

JAMES B. DEVLIN
PETROLEUM GEOLOGIST
301 CENTRAL BUILDING
WICHITA, KANSAS

Petroleum Management Inc.
1515 Plaza Bldg.
Wichita, Kansas

Re: Warren #1
SE SE Sec. 35-33-17
Comanche County, Kansas

Dear Sirs;

The following is my geological report on your #1 Warren. The drilling progress was observed through all possible producing zones and the samples were microscopically examined. All zones with any staining were drill stem tested. An electric log was run and no zones were found to be untested other than zones that calculated a high water saturation.

FORMATION TOPS

Topeka	3298*	-1556
Elgin Sand	3698	-1956
Heebner Shale	4094	-2352
Lansing	4290	-2548
Massey Zone	4878	-3136
Cherokee	4916	-3174
Mississippian		
Spergen	4983	-3241
Warsaw	5060	-3318
Cowley Facies	5206	-3464
Kinderhook	5528	-3786
Viola	5562	-3820
Simpson Dolomite	5700	-3958
Simpson Sand	5737	-3995
T.D.	5776	-4034

* All Tops are electric log tops.

Elevation: 1742 K.B. 1739 D.F. 1732 G.L.

STRATIGRAPHY OF IMPORTANT POROUS ZONES

Elgin Sand

3700 to 3710: Fine to medium grained, angular white sand with good porosity. No shows. Calculates water bearing.

3854 to 3872: Sand as above. No shows. Calculates water bearing.

Lansing

4336 to 4360: Grey, finely crystalline limestone with some chalky white limestone. Good intergranular porosity with a trace of light brown staining at the top. Covered by DST #1.

DST #1

- 4330 to 4350: Open 15", S.I. 30", Open 30", S.I. 30". Strong blow decreasing at the end. Recovered 3590' of salt water. BHP 1667/1667 FP 272/1615
- 4520 to 4530: Buff, chalky, finely crystalline limestone. No shows.
- 4596 to 4606: Buff, finely crystalline limestone with fair to good inter-crystalline porosity. No shows.
- 4638 to 4646: Buff to white, oolastic limestone with good porosity. No shows.

Massey Zone

- 4880 to 4882: Tan, finely crystalline limestone with fair inter-crystalline porosity. No shows. Log indicates only two feet of porosity, the water saturation in this porous zone is low. Judged to be not worth testing.

Cherokee

The Cherokee section consisted of buff to white, shaley limestones with no effective porosity. No sand was present in this section.

Mississippian
Spengen

- 4982 to 5026: Buff to tan, fine to medium crystalline dolomitic limestone with some translucent tan and grey chert. Very little porosity was evident. There was a slight show of oil on the face of several pieces of chert from 5010 to 5020, but the log indicated that this section was tight. Covered by DST #2.

Warsaw

- 5026 to 5031: Buff to gray, cherty dolomitic limestone with fair to good inter-crystalline porosity and what appears to be fracture porosity. Slight brown oil staining. This zone is the one that is thought to have given up the gas on DST #2. It is my opinion that an additional 10' or so of porosity like this would indicate a commercial reservoir.

DST #2

- 4990 to 5050: Open 15", S.I. 30", Open 30", S.I. 30". Gas to the surface in 7 min., stabilized at 84 MCF in 15 min. Recovered 335' of heavily gas cut mud, no water. BHP 1787/1719 (building) FP 68/93

Cowley Facies
of the Osage

This zone consists of about 320' of gray, shaley limestone and dolomite with some interbedded grey chert. The entire zone is too shaley to have any effective porosity.

Kinderhook Lime

5526 to 5550: White finely crystalline limestone with some grey opaque chert with a few spots of faint staining on the chert faces. This zone was covered on DST #3. No porosity was evident on the log.

DST #3

5503 to 5545: Shut in 30", Open 60", Shut in 30". Flushed tool. Weak blow that died in 15". Recovered 20' of mud. BHP 28/28 FP 9/19

Viola

5562 to 5700: The Viola section is homogenis from top to bottom consisting of buff to grey finely crystalline dolomite with grey chert. The porosity is uniformly low and no shows were encountered.

