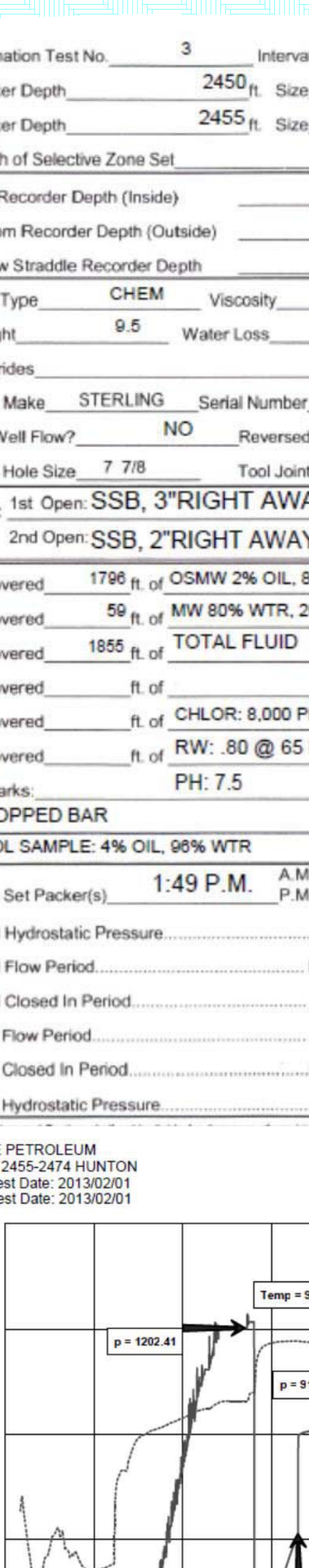
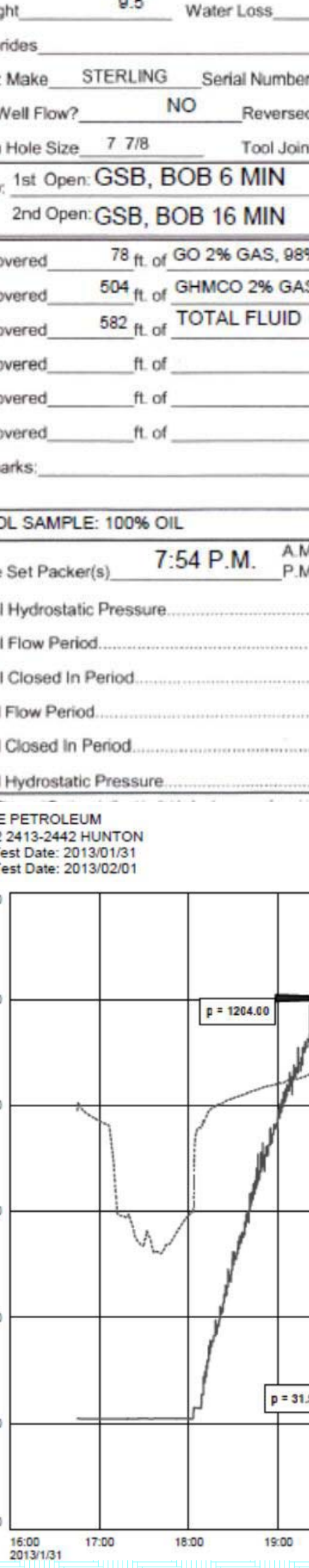
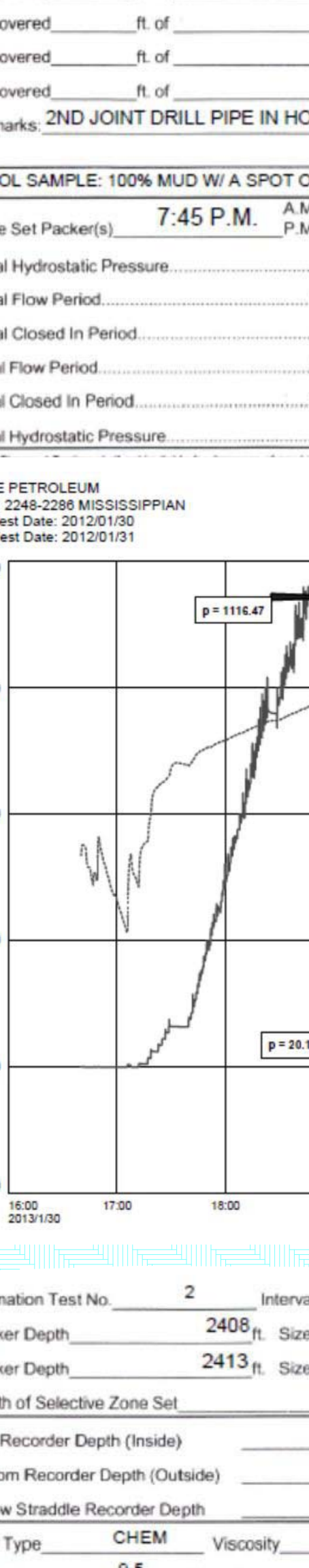
