

# KEPPEGEN ANALYSIS

FOR

THE CLEVELAND CLIFFS IRON COMPANY-WELL X-3

DEPTH	DENSITY LOG			VELOCITY LOG			DENSITY AND VELOCITY	
	RHO-B	GAL/TON	ACCUM. YIELD	RHO-B	GAL/TON	ACCUM. YIELD	GAL/TON	ACCUM. YIELD
162	2.325	24.8	24.8	2.392	17.8	17.8	21.3	21.3
163	2.310	26.4	51.2	2.428	13.9	31.8	20.2	41.5
164	2.395	17.5	68.7	2.455	11.0	42.8	14.3	55.7
165	2.445	12.1	80.8	2.491	7.1	49.8	9.6	65.3
166	2.465	9.9	90.7	2.527	3.0	52.9	6.5	71.8
167	2.430	13.7	104.5	2.527	3.0	55.9	8.4	80.2
168	2.380	19.1	123.5	2.536	2.0	58.0	10.6	90.7
169	2.375	19.6	143.1	2.545	1.0	59.0	10.3	101.1
170	2.380	19.1	162.2	2.545	1.0	60.0	10.0	111.1
171	2.365	20.7	182.9	2.527	3.0	63.0	11.9	123.0
172	2.325	24.8	207.7	2.509	5.1	68.1	14.9	137.9
173	2.295	27.9	235.6	2.482	8.1	76.1	18.0	155.9
174	2.385	18.5	254.2	2.518	4.1	80.2	11.3	167.2
175	2.400	17.0	271.1	2.545	1.0	81.2	9.0	176.2
176	2.415	15.3	286.5	2.545	1.0	82.2	8.2	184.4
177	2.460	10.5	297.0	2.545	1.0	83.2	5.7	190.1
178	2.470	9.4	306.3	2.545	1.0	84.3	5.2	195.3
179	2.470	9.4	315.7	2.545	1.0	85.3	5.2	200.5
180	2.480	8.3	324.0	2.545	1.0	86.3	4.6	205.1
181	2.490	7.2	331.2	2.536	2.0	88.3	4.6	209.7
182	2.475	8.8	340.0	2.527	3.0	91.4	5.9	215.7
183	2.465	9.9	349.9	2.518	4.1	95.4	7.0	222.7
184	2.460	10.5	360.4	2.482	8.1	103.5	9.3	231.9
185	2.435	13.2	373.6	2.446	12.0	115.5	12.6	244.5
186	2.410	15.9	389.5	2.446	12.0	127.5	13.9	258.5
187	2.405	15.4	405.9	2.437	13.0	140.5	14.7	273.2
188	2.415	15.3	421.2	2.455	11.0	151.5	13.2	286.3
189	2.380	19.1	440.3	2.464	10.0	161.5	14.6	300.9
190	2.470	9.4	449.7	2.500	6.1	167.6	7.7	308.6
191	2.475	8.8	458.5	2.527	3.0	170.6	5.9	314.6
192	2.480	8.3	466.8	2.527	3.0	173.7	5.7	320.2
193	2.475	8.8	475.6	2.527	3.0	176.7	5.9	326.2
194	2.455	11.0	486.6	2.527	3.0	179.8	7.0	333.2
195	2.455	11.0	497.6	2.527	3.0	182.8	7.0	340.2
196	2.470	9.4	507.0	2.527	3.0	185.8	6.2	346.4
197	2.490	7.2	514.2	2.527	3.0	188.9	5.1	351.5
198	2.510	4.9	519.1	2.527	3.0	191.9	4.0	355.5
199	2.510	4.9	524.1	2.527	3.0	195.0	4.0	359.5
200	2.510	4.9	529.0	2.518	4.1	199.0	4.5	364.0
201	2.495	6.6	535.7	2.527	3.0	202.1	4.8	368.8
202	2.465	9.9	545.5	2.527	3.0	205.1	6.5	375.3
203	2.460	10.5	556.0	2.527	3.0	208.2	6.8	382.1
204	2.445	12.1	568.2	2.527	3.0	211.2	7.6	389.7
205	2.445	12.1	580.3	2.527	3.0	214.3	7.6	397.3
206	2.450	11.6	591.8	2.518	4.1	218.3	7.8	405.1
207	2.415	15.2	607.2	2.482	8.1	226.4	11.7	416.5
208	2.450	11.6	618.7	2.437	13.0	239.3	12.3	429.7
209	2.490	8.2	627.0	2.419	14.9	254.3	11.6	440.7
210	2.490	7.2	634.2	2.482	8.1	262.3	7.6	448.2
211	2.475	9.4	640.0	2.509	5.1	267.4	6.9	455.2

