



00653243

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OPERATOR: PLAINS EXPLORATION

CONTRACTOR: RAINS-WILLIAMSON Rig #2

LOCATION: SW SE Section 35-19S-46W

COUNTY: Kiowa County, Colorado

SPOUDED: May 14, 1969

CASING: Set 234 ft. of 8 5/8" at 248 ft. K.B. with 200 sacks of cement.

ELEVATION: 3800 K.B.
3790 Ground

CORES: None

DRILL STEM TESTS: Three

LOGS: (Welox) Gamma-Guard, Radioactivity and Acoustic Velocity logs.

MUD LOG: Western Lab., Casper, Wyoming. From 3,000 feet to total depth.

COMPLETED: Interested parties agreed to plug and abandon. Permission and instructions were obtained from the State Plugger by the operator. Instructions to the tool pusher, June 3, were: Fill hole with drilling mud, spot 15 sacks of cement across the base of the surface casing, fill hole with mud and place 10 sacks of cement in the top of the surface casing.

MUD PROPERTIES: (For logging) Weight 9.2, Viscosity 58, ph 6.5, water loss 6.2, wall cake 2/32, L.C.M 8#. (Salt Gel, clay, chemicals, L.C.M. and 3,000 gallons of #2 diesel was added at 4,312 ft.)

A 7 7/8 inch hole was drilled from under surface casing to total depth; 5,080 log and 5085 driller.

Drilling time recorder was on the rig and one foot drilling time kept.

30 ft. samples were caught from under surface to 2000', 10 ft samples from 2,000 ft to 5040 and 5 ft. samples from 5040 to T.D.

Samples were examined from 2,000 to 2100 ft. and from 2600 ft. to T. D.

Samples were circulated at the following driller's depths: (4 to 6 ft. deeper than log depths) 3398, 3942, 4670, 4834, 4890, 4938, 4958, 5000 and 5085 T.D.

Strapped Drill Pipe at 3060 = 3057 No correction.

DRILL STEM TESTS - Corrected to Gamma Guard depths.

Drill Stem Test #1 3910-3937(testing shows in Marmaton zone 3925-3931) Open 1 hr. 30 minutes, very weak blow dead in 15 minutes, by-passed tool after 35 minutes, very weak blow for 7 minutes, then dead, shut in 1 hr. Recovered 20 ft. of drilling mud.

IHP 2035#, FP 17-50#, SIP 1015#, FHP 2035#, BHT 117.

Drill Stem Test #2 4634-4664(testing lower Morrow) Open 1½ hr, shut in 1½ hr., Very weak blow, dead in 32 minutes. Recovered 20 ft. of drilling mud.

IHP 2408#, FP 11-189#, SIP 663#, FHP 2408#, BHT 130 (mud wt. 9.3, Viscosity 52, Water loss 5.6, L.C.M 7#) Charts show plugging action.

Drill Stem Test #3 4774-4828(testing shows in the Mississippian-Spergen) Open 15 minutes, weak blow ½ inch, shut-in 1 hr., open 2 hr., no blow for first 30 minutes, then weak blow, shut-in 1½ hr. Recovered 144 ft. of drilling mud with very slight rainbow. Charts show plugging action thru entire test, shut-in pressures show normal or near normal.

IHP 2422#, first period FP 42-56#, ISIP 1008#, Second period FP 14-85#, FSIP 923#, FHP 2422#, BHT 135. Tool was spudded the last 150 ft. to get to bottom.

SUMMARY AND RECOMMENDATIONS

No shows and only slight porosity was logged through the Shawnee and most of the Lansing-Kansas City. Fair-good porosity was logged in Zone 3868-3893 with an occasional trace of stain, no increase in gas reading and appeared to be water bearing.

A fair show was logged from 3925-31 in the Marmaton, DST of the zone recovered only a slight amount of drilling mud. Slight shows in the Marmaton were logged from 3965-69 and 4020-22, these did not appear to warrant testing.

Weak shows in low porosity zones were logged from 4183-88 and 4232-37, zones looked too tight to warrant a test.

In the lower Morrow scattered light shows were logged in tight limey sand and sandy lime from 4631-4687, DST from 4634-64 recovered 20 feet of drilling mud. Though charts show plugging samples and log shows very low porosity and test seems to be adequate.

Drill Stem Test of scattered shows from 4783-4824 in the Mississippian-Spergen recovered 144 feet of drilling mud with a very slight rainbow. Though the charts show plugging action it is believed to be an adequate test. There were no shows logged lower than 4824 feet and it is believed the test had no reasonable chance for commercial production. It was therefore recommended the test be plugged and abandoned.

Formation tops, sample descriptions and drill stem tests are corrected to Gamma Guard depths.

