



H. W. ADDINGTON & ASSOC.

STATE 3251-36-14

SE/SW Sec. 36-32S-51W

Las Animas County, Colorado

JOSEPH R. CLAIR
Geological Consultant
C.P.G. #713

WELL SUMMARY

Operator: H. W. Addington & Assoc.

Well: State 3251-36-14

Location: SE/SW Section 36, Township 32 South, Range 51 West,
Las Animas County, Colorado

Field: Wildcat.

Elevation: 5054' Ground, 5065' K.B.

Spudded: November 11, 1974 with water well rig of Camp Drilling Co.
Moved in rotary November 17 and 18, 1974.
November 19, reamed 7 7/8" pilot hole to 415' and ran 10 3/4"
casing. Drilled out from under surface at 4:15 P.M.,
November 20, 1974.

Completed: Finished drilling December 17, 1974.
Plugged and abandoned December 19, 1974.

Total Depth: 3069' - Driller
3069' - Schlumberger

Casing: 10 3/4" casing set at 415'.
7" casing set at 1366'.

Cores: None.

Drill Stem Tests: One. 2939'-3065'

Logs: Drilling Time Log (5' and 1') - 420' to 3069'
Detailed Sample Log - 420' to 3069'
Welex Radioactivity Log - Surface to 2460'
Schlumberger:
Dual Induction-Laterolog - 1366' to 3069'
Compensated Neutron-Formation Density Log - 1366' to 3067'

Mud Logging: Monaco Engineering Co., Inc. Leon Hancock, Logging engineer.

Air Drilling
Equipment: Ingersoll-Rand. Two 1500 CFM Compressors
Jim Heinen, Air drilling engineer.

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

Equipment: Mast: Ideco 96' telescoping derrick - 212,000 lb.
capacity with 8' wide, 15' long, 10' high
substructure with 3' folding wings.

Equipment:
(continued)

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"
Power: Two 671 GMC diesel engines.
Drill Collars: 19 - 6" x 2 1/4"
15 - 4 3/4" x 2 1/4"
Drill Pipe: 3 1/2" IF- HTC
Air Drilling Head

Status:

Plugged and abandoned December 19, 1974. Cut off 7" casing.
Pulled 7" casing December 20, 1974.

WELL CHRONOLOGY

H. W. ADDINGTON & ASSOC.
STATE 3251-36-14
SE/SW Sec. 36-32S-51W
Las Animas County, Colorado
Elevation: 5065' K.B.

1974

- Nov. 11 Spudded with water well rig of Camp Drilling Co., Springfield, Colorado. Drilled 7 7/8" pilot hole to 54' with air.
- Nov. 12 Drilled to 354'. Had large water flow below 120'.
- Nov. 13 Drilled to 391'. Unable to drill deeper because air compressor not large enough to handle water volume.
- Nov. 14 to Nov. 16 Shut down.
- Nov. 17 Started moving in rotary rig.
- Nov. 18 Finished moving in and rigging up.
- Nov. 19 Reaming surface hole to 13 3/8" to 419'. Ran 10 3/4" OD used surface casing and set at 415' K.B. measurement. Cemented with 150 sacks of Halcolite displaced at bottom of casing and 125 sacks of common cement plus 3% calcium chloride was pumped down from top. Geologist on well.
- Nov. 20 Started drilling cement at 1:30 P.M. Drilled through shoe at 2:30 P.M. Blowing hole to dry up same to 4:15 P.M. Drilled 3' - no returns. Blowing hole 4:20 to 4:35 P.M.; hole would not dust. Drilled 3' - no returns. Hole would not dry up. Started drilling with air and mist at 5:45 P.M. from 425'.
- Nov. 21 Drilling @ 806' at 8:00 A.M. Trip for new bit @ 1174'.
- Nov. 22 Stuck drill pipe at connection @ 1205'. Still stuck at 8:00 A.M. Called Dialog and Acme Tools for back off and washover equipment. Backed off at approximately 1016'.
- Nov. 23 Washing over at 8:00 A.M.
- Nov. 24 Washing over stuck drill pipe.
- Nov. 25 Washing over stuck drill pipe.
- Nov. 26 Washing over bottom 5 drill collars.
- Nov. 27 Still washing over drill collars.
- Nov. 28 Finished washing over and got all of fish out of hole about 5:00 P.M. Started back in hole at 11:00 P.M.

1974

- Nov. 29 Thawing equipment from 12:30 to 6:30 A.M. Back to drilling at 11:30 A.M. Drilled 9' with mud and lost circulation.
- Nov. 30 Drilling with air and mist at 12:20 A.M. from 1218'. Hole finally unloaded. Drilling with air, mist and mud. Had air returns but no samples. Drilled to 1311' at 5:30 A.M. Circulating blowing hole, still without valid sample returns at 8:00 A.M. Waiting on decision to run 7" casing at that point. Drilled to 1366' at 12:00 noon. Still without returns. Last 5' very sticky. Stopped at that point to run 7" casing. Had gas kick on hot wire and chromatograph.
- Dec. 1 Running 7" at 8:00 A.M. Had strong blow of gas and air while running casing. Finished running casing at 4:00 P.M. Called Halliburton and got two samples of gas. Finished at 5:45 P.M. Cemented with 50 sacks of Class "H" cement with 3% calcium chloride and 5# Floseal per sack. Plug down at 6:30 P.M.
- Dec. 2 Nippling up at 8:00 A.M. Started in hole with collars at 12:25 P.M. Started blowing water load on cement at 1:25 P.M. No water. Hit plug and cement at 1160'. Fell through at 1200'. Hit cement again at 1331'. Got to shoe at 9:55 P.M. Blowing hole to dry up same. Drilled 5' - no returns.
- Dec. 3 Blowing hole after replacing rotating rubber. Drilled 5' - no returns. Started drying up at 6:30 A.M. Dry by 7:30 A.M. Drilling ahead from 1376' at 8:00 A.M. Dusting.
- Dec. 4 Tested Glorietta 1575-1719' through orifice place on blooie line. Drilling @ 1814' at 7:30 A.M. with air and foam.
- Dec. 5 Drilling @ 2191' at 9:35 A.M. Lost circulation @ 2449' while drilling with air, mud and mist.
- Dec. 6 Trying to regain lost circulation after dry drilling to 2458' at 7:40 A.M.
- Dec. 7 Trying to regain lost circulation with mud at 8:00 A.M. Got to 2454' and ran out of mud. Found hole in 7" casing.
- Dec. 8 Preparing to repair hole in 7" casing at 8:00 A.M.
- Dec. 9 Ran Welex Radio Activity Log. Ran bridge plug @ 1332'. Perforated four shots @ 1290'. Finished spotting 50 sacks of cement through perforations and displaced with water at 1:30 P.M.
- Dec. 10 Went in and found 295' of cement in casing. This was more fill up by 50' than cement mixed. Finished drilling cement to 1300' at 2:40 P.M. Bottom 30' very soft. Tried to fill hole with water. Could fill hole but water rapidly leaked away. Concluded that perforations were still open. Decision was made to recement using cementing head and follow with plug, to mix 50 sacks and put 75 barrels of water ahead to be sure perforations were still clean, and to wait on cement 24 hours. Finished cementing at 11:00 P.M.