# REPORT OF ANALYSIS

FOR

THE CLEVELAND CLIFFS IRON COMPANY-WELL X-3

DEPTH	DENSITY LOG			VELOCITY LOG			DENSITY AND VELOCITY	
	RHO-B	GAL/TON	ACCUM. YIELD	RHO-B	GAL/TON	ACCUM. YIELD	GAL/TON	ACCUM. YIELD
212	2.435	13.2	656.2	2.491	7.1	274.4	10.1	465.3
213	2.405	12.4	672.6	2.437	13.0	287.4	14.7	480.0
214	2.370	20.1	692.8	2.392	17.8	305.2	19.0	499.0
215	2.430	13.7	706.5	2.401	16.8	322.1	15.3	514.3
216	2.420	9.3	714.8	2.473	9.0	331.1	8.7	522.9
217	2.505	5.5	720.3	2.518	4.1	335.2	4.8	527.7
218	2.495	6.6	725.5	2.545	1.0	336.2	3.8	531.5
219	2.495	6.6	733.5	2.527	3.0	339.2	4.8	536.4
220	2.470	6.4	742.9	2.527	3.0	342.3	6.2	542.6
221	2.480	8.3	751.2	2.527	3.0	345.3	5.7	548.2
222	2.520	2.8	755.0	2.527	3.0	348.4	3.4	551.7
223	2.510	4.9	759.9	2.527	3.0	351.4	4.0	555.7
224	2.485	7.7	767.7	2.518	4.1	355.5	5.9	561.6
225	2.460	10.5	778.1	2.527	3.0	358.5	6.8	568.3
226	2.460	10.5	788.6	2.527	3.0	361.6	6.8	575.1
227	2.455	11.0	795.6	2.527	3.0	364.6	7.0	582.1
228	2.485	7.7	807.3	2.536	2.0	366.6	4.9	587.0
229	2.485	7.7	815.1	2.536	2.0	368.7	4.9	591.9
230	2.470	9.4	824.4	2.518	4.1	372.7	6.7	598.6
231	2.485	7.7	832.2	2.509	5.1	377.8	6.4	605.0
232	2.500	6.1	838.2	2.518	4.1	381.8	5.1	610.0
233	2.505	5.5	843.7	2.536	2.0	383.9	3.8	613.8
234	2.505	5.5	849.2	2.536	2.0	385.9	3.8	617.6
235	2.490	7.2	856.4	2.536	2.0	387.9	4.6	622.2
236	2.490	7.2	862.6	2.536	2.0	390.0	4.6	626.8
237	2.480	8.3	871.9	2.527	3.0	393.0	5.7	632.4
238	2.445	12.1	884.0	2.509	5.1	398.1	8.6	641.0
239	2.450	11.6	895.5	2.446	12.0	410.1	11.8	652.8
240	2.475	8.8	904.4	2.455	11.0	421.1	9.9	662.7
241	2.485	7.7	912.1	2.500	6.1	427.1	6.9	669.6
242	2.475	8.8	920.9	2.545	1.0	428.2	4.9	674.5
243	2.470	14.8	935.7	2.491	7.1	435.2	10.9	685.5
244	2.360	21.2	956.9	2.392	17.8	453.0	19.5	705.0
245	2.425	14.3	971.2	2.401	16.8	469.9	15.6	720.5
246	2.485	7.7	978.9	2.509	5.1	474.9	6.4	726.9
247	2.470	9.4	988.3	2.563	0.0	474.9	4.7	731.6
248	2.460	10.5	998.3	2.536	2.0	477.0	6.3	737.9
249	2.445	12.1	1010.9	2.518	4.1	481.0	8.1	745.9
250	2.435	12.2	1024.1	2.536	2.0	483.0	7.6	752.5
251	2.410	15.9	1035.9	2.482	8.1	491.1	12.0	765.9
252	2.455	13.0	1051.0	2.464	10.0	501.1	10.5	775.0
253	2.465	10.6	1060.9	2.464	10.0	511.2	10.0	786.0
254	2.455	11.0	1071.9	2.446	12.0	523.2	11.5	797.5
255	2.470	14.3	1086.7	2.455	11.0	534.2	12.9	810.4
256	2.450	13.0	1104.7	2.473	9.0	543.2	7.5	824.0
257	2.380	21.2	1125.0	2.401	15.8	560.1	10.0	843.0
258	2.420	13.7	1138.6	2.410	15.9	574.0	13.8	857.0
259	2.410	15.9	1151.1	2.518	4.1	580.0	7.3	865.3
260	2.410	15.9	1161.7	2.545	1.0	581.0	7.3	871.6
261	2.410	15.9	1171.7	2.545	1.0	581.0	7.3	871.6

