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GEOLOGICAL REPORT

Horizon Oil & Gas Co.

Adams B #1-5
SW NE Sec. 5-358-30W
Meade County, Kansas

by

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Geologist

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GEOLOGICAL REPORT

Horizon Oil & Gas Co.
Adams B #1-5

SW NE
Sec. 5-35S-30W
Meade County, Kansas

Commencement Date: 5/16/67
Completion Date: 6/3/67 pipe set
Elevation: 2454 E.B.
2443 C.L.
Total Depth:
Driller 6320
Schlumberger 6313
Contractor: Zenith Drig. Corp.

Casing
Surface: 8 5/8" @ 1360'
Prod: 4 1/2" @ 6312'
w/250 sks.
Special Equipment:
Baroid Gas Detecting
portable unit in operation
from 4100' to T.D.

Electrical Surveys: Schlumberger
Dual Induction-Laterolog,
EHC Sonic-Gamma-Ray-Caliper,
Proximity Log, Microlog-Caliper
and Amplitude Log.

Drilling of this well was witnessed through the following intervals and samples examined therefrom:

Toronto and Upper Lansing - Approx. 4200' to 4400'
Marmaton - Approx. 5050' to 5150'
Morrow, Chester, Ste.
Genevieve and St.
Louis - Approx. 5620' to T.D.

One foot drilling time was recorded and plotted from 2400' to total depth. Thirty foot samples were saved from surface casing depth of 1360' to 2400' and 10 foot samples were saved from 2400' to total depth.

FORMATION TOPS AND STRUCTURAL COMPARISONS

	Horizon Oil & Gas Adams B #1-5 Sec. 5-35S-30W Meade County, Ka.	Horizon Oil & Gas Adams #1-32 Sec. 32-34S-30W Meade County, Ka.	Columbian Fuel Adams J-#1 Sec. 6-35S-30W Meade County, Ka.
Wreford	2826 (-372)	15' low	5' low
Council Grove	2881 (-427)	15' low	5' low
Toronto	4249 (-1795)	38' low	2' low
Lansing	4364 (-1910)	25' low	11' low
Kansas City	4646 (-2192)	27' low	7' low
Marmaton	5091 (-2637)	42' low	3' low
Cherokee	5294 (-2840)	33' low	3' high
Keating Zone	5446 (-2992)	48' low	8' high
Morrow Shale	5640 (-3186)	37' low	3' high
Chester	5756 (-3302)	49' low	21' high

Basal Chester			
Sand	5990 (-3536)	27' low	25' high
Ste.			
Genevieve	6039 (-3585)	44' low	29' high
St. Louis	6127 (-3673)	28' low	-----
E Zone	6181 (-3727)	25' low	-----
C Zone	6231 (-3777)	3' low	-----
D Zone	6282 (-3828)	17' low	-----

SAMPLE DESCRIPTIONS, MUD GAS INCREASES, DST's.

A twenty-seven unit methane gas increase was logged at 4140-50' which corresponds to a black carbonaceous shale. Twenty-five and thirty-five units of methane gas was logged at 4200-08 and 4216-25, respectively. These increases correlate to black carbonaceous shales, the lower one being the Keebner Shale.

Toronto Limestone

4249

The Toronto section consisted of white to medium gray and some buff colored very fine crystalline, slightly chalky limestone with interveining dark gray and black shales. Some very small vug and fine inter-crystalline was present at 4250-56 and 4300-10. No gas increases were noted from any of the Toronto section.

Lansing Limestone

4364

The uppermost Lansing zone consisted of light gray, very fine crystalline to dense, slightly fossiliferous, slightly chalky limestone with some white sharp, opaque chert in the top six to eight feet, and very fine sucrosic, light gray, dolomitic limestone with coarsely crinoidal limestone as described above in the remainder of the zone. Visible porosity in this zone was of such minute size as to be described as poor. No shows of oil were detected in the samples and no gas increases were logged. Drilling was suspended and samples circulated out of the hole at 4376 and 4393 feet.

No mud gas increases were logged in any of the Lansing or Kansas City Group except a twelve unit increase which correlates to a thin black shale at 4878-89 and a five unit increase from another black shale at 4975.

Marmaton Limestone

5091

The uppermost Marmaton bed from 5091 to 5118 consisted of white to light gray, sublithographic, dense, chalky limestone and light to medium tannish-gray microcrystalline, slightly chalky, slightly fossiliferous limestone with buff and gray subtranslucent chert and streaks of black shale in the bottom portion. No shows or gas increases were logged from this interval.

The second Marmaton Limestone from 5118 to 5134 consisted of white to light buff, very fine crystalline, slightly chalky limestone with very small vug porosity. No show of oil or oil staining was detected in this zone. A questionable two and one-half unit Methane gas increase was logged as possibly emanating from this zone. Drilling was suspended at 5136 driller's depth, which would correspond to 5132 Schlumberger depth, and the hole circulated clean. The possible gas increase mentioned above was logged while circulating samples out of the hole. The increase came in at the proper time to have been emanating from a drilling break which corresponds to the porosity indicated by the Schlumberger Sonic Log at 5124-32, but the increase was so small as to be of questionable validity.

The only other gas increase logged in the Marmaton was fifteen units of Methane which was from the black shale at 5260-64.

