NORTH DAKOTA GEOLOGICAL SURVEY CIRCULAR NO. 103

Summary of the Gulf Oil Corporation and North Pacific Railroad
Bundy - Federal #1
Golden Valley County, North Dakota
Well No. 586 - Permit No. 600

By Clarence G. Carlson
January, 1955

Gulf Oil Corp. - Bundy Federal #1, Golden Valley County, North Dakota. 150' north and 150' east of the C NW 1/4 NE 1/4 of Section 3, T. 143N., R. 103W. Elevation: 2,363 D.F., 2,353 G.L. Total Depth 9,328.

The Gulf-Bundy well was spudded May 8, 1954 and 10 3/4" casing was set at 1114 feet, with 750 sacks of cement. The well was plugged and abandoned June 22, 1954.

Cores:
9095-9328

Tests

DST #1 9106-96, open 2 hours, recovered 380 feet muddy water, FP 70-215#, 30 minute SIP 3615#, HP 5310#.

DST #2 9205-9252, open 2 hours, recovered 270 feet mud with oil specks, FP 0-80#, 30 minutes SIP 3700#, HP 5225#.

DST #3 9227-9282, open 2 hours, recovered 85 feet of mud, 60 feet of muddy sulphur water, 270 feet of black, salty sulphur water, F.P. 40-90#, 30 minutes SIP 4210#, HP 5270#.

DST #4 9276-9317, open 2 hours slight SG, recovered 150 feet water cut mud with oil specks and some gas, 407 feet, black gas cut sulphur water, FP 65-395#, 30 minutes SIP 4210#, HP 5315#.

DST #5 9305-28, open 2 hours, recovered 702 feet black muddy, salty sulphur water, FP 95-350#, 45 minutes SIP 4140#, HP 5275#.

Formation tops picked from samples, electric and radioactivity logs, adjusted to electric logs, colors from rock color chart.

FORMATION TOPS

Cretaceous System
Pierre Formation 1560
Niobrara Formation 3925
Greenhorn Formation 4358
"Muddy" Sand 4958
Dakota Silt 5265
Dakota Sand 5312
Jurassic System
   Morrison Formation   5528
   Sundance Formation   5600
   Piper Formation      6360
Triassic System
   Spearfish Formation  6592
Permian System
   Minnekahta Formation 7188
   Opeche Formation    7228
Pennsylvanian System
   Minnelusa Formation  7525
Mississippian System
   Amsden Formation     7570
   Big Snowy Group      7730
   Kibbey Formation     8310
   Charles Formation    8438
   Mission Canyon Formation   9066