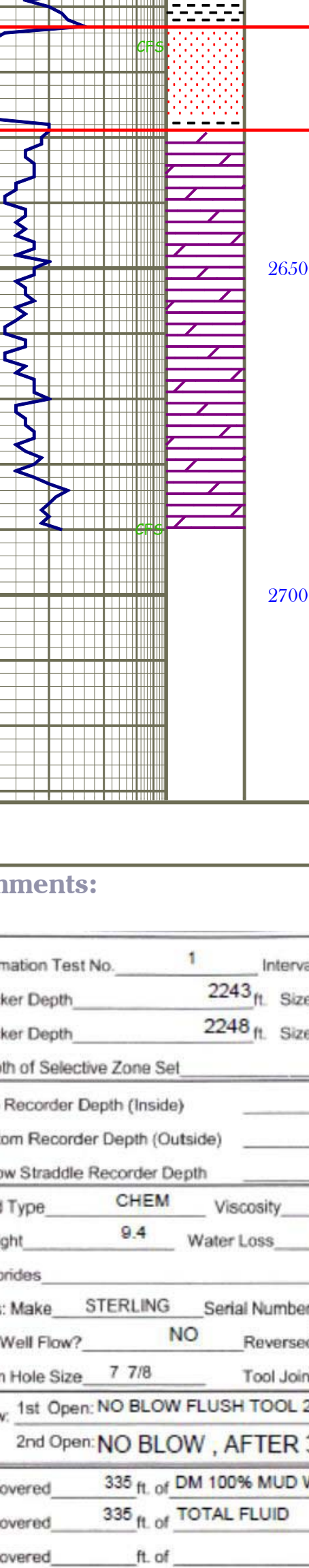
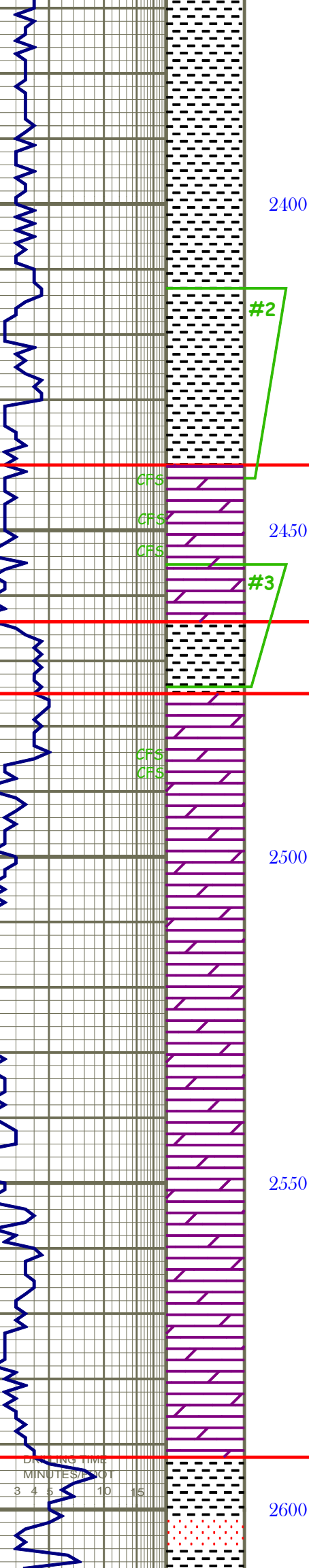