Cherokee

Numerous shale gas increases were recorded in the Cherokee section. The only gas increase coming from a potential reservoir rock was a sixty unit increase logged at 5446-5451, log depths, which corresponds to the upper portion of the so called Keating Zone (Kneeland Field Producing Zone). This gas increase came from the depths indicated above which correspond to the tighter upper portion of the Keating Zone above the porosity indicated by the Sonic Log and above the drilling time break which correlates well with the Sonic Log. Samples from this zone were described as tan to brown, very fine crystalline, fossiliferous limestone with some visible poor quality vug porosity with some slight oil stain which displayed a slight amount of fluorescence and cut. Because of the relatively poor quality show and visible porosity in this zone, the decision was made to evaluate this zone after running electric logs.

Numerous shale gas increases were recorded in the Atoka section between 5480 and 5600.

A thirty-two unit Methane gas increase was logged as coming from a gray and brown, very dense, non-porous limestone at 5606-12. No visible oil show or apparent porosity was described in this zone.

Morrow

5640-5756

The upper Morrow section from 5670 to 5700 contained light gray, chalky, dense, non-porous limestone, buff, medium to coarse crystalline, sandy, glauconitic limestone and limey sandstone. Many large, subrounded, frosted quartz pebbles were present in the samples from this interval. Some gray, medium grained, glauconitic quartz sandstone was present in the lower portion of this interval. Much black shale was present in all of the samples from the described interval. No visible porosity or oil stain was described in any of the above interval. Although twenty to thirty-five units of background gas was present at all times while drilling this interval, no significant increases were recorded. Drilling was suspended and the hole circulated clean at 5700.

The lower Morrow section from 5712-50 was described as gray, fine to medium grained, limey, glauconitic, shaley, quartz sand with much interbedded black shale. Only poor visible porosity at best was described in any of this interval, although some friable clusters of sand were noted in the upper portion of the interval. No shows of oil were logged in this interval.

During the writers absence from the location while drilling between 5707-41, log depths, electrical power was not being supplied to the gas detecting unit due to the power line becoming disconnected at the rig electrical generator. This condition was noticed and corrected at 5741. The only samples from the lower Morrow interval which were circulated out of the hole during the time the logging unit was inoperative were those between 5711 and approximately 5722. Drilling was suspended at 5766, driller's depth, which corrects to 5762 log depth, and the hole circulated clean. A ten unit gas increase which is believed to have come from the black shale at 5750-56, log depth, and a thirteen unit increase which emanated from the top 6 feet of the Chester limestone at 5756-62, log depths, was recorded while circulating at 5762.

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Because of the gas increase just described, the possibility that a gas increase might have been missed while the cuttings from 5711-22 were being circulated out of the hole and because of the relatively thick intervals of sandstone present in the upper and lower Morrow sections, the decision was made to drill stem test all of the Morrow section.

DST #1 5632-5766 = 5628-5762 log depths
Tool op 30 min, SI 40 min, Op 75 min, SI 45 min.
Tool opened with a very weak blow increasing to strong in 10 min. GTS in 80 min. (50 min. after opening for second flow period) Gas volume remained too small to measure.
Recovered 120 feet gas cut drilling mud.
Mud chlorides before DST = 11,000 ppm.
Recovery chlorides = 12,000 ppm.

	Field readings	Office readings
ISIP	1029/40 min.	1029/40 min.
FP	66-82 & 82-82	67-162 & 75-75
FSIP	1046/45 min.	1118/45 min.
HN	2777-2777	2831-2790

An attempt was made to save a sample of the gas being produced during this test, but the surface flowing pressure proved to be too low to provide a usable sample.

Chester Limestones 5756-5990

After reviewing the Schlumberger logs, it is difficult to say for sure from where the small amount of gas produced during D.S.T. #1 was coming. In this writer's opinion, however, the gas probably came from the top six feet of the Chester, 5756-62, which was included in the DST interval. The topmost limestone in the Chester, 5756-70, in the #1-5 Adams B is correlative to the top Chester bed at 5764-80 in the Columbian Fuel Corporation A. W. Adams J-#1 dry hole located SW SE Sec. 6-358-30W. This zone in the Columbian Fuel dry hole had six feet of porosity from 5764-70, as shown by a Schlumberger Micro-log of the hole, which produced a maximum gas volume of 165 MCFPD on DST. Through perforations at 5764 to 5776, a 48/20 test indicated a gas volume of 465 MCFPD with a 48 hour shutin pressure of 680 psi following three acid treatments which totaled 8,000 gallons. Because of

the poor performance of the Chester zone in question in the dry hole in Sec. 6 and the small amount of low quality porosity developed in the same zone in the #1-5 Adams B, the zone is not felt to be of any commercial value at this location.

Following D.S.T. #1, circulation was lost after circulating approximately 45 minutes at 5762, log depth. Circulation was regained in about 1 hour and drilling commenced immediately thereafter. Approximately 300 units of contaminating gas from D.S.T. #1 was contained in the mud. Because of this large amount of back-ground gas, any new gas increases were difficult, if not impossible, to ascertain during the next three to four hours of drilling. No apparent porosity zones or shows of oil were noted from sample examinations during this time. Examination of the Schlumberger logs also reveals a lack of potentially productive zones in the Chester from 5770 to 5990. Samples from this interval were described as being gray to buff colored, crystalline, fossiliferous, nonporous, chalky limestones with interveining and interbedded gray and black shales.

