

1/8/07 DATE IN	SUSPENSE	CATHACH ENGINEER	LOGGED IN 1/8/07	TYPE IPI	APP NO. 7050700835511
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ABOVE THIS LINE FOR DIVISION USE ONLY

NEW MEXICO OIL CONSERVATION DIVISION

- Engineering Bureau -

1220 South St. Francis Drive, Santa Fe, NM 87505



277

ADMINISTRATIVE APPLICATION CHECKLIST

THIS CHECKLIST IS MANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES AND REGULATIONS WHICH REQUIRE PROCESSING AT THE DIVISION LEVEL IN SANTA FE

Application Acronyms:

[NSL-Non-Standard Location] [NSP-Non-Standard Proration Unit] [SD-Simultaneous Dedication]
[DHC-Downhole Commingling] [CTB-Lease Commingling] [PLC-Pool/Lease Commingling]
[PC-Pool Commingling] [OLS - Off-Lease Storage] [OLM-Off-Lease Measurement]
[WFX-Waterflood Expansion] [PMX-Pressure Maintenance Expansion]
[SWD-Salt Water Disposal] [IPI-Injection Pressure Increase]
[EOR-Qualified Enhanced Oil Recovery Certification] [PPR-Positive Production Response]

[1] TYPE OF APPLICATION - Check Those Which Apply for [A]

[A] Location - Spacing Unit - Simultaneous Dedication
☐ NSL ☐ NSP ☐ SD

Check One Only for [B] or [C]

[B] Commingling - Storage - Measurement
☐ DHC ☐ CTB ☐ PLC ☐ PC ☐ OLS ☐ OLM

[C] Injection - Disposal - Pressure Increase - Enhanced Oil Recovery
☐ WFX ☐ PMX ☐ SWD ☒ IPI ☐ EOR ☐ PPR

[D] Other: Specify _____

[2] NOTIFICATION REQUIRED TO: - Check Those Which Apply, or Does Not Apply

[A] ☐ Working, Royalty or Overriding Royalty Interest Owners

[B] ☐ Offset Operators, Leaseholders or Surface Owner

[C] ☐ Application is One Which Requires Published Legal Notice

[D] ☐ Notification and/or Concurrent Approval by BLM or SLO
 U.S. Bureau of Land Management - Commissioner of Public Lands, State Land Office

[E] ☐ For all of the above, Proof of Notification or Publication is Attached, and/or,

[F] ☐ Waivers are Attached

[3] SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYPE OF APPLICATION INDICATED ABOVE.

[4] **CERTIFICATION:** I hereby certify that the information submitted with this application for administrative approval is **accurate** and **complete** to the best of my knowledge. I also understand that **no action** will be taken on this application until the required information and notifications are submitted to the Division.

Note: Statement must be completed by an individual with managerial and/or supervisory capacity.

Print or Type Name

Signature

Title

Date

e-mail Address

Attachments can contain viruses that may harm your computer. Attachments may not display correctly.

Catanach, David, EMNRD

From: Jones, William V., EMNRD **Sent:** Tue 1/2/2007 9:09 AM
To: Catanach, David, EMNRD
Cc: John.Alexander@duganproduction.com
Subject: FW: Step Rate Test Dugan Production Turks Toast 4 SWD
Attachments: tt4 current swd.JPG(364KB) Turks Toast 4 SRT Plot BHP.jpg(40KB) Turks Toast 4 SWD BHP vs Rate.xls (67KB) Turks Toast 4 SWD SRT Comments.xls(19KB)

Hello John:
 Forwarding to David.

Regards,

William V. Jones

IPI

From: John Alexander [mailto:John.Alexander@duganproduction.com]
Sent: Wednesday, December 27, 2006 11:25 AM
To: Jones, William V., EMNRD
Subject: Step Rate Test Dugan Production Turks Toast 4 SWD

Will:

*A.P.I.
 3004527360*

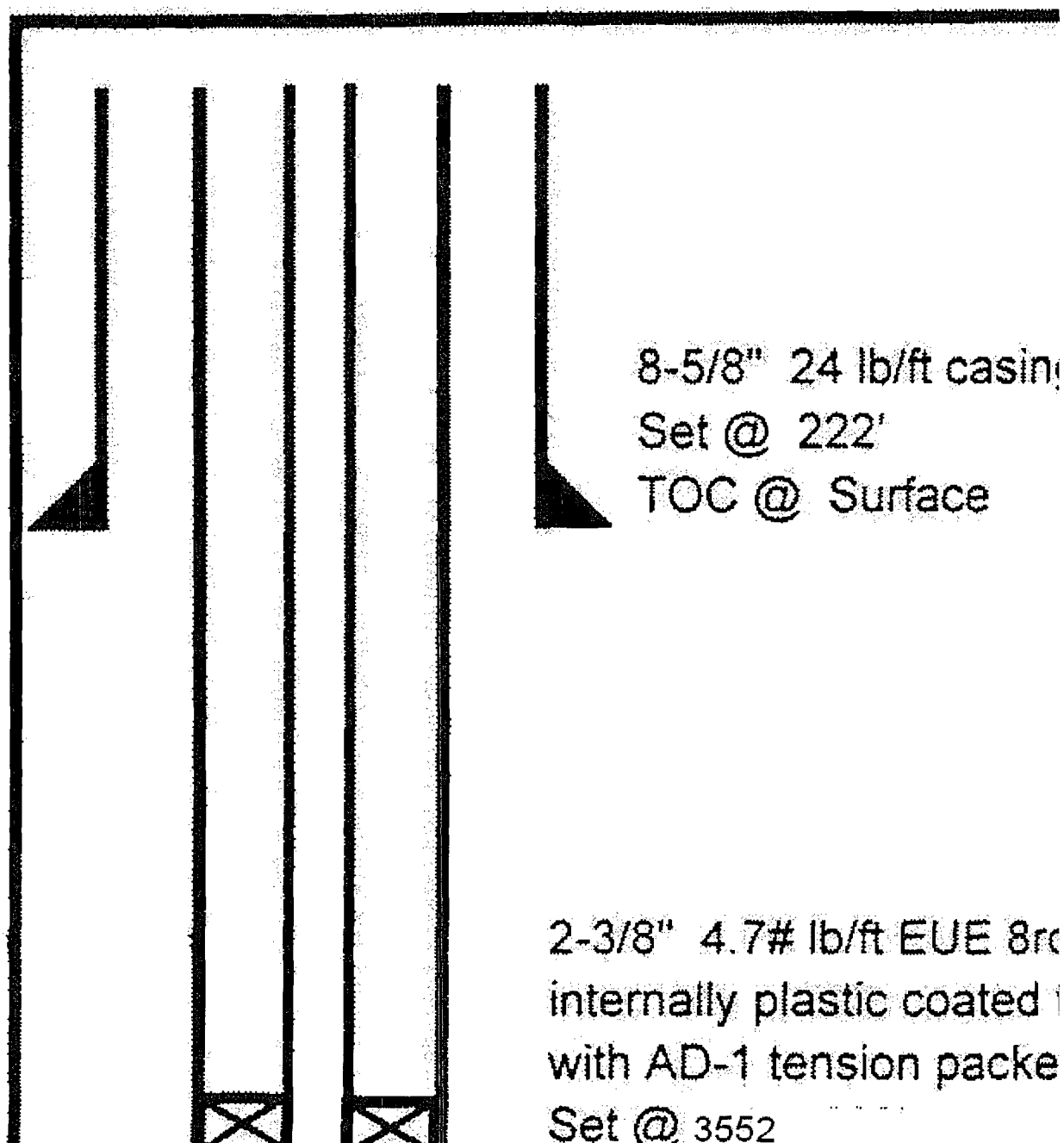
Attached are the data files from a Step Rate Test I ran on the Turk's Toast 4 SWD. The well is located at 1850' FSL & 790' FWL of Sec. 17, T30N, R14W, San Juan Co. The well is authorized for SWD by Administrative Order SWD-851. The approved injection pressure is 717 psi. The files include the raw data from the bottom hole pressure recorder, a file with comments on running the test, a jpeg of the plot I made of the data, and a well bore schematic. Please analyze the information for an increase in permitted injection pressure. Let me know if you need more information or if part of the data does make it to you.

