

FILE NOTATIONS

Entered in NID File ✓
 Entered On S R Sheet _____
 Location Map Pinned ✓
 Card Indexed ✓
 I W R for State or Fee Land _____

Checked by Chief R-2
 Copy NID to Field Office _____
 Approval Letter ✓
 Disapproval Letter _____

COMPLETION DATA:

Date Well Completed 7-16-62
 OW _____ WW _____ TA _____
 GW _____ OS _____ PA ✓

Location Inspected _____
 Bond released _____
 State of Fee Land _____

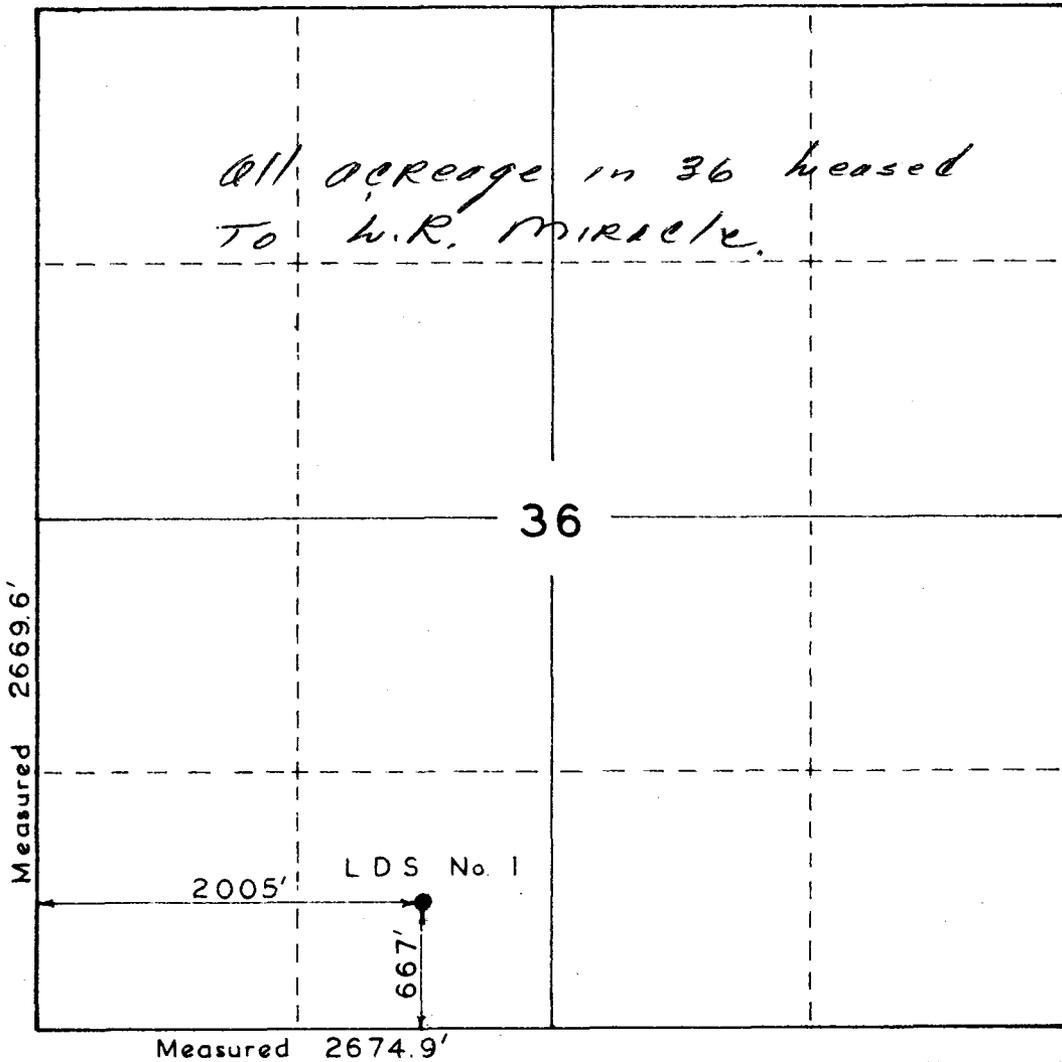
LOGS FILED

Driller's Log 2-20-63
 Electric Logs (No.) 2

E _____ I _____ E-I ✓ GR _____ GR-N _____ Micro _____

Lat _____ Mi-L _____ Sonic _____ Others Continuum log

T 4 S, R 21 E, SLB & M



Scale: 1" = 1000'

By: ROSS CONSTRUCTION CO.
Vernal, Utah

PARTY
R. D. Ross
E. A. Jaramillo
R. Stewart
WEATHER Clear - Warm

SURVEY
MIRACLE & WOOSTER DRILLING CO.
LDS NO. 1 LOCATED AS SHOWN IN
CENTER OF SE/4, SW/4, SECTION 36, T4S,
R21E, SLB&M, UINTAH COUNTY, UTAH.

DATE 4/25/62
REFERENCES
USGLO Township Plat
Approved 2/24/1880
FILE Miracle & Wooster

DECLARATION OF INTEREST AND POOLING AGREEMENT

KNOW ALL MEN BY THESE PRESENTS:

We, the undersigned, certify that we are the legal owners' of the Oil, Gas and Minerals in and under and that may be produced from the following described land situated in Uintah County, Utah, to-wit:

Southeast quarter of the Southwest quarter of Section 36, Township 4 South, Range 21 East of the Salt Lake Meridian.

We, the undersigned, certify that our interests in said minerals is subject to Oil and Gas leases dated September 29, 1961, executed in favor of L. R. Miracle and that such leases give to the said Lessee, the right to unitize, pool or combine the lands therein mentioned.

We further certify that we consent to the pooling of our interests in the above described forty (40) acre tract and to settle any questions of title to the Oil, Gas and other Minerals in and under and that may be produced from the above described tract we certify the ownership thereof and our mineral acres in said tract to be as follows, to-wit:

1. Ashel Manwaring and Elva Manwaring, his wife.

East one half ($\frac{1}{2}$) of the Southeast quarter of the Southwest quarter of Section 36, Township 4 South, Range 21 East of the Salt Lake Meridian.

Containing twenty (20) surface and mineral acres.

2. Louis A. Haws and Mary V. Haws, his wife:

Beginning at a point at a point 247 feet East of the Southwest corner of the Southeast quarter of the Southwest quarter, Section 36, Township 4 South, Range 21 East of the Salt Lake Meridian, and running thence North 178 feet; thence East 413 feet; thence South 178 feet; thence West 413 feet more or less to place of beginning.

Containing 1.6876 surface and mineral acres.

3. Naples Corporation of Church of Jesus Christ of Latter Day Saints, a Utah Corporation Sole, Vernal, Utah:

Section 36, Township 4 South, Range 21 East, of the Salt Lake Meridian, Utah, beginning at the Southwest corner of the Southeast quarter Southwest quarter of said Section 36, Township 4 South, Range 21 East of the Salt Lake Meridian, running thence East 247 feet, thence North 178 feet, thence East 413 feet, more or less to the East line of the West half of the Southeast quarter Southwest quarter of said Section 36, thence North 1142 feet, more or less, to North line of Southeast quarter Southwest quarter of said Section 36, thence West 660 feet, more or less to Northwest corner of Southeast quarter Southwest quarter, thence South 1320 feet more or less, to the point of beginning.

Containing 18.31245 surface and mineral acres.

In the event a producing well is drilled on said forty (40) acre tract we authorize and direct the distribution of the land owners' interests to us

in the proportions that our acreage ownership above set forth bears to the said forty (40) acre tract.

IN WITNESS WHEREOF we hereto set our hands on this 10th day of May, 1962.

SIGNED IN THE PRESENCE OF:

Ashel Manwaring
Ashel Manwaring

Elva Manwaring
Elva Manwaring, his wife

Louis A. Haws
Louis A. Haws

Mary V. Haws
Mary V. Haws, his wife

Naples Corporation of Church of Jesus Christ of Latter Day Saints.

Whitney D. Hammond

By Orlo Goodrich
Bishop

STATE OF UTAH)
(ss.
COUNTY OF UINIAH)

On this 10th day of May, 1962, before me personally appeared Ashel Manwaring and Louis A. Haws and Mary V. Haws, his wife, and Elva Manwaring, his wife, to me known to be the persons described in and who executed the foregoing instrument and acknowledge that they executed the same as their free act and deed.

Given under my hand and seal this 10th day of May, 1962.

My Commission Expires: April 3, 1965
65

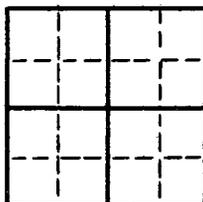
Whitney D. Hammond
Notary Public
Residing at: Kernal, Utah

STATE OF UTAH)
(ss.
COUNTY OF UINIAH)

On this 10th day of May, 1962, personally appeared before me Orlo Goodrich, who being by me duly sworn did say that he is the Bishop, to-wit: The Naples Corporation of the Church of Jesus Christ of Latter-day Saints, a corporation sole under the laws of the State of Utan, and said Orlo Goodrich acknowledged to me that said corporation executed the same.

My commission Expires: April 3, 1965
3

Whitney D. Hammond
Notary Public
Residing at: Kernal, Utah



STATE OF UTAH
OIL & GAS CONSERVATION COMMISSION
SALT LAKE CITY, UTAH

Fee and Patented.....
State
Lease No.
Public Domain
Lease No.
Indian
Lease No.

SUNDRY NOTICES AND REPORTS ON WELLS

Notice of Intention to Drill.....	<input checked="" type="checkbox"/>	Subsequent Report of Water Shut-off.....	
Notice of Intention to Change Plans.....		Subsequent Report of Altering Casing.....	
Notice of Intention to Redrill or Repair.....		Subsequent Report of Redrilling or Repair.....	
Notice of Intention to Pull or Alter Casing.....		Supplementary Well History.....	
Notice of Intention to Abandon Well.....			

(INDICATE ABOVE BY CHECK MARK NATURE OF REPORT, NOTICE, OR OTHER DATA)

Well No. L.D.S.#1 is located 667' ft. from {N} line and 2005' ft. from {W} line of Sec. 36
S.E. 1/4, S.W. 1/4, Sec. 36 4 South 21 East S.L.M.
(1/4 Sec. and Sec. No.) (Twp.) (Range) (Meridian)
Un-named Wildcat Uintah Co. Utah
(Field) (County or Subdivision) (State or Territory)

The elevation of the derrick floor above sea level is Not Run feet.
Fidelity & Deposit Company of Baltimore, Md.
 A drilling and plugging bond has been filed with for Utah Oil & Gas Commission.

DETAILS OF WORK

(State names of and expected depths to objective sands; show sizes, weights, and lengths of proposed casings; indicate mudding jobs, cementing points, and all other important work, surface formation, and date anticipate spudding-in.)

Estimated Formation Tops

Frontier - 2938'
 Dakota * 3278'
 Entrada - 4308'
 Navajo - 4658'
 Shinarump - 5548'
 Phosphoria - 6241'
 Weber - 6387'
 Total Depth - 6500'

Casing Program

Surface - 9 5/8" O.D. Set @ 275' in 12 1/4" Hole
 Production - 5 1/2" O.D. Set @ 6500' in 7 7/8" Hole

I understand that this plan of work must receive approval in writing by the Commission before operations may be commenced.

Company Miracle & Wooster Drilling Co.

Address Box 233
Vernal, Utah.

By [Signature]
 Title Partner

INSTRUCTIONS: A plat or map must be attached to this form showing the location of all leases, property lines, drilling and producing wells, within an area of sufficient size so that the Commission may determine whether the location of the well conforms to applicable rules, regulations and orders.

Dan P. Holmes AND *Associates*

Formerly Halliburton Agency

NAT'L BANK of TULSA BLDG., BOX 2356, TULSA, OKLA.

MAY 11, 1962

MR. CHARLES T. WILNES
FIDELITY & DEPOSIT COMPANY OF MARYLAND
1905 LIBERTY BANK BLDG
OKLAHOMA CITY, OKLAHOMA

DEAR MR. WILNES:

L.R. MIRACLE AND RAY B. WOOSTER
D/B/A MIRACLE AND WOOSTER DRILL-
ING COMPANY
STATE OF UTAH
OIL AND GAS CONSERVATION BOND
DRILLING AND PLUGGING

THIS BOND WAS REQUIRED BY THE STATE OF UTAH. THIS IS A PLUGGING BOND AND YOU HAVE MADE SOME BONDS FOR THESE PEOPLE IN ILLINOIS FOR SEVERAL YEARS.

ATTACHED IS THE BOND TO BE EXECUTED IN THE STATE OF UTAH AND ALSO ENCLOSED IS AN ENVELOPE FOR YOU TO MAIL THE BOND TO MR. L. R. MIRACLE, P. O. BOX 233, VERNAL, UTAH AFTER IT HAS BEEN EXECUTED IN THE STATE OF UTAH BY A LICENSED UTAH AGENT.

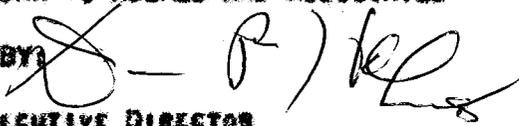
ALSO ATTACHED IS A COPY OF A WIRE WE SENT TO THE EXECUTIVE DIRECTOR OF THE OIL AND GAS CONSERVATION COMMISSION SO THEY COULD MOVE IN ON THE LOCATION AND START DRILLING.

ALSO ATTACHED IS A COPY OF HIS WIRE.

PLEASE INSTRUCT THE RESIDENT AGENT IN UTAH, WHO SIGNS THIS, NOT TO HOLD IT UP BUT TO USE THE ENCLOSED SELF-ADDRESSED ENVELOPE TO MR. MIRACLE. AFTER MR. MIRACLE HAS SIGNED IT HE WILL FILE WITH THE CONSERVATION COMMISSION AS THE ATTACHED WIRE SHOWS THAT THE EXECUTIVE DIRECTOR ACCEPTED THE PHONE CONVERSATION AND THE FIRST TELEGRAM UNTIL THE BOND IS FILED.