A twenty unit Methane gas increase was logged as coming from a black shale between 5927 and 5934.

Basal Chester Sand
5990-6018

Samples from this interval were logged as containing gray to cream colored, fine crystalline, non-porous, chalky limestone, white, very fine crystalline, sandy, chalky, non-porous limestones and streaks of gray, very fine grained, tight, angular, quartz sandstone with streaks of interbedded black and varicolored shales. Some, but not all of the sandstone and sandy limestone was heavily saturated with dark heavy oil. The oil staining and saturation was totally absent in some pieces of cuttings which appeared the same as the pieces which did contain oil. Very poor fluorescence was displayed by dry cuttings while a very dark yellow fluorescence was seen when the oil saturated cuttings were immersed in carbontetrachloride. A dark heavy oil residue remained in the spot plate after the carbontetrachloride evaporated.

A 125 unit gas increase was logged as coming from the top six or eight feet of the interval, 15 units

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through the next 10 feet and a 40 unit increase logged as being from 6009-14.

Drilling was suspended at 6016 and samples circulated out of the hole. Because of the poor quality oil show, lack of visible porosity and the poor productive history of the zone in question in the area surrounding this well, the decision was made not to drillstem test this zone.

Ste. Genevieve
6039-6127

The Ste. Genevieve was logged as white to light gray, very fine crystalline, non-porous, slightly chalky limestone which contained very fine grained quartz sand grains and micro-sized oolites. A few scattered pieces of this type limestone which contained dark oil staining were noted. No mud gas increases were logged from this interval.

St. Louis "A" Zone
6127-6181

This portion of the St. Louis was logged as white, light cream and light gray, medium crystalline limestone with medium sized oolites. The limestone was described as chalky and non-porous with gray and pinkish gray translucent sharp chert present in the top 20 to 30 feet. No shows of oil or mud gas increases were logged in this interval.

St. Louis "B" Zone
6181-6231

The section from 6181-6205 consisted of gray, fine crystalline limestone with fine to medium sized oolites. The interval from approximately 6183 to 6186 was logged as containing a trace of crystalline and very small vug porosity with light colored oil stain, good fluorescence and cut. A trace of white, opeque, porcelaneous, partially tripolitic chert with good oil stain was logged in the top 10 feet of the "B" zone.

A mud gas increase of 17 units of methane was logged as coming from 6183 to 6186.

Drilling was suspended at a depth of 6205 and D.S.T. #2 conducted.

D.S.T. #2 6180-6205

Tool op 20 min, si 30 min, op 90 min, si 40 min.

Tool opened with a weak blow, increasing to strong.

GTS in 25 min. (5 min. after beginning of second flow period)

Gas gauged 35 MCF at 15 and 30 min.

Gas gauged 43 MCF at 45 and 60 min.

Gas gauged 49 MCF at 75 and 90 min.

Recovered 410 feet of fluid, -120' gassy free oil, 270' mud cut oil, 20' heavily oil & gas cut mud, no water.

FP 50-66 and 50-133

ISIP 2038 in 30 min.

PSIP 1939 in 40 min.

Samples from the lower portion of the "E" zone, from 6205 to 6231, were described as fine crystalline to granular, fossiliferous, poorly developed crystalline oolitic limestone. No visible porosity was apparent in most of the limestone, but a very few pieces with very small pinpoint and vug porosity which contained good light colored oil stain and displayed good fluorescence and cut were noted.

Because of high background readings of contaminating gas contained in the mud after D.S.T. #2, new gas increases were difficult to detect and evaluate. Three separate small increases of from 7 to 10 units each, were logged as emanating from the interval between 6205 to 6214.

An increase of gray, crystalline to dense nearly lithographic, oolitic limestone was logged from 6220 to 6231. Some gillsonite was noted in this interval. Mottled, gray and white, subopecque, sharp chert was present in this section.

St. Louis "C" Zone

6231-6282

Samples from 6231 to approximately 6270 were described as green to buff colored, crystalline and noncrystalline, fossiliferous, oolitic, very chalky limestone with some gray and pinkish gray, translucent, sharp chert. Slight oil staining in poor quality pinpoint porosity was noted as coming from approximately 6231 to 6236 and 6247 to 6251. Small gas increases, of 7 to 10 units, were logged in these same intervals.

An increase of gray, very dense, non-oolitic, sublithographic limestone and much sharp chert was logged between 6270 and 6281.

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D.S.T. #3, run at 6281

D.S.T. #3 6245-6281

Tool op 15 min, si 20 min, ep 20 min, si 40 min.

Tool open with a few bubbles and died,

Tool was by-passed after 10 min, with a few bubbles
and died.

Recovered 20 feet of mud with no shows.

FP 32-32 and 32-32

ISIF 49 in 20 min.

PSIF 49 in 40 min.

St. Louis "D" Zone
6282 to T.D.

Green to buff colored, non-porous, crystalline, oolitic
limestone was logged between 6282 and 6300. Samples
from below 6300 were not recovered due to lost cir-
culation experienced at 6320.

Schlumberger logs were run at 6320 before an attempt
was made to regain circulation.

Because of the oil recovered on D.S.T. #2 and log indications of
a potential fractured reservoir between approximately 6127 and 6224,
4 1/2 inch casing was run to 6312 and a completion attempt made.

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DRILLING TIME

Drilling time by 1 ft. intervals from 2400 ft. to total depth.