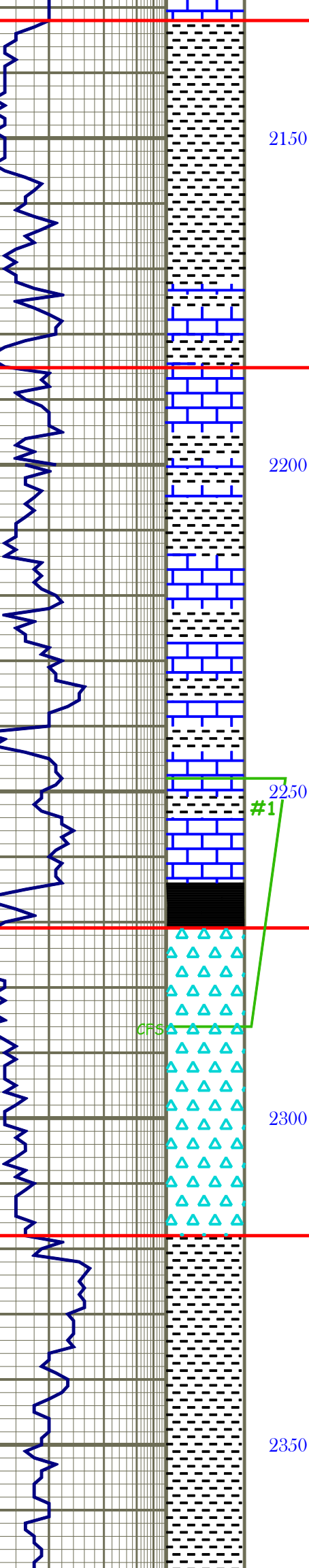
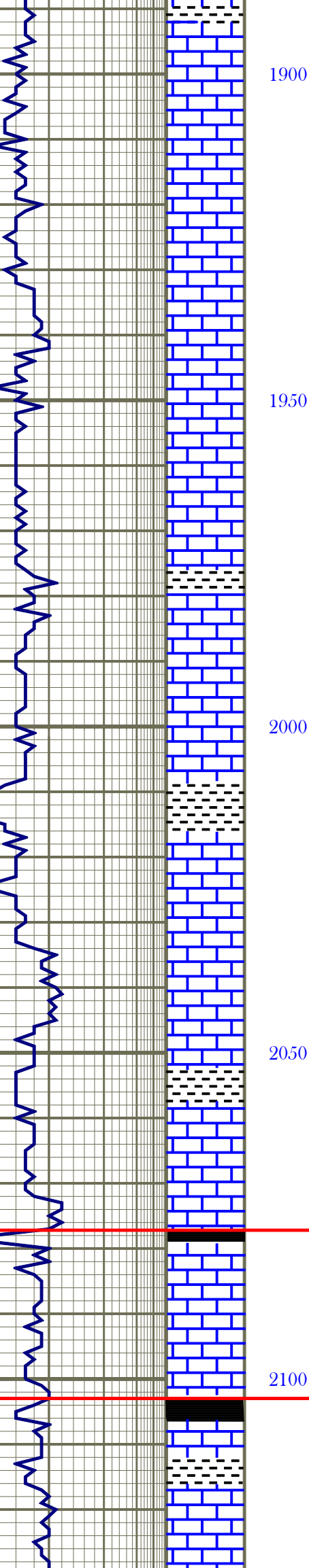
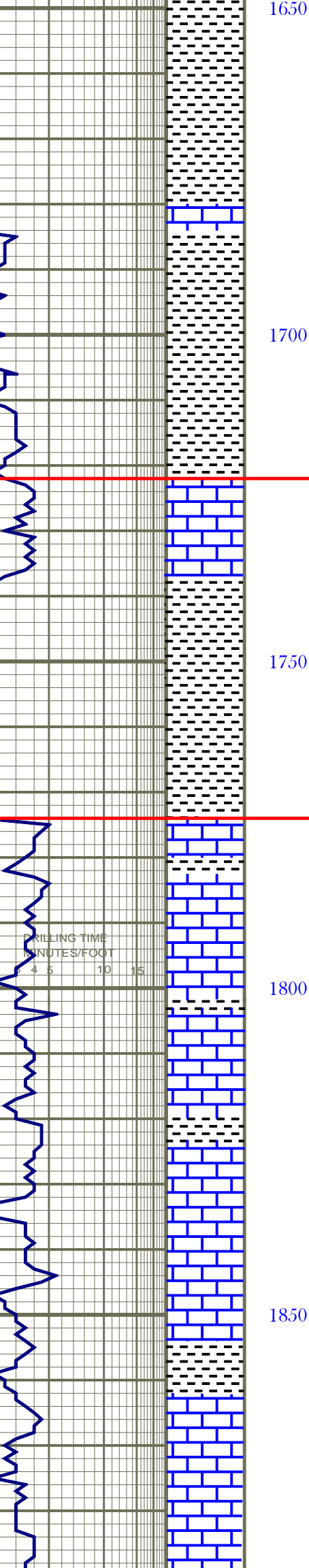