FORMATION TOPS

	Log	Sample
PERMIAN		
Stone Corral	2005(1795)	2009
Neva	2751	2755
Foraker	2830(1970)	2834
Admire	2860	
PENNSYLVANIAN		
Shawnee	3247(1553)	3244
Lansing-Kansas City	3488(1312)	3492
Marmaton	3922(122)	3911
Cherokee	4064(264)	4070
Atoka	---	---
Morrow Shale	4398(598)	4398
Lower Morrow	4631(831)	4637
MISSISSIPPIAN		
	4690	4702
St. Louis	4690(890)	4702
Spergen-Warsaw	4767(967)	4784
Osage Shale Marker	4953(1133)	---
Osage Dolomite	4942(1142)	4947
St. Joe	4978(1178)	4992
?Kinderhook	?5001	---
CAMBRO-ORDOVICIAN		
Arbuckle	5022(1222)	5027
Total Depth	5080	5085

SAMPLE DESCRIPTIONS: Starting at 2700 feet in the Permian.

PERMIAN

- 2700 - 2732 Sand, orange-red, fine grain, micaceous, shaley, trace of anhydrite and gypsum.
- 2732 - 2751 Broken sand as above and shale, orange-red, traces chalky.
- Neva 2751
- 2751 - 2762 Lime, white, chalky & light gray, dense, traces very finely oolitic and fossiliferous, traces silty.

2762 - 2830 Shale, orange-red & sand, orange, silty-fine grain, shaley, trace anhydrite & gypsum, trace gray-green silt & shale.

Foraker 2830

2830 - 2860 Broken lime with orange-red & gray-green silty shale breaks. Lime, chalky & buff-gray, dense, part silty-shaley, part fine-medium oolitic; some calcareous silt & dolomite, pink-buff, very fine crystalline.

Admire 2860

2860 - 3052 Shale, orange-red, part silty-very fine sandy; trace anhydrite & gypsum; trace gray-green shale & shaley silt; traces lime, chalky & pink-buff, shaley.

PENNSYLVANIAN ? 3052

3052 - 3098 Shales & silt as above with few thin lime breaks, chalky, pink-buff, dense & trace medium oolitic.

3098 - 3118 Lime & silt: Lime, part chalky & white-gray, fine crystalline-dense; Silt, buff-white, calcareous, part pink-orange shaley.

3118 - 3171 Shales, orange-red, part silty & some maroon-red shale.

3171 - 3247 Broken shales & silt as above with few lime breaks; lime, white-buff-light gray, fine crystalline dense, trace silty, trace fine fossiliferous.

Shawnee 3247

3247 - 3364 Broken lime with scattered thin shale & silty breaks: Shales, black, carbonaceous & gray-green; silt, buff-gray, calcareous, part gray-green shaley; Lime, part chalky, most buff, light gray, fine crystalline-dense, traces silty-shaley, scattered fine oolitic & fossiliferous, scattered traces finely oolitic with low-fair porosity, no show.

3364 - 3378 Sand, buff-gray, silt-very fine grain, calcareous, part gray shaley, tite, no show.

3378 - 3431 Lime with few gray silty-shaley breaks, 3393-96 is gray-black carbonaceous shale: Lime, part chalky, most buff-gray, fine crystalline-dense, part silty-carbonaceous, trace pyritic, little fine-medium oolitic & fossiliferous, traces chert, gray & gray-white, semi-opaque.

3431 - 3446 Lime, most chalky, some buff-gray, silty-fine crystalline, part dim oolitic-fossiliferous.

3446 - 3453 Shale, gray-black, carbonaceous & little carbonaceous-silty-fine crystalline gray-black lime.

3453 - 3462 Lime, slightly chalky & buff-gray, fine crystalline-dense, trace pyritic, part silty-gray shaley.

3462 - 3488 Sand, broken gray-green shaley: Sand, buff-gray, trace pink-red, silty-very fine grain, micaceous, gray-green shaley & calcareous, tite, no show; little maroon-red & orange-red shale.

Lansing-Kansas City 3488

3488 - 3552 Lime, slightly broken silty-gray shaley: Lime, chalky & white-buff, fine crystalline, trace pyrite, little fine-medium oolitic & fossiliferous; Zone 3529-33 is oolitic-fossiliferous with slight inter fossil porosity, no show.

3552 - 3597 Silt & gray shaley silt with few lime breaks: Silt, gray, part red-brown, very fine grain, micaceous, slightly pyritic, gray-green shaley part, calcareous, tite, no show; Lime, buff-gray, fine crystalline-dense, part silty & gray-green shaley, traces oolitic-fossiliferous.

3597 - 3710 Lime as 3488-3552 more gray to dense, trace pyritic with scattered traces chert, gray-black, light tan & gray-white, semi-translucent to opaque, traces slightly fossiliferous; few streaks of lime in lower part are buff, silty-very finely crystalline, dolomitic, tite.