2400-2410	3	-	3	-	2	-	2	-	2	-	2	-	2	-	2	-	2
-2420	2	-	1	-	1	-	2	-	2	-	1	-	2	-	2	-	2
-2430	2	-	3	-	2	-	3	-	3	-	3	-	3	-	2	-	2
-2440	2	-	1	-	1	-	1	-	1	-	1	-	2	-	2	-	2
-2450	2	-	2	-	2	-	2	-	3	-	2	-	1	-	2	-	2
-2460	3	-	2	-	1	-	1	-	2	-	2	-	2	-	2	-	1
-2470	2	-	2	-	2	-	1	-	2	-	2	-	1	-	2	-	2
-2480	4	-	2	-	3	-	2	-	2	-	2	-	2	-	2	-	3
-2490	2	-	3	-	2	-	3	-	2	-	4	-	2	-	2	-	2
-2500	3	-	3	-	2	-	2	-	2	-	3	-	2	-	2	-	3
2500-2510	3	-	2	-	2	-	2	-	1	-	2	-	1	-	1	-	1
-2520	2	-	1	-	1	-	1	-	1	-	1	-	2	-	2	-	1
-2530	1	-	1	-	1	-	2	-	1	-	2	-	2	-	1	-	2
-2540	1	-	1	-	2	-	2	-	3	-	2	-	3	-	3	-	3
-2550	2	-	3	-	2	-	3	-	3	-	3	-	3	-	3	-	2
-2560	3	-	2	-	3	-	3	-	3	-	4	-	3	-	3	-	3
-2570	3	-	3	-	1	-	2	-	1	-	1	-	1	-	1	-	1
-2580	1	-	1	-	1	-	1	-	3	-	3	-	3	-	3	-	3
-2590	3	-	3	-	3	-	3	-	3	-	3	-	3	-	3	-	3
-2600	3	-	3	-	3	-	3	-	3	-	3	-	3	-	3	-	3
2600-2610	1	-	1	-	3	-	3	-	3	-	3	-	1	-	1	-	1
-2620	3	-	3	-	2	-	3	-	3	-	2	-	3	-	3	-	3
-2630	3	-	3	-	3	-	2	-	1	-	1	-	1	-	1	-	1
-2640	1	-	1	-	2	-	2	-	1	-	1	-	1	-	2	-	2
-2650	2	-	2	-	3	-	3	-	1	-	1	-	1	-	3	-	3
-2660	3	-	3	-	3	-	3	-	3	-	3	-	3	-	3	-	3
-2670	3	-	3	-	1	-	3	-	1	-	1	-	1	-	1	-	1
-2680	1	-	1	-	1	-	1	-	1	-	2	-	1	-	1	-	1
-2690	2	-	2	-	2	-	2	-	1	-	1	-	1	-	1	-	1
-2700	1	-	2	-	1	-	1	-	2	-	2	-	2	-	1	-	2
2700-2710	1	-	1	-	1	-	1	-	1	-	2	-	1	-	1	-	1
-2720	1	-	1	-	1	-	2	-	1	-	2	-	2	-	1	-	1
-2730	2	-	2	-	1	-	2	-	2	-	2	-	2	-	1	-	1
-2740	1	-	1	-	2	-	2	-	1	-	2	-	1	-	2	-	2
-2750	2	-	2	-	2	-	1	-	2	-	2	-	1	-	2	-	2
-2760	2	-	2	-	1	-	2	-	2	-	2	-	2	-	2	-	2
-2770	3	-	2	-	2	-	2	-	3	-	2	-	2	-	2	-	2
-2780	3	-	2	-	3	-	3	-	3	-	3	-	3	-	3	-	3
-2790	3	-	3	-	2	-	3	-	3	-	3	-	4	-	4	-	3
-2800	3	-	3	-	4	-	3	-	4	-	4	-	3	-	4	-	4

Trip @ 2646

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2800-2810	4	-	3	-	4	-	5	-	4	-	4	-	3	-	3	-	3
-2820	3	-	2	-	4	-	4	-	3	-	4	-	4	-	3	-	3
-2830	4	-	4	-	3	-	3	-	3	-	2	-	1	-	1	-	1
-2840	3	-	3	-	3	-	2	-	2	-	2	-	1	-	2	-	2
-2850	2	-	2	-	2	-	2	-	4	-	4	-	4	-	4	-	4
-2860	5	-	4	-	4	-	4	-	3	-	4	-	5	-	5	-	4
-2870	4	-	3	-	5	-	2	-	3	-	4	-	5	-	5	-	5
-2880	5	-	3	-	4	-	3	-	4	-	5	-	4	-	4	-	-
-2890	4	-	3	-	4	-	2	-	2	-	2	-	3	-	2	-	3
-2900	3	-	3	-	3	-	2	-	1	-	1	-	1	-	2	-	2