COMPANY: Noble Petroleum, Inc.  
 FIELD: Hannaford #1  
 LOCATION: 1 238 ENL & 630 EML  
 SEC. 36 TWP. 21S. R. 4E  
 COUNTY: Marion STATE: Kansas  
 CONTRACTOR: C & G Drilling Rig #1  
 SPUD: 1 27-13 COMP: 2-3-13  
 SAMPLER: SAIVED FROM 1600' TO 1710'  
 FORMATION: SAMPLE E LOG DATA

FORMATION	1600	1610	1620	1630	1640	1650	1660	1670	1680	1690	1700	1710	1720	1730	1740	1750	1760	1770	1780	1790	1800	1810	1820	1830	1840	1850	1860	1870	1880	1890	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	2000	2010	2020	2030	2040	2050	2060	2070	2080	2090	2100	2110	2120	2130	2140	2150	2160	2170	2180	2190	2200	2210	2220	2230	2240	2250	2260	2270	2280	2290	2300	2310	2320	2330	2340	2350	2360	2370	2380	2390	2400	2410	2420	2430	2440	2450	2460	2470	2480	2490	2500	2510	2520	2530	2540	2550	2560	2570	2580	2590	2600	2610	2620	2630	2640	2650	2660	2670	2680	2690	2700	2710	2720	2730	2740	2750	2760	2770	2780	2790	2800	2810	2820	2830	2840	2850	2860	2870	2880	2890	2900	2910	2920	2930	2940	2950	2960	2970	2980	2990	3000	3010	3020	3030	3040	3050	3060	3070	3080	3090	3100	3110	3120	3130	3140	3150	3160	3170	3180	3190	3200	3210	3220	3230	3240	3250	3260	3270	3280	3290	3300	3310	3320	3330	3340	3350	3360	3370	3380	3390	3400	3410	3420	3430	3440	3450	3460	3470	3480	3490	3500	3510	3520	3530	3540	3550	3560	3570	3580	3590	3600	3610	3620	3630	3640	3650	3660	3670	3680	3690	3700	3710	3720	3730	3740	3750	3760	3770	3780	3790	3800	3810	3820	3830	3840	3850	3860	3870	3880	3890	3900	3910	3920	3930	3940	3950	3960	3970	3980	3990	4000	4010	4020	4030	4040	4050	4060	4070	4080	4090	4100	4110	4120	4130	4140	4150	4160	4170	4180	4190	4200	4210	4220	4230	4240	4250	4260	4270	4280	4290	4300	4310	4320	4330	4340	4350	4360	4370	4380	4390	4400	4410	4420	4430	4440	4450	4460	4470	4480	4490	4500	4510	4520	4530	4540	4550	4560	4570	4580	4590	4600	4610	4620	4630	4640	4650	4660	4670	4680	4690	4700	4710	4720	4730	4740	4750	4760	4770	4780	4790	4800	4810	4820	4830	4840	4850	4860	4870	4880	4890	4900	4910	4920	4930	4940	4950	4960	4970	4980	4990	5000	5010	5020	5030	5040	5050	5060	5070	5080	5090	5100	5110	5120	5130	5140	5150	5160	5170	5180	5190	5200	5210	5220	5230	5240	5250	5260	5270	5280	5290	5300	5310	5320	5330	5340	5350	5360	5370	5380	5390	5400	5410	5420	5430	5440	5450	5460	5470	5480	5490	5500	5510	5520	5530	5540	5550	5560	5570	5580	5590	5600	5610	5620	5630	5640	5650	5660	5670	5680	5690	5700	5710	5720	5730	5740	5750	5760	5770	5780	5790	5800	5810	5820	5830	5840	5850	