500-520  Lignite, with some pyrite.
520-550  Lignite, some pyrite, some light brownish gray, shaly siltstone.
550-580  Lignite.
580-600  Lignite, some light brownish gray, sandy siltstone.
600-620  Lignite.
620-660  Siltstone, light brownish gray, some lignite.
670-710  Lignite.
710-740  Siltstone, light brownish gray, sandy.
740-770  Siltstone, as above, some limestone white, fine grained, fragmental, sandy.
770-860  Siltstone, as above, some lignite.
890-910  Siltstone, light brownish gray, sandy, limestone, light gray, fine grain, fragmental shaly, few shell fragments.
910-970  Shaly, brownish gray, siltstone as above, some lignite.
970-1000 Lignite.
1000-1200 Siltstone, light brownish gray, sandy, shale, brownish gray, some lignite.
1220-1250 Siltstone, light gray and light brown, sandy.
1250-1280 Siltstone, as above, limestone, light gray, fragmental.
1280-1340 Siltstone as above.
1340-1400 Siltstone, as above, some Bentonite.
1400-1430 Sandstone, light brown, 5YR6/4, fine to medium grained, silty, shaly.
1430-1580 Sandstone, light brown and light gray, fine to medium, grained, silty, shaly.
1580-1640 Shale, medium light gray, Bentonitic, sandy.
1670-1700 Shale, light gray, light brownish gray, silty, sandstone as in 1430-1580.
1700-1790 Shale, light gray, light brownish gray, silty, light gray, micaceous Bentonite.
1790-1940 Shale, light olive gray; Bentonitic, silty.
1940-2000 Shale, medium light gray, Bentonitic.
2000-2030 Shale, medium light gray, pale brown, some white, micaceous Bentonite.
<table>
<thead>
<tr>
<th>Time Range</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>2030-2060</td>
<td>Shale, medium gray, bentonitic.</td>
</tr>
<tr>
<td>2060-2210</td>
<td>Shale, medium gray, bentonitic, some white bentonite.</td>
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<tr>
<td>2210-2300</td>
<td>Shale, medium gray, bentonitic.</td>
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<tr>
<td>2300-2330</td>
<td>Shale, medium gray, and light olive gray, white, micaceous bentonite.</td>
</tr>
<tr>
<td>2330-2360</td>
<td>Shale, medium gray, white micaceous, bentonite.</td>
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<tr>
<td>2360-2480</td>
<td>Shale, medium gray, slightly bentonitic.</td>
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<td>2480-2750</td>
<td>Shale, medium gray, and pale yellowish brown, bentonitic.</td>
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<tr>
<td>2750-2810</td>
<td>Shale, pale yellowish brown, 10YR5/6, few shell fragments.</td>
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<tr>
<td>2810-2900</td>
<td>Shale, medium gray and pale yellowish brown.</td>
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<td>2900-2990</td>
<td>Shale, medium gray, bentonitic, few shell fragments.</td>
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<td>3080-3110</td>
<td>Shale, medium gray, light olive gray, bentonitic.</td>
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<td>3140-3200</td>
<td>Shale, medium to dark gray, light olive gray, bentonitic, white bentonite.</td>
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<tr>
<td>3200-3260</td>
<td>Shale, medium to dark gray, white, micaceous bentonite.</td>
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<tr>
<td>3260-3290</td>
<td>Shale, medium light to dark gray, shell fragments, white bentonite.</td>
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<tr>
<td>3290-3350</td>
<td>Shale, medium light to medium gray, pale yellowish brown, white bentonite.</td>
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<tr>
<td>3350-3380</td>
<td>Shale, medium light to dark gray, white micaceous bentonite.</td>
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<td>3380-3410</td>
<td>Shale, medium light to dark gray, pale yellowish brown.</td>
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<tr>
<td>3470-3560</td>
<td>Shale, medium light to dark gray.</td>
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<td>3590-3860</td>
<td>Shale, medium gray, bentonitic shell fragments.</td>
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<td>3860-3950</td>
<td>Shale, medium gray, white bentonite.</td>
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<td>3980-4030</td>
<td>Shale, light to dark gray, shell fragments</td>