1' correction

2900-2910	3	-	3	-	4	-	4	-	5	-	5	-	3	-	4	-	3
-2920	2	-	4	-	3	-	5	-	5	-	2	-	3	-	5	-	4
-2930	5	-	5	-	5	-	3	-	5	-	2	-	3	-	4	-	5
-2940	5	-	5	-	5	-	4	-	1	-	1	-	5	-	5	-	5
-2950	5	-	5	-	5	-	1	-	1	-	1	-	1	-	1	-	1
-2960	1	-	1	-	1	-	1	-	2	-	2	-	1	-	1	-	1
-2970	2	-	2	-	2	-	2	-	2	-	2	-	2	-	2	-	2
-2980	2	-	2	-	2	-	2	-	2	-	1	-	3	-	1	-	2
-2990	2	-	1	-	5	-	5	-	5	-	5	-	5	-	5	-	5
-3000	5	-	5	-	5	-	5	-	1	-	1	-	1	-	1	-	1

Trip 62934

3000-3010	1	-	1	-	1	-	1	-	1	-	1	-	1	-	1	-	1
-3020	1	-	1	-	1	-	1	-	5	-	5	-	5	-	5	-	5
-3030	5	-	5	-	5	-	5	-	5	-	5	-	2	-	3	-	2
-3040	2	-	2	-	2	-	2	-	1	-	1	-	1	-	1	-	1
-3050	1	-	1	-	1	-	1	-	1	-	5	-	5	-	5	-	1
-3060	1	-	2	-	1	-	1	-	1	-	1	-	1	-	1	-	1
-3070	1	-	2	-	1	-	1	-	1	-	1	-	1	-	2	-	1
-3080	1	-	2	-	1	-	2	-	1	-	1	-	2	-	1	-	2
-3090	1	-	1	-	1	-	1	-	1	-	5	-	5	-	5	-	1
-3100	1	-	1	-	1	-	1	-	2	-	2	-	1	-	1	-	-

1' short

3100-3110	1	-	2	-	1	-	2	-	1	-	2	-	1	-	2	-	2
-3120	1	-	2	-	2	-	1	-	2	-	2	-	1	-	5	-	5
-3130	5	-	2	-	2	-	1	-	1	-	1	-	1	-	1	-	1
-3140	1	-	1	-	1	-	1	-	2	-	1	-	1	-	5	-	5
-3150	5	-	5	-	5	-	1	-	1	-	1	-	1	-	5	-	5
-3160	5	-	5	-	5	-	5	-	5	-	5	-	5	-	5	-	5
-3170	5	-	5	-	1	-	1	-	1	-	1	-	1	-	1	-	2
-3180	1	-	1	-	1	-	1	-	1	-	1	-	5	-	5	-	5
-3190	5	-	5	-	1	-	5	-	5	-	1	-	1	-	2	-	2
-3200	2	-	2	-	1	-	2	-	2	-	2	-	1	-	2	-	2

3200-3210	1	-	2	-	2	-	1	-	1	-	1	-	5	-	1	-	1
-3220	1	-	1	-	1	-	2	-	1	-	2	-	2	-	1	-	1
-3230	1	-	1	-	2	-	1	-	1	-	2	-	1	-	1	-	1
-3240	1	-	1	-	1	-	1	-	2	-	1	-	1	-	1	-	1
-3250	1	-	2	-	2	-	2	-	2	-	1	-	2	-	1	-	2

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3250-3260	1	-	1	-	2	-	1	-	2	-	2	-	2	-	1	-	2	-	1
-3270	1	-	1	-	2	-	1	-	2	-	2	-	1	-	2	-	2	-	1
-3280	2	-	2	-	1	-	2	-	2	-	2	-	2	-	1	-	2	-	1
-3290	1	-	1	-	1	-	1	-	1	-	1	-	1	-	2	-	1	-	1
-3300	1	-	1	-	1	-	1	-	1	-	1	-	1	-	1	-	1	-	1

3300-3310	1	-	1	-	1	-	1	-	1	-	1	-	2	-	1	-	1	-	1
-3320	2	-	1	-	1	-	1	-	1	-	1	-	1	-	1	-	1	-	1
-3330	1	-	1	-	1	-	1	-	1	-	1	-	1	-	1	-	1	-	1
-3340	1	-	1	-	1	-	1	-	1	-	1	-	1	-	1	-	1	-	1
-3350	1	-	1	-	1	-	1	-	1	-	1	-	1	-	1	-	1	-	1
-3360	1	-	1	-	1	-	1	-	1	-	1	-	1	-	1	-	1	-	1
-3370	1	-	1	-	2	-	2	-	2	-	1	-	2	-	2	-	1	-	2
-3380	2	-	2	-	2	-	2	-	2	-	1	-	1	-	1	-	1	-	1
-3390	1	-	2	-	1	-	1	-	1	-	2	-	1	-	2	-	2	-	1
-3400	2	-	2	-	2	-	2	-	1	-	1	-	1	-	1	-	2	-	1

3400-3410	1	-	1	-	1	-	1	-	1	-	1	-	1	-	1	-	1	-	1
-3420	1	-	1	-	1	-	1	-	2	-	2	-	2	-	2	-	2	-	2
-3430	2	-	2	-	2	-	3	-	2	-	3	-	2	-	2	-	2	-	3
-3440	2	-	3	-	2	-	1	-	1	-	1	-	1	-	1	-	1	-	1
-3450	1	-	1	-	1	-	3	-	2	-	2	-	2	-	3	-	2	-	2
-3460	1	-	1	-	1	-	1	-	2	-	2	-	1	-	1	-	1	-	1
-3470	2	-	2	-	2	-	2	-	2	-	2	-	2	-	3	-	3	-	2
-3480	2	-	1	-	1	-	1	-	1	-	1	-	1	-	1	-	1	-	1
-3490	1	-	1	-	1	-	1	-	1	-	1	-	1	-	1	-	1	-	1
-3500	1	-	1	-	1	-	1	-	1	-	1	-	1	-	1	-	1	-	1