YOURS TRULY,

DAN P. HOLMES AND ASSOCIATES

BY: 

DPH:DK

ENC CC: MR. CLEON B. FEIGHT, EXECUTIVE DIRECTOR
CC: MR. L.R. MIRACLE
CC: MR. LEROY B. DANIEL

C
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ASSOCIATED OIL FIELD RENTALS

FOR RENT - DRILL PIPE - DRILL COLLARS - BLOWOUT PREVENTERS - PIPE HANDLING
MAIN OFFICE: 3701 HOLMES ROAD - P. O. BOX 1888, HOUSTON, TEXAS
PHONE REPUBLIC 4-2511



Well data has been
Typed on the induction
log.

The induction and
Dipmeter log were
all that was run
on this well

CALL ONE OF 11 CONVENIENTLY LOCATED RENTAL YARDS!

OKLAHOMA
OKLAHOMA CITY
MElrose 8-1585

DUNCAN
2740

NEW MEXICO
HOBBS
EXpress 3-2017

TEXAS
ALICE
MO 4-4301

ODESSA
FE 7-1561
HOUSTON
RE 4-2511

SNYDER
3-5822

WYOMING
CASPER
2-4561

LOUISIANA
HARVEY
Fillmore 1-8591

LAFAYETTE
CE 4-5181

MORGAN CITY
4941
4931

MD
aw

May 14, 1962

Miracle & Wooster Drilling Company
Box 233
Vernal, Utah

Gentlemen:

This is to acknowledge receipt of your notice of intention to drill Well No. L.D.S. # 1, which is to be located 667 feet from the south line and 2005 feet from the west line of Section 36, Township 4 South, Range 21 East, SEEM, Uintah County, Utah

Please be advised that insofar as this office is concerned approval to drill said well is hereby granted.

This approval terminates within 90 days if the above mentioned well has not been spudded in within said period.

Very truly yours,

OIL & GAS CONSERVATION COMMISSION

CLEON B. FRIGHT
EXECUTIVE DIRECTOR

CBF:ca

July 23, 1962

Miracle & Wooster Drilling Company
Box 233
Vernal, Utah

Gentlemen:

Re: Well No. L.D.S. #1, Sec. 36,
T. 4 S, R. 21 E., Uintah
County, Utah.

We are in receipt of your electric logs for the above mentioned well. However, if you would like to have the logs held confidential, you are required to send us a letter requesting that this be done. We will then hold them confidential for a period of four months from the date the log was received.

Your compliance with the above request will be greatly appreciated.

Very truly yours,

OIL & GAS CONSERVATION COMMISSION

CONNIE F. PALOUKOS
STATISTICIAN

CFP:cp

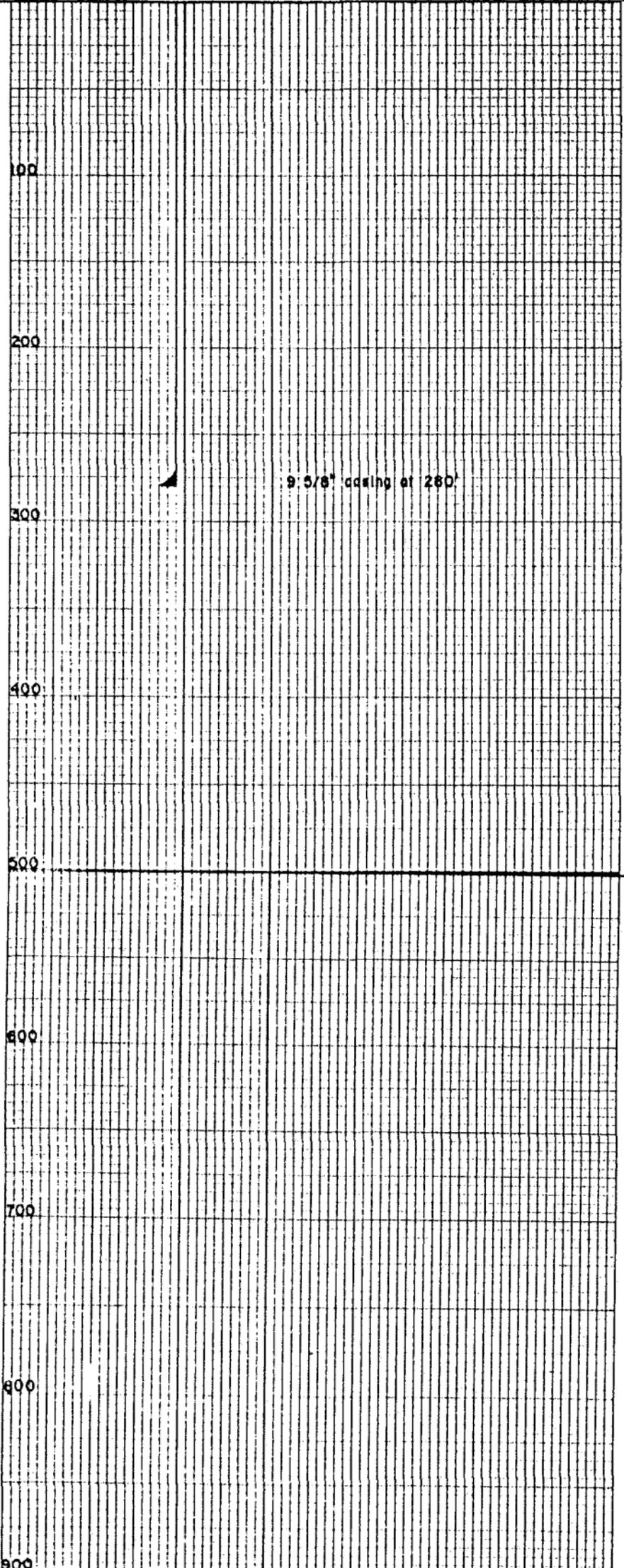
MIRACLE AND WOOSTER

No. 1 Latter Day Saints

Location: 667' North of South Line, 2000' East
of West Line, section 36, T. 4 S., R. 21 E
Uintah County, Utah.

Elevation: 5306 KB
Spud: May 19, 1962
Completed: July 16, 1962
Total Depth: 701'

Lithology corrected to Electric Log

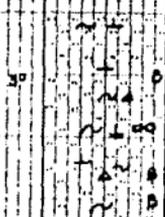


DRILLING RATE
Minutes/foot/five foot interval

1000 5 10 15 20 30

1100

1200



Siltstone, light gray, very fine grained to sandy, salt & pepper, glauconitic, calcareous.

fish remains

Co. conite and chert common

1300

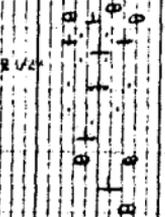
Shale, gray, silty, trace limestones

calcareous

trace limestones
Siltstone, gray, some sandy siltstone

Calcareous siltstone common.

1400



Calcareous siltstone

1500



trace sandstone, gray, v. fine, gray

Shale, gray, silty, calcareous, trace sandstone, calcareous

1600



Abundant calcareous siltstone

Shale, gray, speckled, calcareous,

trace siltstone, gray, silty,

trace white bentonite

1700



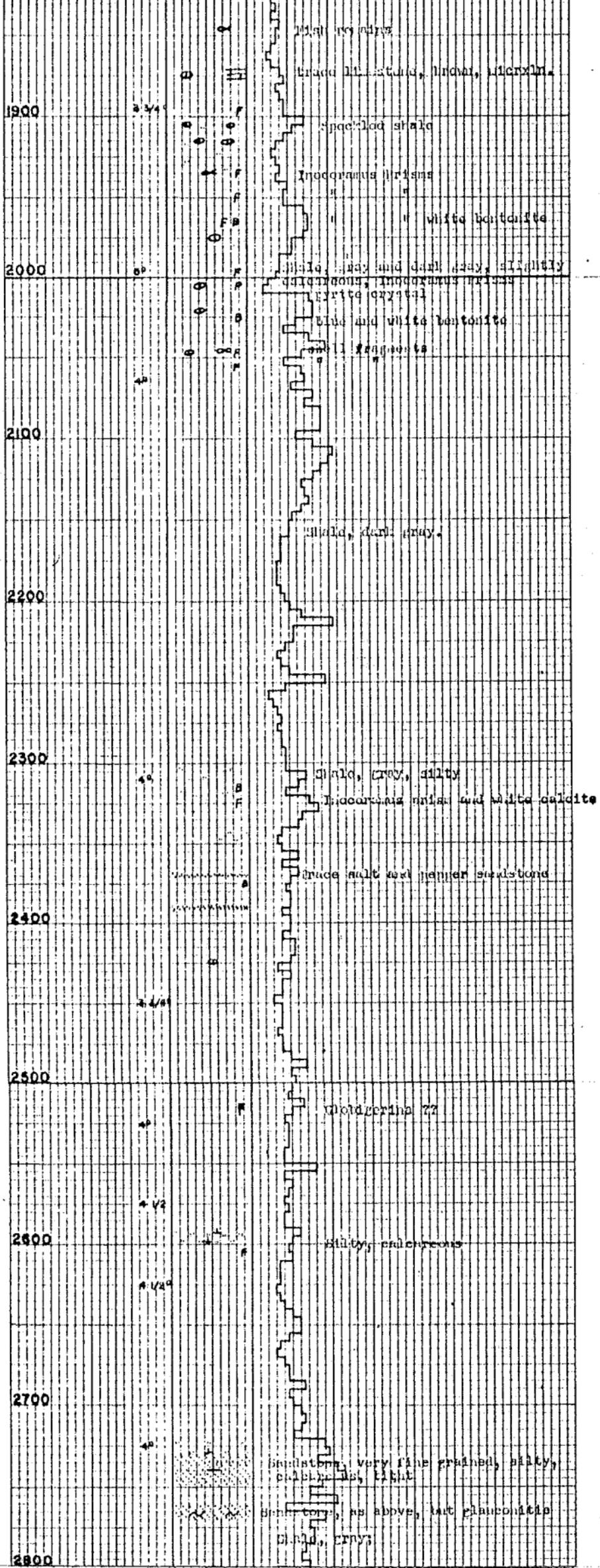
FISH REMAINS

scattered calcareous specks

trace limestone, gray, saccharine,

1800

Shale, black to dark gray.



3800

3900

4000

4100

4200

4300

4400

4500

4600

4700

8°

8.14°

8.14°

8°

8.14°

8.14°

8.12°

8.14°

7.14°

8.14°

7°

8.14°

7.14°



Shale, gray, glauconitic

Shale, gray to **FRONTIER**
W.C. of very fine mica, glauconitic,
and very sandy, glauconitic.

Shale, gray, silty.

Shale, gray, white, very fine grained,
silty, sandy.

Shale, gray

Fossils, shell fragments

Tracolinian gray limestone

Blue and white bentonite

Sandstone, white **DAKOTA**
angular, fine to medium, brown
and black shales, brown and black chert

Shale, gray to dark gray, silty

Limestone, white to light brown, fine to
medium grained, well sorted, well sort,
trace fossils, shaly coarse chert

Claystone, tan to **MORRISON**
reddish brown, coarse chert

Limestone, buff, microporous

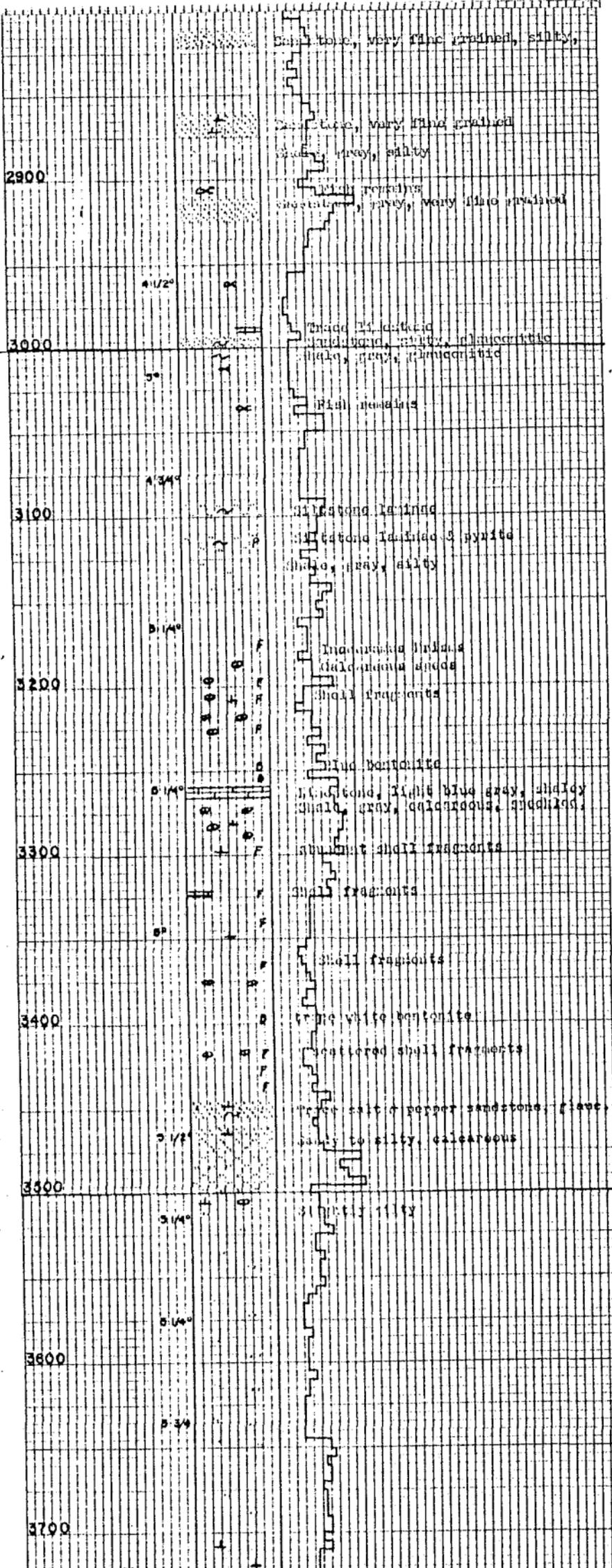
Trace fossils, black
green, carbon light brown gray, &
lavender & tan