John Alexander

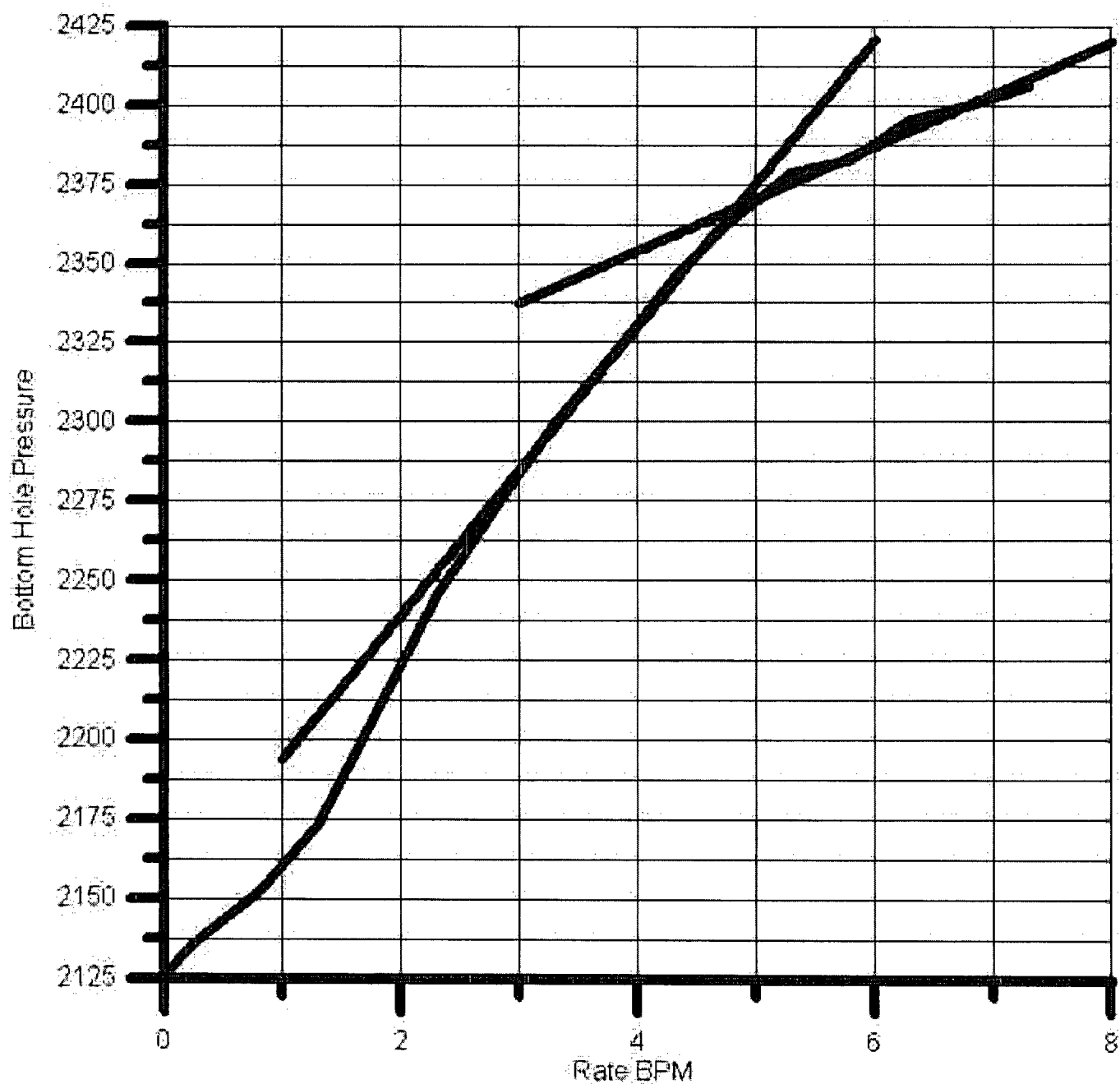
Dugan Production Corp.

505-325-1821

INJECTION WELL SCHEM



**Turk's Toast 4 SWD
Step Rate Test
BHP vs Rate**



Dugan Production Corp.

F11551 G11533 739 Bottom Hole Pressure Recorder @ 3748'

Time	BHP	Temp	Rate
0	0.01	64.242	
2.0625	0.01	64.242	
8.5	0.01	62.468	
8.75	543.162	62.42	
8.8125	475.38	62.434	
8.875	450.142	62.482	
9	457.863	62.579	
9.0625	475.429	62.627	
9.375	486.691	62.861	
9.4375	492.104	62.91	
9.5625	503.068	63.034	

9.625	510.245	63.124
9.75	521.898	63.303
9.8125	524.349	63.393
9.9375	531.414	63.579
10	537.509	63.669
10.063	544.82	63.759
10.125	550.915	63.848
10.25	561.755	64.028
10.313	568.122	64.131
10.375	575.706	64.242
10.438	583.019	64.352
10.5	591.007	64.463
10.563	599.399	64.573
10.625	607.791	64.684
10.688	616.048	64.794
10.938	625.189	65.237
11	630.341	65.347
11.063	636.705	65.451
11.125	643.211	65.575
11.188	650.116	65.693
11.25	656.754	65.81
11.313	663.256	65.928
11.375	669.353	66.045
11.438	675.583	66.163
11.5	682.489	66.28
11.563	689.665	66.398
11.625	697.245	66.516
11.688	705.092	66.633
11.75	712.808	66.758
11.813	720.522	66.875
11.875	728.099	66.993
11.938	735.812	67.111
12	743.257	67.235
12.063	751.238	67.353
12.125	759.489	67.47
12.188	767.876	67.595
12.25	776.261	67.713