## K E P P G E N A N A L Y S I S

FOR

THE CLEVELAND CLIFFS IRON COMPANY-WELL X-3

DEPTH	DENSITY LOG			VELOCITY LOG			DENSITY AND VELOCITY	
	RHO-R	GAL/TON	ACCUM. YIELD	RHO-R	GAL/TON	ACCUM. YIELD	GAL/TON	ACCUM. YIELD
262	2.420	14.8	1190.2	2.554	0.0	581.0	7.4	885.6
263	2.410	15.9	1206.1	2.545	1.0	582.1	8.5	894.1
264	2.410	15.9	1222.0	2.518	4.1	586.1	10.0	904.0
265	2.400	17.0	1239.0	2.464	10.0	596.1	13.5	917.5
266	2.410	15.9	1254.8	2.428	13.9	610.1	14.9	932.5
267	2.435	13.2	1268.0	2.473	9.0	619.1	11.1	943.6
268	2.430	13.7	1281.8	2.518	4.1	623.2	8.9	952.5
269	2.440	12.7	1294.4	2.509	5.1	628.2	8.9	961.3
270	2.450	11.6	1306.0	2.518	4.1	632.3	7.8	969.1
271	2.465	9.9	1315.9	2.545	1.0	633.3	5.5	974.6
272	2.435	13.2	1329.1	2.572	0.0	633.3	6.6	981.2
273	2.435	13.2	1342.3	2.563	0.0	633.3	6.6	987.8
274	2.440	12.7	1354.9	2.545	1.0	634.3	6.8	994.6
275	2.450	11.6	1366.5	2.509	5.1	639.4	8.3	1002.9
276	2.445	12.1	1378.6	2.473	9.0	648.4	10.6	1013.5
277	2.440	12.7	1391.3	2.419	14.9	663.4	13.8	1027.3
278	2.410	15.9	1407.1	2.401	16.8	680.2	16.4	1043.7
279	2.420	14.8	1422.0	2.392	17.3	698.0	16.3	1060.0
280	2.425	14.3	1436.2	2.410	15.9	713.9	15.1	1075.1
281	2.430	13.7	1450.0	2.437	13.0	726.9	13.4	1088.4
282	2.425	14.3	1464.2	2.464	10.0	736.9	12.2	1100.6
283	2.420	14.8	1479.0	2.455	11.0	747.9	12.9	1113.5
284	2.380	19.1	1498.1	2.437	13.0	760.9	16.0	1129.5
285	2.370	20.1	1518.3	2.383	18.8	779.7	19.4	1149.0
286	2.360	21.2	1539.4	2.383	18.8	798.4	20.0	1168.9
287	2.340	23.3	1562.7	2.364	20.8	819.2	22.0	1190.9
288	2.275	29.9	1592.7	2.336	23.6	842.8	26.8	1217.7
289	2.295	27.9	1620.6	2.304	27.0	869.8	27.5	1245.2
290	2.315	25.9	1646.4	2.282	29.2	899.0	27.5	1272.7
291	2.335	23.8	1670.2	2.282	29.2	928.2	26.5	1299.2
292	2.380	19.1	1689.3	2.326	24.8	953.0	21.9	1321.1
293	2.415	15.3	1704.7	2.401	16.8	969.8	16.1	1337.2
294	2.440	12.7	1717.3	2.446	12.0	981.8	12.3	1349.6
295	2.450	11.6	1728.9	2.500	6.1	987.9	8.8	1358.4
296	2.440	12.7	1741.5	2.473	9.0	996.9	10.8	1369.2
297	2.420	14.8	1756.3	2.437	13.0	1009.9	13.9	1383.1
298	2.450	11.6	1767.9	2.437	13.0	1022.9	12.3	1395.4
299	2.450	11.6	1779.5	2.491	7.1	1029.9	9.3	1404.7
300	2.415	15.3	1794.8	2.500	6.1	1036.0	10.7	1415.4
301	2.350	22.2	1817.0	2.410	15.9	1051.9	19.1	1434.5
302	2.375	19.6	1830.6	2.315	25.9	1077.8	22.7	1457.2
303	2.445	12.1	1848.8	2.336	23.6	1101.4	17.9	1475.1
304	2.470	9.4	1858.1	2.428	13.9	1115.4	11.7	1486.8
305	2.485	7.7	1865.9	2.473	9.0	1124.4	8.4	1495.1
306	2.475	8.8	1874.7	2.518	4.1	1128.5	6.4	1501.6
307	2.440	12.7	1887.3	2.482	8.1	1136.5	10.4	1511.9
308	2.445	12.1	1899.4	2.446	12.0	1149.5	12.1	1524.0
309	2.465	9.9	1909.4	2.464	10.0	1158.6	10.0	1534.0
310	2.460	12.5	1918.8	2.473	9.0	1167.6	9.8	1543.7
311	2.450	11.6	1931.4	2.477	13.0	1160.6	12.2	1555.9

## ANALYSIS

cop

THE CLEVELAND CLIFFS IRON COMPANY - WELL A-3

DEPTH	DENSITY LOG			VELOCITY LOG			DENSITY AND VELOCITY	
	PHO-P	GAL/TON	ACCUM. YIELD	PHO-P	GAL/TON	ACCUM. YIELD	CAL/TON	ACCUM. YIELD
312	2.460	10.5	1941.8	2.437	13.0	1193.6	11.7	1567.7
313	2.445	12.1	1954.9	2.437	8.1	1201.6	10.1	1577.8
314	2.430	13.7	1967.7	2.431	7.1	1208.7	10.4	1588.2
315	2.375	19.6	1987.3	2.383	18.8	1227.4	19.2	1607.4
316	2.405	16.4	2003.7	2.346	22.7	1250.1	19.5	1626.9
317	2.445	12.1	2015.8	2.428	13.9	1264.0	13.0	1639.9
318	2.445	12.1	2028.0	2.446	12.0	1276.0	12.1	1652.0
319	2.440	12.7	2040.6	2.429	13.9	1290.0	13.3	1665.3
320	2.440	12.7	2053.3	2.437	13.0	1303.0	12.8	1678.1
321	2.435	13.2	2066.4	2.482	8.1	1311.0	10.6	1688.7
322	2.400	17.0	2083.4	2.437	13.0	1324.0	15.0	1703.7
323	2.360	21.2	2104.6	2.373	19.8	1343.8	20.5	1724.2
324	2.430	13.7	2118.3	2.473	9.0	1352.9	11.4	1735.6
325	2.450	11.6	2129.9	2.500	6.1	1358.9	8.8	1744.4
326	2.420	14.8	2144.7	2.519	4.1	1363.0	9.4	1753.8
327	2.400	17.0	2161.6	2.545	1.0	1364.0	9.0	1762.8
328	2.370	20.1	2181.8	2.536	2.0	1366.0	11.1	1773.9
329	2.310	26.4	2208.2	2.482	8.1	1374.1	17.2	1791.1
330	2.350	22.2	2230.4	2.364	20.8	1394.8	21.5	1812.6
331	2.400	17.0	2247.3	2.437	13.0	1407.8	15.0	1827.6
332	2.410	15.9	2263.2	2.401	16.8	1424.7	16.4	1843.9
333	2.385	13.5	2281.8	2.373	19.8	1444.5	19.2	1863.1
334	2.355	21.7	2303.5	2.326	24.8	1469.3	23.2	1886.4
335	2.300	27.4	2330.9	2.293	28.1	1497.3	27.7	1914.1
336	2.300	27.4	2358.3	2.326	24.8	1522.1	26.1	1940.2
337	2.440	12.7	2370.9	2.437	13.0	1535.1	12.8	1953.0
338	2.475	8.8	2379.8	2.527	3.0	1538.1	5.9	1958.9
339	2.475	8.8	2388.6	2.545	1.0	1539.2	4.9	1963.9
340	2.475	8.8	2397.4	2.536	2.0	1541.2	5.4	1969.3
341	2.475	8.8	2406.2	2.527	3.0	1544.2	5.9	1975.2
342	2.455	11.0	2417.3	2.518	4.1	1548.3	7.5	1982.8
343	2.415	15.3	2432.6	2.509	5.1	1553.3	10.2	1993.0
344	2.420	14.8	2447.4	2.509	5.1	1558.4	9.9	2002.9
345	2.435	13.2	2460.6	2.519	4.1	1562.5	8.6	2011.5
346	2.420	14.8	2475.4	2.545	1.0	1563.5	7.9	2019.4
347	2.395	17.5	2492.9	2.519	4.1	1567.5	10.8	2030.2
348	2.350	22.2	2515.1	2.446	12.0	1579.5	17.1	2047.7
349	2.285	28.9	2544.1	2.346	22.7	1602.2	25.8	2073.1
350	2.390	18.0	2562.1	2.373	19.9	1622.0	18.9	2092.0
351	2.400	10.5	2572.6	2.446	12.0	1634.0	11.2	2103.3
352	2.490	7.2	2575.7	2.509	5.1	1639.1	6.1	2109.4
353	2.460	10.5	2590.2	2.509	5.1	1644.1	7.8	2117.2
354	2.420	14.8	2605.0	2.509	5.1	1649.2	9.9	2127.1
355	2.355	21.7	2626.7	2.455	11.0	1660.2	16.4	2143.9
356	2.405	16.4	2643.1	2.473	9.0	1669.2	12.7	2156.2
357	2.450	11.6	2654.7	2.545	1.0	1670.3	6.3	2162.3
358	2.450	11.6	2664.3	2.563	0.0	1670.3	5.8	2168.1
359	2.420	14.8	2681.1	2.545	1.0	1671.3	7.9	2177.0
360	2.355	21.7	2700.4	2.518	4.1	1675.3	11.3	2187.7
361	2.355	21.7	2717.7	2.491	7.1	1692.4	12.3	2200.0