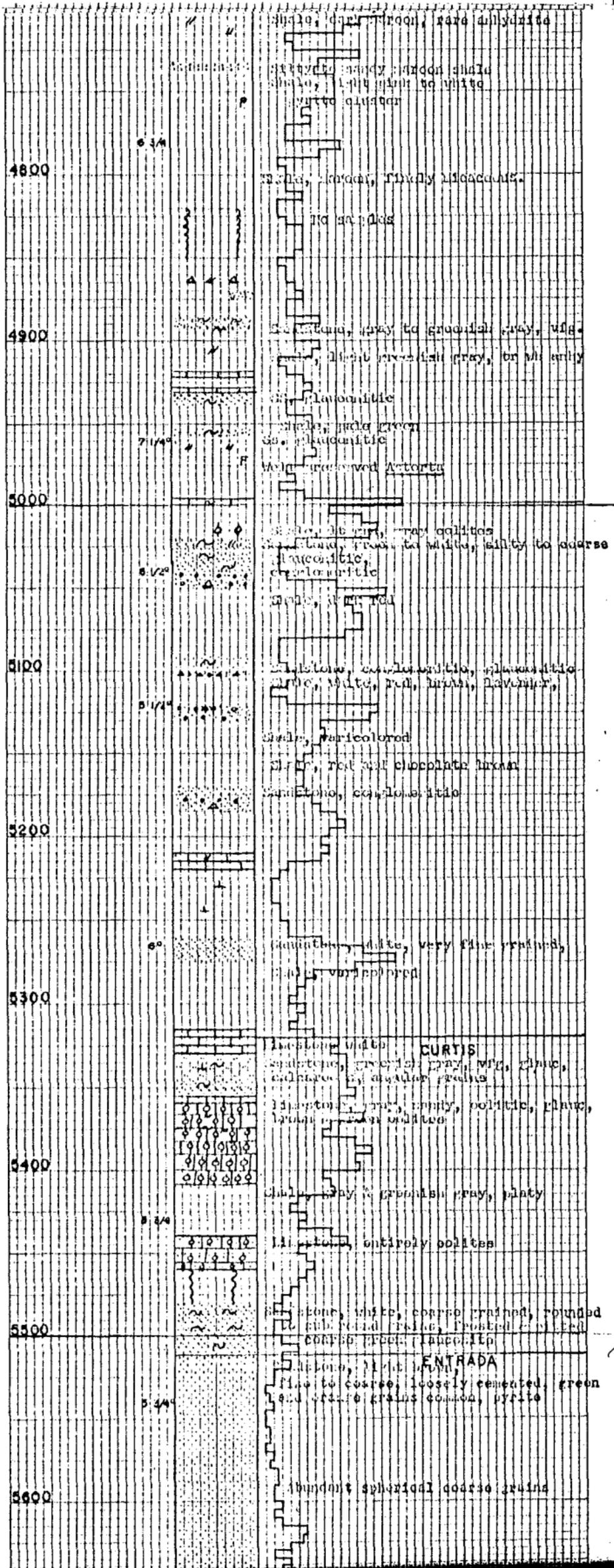
Limestone, pink to white
Shale, greenish gray
Limestone, buff to white
Shale, silty, light gray

Limestone, lavender, microporous
Shale, buff green

Shale, maroon, inclusions of pink chert

Shale, white, buff





Shale, dark brown, rare anhydrite

Shale, gray to greenish gray, silty to white
white quartz

4800

Shale, gray, finely micaceous.

No fossils

4900

Sandstone, gray to greenish gray, mic.
light greenish gray, br. M. early

mic. glauconitic

shale, pale green
gl. glauconitic

shale, greenish gray

5000

Shale, light gray, gray calcites
abundant, from to white, silty to coarse
glauconitic,
glauconitic

Shale, light red

5100

Sandstone, calcarenitic, glauconitic
white, red, brown, lavender,

Shale, varicolored

Shale, red and chocolate brown

Sandstone, calcarenitic

5200

Sandstone, white, very fine grained,
blue varicolored

5300

Limestone with **CURTIS**
sandstone, greenish gray, mic, blue,
calcite, small grains

Sandstone, gray, sandy, calcitic, blue,
brown, small grains

5400

Shale, gray to greenish gray, platy

Limestone, entirely calcitic

5500

Sandstone, white, coarse grained, rounded
sub-sand grains, frosted surface
coarse green calcite

Sandstone, light brown
ENTRADA
fine to coarse, loosely cemented, green
and orange grains common, pyrite

5600

Abundant spherical coarse grains

5700

AP

Sandstone, green to white, very fine & abundantly claustritic

Siltstone, orange, **CARMEL** and maroon shale

5800

White anhydrite
Siltstone, maroon

Shale, gray, waxy, siliceous
Siltstone, red, green shale inclusions
Anhydrite common

Sandstone, white, very fine grained

NAVAJO

5900

Sandstone, red and pink, very fine grained
slightly cemented, with microscopic black
spines

Pink anhydrite common

6000

Sandstone, pink, fine to medium,
angular to sub round grains,
solid, grains well rounded

Large coarse grains

6100

Anhydrite common

White anhydrite

B-1/2"

6200

Sandstone as above with some red silt
and siltstone

6300

Subsiding finer grained

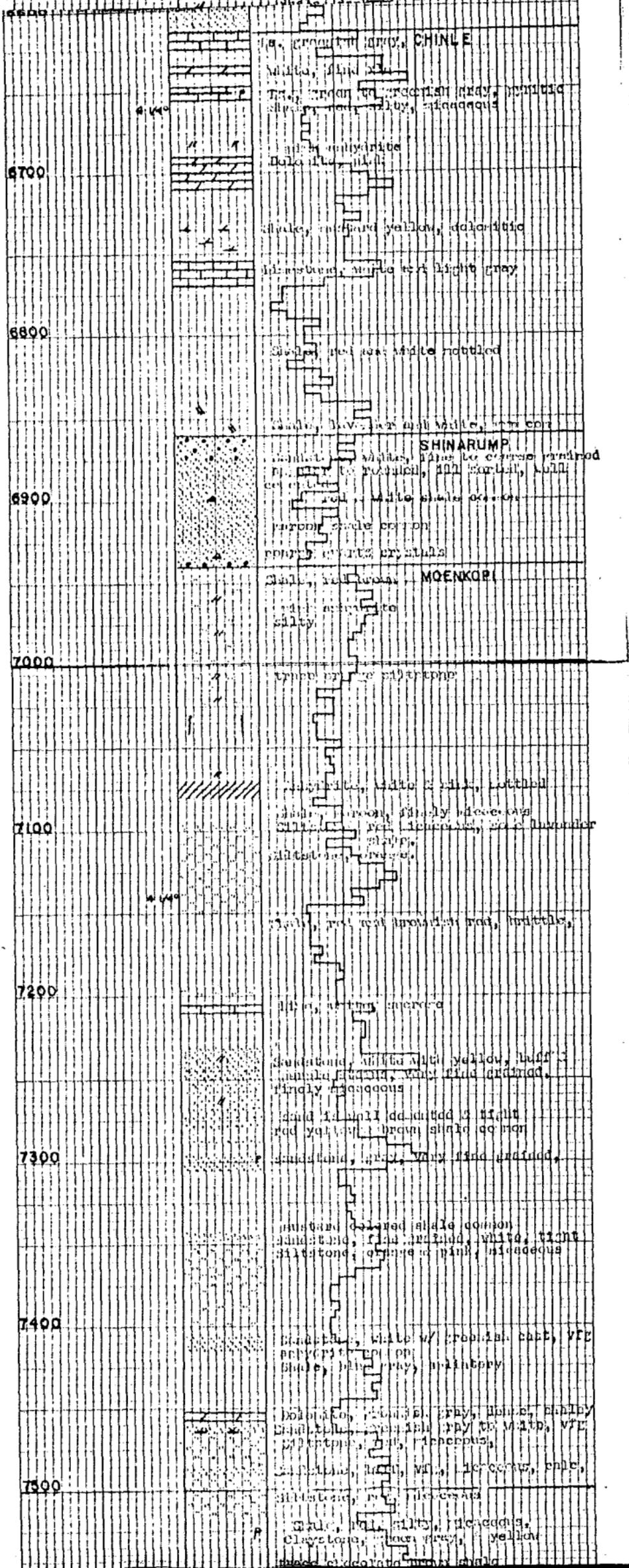
6400

Structure overlapped & less rounded

6500

3-1/2"

6600



6500
6700
6800
6900
7000
7100
7200
7300
7400
7500

CHINLE
 Mottled, fine grained
 Thin, brown to reddish gray, micaceous
 silty, sandy, silty, micaceous
 with quartzite
 Mottled, fine grained
 Shale, buff to yellow, calcareous
 Sandstone, white to light gray
 Shale, red to white mottled
 Shale, buff to white, fine con

SHINARUMP
 Sandstone, white, fine to coarse grained
 Buff to reddish, fine grained, micaceous
 Sandstone, white shale, coarse
 Brown shale common
 Brown quartz crystals

MOENKOPI
 Shale, buff to white
 with quartzite
 silty
 Brown to gray siltstone
 Sandstone, white to pink, mottled
 Shale, brown, finely micaceous
 Siltstone, very micaceous, buff to reddish
 Siltstone, buff
 Shale, red to brownish red, brittle
 Shale, buff to micaceous
 Sandstone, white to yellow, buff to
 reddish, fine grained, very fine grained,
 finely micaceous
 Sandstone, buff to light
 red yellow, brown shale common
 Sandstone, buff, very fine grained,
 micaceous
 Mustard colored shale common
 Sandstone, fine grained, white, light
 Siltstone, buff to pink, micaceous
 Sandstone, white w/ greenish cast, VFE
 siltstone top
 Shale, buff gray, micaceous
 Dolomite, buff to gray, dense, silty
 Sandstone, buff to gray, VFE
 siltstone, buff, micaceous
 Sandstone, buff, VFE, micaceous, buff
 Siltstone, buff, micaceous
 Shale, buff, silty, micaceous
 Claystone, buff gray, yellow
 Buff to yellowish buff shale

7600

micaceous, mica 2 grain, dolomitic
siltstone, red, orange, dolomitic
scattered amygdrite inclusions
Claystone, with haematite nod, dolomitic

PHOSPHOR A

dark brown
Dolomite, chocolate brown, in clay
matrix: thin to micro thin
scattered inclusions of pyrite

7700

Dolomite, cream to gray, very fine thin
oil stained
spotty fluorescence

oil saturated
vertical fractures
Limestone, green to greenish gray

7800

Shale, gray, phosphatic nodules
oil saturated

WEBER

oil saturated
oil stained but a ~~micro~~ not

Core #1 7640-7742 full recovery
Dolomite, chocolate brown, with green and gray streaks
throughout; shaly, medium crystalline to microcrystalline,
scattered inclusions of gypsum, some high angled fractures
filled with gypsum near top of core.

Core #2 7716-7746, recovered 44.21
7716-7742 limestone, gray with tan cast, fine crystalline
to micro crystalline, hard dense, scattered pyrite
crystals, some vertical hairline fractures; spotty
fluorescence 7717-18
7742-45 dolomite, cream, fine crystalline, slight intergranular
porosity, oil stained
7745-50 limestone, similar to above.
7750-63 limestone, gray, siliceous, some vertical fractures,
oil stained, ~~some~~ porous, varying porosity 50-77%
7771-7772 limestone, gray, siliceous, core bleeding oil 77-83.

Core #3 7746-7748 recovered 100
limestone, green to greenish gray, microcrystalline, slight
oil saturation at top of core.

Core #4 7736-7810 recovered 30.1
7760-79 shale, gray silty, phosphatic nodules common,
oil stain, gives oil odor on breaks.
7791-7801 limestone, gray and gray green, fine to coarse
crystalline, siliceous, phosphatic material
common, vertical fractures throughout, oil stained
to saturation.
7801-7810 limestone, fine grained to medium grained, friable
well cemented with siliceous cement, saturated with
brown oil; appears porous and permeable.

Core #5 7811-234 recovered 1.1
Sandstone, gray to white, medium to coarse grained, poorly
sorted, quartz grains subround to angular with secondary
crystal growth. Sand is finely cemented, hard difficultly
friable. Brown oil stain in upper two feet; rest of core
was stained but ~~stained~~ not.
Missing interval believed to be from 7811 to 7837.

D. S. P. # 27 2910-2916
Open at 2910, recovered 240.0 shale and
IBIT (30") 2920 FBT (30") 2912#
IT 112# FT 250#
IT 3130# FT 3130#

D. S. T. # 2925-2932
Open at 2925, recovered 162.0 fresh water with oil film
throughout.
IBIT (30") 2927 FBT (30") 2925#
IT 120# FT 160#
IT 3130# FT 3135#

November 27, 1962

Miracle & Wooster Drilling Company
Box 233
Vernal, Utah

Gentlemen:

Re: Well No. L.D.S. #1,
Sec. 36, T. 4 S, R. 21 E.,
Uintah County, Utah

We are in receipt of the Induction Electric Log and Continuous Dipmeter Log for the above mentioned well. However, a Well Log has not been filed with this office as required by our "General Rules and Regulations".

Please complete the enclosed Forms OGCC-3 "Log of Oil or Gas Well" in duplicate and forward them to this office as soon as possible. Legible copies of the U, S. Geological Survey Form 9-330 may be used in lieu of our forms.

Very truly yours,

OIL & GAS CONSERVATION COMMISSION

CONNIE F. PALOUKOS
RECORDS CLERK

cfp

Encl. (Forms)

CM
NID
PML
440

PMB

M I R A C L E A N D W O O S T E R

No. 1 L. D. S.

SE SW Sec. 36, T. 4 S., R. 21 E.

Uintah County, Utah

Geological Report
September 1, 1962

Max R. Mott
Geologist
P. E. #4377

M I R A C L E A N D W O O S T E R

No. 1 Latter Day Saints

Location: 667' North of South Line, 2000' East of West Line,
Section 36, Township 4 South, Range 21 East,
Uintah County, Utah.