BHP vs Rate Summary	
BHP	Rate
2126.172	0
2135.609	0.25
2151.956	0.8
2173.335	1.3
2209.209	1.8
2245.412	2.3
2272.954	2.8
2299.825	3.3
2321.722	3.8
2344.779	4.3
2363.576	4.8
2378.552	5.3
2382.726	5.8
2395.094	6.3
2399.771	6.8
2406.155	7.3

12.313	784.647	67.83
12.375	792.897	67.955
12.438	801.686	68.073
12.5	810.071	68.19
12.563	818.591	68.315
12.625	826.166	68.44
12.75	834.437	68.682
12.813	840.665	68.807
12.875	847.834	68.932
12.938	855.407	69.049
13	863.788	69.174
13.063	872.846	69.299
13.125	882.44	69.417
13.188	891.495	69.541
13.25	900.281	69.666
13.313	908.661	69.791
13.375	917.31	69.909
13.438	925.554	70.034
13.5	933.528	70.151
13.563	940.695	70.276
13.625	947.589	70.394
13.688	954.621	70.519
13.75	963.402	70.637
13.813	972.588	70.762
13.875	982.043	70.88
13.938	991.228	71.005
14	1000.682	71.123
14.063	1010.407	71.247
14.125	1019.86	71.365
14.188	1029.852	71.49
14.25	1039.171	71.615
14.313	1048.622	71.733
14.375	1057.536	71.858
14.438	1067.257	71.983
14.5	1076.036	72.108
14.563	1085.217	72.226
14.625	1094.532	72.351
14.688	1103.848	72.476
14.75	1113.566	72.594
14.813	1123.151	72.719
14.875	1133.273	72.844
14.938	1142.588	72.97
15	1151.632	73.088
15.063	1160.54	73.213
15.125	1169.719	73.338
15.188	1178.088	73.456
15.25	1187.939	73.581
15.313	1197.655	73.706
15.375	1207.099	73.824
15.438	1216.815	73.949
15.5	1226.395	74.075
15.563	1235.839	74.186

15.625	1245.418	74.311
15.688	1255.131	74.429
15.75	1263.766	74.554
15.813	1273.479	74.673
15.875	1282.518	74.798
15.938	1292.634	74.916
16	1301.402	75.041
16.063	1310.709	75.16
16.125	1320.016	75.285
16.188	1329.053	75.403
16.25	1338.359	75.529
16.313	1347.396	75.647
16.375	1355.623	75.772
16.438	1363.986	75.897
16.5	1371.54	76.023
16.563	1379.364	76.148
16.625	1388.667	76.273
16.688	1397.298	76.392
16.75	1405.928	76.517
16.813	1414.423	76.643
16.875	1423.053	76.768
16.938	1431.817	76.893
17	1440.311	77.019
17.063	1449.074	77.144
17.125	1458.51	77.263
17.188	1467.946	77.388
17.25	1477.516	77.513
17.313	1487.624	77.639
17.375	1497.866	77.764
17.438	1507.166	77.89
17.5	1516.601	78.015
17.563	1526.573	78.141
17.625	1536.814	78.266
17.688	1546.516	78.392
17.75	1555.679	78.51
17.813	1563.9	78.643
17.875	1571.177	78.761
17.938	1578.859	78.887
18	1587.348	79.012
18.063	1596.509	79.131
18.125	1605.267	79.257
18.188	1614.158	79.382
18.25	1623.858	79.508
18.313	1634.095	79.626
18.375	1644.466	79.752
18.438	1655.107	79.878
18.5	1665.073	79.996
18.563	1674.771	80.129
18.625	1684.602	80.241
18.688	1694.972	80.359
18.75	1706.014	80.478
18.813	1717.459	80.59