3710 - 3720 Lime, buff-gray, fine crystalline dense-fairly silty & gray-green shaley.

3720 - 3780 Lime with few gray & gray-green silty-shaley breaks: Lime, little chalky, most buff-gray, dense, part dimly fine-medium oolitic & fossiliferous, trace pyritic, part silty-gray shaley, few scattered cherts, gray-white, gray-black, opaque, part fossiliferous. Zone 3772-76 shale, gray-black, carbonaceous.

3780 - 3797 Sand, gray-white, very fine-fine grain, sub-angular, micaceous, calcareous, part slightly gray-green shaley, tite, no show.

3797 - 3868 Lime with gray shale laminations & few thin gray & gray-black shale breaks: Lime, part chalky, most buff-gray-tan, fine crystalline dense, trace part medium oolitic-fossiliferous, trace pyritic, trace silty-shaley, scattered cherts, gray, tan, slightly vitreous, opaque. Zone 3817-21 is shale, black, carbonaceous.

3868 - 3893 Lime, slightly chalky & buff, medium-medium coarse oolitic-oolitic, broken low-fair-good porosity, most no show, few scattered pieces with slight to medium stain, looks wet-no increase in gas reading.

3893 - 3911 Lime with few thin gray shale laminations & breaks: Lime, chalky & buff-tan, fine crystalline-dense, part medium oolitic, little gray shaley & fine sandy.

3911 - 3922 Sand, mottled gray-white, very fine-fine grain, micaceous, calcareous, part gray-green shaley, few scattered fossil fragments, tite, no show; traces shale, maroon-red-green.

Marmaton 3922

- 3922 - 3951 Lime with few gray-green shale laminations & few black carbonaceous shale breaks: Lime, part medium chalky, most gray-buff, fine crystalline dense, trace pyritic, part fine-medium oolitic-fossiliferous, traces gray-green shaley & silty-fine sandy, scattered chaetetes fragments. Zone 3925-31 is oolitic-fossiliferous with spotted low-fair fossil & vuggy porosity with light stain-trace saturation-trace gilsonitic, medium fluorescence, slow leaching cut, oily taste, ? slight odor, 22 units above background with heavy ends present.
- 3951 - 3964 Sand, gray, silt-very fine grain, sub-angular, micaceous, trace finely pyritic, gray shaley-calcareous, tite, no show.
- 3964 - 4007 Lime with gray & gray-black shale laminations: Lime, part medium chalky, most buff-gray-trace tan, fine crystalline-dense, trace pyritic, trace gray shaley, scattered traces pin-point vuggy porosity, no show, traces tan & tan-brown chert in lower part, traces chaetetes fragments. Zone 3965-69 is medium oolitic, scattered slight pin-point vuggy porosity with spotted light stain.
- 4007 - 4012 Shale, black, carbonaceous.
- 4012 - 4064 Lime with gray & gray-black shale laminations: Lime, part chalky, most medium gray-tan, dense & sub-lithographic, trace pyritic, trace shaley, little medium oolitic. Zone 4020-22 is fine-medium oolitic with scattered fine fossil & pin-point vuggy porosity with light stain, fluorescence & light cut.
- Cherokee 4064
- 4064 - 4183 Broken lime with gray-black, carbonaceous shale breaks: Lime, some chalky, most buff-tan, fine crystalline-dense, trace lithographic, part gray shaley-silty, scattered medium oolitic-fossiliferous, slightly pyritic, traces slightly dolomitic, few scattered cherts, tan, gray-white, slightly vitreous-opaque.
- 4183 - 4188 Lime, buff, very fine crystalline, trace secondary calcite crystals, slight pin-point vuggy porosity, light fluorescence, very slow leaching cut. 55 units above background-thought to be mostly from carbonaceous shale.
- 4188 - 4232 Broken lime & shales as 4064-4183.
- 4232 - 4237 Dolomite, tan-brown, very fine crystalline, trace fine pyrite, carbonaceous & shaley, no visible porosity, medium-dark stain, dull fluorescence, fair slow cut, 50 units above background.
- 4237 - 4260 Broken limes-mostly carbonaceous shale as 4188-4232.
- 4260 - 4321 Lime, slightly broken with carbonaceous shale breaks: Lime, buff-light tan, light & medium gray, trace black, fine crystalline dense, part shaley & carbonaceous, trace pyritic, traces fossiliferous, scattered traces chert, tan & tan-black, opaque.