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<td>4040-4070</td>
<td>Shale, medium to dark gray, pyrite.</td>
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<td>4070-4100</td>
<td>Shale, medium to dark gray, white specks.</td>
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<td>4110-4130</td>
<td>Shale, medium to dark gray, white specks.</td>
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<tr>
<td>4140-4150</td>
<td>Shale, medium to dark gray, pale yellowish brown.</td>
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<tr>
<td>4180-4220</td>
<td>Shale, as above.</td>
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<tr>
<td>4240-4270</td>
<td>Shale, dark gray, and pale yellowish brown.</td>
</tr>
<tr>
<td>4270-4300</td>
<td>Shale, light to dark gray.</td>
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<tr>
<td>4300-4350</td>
<td>Shale, dark gray.</td>
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<tr>
<td>4350-4370</td>
<td>Shale, dark gray, shell fragments, limestone light gray, fragmental.</td>
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<tr>
<td>4370-4410</td>
<td>Shale, dark gray, white specks, shell fragments, limestone as above.</td>
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<td>4410-4430</td>
<td>Shale, medium to dark gray.</td>
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<tr>
<td>4440-4460</td>
<td>Shale, dark to medium gray, white bentonite, limestone light gray, fragmental.</td>
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<td>4460-4480</td>
<td>Shale, medium to dark gray, white bentonite.</td>
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<tr>
<td>4480-4640</td>
<td>Shale, medium to dark gray, shell fragments.</td>
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<td>4640-4670</td>
<td>Shale, medium to dark gray, pale yellowish brown.</td>
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<td>4680-4730</td>
<td>Shale, medium to dark gray, shell fragments.</td>
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<td>4730-4820</td>
<td>Shale, dark gray.</td>
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<td>4840-4910</td>
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<td>4920-4930</td>
<td>Shale, dark gray.</td>
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<tr>
<td>4930-4960</td>
<td>Shale, dark gray, white bentonite, sandstone light gray, fine grain.</td>
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<tr>
<td>4960-5040</td>
<td>Sandstone, pale yellowish brown to light brownish gray, fine grain, shaly partings, shale, as above.</td>
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<tr>
<td>5040-5070</td>
<td>Sandstone, pale yellowish brown to light brownish gray, fine to medium grained.</td>
</tr>
</tbody>
</table>
Sandstone, as above, and sandstone light gray, medium grained, calcareous.
Shale, medium light to dark gray, light brownish gray, silty.
Shale, light brownish gray, silty, some dark gray.
Shale, medium to dark gray.
Shale, medium light to dark gray, siltstone, light gray, some greenish gray.
Sandstone, light gray, very fine grained to silty.
Sandstone, light gray, medium to fine grain, some sandstone as above.
Sandstone, light gray to light brownish gray, fine to medium grained, iron stained.
Sandstone, light gray, fine grained.
Sandstone, light olive gray to light brownish gray, sandstone as above.
Sandstone, as above.
Shale, very light gray, brownish gray, some sandstone as above.
Shale, as above, sandstone light gray, fine grained, iron stained.
Shale, very light to medium gray, brownish gray, some sandstone as above.
Sandstone, light gray to light brownish gray, fine grain, shale as above.
Shale, olive gray, light to medium gray, pale reddish brown, some sandstone as above.
Sandstone, grayish orange, fine grain, calcareous, shale, light to medium gray.
Shale, light to medium gray, light olive gray, some brown, silty shale.
Shale, light to medium gray, light brownish gray.
Shale, very light gray to dark gray.
Shale, light gray to medium gray, light brownish gray, silty, calcareous.
Shale, as above, and light greenish gray, some sandstone, light gray fine grain, calcareous.
Shale, light greenish gray 5G8/1, to greenish gray 5GY6/1, calcareous.
Shale, as above, and pale yellowish brown, sandstone light brown, fine grain.