Trip @ 3444

3500-3510	1	-	1	-	1	-	1	-	1	-	1	-	1	-	1	-	1	-	1
-3520	1	-	1	-	1	-	1	-	1	-	1	-	1	-	1	-	1	-	1
-3530	1	-	1	-	1	-	1	-	1	-	2	-	2	-	2	-	2	-	2
-3540	2	-	3	-	3	-	2	-	2	-	2	-	2	-	2	-	2	-	2
-3550	2	-	2	-	2	-	2	-	3	-	2	-	2	-	2	-	2	-	2
-3560	3	-	1	-	2	-	2	-	2	-	3	-	2	-	2	-	2	-	2
-3570	2	-	1	-	2	-	2	-	1	-	2	-	2	-	2	-	1	-	3
-3580	2	-	2	-	1	-	1	-	2	-	2	-	2	-	2	-	2	-	1
-3590	2	-	1	-	2	-	2	-	1	-	2	-	2	-	2	-	3	-	2
-3600	3	-	2	-	3	-	2	-	3	-	3	-	3	-	4	-	3	-	3

1' short

1' short

3600-3610	3	-	2	-	1	-	2	-	2	-	2	-	1	-	1	-	2	-	3
-3620	2	-	3	-	2	-	2	-	3	-	3	-	2	-	2	-	2	-	2
-3630	2	-	1	-	2	-	3	-	2	-	3	-	2	-	2	-	2	-	2
-3640	1	-	1	-	2	-	1	-	3	-	2	-	2	-	1	-	1	-	2
-3650	1	-	2	-	2	-	1	-	1	-	1	-	2	-	2	-	1	-	2
-3660	1	-	2	-	1	-	1	-	1	-	1	-	2	-	1	-	1	-	2
-3670	3	-	1	-	1	-	2	-	2	-	1	-	2	-	2	-	1	-	1

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3670-3680	2 - 2 - 1 - 1 - 2 - 1 - 2 - 2 - 2 - 1
-3690	1 - 1 - 1 - 1 - 2 - 2 - 1 - 1 - 2 - 1
-3700	1 - 1 - 1 - 2 - 1 - 2 - 1 - 2 - 1 - 2
3700-3710	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
-3720	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
-3730	2 - 2 - 2 - 1 - 2 - 2 - 1 - 1 - 1 - 2
-3740	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
-3750	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
-3760	1 - 2 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
-3770	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
-3780	1 - 1 - 1 - 1 - 1 - 1 - 1 - 2 - 2 - 1
-3790	2 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
-3800	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 2 - 2
3800-3810	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
-3820	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
-3830	1 - 1 - 1 - 1 - 1 - 2 - 2 - 1 - 1 - 1
-3840	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
-3850	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
-3860	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
-3870	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
-3880	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
-3890	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
-3900	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
3900-3910	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
-3920	2 - 2 - 2 - 2 - 2 - 2 - 1 - 1 - 1 - 1
-3930	1 - 1 - 1 - 1 - 1 - 1 - 2 - 2 - 2 - 2
-3940	2 - 2 - 1 - 1 - 1 - 2 - 1 - 2 - 1 - 2
-3950	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
-3960	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
-3970	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
-3980	1 - 1 - 1 - 2 - 1 - 1 - 1 - 1 - 1 - 1
-3990	2 - 2 - 2 - 1 - 1 - 1 - 1 - 1 - 1 - 1
-4000	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
4000-4010	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
-4020	1 - 1 - 1 - 1 - 1 - 2 - 2 - 1 - 1 - 2
-4030	2 - 1 - 1 - 1 - 2 - 1 - 2 - 1 - 1 - 1
-4040	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
-4050	1 - 1 - 1 - 2 - 1 - 1 - 1 - 1 - 1 - 1
-4060	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
-4070	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
-4080	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
-4090	1 - 1 - 1 - 1 - 1 - 1 - 1 - 2 - 2 - 1
-4100	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1

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4200-4210	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
-4220	1 $\frac{1}{2}$ - 1 - 1 - 2 - 1 - 2 - 1 - 1 - 1 - 1
-4230	1 - 1 - 1 $\frac{1}{2}$ - 1 $\frac{1}{2}$ - 1 - 1 - 1 - 1 - 2 - 2
-4240	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 $\frac{1}{2}$ - 1 $\frac{1}{2}$ - 1 $\frac{1}{2}$
-4250	1 $\frac{1}{2}$ - 1 - 1 - 1 $\frac{1}{2}$ - 1 - 1 - 1 $\frac{1}{2}$ - 1 - 1 - 1
-4260	2 - 1 - 1 - 1 - 1 - 1 - 2 - 2 - 2 - 2
-4270	2 - 2 - 2 - 1 - 1 - 2 - 2 - 2 - 1 - 2
-4280	2 - 2 - 2 - 2 - 1 - 1 - 2 - 2 - 2 - 2
-4290	2 - 2 - 2 - 2 - 2 - 2 - 2 - 1 - 2 - 2 $\frac{1}{2}$
-4300	2 $\frac{1}{2}$ - 2 - 2 - 2 - 2 - 2 - 1 - 2 - 2 - 2