# PERFORATION ANALYSIS

FOR

THE CLEVELAND CLIFFS IRON COMPANY-WELL A-3

DEPTH	DENSITY LOG			VELOCITY LOG			DENSITY AND VELOCITY	
	RHO-B	GAL/TON	ACCUM. YIELD	RHO-B	GAL/TON	ACCUM. YIELD	GAL/TON	ACCUM. YIELD
362	2.420	14.8	2734.1	2.509	5.1	1687.4	9.9	2210.7
363	2.455	11.0	2745.1	2.527	3.0	1690.5	7.0	2217.8
364	2.435	7.7	2752.8	2.563	0.0	1690.5	3.9	2221.6
365	2.490	7.2	2760.0	2.572	0.0	1690.5	3.6	2225.2
366	2.495	7.7	2767.7	2.572	0.0	1690.5	3.9	2229.1
367	2.460	10.5	2778.2	2.572	0.0	1690.5	5.2	2234.3
368	2.435	13.2	2791.4	2.554	0.0	1690.5	6.6	2240.9
369	2.385	18.5	2809.9	2.500	6.1	1695.5	12.3	2253.2
370	2.385	18.5	2828.5	2.500	6.1	1702.6	12.3	2265.5
371	2.450	11.6	2840.0	2.526	2.0	1704.6	6.8	2272.3
372	2.450	11.6	2851.6	2.554	0.0	1704.6	5.8	2278.1
373	2.470	9.4	2861.0	2.563	0.0	1704.6	4.7	2282.8
374	2.480	8.3	2869.2	2.563	0.0	1704.6	4.1	2286.9
375	2.475	8.8	2878.1	2.554	0.0	1704.6	4.4	2291.3
376	2.470	8.4	2887.4	2.554	0.0	1704.6	4.7	2296.0
377	2.465	9.9	2897.4	2.563	0.0	1704.6	5.0	2301.0
378	2.460	10.5	2907.8	2.563	0.0	1704.6	5.2	2306.2
379	2.450	11.6	2919.4	2.563	0.0	1704.6	5.8	2312.0
380	2.460	10.5	2929.9	2.563	0.0	1704.6	5.2	2317.3
381	2.465	9.9	2939.8	2.536	2.0	1706.7	6.0	2323.2
382	2.440	12.7	2952.4	2.527	3.0	1709.7	7.8	2331.1
383	2.455	11.0	2963.5	2.545	1.0	1710.7	6.0	2337.1
384	2.435	13.2	2976.7	2.509	5.1	1715.8	9.1	2346.2
385	2.415	15.3	2992.0	2.500	6.1	1721.9	10.7	2356.9
386	2.440	12.7	3004.7	2.518	4.1	1725.9	8.4	2365.3
387	2.435	7.7	3012.4	2.554	0.0	1725.9	3.9	2369.1
388	2.500	6.1	3018.4	2.563	0.0	1725.9	3.0	2372.2
389	2.495	6.6	3025.1	2.563	0.0	1725.9	3.3	2375.5
390	2.470	9.4	3034.4	2.527	3.0	1729.0	6.2	2381.7
391	2.425	14.3	3048.7	2.491	7.1	1736.0	10.7	2392.4
392	2.455	11.0	3059.7	2.491	7.1	1743.1	9.0	2401.4
393	2.480	8.3	3068.0	2.518	4.1	1747.1	6.2	2407.6
394	2.490	7.2	3075.2	2.554	0.0	1747.1	3.6	2411.1
395	2.455	11.0	3086.2	2.563	0.0	1747.1	5.5	2416.7
396	2.400	17.0	3103.1	2.545	1.0	1748.1	9.0	2425.6
397	2.325	24.8	3128.0	2.509	5.1	1753.2	14.9	2440.6
398	2.325	24.8	3152.8	2.500	6.1	1759.3	15.4	2456.0
399	2.385	18.5	3171.4	2.536	2.0	1761.3	10.3	2466.3
400	2.440	12.7	3184.0	2.536	2.0	1763.3	7.3	2473.7
401	2.430	13.7	3197.7	2.563	0.0	1763.3	6.9	2480.5
402	2.460	17.0	3214.7	2.545	1.0	1764.3	9.0	2489.5
403	2.395	17.5	3232.2	2.509	5.1	1769.4	11.3	2500.0
404	2.405	17.5	3245.5	2.482	8.1	1777.5	12.2	2513.0
405	2.400	17.0	3245.6	2.464	10.0	1787.5	13.5	2526.5
406	2.430	13.7	3270.3	2.464	10.0	1797.5	11.9	2533.4
407	2.475	9.9	3290.2	2.464	10.0	1807.6	10.0	2543.4
408	2.475	9.9	3297.6	2.491	7.1	1814.6	7.7	2551.1
409	2.475	9.9	3307.6	2.572	0.0	1814.6	5.0	2556.1
410	2.475	9.9	3317.6	2.536	2.0	1814.6	7.8	2563.9
411	2.475	9.9	3327.6	2.518	4.1	1820.7	7.8	2571.7