- 4321 - 4398 Broken limes & shales as above, softer.
- Morrow Shale 4398 ? 4411
- 4398 - 4411 Shale, black, soft carbonaceous-slightly coaly.
- 4411 - 4631 Shale most gray & gray-black, carbonaceous, little light gray & gray-green, traces fine sandy & glauconitic, scattered fine pyrite nodules, some scattered buff & gray, crystalline-shaley, fossiliferous lime fragments. Few loose medium coarse quartz grains in lower part.
- Lower Morrow 4631
- 4631 - 4636 Lime, white chalky & buff-gray, crystalline-dense, part medium coarse fossiliferous, trace pyritic, few loose & coarse sand grains imbedded in lime, few sand grains with fluorescence, slight light stain & trace gilsonitic, trace light cut.
- 4636 - 4658 Broken sand lime and limey sand: Lime, gray-buff & buff-tan crystalline, scattered fossils, part glauconitic fine-very coarse sandy, sub-angular-angular-some rounded & limey sand, fine-very coarse grain, angular-sub-angular-some round, very slight arkosic, calcareous cement, slightly pyritic, mostly loose grains, broken low porosity & permeability, some very light stain in matrix and on loose sand grains, scattered light fluorescence, stained pieces has fair cut. No gas reading, light plant down.
- 4658 - 4669 Silty lime & limey sand: buff-tan lime, glauconitic, silty-fine sandy and sandy, silty-fine grain, calcareous, glauconitic, slightly gray shaley, no visible porosity, no show.
- 4669 - 4687 Sandy lime & limey sand as 4636-4658 with scattered show sand; part is more fine grain & finely pyritic, looks tite.
- 4687 - 4690 Shale, gray & gray-green, part silty-fine sandy.
- MISSISSIPPIAN 4690
- St. Louis 4690
- 4690 - 4706 Lime, part chalky, most buff-light gray, broken fine-medium oolitic, some buff fine crystalline-dense, part finely pyritic & fine sandy, traces glauconitic.
- 4706 - 4767 Lime with gray & gray-green silty-shaley laminations: Lime, broken chalky; buff, fine-medium oolitic; buff, dense; part buff-tan, sub-lithographic, scattered traces secondary calcite, scattered fine sandy laminations, traces pyritic & glauconitic; scattered traces of chert to slightly cherty lower part, chert, quartzose, gray-white, opaque, tan, semi-translucent & blue-white, semi translucent, part opaque & finely fossiliferous.

Spergen X Marker 4767

- 4767 - 4783 Dolomite, gray & gray-buff, very fine crystalline, carbonaceous-shaley, tite, no show.
- 4783 - 4810 Lime & dolomitic lime: part gray most buff tan, very fine-fine crystalline, part scattered medium oolitic-fossiliferous & trace coarse crystalline, part slightly chalky, scattered fine gray & gray white fine cherts. Zones 4783-33 and 4800-10 has scattered low crystalline, scattered fine vuggy & trace fair vuggy porosity with light-medium stain, medium yellow fluorescence, staining gives good streaming cut.
- 4810 - 4824 Lime & dolomitic lime as above, slightly more dolomitic & tan, broken low-fair crystalline & vuggy porosity 4816-18 and 4820-24 with stain, fluorescence & cut as above.
- 4824 - 4861 Lime & dolomitic lime: part chalky, most mottled gray-buff-white, dim fine-medium oolitic & fossiliferous to finely crystalline, slightly pyritic & gray shaley, gray-black carbonaceous shale laminations, traces chert, gray opaque, white semi-opaque, trace milky leached & gray-white semi-translucent, trace quartzose.
- 4861 - 4885 Dolomite, part chalky, dirty gray-tan, part mottled gray, trace pyrite & glauconite, few scattered secondary fine-coarse crystals, grades from slightly to fairly cherty, mottled gray-white, medium oolitic opaque, quartzose, dull white & mottled gray-white-tan, part fossiliferous, opaque, somewhat leached lower part, dolomite is very fine crystalline, some slight crystalline & scattered low-? fair fine vuggy porosity, no show.
- 4885 - 4898 As above, more limey-chalky and more cherty, less porosity.
- 4898 - 4933 Cherty dolomite: Dolomite, most light gray-buff-light cream, very fine-fine crystalline with little medium crystalline, traces finely glauconitic & Pyritic, most looks tite, probably some low crystalline porosity, traces scattered fine vuggy porosity, no show. Cherts, as 4861-4885 more white to milky, slightly to fairly tripolitic, traces of low tripolitic porosity in chert, no show.

Osage Shale Marker 4933

- 4933 - 4942 Dolomitic shale & shaley dolomite; Dolomite, buff-slightly gray, medium gray & gray-black, very fine crystalline, silty, shaley & medium gray to gray black very fine crystalline dolomitic carbonaceous shale, traces glauconitic, trace cherts, gray, gray-white & white opaque, trace slightly glauconitic.
- 4942 - 4978 Cherty dolomite: Dolomite, trace light gray most buff-tan-cream, very fine-fine crystalline, scattered coarse white dolomite & calcite crystals, part glauconitic & pyritic, trace chalky, most looks tite, some low crystalline porosity, no show; Cherts, light gray, most white, opaque, slightly glauconitic, part finely fossiliferous, part leached milky-tripolitic with occasional traces tripolitic porosity, no show, few gray-black shale laminations.