Simpson Dolomite

5700 to 5734 Tan sucrosic, rhombic dolomite with some green shale and a few clusters of rounded, medium grained white sand. The dolomite had excellent sample porosity but no shows were observed. The log calculations indicate high water saturations.

Simpson Sand

5737 to 5776: Below the shale break from 5734 to 5737 it was noted that the dolomite described above, graded into a dolomitic sand as the well approached T.D. This sand was the typical well rounded and sorted, fine to medium grained Simpson Sand expected in the area. No shows were observed.

CONCLUSIONS and RECOMMENDATIONS

After careful examination of the log it was my conclusion that the only possible pay zone in the well was the five feet at the top of the Warsaw, covered by DST #2 and it was concluded that this zone was too thin to be a commercial reservoir. It was recommended that the test be plugged and abandon.

As is shown by the structural comparison on the next page, this well ran low on the Penn markers and thickened in the lower Mississippian indicating an even lower Ordovician surface. I would recommend that in view of the size of the acreage block and the steepness of dip off of the better controlled productive features, that a shooting program be initiated to the South and East of this well in hopes of finding a drillable feature. Special attention should be given to the shallow maps and the thinning or isotime maps.

James B. Devlin

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Petroleum Geologist

STRUCTURAL COMPARISON

<u>Formation</u>	<u>Warren #1</u>	<u>Huber #1 Warren*</u>	<u>Conoco Huck-Hall Unit**</u>
Heebner	-2352	-2323	-2271
Lansing	-2518	-2517	-2467
St. Louis	none	none	-3167
Spengen	-3241	-3229	-3203
Warsaw	-3318	-3293	-3273
Cowley	-3464	-3407	-3393
Kinderhook	-3787	-3692	none
Viola	-3820	-3731	-3667
Simp. Dolo.	-3958	-3879	-3807
Simp. Sd.	-3995	-3929	-3855

* A dry hole $1\frac{1}{2}$ miles northwest of P.M.I. #1 Warren

** A well in the Beals Pool, 3 miles west of P.M.I. #1 warren, producing from the Lansing, Mississippian, and Simpson Dolo.

DRILLING TIME

P.M.I. #1 Warren
SE SE Sec 35-33-17
Comanche County, Kansas

3100 to	3110	3-3-4-3-3-4-X-2-2-2	X... 1' corr.
	3120	2-1-1-2-2-2-2-2-2-2	
	3130	1-1-1-1-1-1-2-1-1-2	
	3140	1-2-2-1-2-2-1-2-2-1	
	3150	1-1-1-1-1-1-1-2-1-2	
	3160	1-1-1-1-1-1-1-2-3-2	
	3170	2-3-3-2-2-4-4-2-2-2	New bit @ 3170
	3180	3-3-2-2-2-3-2-2-2-2	
	3190	2-2-3-2-3-2-2-1-1-1	
	3200	1-1-1-1-1-1-1-2-1-2	
3200 to	3210	1-2-1-1-2-1-2-1-1-1	
	3220	1-1-1-1-1-1-2-1-1-1	
	3230	1-1-1-2-2-3-2-2-1-2	
	3240	1-2-2-2-2-2-2-2-2-2	
	3250	1-2-1-2-2-1-1-2-2-2	
	3260	2-2-1-1-2-2-2-2-2-2	
	3270	2-2-2-2-2-2-2-2-2-1	
	3280	2-1-1-1-1-1-1-1-1-1	
	3290	1-1-1-1-1-1-1-1-1-1	
	3300	2-2-1-1-1-1-1-1-1-1	
3300 to	3310	1-2-1-1-2-2-2-2-2-2	
	3320	2-1-1-1-1-1-2-2-2-2	
	3330	2-2-2-2-2-2-1-2-2-2	
	3340	1-2-2-1-3-2-2-2-2-2	
	3350	2-2-3-2-2-2-3-1-2-2	
	3360	2-X-X-2-2-2-2-2-2-2	X... 2' corr.
	3370	1-1-1-1-1-2-1-2-2-1	
	3380	1-1-1-1-1-1-1-1-1-1	
	3390	1-1-1-1-1-2-1-2-2-1	
	3400	2-1-2-1-3-1-1-1-1-1	
3400 to	3410	1-1-1-1-2-2-1-2-2-2	
	3420	1-2-2-2-1-X-2-2-2-1	X... 1' corr.
	3430	3-2-2-1-2-2-2-2-2-1	
	3440	2-2-2-2-2-2-2-2-3-2	
	3450	1-1-1-1-1-1-1-3-2-1	
	3460	1-1-1-1- 1 - 1 - 1 - 1 -1-1	
	3470	1-1-1-1-1-1-1-1-1-1	
	3480	2-2-3-3-3-3-2-2-2-3	
	3490	2-2-2-2-4-3-3-2-2-2	
	3500	2-1-2-1-1-1-2-2-1-1	
3500 to	3510	1-2-2-1-1-2-2-2-2-2	
	3520	2-2-2-2-2-3-2-2-2-2	
	3530	3-3-2-2-3-2-2-3-3-3	
	3540	3-3-2-3-2-2-2-2-2-2	
	3550	2-3-3-3-2-2-1-1-1-1	
	3560	1-1-2-2-2-2-1-2-2-2	
	3570	4-2-3-3-2-3-3-4-4-X	X... 1' corr.
	3580	3-3-2-3-2-3-3-3-3-3	
	3590	2-3-3-2-2-3-3-2-3-2	
	3600	2-2-2-3-2-2-3-3-3-3	