# REPORT ANALYSIS

FOR

THE CLEVELAND CLIFFS IRON COMPANY-WELL X-3

DEPTH	DENSITY LOG			VELOCITY LOG			DENSITY AND VELOCITY	
	RHO-B	GAL/TON	ACCUM. YIELD	RHO-B	GAL/TON	ACCUM. YIELD	GAL/TON	ACCUM. YIELD
412	2.470	9.4	3339.4	2.509	5.1	1825.8	7.2	2582.6
413	2.490	7.2	3346.5	2.518	4.1	1829.9	5.6	2588.2
414	2.470	9.4	3355.9	2.536	2.0	1831.9	5.7	2593.9
415	2.455	11.0	3366.9	2.545	1.0	1832.9	6.0	2599.9
416	2.445	12.1	3379.0	2.518	4.1	1836.9	8.1	2608.0
417	2.420	14.8	3393.9	2.491	7.1	1844.0	10.9	2618.9
418	2.390	18.0	3411.9	2.491	7.1	1851.0	12.5	2631.5
419	2.415	15.3	3427.2	2.518	4.1	1855.1	9.7	2641.2
420	2.400	17.0	3444.2	2.536	2.0	1857.1	9.5	2650.7
421	2.345	22.8	3466.9	2.518	4.1	1861.2	13.4	2664.1
422	2.265	31.0	3497.9	2.428	13.9	1875.1	22.5	2686.5
423	2.285	28.9	3526.8	2.373	19.8	1895.0	24.4	2710.9
424	2.385	18.5	3545.4	2.401	16.8	1911.8	17.7	2728.6
425	2.400	17.0	3562.3	2.491	7.1	1918.9	12.0	2740.6
426	2.395	17.5	3579.8	2.482	8.1	1926.9	12.8	2753.4
427	2.380	19.1	3598.9	2.482	8.1	1935.0	13.6	2766.9
428	2.355	21.7	3620.6	2.464	10.0	1945.0	15.9	2782.8
429	2.305	26.9	3647.5	2.392	17.8	1962.8	22.3	2805.1
430	2.290	28.4	3675.9	2.336	23.6	1986.5	26.0	2831.2
431	2.350	22.2	3698.1	2.383	18.8	2005.2	20.5	2851.7
432	2.340	23.3	3721.4	2.473	9.0	2014.3	16.2	2867.8
433	2.280	29.4	3750.8	2.326	24.8	2039.0	27.1	2894.9
434	2.360	21.2	3772.0	2.336	23.6	2062.7	22.4	2917.4
435	2.425	14.3	3786.3	2.455	11.0	2073.7	12.6	2930.0
436	2.405	16.4	3802.7	2.581	0.0	2073.7	9.2	2938.2
437	2.405	16.4	3819.1	2.536	2.0	2075.7	9.2	2947.4
438	2.415	15.3	3834.5	2.509	5.1	2080.8	10.2	2957.6
439	2.430	13.7	3848.2	2.500	6.1	2086.9	9.9	2967.5
440	2.420	14.8	3863.0	2.518	4.1	2090.9	9.4	2977.0
441	2.475	8.8	3871.9	2.554	0.0	2090.9	4.4	2981.4
442	2.485	7.7	3879.6	2.572	0.0	2090.9	3.9	2985.2
443	2.465	9.9	3889.5	2.536	2.0	2092.9	6.0	2991.2
444	2.455	11.0	3900.5	2.500	6.1	2099.0	8.5	2999.8
445	2.430	13.7	3914.3	2.500	6.1	2105.1	9.9	3009.7
446	2.395	17.5	3931.7	2.500	6.1	2111.1	11.8	3021.4
447	2.355	21.7	3953.5	2.491	7.1	2118.2	14.4	3035.8
448	2.320	25.3	3978.8	2.410	15.9	2134.1	20.6	3056.4
449	2.240	33.5	4012.3	2.315	25.9	2160.0	29.7	3086.1
450	2.300	27.4	4039.7	2.272	30.3	2190.2	28.8	3115.0
451	2.325	24.8	4064.5	2.373	19.8	2210.1	22.3	3137.3
452	2.345	22.8	4087.2	2.437	13.0	2223.0	17.9	3155.1
453	2.315	25.9	4113.1	2.482	8.1	2231.1	17.0	3172.1
454	2.240	33.5	4146.6	2.429	13.9	2245.0	23.7	3195.8
455	2.190	38.4	4184.9	2.373	19.8	2264.9	29.1	3224.9
456	2.185	38.9	4223.8	2.336	23.6	2288.5	31.3	3256.2
457	2.200	37.4	4261.2	2.272	30.3	2318.9	33.8	3290.0
458	2.145	42.7	4303.9	2.167	40.6	2359.4	41.7	3331.7
459	2.120	45.1	4349.0	2.077	49.1	2408.5	47.1	3378.8
460	2.275	20.2	4378.9	2.179	39.4	2447.0	34.7	3412.4
461	2.315	20.7	4422.4	2.263	29.1	2476.0	24.4	3437.7