18.875	1728.635	80.709
18.938	1739.407	80.827
19	1749.641	80.946
19.063	1758.123	81.058
19.125	1767.01	81.176
19.188	1775.224	81.295
19.25	1784.782	81.407
19.313	1794.206	81.519
19.375	1802.957	81.631
19.438	1811.304	81.742
19.5	1820.996	81.854
19.563	1829.881	81.966
19.625	1838.766	82.078
19.688	1847.919	82.183
19.75	1857.61	82.295
19.813	1866.359	82.406
19.875	1874.435	82.518
19.938	1883.856	82.63
20	1893.681	82.742
20.063	1902.698	82.847
20.125	1911.446	82.952
20.188	1920.328	83.057
20.25	1929.075	83.169
20.313	1938.091	83.274
20.375	1946.434	83.379
20.438	1955.046	83.49
20.5	1964.331	83.595
20.563	1971.731	83.7
20.625	1978.862	83.812
20.688	1985.858	83.917
20.75	1992.854	84.022
20.813	2000.254	84.127
20.875	2007.25	84.225
20.938	2013.572	84.323
21	2019.895	84.414
21.063	2026.756	84.512
21.125	2032.943	84.61
21.188	2039.4	84.701
21.25	2045.991	84.799
21.313	2052.717	84.897
21.375	2058.77	84.988
21.438	2065.225	85.086
21.563	2076.927	85.24
21.625	2082.98	85.289
21.75	2093.069	85.388
21.813	2096.969	85.437
22	2108.401	85.577
22.063	2110.821	85.626
22.938	2114.163	85.808
24	2115.208	85.317
25	2115.644	84.519
26	2115.93	83.728

27	2116.023	82.952
28	2116.17	82.323
29	2116.321	81.7
30	2116.468	81.121
31	2116.621	80.771
32	2116.766	80.415
33	2116.902	80.08
34	2117.032	79.899
35	2117.191	79.71
36	2117.372	79.536
37	2117.537	79.431
38	2117.718	79.326
39	2117.908	79.243
40	2118.083	79.18
41	2117.813	79.124
42	2118.323	79.068
43	2118.382	79.04
44	2118.521	79.005
45	2118.69	78.964
46	2118.855	78.95
47	2119.014	78.929
48	2119.185	78.908
49	2119.354	78.894
50	2119.513	78.88
51	2119.677	78.859
52	2119.829	78.852
53	2119.979	78.845
54	2120.126	78.838
55	2120.281	78.824
56	2120.401	78.817
57	2120.52	78.81
58	2120.634	78.81
59	2120.747	78.803
60	2120.868	78.789
61	2120.979	78.789
62	2121.112	78.782
63	2121.238	78.789
64	2121.357	78.775
65	2121.485	78.768
66	2121.601	78.768
67	2121.697	78.761
68	2121.796	78.761
69	2121.894	78.761
70	2121.991	78.754
71	2122.082	78.754
72	2122.177	78.754
73	2122.263	78.747
74	2122.362	78.747
75	2122.458	78.74
76	2122.552	78.733
77	2122.628	78.733
78	2122.694	78.733

79	2122.771	78.726
80	2122.852	78.726
81	2122.934	78.726
82	2123.019	78.719
83	2123.09	78.719
84	2123.169	78.719
85	2123.246	78.719
86	2123.34	78.713
87	2123.414	78.713
88	2123.464	78.713
89	2123.531	78.713
90	2123.59	78.713
91	2123.661	78.706
92	2123.729	78.706
93	2123.802	78.706
94	2123.852	78.699
95	2123.899	78.699
96	2123.956	78.698
97	2124.01	78.692
98	2124.053	78.692
99	2124.108	78.692
100	2124.168	78.692
101	2124.222	78.692
102	2124.284	78.685
103	2124.343	78.685
104	2124.405	78.678
105	2124.465	78.678
106	2124.519	78.678
107	2124.56	78.678
108	2124.595	78.678
109	2124.649	78.678
110	2124.7	78.678
111	2124.76	78.671
112	2124.804	78.671
113	2124.831	78.671
114	2124.862	78.671
115	2124.905	78.664
116	2124.958	78.664
117	2125.006	78.664
118	2125.06	78.664
119	2125.093	78.664
120	2125.114	78.664
121	2125.139	78.657
122	2125.194	78.657
123	2125.235	78.657
124	2125.255	78.657
125	2125.287	78.657
126	2125.336	78.657
127	2125.364	78.65
128	2125.396	78.65
129	2125.442	78.649
130	2125.474	78.643