1974

- Dec. 11 Waiting on cement at 8:00 A.M. Started drilling on plug at 11:00 P.M.
- Dec. 12 Finished drilling plug at 9:15 A.M. Tried to break circulation just below 7" at 1366'. Plugged bit. Drilling ahead from 2474' at 5:33 P.M.
- Dec. 13 Drilling @ 2563' at 4:50 A.M. Geologist in to Denver. Trip for bit @ 2575'.
- Dec. 14 Drilling @ 2686' at 8:00 A.M.
- Dec. 15 Tripping for Bit #9 from 2823' at 9:00 A.M.
- Dec. 16 Drilling @ 2945' at 8:00 A.M.
- Dec. 17 Drilling @ 3053' at 8:00 A.M. Drilled to 3069' TD. Out to run logs. Ran logs.
- Dec. 18 Preparing to run Drill Stem Test.
- Dec. 19 Tripping in to run DST #1 at 8:00 A.M. Ran DST #1 from 2939' to 3065'. Out to plug. Ran three plugs and cut off 7" casing.
- Dec. 20 Pulled 7" casing and prepared to move.

GEOLOGICAL REPORT

H. W. ADDINGTON & ASSOC.

STATE 3251-36-14

SE/SW Sec. 36-32S-51W

Las Animas County, Colorado

Elevation: 5065' K.B.

The State 3251-36-1 was spudded November 11, 1974 with water well rig of Camp Drilling Co., Springfield, Colorado. A 7 7/8" pilot hole was drilled to 391'. At that point, due to a large water flow encountered between 120' and 140', the small rig was unable to proceed and it was shut down.

Rotary rig was moved in and rigged up November 17 and 18, 1974. The 7 7/8" pilot hole was reamed to 13 3/8" to a depth of 419' on November 19. 10 3/4" surface casing was run and cemented at 415'. Due to the large water flow, casing was cemented with 150 sacks of Halcolite displaced at bottom of casing and 125 sacks of common cement plus 3% calcium chloride was pumped down from the top, finally killing the water flow.

The well drilled through casing shoe at 2:30 P.M., November 20, 1974. At this point it had been decided to dry up the hole and drill dry with air. This was attempted but after three hours it was decided to drill ahead with air and mist and drilling commenced at 5:45 P.M.

The following formation tops, corrected to Welex and Schlumberger electric logs, were picked on the well.

| | | | |
|------------------------|---|--------------|-------------------------|
| Cretaceous System: | | | |
| Dakota | - | 8 (+5057) | Behind pipe. |
| Jurassic System: | | | |
| Morrison | - | 281 (+4784) | Behind pipe. |
| Wanakah | - | Not picked. | No samples. |
| Entrada-Ocate | - | 449 (+4616) | |
| Triassic System | - | 706 (+4359) | ? |
| Permian System | - | 1080 (+3985) | |
| Day Creek | - | 1208 (+3857) | Log top. No samples |
| Blaine | - | 1459 (+3606) | due to lost circulation |
| Glorietta | - | 1569 (+3496) | |
| Yeso | - | 1837 (+3228) | ? |
| Pennsylvanian System: | | | |
| Lower Madera Arkose | - | 2422 (+2643) | |
| Morrow | - | 2681 (+2384) | |
| Basal Morrow Sandstone | - | 2907 (+2158) | |
| Mississippian System: | | | |
| St. Louis | - | 2926 (+2139) | |
| Spergen | - | 3042 (+2023) | |
| Total Depth | - | 3069 | Driller |
| | - | 3069 | Schlumberger |

The State 3251-36-14 was the fourth in a series of ten wildcat wells being drilled for the Weyerhaeuser Corporation and others under the operation of H. W. Addington & Assoc.

The well drilled out from under surface with 9 7/8" bit, drilling with air and mist. Penetration rates were extremely good and sample quality was fair although samples were quite fine. While making a connection at 1205' drill pipe became stuck. This resulted in a very difficult washover job to free the drill string and required six and a half days to complete.

Since mud had been used during the washover, it was decided to drill ahead with mud. However, after drilling 9' circulation was lost completely and it was decided to drill ahead with air-mist and mud. The hole finally unloaded and although air returned there was no fluid return and there were no samples.

I was reasonably certain the lost circulation zone was in the Day Creek which had caused all the problems in the Federal 3253-14-12, so it was decided to drill ahead blind to the Blaine and run 7" casing. The hole was drilled blind from 1205' to 1366' at which point a connection became quite sticky, so it was decided to run 7" casing.

When the air was cut off prior to the trip out of the hole, there was a fair gas kick of 46 units on the hot wire recorded on the mud logging equipment. The Chromatograph indicated that the major portion of the gas was inert as shown by the reverse kick of 55 units on the equipment. The reverse kick continued throughout the trip out of the hole. There was also a strong blow of gas and air during the running of the 7" casing, and because the gas was quite nauseous it took considerably longer than usual to run the casing. Before cementing the 7" casing, two samples of the gas were collected by Halliburton for analysis. The 7" was finally cemented with 50 sacks of Class "H" cement at 1366'.

After drilling the cement it was decided to drill ahead dry. So this was done and it took almost ten hours to dry up the hole. The drilling proceeded dusting from 1376'. The interval from 1366' to 1376' had been drilled blind during the drying up of the hole.

The first Blaine lithology was found in the 1440-60' sample and top was placed at 1445' on drilling time. This is corrected to 1459' by electric logs.

The first Glorietta was found in the 1560-80' sample and top placed at 1575' on drilling time. This is corrected to 1569' by electric logs.

While drilling below 1600' there was a slight reverse kick recorded on the Chromatograph but none on the hot wire (see Hydrocarbon Log). Because of its position, this reverse kick was determined to be CO₂. Drilling was halted at 1635' and after blowing the hole clean air was shut off. There was an immediate reverse kick of 24 units on the Chromatograph.

Drilling was continued, and at 1719' it was decided to test the Glorietta through the blooie line. Halliburton tester was called and test equipment was rigged on the blooie line. After blowing hole clean, air was shut off and 1/8" orifice placed in orifice meter. The gas was gauged at 30.8 MCF/day and 10# stabilized pressure. At the same time the gas between the 7" and 10 3/4" casing was also gauged at 28.1 MCF/day and 8.6# stabilized pressure. Two samples of the Glorietta gas were also collected for analysis.

Subsequently, analysis indicated that both gas samples were predominantly CO₂. Details of these analyses were not supplied to me but I am sure they have been sent to the interested parties.

Drilling was resumed and top of the Yeso was placed, questionably, at 1837' by electric logs. This top was quite indistinct in this test.

The first Quartz Wash-Granite Wash of the Lower Madera Arkose (Pennsylvanian) was found in the 2420-40' sample and top placed at 2429' by drilling time. This is corrected to 2422' by electric logs.

