2295	Shale, purple, purple-red, dark purple, trace pale green, talcy; trace splintery.

1916-1926	Shale, red, chocolate, brown-red, fairly hard to hard.
1926-1942	Dolomite, dark red, red, red-gray mottled, purple-red, very finely crystalline to slightly crystalline, dense, slightly argillaceous; considerable with imbedded, fine to medium, angular, quartz grains (looks very conglomeratic in part).
1942-1949	Shale, chocolate, dark red, red, fairly hard to hard; with interbedded Siltstone to Sandstone, purple-red, brown-red, very very fine to fine, angular, micromicaceous, very tight, dirty.
1949-1961	Siltstone to very fine Sandstone, orange-brown, orange-red, micromicaceous, very tight.
1961-1972	Shale, as above; with interbedded Siltstone to Sandstone, as above.
1972-1997	Dolomite, dark red, red, red-gray, pink-red, very finely crystalline to slightly crystalline, dense; some argillaceous; some with imbedded quartz grains; and some silty (some looks quite conglomeratic).
1997-1999	Shale, chocolate, brown, brown-red, red, hard.
1999-2003	Siltstone to very, very fine Sandstone, orange, orange-brown, micromicaceou
2003-2026	Dolomite, red-gray, red, dark red, very finely crystalline to slightly crystalline, dense, slightly argillaceous and silty; some to abundant imbedded quartz grains; with interbedded Shale, chocolate to red, with some green spots.
2026-2049	Shale, chocolate to red, hard; with interbedded Sandstone, purple-red, fine, angular, very micromicaceous, very tight, slightly dolomitic, dirty.
2049-2062	Dolomite, red, dark red, red-gray, trace gray-white and gray, very finely crystalline to finely crystalline, dense, some argillaceous; and some with imbedded quartz grains (looks slightly arkosic); some loose quartz grains.
2062-2070	Siltstone to Sandstone, orange, orange-red, pink-red, very very fine to very fine, micromicaceous, very tight.
2070-2073	Shale, chocolate, dark red, red, brown-red, fairly hard to hard.
2073-2084	Siltstone to Sandstone, as above.
2084-2087	Shale, red to chocolate, some green spots, fairly hard to hard.
2087-2096	Dolomite, dark red, red, pink-red, red-gray, very very finely crystalline to finely crystalline, dense; some argillaceous and silty; some with imbedded quartz grains; abundant loose, fine to medium and little coarse, angular to subangular, varicolored quartz grains.
2096-2104	Shale, red to chocolate, fairly hard to hard; with interbedded Siltstone to very fine Sandstone, dark orange, orange-brown, micromicaceous, very tight, considerable dirty.

1658-1682 Sandstone, gray-white, pale orange, fine to medium and some coarse, angular to subangular and considerable subrounded; all loose grains.

1682-1686 Shale, chocolate and purple-red; with interbedded Siltstone, purple-red, chocolate, micromicaceous, tight, very slightly dolomitic.

1686-1712 Sandstone, orange-buff, orange-red, very fine to medium, angular to subangular, tight; with considerable intergranular Clay; very slightly dolomitic; less aggregates toward bottom.

1712-1717 Shale, chocolate, dark red, red, fairly hard; with interbedded Siltstone, pale purple-red, micromicaceous, very tight, slightly dolomitic.

1717-1725 Sandstone, gray-white, fine to medium, angular to subrounded, most loose; trace orange-buff aggregates, very fine to medium, angular to subangular, tight; with abundant intergranular cement.

1725-1735 Shale, chocolate, red, fairly hard; trace with green spots; with interbedded Siltstone, as above.

1735-1774 Sandstone, gray-white, pale orange, fine to coarse, angular to subangular, most loose; trace aggregates; with abundant intergranular cement.

1774-1780 Shale, chocolate and dark red, fairly hard.

1780 Top - STONE CORRAL (+3643)

1780-1800 Anhydrite, gray-white, pink-red, very finely crystalline to massive, dense; with interbedded Dolomite, pink, pink-red, pale purple, purple-red, very finely crystalline to slightly finely crystalline, dense; little white, soft gypsum.