5860	5870	5880	5890	5900	5910	5920	5930	5940	5950	5960	5970	5980	5990	6000	6010	6020	6030	6040	6050	6060	6070	6080	6090	6100	6110	6120	6130	6140	6150	6160	6170	6180	6190	6200	6210	6220	6230	6240	6250	6260	6270	6280	6290	6300	6310	6320	6330	6340	6350	6360	6370	6380	6390	6400	6410	6420	6430	6440	6450	6460	6470	6480	6490	6500	6510	6520	6530	6540	6550	6560	6570	6580	6590	6600	6610	6620	6630	6640	6650	6660	6670	6680	6690	6700	6710	6720	6730	6740	6750	6760	6770	6780	6790	6800	6810	6820	6830	6840	6850	6860	6870	6880	6890	6900	6910	6920	6930	6940	6950	6960	6970	6980	6990	7000	7010	7020	7030	7040	7050	7060	7070	7080	7090	7100	7110	7120	7130	7140	7150	7160	7170	7180	7190	7200	7210	7220	7230	7240	7250	7260	7270	7280	7290	7300	7310	7320	7330	7340	7350	7360	7370	7380	7390	7400	7410	7420	7430	7440	7450	7460	7470	7480	7490	7500	7510	7520	7530	7540	7550	7560	7570	7580	7590	7600	7610	7620	7630	7640	7650	7660	7670	7680	7690	7700	7710	7720	7730	7740	7750	7760	7770	7780	7790	7800	7810	7820	7830	7840	7850	7860	7870	7880	7890	7900	7910	7920	7930	7940	7950	7960	7970	7980	7990	8000	8010	8020	8030	8040	8050	8060	8070	8080	8090	8100	8110	8120	8130	8140	8150	8160	8170	8180	8190	8200	8210	8220	8230	8240	8250	8260	8270	8280	8290	8300	8310	8320	8330	8340	8350	8360	8370	8380	8390	8400	8410	8420	8430	8440	8450	8460	8470	8480	8490	8500	8510	8520	8530	8540	8550	8560	8570	8580	8590	8600	8610	8620	8630	8640	8650	8660	8670	8680	8690	8700	8710	8720	8730	8740	8750	8760	8770	8780	8790	8800	8810	8820	8830	8840	8850	8860	8870	8880	8890	8900	8910	8920	8930	8940	8950	8960	8970	8980	8990	9000	9010	9020	9030	9040	9050	9060	9070	9080	9090	9100	9110	9120	9130	9140	9150	9160	9170	9180	9190	9200	9210	9220	9230	9240	9250	9260	9270	9280	9290	9300	9310	9320	9330	9340	9350	9360	9370	9380	9390	9400	9410	9420	9430	9440	9450	9460	9470	9480	9490	9500	9510	9520	9530	9540	9550	9560	9570	9580	9590	9600	9610	9620	9630	9640	9650	9660	9670	9680	9690	9700	9710	9720	9730	9740	9750	9760	9770	9780	9790	9800	9810	9820	9830	9840	9850	9860	9870	9880	9890	9900	9910	9920	9930	9940	9950	9960	9970	9980	9990	10000
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1600 Sandstone: gray, very fine grained, well sorted, poorly cemented, excellent intergranular porosity, no show, trace mica, much gray shale.  
 Shale: gray to greenish gray, trace beige dense limestone, no show.  
 Shale: gray to red, arenaceous to silty  
 Shale: gray to red, arenaceous to silty