While drilling at 2449' complete loss of all returns was experienced. The hole was drilled blind to 2458', and at this point it was decided to attempt to regain circulation with mud. This was attempted without success. Successive attempts at various points in the hole finally pinpointed the problem as being a hole in the 7" casing between 1320' and 1332'. Two 50 sack cement plugs were required to finally repair the hole, and the operation took 7 2/3 days.

Since there was mud in the hole below the 7" casing, it was decided to continue drilling with mud and this was done. Samples were extremely poor from 2458' to 2500' but were predominantly loose Quartz Wash-Granite Wash-Arkose grains.

Due to a previous commitment which had been agreed upon before this series of wells was started, I left the well on the 13th of December and was not present during the remainder of the activities. Mr. John Stoddard took over supervision of the operation at this point.

The test was drilled ahead to 3069' total depth, bottoming in carbonate rocks. Electric logs were run and after logging it was decided to test the carbonates. I subsequently ran the samples to total depth and determined the presence of Morrow beds and the delineation of the carbonates to be Mississippian in age (see Detailed Sample Log).

DST #1 was run from 2934-3069'. Tool was opened for 5 minutes initial open with a fair blow increasing to strong blow (from bottom of bucket) in 1". Tool was shut in for 45" initial shut in pressure. Reopened tool for 2nd 45" open flow with strong blow from bottom of bucket immediately. The tool was then closed for 60" final shut in and test pulled. Recovery was as follows:

| | |
|-------|-----------------------------------|
| 30' | gassy rotary mud |
| 190' | gassy watery mud |
| 1680' | clean gassy water, slightly salty |
| 1900' | total fluid |

Pressures were as follows:

| | | | |
|-----------------------|---|-----------|-------------|
| Initial Hydrostatic | - | 1505# | (corrected) |
| Final Hydrostatic | - | 1505# | " |
| Initial Open (5") | - | 154#-138# | " |
| Initial Shut in (45") | - | 957# | " |
| 2nd Open Flow (45") | - | 365#-880# | " |
| Final Shut in (60") | - | 956# | " |

The results were much as I would have anticipated since there were no shows of any kind in the samples, despite the fact that log analysis had indicated some possible or probable gas.

DETAILED SAMPLE LOG

H. W. ADDINGTON & ASSOC.
STATE 3251-36-14
SE/SW Sec. 36-32S-51W
Las Animas County, Colorado
Elevation: 5065' K.B.

Sample study starts at 419' in Wanakah.


- 419-427 Shale, gray, hard, slightly limey, clay.
- 427-439 Limestone, gray to brown, very finely crystalline, dense.
- 439-449 Shale, gray, hard, slightly limey, clay.
- 449 Top - ENTRADA-OCATE (+4616)
- 449-492 Siltstone to very fine Sandstone, light red-brown, light pink-red, very tight, very limey; with interbedded Shale, brown, red-brown, light red-brown, hard, some micromicaceous.
- 492-500 Siltstone to Sandstone, brown, red-brown, light red-brown, very fine, very tight, some shaly, very limey.
- 500-502 Shale, brown, red-brown, hard.
- 502-516 Sandstone, light gray, gray-white, very fine to fine and little medium, angular to subangular; with considerable fine to medium and trace coarse, subangular to subrounded, imbedded grains.
- 516-529 Shale, dark red, purple-red, brown-red, some mottled, hard.
- 529-541 Siltstone to very, very fine Sandstone, pink-gray, gray, very tight, slightly limey.
- 541-552 Limestone, pale purple, pink, buff, pink-red, red, very finely crystalline to finely crystalline, dense, considerable silty.
- 552-561 Limestone, dark red, brown-red, considerable mottled, finely crystalline, dense, some nodular.
- 561-582 Shale, dark red, purple mottled, purple-red, chocolate, brown-red, hard; traces of red, dense, limestone nodules.
- 582-608 Siltstone to very, very fine Sandstone, pale purple, brown-red, micromicaceous, slightly limey; some interbedded Shale, as above.
- 608-614 Shale, dark red, chocolate, brown-red, purple-red, mottled, hard; trace dense, limestone nodules.
- 614-630 Sandstone, gray, pale orange, orange, red, very fine to slightly medium, angular to subangular and slightly subrounded, very tight, slightly limey.

Structurally the well ran much lower than I anticipated and the presence of Morrow beds of the thickness penetrated was totally unexpected. Their presence changes the time of initial movement of the Freezeout Fault complex which had previously been considered to be earliest Morrow time.

The 7" casing was cut and successfully pulled, and the well was plugged in the following manner.

Set 25 sack Class "H" cement plug with 3% calcium chloride, 2850-2980'.
Set 50 sack Class "H" cement plug with 3% calcium chloride, 1500-1800'.
Set 20 sack Class "H" cement plug with 3% calcium chloride, 1290-1400'.

Plugging was completed December 19, 1974, and rig released to move.


JOSEPH R. CLAIR
Geological Consultant
C.P.G. #713

- 630-636 Shale, as above.
- 636-642 Siltstone to Sandstone, as above.
- 642-647 Shale, as above; considerable varicolored, dense, limestone nodules.
- 647-683 Siltstone to Sandstone, gray, orange, red, very fine to fine, angular to subangular, very tight; some interbedded Shale.
- 683-706 Shale, purple, dark red, brown-red, chocolate, brown, hard; with little interbedded Siltstone.
- 706 Top - TRIASSIC (+4359) ?
- 706-749 Sandstone, red, gray, light orange-gray, very fine to fine, angular to subangular, very tight, dirty; with some interbedded Shale, brown-red.
- 749-753 Shale, brown-red, chocolate; some dark red, brown, gray, dense, limestone nodules imbedded.
- 753-766 Siltstone to very fine Sandstone, gray, slightly micromicaceous, very tight.
- 766-795 Sandstone, gray, gray-white, pink-gray, yellow-gray, trace brown, very fine to fine, angular to subangular, very tightly cemented.
- 795-806 Shale, purple-gray, mottled, hard, nodular clay; with some imbedded sand grains.
- 806-859 Siltstone to Sandstone ? Note: Only Shale, brown-red, chocolate, purple-red, mottled, hard; with red, dense, limestone nodules found in samples.
- 859-872 Shale, dark red, brown-red, dark purple-red, hard.
- 872-888 Sandstone, yellow-gray, gray, very fine to fine, angular to subangular, very tight.
- 888-890 Shale, as above.
- 890-910 Sandstone, gray, gray-white, some varicolored, very fine to fine, angular to subangular, very tight, slightly limey; few fine to medium, subrounded, floating grains.
- 910-912 Shale, brown-red, dark red, purple-red, hard; with traces of varicolored, dense, limestone nodules.
- 912-945 Sandstone, pink, pink-gray, very fine to fine, angular to subangular, very tight, slightly limey.
- 945-964 Shale, brown-red, dark red, chocolate, dark purple, hard.
- 964-988 Sandstone, pink, gray, dark red, red-gray, very fine to fine and some medium, angular to subangular and little subrounded, very tightly cemented.
- 988-994 Shale, as above; trace red, dense, limestone nodules.