Shale, as above.
Limestone, light gray, fine grained, sandy, shale, light to greenish gray, light olive, gray.
Shale, light greenish gray, greenish gray, light olive gray, calcareous.
Shale, as above, and pale yellowish brown, limestone, white, fine grain.
Shale, light greenish gray, greenish gray, calcareous, some sandstone light greenish gray, fine grain, calcareous.
Shale, light greenish gray, pale yellowish brown, calcareous.
Shale, light greenish gray, calcareous, some sandstone, light greenish gray, fine grain.
Shale, light greenish gray, pale yellowish brown, light olive gray, calcareous.
6180-6320  Shale, greenish gray, light olive gray, calcareous, sandstone, light greenish gray, fine grained, silty, calcareous.
6320-6360  Shale, greenish gray, grayish red, 10R4/2, light olive gray, calcareous.
6360  Circulation 1 hour, shale, as above, sandstone, light greenish gray, fine grained, limestone, very light gray, fine grained, dense.
6360-6380  Limestone as above, much shale, light greenish gray, dark gray.
6380-6390  Shale, light greenish gray, dark gray.
6390-6430  Limestone, light gray, fragmental, dense, much shale as above.
6430-6480  Shale, light greenish gray, light olive gray, dark gray, some limestone as above.
6480-6520  Limestone, light gray, fine grained, earthy.
6520-6530  Shale, light olive gray, dark gray, light greenish gray.
6530-6540  Shale as above, some limestone, light gray, fine grained, earthy.
6540-6550  Shale, limestone as above, little grayish red 10R4/2, silty, calcareous shale.
6550-6580  Shale, grayish red to pale reddish brown, calcareous.
6580-6600  Shale, as above and dark gray.
6600-6630  Shale, as above, some white gypsum.
6630-6640  Shale, grayish red to pale reddish brown, dark gray.
6640-6680  Siltstone, moderate reddish orange, calcareous, shale as above, little gypsum and free medium grained rounded quartz.
6680-6720  Shale, grayish red, dark gray, pale reddish brown, some siltstone, moderate reddish orange and few free quartz grains.
6720-6750  Siltstone, moderate reddish orange, calcareous, sandstone, moderate reddish orange, fine to medium, rounded quartz grains, calcareous, shale as above.
6770-6820  Siltstone, as above, shale as above.
6820-6830  Shale, moderate reddish brown, some medium grain, subrounded quartz grains.
6840-6880  Shale, as above, some siltstone, moderate reddish orange, gypsum.
6880-6950  Shale, moderate reddish brown, medium gray, white gypsum, some subrounded, medium quartz grains.
6960-7000  Shale, as above, siltstone, moderate reddish orange, free quartz as above, some white gypsum.
7000-7010  Shale, medium gray, grayish red, some siltstone, gypsum as above.
7010-7080  Siltstone, moderate reddish orange, calcareous, some shale as above, gypsum.
7080-7110  Siltstone, moderate reddish orange, calcareous, some gypsum.
7110-7180  Siltstone, gypsum as above, some shale, grayish red, medium to dark gray.
7180-7210  Limestone, white to grayish pink, fine grained, siltstone, gypsum as above.
7210-7230  Limestone, white to grayish pink.
7230-7270  Shale, moderate reddish orange, silty, calcareous.
7270-7300  Shale, medium to dark gray, some moderate reddish orange.
7300-7320  Shale, moderate reddish orange, grayish red, medium gray.
7330-7400  Shale, moderate reddish orange, calcareous, silty.
7400-7470  Shale, as above, white gypsum.
7470-7510  Shale, moderate reddish orange, medium gray.
7510-7530  Sandstone, light gray, light grayish pink, fine grained, much shale as above.
7530-7560  Sandstone, moderate pink, fine grained, slightly calcareous.
7560-7570  Dolomite, very light gray, fine grained, sandstone as above.
7570-7590  Sandstone, very light gray, moderate pink, fine to medium grained.
7590-7600  Dolomite, light gray to pale red, sandstone, light gray, fine grained.
7600-7610  Shale, medium to dark gray (may be cave) little dolomite as above.
7610-7640  Sandstone, grayish pink, fine grained, calcareous, dolomite, light gray, fine grained.
7640-7670  Dolomite, grayish red to light gray, very finely crystalline, shale, moderate reddish orange, calcareous.
7670-7680  Sandstone, white to grayish pink, fine grain, some shale as above.
7680-7690  Sandstone, white, fine grained, much medium to dark shale, probably cave.
7700-7740  Dolomite, pinkish gray to light gray, finely crystalline.