1650 Shale: gray to greenish gray, much fine grained sandstone w/good intergranular porosity, no show, fair amount mica  
 Shale: gray to greenish gray, much fine grained sandstone w/good intergranular porosity, no show, fair amount mica  
 Limestone: light brown, medium crystalline, fair inter-crystalline porosity, no show, much gray shale  
 Shale: dark gray  
 Shale: dark gray  
 Shale: dark gray

1700 Limestone: off white to brown, coarsely crystalline, dense, little visible porosity, no show  
 Limestone: off white to beige, coarsely crystalline, dense, no porosity, no show  
 Shale: gray  
 Shale: gray to dark gray

1750 Limestone: off white to gray, oolitic, very poor intercrystalline porosity, no show  
 Shale: gray  
 Limestone: off white to gray, medium crystalline, dense, little visible porosity, no show  
 Limestone: off white to gray, medium crystalline, dense, little visible porosity, no show  
 Limestone: off white to very light beige, medium crystalline, dense, little visible porosity, no show, trace glistening residue along fractured edges  
 Limestone: mottled beige to brown, medium crystalline, slightly argillaceous, no show  
 Limestone: mottled beige to brown, medium crystalline, slightly argillaceous, no show  
 Limestone: light gray to light beige, medium crystalline, poor intercrystalline porosity, no show  
 Limestone: off white, medium crystalline, dense, no visible porosity, no show  
 Shale: red to gray

1800 Limestone: gray, fine crystalline, very poor intercrystalline porosity, no show  
 Limestone: mottled beige to brown, medium crystalline, oolitic, oolitic, little visible porosity, no show  
 Limestone: gray to light brown, medium to coarsely crystalline, little visible porosity, fossiliferous w/ fenestrate bioherms  
 Limestone: beige to light brown, medium to coarsely crystalline, dense, little visible porosity, no show  
 Limestone: beige to light brown, coarsely crystalline, no visible porosity, no show, some gray to black shale  
 Limestone: beige to light brown, medium to coarsely crystalline, poor intercrystalline porosity, no show, trace gray oolitic chert  
 Limestone: gray to light brown, fine to medium crystalline, poor intercrystalline porosity, no show, fair amount gray oolitic chert, fossiliferous w/ fusulines  
 Limestone: tan, coarsely crystalline, dense, no porosity, no show, trace gray chert, dark gray shale  
 Limestone: off white, fine to medium crystalline, slightly cherty, little visible porosity, no show, some dark gray shale  
 Limestone: off white to gray, medium to coarsely crystalline, poor intercrystalline porosity, no show, shale gray to black  
 Limestone: off white to gray, medium to coarsely crystalline, poor intercrystalline porosity, no show, much vari-colored shale  
 Limestone: off white to gray, medium to coarsely crystalline, poor intercrystalline and trace vuggy porosity, no show, some vari-colored shale  
 Limestone: off white to tan, medium to coarsely crystalline, little visible porosity, no show, fair amount vari-colored shale

1850 Limestone: light brown, coarsely crystalline, little visible porosity, no show, fair amount vari-colored shale  
 Shale: gray to dark gray  
 Limestone: off white, medium to coarsely crystalline, slightly cherty, little visible porosity, no show  
 Limestone: off white, medium to coarsely crystalline, slightly cherty, little visible porosity, no show  
 Limestone: off white, medium crystalline, poor intercrystalline porosity, 2 to 3 cuttings w/very slight show free oil & bright yellow fluorescence, trace gray chert and pyrite  
 Limestone: light brown to gray, medium to coarsely crystalline, poor to fair intercrystalline porosity, no show much gray shale  
 Limestone: beige, oolitic, poor intercrystalline porosity, no show  
 Shale: gray to dark gray  
 Limestone: off white to beige, medium crystalline, little visible porosity, no show  
 Limestone: beige to gray, coarsely crystalline, no visible porosity, no show, trace chert  
 Limestone: gray, coarsely crystalline, dense, no porosity, no show

1900 Limestone: gray, coarsely crystalline, dense, no porosity, no show  
 Limestone: off white, medium crystalline, dense, little visible porosity, no show  
 Shale: gray to red  
 Shale: gray to red  
 Shale: gray to red  
 Limestone: beige to light brown, coarsely crystalline, no visible porosity, no show  
 Shale: gray to black  
 Limestone: gray, to beige, coarsely crystalline, very hard, no porosity, no show  
 Shale: gray to dark gray  
 Shale: greenish gray  
 Limestone: gray to brown, coarsely crystalline, dense, no porosity, no show  
 Shale: dark gray to light brown, some calcareous  
 Limestone: off white to beige to gray, medium to coarsely crystalline, very poor intercrystalline porosity, no show  
 Shale: gray to dark gray  
 Limestone: mottled beige to gray, some argillaceous, most dense w/no porosity, no show  
 Shale: gray to dark gray  
 Limestone: gray, medium crystalline, no visible porosity, no show  
 Shale: dark gray to black