- 994-1034 Sandstone, pink, gray, and varicolored, very fine to fine, angular to subangular, very tight; some varicolored, glassy, detrital material.
- 1034-1052 Shale, brown-red, dark purple-red, chocolate, hard; with trace of red, dense, limestone nodules.
- 1052-1080 Sandstone, gray, orange, pink, very fine to slightly medium, angular to subangular and some subrounded, tight to friable; most loose grains; with some interbedded Shale, as above.
- 1080 Top - PERMIAN (+3985)
- 1080-1089 Siltstone to very, very fine Sandstone, dark orange-red, dark orange, dark red, micromicaceous; some shaly.
- 1089-1104 Siltstone to very fine Sandstone, dark orange, orange-red, micromicaceous, tight; some shaly.
- 1104-1106 Shale, dark orange-red, dark red, micromicaceous.
- 1106-1138 Siltstone to very fine Sandstone, dark orange, orange-red, micromicaceous, tight; quite shaly 1122-28. (Note: Most is very fine Sandstone.)
- 1138-1146 Shale, dark red, micromicaceous.
- 1146-1155 Siltstone to very fine Sandstone, dark orange, orange-red, very micromicaceous, very tight; some shaly.
- 1155-1160 Shale, as above.
- 1160-1186 Siltstone to very fine Sandstone, as above, little fine grained; quite shaly toward bottom.
- 1186-1195 Shale, dark chocolate-brown, very hard, some micromicaceous.
- 1195-1205 Siltstone to very fine Sandstone, dark orange, dark orange-red, micromicaceous, very tight; some shaly.
- Note: Stuck drill pipe at 1205'. Had to wash over. After fishing job, drilled 9' and lost circulation. Drilled blind from 1205' to 1366'. Ran 7" casing at 1366'. Drilling 6 1/4" hole dusting from 1366'.
- 1208 Top - DAY CREEK (+3857) (E. Log)
- No samples for interval 1205' to 1366'.
- 1366-1381 Sample not valid. Only Shale.
- 1381-1401 Siltstone to very, very fine Sandstone, dark orange, orange-brown, micromicaceous, tight; traces of soft, white Gypsum; some shaly.
- 1401-1419 Shale, dark chocolate-brown, hard, some micromicaceous.
- 1419-1432 Siltstone to very, very fine Sandstone, dark orange, orange-brown, very tight; some shaly.
- 1432-1441 Shale, dark chocolate-brown, hard, some micromicaceous.

- 1441-1452 Siltstone to very, very fine Sandstone, as above; more shaly; traces of white, soft Gypsum.
- 1452-1459 Shale, chocolate-red, chocolate-brown, hard to soft.
- 1459 Top - BLAINE (+3606)
- 1459-1471 Anhydrite, gray-white, white, pink, red, gray, massive, dense; and Gypsum, white, soft, and some crystalline.
- 1471-1480 Shale, dark red, brown-red, chocolate.
- 1480-1527 Anhydrite, white, gray, pink, red, massive, dense; with some white, soft Gypsum; and traces to little Dolomite, gray, brown, pink-red, dark red, very very finely crystalline, very dense.
- 1527-1531 Shale, chocolate-brown, hard.
- 1531-1543 Siltstone, chocolate-red, micromicaceous, very tight.
- 1543-1547 Shale, dark chocolate-brown, hard, some silty; to Siltstone, slightly dolomitic.
- 1547-1561 Siltstone, as above.
- 1561-1569 Shale, as above.
- 1569 Top - GLORIETTA (+3496)
- 1569-1580 Sandstone, gray-white, very fine, angular to subangular, all loose.
- 1580-1600 Sandstone, pale orange-buff, very fine, angular to subangular, very tightly cemented; with intergranular dolomitic cement.
- 1600-1615 Sandstone, buff, very fine, angular to subangular, very friable; with abundant medium to coarse, subangular to subrounded, floating grains, all loose.
- 1615-1622 Shale, dark red.
- 1622-1636 Sandstone, gray-white, very fine to fine, angular to subangular, all loose.
- 1636-1651 Sandstone, pale orange-buff, very fine to little fine, angular to subangular, very tight; with intergranular dolomitic cement.
- 1651-1660 Siltstone, brown-red, micromicaceous, tight, slightly dolomitic; some shaly.
- 1660-1665 Shale, dark red.
- 1665-1679 Siltstone, as above; and Sandstone, gray-white, orange, very fine to little fine, angular to subangular, very friable, all loose.
- 1679-1693 Sandstone, orange, very fine to fine, some medium, angular to subangular, loose; and Siltstone to very fine Sandstone, chocolate, brown-red, micromicaceous, very tight, some shaly.

- 1693-1750 Sandstone, orange, dark orange, very fine to fine and some medium, angular to subangular; with considerable medium, subangular to slightly subrounded floating grains, all loose.
- 1750-1753 Shale, dark chocolate-brown, red, soft to hard, some silty, some micromicaceous; with white, soft, and little crystalline Gypsum.
- 1753-1784 Sandstone, dark orange-brown, orange-red, orange, very fine to medium, angular to subangular, and some slightly subrounded, tight to friable; with some dolomitic cement; with interbedded Siltstone, dark orange-brown, micromicaceous, very tight; with some white, soft Gypsum.
- 1784-1799 Shale, red, soft, gypsiferous in part; with some Siltstone, as above.
- 1799-1837 Sandstone, as above; some very shaly.
- 1837 Top - YESO (+3228) . ?
- 1837-1841 Shale, red, dark red, trace chocolate, soft; little white, soft Gypsum.
- 1841-1872 Siltstone to very, very fine Sandstone, dark chocolate-brown, trace gray, orange-gray, micromicaceous; with some interbedded Shale, as above.
- 1872-1880 Shale, red, dark red, soft; with interbedded Siltstone, as above.
- 1880-1891 Sandstone, orange-dark orange, orange-brown, very fine to medium, angular to subangular, tight, slightly dolomitic; some silty and shaly; some white, soft Gypsum.
- 1891-1896 Shale, red, dark red, chocolate-brown, hard to soft; some white Gypsum.
- 1896-1911 Sandstone, as above; with interbedded Siltstone, dark chocolate-brown, micromicaceous, very tight, some shaly; with some interbedded Shale.
- 1911-1919 Dolomite, light gray, pink, pale purple, very finely crystalline to slightly crystalline, dense to slight vuggy porosity.
- 1919-1922 Shale, red, dark red, chocolate-brown, hard to soft.
- 1922-1927 Siltstone to Sandstone, orange, dark orange, orange-red, very, very fine to slightly medium, angular to subangular, some micromicaceous, very tight, considerable dirty, very slightly dolomitic.
- 1927-1928 Shale, as above.
- 1928-1938 Sandstone, orange, dark orange, very very fine to little medium, angular to subangular, very tight, slightly dolomitic, some shaly.
- 1938-1945 Dolomite, gray, buff, tan, and varicolored, very finely crystalline to finely crystalline, very dense, some argillaceous.
- 1945-1953 Shale, red, dark red, chocolate-brown, hard to soft, some silty to Siltstone; little white, soft Gypsum.
- 1953-1992 Siltstone to Sandstone, orange, dark orange, orange-red, very very fine to very fine, some micromicaceous, very tight, slightly dolomitic, most dirty.