## K E R O G E N   A N A L Y S I S

F O R

THE CLEVELAND CLIFFS IRON COMPANY-WELL X-3

DEPTH	DENSITY LOG			VELOCITY LOG			DENSITY AND VELOCITY	
	RHO-B	GAL/TON	ACCUM. YIELD	RHO-B	GAL/TON	ACCUM. YIELD	GAL/TON	ACCUM. YIELD
412	2.470	9.4	3339.4	2.509	5.1	1825.8	7.2	2582.6
413	2.490	7.2	3346.5	2.518	4.1	1829.8	5.6	2588.2
414	2.470	9.4	3355.9	2.536	2.0	1831.9	5.7	2593.9
415	2.455	11.0	3366.9	2.545	1.0	1832.9	6.0	2599.9
416	2.445	12.1	3379.0	2.518	4.1	1836.9	8.1	2608.0
417	2.420	14.8	3393.9	2.491	7.1	1844.0	10.9	2618.9
418	2.390	18.0	3411.9	2.491	7.1	1851.0	12.5	2631.5
419	2.415	15.3	3427.2	2.518	4.1	1855.1	9.7	2641.2
420	2.400	17.0	3444.2	2.536	2.0	1857.1	9.5	2650.7
421	2.345	22.8	3466.9	2.518	4.1	1861.2	13.4	2664.1
422	2.265	31.0	3497.9	2.428	13.9	1875.1	22.5	2686.5
423	2.285	28.9	3526.8	2.373	19.8	1895.0	24.4	2710.9
424	2.385	18.5	3545.4	2.401	16.8	1911.8	17.7	2728.6
425	2.400	17.0	3562.3	2.491	7.1	1918.9	12.0	2740.6
426	2.395	17.5	3579.8	2.482	8.1	1926.9	12.8	2753.4
427	2.380	19.1	3598.9	2.482	8.1	1935.0	13.6	2766.9
428	2.355	21.7	3620.6	2.464	10.0	1945.0	15.9	2782.8
429	2.305	26.9	3647.5	2.392	17.8	1962.8	22.3	2805.1
430	2.290	28.4	3675.9	2.336	23.6	1986.5	26.0	2831.2
431	2.350	22.2	3698.1	2.383	18.8	2005.2	20.5	2851.7
432	2.340	23.3	3721.4	2.473	9.0	2014.3	16.2	2867.8
433	2.280	29.4	3750.8	2.326	24.8	2039.0	27.1	2894.9
434	2.360	21.2	3772.0	2.336	23.6	2062.7	22.4	2917.4
435	2.425	14.3	3786.3	2.455	11.0	2073.7	12.6	2930.0
436	2.405	16.4	3802.7	2.581	0.0	2073.7	8.2	2938.2
437	2.405	16.4	3819.1	2.536	2.0	2075.7	9.2	2947.4
438	2.415	15.3	3834.5	2.509	5.1	2080.8	10.2	2957.6
439	2.430	13.7	3848.2	2.500	6.1	2086.9	9.9	2967.5
440	2.420	14.8	3863.0	2.518	4.1	2090.9	9.4	2977.0
441	2.475	8.8	3871.9	2.554	0.0	2090.9	4.4	2981.4
442	2.485	7.7	3879.6	2.572	0.0	2090.9	3.9	2985.2
443	2.465	9.9	3889.5	2.536	2.0	2092.9	6.0	2991.2
444	2.455	11.0	3900.5	2.500	6.1	2099.0	8.5	2999.8
445	2.430	13.7	3914.3	2.500	6.1	2105.1	9.9	3009.7
446	2.395	17.5	3931.7	2.500	6.1	2111.1	11.8	3021.4
447	2.355	21.7	3953.5	2.491	7.1	2118.2	14.4	3035.8
448	2.320	25.3	3978.8	2.410	15.9	2134.1	20.6	3056.4
449	2.240	33.5	4012.3	2.315	25.9	2160.0	29.7	3086.1
450	2.300	27.4	4039.7	2.272	30.3	2190.2	28.8	3115.0
451	2.325	24.8	4064.5	2.373	19.8	2210.1	22.3	3137.3
452	2.345	22.8	4087.2	2.437	13.0	2223.0	17.9	3155.1
453	2.315	25.9	4113.1	2.482	8.1	2231.1	17.0	3172.1
454	2.240	33.5	4146.6	2.428	13.9	2245.0	23.7	3195.8
455	2.190	38.4	4184.9	2.373	19.8	2264.9	24.1	3224.9
456	2.185	38.9	4223.8	2.336	23.6	2288.5	31.3	3256.2
457	2.200	37.4	4261.2	2.272	30.3	2318.8	33.8	3290.0
458	2.145	42.7	4303.9	2.167	40.6	2359.4	41.7	3331.7
459	2.120	45.1	4349.0	2.077	49.1	2403.5	47.1	3378.8
460	2.275	22.2	4373.5	2.179	38.4	2447.9	34.7	3417.4
461	2.315	22.2	4399.5	2.293	29.1	2476.0	24.4	3437.5