131	2125.503	78.643	
132	2125.533	78.643	
133	2125.566	78.643	
134	2125.603	78.643	
135	2125.63	78.643	
136	2125.656	78.643	
137	2125.684	78.643	
138	2125.715	78.643	
139	2125.738	78.636	
140	2125.771	78.636	
141	2125.793	78.636	
142	2125.812	78.636	
143	2125.855	78.636	
144	2125.883	78.636	
145	2125.906	78.629	
146	2125.928	78.629	
147	2125.944	78.629	
148	2125.981	78.629	
149	2126.007	78.629	
150	2126.036	78.629	
151	2126.06	78.622	
152	2126.084	78.622	
153	2126.1	78.622	
154	2126.14	78.622	
155	2126.172	78.622	
156	2126.172	78.622	0
157	2130.674	78.622	
158	2132.062	78.622	
158.88	2131.591	78.629	
159.75	2132.198	78.636	
160.75	2132.369	78.643	
161.75	2132.124	78.643	
162.75	2132.005	78.643	
163.75	2130.832	78.643	
164.75	2133.234	78.643	
165.75	2133.542	78.65	
166.75	2133.898	78.657	
167.75	2134.193	78.657	
168.75	2134.539	78.664	
169.75	2135.07	78.678	
170.75	2135.3	78.685	
171.75	2135.609	78.692	0.25
172.75	2135.933	78.699	
173.75	2136.258	78.713	
174.75	2140.212	78.726	
175.63	2142.011	78.74	
176.5	2143.452	78.768	
177.5	2144.482	78.782	
178.5	2145.694	78.803	
179.5	2146.477	78.824	
180.5	2147.442	78.859	
181.5	2148.288	78.901	

182.5	2148.975	78.943	
183.5	2149.866	79.012	
184.5	2150.629	79.11	
185.5	2151.392	79.208	
186.5	2151.956	79.312	0.8
187.5	2152.336	79.424	
188.5	2153.187	79.536	
189.5	2153.697	79.626	
190.5	2155.427	79.71	
191.5	2159.98	79.794	
192.38	2162.202	79.885	
193.25	2163.541	79.968	
194.25	2164.759	80.052	
195.25	2166.465	80.143	
196.25	2167.569	80.241	
197.13	2168.641	80.331	
198	2169.152	80.429	
199	2170.254	80.52	
200	2171.484	80.611	
201	2172.263	80.709	
202	2173.335	80.792	1.3
203	2174.138	80.883	
204	2175.099	80.967	
205	2175.602	81.044	
206	2180.375	81.121	
206.88	2185.324	81.183	
207.75	2188.791	81.232	
208.75	2191.704	81.281	
209.75	2194.325	81.309	
210.75	2196.748	81.344	
211.63	2198.932	81.379	
212.5	2200.562	81.421	
213.5	2202.55	81.435	
214.5	2204.402	81.449	
215.5	2206.121	81.463	
216.38	2207.617	81.484	
217.25	2209.209	81.498	1.8
218.25	2210.397	81.498	
219.25	2211.839	81.498	
220.25	2213.361	81.491	
221.13	2217.9	81.512	
222	2222.156	81.505	
222.88	2225.548	81.498	
223.75	2227.99	81.47	
224.75	2230.957	81.428	
225.75	2233.583	81.386	
226.63	2235.835	81.358	
227.5	2237.321	81.337	
228.5	2239.168	81.302	
229.5	2240.724	81.267	
230.5	2242.613	81.232	
231.38	2244.064	81.218	

232.25	2245.412	81.204	2.3
233.25	2246.691	81.169	
234.25	2247.74	81.135	
235.25	2248.86	81.093	
236.13	2251.476	81.079	
237	2256.701	81.051	
238	2260.572	81.009	
239	2264.278	80.953	
240	2267.032	80.897	
240.88	2268.78	80.848	
241.75	2269.901	80.813	
242.75	2270.15	80.757	
243.75	2270.576	80.702	
244.75	2271.444	80.646	
245.75	2272.37	80.576	
246.75	2272.954	80.506	2.8
247.75	2273.643	80.429	
248.75	2274.22	80.345	
249.75	2274.933	80.262	
250.75	2275.525	80.178	
251.75	2280.424	80.108	
252.75	2283.689	80.031	
253.75	2286.455	79.954	
254.63	2288.671	79.899	
255.5	2290.42	79.85	
256.5	2292.124	79.766	
257.5	2293.955	79.682	
258.5	2295.571	79.606	
259.38	2296.675	79.55	
260.25	2297.868	79.473	
261.25	2298.849	79.396	3.3
262.25	2299.825	79.312	
263.25	2300.672	79.236	
264.25	2301.655	79.159	
265.25	2302.511	79.082	
266.13	2305.053	79.026	
267	2307.937	78.978	
268	2310.069	78.908	
269	2312.169	78.838	
270	2314.19	78.768	
270.88	2315.622	78.719	
271.75	2317.055	78.671	
272.75	2318.045	78.601	
273.75	2319.361	78.531	
274.75	2320.09	78.461	
275.75	2320.953	78.392	3.8
276.75	2321.722	78.322	
277.75	2322.529	78.259	
278.75	2323.368	78.196	
279.75	2324.318	78.141	
280.75	2325.109	78.085	
281.75	2328.707	78.029	