Elevation: 5306 KB.

Spud: May 19, 1962

Completed: July 16, 1962

Total Depth: 7841.

F O R M A T I O N T O P S

Frontier	4005
Dakota	4365
Morrison	4455
Curtis	5320
Entrada	5512
Carmel	5712
Navajo	5865
Chinle	6615
Shinarump	6860
Moenkopi	6940
Phosphoria	7625
Weber	7808½

DISCUSSION

Samples from this well were examined from 1200' to total depth (7841). The enclosed sample description was made at the well sight; the enclosed lithologic log on which the drilling times were plotted is an interpretation of the samples which has been adjusted to the Electric Log.

The Cretaceous Frontier sands from 4005 to 4200 were relatively porous, but no shows of oil or gas were observed while drilling through the zone.

The Cretaceous Dakota from 4365 to 4455 was apparently tight except the upper bench from 4365 to 4383 which appeared porous and wet. No shows of oil or gas were observed in the Dakota sands.

The Jurassic Morrison sands appeared to have some scattered porosity in the zone from 5025 to 5185, but no shows of oil or gas were observed in the zone.

No porosity was observed in the Jurassic Curtis, and no shows were observed.

The Jurassic Entrada from 5515 to 5725 was a well sorted sand which appeared porous and permeable, but it appeared wet, and no shows were noted while drilling the interval.

The Jurassic Navajo from 5865 to 6615 appeared porous and wet. No shows were observed.

The Triassic Shinarump from 6855 to 6940 was a poorly sorted sand with no apparent porosity. No shows were observed in this interval.

The Triassic Moenkopi had no visible porosity from throughout the interval from 6940 to 7625, and no indications of oil or gas were observed in the interval.

The Permian Phosphoria occurred from 7625 to 7808½, and consisted of interbedded limestone, dolomited and shaley dolomites. The first shows of oil occurred in the samples in the interval from 7710 to 7716; these shows were faint stains on dolomite

chips; no porosity was observed in this interval. In the cored interval scattered staining was observed down to 7750, and from 7750 through 7763 the limestone was saturated, had some vugular porosity, and also some fractures were observed in the interval; the core was "bleeding" oil from 7750 through 7763; some of the vugs were two inches in diameter in this zone. From 7799 through 7808½ the Phosphoria had numerous vertical fractures and oil saturation was noted throughout this interval; this portion of the core was a "bleeding" core.

The Pennsylvanian Weber was well saturated with dark brown oil from 7808½ through 7816½ and appeared porous and permeable (see core analyses of this zone). From 7816½ through 7818½ the Weber appeared saturated in the same manner as the upper portion. Below 7818½ streaks of oil saturation occurred along the porous zones in the sand, but the sand had the appearance of being wet. A few high angle fracture were noted in the Weber interval.

A Drill Stem Test of the interval from 7750 to 7816 was made in order to test the saturation in the Phosphoria and upper Weber Sandstone. Through a misunderstanding of instructions, the test was terminated after the tool had been open only thirty minutes; therefore, the results of the test were believed to be inconclusive. The appearance of the zone tested would indicate that some fluid should have been given up by the formation, and the shut in pressures also indicate that some fluid should have been produced. It is possible that the Phosphoria and upper Weber would respond to stimulation and produce oil.

The Drill Stem Test from 7798 to 7842 recovered 1620' of fresh water with slight oil flecks disseminated throughout. This suggests that oil from the lower Phosphoria and upper Weber was entering the bore hole at the same time water from the obviously wet Weber was being produced.

The shows of oil in the Phosphoria can be due to structural conditions or stratigraphic conditions or a combination of both. Most of the wells which penetrated the Phosphoria in this area had some shows reported in the zone, but no particular attempt has been made to obtain production from the Phosphoria except at Ashley Valley.

The shows of oil in the upper Weber in this well indicate to this observer that a structural trap is present. It appears

then that if a higher structural position can be found on this structural trap sufficient saturation should be present in the Weber to make a commercially successful well. The Dip Meter data indicate that it is possible to move to the southeast for a better structural position.

M I R A C L E A N D W O O S T E R

#1 L. D. S.

S A M P L E D E S C R I P T I O N

- 1200-1220 80% siltstone, gray, sandy, glauconitic, salt and pepper appearance, calcareous. 20% shale, gray, slightly carbonaceous, finely micaceous. Trace pyrite in siltstone and shale.
- 1220-1230 As above, trace white chert, trace bentonite.
- 1230-1240 Siltstone, gray, salt and pepper, black, calcareous, carbonaceous grains, firm to friable, slightly glauconitic, pyrite common, trace white and blue gray bentonite; trace of white chert.
- 1240-1250 Siltstone, as above, but somewhat micaceous, sandy; scattered fish remains.
- 1250-1260 As above, more shaley.
- 1260-1300 Shale, gray, silty, buff bentonite common, trace orange chert, shale has gritty appearance.
- 1300-1310 Shale, gray, silty to gritty, becoming more silty.
- 1310-1320 Shale, mauve, slightly calcareous, hard, chert common, light bentonite common.
- 1320-1330 As above, mixture maroon and gray shales and siltstones, scattered chert grains.
- 1330-1340 Maroon shale more noticeable, as above.
- 1340-1350 As above with some brown lime.
- 1350-1360 Siltstone, gray, shaley, calcareous, tight calcareous specs.
- 1360-1370 Siltstone, shaley to sandy, calcareous specs.
- 1370-1390 As above but becoming more shaley, light blue gray bentonite noted.
- 1390-1400 Shale, silty, gray, specs becoming more noticeable.
- 1400-1410 Shale, gray, silty, micaceous, calcareous, pyrite crystals noted.
- 1410-1430 Shale, slightly darker than above, silty, micromicaceous.
- 1430-1460 Shale, gray to dark gray, silty, calcareous, finely micaceous.
- 1460-1480 Shale, gray, silty, slightly carbonaceous, micromicaceous, scattered white specs.
- 1480-1490 Siltstone, gray, calcareous, trace pink silty shale, scattered coarse chert fragments, some speckled shale.
- 1490-1500 As above but becoming more shaley, Aragonite xl noted, trace fine, glauconitic sand.

- 1500-1510 Shale, gray to dark gray, calcareous, speckled white calcite, scattered carbonaceous material.
- 1510-1520 Shale, as above, but with traces of very fine calcareous sandstone, Inoceramus prism.
- 1520-1570 Shale, gray to brownish gray, calcareous, slightly speckled, carbonaceous material common, hard, brittle.
- 1570-1610 Shale, gray, calcareous, speckled, brittle, platy, trace mauve dolomitic shale, trace salt and pepper calcareous siltstone.
- 1610-1630 Shale, dark gray, platy, hard, slightly speckled, trace gray siltstone, one chip coarse conglomerate sandstone, appears stained, gives faint fluorescence when cut with ether, trace white calcite.
- 1630-1640 Shale, gray, speckled, calcareous, trace siltstone, gray, gritty, slightly glauconitic, firm, clay cemented. Some of shale appears silty.
- 1640-1650 Shale, gray, silty.
- 1650-1660 Shale, gray, silty, calcareous, slightly speckled, Aragonite xl, some black carbonaceous specs in shale, very finely micaceous.
- 1660-1670 Shale as above; also trace buff colored limestone, sucrose, dark gray shale, slightly calcareous.
- 1670-1680 Shale, dark gray, slightly calcareous, micromicaceous, trace white bentonite, white calcite, some shale is silty.
- 1680-1690 Shale, as above, trace calcite, trace gray calcareous siltstone.
- 1690-1700 Shale and siltstone as above; ss, mg, buff, tight, well cemented, angular grains, quartz grains.
- 1700-1720 Shale, dark gray, slightly calcareous, micromicaceous, Aragonite crystals and Inoceramus prisms common.
- 1720-1730 Shale, as above, Fish scales noted.
- 1730-1740 Shale, as above, scattered calcareous specs.
- 1740-1750 Shale, as above.
- 1750-1760 Shale, as above, some black shale, has fine silty texture. One chip sandstone, buff, medium grained, tight, well cemented.
- 1760-1770 Shale, as above; Fish Fragment, trace limestone, gray, sucrose, trace sandstone, medium grained, buff, well cemented, limey.
- 1770-1780 Shale, black, shiny, rough cleavage.
- 1780-1790 Shale, as above, black to dark gray.
- 1790-1800 Shale, as above, poor sample.
- 1800-1810 Shale, as above, coarse pyrite crystal; trace siltstone, gray, limestone, brown, argillaceous.

1810-1820 Shale, as above, with brownish cast, calcareous.

1820-1830 Shale, dark gray to black, coarse fracture, calcareous, some black carbonaceous specs.

1830-1870 Shale, dark gray to black, carbonaceous, rough cleavage; trace siltstone, gray to buff. Fish scales 1840-1850.

1870-1880 Shale, dark gray to black, carbonaceous; trace brown micro crystalline lime, some light gray siltstone, some speckled shale.

1880-1890 Shale, as above.

1890-1900 Shale, gray, splintery, white calcite, noted Inoceramus fragment.

1900-1910 Shale, gray, calcareous, brown specs.

1910-1920 Shale, gray, calcareous, speckled to rare specs; finely silty. Trace gray to buff siltstone.

1920-1930 Shale, gray, silty, calcareous, tan specs rare to common.

1930-1940 Shale, gray with light tan cast, slightly calcareous, fish scales, black carbonaceous specs; trace buff siltstone, Inoceramus prisms, trace sandstone, buff appears more silty than above.

1940-1950 As above but appears to be more silty. Inoceramus prism.

1950-1960 Shale, gray, with tan cast, silty, white and tan specs common to rare, carbonaceous material common, Inoceramus fragments.

1960-1970 As above. Trace siltstone, gray, pyrite common, Inoceramus prisms, white bentonite.

1970-1980 Shale, gray, silty, calcareous, tan specs, siltstone, gray to white, friable, calcareous.

1980-1990 Shale, gray, not as silty as above, slightly blocky fracture, specs less common. Trace siltstone.

1990-2010 Shale, gray and some dark gray, slightly calcareous, angular to blocky cleavage, Inoceramus prisms.

2010-2020 Shale, gray, speckled to barren, calcareous, appears to be platy, soft, fissile, some gray bentonite, large pyrite crystal noted.

2020-2030 Shale, gray to dark gray, scattered calcareous specs; light blue and white bentonite common, some carbonaceous material in shale, scattered Fossil (shell) fragments.

2030-2040 Shale, as above; trace salt and pepper siltstone. Scattered chips buff lime or calcite?

2040-2050 Shale, as above, scattered shell fragments, calcareous specs abundant to rare.

2050-2080 As above, scattered blue gray bentonite; specs appear less common; some shale is darker gray, hard; trace siltstone with pyrite crystal inclusions; scattered shell fragments.

- 2080-2720 Shale, dark gray to black with a silky luster, occasionally silty, slightly carbonaceous; occasional thin beds of bentonite occur throughout the interval.
- 2720-2730 Siltstone, light gray, calcareous, salt and pepper appearance.
- 2730-2750 Sandstone, white, very fine grained, salt and pepper, calcareous.
- 2750-2760 Shale, dark gray.
- 2760-2770 Siltstone, gray, glauconitic, calcareous.
- 2770-2780 Shale, dark gray.
- 2780-2790 Shale, as above, and siltstone, pink.
- 2790-2810 Shale, dark gray, with a trace of siltstone.
- 2810-2822 Sandstone, very fine grained to silty, gray, calcareous.
- 2822-2860 Shale, gray.
- 2860-2861 Gas show at 2861, sand appears very fine grained, tight with no porosity and no permeability. Sand gray, very fine grained, sub angular.
- 2861-2865 Sandstone, shale and siltstone. Sandstone, gray, very fine grained, sub angular, friable, numerous grains black mica, mostly quartz grains, calcareous. Siltstone, gray, sandy, brown specs, calcareous. Shale is gray, silty, platy to conchoidal cleavage. No fluorescence in sample.
- 2865-2870 Gas build up at 2867. Sandstone, gray, very fine grained, silty, firm to friable, calcareous; appears tight, no fluorescence; silt contains numerous carbonaceous fragments.
- 2870-2875 Siltstone, sandy to shaly, gray, to white, numerous brown and black flecks, appears to be thinly laminated, scattered limonitic stained sand, very fine grained; no fluorescence.
- 2875-2880 As above but more shaley.
- 2880-2885 Shale, gray with slight buff cast, silty, appears to have thin silt laminae; some sand similar to above.
- 2885-2900 Shale, gray, silty, has numerous black carbonaceous specs; has scattered chips, fine siltstone and sandstone.
- 2900-3160 Shale, gray, with siltstone laminae, glauconitic, carbonaceous material common; fish remains are scattered throughout the interval.
- 3160-3170 Shale, gray, finely micaceous, brittle; some chips contain fine, thin white siltstone laminae.
- 3170-3180 Shale, as above, trace white bentonite, trace salt and pepper siltstone, rare Inoceramus Prisms; trace brown chert.

- 3180-3190 Shale, as above, trace very fine salt and pepper sandstone, white, with black grains interspersed throughout; rare calcareous specs.
- 3190-3200 Shale, as above, scattered calcareous specs; one chip calcareous sandstone, light gray with black specs, very fine grained to silty; Aragonite xls and Inoceramus prisms.
- 3200-3210 Shale, gray to dark gray, some silty; Shell fragment, scattered calcareous specs, shale is slightly calcareous.
- 3210-3220 Shale, as above; but calcareous specs appear more common. And trace sandstone, white with black specs, very fine grained to silty, has sugary texture and salt and pepper appearance; sand is calcareous, slightly cemented, friable; no visible porosity and permeability.
- 3220-3230 Shale, as above, with scattered fossil fragments; few chips sand as above; calcareous specs appear more common.
- 3230-3240 Shale and sand as above, but specs rare.
- 3240-3250 Shale, as above, scattered blue bentonite.
- 3250-3260 Limestone, light blue gray, very shaley to clayey, some chalky, abundant brown mica in chips; also shale, as above.
- 3260-3290 Shale, gray, calcareous, slightly speckled to chalky; trace sandy siltstone, salt and pepper, calcareous.
- 3290-3300 Shale, slightly calcareous, finely micaceous, specs absent, scattered shell fragments; few pieces siltstone as above.
- 3300-3310 Shale, as above; with more siltstone as above with brown and black mica.
- 3310-3320 Shale, dark gray, micromicaceous.
- 3320-3335 Shale, as above with scattered siltstone as above, also limestone, microcrystalline, gray, silty; scattered shell fragments.
- 3335-3340 No sample.
- 3340-3360 Shale, dark gray, slightly calcareous, specs absent; trace light gray salt and pepper siltstone, calcareous, sandy.
- 3360-3370 As above with shell fragments; some black carbonaceous material in shale.
- 3370-3380 Shale, as above, but speckled shale common to abundant.
- 3380-3390 Shale, as above, but fewer specs.
- 3390-3410 Shale, as above, trace white bentonite.
- 3410-3420 Shale, dark gray, with scattered calcareous specs. Scattered shell fragments.