1800-1814 Shale, chocolate, dark red, hard.

1814-1836 Shale, red, dark red, chocolate, trace green spots, fairly hard to hard; little white gypsum.

1836-1882 Siltstone to Sandstone, purple-red, orange-red, red, very very fine to very fine, angular, very micromicaceous, very tight, considerable dirty; with interbedded Shale, as above.

1882-1885 Shale, chocolate, brown-red, little red, hard; with red and dark red, very very finely crystalline, dense, dolomite nodules.

1885-1900 Siltstone to Sandstone, as above.

1900-1902 Shale, red, brown-red, chocolate, fairly hard to hard; with red and dark red, dense, dolomite nodules.

1902-1908 Siltstone to Sandstone, dark purple-red, dark orange-red, orange, very very fine to fine, angular, very micromicaceous, quite dirty; slightly gypsiferous.

1908 Top - MADERA CARBONATES (+3515)

1908-1916 Dolomite, dark red, red, gray-white, very finely crystalline to slightly crystalline, dense, slightly argillaceous; with imbedded quartz grains.

1254-1257 Shale, dark chocolate, hard.

1257-1294 Siltstone to very, very fine Sandstone, dark orange-red, brown-red, micromicaceous.

1294-1296 Shale, as above.

1296-1320 Siltstone to very, very fine Sandstone, as above.

1320-1323 Shale, chocolate to red, hard.

1323-1342 Siltstone to very, very fine Sandstone, as above.

1342 Top - BLAINE (+4081)

1342-1354 Anhydrite, white, gray, varicolored, slightly crystalline to massive, dense; little interbedded Shale, chocolate to red, some very anhydritic 1350-54.

1354-1378 Anhydrite, as above; trace red-gray.

1378-1380 Shale, chocolate to red, dark red, hard; little anhydritic.

1380-1395 Anhydrite, white, gray-white, crystalline to massive, very dense.

1395-1410 Anhydrite, as above; with interbedded Dolomite, tan, brown, very finely crystalline, dense.

1410-1438 Shale, chocolate, dark red, hard.

(Note: Very, very poor samples to 1550' with abnormal sample lag.)

1438 Top - GLORIETTA (+3985)

1438-1489 Sandstone, gray-white, very very fine to very fine, angular to subangular, very very tight, slightly dolomitic.

1489-1525 Sandstone, gray-white, very fine to fine, angular, tight to loose (most loose grains); trace shaly and pyritic.

1525-1549 Sandstone, gray-white to pale orange, fine to medium and some fairly coarse, loose grains; most loose to some aggregates with considerable intergranular, white, siliceous Clay, quite friable.

(Note: Interval appears to be shaly on logs but no discreet Shale found in samples.)

1549-1617 Sandstone, gray-white, pale orange, fine to medium and some fairly coarse grains, angular to subangular and some subrounded; all loose grains.

1617-1647 Sandstone, as above; trace pyrite; few aggregates of pale orange-buff, very fine to angular to subangular, tight; with abundant intergranular cement.

1647-1658 Shale, dark chocolate, dark red, hard; with some interbedded Sandstone, as above.

942	Top - PERMIAN (+4481)
942- 958	Siltstone to very fine Sandstone, dark orange-red, orange-red, angular, very tight.
958- 979	Siltstone to Sandstone, orange-red, dark orange-red, very very fine to some fine, angular to subangular, very tight, some micromicaceous.
979-1009	Sandstone, orange, orange-red, dark orange-red, very very fine to fine, angular to subangular, very very tightly cemented; few slightly medium, subrounded, floating grains.
1009-1015	Shale ? None found in samples.
1015-1047	Sandstone, orange-red, dark orange-red, very fine to fine, angular to subangular and some subrounded, very tightly cemented, few floating grains.
1047-1054	Shale ? None in samples.
1054-1103	Siltstone to very fine Sandstone, orange-red, orange-brown, micromicaceous, very tight, some dirty. (Traces of Dolomite characteristic of Day Creek lithology in samples 1090-1128.)
1103-1108	Shale, chocolate, chocolate-brown, hard.
1108-1125	Siltstone to very fine Sandstone, orange-red, dark orange-brown, micromicaceous, tight, some shaly.
	Note: Ran 10 3/4" surface casing to 1127'. Drilling 9 7/8" hole with air-mist below 1128'.
1125-1145	Shale, chocolate and chocolate-brown, hard.
1145	Top - DAY CREEK (+4278)
1145-1180	Dolomite, buff, tan, brown, traces of pale purple, purple-red, gray-white, very finely crystalline to slightly crystalline, dense, little slightly granular; traces of dark chocolate, hard Shale, possibly as laminae.
1180-1197	Shale, dark orange-brown-red, hard, some micromicaceous.
1197-1202	Siltstone, dark orange-red, very tight.
1202-1204	Shale, as above.
1204-1227	Siltstone, as above.
1227-1228	Shale, dark chocolate-brown, hard.
1228-1238	Siltstone to very, very fine Sandstone, dark orange-red, brown-red, micromicaceous, very tight.
1238-1241	Shale, as above.
1241-1254	Siltstone to very, very fine Sandstone, as above.