DRILLING TIME

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SE SE Sec 35-33-17
Comanche County, Kansas

3600 to	3610	3-2-2-3-3-3-3-3-3-3
	3620	3-3-3-3-2-3-3-3-3-3
	3630	3-3-3-2-3-3-4-4-3-3
	3640	2-4-3-2-2-1-2-2-1-1
	3650	1-1-2-2-2-2-2-3-3-3
	3660	1-1-1-1-1-1-1-3-4-3
	3670	4-4-3-2-2-2-4-4-3-2
	3680	3-3-3-3-4-3-3-2-3-2
	3690	4-2-2-2-3-3-4-4-3-3
	3700	3-4-3-4-2-2-3-2-2-1
3700 to	3710	2-2-2-2-2-2-1-2-1-2
	3720	1-2-3-3-3-3-3-3-3-3
	3730	4-3-3-3-4-3-3-2-2-3
	3740	2-3-3-3-3-2-2-3-2-3
	3750	2-3-3-3-2-3-3-2-3-2
	3760	3-3-2-2-3-2-3-3-2-3
	3770	2-3-2-3-2-3-2-2-3-3
	3780	2-3-2-2-3-3-2-2-3-2
	3790	3-2-2-2-2-2-3-3-2-2
	3800	3-3-3-2-2-3-3-2-2-2
3800 to	3810	2-2-2-2-2-3-3-2-3-1
	3820	2-3-2-2-2-2-3-2-2-2
	3830	2-3-2-3-2-2-2-2-3-2
	3840	3-2-3-2-2-1-1-1-2-1
	3850	1-1-1-2-2-2-2-3-2-3
	3860	2-3-3-2-1-1-2-2-2-2
	3870	2-1-1-1-1-1-1-1-1-1
	3880	1-1-1-1-1-1-4-2-2-3
	3890	2-2-2-3-3-4-3-3-1-1
	3900	2-1-2-1-2-1-1-2-2-2
3900 to	3910	3-2-3-2-2-2-1-2-1-2
	3920	2-2-2-2-1-1-2-2-2-2
	3930	1-2-2-1-1-2-1-2-1-2
	3940	1-2-1-1-2-2-2-1-1-1
	3950	1-1-2-2-1-1-2-2-1-2
	3960	2-1-1-1-1-1-1-1-1-1
	3970	1-1-1-1-1-1-1-1-1-2
	3980	1-1-1-2-1-1-1-1-1-1
	3990	1-2-1-1-2-2-2-2-1-1
	4000	1-1-1-1-1-1-1-1-1-1
4000 to	4010	1-1-1-X-3-3-3-2-2-3
	4020	3-2-3-2-3-2-2-3-1-1
	4030	2-1-2-2-1-1-2-3-2-2
	4040	2-2-1-1-2-2-2-2-2-2
	4050	2-3-2-3-2-2-2-3-2-2
	4060	3-2-2-3-2-3-3-2-3-3
	4070	2-2-2-2-3-2-2-4-3-3
	4080	3-4-3-2-2-3-4-4-4-3
	4090	3-2-3-3-2-2-1-2-4-3
	4100	2-3-3-4-3-3-4-2-2-2

New bit @ 3667

X... 1' corr.