- 3420-3430 Shale, dark gray, scattered shell fragments.
 3430-3460 Shale, gray, scattered silt. Inoceramus prisms;
 trace salt and pepper sandstone.
 3460-3480 As above, salt and pepper sandstone more common.
 3480-3500 As above, and siltstone, gray, salt and pepper
 appearance.
 3500-3600 Shale, gray, scattered siltstone, Inoceramus prisms
 common.
 3600-3900 Shale, gray, scattered pyrite, occasionally silty.
 3900-4000 Shale, gray, occasionally silty and glauconitic.
 4000-4010 Shale, gray, slightly silty, scattered white bentonite.

Frontier 4005

- 4010-4050 Sandstone, very fine grained, gray to white, calcareous,
 salt and pepper appearance, glauconitic.
 4050-4090 Shale, gray, silty, micaceous.
 4090-4100 Sandstone, white, very fine grained, coal common.
 4100-4110 Sandstone, white, and coal.
 4110-4120 Shale, gray.
 4120-4130 Sandstone.
 4130-4140 Sandstone, silty.
 4140-4150 Sandstone, silty, Fossils
 4150-4160 Sandstone, silty.
 4160-4170 Becoming more silty.
 4170-4180 Shale, dark gray
 4180-4190 Siltstone, gray.
 4190-4200 Siltstone, gray, glauconitic, micaceous.
 4200-4210 Shale, gray, silty, trace buff limestone.
 4210-4220 As above.
 4220-4230 Shale, gray, trace green gray limestone, fine xln.
 4230-4250 Shale, gray.
 4250-4260 Shale, gray, blue and white bentonite.
 4260-4270 Shale, gray, brittle.
 4270-4280 Shale, as above.
 4280-4290 Shale, dark gray.
 4290-4330 Shale, dark gray to black.
 4330-4340 As above and white bentonite.
 4340-4350 As above, white bentonite.

Dakota 4365

- 4350-4360 Sandstone, white, mg, well cemented, hard, tight,
 numerous brown and black grains.

- 4360-4370 Sandstone, as above and dark gray shale.
- 4370-4380 Abundant brown and black chert fragments.
- 4380-4390 As above and light blue gray shale.
- 4390-4400 Sandstone, medium grained, angular quartz fgrains, tight, well cemented.
- 4400-4410 Shale, gray to dark gray, siliceous to calcareous; trace sandstone, white, medium grained, angular grains, quartzose, white cement, well cemented, trace white chert, coarse, angular; light gray to white claystone and white bentonite common.
- 4410-4420 Trace sandstone, as above; shale, light blue gray, clayey; chert, black, brown, tan, orange; trace green conglomerate, coarse, sandstone, some white and blue bentonite.
- 4420-4430 Sandstone, white to light greenish gray, (predominately white), fine to medium grained, well cemented with white clay cement, slightly friable, non calcareous, grains appear well sorted and angular. Trace conglomeratic sandstone, coarse chert and quartz, trace pyrite crystals; some light gray claystone.
- 4430-4440 Sandstone, as above, appears finer grained, coarse quartz and pyrite crystals; light gray claystone and white bentonite common.
- 4440-4450 Sandstone, fine to coarse, cemented to loose, white to gray, numerous coarse frosted to clear quartz grains, round to angular, smoky quartz common in coarse grains. White bentonite and light gray claystone common.

Morrison 4455

- 4450-4460 Claystone, light tan, to pinkish white, some red mottled chert, large jasper chips, tan conglomerate sandstone also.
- 4460-4470 As above. Claystone is non calcareous, white to pink.
- 4470-4480 Claystone, as above, trace black chert, brown chert. Gray shale in sample appears to be cavings.
- 4480-4490 Claystone, light green gray to tan, to white, with lavender shale.
- 4490-4500 Claystone, light tan or beige.
- 4500-4510 Claystone, as above, and limestone, buff or tan, lithographic.
- 4510-4520 Limestone, as above, but microcrystalline, trace pyrite xls, trace chert, tan, black.
- 4520-4530 Claystone, light buff, fine quartz inclusions, some lavender claystone, also scattered chert.

- 4530-4540 Shale, maroon and light green gray mottled, also lavender and tan.
- 4540-4550 Shale, as above, and limestone, pink to white, dense.
- 4550-4560 Limestone, as above, also shale silty, greenish gray.
- 4560-4570 Limestone, buff to white, dense, some crystalline veins of clear calcite.
- 4570-4580 Dolomite, light gray, dense, poor sample.
- 4580-4590 Dolomite, as above.
- 4590-4600 Limestone, lavender or mauve, dense to micro crystalline.
- 4600-4610 Limestone, lavender, buff, and olive gray, dense to micro crystalline, shaley.
- 4610-4620 Shale, (claystone), pale green, has fine inclusions of clear, rounded grains, (quartz?).
- 4620-4630 Limestone, tan to buff, dense to fine crystalline, noted clear calcite crystals with some of lime, also lavender and pink limestone, shaley.
- 4630-4640 Limestone, light gray, dense to microcrystalline. Trace chert.
- 4640-4650 Shale, maroon, calcareous, brittle, has fine inclusions of rounded pink chert and quartz grains. One limonite nodule; scattered chert, numerous limestone chips which are probably from above. Trace limey sand, white, fine grained.
- 4650-4660 Shale, maroon and green, some mottled, hematite and limonite nodules common; trace ill sorted conglomeratic material; trace dark red shale.
- 4660-4670 Shale, dark red, silty to sandy, finely micaceous.
- 4670-4680 Shale, greenish yellow, dense, irregular cleavage.
- 4680-4690 Shale, or claystone, light gray, lavender green gray, calcareous to limey.
- 4690-4700 Chert, white, appears to be a solid bed.
- 4700-4710 Shale, dark maroon, silty to sandy, rare green anhydrite inclusions; scattered hematite and limonite.
- 4710-4720 Shale, as above, and some chocolate borwn, micaceous shale.
- 4720-4730 Shale, red and brownish red, dense to silty, micaceous, non calcareous.
- 4730-4740 Shale, as above, becoming silty to sandy, some quartzite, dense, greenish gray, siliceous.
- 4740-4750 Shale, light pink, to white, clayey, also some greenish gray quartzite.
- 4750-4760 Shale, as above. Trace pyrite in medium cluster.
- 4760-4770 Claystone, white and pink, also some light green gray with a talcy luster.

- 4770-4780 Claystone, as above, with some lavender shale, sandy, and trace light gray dense lime; also mottled green and red chert, and a chip of fine grained conglomeratic sandstone, containing rounded, frosted, quartz grains; some pink chert.
- 4780-4790 Shale, lavender, trace sandstone, fine grained, white with green grains scattered, well cemented, contains some brown mica; also silty maroon shales as above.
- 4790-4800 Shale, maroon, fine, micromicaceous, conchoidal cleavage, grade to dark red silty shale.
- 4800-4810 Shale, maroon and light green gray, some lavender and yellow.
- 4810-4820 Shale, light blue gray to lavender, clayey texture.
- 4820-4850 No samples.
- 4850-4860 Shale, as above, also clay with coarse pink and clear quartz inclusions, and some pyrite inclusions also.
- 4860-4870 Shale, as above; also orange chert, angular, coarse; trace anhydrite; one chip sandstone, white, very fine grained, well cemented, scattered green and brown grains.
- 4870-4880 As above, but greenish white sand similar to above more common.
- 4880-4890 Sandstone, gray to greenish gray, to buff, very fine grained to silty, well cemented, white cement, contains clear quartz and green and pink grains. Some yellow sandy shale also.
- 4890-4900 Sandstone, as above, clean to shaly, some large, glossy quartz grains.
- 4900-4910 Shale, light greenish gray, sandy, clayey texture; trace white anhydrite.
- 4910-4920 Shale, as above; some becoming greener, and limestone, tan, dense, trace white anhydrite.
- 4920-4930 Shale, green and lavender; some dense green limestone; one chip sand, white, medium to coarse grained with white cement, angular to rounded grains, quartz, pink clear and brown, appears conglomeratic.
- 4930-4940 Shale, as above; limestone as above, more common. Scattered anhydrite.
- 4940-4950 Sandstone, white to greenish, silty to medium grained, firm, well cemented, grains angular to rounded, contains numerous green grains which may be glauconite, also pink and red grains. Also shale and lime as above.

- 5100-5110 Sandstone, conglomeritic, unconsolidated, coarse grained, angular to well rounded quartz grains, with coarse angular chert.
- 5110-5120 Sand, as above, and shale, white, red, brown, lavender; fragment fossil wood.
- 5120-5130 Shale, as above, but silty red shale becoming more common; red shale (brick red to light purple is micaceous; ochre colored shale is common (limonite?). Also sandstone, very fine grained to silty, white to gray to greenish, appears to have glauconite in it. Some light tan limestone.
- 5130-5140 Shale, red, green, brown, maroon, yellow, white, soft. Trace white calcite, trace sandstone, very fine grained, green gray, with white cement.
- 5140-5150 Shale, red, light green, lavender, some light purple, scattered soft white anhydrite. Trace coarse conglomerate sandstone, tight, well cemented, with black and brown grains, quartzose, angular to rounded grains.
- 5150-5160 Shale, red, light green, lavender, orange, olive drab, trace tan limestone, hard, massive green and red shales most common; some pink and white anhydrite.
- 5160-5170 Shale, red, chocolate brown, ochre, lavender, silty, trace pink and white, very fine, tight sandstone, some silty green sand, trace anhydrite.
- 5170-5180 Shale, red, green, olive, lavender; chert and loose, well rounded sand grains common.
- 5180-5190 Shale; red, lavender, green, greenish gray, some yellow shale, soft; scattered chert; white anhydrite common.?
- 5190-5200 Shale, red, lavender, green, light greenish gray; trace tan limestone; anhydrite common?
- 5200-5210 Shale, dull red, also gray, greenish gray, lavender, tan, ochre colored claystone, chert common.
- 5210-5220 As above, hematite nodules common.
- 5220-5230 As above, and sandstone, light green to green gray to buff, very fine grained.
- 5230-5240 Shale, varicolored, pastel colors, calcareous, green, gray green, lavender, red, silty to waxy luster; trace sandstone, white, very fine grained, angular, scattered pink grains. Some white claystone.
- 5240-5250 Shale, varicolored, as above; scattered chert -- varicolored.

- 5250-5260 Claystone, green to greenish gray; scattered sandstone, green, to buff, very fine grained; some varicolored shales, as above.
- 5260-5270 Claystone, green to greenish gray; scattered sandstone as above, varicolored shales as above.
- 5270-5280 As above, very poor sample.
- 5280-5290 Varicolored shales and claystones as above; trace sandstone, green and green gray, very fine grained, trace limestone, buff, dense; trace pyrite; trace white clayey anhydrite.
- 5290-5300 Sandstone, white, very fine grained, quartz with green, pink and brown grains scattered; white cement, tight, angular to sub round.
- 5300-5310 Shale, varicolored, green, light orange, gray, greenish gray, lavender, purple; trace sandstone, white, fine grained, loosely cemented, friable, angular grains.
- 5310-5320 Shales, varicolored as above, and sandstone as above more common, sand is becoming coarser grained, has scattered green, pink, and black grains, and white clayey cementing material; trace tan and mottled tan gray limestone, dense.

Curtis 5320

- 5320-5330 Sample as above; greenish shales more common.
- 5330-5340 Shales, varicolored, and sandstone, white, very fine grained, quartz with pink grains, calcareous; and siltstone, gray, limey.
- 5340-5350 Siltstone, green, calcareous, and sandstone, as above; trace white limestone; trace conglomeratic sandstone, coarse, well cemented; trace gray, dense limestone.
- 5350-5360 Siltstone, green to greenish gray, glauconitic, calcareous, sandy, with some very fine grained calcareous, glauconitic sandstone.
- 5360-5370 Sandstone, greenish gray, very fine grained, glauconitic, very calcareous, angular grains, friable, firm; also some maroon shale.
- 5370-5380 Sandstone, as above, and limestone, greenish, fine to medium crystalline, oolitic, glauconitic, sandy.
- 5380-5390 Sandstone, as above, very glauconitic.
- 5390-5400 Sandstone as above with limestone, gray, sandy, oolitic, glauconitic, brown and green oolites, medium grained in size.
- 5400-5410 Limestone, as above, very oolitic, and sandstone, as above. Trace of lavender shale.

- 5410-5420 Shale, greenish gray, papery, and sandstone and limestone, as above.
- 5420-5430 Shale, gray, and greenish gray, platy.
- 5430-5440 Shale, gray, and greenish gray, platy.
- 5440-5450 Shale, as above, and limestone, fine crystalline, gray, glauconitic, oolitic, sandy.
- 5450-5460 Limestone, as above, almost entirely oolites (brown and green) with lime matrix.
- 5460-5470 No sample.
- 5470-5480 No sample.
- 5480-5490 Sandstone, green and greenish gray, fine grained, very glauconitic, poor sample, mostly cavings.
- 5490-5500 Shale, green and light green, glauconitic, sandy, trace pink anhydrite and varicolored shales, poor sample.
- 5500-5510 Sandstone, white, coarse grained, quartzose, rounded to subrounded grains, some frosted and pitted, some coarse green glauconite grains, loosely cemented, no visible porosity.