1' short

4300-4310	2	-	1	-	1	1	1	2	1	1	1	1
-4320	2	-	2	-	2	2	2	2	2	2	2	2
-4330	3	-	3	-	3	3	3	3	3	3	3	3
-4340	2	-	2	-	2	2	2	2	2	2	2	2
-4350	2	-	2	-	2	2	2	2	2	2	2	2
-4360	2	-	2	-	2	2	2	2	2	2	2	2
-4370	2	-	2	-	2	2	2	2	2	2	2	2
-4380	2	-	2	-	2	2	2	2	2	2	2	2
-4390	2	-	2	-	2	2	2	2	2	2	2	2
-4400	2	-	2	-	2	2	2	2	2	2	2	2

Trip # 4402

4400	10
4410	20
4420	30
4430	40
4440	50
4450	60
4460	70
4470	80
4480	90
4490	00
4500	10

1' short

[illegible]

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4540-4550	2	-	2	-	3	-	2	-	3	-	2	-	3	-	3	-	3	-	4	-	4
-4560	4	-	4	-	4	-	5	-	4	-	4	-	4	-	4	-	4	-	4	-	5
-4570	4	-	4	-	4	-	4	-	4	-	4	-	4	-	4	-	4	-	4	-	4
-4580	4	-	4	-	4	-	4	-	4	-	3	-	3	-	4	-	4	-	4	-	4
-4590	5	-	4	-	4	-	4	-	4	-	4	-	4	-	4	-	4	-	4	-	4
-4600	5	-	5	-	6	-	6	-	6	-	6	-	7	-	3	-	2	-	2	-	1

Trip @ 4596

4600-4610	1	-	2	-	2	-	2	-	2	-	2	-	2	-	2	-	2	-	2	-	2
-4620	3	-	2	-	3	-	4	-	3	-	4	-	4	-	2	-	2	-	2	-	2
-4630	1	-	2	-	2	-	2	-	2	-	2	-	2	-	2	-	2	-	2	-	2
-4640	2	-	2	-	2	-	3	-	3	-	3	-	2	-	2	-	2	-	2	-	2
-4650	3	-	3	-	3	-	3	-	3	-	3	-	2	-	3	-	3	-	3	-	2
-4660	1	-	1	-	1	-	1	-	1	-	1	-	1	-	2	-	2	-	2	-	2
-4670	2	-	4	-	3	-	2	-	4	-	3	-	3	-	3	-	3	-	4	-	4
-4680	3	-	3	-	2	-	4	-	3	-	3	-	3	-	3	-	3	-	4	-	4
-4690	3	-	1	-	3	-	2	-	2	-	2	-	3	-	3	-	3	-	4	-	4
-4700	2	-	3	-	3	-	3	-	4	-	3	-	4	-	4	-	3	-	4	-	4

1' short

4700-4710	6	-	4	-	4	-	4	-	5	-	5	-	4	-	4	-	6	-	5	-	5
-4720	5	-	4	-	4	-	6	-	5	-	5	-	4	-	4	-	5	-	6	-	5
-4730	5	-	3	-	4	-	4	-	5	-	5	-	4	-	4	-	5	-	6	-	5
-4740	5	-	5	-	4	-	4	-	5	-	5	-	4	-	4	-	5	-	6	-	5
-4750	3	-	4	-	4	-	4	-	4	-	4	-	4	-	4	-	4	-	4	-	4
-4760	5	-	5	-	4	-	6	-	5	-	5	-	4	-	4	-	5	-	6	-	5
-4770	5	-	6	-	6	-	5	-	5	-	5	-	4	-	4	-	5	-	6	-	5
-4780	2	-	2	-	3	-	2	-	4	-	3	-	3	-	4	-	4	-	5	-	4
-4790	4	-	6	-	5	-	5	-	5	-	5	-	4	-	4	-	5	-	6	-	5
-4800	3	-	3	-	3	-	4	-	4	-	4	-	4	-	4	-	4	-	4	-	4

4800-4810	4	-	3	-	3	-	2	-	2	-	2	-	2	-	2	-	2	-	2	-	3
-4820	2	-	3	-	2	-	2	-	5	-	4	-	4	-	4	-	4	-	4	-	3
-4830	4	-	4	-	4	-	4	-	4	-	4	-	4	-	4	-	4	-	4	-	3
-4840	4	-	4	-	4	-	4	-	4	-	4	-	4	-	4	-	4	-	4	-	3
-4850	4	-	3	-	4	-	4	-	4	-	4	-	4	-	4	-	4	-	4	-	3
-4860	3	-	3	-	3	-	4	-	4	-	4	-	4	-	4	-	4	-	4	-	3
-4870	4	-	4	-	4	-	4	-	4	-	4	-	4	-	4	-	4	-	4	-	3
-4880	5	-	5	-	4	-	6	-	6	-	6	-	4	-	4	-	5	-	6	-	5
-4890	5	-	4	-	2	-	4	-	4	-	5	-	5	-	5	-	5	-	6	-	5
-4900	3	-	2	-	3	-	3	-	3	-	3	-	3	-	3	-	3	-	3	-	3