7740-7800  Dolomite, as above, some shale, moderate red 5R5/4.
7800-7810  Dolomite, pinkish gray, little shale, moderate red, some limestone, light gray, dense.
7810-7820  Shale, moderate red, dolomite and limestone as above.
7820-7830  Limestone, light gray to pinkish gray, shale, moderate red.
7830-7840  Shale, moderate red, some limestone as above.
7840-7870  Shale, moderate red, and moderate reddish orange, some limestone as above.
7880-7920  Shale, dark gray, moderate red 5R4/5, light olive gray.
7920-7950  Shale, dark gray, many ostracods.
7950-7970  Shale, light olive gray, moderate red, dark gray.
7970-7980  Limestone, light gray, finely crystalline, some shale as above.
7980-8000  Shale, light olive gray, moderate red, dark gray, dusky yellow.
8000-8025  Shale, pale brown, dusky yellow, grayish green 5G5/2, medium to dark gray.
8025-8040  Limestone, light gray, fine grained, little shale as above.
8040-8065  Shale, varicolored, as above, limestone as above.
8065-8090  Shale, varicolored as above.
8090-8110  Limestone, light gray, fine grained, shale, varicolored, as above.
8110-8150  Shale, varicolored, dark gray, moderate red, light olive gray, moderate brown.
8150-8165  Shale as above and moderate reddish orange, silty, calcareous.
8165-8180  Shale, as above, dolomite, light gray, fine grained.
8180-8185  Shale, as above, white anhydrite, some sandstone, light gray, fine grain.
8185-8215  Sandstone, light gray to white, fine grained, some variegated shale.
8215-8230  Sandstone, white to light brownish gray, fine grained, shale, dark gray, moderate red, light olive gray.
8230-8235  Shale, variegated, some sandstone as above.
8240-8250  Shale, variegated, sandstone, pale red, fine grained, calcareous.
8250-8265 Sandstone, pale red 10R6/2, fine grained, calcareous.
8265-8315 Sandstone, pale red to grayish orange pink, fine to medium grained, calcareous.
8315-8335 Anhydrite, white.
8335-8360 Limestone, light gray to grayish brown, finely crystalline, dense.
8360-8365 Sandstone, grayish orange, fine to very fine grained, calcareous.
8365-8370 Limestone, light gray to grayish brown, finely crystalline, dense.
8370-8380 Sandstone, grayish orange, fine grained, calcareous, some limestone as above.
8380-8405 Siltstone, pale red, sandy, calcareous, some dark gray shale.
8410-8445 Dolomite, pale red, finely crystalline, shale, dark gray.
8445-8450 Dolomite, moderate reddish orange, finely crystalline, argillaceous, shale, dark gray.
8450-8500 Dolomite, moderate reddish orange, finely crystalline, argillaceous, limey, some dark gray shale.
8500-8570 Dolomite, as above, some shale, dark gray, anhydrite.
8570-8605 Dolomite, pale orange to moderate reddish orange, finely crystalline, little white anhydrite.
8605-8610 Dolomite as above, much anhydrite, some shale, medium to dark gray.
8610-8625 Dolomite, pale orange to moderate reddish brown, shale, medium to dark gray, some anhydrite.
8625-8635 Anhydrite, some dolomite as above.
8635-8660 Dolomite, light gray to moderate reddish brown, finely crystalline, anhydrite, some limestone, light gray, fine grained.
8660-8675 Limestone, light gray, finely crystalline.
8675-8685 Anhydrite, white to grayish pink.
8685-8760 Limestone, light to medium gray, finely crystalline dense.
8760-8800 Limestone, light gray to light brownish gray, finely crystalline, dense.
8800-8820 Limestone, as above, some anhydrite.
8820-8840 Anhydrite, white and light pinkish gray, some limestone as above.
8840-8845 Limestone, light gray, fine grained, some anhydrite.
8845-8895 Limestone, light gray to light brownish gray, finely crystalline, dense, some anhydrite.
8895-8905 Limestone, light gray, fine grained, dense.
8910-8935 Limestone, light gray, fine grained dense, some anhydrite.
8935-8940 Anhydrite, much limestone as above.
8945-8960 Anhydrite, some limestone light gray to light brownish gray, fine grains.
8960-9005 Limestone, light gray, fine grained, anhydrite, shale, dark gray.
9010-9040 Anhydrite, some limestone and shale as above.
9040-9050 Dolomite, light gray, fine grained, some anhydrite.
9055-9075 Limestone, light gray, fine grained, some anhydrite.
9075-9085 Limestone, light gray to light brownish gray, fine grained, dense, some anhydrite.
9085-9095 Limestone, light gray, fine grained, light brownish gray, fine to medium crystalline, dense.