DRILLING TIME

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SE SE Sec 35-33-17
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4100 to	4110	2-2-2-4-3-3-4-4-3-4
	4120	4-4-3-4-4-4-3-4-3-3
	4130	4-4-4-3-3-4-4-X-3-4
	4140	3-3-4-3-4-3-4-4-4-4
	4150	4-2-3-3-3-4-4-3-3-3
	4160	3-2-2-2-2-2-4-2-2-2
	4170	2-2-2-3-2-2-2-2-2-1
	4180	2-2-2-3-2-3-3-2-4-2
	4190	3-3-3-3-2-2-3-3-3-2
4200 to	4210	3-3-3-2-3-3-2-3-3-4
	4220	4-3-3-4-4-3-4-4-3-5
	4230	3-6-4-5-4-4-3-4-3-4
	4240	4-4-3-3-4-4-3-4-4-5
	4250	4-4-4-4-5-4-4-3-3-4
	4260	3-3-4-5-4-4-5-4-5-4
	4270	5-5-4-4-4-4-4-4-4-4
	4280	4-4-4-4-4-4-4-4-3-4
	4290	4-4-4-4-4-4-3-3-4-3
	4300	3-3-3-4-4-5-4-3-4-4
4300 to	4310	4-4-5-4-5-5-5-5-4-X
	4320	4-4-5-5-5-4-4-4-3-4
	4330	3-5-5-4-6-5-4-4-4-6
	4340	6-6-6-7-7-6-4-6-5-3
	4350	2-2-3-2-2-3-2-2-3-2
	4360	3-3-5-3-3-3-3-3-2-3
	4370	2-3-3-3-3-4-4-4-4-5
	4380	5-4-5-5-4-2-2-2-2-5
	4390	5-5-5-5-5-4-3-4-4-3
	4400	3-4-3-3-3-4-5-5-3-2
4400 to	4410	5-4-6-3-4-5-5-5-5-5
	4420	5-6-7-5-5-5-6-5-7-6
	4430	6-5-6-4-3-3-4-4-5-5
	4440	4-4-5-3-5-6-6-6-6-4
	4450	5-3-3-5-6-5-3-6-5-4
	4460	4-5-4-4-4-4-4-7-5-5
	4470	5-5-8-9-6-6-5-6-5-4
	4480	4-5-5-6-5-5-7-6-4-8
	4490	6-10-10-7-6-7-6-5-8-9
	4500	9-9-10-10-4-4-4-3-5-4
4500 to	4510	4-4-6-5-7-5-8-6-6-6
	4520	5-6-6-6-6-6-7-6-5-5
	4530	5-5-6-5-5-4-2-2-3-2
	4540	1-1-1-4-5-5-6-5-5-5
	4550	6-6-6-5-6-7-5-7-5-4
	4560	5-4-5-4-7-3-3-9-7-6
	4570	6-7-6-7-7-6-5-6-10-10
	4580	10-7-9-9-8-9-9-7-6-5
	4590	6-8-9-7-8-9-6-X-5-7
	4600	6-7-6-5-5-8-11-13-12-8

X... 1' corr.
New bit @ 4139

X... 1' corr.

DST #1 @ 4350

New bit @ 4494

X... 1' corr.

DRILLING TIME

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SE SE Sec 35-33-17
Comanche County, Kansas