Trip @ 4816

4900-4910	2	-	3	-	2	-	3	-	3	-	3	-	3	-	3	-	3	-	3	-	3
-4920	3	-	3	-	3	-	3	-	3	-	3	-	3	-	3	-	3	-	3	-	3
-4930	3	-	3	-	3	-	3	-	3	-	3	-	3	-	3	-	3	-	3	-	3
-4940	3	-	3	-	3	-	3	-	3	-	3	-	3	-	3	-	3	-	3	-	3
-4950	1	-	1	-	1	-	2	-	2	-	2	-	2	-	2	-	2	-	2	-	2
-4960	2	-	2	-	2	-	2	-	2	-	2	-	2	-	2	-	2	-	2	-	2
-4970	2	-	2	-	2	-	2	-	2	-	2	-	2	-	2	-	2	-	2	-	2
-4980	5	-	4	-	4	-	5	-	4	-	4	-	4	-	4	-	4	-	4	-	4

1' short

Horizon Oil & Gas Co.
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Page #7

4980-4990 6 - 4 - 3 - 4 - 5 - 4 - 4 - 4 - 4 - 4
 -5000 4 - 4 - 5 - 6 - 6 - 4 - 4 - 4 - 4 - 4

5000-5010 2 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
 -5020 4 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
 -5030 4 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
 -5040 2 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
 -5050 3 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
 -5060 4 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
 -5070 4 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
 -5080 4 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
 -5090 2 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
 -5100 3 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1

Trip @ 5021

5100-5110 4 - 1 - 3 - 1 - 1 - 1 - 1 - 1 - 1 - 1
 -5120 4 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
 -5130 3 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
 -5140 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
 -5150 4 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
 -5160 4 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
 -5170 4 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
 -5180 4 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
 -5190 4 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
 -5200 4 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1

1' correction

Trip @ 5200

5200-5210 3 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
 -5220 3 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
 -5230 4 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
 -5240 4 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
 -5250 4 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
 -5260 4 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
 -5270 4 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
 -5280 4 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
 -5290 4 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
 -5300 4 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1

Trip @ 5294

5300-5310 2 - 1 - 2 - 1 - 1 - 1 - 1 - 1 - 1 - 1
 -5320 4 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
 -5330 4 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
 -5340 3 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
 -5350 4 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
 -5360 4 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
 -5370 6 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
 -5380 7 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
 -5390 6 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
 -5400 8 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1

5400-5410 7 - 4 - 4 - 4 - 5 - 5 - 6 - 4 - 3 - 4

Trip @ 5407

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5600	-5610	o	.	.	.	.	.	.	.
	-5620	f	f	f	f	f	f	f	f
	-5630	n	n	n	n	n	n	n	n
	-5640	i	i	i	i	i	i	i	i
	-5650	f	f	f	f	f	f	f	f
	-5660	a	a	a	a	a	a	a	a
	-5670	e	e	e	e	e	e	e	e
	-5680	n	n	n	n	n	n	n	n
	-5690	a	a	a	a	a	a	a	a
	-5700	n	n	n	n	n	n	n	n

5700	-5710	3	-	5	-	4	-	4	-	3	-	4	-	3	-	4	-	4	-	4
	-5720	3	-	3	-	4	-	3	-	3	-	4	-	3	-	4	-	4	-	4
	-5730	4	-	4	-	4	-	4	-	4	-	3	-	6	-	5	-	4	-	4
	-5740	4	-	4	-	5	-	4	-	4	-	4	-	4	-	4	-	4	-	4
	-5750	4	-	3	-	3	-	4	-	3	-	4	-	4	-	3	-	5	-	4
	-5760	4	-	4	-	4	-	4	-	3	-	2	-	2	-	3	-	3	-	2
	-5770	5	-	4	-	3 ^{1/2}	-	3	-	4 ^{1/2}	-	3 ^{1/2}	-	2	-	3	-	2	-	3
	-5780	2	-	2	-	1	-	1	-	1	-	1	-	2	-	2	-	2	-	2
	-5790	1	-	2	-	3	-	2	-	3	-	2	-	2	-	2	-	2	-	1
	-5800	2	-	2	-		-	1	-	1	-	2	-	2	-	2	-	3	-	3

1' short

[illegible]

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[illegible]

Trip # 5975

[illegible]

Trip @ 6106

6200-6210	5	-	4	-	6	-	5	-	5	-	3	-	3	-	3	-	3	-	3
-6220	3	-	3	-	4	-	4	-	4	-	3	-	4	-	4	-	4	-	3
-6230	4	-	4	-	5	-	3	-	4	-	4	-	5	-	4	-	4	-	4
-6240	3	-	4	-	3	-	6	-	3	-	4	-	5	-	4	-	4	-	4
-6250	4	-	4	-	4	-	5	-	5	-	5	-	4	-	4	-	4	-	4
-6260	5	-	5	-	4	-	5	-	4	-	4	-	5	-	4	-	4	-	4
-6270	6	-	5	-	5	-	5	-	4	-	5	-	5	-	4	-	6	-	5
-6280	5	-	6	-	7	-	11	-	8	-	8	-	10	-	8	-	9	-	6
-6290	8	-	3	-	5	-	4	-	3	-	3	-	3	-	3	-	4	-	4
-6300	4	-	3	-	3	-	4	-	3	-	3	-	3	-	3	-	4	-	4

D.S.T. #2 6180-6205
Trip @ 6205

785822

Horizon Oil & Gas Co.
Adams B #1-5
Sec. 5-358-30W
Meade County, Kansas
Drilling Time

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