282.75	2332.083	77.98	
283.75	2334.778	77.932	
284.63	2336.479	77.904	
285.5	2337.766	77.876	
286.5	2339.221	77.841	
287.5	2340.105	77.806	
288.5	2341.491	77.764	
289.38	2342.343	77.75	
290.25	2342.791	77.715	
291.25	2343.839	77.681	
292.25	2344.779	77.646	4.3
293.25	2345.593	77.604	
294.25	2346.288	77.562	
295.25	2346.878	77.527	
296.25	2347.691	77.499	
297.25	2344.989	77.472	
298.25	2350.386	77.437	
299.13	2353.237	77.416	
300	2355.594	77.409	
301	2357.477	77.395	
302	2359.033	77.381	
303	2360.613	77.367	
303.88	2361.717	77.367	
304.75	2362.426	77.367	
305.75	2362.901	77.353	
306.75	2363.576	77.332	4.8
307.75	2363.872	77.311	
308.75	2364.445	77.297	
309.75	2365.224	77.276	
310.75	2365.996	77.256	
311.75	2362.144	77.235	
312.75	2370.777	77.221	
313.25	2359.314	77.207	
313.5	2354.998	77.207	
314.38	2357.799	77.2	
315.25	2357.729	77.186	
316.25	2352.274	77.165	
317.25	2358.512	77.137	
318.25	2367.148	77.109	
319.13	2371.266	77.109	
320	2374.375	77.116	
321	2376.9	77.095	
322	2378.552	77.088	5.3
323	2377.18	77.081	
324	2372.929	77.074	
325	2371.516	77.067	
326	2371.453	77.067	
326.88	2371.853	77.074	
327.75	2371.396	77.081	
328.75	2371.699	77.074	
329.75	2372.467	77.074	
330.75	2373.167	77.074	

331.75	2379.022	77.074	
332.75	2381.584	77.081	
333.63	2380.828	77.095	
334.5	2380.733	77.123	
335.5	2381.728	77.144	
336.5	2382.726	77.151	5.8
337.5	2383.177	77.158	
338.5	2383.159	77.172	
339.5	2383.801	77.186	
340.5	2384.093	77.2	
341.5	2384.068	77.207	
342.5	2384.218	77.221	
343.5	2384.702	77.235	
344.5	2384.88	77.256	
345.5	2385.18	77.269	
346.5	2387.091	77.283	
347.38	2391.262	77.297	
348.25	2391.481	77.318	
349.25	2392.519	77.339	
350.25	2393.311	77.353	
351.25	2394.443	77.367	
352.25	2395.094	77.388	6.3
353.25	2395.677	77.402	
354.25	2395.688	77.423	
355.25	2395.561	77.437	
356.25	2395.211	77.451	
357.25	2394.534	77.472	
358.25	2394.333	77.492	
359.25	2394.696	77.506	
360.25	2394.813	77.527	
361.25	2394.877	77.548	
362.25	2400.004	77.569	
363.25	2397.708	77.597	
364.13	2400.221	77.625	
365	2400.255	77.66	
366	2399.618	77.681	
367	2399.771	77.702	6.8
368	2399.923	77.729	
369	2399.891	77.743	
370	2399.645	77.764	
371	2399.986	77.792	
372	2400.024	77.799	
373	2400.07	77.82	
374	2400.091	77.841	
375	2400.558	77.855	
376	2400.771	77.862	
377	2403.475	77.869	
378	2406.17	77.89	
379	2404.963	77.904	
380	2405.192	77.918	
381	2405.751	77.939	
382	2406.155	77.952	7.3