- 1992-2016 Siltstone, orange-red, orange, micromicaceous, very tight, slightly dolomitic; with interbedded Shale, dark red, brown-red, chocolate, hard to soft; trace dark red, dense, dolomite nodules.
- 2016-2033 Siltstone to very fine Sandstone, dark orange, orange-red, micromicaceous, very tight, slightly dolomitic; some interbedded Shale, dark red, brown, brown-red, chocolate, most hard; little white, soft Gypsum.
- 2033-2036 Shale, as next above.
- 2036-2067 Sandstone, orange-red, red, orange, dark orange, very very fine to fine, angular to subangular, very tight, considerable micromicaceous, slightly dolomitic, some shaly.
- 2067-2088 Sandstone, as above; some medium and trace coarse grains; slightly more dolomitic.
- 2088-2098 Sandstone, orange-red, red, gray-white, buff, very very fine, micromicaceous, some shaly, tight, slightly dolomitic.
- 2098-2101 Shale, red, brown-red, hard to soft; little white, soft Gypsum.
- 2101-2109 Sandstone, as above; with considerable interbedded Shale.
- 2109-2142 Siltstone to Sandstone, dark orange, orange-red, very very fine to little fine, angular, micromicaceous, tight, slightly dolomitic, some shaly; with interbedded Shale, dark red, brown, chocolate, hard to soft.
- 2142-2189 Siltstone to Sandstone, orange, dark orange, orange-buff, very very fine to some fine, angular, micromicaceous, very tight, slightly dolomitic.
- 2189-2227 Siltstone to Sandstone, orange, dark orange, orange-red, trace gray-white, very very fine to little fine, angular, micromicaceous, very tight, slightly dolomitic.
- 2227-2230 Shale, red, dark red, brown, chocolate, hard to soft; traces of red, dense, dolomite nodules; some white, soft Gypsum.
- 2230-2290 Siltstone to Sandstone, orange, dark orange-brown, orange-red, little gray-white, brown-gray and red-gray, very very fine to very fine, angular, micromicaceous, slightly dolomitic; traces of red, dark red, very finely crystalline, dense, dolomite nodules; with interbedded Shale, dark red, brown, chocolate, hard to soft, some gypsiferous, particularly 2285-90.
- 2290-2292 Shale, red, brown, chocolate; considerable white Gypsum; and trace Anhydrite; traces of red, dark red, dense, dolomite nodules.
- 2292-2336 Siltstone to very, very fine Sandstone, orange-red, dark orange-red, micromicaceous, slightly dolomitic, some shaly.
- 2336-2340 Shale, brown, dark red, soft to hard.
- 2340-2363 Siltstone to very, very fine Sandstone, as above; with traces of Dolomite, dark red, orange-red, orange-gray, very finely crystalline to crystalline, dense, nodular to nodules.

- 2363-2378 Siltstone to very, very fine Sandstone, dark orange-red, red, orange-brown, micromicaceous, tight, slightly dolomitic, some quite argillaceous
- 2378-2400 Siltstone to very, very fine Sandstone, as above; some quite shaly; trace of Dolomite, dark red, orange-red, very finely crystalline to slightly crystalline, dense, nodular and nodules.
- 2400-2422 Shale, brown-red, chocolate, dark red, hard to soft, some gypsiferous; interbedded with Siltstone to very, very fine Sandstone, orange-red, dark orange, dark red, micromicaceous, slightly dolomitic, quite shaly; some white Gypsum; trace red, slightly crystalline, dense, dolomite nodules.
- 2422²⁹⁷⁷
505 Top - PENNSYLVANIAN (LOWER MADERA) (+2422)
- 2422-2444 Quartz Wash, Granite Wash, gray, pink, orange, coarse to very coarse, angular to subangular and slightly subrounded, all loose; Quartz; Feldspar trace Mica; some weathered.
- 2444-2458 Shale, dark red, chocolate, brown-red, hard to soft, some quite gypsiferous; trace red, crystalline, dense dolomite nodules. (Note: Interpreted; drilled blend 2449-58.)
- 2458-2472 Quartz Wash, Granite Wash, gray, pink, red, coarse to very coarse, angular to subangular, some weathered, most loose.
- 2472-2479 Shale, as above.
- 2479-2488 Quartz Wash, Granite Wash, as above.
- 2488-2506 Siltstone to very, very fine Sandstone, orange, orange-red, very tight; with interbedded Shale, dark red, chocolate; and Quartz Wash, Granite Wash, gray, pink, medium to very coarse, angular to subangular, all loose.
- 2506-2510 Shale, light red, dark red, chocolate, some gypsiferous; interbedded with Siltstone to very, very fine Sandstone, as above; some red and dark red, dense, dolomite nodules.
- 2510-2521 Quartz Wash, Granite Wash and Arkose, pink, orange, red, gray, angular to most subangular.
- 2521-2526 Shale, as above; with interbedded Siltstone to very, very fine Sandstone, light red to dark red, micromicaceous, some shaly, slightly dolomitic; with considerable Dolomite, red, dark red, orange, finely crystalline, dense, nodular.
- 2526-2540 Quartz Wash and Arkose; trace Granite Wash, gray, pink, medium to very coarse, angular to subangular, loose, some weathered.
- 2540-2542 Shale, red, dark red, chocolate.
- 2542-2575 Quartz Wash, Arkose; traces of Granite Wash, gray, pink, red, medium to very coarse, most subangular, loose, some weathered; some medium to coarse aggregates are quite tight; more Granite Wash toward bottom.
- 2575-2584 Shale, red, dark red; with interbedded Siltstone, dark red, red, shaly.