St. Joe 4978

4978 - 5001 Broken cherty dolomite & lime: Dolomite, buff-white-tan, very fine-fine crystalline trace medium crystalline, traces glauconitic & pyritic, some low-trace fair crystalline porosity, no show; Dolomite is cherty, white leached to tripolitic, part slightly gray, quartzose & amber fragments, traces tan white opaque; Lime buff-tan, slight trace chalky, most dense to sub-lithographic, trace tan medium oolitic, few scattered amber secondary crystals.

? Kinderhook 5001

5001 - 5013 Broken cherty dolomite & lime: lime, part chalky, part buff-tan, fine-medium oolitic, part with fair fine vuggy porosity, no show; dolomite, cherty, buff-light tan, fine crystalline, part with slight crystalline porosity, no show. Cherts, most white-milky, leached-tripolitic, some slight porosity, no show; few scattered gray-black & dull green shale laminations.

5013 - 5022 Dolomite & chalky lime: Dolomite, buff-white, fine-medium crystalline, part very fine sandy with occasional medium coarse grain, finely pyritic & glauconitic, tite, no show, traces fine-medium grain, gray-green shaley sand, traces conglomeratic white, fine-coarse crystalline dolomite with fair porosity, no show.

CAMBRO-ORDOVICIAN

Arbuckle 5022

5022 - 5033 Dolomite, white, medium-medium coarse crystalline, slightly glauconitic, few scattered fine-medium coarse round sand grains & dolomite, light tan, fine crystalline, dense; dolomites have scattered low-fair crystalline & vuggy porosity, no show; Lower few feet is cherty gray & gray-rose, opaque to semi-opaque.

5033 - 5080 Dolomite, buff-light tan, very fine-fine crystalline-some medium crystalline, traces pyritic-glauconitic & fine-medium sandy, scattered cherts as above, mostly slightly scattered fair to fine vuggy porosity-some low crystalline porosity, no show.

Total Depth 5080 Log 5085 Driller.

WELEX LOG CALCULATIONS

Depth	ϕ_N	Rw	Sw	Depth	ϕ_N	Rw	Sw
Shawnee				3870 - 73	11	.25	100
3333 - 37	8	.25	100	3873 - 77	8	"	"
3356 - 58	5	"	100	3877 - 80	11½	"	"
3358 - 60	7	"	"	3884 - 90	17	"	59
3360 - 62	5½	"	"	3890 - 93	13	"	100
3380 - 84	5	"	"	Marmaton			
3433 - 42	10	"	"	3922 - 26	7	"	90
Lansing-K.C.				3926 - 30	12	"	100
3632 - 34	4	"	65	3966 - 70	7	"	"
3850 - 54	6	"	100	4055 - 60	4	"	"

WELEX LOG CALCULATIONS

Depth	ϕN	Rw	Sw	Depth	ϕN	Rw	Sw
Mississippian							
4774 - 78	10	.33	100	4912 - 16	12 $\frac{1}{2}$.33	100
4778 - 84	12	"	"	4916 - 20	10	"	"
4800 - 06	5	"	"	4920 - 30	9	"	"
4806 - 16	16	"	88	4944 - 50	11	"	"
4816 - 22	11	"	100	4950 - 67	10-12	"	"
4822 - 26	13	"	"	4967 - 75	8	"	"
4826 - 34	6 $\frac{1}{2}$	"	"	5005 - 10	5	"	"
4834 - 38	11	"	"	5016 - 18	6 $\frac{1}{2}$	"	"
4838 - 42	7	"	"	Arbuckle			
4842 - 46	4 $\frac{1}{2}$	"	"	5028 - 32	3 $\frac{1}{2}$	"	"
4846 - 50	7	"	"	5032 - 36	5 $\frac{1}{2}$	"	"
4850 - 54	11	"	"	5036 - 40	7	"	"
4854 - 58	7	"	"	5040 - 44	11 $\frac{1}{2}$	"	80
4858 - 60	13	"	"	5044 - 54	8 $\frac{1}{2}$	"	100
4860 - 61	10	"	"	5054 - 58	7	"	"
4861 - 66	17	"	"	5058 - 68	8	"	"
4866 - 80	19	"	"	5068 - 70	7	"	"
4880 - 84	17	"	"	5070 - 76	9	"	82
4884 - 90	10	"	"				
4890 - 98	8	"	"				
4898 - 4903	17	"	"				
4903 - 06	12	"	"				
4906 - 12	15	"	"				