# ANALYSIS

TOP

THE CLEVELAND CLIFFS IRON COMPANY-WELL A-3

DEPTH	DENSITY LOG			VELOCITY LOG			DENSITY AND VELOCITY	
	RHO-R	GAL/TON	ACCUM. YIELD	RHO-R	GAL/TON	ACCUM. YIELD	GAL/TON	ACCUM. YIELD
462	2.380	19.1	4418.7	2.392	17.8	2493.9	18.4	3456.2
463	2.400	17.0	4435.6	2.446	12.0	2505.8	14.5	3470.7
464	2.385	18.5	4454.2	2.428	13.9	2519.8	16.2	3487.0
465	2.395	17.5	4471.7	2.383	18.8	2538.6	18.1	3505.1
466	2.400	17.0	4488.6	2.392	17.8	2556.4	17.4	3522.5
467	2.365	20.7	4509.3	2.455	11.0	2567.4	15.8	3538.3
468	2.335	23.8	4533.1	2.500	6.1	2573.4	14.9	3553.3
469	2.350	22.2	4555.3	2.518	4.1	2577.5	13.1	3566.4
470	2.345	22.8	4578.1	2.527	3.0	2580.5	12.9	3579.3
471	2.285	28.9	4607.0	2.527	3.0	2583.6	16.0	3595.3
472	2.180	39.4	4646.3	2.401	16.8	2600.4	28.1	3623.4
473	2.140	43.2	4689.5	2.239	33.5	2634.0	38.4	3661.8
474	2.220	35.4	4725.0	2.239	33.5	2667.5	34.5	3696.2
475	2.275	29.9	4754.9	2.304	27.0	2694.5	28.5	3724.7
476	2.230	34.4	4789.4	2.326	24.8	2719.3	29.6	3754.3
477	2.125	44.6	4834.0	2.315	25.9	2745.1	35.2	3789.6
478	2.045	52.0	4886.0	2.272	30.3	2775.4	41.2	3830.7
479	2.005	55.6	4941.6	2.239	33.5	2809.0	44.6	3875.3
480	1.875	66.8	5008.5	2.116	45.4	2854.4	56.1	3931.4
481	1.805	72.6	5081.0	1.962	59.5	2913.9	66.0	3997.5
482	1.755	76.5	5157.6	1.747	77.1	2991.0	76.8	4074.3
483	1.715	79.6	5237.2	1.626	86.3	3077.2	82.9	4157.2
484	1.790	73.8	5310.9	1.884	66.1	3143.3	69.9	4227.1
485	1.955	60.0	5371.0	2.019	54.4	3197.7	57.2	4284.3
486	1.985	57.4	5428.4	2.167	40.6	3238.3	49.0	4333.4
487	2.010	55.2	5483.5	2.261	31.4	3269.7	43.3	4376.6
488	2.210	36.4	5520.0	2.373	19.8	3289.5	28.1	4404.8
489	2.310	26.4	5546.3	2.392	17.8	3307.3	22.1	4426.8
490	2.280	29.4	5575.8	2.315	25.9	3333.2	27.7	4454.5
491	2.195	37.9	5613.7	2.326	24.8	3358.0	31.3	4485.8
492	2.285	28.9	5642.6	2.401	16.8	3374.8	22.9	4508.7
493	2.295	27.9	5670.5	2.455	11.0	3385.8	19.5	4528.2
494	2.155	41.8	5712.3	2.373	19.8	3405.7	30.8	4559.0
495	2.010	55.2	5767.4	2.205	37.0	3442.6	46.1	4605.0
496	2.020	54.3	5821.7	2.005	55.6	3498.3	55.0	4660.0
497	2.090	47.9	5869.6	2.090	47.9	3546.2	47.9	4707.9
498	2.135	43.7	5913.3	2.250	32.5	3578.6	38.1	4745.9
499	2.260	31.5	5944.7	2.336	23.6	3602.3	27.6	4773.5
500	2.250	32.5	5977.2	2.304	27.0	3629.3	29.7	4803.2
501	2.220	34.4	6011.6	2.250	32.5	3661.7	33.5	4836.7
502	2.315	25.0	6037.5	2.239	33.5	3695.3	29.7	4867.4
503	2.340	23.3	6060.8	2.392	17.8	3713.1	20.5	4884.9
504	2.315	25.9	6086.6	2.401	16.8	3729.9	21.4	4908.2
505	2.285	28.9	6115.6	2.373	19.8	3749.7	24.4	4932.6
506	2.230	34.4	6150.0	2.336	23.6	3773.4	29.0	4961.7
507	2.305	24.9	6176.9	2.304	27.0	3800.4	26.9	4988.5
508	2.365	20.7	6217.1	2.355	21.7	3822.1	21.2	5009.7
509	2.385	18.5	6257.6	2.401	16.8	3838.9	17.7	5027.7
510	2.300	32.5	6293.6	2.455	11.0	3850.0	19.2	5042.7
511	2.250	34.4	6329.6	2.446	12.0	3842.0	19.2	5054.7