- 2584-2593 Arkose, orange, pink, red, graywhite, coarse to very coarse textured; with trace Granite Wash, tight; and interbedded Shale, red to dark red.
- 2593-2605 Shale, light red, dark red, hard to soft, little silty.
- 2605-2628 Quartz Wash and little Arkose, gray-white, pink, red, coarse to very, very coarse textured, trace weathered, angular to subangular, loose; with some interbedded Shale, as above.
- 2628-2643 Quartz Wash with trace Arkose, as above, loose; with more interbedded Shale, red, dark red, purple; with trace red, dense, dolomite nodules.
- 2648-2657 Quartz Wash with little Arkose, gray-white, angular to slightly sub-rounded, coarse to very very coarse, loose, some weathered.
- 2657-2666 Quartz Wash, as above; with interbedded Shale, red, dark red, purple.
- 2666-2669 Quartz Wash with trace Granite Wash, gray-white, pink, red, coarse to very coarse, loose, some slightly weathered.
- 2669-2675 Shale, purple, dark red.
- 2675-2681 Quartz Wash, Granite Wash, gray-white and varicolored, loose, coarse to very coarse, little weathered.
- 2681 Top - MORROW (+2384)
- 2681-2710 Shale, purple, purple-gray, green, gray, dark gray, splintery, talcy; with scattered, loose, Quartz Wash grains.
- 2710-2720 Shale, as above, some micromicaceous; with slightly more interbedded Quartz Wash.
- 2720-2735 Shale, purple, purple-gray, green, dark gray, splintery, talcy.
- 2735-2762 Sandstone, gray-white, fine to medium, angular to subangular, tight; with much intergranular Clay; with considerable coarse to very, very coarse Quartz Wash grains which are loose; Quartz Wash is coarser toward bottom; with interbedded Shale, as above 2743-44 and 2750-51.
- 2762-2785 Shale, purple, green, gray, dark gray, splintery, talcy; with much interbedded Quartz Wash, gray-white and varicolored, coarse to very, very coarse, subangular, all loose; traces of Feldspar and Arkose.
- 2785-2801 Quartz Wash, gray-white, some varicolored, coarse to very, very coarse, subangular to slightly subrounded, loose; traces of Feldspar; with interbedded Shale, gray, purple, dark gray, green, dark green, talcy, considerable splintery 2792-97.
- 2801-2819 Shale, purple, gray, green, dark green, talcy, splintery; with interbedded Quartz Wash, as above.
- 2819-2861 Sandstone, gray-white, medium to very coarse, angular, tight to friable; with considerable loose, floating, coarse to very coarse, Quartz Wash grains; becomes very tight at bottom, with much intergranular Clay; with interbedded Shale, green, gray, purple, talcy, splintery, and some

varicolored, finely crystalline, dense Dolomite.

Note: Interval is predominantly Shale in samples.

- 2861-2867 Shale, green, gray-green, purple, gray, talcy, splintery, little glauconitic.
- 2867-2884 Sandstone, gray, fine to medium, angular to subangular, tight; with some intergranular Clay; slightly glauconitic; few loose Quartz Wash grains.
- 2884-2907 Shale, green, gray, purple, light gray, dark gray, black, talcy, splintery; trace Pyrite; trace coarse Quartz Wash grains; traces of poor Coal.
- 2907 Top - BASAL MORROW SANDSTONE (+2158)
- 2907-2924 Sandstone, gray-white, medium to coarse and very very coarse, angular to subangular and subrounded, probably friable because grains are all loose; Quartz Wash, some frosted and slightly weathered.
- 2924-2926 Shale, green, gray, dark gray, purple, splintery, talcy.
- 2926 Top - MISSISSIPPIAN (ST. LOUIS) (+2139)
- 2926-2950 Dolomite, gray-buff, crystalline to slightly crystalline, dense; trace tan-buff, slightly weathered, opaque, oolitic Chert, very slightly limey; trace white, tripolitic, and buff, opaque, weathered Chert.
- 2950-2965 Dolomite, buff to brown, crystalline to slightly coarse crystalline, some rhombic, very slightly limey, dense to slight vug porosity, trace purple-red mottling; some secondary crystals; trace drusy Quartz from vug.
- 2965-2981 Dolomite, buff to brown, gray-buff, slightly crystalline to very crystalline to some coarse crystalline; trace with imbedded Sand grains; trace salmon-pink Chert imbedded; some rhombic; some secondary crystals in vugs.
- 2981-2992 Dolomite, buff, trace yellow-buff, crystalline, dense; trace buff, opaque and salmon Chert.
- 2992-2999 Dolomite, red, purple-red, dark red, very finely crystalline, dense; with cinnamon, red-green, red-buff, opaque, weathered to fresh algal Chert.
- 2999-3015 Dolomite, gray, gray-buff, brown, very very finely crystalline, very dense; trace red-tan, opaque Chert.
- 3015-3033 Dolomite, gray-buff, gray-tan, medium crystalline to crystalline and some coarse crystalline, considerable rhombic; dense to considerable intercrystalline vug porosity; trace red-tan, opaque Chert; considerable secondary crystals.
- 3033-3040 Dolomite, gray, gray-buff, very finely crystalline to finely crystalline, very dense.
- 3040 Top - X SHALE MARKER (+2025)
- 3040-3042 Shale, green, gray-green, very slightly dolomitic.

3042 Top - SPERGEN (+2023)

3042-3069 Dolomite, gray, buff, brown, finely crystalline to slightly crystalline, dense; trace white and buff, opaque Chert; some slightly argillaceous.

3069 Total depth - Driller.

3067 Total depth - Schlumberger.

Samples described:

Joseph R. Clair
JOSEPH R. CLAIR
(on well)

DRILLING TIME LOG

H. W. ADDINGTON & ASSOC.

STATE 3251-36-14

SE/SW Sec. 36-32S-51W

Las Animas County, Colorado

Elevation: 5065' K.B.

5' Drilling time.

| | | |
|----------|---------------------|----------------------|
| 420- 500 | 8-3-4-3-4-3 | 5-3-5-4-5-5-5-4-6-5 |
| 500- 600 | 4-4-4-4-4-4-5-4-5-4 | 5-10-6-5-5-4-3-5-5-5 |
| 600- 700 | 4-5-4-5-6-6-5-5-5-3 | 5-7-7-5-3-4-7-5-7-6 |

1' Drilling time.