DEVIATION RECORD

Depth	Degrees	Depth	Degrees
250	0	3000	3/4
1160	1 $\frac{1}{2}$	3360	1
1900	1 $\frac{1}{2}$	3600	1
2310	1	3805	1
2635	1 $\frac{1}{2}$	4650	3/4

BIT RECORD

No.	Size	Make	Type	Depth Out	Footage	Hours
1	12 $\frac{1}{4}$	HTC	OSC3AJ	250		7
1	7 7/8	Sec	S3S	1202	952	15
2	"	"	S4T	1900	698	16 3/4
3	"	"	S4T	2310	410	14
4	"	"	M4N	2655	345	16
5	"	"	"	3060	405	18 $\frac{1}{4}$
6	"	"	"	3385	325	19 3/4
7	"	"	"	3621	236	18 $\frac{1}{2}$
8	"	"	"	3805	184	18 $\frac{1}{2}$
9	"	"	S88	4642	837	78 $\frac{1}{4}$
10	"	"	M88 rep.	4670	28	4 3/4
11	"	"	M4L	4760	90	19 $\frac{1}{4}$

BIT RECORD Cont'd.

12	7 7/8	Sec.	H7	4834	74	15 1/2
13	"	"	"	4938	104	13
14	"	"	"	5000	62	7 3/4
15	"	"	M88 RR	5085	85	

DRILLING TIME

3000 - 3020	4 3 3 2 2	2 3 3 3 3	3 2 3 2 3	2 3 4 3 4	
3020 - 3040	3 4 3 3 3	2 3 3 3 5	6 5 4 4 3	4 5 4 5 4	
3040 - 3060	4 4 4 4 4	3 5 4 4 4	3 4 4 4 3	4 5 5 4 4	
3060 - 3080	1 1 4 2 3	2 2 3 2 2	2 3 3 2 3	2 2 1 2 3	NB @ 3060
3080 - 3100	2 3 2 2 2	1 2 2 2 2	2 1 2 3 2	4 3 2 4 2	
3100 - 3120	2 4 2 2 4	2 3 2 3 4	2 2 2 2 3	2 2 2 2 2	
3120 - 3140	3 2 2 2 2	1 3 2 2 3	2 3 3 3 3	1 4 3 3 3	
3140 - 3160	3 3 3 3 4	4 3 3 3 4	3 3 3 3 3	3 2 2 2 3	
3160 - 3180	3 3 3 3 3	3 3 4 3 4	3 3 3 2 3	4 4 4 4 4	
3180 - 3200	3 3 3 3 3	3 3 2 2 3	3 4 3 3 4	3 3 2 3 3	
3200 - 3220	5 4 2 3 4	4 4 3 3 3	3 4 4 3 4	3 3 3 3 4	
3220 - 3240	4 4 5 4 4	3 4 3 3 3	1 2 2 2 2	1 1 1 1 1	
3240 - 3260	1 1 1 2 3	3 4 3 2 2	3 4 1 2 3	4 3 3 4 3	
3260 - 3280	4 3 3 4 4	4 4 3 4 5	4 3 4 4 4	3 4 4 3 3	
3280 - 3300	3 4 3 4 3	4 4 5 4 4	3 4 3 4 2	5 4 4 4 4	
3300 - 3320	3 4 4 4 5	4 3 4 3 3	4 2 3 4 3	2 4 4 4 5	
3320 - 3340	4 4 4 4 4	4 5 4 5 6	5 5 5 5 5	7 6 6 5 2	