530-534	Sandstone, as above.
534-542	Shale, gray, pale green-gray, little dark red, hard, talcy; some gray, buff, brown, dense, limestone nodules.
542-584	Sandstone, brown-red, brown, very very fine to very fine, angular, very tightly cemented; little quartzitic.
584-601	Shale, as above; considerable sandy; more dense, limestone nodules.
601	Top - OCATE (+4822)
601-662	Shale, dark red, dark purple-red, very hard. (Note: Does not look like Shale on log, but only Shale in samples.
662-717	Siltstone to very, very Sandstone, pink-red, purple-red, red, dark red, chocolate, very tight, limey, some micromicaceous; with some interbedded Shale, purple-red, dark purple-red mottled, hard.
717-742	Shale, purple-red and dark red mottled, hard.
742	Top - SANTA ROSA (+4681)
742-752	Sandstone, brown-red, pale orange-buff-gray, very very fine to slightly medium, angular to subrounded, tight to very friable, much loose.
752-755	Shale, dark chocolate.
755-775	Sandstone, orange, brown-red, gray, very very fine to fine and slightly medium, angular to subrounded and some rounded grains, most loose grains.
775-777	Shale, as above.
777-825	Sandstone, gray-white, brown-red, orange, purple-red, very very fine to slightly medium, angular to subrounded and some subrounded, very tight to most loose grains, most gray-white toward bottom.
825-862	Sandstone, gray-white, pale purple, purple-red, little dark red, very very fine to slightly medium, angular to subrounded and some rounded, very tight to much loose, more tightly cemented at base.
862-866	Shale, brown-red, fairly hard.
866-900	Sandstone, gray-white and varicolored, very very fine to fine, angular to subangular and some subrounded grains, very tightly cemented; some orange-red, yellow, brown, semiopaque Chert grains.
900-942	Sandstone, gray-white to highly varicolored, very, very fine to some medium, angular to subangular and little subrounded, very very tightly cemented; some quartzitic; some varicolored, fairly coarse, angular to subangular, opaque and semiopaque Chert grains; more present toward base (looks quite conglomeratic). (Note: Samples very, very poor from 700 to 1128.)