Entrada 5512

- 5510-5520 Sandstone, as above, trace white clayey anhydrite.
- 5520-5530 Very poor sample, mostly cavings from Morrison.
- 5530-5540 Sample, as above; drilling time indicates drilling in sand; fast drilling started at 5520.
- 5540-5550 As above.
- 5550-5560 As above, trace red shale.
- 5560-5570 As above, trace sand, coarse grained, well rounded, frosted, pitted surface, quartz; grains loose in sample.
- 5570-5580 Sandstone, medium to coarse, white, angular to well rounded grains, green and orange grains common, well cemented to loose, some grains are frosted.
- 5580-5590 Sandstone, fine to coarse, light brown, loosely cemented, easily friable, grains mostly subrounded to rounded, rare pyrite in sand, appears highly porous and permeable, no show.
- 5590-5600 Sandstone, as above, with abundant spherical coarse sand grains.
- 5690-5700 Poor sample, cavings.
- 5700-5710 Shale, light to dark gray, and green gray, trace lavender, trace salmon sandstone, very fine grained.
- 5710-5720 Shale, as above, trace white sandstone, glauconitic, very fine grained, some lavender shale.

- 4950-4960 Sandstone, as above, and shale, pale greenish and lavender; trace limestone as above; scattered anhydrite.
- 4960-4970 Shale, maroon, also pale green and lavender. Some yellow limonitic shale; anhydrite common.
- 4970-4980 Shale, lavender, light green to white, clayey to silty, well preserved Astorta, also shell fragment. Sandstone, tan to green gray, silty to coarse grained, white clay cement.
- 4980-4990 Sand and shale as above and buff shaley limestone.
- 4990-5000 Sand, shale, and lime, as above, and varicolored chert fragments common.
- 5000-5010 Shale, light gray to white, clayey texture, also green, lavender and red shale, chert fragments common in sample; few loose rounded sand grains, coarse, frosted quartz; trace pink dolomite, dense. Scattered anhydrite.
- 5010-5020 Shale, light green, pink, lavender, gray oolites in gray shale; some conglomeratic sand with maroon chert pebbles. Trace greenish, very fine grained glauconitic sand. Anhydrite common, brown and white.
- 5020-5030 Shale, light green, siliceous. Limestone, light green, dense, shaley. Sandstone, light green, fine to medium grained, shaley, glauconitic; chert fragments and hematite common. Anhydrite rare.
- 5030-5040 Sandstone, green to white, silty to coarse, fine at top and becoming conglomeratic at base; upper part glauconitic, angular grains, grades to coarse well rounded to angular chert, chert is pink, orange, brown, black.
Actual drill 5023 to 5041 for fast drilling.
- 5040-5050 Incorporated into above description.
- 5050-5060 No sample.
- 5060-5070 Conglomeratic sand as above, and shale, green, white, red; green is glauconitic; sandstone, fine grained, loose, quartzose, subrounded to rounded well sorted grains. Entrada type sand; scattered pink grains.
- 5070-5080 Sandstone, dark gray, with numerous black grains, fine to medium grained, slightly glauconitic.
- 5080-5090 Sandstone, as above, numerous chert grains, some limonite and hematite, white lime common.
- 5090-5100 Sandstone, white, fine grained, with green and pink grains; dark red shales with slickensides common.

5970-5980 Sandstone, as above, white anhydrite common.
5980-5990 As above, some coarse grained.
5990-6000 As above, some coarse grained, anhydrite.
6000-6010 As above, some coarse grained, anhydrite.
6010-6020 As above, some coarse grained.
6020-6030 As above.
6030-6040 As above, anhydrite common.
6040-6050 Sandstone, as above, some grains appear well rounded and frosted.
6050-6060 Sandstone, as above, green and gray shale common.
6060-6070 Sandstone, as above.
6070-6080 Sandstone, as above, anhydrite common.
6080-6090 Sandstone, as above, anhydrite common.
6090-6100 Sandstone, as above, anhydrite common.
6100-6110 Sandstone, as above, green shale common.
6110-6120 Sandstone, as above, gray and green shale common.
6120-6130 Sandstone, pink, fine to coarse, loosely cemented, well rounded, frosted quartz grains.
6130-6140 Sandstone, fine grained, white anhydrite common.
6140-6150 Sandstone, as above, white and pink anhydrite common.
6150-6160 Sandstone and anhydrite, as above.
6160-6170 Sandstone and anhydrite, as above.
6170-6180 Sandstone and anhydrite, as above, and red shale.
6180-6190 Sandstone and anhydrite, as above.
6190-6200 Sandstone and anhydrite, as above.
6200-6300 Sandstone, as above, with varying amounts of red shale and siltstone.
6300-6330 Sandstone, as above, becoming finer grained, maroon shale increasing.
6330-6370 Sandstone, fine to medium grained, pink, clean, loosely cemented, quartz grains, sub rounded.
6380-6390 Sand coarser grained and grains less rounded.
6390-6400 Sandstone, as above.
6400-6540 Sandstone, pink, medium grained, with some scattered black grains, loosely cemented, well rounded grains, scattered anhydrite. Abundant anhydrite 6530-6540.
6550-6560 Sandstone, as above, and abundant gray shale.
6560-6570 Shale, dark gray and abundant white clayey anhydrite.
6570-6580 Sandstone, as above, better cemented.
6580-6590 Sandstone, as above.
6590-6600 Sandstone, as above, olive gray shale, and white anhydrite.
6600-6610 As above.

5720-5730 As above, also olive green shale.

Carmel 5725

5730-5740 Siltstone, orange, sandy, and maroon shale, also varicolored shales.
5740-5750 Siltstone, maroon, micaceous, and maroon micaceous shale.
5750-5760 Shale, gray to olive gray, siliceous, papery.
5760-5770 Shale, gray, papery, siliceous, very finely micaceous, splintery.
5770-5780 Shale, as above, and white clay anhydrite.
5780-5790 Shale, as above, and white clay anhydrite, and siltstone, maroon, micaceous, mottled with white anhydrite.
5790-5800 Siltstone, as above, also shale, red, waxy and waxy lavender shale.
5800-5810 Shale, gray, papery, siliceous, micromicaceous, and siltstone, brick red, sandy to shaley, micaceous.
5810-5820 Shale, gray, papery.
5820-5830 Shale, gray, papery, and siltstone, red, micaceous.
5830-5840 Siltstone, red, silty to shaley, trace green shale inclusions. White anhydrite common.
5840-5850 Sandstone, white, very fine grained, and white clayey anhydrite, also red siltstone and shale as above.
5850-5860 Siltstone, red, sandy, and light gray micaceous claystone.

Navajo 5865

5860-5870 Shale, gray, papery, trace pyrite clusters.
5870-5880 Shale, as above, and jade green siltstone.
5880-5890 Shale, as above.
5890-5900 Sand, red and pink, very fine grained to silty, firm, slightly cemented, carries microscopic black grains.
5900-5910 No sample.
5910-5920 Shale, gray, splintery; sample very poor, mostly Curtis cavings.
5920-5930 Poor sample, mostly gray shale.
5930-5940 Poor sample, mostly gray shale.
5940-5950 Sandstone, pink, fine grained, loosely cemented, has scattered red grains.
5950-5960 Sandstone, as above, pink anhydrite common, also red shale and lavender shale, common.
5960-5970 Sandstone, pink, fine to medium grained, well cemented, angular to sub rounded quartz grains, has scattered black and green grains, some grains well rounded, appears porous and permeable; no show.

- 6900-6910 Sandstone, as above, and trace shale, red, sandy with white and green anhydrite inclusions, trace mottled red and white shale.
- 6910-6920 Sandstone, as above, lavender and purple mottled shale common; red and white mottled shale common.
- 6920-6930 Sandstone, as above, some very coarse quartz crystals, dark maroon shale common.
- 6930-6940 As above, dark maroon shale more common.

Moenkopi 6940

- 6940-6950 As above, lavender and purple shale common.
- 6950-6960 Shale, dark red brown, silty, micaceous.
- 6960-6990 Shale, as above, and pink anhydrite, red and white mottled shale common.
- 6990-7000 As above, trace orange siltstone.
- 7000-7010 Shale, red, silty, micromicaceous; pink white anhydrite common; some red shale mottled with anhydrite; trace green and lavender shale. Yellow shale common.
- 7010-7030 Shale, red and dark brownish red, silty, micaceous; yellow shale and anhydrite less abundant than above.
- 7030-7040 No sample.
- 7040-7050 Shale, red to maroon, micaceous to barren, silty to clayey; trace yellow shale.
- 7050-7060 Shale, red to maroon, very finely micaceous, slightly silty; mostly clayey; trace green and yellow shale.
- 7060-7070 Claystone, red, and anhydrite, soft, white, mottled with red shale.
- 7070-7080 Anhydrite, white and pink, mottled with red claystone; also red claystone as above; yellow shale common.
- 7080-7090 Shale, maroon, clayey to silty, finely micaceous; and white and pink anhydrite abundant; yellow shale common.
- 7090-7100 Siltstone, red, micaceous, some lavender shale with white and purple veinlets; yellow calcareous shale common. Trace green shale.
- 7100-7110 Siltstone, light orange, carries fine black mica, and has white (anhydrite?) cementing material; white and pink anhydrite common; some lavender shale with purple veinlets and inclusions; yellow shale common.
- 7110-7120 Siltstone, orange to maroon, mica becoming more common and larger flakes; trace crystalline gypsum or anhydrite; yellow and lavender shale common.
- 7120-7130 Siltstone, as above, more common; some becoming sandy; lavender and yellow shale still common; some light

- 7120-7130 Continued. green claystone; anhydrite still common.
- 7130-7140 Siltstone, orange to red, clayey to sandy, micaceous; white crystalline anhydrite rare; lavender shale with purple veinlets common; scattered chips apple green claystone.
- 7140-7150 Siltstone, orange, and shale maroon; both micromicaceous; and anhydrite, soft, white and pink, abundant; clear selenite crystals are common, yellow shale is abundant.
- 7150-7160 Shale, red and brownish red, brittle, splintery; and siltstone as above; anhydrite is common; selenite crystals are common; lavender shale is rare.
- 7160-7170 Shale, as above; poor sample; appears to be mostly cavings.
- 7170-7180 Shale, red and dark red, silty to sandy; micaceous, silty shale appears to be more common. Anhydrite is rare. Yellow shale is still common.
- 7180-7190 Shale, red, and orange, silty; some white anhydrite inclusions in shale; anhydrite and selenite common; yellow shale is common.
- 7190-7200 Shale, red, as above, very silty, white and pink anhydrite common, yellow shale is common.
- 7200-7210 Shale, red, as above, and siltstone, orange, micromicaceous with black mica; soft pink to white anhydrite common; yellow shale, common.
- 7210-7220 Siltstone, orange, as above; also dolomite, white, to pink, to green gray; soft to hard; some clayey. Trace white, sucrose lime.
- 7220-7230 Shale, and siltstone, as above; also lavender to purple shale, trace light gray lime, hard.
- 7230-7240 Shale, orange, silty to clayey; trace bright red shale; anhydrite and selenite common; brownish yellow shale common; mottled lavender shale very common.
- 7240-7250 Shale, lavender and purple, mottled with white claystone or anhydrite; some hematite nodules.
- 7250-7260 Shale, lavender, as above; and trace sandstone, white, very fine grained; mottled with buff.
- 7260-7270 Sandstone, white with yellow, buff, and purple stains, very fine grained, silty to shaley in part, finely micaceous (brown mica); also purple and lavender shale as above.
- 7270-7280 Sandstone, as above, some coarser grained and mica flakes larger, some white mica also; sand is well cemented; extremely tight; no porosity apparent.

- 7280-7290 Sandstone, as above, and red, yellow, and red brown shale (claystone). Anhydrite common.
- 7290-7300 Shale, red, mustard yellow, very clayey in appearance.
- 7300-7310 Sandstone, gray, very fine grained, highly micaceous; ill sorted; trace pyrite crystals. Also shale, as above.
- 7310-7320 Sandstone, as above; colors of sand vary from brown to green, to pink to gray, highly micaceous, also shale, lavender and purple mustard yellow shale is common; anhydrite and selenite common.
- 7320-7330 Sandstone, gray to white, very fine grained to silty, micaceous, well cemented, tight, scattered large mica flakes; some large crystals of bedded selenite.
- 7330-7340 Sandstone, as above; and shale, orange to maroon, silty, micaceous; selenite crystals are common; mustard colored shale is common.
- 7340-7350 Sandstone, fine grained, (silty) to medium; white, maroon, orange greenish, micromicaceous, hard, tight, well cemented; anhydrite is abundant, soft, white; scattered pyrite clusters. Trace shale, light blue gray.
- 7350-7360 Siltstone, orange and pink, sandy, micaceous; some sand as above; scattered light blue gray shale; anhydrite is less abundant than above. Yellow brown shale is almost rare.
- 7360-7370 Siltstone, orange, pink, maroon, sandy, micaceous, pyrite clusters common; anhydrite less common, mustard yellow shale rare.
- 7370-7380 Siltstone, maroon, orange, pink, micromicaceous, silty, sandy; trace white, very fine grained, sandstone.
- 7380-7390 Siltstone, red, micaceous; and sandstone, buff and white, very fine grained, black and white mica common.
- 7390-7400 Siltstone, red, micaceous; and sandstone, as above.
- 7400-7410 Siltstone, red, micaceous, sandy; trace blue gray shale.
- 7410-7420 Siltstone, as above, trace pyrite clusters, trace blue gray shale.
- 7420-7430 Sandstone, white with greenish cast, very fine grained to silty, micaceous, friable; tight. Anhydrite common.
- 7430-7440 Shale, blue gray, splintery to platy with conchoidal cleavage; siltstone and sand as above.
- 7440-7450 Shale, as above; shale becoming darker. Trace selenite.
- 7450-7460 Dolomite, greenish gray, dense, shaley; very poor sample, appears to be mostly cavings.