Core 9095-9100 Limestone, brownish gray, finely crystalline, dense, slight stain.

9100-9103 Limestone, yellowish gray, fine to medium grained, dolomitic.
9103-9106 Limestone, brownish gray, finely crystalline, fragmental, dense, brachiopod fragment.
9106-9112 Limestone, dark brownish gray, finely crystalline, good petroliferous odor on fresh break, oil stain on fractures.
9112-9115 Limestone, light yellowish gray, fine to medium crystalline, dense.
9115-9119 Limestone, dark brownish gray, fine to medium, crystalline, fragmental, good petroliferous odor on fresh break, oil stain on fractures.
9119-9128 Limestone, light yellowish gray, fine to medium crystalline, fragmental, good petroliferous odor on fresh break, oil stain on fractures.
9128-9130 Dolomite, light brownish gray, fine grained, dense.
9130-9134 Limestone, light brownish gray, fine to medium, crystalline, fragmental, dense.
9137-9139 Limestone, light brownish gray, finely crystalline and fragmental. Brachiopod fragments, dense.
9139-9146 Dolomite, light gray, fine grained, limey, shaly, slight porosity.
9149-9156 Limestone, light brownish gray, fine to medium crystalline, and fragmental, little pyrite crystals, slight fluorescence along fractures.
9156-9159 Limestone, light brownish gray, finely crystalline, and fragmental.
9159-9163 Limestone, light brownish gray to medium gray, fine to medium crystalline and fragmental, crinkly, good petroliferous odor and fair fluorescence.
9163-9168 Limestone, light brownish gray, fine to medium crystalline, dense. Brachiopod fragments.
9168-9178 Limestone, brownish gray, fine to medium crystalline, fair fluorescence, slight odor, with brachiopod fragments, pyrite crystals.
9178-9180 Limestone, light brownish gray, fine to medium crystalline and fragmental.
9180-9188 Limestone, medium gray, fine crystalline, and fossiliferous, dense, pyrite crystals.
9188-9196 Limestone, as in 9178-80.
9196-9199 Limestone, medium gray, finely, crystalline, dense.
9199-9202 Limestone, light brownish gray, finely crystalline and fragmental.
9202-9211 Dolomite, light gray, fine grained.
9211-9213 Anhydrite, white with thin limestone stringers.
9213-9215 Dolomite, light yellowish gray, fine grained.
9215-9218 Limestone, dark brownish gray, finely crystalline, dense, oil stained.
9218-9220 Limestone, light brownish gray, fine to medium, crystalline and fragmental.
9220-9222 Anhydrite, white.
<table>
<thead>
<tr>
<th>Interval</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>9222-9230</td>
<td>Limestone, dark brownish gray, finely crystalline, good petroliferous odor on fresh break, dense.</td>
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<tr>
<td>9230-9236</td>
<td>Limestone, light brownish gray, fine to medium crystalline and fragmental.</td>
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<tr>
<td>9236-9240</td>
<td>Limestone, brownish gray, finely crystalline, oil stained.</td>
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<tr>
<td>9240-9246</td>
<td>Limestone, light gray, fine grained, slight stain in fractures.</td>
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<td>9246-9255</td>
<td>Limestone, brownish gray, finely crystalline, dense, slight to good oil stain.</td>
</tr>
<tr>
<td>9255-9258</td>
<td>Limestone, light gray, fine grained.</td>
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<tr>
<td>9258-9261</td>
<td>Limestone, brownish gray, finely crystalline, good oil stain.</td>
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<tr>
<td>9261-9267</td>
<td>Limestone, as in 9255-58.</td>
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<td>9267-9270</td>
<td>Limestone, brownish gray, fine to medium crystalline, shell fragments, good oil stain.</td>
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<tr>
<td>9270-9272</td>
<td>Limestone, light brownish gray, finely crystalline.</td>
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<td>9272-9280</td>
<td>Limestone, as in 9267-70.</td>
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<td>9280-9288</td>
<td>Limestone, light brownish gray, fine to medium crystalline, slight oil stain.</td>
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<td>9288-9297</td>
<td>Limestone, brownish gray, fine to medium crystalline, shell fragments slight to good oil stain.</td>
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<tr>
<td>9297-9300</td>
<td>Limestone, light brownish gray, fine to medium crystalline.</td>
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<tr>
<td>9300-9306</td>
<td>Limestone, dark brownish gray, finely crystalline, good oil stain.</td>
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<tr>
<td>9306-9316</td>
<td>Limestone, as in 9297-9300.</td>
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<tr>
<td>9316-9320</td>
<td>Limestone, dark brownish gray, fine to medium crystalline, shell fragments, good oil stain.</td>
</tr>
<tr>
<td>9320-9328</td>
<td>Limestone, brownish gray, fine to medium crystalline, shell fragments, slight oil stain.</td>
</tr>
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