256-289	Sandstone, dark gray, gray, gray-white, very fine to medium and little coarse, angular to subangular, very tight, micromicaceous, some sirty; trace siderite cement; trace dark brown, dead oil stain; trace orange-buff, opaque Chert toward bottom.
289	Top - JURASSIC (MORRISON) (+5134)
289-296	Shale, green, pale green, purple, maroon, talcy, hard, sandy, clay.
296-306	Sandstone, gray-white, some yellow-stained, fine to medium, angular to subangular and little subrounded; with abundant intergranular cement; trace quartzitic; trace glauconite.
306-316	Shale, pale green, maroon, pale purple, green-white, hard, some sandy, talcy, clay.
316-323	Sandstone, as above.
323-350	Shale, maroon, pale purple, green, hard, in part sandy, talcy, clay.
350-371	Sandstone, as above; with much interbedded Shale 356-371.
371-388	Shale, maroon, green, pale purple, pale gray, gray-white, hard, talcy, in part sandy, clay.
388-412	Sandstone, varicolored, fine to medium, angular to subangular, very tightly cemented; some quartzitic.
412-415	Shale, as above.
415-424	Sandstone, as above; looks conglomeratic.
424-428	Shale, maroon, pale green, pale gray, green-gray, gray-white, hard to soft, talcy, some sandy; trace gray-brown and buff, dense, limestone nodules.
428-438	Sandstone, gray-white, buff, varicolored, very fine to fine, angular to subangular, very tight, in part quartzitic.
438	Top - WANAKAH (+4985)
438-475	Limestone, pale gray, gray, buff, very very finely crystalline to very finely crystalline, dense; some minutely sandy; most very argillaceous.
475-500	Shale, gray, green-gray, hard; with traces of gray, brown, dense, limestone nodules.
500-507	Sandstone, brown-red, brown, very very fine to little fine, angular, very tight, very slightly limey.
507-509	Shale, as above.
509-528	Sandstone, as above.
528-530	Shale, as above.

DETAILED SAMPLE LOG

H. W. ADDINGTON & ASSOC.
NICHELSON-AUTRY 3252-26-6
SE/NW Sec. 26-32S-52W
Las Animas County, Colo.
Elevation: 5423' K.B.

Sample study starts at 60' in Dakota. (30' samples - drilling with air.)

60- 63	Shale, gray-black, hard.
63- 70	Sandstone, gray, very fine to fine, angular, micromicaceous, very tight, dirty.
70- 73	Shale, gray, gray-black, hard, micromicaceous.
73- 80	Sandstone, as above.
80- 82	Shale, as above; trace black.
82- 95	Sandstone, gray, dark gray, some iron stained, very fine to slightly medium, angular to slightly medium, angular to slightly medium, angular to slightly subangular, very tight, micromicaceous; trace carbonaceous inclusions.
95-104	Shale, dark gray, gray-black, hard; with some sandstone laminae.
104-113	Sandstone, as above.
113-115	Shale, as above.
115-152	Sandstone, buff, little gray, much red iron stained, fine, angular, very tight to friable; trace hematite cement.
152-153	Shale, dark gray, gray-black, hard.
153-169	Sandstone, as above.
169-178	Shale, as above.
178-196	Sandstone, as above.
196-216	Shale, dark gray, gray-black, hard; some very finely sandy and slightly micromicaceous; with some interbedded sandstone lenses, as above.
216-246	Sandstone, gray to dark gray, gray-white, fine to medium and trace coarse grains, angular to subangular, very tight, dirty; little siderite and hematite cement; with interbedded Shale, as above 224-26.
246-256	Shale, dark gray, gray-black, hard, some very finely sandy and slightly micromicaceous.

carbonates in the lower part of the Morrow is unexplainable, particularly since many of the lithologic criteria attributed to identification of Arbuckle rocks are present. This sequence had not been identified in any of the other wells drilled in the area. My only conclusion is that detritus from eroded Arbuckle rocks was introduced into the lower Morrow in this specific area.

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The Nichelson-Autry ran considerably lower than had been projected. A combination of extremely poor samples, the large hole (14 3/4"), and air-mist drilling with the resultant rapid penetration, all contributed to my picking the upper tops through the Blaine much too high on drilling time.

The Glorietta sandstone was well developed, but no attempt was made to test the sequence. After logs were run, however, the same positive indication of gas was observed on the Compensated Neutron-Formation Density Log throughout this sequence as had been seen in all of the other wells in this series, regardless of structural position.

Again, the presence of the Stone Corral, while not unexpected, is quite unusual this far west of Freezeout Fault.

Top of the Madera Carbonate section was placed at 1880' by drilling time, corrected to 1908' by electric logs. This sequence was thicker and better developed than had been previously observed in the area. A rather interesting development was the presence of imbedded coarse quartz grains and traces of feldspar in some of the dolomites well above the top of the Lower Madera Arkose.

Top of the Lower Madera Arkose was placed at 2141' by electric logs and the Morrow at 2208'. Thus the Arkosic section was considerably thinner than in the other wells in this area where it had been found. The Morrow sequence of shales and quartz wash sandstones was quite typically developed (except for colors in the shales) and its thickness about average for the area.