4600 to	4610	7-7-9-8-9-7-7-10-8-7	
	4620	10-12-4-2-7-4-5-5-6-3	New bit @ 4612
	4630	5-7-8-6-5-6-5-5-6-6-	
	4640	6-6-6-7-5-5-5-5-3-4	
	4650	6-4-2-3-4-1-2-3-3-2	
	4660	2-4-4-4-4-4-4-6-6-6	
	4670	7-6-6-6-6-6-6-8-6-6	
	4680	6-6-6-7-6-7-7-7-7-8	
	4690	10-11-11-10-11-12-12-11-11-10	
	4700	12-10-6-5-6-7-10-6-8-7	
4700 to	4710	8-8-9-10-10-7-9-5-5-4	
	4720	7-5-8-8-7-10-7-8-7-7-7	
	4730	7-7-8-9-8-8-8-9-10-12	
	4740	12-8-9-10-13-11-11-11-8-9	
	4750	15-10-9-11-9-4-4-5-6-5	New bit @ 4745
	4760	5-4-4-4-4-4-4-6-5-5	
	4770	6-3-7-5-5-6-7-7-6-7	
	4780	5-4-5-5-4-4-5-7-3-4	
	4790	3-3-4-5-6-6-6-6-6-7	
	4800	5-7-5-6-6-5-5-5-6-7	
4800 to	4810	5-7-5-6-6-5-5-5-6-5	
	4820	5-5-5-5-4-5-5-4-4-3	
	4830	3-2-2-2-7-4-4-4-5-6	
	4840	6-5-6-7-7-5-5-4-3-4	
	4850	4-7-5-6-7-5-6-7-5-7	
	4860	6-7-6-6-7-6-9-7-5-6	
	4870	6-7-6-6-9-7-7-6-7-7	
	4880	7-7-8-6-3-2-2-2-5-3	
	4890	3-6-6-5-3-2-2-4-7-7	
	4900	8-7-7-9-9-9-9-10-8-9	Circ @ 4896
4900 to	4910	10-11-10-10-8-6-4-3-3-4	Circ @ 4910
	4920	6-6-7-8-7-8-8-4-8-6	New bit @ 4917
	4930	7-6-6-3-2-1-2-3-4-3	
	4940	5-6-3-4-3-4-3-4-4-6	
	4950	6-5-4-3-3-3-2-8-7-7	
	4960	8-7-7-7-6-4-8-7-6-4	
	4970	4-3-2-2-2-2-5-4-4-4	
	4980	4-3-3-5-5-8-6-6-6-4	
	4990	4-3-4-5-7-6-5-3-3-5	
	5000	5-4-6-5-5-5-4-6-5-5	
5000 to	5010	5-4-5-3-4-3-3-3-4-5	
	5020	5-3-4-3-3-4-3-3-5-5	
	5030	6-5-6-6-5-5-4-3-9-5	New bit @ 5029
	5040	5-5-5-5-4-5-7-2-6-7	
	5050	6-7-5-6-5-6-5-8-7-6	DST #2 @ 5050
	5060	6-5-7-4-6-5-6-6-7-7	
	5070	7-7-6-4-5-4-3-4-4-4	
	5080	2-1-3-5-4-5-4-8-7-7	
	5090	8-7-8-5-7-7-5-5-7-6	
	5100	7-6-4-6-5-4-4-5-5-4	