383	2406.676	77.966
384	2406.708	77.98
385	2408.379	77.987
386	2409.3	77.994
387	2409.868	78.008
388	2409.962	78.008
389	2410.613	78.015
390	2410.659	78.008
391	2410.939	78.008
392	2411.155	78.001
392.25	2411.558	78.008
392.5	2392.401	78.001
393.25	2382.02	77.966
393.5	2379.324	77.959
394.5	2369.888	77.918
395.38	2363.475	77.883
396.25	2357.118	77.834
397.13	2351.729	77.792
398	2347.046	77.743
398.88	2342.298	77.702
399.75	2338.35	77.681
400.63	2334.442	77.653
401.5	2330.782	77.611
402.5	2326.676	77.583
403.5	2322.903	77.548
404.38	2319.677	77.534
405.25	2316.757	77.527
406.25	2313.405	77.499
407.25	2310.304	77.485
408.25	2307.276	77.472
409.13	2303.319	77.465
409.25	2294.688	77.472
409.31	2291.047	77.472
409.44	2283.362	77.458
409.5	2278.237	77.458
409.63	2268.261	77.444
409.69	2265.16	77.444
409.81	2257.34	77.43
409.88	2251.812	77.43
410	2240.621	77.416
410.06	2234.825	77.402
410.19	2223.499	77.409
410.25	2217.836	77.409
410.5	2205.837	77.409
410.56	2202.466	77.409
410.75	2192.624	77.416
410.81	2188.309	77.43
410.94	2179.544	77.451
411	2174.825	77.465
411.06	2169.027	77.479
411.13	2162.286	77.492
411.19	2155.14	77.506

411.25	2146.511	77.52
411.31	2136.266	77.534
411.38	2124.942	77.548
411.44	2112.81	77.562
411.5	2100.813	77.569
411.56	2088.547	77.583
411.63	2073.047	77.604
411.69	2057.412	77.625
411.75	2042.047	77.639
411.81	2027.761	77.66
411.88	2012.263	77.681
411.94	1996.361	77.695
412	1980.325	77.715
412.06	1965.368	77.736
412.13	1950.276	77.75
412.19	1934.646	77.771
412.25	1919.017	77.792
412.31	1903.523	77.806
412.38	1887.087	77.82
412.44	1872.402	77.834
412.5	1857.314	77.841
412.56	1840.744	77.855
412.63	1824.714	77.869
412.69	1809.089	77.876
412.75	1793.868	77.89
412.81	1778.379	77.904
412.88	1763.024	77.911
412.94	1745.784	77.925
413	1730.296	77.939
413.06	1714.135	77.946
413.13	1697.705	77.952
413.19	1682.352	77.952
413.25	1665.788	77.952
413.31	1650.302	77.959
413.38	1634.547	77.959
413.44	1618.523	77.959
413.5	1600.614	77.959
413.56	1584.457	77.966
413.63	1569.107	77.966
413.69	1552.68	77.966
413.75	1537.062	77.973
413.81	1519.963	77.966
413.88	1502.997	77.946
413.94	1486.571	77.932
414	1470.414	77.918
414.06	1452.642	77.904
414.13	1436.89	77.89
414.19	1419.926	77.876
414.25	1404.712	77.862
414.31	1386.672	77.848
414.38	1369.17	77.834
414.44	1352.342	77.82

414.5	1336.187	77.799
414.56	1319.493	77.778
414.63	1302.663	77.75
414.69	1284.218	77.715
414.75	1267.118	77.681
414.81	1251.366	77.653
414.88	1235.344	77.618
414.94	1217.84	77.583
415	1199.126	77.548
415.06	1181.489	77.52
415.13	1165.064	77.485
415.19	1149.309	77.451
415.25	1132.345	77.423
415.31	1113.763	77.374
415.38	1096.661	77.318
415.44	1082.924	77.269
415.5	1069.992	77.214
415.56	1053.428	77.165
415.63	1037.402	77.109
415.69	1018.145	77.06
415.75	998.752	77.005
415.81	980.977	76.956
415.88	965.217	76.9
415.94	949.728	76.851
416	933.028	76.796
416.06	915.248	76.74
416.13	898.677	76.67
416.19	885.068	76.601
416.25	871.323	76.531
416.31	855.963	76.461
416.38	841.006	76.392
416.44	826.048	76.322
416.5	811.898	76.253
416.56	798.286	76.183
416.63	785.077	76.113
416.69	771.868	76.044
416.75	759.601	75.974
416.81	748.678	75.89
416.88	737.754	75.814
416.94	726.56	75.73
417	716.982	75.647
417.06	707.67	75.563
417.13	699.976	75.48
417.19	693.225	75.396
417.25	687.143	75.313
417.38	678.217	75.146
417.44	674.02	75.062
417.63	663.05	74.812
417.69	659.664	74.728
418	648.781	74.304
418.06	646.068	74.221
418.63	636.917	73.72

418.69	630.444	73.685
418.75	623.026	73.651
418.81	583.956	73.616
418.88	402.359	73.581
418.94	304.81	73.546
419	214.795	73.519
419.06	135.825	73.512
419.13	97.966	73.539
419.19	89.486	73.567
419.25	58.496	73.595
419.31	32.764	73.623
419.38	21.858	73.651
419.44	14.726	73.678
419.5	5.302	73.706
419.56	0.01	73.734