The first good carbonates were found in the 2400' to 2420' sample, and I placed the top at 2385' on drilling time. From the lithology I believed that the rocks were of Arbuckle age. Samples were circulated at 2420' and there was only very slight microvug porosity with no trace of stain, wet or dry, and no kick on the hot wire or chromatograph. However, there was the dull yellow fluorescnece which I have previously noted to be characteristic of the Arbuckle rocks along the Las Animas Arch to the north.

Drilling proceeded and in the 2600' to 2610' sample there was the sudden appearance of typical Mississippian Osage cherts and glauconitic dolomite. This lithology continued to 2700' where the rocks again indicated to me that we were in Arbuckle. What had occurred was a complete puzzle and I still do not have all the answers. Drilling continued to 2812' Total Depth. Dual Induction-Laterolog and Compensated Neutron-Formation Density Logs were then run, and it was quite evident that the top of the solid carbonates was considerably lower than the point where I had placed it.

Decision was made not to test the carbonate sequence, and an attempt was made to recover the 10 3/4" casing. This operation was unsuccessful so the hole was plugged according to instructions from the State Plugging Engineer. This was completed April 12, 1975 and, after moving off the location, the rig was shut down for repairs.

Before completing the Detailed Sample Log I reran the samples from 2300' to Total Depth and the corrected tops appear in this report. The presence of

GEOLOGICAL REPORT

H. W. ADDINGTON & ASSOC.
NICHELSON-AUTRY 3252-26-6
SE/NW Sec. 26-32S-52W
Las Animas County, Colo.
Elevation: 5423' K.B.

The Nichelson-Autry 3252-26-6 was spudded at 9:30 A.M., March 30, 1975. A 9 7/8" pilot hole was drilled to 60'. Then hole was reamed to 19" and 16" conductor pipe was run to 23'. 14 3/4" surface hole was drilled beneath the conductor pipe. The test went out from under the conductor pipe at 12:23 P.M., March 31. Since 14 3/4" hole was carried to 1128', details on the surface casing are found in the Well Chronology.

The following formation tops, corrected to Schlumberger Electric Logs, were picked on the well.

Cretaceous System:			
Dakota	-	At surface	
Jurassic System:			
Morrison	-	289	(+5134)
Wanakah	-	438	(+4985)
Ocate	-	601	(+4822)
Triassic System:			
Santa Rosa	-	742	(+4681
Permian System	-	942	(+4481)
Day Creek	-	1145	(+4278)
Blaine	-	1342	(+4081)
Glorietta	-	1438	(+3985)
Stone Corral	-	1780	(+3643)
Pennsylvanian System:			
Madera Carbonates	-	1908	(+3515)
Lower Madera Arkose	-	2141	(+3282)
Morrow	-	2208	(+3215)
Mississippian System ?			
St. Louis	-	2463	(+2960) ?
Spergen-Warsaw	-	2542	(+2881) ?
Osage	-	2596	(+2827) ?
Arbuckle	-	2699	(+2724) ?
Total Depth	-	2812	Driller
		2790	Schlumberger

The Nichelson-Autry 3252-26-6 was the ninth in the ten-well wildcat program drilled for the Weyerhaeuser Company by H. W. Addington & Assoc. It was also the only test drilled in the same township in which there had been a previous test. Its position was approximately halfway between the State 3252-16-7, which had found Pennsylvanian rocks resting on granite, and the Steinford 3351-7-4, in which Pennsylvanian (Morrow) rested on Mississippian.

WELL CHRONOLOGY

H. W. ADDINGTON & ASSOC.
NICHELSON-AUTRY 3252-26-6

SE/NW Sec. 26-32S-52W
Las Animas County, Colo.

Elevation: 5423' K.B.

1975

Mar. 30 — Spudded at 9:30 P.M. Drilled 9 7/8" pilot hole to 60'; reamed to 19"; ran 16" conductor pipe to 23'.

Mar. 31 — Nippling up to drill 14 3/4" surface hole below conductor pipe at 8:00 A.M. Went out from under conductor pipe at 12:23 P.M. with air and mist.