1950 Chert: off white, trirapitic, good trirapitic porosity, fair to good show free oil, no odor, light brown even stain, pale yellow fluorescence in 20% of 2287 drilling sample  
 Chert: white to off white to amber, fresh, conoidal no show, no fluorescence  
 Chert: off white to amber, trace orange and green fresh, conoidal, glaucous, no show, no fluorescence  
 Chert: off white to amber to gray, fresh, conoidal, trace vuggy porosity, no show, no fluorescence, trace shell hash  
 Shale: gray to green, fair amount pyrite  
 Shale: dark gray to greenish gray, trace red  
 Shale: dark gray  
 Shale: dark gray  
 Shale: gray to greenish gray  
 Shale: gray to greenish gray  
 Shale: gray to greenish gray  
 Shale: dark gray to greenish gray  
 Shale: dark gray  
 Shale: dark gray to grayish green  
 Shale: gray to dark gray  
 Shale: gray to dark gray  
 Shale: gray to dark gray

2000 Shale: gray to dark gray, to brownish gray, fine crystalline, poor intercrystalline porosity, no show, trace black carbonaceous  
 Dolomite: light brown with oil stain, fine crystalline, porous, good intercrystalline porosity, light brown  
 Dolomite: light brown, fine to coarsely crystalline, some large rhombohedral crystals, some sucrose, excellent intercrystalline porosity, trace chert and pyrite  
 Dolomite: light brown, fine to coarsely crystalline, some large rhombohedral crystals, some sucrose, excellent intercrystalline porosity, trace chert and pyrite  
 Dolomite: off white to gray, coarsely crystalline, large rhombohedral crystals, excellent intercrystalline porosity, trace chert and pyrite  
 Dolomite: off white to light beige, coarsely crystalline, large rhombohedral crystals, excellent intercrystalline porosity, trace chert and pyrite  
 Dolomite: off white to light beige, coarsely crystalline, large rhombohedral crystals, excellent intercrystalline porosity, trace chert and pyrite  
 Dolomite: light brown, coarsely crystalline, large rhombohedral crystals, excellent intercrystalline porosity, trace chert and pyrite  
 Dolomite: light brown, fine to coarsely crystalline, some large rhombohedral crystals, some sucrose, excellent intercrystalline porosity, trace chert and pyrite  
 Dolomite: light brown, fine to coarsely crystalline, some large rhombohedral crystals, some sucrose, excellent intercrystalline porosity, trace chert and pyrite  
 Dolomite: brown, sparitic, little visible porosity, trace brown chert  
 Dolomite: dirty gray, arenaceous, little visible porosity, trace chert  
 Dolomite: dirty gray, arenaceous, little visible porosity, trace chert  
 Shale: dark gray to black  
 Sandstone: frosted clear grains, fine to medium grained, poorly sorted, rounded to subrounded, very well cemented w/siliceous cement, poor intergranular porosity, no show  
 Shale: dark gray to black  
 Sandstone: frosted clear grains, fine to medium grained, poorly sorted, rounded to subrounded, very well cemented w/siliceous cement, poor intergranular porosity, no show  
 Dolomite: light brown, medium to coarsely crystalline, little visible porosity, trace oolitic chert  
 Dolomite: gray to light brown, medium to coarsely crystalline, poor to fair intercrystalline porosity, trace white chert  
 Dolomite: light brown, medium to coarsely crystalline, poor to fair intercrystalline porosity, fair amount white chert  
 Dolomite: brown, medium to coarsely crystalline, poor to fair intercrystalline porosity, fair amount white chert  
 Dolomite: light brown, medium to coarsely crystalline, poor to fair intercrystalline porosity, trace white chert  
 Dolomite: light gray to light beige, medium to coarsely crystalline, little visible porosity, trace white chert

Brown Lime 1722 - 295

Lansing 1774 - 347

Stark 2077 - 650

Hushpuckney 2103 - 676

BKC 2132 - 705

Marmaton 2185 - 758

Mississippi 2271 - 844

Kinderhook 2318 - 891

Hunton 2440 - 1013

Maquoketa 2464 - 1037

Viola 2475 - 1048

Simpson 2592 - 1165

Simpson SS 2613 - 11186

Arbuckle 2629 - 1202

Supplemental Hunton descriptions below

2286 15" x 30"

2442 15" x 30"

2442 30" x 24"