## K E R O G E N   A N A L Y S I S

F O R

THE CLEVELAND CLIFFS IRON COMPANY-WELL X-3

DEPTH	DENSITY LOG			VELOCITY LOG			DENSITY AND VELOCITY	
	RHO-P	GAL/TON	ACCUM. YIELD	RHO-B	GAL/TON	ACCUM. YIELD	GAL/TON	ACCUM. YIELD
512	2.175	39.8	6315.8	2.315	25.9	3887.8	32.9	5101.8
513	2.175	39.8	6355.6	2.205	37.0	3924.8	38.4	5140.2
514	2.230	34.4	6390.1	2.179	39.4	3964.2	36.9	5177.1
515	2.255	32.0	6422.0	2.326	24.8	3989.0	28.4	5205.5
516	2.250	32.5	6454.5	2.364	20.8	4009.7	26.6	5232.1
517	2.245	33.0	6487.4	2.355	21.7	4031.4	27.3	5259.4
518	2.265	31.0	6518.4	2.250	32.5	4063.9	31.7	5291.1
519	2.355	21.7	6540.1	2.304	27.0	4090.9	24.4	5315.5
520	2.365	20.7	6560.8	2.355	21.7	4112.6	21.2	5336.6
521	2.375	19.6	6580.4	2.410	15.9	4128.5	17.7	5354.4
522	2.370	20.1	6600.5	2.446	12.0	4140.5	16.1	5370.4
523	2.350	22.2	6622.7	2.428	13.9	4154.4	18.1	5388.5
524	2.325	24.8	6647.6	2.410	15.9	4170.3	20.4	5408.9
525	2.375	19.6	6667.2	2.419	14.9	4185.2	17.3	5426.2
526	2.405	16.4	6683.6	2.482	8.1	4193.3	12.2	5438.4
527	2.385	18.5	6702.1	2.518	4.1	4197.3	11.3	5449.7
528	2.390	18.0	6720.1	2.509	5.1	4202.4	11.5	5461.2
529	2.395	17.5	6737.6	2.536	2.0	4204.4	9.8	5471.0
530	2.380	19.1	6756.7	2.527	3.0	4207.5	11.1	5482.0
531	2.355	21.7	6778.4	2.464	10.0	4217.5	15.9	5497.9
532	2.360	21.2	6799.6	2.500	6.1	4223.6	13.6	5511.5
533	2.315	25.5	6825.5	2.563	0.0	4223.6	12.9	5524.5
534	2.250	32.5	6857.9	2.500	6.1	4229.6	19.3	5543.7
535	2.340	23.3	6881.2	2.383	18.8	4248.4	21.0	5564.7
536	2.320	25.3	6906.5	2.401	16.8	4265.2	21.1	5585.8
537	2.280	29.4	6936.0	2.491	7.1	4272.3	18.2	5604.1
538	2.215	35.9	6971.9	2.428	13.9	4286.2	24.9	5629.0
539	2.190	38.4	7010.3	2.336	23.6	4309.9	31.0	5660.0
540	2.380	19.1	7029.4	2.272	30.3	4340.1	24.7	5684.7
541	2.405	16.4	7045.8	2.428	13.9	4354.1	15.2	5699.9
542	2.375	19.6	7065.4	2.500	6.1	4360.1	12.8	5712.7
543	2.350	22.2	7087.6	2.518	4.1	4364.1	13.1	5725.9
544	2.320	25.3	7112.9	2.518	4.1	4368.1	14.7	5740.6
545	2.265	31.0	7143.9	2.464	10.0	4378.1	20.5	5761.1
546	2.205	36.9	7180.8	2.419	14.9	4393.1	25.9	5787.0
547	2.240	32.5	7214.3	2.419	14.9	4408.1	24.2	5811.2
548	2.295	27.9	7242.2	2.509	5.1	4413.1	16.5	5827.6
549	2.380	19.1	7251.3	2.509	5.1	4418.1	12.1	5839.7
550	2.425	14.3	7275.5	2.464	10.0	4428.1	12.2	5851.9
551	2.460	10.5	7286.0	2.482	8.1	4436.1	9.3	5861.1
552	2.460	10.5	7296.5	2.527	3.0	4439.4	6.8	5867.5
553	2.455	11.0	7307.5	2.527	3.0	4442.4	7.0	5874.9
554	2.470	9.4	7316.9	2.545	1.0	4443.4	5.2	5880.1
555	2.470	9.4	7326.2	2.526	2.0	4445.5	5.7	5885.5
556	2.465	9.6	7336.1	2.518	4.1	4449.5	7.0	5892.8
557	2.425	13.2	7349.3	2.491	7.1	4456.6	10.1	5907.0
558	2.420	17.0	7367.3	2.491	7.1	4462.6	12.0	5914.0
559	2.405	16.4	7382.7	2.491	7.1	4470.7	11.7	5926.7
560	2.475	10.1	7400.2	2.509	5.1	4475.7	12.2	5939.0
561	2.475	10.1	7400.2	2.507	5.0	4475.2	11.9	5950.0

CCP

THE CLEVELAND CLIFFS IRON COMPANY-RELL X-2

DEPTH	DENSITY LOG			VELOCITY LOG			DENSITY AND VELOCITY	
	RHO-F	GAL/TON	ACCUM. YIELD	PHC-R	GAL/TON	ACCUM. YIELD	GAL/TON	ACCUM. YIELD
562	2.380	19.1	7442.1	2.518	4.1	4482.8	11.6	5962.4
563	2.370	20.1	7462.2	2.518	4.1	4486.9	12.1	5974.5
564	2.365	20.7	7482.8	2.500	6.1	4492.9	13.4	5987.9
565	2.365	20.7	7503.5	2.491	7.1	4500.0	13.9	6001.7
566	2.375	19.6	7523.1	2.491	7.1	4507.1	13.3	6015.1
567	2.370	20.1	7543.2	2.500	6.1	4513.1	13.1	6028.2
568	2.375	19.6	7562.9	2.509	5.1	4518.2	12.3	6040.5
569	2.395	17.5	7580.3	2.527	3.0	4521.2	10.3	6050.8
570	2.380	19.1	7599.4	2.527	3.0	4524.3	11.1	6061.8
571	2.390	18.0	7617.4	2.527	3.0	4527.3	10.5	6072.3
572	2.390	18.0	7635.4	2.536	2.0	4529.3	10.0	6082.4
573	2.410	15.9	7651.3	2.536	2.0	4531.4	9.0	6091.3
574	2.420	14.8	7666.1	2.536	2.0	4533.4	8.4	6099.7
575	2.455	11.0	7677.2	2.545	1.0	4534.4	6.0	6105.9
576	2.465	9.9	7687.1	2.545	1.0	4535.4	5.5	6111.2
577	2.455	11.0	7698.1	2.554	0.0	4535.4	5.5	6116.7
578	2.455	11.0	7709.1	2.563	0.0	4535.4	5.5	6122.2