- 7460-7470 Sandstone, greenish gray to white, very fine grained, tight, well cemented, dolomitic; trace light gray shale.
- 7470-7480 Siltstone, red, micaceous, and shale, dark maroon; and sandstone similar to above; trace bright red shale; mustard yellow shale common; some chocolate brown shale.
- 7480-7490 Sandstone, buff, very fine grained, micaceous, calcareous, silty; and shale - dark maroon; also shale, blue gray; and dolomitic claystone, white, chalky, common.
- 7490-7500 Sandstone, as above; some light gray, micaceous, calcareous, white, and greenish white dolomitic claystone abundant; red shale and siltstone common. Also shale, green gray, common.
- 7500-7510 Siltstone, red, micaceous; and sandstone, as above; greenish micaceous shale common; pyrite clusters common; dolomitic claystone common.
- 7510-7520 Shale, red, silty, micaceous; and claystone, greenish gray, finely sandy; trace sandstone, very fine grained, buff, micaceous.
- 7520-7530 Claystone, green gray, and yellow, dolomitic, greenish is minutely pyritic, and sandy in part. Also siltstone, red, micaceous, and trace sandstone, fine grained, micaceous. Trace dark chert.
- 7530-7540 Claystone, as above, and siltstone and sandstone as above; trace dark weathered chert. Trace limestone, light buff, dense.
- 7540-7550 As above and trace chocolate brown shale.
- 7550-7560 Siltstone and claystone, green, dolomitic, microscopic pyrite xls, trace anhydrite, gray, soft.
- 7560-7570 Claystone, green and cream, dolomitic, minutely pyritic; trace very fine buff micaceous sandstone.
- 7570-7580 Claystone, green and greenish gray, dolomitic, microscopically pyritic and micaceous; some greenish gray dolomite, sucrosic, with pyrite common, and micaceous; also trace very fine limey sand with bright green oolites present; anhydrite common; red siltstone and shale common.
- 7580-7590 Siltstone, red, orange, dolomitic, micaceous; and shale, dark red brown, micromicaceous with brown mica; also cream colored dolomitic claystone.
- 7590-7600 Siltstone, and shale, as above, with some anhydrite inclusions. Trace limey sand with brown mica and pyrite.

- 7600-7610 Siltstone and shale, as above, with scattered anhydrite inclusions; trace oolitic lime, sandy with bright green oolites; trace buff, sandy dolomite, micaceous. Trace dark green limestone.
- 7610-7620 Claystone, dark brownish red, dolomitic, trace greenish gray to light green dolomite; trace white clear chert. Orange siltstone, as above.

Phosphoria 7625

- 7620-7630 Claystone as above; also limestone, dark green, dense, shaley, silty in part, appears to have phosphatic material
- 7630-7640 Siltstone, red and orange, and brownish red claystone as above; also green dolomite, pyritic, and dark green lime similar to above.
- Core #11
7640-7692 (Full recovery). Dolomite, chocolate brown with green and gray streaks throughout, shaley, medium crystalline to microcrystalline, scattered inclusions of gypsum were noted; some high angled fractures filled with gypsum were near the top of the interval. See complete core description earlier in report.
- 7693-7700 Cavings.
- 7700-7710 Shale, red, micaceous, dolomitic.
- 7710-7716 Dolomite, cream colored, very fine crystalline, oil stained, gives good CCl_4 cut and good fluorescence; no apparent porosity.

Core #2

- 7716-7766 Recovered 4821'.
- 7716-7742 Limestone, gray with tan cast, fine crystalline to microcrystalline, hard, dense, scattered pyrite crystals, some vertical hair line fractures; spotty fluorescence 7717-7719.
- 7742-7745 Dolomite, gray, fine crystalline, slight intergranular porosity, slight oil stain.
- 7745-7750 Limestone, similar to above.
- 7750-7763 Limestone, gray, siliceous, some vertical fractures, oil stained to saturated. Vugular porosity 7756-7757 and 7760-7763; appears porous 7760-7763. Core bleeding oil 7750-7763.

Core #3

- 7766-7785 Recovered 19' limestone, green to greenish gray, micro crystalline, slight oil saturation at top of core.

Core #4

7786-7816½ Recovered 30½'.

7786-7794 Shale, gray, limey, phosphatic nodules common, oolitic, gives oil odor on breaks.

7794-7808½ Limestone, gray, and gray green, fine to coarse crystalline, siliceous, phosphatic material common, vertical fractures throughout, oil stained to saturated.

7808½-7816½ Sandstone, fine grained to medium grained, friable, well cemented with silica cementing material, saturated with dark brown oil throughout. Appears porous and permeable.

Core #5

7816½-7841 Recovered 13'.

Sandstone, gray to white, medium to coarse grained, poorly sorted, quartz grains subround to angular with secondary crystal growth on sand grains. Sand is firmly cemented, hard, difficultly friable. Very few accessory minerals were present.

Brown oil stain in upper two feet; rest of core was oil stained but appeared wet.

Dips in laminae varied from 7½ to 15°.

Sand appears porous and permeable. Missing interval believed to be from 7818½ to 7827.

C O R E S

- Core #1 7640-7692 Recovered 52'.
7640-7641 Dolomite, gray, fine to medium crystalline, fractured, dead oil stain on fractures, scattered phosphate nodules, hard, dense, siliceous, some black mica, fractures are hair line; tarry residue on larger fractures.
7641-7642 Siltstone, chocolate brown, dolomitic, finely micaceous, dark phosphatic material present.
7642-7644 Dolomite, brown, medium crystalline, dense, hard, with some phosphatic material.
7644-7645 Dolomite as above with a thin vein of gilsonite at 7645.
7645-7692 Dolomite, chocolate brown, shaley, with gypsum inclusions and veins; brown mica and phosphatic material is scattered throughout.
- Core #2 7716-7766 Recovered 48.21'.
7716-7742 Limestone, gray with tan cast, fine crystalline to microcrystalline, hard, dense, few hair line fractures, scattered fine pyrite crystals, scattered spotty brown oil stain, spotty fluorescence; no visible porosity; some gray phosphate nodules at 7727.
7742-7743 Shale, green, calcareous, hard, has waxy luster on fracture surfaces, fine pyrite crystals are disseminated throughout.
7743-7745 Limestone, gray, fine to medium crystalline, chert bedded in interval, fair oil stain, good odor when broken; part of interval consists of coarse crystalline lime and is well stained by dark oil, and it appears to be irregularly bedded with finer grained limestone.
7745-7748 Limestone, greenish gray, fine crystalline to microcrystalline, hard, dense, has fine to medium chert scattered throughout, pyrite clusters and crystals are well disseminated throughout, dark gray to black phosphate nodules are present.
7748-7749 Limestone, as above, but has good oil staining in high angle fracture; also lime appears to have some intergranular porosity; freshly broken surfaces give good oil odor.

- 7749-7750 Limestone as above, but very little staining on core.
- 7750-7752½ Limestone, as above, but becoming more phosphatic.
- 7752½-7753 Limestone, light green, fine to coarse crystalline, with some very coarse crystals, well stained, bleeding oil, gives good petroliferous odor when broken; vertical fracture at 7753.
- 7753-7763 Similar to above with complete saturation and staining; some vugs up to two inches in diameter were present; there was no apparent permeability in the interval.
- Core #3 7766-7785 Recovered 19'.
Limestone, green to greenish gray, microcrystalline, slight oil saturation at top of core.
- Core #4 7786-7816½ Recovered 30½'.
7786-7794 Shale, gray, limey, oolitic, limy, gives good oil odor on break; few thin horizontal and vertical fractures which are oil stained.
- 7794-7808½ Limestone, gray, and gray green, fine to coarse crystalline, siliceous, phosphatic material common, scattered pyrite, vertical fractures throughout; oil saturation was present throughout, and the vertical fractures were oil stained; no primary porosity was observable.
- 7808½-7816½ Sandstone, fine grained grading to fine to medium grained at base, brown with oil stain; friable in part but firm, angular to subrounded quartz grains; most of interval is oil saturated except in tight streaks; has visible porosity in part; (see core analysis).
- Core #5 7816½-7842 Recovered 13'.
Sandstone, as above, gray to white, with brown oil stain in upper two feet; appears wet in bottom 11' of core. Sand is a medium to coarse grained sand, poorly sorted, quartz grains sub round to angular with secondary crystal growth on sand grains; sand is firmly cemented, difficultly friable; few accessory minerals are present. Dips in thin laminae of oil stain and on cleavage surfaces vary from 7½° to 15°. Sand appears porous and permeable; a high angle fracture was noted three feet above bottom of core; it was believed that the interval lost would have been from 7818½ to 7827.

DRILL STEM TESTS

D. S. T. No. 1 @ T. D. 7816

Tested 7750-7816 (Phosphoria and Weber)

Open 5 minutes

Initial Shut In 30 minutes

Open 30 minutes with no blow.

Recovered 210' drilling mud.

ISIP (30') 2990#

FSIP (30') 2512#

IFP 112#

FFP 150#

IHP 3830#

FHP 3830#

D. S. T. No. 2 @ T. D. 7841

Tested 7798-7842

Open 5 minutes

Initial Shut In 30 minutes

Open 2 hours

Final Shut In 30 minutes

Recovered 1620' fresh water with oil flecks throughout.

ISIP 3280#

FSIP 2975#

IFP 120#

FFP 740#

IHP 3850#

FHP 3835#

Bottom hole temperature 150°

Chinle 6615

- 6610-6620 As above, gray shale more common.
6620-6630 As above, gray shale.
6630-6640 As above, gray shale, trace greenish gray sucrosic sandy limestone.
6640-6650 Limestone, white, fine crystalline, sugary, sandy.
6650-6660 Limestone, as above, green to greenish gray, finely pyritic.
6660-6670 Shale, red, silty, micaceous.
6670-6680 Shale, as above, and pink anhydrite, trace gray brown mottled limestone, and shale, dark gray.
6680-6690 Shale, red and pink, silty, micaceous, anhydrite common, trace jade green siltstone.
6690-6700 As above, more shaley, scattered oolitic lime, green gray, (cavings?).
6700-6710 Shale, pink, anhydritic, and green dense lime.
6710-6720 Shale, dark maroon to chocolate, waxy luster.
6720-6730 Shale, as above.
6730-6740 Shale, as above, some green shale inclusions.
6740-6790 Shale, mustard yellow, dolomitic.
6790-6800 Shale, mustard yellow, and maroon shale.
6800-6810 Shale, yellow, and pink shale.
6810-6820 Limestone, white and light gray, shaley, dense, micro crystalline.
6820-6830 Shale, red and white mottled, anhydritic, and shale, red, anhydritic.
6830-6840 Shale, red and white mottled.
6840-6850 Shale, red and white mottled and red shale, soft, clayey.
6850-6860 Shale, lavender and white, and purple, clayey, gypsum and selenite common.

Shinarump 6860

- 6860-6870 Sandstone, white, medium grained, well cemented, rounded to angular grains, pyritic, somewhat conglomeratic in appearance.
6870-6880 Sandstone, white, fine to coarse grained, angular to rounded grains, clear quartz, ill sorted, well cemented, appears tight, no show.
6880-6890 Sandstone, as above, tight, no porosity.
6890-6900 Sandstone, as above, red and white mottled shale common.

C O R E A N A L Y S I S

Core #4 7808½ through 7816½ (Weber)

<u>Depth</u>	<u>Perm.</u>	<u>Porosity</u>	<u>Water Satn.</u>	<u>Oil Satn.</u>
7808	3.5	10.7	10	39
7809.5	5.1	10	20	43
7811	2.1	10.6	23	35
7812	2.4	10.6	33	36
7813	13.5	11.1	25	33
7814	16	10.8	28	39
7815	12.5	9.6	31	31
7816	16	10	38	30
7816.5	10	9.8	31	31

22 gravity oil

December 19, 1962

Miracle & Wooster Drilling Company
Box 233
Vernal, Utah

Re: Well No. L.D.S. #1
Sec. 36, T. 4 S., R. 21 E.,
Uintah County, Utah

Gentlemen:

Reference is made to our letter of November 27, 1962. As of yet we have not received the "Log of Oil or Gas Well", Form OGCC-3, for the above mentioned well as required by our General Rules and Regulations and Rules of Practice and Procedure, Utah State Oil and Gas Conservation Commission.

Thank you for your cooperation in this matter.

Very truly yours,

OIL & GAS CONSERVATION COMMISSION

CONNIE F. PALOUKOS
RECORDS CLERK

CFF:cmp

Encl. (Forms)

February 19, 1963

Miracle & Wooster Drilling Company
Box 233
Vernal, Utah

Re: Well No. L.D.S. #1
Sec. 36, T. 4 S, R. 21 E.,
Uintah County, Utah

Gentlemen:

Please refer to our letters of November 27, and December 19, 1962. As of this date we still have not received the requested "Log of Oil or Gas Well", Form OGCC-3 for the above mentioned well that is now overdue, as required by our rules and regulations.

Your immediate attention in completing the above mentioned enclosed forms will be greatly appreciated.

Very truly yours,

OIL & GAS CONSERVATION COMMISSION

**GERNIE F. PALOMBO
RECORDS CLERK**

GTF:mp

Encl. (Forms)

DANIEL BROS. ENNIS, HURST & CARLISLE

CERTIFIED PUBLIC ACCOUNTANTS

MEMBERS AMERICAN INSTITUTE OF CERTIFIED PUBLIC ACCOUNTANTS

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NATIONAL BANK OF TULSA BLDG.
TULSA, OKLAHOMA 74103
TELEPHONE LU 3-8547

FIRST NATIONAL BANK BLDG.
DENVER, COLORADO 80202
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FIRST NATIONAL BUILDING
OKLAHOMA CITY, OKLA. 73102
TELEPHONE CE 2-1541

Denver, Colorado
June 1, 1966

State Tax Commission of Utah
State Office Building
Salt Lake City, Utah 84114

Gentlemen:

Re: Miracle Drilling Company, Inc. (formerly
Miracle and Wooster Drilling Company)

Enclosed herewith is a rider amending the bond held by
you for Miracle Drilling Company, Inc., as follows:

Bond No. 56 06 121

Yours truly,



For DANIEL BROS. ENNIS, HURST & CARLISLE

LBD:GV



THE STATE OF UTAH

STATE TAX COMMISSION
200 STATE OFFICE BUILDING
SALT LAKE CITY
June 16, 1966

RECEIVED
JUN 20 1966

DANIEL BROS. INC., HENRI & CARLISLE

IN REPLY REFER TO:

DIVISION:

Miscellaneous Tax

ATTENTION:

G. H. Morris

Daniel Bros., C.P.A.
First National Bank Bldg.
Denver, Colorado

Re: Miracle & Wooster Drilling Co.