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P.M.I. #1 Warren
SE SE Sec 35-33-17
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5100 to	5110	4-4-4-4-3-3-3-4-4-3	
	5120	6-3-2-2-2-4-5-6-4-2	
	5130	4-7-9-8-10-9-9-8-8-9	
	5140	12-11-8-9-8-8-7-7-9-8	
	5150	9-8-8-10-13-X-10-9-10-9	X...1' corr.
	5160	10-12-7-5-6-6-5-3-5-4	
	5170	4-4-4-5-5-5-6-5-5-5	
	5180	5-5-4-3-11-8-7-7-5-6	
	5190	5-6-6-8-9-10-11-10-10-10	
	5200	6-7-8-6-6-8-7-9-9-6	
5200 to	5210	6-6-11-7-10-5-5-7-7-6	New bit @ 5205
	5220	8-7-7-8-7-6-6-7-7-7	
	5230	10-4-9-8-6-8-7-8-8-7	
	5240	8-10-8-8-9-9-7-7-4-5	
	5250	7-7-6-7-8-7-7-9-8-8	
	5260	7-8-5-7-6-8-8-9-8-7	
	5270	8-9-10-11-7-6-10-10-9-8	
	5280	8-8-9-8-9-9-9-8-8-10	
	5290	9-9-9-9-8-8-11-7-7-11	
	5300	9-10-9-10-8-13-8-7-11-8	
5300 to	5310	10-2-5-6-8-10-9-9-8-7	
	5320	7-7-8-6-8-6-5-4-17-8	
	5330	8-7-7-9-8-8-8-7-8-9	
	5340	8-8-9-11-13-10-11-X-6-5	X...1' corr New bit @ 5338
	5350	6-5-5-5-5-5-6-5-6-5	
	5360	6-6-6-6-6-8-8-5-7-9	
	5370	8-6-7-7-8-7-7-6-7-7	
	5380	7-8-8-8-9-9-10-9-8-8	
	5390	6-8-8-8-11-11-11-11-13-9	
	5400	9-9-11-X-7-8-10-8-8-10	X...1' corr.
5400 to	5410	9-14-15-10-11-12-13-13-11-15	
	5420	12-10-9-11-10-11-12-11-12-13	
	5430	11-11-10-12-12-5-5-4-5-5	New bit @ 5425
	5440	6-6-6-6-8-6-8-7-6-7	
	5450	6-7-7-7-7-7-7-7-7-9	
	5460	6-6-7-7-7-8-8-9-8-9	
	5470	9-9-7-8-8-7-7-8-7-7	
	5480	8-7-7-8-10-9-9-8-6-9	
	5490	10-8-7-7-7-7-7-7-7-8	
	5500	6-8-9-9-9-9-7-11-11-14	
5500 to	5510	12-14-14-14-16-12-12-6-7-6	
	5520	6-8-8-8-8-11-11-11-9-9-	
	5530	8-10-11-9-8-9-8-9-8-9	
	5540	8-10-9-10-9-9-9-10-9-13	
	5550	12-12-12-14-12-19-16-19-13-13	DST #3 @ 5545
	5560	15-19-16-20-12-10-6-7-7-9	
	5570	9-7-10-11-10-20-18-21-18-28	R-4 type bit 5545-5573
	5580	21-17-22-8-10-8-10-9-9-10	
	5590	9-8-7-7-7-7-8-9-7-7	
	5600	7-10-8-10-10-11-11-11-8-11	

DRILLING TIME

P.M.I. #1 Warren
SE SE Sec 35-33-17
Comanche County, Kansas

5600 to	5610	10-9-9-6-7-8-10-12-10-12	
	5620	8-7-9-8-10-10-10-9-9-8	
	5630	11-10-10-9-10-9-9-10-10-9	
	5640	10-10-10-9-9-8-11-11-11-9	
	5650	11-10-9-10-9-11-10-11-10-11	
	5660	11-12-11-10-11-12-12-12-13-14	
	5670	10-16-13-10-11-11-12-13-11-10	
	5680	10-10-11-12-13-14-14-13-11-12	
	5690	12-10-13-13-13-15-9-12-12-9	
	5700	9-11-13-12-12-12-13-12-15-11	New bit @ 5700
5700 to	5710	8-6-6-7-6-6-5-5-6-5	
	5720	6-5-5-5-6-6-5-4-5-2	
	5730	4-4-4-3-3-5-5-3-4-4	
	5740	4-4-3-7-5-4-4-3-3-3	
	5750	4-4-4-5-5-4-4-3-4-3	
	5760	5-4-5-5-5-4-4-5-7-5	
	5770	6-5-4-5-7-3-X-6-6-6	X... 1' corr.
	5776	7-6-5-6-7-6	RTD 5776

DAILY PROGRESS

Nov 15,	1963	Rig up			
16		280'		Set 319' of 13" w/ 350 sacks	
17		319' WOC			
18		1370'			
19		2166'			
20		2540'			
21		2950'			
22		3539'			
23		3992'			
24		4270'	Mud up		
25		4375'	37 vis 10.1 wtl 18 w. 1.	DST #1	
26		4569'	36 10.2 30		
27		4618'	48 10.3 16.4		
28		4825'	37 10.2 14		
29		4991'	39 10.1 14		
30		5050'	47 10 10.6		
Dec 1,	1963	5205'	42 9.8 13.4	DST #2	
2		5338'	44 9.6 13.6		
3		5425'	45 9.6 10.4		
4		5545'	56 9.7 10		
5		5573'	47 9.7 10.4	DST #3	
6		5684'	44 9.6 13.4		
7		5776'	43 9.7 11.4		
				Logging	