Apr. 1 — Trip for Bit #2 (14 3/4") at 347'. Back on bottom at 5:05 A.M. Drilling @ 395' at 7:55 A.M.

Apr. 2 — Drilling @ 670' at 8:00 A.M. Trip for Bit #3 (14 3/4") at 702'.

Apr. 3 — Drilling @ 1040' at 4:30 A.M. Trip for Bit #4 @ 1074' at 8:00 A.M. Back to drilling with mud at 1:30 P.M. Drilled to 1128'; circulated one hour. Came out to run surface casing. New 10 3/4" surface casing was run and set at 1127', cemented with 60 sacks of common cement plus 4% calcium chloride.

Apr. 4 — Plug down at 1:45 A.M. Waiting on cement at 8:00 A.M. Back to drilling from 1128' with air and mist at 5:41 P.M. 9 7/8" hole - Bit #5.

Apr. 5 — Drilling @ 1607' at 8:45 A.M. Trip for Bit #7 @ 1735' at 1:20 P.M. Back to drilling at 5:05 P.M. Drilling @ 1935' at 12:00 midnight.

Apr. 6 — Drilling @ 2100' at 6:59 A.M. Drilling @ 2122' at 8:00 A.M. Trip for Bit #8 @ 2322' at 2:20 P.M. Back to drilling at 8:35 P.M.

Apr. 7 — Twisted off while drilling @ 2490' at 3:20 A.M. eleven stands from top. Went in with overshot and picked up fish. Tried to break circulation with air after recovering fish; had too much fluid. Mixing mud at 8:00 A.M. Back to drilling with mud from 2490' at 10:40 P.M.

Apr. 8 — Drilling @ 2558' at 8:00 A.M. Light plant cratered at 7:35 A.M. No electricity for logging trailer. Trip for Bit #9 @ 2604' at 3:54 P.M. Back to drilling at 9:55 P.M.

Apr. 9 — Drilling @ 2687' at 8:01 A.M.

Apr. 10 — Drilled to 2812' TD at 6:40 A.M. Circulated thirty-five minutes for samples at TD. Started trip out to log at 7:15 A.M. Schlumberger arrived at 8:30 A.M. Started in to log at 10:30 A.M. Geologist released - returned to Denver.

Apr. 11 — Well plugged and abandoned.

WELL SUMMARY

Operator:	H. W. Addington & Assoc.
Well:	Nichelson-Autry 3252-26-6
Location:	SE/NW Section 26, Township 32 South, Range 52 West, Las Animas County, Colorado.
Field:	Wildcat
Elevation:	5412' Ground, 5423' K.B.
Spudded:	March 30, 1975 at 9:30 P.M.
Completed:	Finished drilling April 10, 1975 at 6:40 A.M. Finished plugging April 11, 1975.
Casing:	10 3/4" surface casing set at 1127'
Cores:	None.
Drill Stem Tests:	None.
Total Depth:	2812' - Driller. 2790' - Schlumberger.
Mud Logging:	Monaco Engineering, Inc. - Jim Schellhase, Logging Engineer.
Air Equipment:	Ingersoll-Rand - Two 1500 CFM Compressors.
Logs:	Drilling Time Log - 60' to 2812' Detailed Sample Log - 60' to 2812'

Schlumberger:

Dual Induction-Laterolog	- 1127' to 2782'
Gamma Ray	- 28' to 2790'
Compensated Neutron-Formation Density	- 1124' to 2790'

Contractor:	Signal Oil Field Services, Inc. - Rig #8 Buck Taylor - Tool Pusher

Equipment:

Derrick:	96' Ideco Hydraulic Mast
Drawworks:	Ideco H-37 Drive-in with double drum
Power:	One 8V-71 GMC diesel motor - 250 HP through Allison torque converter.
Pump:	Gardner-Denver FXK - 14" x 5 1/2"
Drill Collars:	20 - 5 3/4" x 2 1/4" x 590'
Drill Pipe:	3 1/2" IF with 4 1/2" OD Collars

Status:	Plugged and abandoned April 11, 1975.