3340 - 3360	5 7 7 8 7	7 6 4 5 6	6 6 7 7 9	11 6 5 6 6	
3360 - 3380	5 5 4 4 4	6 8 7 6 6	5 4 7 6 5	7 6 7 6 6	
3380 - 3400	5 4 4 6 7	3 4 5 3 4	3 7 5 6 6	5 5 5 4 3	
3400 - 3420	4 2 4 4 4	4 5 5 5 4	5 5 5 5 5	5 5 5 4 4	
3420 - 3440	4 4 5 4 4	5 4 5 5 4	4 5 3 5 5	5 4 3 3 3	
3440 - 3460	2 3 2 2 3	2 2 3 2 3	3 4 5 5 5	5 3 5 4 4	
3460 - 3480	4 5 6 4 6	4 2 4 4 4	4 4 3 3 6	5 4 6 4 5	
3480 - 3500	3 4 4 5 4	4 3 4 5 4	3 4 5 5 5	6 6 7 7 8	
3500 - 3520	5 6 6 5 5	4 6 6 6 5	4 5 6 5 4	4 5 7 6 5	
3520 - 3540	5 5 4 4 4	4 3 6 5 4	5 4 2 3 3	3 4 6 6 6	
3540 - 3560	6 5 6 4 5	5 4 4 3 5	4 4 5 4 4	5 4 4 4 6	
3560 - 3580	8 8 6 6 4	4 5 4 5 5	4 5 5 5 5	5 4 6 4 8	
3580 - 3600	7 7 5 7 6	6 5 5 6 5	5 5 4 3 4	3 5 5 3 4	
3600 - 3620	3 5 5 5 7	6 5 8 8 8	6 6 7 7 6	7 6 8 6 8	
3620 - 3640	6 3 3 4 3	3 4 4 4 4	4 5 2 4 2	4 5 5 4 3	
3640 - 3660	4 4 2 3 4	5 5 5 5 5	5 5 5 6 6	5 6 6 7 8	
3660 - 3680	7 8 6 6 2	3 2 4 6 9	9 8 8 9 7	8 7 7 7 6	
3680 - 3700	9 10 8 8 7	7 5 6 5 5	5 5 6 5 7	9 9 8 7 7	
3700 - 3720	6 7 9 8 7	7 8 6 7 7	6 8 8 9 5	4 6 5 5 6	
3720 - 3740	6 5 5 6 10	7 7 8 8 6	6 8 9 7 7	7 7 6 6 7	
3740 - 3760	4 8 7 7 6	7 6 8 7 6	4 5 6 7 7	5 6 5 7 7	
3760 - 3780	6 7 6 6 7	7 5 5 5 5	7 8 8 8 7	7 8 6 3 10	
3780 - 3800	9 8 6 6 6	6 5 7 7 7	7 6 6 6 5	5 5 5 5 4	
3800 - 3820	5 7 6 7 6	7 11 6 10 10	8 8 6 6 7	6 7 6 8 7	NB @ 3805
3820 - 3840	6 7 4 5 8	6 6 3 7 6	6 5 7 7 6	5 4 5 6 5	
3840 - 3860	4 6 7 7 6	4 6 6 6 7	6 6 5 4 4	4 5 6 4 5	
3860 - 3880	5 7 6 7 7	6 5 6 6 6	7 7 8 4 1	2 3 3 5 4	
3880 - 3900	5 5 4 5 6	4 4 3 2 2	1 2 1 1/2 1/2	1/2 1/2 3 5 6	
3900 - 3920	5 5 7 7 8	7 6 10 9 8	4 6 6 6 6	6 5 6 6 6	
3920 - 3940	4 4 5 5 6	5 5 5 3 4	2 2 2 4 4	4 7 7 6 6	
3940 - 3960	6 7 2 8 8	7 5 7 8 7	7 7 7 9 8	8 6 7 7 7	