Gentlemen:

This will acknowledge receipt of a rider changing the name on the special fuel bond of Miracle & Wooster Drilling Co.

We have checked our files and can find no record of having received bond #5606121 in the amount of \$5,000.00.

Please advise.

Sincerely yours,

STATE TAX COMMISSION

G. H. Morris, Supervisor
Miscellaneous Tax Section

1173/ej June 20, 1966

Dear Mr. Morris:

Bond No. 5606121 pertains to Oil Well Plugging Bond on LSD Well No. 1 - Center SE SW 36-4S-21E Uintah County, Utah. It does not have anything to do with the special fuel bond. Please see copies of our letter dated June 1, 1966 and enclosure attached. Thank you very much.

LeRoy B. Daniel, Auditor for
Miracle Drilling Co., Inc.

Fidelity and Deposit Company

HOME OFFICE OF MARYLAND BALTIMORE 3

BONDING



INSURANCE

CHARLES T. WILMES
DUANE A. WARDEN
SPECIAL REPRESENTATIVES

OKLAHOMA CITY SERVICE OFFICE
UNDER SUPERVISION OF DALLAS BRANCH OFFICE

TELEPHONE (405) CE 2-4241

1305 LIBERTY BANK BLDG.
OKLAHOMA CITY, OKLA. 73102

June 21, 1966

State of Utah
Oil and Gas Conservation Commission
Salt Lake City, Utah

Re: #56 06 121 - Miracle and Wooster Drilling Co.

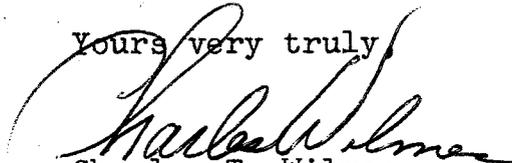
Gentlemen:

Our company is surety on Oil Well Plugging bond
executed May 10, 1962, for above principal, covering

"L.D.S. #1 Center of SE SW Sec. 36, Range 4
South, Township 21 East, Unnamed Field,
Uintah County, Utah".

Principal has advised us that well has been plugged
and plugging report filed. If this is in agreement
with your records, will you kindly let us have a
release on our bond. Thanks.

Yours very truly



Charles T. Wilmes

j

COMMISSIONERS

C. S. THOMSON
CHAIRMAN

C. R. HENDERSON
M. V. HATCH
J. H. REESE
D. M. DRAPER

EXECUTIVE DIRECTOR

C. B. FEIGHT



THE STATE OF UTAH

OIL & GAS CONSERVATION COMMISSION

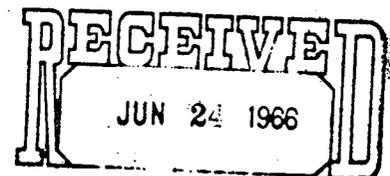
348 EAST SOUTH TEMPLE
SUITE 301
SALT LAKE CITY, UTAH 84111

DAvis 8-5771

June 23, 1966

PETROLEUM ENGINEERS

PAUL W. BURCHELL
CHIEF ENGINEER



DANIEL BROS. ENNIS, HURST & CARLISLE

LeRoy B. Daniel
Daniel Bros., Ennis, Hurst, & Carlisle,
Certified Public Accountants
First National Bank Building
Denver, Colorado 80202

Dear Mr. Daniel:

Today we received, from the State Tax Commission of Utah,
a rider amending Bond No. 56-06-121 for Miracle Drilling Company
Incorporated.

This letter is to advise you that we have said Bond on file in
this office for Well No. LDS #1, Sec. 36, T. 41 S., R. 21 E., Uintah
County, Utah.

Very truly yours,

OIL & GAS CONSERVATION COMMISSION

Clarella N. Peck
CLARELLA N. PECK
SUPERVISING CLERK STENOGRAPHER

CNP:cam

June 23, 1966

LeRoy B. Daniel
Daniel Bros., Ennis, Hurst, & Carlisle,
Certified Public Accountants
First National Bank Building
Denver, Colorado 80202

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County, Utah.

Very truly yours,

OIL & GAS CONSERVATION COMMISSION

CLARELLA N. PECK
SUPERVISING CLERK STENOGRAPHER

CNP:cam

STATE OF UTAH
DEPARTMENTAL MEMORANDUM

From
DEPARTMENT

DATE:

DIVISION

FILE:

To
DEPARTMENT

SUBJECT:

DIVISION

June 30, 1966

Fidelity and Deposit Company
1305 Liberty Bank Building
Oklahoma City, Oklahoma 73102

Re: Bond No. 56-06-121 - Miracle
Drilling Company
L.D.S. #1, Sec. 36, T. 4 S.,
R. 21 E., Uintah County, Utah

Gentlemen:

With reference to your letter of June 21, 1966, please be advised that this Commission cannot relinquish liability under the bond at the present time. Enclosed please find a memo which reflects the status of the well site on the last inspection made.

It is recommended that you contact the Miracle Drilling Company and advise them to inform this office when they have completed backfilling the pits. In all probability this work may have already been completed considering the lapse of time since the area was visited.

In several instances on fee land the surface owners will occasionally desire to leave the pits open for livestock purposes. If this is the case for this particular location Miracle Drilling Company will have to obtain the surface owners permission in writing and forward the same to this office. Once we have received the necessary correspondence we will advise you that liability under the bond can be terminated.

Hope this information will be of some value to you, if there are any questions concerning the contents, please do not hesitate to consult.

Very truly yours,
OIL & GAS CONSERVATION COMMISSION

PAUL W. BURCHELL
CHIEF PETROLEUM ENGINEER

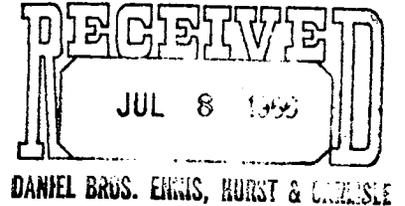
cc: Miracle Drilling Company
Vernal, Utah

Dan P. Holmes AND Associates

NATIONAL BANK OF TULSA BUILDING, BOX 2356, TULSA, OKLAHOMA 74101

Insurance and Bonds
TELEPHONE LUther 2-7184

JULY 6, 1966



MR. LEROY B DANIEL
DANIEL BROS., ENNIS, HURST & CARLISLE
FIRST NATIONAL BANK BLDG
DENVER, COLORADO

DEAR LEROY:

MIRACLE & WOOSTER DRILLING CO
BOND No 56 06 121 - UTAH
BOND No 54 55 131 - COLORADO
BOND No 55 10 370 - COLORADO

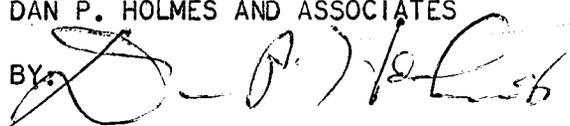
WE SENT YOU RIDERS AMENDING THE NAME OF THE PRINCIPAL UNDER THESE BONDS. THEY WERE TO BE SIGNED AND FILED WITH THE VARIOUS STATES.

LATER WE RECEIVED A NOTE FROM YOU STATING THE WELLS HAD BEEN PLUGGED AND THAT THE BONDS WERE NO LONGER NEEDED.

WE ADVISED THE BONDING COMPANY AND THEY HAVE WRITTEN TO THE STATES ASKING FOR RELEASES BUT THEY HAVE ASKED US TO SEND THE CHANGE OF NAME RIDERS BACK TO THEM. IF YOU WILL RETURN THEM TO US WE WILL FORWARD THEM ON TO THE BONDING COMPANY.

YOURS TRULY,

DAN P. HOLMES AND ASSOCIATES

BY: 

DPH:DK

DANIEL BROS. ENNIS, HURST & CARLISLE

CERTIFIED PUBLIC ACCOUNTANTS

MEMBERS AMERICAN INSTITUTE OF CERTIFIED PUBLIC ACCOUNTANTS

J. LITTLETON DANIEL
LEROY B. DANIEL
WALTER DRYDEN ENNIS
KENNETH HURST
W. RAY CARLISLE
JEAN B. LARSON
BEN W. MATHIES
VERNON T. MYRICK
B. JACK OARE
JACK D. STOCKTON

NATIONAL BANK OF TULSA BLDG.
TULSA, OKLAHOMA 74103
TELEPHONE LU 3-8547
FIRST NATIONAL BANK BLDG.
DENVER, COLORADO 80202
TELEPHONE 266-3015
FIRST NATIONAL BUILDING
OKLAHOMA CITY, OKLA. 73102
TELEPHONE CE 2-1541

Denver, Colorado
July 8, 1966

Utah Oil & Gas Conservation Commission
348 East South Temple
Suite 301
Salt Lake City, Utah 84111

Gentlemen:

Re: Miracle Drilling Co., Inc. (formerly Miracle
and Wooster Drilling Company)

We enclose herewith copy of our letter addressed to you under date of June 1, 1966, enclosing insurance riders. In view of the fact that these wells were plugged several years ago, the insurance company has asked for the return of the riders. Enclosed is a copy of letter dated July 6, 1966 from the insurance agent.

We will appreciate it if these bonds can be returned to us in the enclosed envelope.

Yours truly,



For DANIEL BROS. ENNIS, HURST & CARLISLE

LBD:GV

*Sent back
Paul's letter
of 6-30-66*

STATE OF UTAH
DEPARTMENTAL MEMORANDUM

From
DEPARTMENT

DATE:

DIVISION

FILE:

To
DEPARTMENT

SUBJECT:

DIVISION

July 11, 1966

Daniel Bros. Ennis, Hurst & Carlisle
1845 First National Bank Building
Denver, Colorado 80202

Re: Bond No. 56-06-121 - Miracle
Drilling Company, Inc.
L.D.S. #1, Sec. 36, T. 4 S.,
R. 21 E., Uintah County, Utah

Gentlemen:

Enclosed please find a letter dated June 30, 1966, to Fidelity
and Deposit Company regarding the above mentioned well and bond.
Also enclosed is the "memo" mentioned in said letter.

Very truly yours,

OIL & GAS CONSERVATION COMMISSION

ANNETTE R. HANSEN
RECORDS CLERK

arh

Enclosures

INVOICE

ROSS CONSTRUCTION COMPANY

OIL FIELD CONSTRUCTION

Mailing Address: P.O. Box 161

Phone 42

VERNAL, UTAH

No. 1871

Miracle Drilling Company
P. O. Box 233
Vernal, Utah

Date Sept. 19, 1966

Our Order _____

Your Order _____

7% INTEREST CHARGED AFTER 30 DAYS

KELLY CO., MFRS., SALT LAKE L 3275

Date	Amount	Terms Net
5/16-8/29/66	L.D.S. #1: Equipment to backfill reserve pit at above location as directed.	
	Truck Tractor & Semi, 20 ton capacity, 2 hrs. @ 17.00	\$ 34.00
	D-7 Cat #C-10, 17A Series, 112 DB-HP, 16½ hrs. @ 15.50	<u>255.75</u>
	TOTAL THIS INVOICE:	\$289.75

MIRACLE DRILLING CO., INC.

OIL AND GAS WELL DRILLING CONTRACTORS

P. O. BOX 233, VERNAL, UTAH 84078

TELEPHONE 801-789-2661

L. R. MIRACLE, PRESIDENT
356 SOUTH FOURTH WEST
VERNAL, UTAH 84078
TELEPHONE 801-789-2092

November 7, 1966

COLORADO OFFICE
FIRST NATIONAL BANK BUILDING
DENVER, COLORADO 80202
TELEPHONE 303-266-3015

Utah Oil and Gas
Conservation Commission
348 East South Temple
Suite 301
Salt Lake City, Utah 84111

Re: Bond No. 56-06-121
Miracle Drilling Company
L.D.S. #1, Sec. 36, T. 4 S.,
R. 21 E., Uintah County, Utah

Attention: Paul W. Burchell
Chief Petroleum Engineer

Gentlemen:

Reference is made to your letter of June 30, 1966 to the Fidelity and Deposit Company, a copy of which is enclosed.

Also enclosed is a copy of Invoice No. 1871 from Ross Construction Company, dated September 19, 1966 in the amount of \$289.75, to Miracle Drilling Co., Inc., P. O. Box 233, Vernal, Utah. As indicated in this invoice, the reserve pits on the L.D.S. #1 well have been filled.

It will be appreciated very much if your Commission can relinquish liability under the bond to which reference is made above.

We wish to advise that Miracle Drilling Co., Inc. took over all the assets and liabilities of Miracle and Wooster Drilling Company (a partnership) as of May 1, 1966.

Thanking you for your consideration.

Yours truly,


LeRoy B. Daniel, Auditor

LBD:lh

cc: Mr. Dan P. Holmes
Mr. L. R. Miracle

November 8, 1966

Fidelity and Deposit Company
1305 Liberty Bank Building
Oklahoma City, Oklahoma 73102

Re: Bond No. 56-06-121 - Miracle
Drilling Company
L. D. S. #1, Sec. 36, T. 4 S.,
R. 21 E., Uintah County, Utah

Gentlemen:

Reference is made to the above mentioned bond and well. Please be advised that liability is hereby terminated as of this date.

Thank you for your cooperation with respect to this matter.

Very truly yours,

OIL & GAS CONSERVATION COMMISSION

CLEON B. FEIGHT
EXECUTIVE DIRECTOR

CBF:cnp

cc: Miracle Drilling Company, Inc.
P. O. Box 233
Vernal, Utah