| | | |
|-----------|---|-----------------------------------|
| 700- 720 | 2-4-2-2-1-2-2-1-1-1 | 1-1-1-1-1-1-1-1-1-1 |
| 720- 740 | 1/2-1/2-1-1-1-1-1-1-1 | 1-1-1-1-1-1-1-1-1-1 |
| 740- 760 | 1-1-1-1-1-1-1/2-1/2-1-1 | 1-2-2-1-1-1-1-1-1-1 |
| 760- 780 | 1-1-1/2-1/2-1-1-1-1-1-1 | 1-1/4-1/4-1/4-1/4-1-1-1-1-1 |
| 780- 800 | 1-1-1-1-1-1-1-1-1-1 | 1-1-1-1-1-2-2-2-2-2 |
| 800- 820 | 1-1-1-1-2-2-1-1-2-2 | 2-2-2-1/2-1/2-1/2-1/2-1/2-1/2 |
| 820- 840 | 1/2-1/2-1/2-1-1-1-1-2-1-1 | 1-1-1-1/2-1/2-1/2-1/2-1-1-1 |
| 840- 860 | 1-1-1-1-1-1-1-1-1-1 | 1-1-1-1-1-1-1-1-1/4-1/4 |
| 860- 880 | 1/2-1/2-1/2-2-1-1-1-3-2 | 2-2-2-2-2-1-1/2-1 1/2-1-1 |
| 880- 900 | 1-1/2-1/2-1/2-1/2-1/2- 1/2-1/2-1/2-1/2 | 1/2-1/2-1/2-1/2-1/2-1/2-2-1-1-1/2 |
| 900- 920 | 1/2-1/2-1/2-1-1-1-1-1-2 | 1-2-1-1-2-2-2-2-2-2-1 |
| 920- 940 | 1-1-1-2-1-1-1-1/2-1/2-1/2 | 1/2-1/2-1/2-1/2-1/2-1-1-2-1-1 |
| 940- 960 | 2-1-1-1-1-1-1-2-2-3 | 1-2-2-2-2-2-1-2-1-1 |
| 960- 980 | 1-1-2-2-1-2-1-3-2-2 | 2-1-1-1/2-1/2-1/2-1/2-1/2-1/2-1/2 |
| 980-1000 | 1/2-1/2-1/2-1/2-1/2-1/2- 1/2-1/2-1-1 | |
| 1000-1020 | 1-3-2-2-1-1-1-1-2-2 | 2-1-1-1-1-1 1/2-1-1/2-1-1 |
| 1020-1040 | 1-1-1-1-1-1-1-1-1-1 | 2-1-2-1/2-1/2-1/2-1/2-1/2-1/2-1/2 |
| 1040-1060 | 1/2-1/2-1/2-1/2-1/2-1/2-1-2- 2-1/2-1/2 | 1/2-1/2-1/2-1/2-1/2-1/2-1-1-1-1 |
| 1060-1080 | 2-1-1-1-1-1-1-1-1-1 | 1-1-1-1-1/2-1/2-1-1-1-1 |
| 1080-1100 | 1/2-1/2-1-1-1/2-1/2-1-1- 1-2 | 2-2-2-1-1-1-1-1-1-1 |
| 1100-1120 | 1-1-1-1 1/2-1/2-6-1-1-2-2 | 1-1/2-1/2-1-1/2-1 1/2-1/2-1-1-1 |
| 1120-1140 | 1-1-1/2-1/2-1-1-1-1-1/2-1/2 | 1/2-1/2-1/2-1-1-1-1-1-1-2 |
| 1140-1160 | 1/2-1/2-1-2-2-1-1-1-1-1 | 1/2-1/2-2-2-2-2-1-1-2-1 |
| 1160-1180 | 2-1-1-1-2-2-1-1-1-2 | 1-1-1-1-1-2-1-1-2-2 |
| 1180-1200 | 2-1-1-2-1-2-2-1-2-1 | 2-1-1-2-1-2-1-1-1-2 |

5' Drilling time.

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|-----------|----------------------------|------------------------|
| 1200-1300 | 6-21-8-x-11-11-13-13-15-14 | 8-12-11-8-8-12-9-6-6-6 |
| 1300-1400 | 6-7-3-4-4-4-3-3-5-3 | 7-6-4-11-16-4-7-5-6-5 |
| 1400-1500 | 5-4-4-5-9-5-4-3-4-6 | 7-3-5-8-7-4-8-8-10-10 |

x - No time.
Pipe tally cor

5' Drilling time.

| | | |
|-----------|--------------------------|-------------------------|
| 1500-1600 | 9-9-13-7-9-6-9-8-6-9 | 7-9-7-7-8-3-4-4-5-4 |
| 1600-1700 | 5-5-6-6-6-4-4-5-6-6 | 6-5-6-8-11-8-5-5-6-7 |
| 1700-1800 | 10-10-13-5-5-8-14-5-5-10 | 7-6-6-6-7-14-21-20-16-6 |

Trip @ 1719.
New bit. J-33.

1' Drilling time.

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|-----------|----------------------|---------------------|
| 1800-1820 | 1-3-2-3-3-2-1-1-3-2 | 1-1-1-1-2-2-3-2-2-1 |
| 1820-1840 | 2-2-2-5-2-2-2-3-2-2 | 3-4-2-2-3-4-5-2-3-2 |
| 1840-1860 | 3-3-1-2-1-1-1-2-2-2 | 2-2-6-1-2-2-2-2-2-2 |
| 1860-1880 | 2-2-2-3-3-5-2-2-2-3 | 4-5-4-1-2-2-2-4-4-3 |
| 1880-1900 | 3-3-3-2-2-16-3-2-3-2 | 2-1-1-2-2-1-2-3-2-2 |

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|-----------|---------------------|---------------------|
| 1900-1920 | 1-3-4-2-2-1-2-1-3-1 | 3-2-5-2-3-1-1-6-3-4 |
| 1920-1940 | 2-1-2-2-1-2-1-2-2-2 | 2-1-4-4-5-6-4-7-3-3 |
| 1940-1960 | 2-3-4-6-2-1-2-2-1-2 | 3-2-2-1-3-4-2-3-2-2 |
| 1960-1980 | 1-2-2-6-2-2-2-2-2-3 | 1-2-3-1-2-3-3-3-2-2 |
| 1980-2000 | 4-3-2-2-3-5-6-2-2-2 | 1-1-2-2-2-2-2-2-2-1 |

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|-----------|---------------------|---------------------|
| 2000-2020 | 2-2-2-2-1-1-2-2-1-2 | 2-2-3-2-3-1-1-2-2-2 |
| 2020-2040 | 3-2-2-1-2-3-1-2-1-1 | 1-1-2-2-1-1-2-2-3-3 |
| 2040-2060 | 2-3-3-2-1-2-2-2-1-2 | 2-1-1-4-6-4-3-3-3-3 |
| 2060-2080 | 6-2-3-3-3-3-5-3-4-4 | 2-2-2-3-3-3-4-5-5-2 |
| 2080-2100 | 5-4-3-4-1-1-2-6-3-3 | 6-4-3-2-4-5-3-5-4-4 |

Drilg. with mud
mist from 2026.
8000# Wt. @ 2053

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|-----------|----------------------|---------------------|
| 2100-2120 | 4-5-10-8-8-7-7-3-2-5 | 6-6-7-5-6-4-3-6-5-6 |
| 2120-2140 | 3-2-4-7-6-4-6-7-10-6 | 5-4-3-5-3-4-4-6-4-6 |
| 2140-2160 | 6-8-6-5-5-10-8-9-6-5 | 6-3-3-3-2-3-3-3-3-3 |
| 2160-2180 | 3-4-3-4-4-5-3-4-4-3 | 3-4-4-3-3-3-2-2-3-4 |
| 2180-2200 | 3-2-1-2-2-3-2-2-4-3 | 6-3-3-4-4-4-2-4-4-3 |

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| 2200-2220 | 2-5-3-3-3-2-3-2-3-3 | 2-3-7-5-3-2-2-3-3-5 |
| 2220-2240 | 2-2-4-4-5-5-2-3-3-4 | 4-4-4-4-3-3-1-2-3-4 |
| 2240-2260 | 3-3-4-3-3-2-3-4-4-4 | 3-3-4-5-6-4-4-4-2-5 |
| 2260-2280 | 5-3-3-5-4-4-3-6-3-2 | 3-2-2-2-2-3-3-3-3-3 |
| 2280-2300 | 2-2-3-2 1/2-2 1/2-2-2-3-3-2 | 2-2-2-1-2-2-2-2-2-2 |

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| 2300-2320 | 2-2-2-2-2-3-1-2-2-1 | 1-2-4-1-2-2-3-3-2-2 1/2 |
| 2320-2340 | 2 1/2-2-2-2-2-2-1-2-2-2 | 2-2-2-2-2-2-3-3-3-3 |
| 2340-2360 | 2-2-2-2-2-2-2-3-3-3 | 3-2-3-2-2-2-3-3-3-3 |
| 2360-2380 | 2-2-1-2-1-1-1-2-2-3 | 2-3-3-3-3-2-3-3-3-2 |
| 2380-2400 | 2-3-2-2-2-2-3-3-2-2 | 2-3-2-3-3-3-2-2-3-2 |