3960 - 3980	7 7 8 7 5	6 6 6 6 6	5 4 5 5 5	5 6 6 7 7
3980 - 4000	7 7 7 7 8	8 7 8 7 9	8 10 7 8 8	7 7 8 7 7
4000 - 4020	6 7 6 7 6	7 6 8 4 7	6 6 6 4 3	6 6 5 5 5
4020 - 4040	5 7 7 7 7	6 5 7 6 6	6 6 7 6 7	6 6 6 6 5
4040 - 4060	4 5 4 4 5	6 5 7 5 6	6 6 6 6 6	6 6 6 7 7
4060 - 4080	6 7 7 6 7	6 7 6 7 5	2 2 4 8 5	5 7 7 9 8
4080 - 4100	9 8 8 10 4	3 3 4 7 7	6 8 9 8 8	8 8 8 7 8
4100 - 4120	9 10 8 7 8	5 8 7 8 6	7 8 8 7 8	7 4 5 7 8
4120 - 4140	7 8 8 7 7	6 9 7 9 8	7 8 7 8 7	9 8 5 8 8
4140 - 4160	8 9 8 9 9	8 8 9 7 7	7 9 9 6 11	8 8 8 9 13
4160 - 4180	9 10 9 9 7	5 7 6 8 11	8 5 7 3 6	7 7 11 10 8
4180 - 4200	7 7 7 7 8	7 6 4 3 4	2 3 3 4 2	8 6 6 8 10
4200 - 4220	8 7 8 9 7	7 7 6 8 7	7 6 8 6 7	7 7 6 7 6
4220 - 4240	8 7 8 6 5	5 4 3 5 8	7 5 6 8 9	7 8 8 7 8
4240 - 4260	8 8 8 7 6	5 6 8 8 6	7 9 5 7 5	7 5 6 3 3
4260 - 4280	3 3 3 3 3	3 6 8 7 6	9 10 10 10	6 7 5 7 7 8
4280 - 4300	8 5 5 6 6	6 6 6 5 3	4 6 5 6 5	4 5 4 6 6
4300 - 4320	4 2 3 7 6	6 5 6 5 4	7 7 3 2 3	5 4 5 4 6
4320 - 4340	7 8 6 5 7	8 6 6 3 3	2 5 4 4 2	3 5 5 5 1
4340 - 4360	2 2 2 7 8	4 3 7 6 6	6 9 3 3 5	8 8 7 9 8
4360 - 4380	4 3 3 7 10	8 4 6 6 6	10 8 6 4 5	5 6 8 5 7
4380 - 4400	6 5 6 7 5	6 5 6 7 8	7 7 7 7 6	8 7 8 4 5
4400 - 4420	5 5 6 6 5	2 2 4 3 3	3 5 2 2 3	4 2 3 5 5
4420 - 4440	5 4 4 5 3	3 3 3 3 4	5 4 4 3 3	4 3 3 3 3
4440 - 4460	2 3 2 2 2	2 3 2 3 2	2 3 2 3 3	3 2 3 3 2
4460 - 4480	2 3 2 3 3	3 3 3 4 3	2 3 3 2 3	3 3 2 2 3
4480 - 4500	3 3 3 3 3	4 4 3 4 3	3 3 3 3 4	3 3 3 3 3
4500 - 4520	3 4 3 3 3	3 4 4 3 4	4 4 3 3 4	4 4 5 5 4
4520 - 4540	4 5 3 4 3	3 4 3 4 3	3 3 3 4 3	3 4 4 4 4
4540 - 4560	3 4 4 4 4	3 3 3 3 3	3 3 2 2 3	2 3 3 3 3
4560 - 4580	3 3 3 3 3	3 4 3 3 4	3 4 3 4 3	3 3 4 4 4
4580 - 4600	3 4 4 3 3	4 3 3 3 3	3 3 3 3 4	6 5 5 4 4
4600 - 4620	5 4 4 4 4	4 4 3 4 4	4 4 4 4 5	4 4 6 7 3
4620 - 4640	4 5 3 4 4	4 4 4 4 4	14 10 4 3 4	4 5 25 20 19
4640 - 4660	17 13 9 9 7	8 10 8 10 10	10 11 10 10 8	5 7 10 9 9 NB @ 4642
4660 - 4680	11 11 13 10 12	11 12 12 10 11	8 8 8 5 8	6 7 7 8 8
4680 - 4700	6 6 8 7 9	8 - 7 6 6	6 7 7 6 6	13 16 20 21 23
4700 - 4720	17 12 14 14 19	16 13 15 13 11	13 18 13 16 13	14 16 9 14 16
4720 - 4740	14 12 15 10 15	12 11 11 14 10	12 13 17 14 13	14 14 19 14 18
4740 - 4760	16 17 18 24 15	17 15 16 16 12	15 16 14 15 15	15 14 20 23 17 NB @
4760 - 4780	2 6 6 7 7	9 9 9 10 9	10 11 16 17 14	12 14 20 19 16 4760
4780 - 4800	18 17 17 19 16	14 9 10 9 11	12 11 11 13 13	14 14 13 15 12
4800 - 4820	14 12 12 13 12	11 11 9 10 11	10 10 11 10 14	11 12 14 14 12
4820 - 4840	15 10 17 12 14	16 13 13 11 12	8 13 19 18 5	6 6 8 7 7
4840 - 4860	7 5 7 10 6	7 6 8 8 9	9 7 5 6 5	6 5 2 4 5
4860 - 4880	6 8 6 10 6	8 5 2 4 2	3 2 2 1 1	1 2 2 2 1
4880 - 4900	3 3 4 4 3	3 4 3 3 6	15 12 10 11 8	12 12 14 12 15
4900 - 4920	13 9 13 10 11	10 12 6 11 8	5 7 13 7 8	12 10 7 5 6
4920 - 4940	7 7 9 8 8	9 8 11 14 12	11 11 10 17 15	15 13 8 5 7 NB @
4940 - 4960	6 6 7 7 7	6 9 4 3 3	4 3 3 3 3	3 3 3 3 3
4960 - 4980	3 4 4 - 3	4 5 6 8 7	5 5 6 9 7	8 8 9 9 6
4980 - 5000	5 7 7 8 11	11 7 11 14 14	12 15 17 18 17	23 22 20 18 28
5000 - 5020	8 10 10 12 9	10 10 10 11 8	13 16 11 10 11	12 8 10 7 10
5020 - 5040	8 9 9 1 3	5 5 8 7 7	5 6 6 7 7	7 7 5 6 8

5040 - 5060 5 5 8 9 7 10 5 7 7 7
5060 - 5080 11 8 7 7 7 9 8 10 10 8
5080 - 5085 4 6 5 6 5
5085 Total Depth Driller

7 5 5 7 6 5 5 7 5 10
9 8 8 7 7 6 5 6 6 5

Sincerely yours,

C. R. Neal
C. R. "Smokey" Neal