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| 2400-2420 | 2-2-1-1-2-1-1-1-2-3 | 3-3-2-2-2-2-2-2-2-2 |
| 2420-2440 | 3-2-2-2-2-1-1-1-1-2 | 3-4-3-3-3-5-2-3-5-2 |
| 2440-2460 | 2-2-2-2-2-3-3-3-2-2 | 6-6-7-6-7-8-7-2-x-x |
| 2460-2480 | x-x-x-x-x-x-x-x-x-x | x-x-x-x-8-10-7-8-9-7 |
| 2480-2500 | 9-7-10-7-8-7-6-7-5-7 | 9-7-8-7-7-8-6-7-7-7 |

Lost returns @
2449. Drld. blin
to 2458. J-33
@ 2458. OWVJ in
@ 2474. x - No
time. Depth corr

| | | |
|-----------|-------------------------|------------------------|
| 2500-2520 | 7-5-6-6-7-5-5-6-5-6 | 6-4-6-7-8-7-6-7-6-6 |
| 2520-2540 | 6-7-8-7-8-7-7-7-7-7 | 2-3-2-5-6-7-7-9-9-6 |
| 2540-2560 | 8-10-9-8-7-3-3-3-6-4 | 5-5-4-9-8-8-9-9-7-6 |
| 2560-2580 | 7-9-13-11-12-6-6-5-7-10 | 9-6-4-5-5-x-x-12-10-10 |
| 2580-2600 | 9-8-6-7-9-9-5-3-7-13 | 5-4-2-3-2-4-5-11-4-1 |

J-33 in @ 2575.
x = No. time.

| | | | |
|-----------|--------------------------------|-------------------------------|-----------------|
| 2600-2620 | 1-1-8-3-3-4-12-20-8-4 | 4-5-3-3-3-3-3-4-2-4 | |
| 2620-2640 | 9-10-12-17-9-11-2-2-2-3 | 4-13-14-12-10-14-19-21-16-18 | |
| 2640-2660 | 15-18-18-17-15-19-9-4-3-2 | 5-10-12-15-15-8-6-10-18-17 | |
| 2660-2680 | 18-23-24-23-17-20-17-9-4-5 | 9-6-13-16-13-13-3-2-2-3 | |
| 2680-2700 | 2-4-12-12-12-11-9-11-15-13 | 13-7-3-6-8-13-15-10-9-5 | |
| 2700-2720 | 4-3-8-9-6-4-11-10-12-10 | 10-10-12-9-11-16-12-13-15-18 | |
| 2720-2740 | 13-12-12-13-12-10-13-11-8-8 | 10-10-9-4-5-4-8-3-5-4 | |
| 2740-2760 | 1-1-2-4-7-3-1-1-1-2 | 1-1-1-1-1-1-1-1-1-1 | |
| 2760-2780 | 1/2-6 1/2-8-10-10-10-10-9-9-10 | 10-10-9-10-10-11-12-13-8-9 | |
| 2780-2800 | 7-10-10-9-8-10-11-12-12-10 | 11-10-10-10-11-12-14-12-10-13 | |
| 2800-2820 | 11-11-10-13-13-11-10-11-11-9 | 4-6-12-37-37-19-22-17-11-12 | Rough 2812-18. |
| 2820-2840 | 15-12-10-10-10-10-8-10-10-9 | 8-7-8-6-10-8-10-9-8-6 | Trip @ 2823 for |
| 2840-2860 | 8-6-8-6-11-9-5-5-5-6 | 5-6-13-8-12-15-12-13-13-7 | Bit #9. S88F. |
| 2860-2880 | 7-8-14-11-10-14-13-17-20-20 | 13-15-15-12-7-13-11-13-11-11 | |
| 2880-2900 | 9-15-20-18-17-6-6-7-6-9 | 7-7-6-7-7-7-9-9-9-8 | |
| 2900-2920 | 8-8-13-8-10-4-11-15-5-6 | 7-6-6-6-6-7-6-7-9-9 | |
| 2920-2940 | 5-6-3-2-2-7-11-16-16-9 | 9-14-14-7-7-7-15-13-10-10 | |
| 2940-2960 | 10-13-12-13-13-11-9-8-7-8 | 11-10-10-10-10-6-8-5-7-7 | |
| 2960-2980 | x-x-x-x-8-16-23-13-8-6 | 8-8-16-18-10-6-8-7-15-24 | x = No time. |
| 2980-3000 | 8-13-13-8-12-10-10-19-11-10 | 15-11-14-11-9-x-x-5-17-11 | x = No time. |
| | | | Kelly 2' short |
| 3000-3020 | 12-10-15-20-12-9-7-9-8-8 | 6-6-5-5-7-7-7-5-6-6 | |
| 3020-3040 | 5-5-5-4-4-4-5-5-4-5 | 7-10-17-18-22-26-19-16-15-17 | |
| 3040-3060 | 17-20-20-20-16-13-14-18-19-18 | 18-17-15-25-13-14-19-30-15-27 | |
| 3060-3069 | 25-26-25-29-23-26-30-14-16 | | |
| 3069 | Total depth - Driller. | | |
| 3069 | Total depth - Schlumberger. | | |

BIT RECORD

H. W. ADDINGTON & ASSOC.
STATE 3251-36-14

SE/SW Sec. 36-32S-51W
Las Animas County, Colorado
Elevation: 5065' K.B.

| Run No. | Size | Make | Type | Jet Size | | | Depth out | Feet | Hours |
|------------|-------|------|-------------------|----------|------|-----|----------------------------|------|-----------------------|
| | | | | 1 | 2 | 3 | | | |
| 0 | 9 7/8 | Sec. | M4NJ retip | | Open | | 419 | | Reaming pilot hole |
| 1 | 9 7/8 | Sec. | S4TJ | Open | 3/4 | 3/4 | 1207 | 788 | 11 |
| 2 | 6 1/4 | HTC | OWV | | Open | | Drilling gloat and cement. | | |
| 3 | 6 1/4 | HTC | OWV | | Open | | 1719 | 353 | 11 1/4 |
| 4 | 6 1/8 | HTC | J33 | | Open | | 2458 | 739 | 40 1/4 |
| 5 | 6 1/8 | HTC | J33 | | Open | | 2474 | 16 | 1 |
| 6 | 6 1/8 | HTC | OWVJ | | Open | | Drilled plug. Bit plugged. | | |
| 7 | 6 1/8 | HTC | OWV | | Open | | 2575 | 117 | 12 1/2 |
| 8 | 6 1/8 | HTC | J33 (rerun #5) | | Open | | 2823 | 301 | 40 1/4 |
| 9 | 6 1/8 | Sec. | S88F | | Open | | 3069 | 246 | 46 1/4 |